WARRIOR ™

CHEMICAL, BIOLOGICAL, RADIOLOGICAL, AND NUCLEAR (CBRN) SELF-CONTAINED BREATHING APPARATUS (SCBA)

30 MINUTE LP CBRN SERIES
30/45/60 MINUTE HP CBRN SERIES
OPERATION MANUAL

SPERIAN

⚠ WARNING

DO NOT USE this SCBA until you completely read and understand this instruction manual. You are required to inspect your SCBA prior to putting it into field service. Please refer to the inspection procedures in this manual. DO NOT USE this SCBA unless you are properly trained and this SCBA has been properly maintained. Failure to comply with this warning may lead to personal injury, illness, or death.

AN ISO 9001 REGISTERED COMPANY

P/N 999730 REV B 05/08 C:\WARRIOR\WarriorOps

SPERIAN RESPIRATORY PROTECTION USA, LLC
3001 South Susan St.
Santa Ana, CA 92704
TOLL FREE: 888.APR.SCBA
FAX: 800.201.4407

SPERIAN

WARRIOR ™ Operation Manual

NOTE

This section must be read in conjunction with the NIOSH approval label in this user's manual. Failure to observe these cautions and limitations voids NIOSH approval.

CAUTIONS AND LIMITATIONS

I - Contains electrical parts that may be an ignition source in flammable or explosive atmospheres.

J - Failure to properly use and maintain this product could result in injury or death.

M - All approved respirators shall be selected, fitted, used, and maintained in accordance with MSHA, OSHA, and other applicable regulations.

N - Never substitute, modify, add, or omit parts. Use only exact replacement parts in the configuration specified by the manufacturer.

O - Refer to user's instructions, and/or maintenance manuals for information on use and maintenance of these respirators.

S - Special or critical user's instructions and/or specific use limitations apply. Refer to user's instructions before donning.

Q - Use in conjunction with personal protective ensembles that provide appropriate levels of protection against dermal hazards.

R - Some CBRN agents may not present immediate effects from exposure, but can result in delayed impairment, illness, or death.

T - Direct contact with CBRN agents requires proper handling of the SCBA after each use and between multiple entries during the same use. Decontamination and disposal procedures must be followed. If contaminated with liquid chemical warfare agents, dispose of the SCBA after decontamination.

U - The respirator should not be used beyond 6 hours after initial exposure to chemical warfare agents to avoid possibility of agent permeation.

S - SPECIAL OR CRITICAL USER'S INSTRUCTIONS

1. This respirator is approved for use above -25°F (-31.7°C). When using the 2420XX series facepiece in temperatures of 0°F and lower, use anti-fog solution, P/N 951015, 951016, 981806, or 981808.
2. Use with adequate skin protection when worn in gases or vapors that poison by skin absorption (for example, hydrocyanic acid gas).
3. Approved only when compressed air container is fully charged with air meeting the requirements of the Compressed Gas Association, G-7.1 for Type 1, Grade D air or equivalent specifications, and having a moisture content, expressed as dewpoint, of -65°F or lower. The container shall be marked "Fill With Compressed Air Only" and shall meet applicable DOT specifications.
4. Never substitute, modify, add, or omit parts. Use only exact replacement parts on the configuration specified by Sperian.
5. DEATH OR SERIOUS INJURY may result if instructions are not carefully followed.
6. READ AND UNDERSTAND all instructions, limitations, and other warnings found on the apparatus and in the operation manual.

WARRANTY AND LIMITATION OF LIABILITY

LIMITED WARRANTY:

Sperian Respiratory Protection USA, LLC warrants this product to be free from defects in materials and workmanship for 12 years from the date of purchase, with the exception of the compressed air cylinder, which is warranted for 15 years; and the first stage regulator, which is warranted for the life of the product. The Heads up Display (HUD) electronics are warranted for 2 years. During these periods, Sperian Respiratory Protection USA, LLC will repair or replace defective parts, at Sperian Respiratory Protection USA, LLC's option.

Freight charges to and from the Sperian factory shall be paid by the purchaser.

EXCLUSIONS:

NOT WITHSTANDING ANY CONTRARY TERM IN THE PURCHASER'S PURCHASE ORDER OR OTHERWISE, THE ONLY WARRANTY EXTENDED BY SPERIAN RESPIRATORY PROTECTION USA, LLC, IS THE EXPRESSED LIMITED WARRANTY DEFINED ABOVE. THIS WARRANTY IS EXCLUSIVE AND IN LIEU OF ANY IMPLIED WARRANTY OF MERCHANTABILITY, OR FITNESS FOR A PARTICULAR PURPOSE.

CONDITIONS:

To maintain this warranty this product must be used, maintained, and inspected as prescribed in the owner's instruction manual, including prompt replacement or repair of defective parts, mandatory flow tests and overhauls, and such other necessary maintenance and repair as may be required. Normal wear and tear; parts damaged by abuse, misuse, negligence, or accidents; batteries; and installed accessories which have separate warranties are specifically excluded from this warranty. Exposure to materials that damage or render this product unusable, such as CBRN agents, will void this warranty.

LIMITATION OF LIABILITY:

No other oral warranties, representations, or guarantees of any kind have been made by Sperian, its distributors, or the agents of either of them, that in any way alter the terms of this warranty. EXCEPT AS HEREIN PROVIDED, SPERIAN RESPIRATORY PROTECTION USA, LLC, SHALL HAVE NO LIABILITY FOR ANY LOSS OR DAMAGE, WHETHER DIRECT, INDIRECT, INCIDENTAL, OR CONSEQUENTIAL, TO ANY PURCHASER OR USER OF THIS PRODUCT ARISING FROM THE SALE, USE, OR OPERATION OF THIS PRODUCT.

⚠ *WARNING*

The failure to use and maintain this equipment in strict conformance with the applicable instruction manual may result in personal injury, illness, or death. The equipment's use in any manner that is not expressly authorized pursuant to the applicable instruction manual may result in severe adverse impacts to human health.

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WARRIOR ™ Operation Manual

I. INTRODUCTION:

This manual provides operating instructions as well as cleaning, maintenance, and storage procedures for the Sperian **WARRIOR** high and low pressure SCBA. ***You must read and understand these instructions and be properly trained before using the SCBA in a hazardous atmosphere.***

NOTE

The NIOSH CBRN Approved Cautions and Limitations are located on page ii and page 40 of this manual, and must remain permanently affixed. If the NIOSH CBRN Approved Cautions and Limitations are not present, contact your local Sperian representative or safety officer for a replacement manual.

All Sperian-certified technicians are required to remain current on new procedures and parts through Sperian's published Technical Bulletins, technical manual revisions, and certification classes.

II. SAFETY PRECAUTIONS:

The Warnings, Cautions, and Notes contained in this manual have the following significance:

⚠ WARNING

Maintenance or operating procedures and techniques that may result in personal injury, illness, or death if not carefully followed.

CAUTION

Maintenance or operating procedures and techniques that may result in damage to equipment if not carefully followed.

NOTE

Maintenance or operating procedures and techniques or information considered important enough to emphasize.

⚠ WARNING

- **The user is responsible for establishing that this equipment is suitable for the user's application.**

- **For respiratory protection, this SCBA must be worn and used as specified in Sperian's instructions. No protective equipment can provide complete protection from all conditions. Use extreme care for all emergency operations. Do not use the WARRIOR SCBA alone for any fire fighting, hazardous material operation, or CBRN response operations; additional protective clothing and equipment are required for protection. Always use in conjunction with personal protective ensembles that provide appropriate levels of protection against dermal hazard. This SCBA may cease to provide protection if used during excessive heat or flashover conditions harsher than those in which it has been tested. Users must clean and maintain this SCBA only in accordance with Sperian's instructions. Accessories or replacement components not certified for use with this SCBA may degrade performance or make this SCBA unsafe, or void NIOSH certification, and must not be used without Sperian's written consent. The user must read, understand, and follow the accessory installation and operation instructions before using this SCBA in a hazardous environment. Only Sperian components shall be used with this SCBA. Failure to comply shall void the warranty and NIOSH approval.**

- **Your Sperian respirator has been constructed of materials selected after careful consideration for their performance, safety, and durability. However, all materials have exposure limitations to flame, extremes of heat and cold, or to the many chemicals in use today. No materials exist that can be used safely in all of these environments.**

⚠ WARNING - Continued

- Exposure to atmospheres containing CBRN agents may cause the SCBA to be exposed to excessive CBRN agent levels. Although the WARRIOR SCBA will prevent penetration and permeation of specific concentrations of CBRN agents, there could be environments that are contaminated with CBRN agent levels that exceed the NIOSH CBRN test protocol concentrations. This is a particular concern in confined space environments. Proper quantification of the CBRN agent contaminated environment is recommended prior to entry.

- Our engineers cannot predict what will happen to this equipment in every potential environment. Materials can be chemically attacked if exposed to the wrong environment and may exhibit excessive corrosion or other forms of damage. Permeation of gases and liquids through the materials could be excessive. Flame or extremes of temperature might cause thermal degradation. Each of these things, or a combination of them, could create conditions in which this Sperian equipment would be dangerous to use.

- This respirator will reduce, but will not eliminate, the inhalation of contaminants. Before allowing anyone to enter a hazardous environment while wearing Sperian equipment, you must conduct safe, scientific tests to determine if the environment could render the equipment unsafe. Results of this testing should be well documented. Seek the help of a certified safety professional or industrial hygienist. DO NOT USE this equipment if the user would be endangered in any way through environmentally induced degradation of the materials in the apparatus.

- All persons using the Sperian breathing apparatus must be made aware of its limitations. We cannot be responsible for any damage to property, personal injury or death in which environmental exposure is a contributing factor.

⚠ WARNING - Continued

- This respirator does not protect exposed areas of the body. Some contaminants can be absorbed directly through the skin while others may irritate exposed areas. Always use in conjunction with personal protective ensembles that provide appropriate levels of protection against dermal hazards.

- Visual indications of material degradation may be identified by charring, blistering, cracking, crazing, pitting, chalking, rust, and significant color changes, all of which can result in a weakened structure, prohibiting extended useful service life.

- Do not wear this respirator if a satisfactory fit, as determined by the fit testing described in section VI., cannot be obtained. Also see ANSI Z88.2 latest edition and OSHA respirator Standard (29 CFR 1910.134).

- Beards and sideburns will prevent a good facepiece seal. Do not use this respirator unless you are clean shaven.

- This respirator must be used in conjunction with a written respirator program meeting the requirement of the OSHA Standard for Respiratory Protection, 29 CFR 1910.134, available from the U.S. Department of Labor, Occupational Safety and Heath Administration. The program must include, but not be limited to, procedures for evaluating air contaminants and selecting the appropriate respirator; procedures for testing the facepiece-to-face fit of respirators; procedures for cleaning, disinfecting, inspecting, maintaining, and storing respirators; procedures for determining if workers are physically and medically capable of wearing respirators; and procedures for training employees in the use of respirators and in recognizing the hazard associated with contaminants in the workplace.

- Do not use this respirator underwater or for abrasive blasting.

- This SCBA is designed for storage in temperature from -25°F to +160°F.

⚠ WARNING - Continued

- Sperian respirators, accessories, and associated equipment should not be used in atmospheres which may contain contaminant concentrations above the lower explosive level (LEL). Intrinsic safety certification of electronic components does not eliminate potential danger from ignition in these atmospheres.

- The pressure within the Sperian facepiece remains positive under most working conditions, but as with all SCBAs, negative pressure excursions are possible. Conditions when an SCBA can experience negative facepiece pressures include, but are not limited to: 1) the SCBA is improperly worn, 2) the SCBA is not used in accordance with the instructions, 3) the SCBA is improperly maintained, or 4) the SCBA is over-breathed during heavy work rates. The SCBA will provide reduced protection when operated in a negative pressure mode.

- Some sensitive individuals may experience health problems when exposed to even minute amounts of contaminants. This SCBA will not prevent health problems for those individuals.

- Persons sensitized can have a severe reaction to chemicals at levels such as the OSHA Permissible Exposure Limit (PEL), ACGIH® Threshold Limit Value (TLV®), or NIOSH Recommended Exposure Limits (REL). Do not use this SCBA if you have been sensitized from previous exposure or believe that you may be sensitive or allergic to any chemicals (e.g., organophosphate, isocyanates, latex, etc.).

- Do not alter or modify this SCBA in any manner. Modifying this SCBA will void NIOSH certification and may create a condition in which the SCBA would not provide the intended protection. Do not remove, obscure, or alter any labels on the SCBA.

⚠ WARNING - Continued

- Some individuals are sensitive to chemicals (e.g., isocyanates, latex, oil mists, etc.) or may have some type of respiratory disorder (e.g., asthma, chronic obstructive airway disease, etc.). If you are sensitive to any chemical or have a respiratory disorder, you may have a severe reaction at contaminant levels well below accepted health levels, such as the OSHA Permissible Exposure Limit value, or the NIOSH Recommended Exposure Limit (REL). Many chemicals (e.g., isocyanates, mercury, etc.) have no physical warning properties and you cannot taste or smell the contaminants even though they may be present in the facepiece. This SCBA will reduce, but will not eliminate, the possibility of contaminants entering the facepiece and causing a severe reaction. Do not use this respirator under these conditions.

- Discontinue use if you experience skin irritation or discoloration.

- You must read, understand, and follow all warnings, instructions, labels, Material Safety Data Sheets (MSDS), etc., for the materials you are using (e.g., paints, hardeners, insecticides, varnishes, etc.). You must also read, understand, and follow all warnings, instructions, etc., listed in the MSDS for any contaminants that may be or are present in the work area.

- An impact to the second stage regulator when the cylinder valve is open may inadvertently activate the First-Breath-On mechanism, causing air to flow from the regulator and diminishing the air in the cylinder.

- ONLY grasp the cylinder valve handwheel to open or close the valve; DO NOT pick up or carry a cylinder by the handwheel, drop a cylinder on the handwheel, or bump the handwheel, as this may cause the cylinder valve to inadvertently open, which may lead to the cylinder becoming airborne under the thrust of air released from the open valve, causing injury or death. ALWAYS pick up and carry an air cylinder by the cylinder body.

⚠ WARNING - Continued

- DO NOT over-torque air cylinder valves. ALWAYS verify that the hydrostatic test facility performing your cylinder testing DOES NOT over-torque the cylinder valves when they reinstall them.

- Some CBRN agents may not present immediate effects from exposure, but can result in delayed impairment, illness, or death.

- Direct contact with CBRN agents requires proper handling of the SCBA after each use and between multiple entries during the same use. Decontamination and disposal procedures must be followed. If contaminated with liquid chemical warfare agents, dispose of the SCBA after decontamination.

⚠ WARNING - Continued

- The respirator should not be used beyond six (6) hours after initial exposure to chemical warfare agents to avoid the possibility of agent permeation.

- Prior to using the WARRIOR SCBA for the first time, you must perform fit testing as described in section VI. Do not wear this respirator if a satisfactory fit, as determined by the fit testing described in section VI., cannot be obtained.

- FAILURE TO COMPLY WITH THESE WARNINGS MAY LEAD TO PERSONAL INJURY, ILLNESS, OR DEATH.

Figure 1. WARRIOR SCBA

(The parts list for the items shown in Figure 1 begins on the following page.)

III. PARTS LIST:

Item No.	Part No.	Description
1	242053	Facepiece, TwentyTwenty Plus, CBRN, Small, Black, Small Clear Nose Cup, Headstrap
2	242012	Facepiece, TwentyTwenty Plus, CBRN, Small, Black, Medium Clear Nose Cup, Headstrap
3	242013	Facepiece, TwentyTwenty Plus, CBRN, Small, Black, Large Clear Nose Cup, Headstrap
4	242041	Facepiece, TwentyTwenty Plus, CBRN, Medium, Black, Small Clear Nose Cup, Headstrap
5	242022	Facepiece, TwentyTwenty Plus, CBRN, Medium, Black, Medium Clear Nose Cup, Headstrap
6	242023	Facepiece, TwentyTwenty Plus, CBRN, Medium, Black, Large Clear Nose Cup, Headstrap
7	242043	Facepiece, TwentyTwenty Plus, CBRN, Large, Black, Small Clear Nose Cup, Headstrap
8	242032	Facepiece, TwentyTwenty Plus, CBRN, Large, Black, Medium Clear Nose Cup, Headstrap
9	242033	Facepiece, TwentyTwenty Plus, CBRN, Large, Black, Large Clear Nose Cup, Headstrap
10	242048	Facepiece, TwentyTwenty Plus, CBRN, Small, Black, Small Clear Nose Cup, Headnet
11	242016	Facepiece, TwentyTwenty Plus, CBRN, Small, Black, Medium Clear Nose Cup, Headnet
12	242017	Facepiece, TwentyTwenty Plus, CBRN, Small, Black, Large Clear Nose Cup, Headnet
13	242050	Facepiece, TwentyTwenty Plus, CBRN, Medium, Black, Small Clear Nose Cup, Headnet
14	242026	Facepiece, TwentyTwenty Plus, CBRN, Medium, Black, Medium Clear Nose Cup, Headnet
15	242027	Facepiece, TwentyTwenty Plus, CBRN, Medium, Black, Large Clear Nose Cup, Headnet
16	242052	Facepiece, TwentyTwenty Plus, CBRN, Large, Black, Small Clear Nose Cup, Headnet
17	242036	Facepiece, TwentyTwenty Plus, CBRN, Large, Black, Medium Clear Nose Cup, Headnet
18	242037	Facepiece, TwentyTwenty Plus, CBRN, Large, Black, Large Clear Nose Cup, Headnet
19	242053T	Facepiece, TwentyTwenty Plus, CBRN, Small, Black, Small Clear Nose Cup, w/Temple Inserts, Headstrap
20	242012T	Facepiece, TwentyTwenty Plus, CBRN, Small, Black, Medium Clear Nose Cup, w/Temple Inserts, Headstrap
21	242013T	Facepiece, TwentyTwenty Plus, CBRN, Small, Black, Large Clear Nose Cup, w/Temple Inserts, Headstrap
22	242041T	Facepiece, TwentyTwenty Plus, CBRN, Medium, Black, Small Clear Nose Cup, w/Temple Inserts, Headstrap
23	242022T	Facepiece, TwentyTwenty Plus, CBRN, Medium, Black, Medium Clear Nose Cup, w/Temple Inserts, Headstrap
24	242023T	Facepiece, TwentyTwenty Plus, CBRN, Medium, Black, Large Clear Nose Cup, w/Temple Inserts, Headstrap
25	242043T	Facepiece, TwentyTwenty Plus, CBRN, Large, Black, Small Clear Nose Cup, w/Temple Inserts, Headstrap
26	242032T	Facepiece, TwentyTwenty Plus, CBRN, Large, Black, Medium Clear Nose Cup, w/Temple Inserts, Headstrap
27	242033T	Facepiece, TwentyTwenty Plus, CBRN, Large, Black, Large Clear Nose Cup, w/Temple Inserts, Headstrap
28	242048T	Facepiece, TwentyTwenty Plus, CBRN, Small, Black, Small Clear Nose Cup, w/Temple Inserts, Headnet
29	242016T	Facepiece, TwentyTwenty Plus, CBRN, Small, Black, Medium Clear Nose Cup, w/Temple Inserts, Headnet
30	242017T	Facepiece, TwentyTwenty Plus, CBRN, Small, Black, Large Clear Nose Cup, w/Temple Inserts, Headnet
31	242050T	Facepiece, TwentyTwenty Plus, CBRN, Medium, Black, Small Clear Nose Cup, w/Temple Inserts, Headnet
32	242026T	Facepiece, TwentyTwenty Plus, CBRN, Medium, Black, Medium Clear Nose Cup, w/Temple Inserts, Headnet
33	242027T	Facepiece, TwentyTwenty Plus, CBRN, Medium, Black, Large Clear Nose Cup, w/Temple Inserts, Headnet
34	242052T	Facepiece, TwentyTwenty Plus, CBRN, Large, Black, Small Clear Nose Cup, w/Temple Inserts, Headnet

III. PARTS LIST – *Continued*:

Item No.	Part No.	Description
35	242036T	Facepiece, TwentyTwenty Plus, CBRN, Large, Black, Medium Clear Nose Cup, w/Temple Inserts, Headnet
36	242037T	Facepiece, TwentyTwenty Plus, CBRN, Large, Black, Large Clear Nose Cup, w/Temple Inserts, Headnet
37	272053	Facepiece, TwentyTwenty Plus, CBRN, Small, Black, Small Clear Nose Cup, Headstrap
38	272012	Facepiece, TwentyTwenty Plus, CBRN, Small, Black, Medium Clear Nose Cup, Headstrap
39	272013	Facepiece, TwentyTwenty Plus, CBRN, Small, Black, Large Clear Nose Cup, Headstrap
40	272041	Facepiece, TwentyTwenty Plus, CBRN, Medium, Black, Small Clear Nose Cup, Headstrap
41	272022	Facepiece, TwentyTwenty Plus, CBRN, Medium, Black, Medium Clear Nose Cup, Headstrap
42	272023	Facepiece, TwentyTwenty Plus, CBRN, Medium, Black, Large Clear Nose Cup, Headstrap
43	272043	Facepiece, TwentyTwenty Plus, CBRN, Large, Black, Small Clear Nose Cup, Headstrap
44	272032	Facepiece, TwentyTwenty Plus, CBRN, Large, Black, Medium Clear Nose Cup, Headstrap
45	272033	Facepiece, TwentyTwenty Plus, CBRN, Large, Black, Large Clear Nose Cup, Headstrap
46	272053T	Facepiece, TwentyTwenty Plus, CBRN, Small, Black, Small Clear Nose Cup, w/Temple Inserts, Headstrap
47	272012T	Facepiece, TwentyTwenty Plus, CBRN, Small, Black, Medium Clear Nose Cup, w/Temple Inserts, Headstrap
48	272048	Facepiece, TwentyTwenty Plus, CBRN, Small, Black, Small Clear Nose Cup, Headnet
49	272016	Facepiece, TwentyTwenty Plus, CBRN, Small, Black, Medium Clear Nose Cup, Headnet
50	272017	Facepiece, TwentyTwenty Plus, CBRN, Small, Black, Large Clear Nose Cup, Headnet
51	272050	Facepiece, TwentyTwenty Plus, CBRN, Medium, Black, Small Clear Nose Cup, Headnet
52	272026	Facepiece, TwentyTwenty Plus, CBRN, Medium, Black, Medium Clear Nose Cup, Headnet
53	272027	Facepiece, TwentyTwenty Plus, CBRN, Medium, Black, Large Clear Nose Cup, Headnet
54	272052	Facepiece, TwentyTwenty Plus, CBRN, Large, Black, Small Clear Nose Cup, Headnet
55	272036	Facepiece, TwentyTwenty Plus, CBRN, Large, Black, Medium Clear Nose Cup, Headnet
56	272037	Facepiece, TwentyTwenty Plus, CBRN, Large, Black, Large Clear Nose Cup, Headnet
57	272013T	Facepiece, TwentyTwenty Plus, CBRN, Small, Black, Large Clear Nose Cup, w/Temple Inserts
58	272041T	Facepiece, TwentyTwenty Plus, CBRN, Medium, Black, Small Clear Nose Cup, w/Temple Inserts
59	272022T	Facepiece, TwentyTwenty Plus, CBRN, Medium, Black, Medium Clear Nose Cup, w/Temple Inserts
60	272023T	Facepiece, TwentyTwenty Plus, CBRN, Medium, Black, Large Clear Nose Cup, w/Temple Inserts
61	272043T	Facepiece, TwentyTwenty Plus, CBRN, Large, Black, Small Clear Nose Cup, w/Temple Inserts
62	272032T	Facepiece, TwentyTwenty Plus, CBRN, Large, Black, Medium Clear Nose Cup, w/Temple Inserts
63	272033T	Facepiece, TwentyTwenty Plus, CBRN, Large, Black, Large Clear Nose Cup, w/Temple Inserts
64	272048T	Facepiece, TwentyTwenty Plus, CBRN, Small, Black, Small Clear Nose Cup, w/Temple Inserts, Headnet
65	272016T	Facepiece, TwentyTwenty Plus, CBRN, Small, Black, Medium Clear Nose Cup, w/Temple Inserts, Headnet
66	272017T	Facepiece, TwentyTwenty Plus, CBRN, Small, Black, Large Clear Nose Cup, w/Temple Inserts, Headnet
67	272050T	Facepiece, TwentyTwenty Plus, CBRN, Medium, Black, Small Clear Nose Cup, w/Temple Inserts, Headnet
68	272026T	Facepiece, TwentyTwenty Plus, CBRN, Medium, Black, Medium Clear Nose Cup, w/Temple Inserts, Headnet

III. PARTS LIST – *Continued:*

Item No.	Part No.	Description
69	272027T	Facepiece, TwentyTwenty Plus, CBRN, Medium, Black, Large Clear Nose Cup, w/Temple Inserts, Headnet
70	272052T	Facepiece, TwentyTwenty Plus, CBRN, Large, Black, Small Clear Nose Cup, w/Temple Inserts, Headnet
71	272036T	Facepiece, TwentyTwenty Plus, CBRN, Large, Black, Medium Clear Nose Cup, w/Temple Inserts, Headnet
72	272037T	Facepiece, TwentyTwenty Plus, CBRN, Large, Black, Large Clear Nose Cup, w/Temple Inserts, Headnet
73	951015	Anti-Fog Solution, 1 Oz.
74	951016	Anti-Fog Solution, 16 Oz.
75	981805	Anti-Fog Wipe
76	981808	Anti-Fog Wipe, Dry
77	976200	First Stage Regulator, Warbling Whistle Alarm, 2216 psig
78	976201	First Stage Regulator, Warbling Whistle Alarm, 3000 psig
79	976202	First Stage Regulator, Warbling Whistle Alarm, 4500 psig
80	976203	First Stage Regulator, Bell Alarm, 2216 psig
81	976204	First Stage Regulator, Bell Alarm, 3000 psig
82	976205	First Stage Regulator, Bell Alarm, 4500 psig
83	976206	First Stage Regulator, Plain Whistle Alarm, 2216 psig
84	976207	First Stage Regulator, Plain Whistle Alarm, 3000 psig
85	976208	First Stage Regulator, Plain Whistle Alarm, 4500 psig
86	969029	Second Stage Regulator
87	966800	Backpack, WARRIOR, Standard
88	966801	Backpack, WARRIOR, Small
89	968802	Backpack, WARRIOR, Large
90	966800A	Backpack, WARRIOR, Standard, Alligator Clips
91	966801A	Backpack, WARRIOR, Small, Alligator Clips
92	968802A	Backpack, WARRIOR, Large, Alligator Clips
93	975615	Lower Cover Assembly
94	975616	Lower Cover Assembly, Auxiliary Hose/Coupler
95	976100	Gauge Alarm, Heads-Up Display (HUD), 2216 psig
96	976101	Gauge Alarm, Heads-Up Display (HUD), 3000 psig
97	976102	Gauge Alarm, Heads-Up Display (HUD), 4500 psig
98	980642	Over-the-Shoulder Gauge, 2216 psig
99	980643	Over-the-Shoulder Gauge, 3000 psig
100	980641	Over-the-Shoulder Gauge, 4500 psig
101	975032	Over-the-Shoulder Gauge Hose
102	976110	Integrated Battery Pack
103	975326	Battery Pack/HUD Connector
104	975273	Intermediate Pressure Line and Cable with Electrical/Pneumatic Coupler

CYLINDERS:

Part No.	Pressure (psig)	Duration (minutes)	Wrap	Material	Handwheel
915140	2216	30	None	Aluminum	Nonlocking
916103	2216	30	Hoop	Glass	Nonlocking
917130	2216	30	Full	Carbon	Nonlocking
916123	3000	60	Full	Carbon	Nonlocking
917131	4500	30	Full	Carbon	Nonlocking
917145	4500	45	Full	Carbon	Nonlocking
917252	4500	45	Full	Carbon	Nonlocking
917160	4500	60	Full	Carbon	Nonlocking
917421	2216	30	None	Aluminum	Locking
917403	2216	30	Hoop	Glass	Locking
917423	2216	30	Full	Carbon	Locking
917431	3000	60	Full	Carbon	Locking
917425	4500	30	Full	Carbon	Locking
917427	4500	45	Full	Carbon	Locking
917437	4500	45	Full	Carbon	Locking
917429	4500	60	Full	Carbon	Locking

ACCESSORIES:

Part No.	Description
975556	Over-the-Shoulder Auxiliary Coupling Kit, WARRIOR
975625	Over-the-Shoulder Auxiliary Coupler Hose Pouch Kit, WARRIOR
975595	Air Line Adapter Kit
962260	Spectacles Kit
964044	Spectacles Kit, NexSpex
946935	Cylinder Sleeve Kit, 1-Piece, LP HoopWrap
946937	Cylinder Sleeve Kit, 1-Piece, HP HoopWrap
941256	Cylinder Sleeve Kit, 1-Piece, LP Carbon Wrap
941257	Cylinder Sleeve Kit, 1-Piece, LP (3000 psig) Carbon Wrap
941258	Cylinder Sleeve Kit, 1-Piece, LP 30-Minute Carbon Wrap

ACCESSORIES – *Continued:*

Part No.	Description
941259	Cylinder Sleeve Kit, 1-Piece, HP 45-Minute Carbon Wrap
941261	Cylinder Sleeve Kit, 1-Piece, HP 60-Minute Carbon Wrap
946940	Cylinder Sleeve Kit, 2-Piece, 30-Minute Carbon Wrap
946948	Cylinder Sleeve Kit, 2-Piece, 45-Minute Carbon Wrap
946945	Cylinder Sleeve Kit, 2-Piece, 60-Minute Carbon Wrap
962869	Neckstrap Kit, TwentyTwenty Plus Facepiece
975460	Chest Strap Kit
975465	D-Ring Kit
969019	Headnet w/Silicone Strap Kit
962150	Facepiece with Temple Inserts Kit, Small, Butyl
962153	Facepiece with Temple Inserts Kit, Medium, Butyl
962154	Facepiece with Temple Inserts Kit, Large, Butyl
975535	Waist Belt Extender
976000	IntelliPASS™ Integrated PASS, 2216 psig Gauge
976001	IntelliPASS™ Integrated PASS, 3000 psig Gauge
976002	IntelliPASS™ Integrated PASS, 4500 psig Gauge
976000H	IntelliPASS™ Integrated PASS with Heat Alert, 2216 psig Gauge
976001H	IntelliPASS™ Integrated PASS with Heat Alert, 3000 psig Gauge
976002H	IntelliPASS™ Integrated PASS with Heat Alert, 4500 psig Gauge
975434	IntelliPASS™ Integrated PASS Gauge Hose
976050	Pathfinder Ultrasonic Beacon
242136	Voice Amplification Kit
975557	Over-the-Shoulder Auxiliary Hose/Female Coupling Kit, WARRIOR

IV. DESCRIPTION

The **WARRIOR** SCBA provides the wearer with respiratory protection in hazardous environments, and may be used for entrance into and escape from atmospheres that are immediately dangerous to life or health (IDLH). The **WARRIOR** SCBA is an NFPA and NIOSH CBRN-compliant SCBA, and may be used for fire fighting and/or CBRN incident response.

⚠ WARNING

Not all components and accessories approved for use on the Panther CBRN SCBA are approved on the WARRIOR SCBA. You must check the NIOSH approval label inserted with this manual for components and accessories approved for use on the WARRIOR SCBA. Failure to comply with this Warning may lead to personal injury, illness, or death.

• The **WARRIOR** SCBA meets all requirements of the NFPA 1981 Standard, 2007 Edition, *Open-Circuit Self-Contained Breathing Apparatus for Emergency Services.*

• See NFPA 1500, *Standard on Fire Department Occupational Safety and Health Program*, for proper use of SCBAs in the work environment.

• The **WARRIOR** SCBA meets the requirements of the NIOSH CBRN standard and has been granted NIOSH CBRN approval. The NIOSH CBRN approval label is located on the lower back section of the backpack frame, underneath the cylinder valve.

A. Backpack and Cylinder

1. The backpack consists of a lightweight aluminum backplate with an aluminum hip-plate that both swivels and hinges on the backplate. The backpack has three integrated carrying handles with carabiner attachment points. The cylinder is attached by a stainless steel band, and has a release latch on the right hand side (when looking at the cylinder with the valve pointing down), and an adjustment latch on the left hand side. The **WARRIOR** harness is made of Kevlar straps. The pressure gauge, mounted on the right shoulder strap, is integrated with the PASS device on units equipped with a PASS, and is a standard chest-mounted gauge on units not equipped with a PASS. The gauge indicates the cylinder pressure once the cylinder valve has been opened. The intermediate pressure hose is routed over the left shoulder, and includes an optional electrical/pneumatic quick connector in line, which allows easy removal of the second stage regulator from the SCBA. Connection of the quick-connect automatically connects the electronics required for the Heads-Up Display (HUD).

2. The air cylinder is a composite construction with an aluminum inner liner overwrapped by a no metallic fiber, and has a maximum working pressure of 4500 psig (high pressure) in 30-, 45- and 60 minute durations; 2216 psig (low pressure) in 30-minute duration; an all-aluminum cylinder and Fiberglass composite hoop-wrapped or 3000 psig (low pressure) in 30-minute duration is available.

⚠ WARNING

- **ONLY grasp the cylinder valve handwheel to open or close the valve; DO NOT pick up or carry a cylinder by the handwheel, drop a cylinder on the handwheel, or bump the handwheel, as this may cause the cylinder valve to inadvertently open, which may lead to the cylinder becoming airborne under the thrust of air released from the open valve, causing injury or death. ALWAYS pick up and carry an air cylinder by the cylinder body.**
- **Failure to comply with this Warning may lead to personal injury, illness, or death.**

B. First Stage Regulator

1. The first stage regulator contains:
   - A pressure reducer.
   - Primary low air alarm activation and adjustment mechanisms.
   - Intermediate pressure connections to the second stage regulator and audible alarm.
   - High pressure connections to the HUD transducer, remote pressure gauge, and the universal air connection. (See section G of this manual.)

2. The first stage regulator lowers cylinder air pressure to a nominal 115 psig. The relief valve activates to protect the system when the regulator pressure exceeds 200 to 225 psig.

3. The first stage regulator is connected to a plain whistle, a warbling whistle, or a bell alarm. The alarm is located at the upper left corner of the backpack, protected by an impact-and thermal-resistant enclosure. The low pressure SCBA audible alarm activates at 510 to 598 psig (2216 psig system), or 690 to 810 psig (3000 psig systems); the high pressure SCBA audible alarm activates at 1035 to 1215 psig (4500 psig systems). The audible alarm will continue to sound until the air pressure drops below 200 psig.

⚠ *WARNING*

- **You must use a CBRN facepiece when using this SCBA in a potential or known CBRN contaminated atmosphere. Use of a facepiece other than a CBRN facepiece will void NIOSH CBRN certification.**
- **If the low battery alert activates (amber LED on the backpack-mounted transducer module and front PASS flashes every two seconds) during storage, or if the amber LED on the backpack-mounted transducer module and front PASS do not flash at all during storage, the batteries must be replaced before using the SCBA.**
- **Activation of the visual alarm (flashing red LED) portion of the HUD may or may not coincide with the audible alarm (i.e., whistle, warbling whistle, or bell) on the SCBA. As soon as the first alarm activates, PROCEED IMMEDIATELY TO A SAFE AREA.**
- **You must have binocular vision (vision from both eyes) to see and interpret the display correctly. Your visual acuity while wearing the facepiece must meet the requirements set forth by the authority having jurisdiction over your operation and/or work place.**
- **Failure to comply with this Warning may lead to personal injury, illness, or death.**

C. Heads-up Display (HUD)

NOTE

The **WARRIOR** SCBA comes equipped with a Heads-Up Display (HUD).

1. The HUD is mounted on the second stage regulator. When the second stage regulator is installed in the TwentyTwenty Plus facepiece, the display can be seen through openings in the facepiece nozzle cover. When the cylinder valve is opened, the HUD will activate automatically, and will indicate the air pressure remaining in the cylinder. The display consists of four green LEDs, representing Full, ¾ , ½, and ¼. At full cylinder pressure, all four LEDs are illuminated. As the air pressure in the cylinder decreases, the LEDs turn off one at a time, thereby indicating the air pressure status. When the pressure drops below 50% of cylinder capacity, the LED representing ½ cylinder capacity starts to flash, and continues to flash for a short time (approximately 20 seconds) before returning to continuously lit. When the pressure drops to ¼(25%) of cylinder capacity, the last green LED turns red and begins to flash, thereby giving the user a visual alarm of low pressure in addition to the audible alarm located at the upper left of the backpack. On a 2216 psig SCBA, the ¼ LED will turn red and begin to flash between 510 and 598 psig; on a 3000 psig SCBA, the ¼ LED will turn red and begin to flash between 690 and 810 psig; on a 4500 psig SCBA, the ¼ LED will turn red and begin to flash between 1035 and 1215 psig. When the pressure drops to 10% of cylinder capacity, the red LED begins to flash noticeably faster and continues flashing in this manner until air pressure drops below approximately 200 psig, at which time the display will turn off. No lighted LEDs represents zero air pressure.

2. An external red LED, mounted on the front of the HUD module, warns others of the user's low air status by flashing at the same time the ¼ LED is flashing inside the HUD module. The external red LED flashes noticeably faster when the pressure drops to 10% of the cylinder capacity. A red LED at the upper right of the backpack performs the same functions.

3. A photodiode is mounted externally on the top of the HUD module. It senses ambient light conditions and adjusts the intensity of

the green HUD LEDs to match these conditions. If the ambent light is bright, the LEDs are in bright mode. In no-light or low-light conditions, the LEDs are in dim mode so that they are not distracting to the user.

4. The transducer module on the backpack and the front PASS have an amber LED that acts as a battery status indicator. When the SCBA is in storage (the cylinder valve is not opened), the amber LED will flash once every 10 seconds to indicate a usable battery condition. The amber LED flashes every two seconds to indicate a low battery condition, and will cease flashing altogether to indicate a dead battery.

⚠ WARNING

- **Duracell alkaline MN1400 C size batteries must be used in the battery compartment in order to maintain the intrinsic safety certification of this product.**
- **Failure to comply with this Warning may lead to personal injury, illness, or death.**

5. To replace the batteries, first remove the protective rubber cap, then remove the slotted battery cap located on the lower right hand side (when looking at the cylinder with the valve pointing down) of the backpack, using a coin, a large, flat blade screwdriver, or the male end of the waist strap buckle; remove the old batteries; install new batteries in the orientation shown on the lower cover just above the battery cap area; and replace the cap. Screw the cap down until the amber light on the battery status indicator on the HUD transducer module begins to flash. Reinstall the protective rubber cap.

⚠ WARNING

- **If the low battery alert activates (amber LED on the backpack-mounted transducer module flashes every two seconds) during storage, or if the amber LED on the backpack-mounted transducer module does not flash at all during storage, the batteries must be replaced before using the SCBA.**

⚠ WARNING - *Continued*

- **If the battery alert in the HUD activates during actual use (amber LED at the lower right of the display flashes once every second), the SCBA may continue to be used. The batteries must be replaced before the next usage.**
- **Failure to comply with this Warning may lead to personal injury, illness, or death.**

D. Chest-mounted Gauge (Installed on WARRIOR SCBA if no PASS device is installed)

The chest-mounted pressure gauge is mounted on the right shoulder strap and may be swivelled 360° for easy viewing. When the cylinder valve is opened, the gauge indicates the air pressure remaining in the cylinder.

E. Second Stage Regulator

⚠ WARNING

An impact to the second stage regulator when the cylinder valve is open may inadvertently activate the First-Breath-On mechanism, causing air to flow from the regulator and diminishing the air in the cylinder. Failure to comply with this Warning may lead to personal injury, illness, or death.

The pressure demand second stage regulator is mounted on the facepiece by the Sperian AIR KLIC™ system. The mechanism automatically locks in place when the regulator is pushed into the AIR KLIC, and is detached when both of the release buttons are pressed. To prevent inadvertent air flow, the regulator will not operate until the First-Breath-On mechanism is activated or the manual override button on the front of the regulator is pressed. The flow of air can be stopped by pressing the shutoff button. A large red knob on the right side of the regulator controls an adjustable bypass valve. Turning this knob counterclockwise provides a constant flow of air.

F. Facepiece

⚠ WARNING

You MUST use a CBRN facepiece (2720XX or 2420XX) when using this SCBA in potential or

⚠ WARNING - Continued

known CBRN contaminated atmospheres. Use of a facepiece other than a CBRN facepiece will void NIOSH CBRN certification and may lead to personal injury, illness, or death.

The **WARRIOR** SCBA includes a CBRN TwentyTwenty Plus facepiece (2720XX). The butyl rubber TwentyTwenty Plus facepiece has a special wide-lip sealing surface and five-point silicone headstrap harness or optional Headnet™ harness. The lens is treated with an abrasion-resistant coating on the outside surface of the lens, and a permanent anti-fog coating on the inside of the lens. The nozzle houses a removable nose cup, speaking diaphragm, and exhalation valve. The AIR KLIC is threaded into the nozzle by a ratchet mechanism to prevent leakage and provide a secure mount for the second stage regulator.

G. Rapid Intervention Crew/Company Universal Air Connection (RIC UAC)

NOTE

The **WARRIOR** SCBA comes equipped with the Rapid Intervention Crew/Company Universal Air Connection (RIC UAC).

1. The RIC UAC and fill hose (purchased separately in the P/N 968970 RIT Kit) provide a means for filling SCBA cylinders during a rescue. An attendant/rescue crew member must assist with the cylinder filling.

2. The RIC UAC is located on the lower left hand side (when looking at the cylinder with the valve pointing down) of the backpack. The RIC UAC is accompanied by a relief valve located on the back of the first stage regulator inside of the backpack lower cover. The relief valve is designed to vent air to atmosphere when the fill pressure exceeds the cylinder service pressure, in order to prevent cylinder over-pressurization. The RIC UAC has a dust plug which must be installed over the coupling at all times before and after filling operations. The RIC UAC fill hose has the mating fill coupling. A directional flow control piston is located in the quick disconnect coupling to prevent air loss and hose whipping if the hose is installed incorrectly. The quick disconnect coupling is supplied with dust plugs which must be installed when the fill hose is not in use.

⚠ WARNING

- **The RIC UAC has a dust plug which must be installed over the coupling at all times before and after filling operations.**
- **DO NOT allow oil, grease, or other contaminants to come in contact with the quick-disconnect couplings.**
- **DO NOT use air other than breathing air, Grade D or better, conforming to CGA G-7.1 Commodity Specification for Air. The moisture content, expressed as dewpoint, shall be maintained at -65°F (-53.9°C) or lower, or less than 24.0 ppm by volume moisture content.**
- **The Sperian RIC UAC or RIC UAC fill hose must ONLY be used to fill compressed air cylinders. The Sperian RIC UAC or RIC UAC fill hose must NEVER be used:**
  1. **As a buddy breathing device.**
  2. **For SCBA-to-SCBA filling.**
  3. **To provide a continuous air supply.**
- **Failure to comply with this Warning may lead to personal injury, illness, or death.**

V. UNPACKAGING

IMPORTANT—READ CAREFULLY

A. Warranty Card

NOTE

The warranty is void unless the warranty card is returned to the factory within 30 days of purchase.

1. Fill in the form with the required information.
2. Mail back the completed warranty registration card immediately.
3. To comply with NIOSH, Sperian is required to retain the completed warranty registration card.
4. Always refer to the equipment serial number if a claim is made.

B. Removing the SCBA from the Packaging

1. Carrying case
   a. Remove the carrying case from the box.
   b. Lift both locking tabs on the case and open it.
   c. Remove the facepiece from the case.

d. Unfasten the Velcro transportation fasteners.
e. Lift the SCBA from the case.

2. Carton packaging

a. Remove the facepiece from the box.
b. Remove the plastic transportation cradle from the box with the SCBA connected to it.
c. Cut both of the locking straps that secure the SCBA to the transportation cradle.
d. Lift the SCBA from the cradle.

CAUTION

Exercise extreme care when identifying SCBA components. Engraving may induce stresses in materials that, over time, could propagate cracks. Plastic labels, dyno-labels, and stickers may burn.

VI. OPERATION

⚠ WARNING

• The respirator should not be used beyond six (6) hours after initial exposure to chemical warfare agents to avoid the possibility of agent permeation.

• Prior to using the WARRIOR CBRN SCBA for the first time, you must perform fit testing as described below.

• Do not wear this respirator if a satisfactory fit, as determined by the fit testing described below, cannot be obtained.

• Failure to comply with this Warning may lead to personal injury, illness, or death.

A. Fit Test Instructions for Facepieces Used with SCBA with NIOSH CBRN Certification

⚠ WARNING

To ensure an adequate fit, each person who will wear a CBRN-certified SCBA must pass a quantitative fit test with a minimum measured fit factor of 500 while wearing a facepiece of a size and configuration exactly like the facepiece that will be worn with the SCBA. To simulate the weight of the second stage regulator as used with an SCBA, use the Sperian P/N 962900 APR Adapter equipped with Sperian 1050 P100 filters.

1. Introduction

This manual provides instructions for performing quantitative fit testing using the Sperian 962900 APR adapter to convert an SCBA facepiece to negative pressure operation. Sperian recommends that the Sperian P/N 962920 Quantitative Fit Test Adapter be used to provide a means for drawing a sample from the interior of the facepiece for the fit test. This adapter has the advantage of allowing the fit test to be performed with the actual facepiece assigned to the person tested. These instructions assume the P/N 962920 is used for the fit test; however, users may provide their own means of sampling from the facepiece and may use surrogate facepieces for fit testing.

2. Applicable CBRN Facepieces

The Sperian facepieces approved for use with CBRN-certified SCBAs, and accessories approved for use with those facepieces, are listed on page 15. A fit test must be performed with either:

a. A facepiece equipped exactly like the facepiece to be worn with the SCBA, or
b. A facepiece equipped with all of the listed accessories, to simulate worst case.

3. Facepiece Selection

Select a small, medium, or large facepiece. Most people will achieve a good fit with a medium size facepiece and should try that size first. But if your face is small or large, you may want to start with a small or large size. You will have the opportunity to check the seal of the facepiece and to wear it for several minutes (to determine comfort) before the Quantitative Fit Test (QNFT) is started.

To determine if you have selected a size that fits:

a. For facepieces with a Headnet, fully loosen the lower headstraps. For facepieces with headstraps, fully loosen all five (5) headstraps.

b. Pull the Headnet or headstraps over the top of the facepiece so that they are in front of the lens.

c. While holding the facepiece by the nozzle, bring the facepiece up to your face and put your chin into the chin cup. Make sure there is nothing, including hair, between your face and the sealing area of the facepiece. Push the facepiece against your face.

d. Flatten your palm so that you close off the inlet and inhale lightly to check the seal. The vacuum created by inhaling will slightly collapse the facepiece toward your face. If a good fit is achieved, the facepiece should remain lightly collapsed until you exhale or until you take your palm from the opening (This whole process only takes about two or three seconds. Don't hold your breath much longer than that and don't pull a very strong vacuum. The idea is to see if the facepiece will seal against a small amount of air pressure.)

If a good fit was achieved, proceed to section IV. If you felt a leak when the mask was collapsed toward your face, select a different size facepiece and repeat steps a. through e. above. If you cannot get a fit with any size, then install a "Facepiece with Temple Insert Kit," P/N 962150 (small), P/N 962153 (medium), or P/N 962154 (large) into the facepiece that fit the best, and repeat steps a. through e. above. If you still felt a leak when the facepiece was collapsed toward your face, install a different size "Facepiece with Temple Insert Kit," and repeat steps a. through e. above. If you still cannot get a fit with any of the temple inserts installed, you cannot proceed.

4. Assemble Adapter, Facepiece, and Filters for Fit Tests

Assemble the Quantitative Fit Test Adapter and filters to the APR Adapter and facepiece according to the instructions provided with the P/N 962920 Quantitative Fit Test Adapter Kit.

FACEPIECES

Part No.	Description
272048	Facepiece, TwentyTwenty Plus—CBRN, Small, Black, Small Clear Nose Cup, with Headnet
272016	Facepiece, TwentyTwenty Plus—CBRN, Small, Black, Medium Clear Nose Cup, with Headnet
272017	Facepiece, TwentyTwenty Plus—CBRN, Small, Black, Large Clear Nose Cup, with Headnet
272050	Facepiece, TwentyTwenty Plus—CBRN, Medium, Black, Small Clear Nose Cup, with Headnet
272026	Facepiece, TwentyTwenty Plus—CBRN, Medium, Black, Medium Clear Nose Cup, with Headnet
272027	Facepiece, TwentyTwenty Plus—CBRN, Medium, Black, Large Clear Nose Cup, with Headnet
272052	Facepiece, TwentyTwenty Plus—CBRN, Large, Black, Small Clear Nose Cup, with Headnet
272036	Facepiece, TwentyTwenty Plus—CBRN, Large, Black, Medium Clear Nose Cup, with Headnet
272037	Facepiece, TwentyTwenty Plus—CBRN, Large, Black, Large Clear Nose Cup, with Headnet
272053	Facepiece, TwentyTwenty Plus—CBRN, Small, Black, Small Clear Nose Cup, with Silicone Headstrap
272012	Facepiece, TwentyTwenty Plus—CBRN, Small, Black, Medium Clear Nose Cup, with Silicone Headstrap
272013	Facepiece, TwentyTwenty Plus—CBRN, Small, Black, Large Clear Nose Cup, with Silicone Headstrap
272041	Facepiece, TwentyTwenty Plus—CBRN, Medium, Black, Small Clear Nose Cup, with Silicone Headstrap
272022	Facepiece, TwentyTwenty Plus—CBRN, Medium, Black, Medium Clear Nose Cup, with Silicone Headstrap
272023	Facepiece, TwentyTwenty Plus—CBRN, Medium, Black, Large Clear Nose Cup, with Silicone Headstrap
272043	Facepiece, TwentyTwenty Plus—CBRN, Large, Black, Small Clear Nose Cup, with Silicone Headstrap
272032	Facepiece, TwentyTwenty Plus—CBRN, Large, Black, Medium Clear Nose Cup, with Silicone Headstrap
272033	Facepiece, TwentyTwenty Plus—CBRN, Large, Black, Large Clear Nose Cup, with Silicone Headstrap

FACEPIECE ACCESSORIES

Part No.	Description
962869	Neck Strap
962260	Spectacles Kit
964044	Spectacles Kit (NexSpex)
969019	Headnet with Silicone Strap Kit
962150	Facepiece with Temple Insert Kit, Small, CBRN
962153	Facepiece with Temple Insert Kit, Medium, CBRN
962154	Facepiece with Temple Insert Kit, Large, CBRN
242135	CommCommand™ Radio Communication System (RCS) Kit
242136	CommCommand™ Voice Amplification System (VAS) Kit
242137	CommCommand™ VAS and RCS Kit (Combo)
242138	CommCommand™ Facepiece Modification Kit (VAS without Voice Amplifier Module)

5. Donning the Facepiece/Fit Test Adapter Assembly

Facepiece with Fabric Headnet:

a. Fully loosen the lower head straps.
b. If the facepiece has a neck strap, place the neck strap over your head.
c. Place your chin in the chin cup, pull the Headnet over your head and tighten it by pulling evenly on the upper and lower straps. See Figure 2. Make sure that your chin is properly recessed in the chin cup.

Figure 2. Adjust Headnet

d. Center the facepiece and flatten the Headnet with a wiping motion toward the back of you head.
e. Retighten the straps. The Headnet should be centered on the back of your head and the lower straps should be below your ears.
f. If the facepiece feels like it is not tight enough, tighten all the straps a little more. If it feels too tight, loosen the straps and readjust them.

Facepiece with Silicone Headstrap:

g. Fully loosen all five (5) headstraps.
h. If the facepiece has a neck strap, place the neck strap over your head.
i. Grasp the lower headstraps as shown in Figure 3.
j. Place your chin in the chin cup, pull the headstrap over your head, and tighten it by pulling evenly on the upper and lower straps. Make sure that your chin is properly recessed in the chin cup.
k. Center the facepiece and flatten the headstrap hub on the back of your head.
l. Tighten the two lower straps. Do not overtighten.

Figure 3. Grasp Lower Headstraps

m. Tighten the temple straps as shown in Figure 4, then the top strap, until all the headstraps lay flat on your head.

Figure 4. Tighten Upper Headstraps

n. If the facepiece feels like it is not tight enough, tighten all the straps a little more. If it feels too tight, loosen the straps and readjust them.
o. When properly adjusted, the headstrap hub should be centered on the back of your head, and the lower straps should be below your ears.

6. Negative Pressure Fit Check

a. Close off the barbed fitting on the fit test adapter and cover the inlet of the two P100 filters with the palms of your hands, a thin sheet of rubber or plastic, or a rubber glove.
b. Inhale just enough to slightly collapse the facepiece toward your face and hold your breath for a few seconds.

c. A good fit is indicated if the facepiece stays slightly collapsed until you exhale or uncover the filters; a poor fit is indicated if the facepiece does not stay collapsed or you hear air leaking.
d. If a good fit was achieved, proceed to step 7., Quantitative Fit Test. If a good fit was not achieved, readjust the facepiece and straps, and repeat steps a. through c.

7. Quantitative Fit Test (QNFT)

Sperian suggests that QNFT be performed with a TSI PortaCount according to the protocol for quantitative fit testing in Appendix A, Paragraph A and paragraph C.3 of OSHA 29 CFR 1910.134.

⚠ WARNING

Wear gloves when handling SCBAs that have been stored in extreme temperatures. Failure to comply with this Warning may lead to personal injury, illness, or death.

NOTE

See NFPA 1500, *Standard on Fire Department Occupational Safety and Health Program* for proper use of SCBAs in the work environment.

B. CBRN Incident Response

⚠ WARNING

• Prior to using an SCBA for a potential or actual CBRN Incident Response, you MUST verify that the SCBA is NIOSH CBRN approved. Verify that the backpack has a NIOSH CBRN approval label, and that the facepiece is a CBRN facepiece as described below.

• The NIOSH CBRN approval label is located on the lower back section of the backpack frame, underneath the cylinder. If you cannot read the NIOSH CBRN approval label with the cylinder installed on the SCBA, remove the cylinder from the backpack to verify the NIOSH CBRN approval label.

• You MUST use a CBRN Facepiece (2720XX) when using this facepiece in a potential or known CBRN contaminated environment. Using

⚠ WARNING - Continued

a facepiece other than a CBRN facepiece will void NIOSH CBRN certification. The facepiece part number is located on the inside surface of the lens below the chin area of the nose cup. You must verify that you are using a 2720XX series facepiece prior to using the facepiece in a potential or known CBRN contaminated environment.

• For verification of components that are part of the NIOSH CBRN-certified WARRIOR SCBA configuration, see the Sperian WARRIOR SCBA approval paper insert label included with this operation manual. If the Sperian WARRIOR SCBA approval paper insert label is not present, contact your local Sperian representative or safety officer for a replacement paper insert label.

• Sperian does not make any recommendations regarding the use of WARRIOR SCBAs during or after a potential or actual CBRN incident response, aside from the NIOSH Cautions and Limitations listed on both the inside front cover and page 40 of this manual, and the warnings listed in various locations in this manual. Refer to your local incident command SOPs for site guidance and CBRN incident response procedures.

• Direct contact with CBRN agents requires proper handling of the SCBA after each use and between multiple entries during the same use. Decontamination and disposal procedures must be followed. If contaminated with liquid chemical warfare agents, dispose of the SCBA after decontamination.

• Failure to comply with this Warning may lead to personal injury, illness, or death.

C. Donning Backpack

1. Remove the SCBA from its carrying case or stored location.
2. Hand tighten the first stage handwheel to the cylinder valve outlet.
3. Ensure that the cylinder valve gauge reads in the green (FULL) zone.

⚠ WARNING - Continued

Check the cylinder latch each time the cylinder is installed. Adjust the cylinder band to match the cylinder size and ensure that the cam-over buckle is securely locked in place. Failure to comply with this Warning may lead to personal injury, illness, or death.

4. Check the latch on the cylinder band and ensure that the cylinder is secure in the backpack.

5. Lay the harness out and straighten each strap. All adjustable straps should be extended to maximum length.

6. There are two methods of donning the SCBA: coat-style, one arm at a time; and over the head. Choice of the method of donning is a matter of individual choice or organizational policy. Both methods are described below.

a. Over the Head

i. Lean the SCBA cylinder against your legs, cylinder valve resting on the floor and the harness spread to each side.
ii. Using the center handles, grasp the backpack as shown in Figure 5.

Figure 5. Grasp Center Handles

iii. Lift the SCBA over your head, as shown in Figure 6, and allow it to slide onto your back. As you lift the SCBA over your head, keep your elbows close to the centerline of your body to allow proper placement of the shoulder straps. Then, allow the SCBA to slide onto your back. See Figure 6.

Figure 6. Over the Head

b. Coat Style

i. Insert your arm through one of the shoulder straps and swing the SCBA onto your back.
ii. Insert your other arm through the other shoulder strap. See Figure 7.

Figure 7. Coat Style

Both Methods

7. Lean forward and pull the harness adjustment straps until the back support rests in the small of your back. See Figure 8.

NOTE

If the harness adjustment straps are properly tightened, the weight of the SCBA will be carried on the hips instead of the shoulders. If the harness adjustment straps restrict movement, readjust.

Figure 8. Lean Forward

8. Take up the slack with the harness adjustment straps. See Figure 8.

9. Fasten the waist belt buckle. Pull forward on the waist straps as shown in Figure 9, and tighten until very snug.

Figure 9. Tighten Waist Strap

10. If necessary, readjust the harness adjustment straps so that the weight of the SCBA is distributed properly on the hips. Do not over tighten.

D. Donning Facepiece

11. Tighten the AIR KLIC (the adapter into which the second stage regulator is inserted) in the facepiece by turning it clockwise.

12. Verify that the AIR KLIC is secured by trying to turn it counterclockwise.

⚠ WARNING

The AIR KLIC must be held securely in the nozzle by the ratchet mechanism. Failure to comply with this Warning may lead to personal injury, illness, or death.

13. Don the facepiece as follows:

    There are two methods, depending upon which head harness is used, to secure the TwentyTwenty Plus facepiece to the user. Both methods are described below.

    a. Standard silicone headstrap:

        i. Fully loosen the headstraps.
        ii. If your SCBA is equipped with a neck strap, place the neck strap over your head.
        iii. Grasp the lower headstraps as shown in Figure 10.

Figure 10. Grasp Lower Headstraps

        iv. Place your chin in the chin cup and pull the straps over your head.
        v. Center the facepiece and flatten the headstrap hub on the back of your head.
        vi. Tighten the two lower straps. Do not overtighten.
        vii. Tighten the temple straps (Figure 11), then the top strap, until all the head-straps lay flat on your head.
        viii. Perform a leak check as described in section VI.E.

Figure 11. Tighten Upper Headstraps

NOTE
When properly adjusted, the headstrap hub should be centered on the back of your head, and the lower straps should be below your ears. Make sure that your chin is properly recessed in the chin cup.

b. Optional Headnet™

⚠ WARNING
Ensure that the three locking fabric straps located across the forehead are fully inserted into their slots in the rims and that the locking flaps prevent the straps from pulling out of the slots. Failure to verify proper installation could allow contaminants to leak into the facepiece, causing illness or death.

i. Fully loosen the lower headstraps.
ii. If your SCBA is equipped with a neck strap, place the neck strap over your head.
iii. Grasp the lower headstrap as shown in Figure 12.
iv. Place your chin in the chin cup, pull the Headnet over your head, and tighten by pulling evenly on the upper and lower straps. See Figure 12.
v. Center the facepiece and flatten the Headnet with a wiping motion toward the back of your head.
vi. Retighten the adjustment straps. Do not overtighten.
vii. Perform a leak check as described in section VI. E.

Figure 12. Adjust Headnet

NOTE
When properly adjusted, the Headnet should be centered on the back of your head, and the lower straps should be below your ears.

E. Exhalation Valve Test

CAUTION
Do not use this SCBA in a contaminated atmosphere if the exhalation valve is not working properly. Failure to verify that the exhalation valve is functioning properly could result in difficulty in exhaling from the facepiece.

1. To test the exhalation valve, take a deep breath and hold it. Cover the AIR KLIC again as shown in Figure 13 and exhale.

2. If the exhalation valve is stuck, it will be difficult to exhale. If the exhalation valve is stuck, exhale sharply to open the valve. If the valve still does not open, clean the valve per the instructions in the repair table on page 38 of this manual.

F. Leak Check

⚠ WARNING
Do not use this SCBA in a contaminated atmosphere if you do not obtain a satisfactory seal during the leak check. If a seal was not obtained, reposition the facepiece, check the straps, and perform the leak check again. Failure to obtain a satisfactory seal could allow contaminants to leak into the facepiece, causing illness or death.

1. Place the palm of your hand over the AIR KLIC as shown in Figure 13.

Figure 13. Leak Check

2. Inhale and hold your breath for a few seconds. The facepiece should collapse on your face without leaking.

3. If the facepiece leaks, reposition, check the straps, and repeat the leak check.

G. Pressurization

1. Remove the second stage regulator from the waist strap-mounted regulator holder by pressing the two release buttons simultaneously.

2. Fully depress the shutoff button on the second stage regulator.

3. Verify that the red bypass knob is in the closed position.

4. Fully open the cylinder valve (Figure 14). In order to fully open the cylinder valve, the handle must be rotated at least one complete revolution (360° minimum).

Figure 14. Open Cylinder Valve

⚠ WARNING

An impact to the second stage regulator when the cylinder valve is open may inadvertently activate the First-Breath-On mechanism, causing air to flow from the regulator and diminishing the air in the cylinder. Failure to comply with this Warning may lead to personal injury, illness, or death.

   a. Ensure that the needle on the chest-mounted pressure gauge reads in the green (FULL) zone.
   b. Check the Heads-Up Display (HUD) to ensure that the display reads full cylinder pressure (all four green LEDs lit).

⚠ WARNING

The audible alarm must sound and the HUD LEDs must flash in sequence as the system is pressurized. If either alarm fails to activate (sound and flash) as you pressurize your SCBA, DO NOT USE the SCBA. Failure of either alarm could result in a failure to realize that the SCBA is near the end of its service life, resulting in death or injury.

5. Engage the cylinder valve handle locking sleeve (if so equipped) by turning it clockwise to prevent accidental valve closure.

6. Insert the regulator into the AIR KLIC as follows:

⚠ WARNING

• Both release buttons must be properly engaged. Rotate and tug the regulator to ensure that both release buttons are properly engaged in the AIR KLIC. Do not push the release buttons while verifying the engagement of the regulator. Do not press the release buttons unless you intend to remove the regulator from the facepiece. Pressing either release button during or after installation onto the facepiece could result inadvertent regulator disengagement, causing death or injury.

• When using the SCBA in temperatures below 0° F, press the manual activation button on the front of the regulator to activate flow immediately after inserting the regulator.

• Failure to comply with this Warning may lead to personal injury, illness, or death.

NOTE

• A CLICK will be heard when each AIR KLIC button is properly engaged.

• A CLICK will be heard when each AIR KLIC button is properly engaged.

Insert the regulator into the AIR KLIC on the facepiece (Figure 15) such that the HUD display is positioned on top, and press firmly until you hear both release buttons snap into place. If the regulator does not snap into place, wiggle the regulator while pressing firmly until the HUD guides itself into the proper position and the regulator snaps into place. Once the regulator is installed into the facepiece, firmly bump the front of the regulator with the palm of your hand to ensure that the regulator AIR KLIC buttons are both fully engaged.

7. Take a sharp, deep breath to activate the regulator, or press the manual override button on the front of the regulator.

8. Take several breaths to check the flow of air.

9. Quickly open and close the bypass valve to ensure that it is operating properly.

Figure 15. Insert Regulator

⚠ WARNING

The SCBA has a rated service duration of 30, 45, or 60 minutes based on the requirements of the Code of Federal Regulations, Title 42, Part 84, Subpart H. Actual service duration may be less than the rated time, depending on the physical condition and exertion level of the user, initial cylinder pressure, and ambient temperature. When either low air alarm begins sounding or flashing, PROCEED IMMEDIATELY TO A SAFE AREA. Failure to comply with this Warning may lead to personal injury, illness, or death.

H. Rapid Intervention Crew/Company Universal Air Connection (RIC UAC) Operation

⚠ WARNING

THE RIC UAC is NOT NIOSH CBRN approved for active engaged use in a potential or known CBRN contaminated environment. The SCBA has an RIC UAC installed, but the RIC UAC MUST NOT be used if it is suspected that the environment may or does contain actual CBRN agents. Use of the RIC UAC in a CBRN environment voids the NIOSH CBRN approval because approval is based on non-engagement of the RIC UAC under

⚠ WARNING - Continued

contaminated conditions and not active engagement of the RIC UAC to mated non-CBRN approved air line components. Failure to comply with this Warning may lead to personal injury, illness, or death.

The Sperian RIC UAC is intended to be used with the P/N 968970 RIT Kit, purchased separately. The P/N 968970 UAC RIT Kit is equipped with a high pressure fill hose that is compatible with the RIC UAC coupling on the first stage regulator. The P/N 968970 RIT Kit is capable of accommodating a 60-minute high pressure cylinder.

Although it is possible to add air to a Sperian SCBA via the RIC UAC system while the SCBA is being worn, Sperian recommends that the cylinder be placed in a container or in a location which is designed to restrain fragments in the event of a component failure during filling. Filling an SCBA cylinder while the SCBA is being worn should only be done when the circumstances justify exposing the SCBA user to the added risk associated with the fill procedure.

First stage regulators equipped with the RIC UAC have a pressure relief valve (PRV) incorporated into the first stage regulator housing. The PRV is designed to vent air to atmosphere when the fill pressure exceeds the service pressure of the cylinder. The PRV will reset (close) at a pressure below the service pressure of the SCBA. If a high pressure (4500 psig) fill (supply) cylinder is used on a 2216 psig SCBA, the PRV may open and vent air to atmosphere.

⚠ WARNING

- **NEVER use the RIC UAC for routine filling of SCBA cylinders. The UAC is intended to be used for cylinder filling during rescue operations only.**
- **Never use the Sperian RIC UAC to fill an SCBA cylinder while the SCBA is being worn unless there is compelling reason to assume the risk of injury if there is a component failure during the fill process.**
- **Never use the Sperian RIC UAC to fill an SCBA air cylinder while the SCBA is being worn if the SCBA or the cylinder is suspected of having been dropped, exposed to direct flame impingement, or damaged in any way.**

⚠ WARNING - Continued

- **The purity of the RIC UAC air source must meet the requirements set forth in the Compressed Gas Association Commodity Specification for Air, G-7.1, Type 1, Grade D, with a dewpoint not greater then -65°F (-53.9°C), or less than 24 ppm by volume.**
- **The relief valve on the first stage regulator is factory set. Tampering with the relief valve may cause the SCBA to malfunction or may result in a decrease in service life.**
- **If at any time during filling, an air leak is detected or suspected in the SCBA or the fill system, disconnect the fill hose from the SCBA. Close the cylinder valve on the fill cylinder and vent the air from the fill hose. Remove the SCBA from service for inspection and repair by a Sperian-certified technician before use.**
- **The dust covers on the RIC UAC coupling and the RIC UAC fill hose must be installed at all times unless the SCBA cylinder is being filled via the RIC UAC.**
- **Failure to comply with this Warning may lead to personal injury, illness, or death.**

NOTE

Air venting from the PRV is extremely loud.

1. Open the cylinder valve on the RIC UAC fill system (supply cylinder). The fill hose is now pressurized.
2. Remove the dust cover from the RIC UAC fill hose.
3. Remove the dust cover from the RIC UAC coupling on the SCBA.
4. Connect the fill hose to the RIC UAC coupling on the SCBA. Push the female coupling on the fill hose until a click is heard. The cylinder will start filling as soon as the fill hose coupling engages into the RIC UAC coupling on the SCBA.
5. Filling is complete when the pressure in the SCBA cylinder and in the fill cylinder are equalized. This will take place in approximately one minute.

NOTE

In most cases, the cylinder will not be filled to full service pressure. The resulting service life of the SCBA will be reduced.

6. Disconnect the fill hose coupling by pulling back on the outer locking sleeve. An audible hissing or popping will be heard when the fill hose is disconnected. When this occurs, coupling separation has been achieved.

7. Replace the dust cover on the SCBA RIC UAC coupling.

8. Close the cylinder valve on the fill system and vent the air from the fill hose. Replace the dust cover on the fill hose.

9. Replace or refill the cylinder in the RIT Kit for future use.

I. Emergency Operation

1. PROBLEM: Restricted or interrupted air flow

a. Open the bypass valve by turning the red knob on the second stage regulator counter-clockwise until desired constant air flow is achieved.

⚠ *WARNING*

Activating the bypass valve will rapidly deplete your air supply. Immediately exit to a safe area. Failure to comply with this Warning may lead to personal injury, illness, or death.

b. IMMEDIATELY exit to a safe area.
c. Have the SCBA inspected and/or repaired by a Sperian-certified repair technician before reuse.

2. PROBLEM: First-Breath-On failure

a. Press the manual override button on the front of the regulator to start air flow.
b. IMMEDIATELY exit to a safe area.
c. Have the SCBA inspected and/or repaired by a Sperian-certified repair technician before reuse.

3. PROBLEM: Free flow

a. If the regulator will not shut off (free flow) during extremely heavy breathing, exhale forcefully. The regulator should return to normal flow.
b. If the free flow continues, open and close the bypass once.
c. If the problem persists, IMMEDIATELY exit to a safe area.
d. Have the SCBA inspected and/or repaired by a Sperian-certified repair technician before reuse.

4. PROBLEM: First stage overpressurization relief valve operates

a. If the cylinder valve incorporates a locking sleeve, disengage it by pushing in and turning it counterclockwise as far as it will go.
b. Regulate the amount of air flow by manually throttling the cylinder valve.
c. IMMEDIATELY exit to a safe area.
d. Have the SCBA inspected and/or repaired by a Sperian-certified repair technician before reuse.

5. PROBLEM: Second stage regulator accidentally disengages from facepiece

a. Hold your breath. Locate the regulator using the regulator supply hose (the regulator will be free-flowing), and immediately insert the regulator into the facepiece. Resume breathing.
b. Push the regulator ***firmly*** into the facepiece. Ensure that both AIR KLIC buttons are engaged.
c. IMMEDIATELY exit to a safe area.
d. Have the SCBA inspected and/or repaired by a Sperian-certified repair technician before reuse.

J. Doffing

⚠ *WARNING*

Doff the SCBA only in a safe area. Failure to comply with this Warning may lead to personal injury, illness, or death.

1. Press the second stage regulator shutoff button.

2. Press the two release buttons and remove the regulator from the facepiece.

3. Disengage the cylinder valve locking sleeve (if so equipped) by pushing it in and turning it counterclockwise.

4. Close the cylinder valve.

5. Press the override button or open the bypass valve on the second stage regulator to vent air from the SCBA.

6. Close the bypass valve.

⚠ WARNING

The SCBA must be stored in a cool, dry location with the cylinder valve closed and the air pressure vented from the system. Storing an SCBA with the cylinder valve open and the system under pressure can result in damage to elastomeric materials in the regulator, particularly if the SCBA is stored at temperatures above 160°F (71°C). Damage resulting from improper storage could result in reduced flow or even stopped flow conditions, resulting in personal injury, illness, or death.

7. Push the second stage regulator into the waist-strap-mounted regulator holder until it clicks.
8. Place your thumbs under the headstrap buckles, loosen the straps, and remove the facepiece.
9. Clip the D-ring from the top facepiece buckle onto the snap hook on the shoulder straps.
10. Unsnap the waist strap and optional chest strap, loosen the shoulder straps, and remove the SCBA.
11. Prepare the SCBA for storage.

K. Cylinder Removal and Reinstallation

1. Removal

   a. Close the cylinder valve by rotating the shutoff handwheel clockwise.
   b. Relieve the hose pressure by opening the second stage regulator bypass valve (red knob) and listening for system depressurization.

⚠ WARNING

• Use extreme care when changing cylinders. DO NOT allow moisture or ice to enter the regulator system. Moisture or ice entering the regulator system may cause the SCBA to freeze up, restricting or stopping air flow to the user, resulting in death or injury.

⚠ WARNING - *Continued*

• ONLY grasp the cylinder valve handwheel to open or close the valve; DO NOT pick up or carry a cylinder by the handwheel, drop a cylinder on the handwheel, or bump the handwheel, as this may cause the cylinder valve to inadvertently open, which may lead to the cylinder becoming airborne under the thrust of air released from the open valve, causing injury or death. ALWAYS pick up and carry an air cylinder by the cylinder body.

• Failure to comply with this Warning may lead to personal injury, illness, or death.

   c. Remove the CGA handwheel from the cylinder valve by rotating the black handwheel counterclockwise.
   d. Remove the tank band as follows:

      i. Loosen the tank band by pressing upward on the release latch on the right hand side of the SCBA with your thumb and flipping the cam-over buckle away from the backplate.
      ii. Remove the cylinder by sliding it upward beyond the tank band.

2. Installation

⚠ WARNING

• Use proper lifting techniques to lift the fully charged cylinder to prevent back injury.

• ONLY grasp the cylinder valve handwheel to open or close the valve; DO NOT pick up or carry a cylinder by the handwheel, drop a cylinder on the handwheel, or bump the handwheel, as this may cause the cylinder valve to inadvertently open, which may lead to the cylinder becoming airborne under the thrust of air released from the open valve, causing injury or death. ALWAYS pick up and carry an air cylinder by the cylinder body.

• Failure to comply with this Warning may lead to personal injury, illness, or death.

CAUTION

Do not damage the cylinder valve threads.

a. When installing a cylinder of the ***same*** diameter or ***smaller*** diameter;

i. With the cam-over buckle on the right side flipped up, slide the cylinder into the tank band with the cylinder valve pointing downward until the dome of the cylinder rests on the two bumpers on the lower cover.

ii. With the cam-over buckle on the right side fully flipped up, adjust the tank band snug against the cylinder by pulling out the adjustment buckle on the left side of the SCBA and pushing the tank band down toward the backplate.

iii. Push the adjustment buckle back so that it is flush with the cylinder and the teeth of the adjustment buckle are engaged with the tank band.

iv. Flip the cam-over buckle down toward the backplate until the release latch snaps over the buckle, locking it in place. The cylinder should be tightly held in place.

b. If changing to a ***larger*** size cylinder:

i. With the cam-over buckle on the right side fully flipped up, release the adjustment buckle on the left side of the SCBA by pulling it out away from the cylinder.

ii. In order to disengage the teeth of the adjustment buckle from the tank band, it may be necessary to gently push the tank band against the cylinder.

iii. Grasp the tank band toward the left side and pull it away from the backplate until it is open enough to slide the larger cylinder into.

iv. With the cam-over buckle on the right side still flipped up, slide the cylinder into the tank band with the cylinder valve pointing downward until the dome of the cylinder rests on the two bumpers on the lower cover.

v. Adjust the tank band snug against the cylinder by pulling out the adjustment buckle on the left side of the SCBA and pushing the tank band down toward the backplate.

vi. Push the adjustment buckle back so that it is flush with the cylinder and the teeth of the adjustment buckle are engaged with the tank band.

vii. Flip the cam-over buckle down toward the backplate until the release latch snaps over the buckle, locking it in place. The cylinder should be tightly held in place.

⚠ *WARNING*

Check the cylinder latch each time the cylinder is installed. Adjust the cylinder band to match the cylinder size and ensure that the cam-over buckle is securely locked in place. Failure to comply with this Warning may lead to personal injury, illness, or death.

L. Transportation

Recommended methods of transportation included the following:

1. Mounting bracket
   a. Brackets inside a fire apparatus storage compartment or integrated into a seat should attach to the cylinder only. Securely mount the SCBA and verify that the bracket does not straddle or interfere with the tank band, tank band latches, cylinder valve, or backpack.
   b. The SCBA mounting position should prevent any part of the SCBA from being slammed in a door or door hinge.
2. SCBA hard case or soft bag for transportation in a car, truck, or truck bed.
3. If the above methods are not achievable, secure the SCBA to prevent rolling, sliding, or bouncing, which could cause damage.

M. Interface Considerations

1. Protective hoods, if used, must be donned after a satisfactory facepiece fit check has been achieved.
2. Ensure that the audible and visual low air alarms and PASS alarm (if used) remain functional by not allowing turnout gear, ice, fire fighting equipment, or tools to cover these devices.
3. Do not mount other fire fighting tools such that they interfere with the function of the SCBA.

VII. CYLINDER FILLING AND SAFETY

⚠ WARNING

- You must read and understand all warnings and instructions provided on the cylinder DOT warning label and in instruction manuals before using the cylinder/valve assembly.
- Only trained personnel may store, fill, service, maintain, handle, use, or dispose of cylinders used with this SCBA. Follow the guidelines of the Compressed Gas Association (CGA) pamphlets P-1, C-1, C-2, C-6, C-6.1, C-6.2, G-7, and G-7.1, as appropriate. Always follow established safety precautions when recharging cylinders.
- Do not alter cylinders used with this SCBA.
- Fill only to the specified service pressure. Do not overfill.
- Do not fill a leaking cylinder. Depressurize immediately.
- Do not tamper with the safety pressure relief device on the cylinder valve. Rapid depressurization when the safety pressure relief device activates will cause excessive noise. During rapid depressurization, cylinders may become ballistic and cause injury. Stay clear of cylinders when the safety relief valve is activated.
- Do not fill cylinder if unraveling or charring of composite fibers occurs.
- Do not fill or use the cylinder if you have any doubt about its suitability for recharge. Return it to a certified hydrostatic test facility.
- Do not expose cylinders used with this SCBA to open flame or heat sources which may heat the cylinder to 350°F. Cylinders damaged by fire or heated to 350°F must be destroyed.
- Repainted or refinished cylinders must be hydrostatically tested before reuse.

⚠ WARNING - *Continued*

- DO NOT over-torque air cylinder valves. ALWAYS verify that the hydrostatic test facility performing your cylinder testing DOES NOT over-torque the cylinder valves when they reinstall them.
- Do not fill a fiberglass composite cylinder if it is not marked as being hydrostatically tested within three (3) years. Do not fill a carbon composite cylinder or an aluminum cylinder if it is not marked as being hydrostatically tested within five (5) years.
- Do not fill or use composite cylinders older than 15 years. Depressurize and destroy these cylinders. Call Sperian before condemning 15-year-old carbon fiber cylinders. An extension of service life beyond 15 years may have been approved since the cylinder was manufactured.
- Inspect cylinders before each filling. Remove cylinders from service which have cuts, gouges, dings, bulges, corrosion, etc. A special internal and external visual inspection of cylinders must be completed at least every hydrostatic test. Follow the guidelines of CGA 6.2.
- Do not fill with oxygen.
- Do not use caustic paint strippers or corrosive cleaners.
- Do not remove, obscure, or alter any labels on SCBA cylinders.
- Failure to comply with this Warning may lead to personal injury, illness, or death.

A. Inspection

After each use and prior to recharging, each air cylinder shall be subjected to a thorough visual inspection:

⚠ WARNING

- **Do not fill any cylinders that are damaged, you suspect may be damaged or unsafe, or are out of conformance with applicable hydrostatic test dates. Damaged cylinders must be inspected by an approved hydrostatic test facility and repaired as required before being filled.**

- **DO NOT over-torque air cylinder valves. ALWAYS verify that the hydrostatic test facility performing your cylinder testing DOES NOT over-torque the cylinder valves when they reinstall them. Failure to comply with this Warning may lead to personal injury, illness, or death.**

1. Aluminum Cylinders

   Ensure that no more than five years have elapsed since the last hydrostatic test has been performed, as indicated by the most recent date stamped into the cylinder shoulder. Inspect the exterior of the cylinder for dents, gouges, bulges, and evidence of exposure to high temperature such as darkened or blistered paint, charred decals, melted or distorted gauge lens, etc.

2. Composite Cylinders

   Ensure that no more than three years have elapsed since the last hydrostatic test has been performed on fiberglass cylinders, and no more than five years have elapsed since the last hydrostatic test has been performed on carbon cylinders; and that the cylinder is less than 15 years old. Inspect the exterior of the cylinder for dents, gouges, or cuts which have penetrated and caused separation or unraveling of the composite overwrap. Watch for evidence of exposure to high temperature, such as darkened or blistered paint, charred overwrap or decals, melted or distorted gauge lens, etc.

3. Cylinder Valve

   The cylinder valve should also be examined for obvious damage, such as a deformed handwheel, inaccurate or inoperative pressure indicator, damaged threads on the outlet connection, or other evidence of impact or exposure to extreme heat. If internal contamination is suspected, remove the cylinder valve and inspect the interior of the cylinder. The cylinder valve overhaul cycle is as follows:

   a. For all aluminum or carbon composite cylinders, overhaul the valve at every hydrostatic retest (5 year cycle).
   b. For fiberglass composite cylinders, overhaul the valve at every other hydrostatic retest (6 year cycle).

4. Additional Information

   a. Additional information on cylinder inspection and maintenance can be found in CGA pamphlet C-6, "Standards for Visual Inspection of Compressed Gas Cylinders," CGA pamphlet C-6.1, "Visual inspection of High Pressure Aluminum Cylinders," or CGA pamphlet C-6.2, "Guidelines for Visual Inspection and Requalification of Fiber Reinforced High Pressure Cylinders," available from the Compressed Gas Association, Inc. If there is any doubt about the suitability of a cylinder to recharge, it should be returned to a certified hydrostatic retest facility for expert examination and retesting.
   b. A comprehensive listing of all licensed hydrostatic test stations is available from the Department of Transportation.

B. Filling Procedures

1. Air Purity

   Unless safety and health codes in your area specify otherwise, air cylinders should be refilled with compressed air meeting the purity requirements for Type 1, Grade D Gaseous Air as specified by the Compressed Gas Association Commodity Specification for Air, publication G-7.1. The moisture content, expressed as dewpoint, shall be maintained at -65°F (-53.9°C) or lower, or less than 24.0 ppm by volume moisture content. UNDER NO CIRCUMSTANCES SHALL AN AIR CYLINDER BE FILLED OR PARTIALLY FILLED WITH OXYGEN.

NOTE

When the SCBA is being used for fire fighting, it is recommended that the cylinder be filled with air meeting the requirements of NFPA 1989.

2. Maximum Fill Pressure

   Composite and aluminum cylinders may be filled ***only*** to the service pressure indicated on the cylinder label. Composite and aluminum cylinders must ***never*** be filled to a pressure greater than the marked service pressure.

3. Filling Procedure

   a. The fill station must be constructed and equipped in accordance with applicable state industrial safety codes.
   b. The cylinder may be partially immersed (DO **NOT** submerge the cylinder valve) in a water bath to minimize the temperature rise that occurs as the cylinder is filled. The fill hose should be equipped with a restraining cable to prevent uncontrolled "whipping" in case of hose failure.
   c. After connecting the fill hose, open the cylinder valve fully. A separate metering valve must be used to control the fill rate. Fill the cylinder slowly, at a rate not exceeding 500 psig per minute. (Use caution if faster recharging rates are used.) After the initial filling, allow the cylinder to cool to room temperature, then "top off" the cylinder to achieve full service pressure.
   d. Use particular care to ensure that an air cylinder is never connected to a source capable of supplying air at a pressure greater than the maximum service pressure of that cylinder.
   e. Close the cylinder valve when the cylinder is full.
   f. Slowly bleed pressure from the filling lines.
   g. Disconnect the filling lines.

4. Storage

   Air cylinders should be recharged as soon as is practical after use. Cylinders should not be stored partially charged, for two reasons:

   a. If used without recharge, the service duration of the apparatus is reduced.
   b. The safety relief device is designed specifically to protect a fully charged cylinder from the effects of a fire or from mechanical shock.

For maximum safety, the cylinders should be stored fully charged.

If the cylinder is stored empty and the valve is inadvertently left open, humid atmospheric air may enter the cylinder and result in interior corrosion.

If a self-contained breathing apparatus is to be maintained in "standby" mode, i.e., available for immediate emergency usage, the cylinder pressure gauge should be checked at least once a month to assure that the cylinder is charged to full service pressure. Place the cylinder in a suitable safety sleeve or filling area.

VIII. MAINTENANCE

NOTE

Inspect the SCBA for defects before and after each use, and at least once monthly if not used. Repair as necessary, clean and disinfect after each use, and store properly to assure that the SCBA is maintained in satisfactory working condition. Keep records of inspection and repair dates and results. Refer to the inspection table in the back of this manual.

A. Facepiece Cleaning

⚠ WARNING

- **It is the user's responsibility to ensure that the cleaning process chosen provides adequate disinfection or decontamination.**
- **Specialized processes are required to disinfect and decontaminate a respirator. You MUST follow the instructions of the manufacturer who supplies the disinfecting or decontamination equipment or chemicals.**
- **In the absence of a commercial sanitizing product, the hypochlorite solution described in the steps below will eliminate many, but not all, biohazards.**
- **Failure to comply with this Warning may lead to personal injury, illness, or death.**

CAUTION

- **DO NOT clean the facepiece with the regulator, RCS, or VAS attached.**
- **You must ensure that this respirator is not damaged by disinfecting or decontamination equipment or chemicals.**
- **The facepiece lens can be scratched through careless or abusive handling. DO NOT use abrasive cleaners or pads. DO NOT towel dry.**
- **Cleaning or bleaching solutions containing chlorine will damage the Headnet.**

NOTE

• Silicone and rubber parts of the facepiece may be cleaned between washing with Sperian Mask Wipes, P/N B140096.

• ANSI Z88.2 1992 also provides information and guidelines on the cleaning and sanitizing of respirators.

1. Make a cleaning solution of warm (120°F or 48°C maximum) water and a mild detergent.
2. Immerse the facepiece top first in the solution until the exhalation valve is covered.
3. Agitate the facepiece and gently clean with a soft brush.
4. Thoroughly rinse the facepiece in fresh water, paying particular attention to removal of all soap residue from the exhalation valve. If possible, direct running water onto the exhalation valve.
5. Disinfect the facepiece in a warm (120°F or 48°C maximum) suitable sanitizing solution, such as a "hypochlorite solution" (two [2] tablespoons of chlorine bleach per gallon of water), for two (2) to three (3) minutes. Rinse thoroughly with fresh warm (120°F or 48°C maximum) water. If other sanitizing solutions are used (such as quaternary ammonium or glutaraldehyde), follow the manufacturer's instructions supplied with the sanitizing compound.
6. Allow the facepiece to drip dry. Warm air may be used to speed up drying.
7. Hold the facepiece firmly against your face and exhale several times to ensure that the exhalation valve functions smoothly.

NOTE

If fogging occurs on the facepiece lens when exhaled upon, recoat with Sperian Anti-fog Solution, P/N 951015 (1 oz.), or P/N 961016 (16 oz.), or Anti-fog Wipe, P/N 981805.

B. Second Stage Regulator Cleaning

⚠ *WARNING*

Do not allow water or cleaning solutions to enter the breathing system or the regulator. Dirt, dust, or soap residue could degrade regulator performance, causing it to fail, possibly resulting in injury or death. Do not submerge the regulator in water or cleaning solutions.

⚠ *WARNING - Continued*

It may be partially submerged only as instructed in step 8 below. Failure to comply with this Warning may lead to personal injury, illness, or death.

NOTE

• Always hold the regulator with the outlet facing downward during washing and rinsing.

• The Protective Cleaning Cap, P/N 961170, must be used to seal the second stage regulator to prevent water or contaminants from entering the regulator outlet. See Figure 16.

Figure 16. Protective Cleaning Cap

1. Make a cleaning solution of warm water and a mild detergent.
2. Have a bucket of fresh water available for rinsing.
3. Install the second stage cleaning cap, P/N 961170.
4. With the regulator facing downward, clean the exterior surfaces with a soft brush.
5. With the regulator facing downward, immediately rinse the exterior with fresh water. Scrub excess soap away with the brush. Remove the second stage cleaning cap. If water enters the second stage regulator while cleaning, flow the regulator and bypass to expel all moisture.
6. Using a damp, lint-free cloth, clean the interior of the outlet tube.

7. Dry with a clean cloth or with low pressure breathing grade (15 psig maximum) clean air.

C. Exterior Surfaces Cleaning

⚠ WARNING

Do not use cleaning solutions containing chlorine to clean the harness, or degradation of the harness material may result. Failure to comply with this Warning may lead to personal injury, illness, or death.

CAUTION

Do not allow cleaning solutions to enter the breathing system.

The hoses, backpack harness, frame, and cylinder/valve assembly may be cleaned with a damp cloth or a mild soap and warm water solution. Rinse thoroughly and air dry or wipe with a clean cloth.

D. Inspection (see page 37)

Sperian recommends that the **WARRIOR** SCBA be fully inspected upon initial receipt. See page 37 for recommended inspection procedures. Sperian also recommends a full flow test be performed per "NFPA 1852 Standard on Selection, Care, and Maintenance of Open-Circuit Self-Contained Breathing Apparatus (SCBA) 2007 Edition" (or latest edition) for additional inspection requirements for SCBAs used for fire fighting.

E. Repair (see page 38)

⚠ WARNING

Before disassembly, make sure that all air is bled from the lines. Shut off or deplete the air supply to prevent equipment damage or personal injury.

CAUTION

User repair of the Sperian SCBA is limited to replacement of components listed on the NIOSH CBRN approval label and repair described in the table on page 38. Disassembly should be performed only to the extent necessary to replace the components. To protect your warranty and the NIOSH certification on the equipment, all other repairs must be done only by Sperian-certified technicians. If there are none at your facility, consult your Sperian distributor for the repair facility nearest you.

NOTE

All Sperian-certified Technicians are required to remain current on new procedures and parts through Sperian's published Technical Bulletins, technical manual revisions, and certification seminars.

F. Functional Testing (see page 39)

Perform functional tests after cleaning or repair.

G. Cylinder Recharging

Refer to section VII., Cylinder Filling and Safety, for details on the recharging procedures for cylinders approved for use with Sperian SCBAs.

H. Cold Weather Operation and Maintenance

Operation of the Sperian SCBA in cold weather, 32°F (0°C) or colder, requires the user to be aware of the potential problems causing by the combination of moisture and low temperatures.

⚠ WARNING

- **Moisture entering the regulator system, either from moisture in the cylinder air or by external means, e.g., inclement weather conditions, may cause regulator system freezeup, restricting or stopping air flow to the user. This could result in injury or death to the user.**

- **Recharge the cylinders with Grade D or better air conforming to Compressed Gas Association Specification G-7.1. Moisture content, expressed as dewpoint, shall be maintained at -65°F (-53.9°C) or lower, or less than 24.0 ppm by volume. Air exceeding this moisture content may cause regulator system freezeup, restricting or stopping air flow to the user. This could result in injury or death to the user.**

NOTE

• Moisture can cause regulator system freezing problems even if the ambient air temperature is above freezing. The air flowing from the SCBA cylinder through the regulator system decreases from cylinder pressure to near atmospheric pressure very rapidly. As this pressure decreases, the air rapidly expands, causing the air and therefore the regulator to cool.

• Although the ambient temperature may be above 32°F (0°C), the temperature inside the regulator system may be considerably lower (below freezing).

• Sperian recommends that SCBAs used on a routine basis or SCBAs kept for emergency use be stored at temperatures above 32°F (0°C). SCBAs stored at temperatures below 32°F (0°C) may need to be warmed to at least 32°F (0°C) prior to use if ice has formed on the low pressure alarm, facepiece exhalation valve, AIR KLIC, and/or quick disconnects.

Sperian recommends a "change of season" inspection and increased attention to your preventive maintenance during cold weather conditions. The following recommended inspections and procedures will help prevent cold weather problems; however, cold weather conditions may also cause other problems not listed below.

1. Air Supply

NOTE

Cold weather conditions require very dry air. Moisture entering the SCBA may cause icing and equipment malfunction.

a. Test compressor(s) for air quality and dewpoint prior to the cold season.
b. Recharge the cylinders with Grade D or better air conforming to Compressed Gas Association Specification G7.1. Moisture content, expressed as dewpoint, shall be maintained at -65°F (-53.9°C) or lower, or less than 24.0 ppm by volume.
c. Prevent any moisture from entering the SCBA.
d. Remove ice and water from cylinder valve threads prior to filling in cold weather conditions.

2. Facepiece and Exhalation Valve

a. The facepiece must be protected from moisture during cold weather conditions to reduce ice formation on the facepiece lens, in the AIR KLIC, and in the exhalation valve.
b. Prior to donning the facepiece in cold weather, visually inspect the lens, AIR KLIC, and exhalation valve for ice.
c. If ice is present, warm the facepiece to melt the ice. Ice may be melted by placing the facepiece inside outerwear near the body to warm.

NOTE

If the facepiece has been stored at a temperature below freezing (32°F or 0°C) and it is not possible to warm the facepiece prior to usage, do not exhale into the facepiece until it is properly donned and the regulator is installed and activated.

d. Check the function of the exhalation valve by performing a positive pressure exhalation test and negative pressure leak check as follows:
e. Don the facepiece as specified in the Donning section of this manual.
f. Perform a negative pressure leak check:

i. Place your hand over the AIR KLIC.

ii. Inhale and hold your breath for a few seconds. The facepiece should collapse on your face and remain collapsed for several seconds without leaking.
iii. If the facepiece leaks, exhale onto the exhalation valve at least six to eight more times. Reposition the facepiece, check the straps, and repeat the leak check.
iv. If the facepiece continues to leak, remove it from service.
v. Have the facepiece inspected and/or repaired by a Sperian-certified repair technician before reuse.

g. Perform a positive pressure exhalation test:

i. Take a deep breath, and place your hand over the AIR KLIC.
ii. Exhale normally. The exhalation valve must function normally.
iii. If the exhalation valve does not function or it is difficult to exhale, remove the facepiece.
iv. Reposition the facepiece, check the straps, and repeat the test.
v. If the exhalation valve continues to malfunction, remove the facepiece from service.
vi. Have the facepiece inspected and/or repaired by a Sperian-certified repair technician before reuse.

h. Again, visually check to verify that the facepiece, lens, AIR KLIC, and exhalation valve are ice-free.

⚠ WARNING

If it becomes necessary to remove the facepiece when using the SCBA, move to a non-hazardous area first. Failure to comply with this Warning may lead to personal injury, illness, or death.

NOTE

If the ambient temperature is near or below freezing, place the facepiece and regulator under outerwear to keep it warm in case reuse is necessary.

3. Second Stage Regulator

⚠ WARNING

- **Ice on the second stage regulator AIR KLIC buttons or the facepiece AIR KLIC adapter may prevent proper engagement and/or disengagement of the regulator.**
- **The user must ensure that the regulator is properly engaged by rotating and tugging the regulator to verify that both release buttons are properly engaged in the AIR KLIC.**
- **When using the SCBA in temperatures below 0°F (-17.78°C), press the manual activation button on the front of the regulator to activate flow immediately after inserting the regulator.**
- **Failure to comply with this Warning may lead to personal injury, illness, or death.**

a. The second stage regulator must be protected from moisture during cold weather conditions to avoid ice buildup on its exterior surfaces. Ice can interfere with emergency bypass operation or AIR KLIC button function, which can hinder regulator removal from the facepiece or from the regulator receiver.
b. Visually inspect the external surfaces of the regulator for ice prior to use.
c. If ice is present, it may be melted by placing the regulator inside outerwear near the body to warm.
d. Again, visually inspect the regulator for ice, then check the red bypass knob and the AIR KLIC buttons for proper function.
e. Should ice form on the regulator while the regulator is in the facepiece, it will continue to function properly. When it becomes necessary to remove the regulator, rotate the regulator to break off the ice, then remove the regulator from the facepiece.
f. If the AIR KLIC buttons are frozen and the regulator cannot be removed, do not force the buttons. Move to a non-hazardous area, depress the regulator shutoff button, and remove the facepiece and regulator as a unit.
g. If the shutoff button is nonfunctional, turn off the air supply at the cylinder valve.
h. Remove the facepiece and regulator as a unit.
i. Warm the facepiece and regulator until the normal function of the AIR KLIC button and/or the shutoff button returns.
j. Should ice form on the regulator while the regulator is in the regulator waist-strap-mounted regulator holder, rotate the regulator to break off the ice, then remove the regulator from the regulator holder.
k. If the AIR KLIC buttons are frozen and the regulator cannot be removed from the receiver, do not force the buttons. Unbuckle the waist belt, and place the belt, regulator receiver, and regulator under outerwear next to your body to warm it until the AIR KLIC button functions properly.

4. Backpack
   a. Visually inspect the tank band cam-over mechanism, shoulder pad adjustment buckles, and waist strap adjustment buckles for ice.
   b. Remove ice by flexing and moving the straps through the adjustment buckles.

5. Regulator Holder
   a. During cold weather operation, keep the regulator holder cover in place on the regulator holder to keep out moisture and debris.
   b. Visually inspect the regulator holder for ice prior to use.
   c. Remove ice by warming the regulator holder, placing it under outerwear near the body to warm.

6. Cylinder Valve
   a. During cold weather conditions, ice can form on the cylinder valve. Ice may interfere with the cylinder ratchet lock mechanism, if so equipped.

⚠ WARNING

Do not use heat above 160°F (71°C) or direct flame to melt ice. Failure to comply with this Warning may lead to personal injury, illness, or death.

b. Warm the cylinder valve to melt the ice and return the ratchet lock mechanism to proper working order.

NOTE

Remove ice and water from cylinder valve threads prior to filling in cold conditions.

7. Gauge and Alarms

⚠ WARNING

DO NOT use the SCBA if there is ice on the gauge face or alarm. Gauge or alarm freezeup could result in a failure to realize that the SCBA is near the end of its service life, causing personal injury or death.

a. Gauge

i. Verify that the gauge face is free from ice.

ii. If there is any ice on the gauge, remove the ice prior to returning the SCBA to service.

iii. If the SCBA is not equipped with a PASS device, during use, turn the gauge to face the body. Check the gauge frequently for ice buildup.

b. Audible Alarm

i. During cold weather conditions, ice can form on the audible alarm, rendering the alarm inaudible. Remove the ice or melt it with a gloved hand.

ii. Ice may obstruct the alarm vent holes, the protective backpack grill, and the end of the bell piston (if used), interfering with the operation of the SCBA. Melt the ice with a gloved hand, or pass warm air over it.

c. Heads-Up Display

⚠ WARNING

DO NOT use the SCBA if there is ice on the HUD or audible alarm. Malfunction of either alarm could result in a failure to recognize that the SCBA is near the end of its service life, causing personal injury or death.

i. During cold weather conditions, ice can form on the HUD display.

ii. Verify that the HUD display is free from ice.

iii. If there is any ice on the HUD display, remove the ice prior to returning the SCBA to service.

8. First Stage Regulator

During cold weather conditions, ice may form on the exterior surfaces of the first stage regulator.

⚠ WARNING

Use extreme care when changing cylinders. DO NOT allow moisture or ice to enter the regulator system. Moisture or ice entering the regulator system may cause the SCBA to freeze up, restricting or stopping air flow to the user, resulting in death or injury.

9. Rapid Intervention Crew/Company Universal Air Coupling (RIC UAC)

a. During cold weather conditions, ice may form on the RIC UAC protective cover.
b. Prior to use, visually inspect the RIC UAC components for ice.
c. Remove or melt the ice, then dry the RIC UAC coupler and protective cover to avoid water entering the RIC UAC coupler.
d. Always keep the protective cover installed on the RIC UAC coupler during cold weather conditions when the RIC UAC is not in use.

10. Auxiliary Coupler Assembly

a. During cold weather conditions, ice may form on the auxiliary coupler assembly.
b. Prior to use, visually inspect the auxiliary coupler components for ice.
c. Remove or melt the ice, then dry the auxiliary coupler components to avoid water entering the regulator.
d. Always keep the rubber cap installed during cold weather conditions when the auxiliary coupler is not in use.

11. Training and Use

a. Conduct training sessions for cold weather operations using all equipment and accessories which may be used during actual operations.
b. During cold weather operations, do not place cylinders or SCBA components into wet or snowy areas.
c. Visually inspect the cylinder, remove ice, clean the threads, and take care to prevent water from entering the cylinder or accumulating on connecting surfaces.
d. Icing will be accelerated by high air flow conditions. Examples my include, but are not limited to:

- Bypass usage
- Facepiece leakage due to improper sealing
- Allowing the regulator to free-flow when the facepiece is off
- Improperly maintained equipment

e. After cleaning, allow the SCBA to dry completely before returning it to storage. Be sure the facepiece exhalation valve is dry before placing the facepiece into storage.

12. Accessories

Cold weather conditions may have adverse effects on the performance of the SCBA accessories.

a. Air line hoses can become stiff.
b. Ice on quick-disconnect couplers can make them difficult or impossible to connect.
c. Plastic components can become brittle.
d. Electrical equipment (e.g., radios, PASS devices, and lights) tends to become more difficult to use in cold temperatures, especially if there is ice.
e. Use SCBA accessories with extreme care in cold weather conditions. Visually inspect them periodically for ice.

I. Storage

⚠ WARNING

The SCBA must be stored in a cool, dry location with the cylinder valve closed and the air pressure vented from the system. Storing an SCBA with the cylinder valve open and the system under pressure can result in damage to elastomeric materials in the regulator, particularly if the SCBA is stored at temperatures above 160°F (71°C). Damage resulting from improper storage could result in reduced flow or even stop flow conditions, resulting in injury, illness, or death.

1. Inspect, clean, and repair as required before storing.
   a. Connect a fully charged air cylinder to the CGA handwheel and secure it in the backpack.
   b. Check that the cylinder valve locking sleeve (if so equipped) is in the LOCKED position.
   c. Check that the bypass is closed.
   d. Fully loosen the harness adjustment straps and waist strap.
   e. Fully loosen the facepiece headstraps.
   f. Place the facepiece in a mask bag.
2. After inspection, cleaning, and necessary repair, the SCBA should be stored away from dust, sunlight, heat, extreme cold, excessive moisture, or damaging chemicals.

J. Flow Test

⚠ WARNING

Direct contact with CBRN agents requires proper handling of the SCBA after each use and between multiple entries during the same use. Decontamination and disposal procedures must be followed. If contaminated with liquid chemical warfare agents, dispose of the SCBA after decontamination. Failure to comply with this Warning may lead to personal injury, illness, or death.

The SCBA must pass an annual performance flow test, utilizing a properly calibrated Sperian instrumentation PosiChek^3 with Sperian-specific software. Maintenance and repair, unless otherwise specified in this manual, must be performed by a Sperian-certified technician. SCBAs subjected to daily or severe service, such as heavy use, extreme temperatures, flame, or exposure to chemicals, require more frequent servicing.

⚠ WARNING

CBRN-agent contaminated SCBAs are required to be decontaminated to remove gross contamination; the concentration must be quantified, and the SCBA must be containerized and properly disposed of in accordance with local, State, and Federal hazardous waste regulations as the incident response allows.

K. Cylinder Valve Overhaul Schedule

Cylinder valves must be overhauled according to the following schedule:

1. Cylinder valves on aluminum or fully wrapped carbon fiber cylinders must be overhauled every 5 years or at each hydrostatic test.
2. Cylinder valves on hoop-wrapped or fiberglass cylinders must be overhauled every 6 years or at every other hydrostatic test.

L. Cylinder Hydrostatic Test Schedule

Cylinders require hydrostatic testing to verify that the cylinder can hold its rated pressure. Hydrostatic testing is required by the Department of Transportation (DOT) at the following intervals:

1. All aluminum (not including hoop-wrapped) — every 5 years (indefinite life until it fails a hydrotest)
2. Hoop-wrapped — every 3 years (15-year life)
3. Fully wrapped carbon fiber — every 5 years (15-year life)

M. Maintenance Record

A maintenance record must be kept for each SCBA, noting at least:

1. Date of repair
2. Name of repair technician
3. Description of malfunction
4. Course of action taken to correct malfunction
5. Any other pertinent data

All records and test results must be permanently filed for future reference.

Refer to the SCBA service manual for instructions for troubleshooting, repair, and overhaul. The overhaul process involves replacement of certain o-rings, lubricants, or other components.

N. Additional Information

If you need assistance or additional information on any Sperian product, consult your local distributor or contact:

Sperian Respiratory Protection USA, LLC
3001 South Susan Street
Santa Ana, CA 92704
(800) 821-7236
FAX (800) 201-4407

ALL RETURNED PRODUCTS MUST BE DECONTAMINATED PRIOR TO SHIPMENT. PRODUCTS CONTAMINATED WITH DANGEROUS SUBSTANCES WILL BE REFUSED AND RETURNED FREIGHT COLLECT.

Use the contact information below to contact the certification organizations to report any serious **WARRIOR** malperformance or failures. Do not contact the certification organizations to report issues relating to normal wear and tear; parts damaged by abuse, misuse, negligence, or accidents; and damage due to battery leakage.

Safety Equipment Institute (SEI):
(703) 442-5732

National Institute for
Occupational Safety and Health
(NIOSH):
(412) 386-6686

IX. INSPECTION TABLE

IF ANY OF THE DEFECTS LISTED BELOW ARE FOUND, HAVE THE SCBA REPAIRED BEFORE USE.

COMPONENT	LOOK FOR
FACEPIECE LENS	1. Nicks, scratches, or abrasions which could impair visibility. 2. Deep gouges or cracks which could reduce impact resistance. 3. Anti-fog coating in need of replacement. (Facepiece fogs when exhaled upon.)
FACEPIECE RIMS	1. Deformed, cracked, or broken rims. 2. Loose rim screws. (Do not overtighten.)
FACEPIECE SKIRT	1. Cuts, gouges, or punctures. 2. Tears or nicks in the sealing area. 3. Deterioration from age, heat, or contamination.
FACEPIECE HEADSTRAP, BUCKLE STRAPS	1. Abrasions or nicks. 2. Deterioration from age, heat, or contamination.
FACEPIECE INLET NOZZLE	1. Heat damage to the nozzle body and cover. 2. AIR KLIC not seated and ratchet ring not engaged. 3. AIR KLIC chipped, cracked, dirty, or sticky; threads or o-ring damaged or missing. 4. Dirt and debris in the exhalation module. 5. Exhalation valve sticking closed. (Exhale a few times to test.) 6. Exhalation valve sticking open under positive pressure. (Test with regulator.) 7. Damaged exhalation valve or valve seat.
SECOND STAGE REGULATOR & HOSE	1. Cracks or heat damage to housing or cover. 2. Faulty operation of bypass valve, First-Breath-On, AIR KLIC, or override buttons. 3. Dirt and debris in the outlet port; screen and grill cracked. 4. Hose or fittings corroded, cracked, or leaking. 5. Sticking release and shutoff buttons. 6. Loose regulator outlet.
GAUGE	1. Gauge lens scratched; pointer deformed or stuck. 2. Hose or fittings corroded, cracked, or leaking. 3. Torn rubber boot.
HEADS-UP DISPLAY (HUD)	1. Display cover scratched or damaged. 2. Cable cracked or split. 3. Dirty or damaged display, including LEDs and photodiode. 4. Display housing cracked or damaged.
FIRST STAGE REGULATOR & AUDIBLE ALARM	1. Hose and fittings corroded, cracked, or leaking. 2. Loose retaining rings on hose connectors. Loose inlet nipple. 3. Abrasion of hose. 4. Damaged female threads on CGA handwheel. 5. Damaged o-ring or groove on CGA nipple. 6. Loose inlet nipple. 7. Missing o-ring. 8. Dents or heat damage to housing.
HARNESS FRAME	1. Cylinder band and latch not working properly. 2. Cylinder not secured in band. 3. Bent, broken, or cracked frame or covers. 4. Webbing color change; excessive wear or fraying; cuts, nicks, or broken stitching. 5. Inspect stitching for thread unraveling, abrasion, cuts, tears, and chemical or corrosion attack at the top of the shoulder strap, and shoulder strap adjustment buckle. 6. Buckles damaged or corroded. 7. Loose hardware. 8. Plastic crazing, charring, cracking, pitting, blistering, and significant color changes. 9. Bent or broken cam-over lock spring. 10. Unreadable or missing NIOSH, NFPA, or CBRN Agent approval labels.
AIR CYLINDER & VALVE	1. Dents, gouges, blisters, or cuts. 2. External damage to cylinder valve. 3. Smooth operation of valve handwheel and ratchet collar (if so equipped). 4. Loose screws securing rubber guard on cylinder valve. 5. Condition of threads on valve outlet. 6. Cylinder pressure gauge lens scratched; pointer deformed or stuck. 7. Gauge reading correctly. 8. Hydrostatic test date within three years (Fiberglass cylinders) or five years (carbon cylinders and all-aluminum cylinders).

NOTE

- Inspection guidelines for cylinders are prescribed in pamphlets C-6, C-6.1, and C-6.2 of the Compressed Gas Association. These pamphlets may be obtained from the Compressed Gas Association, Inc., 1235 Jefferson Davis Highway, Arlington, VA 22202.
- If there are any items not listed above that appear to be defective, have the SCBA repaired before use.

X. REPAIR TABLE

COMPONENT	INSTRUCTIONS
HEADSTRAP, BUCKLE STRAP REPLACEMENT	1. Remove the old straps. 2. Install new straps.
EXHALATION MODULE	1. Remove the nozzle cover by pressing the ratchet ring with a finger and unscrewing the AIR KLIC counterclockwise. 2. Remove the valve assembly by squeezing the legs of the spring retainer. 3. Clean or replace the valve assembly. 4. Replace the valve assembly by guiding the valve stem into the opening in the nozzle, ensuring that the spring is rotated only 45° clockwise. 5. Insert the spring retainer legs into the openings on the nozzle. 6. Reassemble the nozzle cover and AIR KLIC. 7. Fit the facepiece over your face and cycle the exhalation valve by blocking the AIR KLIC opening with your palm and exhaling several times. 8. Perform a leak check as described in OPERATION INSTRUCTIONS, or conduct a facepiece leak test on the Sperian instrumentation PosiChek^3 with Sperian-specific software installed.
NOSE CUP	Replace the nose cup on the nozzle, aligning the slot on the nose cup with the tab on top of the nozzle.
FACEPIECE LENS REPLACEMENT	1. Use a 9/64 inch Allen wrench to remove the rim nuts and screws. 2. Gently separate the rims from the facepiece. 3. Pull the butyl rubber skirt away from the lens. 4. Remove the nozzle cover by pressing the ratchet ring with a finger and unscrewing the AIR KLIC counterclockwise. 5. Remove the nozzle by pushing it from the front of the facepiece. Use thumbs to press the locking tabs at the sides of the nozzle. (DO NOT push on the spring retainer.) 6. Place the nozzle into the new lens. 7. Reassemble the nozzle cover and AIR KLIC. 8. Install the nose cup. 9. Place the lens edge inside the lens channel of the skirt, centering the lens so that the facepiece-to-face seal is not distorted. Apply a small amount of liquid soap (for lubrication) to the inside of the upper and lower rims prior to assembly. 10. Install the skirt rims; start the screw on one side; then start the screw on the other side. CAUTION—Do not pinch the skirt between the rims. 11. Alternate tightening each screw until firmly tightened. NOTE — The corners of the skirt should be centered between each rim when installation is complete. 12. Perform a leak check as described in OPERATION INSTRUCTIONS.
FIRST STAGE EXTERNAL CGA-TO-VALVE O-RING	1. Remove the old o-ring. 2. Ensure that the o-ring seat is undamaged and free of debris. 3. Lightly lubricate a new o-ring with Christolube and install on the o-ring.
ACCESSORIES	Each modification kit and accessory purchased from Sperian has installation instructions. Use these instructions for removing and replacing any accessory.

NOTE
Make appropriate entries on equipment record cards.

XI. FUNCTIONAL TESTING TABLE

COMPONENT	INSTRUCTIONS
FACEPIECE	1. Don and adjust the facepiece. 2. Block the AIR KLIC opening with the palm of your hand. 3. Inhale gently. The facepiece should collapse slightly and hold for a few seconds without leaking. 4. Exhale with the AIR KLIC opening covered. The exhalation valve must not stick.
LEAK TEST	1. Push the shutoff button on the second stage regulator to stop the flow of air. 2. Open the cylinder valve to fully pressurize the regulators. 3. Close the cylinder valve. 4. Observe the gauge/alarm for 15 seconds. Significant needle movement indicates a leak, and the SCBA should not be used.
AUDIBLE ALARM TEST	1. Open the cylinder valve to fully pressurize the SCBA. 2. Close the cylinder valve. 3. Press the shutoff button on the second stage regulator to stop the flow. 4. Slightly open and close the bypass valve to stop the gauge pointer at each ¼ mark for 2 seconds. 5. Continue to open and close until the pointer moves slowly to the ¼ FULL mark. 6. The audible alarm should begin when the gauge reaches approximately ¼ FULL. 7. When the audible alarm begins, close the bypass valve. 8. The alarm should continue until the air is almost depleted. 9. Bleed all residual air. 10. Close the bypass valve.
HEADS-UP DISPLAY	1. Open the cylinder valve to fully pressurize the SCBA. 2. Close the cylinder valve. 3. Press the shutoff button on the second stage regulator to stop the flow. 4. Slightly open and close the bypass valve to stop the LED display at each ¼ mark for 5 seconds. 5. Continue to open and close the bypass valve slowly until the HUD display reads ½ full. 6. Verify that the 50% warning is working correctly (the green LED representing ½ cylinder pressure should blink on and off for approximately 20 seconds, then stay lighted continuously). 7. Continue to open and close the bypass valve slowly until the HUD display reads ¼ full. The audible and visual alarm should begin when the display reaches approximately ¼ full. Activation of the visual alarm (flashing red LED) portion of the display may or may not coincide perfectly with the audible alarm (i.e., bell, whistle, etc.) on the SCBA. 8. When the audible alarm begins, close the bypass valve. 9. Both alarms should continue until the air is almost depleted. 10. Bleed all residual air. 11. Close the bypass valve.
SCBA FUNCTION TEST	1. Attach the CGA handwheel to a fully charged cylinder. 2. Close the second stage regulator bypass valve and depress the shutoff button. 3. Slowly open the cylinder valve. 4. Check that the cylinder valve gauge and gauge/alarm both read in the green zone. 5. Attach the second stage regulator to the facepiece and inhale. The regulator should deliver an acceptable flow of air without excessive effort, free flow, or fluttering. 6. Slowly open the bypass valve. A steady flow of air should enter the facepiece. 7. Depress the shutoff button. Air flow should stop. 8. Push the override button. A small burst of air should enter the facepiece and the regulator should activate. 9. Close the cylinder valve and bleed all residual air.

NOTE

A program for use, training, inspection, record keeping, and maintenance is given in the United States National Fire Protection Association Standard 1404, Fire Department Self-Contained Breathing Apparatus Program.

NOTE

This section must be read in conjunction with the NIOSH approval label in this user's manual. Failure to observe these cautions and limitations voids NIOSH approval.

XII. CAUTIONS AND LIMITATIONS

I - Contains electrical parts that may be an ignition source in flammable or explosive atmospheres.

J - Failure to properly use and maintain this product could result in injury or death.

M - All approved respirators shall be selected, fitted, used, and maintained in accordance with MSHA, OSHA, and other applicable regulations.

N - Never substitute, modify, add, or omit parts. Use only exact replacement parts in the configuration specified by the manufacturer.

O - Refer to user's instructions, and/or maintenance manuals for information on use and maintenance of these respirators.

S - Special or critical user's instructions and/or specific use limitations apply. Refer to user's instructions before donning.

Q - Use in conjunction with personal protective ensembles that provide appropriate levels of protection against dermal hazards.

R - Some CBRN agents may not present immediate effects from exposure, but can result in delayed impairment, illness, or death.

T - Direct contact with CBRN agents requires proper handling of the SCBA after each use and between multiple entries during the same use. Decontamination and disposal procedures must be followed. If contaminated with liquid chemical warfare agents, dispose of the SCBA after decontamination.

U - The respirator should not be used beyond 6 hours after initial exposure to chemical warfare agents to avoid possibility of agent permeation.

S - SPECIAL OR CRITICAL USER'S INSTRUCTIONS

1. This respirator is approved for use above -25°F (-31.7°C). When using the 2420XX series facepiece in temperatures of 0°F and lower, use anti-fog solution, P/N 951015, 951016, 981806, or 981808.
2. Use with adequate skin protection when worn in gases or vapors that poison by skin absorption (for example, hydrocyanic acid gas).
3. Approved only when compressed air container is fully charged with air meeting the requirements of the Compressed Gas Association, G-7.1 for Type 1, Grade D air or equivalent specifications, and having a moisture content, expressed as dewpoint, of -65°F or lower. The container shall be marked "Fill With Compressed Air Only" and shall meet applicable DOT specifications.
4. Never substitute, modify, add, or omit parts. Use only exact replacement parts on the configuration specified by Sperian.
5. DEATH OR SERIOUS INJURY may result if instructions are not carefully followed.
6. READ AND UNDERSTAND all instructions, limitations, and other warnings found on the apparatus and in the operation manual.

NOTES