

**Opti-Fit™ Gas Mask**  
**CN/CS/P100 APPLICATION:**  
**MODELS 7530/7630/7730**  
**MODELS 7590/7690/7790**

**CBRN APPLICATION:**  
**MODELS 7590/7690/7790**

**Operation and Maintenance Instruction Manual**



**⚠ WARNING**

***DO NOT USE this gas mask until you completely read and understand this instruction manual. You are required to inspect the gas mask prior to putting it into service. Please refer to the inspection procedures in this manual. Failure to comply with this warning may result in serious personal injury, serious illness, or death.***



Table of Contents

I. INTRODUCTION 1  
 II. SAFETY PRECAUTIONS 1  
 III. DESCRIPTION 1  
 IV. PARTS LIST 4  
 V. HOW TO INSPECT FOR CBRN COMPLIANCE 5  
 VI. HOW TO INSTALL THE CANISTER 6  
 VII. HOW TO DON THE GAS MASK 6  
 VIII. HOW TO SELECT FACEPIECE SIZE 7  
 IX. HOW TO FIT CHECK THE GAS MASK 7  
 X. HOW TO USE THE GAS MASK 7  
 XI. HOW TO DOFF THE GAS MASK 8  
 XII. DECONTAMINATION (CBRN Applications Only) 8  
 XIII. HOW TO USE THE DRINK TUBE 9  
 XIV. CANISTER SERVICE LIFE AND REPLACEMENT 9  
     A. Gas/Vapor Service Life 9  
     B. Particulate Filter Service Life 9  
 XV. MAINTENANCE 11  
     A. Inspection 11  
     B. Cleaning and Disinfecting 11  
 XVI. INSPECTION 11  
 XVII. REPAIR 11  
 XVIII. OVERHAUL FREQUENCY 12  
 XIX. STORAGE AND TRANSPORTATION 12  
     A. Facepiece 12  
     B. Canister 12  
 XX. ADDITIONAL INFORMATION 12  
 XXI. WARRANTY AND LIMITATION OF LIABILITY 12  
 XXII. REFERENCES 13  
 XXIII. CAUTIONS AND LIMITATIONS 13  
 XXIV. INSPECTION TABLE 14  
 XXV. REPAIR TABLE 15  
 XXVI. ACRONYMS 17

I. INTRODUCTION

This manual provides instructions for the use and maintenance of the SURVIVAIR Opti-Fit™ Full Facepiece Gas Mask. This manual is applicable to models 7530, 7630, 7730, 7590, 7690, and 7790 when used with the CN/CS/P100 canister model 1688, and models 7590, 7690, and 7790 when used with the CBRN canister model 1690. ***You must read and understand this manual and be trained in the proper use of the respirator before wearing it in a contaminated atmosphere.***

CN/CS/P100 models 7530, 7630, 7730, 7590, 7690, 7790: Before using a respirator in a contaminated work place, you must, at a minimum, understand the elements of a respirator program, your work place, and the contaminants you are trying to protect yourself against. Determining the applicability of a respirator is difficult. You must be able to calculate the service life of the canister, determine the type and concentration of contaminants in your work area, and determine whether the contaminants have poor warning properties, etc. If you do not have a complete understanding of the use of respirators, you must seek the aid of a certified industrial hygienist or contact SPERIAN.

CBRN models 7590, 7690, and 7790: Where “Opti-Fit CBRN Gas Mask” is used in this manual, it refers to the CBRN compliant models 7590, 7690, and 7790 of the Opti-Fit Gas Mask.

The term “contaminant” as used in this manual refers to chemical, biological, radiological, or nuclear (CBRN) warfare agents, toxic industrial chemicals (TIC), toxic in-

materials (TIM), or other substances which may cause serious injury, illness, or death.

The Opti-Fit CBRN Gas Mask is intended for use by emergency responders, trained to respond to a chemical, biological, radiological, or nuclear incident. Emergency responders are generally fire, emergency medical, and law enforcement personnel, although there may be other public or private agencies acting in supportive roles who may require CBRN protection while performing their duties. Users of the Opti-Fit CBRN Gas Mask must understand that the types and concentrations of contaminants in a CBRN event are unpredictable and may vary greatly from one incident to another. In general, an Incident Command System (ICS) will be deployed at a CBRN event to characterize the type and concentration of contaminant(s); establish control zones and identify the required Personal Protective Equipment (PPE); define exposure limits; canister changeout schedules; and decontamination protocols. While the ICS may vary in size depending on the extent of the CBRN event, it will always include an Incident Commander (IC) who will be responsible for on-scene management of the response effort. This comprehensive approach to incident management has been established by the National Incident Management System (NIMS) under the Department of Homeland Security (DHS).

Further information on command, control, and coordination of emergency response efforts can be obtained by contacting your Federal Emergency Management Agency (FEMA) Regional Training Manager. Information on existing and emerging CBRN standards and emergency responder guides can be obtained from the National Institute for Occupational Safety and Health (NIOSH) through the National Personal Protective Technology Laboratory (NPPTL) website [www.cdc.gov/niosh/npptl/](http://www.cdc.gov/niosh/npptl/). Additional references are listed in section XXII of this instruction manual.

II. SAFETY PRECAUTIONS

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

<b>⚠ WARNING</b>
<b><i>Maintenance or operating procedures and techniques that may result in serious personal injury, illness, or death if not carefully followed.</i></b>

<b>CAUTION</b>
<b><i>Maintenance or operating procedures and techniques that may result in damage to equipment if not carefully followed.</i></b>

NOTE

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

III. DESCRIPTION

The SPERIAN Opti-Fit gas mask is a full facepiece negative pressure air purifying respirator (APR), with a

silicone or butyl rubber skirt, and provisions for attaching a gas mask canister in one of three locations. The canister can be front-mounted by screwing it directly into a port in the nozzle, or it can be installed on either side of the facepiece by screwing it into a canister connector that is attached to the lens side ports. The facepiece is designed with a wide lip silicone or butyl rubber skirt and a five-point headstrap harness. The facepiece lens is treated with an abrasion resistant coating. A dry formulation anti-fog wipe is available as an accessory. The facepiece is available in three sizes: small, medium, and large. Along with the standard nose cup, the facepiece may also be equipped with an optional spectacles kit, clear or tinted lens covers, and a neck strap. Optional small and large nose cups are also available.

When used in accordance with the instructions provided in this document, the Opti-Fit CBRN gas mask and CBRN canister provide respiratory protection against CBRN contaminants in accordance with the NIOSH Statement of Standard for CBRN Full Facepiece Air Purifying Respirator. The standard identifies canister service life with the designators "Cap 1, 2, or 3". The minimum protection times in the table below are as tested against representative agents and concentrations identified in the standard.

Designator	Minimum Protection Time
Cap 1	15 minutes
Cap 2	30 minutes
Cap 3	45 minutes

The type and amount of contaminant(s) encountered when responding to a CBRN event are unpredictable and will vary from one incident to another. You must always follow instructions provided by the ICS to know how long you can safely use the gas mask and canister. The ICS will analyze the contaminated area(s) for the type and concentration of contaminant(s) to provide objective information and data, ensuring that each canister is changed out before the end of its service life and that maximum exposure times are not exceeded for the PPE in use.

The SPERIAN CBRN Canister Model 1690 is certified to provide protection at level Cap 1. This protection designator is printed on the canister label beneath the model number.

Before wearing this gas mask in a CBRN environment, the user should consider the use of dermal protection against splashes. Failure to do so may result in personal injury even when the respirator is properly fitted, used, and maintained. When used with non-encapsulating chemical resistant clothing generally consisting of a hood, coveralls, gloves, and chemically resistant boots or boot covers, a CBRN full facepiece APR will provide Level C protection. Do not use beyond eight (8) hours after initial exposure to chemical agents to avoid possibility of agent permeation. If liquid exposure is encountered, do not use the respirator more than two (2) hours.

**⚠ WARNING**

- **For use by trained, qualified personnel only.**
  - **All persons using this SPERIAN gas mask 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.**
  - **This gas mask must be worn and used as specified in SPERIAN's instructions. No gas mask can provide complete protection from all conditions. Use extreme care in all emergency conditions.**
  - **This gas mask may provide less than adequate protection if improperly used, which may result in serious personal injury, serious illness, or death.**
  - **The materials of this respirator can be chemically attacked if exposed to contaminants or decontaminates and may exhibit excessive corrosion or other forms of damage. Permeation or penetration of gases, liquids or particles through the materials could be excessive. Extremes of temperature might cause thermal degradation. Each of these things, or a combination of them, could create conditions in which this SPERIAN gas mask would be dangerous to use.**
  - **Do not use this gas mask if anything comes between the facepiece and your face (e.g., hair, facial hair, bandanna, head covering, etc.). This condition will prevent a good facepiece seal and may allow the leakage of contaminants into the facepiece.**
  - **Do not use this gas mask in environments where the concentrations of contaminants are unknown or are immediately dangerous to life or health (IDLH). IDLH atmospheres are defined as:**
    - a. **Those that the wearer could not breathe for short periods.**
    - b. **Those from which the wearer could not escape without the aid of a gas mask.**
    - c. **Those which have an immediate or delayed adverse effect on health.**
  - **This gas mask does not supply oxygen. Do not use in atmospheres containing less than 19.5% oxygen by volume.**
- CBRN only:**
- Contaminants must be fully characterized before entering a CBRN environment. Seek guidance from the IC or ICS for the incident to which you are responding.**
- CBRN only:**
- **Before entering any environment while wearing this gas mask, testing must be conducted to characterize contaminants and determine if the environment could render the gas mask unsafe. Seek guidance from the IC or ICS for the incident to which you are responding.**

**⚠ WARNING—Continued**

- Do not use this gas mask without a SPERIAN canister securely attached to the facepiece. Always read the canister label prior to use and be certain that the canister you have will provide the required protection. This gas mask must be used for protection against only those air contaminants listed on the canister and/or the NIOSH approval label.
- Do not use this gas mask at ambient temperatures above 130°F (55°C).
- Do not use this gas mask where environmental conditions could cause the facepiece to be dislodged or slip
- Immediately return to a non-contaminated area if:
  - a. You taste or smell contaminants or if your eyes, nose, or throat become irritated.
  - b. Breathing becomes difficult.
  - c. The air you are breathing becomes uncomfortably warm.
  - d. You feel nauseous or dizzy.
  - e. You notice a loss or decrease in airflow.
  - f. The facepiece moves, slips, or leaks.
- This gas mask does not protect exposed areas of the body. Some contaminants can be absorbed directly through the skin and others may burn or irritate exposed areas. Use the gas mask in conjunction with PPE that provides appropriate levels of protection against dermal hazard. Failure to do so may result in personal injury or death.
- This gas mask does not provide protection from hazardous rays or harmful noise. Always wear proper head, eye, and ear protection.
- This gas mask must not be used underwater, for fumigation, interior structural fire fighting, abrasive blasting operations, or in areas where high heat, sparks, or flames could contact the gas mask.
- Do not wear this gas mask if a satisfactory fit, as determined by a qualitative or quantitative fit test, cannot be obtained. (Note for CBRN applications: a quantitative fit test must be performed.) See ANSI Z88.2, latest issue, and OSHA 29 CFR 1910.134, latest edition. Beards, stubble, or sideburns will prevent a good facepiece seal, and facial hair may interfere with valve function. Do not use this gas mask unless you are clean shaven. Absence of one or both dentures, the presence of deep facial scars, etc., can seriously affect the fit of the facepiece.
- Use of components other than those listed on the NIOSH approval label and in this manual, or as authorized by SPERIAN, or modification of this gas mask in any manner will void the NIOSH certification and invalidates all SPERIAN's warranties for the gas mask. Accessories not offered by SPERIAN may degrade performance, and will void NIOSH certification.

**⚠ WARNING—Continued**

- CBRN only: Follow additional instructions and guidance provided by the IC or ICS for the incident to which you are responding, including the type and concentration of contaminant(s), location of control zones, decontamination protocols, and canister changeout schedule.
  - Do not use if you have a preexisting skin condition (for example, folliculitis or vitiligo) until you obtain clearance from a medical doctor.
  - Always read and follow the instructions listed in the Material Safety Data Sheet for the chemicals that are present in the work area.
  - 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 (PEL), ACGIH® Threshold Limit Value (TLV®), or the NIOSH Recommended Exposure Limits (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 gas mask will reduce, but will not eliminate the possibility of contaminants entering the facepiece and causing a severe reaction. Do not use this gas mask until you obtain clearance from a medical doctor.
  - Where suspected cancer-causing contaminants are present, positive-pressure supplied-air respirators will provide higher protection levels.
  - This gas mask must be cleaned and maintained in accordance with SPERIAN's instructions.
  - The gas mask facepiece assembly contains natural rubber latex, which may cause allergic reactions in some individuals. Discontinue use if you experience an allergic reaction.
  - Discontinue use if you experience skin irritation or discoloration.
  - Do not use this gas mask if it has been left exposed in a contaminated environment. Contaminants can collect on the inside of the facepiece and be inhaled when the gas mask is donned.
  - Routinely used gas masks must be inspected before and after each use, and at least every 30 days. A written record must be kept of emergency respirator inspections.
- FAILURE TO OBSERVE ALL WARNINGS MAY RESULT IN SERIOUS PERSONAL INJURY, SERIOUS ILLNESS, OR DEATH.**

Opti-Fit Gas Mask

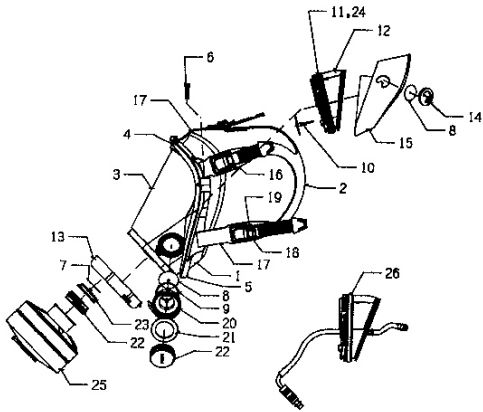


Figure 1A. Opti-Fit Gas Mask Model 7590/7690/7790

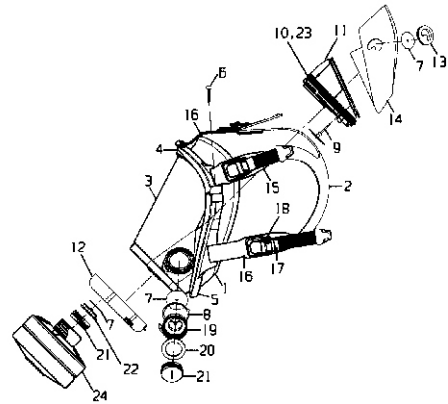


Figure 1B. Opti-Fi Gas Mask Model 7530/7630/7730

IV. PARTS LIST (See Figure 1)

ITEM	QTY	P/N	DESCRIPTION
1	1	962158	Small Skirt, Black
	1	962168	Medium Skirt, Black
	1	962176	Large Skirt, Black
2	1	962114	Headstrap
3	1	702007	Lens
4	1	962031	Upper Rim
5	1	962037	Lower Rim
6	2	839102	Screw
7	Pkg. of 6	763021	Inhalation Valve
8	4	54140215	Inhalation Valve (RP187)
9	Pkg. of 2	702037	Twin Seal
10	Pkg. of 4	B140005	Exhalation Valve
11	1	820261	O-ring
12	1	702013	Nozzle
13	1	702082	Nozzle Cover
14	2	962090	Valve Holder
15	1	702023	Nose Cup
16	2	962819	Short Buckle Strap
17	3	962818	Long Buckle Strap
18	5	968975	Buckle
19	5	702008	Ring
20	2	702005C	Canister Connector
21	2	702057	Gasket, Black (EPDM)
22	2	962066	Plug
23	1	763501	Gasket/Valve seat (SVA)
24	1	910452	Christolube Lubricant
25	1	169001	CBRN Canister
26	1	769015	Drink Tube Kit (Optional)

ITEM	QTY	P/N	DESCRIPTION
	1	962157	Small Skirt, Silicone
	1	962167	Medium Skirt, Silicone
	1	962177	Large Skirt, Silicone
2	1	962114	Headstrap
3	1	702007	Lens
4	1	962031	Upper Rim
5	1	962037	Lower Rim
6	2	839102	Screw
7	Pkg. of 6	763021	Inhalation Valve
8	Pkg. of 2	702037	Twin Seal
9	Pkg. of 4	B140005	Exhalation Valve
10	1	820261	O-ring
11	1	702013	Nozzle
12	1	702048	Nozzle Cover
13	2	962090	Valve Holder
14	1	702023	Nose Cup
15	2	962819	Short Buckle Strap
16	3	962818	Long Buckle Strap
17	5	702011	Buckle
18	5	702008	Ring
19	2	702005	Connector, Canister
20	2	B520033	Gasket, Gray (Silicone)
21	2	962066	Plug
22	1	763016	Gasket/Valve Seat (Fenzy)
23	1	910452	Christolube Lubricant
24	1	Model 1688	CN/CS/P100 Canister

OPTIONAL ACCESSORIES	
P/N	DESCRIPTION
702069	Nose Cup Kit, Small, Black
702070	Nose Cup Kit, Medium, Black
702071	Nose Cup Kit, Large, Black
769015	Drink Tube Kit
702028	Peel-away lens cover, Clear (25)
962260	Spectacles Kit
981808	Wipe, Dry, Anti-fog (Box of 100)
702031	Neck Strap Kit

OPTIONAL ACCESSORIES	
P/N	DESCRIPTION
763064	Nose Cup Kit, Small, Black
763065	Nose Cup Kit, Medium, Black
763066	Nose Cup Kit, Large, Black
702019	Peel-away Lens Cover, Tinted (25)
702028	Peel-away Lens Cover, Clear (25)
962260	Spectacles Kit
951015	1 oz. Lens Anti-fog Solution
951016	16 oz. Lens Anti-fog Solution
981808	Wipe, Dry, Anti-fog (Box of 100)
702031	Neck Strap Kit

**NOTE**

This product is subject to export regulation by agencies of the U.S. Government, including the U.S. State Department Office of Defense Trade Controls as an item on the U.S. Munitions List and subject to the International Traffic In Arms Regulations (ITAR), set forth at 22 CFR Parts 120 through 129. Accordingly, any export of this product must be made pursuant to an appropriate export license issued by the Office of Defense Trade Controls by U.S. Department of Commerce and must comply with the ITAR provisions and all other applicable U.S. Export control laws.

**NOTE**

Use only components having part numbers listed on the NIOSH approval label. Use of any other components voids the approval.

**V. HOW TO INSPECT FOR CBRN COMPLIANCE (CBRN APPLICATIONS ONLY)**

The Opti-Fit Gas Mask and other respirators in the Opti-Fit family may appear similar to the Opti-Fit CBRN Gas Mask, but are not CBRN compliant and will not provide adequate protection in a CBRN environment.

Before using a mask and canister in a CBRN environment, you must first inspect the respirator and canister for CBRN compliance. Perform the following steps to inspect the respirator and canister for CBRN compliance.

<b>⚠ WARNING</b>
<b><i>Inspect the respirator and canister for CBRN compliance prior to use in a CBRN environment. Do not use respiratory devices and/or canisters which are not CBRN compliant. Failure to comply with this warning may lead to serious personal injury, serious illness, or death.</i></b>

1. Verify that the label on the facepiece shows model numbers 7590, 7690, 7790, or the designation "CBRN" as shown in Figure 2a.
2. Verify that the label affixed to the CBRN canister is olive green in color and does not have a purple strip.
3. Verify that the canister label directly below the model number reads: "CBRN Cap 1" as shown in Figure 2b.

**VI. HOW TO INSTALL THE CANISTER**

Ensure that you have the correct canister for the contaminants in your work area. If you are not sure, consult your supervisor or safety professional. The canister can be installed in one of three locations; front-mounted in the nozzle or side-mounted on either side of the lens. When the canister is front-mounted, a plug must be securely threaded into each of the two canister connectors. When the canister is side-mounted, a plug must be securely threaded into the nozzle opening and into the unused canister connector.

CN/CS/P100 only:

Before using the Model 1688 CN/CS/P100 canister, you must confirm the atmosphere is non-IDLH and not oxygen deficient, and you must determine the hazard ratio (hazard concentration/exposure limit). If the hazard ratio is less than 100, you may use the full facepiece gas mask with the Model 1688 CN/CS/P100 canister. If the hazard ratio is greater than 100, you must use another type of respirator.



**Figure 2a Facepiece Label**

The P100 filter can be used if the atmosphere contains oil (e.g., lubricants, cutting fluids, glycerin, etc.) and can be used for more than one 8-hour shift. Please refer to section XIV, Canister Service Life and Replacement, for important additional information. Refer to NIOSH Guide to the Selection and Use of Particulate Respirators Certified Under 42CFR 84 for additional guidelines on use limitations for filters.



**Figure 2b Canister Label**

<b>⚠ WARNING</b>
<b><i>Improper use or assembly of canisters to the facepiece could cause contaminant leakage, leading to serious personal injury, serious illness, or death.</i></b>





4. Hold the facepiece against your face and pull the headstraps over your head.
5. Tighten the two lower straps, the two temple straps, then the top strap until a good seal is obtained. All straps should lie flat on your head. Do not overtighten the straps.
6. When properly adjusted, the headstrap hub should be centered on the crown of your head and the lower straps should be below your ears.

**VIII. HOW TO SELECT FACEPIECE SIZE**

1. Install a canister appropriate for your application into a size medium facepiece by performing the steps listed in section VI, "How to Install the Canister."
2. Inspect the gas mask as described in section XVI.
3. Adjust the top three straps until one inch of strap extends through each buckle. Fully loosen the two lower straps.
4. Place your chin in the facepiece chin cup and center the facepiece on your face.
5. Hold the facepiece against your face and pull the straps over your head.
6. Tighten the lower straps, the temple straps and the top strap until a good seal is obtained. All straps should lie flat on your head. Do not overtighten.
7. When properly adjusted, the headstrap hub should be centered on the crown of your head and the lower straps should be below your ears.

**NOTE**

Perform a fit check as described in section IX before fit testing.

<b>⚠ WARNING</b>
<b><i>If the proper size cannot be determined by performing the following steps, do not wear the gas mask. Select a different size. Ask your supervisor or safety professional for assistance. Failure to comply with this warning may lead to serious personal injury, serious illness, or death.</i></b>

8. Perform a qualitative fit test (QLFT) or quantitative fit test (QNFT) in accordance with OSHA 29 CFR 1910.134, latest edition. For QNFT, use SPERIAN Fit Test Kit, P/N 769095 to adapt a standard respirator to connect the unused canister port to the sampling line of the Portacount fit test device. If passing results are not obtained, repeat the steps above with a different size respirator. Do not proceed if you cannot achieve a proper fit with any size respirator.

For CBRN applications only:

9. Perform a quantitative fit test (QNFT) using a TSI Portacount in accordance with OSHA 1910.134, Appendix A, paragraphs A and C.3. Use the SPERIAN Fit Test Kit P/N 769095 to connect unused canister port to the sampling line of the Portacount fit test device .

10. If a minimum fit factor pass level of 500 is not achieved, select a different size facepiece and repeat steps 1 through 9 above. Do not proceed if you cannot achieve a proper fit with any size facepiece.

**IX. HOW TO FIT CHECK THE GAS MASK**

You must perform the following negative pressure fit check each time the gas mask is worn or before entering the contaminated area.

<b>⚠ WARNING</b>
<b><i>If a leak-tight seal is not obtained during the following fit check, do not wear the gas mask. Ask your supervisor or safety professional for assistance. Failure to comply with this warning may lead to serious personal injury, serious illness, or death.</i></b>

1. Cover the inlet of the canister with the palm of your hand or another suitable item, such as a thin sheet of plastic or rubber or a rubber glove.
2. Inhale gently and hold your breath for a few seconds. If it fits properly, the facepiece will remain slightly collapsed until you exhale. If air leakage occurs, readjust the facepiece and headstrap, and repeat the fit check.

**X. HOW TO USE THE GAS MASK**

To receive the maximum protection available from your gas mask, you must read, understand, and follow all the warnings, limitations, and instructions contained in this manual and follow your employer's instructions on the use and maintenance of the gas mask. Read and understand the following warnings prior to using the gas mask.

<b>⚠ WARNING</b>
<ul style="list-style-type: none"> <li>• <b><i>Never remove the gas mask for any reason while you are in the work area.</i></b></li> <li>• <b><i>You must leave the work area immediately if the facepiece-to-face seal is disturbed for any reason such as:</i></b> <ol style="list-style-type: none"> <li>a. <b><i>Slippage due to sweating or excessive head movement.</i></b></li> <li>b. <b><i>The facepiece becomes dislodged as a result of being knocked.</i></b></li> <li>c. <b><i>You sneeze or cough while wearing the facepiece.</i></b></li> <li>d. <b><i>You need to blow your nose, scratch covered areas of your face, or need to adjust your spectacles kit.</i></b></li> <li>e. <b><i>For any other reason that would cause the facepiece seal to be disturbed.</i></b></li> </ol> </li> <li>• <b><i>You must restore the facepiece-to-face seal and perform a fit check in a non-hazardous environment before re-entering the work area.</i></b></li> <li>• <b><i>Failure to comply with this warning may lead to serious personal injury, serious illness, or death.</i></b></li> </ul>

**For CBRN applications only:**

1. To receive the maximum protection available from your gas mask, you must read, understand, and follow all the warnings, limitations, and instructions contained in this manual and follow specific instructions from the IC or ICS for the incident to which you are responding.

2. In addition to reading, understanding, and following all warnings, limitations, and instructions contained in this manual, you must also follow the applicable canister change-out schedule and decontamination protocols and procedures established by the IC or ICS based on information or data on the concentrations and types of contaminants in the work area. Decontamination protocols and procedures may vary depending upon the data collected at the incident to which you are responding.

3. If you are the first responder to arrive on scene where an ICS has not been deployed, contaminated areas have not been fully characterized, or IDLH conditions may exist, you must use a respiratory device that provides a higher degree of protection such as the SPE-RIAN CBRN Panther positive pressure self contained breathing apparatus (SCBA). Conditions that require a CBRN SCBA also require either Level A or B PPE for dermal protection.

4. Use dermal protection in CBRN environments. Failure to do so may result in injury or death, even when the respirator is properly fitted, used, and maintained. When used with appropriate chemical resistant clothing, the Opti-Fit CBRN gas mask will provide Level C protection.

**⚠ WARNING**

- **Do not use in atmospheres containing less than 19.5 percent oxygen.**
- **Do not use in atmospheres immediately dangerous to life or health (IDLH) or where hazards have not been characterized.**
- **Use in conjunction with PPE that provides appropriate levels of protection against dermal hazard. Failure to do so may result in personal injury even when the respirator is properly fitted, used, and maintained.**
- **This respirator provides respiratory protection against inhalation of radiological and nuclear dust particles. Procedures for monitoring radiation exposure and full radiation protection must be followed.**
- **Immediately leave the area if unexpected or unknown hazards are encountered.**
- **Do not use the respirator more than eight (8) hours after initial exposure to avoid possible agent permeation.**
- **Do not use the respirator more than two (2) hours after liquid exposure.**
- **Do not use the respirator beyond its rated service life at defined occupational exposure limits. Follow established canister change out schedules or observe end of service life indicators to ensure that canisters are replaced before breakthrough occurs.**
- **Never remove the gas mask for any reason while you are in the work area.**

**⚠ WARNING—Continued**

- **You must leave the work area immediately if the facepiece-to-face seal is disturbed for any reason such as:**
  - a. **Slippage due to sweating or excessive head movement.**
  - b. **The facepiece becomes dislodged as a result of being bumped.**
  - c. **You sneeze or cough while wearing the facepiece.**
  - d. **You need to blow your nose, scratch covered areas of your face, or need to adjust your spectacles kit.**
  - e. **For any other reason that would cause the facepiece seal to be disturbed.**
- **Some CBRN agents may not cause immediate effects, but could result in delayed personal injury, illness, or death.**
- **Exposure to CBRN agents requires proper handling of the respirator after each use and between entries during the same use. If contaminated with liquid chemical warfare agents, dispose of the respirator after decontamination.**
- **Failure to comply with this warning may lead to serious personal injury, serious illness, or death.**

**XI. HOW TO DOFF THE GAS MASK**

1. Loosen the two lower headstraps completely.
2. Grasp the nozzle firmly and pull the facepiece outward away from your face.
3. Rotate your head downward and out of the headstraps.

**For CBRN applications only:****⚠ WARNING**

- **Exposure to CBRN agents requires proper handling of the respirator after each use and between multiple entries during the same use.**
- **Follow decontamination and disposal procedures after exposure to CBRN agents.**
- **If contaminated with liquid chemical warfare agents, dispose of the respirator after decontamination.**
- **Failure to comply with this warning may result in personal injury, illness, or death.**

**XII. DECONTAMINATION (CBRN Applications only)**

Decontamination is the removal of toxic substances from equipment and personnel after exposure in a CBRN environment. Proper decontamination prevents contact with residual contaminants on PPE after exposure in a CBRN environment. Various methods are used to remove CBRN contaminants. Decontamination should always be performed prior to doffing PPE and entering clean zones.

After exposure to contaminants, decontaminate your Opti-Fit CBRN gas mask and any other PPE prior to removal.

**⚠ WARNING**

- *Exposure to CBRN agents requires proper handling of the respirator after each use and between multiple entries during the same use.*
- *Failure to properly decontaminate may expose you and others in clean areas to harmful CBRN contaminants. Always follow applicable decontamination procedures.*
- *Failure to comply with this warning may result in personal injury, illness, or death.*

Always follow decontamination procedures established by the ICS for the incident to which you are responding. Depending on the length of exposure, contaminants may penetrate into materials and release toxic gases for long periods. Properly dispose of all damaged, toxic, or unusable equipment in accordance with procedures established by the ICS as required by federal, state, and local laws.

**XIII. HOW TO USE THE OPTIONAL DRINK TUBE**

The drink tube allows the user to consume fluids while wearing the gas mask, and is compatible with a MIL-C-51278 water canteen cap.

**⚠ WARNING**

*Using the drink tube in a contaminated area or after leaving a contaminated area may expose you to contaminants. Use the drink tube in accordance with instructions provided by the IC or ICS.*

- *Failure to comply with this warning may lead to personal injury, illness, or death.*
1. *While wearing the gas mask, remove the drink tube coupling from the retainer and insert it into a MIL-C-51278 canteen cap.*
  2. *Use mouth movements to insert the drink tube mouthpiece in the nose cup into your mouth.*
  3. *Hold the canteen upside down higher than the mouthpiece and suck the fluid into your mouth.*
  4. *When through drinking, turn the canteen right side up and remove the mouthpiece from your mouth.*
  5. *Remove the coupling from the canteen cap and return the coupling to the drink tube retainer.*

**XIV. CANISTER SERVICE LIFE AND REPLACEMENT****⚠ WARNING**

- *OSHA allows the use of respirators for protection against contaminants with poor warning properties. You must replace canister when the end-of-service-life indicator (if so equipped) has changed color or in accordance with an OSHA compliant canister change-out schedule that is based on objective information or data that ensures the canister is changed before the end of its service life.*
- *You must immediately leave the contaminated area if you taste or smell contaminants, or if your eyes or throat become irritated. Replace the canister before re-entering the contaminated area.*
- *You must replace the canister when breathing becomes uncomfortable or difficult. As particulates collect on the filter surface, the breathing resistance of the gas mask increases. If you wait too long to replace the canister, particulates may leak past the face seal instead of being collected on the filter; therefore, SPERIAN recommends that the canister be changed at least daily.*
- *Establishing the canister service life for mixtures of contaminants is a complex task, and one that requires considerable professional judgement to create a reasonable change-out schedule. OSHA provides a "rule-of-thumb" method for determining the canister service life for mixtures. The method addresses two situations. The first is where the individual compounds of the mixture have similar breakthrough times (i.e., within one order of magnitude). In this case, OSHA recommends adding the concentrations of all the components of the mixture to determine a "total concentration," then determine the mixture service life by applying the total concentration to the component with the shortest service life. The second is where the individual compounds have breakthrough times that vary by 2 orders of magnitude or greater. In this case, OSHA recommends the mixture service life be based on the contaminant with the shortest breakthrough time. The OSHA rule-of-thumb methods may not be applicable for all mixtures. In some cases, the actual mixture service life may be much lower than the one calculated. For this reason, SPERIAN recommends that the canister service life for mixtures be determined using experimental methods. If you are unsure how to determine the canister service life for mixtures, please contact SPERIAN.*
- *Do not use the canister in IDLH environments or in areas where the contaminants are unknown.*

**⚠ WARNING—Continued**

***CBRN applications only: Some contaminants are colorless, odorless, and/or tasteless and provide no indication of exposure. Immediately leave the contaminated area if you taste or smell contaminants, or if your eyes or throat become irritated. Follow decontamination procedures for the incident to which you are responding as established by the IC or ICS.***

***• Failure to comply with this warning may lead to serious personal injury, serious illness, or death.***

The service life of the canister is addressed in two sections. First, the gas/vapor service life, and second, the particulate filter service life. The canister should always be replaced in accordance with schedules established by regulatory agencies.

SPERIAN strongly recommends that the canister be discarded after each use. The concentration of contaminants and exposure times are difficult to determine in most gas mask applications. There also could be long periods between uses, and contaminants could desorb from the canister during storage. If the canister is used many times, but for short periods of time, it may be difficult to determine the remaining canister service life, and the canister may not provide the necessary protection in a mission critical situation. The cost of the canister is small compared to the cost of a life if the service life of the canister is exceeded during a critical situation.

**A. Gas/Vapor Service Life**

The gas/vapor service life depends on the user's breathing rate, the characteristics of the contaminant, and environmental conditions such as temperature and humidity. A saturated canister will leak trace amounts of contaminant to the wearer, which may be detected by odor, taste, and/or irritation. Replace the canister in accordance with an OSHA compliant canister change-out schedule that is based on objective information or data that ensures the canister is changed before its end of service life. Replace the canister earlier if you detect the contaminant by smell, taste, or irritation, or if it shows any signs of damage.

**B. Particulate Filter Service Life**

The particulate filter service life depends on the user's breathing rate, the characteristics of the contaminant, and environmental conditions such as humidity. The particulate filter used in the canister is NIOSH approved for long duration use against any type of particulate. The canister must be replaced immediately whenever it is damaged, soiled, soaked with liquids such as water or alcohol, appears to be suspect in any manner, or when the user notices an increase in breathing resistance such that the gas mask becomes uncomfortable to wear. If none of the above occurs and there is a respiratory protection program per OSHA 29 CFR 1910.134 in place, then the canister may be used continually, but only for a maximum of 30 days or 40 hours, whichever comes first. However, the service time can be extended if filter performance to 42 CFR Part 84 can be demonstrated.

For CN/CS/P100 applications:

SPERIAN recommends the canister be replaced daily because the user may be unable to detect small defects in the canister filter resulting in a loss of filter efficiency, and the determination of when breathing resistance becomes too uncomfortable is subjective.

For CBRN applications:

Follow applicable decontamination procedures for the incident to which you are responding before replacing the canister.

The respirator should not be used beyond eight (8) hours after initial exposure to chemical warfare agents to avoid possibility of agent permeation. If liquid exposure is encountered, the respirator should not be used for more than two (2) hours. Filter replacement should never be attempted while in a contaminated area or after having been in a contaminated area. You must first consult the IC or ICS having objective information or data on the concentrations of and types of contaminants in the work area and the applicable canister changeout schedule. Follow established decontamination procedures as required before attempting filter replacement. Only use canisters maintained in accordance with section XV, which have been kept in their unopened original foil/poly packaging and cardboard box. Always ensure your replacement filter is within its service life by checking the expiration date which may be found in any one of three locations: on the outside label affixed to the canister storage box, on the label affixed to the upper right hand corner of the poly/foil bag, and on the canister in the far right hand box of the olive colored label. These three locations are depicted in figures 3a, 3b, and 3c respectively.

**⚠ WARNING**

***• Only install canisters taken from a sealed package. Failure to comply with this warning may lead to serious personal injury, serious illness, or death.***

***CBRN applications:***

***• Do not replace a canister in a contaminated area or without decontaminating first. Follow procedures established by the IC or ICS for the specific incident to which you are responding.***

***• Failure to comply with warning may lead to injury, illness, or death.***

Replace the canister as follows:

1. Return to an uncontaminated area and perform decontamination as required.
2. Remove the canister by turning it counterclockwise. Dispose of the used canister in accordance with Federal, state, and local laws.
3. Remove a new canister from a sealed package by pulling apart the flaps above the top seam.
4. Install the canister as described in section VI.

5. Perform a facepiece fit check as described in section IX.

**XV. MAINTENANCE**

**A. Inspection**

Inspect the gas mask as described in section XVI for defects before and after each use, and at least monthly if not used. Repair as necessary. Clean and disinfect the gas mask facepiece after each use, and store properly in accordance with section XIX to assure that it is maintained in satisfactory working condition. Keep a record of inspection and repair dates and results.

**NOTE**

Under long term bulk storage conditions, inspect at least semi-annually. Inspect more frequently if stored in extremes of temperature.

**B. Cleaning and Disinfecting**

Cleaning and disinfecting is the removal of dust, oil, saliva, and hair from equipment used under non-CBRN conditions. The gas mask should be cleaned after each use by washing with mild soap and warm water, then disinfected with a suitable sanitizing solution. OSHA 29 CFR 1910.134, latest edition, and ANSI Z88.2, latest edition, also provide information and guidelines on the cleaning and sanitizing of gas masks.

<b>⚠ WARNING</b>
<ul style="list-style-type: none"> <li>• <i>Specialized processes are required to clean and disinfect a gas mask. You must follow the instructions of the manufacturer of the equipment and chemicals.</i></li> <li>• <i>It is the user's responsibility to ensure that the processes chosen provide adequate cleaning and disinfection and do not damage the gas mask in any way.</i></li> <li>• <i>In the absence of a commercial sanitizing product, the hypochlorite solution described below will clean and sanitize the gas mask for the most common conditions.</i></li> <li>• <i>Failure to comply with this warning may lead to serious personal injury, serious illness, or death.</i></li> </ul>
<b>CAUTION</b>
<p><i>Do not use solvent type cleaners to clean any part of the gas mask.</i></p>

**NOTE**

Silicone and rubber parts of the facepiece may be cleaned between washings with SPERIAN Mask Wipes, P/Ns B140096 (100 each, individually packaged) and 140082 (220 each, canister wipes).

1. Make a cleaning solution of warm water and mild detergent.
2. Remove the canister from the facepiece.
3. Immerse the facepiece top first in the solution until the exhalation valve is covered.
4. Agitate the facepiece and gently clean with a soft brush.
5. 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.

6. Submerge the facepiece in a warm, (120°F or 48°C maximum), suitable sanitizing solution, such as a "hypochlorite solution," for 2 to 3 minutes. A 50 ppm hypochlorite solution can be prepared by mixing 1/4 tablespoon of chlorine bleach (Laundry bleach) per each gallon of water. Rinse thoroughly with fresh warm (120°F or 48°C maximum) water.

7. Allow the facepiece to drip dry, or dry with a lint-free cloth. Warm air may be used to accelerate drying.

**NOTE**

Washing the lens will remove any user applied anti-fog coating. Recoat with reusable dry anti-fog wipes, P/N 981808. Dry anti-fog wipes are reusable for two to four applications.

8. After cleaning, reapply anti-fog coating to the lens, following the instructions on the wipe packet.

9. Hold the facepiece firmly against your face and exhale several times to ensure that the exhalation valve functions smoothly.

10. Carefully inspect the gas mask as described in section XVI. Reinstall the canister before use.

**XVI. INSPECTION (See the Inspection Table)**

Inspect the gas mask before and after each use as described in the inspection table, and replace any damaged component. See section XVII for repair instructions.

<b>⚠ WARNING</b>
<ul style="list-style-type: none"> <li>• <i>Do not use the gas mask with damaged or improperly operating valves.</i></li> <li>• <i>Ensure that the twin seal o-ring is in the o-ring groove between the lens and the canister connectors. Ensure that the part number tab on the o-ring is visible and in the notch provided on the lens.</i></li> <li>• <i>Ensure that a gasket is installed between the canister connector and the canister, and that the gasket/valve seat is installed between the plug or canister and the nozzle.</i></li> <li>• <i>Failure to comply with this warning may lead to serious personal injury, serious illness, or death.</i></li> </ul>

**XVII. REPAIR (See the Repair Table)**

Repair by the user is limited to replacement of components listed in this manual and as listed on the NIOSH

approval label. Disassembly should be performed only to the extent necessary to replace the components. To protect your warranty and the NIOSH certification of the gas mask and its accessories, all other repairs must be done only by authorized SPERIAN technicians and repair centers. Consult your SPERIAN distributor for the one nearest you. You must perform a fit check as described in section IX after any repair and before using the gas mask.

**XVIII. OVERHAUL FREQUENCY**

This SPERIAN gas mask does not have an overhaul requirement other than that required in section XV, Maintenance.

**XIX. STORAGE AND TRANSPORTATION**

<b>⚠ WARNING</b>
<ul style="list-style-type: none"> <li>• <i>The gas mask does not have a defined storage life. Carefully inspect the gas mask before each use.</i></li> <li>• <i>Do not store the gas mask facepiece in the same container with a used canister. Contaminants in or on the canister may collect on the inside of the facepiece and be inhaled the next time the gas mask is donned. If a used canister must be re-used, store in a separate, sealed container away from the facepiece. Ensure that the expiration date on the canister packaging is current.</i></li> <li>• <i>Always maintain minimum package configuration (MPC) whether using the facepiece in CBRN or CN/CS/P100 applications. Failure to do so will void the NIOSH certification.</i></li> <li>• <i>Failure to comply with this warning may lead to serious personal injury, serious illness, or death.</i></li> </ul>

<b>CAUTION</b>
<p><i>The maximum storage temperature for the gas mask is 140°F (60°C). Long-term storage at elevated temperatures may cause premature deterioration.</i></p>

**A. Facepiece**

CN/CS/P100 Applications:

After inspection and cleaning, store your SPERIAN gas mask facepiece to protect it against dust, sunlight, extreme heat and cold, excessive moisture, or damaging chemicals. The facepiece should be stored in the vinyl bag supplied with the facepiece or in another suitable container.

CBRN Applications:

Always maintain minimum package configuration (MPC) whether using the facepiece in CBRN or CN/CS/P100 applications. Failure to do so will void the NIOSH certification. After inspection and cleaning, your SPERIAN gas mask should be placed in its Minimum Package Configuration (MPC) ( i.e. the mask inside the vinyl bag, the zipper closed, and the bag inside the cardboard box). The MPC will protect the gas mask under typical storage and transportation conditions. The vinyl storage bag and cardboard box are included with the mask. Do not substitute other types of bags or boxes.

**B. Canister**

CN/CS/P100 Applications

SPERIAN strongly recommends that the canister be discarded after each use. The concentration of contaminants and exposure times are difficult to determine in most gas mask applications. There also could be long periods between uses, and contaminants could desorb from the canister during storage. If the canister is used many times, but for short periods of time, it may be difficult to determine the remaining canister service life, and the canister may not provide the necessary protection in a mission critical situation. The cost of the canister is small compared to the cost of a life if the service life of the canister is exceeded during a critical situation. If you must store a used canister, store it in a separate, sealable bag or container (i.e., a reclosable zipper bag), away from the facepiece. The canister should be wiped clean, but not immersed in any liquid whatsoever. No liquid should be sprayed, poured, or dripped in either open end of the canister.

CBRN Applications:

Canisters exposed to a CBRN environment must be properly decontaminated and discarded after use. Unused canisters should be kept in MPC prior to use (i.e. sealed in the foil/poly packaging and placed inside either the canister cardboard box or the facepiece cardboard box). The facepiece cardboard box will accommodate one canister. The canister may be removed from the box for inspection, but do not remove it from the foil/poly bag until you are ready to use it. Once the canister is removed from the bag, its service life is limited by the applicable canister change-out schedule established by the IC or ICS in the response area.

**Minimum Package Configuration (CBRN Only)**

ITEM	PACKAGING
1. Gas Mask	In the vinyl storage bag with the zipper closed and placed in the included cardboard box.
2. Canister	In the original foil/poly bag placed inside cardboard box included with the canister or the box included with the facepiece.
3. Accessories	Assembled on the mask and stored as in #1 above. If not assembled on the mask, accessories such as spare clear lens covers or anti-fog wipes can be stored in the facepiece cardboard box.

**XX. ADDITIONAL INFORMATION**

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

SPERIAN  
 3001 South Susan Street  
 Santa Ana, CA 92704  
 (714) 545-0410 or toll free 888-APR-SCBA  
 FAX (714) 850-0299

**XXI. WARRANTY AND LIMITATION OF LIABILITY**

**LIMITED WARRANTY:** SPERIAN warrants this product to be free from defects in materials and workmanship for a-

minimum of 7 years for the CBRN canister and 1 year for the gas mask and all other components from the date of purchase. During this period, SPERIAN will repair or replace defective parts, at SPERIAN's option. Freight charges to and from the SPERIAN factory shall be paid by the purchaser.

**EXCLUSIONS:** NOTWITHSTANDING ANY CONTRARY TERM IN THE PURCHASER'S PURCHASE ORDER OR OTHERWISE, THE ONLY WARRANTY EXTENDED BY SPERIAN 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 and such other necessary maintenance and repair as may be required. Normal wear and tear; parts damaged by abuse, misuse, negligence, or accidents; and inhalation and exhalation valves are specifically excluded from this warranty. Exposure to materials that damage or render this product unusable, such as CBRN agents, will void this warranty. All products returned to SPERIAN's factory, distributors, or repair centers must be decontaminated prior to shipment. Products contaminated with dangerous substances will be refused and returned freight collect.

**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 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 serious personal injury, serious 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.***

## XXII. REFERENCES

LaTourrette et al. (2003). Protecting Emergency Responders, Vol 2, Santa Monica, CA: RAND, ENG-9812731 (available at [www.cdc.gov/niosh/docs/2004-144/](http://www.cdc.gov/niosh/docs/2004-144/)).

Singe, Dr. Karan (2002). Bioterrorism: Biological and Chemical Agents Emergency Response Guide, Neenah, WI: J.J. Keller & Associates, Inc. ([www.jjkeller.com](http://www.jjkeller.com)).

Cocciardi, Joseph A. (2004). Weapons of Mass Destruction and Terrorism Response Field Guide, Sudbury, MA: Jones and Bartlett Publishers ([www.jbpub.com](http://www.jbpub.com)).

## ONLINE RESOURCES

Emergency Personnel Education and Training, NIMS and Incident command System, Federal Emergency Management Administration (FEMA), [www.fema.gov/tab\\_education.shtml](http://www.fema.gov/tab_education.shtml).

Guidance Documents, OSHA/NIOSH Personal Protective Equipment Selection Matrix for Emergency Responders, National Institute for Occupational Safety and Health (NIOSH) [www.cdc.gov/niosh/nppt/guidancedocs/](http://www.cdc.gov/niosh/nppt/guidancedocs/)

## XXIII. CAUTIONS AND LIMITATIONS

A-Not for use in atmospheres containing less than 19.5 percent oxygen.

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

L-Follow the manufacturer's User's Instructions for changing cartridges, canisters, and/or filters.

M-All approved respirators shall be selected, fitted, used, and maintained in accordance with MSHA,

OSHA, and other applicable regulations.

O-Refer to User's Instructions and/or maintenance manuals for information on use and maintenance of these respirators.

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

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

T-Direct contact with CBRN agents requires proper handling of the respirator 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 respirator after decontamination.

V-Not for use in atmospheres immediately dangerous to life or health, or where hazards have not been fully characterized.

W-Use replacement parts in the configuration as specified by the applicable regulations and guidance.

X-Consult manufacturer's User's Instructions for information on the use, storage, and maintenance of these respirators at various temperatures.

Y-The respirator provides respiratory protection against inhalation of radiological and nuclear dust particles. Procedures for monitoring radiation exposure and full radiation protection must be followed.

Z-If during use, an unexpected hazard is encountered such as a secondary CBRN device, pockets of entrapped hazard, or any unforeseen hazard, immediately leave the area for clean air.

CC-For entry, do not exceed maximum use concentrations established by regulatory standards.

HH-When used at defined occupational exposure limits, the rated service time cannot be exceeded. Follow established canister change out schedules or observe End of Service Life Indicators to ensure that canisters are replaced before breakthrough occurs.

QQ-Use in conjunction with personal protective ensembles that provide appropriate levels of protection against dermal hazard. Failure to do so may result in personal injury even when the respirator is properly fitted, used, and maintained.

UU-The respirator should not be used beyond eight (8) hours after initial exposure to chemical warfare agents to avoid possibility of agent permeation. If liquid exposure is encountered, the respirator should not be used for more than two (2) hours.

**XXIV. INSPECTION TABLE**

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

COMPONENT	LOOK FOR
FACEPIECE LENS	<ol style="list-style-type: none"> <li>1. Nicks, scratches, or abrasions that could impair visibility.</li> <li>2. Deep gouges or cracks which could reduce impact resistance.</li> <li>3. Anti-fog coating in need of replacement (if applied).</li> </ol>
FACEPIECE RIMS	<ol style="list-style-type: none"> <li>1. Deformed, cracked, or broken.</li> <li>2. Loose screws. Do not overtighten.</li> </ol>
FACEPIECE SKIRT	<ol style="list-style-type: none"> <li>1. Cuts, gouges, or punctures.</li> <li>2. Tears or nicks in the sealing area.</li> <li>3. Deterioration from age, heat, or contamination.</li> </ol>
FACEPIECE HEADSTRAP AND BUCKLE STRAPS	<ol style="list-style-type: none"> <li>1. Abrasions or nicks.</li> <li>2. Deterioration from age, heat, or contamination.</li> </ol>
FACEPIECE BUCKLES	Crushed, bent, broken, or corroded.
FACEPIECE INLET NOZZLE	<ol style="list-style-type: none"> <li>1. Heat or impact damage.</li> <li>2. Nicks, cracks, tears, or creases in the exhalation valve. Remove the valve cover to inspect the exhalation valve.</li> <li>3. Nicks, cracks, or dents in the exhalation valve seat.</li> <li>4. Sticking exhalation valve. Exhale a few times to test. The valve must close after each exhalation. Valves that fail to close must be replaced.</li> <li>5. Cuts, nicks, abrasions, or excess stretching of the nozzle o-ring.</li> </ol>
TWIN SEAL O-RING, NOZZLE GASKET/VALVE SEAT, OR CANISTER CONNECTOR GASKET	<ol style="list-style-type: none"> <li>1. Cuts, nicks, abrasions, or excess stretching.</li> <li>2. Cuts, nicks, or abrasions on canister connector or nozzle plug sealing surface.</li> <li>3. Gasket installed and fully seated in the groove at the bottom of the canister connector.</li> <li>4. For CBRN models, the gasket should be black. If the gasket is gray, discard it and replace with the black gasket specified in the parts list.</li> </ol>
CANISTER CONNECTOR OR NOZZLE PLUG	<ol style="list-style-type: none"> <li>1. Cracks, heat, or impact damage.</li> <li>2. Cuts, nicks, or abrasions on the connector or nozzle plug sealing surface.</li> </ol>
CN/CS/P100CBRN CANISTER	Inspect the exterior of the foil/poly bag for tears, cuts, or abrasions and make sure the expiration date is within the canister service life. If discrepancies are found, replace the canister.
DRINK TUBE	<ol style="list-style-type: none"> <li>1. Drink tube coupling crushed, bent, broken, or corroded.</li> <li>2. Nicks, cuts cracks, or deterioration from age or heat to the drink tube, inner mouthpiece, or barbs.</li> <li>3. Replace if damaged.</li> </ol>



**XXV. REPAIR TABLE**

<b>COMPONENT</b>	<b>INSTRUCTIONS</b>
HEADSTRAP REPLACEMENT	<ol style="list-style-type: none"> <li>1. Remove the old headstrap from the facepiece, note the routing of the straps for reassembly.</li> <li>2. Install the new headstrap.</li> </ol>
CANISTER CONNECTOR AND TWIN SEAL O-RING REPLACEMENT	<ol style="list-style-type: none"> <li>1. To remove the canister connector and twin seal o-ring, rotate the connector clockwise. Lift the connector hook and rotate the connector counterclockwise. Pull the connector outward away from the lens.</li> <li>2. Remove the twin seal o-ring from the groove in the lens.</li> <li>3. To install, gently separate the o-ring and gasket halves of the new twin seal. A small part number tab should remain attached to each half. Do not use the o-ring if it is damaged. Discard the flat gasket portion.</li> <li>4. Place the o-ring into the groove on the lens with the part number tab aligned with the slot.</li> <li>5. Align the three lugs on the underside of the port connector with the three slots in the lens. Insert the connector into the lens port and rotate clockwise. An audible click should be heard.</li> <li>6. Install a new gasket in the connector. The gasket must be seated at the bottom of the connector. For CBRN models, the gasket must be black not gray.</li> <li>7. If removed, thread the plug securely into the connector. Do not overtighten.</li> <li>8. If removed, reinstall inhalation valves on each connector.</li> </ol>
NOZZLE COVER REPLACEMENT	<ol style="list-style-type: none"> <li>1. To remove, pinch the two lower side latches while lifting the lower tab.</li> <li>2. Disengage the upper hook by lifting the cover upward.</li> <li>3. To install, engage the cover on the nozzle upper hook.</li> <li>4. Rotate the cover downward until both lower latches engage the cover. An audible click should be heard.</li> </ol>
NOZZLE REPLACEMENT	<ol style="list-style-type: none"> <li>1. Remove the nozzle cover as described above.</li> <li>2. Grasp the outside of the lens with both hands and push the nozzle side latches inward and downward with both thumbs.</li> <li>3. Prior to reinstallation of the nozzle, verify that the nozzle o-ring is free from debris and install the o-ring onto the nozzle.</li> <li>4. Apply a small amount of Christolube lubricant, SPERIAN P/N 910452, or equivalent, to the o-ring.</li> <li>5. Reinstall (if removed) an exhalation valve, nose cup, and gasket/valve seat with inhalation valve.</li> <li>6. Insert the nozzle into the lens, aligning the top and bottom ribs on the front of the nozzle with the notches in the lens. 7. Push the nozzle inward until both latches engage the lens. An audible click should be heard.</li> <li>8. Inspect the installed nozzle o-ring for proper installation and seal. If the o-ring appears twisted, pinched, or extruding out of the o-ring groove in the nozzle, remove the nozzle, relubricate the o-ring, and reinstall the nozzle.</li> <li>9. Install the nozzle cover as described above.</li> </ol>

**XXV. REPAIR TABLE (Continued)**

<b>COMPONENT</b>	<b>INSTRUCTIONS</b>
LENS REPLACEMENT	<ol style="list-style-type: none"> <li>1. Remove the canister from the canister connector, if in stalled.</li> <li>2. Use a 5/32 inch Allen wrench to remove the two rim screws.</li> <li>3. Gently separate the rims from the facepiece.</li> <li>4. Pull the skirt away from the lens.</li> <li>5. Remove the nozzle and cover as described above.</li> <li>6. Remove the canister connectors and twin seal o-rings as described above.</li> <li>7. Install new twin seal o-rings and canister connectors into the new lens as described above.</li> <li>8. Install the nozzle and cover as described above.</li> <li>9. Place the lens edge inside the lens channel of the skirt.</li> <li>10. Align the center of the skirt with the centerline of the lens and knead the skirt until it fits evenly around the lens edge.</li> <li>11. CBRN models only: lubricate the rims and skirt for assembly by applying a soap and water mixture to the edge of the butyl skirt and the grooves of the rims.</li> <li>11. Install the rims. Start the screw on one side, then the other. <b>CAUTION: Do not pinch the skirt material between the rims.</b></li> <li>12. Alternately tighten each screw until the rim joints are flush against each other. Do not overtighten.</li> <li>13. Perform a facepiece fit check as described in section IX.</li> </ol>
EXHALATION VALVE REPLACEMENT	<ol style="list-style-type: none"> <li>1. Remove the nozzle cover as described above.</li> <li>2. Remove and discard the old exhalation valve.</li> <li>3. Insert a new valve and pull the valve stem until it snaps into place.</li> <li>4. Replace the nozzle cover as described above.</li> <li>5. Perform a facepiece fit check as described in section IX.</li> </ol>
ACCESSORIES	<p>Each modification kit and accessory purchased from SPERIAN has installation instructions. Use these instructions for the installation and maintenance of accessories.</p>

**XXVI. ACRONYMS**

ANSI	American National Standards Institute
APR	Air Purifying Respirator
Cap	Canister Capacity; Cap 1 (15 min.), Cap 2 (30 min.), Cap 3 (45 min.)
CBRN	Chemical Biological Radiological Nuclear
DHS	Department of Homeland Security
ELSI	End of Service Life Indicator
FEMA	Federal Emergency Management Agency
IC	Incident Commander
ICS	Incident Command System
IDLH	Immediately Dangerous to Life or Health
MIL	Military
MPC	Minimum Package Configuration
MSHA	Mine Safety and Health Administration
NIMS	National Incident Management System
NIOSH	National Institute for Occupational Safety and Health
NPPTL	National Personal Protective Technology Laboratory
OSHA	Occupational Safety and Health Administration
PPE	Personal Protective Equipment
QLFT	Qualitative Fit Test
QNFT	Quantitative Fit Test
SCBA	Self Contained Breathing Apparatus
SVA	SPERIAN
TIC	Toxic Industrial Chemical
TIM	Toxic Industrial Material





