



SENTINEL XL PAPR CBRN SYSTEM

THIS RESPIRATOR ASSEMBLY IS APPROVED ONLY IN THE FOLLOWING CONFIGURATIONS:

NIOSH APPROVAL NUMBER TC-		PROTECTION ¹	RESPIRATOR COMPONENTS											Cautions and Limitations ²
			HOOD ASSEMBLY	BLOWER	ALTERNATE POWER SOURCES			CARTRIDGE	ALTERNATE CARRYING SYSTEMS			ACCESSORIES		
DESCRIPTION			RECHARGEABLE NIMH BATTERY PACK	NON RECHARGEABLE LIMING BATTERY PACK	ALKALINE BATTERY ADAPTOR	CHEMICAL, BIOLOGICAL, RADIOLOGICAL, AND NUCLEAR (CBRN) CARTRIDGE	ADJUSTABLE WAIST BELT	BACKPACK	DECON AND QUICK RELEASE BELT AND CLIP	FAST BATTERY CHARGER	FLOW METER			
23C-2312	CBRN PAPR CAP 2	PART NO.	S-2001	S-2002	S-2003	S-2004	S-4013	S-2016	S-2007	S-2008	S-4011	S-2009	S-2010	ABCDFHILMNORSY,GG,QQ,UU,VW
1. PROTECTION														
CBRN PAPR CAP 2														
CBRN - Chemical, Biological, Radiological and Nuclear														
2. CAUTIONS AND LIMITATIONS														
A. Not for use in atmospheres containing less than 19.5 percent oxygen.														
B. Not for use in atmospheres immediately dangerous to life or health.														
C. Do not exceed maximum use concentrations established by regulatory standards.														
D. Do not use this respirator if airflow is less than four cfm (115 lpm) for tight-fitting facepieces or six cfm (170 lpm) for hoods and/or helmets.														
E. Follow established cartridge and canister change schedules or observe ESLU to ensure that cartridges and canisters are replaced before breakthrough occurs.														
F. Contains electrical parts that may cause an ignition in flammable or explosive atmospheres.														
G. Failure to properly use and maintain this product could result in death or serious injury.														
H. Follow the manufacturer's instructions for changing cartridges and/or filters.														
I. All approved respirators shall be selected, fitted, used, and maintained in accordance with MSHA, OSHA, and other applicable regulations.														
J. Never substitute, modify, add, or omit parts. Use only exact replacement parts in the configuration as specified by the manufacturer.														
K. Refer to users instructions. And/or maintenance manuals for information on use and maintenance of these respirators.														
L. Some CBRN agents may not present immediate effects from exposure, but can result in delayed impairment, illness, or death.														
M. Special or critical User's instructions and/or specific use limitations apply. Refer to User's instructions before donning.														
N. 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.														
O. Direct contact with CBRN agents requires proper handling of the respirator after use. Correct disposal procedures must be followed.														
P. 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.														
Q. The respirator should not be used beyond 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 2 hours.														
R. PAPRs with TC-23C approvals may NOT be used for escape from IDLH atmospheres.														
S. These limitations are not all inclusive. The respirator manufacturer may also identify further cautions and limitations for their respirators. In addition, regulatory agencies may also place a limit on the use of respirators in their standards.														



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SENTINEL XL™ PAPR CBRN SYSTEM

USER INSTRUCTION MANUAL

FOR MODEL NO. S-5000

Δ WARNING

IMPROPER USE OF THIS RESPIRATOR MAY RESULT IN PERSONAL INJURY OR DEATH. IMPROPER USE INCLUDES, BUT IS NOT LIMITED TO, USE IN ATMOSPHERES CONTAINING UNKNOWN CONTAMINATES AND/OR UNKNOWN CONCENTRATIONS OF CONTAMINANTS, USE WITHOUT ADEQUATE TRAINING, DISREGARD TO THE WARNINGS AND INSTRUCTIONS CONTAINED HEREIN AND FAILURE TO INSPECT AND MAINTAIN THIS RESPIRATOR.

THE RESPIRATOR IS NOT INTENDED FOR USE IN ATMOSPHERES WHERE THE IDENTITY AND/OR CONCENTRATION OF THE CONTAMINANT IS UNKNOWN. THIS MAY RESULT IN IMMEDIATE DANGER TO PERSONNEL.

THIS RESPIRATOR DOES NOT SUPPLY OXYGEN AND MUST NOT BE USED IN OXYGEN-DEFICIENT ENVIRONMENTS CONTAINING LESS THAN 19.5% OXYGEN.

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Δ WARNING

TRAINING IS REQUIRED BEFORE USE OF THIS RESPIRATOR. FOLLOW THESE INSTRUCTIONS CAREFULLY. THIS POWERED AIR PURIFYING DEVICE IS ONLY FOR USE IN SPECIFIC ATMOSPHERES AND UNDER CERTAIN CONDITIONS. USE OF THIS RESPIRATOR WITHOUT PROPER TRAINING COULD RESULT IN SERIOUS INJURY OR DEATH.

This product is designed for use in an emergency situation. You may not have time to read and understand all of the instructions and warnings in that situation. Please take the time to learn about your Sentinel XL™ PAPR CBRN now and refresh your knowledge every 30 days.

4. Any products returned for repair that are not covered by the Warranty set forth in Section 1 above shall be returned by Buyer to ILC at Buyer’s expense. As to such products, ILC shall be entitled to charge Buyer for handling, inspection, testing, and repairing the products at its prevailing rates. Such products, whether or not repaired by ILC, shall be returned to Buyer at Buyer’s expense, shipping charges collect.

5. No products shall be returned to ILC for any reason or purpose until ILC has been notified of the proposed return and Buyer has signed and returned an ILC Return Goods Authorization (RGA) form. Under no circumstance will ILC accept return of a product which has been exposed to known carcinogens, toxic, or biological materials.

6. This document contains the complete statement of product Warranty by ILC, and no Warranty or representation not set forth herein has been made to or is relied upon by Buyer. No course of prior dealings between ILC and Buyer and no usage of trade shall be relevant or admissible to supplement, explain or vary any of the terms of this document. The failure of either ILC or Buyer to insist upon strict adherence to any term of this document on any occasion shall not be considered a waiver or deprive ILC or Buyer, as the case may be, of the right thereafter to insist upon strict adherence to that term or any other terms of this document. This document can be changed or terminated, or its provisions waived, only in a document signed by ILC and Buyer or their duly authorized agents.

Disclaimer of Certain Warranties: Limitation of Liability

Except as provided herein or in written materials furnished by ILC Dover, ILC Dover does not make any representation or warranty of any kind, express or implied, with respect to the Sentinel XL™ PAPR CBRN including any warranty as to its merchantability or any warranty as to its fitness for any particular purpose or use.

In no event shall the liability of ILC Dover exceed the purchase price of the product, and, in no event, including the case of latent defects, negligence or strict liability, shall ILC Dover be liable for incidental or consequential damages.

Δ WARNING

The failure to use and maintain the Sentinel XL™ PAPR CBRN in strict conformance with the instruction manual may result in serious personal injury, serious illness, or death. The use of the Sentinel XL™ PAPR CBRN 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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WARRANTY AND LIMITATION OF LIABILITY

1. ILC DOVER warrants all of its products against defects in workmanship, materials, and construction under normal use and service for the following periods of time and subject to the following conditions and limitations:
- a. Promptly after receipt of each shipment of product, the BUYER shall inspect the products. All claims for shortages and visible, in-transit damage must be made within ten (10) days after receipt of the shipment by the BUYER. All other claims, including claims for alleged damaged or defective products, must be made within fifteen (15) days after the BUYER learns the facts upon which such claim is based, but in no event later than ninety (90) days after the BUYER receives the product. All claims not made in writing within the time periods specified in Section 1a shall be deemed waived.
 - b. ILC’s responsibility under this warranty shall be limited to products manufactured by it. Claims arising out of components, equipment, and accessories sold but not manufactured by ILC shall be limited to such adjustments as ILC may obtain from the suppliers thereof.
 - c. This warranty shall not extend to any products that have been subject to misuse, neglect, or improper installation or application. In addition, it shall not apply to products that have been repaired or altered outside of ILC’s factory by other than an authorized service representative of ILC. It is the responsibility of the BUYER to adhere to instructions and warnings of the product labels and accompanying operating instructions.
 - d. Defective products which the BUYER claims are covered by this warranty shall be returned to ILC prepaid and insured. (Reference paragraph 5.) Upon ILC’s determination that the defective products are covered by this warranty, ILC will repair or replace, at its option, the defective products without charge to the BUYER and will ship the repaired or replacement products to the BUYER prepaid at ILC’s expense.
 - e. All claims for defects in repaired products must be made in writing within fifteen (15) days after the BUYER learns the facts upon which such claim is based, but in no event later than sixty (60) days after the BUYER receives the repaired product.
2. Except for the warranty made in Section 1 above, ILC makes no warranty or representation of any kind, express or implied, with respect to the products, whether as to merchantability, fitness for a particular purpose, or other matter.
3. ILC’s liability for any and all losses and damages to BUYER resulting from any cause whatsoever, including ILC’s negligence, ILC’s breach of the warranty in Section 1 above, and alleged damage or defective products, irrespective of whether such defects are discoverable or latent, shall in no event exceed the purchase price of the products with respect to which losses of damages are claimed, or, at the option of ILC, the repair or replacement of the damaged or defective products as more fully provided in Section 1 above. In no event, including in the case of a claim of ILC’s negligence, shall ILC be liable for incidental or consequential damages or for any loss, damage, or expense directly or indirectly arising from the use of the products, from any inability to use them separately or in conjunction with any other equipment or materials, or from any other cause.

SAFETY PRECAUTIONS

The Danger, Warnings, Cautions, and Notes contained in this instruction manual have the following significance.

Δ DANGER
Danger indicates an imminently hazardous situation, which if not avoided, will result in serious personal injury, serious illness or death.

Δ WARNING
Warning indicates a potentially hazardous situation, which if not avoided, could result in serious personal injury, serious illness or death.

CAUTIONS
Caution indicates a potentially hazardous situation, which if not avoided, may result in damage to equipment and/or minor to moderate personal injury.

Note
Operating procedures and techniques or information considered important to emphasize.

Δ WARNING
DO NOT USE the Sentinel XL™ PAPR CBRN until you have read and completely understand this instruction manual. You are required to inspect the packaging of this system immediately after purchasing it. Refer to the inspection procedures in this manual which explain how to do so. Failure to comply with this WARNING could lead to serious personal injury, serious illness or death.

Note
The Sentinel XL™ PAPR CBRN system has been tested against live chemical warfare agents, agent stimulants, and industrial chemicals under controlled laboratory conditions. Protection time (time before breakthrough and loss of adequate protection) may decrease, depending upon agent type, agent concentration, breakthrough criteria, temperature and humidity. The protection time provided by the Sentinel XL™ PAPR CBRN in an actual emergency will depend on the aforementioned variables. The wearer should immediately evacuate the contaminated area if the low voltage alarm sounds, if the blower fails, or if other anomalies occur. The Sentinel XL™ PAPR CBRN is designed to operate per NIOSH Statement of Standard for a Chemical, Biological, Radiological, and Nuclear (CBRN) Powered Air-Purifying Respirator.

INTRODUCTION

This manual provides instructions for the proper use and care of the **Sentinel XL™ PAPR CBRN**. Before attempting to use the **Sentinel XL™ PAPR CBRN** in an emergency you must read, understand, and be able to follow all instructions as specified in this **Sentinel XL™ PAPR CBRN** Instruction Manual.

A NIOSH approval label is included as part of this manual.

⚠ WARNING

DO NOT USE the Sentinel XL™ PAPR CBRN until you are fully acquainted with its proper use. In order to safely use the Sentinel XL™ PAPR CBRN, you MUST comply with ALL of the following requirements:

- Read, understand, and follow all warnings and instructions as specified in this Sentinel XL™ PAPR CBRN User Instruction Manual.**
- Review the instructions and warnings contained within this manual at least once every 30 days to ensure you understand how to use this device.**
- The wearer should evacuate the contaminated area as quickly as possible and should under no circumstances reenter the contaminated area if the low voltage alarm sounds, if the blower fails, or if other anomalies occur.**
- Failure to comply with this warning may lead to serious personal injury, serious illness, or death.**

⚠ WARNING

You must be fully familiar with the operation of Sentinel XL™ PAPR CBRN described within this manual prior to an emergency. Emergency situations can be stressful. To ensure that you obtain the maximum protection available from the Sentinel XL™ PAPR CBRN, you must read and understand these instructions before the emergency happens.

SPECIAL AND CRITICAL CAUTIONS AND LIMITATIONS

- Do not use if blower is non-operational.**
- Remove the respirator immediately if the blower stops.**
- This respirator will protect against the inhalation of certain respiratory hazards.**
- Not for use in atmospheres containing less than 19.5 percent oxygen.**
- Failure to properly use and maintain this product could result in serious personal injury, serious illness, or death.**
- All approved respirators shall be selected, fitted, used, and maintained in accordance with MSHA, OSHA, and other applicable regulations.**
- Refer to User’s Instructions and/or maintenance manual for information on use and maintenance of this respirator.**
- Consult manufacturer’s User Instructions for information on the use, storage and maintenance of this respirator at various temperatures.**

NIOSH Performance Criteria for the
Sentinel XL™ PAPR CBRN

System Level Agent Challenge (Smart Man)

Agent	Challenge Concentration	Duration of Challenge (minutes)
Mustard (HD) Vapor	50mg/m ³	30
Sarin (GB) Vapor	210 mg/m ³	30

Chemical Test Agents (Filter Gas Life)

Test Agent	Challenge Concentration (ppm) (170 lpm @ both 25% and 80% RH)	Allowable Breakthrough (PPM)	Service Time (Min)
Ammonia (NH ₃)	1250	12.5	>30
Cyanogen Chloride (CK)	150	2	>30
Cyclohexane (C ₆ H ₁₂)	1300	10	>30
Formaldehyde (HCHO)	250	1	>30
Hydrogen Cyanide (HCN)	470	4.7*	>30
Hydrogen Sulfide (H ₂ S)	500	5.0	>30
Nitrogen Dioxide (NO ₂)	100	1 ppm NO ₂ or 25 ppm NO **	>30
Phosgene (COCl ₂)	125	1.25	>30
Phosphine (PH ₃)	150	0.3	>30
Sulfur Dioxide (SO ₂)	750	5	>30

* Sum of HCN and C₂N₂
**Nitrogen Dioxide breakthrough is monitored for both NO₂ and NO. The Breakthrough is determined by which quantity, NO₂ or NO, reaches breakthrough first.

CUSTOMER SERVICE INFORMATION

If you need additional information on the **Sentinel XL™ PAPR CBRN** or any ILC Dover product, consult your distributor or contact:

Customer Service
ILC Dover
One Moonwalker Road
Frederica, DE 19946-2080
Phone: 800.631.9567 OR 302.335.3911, ext. 506
Fax: 302.335.1320
www.ilcdover.com

STORAGE

Store your respirator at room temperature in a dry area that is protected from exposure to hazardous contaminants.

TROUBLESHOOTING

Use the table below to help identify possible causes and corrective actions for problems you may experience.

Problem	Possible Cause	Corrective Action
Poor visibility through visor	Visor is coated with debris.	Wipe debris off.
	Visor is scratched.	Dispose of hood and replace it with new hood.
Continuous low voltage alarm sounds upon blower activation	Battery is not charged.	Leave work area immediately. Rechargeable Battery: Switch to a fully charged battery, or recharge. Non-rechargeable Battery: Replace Battery Alkaline Battery Adaptor: Install 5 new Duracell D-cell batteries
Low airflow	Battery needs charging.	Leave work area immediately switch to fully charged rechargeable battery, or a new non-rechargeable battery.
	Cartridges are loaded.	Replace Cartridges.
	Filter plug not removed.	Remove plug and install third CBRN filter.
	PAPR blower malfunction.	Switch to a different blower unit.
Blower gasket is raised, twisted, or has any visible surface defects	Gasket is not properly seated into the blower and may produce a leak path	Contact ILC Dover Customer Service Department immediately 1-800-631-9567
Blower housing is cracked Battery pack is cracked	Mishandling of the equipment	Leave work area immediately and replace with a new blower or battery pack.
	Improper use of the equipment Excessive use/and or damage	Dispose damaged blower or battery and replace.
Dents, Tears, Holes, or Cracks in the Hood Assembly or Breathing Tube	Mishandling of the equipment	Leave work area immediately to prevent contaminated air from entering the hood or hose.
	Improper use of the equipment Not following the decon procedures properly	Dispose damaged hood or hose and replace it with a new hood or hose.
	Excessive wear/ and or damage	

9. This respirator provides respiratory protection against inhalation of certain gas and vapor chemical agents, biological particulates, and radiological and nuclear dust particles. This respirator provides limited dermal (skin) protection to the head area and eyes. This respirator does not protect against radioactive x-rays, gamma rays, or neutrons.
10. Eye irritation may be experienced based upon the Chemical, Biological, Radiological and Nuclear (“CBRN”) agent and exposure (concentration and duration).
11. Some CBRN agents may not present immediate effects from exposure, but can result in delayed impairment, serious illness, serious injury, or death.
12. CBRN agents, depending on how they are used, may provide disabling effects as a result of skin exposure.
13. Direct contact with CBRN agents requires proper handling of the respirator after use. Correct decontamination and/or disposal procedures must be followed.
14. DO NOT USE for applications other than CBRN incidents.
15. DO NOT USE for gamma rays, x-rays and neutrons.
16. DO NOT USE for hazardous projectiles.
17. DO NOT USE for protection against or contact with liquid droplets of chemical warfare agents.
18. A written respiratory protection program must be implemented meeting all the requirements of OSHA 29 CFR 1910.134. In Canada, the Z94.4 requirements must be met. Annual training on how to store, care for, and use this product and your emergency escape plan is required.

DESCRIPTION

The ILC Dover SENTINEL XL™ PAPR CBRN is a blower-assisted air-purifying respirator known as a **Powered Air Purifying Respirator** or **PAPR**. The SENTINEL XL™ PAPR CBRN is comprised of the following components:

1. **Butyl Hood, one size fit all P/N S-2001**

The hood is equipped with a large area visor, allowing for an undisturbed field of vision, an adjustable head harness that fits all head sizes, a double skirt, and an integrated breathing hose that connects the hood to the blower unit. The Butyl Hood Assembly is packed and stored in a flat configuration to save storage space. Adjusting the head harness to the wearer’s head circumference creates the three dimensional structure.
2. **Blower P/N S-2002**

The blower is comprised of an electrical motor that drives an air blower. An on/off switch is located on top of the blower. A red LED near the on/off switch at the top indicates when the blower is on. There is one male thread at the blower top to connect the breathing hose. There are three female threaded inlets with rubber gaskets at the blower sides and bottom to connect three Cartridges. The blower is equipped with a self-test mechanism. Upon starting the blower, the red LED will blink once or twice, a buzzer will sound one or two short beeps, followed by continuous LED light and no sound. This indicates that the blower is functioning correctly. The blower is equipped with an audio-visual low voltage alarm, indicating that battery voltage is decreasing. The alarm is given by the blinking LED and successive buzzer beeps. The sound from the alarm is easily heard within the hood. Once the low voltage alarm has sounded, the user must exit the contaminated area.

3. **Battery Pack**

The battery pack is integrated to the blower assembly by a snap fastener at the blower assembly’s aft side, which faces the user’s body. There are three types of battery packs:

A. **Rechargeable NiMH Battery Pack P/N S-2003**

The NiMH Battery can be used up to 500 charge/discharge cycles and does not have a considerable memory effect. The battery is equipped with a charging jack at its aft side. Charging the battery can be done without disassembling it from waist belt, backpack, or the blower assembly.

B. **Non Rechargeable LiMnO2 Battery Pack P/N S-2004**

High capacity Lithium Battery, capable of extended shelf life.

C. **Alkaline Battery Adaptor P/N S-4013 (Optional)**

Batteries are not included. Adaptor is capable of running approximately 8 hours. Five D-cell Duracell batteries need to be purchased to operate the Sentinel XL blower. Batteries have a long term shelf life and are easily accessible.

4. **Cartridge P/N S-2016**

ILC Dover SENTINEL XL™ PAPR CBRN utilizes three NIOSH approved CBRN Cartridges that have been tested and approved to filter certain CBRN agents.

5. **Adjustable Waist Belt P/N S-2007**

Supports the blower assembly on the user’s waist and is adjustable.

6. **Decon and Quick Release Belt and Clip P/N S-4011 (Optional)**

This blower mounting option allows for quick and easy attachment or removal of the blower from the belt and also facilitates the cleaning/disinfecting of biological materials from the belt with standard cleaning or disinfecting materials. **Note: Do not use autoclave or other high temperature sterilization methods.**

7. **Backpack Assembly P/N S-2008**

An optional backpack provides comfortable support of the blower assembly on the user’s back and waist. The Backpack can also be used to store the hood and other Sentinel XL components.

8. **Fast Battery Charger P/N S-2009**

A smart charger that recharges the NiMH Battery Pack within approximately 5 hours.

9. **Flow Meter Assembly P/N S-2010**

Used to check the ability of the blower to provide sufficient air flow to the Butyl Hood. The air flow must be checked before each use.

Δ WARNING

FOLLOW THESE INSTRUCTIONS CAREFULLY. THIS POWERED AIR PURIFYING DEVICE IS ONLY FOR USE IN SPECIFIC ATMOSPHERES AND UNDER CERTAIN CONDITIONS. FAILURE TO FOLLOW THESE INSTRUCTIONS CAREFULLY COULD RESULT IN SERIOUS INJURY OR DEATH.

Δ WARNING

FOR ALKALINE BATTERY ADAPTOR OPTION, P/N S-4013, USE ONLY DURACELL BATTERIES. DO NOT USE A COMBINATION OF DURACELL OR OTHER BRANDS. IT IS IMPORTANT THAT ALL FIVE BATTERIES ARE DURACELL D-CELL BATTERIES. WHENEVER BATTERIES ARE CHANGED, CHANGE ALL FIVE D-CELL BATTERIES AT THE SAME TIME. IMPROPER BRAND SELECTION, USING A COMBINATION OF BATTERY BRANDS, OR NOT USING FIVE BRAND NEW D-CELL BATTERIES AFTER THE LOW VOLTAGE ALARM IS INDICATED MAY RESULT IN INJURY OR DEATH.

DISPOSING OF DEPLETED BATTERIES

1. Remove Battery and dispose of properly:
- Dispose of depleted or damaged batteries in accordance with state and local environmental regulations.

• Do not throw away depleted or damaged batteries as ordinary waste.

Δ WARNING

DISPOSE OF DEPLETED OR DAMAGED BATTERIES IN ACCORDANCE WITH FEDERAL, STATE AND LOCAL ENVIRONMENTAL REGULATIONS. DO NOT THROW AWAY DEPLETED OR DAMAGED BATTERIES AS ORDINARY WASTE. IMPROPER HANDLING OF DEPLETED OR DAMAGED BATTERIES MAY RESULT IN INJURY OR DEATH.

12. Install the back plate included in the Alkaline Battery Kit by aligning the cover hinge to the hinge pin of the blower. Ensure that you do not pinch the battery leads or fabric loop when closing the battery pack.



- 13. Ensure you hear an audible click when the battery pack latch locks into place.
- 14. The blower may now be operated normally, and should provide approximately 8 hours of battery life.
- 15. When the low voltage alarm is heard, immediately stop operation of the blower and replace the batteries with a new set of five Duracell D-cell batteries.

REMOVING THE ALKALINE BATTERY ADAPTOR (P/N S-4013)

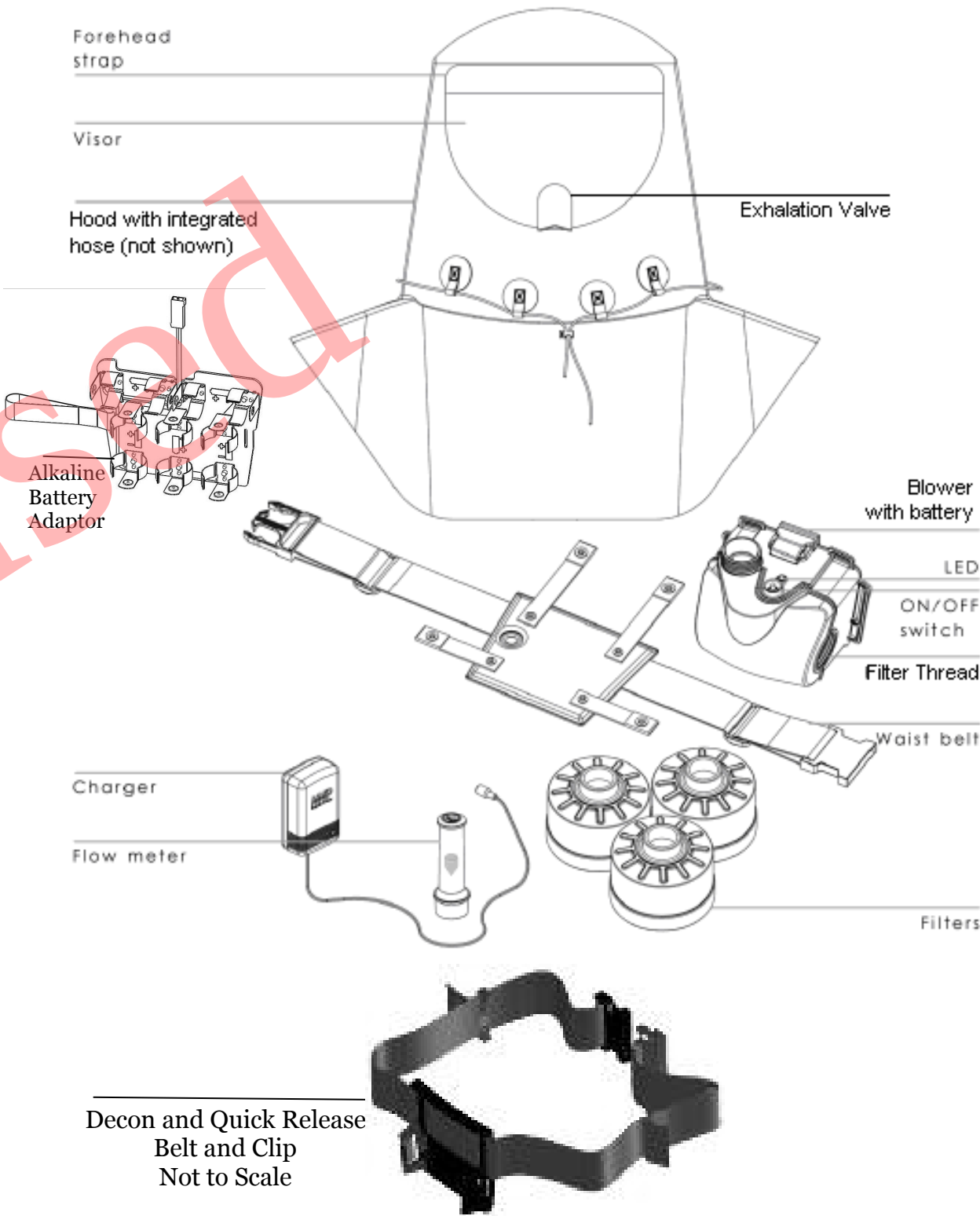
- 1. Be sure to disconnect the battery connector and use the fabric pull strap to remove the Alkaline Battery Pack from the blower Velcro hook before removing the batteries.



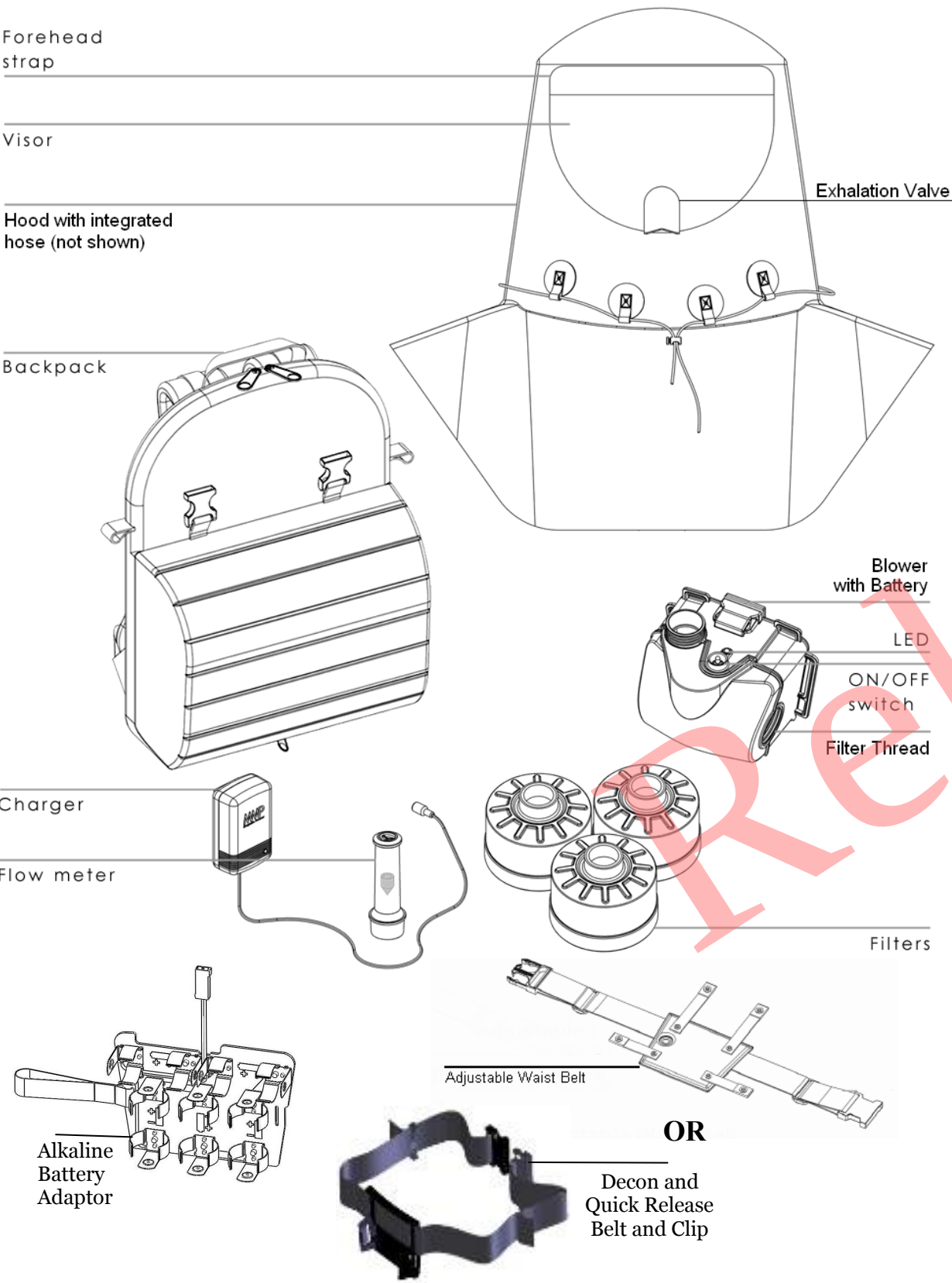
- 2. After removing the Alkaline Battery Pack carefully take out each individual cell, one at a time and set aside for disposal. Replace with new cells as shown in Step 8 above, Installing the Alkaline Battery Adaptor.



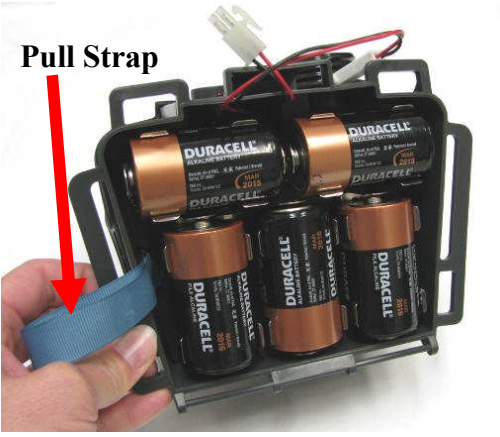
**ILC DOVER SENTINEL XL™ PAPR CBRN SYSTEM
(WITH ADJUSTABLE WAIST BELT)
OR DECON AND QUICK RELEASE BELT AND CLIP**



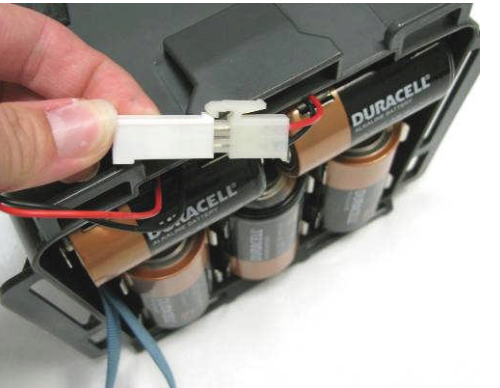
**ILC DOVER SENTINEL XL™ PAPR CBRN SYSTEM
(WITH BACKPACK AND ADJUSTABLE WAIST BELT)**



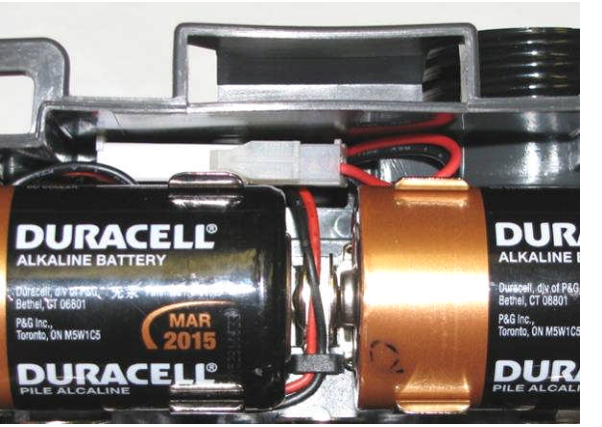
9. After batteries are placed into the Alkaline Battery Adaptor install the part into the back of the blower. The pull strap should remain outside as shown below, and is used to remove the alkaline battery pack for exchange of battery cells or replacement with alternative battery options.



10. Connect the new battery pack to the blower.



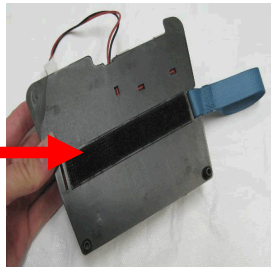
11. Tuck the connector and wires into the open cavity at the top side of the blower as shown in the photo below.



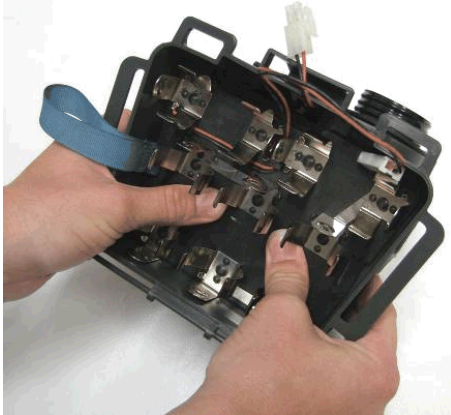
Connector in stowed position

6. Press the adapter plate assembly firmly to ensure the white Velcro hook adheres to the inside wall of the blower. Then gently pull the blue fabric strap to pull the plate assembly out of the unit. The Velcro hook (color white) should remain adhered to the inside of the blower. Verify that the Velcro loop strip (black) is still firmly attached to the back of the adaptor plate.

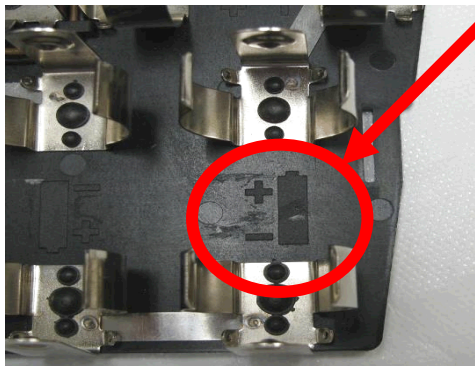
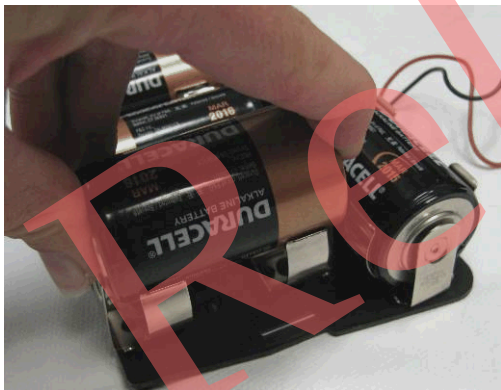
Velcro Loop on Back of
Adaptor Plate



7. Set the Alkaline Battery Adaptor plate aside and use your thumbs to apply pressure across the Velcro hook (white) inside the blower to insure it is securely adhered.



8. Install five Duracell D-Cell batteries into the Alkaline Battery Adaptor. (NOTE: USE ONLY DURACELL D-CELL ALKALINE BATTERIES!)
- Only remove and install the batteries when the Alkaline Battery Adaptor Plate is removed from the blower.
 - Be sure to pay attention to the polarity (+ or -) direction engraved into the back plate to insure correct battery orientation. This is very important to ensure the blower operates properly.



Alkaline Pack
with Batteries
Installed



GENERAL SAFETY INFORMATION

Intended Use:

The ILC Dover **SENTINEL XL™ PAPR CBRN** blower can be mounted to the Adjustable waist belt, Decon and Quick Release Belt and Clip, or optional backpack, and is connected to the hood assembly via an integrated flexible breathing tube. The ILC Dover **SENTINEL XL™ PAPR CBRN** must be used with the **S-2016 CBRN Cartridge**. The ILC Dover **SENTINEL XL™ PAPR CBRN** systems are intended to provide respiratory protection against inhalation of certain gas and vapor chemical agents, biological particulates, and radiological and nuclear dust particles. This respirator provides limited dermal (skin) protection to the head area and eyes. This respirator does not protect against radioactive x-rays, gamma rays, or neutrons.

Note: Inspect emergency use respirators on a monthly basis.

⚠ WARNING

THESE RESPIRATORS HELP PROTECT AGAINST CERTAIN AIRBORNE CONTAMINANTS. MISUSE MAY RESULT IN INJURY OR DEATH. FOR PROPER USE, SEE SUPERVISOR, USER INSTRUCTIONS, OR CALL ILC DOVER TECHNICAL SERVICE AT 1-800-631-9567. USE ONLY ILC DOVER PARTS AND ACCESSORIES FOR THE ILC SENTINEL XL™ PAPR CBRN SYSTEM AS DESCRIBED IN THESE USER INSTRUCTIONS.

ALWAYS DON THE RESPIRATOR SYSTEM PROPERLY AND IN AN UNCONTAMINATED AREA.

DO NOT REACH YOUR HAND INTO THE FACE PIECE IN AREAS WHERE THE AIR IS CONTAMINATED. LEAVE THE CONTAMINATED AREA AND CLEAN CONTAMINANTS FROM YOUR HANDS BEFORE REACHING INSIDE THE HOOD.

IF YOU DISCOVER ANY OF THE WEAR AND DAMAGE DESCRIBED IN THE TROUBLESHOOTING SECTION OF THIS USER INSTRUCTION, DISCARD COMPONENT AND REPLACE IT WITH A NEW ONE. FAILURE TO DO SO MAY ADVERSELY AFFECT RESPIRATOR PERFORMANCE AND RESULT IN SICKNESS OR DEATH.

BEFORE USE, THE WEARER MUST READ AND FULLY UNDERSTAND THESE USER INSTRUCTIONS. KEEP THIS INSERT FOR FUTURE REFERENCE. IF YOU HAVE ANY DOUBTS ABOUT THE APPLICABILITY OF THESE RESPIRATOR SYSTEMS TO YOUR JOB SITUATION, CONSULT AN INDUSTRIAL HYGIENIST OR CALL THE ILC DOVER TECHNICAL SERVICE LINE.

Use the ILC Dover **SENTINEL XL™ PAPR CBRN** for:

The ILC Dover **SENTINEL XL™ PAPR CBRN** systems are intended to provide respiratory protection against inhalation of certain gas and vapor chemical agents, biological particulates, and radiological and nuclear dust particles. This respirator provides limited dermal (skin) protection to the head area and eyes. This respirator does not protect against radioactive x-rays, gamma rays, or neutrons.

Never use the ILC Dover **SENTINEL XL™ PAPR CBRN** for:

Atmospheres where oxygen concentration is below 19.5%, where concentrations of contaminants are: unknown; immediately dangerous to life or health (IDLH); exceed applicable local standards or OSHA standards for maximum use concentrations for the respirator, whichever is lower. Refer to additional limitations and cautions under NIOSH Cautions and Limitations.

RESPIRATOR SELECTION AND TRAINING

Δ WARNING

THIS RESPIRATOR IS INTENDED TO BE USED ONLY IN CONJUNCTION WITH AN ORGANIZED RESPIRATORY PROTECTION PROGRAM WHICH COMPLIES WITH THE REQUIREMENTS OF “PRACTICES FOR RESPIRATORY PROTECTION” Z88.2-1992 AVAILABLE FROM AMERICAN NATIONAL STANDARDS INSTITUTE, 11 WEST 42ND STREET, NEW YORK, NY 10036, OR WITH THE REQUIREMENTS OF OSHA STANDARD 29 CFR 1910.134 AVAILABLE FROM THE US DEPARTMENT OF LABOR, OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION, OR WITH OTHER PERTINENT NATIONAL RECOGNIZED STANDARDS.

BEFORE USE, THE EMPLOYER MUST ASSURE THAT EACH RESPIRATOR USER HAS BEEN TRAINED BY A QUALIFIED PERSON IN THE PROPER USE AND MAINTENANCE OF THE RESPIRATOR ACCORDING TO THE INSTRUCTIONS CONTAINED IN THIS USER INSTRUCTION AND OTHER APPLICABLE USER INSTRUCTIONS.

Δ WARNING

BEFORE USING THE ILC DOVER SENTINEL XL™ PAPR CBRN SYSTEMS, EACH PERSON MUST READ AND UNDERSTAND THE INFORMATION IN THIS USER INSTRUCTION. USE OF THE RESPIRATOR SYSTEMS BY UNTRAINED OR UNQUALIFIED PERSONS, OR USE THAT IS NOT IN ACCORDANCE WITH THESE INSTRUCTIONS, MAY ADVERSELY AFFECT RESPIRATOR PERFORMANCE AND MAY RESULT IN INJURY OR DEATH.

SERVICE LIFE OF CHEMICAL CARTRIDGE

The useful service life of chemical Cartridge will depend upon the flow rate, the specific type, volatility and concentration of the contaminants and environmental conditions such as humidity and temperature. Replace Cartridge in accordance with an established Cartridge change schedule. Cartridge should be changed earlier than scheduled if smell, taste or irritation from the contaminant is detected. Cartridges must be replaced if they become damaged, soiled, or if increased breathing resistance occurs.

EYE, FACE AND HEAD PROTECTION

Δ WARNING

THESE HOODS DO NOT PROVIDE EYE, FACE, OR HEAD PROTECTION WHEN EXPOSED TO EYE, FACE, OR HEAD HAZARDS. THE RESPIRATOR WEARER MUST WEAR EYE, FACE, AND/OR HEAD PROTECTION APPROPRIATE TO THE HAZARD. FAILURE TO DO SO MAY RESULT IN INJURY OR DEATH.

INSTALLING THE ALKALINE BATTERY ADAPTOR (P/N S-4013)

1. Make sure the blower is turned off.

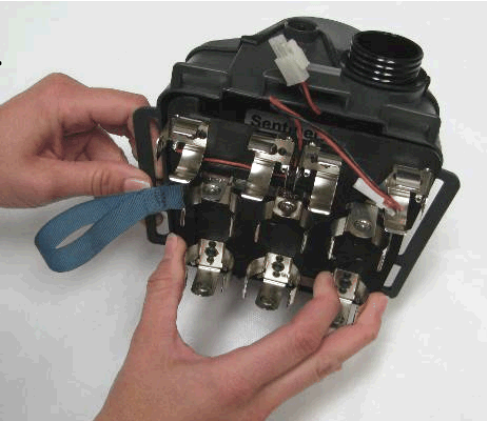
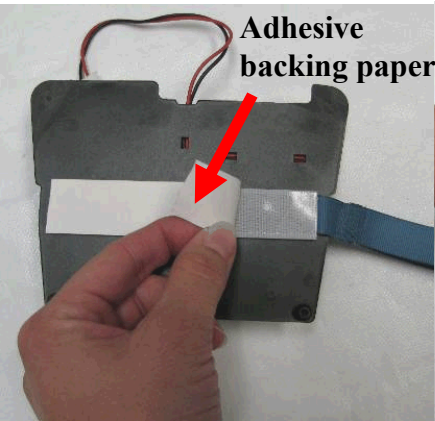
2. Open the battery pack compartment by pressing on the latch connecting it to the blower.

3. Disconnect the battery wire connector from the blower and separate the battery from the blower. Set battery aside for future use.

4. Remove Alkaline Battery Adaptor from its original kit packaging. Set aside the battery backing plate until Step #12.

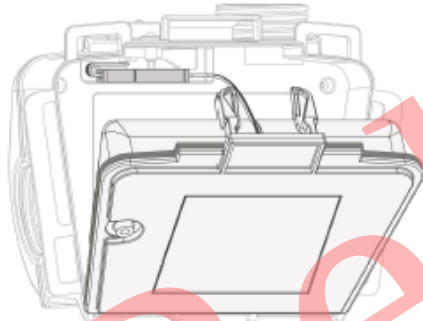
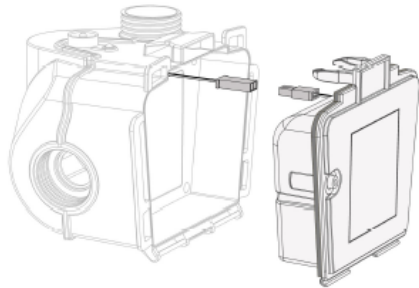
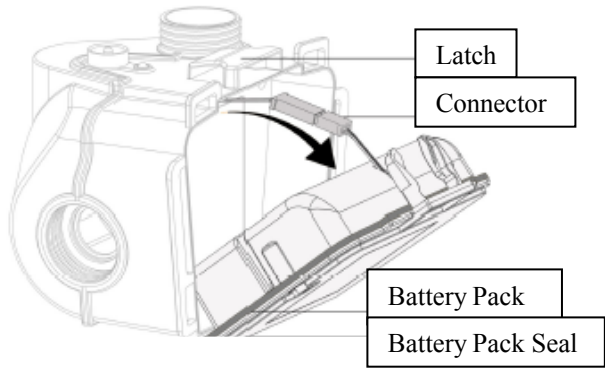


5. Remove the adhesive backing paper on the Alkaline Battery Adaptor hook and place the adaptor plate into the open cavity on the back of the blower, with metal connectors facing out. **Note: Do not separate Velcro hook from Velcro loop on the back of the Alkaline Battery Adaptor. These parts need to remain together during assembly.**



CHANGING BATTERY PACK (P/N S-2003 and P/N S-2004)

1. Make sure the blower is turned off.
2. Open the battery pack compartment by pressing on the latch connecting it to the blower.
3. Disconnect the connector parts and separate the battery pack from the blower.
4. Connect the new battery pack.
5. Slot the connector into its designated place in the blower as demonstrated.
6. Close the battery pack. Ensure that you do not pinch the battery leads when closing the battery pack.
7. Ensure you hear an audible click when the battery pack latch locks into place.
8. Operate normally.



NIOSH APPROVAL

For a listing of the components in the ILC Dover respirator systems (ILC Dover **SENTINEL XL™ PAPR CBRN**) that are NIOSH approved, refer to the NIOSH-approved label insert.

NIOSH CAUTIONS AND LIMITATIONS

- A. Not for use in atmospheres containing less than 19.5 percent oxygen.
- B. Not for use in atmospheres immediately dangerous to life or health.
- C. Do not exceed maximum use concentrations established by regulatory standards.
- F. Do not use this respirator if airflow is less than four cfm (115 lpm) for tight-fitting facepieces or six cfm (170 lpm) for hoods and/or helmets
- H. Follow established cartridge and canister change schedules or observe ESLI to ensure that cartridges and canisters are replaced before breakthrough occurs.
- I. Contains electrical parts that may cause an ignition in flammable or explosive atmospheres.
- J. Failure to properly use and maintain this product could result in death or serious injury.
- L. Follow the manufacturer's instructions for changing cartridges and/or filters.
- 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 as specified by the manufacturer.
- O. Refer to users 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.
- 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
- GG. Direct contact with CBRN agents requires proper handling of the respirator after use. Correct disposal procedures must be followed.
- 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.
- VV. PAPRS with TC-23C approvals may NOT be used for escape from IDLH atmospheres.

REPLACEMENT PARTS

<u>Part No.</u>	<u>Component</u>
Cartridge	
S-2016	CBRN Toxic Chemical Cartridge (with Instructions)
Battery Packs and Charger	
S-2003	Rechargeable NiMH Battery Pack Assembly
S-2004	Non Rechargeable LiMnO2 Battery Pack Assembly
S-4013 (Optional)	Alkaline Battery Adaptor (Batteries NOT included)
S-2009	Fast Battery Charger (with Instructions)
Blower	
S-2002	Standard Blower Assembly
Hood	
S-2001	Butyl Hood Assembly
Waist Belt	
S-2007	Adjustable Waist Belt
S-4011 (Optional)	Decon and Quick Release Belt and Clip
Backpack	
S-2008	Backpack
Accessories	
S-2010	Flow Meter
S-2018	Instruction Manual
S-2023	Antimicrobial Head Harness

PAPR Blower Unit

Verify that each Cartridge threaded inlet has a black rubber gasket present that is properly seated without twists, raised areas, or surface defects that may prevent proper sealing of the Cartridge.

⚠ WARNING

IF RUBBER GASKETS APPEAR TO BE POSITIONED IMPROPERLY WITH TWISTS, RAISED AREAS, OR SURFACE DEFECTS, DO NOT USE BLOWER. CONTACT THE ILC DOVER CUSTOMER SERVICE DEPARTMENT IMMEDIATELY. GASKET FAILURE WILL AFFECT THE RESPIRATOR PERFORMANCE AND MAY RESULT IN INJURY OR DEATH.

Examine the blower housing for cracks. Replace if cracked or damaged.

Examine the outside of the battery pack for cracks. Replace if damaged.

Cartridge

Examine Cartridges for mechanical damage and deformities. If found, determine potential for contamination of user.

⚠ WARNING

IF EXCESSIVE WEAR AND/OR DAMAGE TO THE RESPIRATOR SYSTEM OR ITS COMPONENTS IS OBSERVED AT ANY TIME, DO NOT USE THE RESPIRATOR SYSTEM UNTIL ALL NECESSARY REPAIRS HAVE BEEN PERFORMED AND THE WEARER HAS SUCCESSFULLY COMPLETED THE USER PERFORMANCE CHECK DESCRIBED IN THIS USER INSTRUCTION.

MISUSE MAY ADVERSELY AFFECT RESPIRATOR PERFORMANCE AND MAY RESULT IN INJURY OR DEATH.

GENERAL CLEANING

Solvents should not be used to clean the PAPR blower unit, battery pack, waist belt, hose and hood. Liquid solvents may chemically weaken the plastic. Wipe the PAPR blower unit, battery pack, waist belt, hose and hood with a mild cleaning solution. The decontamination solutions may be applied via cloth, paper towels, or spraying methods. Do NOT decon the battery charger. Wipe components dry with a soft cloth following decontamination and rinsing with clean water, unless noted to air dry. Never submerge or immerse any Sentinel XL™ PAPR blower, filter, hose, or hood components in liquid, as this may permanently damage the electronics, batteries, or affect the hood or hose function. Ensure all components are **completely** dry before using the system or charging the battery.

Follow the hygiene practices established by your employer for the specific contaminants to which you may have been exposed.

Δ WARNING
DO NOT CLEAN HOODS WITH DETERGENTS THAT CONTAIN LANOLIN OR OTHER OILS SINCE THEY MAY SOFTEN OR DISTORT THE VISOR.
DO NOT WIPE THE VISOR WITH SOLVENTS LIKE MEK, ACETONE, TOLUENE, AS THOSE MAY DAMAGE OR DISTORT THE VISOR.
DO NOT SOAK HOODS OR COMPONENTS IN CLEANING SOLUTIONS OR SOLVENTS. MISUSE MAY ADVERSELY AFFECT RESPIRATOR PERFORMANCE AND RESULT IN INJURY OR DEATH.
Δ WARNING
AFTER DECONTAMINATION, DISPOSE OF CARTRIDGE IN ACCORDANCE WITH FEDERAL, STATE AND LOCAL ENVIRONMENTAL REGULATIONS. DO NOT THROW AWAY DAMAGED OR UNUSABLE CARTRIDGE AS ORDINARY WASTE. IMPROPER DISPOSAL OF CONTAMINATED CARTRIDGE MAY RESULT IN EXPOSURE TO CONTAMINANTS WHICH MAY CAUSE INJURY OR DEATH.

INSPECTION

After each use, inspect the hood assembly to identify signs of damage or wear that may effect performance of the respirator and reduce the degree of protection provided. The Troubleshooting Section in this manual contains a troubleshooting guide to help you identify the proper action to take for specific problems that may be detected.

Hood

Check that there are no dents, tears, holes or cracks in the hood assembly. Look closely at the stitching. There should be no tears that could permit contaminated air to enter the hood.

Visor

Look for scratches or other visual distortions that make it difficult to see through visor.

Valve

Inspect the valve assembly to ensure all parts are present. There should be a valve cover and a valve present in the valve holder. There are no replaceable parts in this assembly.

Breathing Tube

Carefully examine the entire breathing tube cover sleeve. Look for tears, holes or cracks. Bend the tube to verify that it is flexible.

PREPARATION FOR USE (USING ADJUSTABLE WAIST BELT OR DECON BELT)

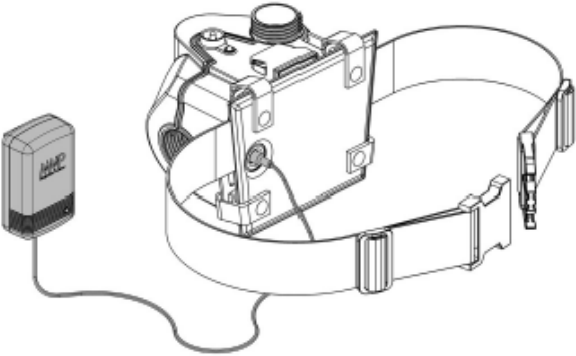
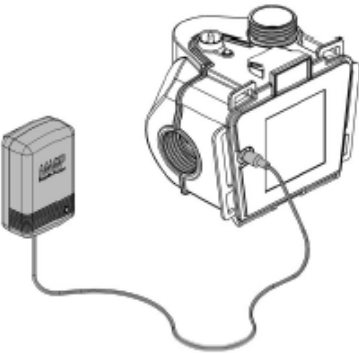
1. Open the package/box and take out the components:

- Blower S-2002
- Battery S-2003 Rechargeable NiMH Battery Pack Assembly or S-2004 Non Rechargeable LiMnO2 Battery pack Assembly
- Alkaline Battery Adaptor S-4013 (Optional) Batteries NOT included
- Battery Charger (with Instructions) S-2009
- Cartridge x 3 (with Instructions) S-2016
- Flow Meter S-2010
- Adjustable Waist Belt S-2007 or Decon and Quick Release Belt and Clip S-4011 (Optional)
- PAPR Hood S-2001

2. Remove the Blower from its box.

3. If using a rechargeable battery, remove the Battery Charger from its box. To charge the PAPR:

- Make sure that the battery pack is assembled to the blower unit at all times. The battery pack should be separated from the blower only for battery pack replacement.
- Plug the battery charger to the socket at the back of the PAPR.
- Connect the battery charger to an electrical outlet. If charger is connected to an electrical outlet before connecting to a battery, a solid green LED light indicates that the charger is operating properly. When plugged into the battery the charger LED will turn solid red after a short time, indicating that charging is underway.
- Charge the battery for approximately 5 hours.
- The charger’s LED will change from solid red to flashing green when charging is complete. The charger will then be in a “trickle charge” mode. If the light goes to continuous green the battery will cool down automatically and then will go to red and continue charging.
- Charging is also possible when the blower is attached to the waist belt or decon belt, as demonstrated.

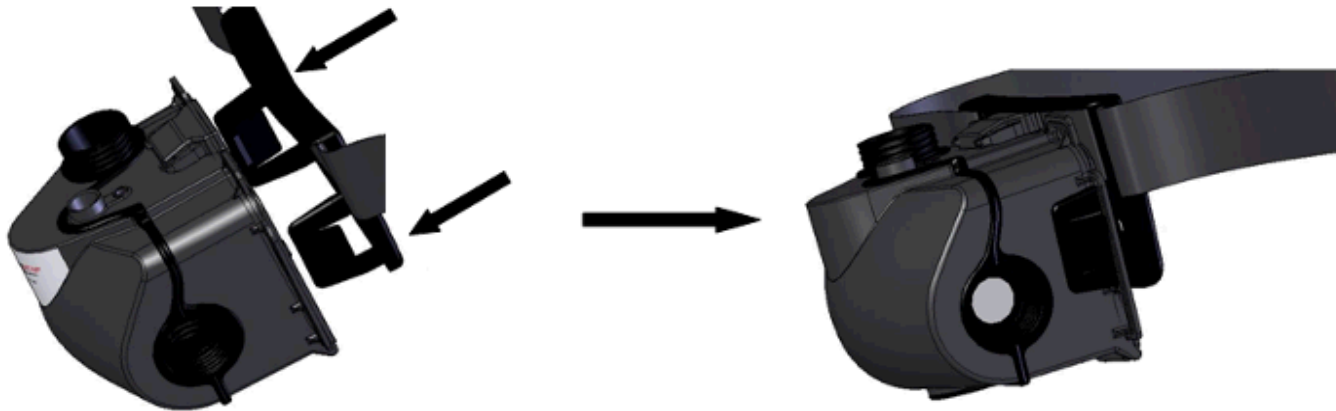
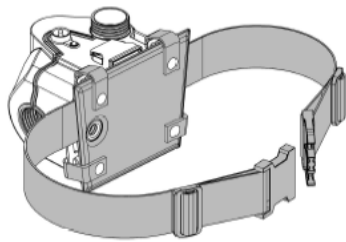


4. If you are using the Non-Rechargeable Battery or Alkaline Battery Adaptor continue onto Step 5. If there is no battery installed into the blower refer to pages 29 and 30 respectively for battery installation instructions.

5. Fit the Waist belt length to your waist size when dressed in your protective garments.

6. Position the Blower on the Waist Belt pad.

- The charging socket should be accessible through the pad. Attach the blower to the waist belt by passing the 4 straps through the blower’s loops and snapping them to the back of the waist belt pad.
- For the S-4011 Decon and Quick Release Belt and Clip, follow same steps as on page 11, then align the quick don snap features as shown below and press belt clip firmly into place. The hole in the clip should align with battery recharging port.



Δ WARNING

USE OF THESE RESPIRATOR SYSTEMS BY UNTRAINED OR UNQUALIFIED PERSONS OR USE NOT IN ACCORDANCE WITH THESE INSTRUCTIONS MAY ADVERSELY AFFECT RESPIRATOR PERFORMANCE AND RESULT IN INJURY OR DEATH.

USE OF THESE RESPIRATOR SYSTEMS MUST BE IN ACCORDANCE WITH APPLICABLE SAFETY AND HEALTH STANDARDS, RESPIRATOR SELECTION TABLES CONTAINED IN SUCH PUBLICATIONS AS ANSI Z88.2-1992, OR PURSUANT TO THE RECOMMENDATIONS OF AN INDUSTRIAL HYGIENIST. USE OF A RESPIRATOR REQUIRES THAT A WRITTEN RESPIRATOR PROGRAM BE IN PLACE, WHICH IS IN ACCORDANCE WITH THE OSHA RESPIRATORY PROTECTION STANDARD FOUND IN 29 CFR 1910.134 PRIOR TO USING ANY RESPIRATOR SYSTEM.

BEFORE USE, THE USER MUST BE TRAINED BY THE EMPLOYER IN THE PROPER USE AND MAINTENANCE OF THE ILC DOVER SENTINEL XL™ PAPR CBRN SYSTEM. SUCH TRAINING MUST BE IN ACCORDANCE WITH THIS USER INSTRUCTION. EACH PERSON USING THESE RESPIRATOR SYSTEMS MUST FIRST READ AND UNDERSTAND THIS ENTIRE USER INSTRUCTION. FAILURE TO DO SO MAY ADVERSELY AFFECT RESPIRATOR SYSTEM PERFORMANCE AND RESULT IN INJURY OR DEATH.

IF THESE RESPIRATOR SYSTEMS FAIL ANY OF THE REQUIREMENTS OF THE USER INSPECTION AND PERFORMANCE CHECK, DO NOT USE THE RESPIRATOR SYSTEM UNTIL ALL NECESSARY REPAIRS HAVE BEEN PERFORMED AND THE RESPIRATOR SYSTEMS PASS THE PERFORMANCE CHECKS. FAILURE TO DO SO MAY ADVERSELY AFFECT RESPIRATOR SYSTEM PERFORMANCE AND RESULT IN INJURY OR DEATH.

Δ WARNING

ALWAYS DON THE RESPIRATOR IN A NON-CONTAMINATED AREA. FAILURE TO PROPERLY DON THIS RESPIRATOR BEFORE ENTERING A HAZARDOUS ATMOSPHERE MAY RESULT IN INJURY OR DEATH.

IF YOU HAVE ANY DOUBTS ABOUT THE APPLICABILITY OF THE EQUIPMENT TO YOUR JOB SITUATION, CONSULT AN INDUSTRIAL HYGIENIST OR CALL THE TECHNICAL SERVICE DEPARTMENT OF ILC DOVER at 1-800-631-9567.

DO NOT REACH YOUR HAND INTO THE HOOD IN AREAS WHERE THE AIR IS CONTAMINATED. LEAVE THE CONTAMINATED AREA AND CLEAN CONTAMINANTS FROM YOUR HANDS BEFORE REACHING INSIDE THE HOOD.

DECONTAMINATION PROCEDURES

If the Sentinel XL™ PAPR CBRN becomes contaminated with any CBRN agent, decontamination must be completed using specific protocol and directives of the agency using this product, followed by disposal of the product.

REMOVING THE PAPR SYSTEM

Only remove the Sentinel XL™ PAPR CBRN system while the blower is operating. The Sentinel XL™ PAPR CBRN should not be removed if you are not sure you are in a safe (uncontaminated) area. If you have been in a chemical-biological environment, the outside of the Sentinel XL™ PAPR CBRN will be contaminated. Only persons wearing appropriate protective gloves and clothing should conduct respirator decontamination and removal. You and the Sentinel XL™ PAPR CBRN must be decontaminated. Be aware that touching or removing a contaminated Sentinel XL™ PAPR CBRN after it has been decontaminated could lead to skin contamination or exposure to toxic materials.

Once you have removed the Sentinel XL™ PAPR CBRN be sure to place it where others cannot accidentally handle it. It must be disposed of carefully and in accordance with local, state, and federal guidelines.

Δ WARNING

DO NOT ATTEMPT TO CLEAN AND RE-USE ANY SENTINEL XL PAPR CBRN COMPONENT THAT HAS BEEN EXPOSED TO A CBRN AGENT. CBRN AGENTS MAY ADHERE OR BE ABSORBED INTO SPECIFIC SENTINEL XL PAPR COMPONENTS, AND MAY NOT BE EFFECTIVELY REMOVED WITH THE USE OF CLEANING MATERIALS.

REUSE OF ANY COMPONENT OF THE ILC SENTINEL XL PAPR CBRN FOLLOWING CONTAMINATION OF CBRN AGENTS MAY RESULT IN SERIOUS INJURY OR DEATH.

DISPOSAL OF CARTRIDGES

Remove used Cartridges and dispose of properly.

Handle Cartridges with care. Cartridges may contain the contaminant that was in the atmosphere while the Cartridges were being used and they must be handled as a contaminated or potentially contaminated object. Disposal of Cartridges must be in accordance with state and local environmental regulations.

- The pictures below illustrate how to incorrectly and correctly cinch the drawstring cord.



- Tuck the inner skirt under your protective clothing and allow the outer skirt to hang outside.
- With the respirator in operation and donned according to the instructions, enter the contaminated area, breathing normally. Keep all the respirator system's components away from equipment, vehicles and other physical and chemical hazards.
- Once the hood is installed, ensure that the head harness is properly fitted by turning your head side-to-side to verify that the head harness is secure and does not slip on the forehead. If slipping occurs, remove the hood and adjust the head harness to a smaller size.

Δ WARNING

DO NOT REMOVE RESPIRATOR SYSTEM WHILE YOU ARE IN A HAZARDOUS ATMOSPHERE. DOING SO MAY RESULT IN SICKNESS OR DEATH. CONTAMINANTS, WHICH ARE DANGEROUS TO YOUR HEALTH, INCLUDE THOSE THAT YOU MAY NOT BE ABLE TO SEE OR SMELL.

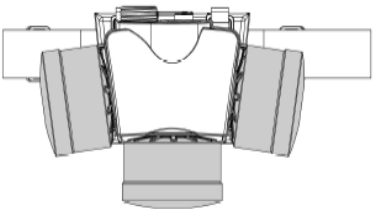
LEAVE THE CONTAMINATED AREA IMMEDIATELY IF:

- **ANY PART OF THE SYSTEM BECOMES DAMAGED.**
- **AIRFLOW INTO THE RESPIRATOR HEADPIECE DECREASES OR STOPS.**
- **THE ALARM SIGNAL OF LOW BATTERY IS ON: RED LED FLASHES AND BUZZER BEEPS.**
- **BREATHING BECOMES DIFFICULT.**
- **YOU FEEL DIZZY OR YOUR VISION IS IMPAIRED.**
- **YOU TASTE OR SMELL CONTAMINANTS.**
- **YOUR FACE, EYES, NOSE OR MOUTH BECOME IRRITATED.**
- **YOU SUSPECT THAT THE CONCENTRATION OF CONTAMINANTS MAY HAVE REACHED LEVELS AT WHICH THIS RESPIRATOR SYSTEM MAY NO LONGER PROVIDE ADEQUATE PROTECTION.**

7. Cartridge Installation.

Verify that the Cartridges are the appropriate type for the application by examining the label attached to the cartridge.

- Before removing the Cartridges, verify that the foil package is vacuum sealed and inspect the foil bag for any damage. Do not use the Cartridges if the foil bag has been damaged. If the foil bag has no damage and the vacuum was maintained, remove the Cartridges from their packaging. Confirm that the Cartridges do not exceed the “use-by” date and that the connecting thread is not damaged.
- Confirm that the threads in the three Cartridge threaded inlets are in good condition and clear of foreign matter.
- Verify that each Cartridge threaded inlet has a black rubber gasket present that is properly seated without twists, raised areas, or surface defects that may prevent proper sealing of the Cartridge.
- Remove all plugs from the Cartridge openings before using the system. Retain the plugs for future use.
- Screw the Cartridge into the threads until they are hand tight.

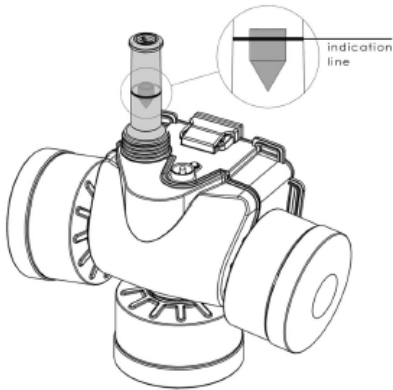


Δ WARNING

DO NOT OVER TIGHTEN CARTRIDGE. OVER TIGHTENING MAY RESULT IN DISTORTION OR DISPLACEMENT OF THE SEAL AND ALLOW CONTAMINATED AIR TO ENTER THE RESPIRATOR HEADPIECE RESULTING IN INJURY OR DEATH.

8. Check the airflow with the Flow Meter.

- Ensure that the Cartridges are installed on the blower. The blower can be installed on the waist belt.
- Switch the blower ON. A short beep should sound.
- Place the flow meter in the blower's hood connector, applying light pressure to allow for a seal between the flow meter and the blower. Keep the flow meter vertical. Assure that nothing is restricting air flow into the cartridges.
- The position of the upper (flat surface) black cone in the flow meter should be above the indication line. If any part of the upper (flat surface) of the black cone is below the line on the flow meter, check for:
 - Blower malfunction.
 - Improperly installed, clogged, or damaged Cartridge(s).
 - Low battery charge or battery malfunction.
 - Improperly seated filter gasket(s).
- If the upper portion of the black cone is above the indication line on the flow meter, the system is ready for use.



⚠ WARNING

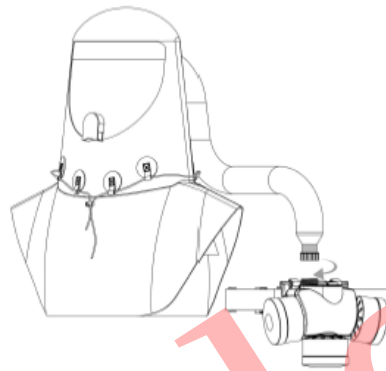
BEFORE ENTERING A HAZARDOUS ATMOSPHERE WEARING THIS RESPIRATOR SYSTEM, THE RESPIRATOR SYSTEM MUST BE INSPECTED. COMPLETE AN AIRFLOW CHECK, AND DON THE SYSTEM ACCORDING TO THE INSTRUCTIONS IN THIS MANUAL. FAILURE TO DO SO MAY NOT ADVERSELY AFFECT RESPIRATOR PERFORMANCE AND MAY RESULT IN INJURY OR DEATH.

DO NOT WEAR THIS RESPIRATOR SYSTEM TO ENTER AREAS WHERE ATMOSPHERIC CONCENTRATIONS OF CONTAMINANTS ARE UNKNOWN. THE AREA MAY NOT EXCEED THE MAXIMUM USE CONCENTRATION (MUC) FOR THE RESPIRATOR HEAD PIECE, OR ATMOSPHERE MAY NOT CONTAIN LESS THAN 19.5% OXYGEN. THIS MAY RESULT IN IMMEDIATE DANGER TO PERSONNEL.

9. Connect the Hood's Breathing Tube to the Blower.

- Check that the breathing tube thread has the black rubber gasket seal present.
- Check that the thread in the blower unit is in good condition and clear of foreign matter.
- Screw the end of the breathing tube into the blower unit until it is hand tight. Ensure that there is not excessive twist on the hose. If so, loosen the breathing tube fitting where it attaches to the blower, rotate the hose to eliminate the twist, and retighten the fitting.

Do not over-tighten!



STEP 5

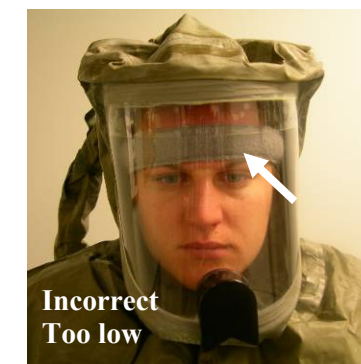
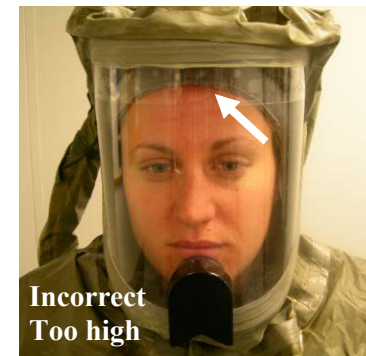


Center the head harness in the hood slot after making the sizing adjustment. Fasten the male loose snap (opposite side of the D-ring) of the head harness into the female end located on the visor.

- If the adjustable waist belt or decon belt is used, adjust the blower and belt on your waist over your protective clothing. Adjust the waist belt for a comfortable fit - keeping the breathing tube and hood behind the head and shoulders.
- If the backpack is used, adjust the blower and backpack on your back over your protective clothing using the shoulder straps. Adjust the waist belt strap for a comfortable fit – keeping the breathing tube and hood behind the head and shoulders.
- Switch the blower ON.



- Place your hand inside the hood, in the area above the face shield. You should feel the air entering into the hood.
- **Don the hood:** Place your thumbs on both ends of the padded part of the head strap with the visor facing your body. Place the hood on your head; the padded part of the head strap should be centered on your forehead. The pictures below illustrate the positioning of the head harness on the forehead.



HEAD HARNESS REPLACEMENT INSTRUCTIONS



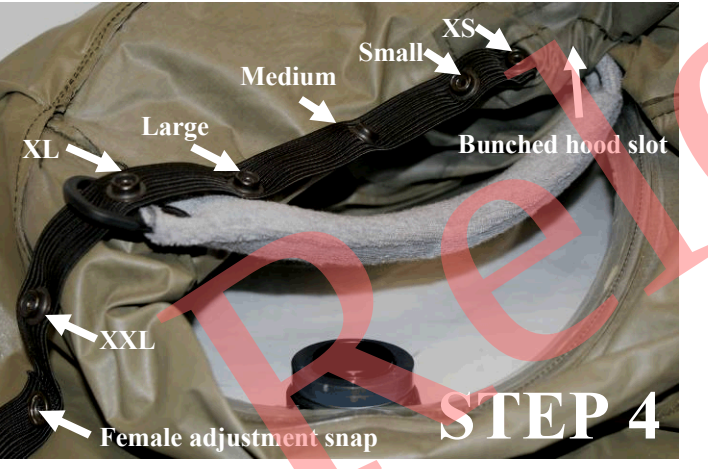
Slide the head harness webbing through the hood slot; make sure the webbing is not twisted and is able to lie flat.



Slide the black webbing through the D-ring slot.



Fasten the female adjustment snap of the head harness into the appropriate sizing adjustment for the user. If user is small or XS go to Step 4. These sizes are hidden in this picture behind the hood slot.



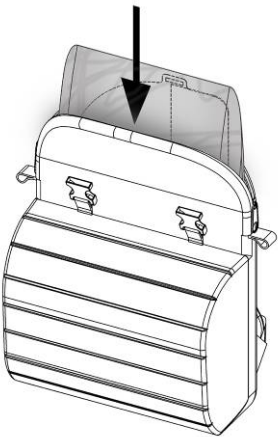
To adjust the head harness for small or XS, tightly pull the webbing through the hood slot. This will cause the hood slot material to bunch. Fasten the female adjustment snap of the head harness into the appropriate sizing adjustment.

PAPR BACKPACK COMPONENT INTEGRATION

The Sentinel XL™ PAPR CBRN system is shipped with components pre-installed in the backpack. Use the following instructions for general storage or addition of replacement components in the backpack.

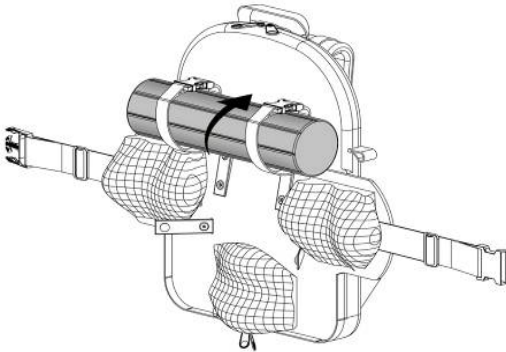
1. Open the package/boxes and take out the components:

- Blower S-2002 (installed in backpack)
- Battery S-2003 Rechargeable NiMH Battery Pack Assembly or S-2004 Non Rechargeable LiMnO2 Battery pack Assembly (installed in blower)
- Alkaline Battery Adaptor S-4013 (Optional) Batteries NOT included
- Battery charger (with Instructions) S-2009
- Cartridge x 3 (with Instructions) S-2016
- Flow Meter S-2010
- Backpack S-2007
- PAPR Hood S-2001

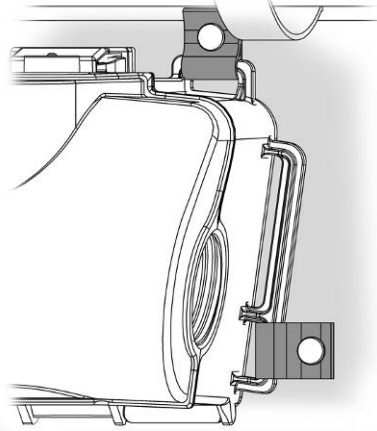


2. Insert the hood, wrapped in its plastic bag, into the backpack hood compartment, and close the hood compartment using the zippers.

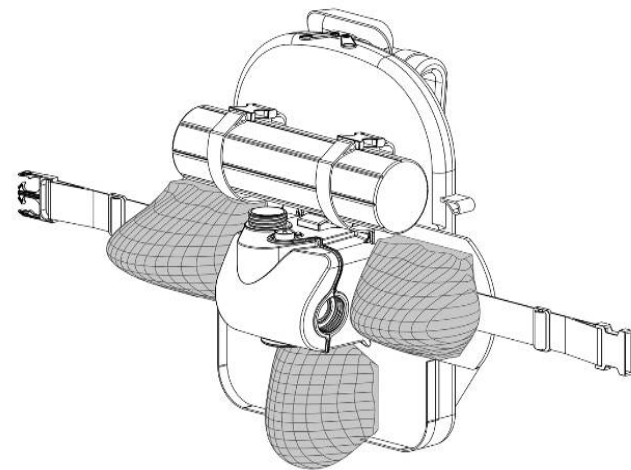
3. Open the blower compartment cover, roll it upwards, and fasten the straps with the buckles, exposing the backpack pad, and the three net Cartridge receptacles.



4. Position the blower on the backpack pad – the charging socket is accessible through the pad. Attach the blower to the backpack, by passing the 4 straps through the blower’s loops and snapping them to the back of the backpack pad.

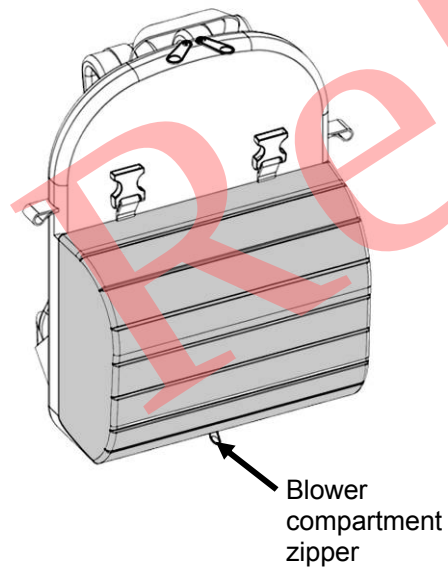


5. Insert the foil wrapped Cartridges into the three net receptacles on the backpack.



6. Undo the strap buckles and unfold the blower compartment cover.

7. Close the blower compartment using the zipper (see picture below). The backpack is now in stand-by storage configuration.



10. Head Harness Adjustment and Donning the Butyl Hood

Note: If possible, the ‘buddy system’ should be utilized to aid in effective and fast donning of the system. A second person can help the wearer by insuring that the head harness is adjusted and donned properly, and to check proper positioning of the hose and hood skirt.

Don the blower and hood in a safe hazard-free area and accomplish the following:

- Confirm that the three cartridges are properly mounted on the blower unit.
- Adjust the hood’s head strap according to your head size making adjustments to ensure a comfortable/stable fit.
- Initial sizing is based upon head circumference, although other factors including the subject’s head shape, forehead size and shape, and hair will affect the sizing of the product.

HEAD HARNESS SIZING INSTRUCTIONS



Remove the protective wrap from the head harness and discard.



The Sentinel XL CBRN head harness is packaged pre-sized to the XXL head adjustment. To adjust the head harness to different size, unsnap the female end and move the female adjustment snap to the proper male location and fasten into place. If the user is sizing for small or XS this will cause the hood slot material to bunch.

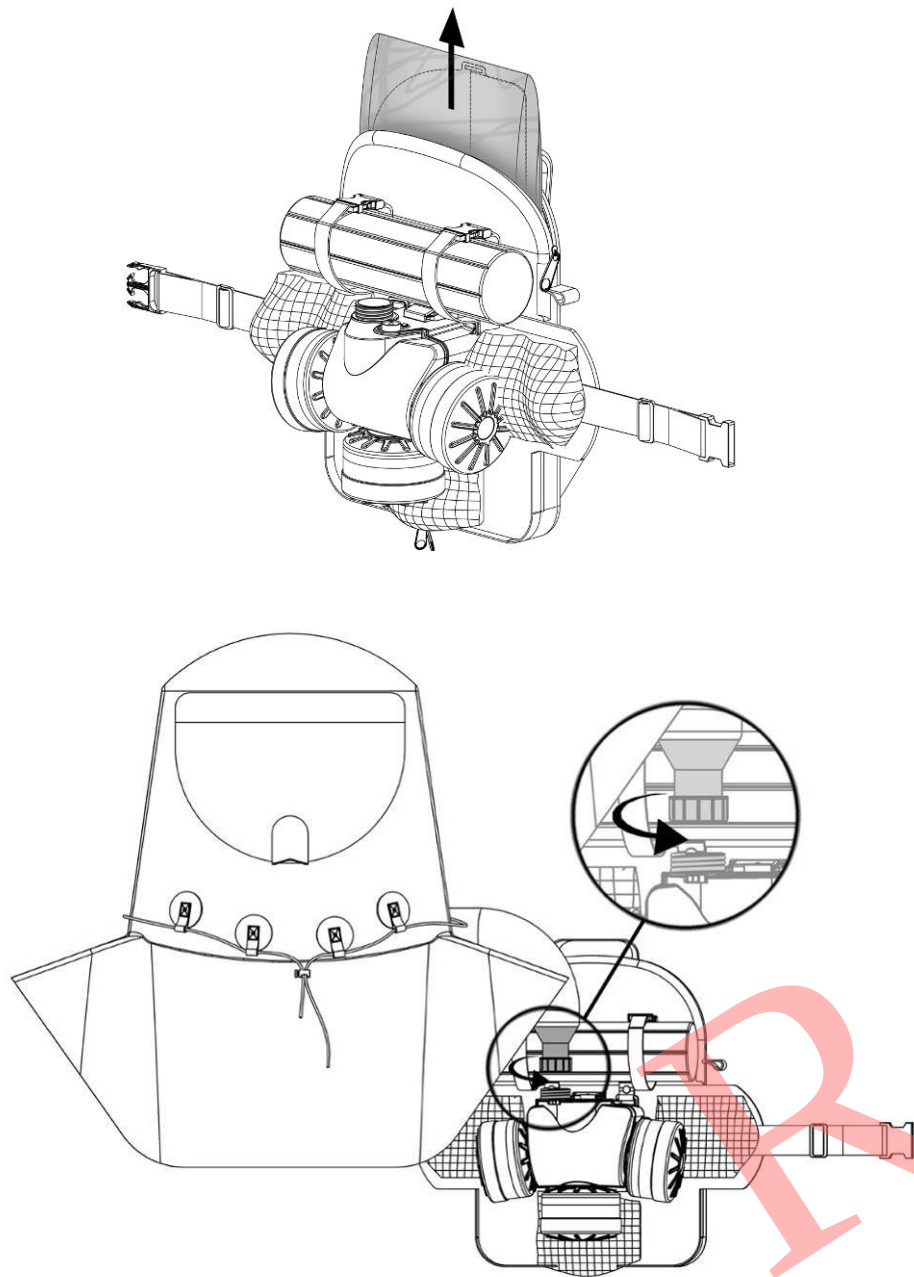


After making the proper size adjustment, make sure to center the head harness in the hood slot between the two visor snaps.



Fasten the male loose snap (located next to the D-ring) of the head harness into the female end located on the visor.

8. Take the hood out of the designated hood Compartment. Remove hood from fabric bag.



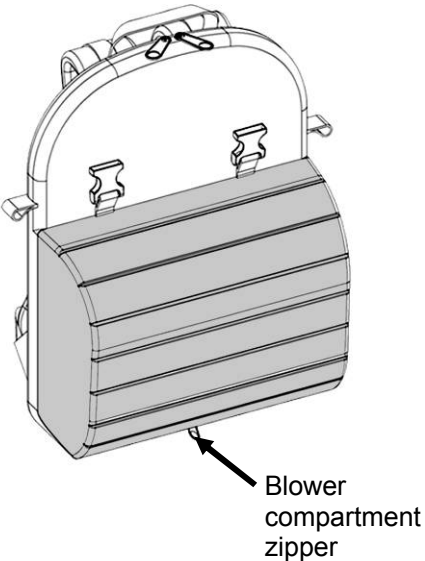
9. Connect the Hood’s Breathing Tube to the Blower.

- Confirm that the breathing tube thread has the black rubber gasket seal present.
- Confirm that the thread in the blower unit is in good condition and clear of foreign matter.
- Screw the end of the breathing tube into the blower unit until it is hand tight. Ensure that there is not excessive twist on the hose. If so, loosen the breathing tube fitting where it attaches to the blower, rotate the hose to eliminate the twist, and retighten the fitting.

Do not over-tighten!

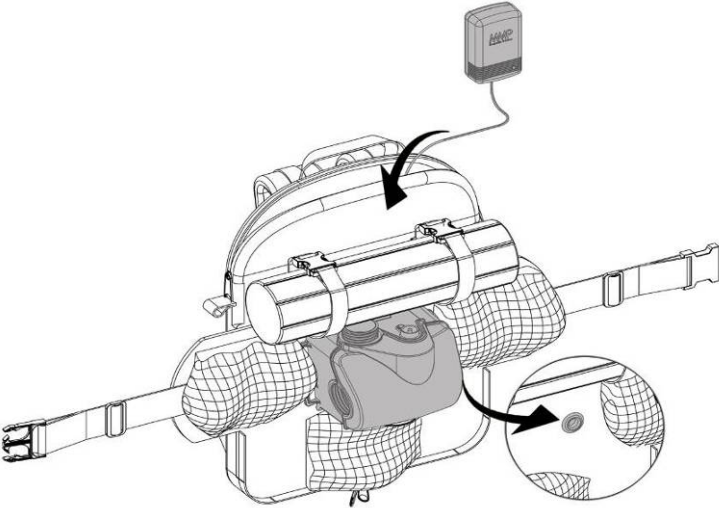
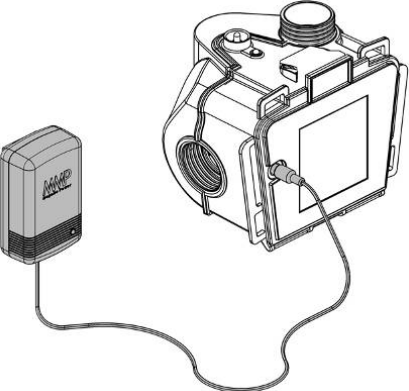
PREPARATION FOR USE (USING BACKPACK ASSEMBLY)

1. Open the blower compartment using the zipper (see picture to th



2. If using a rechargeable battery pack, remove the battery charger from the backpack. To charge the PAPR:

- Make sure that the battery pack is assembled to the blower unit at all times. The battery pack should be separated from the blower only for battery pack replacement.
- Plug the battery charger to the socket at the back of the PAPR.
- Connect the battery charger to an electrical outlet. A solid green LED light indicates that the charger is operating properly. When plugged into the battery the charger LED will turn solid red after a short time, indicating that charging is underway.
- Charge the battery for approximately 5 hours.
- While the battery is charging, the red LED on the battery charger will be continuous.
- The charger LED may flash green when charging is complete. The charger will then be in a “trickle charge” mode. Occasionally, the charger may indicate a solid green light following a full charge cycle, which is also considered normal.
- Charging is also possible when the blower is attached to the backpack, as demonstrated.



⚠ WARNING

USE OF THESE RESPIRATOR SYSTEMS BY UNTRAINED OR UNQUALIFIED PERSONS, OR USE NOT IN ACCORDANCE WITH THESE INSTRUCTIONS MAY ADVERSELY AFFECT RESPIRATOR PERFORMANCE AND RESULT IN INJURY OR DEATH.

USE OF THESE RESPIRATOR SYSTEMS MUST BE IN ACCORDANCE WITH APPLICABLE SAFETY AND HEALTH STANDARDS, RESPIRATOR SELECTION TABLES CONTAINED IN SUCH PUBLICATIONS AS ANSI Z88.2-1992, OR PURSUANT TO THE RECOMMENDATIONS OF AN INDUSTRIAL HYGIENIST. USE OF A RESPIRATOR REQUIRES THAT A WRITTEN RESPIRATOR PROGRAM BE IN PLACE, WHICH IS IN ACCORDANCE WITH THE OSHA RESPIRATORY PROTECTION STANDARD FOUND IN 29 CFR 1910.134 PRIOR TO USING ANY RESPIRATOR SYSTEM.

BEFORE USE, THE USER MUST BE TRAINED BY THE EMPLOYER IN THE PROPER USE AND MAINTENANCE OF THE ILC DOVER SENTINEL XL™ PAPR CBRN SYSTEM. SUCH TRAINING MUST BE IN ACCORDANCE WITH THIS USER INSTRUCTION. EACH PERSON USING THESE RESPIRATOR SYSTEMS MUST FIRST READ AND UNDERSTAND THIS ENTIRE USER INSTRUCTION. FAILURE TO DO SO MAY ADVERSELY AFFECT RESPIRATOR SYSTEM PERFORMANCE AND RESULT IN INJURY OR DEATH.

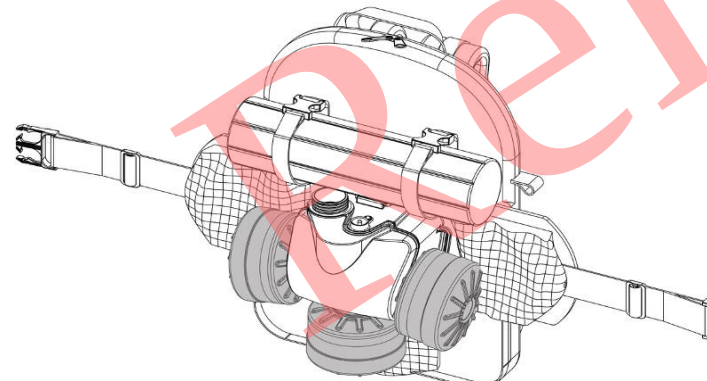
IF THESE RESPIRATOR SYSTEMS FAIL ANY OF THE REQUIREMENTS OF THE USER INSPECTION AND PERFORMANCE CHECK, DO NOT USE THE RESPIRATOR SYSTEM UNTIL ALL NECESSARY REPAIRS HAVE BEEN PERFORMED AND THE RESPIRATOR SYSTEMS PASS THE PERFORMANCE CHECKS. FAILURE TO DO SO MAY ADVERSELY AFFECT RESPIRATOR SYSTEM PERFORMANCE AND RESULT IN INJURY OR DEATH.

3. If you are using the Non-Rechargeable Battery or Alkaline Battery Adaptor continue onto Step 4. If there is no battery installed into the blower refer to pages 29 and 30 respectively for battery installation.

4. Fold the blower compartment's cover, and fasten the straps with the buckles.

5. Cartridge installation:

- Remove the Cartridges from the net receptacles.
- Verify that the Cartridges are the appropriate type for the application by examining the label attached to the Cartridge.
- Verify that the foil package maintained vacuum. Remove the Cartridges from their packaging and the foil bag, inspect for damages; if in doubt do not use. Confirm that the Cartridges do not exceed the "use-by" date and that the connecting thread is not damaged.
- Confirm that the threads in the blower unit are in good condition and clear of foreign matter.
- Verify that the blower threads have the black rubber gasket seals present.
- Remove all plugs from the Cartridge ends before using the system. Retain the plugs for future use.
- Screw the Cartridges into the threads until they are hand tight.



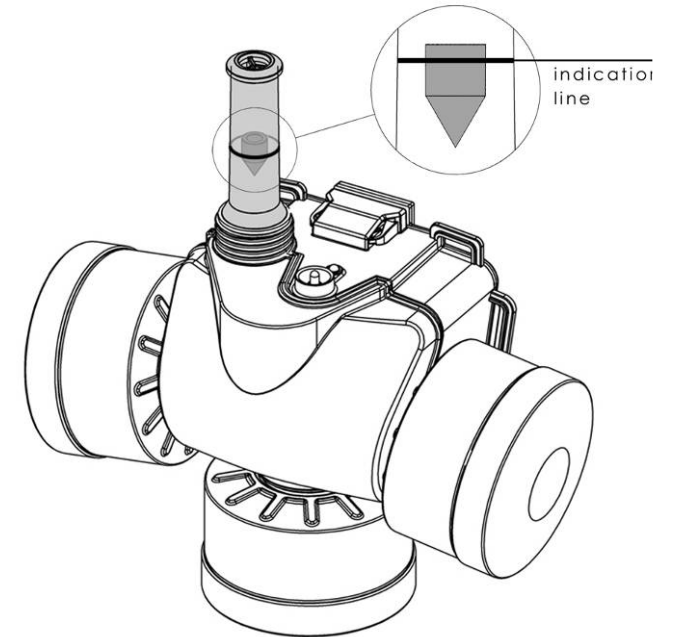
⚠ WARNING

DO NOT OVER TIGHTEN CARTRIDGE. OVER TIGHTENING MAY RESULT IN DISTORTION OR DISPLACEMENT OF THE SEAL AND MAY ALLOW CONTAMINATED AIR TO ENTER THE RESPIRATOR HEADPIECE. THIS MAY RESULT IN INJURY OR DEATH.

6. Adjust the backpack's waist belt length to your waist size when dressed in your protective garments.

7. Check the airflow with the Flow Meter:

- Verify that the Cartridges are installed on the blower. The blower can be mounted on the backpack.
- Switch the blower on. A short beep will sound.
- Place the flow meter in the blower's hood connector, applying light pressure to allow a seal between the flow meter and the blower. Keep the flow meter vertical.
- The position of the upper (flat surface) black cone in the flow meter should be above the indication line. If any part of the upper (flat surface) of the black cone is below the line on the flow meter, check for:
 - Blower malfunction.
 - Improperly installed, clogged or damaged Cartridge(s).
 - Low battery charge or battery malfunction.
 - Improperly seated filter gasket(s).
- If the upper portion of the black cone is above the indication line on the flow meter, the system is ready for use.



⚠ WARNING

BEFORE ENTERING A HAZARDOUS ATMOSPHERE WEARING THIS RESPIRATOR SYSTEM, THE RESPIRATOR SYSTEM MUST BE INSPECTED. COMPLETE AN AIRFLOW CHECK, AND DON THE SYSTEM ACCORDING TO THE INSTRUCTIONS IN THIS MANUAL. FAILURE TO DO SO MAY NOT ADVERSELY AFFECT RESPIRATOR PERFORMANCE AND MAY RESULT IN INJURY OR DEATH.

DO NOT WEAR THIS RESPIRATOR SYSTEM TO ENTER AREAS WHERE ATMOSPHERIC CONCENTRATIONS OF CONTAMINANTS ARE UNKNOWN. THE AREA MAY NOT EXCEED THE MAXIMUM USE CONCENTRATION (MUC) FOR THE RESPIRATOR HEAD PIECE, OR ATMOSPHERE MAY NOT CONTAIN LESS THAN 19.5% OXYGEN. THIS MAY RESULT IN IMMEDIATE DANGER TO PERSONNEL.