

# FireHawk<sup>®</sup> M7 Responder<sup>®</sup> APR (Air Purifying Respirator)

Air Purifying Respirator (APR)/CBRN Respirator Application  
Powered Air Purifying Respirator (PAPR)/CBRN Respirator Application

## OPERATION AND INSTRUCTIONS

### WARNING

This manual must be carefully read and followed by all persons who have, or will have, the responsibility for using or servicing FireHawk M7 Responder APR. This FireHawk M7 Responder APR will perform as designed only if used and serviced according to the instructions; otherwise, the respirator could fail to perform as designed, and persons who rely on the FireHawk M7 Responder APR could sustain serious personal injury or death.

The warranties made by MSA with respect to the product are voided if the product is not installed, used and serviced in accordance with the instructions in this manual. Please protect yourself and your employees by following the instructions. Please read and observe the WARNINGS and CAUTIONS inside. For any additional information relative to use or repair, write or call 1-800-MSA-2222 during regular working hours.

See separate insert for National Institute of Occupational Safety and Health (NIOSH) Approval Information:  
P/N 10086004 (APR/CBRN) and P/N 10086005 (PAPR/CBRN)

Also see User Instruction P/N 10086003 for FireHawk M7 Responder PAPR Application.

For More Information, call 1-800-MSA-2222 or Visit Our Website at [www.MSAnet.com](http://www.MSAnet.com)



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# INTRODUCTION

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## NIOSH APPROVAL INFORMATION CAUTIONS AND LIMITATIONS

**Note:** All cautions and limitations do not apply to all applications. Refer to the NIOSH approval insert to verify the applicable cautions and limitations.

### Air Purifying Respirator (APR) / CBRN APPLICATION

- A – Not for use in atmospheres containing less than 19.5 percent oxygen.
- 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 injury or death.
- L – Follow the manufacturer's User's Instructions for changing canisters.
- 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 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 and 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 infor-

mation on the use, storage, and maintenance of these respirators at various temperatures.

- Y – 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.
- Z – If during use, and 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.
- GG – Direct contact with CBRN agents requires proper handling of the respirator after use. Correct disposal procedures must be followed.
- 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.

### Powered Air Purifying Respirator (PAPR) / CBRN Application

- A – Not for use in atmospheres containing less than 19.5 percent oxygen.
- F – Do not use powered air-purifying respirators if air flow 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 cartridge change schedules or observe ESLI to ensure cartridges and canisters are replaced before breakthrough occurs.
- I – Contains electrical parts that may cause an ignition

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- source in flammable or explosive atmospheres.
- 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 canisters.
- 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 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, and 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.
- Y – 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.
- Z – If during use, and 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.
- BB – Not for use in entry into atmospheres immediately dangerous to life or health.
- CC – For entry, do not exceed maximum use concentrations established by regulatory standards.
- 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 fitted properly, used, and maintained.
- UU – The respirator should not be used beyond eight (8) hours after initial exposure to chemical warfare agents to avoid the 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.

## S- SPECIAL OR CRITICAL USER'S INSTRUCTIONS

1. Firehawk® Responder Regulator must always be connected to the inlet adapter when used as a CBRN APR Respirator or CBRN PAPR Respirator.
2. The Firehawk® Responder Regulator is a non-functional component as regulator, functional as a plug for the front port.

### WARNING

**DO NOT attach the regulator to supplied air while using the respirator as a CBRN APR or CBRN PAPR. Failure to follow this warning can result in serious personal injury or death.**

### WARNING

**This Respirator is approved for APR OR PAPR only configurations and is not intended to be combined with other apparatus. Failure to follow this warning can result in serious personal injury or death.**

3. The FireHawk M7 Heads-Up-Display (HUD) components are non-functional component while attached to the FireHawk M7 Responder APR when used as a CBRN APR or CBRN PAPR.
4. The FireHawk M7 HUD is an optional component for FireHawk M7 Responder APR. The HUD can be removed or attached prior to use.
5. The mouth-bit can be inserted or removed from the nosecup prior to use. Please read the "Preparing the Respirator for Use" section for proper procedure.

### WARNING

**Follow instruction in the "Preparing the Respirator for Use" section before inserting or removing the mouth-bit in the nosecup. Failure to follow this warning can result in serious personal injury or death.**

### WARNING

**The nosecup must always be installed when using the FireHawk M7 Responder APR. Failure to follow this warning can result in serious personal injury or death.**



# INSTRUCTIONS FOR USE AND CARE

## **⚠ WARNING**

1. An adequate respiratory protection program must include knowledge of hazards, hazard assessment, selection of proper respiratory protective equipment, instruction and training in the use of equipment, inspection and maintenance of equipment, and medical surveillance.
2. This respirator will perform as designed only if used and maintained according to the manufacturer's instructions. The Program Administrator and the users must read and understand these instructions before using or servicing this product.
3. If the respirator does not perform as specified in this manual, it must be taken out of service until it is checked by properly trained authorized personnel.
4. **DO NOT** alter, modify, or substitute any components.
5. Inspect the respirator regularly and maintain it according to the instructions. Repairs must only be made by properly trained personnel.
6. This respiratory protective device does not supply oxygen. Use only in adequately ventilated areas which conform to the appropriate standard.
7. This respirator must be used in conjunction with the proper chemical or particulate canister/cartridge(s) for protection against specific contaminants. If you cannot determine that the filter canister/cartridge(s) used with this device is designed for the contaminant, or if you do not know the identity of the contaminant, do not use this device.
8. **DO NOT** use when concentrations of contaminants are unknown.
9. **DO NOT** use when appropriate exposure limit (PEL, REL, TLV, etc.) is not known.
10. Leave the contaminated area immediately if:
  - a. Breathing becomes difficult
  - b. Dizziness or other distress occurs
  - c. You taste or smell the contaminant
  - d. You experience nose or throat irritation
  - e. Instructed to do so by responsible individuals
12. Use strictly according to the instructions, labels, and limitations pertaining to this device. Follow an established canister/cartridge(s) change-out schedule.
13. This respirator may not provide a satisfactory seal with certain facial characteristics, such as beards or large sideburns, that prevents direct contact between the skin and the sealing surface of the facepiece. Do not use this facepiece if such conditions exist.
14. **DO NOT** wear eyeglasses under the facepiece. The temples or sidebars on eyeglasses will prevent an air-tight seal. If you must wear glasses, install the spectacle kit.
15. The user must perform a respirator fit test (Quantitative Test or Qualitative Test) and follow all warnings and limitations specified.
16. Wear impermeable protective clothing to prevent exposure to gases and vapors which can poison by skin absorption.

17. **DO NOT** use in APR or PAPR mode for urethane paints or other paints containing diisocyanates unless an appropriate cartridge change-out schedule is developed. Due to their poor warning properties, over exposure can occur without user awareness and result in severe permanent damage to the respiratory system. If unable to develop an appropriate change-out schedule, use an air-supplied respirator or SCBA.

Failure to follow all warnings, instructions, and established protective measures can result in serious personal injury or death.

## **⚠ CAUTION**

When using filters in an application that produces sparks, ensure that they are protected by a shield. Contact with sparks can damage filters and reduce protection.

## FOR CBRN APPLICATION ONLY

## **⚠ DANGER**

- This respirator provides **LIMITED** protection. It is NIOSH approved for respiratory protection against atmospheres containing CBRN (chemical, biological, radiological, & nuclear) warfare agents; however, it can not protect against all possible warfare agents.
- Some CBRN agents may not present immediate effects from exposure, but can result in delayed impairment, illness, or death.
- **DO NOT** use without a complete understanding of the instructions and limitations for this respirator and proper training. Misuse can prevent the respirator from providing the necessary protection.
- CBRN agents may **NOT** be detectable by smell or sight. Don respirator before entering an area suspected of containing CBRN agent. Follow procedures established by proper authorities.
- **DO NOT** use this respirator beyond eight (8) hours after initial use in an atmosphere containing CBRN agents or beyond two (2) hours after initial use in an atmosphere containing CBRN agents in liquid or mist form; otherwise, agent permeation may occur.
- Follow decontamination and disposal procedures established by appropriate authorities. **DO NOT** remove respirator until respirator and clothing are decontaminated; otherwise, exposure to CBRN agents may result.
- **DO NOT** replace canister in a contaminated area.
- Be sure to follow applicable decontamination procedures.

Failure to follow the above, in addition to all instructions and established CBRN agent protective measures, can result in serious personal injury or death.

**NOTES**

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## GENERAL DESCRIPTION

The FireHawk M7 Responder APR is an air purifying respirator intended for use in atmospheres which are not immediately dangerous to life or health (non-IDLH). This respirator is intended for applications which may require the user to enter or exit a hazardous area, or work within the area for a limited time.

Inhaled air is drawn through the canister which is designed to remove, neutralize, and/or trap specific contaminants as listed on the NIOSH approval insert. Exhaled air leaves the facepiece through the facepiece exhalation valve. It is important that the user becomes familiar with the application and operation of the FireHawk M7 Responder APR and ensures that it fits properly before use.

When properly fitted to the user, the Ultra Elite Responder full facepiece with noseclip, head harness and Firehawk® Responder Regulator, combined with the appropriate canister and breathing tube becomes a complete respiratory protective device.

The respirator consists of the following subassemblies:

- Ultra Elite® Responder (with noseclip)
- Breathing Tube
- Regulator
- Canister
- Neck Strap
- Heads-Up-Display (HUD) (Optional)

Facepiece size is identified on the front of the facepiece above the lens area.

### RESPIRATOR USE LIMITATIONS

The wearer must comply with the following MSA respirator use limitations:

- A. MAXIMUM USE CONCENTRATION – Do not exceed any of the following:
  1. Routine Use –
    - a. 50 times the exposure limit for the contaminants present if using a quantitative fit test method. Using a qualitative fit test may reduce the maximum use concentration. See the Respirator Fit Test section.

Facepieces are available in the following sizes and configurations.

Ultra Elite Responder APR Respirator Facepiece Model Number	Ultra Elite Responder APR Respirator Facepiece with ClearCommand Bracket	Ultra Elite Responder APR Respirator Facepiece without ClearCommand Bracket
7-2174-1	P/N 10082533 (small)	P/N 10082550 (small)
7-2174-1	P/N 10082532 (medium)	P/N 10082549 (medium)
7-2174-1	P/N 10082534 (large)	P/N 10082551 (large)

- b. Immediately Dangerous to Life or Health (IDLH) concentration for any contaminant present.
- B. The limitations outlined in the applicable NIOSH approval
- C. Any applicable limitation contained in a standard established by regulatory agency (such as OSHA) with jurisdiction over the wearer.

### ⚠ WARNING

**An appropriate cartridge change-out schedule must be developed by a qualified professional, unless the canister utilizes an end-of-service-life indicator. The change-out schedule must take into account all factors that may influence respiratory protection including specific work practices and other conditions unique to the workers' environment. If using against substances having poor warning properties, there is no secondary means of knowing when to replace the cartridge/canister. In such cases, take appropriate additional precautions to prevent overexposure, which may include a more conservative change-out schedule or using an air-supplied respirator or SCBA. Failure to follow this warning can result in serious personal injury or death. As a reference, a partial list of substances having poor warning properties follows:**

- |                    |  |
|--------------------|--|
| Acrolein           | Ozone  |
| Aniline            | Phosgene   |
| Arsine             | Phosphine  |
| Bromine            | Phosphorous trichloride                          |
| Carbon monoxide    | Stibine  |
| Dimethyl sulfate   | Sulfur chloride                                  |
| Hydrogen cyanide   | Urethane or other diisocyanate containing paints |
| Hydrogen selenide  |  |
| Isocyanates        | Vinyl chloride                                   |
| Methanol           | Nitro compounds:                                 |
| Methyl bromide     | Nitrogen oxides                                  |
| Methyl chloride    | Nitroglycerin                                    |
| Methylene chloride | Nitromethane                                     |
| Nickel carbonyl    |  |
| Nitric Acid        |  |

## GENERAL DESCRIPTION

- D. MIXTURES OF CONTAMINANTS – This FireHawk M7 Responder APR can be used for protection against a mixture of contaminants that are present simultaneously or alternately against one contaminant then another (using the same canister) if the mixture meets the following conditions:
1. The canister must be approved for all contaminants present.
  2. NIOSH permits mixing of the following contaminants: organic vapors, chlorine, chloride dioxide, hydrogen sulfide, acid gases, ammonia, and carbon monoxide.
  3. Particulates can be mixed with any other particulate or any gas or vapor for which the canister is approved.
  4. Contaminants present simultaneously must be below IDLH levels for the specific contaminants. If any one contaminant in the mixture exceeds the IDLH concentration, then the entire mixture must be treated as IDLH and the respirator cannot be used.

### EXPOSURE LIMITS

A listing of applicable exposure limits from the following sources is provided in MSA's Response® Respirator Selector: available online at [www.MSAnet.com](http://www.MSAnet.com).

- American Conference of Governmental Industrial Hygienists (ACGIH)
- Occupational Safety and Health Administration (OSHA)
- National Institute for Occupational Safety and Health (NIOSH)
- American Industrial Hygiene Association (AIHA)

Contact MSA at 1-800-MSA-2222 for information.

### EXPOSURE LIMITS FOR MIXTURES

The American Conference of Governmental Industrial Hygienists (ACGIH) publishes the following information to determine the Threshold Limit Value (TLV) of a mixture.

First, determine the total concentration of the chemical mixture ( $C_{\text{Mixture}}$ ) from the individual contaminant concentrations ( $C_1, C_2, C_3, \dots$ ) using the following formula:

$$C_{\text{Mixture}} = C_1 + C_2 + C_3 + \dots$$

The TLV of the mixture is found by using the following formula where  $T_1, T_2, T_3, \dots$  are the individual contaminant TLVs and  $C_1, C_2, C_3, \dots$  are the individual contaminant concentrations:

$$T_{\text{mixture}} = \frac{C_{\text{mixture}}}{\frac{C_1}{T_1} + \frac{C_2}{T_2} + \frac{C_3}{T_3}}$$

Only use these equations if the contaminants present are actually mixed. Some substances do not mix and may be present separately, for example, in pockets or at different levels. In that case, the lowest TLV of the substances present must be used to determine the appropriate respirator category for protection against all contaminants present.

See MSA's Response Respirator Selector for additional information.



# SIZE SELECTION

Regardless of facial dimensions and respirator sizing charts, an actual respirator fit test, either qualitative or quantitative must be performed to ensure the correct respirator size selection.

Fit test the respirator size relative to your facial features and dimensions. The Safety Administrator or Program Manager might assist in selecting the initial size to try.

Carefully don the mask and conduct a negative pressure seal test. See donning instructions for procedure.

If the facepiece does not pass the negative pressure seal test or feels uncomfortable, try the next nearest size relative to your face.

Passing the negative pressure seal test does not verify the size is correct. The size selected must be verified by successfully passing a Respirator Fit Test, either qualitative or quantitative. If the respirator passes a negative pressure seal test but DOES NOT pass a Respirator Fit Test, try the next nearest size.

Once the proper size is selected, the respirator must pass a negative pressure seal test every time the facepiece is donned to ensure proper fit before using the respirator.

If other than facial seal leakage is detected, the condition must be investigated and corrected before another test is made.

The facepiece must also pass the negative pressure seal test before the user attempts to enter a toxic atmosphere.

The facepiece will not furnish protection unless all inhaled air is drawn through a suitable canister.

## RESPIRATOR FIT TEST

### WARNING

**The user must perform a respirator fit test (Quantitative Test or Qualitative Test) and follow all warnings and limitations specified. Failure to do so can result in serious personal injury or death.**

A qualitative or quantitative respirator fit test must be carried out routinely for each wearer of this respirator to determine or confirm the amount of protection that the respirator provides. The fit test method chosen may impact the maximum use concentration.

**Quantitative Test** – If a quantitative fit test is used, a fit factor of at least 2000, based on ambient aerosol fit test methods or equivalent, is required before any type of respirator is assigned to an individual.

**Qualitative Test** – If a qualitative fit test is used, only validated protocols are acceptable. The individual must pass a test designed to assess a fit factor of at least 2000.

Respirator fit tests are explained fully in the American National Standard Practices for Respiratory Protection, ANSI Z88.2-1992 which is published by the American National Standards Institute, 11 West 42nd Street, New York, New York, 10036 and Occupational Safety and Health Standards, OSHA 1910.134, which is published by the Occupational Safety and Health Administration, 200 Constitution Avenue, NW, Washington DC, 20210.

## NOTES

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# PREPARING THE RESPIRATOR FOR USE

## CHECKPOINTS BEFORE USE

1. Check that all parts of the respirator are complete and undamaged. See the Inspection section for Inspection Procedures.
2. Check that the filter canister approval is appropriate and effective against the contaminant in the environment.
3. Remove lens cover label and lens plug before use.

## INSTALLING/REMOVING MOUTH-BIT AND NOSECUP

### ⚠ WARNING

The nosecup must always be installed when using the FireHawk M7 Responder APR. Failure to follow this warning can result in serious personal injury or death.

This facepiece was designed with the option of being used with or without the mouth-bit.

### To remove the mouth-bit from the nosecup:

1. Removed the nosecup from the facepiece.

2. Push and hold the stem of the mouth-bit to the left side of the mask just underneath the APR lens receptacle.



3. Place the nosecup in the facepiece and position it so its rubber ring faces toward the plastic retainer ring.

4. Starting at the top, stretch and push the rubber ring of the nosecup under the plastic retainer ring of the speaking diaphragm assembly.



5. Continue stretching around nosecup ring and work it into place.

6. Be sure that the nosecup does not get caught on the lens retainer.



7. Stretch the oval opening in the nosecup around the lip on the exhalation valve in the component housing.

### To insert the drink tube into the nosecup:

1. Place the nosecup in the facepiece and position it so its rubber ring faces toward the plastic retainer ring.

2. Locate the "X" cut in the nosecup and slide the mouth-bit through the "X". Push the nosecup down the drink tube until it stops.



3. Starting at the top, stretch and push the rubber ring of the nosecup under the plastic retainer ring of the speaking diaphragm assembly.
4. Continue stretching the nosecup ring and work it into place.

5. Be sure that the nosecup does not get caught on the lens retainer.



6. Stretch the oval opening in the nosecup around the lip on the exhalation valve in the component housing.
7. Don the facepiece to ensure the mouth-bit is accessible to use.

# PREPARING THE RESPIRATOR FOR USE

## ⚠ WARNING

The nosecup can get caught on the lens retainer causing the inhalation valve to be in the open position. Verify the inhalation valve is not stuck in the open position prior to use. Failure to follow this warning can result in serious personal injury or death.

### INSTALLING THE APR STRAP

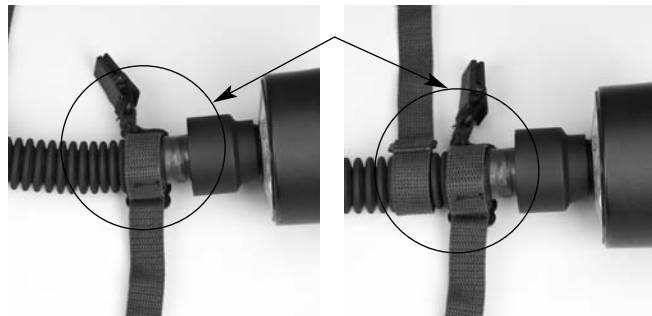
The APR strap must be used when wearing the FireHawk M7 Responder APR to keep the breathing tube and canister securely attached to the body during use. It may be worn in two configurations:

A: With the canister and breathing tube on the front of the body. B: the canister and breathing tube positioned on the rear of the body. To attach the neck strap to the breathing tube:

1. Loosen both ends of the neck strap by sliding the strap through the slide.
2. Slide both ends of the neck strap onto the breathing tube, with the D-ring and clip end towards the canister connector
3. Position the D-ring and clip end as close to the canister connector as possible and tighten the strap down by sliding the strap through the slide. It may be necessary to use a ratcheting motion to completely tighten the strap.

**Note:** canister connector is opposite the 90 degree elbow connection.

4. For Configuration A, position the second end of the APR strap approximately 6-10 inches from the canister connection end of the breathing tube. For Configuration B, position the other end of the APR strap no more than 1/2 inches from the first connection and tighten, following a similar process as in step 3.



Configuration A

Configuration B

5. Adjust slides on each part of the neck strap to fit tightly to the user's body.



### INSTALLING THE FIREHAWK RESPONDER REGULATOR

1. Ensure that the Firehawk Responder Regulator sealing ring is seated properly in its groove on the outlet of the regulator and that it is not torn, gouged, or nicked.



2. Ensure the dust boot is on the quick connect fitting of the Firehawk Responder Regulator.

3. Grasp the Firehawk Responder Regulator and push the side buttons.



4. Ensure that the red bypass knob is fully closed (clockwise).



5. Insert the regulator into the facepiece inlet by pushing inward. Be sure that the bypass housing lines up with the bypass receptacle.

## PREPARING THE RESPIRATOR FOR USE

6. Ensure proper engagement by pulling on the regulator to verify that the regulator is securely attached to facepiece.

### **⚠ WARNING**

**DO NOT use the FireHawk M7 Responder APR unless the regulator is properly connected. A regulator that is not installed properly can separate from the facepiece unexpectedly. Return the FireHawk M7 Responder APR to an MSA trained or certified repairperson to correct this condition. Failure to follow this warning can result in serious personal injury or death.**

### INSTALLING THE BREATHING TUBE

1. Thread the elbow end of the breathing tube to the lens receptacle on the mask.



### **⚠ WARNING**

**DO NOT cross thread the breathing tube elbow to the lens receptacle. The breathing tube will not seal to the facepiece allowing contaminants to enter the respirator. Failure to follow this warning can result in serious personal injury or death.**

2. Hand-tighten the elbow onto the mask.

3. Verify the canister gasket is in the canister connector assembly on the breathing tube is in place. The canister gasket is green.



### INSTALLING/REPLACING THE CANISTER

#### **⚠ WARNING**

**Know the contaminant(s) in the environment before entering. Always check that the filter canister is appropriate for use in the environment. A canister which is not designed for the contaminant present may not provide protection. Failure to follow this warning can result in serious personal injury or death.**

**After verifying that the canister type is appropriate for use in the environment:**

1. Verify shelf life expiration date on carton, bag, and canister label has not been exceeded.

#### **⚠ WARNING**

**DO NOT use an expired canister. Failure to follow this warning can result in serious personal injury or death. DO NOT use the canister if the bag is opened, damaged, or missing. The canister must be in its original packaging prior to use in a contaminated environment. Do not reuse the canister. Failure to follow this warning can result in serious personal injury or death.**

2. Remove canister from its packaging.
3. Inspect the canister to be sure that it is not damaged.

#### **⚠ WARNING**

**The canister gasket must be in place in the breathing tube canister connector assembly when a canister is installed. Failure to follow this warning can result in serious personal injury or death.**

4. Thread the canister into the canister connector assembly and hand tighten.

Use the canister immediately upon opening the bag.

Discard canister after each use.

Replace the canister after each use. Follow the established canister change-out schedules to ensure that canisters are replaced before breakthrough occurs. When used at defined occupational exposure limits, the rated service time cannot be exceeded.

#### **⚠ WARNING**

**All repair and replacement of subassemblies must be carried out by a MSA certified repair technician. Failure to follow this warning will void NFPA and NIOSH certifications and can result in serious personal injury or death.**

## PREPARING THE RESPIRATOR FOR USE

### FOR USE WITH FIREHAWK M7 RESPONDER PAPR

Ultra Elite Responder Facepieces are approved for use with C420 motor blower. Refer to the NIOSH approval label for approved configurations. In addition to this manual, the FireHawk M7 Responder PAPR manual (P/N 10086003) must be carefully read and followed by all persons who have, or will have, the responsibility for using or servicing the respirator.

# DONNING

## ⚠ WARNING

**DO NOT** wear eyeglasses under the facepiece. The temples or sidebars on eyeglasses will prevent an airtight seal. If you must wear glasses, install an approved spectacle kit listed on the NIOSH approval matrix insert. Failure to follow this warning can cause inhalation of contaminated air, resulting in serious respiratory injury or death.

## ⚠ WARNING

Verify that the respirator is properly prepared before donning. See *Preparing the Respirator for Use* section. Failure to follow this warning can result in serious personal injury or death.

### DONNING PROCEDURES

1. Loosen all of the harness straps. Grip the bottom straps.



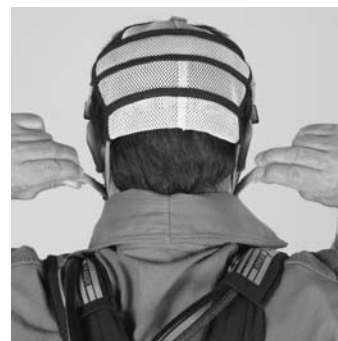
2. Insert chin into the chin cup, then pull the harness back over the head.



3. Pull the back of the harness downward until it is centered at the back of the head.



4. Tighten the two lower straps first by pulling them straight back, not out. Tighten the facepiece until the mask is snug against the face.



5. Tighten the two side temple straps as described in step 4. Ensure that the facepiece tabs are not tucked under the face seal.



6. Ensure that the back of the harness is centered on the back of the head and that the facepiece seal provides uniform pressure on the face. Readjust the straps if necessary.



**Note:** Ensure that no hair is under the tabs and sealing surface. Ensure the harness tabs are flush to the face and not folded under the facepiece seal. Also, the straps should not cut into the ears.

**Note:** The Speed-ON® Head Harness does not have an adjustable top strap to tighten.

# DONNING

## DONNING THE APR STRAP

The APR strap can be used in multiple configurations. The canister can be configured to be set on the front of the user (Configuration A) or to the back of the user (Configuration B). Either configuration can be used depending on whichever location is most comfortable and appropriate for the environment in which the respirator is being used. For most uses, the canister in the front (Configuration A) will be used.

**Note:** If the clip needs to be used to secure the canister in Configuration B, a buddy system may be necessary to properly affix the alligator clip.



**Canister in Front  
Configuration A**



**Canister in Back  
Configuration B**

1. Disconnect the buckle keeping the two ends of the breathing tube strap together.
2. Place both ends of the neck strap around the neck and re-buckle.
3. Once the APR strap is buckled and in place, adjust the slides so that the breathing tube and canister are against the body. When around the neck, tighten the strap to keep the canister high on the back.
4. Ensure that breathing tube does not pull on the facepiece when looking right, left, up and down. If the facepiece is being pulled, adjust the straps and breathing tube.
5. The alligator clip can be used to secure the canister to the clothing while around the neck. In Configuration B (on the back) a buddy system may be necessary. The alligator clip should be pulled straight down towards the belt and clipped so the breathing tube and canister are snug against the back.

**Note:** When properly donned in either configuration the canister should be secure against the body, so the canister does not move and affect use of the respirator.

### **⚠ WARNING**

**After the APR strap is adjusted, perform movements that will be similar to those movements that will be made during use. If any movements cause the breathing tube to pull on the facepiece seal, readjust the**

**neck strap to allow for more breathing tube slack between the facepiece connector and the tube attachment point of the neck strap. There must be enough slack in the breathing tube so that the breathing tube does not cause a break in the facepiece seal during use. If adjusting the neck strap does not relieve the tension in the breathing tube, a longer length breathing tube can be used. Failure to follow this warning may result in serious personal injury or death.**

**Note:** Use a buddy, if the situation permits, to ensure that the APR is donned correctly (the head harness is in place, the canister is positioned correctly, the neck strap is secure, and all components are properly assembled and tightened).

After the APR strap has been properly attached and adjusted, a negative pressure seal test must be conducted to verify the facepiece seal.

## NEGATIVE PRESSURE SEAL TEST

The negative pressure seal test must be performed each time the facepiece is donned. A good face-to-facepiece seal must be verified before entering a hazardous area.

### Perform the test as follows:

1. Ensure respirator is assembled properly.
2. Block off canister inlet using the palm of the hand.
3. Inhale gently and hold breath for 10 seconds. If the seal is good, the facepiece will collapse and remain collapsed against face. Remove hand and breathe normally.
4. Remove the regulator by pressing both buttons and reattach.
5. Ensure proper engagement by pulling on the regulator to verify that the regulator is securely attached to facepiece.
6. If the facepiece did not remain collapsed during the test, or any leakage is noticed, readjust straps and perform negative pressure seal test again.
7. If this does not correct the leak, the facepiece will not provide protection. If the leakage is from the face seal, a different size mask may provide a good seal. If other than face seal leakage is detected, the condition must be corrected before performing another test.

### **⚠ WARNING**

**This device may not seal properly with your face if you have a beard, gross sideburns or similar physical characteristics (see ANSI Z88.2). An improper facial seal may allow contaminants to leak into the facepiece, reducing or eliminating respiratory protection. Do not use this device if such conditions exist. The negative pressure seal test must be conducted and passed before each use. Never remove the facepiece except in a safe, non-hazardous, non-toxic atmos-**



## DONNING

phere. Failure to follow this warning can result in serious personal injury or death.

### **Donning the FireHawk M7 Responder PAPR**

For Donning and negative pressure seal test Instructions, refer to the FireHawk M7 Responder PAPR User's Instructions (P/N 10086003).



# REMOVING THE RESPIRATOR

## DECONTAMINATION

### **⚠ WARNING**

**DO NOT** remove respirator until respirator and protective clothing are decontaminated; otherwise, exposure to contaminants may result. Follow decontamination and disposal procedures established by appropriate authorities. Failure to follow this warning may result in serious personal injury or death.

Once the protective equipment has been decontaminated, proper disposal of affected equipment must be performed. Disposal is to be performed as required by federal, state, and/or local laws.

## PROCEDURE FOR REMOVING THE RESPIRATOR

1. Remove strap from around the neck and support the canister.
2. To remove the facepiece, insert your thumbs under each of the harness head straps end tab and fully extend the harness head straps.
3. Grasp the facepiece by the component housing or bottom head harness straps (not the exhalation valve or canister).
4. Pull it up and away from your face.

**Note:** Before the next use, check the respirator facepiece and if necessary, clean and disinfect. Always use a new canister. Do not reuse the canister.



# CLEANING AND DISINFECTING

## ⚠ CAUTION

- **DO NOT use any cleaning substances that can or might attack any part of the air mask.**
- **DO NOT use alcohol because it may deteriorate rubber parts.**
- **If not rinsed thoroughly, cleaning agent residue may irritate the wearer's skin.**

Depending on the cleaning policy adopted, either a designated person or the user should clean the respirator after each use. Non-sudsing Confidence Plus® Cleaning Solution (P/N 10009971) from MSA is recommended. It is a germicidal cleaner that cleans and disinfects in one operation. It retains its germicidal efficiency in hard water to inhibit the growth of bacteria. It will not deteriorate rubber, plastic, glass, or metal parts. Refer to the label for use instructions. A solution as effective as Confidence Plus Cleaning Solution and compatible with MSA respirator components may be substituted. ANSI suggests that users be trained in the cleaning procedure.

## ⚠ WARNING

**Be careful not to breathe or touch the contaminant in handling the respirator or its parts. If necessary, use equipment disposal to protect you from the specific contaminant. Failure to follow this warning can result in serious personal injury or death.**

1. Preparing Solution
  - a. Follow the instructions with the Confidence Plus Cleaning Solution.
  - b. If the Confidence Plus Cleaning Solution is not used, wash in a mild cleaning solution, rinse thoroughly, and submerge in a germicide solution for the manufacturer's recommended time.
2. Clean and Disinfect the Facepiece and Breathing Tube
  - a. Remove the canister from the breathing tube.
  - b. Remove the mask-mounted regulator from the facepiece.
  - c. Unthread the thumbscrew of the FireHawk M7 HUD (if attached) and remove the FireHawk M7 HUD from the facepiece bracket.
  - d. Remove the Clear Command Communication System (if used).
  - e. Thoroughly wash the facepiece (drink tube and nose cup) and breathing tube in the cleaning solution. A soft brush or sponge can be used to clean the soiled facepiece.

- f. Rinse the facepiece and components in clean, warm (110°F), water (preferably running and drained).
- g. Run the water through the breathing tube actuating the plunger assembly.
- h. Operate the exhalation valve by hand to be sure it works properly.
- i. Allow the facepiece to air dry. Do not dry the parts by placing them near a heater or in direct sunlight as this will cause the rubber to deteriorate.
- j. Operate the exhalation valve by hand to be sure it works properly.
- k. Harness (straps and buckles)
- l. The facepiece and components should be air-dried or hand-dried with a clean lint-free cloth.

## ⚠ CAUTION

**DO NOT force-dry the parts by placing them in a heater or in direct sunlight. The rubber will deteriorate. When facepiece is thoroughly dried, store the facepiece in the plastic bag (P/N 805029) with the lens cover label (P/N 10082547) and lens plug (P/N 10082476) attached.**

3. In general, only the facepiece requires cleaning and disinfecting after each use. If the air mask is soiled (i.e. heavy smoke residue or dirt accumulation) use a damp sponge with mild soap solution or use a soft/medium bristle brush to remove deposits that may interfere with normal operation of:
  - a. FireHawk M7 HUD
  - b. Firehawk Second Stage Regulator. Cover the outlet of the Firehawk Responder Regulator to prevent water, dirt, or debris from entering.
  - c. APR Strap
  - d. Breathing Tube
  - e. Clear Command Communication System (if used)
4. Inspect the entire air mask as it is reassembled. Follow the Inspection Instructions.
5. Re-attach the FireHawk M7 HUD
  - a. Insert the FireHawk M7 HUD into the facepiece bracket.
  - b. Finger tighten the thumbscrew.
6. Re-attach Clear Command Communication System (if used).
7. Thoroughly dry the facepiece and Firehawk Responder Regulator after cleaning and disinfecting. The facepiece can trap water, which could enter the regulator.



# INSPECTION

## INSPECTION

(Before and After Each Use)

- Inhalation valve disc (on the Lens Retainer)
- Exhalation valve disc
- Harness straps
- Lens
- Canister
- Facepiece blank
- Breathing Tube
- Firehawk Responder Regulator
- APR strap
- FireHawk M7 HUD
- Accessories

## INSPECTION PROCEDURES

1. Inspect the Facepiece
  - a. Look for breaks or tears in the facepiece head-strap material.
  - b. Make sure all straps, fasteners, and adjusters are in place and not damaged.
  - c. Check the facepiece, nose cup, and drink tube for dirt, cracks, tears, or holes.
  - d. Check the lens for cuts, scratches, or damage which would impair vision. Check that the lens is secured in the facepiece.
  - e. Look at the shape of the facepiece for distortion due to improper storage.
  - f. Unthread the canister (if installed), and check that the spider gasket, and inhalation valve are installed, clean, and undamaged.
  - g. Ensure the white inhalation disc valve is attached to the spider gasket. The disc must be free of cracks, tears, dirt, and distortion.
  - h. Inspect the lens receptacle
    - i. Ensure that the o-ring is in place and free of crack, tears, dirt, and distortion.
    - ii. Check the thread to make sure they are not rounded or nicked.
    - iii. Grasp the receptacle and attempt to turn to ensure that the receptacle is tight to the mask and will not move.
  - i. Operate the exhalation valve stem by hand to be sure it works properly.
  - j. Inspect the facepiece rubber behind the FireHawk M7 HUD and/or Clear Command Communication System bracket (optional) for holes or tears.
2. Inspect the Firehawk Responder Regulator
  - a. Ensure that the Firehawk Responder Regulator sealing ring is seated properly in its groove on the outlet of the regulator and that it is not torn, gouged, or nicked.
  - b. Grasp the Firehawk Responder Regulator and push the side buttons.
  - c. Ensure that the red bypass knob is fully closed (clockwise).
3. Inspect the Breathing Tube
  - a. Inspect the breathing tube for cracks, tears, and dirt.
  - b. Inspect the canister connector assembly gasket for cracks, tears, dirt and distortion.
4. Inspect the speaking diaphragm.
  - a. Inspect speaking diaphragm or cracks, tears, dirt and distortion.
  - b. If speaking diaphragm looks damaged, have the masked serviced by a MSA certified repair technician.
5. FireHawk M7 HUD
  - a. Inspect the FireHawk M7 HUD for cracks or other signs of damage which could allow contaminants to enter the housing.
  - b. Ensure that moisture or debris is not present in the battery compartment.
  - c. Ensure the battery compartment o-ring on the battery cap is free of debris and not damaged or missing.
  - d. Reassemble the FireHawk M7 HUD to the bracket on the Ultra Elite Responder Facepiece.
6. Clear Command Communication System
  - a. Remove the amplifier housing from the facepiece and inspect the housing for cracks or other signs of damage
  - b. Ensure that the battery compartment is free of moisture or debris.
  - c. Reassemble the amplifier housing on the facepiece.
  - d. Depress the on/off button on the unit and then release it.
  - e. Look through the facepiece lens. The red LED should be illuminated at the top of the amplifier unit.
  - f. Scrape a fingernail lightly across the voicemitter microphone grille of the voicemitter microphone assembly.
  - g. Listen for this sound reproduced in the amplifier speaker.
  - h. Depress and release the on/off button again to turn the unit OFF. The LED on the amplifier unit should be OFF.
7. If any part is damaged or deteriorated, it must be replaced. Store only undamaged respirators for further use. When not in use, store the respirator in cool, dry, and clean ambient air in the plastic bag (P/N 805029) with the lens cover (P/N 10082547) and lens plug (P/N 10082476) attached. Keep new filters in their packing.

### WARNING

**All repair and replacement of subassemblies must be carried out by a MSA certified repair technician. Failure to follow this warning will void NFPA and NIOSH certifications and can result in serious personal injury or death.**





# STORAGE

Store only undamaged respirators for further use. When not in use, store the respirator in cool, dry, and clean ambient air.

Do not distort the facepiece during storage. When disposing of the respirator or its components, do so in accordance with local, state, and federal regulations.

Discard the canister if the original bag or carton is opened or damaged.

## Storage for CBRN:

- CBRN canisters must be stored in original, unopened foil bag and in the original, unopened carton.
- Facepiece must be stored in the plastic bag (P/N 805029) with the lens cover label (P/N 10082547) and lens plug (P/N 10082476) attached.

The bag is provided as a convenient storage container to protect the facepiece. Replace the bag if it becomes damaged.

- The APR breathing tube must be stored in the provided plastic drawstring bag (p/n 465008). Replace the bag if it becomes damaged.

## SHELF LIFE

Follow the shelf life expiration date stamped on the carton, bag, and/or canister as applicable. The expiration date will only apply if factory sealed and undamaged or the proper procedure is followed, otherwise the canister must be discarded.

### WARNING

**DO NOT use an expired canister. Failure to follow this warning can result in serious personal injury or death.**



# ACCESSORIES

## ACCESSORIES

The facepiece may be equipped with the following accessories:

1. Spectacle Kit
2. Hydration System
3. Butyl Coated Nylon Hood
4. Spark Cover

### ⚠ WARNING

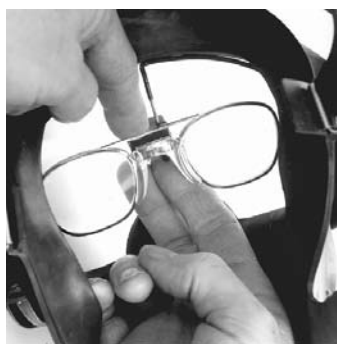
Refer to the NIOSH Approval Matrix for a complete list of Approved Accessories. If you must wear corrective eyewear, install an approved spectacle kit, listed on the NIOSH approval matrix insert. Know the contaminant(s) in the environment before entering. Always check that the filter canister is appropriate for use in the environment. A filter canister which is not designed for the contaminant present may not provide protection. Failure to follow this warning can result in serious personal injury or death.

## SPECTACLE KIT

Spectacle kits are available for the Ultra Elite (P/N 804638 or P/N 493581). The kit includes the support assembly, a rubber block, and the spectacle frame. Prescription lenses can be obtained locally or through MSA.

### Adjusting the Spectacles

1. To move the spectacles closer to your face, pull the frame prongs out of the rubber block.
2. To move the spectacles farther from your face, push the frame prongs into the rubber block.



3. To move the spectacles up or down, slide the rubber block up or down on the support arms.

## HYDRATION SYSTEM

### ⚠ WARNING

The hydration system is NOT approved in a CBRN application and must NOT be used. Failure to follow this warning can result in serious personal injury or death.

### ⚠ WARNING

Some canteens may not be leak tight. Canteens used with the hydration system MUST BE used after returned to an uncontaminated area. Failure to follow this warning can result in serious personal injury or death.

1. Return to an uncontaminated area before using the hydration system.
2. Grasp the knurled surface of the tube and pull the tube out of its holder.
3. Hold the tube with its inlet end up.
4. Push the tube inlet into the "NATO" canteen inlet.
5. Turn the canteen upside down. Its contents will flow by gravity.
6. Grasp the exhalation valve cover and press in at the top while pushing out at the bottom of the cover. This positions the drink tube outlet toward your lips.
7. After drinking, disengage the tube from the canteen and stow it in the holder.

## DONNING THE BUTYL COATED NYLON HOOD ACCESSORY

### ⚠ WARNING

Ensure a complete negative pressure seal test is conducted and passed. Failure to follow this warning can result in serious personal injury or death.

1. Position the hood so that the lens opening of the hood is facing forward. Be sure that the hood is right side out with the draw string exposed on the outside of the hood.



2. Fold the back panel of the hood upward to expose the inside of the hood at the lens opening. Next, in each hand, grasp the sides of the hood at the lens opening.



## ACCESSORIES

**Note:** If using the ClearCommand voice amplifier accessory with the RI Connection, place the cable through the lens opening of the hood and move the earphone toward the lens of the facepiece. This will allow the lens opening of the hood to slide over the ear phone and amplifier.

- Expand and slide the lens opening of the hood over the canister component. Ensure the facepiece seal is maintained.



- Using both hands, grasp the back panel of the hood and pull it over the facepiece and head. The lens opening of the hood should coincide with the lens opening of the facepiece. (If the situation permits, another person can assist with donning).



- Carefully tuck the elastic lens opening of the hood around the back of the facepiece lens rings, component housing assembly, and applicable accessory. The rain shield of the hood should be uniformly over the upper lens ring of the facepiece. The elastic lens opening should be in contact with the rubber surface of the facepiece. Be sure to smooth out any wrinkles or folds that might exist along the edge of the elastic.



- Conduct a successful negative pressure seal test.

- Attach each of the arm straps to the front of the hood shroud using the Velcro attachment pads. Adjust the arm strap, using the buckle slides, so that the arm straps provide a snug fit but still allow for easy movement.



- Tighten the draw string cord by securing the bottom of the cord and sliding the cord tighter toward the front of the neck. The draw string should provide a snug comfortable fit. Ensure draw string is not twisted or knotted.



### **⚠ WARNING**

**DO NOT over-tighten the draw string. Over tightening the draw string can restrict breathing. Failure to follow this warning can cause serious injury or death.**

- Pull the shroud of the hood uniformly over the shoulders.



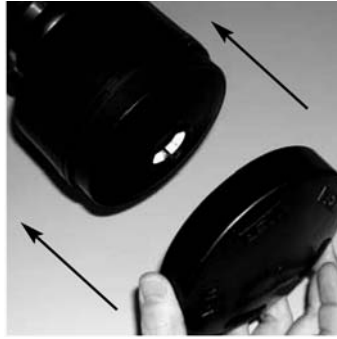
- Repeat the negative pressure seal test to ensure a sufficient face-to-facepiece seal is achieved before exposure to a hazardous agent. If using the ClearCommand voice amplifier accessory with the RI connection, reposition the ear phone closer to the ear.

### **SPARK COVER (RECOMMENDED FOR USE IN SPARK ENVIRONMENTS)**

- Remove the canister and spark cover from the packaging.
- Attach the canister to the facepiece or breathing tube depending on the configuration being used.

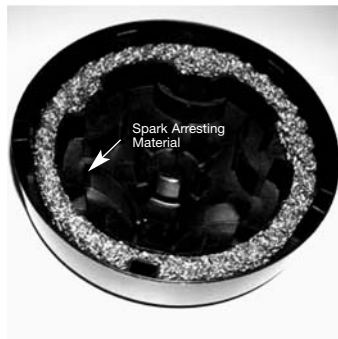
## ACCESSORIES

3. Once the canister is attached, align the feet of the spark cover with the inlet hole of the canister.



motion for attaching spark cover

4. Grasp the outside of the canister, twist and push on the spark cover. The spark cover will snap in place.



check for spark arresting material

5. To remove the spark cover, gently squeeze the outside of the cover, twist, and pull the spark cover off.
6. Check the spark cover before each use to ensure no sparks have created holes or warped the part. If holes are created or the part is warped, replace the spark cover with a new one.



## OTHER RESPIRATOR CONFIGURATIONS

### OTHER RESPIRATOR CONFIGURATIONS

This respirator can be used in other configurations as stated in these User's Instructions. Below is a list of these other configurations and the part number for the User's Instructions. Review the NIOSH matrix to verify the configuration that is being used is an approved configuration.

Approved Respirator	User's Instruction Part Number
FireHawk M7 Responder PAPR	10086003

# WARRANTY

## Mine Safety Appliances Company General Express Warranty and Terms of Sale

- 1. Express Warranty** - MSA warrants that the product furnished under this order is free from mechanical defects or faulty workmanship for a period of one (1) year from first use or eighteen (18) months from date of shipment, whichever occurs first, provided it is maintained and used in accordance with MSA's instructions and/or recommendations. This warranty does not apply to expendable or consumable parts whose normal life expectancy is less than one (1) year such as, but not limited to, non-rechargeable batteries, filament units, instrument filters, lamps, fuses, helmet suspensions, limited-use clothing, gloves, etc. or to products whose life is controlled by government regulations such as cylinders. Safety Products Division rubber products including, but not limited to, facepieces, head harnesses, and nose cups are warranted against defects in workmanship for dry rotting of the rubber for a period of 5 years from the date of manufacture. Replacement parts and repairs are warranted for ninety (90) days from the date of repair of the product or sale of the replacement part, whichever occurs first. MSA shall be released from all obligations under this warranty in the event repairs or modifications are made by persons other than its own or authorized service personnel or if the warranty claim results from misuse of the product. No agent, employee or representative of MSA may bind MSA to any affirmation, representation or modification of the

warranty concerning the goods sold under this contract. MSA makes no warranty concerning components or accessories not manufactured by MSA, but will pass on to the Purchaser all warranties of manufacturers of such components. THIS WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESS, IMPLIED OR STATUTORY, AND IS STRICTLY LIMITED TO THE TERMS HEREOF: MSA SPECIFICALLY DISCLAIMS ANY WARRANTY OF MERCHANTABILITY OR OF FITNESS FOR A PARTICULAR PURPOSE.

- 2. Exclusive Remedy** - It is expressly agreed that the Purchaser's sole and exclusive remedy for breach of the above warranty, for any tortious conduct of MSA, or for any other cause of action, shall be the repair and/or replacement, at MSA's option, of any equipment or parts thereof, that after examination by MSA are proven to be defective. Replacement equipment and/or parts will be provided at no cost to the purchaser, F.O.B. MSA's plant. Failure of MSA to successfully repair any non-conforming product shall not cause the remedy established hereby to fail of its essential purpose.

- 3 Exclusion of Consequential Damages** - Purchaser specifically understands and agrees that under no circumstances will MSA be liable to Purchaser for economic, special, incidental or consequential damages or losses of any kind whatsoever, including but not limited to, loss of anticipated profits and any other loss caused by reason of the nonoperation of the goods. This exclusion is applicable to claims for breach of warranty, tortious conduct or any other cause of action against MSA.