NORTH

ENGLISH

5500 & 7700 Series

Half Mask Air Purifying Respirator

ESPAÑOL

Operating and Maintenance Instruction Manual

FRANÇAIS

Part No. 46000375 Rev. C

ENGLISH

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NORTH

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1 INTRODUCTION

North Air-Purifying respirators are intended to be used for respiratory protection against hazardous vapors, gases and/or particulate matter, depending on the air-purifying elements used and the contaminant concentration and/or toxicity; **but only if** there is sufficient oxygen present in the contaminated atmosphere to support life. These respirators are approved by the National Institute of Occupational Safety and Health (NIOSH) and are suitable for use in workplaces regulated by the Occupational Safety and Health Administration (OSHA). If you have converted this respirator to a supplied air respirator, use the Instructions for Use that accompanied the Airline Accessory.

1.1 IMPORTANT INFORMATION

This Operating and Maintenance Instruction Manual contains important information and must be completely read and understood by all persons who may use or maintain this respirator.

This Respirator should be used or maintained **only** by persons who understand the instructions contained within this manual.

1.1.1 TERMINOLOGY

Warnings, cautions and notes used in this manual have the following significance:

NOTE

Procedures and techniques that are considered important enough to emphasize.

CAUTION

Procedures and techniques which, if not carefully followed, will result in damage to the equipment.

WARNING

Procedures and techniques which, if not carefully followed, will expose the user to the risk of serious injury, illness or death.

1.1.2 GENERAL WARNINGS

⚠ WARNINGS

1. Do not use this Operating and Maintenance Instruction Manual if you have converted this respirator to a supplied air respirator, use the Instructions for use that accompanied the Airline Accessory.
2. Failure to properly select the appropriate respirator for all the contaminants and their concentrations against which protection is required, or a failure to follow North's instructions and warnings, may result in exposure to the hazardous materials, exposing the user to the risk of serious injury, illness or death.
3. Do not use this respirator for protection against air contaminants other than those listed on the air-purifying elements and on the NIOSH Approval Label which is supplied with each respirator and/or replacement air purifying element.
4. Do not use this respirator under any of the following conditions:
   - While performing or observing abrasive blasting (sandblasting) operations.
   - For fire fighting.
   - In oxygen-deficient atmospheres (any atmosphere having less than 19.5 % oxygen by volume at sea level).
   - In atmospheres where the concentrations of toxic contaminants are unknown, or are Immediately Dangerous to Life or Health (IDLH). An IDLH atmosphere is any atmosphere which has a concentration of any toxic, corrosive or asphyxiant substance that poses an immediate threat to life, which would cause irreversible debilitating effects on health, or which would interfere with the ability to escape from a dangerous atmosphere.
   - In atmospheres where the concentration of the contaminant exceeds the respirator's Maximum Use Concentration. That is, where the concentration of the contaminant exceeds:
     i. 10 times the contaminant's permissible exposure limit (the maximum permissible 8-hour time weighted average (TWA) concentration) established by applicable OSHAor other government regulations, or by NIOSH or ACGIH publications; or
     ii. any lower Maximum Use Concentration for that contaminant (when using a half mask air purifying respirator) established by such OSHAor other government regulations (as in the case of asbestos) or NIOSH or ACGIH publications, or shown in the contaminant's Material Safety Data Sheet (MSDS), in a pesticide label, or in the current edition of the North Respirator Selection Guide.

⚠ WARNINGS (CONTINUED)

- In poorly ventilated areas, or confined spaces such as tanks, small rooms, tunnels or vessels, unless the confined space is well ventilated and the concentration of toxic contaminants is known to be, and will continue to be, below the Maximum Use Concentration recommended for the respirator.
- In atmospheres containing oil unless a NIOSH "R" or "P' class filter is used.
- For protection against gas or vapor contaminants unless the air-purifying elements are equipped with End-of-Service-Life-Indicators for that contaminant; or a cartridge change schedule is implemented based on objective service data.
- For protection against gases or vapors which generate high heats of reaction with the sorbent material in the cartridge.
- For protection against gases or vapors which are not adsorbed by the sorbent material in the cartridge (e.g. Methanol).

5. Do not use any air purifying respirator when conditions prevent a good facepiece-to-face seal. Examples of such conditions are:
   i. the growth of beards, mustaches or sideburns which will pass between the facepiece sealing area and the face;
   ii. the use of spectacles, goggles or other devices which interfere with the respirator;
   iii. the use of head or face coverings which contain materials which will pass between the facepiece sealing area and the face; and
   iv. missing teeth or dentures, facial deformities or deep scars.
6. Immediately leave the contaminated area if:
   i. breathing becomes difficult;
   ii. dizziness or other distress occurs;
   iiii. you smell, taste or sense irritation from the contaminants;
   iv. the air purifying element is equipped with an End-of-Service-Life Indicator which has changed color to indicate expiration, or
   v. the respirator becomes damaged.

⚠ WARNINGS (CONTINUED)

7. Any air purifying respirator, when properly selected and fitted, will significantly reduce, but will not completely eliminate, the breathing of contaminant(s) by the respirator wearer. When working in atmospheres containing substances which are reported to cause cancer in amounts below their permissible exposure limit, you will obtain better protection from a continuous flow or positive pressure air supplied respirator or self-contained breathing apparatus (an SCBA).
8. This respirator does not provide protection to exposed areas of the body. If the contaminated atmosphere contains vapors, gases or airborne particulate matter which may either irritate or burn the eyes or the skin, or can be absorbed by the body through penetration of the skin, the use of specialized eye, hand and/or body coverings may be required for protection.

1.1.3 USER REQUIREMENTS

To use this respirator you must know;

1) The contaminants and their concentrations. (Ask your Safety Director or Industrial Hygienist, or follow the hazard determination steps as outlined in paragraph 7.2.2.1 of American National Standards Institute (ANSI) Standard Z88.2-1992, *American National Standard for Respiratory Protection.*)

2) That this is the respirator approved for use against those contaminants and at those concentrations. (Carefully read the NIOSH Approval Summary booklet included with this facepiece. Make sure the part numbers on the respirator components match the component numbers on the NIOSH Approval Label or on the configuration chart. If you have any doubts, prior to using the respirator consult an Industrial Hygienist, or North Safety Products Customer Service in the United States at 1-800-430-4110 or 1-401-943-4400.)

3) That the contaminated atmosphere is not Immediately Dangerous to Life or Health (IDLH). For the definition of IDLH see Warning #4 of the preceding list of General Warnings.

4) That this respirator fits you properly. (See Warning #5 of the preceding list of General Warnings.)

5) That you do not have any physical limitations or illness which would preclude you from using this respirator or be aggravated by an increase in breathing resistance. (Ask your Safety Director or physician.)

You should not enter any potentially contaminated atmosphere unless you have confirmed all of these factors.

1.1.4 TRAINING PROGRAM

These brief written instructions cannot substitute for a formal Respirator Training Program. Such training should include an opportunity for you to handle the respirator, learn how to inspect it, have it properly fitted, test its facepiece-to-face seal, wear it in normal air for a long familiarity period, and finally, to wear it in a test atmosphere. The Training Program should be based on ANSI Z88.2-1992, and should familiarize you with OSHARegulation 29CFR Section 1910.134 and other regulations promulgated by various Regulatory Authorities
.

1.1.5 FIT TESTING

A respirator should not be assigned to a person unless the person is given a qualitative or quantitative respirator fit test and the results of the test indicate that the facepiece of the respirator fits properly.

This respirator is available in three sizes; large, medium and small. Most faces can be fit with the medium, however person with small faces may get a better fit with the small size, and person with large faces may get a better fit with the large size.

Fit tests should be conducted at least annually and more frequently if there are factors such as weight change or dental surgery which may affect the fit of the respirator.

A fit test adapter is available for conducting quantitative fit tests. (See Accessories.)

Instructions for carrying out qualitative and quantitative respirator fit tests are given in publications such as ANSI Z88.2-1992, and respirator manuals published by government agencies such as NIOSH, ERDA, and NRC.

1.1.6 PERIODIC SEAL CHECKS

Each time that the respirator is put on, before entering an area containing hazardous atmospheres, and periodically while wearing the respirator in the contaminated area, the respirator wearer should check the effectiveness of the seal of the facepiece to the wearer's face by carrying out a negative or positive pressure seal check. Instructions for carrying out user seal checks on this respirator are given in Section 3 of this manual.

1.2 RESPIRATOR DESCRIPTION

This device is an air-purifying respirator consisting of a half mask facepiece assembly and a pair of replaceable air-purifying elements which provide respiratory protection against hazardous vapors, gases and/or particulate matter, depending upon the type of air-purifying element used.

When the respirator wearer inhales, the contaminated air is drawn through the air-purifying elements, which, depending upon their type, remove the hazardous vapors, gases and/or particulate matter from the air before it enters the lungs. During inhalation, the inhalation valves in the facepiece open and the exhalation valve closes to prevent contaminated air from entering the facepiece. During exhalation, the exhalation valve opens, and the inhalation valves close to prevent exhaled air from passing back through the air-purifying elements.

This respirator is approved by NIOSH to protect against, and reduce exposure to the type of air contaminants specified on the air-purifying elements and in the approval label supplied with the respirator or the air-purifying elements. Use of the Back Pack accessory allows the wearer to place the air-purifying elements on his back.

2 PRE-USE INSTRUCTIONS

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⚠ WARNING

The respirator facepiece and air-purifying elements may be sold separately. Do not use this respirator unless the proper air-purifying elements are attached. See the NIOSH Approval label included in the air-purifying element packaging for a list of the approved components, or check with your Safety Director or Industrial Hygienist or North Safety Products Customer Service in the United States at 1-800-430-4110 or 1-401-943-4400.

2.1 FACEPIECE

Remove the facepiece assembly from its container and visually check the facepiece to make sure that the sealing flange is not distorted, and that all components including the exhalation valve flap are in place, in good condition and secure.

2.2 FILTERS

If replaceable pad style filters are required, they should be assembled to the cartridges or filter holders before the cartridges or filter holders are attached to the facepiece. Follow the directions on the filter for proper orientation. Place the filters in the appropriate filter covers so that the entire outer edges of the filters are seated evenly and securely against the inner wall of the filter covers. (See Figure 1.) Snap the filter covers, with the filters seated evenly and securely, to the cartridge or filter holders. (See Figure 2.)

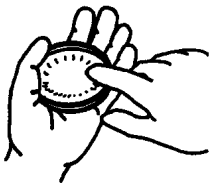

FIGURE 1: Assembling the Filter

FIGURE 2: Attaching the Cover

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2.3 ASSEMBLING THE RESPIRATOR

If using the Back Pack Accessory, assemble the respirator facepiece by screwing the breathing tubes to the inhalation connectors mounted on the facepiece. Assemble the respirator by screwing the two appropriate air-purifying elements onto the inhalation connectors mounted on the facepiece, or onto the metal connectors which are located on the Back Pack mounting plate. Check to be sure that each air-purifying element is effectively sealed against the face-piece or against the rubber gasket attached to each metal Back Pack connector. (See Figure 3)

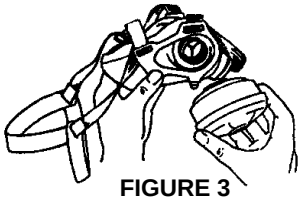

FIGURE 3

Attaching Air-Purifying Elements

After assembling the respirator facepiece and air-purifying elements, inspect the respirator to make certain that the respirator has not been damaged.

CAUTION

A respirator must be inspected by the wearer before and after each use to insure that it is in good working condition.

3 TO PUT ON THE RESPIRATOR

The following should be performed in an area with uncontaminated air.

1) 1) Remove your eyewear (if worn), then grasp the front of the respirator with one hand and the upper headband with your other hand. Then place the Back Pack breathing tubes (if so equipped) over your head and the portion of the facepiece containing the exhalation

valve under your chin (See Figure 4 and 4A)

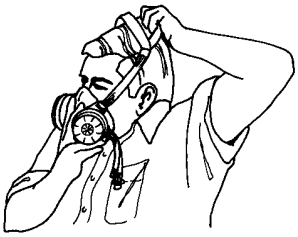

FIGURE 4

FIGURE 4A

Putting on the Respirator

2) Position the narrow portion of the respirator on your nose bridge and place the cradle suspension system on your head so that the top headband rests across the top of your head and the bottom headband rests above your ears, on the back of your head. Then hook the bottom headband behind your neck, below your ears, and adjust the position of the facepiece on your face for best fit and comfort. (See Figure 5.)

FIGURE 5

Hooking the Bottom Headband

3) The length of the headbands are adjustable; tighten or loosen by holding the respirator body or headband yoke with one hand and pulling on the elastic material in the appropriate direction with your other hand. (See Figure 6.)

NOTE

For a comfortable fit, the headbands must be adjusted equally on both sides of the respirator.

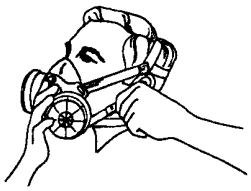

FIGURE 6

Adjusting the Facepiece

4) Position the facepiece so that the nose section rests as low on the bridge of your nose as is comfortable, and tighten the upper headband on both sides just tight enough so that the respirator doesn't slide down on your nose. Do not over tighten. If the respirator pinches your nose, loosen the upper headband slightly. (See Figure 7.)

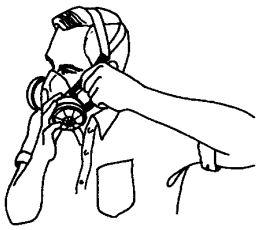

FIGURE 7

Adjusting the Upper Headband

5) Then, tighten the lower headband on both sides just tight enough to secure the respirator under your chin. (See Figure 8.)

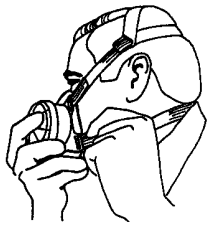

FIGURE 8

Adjusting the Lower Headband

NOTE

For proper positioning and comfort, the upper headband must be adjusted first, then the lower headband must be adjusted.

6) If you previously removed your eyewear, put it back on at this time.

7) Conduct a positive or negative seal check as follows:

To conduct a negative pressure seal check,without the Back Pack accessory place the palms of your hands over the openings in the cartridges or filter covers (if so equipped) or, unscrew the air-purifying elements from the respirator and place the palms of your hands over the inhalation connectors, inhale and hold your breath for about 5 seconds. To conduct a negative pressure seal check with the Back Pack accessory, grasp each breathing tube and squeeze a tight fold in each, inhale and hold your breath for about 5 seconds. If the facepiece collapses slightly and no air leaks between the facepiece and your face are detected, an effective seal has been obtained. If air leaks are detected, reposition the facepiece on your face and/or readjust the tension of the headbands and repeat the negative pressure check until an effective seal is obtained. If the air-purifying elements were removed, once an effective facepiece-to-face seal is obtained, a co-worker or a representative of the Safety or Industrial Hygiene Department must assist you by screwing the air-

purifying elements onto the inhalation connectors mounted on the facepiece. (This must be done without removing the facepiece from your face.) Check to be sure that each air-purifying element is effectively sealed against the facepiece. (See Figure 9 and 9A.)

FIGURE 9

FIGURE 9A

Negative Pressure Seal Check

To conduct a positive pressure seal check, block the openings in the exhalation valve guard using the palm of your hand and simultaneously exhale. If the facepiece bulges slightly and no air leaks between the facepiece and your face are detected, an effective seal has been obtained. If air is detected to be leaking out between the facepiece and your face, reposition the facepiece on your face and/or readjust the tension of the headbands to eliminate the leakage. This check must be repeated until an effective seal of the facepiece to your face is obtained. (See Figure 10.)

FIGURE 10: Positive Pressure Seal Check

4 USE

WARNING

If the air-purifying elements have End-of Service-Life Indicators, you must be able to see the End-of-Service-Life Indicators without manipulation of the cartridges or facepiece while wearing the respirator.

Refer to specific user instructions supplied with cartridges for additional ESLI information

Do not use the Back Pack accessory with air-purifying elements that have End-of Service-Life Indicators because you will not be able to see the End-of-Service-Life Indicators while wearing the respirator.

If you cannot see the indicators, do not use the respirator because you will not know when the cartridge has expired. Should this occur, and you remain in the contaminated work area, you risk exposure to hazardous quantities of the air contaminant which can result in serious injury or illness.

You are now ready to enter the use environment for which the respirator is intended.

WARNING

Immediately leave the work area and replace the respirator if;

i. breathing becomes difficult;
ii. dizziness or other distress occurs,
iii. you smell, taste or sense irritation from the contaminants in the work area,
iv. the air purifying element is equipped with an End-of-Service-Life Indicator which has changed color to indicate expiration, or
v. the respirator becomes damaged.

Should any of these occur, and you remain in the contaminated work area, you risk exposure to hazardous quantities of the air contaminant which can result in serious injury or illness.

4.1 SERVICE LIFE

The service life of this respirator will vary depending on the work environment.

4.1.1 CARTRIDGES

When you are using a gas or vapor cartridge respirator which does not have End-Of-Service-Life Indicators, you must establish a change out schedule that will result in cartridges being changed before the end of their useful service life. North provides EZ GUIDE™ software for assisting the user in establishing a change out schedule.

If the respirator has End-Of-Service-Life Indicators, the cartridges must be changed when the color of either one of the indicators match the color standard indicated on the cartridge.

4.1.2 PARTICULATE FILTERS

When you are using a particulate filter respirator, or a gas or vapor respirator with filters attached, the filters should be replaced when breathing becomes difficult.

Any “R” class filter if used in an oil environment must be replaced after a total of 8 hours use, or sooner, regardless of breathing resistance.

5 TO TAKE OFF THE RESPIRATOR

1) Go to an area with uncontaminated breathable air.

2) Loosen headbands and remove the facepiece.

6 TURNAROUND MAINTENANCE

After each use, the respirator should be examined by trained personnel:

NOTE

It is good hygiene practice to replace the air-purifying elements after a single day of use even if the service life of the air-purifying elements have not expired.

⚠ WARNING

Always replace air-purifying elements after water spray decontamination. Excessive moisture can damage the air-purifying elements and expose the user to the risk of serious injury, illness.

6.1 AIR-PURIFYING ELEMENT REPLACEMENT

NOTE

The replacement of air-purifying elements must be done in a safe area containing uncontaminated breathable air.

6.1.1 FILTERS

To replace pad style filters, detach the filter cover from the cartridge or filter holder, discard old filters and replace them with new ones. Follow the directions printed on the filter for proper orientation. Check to ensure that the entire outer edge of the filters are seated evenly and securely against the inner wall of the filter covers. Snap the filter covers with the filters to the cartridges or filter holders. (See Figures 1 and 2.)

6.1.2 CARTRIDGES

To replace gas, particulate or combination cartridges, unscrew them from the inhalation connectors, which are mounted on the facepiece, and discard them. Screw on new cartridges tightly to insure an effective seal between each cartridge and the facepiece. (See Figure 3.)

6.2 INSPECTION

Visually inspect all components for damage or wear, especially rubber parts. Replace parts where needed.

If needed, clean and sanitize the facepiece assembly (see Section 8: Periodic Maintenance).

7 STORAGE

Store in a clean dry area in the respirator storage bag provided with the facepiece.

CAUTION

Rubber and elastomeric parts **must** be stored in a manner which will prevent them from taking an abnormal set. Do **not** expose this device, during storage, to excessive heat (above 140°F/60°C), moisture, contaminating gaseous substances or airborne particulates. Excessive heat may distort the facepiece resulting in the inability to achieve a proper fit. Moisture and contaminated air can damage the air purifying elements. Either of these conditions will expose the wearer to the risk of serious injury or illness.

8 PERIODIC MAINTENANCE

As needed, remove, inspect and clean the facepiece assembly.

⚠ WARNING

The NIOSH Approval and all North warranties for this respirator are nullified if other than North replacement parts are used.

⚠ WARNING

Never allow air-purifying elements to come in contact with water or cleaning and sanitizing solutions. Excessive moisture can damage the air-purifying elements and expose the user to the risk of serious injury or illness.

8.1 CLEANING AND SANITIZING

1) Remove filters and/or cartridges from connectors and discard them.

2) Inspect headbands for wear. Check all elastomer and rubber parts for pliability and signs of deterioration.

3) Remove the facepiece breathing tubes, inhalation connectors, inhalation valves, headband assembly, exhalation valve guard, valve and seat from the facepiece.

4) Remove the inhalation valves from inhalation connectors.

5) Prepare a solution of cleaner/sanitizer (North Catalog Number 80992) according to the cleaner/sanitizer instructions.

6) Wash the facepiece and components in the cleaning solution.

7) Rinse components completely in clean warm water, then air dry in a clean area.

8) Visually inspect the exhalation valve for damage. If damage or wear is evident, replace.

9) Reassemble the facepiece. Follow steps 2 through 4 above, in reverse order.

8.2 PREPARE FOR USE

1) Install a new pair of air-purifying elements.

2) Perform a seal check to make sure that components are functioning properly.

9. REPLACEMENT PARTS

COMPLETE ASSEMBLIES		
CATALOG NUMBER		**DESCRIPTION**
5500 SERIES	**7700 SERIES**	
5500-30S	7700-30S	Facepiece Assembly Complete, Small
5500-30M	7700-30M	Facepiece Assembly Complete, Medium
5500-30L	7700-30L	Facepiece Assembly Complete, Large

COMPONENTS (See Figure 11.)			
ITEM	**CATALOG NUMBER**		**DESCRIPTION**
	5500 SERIES	**7700 SERIES**	
1	7700-16	7700-16	Inhalation Connector
2	7700-17	7700-17	Inhalation Valve
3	7700-18	7700-18	Exhalation Valve
4	7700-19	7700-19	Exhalation Valve Seat
5	7700-20	7700-20	Exhalation Valve Guard
6	5500-92	7700-92	Cradle Suspension System
7	5500-11S	7700-11S	Basic Facepiece, Small
7	5500-11M	7700-11M	Basic Facepiece, Medium
7	5500-11L	7700-11L	Basic Facepiece, Large

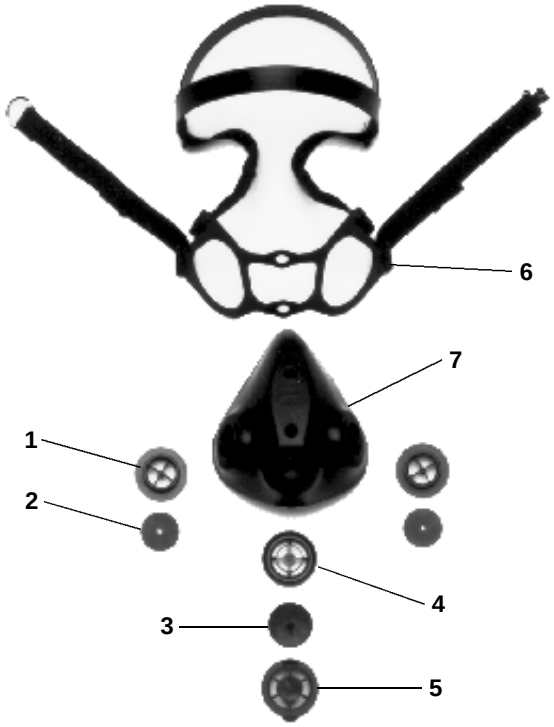

FIGURE 11

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10 ACCESSORIES

CATALOG NUMBER	DESCRIPTION
7002	Seal Check Ampule
7700-21	Fit Test Adapter
N7500-27	Filter Cover
80992	Cleaner/Sanitizer Powder
ESLIFE	esLife C/D ROM
BP1002	Back Pack Accessory

11 KEY TO CAUTIONS AND LIMITATIONS CONTAINED IN NIOSH APPROVAL LABELS

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.
H – Follow established cartridge and canister change schedules or observe ESLI to ensure that cartridges and canisters are replaced before breakthrough occurs.
J – Failure to properly use and maintain this product could result in injury or death.
K – The Occupational Safety and Health Administration regulations require gas-proof goggles to be worn with this respirator when used against formaldehyde.
L – Follow the manufacturer's Instructions for changing cartridges, canisters, and/or filters.
M – All approved respirators shall be selected, fitted, used and maintained in accordance with MSHA, OSHA, and other applicable regulations.
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.
P – NIOSH does not evaluate respirators as surgical masks.
S – Special or critical User's Instructions and/or specific use limitations apply. Refer to User's Instruction before donning.

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11.1 S - SPECIAL USER'S INSTRUCTIONS

⚠ WARNING

If the air-purifying elements have End-of Service-Life Indicators, you must be able to see the End-of-Service-Life Indicators without manipulation of the cartridges or facepiece while wearing the respirator.

Refer to speciffic user instructions supplied with cartridges for additional ESLI information

Do not use the Back Pack accessory with air-purifying elements that have End-of-Service-Life Indicators because you will not be able to see the End-of-Service-Life Indicators while wearing the respirator.

If you cannot see the indicators, do not use the respirator because you will not know when the cartridge has expired. Should this occur, and you remain in the contaminated work area, you risk exposure to hazardous quantities of the air contaminant which can result in serious injury or illness.