

3M H-Series Hoods

User Instructions

Important: Before use, the wearer must read and understand these *User Instructions*. Keep these instructions for reference.

WARNING

This product helps protect against certain airborne contaminants. **Misuse may result in sickness or death.** For proper use, see supervisor, or *User Instruction*, or call 3M in U.S.A., 1-800-243-4630. In Canada, call Technical Service at 1-800-267-4414.

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SAVE THESE *USER INSTRUCTIONS* AND KEEP IT WITH THE RESPIRATOR

SECTION 1

Safety Guidelines

Intended Use

3M™ H-Series Hoods are loose fitting headgear approved for use with certain 3M™ Powered Air Purifying and Airline Respirator Systems. These respirators are intended to be used for respiratory protection against certain particulates, organic vapors, acid gases and other inorganic gases.

Index of Warnings and Cautions within these User Instructions



- These hoods help protect against airborne contaminants. Misuse may result in sickness or death. Read all instructions in these *User Instructions* before using 3M H-Series hoods. For more information on the proper use of these hoods, see your supervisor, or the 3M OH&ESD technical service department at 1-800-243-4630. In Canada, call Technical Service at 1-800-267-4414.
- Each person wearing a 3M H-Series hood must read and understand the information in these *User Instructions* before wearing it. Use of these hoods by untrained or unqualified persons, or use not in accordance with these instructions may adversely affect respirator performance and **may result in sickness or death.**
- These hoods do not provide eye and face protection. When exposed to eye and face hazards, the respirator wearer must wear eye and/or face protectors appropriate to the hazard. **Failure to do so may result in injury or death.**
- Do not use 3M H-Series hoods with parts or accessories other than those described in these *User Instructions*. Use only 3M components specified for the NIOSH approved system. Failure to do so may adversely affect respirator performance and **may result in sickness or death.**
- Do not reach your hand through the neck cuff to turn the ratchet adjustment knob in areas where the air is contaminated. Leave the contaminated area and clean contaminants from your hands before reaching inside the hood. Failure to do so **may result in sickness or death.**
- You must comply with OSHA standard 29 CFR 1910.134 which states that, “Airline couplings shall be incompatible with outlets for other gas systems to prevent inadvertent servicing of airline respirators with nonrespirable gases or oxygen.” In Canada, refer to CSA standard Z180.1. **Failure to do so may result in sickness or death.**
- Use of these hoods by untrained or unqualified persons, or use not in accordance with these instructions may adversely affect respirator performance and **result in sickness or death.** Refer to additional warnings listed in the Safety Guidelines of these *User Instructions*.
- Use of equipment described in these *User Instructions* must be in accordance with applicable health and safety standards, respirator selection guidelines in such publications as American National Standards Institute (ANSI) Z82.2-1992, Canadian Standards Association (CSA) standard Z94.4, or pursuant to the recommendations of an industrial hygienist.
- Before use, the wearer must be trained by the employer in the proper use and maintenance of the 3M™ H-Series Hoods, and only in accordance with these operating and maintenance instructions. Each person using these hoods must first read and understand this entire *User Instructions*. **Failure to do so may result in sickness 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 3M OH&ESD at 1-800-243-4630. In Canada, call Technical Service at 1-800-267-4414.
- If these hoods fail any of the requirements of the user inspection and performance check, do not use the respirator until all necessary repairs have been made and the respirator passes the performance check. Failure to do so may adversely affect respirator performance and **result in sickness or death.**
- Your employer must provide compressed breathing air that meets at least the requirements of the specification for Grade D breathing air, as described in the Compressed Gas Association Commodity

Specification G-7.1-1997 in the United States. In Canada, refer to CSA standard Z180.1, table for quality of compressed breathing air. **Failure to do so may result in sickness or death.**

- Always don the respirator in an area where the air is clean. Failure to properly don this respirator before entering a hazardous atmosphere **may result in sickness or death.**
 - When a hood has an inner shroud, always tuck the inner shroud into your work clothes. Failure to do so may reduce respirator effectiveness and **may result in sickness or death.**
 - Before you enter a hazardous atmosphere wearing this respirator, you must inspect the respirator, complete a user performance check, and don the respirator according to the instructions in the Assembly section of these User Instructions and the instructions provided with the components of the system you are using. Failure to do so may affect respirator performance and **may result in sickness or death.**
 - Do not wear this respirator to enter areas where atmospheric concentrations of contaminants are unknown or immediately dangerous to life or health; or, in PAPR systems, atmospheres containing less than 19.5% oxygen.
 - Do not remove the respirator while you are in a hazardous atmosphere. The contaminants which are dangerous to your health include those which 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 decreases or stops
 - Breathing becomes difficult
 - You feel dizzy or your vision is impaired
 - You taste or smell contaminants
 - Your face, eyes, nose or mouth become(s) irritated
 - You suspect that the concentration of contaminants may have reached levels at which this respirator may no longer provide adequate protection.
 - If excessive wear and/or damage to the respirator or its components is observed at any time, do not use the respirator until all necessary repairs have been made and the wearer has successfully completed the user performance check described in the Operating Instructions section of these *User Instructions*. Failure to do so may affect respirator performance and **may result in sickness or death.**
 - Do not clean 3M H-Series hoods with detergents which contain lanolin or other oils since they may soften or distort the faceshield.
 - Do not wipe the faceshield with strong solvents such as MEK, acetone, toluene, as those may damage or distort the faceshield.
 - Do not soak 3M H-Series hoods or components in cleaning solutions or solvents.
 - Do not wash 3M H-Series hoods in a washing machine.
 - Misuse may adversely affect respirator performance and **may result in sickness or death.**
 - If you discover any of the wear and damage described below, discard the component and replace it with a new one. Failure to do so may adversely affect respirator performance and **may result in sickness or death.**
-

General Description

3M™ H-Series Hoods are loose fitting headgear for use with certain NIOSH approved 3M™ Belt-Mounted Powered Air Purifying Respirator (PAPR) and Airline Respirator Systems.

3M H-Series hoods feature a wide view lens and a shoulder length outer shroud. The hood is held in position on the wearer's head by a snap-in suspension. Breathing air is supplied from a breathing tube connected to the outer shroud at the air inlet at the back of the hood. The air travels through an air passage sewn into the fabric over the top of the head and is delivered to the wearer at the forehead.

The H-Series hoods are available with outer shrouds made of different protective fabrics.

Two different snap-in suspensions are available to keep 3M H-Series hoods positioned correctly on the wearer's head: a hardhat suspension and a cap suspension.

Two different neck cuffs are available on H-Series hoods: a knit collar and an inner shroud.

Respirator Selection

3M H-Series hoods must be used in accordance with applicable health and safety standards, respirator selection tables contained in such publications as ANSI standard Z88.2-1992, Canadian Standards Association (CSA) standard Z94.4 or pursuant to the recommendations of an industrial hygienist. Respirators using these hoods require a written respirator program in accordance with the OSHA respiratory protection standard found in 29 CFR 1910.134.

WARNING

These hoods help protect against certain airborne contaminants. Misuse may result in sickness or death. Read all instructions in these *User Instructions* before using 3M H-Series hoods. For more information on the proper use of these hoods, see your supervisor, or the 3M OH&ESD technical service department at 1-800-243-4630. In Canada, call Technical Service at 1-800-267-4414.

Respirator Training

Before using 3M H-Series hoods 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 these *User Instructions* and other applicable *User Instructions*.

WARNING

Each person wearing a 3M H-Series hood must read and understand the information in these *User Instructions* before wearing it. Use of these hoods by untrained or unqualified persons, or use not in accordance with these instructions may adversely affect respirator performance and **may result in sickness or death.**

Eye and Face Protection



These hoods do not provide eye and face protection. When exposed to eye and face hazards, the respirator wearer must wear eye and/or face protectors appropriate to the hazard. Failure to do so may result in injury or death.

Assigned Protection Factors

3M recommends an assigned protection factor (APF) of 1000 for continuous flow airline respirators and powered air purifying respirators with loose fitting hoods. APFs may vary for specific OSHA standards. Where APFs in local, state, or federal standards are lower than 1000, they must be used instead.

NIOSH Approval

For a listing of the components of NIOSH approved 3M™ Respirator Systems using 3M H-Series hoods, refer to the NIOSH approval label insert in the *User Instructions* for the 3M air control device or the 3M™ Powered Air Purifying Respirator.

NIOSH Cautions and Limitations

Airline Respirator Systems Using 3M™ H-Series Hoods

- B– Not for use in atmospheres immediately dangerous to life or health.
- C– Do not exceed maximum use concentrations established by regulatory standards.
- D– Air-line respirators can be used only when the respirators are supplied with respirable air meeting the requirements of CGA G-7.1 Grade D or higher quality.
- E– Use only the pressure ranges and hose lengths specified in the User's Instructions.
- J– Failure to properly use and maintain this product could result in injury or death.
- M– All approved respirators shall be selected, fitted, used, and maintained in accordance with MSHA, OSHA, and other applicable regulations.
- N– Never substitute, modify, add, or omit parts. Use only exact replacement parts in the configuration as specified by the manufacturer.
- O– Refer to User's Instructions, and/or maintenance manuals for information on use and maintenance of these respirators.

Powered Air Purifying Respirator Systems Using 3M™ H-Series Hoods

- 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 powered air-purifying respirators 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 cartridge and canisters are replaced before breakthrough occurs.
- I– Contains electrical parts which have not been evaluated as an ignition source in flammable or explosive atmospheres by MSHA/NIOSH.
- 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 User's Instructions for changing cartridges, canister 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 for use as surgical masks.

SECTION 2

Specifications

Operating temperature range –	10° F to 120° F (-12° C to 49° C)
Airflow range–	6 to 15 scfm (170 to 425 lpm)
Breathing air quality for airline use –	In the United States, supplied breathing air must meet at least the specification for Grade D breathing air, described in the CGA Commodity Specification G-7.1-1997. In Canada, refer to CSA standard Z180.1, table for the quality of compressed breathing air.
Breathing tubes –	H-115 maintenance-free breathing tube assembly (H-116 breathing tube) – Polyethylene, nominal length: 40 in (102 cm). Note: H-115 (H-116) may be cut to shorter lengths. GVP-122 PAPR breathing tube – Vinyl, nominal length: 36 in (91 cm) W-5114 insulated breathing tube for airline systems – Vinyl, nominal length: 36 in (91 cm)
Faceshield dimensions –	Area 75 sq. in (483 sq. cm), thickness .010 in (.254 mm)
Faceshield materials –	H-400 Series hoods – Polyester H-600 Series sealed-seam hoods – Cellulose acetate H-900 Series grinding hoods – Polyester H-110 faceshield covers nominal thickness .004 in (0.1 mm) – Polyester
Head protection –	The W-3258 hatshell used with the W-2878 suspension meets the specifications of ANSI standard Z89.1-1997 Type 1 Class E “American National Standard for Industrial Head Protection.”
Noise level –	(Excluding external noise): less than 80 dBA
Hood fabric –	H-400 Series hood – Tychem [®] QC Fabric H-600 Series sealed-seam hood – Tychem [®] SL Chemical Barrier Fabric H-900 Series hood – Proban [®] Heavy Duty Cotton with Tychem [®] QC Fabric

SECTION 3

System Components and Replacement Parts

NIOSH approved respirator systems

For a listing of the components of a NIOSH approved 3M™ Respirator System using 3M H-Series hoods, refer to the NIOSH approval label insert in the *User Instructions* for the 3M™ Air Control Device or the 3M™ Powered Air Purifying Respirator.

The components of a NIOSH approved 3M™ H-Series Airline Respirator are:

- 3M H-Series hood assembly (including hood and suspension)
- 3M breathing tube with clamps W-5114
- One of the following air control valves:
 - 3M low pressure connector assembly W-3018
 - 3M air regulating valve assembly W-2907
 - 3M vortex cooling assembly W-2862
 - 3M Vortemp™ heating assembly W-2863
- An approved length of a 3M compressed air hose

The components of a NIOSH Approved 3M™ H-Series Powered Air Purifying Respirator are:

- 3M H-Series hood assembly (including hood and suspension)
- 3M breathing tube assembly H-115 or breathing tube GVP-122 with clamps
- 3M assemblies GVP-1, GVP-CB, or GVP-VM PAPR
- 3M GVP cartridge and/or filter



Do not use 3M H-Series hoods with parts or accessories other than those described in these *User Instructions*. Use only 3M components specified for the NIOSH approved system. Failure to do so may adversely affect respirator performance and may result in sickness or death.

3M™ H-400 Series Hood Assemblies

H-411 hood assembly with collar and cap suspension (made of Tychem® QC fabric)

Includes: H-410 hood (2 each), H-113 suspension, H-114 chin strap, H-110 faceshield cover (2 each), and W-3222 clamp

H-412 hood assembly with collar and hardhat (made of Tychem® QC fabric)

Includes: H-410 hood (2 each), W-3258 hatshell, W-2878 suspension, H-114 chin strap, H-110 faceshield cover (2 each), and W-3222 clamp

H-421 hood assembly with inner shroud and cap suspension (made of Tychem® QC fabric)

Includes: H-420 hood (2 each), H-113 suspension, H-114 chin strap, H-110 faceshield cover (2 each), and W-3222 clamp

H-422 hood assembly with inner shroud and hardhat (made of Tychem® QC fabric)

Includes: H-420 hood (2 each), W-3258 hatshell, W-2878 suspension, H-114 chin strap, H-110 faceshield cover (2 each), and W-3222 clamp

3M™ H-600 Series Sealed-Seam Hood Assemblies

H-611 sealed-seam hood assembly with collar and cap suspension (made of Tychem® SL fabric)
Includes: H-610 hood (2 each), H-113 suspension, H-114 chin strap, H-110 faceshield cover (2 each), and W-3222 clamp

H-621 sealed-seam hood assembly with inner shroud and cap suspension (made of Tychem® SL fabric)

Includes: H-620 hood (2 each), H-113 suspension, H-114 chin strap, H-110 faceshield cover (2 each), and W-3222 clamp

H-612 sealed-seam hood assembly with collar and hardhat (made of Tychem® SL fabric)

Includes: H-610 hood (2 each), W-3258 hatshell, W-2878 suspension, H-114 chin strap, H-110 faceshield cover (2 each), and W-3222 clamp

H-622 sealed-seam hood assembly with inner shroud and hardhat (made of Tychem® SL fabric)

Includes: H-620 hood (2 each), W-3258 hatshell, W-2878 suspension, H-114 chin strap, H-110 faceshield cover (2 each), and W-3222 clamp

3M™ Breathing Tubes

H-115 maintenance-free breathing tube assembly

Includes: 3M H-116 breathing tube, connector, W-5102 clamp, and W-3222 clamp

H-116-2 replacement breathing tube

GVP-122 breathing tube

W-5114 insulated breathing tube for airline systems (includes breathing tube and clamps)

3M™ Air Control Devices for Airline Systems

W-3018 low pressure connector assembly

W-2907 air regulating valve assembly

W-2862 vortex cooling assembly

W-2863 Vortemp™ heating assembly

3M™ Replacement Parts

H-110-10 faceshield cover. (10 pack)

H-111-100 faceshield cover. (100 pack)

H-113-2 cap suspension

H-114-2 chin strap

H-410-10 replacement hood with collar. (10 pack)

H-420-10 replacement hood with inner shroud. (10 pack)

H-610-5 replacement sealed-seam hood with collar. (5 pack)

H-620-5 replacement sealed-seam hood with inner shroud (5 pack)

H-910-5 replacement grinding hood with collar. (5 pack)

H-920-5 replacement grinding hood with inner shroud. (5 pack)

W-3222-2 plastic squeeze clamp. (2 pack)

W-3258-5 hatshell

W-5102-2 metal thumb screw clamp. (2 pack)

3M™ Compressed Air Hoses for Airline Systems

All 3M compressed air hoses are sold in lengths of 25, 50, and 100 feet (7.6, 15.2, and 30.5 meters). For information on combining compressed air hoses see the Special User's Instructions section in these *User Instructions*.

3M™ High Pressure Hoses

W-9435 high pressure hose, 3/8 inch inner diameter

W-9435SS high pressure hose with stainless steel fittings, 3/8 inch inner diameter

W-2929 coiled high pressure hose, 3/8 inch inner diameter

W-2929SS coiled high pressure hose with stainless steel fittings, 3/8 inch inner diameter

3M™ Low Pressure Hose

W-3020 low pressure hose, 1/2 inch inner diameter

3M™ PAPR Components

GVP-100 motor blower

GVP-110 power cord

GVP-111 battery pack

GVP-112 charger

GVP-113 flow meter

GVP-115 blower plugs

GVP-127 web waist belt

GVP-122 breathing tube

GVP-140 power cord (for vehicle-mounted PAPR)

GVP-141 voltage converter

GVP-145 vehicle-mounted PAPR kit

(includes: voltage converter and power cord)

3M™ PAPR Accessories

GVP-117 vinyl waist belt

GVP-118 vinyl shoulder strap

GVP-119 shower cover

GVP-128 web shoulder strap

CB-1000 comfort belt

3M™ PAPR Filters and Cartridges

GVP-401 organic vapor cartridge

GVP-402 acid gas cartridge

GVP-403 organic vapor/acid gas cartridge

GVP-404 ammonia cartridge

GVP-405 formaldehyde cartridge

GVP-440 HE filter

GVP-441 organic vapor cartridge with HE filter

GVP-442 acid gas cartridge with HE filter

GVP-443 organic vapor/acid gas cartridge with HE filter

GVP-444 ammonia cartridge with HE filter

GVP-445 formaldehyde cartridge with HE filter

SECTION 4

Special User's Instructions

Combining 3M™ Compressed Air Hoses

3M airline respirator systems' approvals allow you to combine two or three of the 100 foot length W-9435 or W-9435SS (stainless steel) hoses for each positive pressure respirator. You may not combine 25 or 50 foot lengths of the W-9435 or W-9435SS hoses.

The W-2929, W-2929SS, W-3020, W-9435-25, W-9435SS-25, W-9435-50 and W-9435SS-50 hoses can only be used in single lengths of 25, 50 or 100 feet (7.62, 15.24 or 30.48 meters).

Shortening 3M™ H-116 Breathing Tube (H-115 Breathing Tube Assembly)

The H-116 maintenance-free breathing tube may be shortened, if necessary. To shorten the tube, carefully cut the end of the tube that attaches to the air inlet of the hood (the corrugated end).

Do not cut the tube at the smooth end that attaches to the PAPR motor blower.

Once you cut the tube to the proper length, follow the assembly instructions in the Assembly section of these *User Instructions*.

SECTION 5

Assembly

Hood Faceshield

Remove the protective sheeting completely from one or both sides of the clear faceshield.

Hood Head Suspension

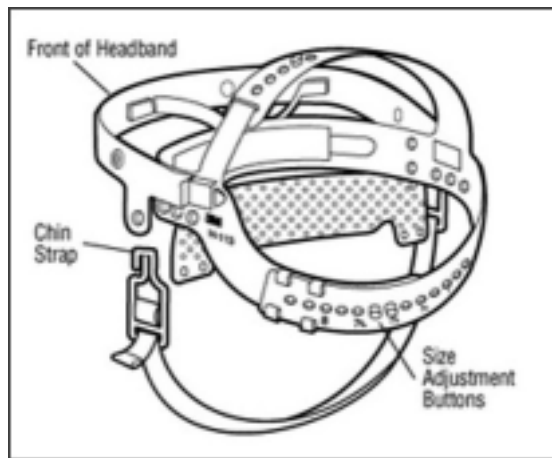
You must adjust the size of the headband to fit your head before installing the suspension.

You also have the option of adjusting the crown strap to change the position of the suspension on your head.

3M™ H-113 Cap Suspension

Adjust suspension to your head size

1. Hold the suspension with the size adjustment buttons facing you and the crown strap on top.
2. Unsnap the size adjustment buttons from the holes in the headband.
3. Slide the headband until the buttons line up with holes that are marked with your hat size.
4. Snap the buttons into the holes in the headband.
5. Put the suspension on your head and check the fit. The headband should feel tight but comfortable. Readjust, if necessary.



To move the suspension higher or lower on your head/Adjust the crown strap

1. Unsnap the size adjustment buttons from the holes in the crown strap.
2. Pull the two halves of the crown strap apart for larger sizes or push the two halves together for smaller sizes.
3. Snap the buttons into the holes in the crown strap once you have selected the proper size for your head.

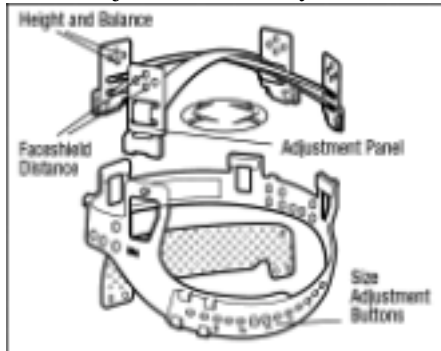
Snap suspension into the hood

1. Hold the suspension inside the hood with the crown strap on top so that the three plastic snaps in the faceshield and the front of the headband are aligned.
2. Press the snaps together firmly to attach the suspension to the hood.
3. Make sure that the faceshield of the hood is in a position which allows you to see your work clearly.

3M™ W-2878 Suspension for W-3258 Hatshell

Adjust headband to your head size

1. Hold the suspension with the size adjustment buttons facing you and the crown strap on top.
2. Unsnap the buttons from the holes in the headband.
3. Slide the headband until the buttons line up with holes that are marked with your hat size.
4. Snap the buttons into the holes in the headband.
5. Put the suspension on your head and check the fit. The headband should feel tight but comfortable. Readjust, if necessary.



Adjust the crown straps for hat position, if necessary.

Note:: You may need to set each of the four crown strap adjustments differently in order to find the most comfortable position for the suspension.

Height adjustment

1. To adjust the hardhat to sit higher on your head, snap the button into the top hole of the adjustment panel.
2. To adjust the hardhat to sit lower on your head, snap the button into the bottom hole of the crown strap adjustment panel.

Faceshield distance and balance

1. To move the faceshield away from your face, snap the button into the front hole of the adjustment panel.
2. To move the faceshield toward your face, snap the button into the back hole of the adjustment panel.

Attach suspension to the hardhat

1. Place the hardhat shell upside down in your lap.
2. Line up the suspension so the headband size adjustment is at the rear of the hardhat shell.
3. Press the suspension lugs firmly into the inner shell pockets.
4. Put the hardhat on your head and check the fit. If needed, adjust the suspension size or position as described previously.

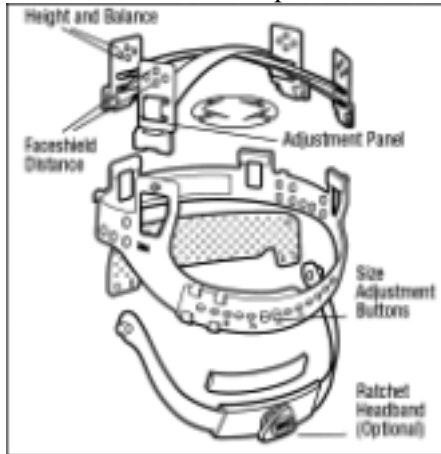
Snap hardhat into the hood

1. Hold the hardhat inside the hood with the brim of the hat toward the faceshield so that the three plastic snaps in the faceshield and the brim of the hat are aligned.
2. Press the snaps together firmly to attach the hardhat to the hood.

3M™ W-2879 Ratchet Suspension

Adjusting suspension

1. The W-2878 suspension has 4 holes in a line on each side for attachment of the ratchet band. The front 2 holes are for small to medium head size and the back 2 holes for large head size. Snap the buttons on each end of the ratchet adjustment band into the appropriate holes. The curved arms of the ratchet should be facing down to fit around the ears.
2. Before adjusting the ratchet knob, try on the suspension and make sure that the headband is sized to fit your head tightly but comfortably. If necessary, adjust the size according to the previous instructions.
3. Install the suspension into the hood according to the previous instructions.
4. Don the hood and position it so that the faceshield allows you to see your work clearly.



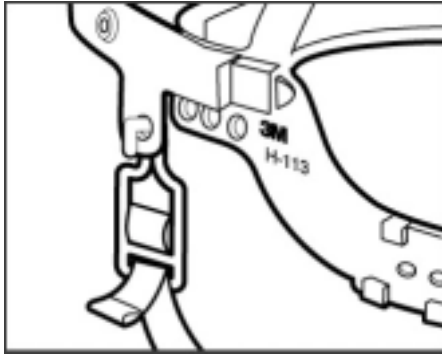
WARNING

Do not reach your hand through the neck cuff to turn the ratchet adjustment knob in areas where the air is contaminated. Leave the contaminated area and clean contaminants from your hands before reaching inside the hood. **Failure to do so may result in sickness or death.**

5. Turn the ratchet adjustment knob clockwise to tighten the fit of the suspension. Turn the knob counter clockwise to loosen the fit.
6. It may be necessary to reach your hand through the collar neck cuff to the inside of the hood in order to turn the ratchet adjustment knob.

3M™ H-114-2 Chin Strap (optional)

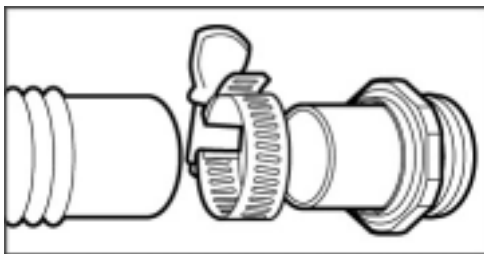
Snap the plastic hooks on each end of the chin strap into the temple holes on each side of the suspension.



3M™ Breathing Tubes

H-115 Maintenance-Free PAPR Breathing Tube Assembly (H-116 Breathing Tube)

1. Connect the breathing tube to the connector nut.
 - a. Place metal screw clamp loosely around the smooth cuff at the end of the tube.
 - b. Push smooth end of the breathing tube connector into the end of the breathing tube at least 2 inches.
 - c. Turn screw on the clamp clockwise to tighten the clamp around the breathing tube and connector.
 - d. While holding connector nut tightly, give breathing tube 2-3 strong pulls to assure that the clamp is secure and that the breathing tube does not disconnect from the connector nut.
 - e. Inspect around the area where the clamp holds the breathing tube onto the connector nut to assure that the clamp is tightened enough as to not allow any leakage between the breathing tube and connector nut.
2. Connect the breathing tube to the PAPR motor blower. Thread the connector into the air outlet port of the GVP-100 motor blower and tighten by turning the connector nut clockwise.
3. Check PAPR airflow. Complete a performance check of the PAPR with the airflow meter according to the instructions in the *User Instructions* of the 3M Belt-Mounted Powered Air Purifying Respirator *User Instructions*.
4. Connect the breathing tube to the hood. Insert the end of the tube that has no cuff into the air inlet at the back of the outer shroud. While you must insert the tube into the air inlet a minimum of 3 inches, you may insert the tube into the inlet as far as necessary.



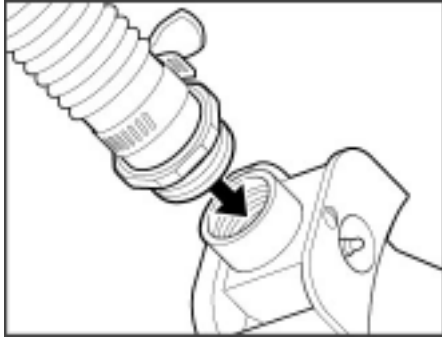
Note: The diameter of the air inlet is purposely larger than the breathing tube to make it easier to insert the breathing tube. Once the tube is inserted to the necessary length, gather up the excess shroud material with your fingers, fold it over and hold it around the tube. Place W-5102 metal clamp or W-3222 plastic squeeze clamp around the air inlet and tighten around the air inlet and tube.

5. Shorten the length of the H-116 breathing tube, if necessary. If the H-116 is too long, you may shorten the end of the tube that has no cuff. Once you cut the tube to the proper length, repeat connection sequence.

H-116 Maintenance-Free Replacement Breathing Tube

Connect the breathing tube to the connector

1. Place a metal screw clamp loosely around the smooth cuff at the end of the tube.
2. Push the smooth end of the breathing tube connector into the end of the tube at least 2 inches.
3. Turn the screw on the clamp clockwise to tighten the clamp around the breathing tube and connector.



4. While holding connector nut tightly, give breathing tube 2-3 strong pulls to assure that the clamp is secure and that the breathing tube does not disconnect from the connector nut.
5. Inspect around the area where the clamp holds the breathing tube onto the connector nut to assure that the clamp is tightened enough as to not allow any leakage between the breathing tube and connector nut.

Connect the breathing tube to the PAPR motor blower

1. Thread the connector into the air outlet port of the GVP-100 motor blower and tighten by turning the connector nut clockwise.
2. Check PAPR airflow. Complete a performance check of the PAPR with the airflow meter according to the instructions in the *User Instructions* of the 3M™ Belt-Mounted Powered Air Purifying Respirator.

Connect the breathing tube to the hood

1. Insert the end of the tube that has no cuff into the air inlet at the back of the outer shroud. While you must insert the tube into the air inlet a minimum of 3 inches, you may insert the tube into the inlet as far as necessary.

Note: The diameter of the air inlet is purposely larger than the breathing tube to make it easier to insert the breathing tube. Once the tube is inserted to the necessary length, gather up the excess shroud material with your fingers, fold it over and hold it around the tube. Place W-5102 metal clamp or W-3222 plastic squeeze clamp around the air inlet and tighten around the air inlet and tube.

2. Shorten the length of the H-116 breathing tube, if necessary. If the H-116 breathing tube is too long, you may shorten the end of the tube that has no cuff. Once you cut the tube to the proper length, repeat connection sequence.

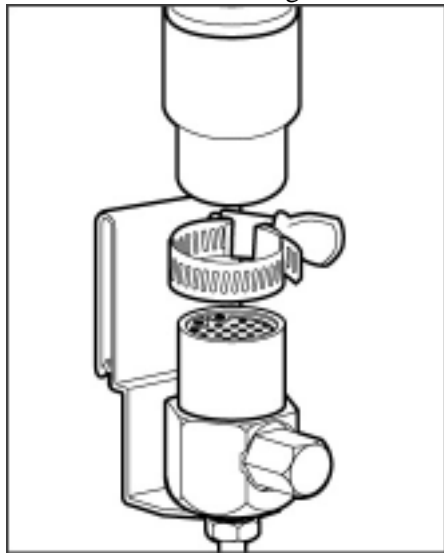
3M™ W-5114 Breathing Tube

Connect the breathing tube to the air control device

1. Push the cuff on either end of the tube as far as possible over the air outlet of the air control device.
2. Tighten the clamp provided around the cuff of the tube to secure the breathing tube to the control device.

Connect the breathing tube to the hood

1. Insert the other end of the tube into the air inlet at the back of the outer shroud. While you must insert the tube into the air inlet a minimum of 3 inches, you may insert the tube as far as necessary.
2. Secure the breathing tube in the air inlet with a clamp.



3M™ H-110 Faceshield Cover

Prepare for Use

1. Peel off the paper backing from the adhesive on the edges of the cover.
2. Center the cover on the faceshield with the curved edge matching the curved edge of the faceshield.
3. Press the edges with the adhesive coating against the faceshield.

Note: You may stack up to five faceshield covers on top of one another. This allows you to quickly peel off covers as they become difficult to see through, reducing the number of times you must stop working to reapply covers.

PAPR Components

Select the appropriate filter and/or cartridge for the contaminants and concentration levels present in your specific workplace.

The useful service life of the filter and/or cartridge will depend on the type and concentration of contaminant(s) and environmental conditions such as the humidity and temperature of the air.

Follow the assembly instructions in the User Instructions for the applicable 3M™ Powered Air Purifying Respirator.

Airline Components

Follow the assembly instructions in the User Instructions for the specific 3M™ Air Control Device and Air Supply Hose you are using.

Airline Fittings



You must comply with OSHA standard 29 CFR 1910.134 which states that, “Airline couplings shall be incompatible with outlets for other gas systems to prevent inadvertent servicing of airline respirators with nonrespirable gases or oxygen.” In Canada, refer to CSA standard Z180.1. **Failure to do so may result in sickness or death.**

All 3M air supply hoses and control valves are shipped with quick-disconnect industrial interchange design fittings. For a complete list of alternative airline fittings which may be used with approved 3M airline respirator systems, refer to the user instructions for the air control device and hose you are using. In addition, you may call 3M OH&ESD technical service information line at 1-800-243-4630. In Canada, call Technical Service at 1-800-267-4414.

SECTION 6

Operating Instructions



Use of these hoods by untrained or unqualified persons, or use not in accordance with these instructions may adversely affect respirator performance and **result in sickness or death**. Refer to additional warnings listed in the Safety Guidelines of these *User Instructions*.

Use of equipment described in these *User Instructions* must be in accordance with applicable health and safety standards, respirator selection guidelines in such publications as ANSI Z82.2-1992, CSA standard Z94.4, or pursuant to the recommendations of an industrial hygienist.

Before use, the wearer must be trained by the employer in the proper use and maintenance of the 3M™ H-Series Hoods, and only in accordance with these operating and maintenance instructions. Each person using these hoods must first read and understand this entire *User Instructions*. **Failure to do so may result in sickness 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 3M OH&ESD at 1-800-243-4630. In Canada, call Technical Service at 1-800-267-4414.

If these hoods fail any of the requirements of the user inspection and performance check, do not use the respirator until all necessary repairs have been made and the respirator passes the performance check. **Failure to do so may adversely affect respirator performance and result in sickness or death.**

Assemble the Respirator System

Read completely and follow the assembly instructions in the Assembly section of these *User Instructions* and the operator's instructions provided with the PAPR and airline components.

Inspect the Respirator Condition Thoroughly

Each time the respirator is used, you must complete the following inspection procedures.

Outer Shroud

Look closely at the fabric and the stitching in the seams of the fabric. There should be no tears, holes of any size, nor any missing/frayed threads.

Faceshield

1. Check the faceshield for creases, holes or areas which have worn thin due to chemical exposure. Look also for scratches or other visual distortions that make it difficult to see through the faceshield.
2. Make sure the snaps at the top of the faceshield are firmly attached to the hatshell or suspension.

Breathing Tube

1. Carefully examine the entire breathing tube. Look for tears, holes or cracks.

2. Bend the tube to verify that it is flexible.
3. Verify that the teeth on the W-3222 plastic clamp engage when squeezed together.

Inner Shroud or Collar

Look closely at the fabric and the stitching in the seams of the fabric. There should be no tears, holes of any size, nor any missing/frayed threads.

PAPR and Airline Components

Inspect these components according to the instructions in the *User Instructions* provided with the specific components.

Complete a User Performance Check

PAPR mode

Inspect these components according to the instructions in the *User Instructions* provided with the specific components.

1. Prior to connecting the breathing tube to the hood, complete the performance check and verify that the airflow out of the breathing tube is 6 cfm or higher according to the instructions in the 3M™ Belt-Mounted Powered Air Purifying Respirator *User Instructions*.
2. Observe the condition of the breathing tube in the air inlet at the back of the hood. Verify that the air inlet is not twisted or obstructed in any way.
3. Place your hand inside the hood, in the area above the faceshield. You should feel the air entering the hood.

Airline mode

1. Find the approved pressure range for the length of hose you are using from the label on the air control device, or from the appropriate control device *User Instructions*.
2. Read the pressure gauge located where you are attaching the compressed air hose to the source of breathing air to verify that the pressure is within the approved range. Adjust the pressure, as needed, within that range.
3. Connect the compressed air hose to the breathing air source.
4. Air should begin flowing. Observe the condition of the breathing tube in the air inlet at the back of the hood. Verify that the air inlet is not twisted or obstructed in any way.
5. Place your hand inside the hood, in the area above the faceshield. You should feel the air entering the hood.

WARNING

Your employer must provide compressed breathing air that meets at least the requirements of the specification for Grade D breathing air, as described in the Compressed Gas Association Commodity Specification G-7.1-1997 in the United States. In Canada, refer to CSA standard Z180.1, table for quality of compressed breathing air. **Failure to do so may result in sickness or death.**

Donning the Respirator

WARNING

Always don the respirator in an area where the air is clean. Failure to properly don this respirator before entering a hazardous atmosphere **may result in sickness or death.**

1. Verify that the respirator is connected to the air source and that air is flowing before donning the hood. For airline, verify line pressure is in required range of air control device.

2. Hold the collar neck cuff open and pull the hood over your head so that the faceshield is directly in front of your face.
3. Pull the suspension firmly onto your head. If the suspension does not fit your head firmly but comfortably, remove the hood and adjust the suspension according to the instructions in the Special User's Instructions section of these User Instructions.
4. Hoods with inner shrouds: tuck the inner shroud into the collar of your work clothes.
5. Leave the outer shroud draped over your shoulders.

WARNING

When a hood has an inner shroud, always tuck the inner shroud into your work clothes. Failure to do so may reduce respirator effectiveness and **may result in sickness or death.**

6. Assure the breathing tube inlet of the hood is not twisted and that the breathing tube is inserted at least 3" into inlet opening of hood.

Enter the Contaminated Area

WARNING

Before you enter a hazardous atmosphere wearing this respirator, you must inspect the respirator, complete a user performance check, and don the respirator according to the instructions in the Assembly section of these User Instructions and the instructions provided with the components of the system you are using. Failure to do so may affect respirator performance and **may result in sickness or death.**

Do not wear this respirator to enter areas where atmospheric concentrations of contaminants are unknown or immediately dangerous to life or health; or, in PAPR systems, atmospheres containing less than 19.5% oxygen.

With the respirator in operation, enter the contaminated area, breathing normally. Keep the air supply hose or PAPR assembly away from equipment, vehicles and other physical and chemical hazards.

WARNING

Do not remove the respirator while you are in a hazardous atmosphere. The contaminants which are dangerous to your health include those which 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 decreases or stops
 - Breathing becomes difficult
 - You feel dizzy or your vision is impaired
 - You taste or smell contaminants
 - Your face, eyes, nose or mouth become(s) irritated
 - You suspect that the concentration of contaminants may have reached levels at which this respirator may no longer provide adequate protection.
-

Remove the Respirator in a Clean Area

Clean your hands of any contaminants before reaching inside the hood for any reason. Refer

to the Cleaning and Inspections section of these User Instructions for cleaning, inspection and storage information.

SECTION 7

Cleaning and Inspection

After each use, clean and inspect 3M H-Series hood assembly to identify signs of damage or wear that may affect performance of the respirator and reduce the degree of safety originally provided.

For a list of replacement parts, refer to the System Components and Replacement Parts section of these *User Instructions*. The Troubleshooting section contains a troubleshooting guide to help you identify the proper action to take for specific problems which may be detected.

WARNING

If excessive wear and/or damage to the respirator or its components is observed at any time, do not use the respirator until all necessary repairs have been made and the wearer has successfully completed the user performance check described in the Operating Instructions section of these *User Instructions*. Failure to do so may affect respirator performance and **may result in sickness or death**.

Hood Assembly Cleaning

1. Follow the hygiene practices established by your employer for the specific contaminants to which you have been exposed.
2. To remove paint or other coatings from the faceshield, you may wipe the faceshield with mineral spirits.

WARNING

- Do not clean 3M H-Series hoods with detergents which contain lanolin or other oils since they may soften or distort the faceshield.
 - Do not wipe the faceshield with strong solvents such as MEK, acetone, toluene, as those may damage or distort the faceshield.
 - Do not soak 3M H-Series hoods or components in cleaning solutions or solvents.
 - Do not wash 3M H-Series hoods in a washing machine.
 - Misuse may adversely affect respirator performance and **may result in sickness or death**.
-

Inspection

Visually examine the condition of the hood material, faceshield, breathing tube and suspension after each use.

WARNING

If you discover any of the wear and damage described below, discard the component and replace it with a new one. Failure to do so may adversely affect respirator performance and **may result in sickness or death**.

Outer Shroud

Look closely at the fabric and the stitching in the seams of the fabric. There should be no tears, holes of any size, nor any missing/frayed threads.

Faceshield

1. Check the faceshield for creases, holes or areas which have worn thin due to chemical exposure. Also look for scratches or other visual distortions that make it difficult to see through the faceshield.
2. Make sure the snaps at the top of the faceshield are firmly attached to the hatshell or suspension.

Breathing Tube

1. Carefully examine the entire breathing tube. Look for tears, holes or cracks.
2. Bend the tube to verify that it is flexible.
3. Verify that the teeth on the W-3222 plastic clamp engage when squeezed together.

Inner Shroud or Collar

Look closely at the fabric and the stitching in the seams of the fabric. There should be no tears, holes of any size, nor any missing/frayed threads.

Storage

1. Hang your 3M H-Series hood by the loop sewn into the top of the hood or lay it flat. Never fold or crush the faceshield.
2. Store your 3M H-Series hood at room temperature in a dry area that is protected from exposure to hazardous contaminants.

PAPR Assembly:

Refer to the *User Instructions* for the 3M™ Belt-Mounted Powered Air Purifying Respirator for cleaning and inspection instructions.

Airline Components

Refer to the *User Instructions* for the airline components being used for cleaning and inspection instructions.

SECTION 8 Troubleshooting

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

Problem	Possible Causes	Corrective Action
Poor visibility through faceshield	Faceshield cover is scratched or coated with debris Faceshield is scratched or coated with debris	Remove cover and replace Wipe debris off Dispose of hood and replace it with a new hood Consider using faceshield covers
Breathing tube pulls hood out of comfortable position	Breathing tube too long Breathing tube too short	Insert tube farther into air inlet Shorten breathing tube according to instructions in the Assembly section of these <i>User Instructions</i> . Don't insert tube as far into air inlet (minimum 3 inches)

Hood Noisy	Twisted breathing tube inlet	Assure that the breathing tube is inserted at least 3" into breathing tube inlet of hood and is not twisting the inlet opening.
Low airflow	Air inlet of hood collapsed Breathing tube disconnected at hood or at control device	Insert breathing tube farther into the air inlet Reattach tube and secure with clamp
Low airflow – PAPR systems*	Battery needs charging Filter is loaded Motor blower malfunction	Switch to fully charged battery Replace filter Switch to a different motor blower
	*See User Instructions for 3M belt-mounted PAPR for a more detailed troubleshooting guide.	
Low airflow – airline systems**	Compressed air hose disconnected at control device or at air source Air pressure too low	Reconnect each end of the hose Check pressure where hose is attached to source. Increase pressure within approved range. Check condition of air filters. Replace dirty, loaded filters.
Low airflow – PAPR systems*	Battery needs charging Filter is loaded Motor blower malfunction	Switch to fully charged battery Replace filter Switch to a different motor blower
	**See <i>User Instructions</i> for the specific 3M airline components you are using for a more detailed troubleshooting guide.	
Temperature of air from airline is too warm or too cold	Change in ambient air temperature at air source Vortex or Vortemp™ assembly control misadjusted Air pressure is too low	Cool breathing air with 3M™ W-2862 Vortex Cooling Assembly Warm breathing air with 3M™ W-2863 Vortemp™ Heating Assembly Readjust for desired temperature and flow Raise air pressure (within the approved range) for more heating/cooling

SECTION 9

Important Notice

WARRANTY: In the event any 3M OH&ESD product is found to be defective in material, workmanship, or not in conformation with any express warranty for a specific purpose, 3M's only obligation and your exclusive remedy shall be to repair, replace or refund the purchase price of such parts or products upon timely notification thereof and substantiation that the product has been stored, maintained and used in accordance with 3M's written instructions.

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FOR MORE INFORMATION

FOR MORE INFORMATION and assistance on 3M occupational health and environmental safety products, contact your local 3M representative or call 3M OH&ESD Technical Service toll free in U.S.A., 1-800-243-4630. In Canada, call Technical Service at 1-800-267-4414.

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38-9017-0040-1