

3M GVP Series Belt-Mounted Powered Air Purifying Respirator Assembly

User Instructions for 3M™ Belt-Mounted PAPR Assembly GVP-1, GVP-1U, GVP-CB, and 3M™ PAPR Unit GVP-100

(Keep these User Instructions for reference)

Ensemble respirateur d'épuration d'air propulsé monté à la ceinture de série GVP

Directives d'utilisation pour les ensembles respirateurs d'épuration d'air propulsé montés à la ceinture GVP-1, GVP-1U et GVP-CB 3M™ et le respirateur d'épuration d'air propulsé GVP-100 3M™

(Conserver ces directives d'utilisation à titre de référence)

Conjunto de Respirador purificador de aire forzado montado en el cinturón Serie GVP

Instrucciones de Uso de los conjuntos de Respirador purificador de aire forzado montado en el cinturón (PAPR) GVP-1, GVP-1U, GVP-CB y de la Unidad PAPR GVP-100 3M™

(Guarde estas Instrucciones de Uso para referencia futura)

Conjunto Respirador e Purificador de Ar Motorizado, Montado na Cintura, da Série GVP da 3M™

Instruções de Uso para o Conjunto Respirador e Purificador de Ar Motorizado, Montado na Cintura, GVP-1, GVP-1U, GVP-CB e 3M™ GVP-100

(Guarde essas Instruções de Uso para referência)

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GENERAL SAFETY INFORMATION

Intended Use

The 3M™ GVP System is a lightweight, belt-mounted, powered air purifier. When combined with appropriate headgear, it is designed to help provide respiratory protection against certain airborne contaminants.

Listing of Warnings and Cautions within these *User Instructions*

WARNING

- This respiratory protection product helps protect against certain airborne contaminants. **Misuse may result in sickness or death.** For proper use, see supervisor, *User Instructions* or call 3M in U.S.A., 1-800-243-4630. In Canada, call Technical Service at 1-800-267-4414.
- Each person using this respirator must read and understand the information in these *User Instructions* before use. Use of these respirators by untrained or unqualified persons, or use that is not in accordance with these *User Instructions*, may adversely affect respirator performance and **result in sickness or death.**
- Do not use with parts or accessories other than those manufactured by 3M as described in these *User Instructions* or on the NIOSH approval label for this respirator. Do not attempt to repair or modify any component of the system except as described in these *User Instructions*. Failure to do so **may adversely affect respirator performance and result in sickness or death.**
- Be certain that the filter and/or cartridge that you are placing on the unit is appropriate for the contaminants to which you will be exposed. **Failure to do so may result in sickness or death.**
- Do not over-tighten filter/cartridge. Over-tightening may result in distortion or displacement of the seal and may allow contaminated air to enter the respirator headpiece and **may result in sickness or death.**
- Failure to pass a user performance check and complete all necessary repairs before use **may adversely affect respirator performance and result in sickness or death.**
- Before using a 3M™ GVP Respirator System, each person must read and understand the information in these *User Instructions* and the *User Instructions* provided with the respirator headpiece to be used. Use of these respirator systems by untrained or unqualified persons, or use that is not in accordance with these instructions, may adversely affect respirator performance and **may result in sickness or death.**
- Use of this respirator in atmospheres for which it was not NIOSH certified and designed **may result in sickness or death.** Do not wear this respirator where:
 - Atmospheres are oxygen deficient
 - Contaminant concentrations are unknown
 - Contaminant concentrations are Immediately Dangerous to Life or Health (IDLH)
 - Contaminant concentrations exceed the assigned protection factor (APF) recommended for the applicable headpiece or the APF mandated by specific government standards, whichever is lower. Refer to the *User Instructions* provided with the applicable headpiece.
- Do not enter a contaminated area until properly donning the respirator system. Do not remove the respirator before leaving the contaminated area. **Doing so may result in sickness or death.**

WARNING

- Contaminants that are dangerous to your health include those that you may not be able to see or smell. Leave the contaminated area immediately if any of the following conditions occur. **Failure to do so may result in sickness or death.**
 - Airflow decreases or stops
 - 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.
- Do not expose blower/filter assembly directly to sparks or molten metal spatter. Direct contact with sparks or molten metal spatter may damage the filter, allowing unfiltered air into the breathing zone and may cause the filter or blower assembly to ignite, **resulting in serious injury, sickness or death.**
- Never alter or modify this respirator. Repair or replace parts only with the 3M components approved for this assembly. **Failure to do so may adversely affect product performance and result in sickness or death.**
- **Do not clean respirator with solvents.** Cleaning with solvents may degrade some respirator components and reduce respirator effectiveness. Inspect all respirator components before each use to ensure proper operating conditions. **Failure to do so may result in sickness or death.**
- Never attempt to clean filters by knocking or blowing out accumulated material. This may result in damage to the filter membrane allowing hazardous particles to enter the breathing zone, **resulting in sickness or death.**

CAUTION:

The battery pack must be charged in fresh air with no combustible vapors present. The battery should be charged at a temperature between 41° F to 77° F (5° C to 25° C). The time required for a full charge will increase and the potential recharge cycles will be reduced if charging takes place above 77° F (25° C).

USE INSTRUCTIONS AND LIMITATIONS

Important

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

Use For

The 3M™ GVP Belt-Mounted Powered Air Purifier is to be used with certain 3M™ Helmets, Hoods, Loose Fitting Headgear, Tight Fitting Facepieces, and appropriate filters/cartridges to provide a NIOSH approved system. Please refer to the NIOSH approval label for model numbers.

Do Not Use For

- Oxygen deficient atmospheres
- Contaminant concentrations that are unknown or immediately dangerous to life or health (IDLH)
- Contaminated concentrations that exceed the assigned protection factor (APF) recommended for the applicable headpiece or the APF mandated by specific government standards, whichever is lower.

Refer to additional limitations and cautions under NIOSH Cautions and Limitations.

Use Instructions

A complete 3M powered air purifying respirator (PAPR) system is comprised of a belt-mounted NiCd rechargeable battery pack, power cord, motor blower unit, appropriate cartridge/filter combinations, breathing tube and either a loose-fitting or tight-fitting respiratory headgear.

These NIOSH approved systems can offer respiratory protection against certain acid gases, organic vapors, and particulates; and allow freedom of movement for approximately eight hours of continuous use.

The 3M NIOSH certified belt-mounted PAPR offers the wearer the choice of a full facepiece, half facepiece, loose-fitting headgear, helmet or lightweight hood as described below.

Use the 3M™ Spark Arrest Cover GVP-146 to help reduce exposure of the 3M™ Motor Blower (PAPR Unit) GVP-100 and 3M™ GVP Cartridges or Filters to sparks and other hot materials, typically resulting from grinding/or welding operations. **Note:** Not for use with the 3M™ Vinyl Belt GVP-117.

Respirator Selection and Training

Use of these respirators must be in accordance with applicable health and safety standards, respirator selection tables contained in such publications as American National Standards Institute (ANSI) Z88.2-1992, Canadian Standards Association (CSA) Standard Z94.4 or pursuant to the recommendations of an industrial hygienist. The employer must have a written respirator program in place that complies with the OSHA respiratory protection standard 29 CFR 1910.134 prior to using any respirator. In Canada, follow CSA standard Z94.4 or the requirements of the authority having jurisdiction in your region.

Before use, the employer must assure that each respirator user has been trained by a qualified person in the proper use and maintenance of the respirator and air supply components according to the instructions contained in these *User Instructions* and other applicable *User Instructions*.

WARNING

Each person using this respirator must read and understand the information in these *User Instructions* before use. Use of these respirators by untrained or unqualified persons, or use that is not in accordance with these *User Instructions*, may adversely affect respirator performance and result in sickness or death.

Assigned Protection Factors

Respiratory Headgear

Helmet/Hood

Full Facepiece

Half Facepiece

Loose Fitting Headgear

HE Filter and/or Chemical Cartridge

1000 x the Permissible Exposure Limit (PEL)

1000 x the PEL

50 x the PEL

25 x the PEL

An assigned protection factor is the expected workplace level of respiratory protection that would be provided to properly fitted and trained users.

The 3M recommended assigned protection factors are the same as those published in ANSI Z88.2-1992 Standard for Respiratory Protection.

For compliance with a specific OSHA standard, or a specific regional requirement, for substances such as asbestos, lead, cadmium, benzene, etc., please refer to the respiratory selection portion of the substance specific standards to determine the appropriate assigned protection factor.

NIOSH Approvals

The 3M™ Belt-Mounted Powered Air Purifying Respirator (PAPR) Systems are NIOSH approved for use against the following classes of contaminants:

- Particulates (HE)
- Certain Organic Vapors (OV)
- Certain Organic Vapors plus particulates (OV/HE)
- Ammonia/Methylamine (AM/MA)
- Formaldehyde (FM)
- Certain Acid Gases (HC/CL/SD/CD/HF)
- Certain Acid Gases plus particulates (HC/CL/SD/CD/HF/HE)
- Certain Organic Vapors/Acid Gases (OV/HC/CL/SD/CD/HF/HSesc)
- Certain Organic Vapors/Acid Gases plus particulates (OV/HC/CL/SD/CD/HF/HSesc/HE)
- Ammonia/Methylamine plus particulates (AM/MA/HE)
- Formaldehyde plus particulates (FM/HE)

For specific approval numbers, please consult the NIOSH approval label inserts.

NIOSH Cautions and Limitations

- A– Not for use in atmospheres containing less than 19.5 percent oxygen.
- B– Not for use in atmospheres immediately dangerous to life or health.
- C– Do not exceed maximum use concentrations established by regulatory standards.
- F– Do not use 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.

SPECIFICATIONS

3M™ Filter Options

GVP-401	Organic Vapor (OV)	GVP-441	Organic Vapor/HE (OV/HE)
GVP-402	Acid Gas (HC/CL/SD/CD/HF)	GVP-442	Acid Gas/HE (HC/CL/CD/SD/HF/HE)
GVP-403	Organic Vapor/Acid Gas (OV/HC/CL/CD/SD/HF/HSesc)	GVP-443	Organic Vapor/Acid Gas/HE (OV/HC/CL/CD/SD/HF/HSesc/HE)
GVP-404	Ammonia/Methylamine (AM/MA)	GVP-444	Ammonia/Methylamine/HE (AM/MA/HE)
GVP-405	Formaldehyde (FM)	GVP-445	Formaldehyde/HE (FM/HE)
GVP-440	High Efficiency (HE)		

Powered Air Purifier

Noise Level (excluding external noise)	less than 80 dBA
Operating Temperature Range	10° F to 120° F (-12° C to 49° C)
Decontamination of PAPR Unit (Motor Blower)	With the inlet and outlet plugs in place the unit may be rinsed with water/mild detergent or placed into equipment dishwasher. Limit water temperature to a maximum 120° F (49° C).
Voltage	4.8 Volts DC
Estimated Motor Life	2000 hours (Dependent on use conditions)

Battery Pack

Type	Rechargeable NiCd
Service Time (after 14-16 hour charge)	Approximately 8 hours of continuous use
Charging Time	20 hours initial charge, 14-16 hours after 8 hours of use
Maximum Time on Continuous Charge	Up to 1 week
Battery Recharge Indicator	Indicates recharging is required or bad cell in the battery. (This indicator does not measure airflow.)
Storage Time	Battery will lose approx. 20% capacity per month
Maximum Operating Temperature Range	10° F to 120° F (-12° C to 49° C)
Battery Charging Temperature Range	41° F to 77° F (5° C to 25° C)
Voltage	4.8 Volts DC
Circuit Breaker (resetting) will open if the battery is exposed to high temperatures. Will reset when the inside battery temperature is less than 122° F (50° C).	
Battery Life	Approximately 500 to 1000 discharge cycles. Number of cycles is dependent on temperature conditions during use and recharging.

Battery Charger

Input	110-120 Volts AC
Output	7.3 Volts DC, .7 Amps

Circuit Breaker (resetting) internal breaker will protect the charger against high temperatures. Unit will reset when the temperature falls below the reset point.

Weights

Battery	2.5 lb (1.1 kg)
Belt-Mounted Powered Air Purifier	1.1 lb (0.5 kg)
– with HE Filter	1.6 lb (.72 kg)
– with OV Filter	2.6 lb (1.2 kg)
– with AG Filter	2.9 lb (1.3 kg)
– with OV/HE	3.1 lb (1.4 kg)
– with AG/HE	3.4 lb (1.5 kg)
– with OV/AG	2.6 lb (1.2 kg)
– with OV/AG/HE	3.1 lb (1.4 kg)

Intrinsic Safety

3M™ GVP-100 Motor Blower, 3M™ GVP-110 Power Cord and 3M™ GVP-111 Battery Pack combination has been tested and classified by UL for intrinsic safety. It can be used in the following location: Division 1, Class I; Group D, Class II, Groups E, F, G and Class III.

PRODUCTS, ACCESSORIES AND PARTS

⚠ WARNING

Do not use with parts or accessories other than those manufactured by 3M as described in these *User Instructions* or on the NIOSH approval label for this respirator. Do not attempt to repair or modify any component of the system except as described in these *User Instructions*. Failure to do so **may adversely affect respirator performance and result in sickness or death.**

3M™ PAPR Assembly GVP-1

A complete system is comprised of a 3M belt-mounted powered air purifier, NiCd rechargeable battery pack, appropriate cartridges/filter combination, breathing tube and either a loose-fitting or tight-fitting respiratory headgear. This system offers respiratory protection against certain acid gases, organic vapors and particulates, and allows freedom of movement for approximately eight hours of continuous use.

GVP-1 contains the following:

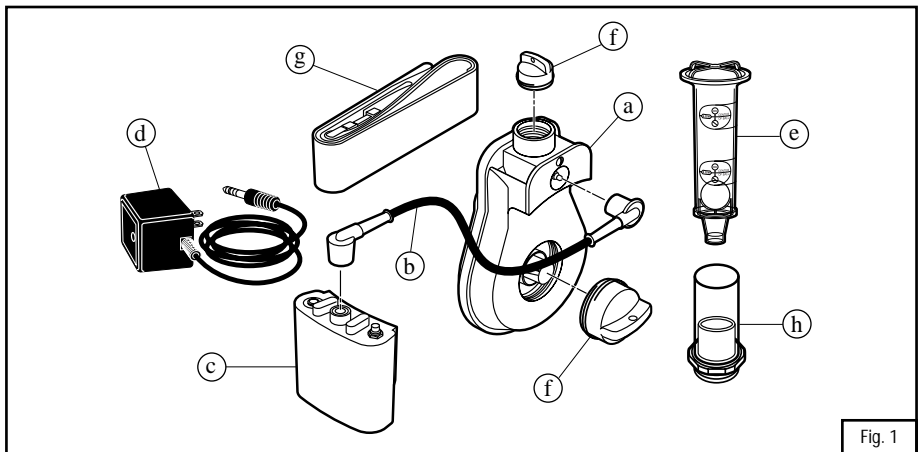
- a) PAPR Unit (Motor/Blower) GVP-100
- b) Power Cord GVP-110
- c) Battery Pack GVP-111
- d) Charger GVP-112
- e) Flow Meter GVP-113
- f) Blower Plugs GVP-115 (inlet and outlet)
- g) Web Belt GVP-127
- h) Flow Meter Adapter L-181

GVP Series Assemblies* Not Shown:

- GVP-1U Belt-Mounted PAPR Assembly, with Urethane Belt
- Belt-Mounted PAPR Assembly, GVP-CB, with Comfort Belt
- *same as GVP-1, except for belt

GVP optional parts not shown:

- Urethane Waist Belt GVP-117
- Urethane Shoulder Strap GVP-118
- Web Shoulder Strap GVP-128
- Comfort Belt CB-1000
- Spark Arrest Cover GVP-146



3M™ GVP-1 PAPR Assembly

Filters/Cartridges

GVP-401	Organic Vapor (OV)	GVP-441	Organic Vapor/HE (OV/HE)
GVP-402	Acid Gas (HC/CL/SD/CD/HF)	GVP-442	Acid Gas/HE (HC/CL/CD/SD/HF/HE)
GVP-403	Organic Vapor/Acid Gas (OV/HC/CL/CD/SD/HF/HSesc)	GVP-443	Organic Vapor/Acid Gas/HE (OV/HC/CL/CD/SD/HF/ HSesc/HE)
GVP-404	Ammonia/Methylamine (AM/MA)	GVP-444	Ammonia/Methylamine/HE (AM/MA/HE)
GVP-405	Formaldehyde (FM)	GVP-445	Formaldehyde/HE (FM/HE)
GVP-440	High Efficiency (HE)		

SET UP PROCEDURES AND PERFORMANCE CHECK

To set up a correct and complete assembly follow the instructions for each component and check the performance. The 3M™ Belt-Mounted Powered Air Purifying Respirator must be used with the appropriate NIOSH components listed below:

Components

Description

Belt-Mounted PAPR Assembly

Filter and/or Cartridge

Breathing Tube for Full or Half Facepieces

Breathing Tube for Hoods

Breathing Tube for L-Series Helmets
and Headgear

Helmet, Hood or Loose Fitting Headgear

3M Full Facepiece

3M™ Product

GVP-1: Includes PAPR, battery, charger, belt,
flow meter, L-Series flow adapter, power cord
and plugs

See parts list

GVP-123 [1" (25.4 mm) I.D.]

H-115 or GVP-122 [1 1/4" (31.75 mm)]

L-122 [1 1/4" (31.75 mm) I.D.]

H-Series Hoods and L-Series Headgear

7000 Series Full Face or 6000DIN Series
Full Face

The instructions for the battery, charger and filters/cartridges are presented in this section. The steps to add the breathing tube and respiratory headgear are presented in the section, "Adding the Respirator to the PAPR". To set up a correct and complete assembly, follow the instructions for each component and then check the performance as outlined in this section.

Battery Charging

CAUTION:

The battery pack must be charged in fresh air with no combustible vapors present. The battery should be charged at a temperature between 41° F to 77° F (5° C to 25° C). The time required for a full charge will increase and the potential recharge cycles will be reduced if charging takes place above 77° F (25° C).

1. Plug the battery charger into a 115-volt AC outlet and push the connector into the battery. A red light on the battery charger indicates an electrical connection to the battery has been made. The light on the charger will remain on as long as electrical power is available and the charger is functioning.
2. The initial charge on the battery should be for a minimum of 20 hours prior to use. Recharge the battery for 14-16 hours when the red battery recharge indicator light comes on during use or after every 6 to 8 hours of use. This battery is not harmed if left on a continuous charge past the normal 14-16 hour recharge time. However, a continuous charging for extended periods of time will reduce the life of the battery. Therefore, we recommend that a continuous charge be limited to no more than 1 week. The battery will lose approximately 20% of its capacity per month without use and must be recharged before use.

Battery Recharge

The battery pack is equipped with a “red” recharge light. If the red light indicator is on, the battery pack needs to be charged immediately. This recharge light is not an airflow indicator. Airflow must be checked with the airflow meter. During charging the red light should turn off, if the light remains on for more than 20 minutes after connecting to the charger, replace the battery pack. Depending on the charging and use conditions, this will usually occur between 500 and 1000 recharge cycles.

Battery Disposal

To properly dispose of the battery pack, follow local solid waste disposal regulations or the RBRC Battery disposal regulations or call the RBRC Battery Recycling Information Help Line at 1-800-8-BATTERY (1-800-822-8837).

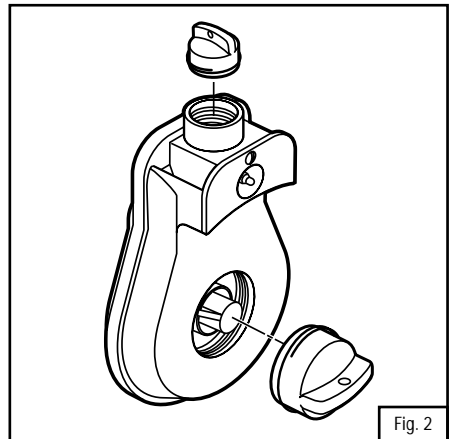


Filter/Cartridge Assembly

⚠ WARNING

Be certain that the filter and/or cartridge that you are placing on the unit is appropriate for the contaminants to which you will be exposed. **Failure to do so may result in sickness or death.** Do not over-tighten filter/cartridge. Over-tightening may result in distortion or displacement of the seal and may allow contaminated air to enter the respirator headpiece and **may result in sickness or death.**

1. Remove the plastic caps from the cartridge/filter. Inspect the filter for damage to the threads, plastic body or filter media. Discard if damaged.
2. Remove inlet and outlet motor/blower plugs as shown and check that the gaskets are in place. Do not discard the plugs; they should be re-inserted during cleaning. (Fig. 2)
3. Secure the filter into the inlet of the motor/blower unit by hand tightening.
4. Connect the power cord between the battery and motor/blower unit.



Remove inlet and outlet plug

Performance Check with 3M™ Flow Meter

Prior to using this PAPR, complete the test described below to check the status of the battery, filter/cartridge, breathing tube and airflow.

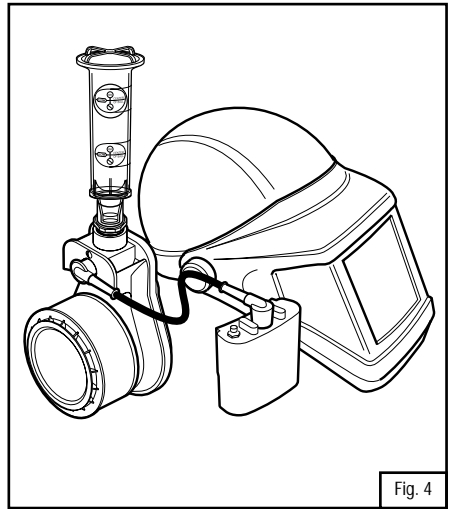
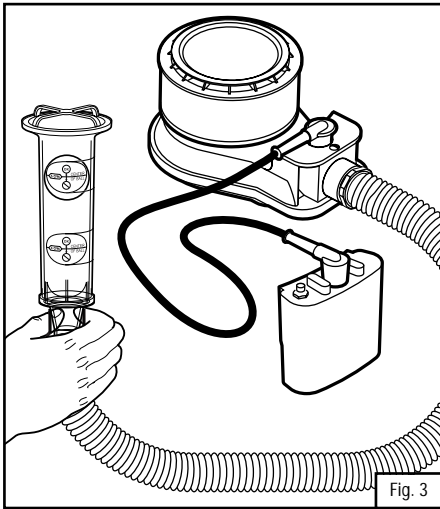
⚠ WARNING

Failure to pass a user performance check and complete all necessary repairs before use **may adversely affect respirator performance and result in sickness or death.**

Flow Meter

The flow meter is designed to check airflow being supplied by the GVP PAPR unit. Check the label on the meter to determine which test circle will be used for the airflow test.

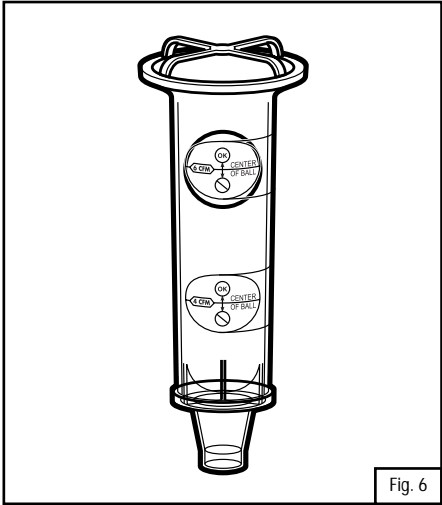
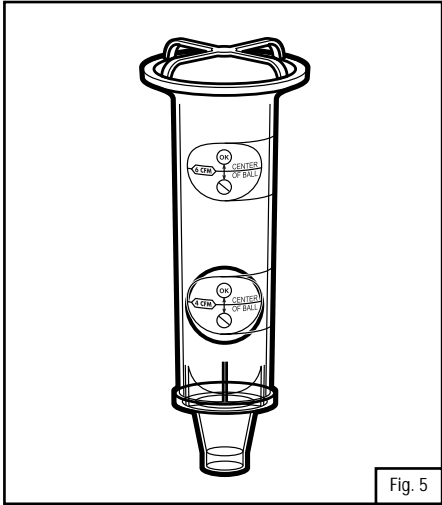
1. Be sure that the filter selected for the workplace is secured to the PAPR before testing airflow.
2. Choose the correct breathing tube or adapter (See previous component section). The 3M™ L-181 Adapter is used to check the airflow with the 3M™ L-Series Headgear.
3. Attach the appropriate breathing tube or adapter inlet to the PAPR outlet.
4. Depress ON/OFF button. Position the airflow meter over the outlet of the GVP-122 or -123 breathing tube (Fig. 3) or L-181 adapter (Fig. 4) and hold vertically. Locate the position of the ball in the airflow meter.



For tight fitting facepieces the ball should be located in or above the (4 cfm) tight fitting flow test circle. (Fig. 5)

For helmets, hoods and loose fitting headgear, the ball should be located in or above the (6 cfm) helmet and hood flow test circle. (Fig. 6)

If the ball fails to move fully inside or above the flow test circle, insufficient airflow is being provided. This may be the result of a battery with a low charge or an overloaded filter. Refer to Section on Troubleshooting.



ADDING THE RESPIRATOR TO THE PAPR

General Respirator Fitting Instructions

Follow the performance check outlined in this section and understand the operating instructions in the next section prior to using the PAPR.

⚠ WARNING

Before using a 3M™ GVP Respirator System, each person must read and understand the information in these *User Instructions* and the *User Instructions* provided with the respirator headpiece to be used. Use of these respirator systems by untrained or unqualified persons, or use that is not in accordance with these instructions, may adversely affect respirator performance and **may result in sickness or death.**

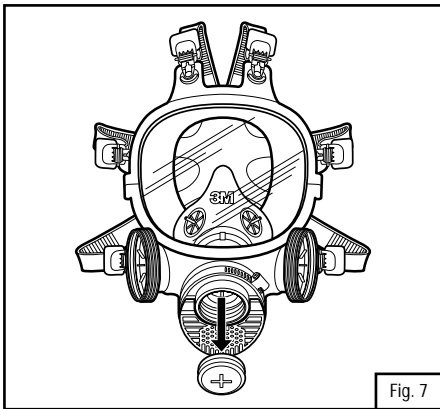
Placing the Belt onto the PAPR and Battery

1. Place the belt through the plastic belt holder on the PAPR motor blower. Next, thread the belt into the belt slot on the back of the battery. (Placing the battery onto the belt last will allow for easier removal for charging.)
2. Connect the power cord to the battery and the PAPR unit.
3. Secure the belt to your waist and adjust for a snug fit. Feed any excess belt length through the belt loop or cut to the desired length.

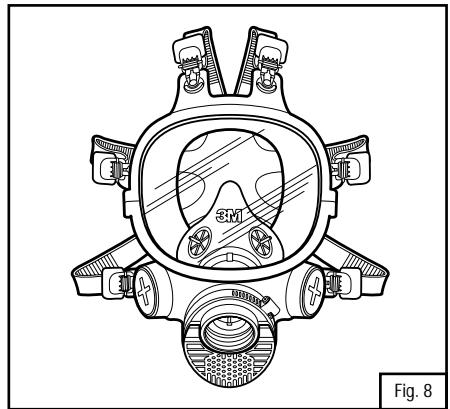
Note: The PAPR and battery are designed so they may be positioned on the left, right or center of the back. Please refer to the additional fitting and donning steps on the following pages for the type of respirator covering that will be used.

3M™ Full Facepiece Respirators 7000 Series

1. Remove the 3M™ 7890 Center Port Plug from the full face respirator. Remove and discard the cartridge holders. Install 7890 plugs into each side port of the respirator. (Fig. 7 and 8)



Remove center port plug



Installing 7890 plugs

2. Fully loosen all head straps on the full facepiece. Place the harness at the back of the head and pull the respirator down over the face. Make sure that your chin is positioned inside the chin cup.
3. Start with the neck strap and adjust for a snug fit. Adjust the temple straps next and finally the top straps.
4. Follow user seal check procedures described in the *User Instruction* provided with the facepiece.
5. Screw GVP-123 breathing tube elbow adapter into the center port of the 7800S facepiece inlet of the respirator. (Fig. 9) Screw the breathing tube inlet into the 3M™ PAPR outlet. Activate the unit by pushing the power switch on the battery pack.

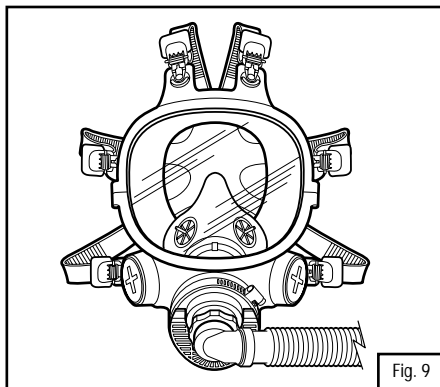


Fig. 9

Screw breathing tube into center port

3M™ Full Facepiece Respirators 6000DIN Series

The 6000DIN Series Full Face Respirator must be equipped with the 6884 DIN Port Adapter.

1. Remove the 7890 plug from the center port of the 6884 adapter. Be sure a 6876 breathing tube gasket is in the port. If not present, install 6895 inhalation port gasket and 6880 bayonet cap on each of the side bayonet ports.
2. Follow donning and user seal check procedures described in the *User Instruction* provided with the facepiece.
3. Screw GVP-123 breathing tube elbow adapter into the center port of the 6884 adapter. (Fig. 10) Screw the breathing tube inlet into the PAPR outlet. Activate the unit by pushing the power switch on the battery pack.

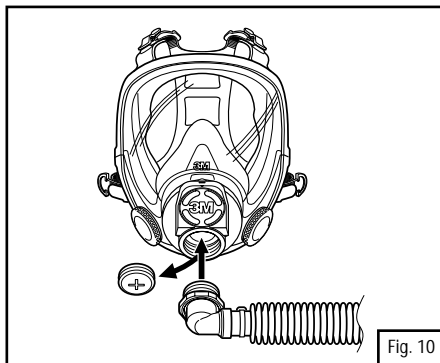


Fig. 10

Screw breathing tube into center port

3M™ H-Series Hoods

Follow the set-up steps outlined in the H-Series Hoods *User Instructions*. These instructions describe the set-up of the selected suspension, chin strap, shroud and faceshield covers. After the hood has been assembled follow the instructions below:

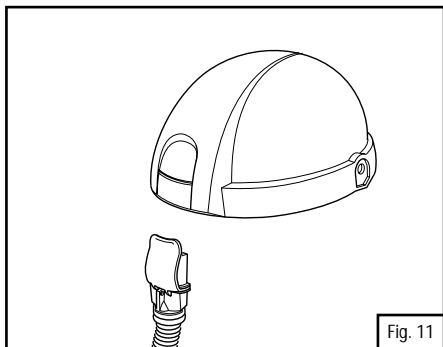
Insert the collar end of the H-115 or GVP-122 breathing tube into the air inlet at the back of the hood. The breathing tube should be inserted (a minimum of 3 inches). Place the plastic squeeze clamp approximately 1½ inches above the end of the air inlet and squeeze in place to secure the breathing tube to the hood.

1. Place the hood on your head and let the breathing tube unwind in the back.
2. Screw the breathing tube inlet into the belt-mounted PAPR outlet. Activate the unit by pushing the power switch on the battery pack.

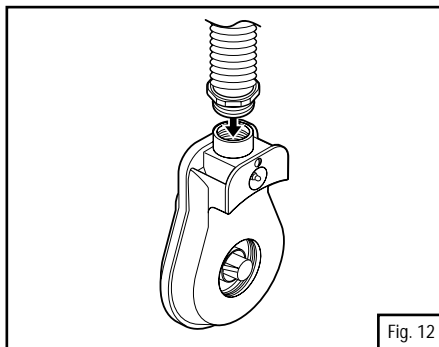
3M™ L-Series Headgear

Follow the assembly and set-up procedures outlined in the L-Series Headgear *User Instructions*. These instructions describe the methods used to properly configure the headgear for operation. After the headgear has been properly assembled follow the instructions below:

1. Insert the rectangular end of the 3M™ L-122 Breathing Tube into the air inlet of the L-Series Headgear. Push until the clamp snaps into place. (Fig. 11)
2. Place headgear on your head and let the L-122 breathing tube unwind.
3. Screw the threaded end of the L-122 breathing tube into the PAPR outlet. (Fig. 12)
4. Activate the unit by pushing the power switch on the battery pack.



L-122 being inserted



L-122 onto inlet

OPERATING INSTRUCTIONS

The following instructions are intended to serve as a guideline for the use of the 3M™ Belt-Mounted PAPR. It is not to be considered all-inclusive, nor is it intended to replace the policy and procedures for each facility.

WARNING

Use of this respirator in atmospheres for which it was not NIOSH certified and designed **may result in sickness or death**. Do not wear this respirator where:

- Atmospheres are oxygen deficient
- Contaminant concentrations are unknown
- Contaminant concentrations are Immediately Dangerous to Life or Health (IDLH)
- Contaminant concentrations exceed the assigned protection factor (APF) recommended for the applicable headpiece or the APF mandated by specific government standards, whichever is lower. Refer to the *User Instructions* provided with the applicable headpiece.

Do not enter a contaminated area until properly donning the respirator system. Do not remove the respirator before leaving the contaminated area. **Doing so may result in sickness or death.**

Contaminants that are dangerous to your health include those that you may not be able to see or smell. Leave the contaminated area immediately if any of the following conditions occur.

Failure to do so may result in sickness or death.

- Airflow decreases or stops
- 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.

Do not expose blower/filter assembly directly to sparks or molten metal spatter. Direct contact with sparks or molten metal spatter may damage the filter, allowing unfiltered air into the breathing zone and may cause the filter or blower assembly to ignite, **resulting in serious injury, sickness or death.**

If you have any doubts about the applicability of the equipment to your job situation, consult an industrial hygienist or call 3M's Occupational Health and Environmental Safety Division Technical Service Department 1-800-243-4630. In Canada, call Technical Service at 1-800-267-4414.

General Use Instructions

1. Select the appropriate filter and or cartridge combination for your specific workplace contaminants. The useful service life of filter/cartridge will depend upon the following: the types of contaminant and their concentration, plus environmental conditions such as humidity and temperature.
2. Use the 3M™ Spark Arrest Cover GVP-146 to help reduce exposure of the 3M™ Motor Blower (PAPR Unit) GVP-100 and 3M™ GVP Cartridges or Filters to sparks and other hot materials, typically resulting from grinding/or welding operations. **Note:** Not for use with the 3M™ Vinyl Belt GVP-117.
3. Refer to Section, “Adding the Respirator to the PAPR” for complete set-up procedure.
4. Complete the airflow performance check as described in Section, “Set Up Procedures and Performance Check”.
5. Perform necessary adjustments on respiratory headgear as described in Section, “Adding the Respirator to the PAPR”.
6. Don the respiratory headgear as described in Section, “Adding the Respirator to the PAPR” and attach breathing tube to belt-mounted PAPR and activate the PAPR by pushing the ON/OFF button on the battery pack.
7. Observe all WARNINGS contained in these *User Instructions* when wearing this product. **Failure to do so may result in sickness or death.** Do not use for respiratory protection when atmospheric concentrations of contaminants are unknown or immediately dangerous to life or health, or in atmospheres containing less than 19.5% oxygen.

INSPECTION, CLEANING AND STORAGE

WARNING

Never alter or modify this respirator. Repair or replace parts only with the 3M components approved for this assembly. Failure to do so may adversely affect product performance and **result in sickness or death.**

Inspection

If the 3M™ Belt-Mounted Powered Air Purifying Respirator has been dropped, or shows signs of damage due to impact or rough treatment, the unit should be removed from service and inspected. A general inspection should also be done before cleaning and prior to each use. The visual inspection should include the following:

1. Examine the outside of the PAPR case for cracks. Replace with GVP-100 if needed.
2. Inspect the gaskets for cracks or excessive wear. If needed replace with inlet gasket or outlet gasket (GVP-101 contains both gaskets).
3. Examine the outside of the battery pack for cracks. Replace with GVP-111 if needed.
4. Inspect the breathing tube for punctures, cracks or general wear. Replace with the appropriate breathing tube to match the respiratory covering.
5. Prior to each use the flow rate of the unit should be checked as outlined in Section, “Adding the Respirator to the PAPR.”

Cleaning

WARNING

Do not clean respirator with solvents. Cleaning with solvents may degrade some respirator components and reduce respirator effectiveness. Inspect all respirator components before each use to ensure proper operating conditions. **Failure to do so may result in sickness or death.**

Never attempt to clean filters by knocking or blowing out accumulated material. This may result in damage to the filter membrane allowing hazardous particles to enter the breathing zone, **resulting in sickness or death.**

You should not use solvents to clean the motor blower unit or battery case. Liquid solvents may chemically weaken the plastics. The following procedure is suggested for cleaning:

1. Properly dispose of the used filter/cartridge. Do not attempt to clean the filter. Dispose of the filter/cartridge according to applicable regulations.
2. Wipe the battery pack with mild cleaning solution. Do not immerse the battery pack.
3. Screw the blower plug and filter plug (GVP-115 consists of both plugs) into the motor blower unit. With the plugs in place the unit can be rinsed with a mild cleaning solution or it can be placed in an equipment washer. Do not expose to cleaning or drying temperatures greater than 120° F (49° C).

Storage

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

TROUBLESHOOTING

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

Problem	Possible Causes	Corrective Action
You smell or taste contaminants or an irritation occurs.	Misuse, improper assembly or malfunction of equipment.	Leave work area immediately and contact your supervisor. Do not use the PAPR until the cause is identified and corrected.
If dizziness occurs.	Gases or vapors broke through the chemical cartridge. The gas and vapor cartridge being used is incorrect for your workplace contaminants. Airflow too low. Inlet and outlet gaskets are in poor condition.	Leave work area immediately. Change gas and vapor cartridge. Refer to respirator decision logic such as ANSI Z88.2-1992 or 3M respirator selection guide or consult an industrial hygienist. Refer to Section "Set-Up Procedures and Performance Check". Replace gaskets.
Battery recharge light remains "on".	The charger has malfunctioned. The battery has a dead cell(s).	Replace charger and charge battery. (GVP-112) Replace battery pack. (GVP-111)
Blower does not run when switch is depressed.	Battery is discharged. Power cord disconnected. Faulty power switch. Faulty power cord. Faulty motor.	Leave work area immediately. Recharge 14-16 hours using 3M charger. (GVP-112) Secure the power cord to the motor blower and battery. Replace battery pack. (GVP-111) Replace power cord. (GVP-110) Replace motor blower. (GVP-100)
PAPR fails airflow test.	Clogged filter. Battery needs charging. Inlet and/or outlet gaskets are worn/damaged or missing. Motor blower malfunction. Breathing tube restricted.	Replace filter. Charge battery. Inspect and replace if necessary. (GVP-101) Replace motor blower unit. (GVP-100) Remove restriction

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, at 3M's option, 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.

EXCLUSIONS TO WARRANTY: THIS WARRANTY IS EXCLUSIVE AND IS IN LIEU OF ANY IMPLIED WARRANTY OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE OR OTHER WARRANTY OF QUALITY, EXCEPT OF TITLE AND AGAINST PATENT INFRINGEMENT.

LIMITATION OF LIABILITY: Except as provided above, 3M shall not be liable or responsible for any loss or damage, whether direct, indirect, incidental, special or consequential, arising out of sale, use or misuse of 3M OH&ESD products, or the user's inability to use such products. THE REMEDIES SET FORTH HEREIN ARE EXCLUSIVE.

FOR MORE INFORMATION

In United States, contact:

Internet: www.3M.com/occsafety

Technical Assistance: 1-800-243-4630

For other 3M products:

1-800-3M-HELPS or 1-651-737-6501



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CNPJ 45.985.371/0001-08

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38-9018-3951-4

Printed in U.S.A.
Imprimé aux É.-U.
Impreso en E.U.A.
Impresso nos EUA.