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3M Powerflow™ Face-Mounted Powered Air Purifying Respirator

User Instructions for 3M™ Powerflow™ PAPR

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

Respirateur d'épuration d'air propulsé pour masque Powerflow™

Directives d'utilisation pour les respirateurs d'épuration d'air propulsé Powerflow™ 3M™

Important : Avant de se servir de produit, l'utilisateur doit lire et comprendre les présentes *directives d'utilisation*. Conserver ces directives à titre de référence.

Respirador Purificador de Aire Forzado de montaje facial modelo Powerflow™

Instrucciones de uso para PAPR Powerflow™ 3M™

Importante: Antes de utilizar el respirador, el usuario debe leer y entender estas *Instrucciones de uso*. Guarde estas *Instrucciones de uso* para referencia futura.

Respirador purificador de ar motorizado Powerflow™ com peça facial

Instruções de Uso para PAPR Powerflow™ da 3M™

Importante: Antes do uso, o usuário deve ler e entender estas *Instruções de Uso*. Guarde estas *Instruções de Uso* para referência.

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SAVE THESE *USER INSTRUCTIONS* AND KEEP THEM WITH THE PRODUCT.

GENERAL SAFETY INFORMATION



▲ WARNING

This product helps protect against certain airborne particles. **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.

Intended Use

The 3M™ Powerflow™ System consists of a tight fitting, full facepiece connected directly to a blower/filtration unit. This powered air purifying respirator (PAPR) system, equipped with the appropriate filter, is intended to help provide respiratory protection against certain particles.

▲ WARNING

The Powerflow respirator is not approved for use with gas and vapor cartridges and is intended to help provide respiratory protection from certain airborne particles only.

This product contains no components made from natural rubber latex.
List of Warnings and Cautions within these *User Instructions*

▲ WARNING

This product helps protect against certain airborne particles. **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.

The Powerflow respirator is not approved for use with gas and vapor cartridges and is intended to help provide respiratory protection from certain airborne particles only.

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.**

The connection between the motor blower assembly and the facepiece must be checked every time the unit is assembled or swiveled. Perform this check outside the contaminated environment. Entering the contaminated environment while the connection between the motor blower assembly and the facepiece is loose **may adversely affect respirator performance and result in serious bodily injury or death.**

The Powerflow systems are not NIOSH approved for use with a nose cup. If converting from another 6000 full facepiece system, the 6894 nose cup assembly must be removed. **Failure to do so will adversely affect respirator performance and may result in sickness or death.**

The 3M™ Battery Pack BP-17IS can be used in environments that require intrinsically safe equipment **ONLY** when the clothing clip and screw are in place. If the clothing clip and screw are not in place, **DO NOT USE** in environments that require intrinsically safe equipment. **Misuse may result in serious bodily injury or death.**

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

- Atmospheres contain hazardous vapors or gasses
- Atmospheres are oxygen deficient
- Contaminant concentrations are unknown
- Contaminant concentrations are Immediately Dangerous to Life or Health (IDLH)
- Contaminant concentrations exceed 1000 times the applicable exposure limit (the assigned protection factor for this respirator system) or the APF mandated by specific government standards, whichever is lower

▲ WARNING

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.**

- 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 splatter may damage the filter, allowing unfiltered air into the breathing zone, **which may result in sickness or death**, and may cause the filter or blower assembly to ignite, **resulting in serious injury, sickness or death.**

Failure to conduct an inspection and complete all necessary repairs before use **may adversely affect respirator performance and result in sickness or death.**

Over tightening filter may result in distortion or displacement of the seal and may allow contaminated air to enter the respirator headpiece, **resulting 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.**

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.**

Do not use with beards or other facial hair or other conditions that prevent a good seal between the face and the sealing surface of the respirator. **Failure to do so may 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.**

Failure to follow the filter installation procedures for the 3M™ Powerflow™ System may allow contaminants to enter the system, and **may result in sickness or death.**

USE INSTRUCTIONS AND LIMITATIONS

Important

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

General Description

The 3M™ Powerflow™ System is a NIOSH-approved powered air purifying respirator (PAPR). The complete system includes a tight fitting full facepiece, facepiece-mounted blower/filtration unit, rechargeable battery, battery charger and high-efficiency particulate filter.

The NiCd battery pack provides up to 8 hours of operation. The facepiece-mounted motor-driven fan contained in an integral filter carrier draws ambient air through the filter/cartridge. The rechargeable NiCd battery pack with top switch is fitted with a clip for belt mounting.

Use For

Respiratory protection against certain airborne particulate contaminants including dusts, fumes, mists, radionuclides and asbestos.

Do Not Use For

- Protection from toxic gases or vapors
- Oxygen deficient atmospheres
- Contaminant concentrations that are unknown or immediately dangerous to life or health (IDLH)
- Contaminant concentrations that exceed 1000 times the applicable exposure limit (the assigned protection factor (APF) recommended for this respirator system), or the APF mandated by specific government standards, whichever is lower.

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

Respirator Selection and Training

Powerflow respirators must be used in accordance with applicable health and safety standards, respirator selection tables contained in such publications as ANSI standard Z88.2-1992, in Canada CSA 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 Occupational Safety and Health Administration (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.

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.

Before using 3M's Powerflow respirator, 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 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.



3M
St. Paul, Minnesota, USA
1-800-243-4630
Powerflow™ Systems



NIOSH Approval Labels

THESE SYSTEMS ARE APPROVED ONLY IN THE FOLLOWING CONFIGURATIONS:

| TC- PROTECTION ¹ | RESPIRATOR COMPONENTS | | | | | | | | | | CAUTIONS AND LIMITATIONS ² | |
|--------------------------------|-----------------------|------------------|-------------|--------|--------------------------|------------------------|---------|-------------------|-----------------|-------------|---------------------------------------|--------------|
| | ALTERNATE FACEPIECE | ALTERNATE FILTER | CENTER PORT | BLOWER | ALTERNATE BLOWER ADAPTER | ALTERNATE POWER SOURCE | ADAPTER | AIRFLOW INDICATOR | ALTERNATE BELTS | ACCESSORIES | | |
| 21C-0853 HE | X | X | X | X | X | X | X | X | X | X | X | 521-01-43 |
| 21C-0756 HE | X | X | X | X | X | X | X | X | X | X | X | 520-01-61 |
| 21C-0787 HE | X | X | X | X | X | X | X | X | X | X | X | 520-03-72 |
| | X | X | X | X | X | X | X | X | X | X | X | 520-03-73 |
| | X | X | X | X | X | X | X | X | X | X | X | 7991 |
| | X | X | X | X | X | X | X | X | X | X | X | 7990 |
| | X | X | X | X | X | X | X | X | X | X | X | 7854 |
| | X | X | X | X | X | X | X | X | X | X | X | 7925 |
| | X | X | X | X | X | X | X | X | X | X | X | 7915 |
| | X | X | X | X | X | X | X | X | X | X | X | 6886 |
| | X | X | X | X | X | X | X | X | X | X | X | 6885 |
| | X | X | X | X | X | X | X | X | X | X | X | 6880 |
| | X | X | X | X | X | X | X | X | X | X | X | 6878 |
| | X | X | X | X | X | X | X | X | X | X | X | 7883 |
| | X | X | X | X | X | X | X | X | X | X | X | 7880 |
| | X | X | X | X | X | X | X | X | X | X | X | GP-117 |
| | X | X | X | X | X | X | X | X | X | X | X | GP-127 |
| | X | X | X | X | X | X | X | X | X | X | X | 520-01-21 |
| | X | X | X | X | X | X | X | X | X | X | X | 701 |
| | X | X | X | X | X | X | X | X | X | X | X | BP-17S |
| | X | X | X | X | X | X | X | X | X | X | X | 520-02-17 |
| | X | X | X | X | X | X | X | X | X | X | X | 520-01-17R01 |
| | X | X | X | X | X | X | X | X | X | X | X | 024-00-02 |
| | X | X | X | X | X | X | X | X | X | X | X | 6884 |
| | X | X | X | X | X | X | X | X | X | X | X | 7800LS |
| | X | X | X | X | X | X | X | X | X | X | X | 7800MS |
| | X | X | X | X | X | X | X | X | X | X | X | 7800MSH |
| | X | X | X | X | X | X | X | X | X | X | X | 7800L |
| | X | X | X | X | X | X | X | X | X | X | X | 7800M |
| | X | X | X | X | X | X | X | X | X | X | X | 7800SM |
| | X | X | X | X | X | X | X | X | X | X | X | 6900 |
| | X | X | X | X | X | X | X | X | X | X | X | 6800 |
| | X | X | X | X | X | X | X | X | X | X | X | 6700 |
| | X | X | X | X | X | X | X | X | X | X | X | 055-00-01 |

1. PROTECTION
HE - High Efficiency Particulate Air Filter for Powered Air Purifying Respirators

2. CAUTIONS AND LIMITATIONS

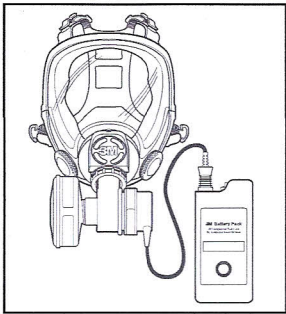
- A - Not for use in atmospheres containing less than 19.5 percent oxygen.
B - Do not use in atmospheres containing high concentrations of toxic gases or vapors.
C - Do not exceed maximum use concentrations (MUC) for any chemical.
D - Do not use powered air-purifying respirators if airflow is less than four cm (115 fpm) for tight-fitting facepieces or six cm (170 fpm) for hoods and/or helmets.
E - Do not use powered air-purifying respirators in atmospheres containing flammable or explosive concentrations of gases or vapors.
F - Do not use powered air-purifying respirators in atmospheres containing flammable or explosive concentrations of gases or vapors.
G - Do not use powered air-purifying respirators in atmospheres containing flammable or explosive concentrations of gases or vapors.
H - Do not use powered air-purifying respirators in atmospheres containing flammable or explosive concentrations of gases or vapors.
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 - All approved respirators shall be selected, fitted, used and maintained in accordance with MSHA, OSHA, and other applicable regulations.
L - Never substitute, modify, add, or omit parts. Use only exact replacement parts in the configuration specified by the manufacturer.
M - Refer to User's Instructions, and/or maintenance manual for information on use and maintenance of these respirators.
N - NIOSH does not evaluate respirators as surgical masks.

Rev. E:09-12-05

English

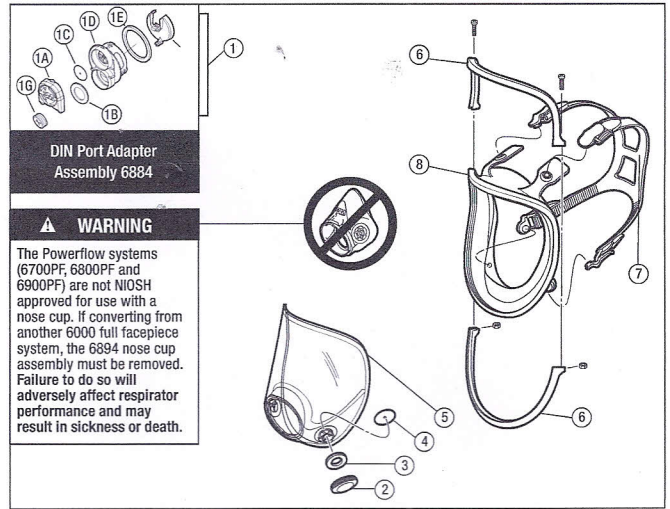
The components of a NIOSH approved 3M™ Powerflow™ Powered Air Purifying Respirator (PAPR) include:

- Full facepiece (6700DIN, 6800DIN or 6900DIN)
- Facepiece-mounted PAPR blower/filtration assembly (024-00-02R01)
- Battery pack, intrinsically safe (BP-17IS)
- Airflow indicator (520-01-21)
- High-efficiency filter (450-01-01)
- Battery charger, standard (521-01-43R01)
- Smart battery charger, single, five or ten unit (520-03-73, 520-03-72 or 520-01-61) - sold separately



3M™ 6000 Series Full Facepiece Parts and Accessories
Full Facepiece with DIN Port Adapter Assembly (6884)

| Item Number | Part Number | Description |
|-------------|--------------|--|
| 6700DIN | Small | |
| 6800DIN | Medium | |
| 6900DIN | Large | |
| 1 | 6884 | DIN Port Adapter Assembly |
| 1A | 6882 | DIN Cover |
| 1B | 6876 | Breathing Tube Gasket |
| 1C | 6889 | Exhalation Valve |
| 1D | 6883 | DIN Port Base |
| 1E | 6896 | Center Adapter Gasket |
| 1F | 6881 | DIN Air Director |
| 1G | 7890 | Full Face Plug |
| 2 | 6880 | Bayonet Cap |
| 3 | 6895 | Inhalation Port Gasket |
| 4 | 6893 | Inhalation Valve |
| 5 | 6898 | Lens Assembly |
| 6 | 6899 | Frame Assembly w/Screws |
| 7 | 6897 | Head Harness Assembly |
| 8 | N/A | Face seal (not available) |
| - | 024-00-02R01 | Blower/Filtration Unit |
| - | 061-35-04R01 | Filter Gasket |
| - | 520-01-21 | Airflow Indicator (flow meter) |
| - | BP-17IS | Battery Pack, NiCd, Intrinsically Safe |
| - | 450-01-01 | High Efficiency Filter |



Accessories

Not Pictured

| | |
|--------------|--|
| 504 | Respirator Cleaning Wipes |
| 601 | Quantitative Fit Test Adapter |
| 6878 | Spectacle Kit |
| 6885 | Lens Cover (100 pack) |
| 6886 | Tinted Lens Cover (25 pack) |
| 7883 | Neck Strap Assembly |
| 7915-5 | Shroud, Tychem® QC |
| GVP-117 | Waist Belt, Urethane-Coated |
| GVP-127 | Waist Belt, Web |
| 520-01-81 | Carrying Bag |
| 520-01-82 | Clothing Clip and Screw |
| 529-01-56R01 | Battery Cover, Water Repellent |
| 529-02-39R10 | Protective Overlay |
| 520-03-73 | Smart Battery Charger, single unit |
| 520-03-72 | Smart Battery Charger, 5 unit |
| 520-01-61 | Smart Battery Charger, 10 unit |
| 520-01-61SGL | Smart Battery Charger, single unit (Canada only) |
| 520-01-61FIV | Smart Battery Charger, 5 unit (Canada only) |

ASSEMBLY

Connecting the Motor Blower Assembly to the Facepiece

Hand-tighten the motor blower assembly to the facepiece. The motor blower assembly may be swiveled to a position of choice and comfort. **Do not over tighten.** Grasp the outside of the facepiece, just below the visor. Rock the motor blower assembly firmly to determine if the connection is secure. If the connection is loose or comes apart, obtain a new motor blower assembly and/or a new facepiece.

Note: When swiveling the motor blower assembly, it may accidentally be loosened from the facepiece. Check to make sure the blower/filtration unit is properly and securely fastened to the facepiece each time the unit is swiveled.

▲ WARNING

The connection between the motor blower assembly and the facepiece must be checked every time the unit is assembled or swiveled. Perform this check outside the contaminated environment. Entering the contaminated environment while the connection between the motor blower assembly and the facepiece is loose **may adversely affect respirator performance and result in serious bodily injury or death.**

▲ WARNING

The Powerflow systems are not NIOSH approved for use with a nose cup. If converting from another 6000 full facepiece system, the 6894 nose cup assembly must be removed. **Failure to do so will adversely affect respirator performance and may result in sickness or death.**

Connecting the Filter to the Motor Blower Assembly

Remove the packaging, screw cap, and plastic plug from the filter, retaining the cap and plug for use during decontamination, storage, and disposal. Check that the gasket has been installed in the filter inlet on the motor blower assembly. Screw the filter into the filter inlet on the motor blower assembly and hand-tighten to assure a good seal with the gasket.

Battery Charging

▲ WARNING

The 3M™ Battery Pack BP-171S can be used in environments that require intrinsically safe equipment **ONLY** when the clothing clip and screw are in place. If the clothing clip and screw are not in place, **DO NOT USE** in environments that require intrinsically safe equipment. **Misuse may result in serious bodily injury or death.**

Use of the NiCd Battery:

- 3M batteries provide up to 500 charge/discharge cycles; however, the life of 3M batteries will be significantly reduced when they are exposed to high heat over an extended period of time.
- Infrequently used battery packs should be fully charged, initially, then recharged periodically to maintain a full charge.
- Allowing a battery to self-discharge during extended storage will not harm the battery pack. Batteries subjected to prolonged storage (longer than 6 months) may lose their capacity to hold a full charge.
- Battery capacity can be checked by running the PAPR motor/blower unit for eight hours and checking hourly that airflow is maintained at six cfm or greater. Several charge/run-down cycles may restore battery capacity.
- Do not allow water to enter battery housing as this will damage the battery pack. **Never** submerge battery in water.
- To properly dispose of the battery pack, follow local solid waste disposal regulations or call the RBRC Battery Recycling Information Help line at 18008BATTERY (1800-822-8837).



Charging the Battery with Standard Charger:

- To use the 521-01-43 standard battery charger, plug the charger into a regulated 120v-60Hz outlet and then insert charging lead into the battery pack.
- The LED light will turn on, indicating that the battery is connected.
- After approximately 12 to 16 hours, the battery should be removed from the charger. **Note:** Since the standard charger does not switch to trickle rate mode, it is important to avoid leaving the battery connected to the charger longer than necessary.

Charging Battery with Smart Charger:

- A new or completely exhausted battery pack should be charged for 16 to 24 hours.
- To use the smart charger, place the charging station horizontally on a flat surface and plug the station AC power cord into a regulated 120v-60Hz outlet.
- The green LED light will turn on.
- Insert the charging lead into the battery pack.
- The LED will turn off, indicating that the battery pack attached is being charged in a high rate mode.
- After approximately eight hours (depending on the amount of charging required) the LED will turn back on, indicating that the charger has switched to a trickle rate mode, preventing damage to the battery from overcharge. For Canadian chargers, when in trickle mode, the LED light will cycle on and off every 3-5 seconds.
- To maximize battery life, these guidelines should be followed:
 - Charge 3M battery packs before they are completely discharged. Damage may occur if the battery pack is completely discharged (“deep discharged”).
 - 3M battery packs may be charged any time during the discharge cycle. Voltage depression (AKA, memory) is not a significant factor for 3M PAPR battery packs. Whether it has been used 30 minutes or 8 hours, the battery pack may be charged.
 - Always charge batteries at a temperature between 50° F and 80° F (10° C and 27° C). At higher temperatures, the battery pack may not accept a full charge. If a battery pack feels hot, let it cool for 1/2 hour before charging.
 - Batteries may be left on trickle rate mode to maintain optimum capacity for up to 30 days. Without periodic charging, a NiCd battery in storage loses approximately 1% of its charge each day.
 - Do not charge multiple battery packs in an enclosed cabinet without ventilation.

REPLACEMENT PART INSTRUCTIONS

3M™ Facepiece Assemblies 6700DIN/6800DIN/6900DIN

The facepiece consists of the head harness assembly, center adapter assembly, lens assembly, faceseal (small, medium or large), and frame assembly (top, bottom, nuts and screws). To disassemble lens assembly from faceseal, remove the two Phillips screws from top frame. Then, pull the frame top and frame bottom away from the faceseal. The frame top, frame bottom, faceseal and the lens assembly have vertical line markings that indicate their positions relative to one another. Make certain these markings are aligned for reassembly.

3M™ DIN Port Adapter Assembly 6884

The DIN port adapter assembly consists of a 3M™ DIN Port Base 6883, 3M™ DIN Cover 6882, 3M™ DIN Air Director 6881, 3M™ Exhalation Valve 6889, 3M™ Breathing Tube Gasket 6876 and 3M™ Center Adapter Gasket 6896. It is secured to the center of the lens with a bayonet-style twist lock connection, which compresses the center adapter gasket 6896. The 3M DIN port assembly 6884 is locked in position by the 3M DIN air director 6881.

To remove the center adapter from the facepiece:

1. Squeeze the locking tab at the back of the air director 6881 and pull back to disengage from the DIN port base 6883. (Fig. 1)
2. Grasp center adapter at cover and twist counter-clockwise 1/4 turn to disengage bayonet from facepiece lens.
3. Withdraw center adapter from lens center port.

To install the center adapter into the facepiece:

1. Align tabs on center adapter base with notches in center port of facepiece lens.
2. Slide adapter into lens port. (Fig. 2)
3. Grasp center adapter at cover and twist clockwise 1/4 turn to stop. Be certain center adapter gasket is properly in place and sealed, and that the adapter assembly is fully engaged.
4. Align the lug at the bottom of the air director 6881 with the slot at the bottom of the DIN port base 6883. (Fig. 1) Slide forward and press the center knob until the locking tab clicks into place.

3M™ Center Adapter Gasket Replacement 6896

The 3M center adapter gasket 6896 is designed to seal the interface between the center adapter and the lens of the 6000 Series Full Facepiece.

1. DIN Port (6884) and Pressure Demand (6874) adapter assemblies only: Squeeze the locking tab at the back of the 6881 Air Director and pull back to disengage from the 6883 DIN port base. (Fig. 1)
2. Grasp center adapter at cover and twist counter-clockwise 1/4 turn to disengage from facepiece lens. Withdraw center adapter from lens center port.
3. Remove old 6896 gasket from center adapter and replace with new 6896 gasket.
4. Re-install center adapter into facepiece lens. (Fig. 2)
5. Align the lug at the bottom of the 6881 air director with the slot at the bottom of the 6883 DIN port base. Slide forward and press the center knob until the locking tab clicks into place.

3M™ Exhalation Valve Replacement 6889

1. Remove center adapter cover (valve cover) by pulling out from bottom latch.
2. Grasp valve and pull valve stem out from valve seat.
3. Inspect valve seat making certain it is clean and in good condition.
4. Place new 6889 valve over the exhalation port and push or press valve stem into center hole. (Fig. 3) Be certain the valve is fully seated and spins freely in mount.
5. Replace adapter cover (valve cover) by engaging top and bottom snaps (latches).

Note: Conduct a negative pressure user seal check to ensure exhalation valve is functioning properly. See "User Seal Check" section.

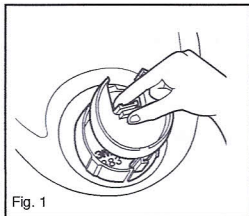


Fig. 1

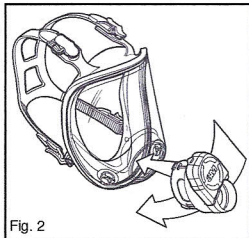


Fig. 2

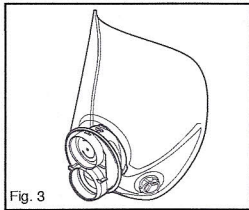


Fig. 3

3M™ Inhalation Port Gasket Replacement 6895

The 6895 gasket is designed to seal the interface between the bayonet attachment inhalation ports on the facepiece and the 6880 bayonet caps. The gaskets must be replaced whenever damaged or seal integrity is questionable.

1. Remove gaskets from facepiece inhalation port bayonet fittings.
2. Install new gaskets onto facepiece inhalation port bayonet fittings. Be certain gaskets are in proper position under all three lugs of each bayonet port. (Fig. 4)

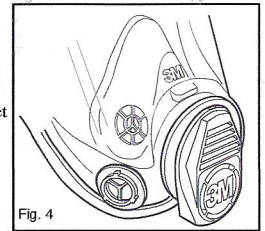


Fig. 4

3M™ Head Harness Replacement 6897

Read and follow Head Harness Assembly 6897 Replacement Instructions included with replacement Head Harness for instructions on removing and replacing the Head Harness.

3M™ Lens Assembly 6898

The lens assembly 6898 consists of a hard coated polycarbonate lens with installed bayonet attachment inhalation port fittings, inhalation valves, and inhalation port filter/cartridge gaskets. The 6898 lens is replaceable by following these steps:

1. Remove center adapter assembly by turning counter-clockwise 1/4 turn and withdrawing from lens center port.
2. Remove the (2) Phillips screws from the lens/facepiece frame. Pull the frame top and frame bottom away from facepiece.
3. Remove facepiece from lens.
4. Place new lens and facepiece together aligning marks at top and bottom. Position top and bottom frame, again aligning marks top and bottom. Install and securely tighten screws. Make certain alignment marks are properly aligned top and bottom with all components.
5. Install center adapter assembly.

3M™ Frame Kit 6899

The frame kit 6899 includes a frame top, frame bottom, (2) Phillips head screws and (2) hex head nuts. The frame kit secures and seals the 3M 6000 series full facepiece facepiece to the 3M 6898 lens assembly.

1. After assembling the facepiece onto the lens, matching top and bottom alignment marks, position top frame, over lens and facepiece, aligning center vertical marks, then press in place.
2. Position bottom frame, aligning center vertical mark, and press in place. (Fig. 5)
3. Insert and tighten Phillips head screws. Make certain parts are properly aligned and sealed together.

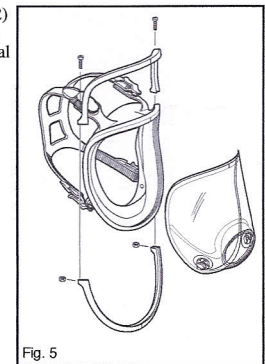


Fig. 5

OPERATION

▲ WARNING

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

- Atmospheres contain hazardous vapors or gasses
- Atmospheres are oxygen deficient
- Contaminant concentrations are unknown
- Contaminant concentrations are Immediately Dangerous to Life or Health (IDLH)
- Contaminant concentrations exceed 1000 times the applicable exposure limit (the assigned protection factor for this respirator system) or the APF mandated by specific government standards, whichever is lower

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.

- 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, which may result in sickness or death, and may cause the filter or blower assembly to ignite, resulting in serious injury, sickness or death.

After successfully completing the fit testing, inspection, user performance check, donning and user seal check procedures, enter the contaminated area, breathing normally. Keep the PAPR assembly away from equipment, vehicles and other physical and chemical hazards.

When exiting the contaminated area, remove the respirator in a clean area. Clean your hands of any contaminants before reaching inside the facepiece for any reason. Refer to the "Cleaning and Storage" section.

Fit Testing

Note: Fit testing is a U.S. Occupational Safety and Health Administration (OSHA) and Canadian CSA requirement. Therefore, either quantitative or qualitative fit testing must be conducted prior to the respirator being issued.

Quantitative Fit Testing (QNFT) can be conducted using a 3M™ Fit Test Adapter 601 and 42 CFR 84 P100 filters such as the 3M™ Particulate Filters 2091 or 7093.

Qualitative Fit Testing (QLFT) with the 3M™ Qualitative Fit Test Apparatus FT-10 or FT-30 can be conducted using any of the NIOSH approved 42 CFR 84 particulate filters. Use of Qualitative Fit Testing may reduce the respirator's Assigned Protection Factor (APF). Reference U.S. OSHA 29 CFR 1910.134.

Note: For further information concerning fit testing contact 3M OH&ESD Technical Service at 1-800-243-4630 or a 3M location in your region. In Canada, call Technical Service at 1-800-267-4414.

Inspection

▲ WARNING

Failure to conduct an inspection and complete all necessary repairs before use may adversely affect respirator performance and result in sickness or death.

The 3M™ Battery Pack BP-17IS can be used in environments that require intrinsically safe equipment ONLY when the clothing clip and screw are in place. If the clothing clip and screw are not in place, DO NOT USE in environments that require intrinsically safe equipment. Misuse may result in serious bodily injury or death.

An inspection must be performed and all necessary repairs made prior to each use as follows:

1. Head harness straps are not torn and the visor is not cracked.
2. Inhalation valves are not worn, torn, bent, dry, or sticky, and there are no holes in the facepiece fabric.
3. Check that the two bayonet parts are closed using 6880 bayonet caps and 6895 Inhalation Port Gasket.
4. Battery pack is fully charged.
5. Filter is a high-efficiency filter with 3M part number 450-01-01.
6. High-efficiency filter is appropriate for the environment of its intended use.

▲ WARNING

Over tightening filter may result in distortion or displacement of the seal and may allow contaminated air to enter the respirator headpiece, resulting in sickness or death.

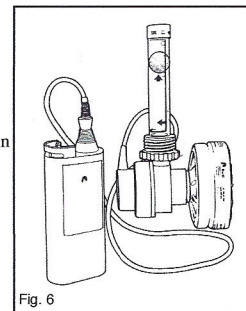
User Performance Check

▲ 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.

A user performance check must be performed prior to each use. After completing an inspection, check that air flows properly through the system as follows:

1. Connect the filter to the blower/filtration unit.
2. Insert the base of the airflow indicator into the outlet side of the blower/filtration unit. (Fig. 6) Turn the battery pack switch to the ON position.
3. Hold the blower/filtration unit so the airflow indicator is in a vertical position.
4. Make sure the center of the airflow indicator float is at or above the mark on the airflow indicator specified for the 3M™ Powerflow™ PAPR. If the float fails to reach this mark, substitute a freshly charged battery pack and/or install a new filter. Be sure to replace the plug and screw cap on the old filter and dispose of it in accordance with federal, state and local laws and regulations



▲ WARNING

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.

Donning

1. Verify the motor blower assembly and filter is properly attached to the facepiece. Refer to the Assembly Instructions.
2. Clip the battery to the waist belt. Place the belt with battery around the waist and secure the buckle assembly. Adjust the belt as needed for a comfortable and secure fit.
3. Connect PAPR power cord to the battery.
4. Fully loosen all four head straps, then place the harness at back of head and position facepiece over the face.
5. Pull the ends of the four straps to adjust tightness, starting with the neck straps first, then the forehead straps. Do not over tighten the straps.
6. Perform a positive and/or negative pressure user seal check each time the respirator is donned.
7. Turn the system on.

If skin rash or irritation results following use of this facepiece, discontinue use and consult a safety professional and/or a physician.

If this system will be exposed to water, the battery pack must be placed in the water-repellent battery cover (529-01-56R01) before use to avoid corrosion, deterioration, and possible battery failure.

▲ WARNING

Do not use with beards or other facial hair or other conditions that prevent a good seal between the face and the sealing surface of the respirator. **Failure to do so may result in sickness or death.**

User Seal Check

Always check the respirator-to-face seal before each entry into a contaminated area.

Positive Pressure Seal Check

1. Place the palm of your hand over the 6882 DIN cover and filter inlet and exhale gently.
2. If facepiece bulges slightly and no air leaks are detected between your face and the facepiece, a proper fit has been obtained.
3. If facepiece air leakage is detected, reposition respirator on your face and/or readjust tension of the straps to eliminate leakage. Repeat above steps.

If you cannot achieve a proper seal, DO NOT enter the contaminated area. See your supervisor.

Negative Pressure Seal Check

1. Install the Powerflow motor blower assembly and filter and cover the filter inlet with your palm. Inhale gently.
2. If the facepiece collapses slightly, and no air leaks between the face and facepiece are detected, a proper fit has been obtained.
3. If facepiece air leakage is detected, reposition the respirator on the face and/or readjust the tension of the straps to eliminate leakage. Repeat above steps.

If you cannot achieve a proper seal, DO NOT enter the contaminated area. See your supervisor.

Note: Before assigning any respirator to be worn in a contaminated area, a qualitative or quantitative fit test must be performed per OSHA Standard 1910.134, CSA Standard Z94.4 or the requirements of the authority having jurisdiction in your region.

CLEANING AND STORAGE

▲ 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.**

Cleaning is recommended after each use:

1. Remove the motor blower assembly and filters.
2. The center adapter, lens and facepiece can also be removed if necessary.
3. Clean and sanitize the facepiece (excluding the motor blower assembly, battery pack and filter) by immersing in warm cleaning solution and scrub with a soft brush until clean. Parts may also be cleaned in washer. **Note:** Water temperatures should not exceed 120° F (49° C). Do not use cleaning agents that contain lanolin or other oils.
4. Disinfect facepiece by soaking in a solution of quaternary ammonia disinfectant or sodium hypochloride (1oz [30ML] household bleach in 2 gallons [7.5L] of water), or other disinfectant.
5. Rinse in fresh, warm water and air dry in noncontaminated atmosphere. Drying temperatures must not exceed 120° F (49° C).
6. The cleaned respirator should be stored away from contaminated areas when not in use.
7. Do not allow water or mist to enter the motor blower unit. Clean motor blower unit by wiping down with a damp cloth or sponge.
8. If water inadvertently enters motor blower, connect blower (without filter) to battery and allow blower to run for 30-60 minutes to facilitate drying.

3M™ SP3 FILTER

Use Instructions

The 3M™ Powerflow™ System is approved with the 3M™ High Efficiency Particulate Filter SP3, part number 450-01-01. 3M recommended for certain particles, including radionuclides, radon daughters and asbestos.

Preparation for Use

Powerflow systems require the use of one filter. Inspect the filter for physical damage and discard any filters that are damaged (body, thread and media). Remove the cap and plug. Screw the filter into the Powerflow™ Motor Blower Assembly and hand-tighten.

Duration of Use

The 3M SP3 filter used on the 3M™ Powerflow™ System must be changed when clogged as indicated by a low flow rate during the User Performance Check. (Fig. 6) Check your system frequently using the provided airflow indicator and adhering to the flow requirements of the 3M system. Filter life will vary depending on concentration of particulate contaminants. Used filters should be disposed of in accordance with applicable federal, state and local laws and regulations.

▲ WARNING

Failure to follow the filter installation procedures for the 3M™ Powerflow™ System may allow contaminants to enter the system, and **may result in sickness or death.**

TROUBLESHOOTING

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

| Problem | Possible Cause | Corrective Action |
|-------------------------------|---|---|
| Poor visibility through visor | Visor is scratched or coated with debris | Remove cover and replace Wipe debris off Dispose of facepiece and replace with a new facepiece Consider using visor covers |
| Low airflow | Battery needs charging Filter is loaded PAPR blower malfunction | Switch to fully charged battery Replace filter Switch to a different blower unit |

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:

Website: 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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CONSERVER CES *DIRECTIVES D'UTILISATION* AVEC LE PRODUIT.