

3M
Adflo™
35-5401-01 / 34-5401-02SG / 35-3099-01
35-1099-01

Powered Air Purifying Respirator (PAPR) Assembly

User Instructions for 3M™ Adflo™ PAPR Assembly 35-5401-01, 34-5401-02SG, 35-3099-01, and 35-1099-01.

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

98-0060-0217-8, 4
34-8727-0833-3

WARNING
This product is part of a system that helps protect against certain airborne contaminants. Misuse may result in injury or death.

FOREWARD

Contact Information

Read all instructions and warnings before using. Keep these *User Instructions* for reference.

System Description

The 3M™ Adflo™ PAPR Assembly is designed to be used with certain 3M™ Headgear to form a complete NIOSH approved respiratory system. When used in accordance with its NIOSH approval, 3M™ Adflo™ PAPR Assemblies can help provide respiratory protection against certain particulates, organic vapors and acid gases. Refer to the 3M™ Adflo™ NIOSH Approval Label for specific components of an approved system.

The 3M™ Adflo™ PAPR Assembly consists of a blower unit, high efficiency filter, waist belt, breathing tube and lithium ion battery pack. An optional nuisance odor pad assembly and acid gas/organic vapor cartridge are available. The motor/blower unit draws ambient air through its filter/cartridge and supplies filtered air to the headgear via a breathing tube. The blower motor speed is automatically regulated during operation to compensate for the charge state of the battery and increasing airflow resistance caused by particle filter loading, and higher altitudes. Should the airflow fall below the minimum design flow rate, an audible alarm will sound and the red LED on the on/off switch will light to warn the user to immediately leave the contaminated environment. Similarly, an audible alarm and visual low battery alarm will activate when the battery pack has approximately 15-30 minutes, or approximately 5% of the charge remaining to warn the user to leave the contaminated area. See the Specifications section for additional information on the alarms.

NOTE: Nuisance odor refers to concentrations of organic vapors not exceeding the OSHA-permissible exposure limit (PEL) or applicable government occupational exposure limits, whichever is lower. Consult the Listing of Components, Accessories and Replacement Parts in this *User Instruction* for a listing of 3M™ Adflo™ PAPR part numbers.

WARNING
Properly selected, used, and maintained respirators help protect against certain airborne contaminants by reducing concentrations in the wearer's breathing zone below the Occupational Exposure Limit (OEL). It is essential that users follow all instructions and government regulations on the use of this product, including wearing the complete respirator system during all times of exposure, in order for the product to help protect the wearer. **Misuse of respirators may result in overexposure to contaminants and lead to sickness or death.** 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.

LIST OF WARNINGS WITHIN THESE USER INSTRUCTIONS

- WARNING**
- The 3M™ Adflo™ PAPR Assembly is one component of an approved respiratory protection system. Always read and follow all *User Instructions* supplied with your 3M™ headgear and other system components in order to ensure correct system operation. **Failure to do so may result in injury, sickness, or death.**
 - The 3M™ Adflo™ PAPR System is not intrinsically safe. Do not use in flammable or explosive atmospheres, **doing so may result in serious injury or death.**
 - With certain lithium-ion battery packs, **failure to do so may cause fire or explosion or could adversely affect respirator performance and result in injury, sickness, or death.**
 - Do not charge batteries with unapproved chargers, in enclosed cabinets without ventilation, in hazardous locations, or near sources of high heat.
 - Do not use charge or store batteries outside of the recommended temperature limits.
 - Charge in an area free of combustible material and readily monitored.
 - Charge only with 3M™ Adflo™ PAPR Battery Smart Charger for Lithium Ion Battery 35-0099-08.
 - Do not allow water to enter battery case.
 - Dispose of lithium ion battery packs according to local environmental regulations. Do not crush, disassemble, dispose of in standard waste bins, in a fire or send for incineration. Failure to properly dispose of battery packs may lead to environmental contamination, fire or explosion.
 - Do not repair or modify any parts or accessories other than those manufactured by 3M as described in these *User Instructions* or on the NIOSH approval label for this respirator. **Failure to do so may adversely affect respirator performance and result in injury, sickness, or death.**
 - Always correctly use and maintain the filter assembly. Failure to do so may reduce respirator performance, overexpose you to contaminants, and may result in sickness or death.
 - Inspect filter and filter seal before each use and immediately replace if damaged.
 - Do not press on the filter grill when installing the filter into the filter cover. This may result in damage to the filter membrane allowing hazardous particles to enter the breathing zone.
 - Keep filter seal clean.
 - 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.
 - The filter-loading indicator reflects particle clogging only. It does not provide any information about gas & vapor service life. Attempting to use the filter loading indicator for gases and vapors may result in sickness or death.
 - The nuisance odor pad should only be used for concentrations of organic vapors not exceeding the OSHA permissible exposure limit (PEL) or applicable government occupational exposure limits, whichever is lower. Replace if small or taste is detected. Use of the nuisance pad for concentrations exceeding applicable exposure limits may result in sickness or death.
 - The service life of the optional organic vapor/acid gas cartridge must be pre-determined before use. The organic vapor/acid gas cartridge must be replaced according to an established charge schedule, regulations, or sooner if small, taste, or irritation from contaminants is detected. **Failure to do so may result in sickness or death.**
 - Do not use the 3M™ Adflo™ PAPR system with a heavily loaded spark arrester or without the spark arrester screen properly installed. Exposing a heavily loaded spark arrester, or filter assembly to 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 housing to ignite, resulting in serious injury, sickness or death.**

LIMITATIONS OF USE

Do not use this respirator to enter areas where:

- Atmospheres are oxygen deficient
- Contaminant concentrations are unknown
- Contaminant concentrations are Immediately Dangerous to Life or Health (IDLH)
- Contaminant concentrations exceed the maximum use concentration (MUC) determined using the Assigned Protection Factor (APF) for the specific respirator system or the APF mandated by specific government standards, whichever is lower.

Immediately enter the contaminated area if any of the low battery or low airflow alarms activate. The OVA/G cartridge and nuisance odor pad assembly must always be used with the HE filter and spark arrester. Do not use the OVA/G cartridge or nuisance odor pad assembly alone or in combination with any another. Due to lower air density at higher elevations, the 3M™ Adflo™ PAPR automatic flow control may activate the Filter Service Life Indicator prematurely. 3M makes the following recommendations for use of the 3M™ Adflo™ PAPR HE Particulate Filter by itself or in combination with the 3M™ Adflo™ PAPR Nuisance Odor Pad Assembly or Organic Vapor/Acid Gas Cartridge.

- Below 5000 feet mean sea level (MSL), the 3M™ Adflo™ PAPR can be used with the 3M™ Adflo™ PAPR HE Particulate Filter by itself or in combination with the 3M™ Adflo™ PAPR Nuisance Odor Pad Assembly or Organic Vapor/Acid Gas Cartridge.
- Between 5000 and 10,000 feet MSL, the 3M™ Adflo™ PAPR should only be used with the 3M™ Adflo™ PAPR HE Particulate Filter.

Refer to the *User Instructions* provided with the applicable headgear and the additional cautions and limitations under the NIOSH Cautions and Limitations in this *User Instructions*.

RESPIRATOR PROGRAM MANAGEMENT

Occupational safety and health (OSHA) respirators must be in compliance with applicable health and safety standards. By United States regulation, the employer must establish a written respirator protection program meeting the requirements of the Occupational Safety and Health Administration (OSHA) Respiratory Protection standard 29 CFR 1910.134 and any applicable OSHA subpart. Dry the spark arrester with a clean cloth and ensure the spark arrester is completely dry before reinstalling. If the spark arrester is damaged, replace with a new spark arrester. The HE filter and pre-filter **CANNOT** be cleaned; do not attempt to remove contamination from the HE filter or pre-filter using compressed air or other means.

Major Sections of OSHA 29 CFR 1910.134	
Section	Description
A	Permissible Practice
B	Definitions
C	Respiratory Protection Program
D	Selection of Respirators
E	Medical Evaluation
F	Fit Testing
G	Use of Respirators
H	Maintenance and Care of Respirators
I	Breathing Air Quality and Use
J	Identification of Cartridges, Filters, and Canisters
K	Training and Information
L	Program Evaluation
M	Recordkeeping

NIOSH – APPROVAL, CAUTIONS AND LIMITATIONS

NIOSH Approval
The 3M™ Adflo™ PAPR Assembly is one component of a NIOSH approved respiratory system. Refer to the *User Instructions* and/or the NIOSH approval label provided with the 3M™ Adflo™ PAPR for a listing of components that can be used as a complete system. **Failure to do so may result in injury, sickness, or death.** Consult 3M Technical Service. **NOTE:** The SG-50W breathing tube can only be used with 9100 Air, 9100 FX Air, 9100 MP and M-series headgear. The SG-50W breathing tube must be used when using the 9100 Air or 9100 MP wearing helmets with HE filter-OVA/G cartridge combination and must be used with M-400 headgear when used with any Adflo PAPR configuration.

- NIOSH Cautions and Limitations**
- Not for use in atmospheres containing less than 19.5 percent oxygen.
 - Not for use in atmospheres immediately dangerous to life or health.
 - Do not exceed maximum use concentrations established by regulatory standards.
 - Do not use powered air-purifying respirators if airflow is less than four cfm (115 lpm) for tight fitting facemasks or six cfm (170 lpm) for hood and/or helmets.
 - Follow established cartridge and canister change schedules or observe ESLU to ensure that cartridge and canisters are replaced before breakthrough occurs.
 - Contains electrical parts that may cause an ignition in flammable or explosive atmospheres.
 - Follow the manufacturer's *User's Instructions* for changing cartridges, canisters and/or filters.
 - All approved respirators shall be selected, fitted, used, and maintained in accordance with MSHA, OSHA, and other applicable regulations.
 - Locations, or near sources of high heat, modify, add, or omit parts. Use only exact replacement parts in the configuration as specified by the manufacturer.
 - Refer to *User's Instructions*, and/or maintenance manuals for information on use and maintenance of these respirators.
 - NIOSH does not evaluate respirators for use as surgical masks.

OPERATING INSTRUCTIONS

Unpacking

Inspect the package contents for shipping damage and ensure all components are present. The product should be inspected before use following the procedures in the Inspection section of these *User Instructions*.

Assembly

Battery Pack

WARNING
The 3M™ Adflo™ PAPR System is not intrinsically safe. Do not use in flammable or explosive atmospheres, **doing so may result in serious injury or death.** Always correctly use and maintain the battery packs. **Failure to do so may cause fire or explosion or could adversely affect respirator performance and result in injury, sickness, or death.** Do not charge batteries with unapproved chargers, in enclosed cabinets without ventilation, in hazardous locations, or near sources of high heat.

- Do not use, charge or store batteries outside of the recommended temperature limits.
- Change in an area free of combustible material and readily monitored.
- Charge only with 3M™ Adflo™ PAPR Battery Smart Charger for Lithium Ion Battery 35-0099-08.
- Do not allow water to enter battery case.
- Dispose of lithium ion battery packs according to local environmental regulations. Do not crush, disassemble, dispose of in standard waste bins, in a fire or send for incineration. Failure to properly dispose of battery packs may lead to environmental contamination, fire or explosion.
- Do not repair or modify any parts or accessories other than those manufactured by 3M as described in these *User Instructions* or on the NIOSH approval label for this respirator. **Failure to do so may adversely affect respirator performance and result in injury, sickness, or death.**
- Always correctly use and maintain the filter assembly. Failure to do so may reduce respirator performance, overexpose you to contaminants, and may result in sickness or death.
 - Inspect filter and filter seal before each use and immediately replace if damaged.
 - Do not press on the filter grill when installing the filter into the filter cover. This may result in damage to the filter membrane allowing hazardous particles to enter the breathing zone.
 - Keep filter seal clean.
 - 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.
- The filter-loading indicator reflects particle clogging only. It does not provide any information about gas & vapor service life. Attempting to use the filter loading indicator for gases and vapors may result in sickness or death.
- The nuisance odor pad should only be used for concentrations of organic vapors not exceeding the OSHA permissible exposure limit (PEL) or applicable government occupational exposure limits, whichever is lower. Replace if small or taste is detected. Use of the nuisance pad for concentrations exceeding applicable exposure limits may result in sickness or death.
- The service life of the optional organic vapor/acid gas cartridge must be pre-determined before use. The organic vapor/acid gas cartridge must be replaced according to an established charge schedule, regulations, or sooner if small, taste, or irritation from contaminants is detected. **Failure to do so may result in sickness or death.**
- Do not use the 3M™ Adflo™ PAPR system with a heavily loaded spark arrester or without the spark arrester screen properly installed. Exposing a heavily loaded spark arrester, or filter assembly to 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 housing to ignite, resulting in serious injury, sickness or death.**

New battery packs should be charged upon receipt. The chargers are intended for indoor use where they are protected from moisture. The battery pack can be charged separately or attached to the 3M™ Adflo™ PAPR Assembly. The battery should charge to 80% capacity in approximately 3 hours and to 100% capacity in approximately 6.5 hours, depending upon its residual charge.

- Inspect the battery pack initially and prior to each charge cycle. If any cracks or damage to the case is noted, do not charge the battery pack. Replace the battery pack and properly dispose of it in accordance with local regulations.
- Place charger and battery pack in a cool, well-ventilated location free of airborne contaminants.
- Connect the charger output into the battery's charging socket (Fig. 1).
- Plug the charger into a suitable source of AC power (110-120V). See Specification – Battery Pack/Charger section for more details.

NOTE: 3M recommends disconnecting the battery pack from the charger once the battery is fully charged. A fully charged battery can be left in the trickle-charging mode for a short amount of time (3-4 days). Leaving the battery pack connected to the charger for prolonged periods of time may damage the battery pack cells. To avoid damage to the battery pack cells, do not leave it connected to the charger for prolonged durations. The 3M™ Adflo™ PAPR Motor/Blower has a three-bar battery indicator (Fig. 2) that is operational when the unit is turned on. When all three bars are illuminated, the battery has 80-100% capacity. Two bars indicate 20-80% capacity. One bar indicates 5-20% capacity. At approximately 15-30 minutes of charge remaining (less than 5%), the bottom LED will begin to flash and the audible alarm will sound.

Installation and Removal of the 3M™ Adflo™ PAPR Battery Pack

- To install the battery pack:
- With either end of the motor/blower and ensure they are clean and undamaged.
 - Hook the left side of the battery onto its holder on the bottom of the unit and press the battery into the motor/blower until it catch fully engages with **two audible clicks** (Fig. 3).
 - Tightly tug on the battery pack to verify it is secured to the 3M™ Adflo™ PAPR.
- To remove the battery pack press the battery pack latch on the right of the battery pack. Pull the battery pack down and out.

High Efficiency (HE) Particulate Filter, Pre-filter and Spark Arrester

The high efficiency (HE) filter, pre-filter and spark arrester must always be used. The pre-filter is designed to extend the service life of the HE filter by capturing many of the larger particles. The spark arrester is a metal screen. Inspect the spark arrester each time the filters are changed. If it is dirty, remove it and clean with a solution of clean applicable OSHA substance. Dry the spark arrester with a clean cloth and ensure the spark arrester is completely dry before reinstalling. If the spark arrester is damaged, replace with a new spark arrester. The HE filter and pre-filter **CANNOT** be cleaned; do not attempt to remove contamination from the HE filter or pre-filter using compressed air or other means.

WARNING
Always correctly use and maintain the filter assembly. Failure to do so may reduce respirator performance, overexpose you to contaminants, and may result in sickness or death.

- Inspect filter and filter seal before each use and immediately replace if damaged.
- Do not press on the filter grill when installing the filter into the filter cover. This may result in damage to the filter membrane allowing hazardous particles to enter the breathing zone.
- Keep filter seal clean.
- 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.
- The filter-loading indicator reflects particle clogging only. It does not provide any information about gas & vapor service life. Attempting to use the filter loading indicator for gases and vapors may result in sickness or death.
- The nuisance odor pad should only be used for concentrations of organic vapors not exceeding the OSHA permissible exposure limit (PEL) or applicable government occupational exposure limits, whichever is lower. Replace if small or taste is detected. Use of the nuisance pad for concentrations exceeding applicable exposure limits may result in sickness or death.
- The service life of the optional organic vapor/acid gas cartridge must be pre-determined before use. The organic vapor/acid gas cartridge must be replaced according to an established charge schedule, regulations, or sooner if small, taste, or irritation from contaminants is detected. **Failure to do so may result in sickness or death.**
- Do not use the 3M™ Adflo™ PAPR system with a heavily loaded spark arrester or without the spark arrester screen properly installed. Exposing a heavily loaded spark arrester, or filter assembly to 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 housing to ignite, resulting in serious injury, sickness or death.**

NIOSH – APPROVAL, CAUTIONS AND LIMITATIONS

- Inspect the HE filter to be installed. Make sure:
 - Filter material is intact and dry with no tears or other damage.
 - Filter gasket is present and intact with no particulates, cuts, distortions or indentations. Wipe gasket with clean, dry cloth, if dirty. Dispose and replace filter if damage is noted.
- Remove the filter cover (Fig. 4).
- Place the spark arrester, pre-filter and HE filter into the filter cover, ensuring that the ribs on the HE filter are aligned with the slots on the latch side of the filter cover (Fig. 5). Ensure all are squarely seated in the filter cover. Do not press on the filter grill when installing the filter into the filter cover (Fig. 6).
- To reinstall the filter cover in the 3M™ Adflo™ PAPR, hook the left side of the filter cover into the left side of the 3M™ Adflo™ PAPR. Press down on the right side of the cover until the catch fully engages with an audible click.

Install the 3M™ Adflo™ PAPR Organic Vapor/Acid Gas (OVA/G) Cartridge or Nuisance Odor Pad Assembly

The nuisance odor pad may be replaced by pressing the expired nuisance odor pad out of the nuisance odor pad assembly from the backside, or side with the cartridge or multiple square holes. It is easiest to press the nuisance odor pad out on the vertical edges, nearest to the frame edge, and then work the entire nuisance odor pad free from the assembly. Install a new nuisance odor pad by pressing it into the nuisance odor pad assembly. The nuisance odor pad may only be used to help provide relief from concentrations of organic vapors not exceeding the OSHA permissible exposure limit (PEL) or applicable government occupational exposure limits, whichever is lower. Replace if small or taste occurs.

- NOTE:** The OVA/G cartridge and nuisance odor pad assembly must always be used with the HE filter, pre-filter and spark arrester. Do not use the OVA/G cartridge or nuisance odor pad assembly alone or in combination with any another.
- Remove the filter cover as noted above (Fig. 4).
 - Inspect the HE filter to be installed. Make sure:
 - Filter material is intact and dry with no tears or other damage.
 - Filter gasket is present and intact with no particulates, cuts, distortions or indentations. Wipe gasket with a clean, dry cloth, if dirty. Dispose and replace filter if damage is noted.
 - Inspect the HE filter and spark arrester. Ensure they are intact, clean and squarely fitted into the filter cover.
 - Replace the HE filter and spark arrester. Ensure they are intact, clean and squarely fitted into the filter cover.
 - Place the spark arrester, pre-filter and HE filter into the filter cover, ensuring that the ribs on the HE filter are aligned with the slots on the latch side of the filter cover (Fig. 5). Ensure all are squarely seated in the filter cover. Do not press on the filter grill when installing the filter into the filter cover (Fig. 6).
 - Hook the left side of the OVA/G cartridge or nuisance odor pad assembly into the left side of the PAPR and press the cartridge down until it catch engages with an audible click (Fig. 7).
 - Reinstall the filter cover assembly in the 3M™ Adflo™ PAPR. Hook the left side of the filter cover into the left side of the OVA/G cartridge. Press down on the right side of the cover until the catch fully engages with an audible click (Fig. 8).

Replacement of the Nuisance Odor Pad

The nuisance odor pad may be replaced by pressing the expired nuisance odor pad out of the nuisance odor pad assembly from the backside, or side with the cartridge or multiple square holes. It is easiest to press the nuisance odor pad out on the vertical edges, nearest to the frame edge, and then work the entire nuisance odor pad free from the assembly. Install a new nuisance odor pad by pressing it into the nuisance odor pad assembly. The nuisance odor pad may only be used to help provide relief from concentrations of organic vapors not exceeding the OSHA permissible exposure limit (PEL) or applicable government occupational exposure limits, whichever is lower. Replace if small or taste occurs.

Install the Breathing Tube

Insert approved breathing tube for the headgear to be used. Refer to the 3M™ Adflo™ PAPR NIOSH Approval Label for approved headgear/breathing tube combinations.

NOTE: The SG-50W breathing tube can only be used with 9100 Air, 9100 FX Air, 9100 MP and M-series headgear. The SG-50W breathing tube must be used when using the 9100 Air or 9100 MP wearing helmets with HE filter-OVA/G cartridge combination and must be used with M-400 headgear when used with any Adflo PAPR configuration.

- Inspect the HE filter of the breathing tube (2 small prongs) to confirm the rubber "O" ring is in place. Replace if missing or damaged.
- Insert the 2 prongs on the PAPR end of the breathing tube into the parallel slots in the air outlet of the motor blower and twist 1/4 turn to the right to lock into place.

Connect to 3M™ Headgear

Refer to the separate *User Instructions* provided with the approved headgear for procedures to connect the breathing tube.

Leather Belt Replacement

- Remove the belt from the 3M™ Adflo™ PAPR by unfastening the belt's two hook and loop straps and pulling the 3M™ Adflo™ PAPR away from the unfastened belt.
- Replace the belt:
 - Thread each hook and loop strap through the slot on the back of the unit, and then on through the slot on the leather belt (Fig. 9). The hook and loop straps should be pointing towards the top of the PAPR.
 - Tightly pull the two hook and loop straps prior to fastening them to one another. When attached properly, the 3M™ Adflo™ PAPR will sit tight against the belt and will stay in place.

Backpack

- The BPK-01 backpack may be used in place of the belt (Fig. 9A):
- With either end of the motor/blower and ensure they are clean and undamaged (end with the drag handle), thread the backpack strap through the top retaining slot on the motor/blower and the large retaining sleeve (Fig. 9A, #1) on the backpack.
 - Thread the strap through the lower retaining slot on the motor/blower and the small retaining sleeve (Fig. 9A, #2) on the backpack.
 - Thread the strap through the buckle (Fig. 9A, #3) and tighten down.
 - Don the backpack and adjust the shoulder straps for a comfortable fit.

On and Off

- Turn the 3M™ Adflo™ PAPR Motor/Blower on, press and hold the ON button on the top of the motor/blower for 2 seconds (Fig. 10). The unit will automatically perform a self diagnostic:
 - All three LED (2 green, 1 red) on the power switch and the audible alarm will come on for 1 second. The 2 green LED will indicate the OVA/G cartridge and the red LED will indicate the HE filter.
 - The 3M™ Adflo™ PAPR Battery Pack and HE filter will light up sequentially and then light and remain on showing the current status of each.
- To turn off the motor/blower, press and hold the OFF button on the top of the motor/blower for 2 seconds. The red LED will come on and the audible alarm will sound for 1 second as the motor/blower turns off.

INSPECTION

WARNING
Always correctly use and maintain the filter assembly. Failure to do so may reduce respirator performance, overexpose you to contaminants, and may result in sickness or death.

- Inspect filter and filter seal before each use and immediately replace if damaged.
- Do not press on the filter grill when installing the filter into the filter cover. This may result in damage to the filter membrane allowing hazardous particles to enter the breathing zone.
- Keep filter seal clean.
- 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.
- Do not repair or modify any parts or accessories other than those manufactured by 3M as described in these *User Instructions* or on the NIOSH approval label for this respirator. **Failure to do so may adversely affect respirator performance and result in injury, sickness, or death.**
- The 3M™ Adflo™ PAPR Assembly is one component of an approved respiratory protection system. Always read and follow all *User Instructions* supplied with your 3M™ headgear and other system components in order to ensure correct system operation. **Failure to do so may result in injury, sickness, or death.**

Before each entry into a contaminated area, perform the following pre-use inspection to help ensure proper function of the respirator system. Refer to the specific Assembly subsection of the *User Instructions* for proper assembly procedures.

NOTE: There are no serviceable parts inside the 3M™ Adflo™ PAPR Assembly. The motor/blower unit must not be opened to attempt repairs.

Visual Inspection

- PAPR Assembly: Visually inspect the entire PAPR assembly including the motor/blower, cover, filter/cartridge, breathing tube, battery pack, belt and headgear. Replace any missing or damaged parts only with 3M™ Adflo™ PAPR Replacement Parts before proceeding.
- Battery Pack: Confirm that the battery pack is fully charged and charge is sufficient for duration of the work period.
- Breathing Tube: Examine the entire breathing tube for tears, holes or cracks. Bend the tube to verify that it is flexible. Ensure the tie-ring located on the PAPR end of the breathing tube is present with no gaps or cracks in the ring. Replace breathing tube if any damage is noted or suspected.
- Filter/Cartridge:
 - Inspect the pre-filter and spark arrester. Ensure they are intact, clean and squarely fitted into the filter cover.
 - Inspect the HE filter and spark arrester. Ensure they are intact, clean and squarely fitted into the filter cover. Replace the HE filter and spark arrester if any damage is noted or suspected. Ensure it is in place in the filter cover.
 - Ensure the filter cover is securely latched to the motor/blower.
 - If used, ensure the nuisance odor pad assembly or chemical cartridge is securely attached to the PAPR and filter cover.

Air Flow check
Insert the ball in the 15-0099-05 or 15-0099-21 flow indicator moves freely in its tube. Rinsing with clean water may help free a stuck ball. Allow the ball and ball to dry completely prior to using.

For all 3M™ Adflo™ Breathing Tubes (except L-1225G) follow Steps 2-7 with the 15-0099-05 flow indicator.

For L-1225G approved breathing tube, follow Steps 8-13 with the 15-0099-21 flow indicator adapter.

All 3M™ Adflo™ PAPR Approved Breathing Tubes, Except L-1225G (15-0099-05 Indicator)

- Insert the breathing tube into the air outlet as noted above.
- Turn the 3M™ Adflo™ PAPR on.
- Insert the airflow indicator (15-0099-05) onto the end of the breathing tube (Fig. 11).
- Allow the 3M™ Adflo™ PAPR to run for 2 minutes to stabilize air flow prior to reading air flow indicator.
- With the airflow indicator in a vertical position, ensure that the bottom of the ball rests at or above, the minimum flow mark (Fig. 11). If the airflow indicator ball falls to rest at or above the minimum flow level, refer to the trouble-shooting guide at the end of these *User Instructions*.
- Check the low air flow alarm:
 - With 3M™ Adflo™ PAPR turned on, remove the air flow indicator and tightly cover the end of the breathing tube with the palm of your hand.
 - The motor will automatically speed up to compensate for the low air flow condition.
 - Continue to press your palm tightly against the end of the breathing tube, making a tight seal. After approximately 15-30 seconds, the unit will sound an audible alarm and the center, red LED on the ON/OFF switch will come on (Fig. 10). Continue to Step 14.

L-1225G breathing tube (use flow indicator rubber adapter 15-0099-20 with flow indicator 15-0099-05 or 15-0099-21 assembly)

- Insert the air flow indicator adapter onto the end of the 3M™ Adflo™ PAPR Air Flow Indicator (Fig. 12).
- Turn the 3M™ Adflo™ PAPR on.
- Allow the 3M™ Adflo™ PAPR to run for 2 minutes to stabilize air flow prior to reading air flow indicator.
- Hold the air flow indicator vertically at eye level, ensure that the bottom of the floating ball rests at or above, the minimum flow mark (Fig. 14).
- Check the low air flow alarm:
 - With 3M™ Adflo™ PAPR on, remove the air flow indicator and tightly cover the end of the 3M™ Adflo™ PAPR breathing tube with the palm of your hand.
 - The motor will automatically speed up to compensate for the low air flow condition.
 - Continue to press your palm tightly against the end of the breathing tube, making a tight seal. After approximately 15-30 seconds, the unit will sound an audible alarm and the center, red LED on the ON/OFF switch will come on (Fig. 10). Continue to Step 14.

NOTE: If the floating ball of the air flow indicator fails to rest at or above the minimum flow level, refer to the trouble-shooting guide at the end of these *User Instructions*.

Continued from Step 7 and 13

- Remove your hand from the end of the breathing tube or air outlet port. The audible alarm and red LED should stop, while the motor returns to a slower speed.
- Do not leave it connected to the charger for prolonged durations. Refer to the trouble-shooting guide at the end of these *User Instructions*.
- Check the low air flow alarm:
 - With 3M™ Adflo™ PAPR turned on, remove the air flow indicator and tightly cover the end of the breathing tube with the palm of your hand.
 - The motor will automatically speed up to compensate for the low air flow condition.
 - Continue to press your palm tightly against the end of the breathing tube, making a tight seal. After approximately 15-30 seconds, the unit will sound an audible alarm and the center, red LED on the ON/OFF switch will come on (Fig. 10). Continue to Step 14.

NOTE: If the floating ball of the air flow indicator fails to rest at or above the minimum flow level, refer to the trouble-shooting guide at the end of these *User Instructions*.

ENTERING AND EXITING A CONTAMINATED AREA

Before entering the contaminated area, complete the inspection procedures listed in this *User Instructions*.

- Turn the motor/blower on.
- Check air flow and alarms. **NOTE:** High environmental noise levels or use of hearing protection may interfere with the user hearing the audible alarms. User should check for the visual alarms more frequently in high noise environments.
- Remove the 3M™ Adflo™ PAPR Assembly and headgear. Enter the work area.
- Leave the contaminated area immediately if any of the following conditions occur:
 - Any part of the system becomes damaged.
 - Air flow into the respirator decreases or stops.

- The low air flow or low battery alarms trigger:
 - The air flow alarm activates when air flow falls below 6 CFM (170 lpm) for greater than 15-30 seconds. The 3M™ Adflo™ PAPR will shut down 2 minutes after continuous alarm activation.
 - The battery alarm - during approximately the last 15 to 30 minutes of charge, the bottom bar on the motor/blower battery LED will flash continuously one second ON, one second OFF. The audible alarm will beep four times in two seconds, repeating every 30 seconds. The final 15 to 60 seconds the audible alarm will fast beep every 1/2 second. 3M™ Adflo™ PAPR will shut down 30 seconds after the quick beep starts.
- To turn off the motor/blower, press and hold the OFF button on the top of the motor/blower for 2 seconds. The red LED will come on and the audible alarm will sound for 1 second as the motor/blower turns off.
- Breathing becomes difficult.
- You feel dizzy or your vision is impaired.
- You taste or smell contaminants.
- Your face, eyes, nose or mouth becomes irritated.
- You suspect that the concentration of contaminants may have reached levels at which this respirator may no longer provide adequate protection.
- Do not 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.
- Remove the respirator system.

WARNING
The 3M™ Adflo™ PAPR is not intrinsically safe. Do not use in flammable or explosive atmospheres, doing so may result in serious injury or death.

- Inspect filter and filter seal before each use and immediately replace if damaged.
- Do not press on the filter grill when installing the filter into the filter cover. This may result in damage to the filter membrane allowing hazardous particles to enter the breathing zone.
- Keep filter seal clean.
- 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.
- Do not repair or modify any parts or accessories other than those manufactured by 3M as described in these *User Instructions* or on the NIOSH approval label for this respirator. **Failure to do so may adversely affect respirator performance and result in injury, sickness, or death.**
- The 3M™ Adflo™ PAPR Assembly is one component of an approved respiratory protection system. Always read and follow all *User Instructions* supplied with your 3M™ headgear and other system components in order to ensure correct system operation. **Failure to do so may result in injury, sickness, or death.**

Before each entry into a contaminated area, perform the following pre-use inspection to help ensure proper function of the respirator system. Refer to the specific Assembly subsection of the *User Instructions* for proper assembly procedures.

NOTE: There are no serviceable parts inside the 3M™ Adflo™ PAPR Assembly. The motor/blower unit must not be opened to attempt repairs.

CLEANING AND STORAGE

WARNING
Dispose of lithium ion battery packs according to local environmental regulations. Do not crush, disassemble, dispose of in standard waste bins, in a fire or send for incineration. Failure to properly dispose of battery packs may lead to environmental contamination, fire or explosion.

The 3M™ Adflo™ PAPR Assembly should be cleaned and inspected after each use and prior to storage.

NOTE: To avoid damage, do not use solvents for cleaning. Do not immerse in water or spray directly with water.

Cleaning

Check the battery pack, breathing tube and headgear from the motor/blower. Inspect all parts for damage or other signs of excessive wear. Replace all damaged parts prior to storage or next use.

- Motor/blower and battery pack: Clean the outer surfaces of the 3M™ Adflo™ PAPR Assembly and battery pack with a soft