

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

ct is part of a system that helps protect against certain airborne contaminant Misuse may result in sickness or death

FORFWAR

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 pproved respiratory system. When used in accordance with its NIOSH approval, 3M™ Adflo™ PAPR Assemblies c nelp provide respiratory protection against certain particulates, organic vapors and acid gases. Refer to the 3M™ Adflo OSH 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 ninimum design flow rate, an audible alarm will sound and the red LED on the on/off switch will light to warn the user t 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 o leave the contaminated area. See the Specifications section for additional information on the alarms

F 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. nsult the Listing of Components, Accessories and Replacement Parts in this User Instruction for a listing of 3MTM Adflo™ PAPR part numbers

A WARNING

roperly selected, used, and maintained respirators help protect against certain airborne contaminants by reducing oncentrations in the wearer's breathing zone below the Occupational Exposure Limit (OEL). It is essential to follow all uctions and government regulations on the use of this product, including wearing the complete respirator s during all times of exposure in order for the product to belo 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 derstand 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 nd result in sickness or death.

LIST OF WARNINGS WITHIN THESE USER INSTRUCTIONS

A WARNING

- his 3M™ Adflo™ PAPR Assembly is one component of an approved respiratory protection system. Always rea and follow all User Instructions supplied with your 3MTM headgear and other system components in order to en rrect 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. Always correctly use and maintain the 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. a. 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. e. 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 component of this system. 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. Failure to do so may adversely affect respirator performance and result in 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 damage
- 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 & yapor
- 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 smell 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 change-out schedule, regulations, or soone if smell, 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 arrestor or without the spark arrest screen properly installed. Exposing a heavily loaded spark arrestor, or filter assembly to direct contact with spark 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

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 (MLIC) determined using the Assigned Protection Factor (APF) for the specific respirator system or the APF mandated by specific government standards, whichever is

Immediately exit the contaminated area if any of the low battery or low airflow alarms activate.

The OV/AG cartridge and nuisance odor pad assembly must always be used with the HE filter, pre-filter and spark arrestor. Do not use the OV/AG cartridge or nuisance odor pad assembly alone or in combination with one another. Due to lower air density at higher elevations, the 3MTM AdfloTM PAPR automatic flow control may activate the Filter

- Below 5000 feet mean sea level (MSL) the 3MTM AdflotM PAPR can be used with the 3MTM AdflotM PAPR HE Particulate Filter by itself or in combination with the 3M[™] Adflo[™] PAPR Nuisance Odor Pad Assembly or Organic
- Between 5000 feet and 10,000 feet MSL, the 3M[™] Adflo[™] PAPR should <u>only</u> be used with the 3M[™] Adflo[™] PAPR HE Particulate Filter.

NIOSH Cautions and Limitations in this User Instructions.

RESPIRATOR PROGRAM MANAGEMENT

Occupational use of 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 counational Safety and Health Administration (OSHA) Respiratory Protection standard 29 CFR 1910 134 and any applicable OSHA substance specific standards. The major sections of 29 CFR 1910.134 are listed here for reference sult an industrial hygienist or call 3M Technical Service with questions concerning applicability of these products to your job requirements.

Major Sections of OSHA 29 CFR 1910.134

Section	Description
A	Permissible Practice
В	Definitions
С	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 Car
K	Training and Information
L	Program Evaluation
M	Recordkeeping

NIOSH – APPROVAL, CAUTIONS AND LIMITATIONS NIOSH Approval

[™] 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 3MTM AdfloTM PAPR for a listing of components that can be used to assemble a complete NIOSH approved respirator system or contact 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. Th -50W breathing tube must be used when using the 9100 Air or 9100 MP welding helmets with HE filter-OV/AG cartridge combination and must be used with M-400 headgear when used with any Adflo PAPR configuration.

NIOSH Cautions and Limitations

- A Not for use in atmospheres containing less than 19.5 percent oxyger 3 – 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 facepieces or six
- cfm (170 lpm) for hoods and/or helmets. - Follow established cartridge and canister change schedules or observe ESLI to ensure that cartridge and canisters are
- replaced before breakthrough occurs ntains electrical parts that may cause an ignition in flammable or explosive atmospheres
- 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
- 0 Refer to User's Instructions, and/or maintenance manuals for information on use and maintenance of these
- P NIOSH does not evaluate respirators for use as surgical masks.

OPERATING INSTRUCTIONS

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

Battery Pack

The 3MTM AdfloTM PAPR System is not intrinsically safe. Do not use in flammable or explosive atmospheres, **doing su** 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
- 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 f 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.

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 harge 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 charger's LED codes.

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, not leave it connected to the charger for prolonged durations. he 3MTM AdfloTM 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:

Inspect the hinge and latch on the battery pack and ensure they are clean and undamage Hook the left edge of the battery pack into its holder on the bottom of the unit and press the battery pack into the

motor/blower until the catch fully engages with two audible clicks (Fig. 3). Gently tug on the battery pack to verify it is secured to the 3MTM AdfloTM PAPR To remove the battery pack press the battery pack latch on the right of the battery pack. Pull the battery pack down









- Service Life Indicator prematurely 3M makes the following recommendations for use of the 3MTM AdfloTM PAPR
- Vapor/Acid Gas Cartridge.

Refer to the User Instructions provided with the applicable headgear and the additional cautions and limitations under the

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A WARNING

ligh Efficiency (HE) Particulate Filter, Pre-filter and Spark Arrestor

NOTE: The high efficiency (HE) filter, pre-filter and spark arrestor must always be used. The pre-filter is designed o extend the service life of the HE filter by capturing many of the larger particles. The spark arrestor is a metal screen. spect the spark arrestor each time the filters are changed. If it is dirty remove it and clean with a solution of clean water and mild detergent. Dry the spark arrestor with a clean cloth and ensure the spark arrestor is completely dry befor stalling. If the spark arrestor is damaged, replace with a new spark arrestor. The HE filter and pre-filter CANNOT be sleaned do not attempt to remove contamination from the HE filter or pre-filter using compressed air or other means

A 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 smell 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 apor/acid gas cartridge must be replaced according to an established change-out schedule, regulations, or sooner if smell taste or irritation from contaminants is detected Failure to do so may result in sickness or death. Do not use the 3MTM AdfloTM PAPR system with a heavily loaded spark arrestor or without the spark arrestor screen rly installed. Exposing a heavily loaded spark arrestor, or filter assembly to direct contact with sparks or molte 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.

- 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 arrestor, 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 arill when installing the filter into the filter cover (Fig 6)
- To reinstall the filter cover in the 3MTM AdfloTM PAPR, hook the left side of the filter cover into the left side of the 3MTM 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 (OV/AG) Cartridge or Nuisance Odor Pad Assembly

The 3M™ Adflo™ PAPR has a "stackable" chemical cartridge capability that helps provide protection from certain organic vapors and acid gases and a "stackable" nuisance odor pad assembly to help reduce nuisance odors and nuisance ozone NOTE: Nuisance odor refers to concentrations of organic vapors not exceeding the OSHA permissible exposure limit (PEI r applicable government occupational exposure limits, whichever is lower.

NOTE: The OV/AG cartridge and nuisance odor pad assembly must always be used with the HE filter, pre-filter and spark arrestor. Do not use the OV/AG cartridge or nuisance odor pad assembly alone or in combination with one another. Remove the filter cover as noted above (Fig. 4

- Inspect the HF 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 filter cover, the pre-filter and the spark arrestor, Replace as needed (Fig. 5, 6) Inspect the OV/AG cartridge or nuisance odor pad assembly to be installed. Make sure:
- Gasket is present and intact with no particulates, cuts, distortions or indentations, Wipe gasket with a clean, dry cloth, if dirty. Dispose and replace if damage is noted
- Place the spark arrestor, 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 OV/AG cartridge or nuisance odor pad assembly into the left side of the PAPR and press the cartridge down until its 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 OV/AG cartridge. Press down on the right side of the cover until the catch fully engages with an audible click

Replacement of the Nuisance Odor Pad

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 gasket or multiple square holes. It is easiest to press the nuisance odor pad out on e 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 plicable government occupational exposure limits, whichever is lower. Replace when smell or taste occurs

nstall the Breathing Tube

Select an approved breathing tube for the headgear to be used. Refer to the 3M[™] Adflo[™] PAPR NIOSH Approval Label for approved headgear-breathing tube combinations.

- IOTE: The SG-50W breathing tube can only be used with 9100 Air, 9100 FX Air, 9100 MP and M-series headgear. Th SG-50W breathing tube must be used when using the 9100 Air or 9100 MP welding helmets with HE filter-0V/AG cartridge combination and must be used with M-400 headgear when used with any Adflo PAPR configuration.
- Inspect the PAPR end of the breathing tube (2 small prongs) to confirm the rubber "O" ring is in place. Replace if
- nsert 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

fer to the separate User Instructions provided with the approved headgear for procedures to connect the breathing tube. Leather Belt Replacemen

- 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 helt.
- Thread each hook and loop strip through the slot on the back of the unit, and then on through the slot on the leather belt (Fig. 9). The "UP" arrow should be pointing towards the top of the PAPR.
- Tightly pull the two hook and loop strips prior to fastening them to one another. When attached properly, the 3M™ [™] PAPR will sit tight against the belt and will stav in place.

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Fig. 6

1 - Cover; 2 - Spark Arrestor; 3-Pre-filter; 4 - HE Filte

Fig. !

1 - Protège-filtre; 2 - Pare-étincelles; 3 - Préfiltre;

4- Filtre à haute efficacité

Fig. 4

- he BPK-01 backpack may be used in place of the belt (Fig. 9A):
- With either end of the motor/blower towards the top of the backpack (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 backback Thread the strap through the lower retaining slot on the motor/blower and the small retaining sleeve (Fig. 9A, #2) on
- 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 Of

To 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 remain on (Fig. 10). The 3M™ Adflo™ PAPR Battery Pack and filter LEDs 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

A WARNING

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

- Inspect filter and filter seal before each use and immediately replace if damaged Always properly install the filter into the blower unit.
- 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 component of this system. Do not use with parts or accessories other than those nanufactured by 3M as described in these User Instructions or on the NIOSH approval label for this respirator. Failure do so may adversely affect respirator performance and result in sickness or death.

This 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 this 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 o 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[™] PAPF placement Parts before proceeding.
- Battery Pack: Confirm that the battery pack is fully charged and charge is sufficient for duration of the work period he battery pack must be securely latched to the motor/blower
- Breathing Tube: Examine the entire breathing tube for tears, holes or cracks. Bend the tube to verify that it is flexible. Ensure the o-ring located on the PAPR end of the breathing tube is present with no gaps or cracks in the ring. Replace athing tube if any damage is noted or suspected.
- . Filter/Cartridge: Inspect the pre-filter and spark arrestor. Ensure they are intact, clean and squarely fitted into the filter cover.
- Inspect the HE filter and gasket for particles, tears, cuts, distortion or indentations. Do not attempt to clean the HE filter. Replace the HE filter 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 PAPR motor/blower.
- If used, ensure the nuisance odor pad assembly or chemical cartridge is securely attached to the PAPB and filter cover Air flow check
- Ensure 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 tube and ball to dry completely prior to using. For all 3M[™] Adflo[™] Breathing Tubes (except L-122SG) follow Steps 2 7 with the 15-0099-05 flow
- For L-122SG approved breathing tube, follow Steps 8 13 with the 15-0099-21 flow indicator adapter

All 3M[™] Adflo[™] PAPR Approved Breathing Tubes, Except L-122SG (15-0099-05 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 fails to rest at or above the minimum flow level, refer to the trouble-shooting

With 3MTM AdfloTM PAPR turned on, remove the air flow indicator and tightly cover the end of the breathing tube

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

Insert the breathing tube into the air outlet as noted above. rn the 3M[™] Adflo[™] PAPR on.

guide at the end of these User Instructions.

with the palm of your hand.

1 10) Proceed to Step 14.

trouble-shooting guide at the end of these User Instructions

outflow port with the palm of your hand.

rouble-shooting guide at the end of these User Instructions

stop, while the motor returns to a slower speed.

. Any part of the system becomes damaged

b. Air flow into the respirator decreases or stops

(Fig. 10). Continue to Step 14.

Continued from Step 7 and 13

of these User Instructions.

Turn the motor/blower on

Turn the unit off.

Check the low airflow alarm:

). Turn the 3M[™] Adflo[™] PAPR or

minimum flow mark (Fig. 14)

Check the low air flow alarm

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.

The motor will automatically speed up to compensate for the low air flow condition.

NOTE: If the floating hall of the air flow indicator fails to rest at or above the minimum flow level refer to the

indicator 15-0099-05 or 15-0099-21 assembly)
8. Insert the air flow indicator adapter onto the end of the 3M[™] Adflo[™] PAPR Air Flow Indicator (Fig. 12).
9. Insert air flow indicator adapter unit into the outflow port on the 3M[™] Adflo[™] PAPR (Fig. 13).

Allow the 3MTM Adflo PAPB to run for 2 minutes to stabilize air flow prior to reading air flow indicator

NOTE: If the floating ball of the air flow indicator fails to rest at or above the minimum flow level, refer to the

The motor will automatically speed up to compensate for the low air flow condition.

7. Attach breathing tube (if previously removed) and headgear to 3M[™] Adflo[™] PAPR system.

Prior to entering the contaminated area, complete the inspection procedures listed in this User Instructions.

ENTERING AND EXITING A CONTAMINATED AREA

4. Leave the contaminated area immediately if any of the following conditions occur:

Fig. 7

L-122SG breathing tube (use flow indicator rubber adapter 15-0099-20 with flow

2. Hold the air flow indicator vertically at eye level, ensure that the bottom of the floating ball rests at or above, the

With 3M[™] Adflo[™] PAPR on, remove the air flow indicator and tightly cover the end of the 3M[™] Adflo[™] PAPR

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

4. Remove your hand from the end of the breathing tube or air outlet port. The audible alarm and red LED should both

15. If the PAPR does not operate as described in all of the above procedures, refer to the trouble-shooting guide at the end

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. Don the 3M[™] Adflo[™] PAPR Assembly and headgear. Enter the work area.

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 motor/blower battery LED will flash continuously one second ON, one second OFF. The audible alarm will been four times in two seconds, repeating every 30 seconds. The final 15 to 60 seconds the alarm will fast beep every 1/2 second. 3M[™] Adflo[™] PAPR will shut down 30 seconds after the quick beep starts.
- In the event only an audible or only a visual alarm triggers, the user should still immediately leave the contaminated area
- 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 remove the respirator or reach your hand into the headgear in areas where the air is contaminated Follow exiting and decontamination procedures specific to your workplace for turning off the motor/blower and removing the respirator system

A WARNING

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

Do not enter a contaminated area until properly donning the respirator system. Do not remove or turn off the respirator fore leaving the contaminated area. Doing so may result in sickness or death. Do not use the 3M[™] Adflo[™] PAPR system with a heavily loaded spark arrestor or without the spark arrestor screen roperly installed. Exposing a heavily loaded spark arrestor, or filter assembly to direct contact with sparks or molten tal 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.

CLEANING AND STORAGE

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

Detach 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 cloth dampened in a solution of water and mild, pH neutral detergent. Do not immerse the motor/blower or battery pack in water. Do not use solvents or abrasive cleaners. Do not attempt to clean the interior of the motor/blower with compressed air or vacuum. Dust accumulation in the motor/blower could indicate possible filter leakage or improper storage and must be addressed prior to next use. Ensure the electrical contacts of the motor/blower and battery pack are dry.
- Breathing tube: Clean the exterior and connection sites on the breathing tube with the water and detergent solution. Ontional breathing tube covers can also be used to facilitate cleaning. Ensure the breathing tube is completely dry before using or storing. The L-122SG and SG-50W breathing tube interiors contain sound absorbing material. They annot be immersed in liquids for cleaning and must be replaced if wet. Wiping the exterior is insufficient. IE filter: Open the filter cover and inspect the HE filter, pre-filter and spark arrestor. Replace if excessively dirty, wet or
- damaged. The HE and pre-filters cannot be cleaned. The spark arrestor can be cleaned using a clean, soft cloth dipped in a solution of water and a mild pH neutral detergent. Completely dry the spark arrestor with a clean cloth. If the spark arrestor cannot be cleaned or is damaged, replace with a new spark arrestor.

Follow inspection procedures listed in this User Instructions.

Motor/Blower Storage

The 3M™ Adflo™ PAPR system should be stored at a temperature between -4°F to 131°F (-20°C to 55°C). The motor/ blower should be stored in a clean environment out of direct sunlight

Battery Pack Storage

help maximize battery pack service

- Store the battery pack at -4°F (-20°C) to 115°F (45°C). R.H. < 85%. Storage of the battery pack outside of this range will shorten service life of the battery The 3MTM AdfloTM PAPR Battery Pack may remain on the charger for 3 to 4 days after completion of charging, but for
- naximum battery life, disconnect the charger after a full charge has been received Battery packs for long-term storage should be disconnected from the motor/blower. Battery packs not intended for immediate or regular use should be charged upon receipt and placed on regular
- recharge schedule (every 3 months of non-use). Prolonged storage of battery packs without regular recharge may damage the battery pack cells. Refer to 3M Technical Data Bulletin #178 for additional information on battery pack maintenance

SPECIFICATIONS Technical

Air flow	Greater than 6 CFM (170 lpm)	
 Weight (approximate) Assembly (motor/blower; HE filter; belt; battery pack and SG-30W breathing tube) OV/AG Cartridge Nuisance Odor Pad Assembly 	1. 3.6 lbs (1.65 kg) 2. 1.72 lbs. (0.78 kg) 3. 0.320 lbs (0.145kg)	
Motor/Blower Assembly 1. Operating Temperature 2. Storage Temperature (RH <90%) 3. Operating Altitude and Limitation 4. Noise level	 23°F to 131°F (-5° to 55°C) -4°F to 131°F (-20°C to 55°C) If 3M™ Adflo™ PAPR system is stored at temperatures below 32°F (0°C), the battery pack must be allowed to warm up to achieve optimal battery performance. Altitude*: 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™ Adflo™ PAPR Nuisance Odor Pad Assembly or Organic Vapor/Acid Gas Cartridge. Between 5000 feet and 10,000 feet MSL, the 3M™ Adflo™ PAPR HE Particulate Filter. * If you have questions regarding these products contact 3M Technical Service. 	
	 Noise levels – less than 80 dBA at user's ear excluding external noise. 	
Belt Size (Approximate) Belt Extender	29.5 to 45.25 inches (75 to 115 cm) Approximately 26 inches (66 cm)	



Charging Temperatures

Storage Temperatures

Battery Pack Service Life

Charger Codes

- 10-12 hour
- 5.5 hours with OV/AG cartridge* New battery pack and HE filter, battery life will be reduced if usir t altitudes greater than 3500 feet. 32°E to 104°E (0°C to 40°C). If the charger's LED blinks vello
- with one or two red flashes, the battery pack is either too hot or too cold to charge. $-4^{\circ}F$ ($-20^{\circ}C$) to $115^{\circ}F$ ($45^{\circ}C$). R.H. < 85%. Storage of the
- battery pack outside of this range will shorten service life of th Approximately 500 charge

6. Charger Code Table

	Mode	Description	LED Indication
		Rapid charge	Yellow steady light
		Final charge	Yellow flashing
		Ready/standby	Green steady light
	X	No battery connected	Green flashing
	Error code	See below	LED indication
	î,î	Battery is connected to charger with wrong polarity	Red flashing 2 times
	1	Charger output is shortened. Check output cable connection	Red flashing 3 times
	<u> </u>	Battery voltage is low. Check battery status or voltage	Red flashing 4 times
	<u>"</u> 1"	Safety timer has run out. Check battery status or capacity	Red flashing 5 times
	<u>.</u>	Battery temperature is too low (<0°C)	Yellow with 1 red flash
	î li	Battery temperature is too high (>45°C)	Yellow with 2 red flashes
1	1	Battery voltage is too high. Check battery voltage	No indication

than 15-30 seconds. 3M[™] Adflo[™] PAPR will shut down 2 mins. after continuous alarm activation During approximately the last 15 to 30 minutes of charge, the bottom bar on 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 alarm will fast beep every 1/2 second, 3M™ Adflo™ PAPR will shut down 30 seconds after quick beep starts. The 3M[™] Adflo[™] PAPR Assembly is not approved for use in lazardous Location (Intrinsic Safety) hazardous or intrinsically safe locations.

Shelf Life – HE Filter, Nuisance Odor Pad 5 years from date of manufacture Assembly and OV/AG Cartridge

Assigned Protection Factor

Motor/Blower Alarms

Low battery pack voltage

Low air flow

Refer to the User Instructions for the specific head gear to be used to determine the assigned protection factor (APF) for the 3M™ Adflo™ PAPR system. Consult 3M™ Technical Data Bulletin Assigned Protection Factors (APF) for 3M™ Hoods and Helmets for additional information on APFs and supporting test data.

Service Life

Chemical Cartridge The useful service life of the 3M™ Adflo™ PAPR Organic Vapor/Acid Gas Cartridge, 15-0399-99 or 15-0499-99, will depend on the specific type, volatility and concentration of the contaminants and environmental conditions such as humidity and temperature. Replace cartridges in accordance with an established change schedule, regulations, or sooner if smell, taste, or irritation from contaminants are detected.

Nuisance Odor Pad Assembly

The useful service life of the 3M[™] Adflo[™] PAPR Nuisance Odor Pad will depend on the environmental conditions and concentration of the contaminants and environmental conditions such as humidity and temperature. 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 smell or taste is detected.

Particle Filter

The 3MTM Adflot PAPR Motor/Blower Assembly is equipped with a five-step particle filter-loading indicator. There are three green and two red indicators. The illumination of each indicator light signifies increased filter clogging and a reduction battery run time. When the red indicator(s) are illuminated, battery run time will be significantly reduced and HE particle filter and pre-filter replacement is recommended. When using a chemical cartridge or nuisance odor pad assembly with a fresh particle filter, the first two LEDs of the scale will be illuminated due to the additional resistance to air flow. The HE filter should also be changed if it becomes wet or damaged. The pre-filter should be changed at least as frequentl as the HE filter. The pre-filter and HE filter should be changed if the battery pack operating time becomes shortened or if the low air flow alarm is activated

LISTING OF COMPONENTS, ACCESSORIES AND REPLACEMENT PARTS

Part Number Description **Battery Packs and Chargers** Battery Pack, L Lithium Ion Battery Smart Charger Belt. Leather Belt Tongue Extender Replacement, Leather 35-0099-14 Belt. Nylon webbing with guick connection TR-325 Belt, Versaflo, Standard TR-326 Belt, Versaflo, High Durability BPK-01 Backpack

> Breathing tube - Self adjusting - 9100 series and M-100/300 headgear Breathing tube - Heavy duty - 9100 series and M-100/300-series headgear Breathing tube – Sound dampening – 9100 series helmets. Required when used with M[™] Adflo[™] PAPR with HE Filter and OV/AG Cartridge and Welding Helmet 9100-Air, 9100 MP, and must be used with M-400 headgear when used with any 3M[™] Adflo[™] PAPR configuration

Filters and Cartridges - Refer to the NIOSH approval label for proper filter/cartridge/headgear combinations 15-0099-99X06 Pre-filter, 6-pack

- Pre-filter, 12-pack 15-0299-99X02
 - High Efficiency Particulate Filter, 2/case











15-0299-99X36	High Efficiency Particulate Filter, 36/case
35-0699-99X01	Nuisance Odor Pad Assembly, 1/Case
35-0799-99X01	Nuisance Odor Pad, 1/case
35-0799-99X10	Nuisance Odor Pad, 10/case
15-0399-99X02	Organic Vapor/Acid Gas* Cartridge, 2/case
15-0399-99X06	Organic Vapor/Acid Gas* Cartridge, 6/case
15-0499-99X02	Organic Vapor/Acid Gas* Cartridge, 2/case
15-0499-99X06	Organic Vapor/Acid Gas* Cartridge, 6/case
15-0009-99X02	Spark Arrestor, 2/case
* Acid gas: NIOSH approved	for sulfur dioxide, chlorine, hydrogen chloride

TROUBLESHOOTING

Jse the table below to help identify possible causes and corrective action for problems you may experience. There are no user serviceable parts inside the 3MTM AdfloTM PAPR Assembly. The motor/blower unit should not be opened to attempt repairs. Consult the 3MTM Adflorm PAPR Trouble Shooting Guide or contact 3M Technical Service to help identify additional

ssible causes and corrective actions for other problems you may experience.					
Fault Probable Cause(s)		Possible Solution(s)			
ow air flow alarm (audible and all three LEDs on bower button are lit)	 Breathing tube is blocked. Filter is blocked. Filter is fully loaded with particles. PAPR is being used above recommended altitude limitation. 	 Check & remove blockage or obstruction. Check air filter & remove obstruction. Change HE filter and pre-filter. If using a chemical cartridge, check that the scrim fabric behind the inlet holes is clean and white. Any sign of particle loading on the chemical cartridge indicates improper installation or damaged particle filter assembly. Consider using an alternative 3MTM PAPR. 			
3ottom bar of battery ndicator flashes; battery alarm sounds	Low battery voltage.	 Fully charge the battery pack. Install a new, fully-charged 3M[™] Adflo[™] PAPR Battery Pack. 			
No air flow, no alarm(s)	 Battery contact on battery pack is damaged. Battery is completely discharged. Damaged circuit board. Damaged motor. 	 Check that the battery contact is not bent or broken. Fully charge the battery pack. and 4. Contact 3M Warranty and Repair. 			
.ow air flow per indicator but no alarm(s)	 Damaged circuit board. Damaged motor. 	Contact 3M Warranty and Repair.			
Jser detects odor or taste of contaminants or feels aye or throat irritation	 Incorrect respirator for application and/or environment. Chemical cartridge exhausted. Nuisance odor pad. Particle filter damaged. 	 Consult on-site industrial hygienist or safety director. Change cartridge & develop a cartridge replacement schedule with your on-site industrial hygienist or safety director. Replace nuisance odor pad. Replace particle filter. 			
3attery pack's charge lasts ess than expected	 Inadequate charging. HE filter is loaded with particles, making the motor run harder. Chemical cartridge being used. Motor blower is being used at high elevations. 	 Check the filter-loading indicator. Replace the HE filter & pre-filter as indicated, and examine the spark arrestor. Battery pack will normally have shorter run time with chemical cartridge in place. Review Specifications section of this User Instruction for proper use. 			
The motor runs "faster than normal"	 The HE filter is loaded with particles. Recent user change from just HE filter to HE and Nuisance Odor Pad Assembly or HE and OV/AG cartridge. 	 Check the filter-loading indicator. Replace the HE filter & pre-filter as indicated, and examine the spark arrestor. Normal operation. Let the unit run for 2 minutes so it can automatically adjust to new configuration. 			
The motor runs "slower han normal"	 Recent user change from HE and Nuisance Odor Pad Assembly or HE filter and OV/SD/CL/HC cartridge to just the HE filter. 	 Normal operation. Let the unit run for 2 minutes so it can automatically adjust to the new filter configuration. 			

MPORTANT NOTICE

/ARRANTY: In the event any 3M PSD 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 o repair, replace or refund the purchase price of such parts or products upon timely notification thereof and ubstantiation that the product has been stored, maintained and used in accordance with 3M's written instructions. IMITATION OF LIABILITY: Except as provided above, 3M shall not be liable or responsible for any loss or damage, whethe ect, indirect, incidental, special or consequential, arising out of sale, use or misuse of 3M PSD products, or the user's nability to use such products. THE REMEDIES SET FORTH HEREIN ARE EXCLUSIVE OTE: Because the motor/blower and battery charger of this 3M[™] Adflo[™] PAPR Assembly may produce radio frequenc nergy, 3M is providing the following information pursuant to FCC regulations. This device complies with Part 15 of the ECC Bules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference and (2 this device must accept any interference received, including interference that may cause undesired operation. NOTE: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 1 of the ECC Bules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.



35-1099-07 35-0099-08 Belts 15-0099-16 15-0099-06

Breathing Tub

SG-30W

SG-40W

SG-50W

15-0099-99X12

5-0299-99X0

