

Powered Air-Purifying Respirator with High Efficiency (HE) Filters (2) – Approval No. TC-21C-0774

The following respirator models and cartridges are not NIOSH approved at this time:

- Powered Air-Purifying Respirator with OV-HE Cartridges (3) for organic vapors and particulates.
- Powered Air-Purifying Respirator with OV-AG Cartridges (3) for organic vapors, chlorine, hydrogen chloride, sulfur dioxide, chlorine dioxide or hydrogen fluoride.
- Powered Air-Purifying Respirator with OV-AG-HE Cartridges (3) for organic vapors, chlorine, hydrogen chloride, sulfur dioxide, chlorine dioxide or hydrogen fluoride and particulates.
- Powered Air-Purifying Respirator with AM-MA-HE Cartridges (3) for ammonia or methylamine and particulates.
- Powered Air-Purifying Respirator with OV-AG-AM-MA-HE Cartridges (3) for organic vapors, chlorine, hydrogen chloride, sulfur dioxide, chlorine dioxide, formaldehyde, hydrogen fluoride, ammonia or methylamine and particulates.

PA40 PAPR Cautions and Limitations

- A. Not for use in atmospheres containing less than 19.5% oxygen.
- B. Not for use in atmospheres immediately dangerous to life or health.
- C. Do not exceed maximum use concentrations established by regulatory standards.
- F. Do not use respirator if airflow is less than four cfm (115 lpm) for tight fitting face pieces
- H. Follow established cartridge and canister change schedules or observe ESLI to ensure that cartridges and canisters are replaced before breakthrough.
- I. Contains electrical parts which have not been evaluated as an ignition source in flammable or explosive atmospheres by MSHA/NIOSH.
- J. Failure to properly use and maintain this product could result in injury or death.
- K. The Occupational Safety and Health Administration regulations require gas-proof goggles to be worn with this respirator when used against formaldehyde.
- L. Follow the manufacturer's user instructions for changing cartridges and/or filters.
- M. All approved respirators shall be selected, fitted, used and maintained in accordance with MSHA, OSHA and other applicable regulations.
- N. Never substitute, modify, add or omit parts. Use only exact replacement parts in the configuration as specified by the manufacturer.
- O. Refer to User's Instructions, and/or maintenance manuals for information on use and maintenance of these respirators.
- P. NIOSH does not evaluate respirators for use as surgical masks.

⚠ WARNING

Use strictly in accordance with instructions, labels and limitations pertaining to the PA40 respirator.

1. The PA40 respirator does not supply oxygen. Use only in adequately ventilated areas containing at least 19.5% oxygen.
2. Do not use when concentrations of contaminants are immediately dangerous to life or health (IDLH). This term is defined in 29CFR 1910.134 (b).
3. Do not use these respirators for respiratory protection during abrasive blasting or clean up.
4. Do not use in circumstances where the airborne concentration level of contaminant exceeds maximum use concentration for this type of respirator as established by regulatory standards.
5. Leave area immediately if:
 - Breathing becomes difficult
 - Dizziness or other distress occurs
 - You taste or smell the contaminant
 - Unit becomes damaged
 - Battery alarm sounds
6. This apparatus must not be worn with the blower unit switched off. If the blower is switched off, a rapid build-up of carbon dioxide and depletion of oxygen may occur, which could result in death or serious injury.
7. Never alter or modify this respirator. Use only NIOSH approved PA40 components and replacement parts for this respirator.

Failure to follow these warnings could result in death or serious injury.

⚠ WARNING

Read all instructions and warnings before using these respirators. Save this manual for future reference. Failure to follow these instructions could result in death or serious injury.

Table of Contents

Warnings, Cautions and Limitations	1	Donning the Spectrum Full Facepiece	9
Principle of Operation	3	Removing the Respirator	9
Battery Pack	4	Troubleshooting	10
Pre-Operational Inspection	4	Cleaning and Storage	11
Mounting the Breathing Tube	5	NIOSH Approval Label	12
Checking Air Flow	5	Ordering Information	13
Air-Purifying Elements	6	Replacement Parts	14
Mounting and Replacing Cartridges	7	Spectrum Diagram	15
Donning the Blower and Full Facepiece	8	Respirator Fit Testing	16
Low Battery Alarm	8	Return Authorization	16

WARNING

Failure to heed these warnings could result in death or serious injury.

1. Improper respirator use could result in death or serious injury. Improper use may also result in certain life-threatening delayed lung diseases such as silicosis, pneumoconiosis or asbestosis.
2. This respirator, when properly fitted and used, significantly reduces, but does not completely eliminate, the breathing of contaminants by the respirator wearer. Where excessive airborne contaminant levels are found, you may obtain better respiratory protection from other types of respiratory protection equipment such as a valve-operated pressure-demand airline respirator or a pressure-demand self-contained breathing apparatus respirator.
3. Regulations require that the employer provide training to the user on the proper use, maintenance and limitations of this equipment. Each person using this respirator must first read and understand this entire instruction manual. The PA40 Series respirators should only be used in accordance with these operating and maintenance instructions. If you have any questions concerning the use of this respirator, ask your employer or call Bullard Technical Support at 877-BULLARD (285-5273).
4. Before using these respirators, be sure your employer has determined that ambient airborne contaminant concentrations do not exceed those allowed by applicable OSHA, MSHA, EPA, NIOSH or ACGIH regulations and recommendations, or any other applicable regulations. Before using the above respirator, Federal law requires that the employer shall identify and evaluate the respiratory hazard(s) in the workplace, and that this evaluation shall include a reasonable estimate of employee exposures to respiratory hazard(s), and an identification of the contaminant's chemical state and physical form.
5. DO NOT wear this respirator if any of the following ambient conditions exist:
 - Atmosphere is immediately dangerous to your life or health (IDLH). IDLH is defined in 29 CFR 1910.134(b).
 - You CANNOT escape without the aid of the respirator.
 - Atmosphere contains less than 19.5% oxygen.
 - Work area is poorly ventilated.
 - Unknown contaminants are present.
 - Contaminant concentrations are in excess of regulations or recommendations (as described in item 4 above).
6. There are users, environments and chemicals for which these respirators are not suitable. It is the responsibility of the user and the employer to determine that these respirators are appropriate for the intended use.
7. Bullard recommends that you DO NOT wear these respirators until you have passed a complete physical exam (including an x-ray), conducted by qualified medical personnel.
8. Do not modify or alter these respirators in any manner. Use only PA40 components and replacement parts manufactured by Bullard and approved by NIOSH for use with this respirator. Failure to use components and replacement parts approved by NIOSH for use with this respirator voids NIOSH approval of the entire respirator, invalidates all Bullard warranties, and could result in death or serious injury, lung disease or exposure to other hazardous or life-threatening conditions.
9. Inspect all components of these respirator systems during cleaning and before and after each use for signs of wear, tear or damage that might reduce the degree of protection originally provided. Immediately replace worn or damaged components with Bullard PA40 components approved by NIOSH for use with this respirator, or remove the respirator from service. (See INSPECTION, CLEANING AND STORAGE section for instructions on proper maintenance of PA4 Series respirators.)
11. DO NOT use these respirators in poorly ventilated areas, areas where oxygen is less than 19.5%, or in confined spaces such as tanks, small rooms, tunnels or vessels unless the confined space is well-ventilated and contaminant concentrations are below the upper limit recommended for this respirator. The procedures for confined space entry, operation and exit are defined in applicable regulations and standards, including 29 CFR 1910.146.
12. DO NOT use these respirators for abrasive blasting or underwater diving.
13. Always don the respirator in an uncontaminated area.

PA40 Series Full Facepiece Powered Air-Purifying Respirator

Incorporating the Bullard Spectrum® Series Full Face Mask

PA40 - Principle of Operation

The PA40 Powered Air-Purifying Respirator (PAPR) System is supplied in six parts:

1. The blower assembly (Part No. PA4) which includes:
 - PA4BU Blower Unit
 - PA1SB Belt Assembly
 - PA4AFI Air Flow Indicator
2. The battery pack (Part No. PA3BP). One or two packs can be used. One fully charged pack will power the blower for approximately four hours.
3. The breathing tube:
 - PA4BT Breathing Tube Assembly
4. The cartridges are available in different types for most toxic contaminants. (See page 6 for a listing of the cartridges.) The types include High Efficiency particulate only, chemical cartridges for gases and vapors, and combination cartridges for gases, vapors and particulates.
5. The tight-fitting Bullard Spectrum® Series full facepiece with nose cup. The outer mask comes in two sizes: medium-large and small.
6. The Battery Charger (Part No. PA3SMC Quick Charger).

The blower unit draws in ambient air through the cartridges. The purified air is blown into the wearer's facepiece through the breathing tube. A flow indicator is provided to check that there is an adequate volume of air available to the wearer prior to use.

The units are designed for use at temperatures from 10°F to 120°F (-12°C to 49°C).

The system is designed to operate at a minimum air flow of 5.0 cubic feet of air per minute (140 liters per minute) in the facepiece under normal use.

The battery packs mount in compartments on the back of the blower. One fully charged battery pack will power the blower for approximately four hours. Two fully charged packs will run for approximately eight hours.

The PA4BU is fitted with an audible alarm which will sound due to low battery power.

Battery Pack

The PA3BP is a rechargeable, Nickel Metal Hydride (NiMH) type battery pack. A fully charged battery pack will power a blower unit to provide adequate air volume for the respirator for approximately 4 to 8 hours for the PA4BU under normal working conditions, depending on whether one or two battery packs are used.

To charge the battery pack, do the following:

- Open the battery latch and remove the battery from the back of the blower. One or two batteries can be used.
- Place each battery in the charging ports of the battery charger Part No. PA3SMC. Ensure that the battery contacts line up with the contacts in the charger port (see Figure 1).



Figure 1

- Connect the battery charger to a 115-volt AC electrical outlet.

Charge the battery pack for approximately 8 hours.

While the battery is charging, the light on the charger will remain on. The charger light will flash when charging is complete.

A table-top gang charger with 6 ports, Part No. PA3GC, is also available.

Initial Charging Procedure with Quick Charger

To ensure a full charge on a new battery pack, follow these important guidelines. These guidelines also apply to battery packs that have been in storage for extended periods of time.

For new battery packs or packs that have been in storage for extended periods of time, follow the directions above under "Battery Pack", and when the light begins to flash on the charger do the following:

- Remove the battery pack. Wait 15 seconds. Replace the battery pack in the nest. The charger light will now remain on.
- When the light begins flashing again, remove the battery pack. Wait 15 seconds. Replace the battery pack in the nest again. The charger light will now remain on.

The charger light will flash a third time, indicating that the battery is fully charged.

This procedure should also be followed after periods of prolonged storage. Without periodic charging, the nickel metal hydride batteries will lose up to 1% of their charge per day. Allowing a battery to self-discharge during periods of prolonged storage will not damage the battery.

Pre-Operational Inspection

Prior to each work shift, perform the following Pre-Operational Inspection to ensure proper operation and to insure that the unit is complete.

1. Belt Mounted Blower Unit, Part No. PA4BU

- Check that the unit is clean and undamaged.
- Inspect for deterioration, physical damage, and improper assembly.
- Ensure that the correct filters/cartridges for the appropriate contaminant are properly mounted on the blower unit. Screw the cartridges into the ports until hand-tight.

Consult the NIOSH approval label and your own in-plant safety professional if you have any questions as to the suitability and efficiency of the Air-Purifying Element.

2. Battery Pack

- Check that the battery is not damaged.
- Place the battery pack in the battery compartment on the blower by first engaging the tab on the pack under the lip on the edge of the compartment. Then close the latch. Place a second battery pack in the other compartment, if desired. If only one battery is used, install the PA3BPC battery port cover over the unused port.

3. Full Facepiece and Breathing Tube

- Inspect the full facepiece for any physical damage, such as torn head harness straps, scratched or cracked visor, and distortion of the rubber flange.
- Inspect the breathing tube for tears, cracks, holes or excessive wear that might reduce the degree of protection originally provided.
- Ensure that the gray rubber seal is present in the mask inlet.
- Replace any damaged parts with the proper Bullard replacement part to maintain the NIOSH approval.

PA40 Series Full Facepiece Powered Air-Purifying Respirator

Incorporating the Bullard Spectrum® Series Full Face Mask

Connecting the Breathing Tube on the PA4BU Blower

Ensure that a gray rubber gasket is in place in the breathing tube coupler on the blower unit.

Screw one end of the breathing tube into the blower unit (hand tight is sufficient) (see Figure 2).

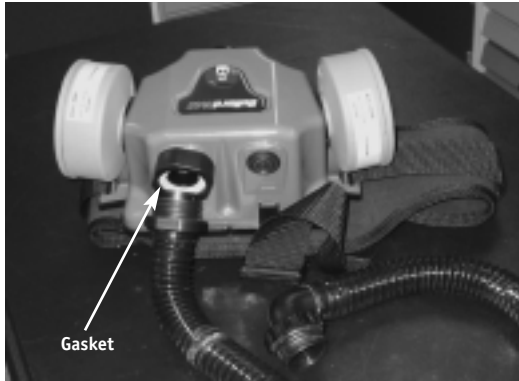


Figure 2

Ensure that neither the breathing tube nor the filter is blocked.

Ensure that the ON/OFF Switch is in the OFF position.

Switch on the blower. If the low battery alarm sounds at this time, the battery needs to be recharged. See instructions on page 4 regarding properly charging the battery.

NOTE

The low battery alarm will sound a short beep as the power switch is cycled on and off, indicating that the alarm is functioning properly. The alarm will sound continuously to indicate low battery power.

Checking Airflow with the Airflow Indicator (PA4AFI)

With the blower switched ON and the filters/cartridges mounted, take the free end of the breathing tube in one hand, hold it upright and place the airflow indicator into the end of the tube using the gray rubber gasket to provide a reasonable seal (see Figure 3).



Figure 3

Apply a light downward pressure to the airflow indicator. Ensure that the air outlet holes in the airflow indicator tube are not blocked. Two hands may be used if preferred, one to hold the breathing tube and one to hold the airflow indicator.

The position of the ball in the airflow indicator should be observed. If any part of the ball is below the PASS LINE on the PA4AFI airflow indicator, check for:

- Blower malfunction.
- Clogged or damaged air-purifying filter elements on the HE filters or the combination cartridges with HE filters. See "Mounting and Replacing Cartridges on the Blower Unit" on page 7.
- Low battery charge or battery malfunction.

If the ball is completely above the PASS LINE on the PA4AFI airflow indicator, then the system is ready for use.

NOTE

Due to the back-pressure of the ball, the low battery alarm may sound when a reading is being taken. If the ball bounces, let it stabilize, and then read the lowest point.

When the blower passes the flow test, it is ready to use.

WARNING

If the blower malfunctions during use in a hazardous area:

DO NOT remove the respirator facepiece, blower or waist-belt while in the hazardous area.

Remain calm and **LEAVE** the hazardous area immediately.

After reaching a hazard-free area, immediately remove the respirator.

DO NOT use a blower that fails the flow test.

Use **ONLY** Bullard cartridges which comply with and have the NIOSH approval label and which are appropriate for the contaminant.

Failure to observe these warnings could result in death or serious injury.

PA4BU Air-Purifying Elements

Principle of Operation

In the following table "Quantity" refers to the number of filters/cartridges which must be attached to the blower unit to provide the required protection.

Protection	Filter/Cartridge Type	Quantity	NIOSH / ANSI Color Code for Cartridge Label
HE	PA3HE	2	Purple
OV/CL/HC/SD/CD/HF	PA3OVAG	3	Yellow
OV/CL/HC/SD/CD/HF/HE	PA3OVAGHE	3	Yellow and Purple
AM/MA/HE	PA3AMMAHE	3	Green and Purple
OV/CL/HC/SD/CD/HF/FM/AM/MA/HE	PA3NBC	3	Pale Brown (Tan)
OV/HE	PA3OVHE	3	Bland and Purple



NOTE

Only the HE filter is NIOSH approved at this time.

HE particulate filters are 99.97% effective against all particulate aerosols.

Filters and cartridges are supplied in quantities of 6 per box.

The following abbreviations are approved by NIOSH to indicate the particulates, gases or vapors which are removed by the gas/vapor cartridges:

- CL** Chlorine
- CD** Chlorine Dioxide
- HC** Hydrogen Chloride
- SD** Sulfur Dioxide
- FM** Formaldehyde
- AM** Ammonia
- MA** Methylamine
- OV** Organic Vapors
- HF** Hydrogen Fluoride
- HE** High Efficiency Particulate Air Filter

⚠ WARNING

Use only filter/cartridge combinations described in the above table. Used/particulate-laden filters and cartridges must be changed as a set and not individually. All cartridges must be of the same type. Do not change cartridges while in a hazardous atmosphere. Incorrect filter/cartridge selection will invalidate all performance statements and approvals for this equipment.

Three (3) of the same type of cartridges must be used on the PA4BU blower unit, with the exception of the PA3HE filters, which are used two (2) at a time, in conjunction with the PA3PG plug. Do not use the PA3PG plug to close off a port with any other cartridge type.

Failure to follow these warnings could result in death or serious injury.

PA40 Series Full Facepiece Powered Air-Purifying Respirator

Incorporating the Bullard Spectrum® Series Full Face Mask

Mounting and Replacing Cartridges on the Blower Unit

The useful life of a chemical cartridge for vapors and gases will vary with the concentration and nature of the contaminant, the breathing rate of the respirator wearer, and ambient temperature and humidity.

The Occupational Safety and Health Administration (OSHA) regulations 29 CFR 1910.134 require that the employer must implement a change schedule when using Air-Purifying respirators for protection against gases and vapors, if there is no end-of-service-life indicator on the cartridges. The change schedule must be based on objective data that will ensure that the cartridges are replaced before the end of their service life. Factors to consider include workplace conditions such as contaminant concentration, relative humidity, temperature, work activities, respirator use pattern (e.g., continuous or intermittent use), presence of other contaminants, potential for contaminant migration/desorption, health effects of the gas or vapor, and the presence of any warning properties. **Contact Bullard for further information on change-out schedules.**

High efficiency particulate filters must be replaced when the clogging of the filter due to retained particles reduces the air flow below the acceptable level, as indicated by testing with the Air Flow Indicator. See page 5.

To Replace Cartridges

Remove the air purifying element from its packaging, and inspect for damage. If in doubt do not use.

Check that the air purifying element has not exceeded its "use-by" date and that the connecting thread is in good condition.

Check that the air purifying element is appropriate to the hazard. If in doubt consult your respirator program administrator or supervisor.

Check that the threads in the blower unit port are in good condition and clear of contaminant.

Check that the PA4BU blower ports have the gray rubber gasket seals present.

Remove the air purifying element storage plugs (see Figure 4).

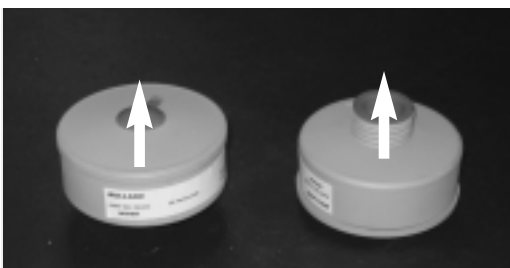


Figure 4

Screw the air purifying elements into the receptacles (see Figure 5) until the cartridge is hand tight. **DO NOT OVERTIGHTEN.**



Figure 5

When using the two PA3HE filter cartridges, install the filter plug Part No. PA3PG into one of the ports. **DO NOT OVERTIGHTEN (Figure 6).**



Figure 6

Donning the Blower and Respirator

Prepare to don the blower, battery and facepiece in a safe, hazard-free area and do the following:

Check that the cartridges are properly mounted on the blower unit.

Prior to assembling the system, place the battery in the battery compartment on the back of the blower. One or two battery packs may be used. (See instructions on page 4.) Fit the blower and belt around the user's waist. With the blower at the rear of the user, adjust the belt for a comfortable fit.

Remove the belt and blower.

Ensure that the cartridges used are suitable for the contaminant in question and are compatible with the PA4BU Blower Unit.

⚠ WARNING

The use of any cartridge not approved with the PA4BU blower units may put the user at risk and could result in death or serious injury.

Ensure that the gray rubber seal is present in the mask inlet. Screw the breathing tube elbow into the mask inlet until tight. (see Figure 7).



Figure 7

Attach the other end of breathing tube to blower unit by screwing adapters together.

Put on the belt and blower assembly and make any final adjustments to the belt as necessary.

⚠ WARNING

Do not enter a hazardous area until you are sure that the blower and facepiece are fully operational and the blower is running. The user should periodically leave the hazardous area to check the airflow through the system. If the PA4BU low battery alarm should sound, or if the user experiences any difficulty in breathing, or senses any taste or any odors from the hazard, he/she should leave the hazardous area immediately. Failure to observe these warnings could result in death or serious injury.

PA4BU Low Battery Alarm

The PA4BU blower unit is fitted with a low battery alarm. This device will activate if the battery power is below acceptable power supply levels. Sounding of the alarm indicates that insufficient airflow may be imminent. The user should immediately do the following:

Leave the hazard area, remove the facepiece, disconnect the breathing tube from the facepiece and check the airflow with the airflow indicator (see page 5).

If the airflow indicator indicates insufficient airflow, the battery should be fully charged (see "Battery Pack" on page 4), and/or the filter/cartridge should be replaced.

The PA4BU low battery alarm must not be solely relied upon as an indication of a low air flow condition. Only the air flow indicator should be utilized for checking for adequate air flow, as required by NIOSH.

👉 NOTE

The PA4BU blower is provided with a circuit to protect the battery. It will not allow the battery to be discharged below a safe voltage for the cells, regardless of airflow, without the alarm sounding. When the low battery alarm sounds and the filter cartridges are not clogged, the battery should be recharged to protect the battery and thereby prolong the working life of the unit. If the ball in the airflow indicator is **BELOW** or **PARTLY BELOW** the **PASS LINE** for the PA40 respirator with a fully charged battery, the filter cartridges may need to be changed.

PA40 Series Full Facepiece Powered Air-Purifying Respirator

Incorporating the Bullard Spectrum® Series Full Face Mask

Donning the Spectrum Full Facepiece

Release the headstraps to the full outward position by pulling the headstrap quick release tabs forward. When fully extended, tabs should be located at the headstrap latches.

Grasp the headstrap harness with thumbs through the straps. Spread outward.

Push the top of the facepiece flange up the forehead, brushing hair upward from the face seal area (see Figure 8). Continue up and over the head until the harness is centered at the rear of the head, and the chin rests in the chin cup.



Figure 8

Pull both lower straps at the same time towards the rear (see Figure 9). Tighten the two temple straps. Tighten the top head strap if necessary.

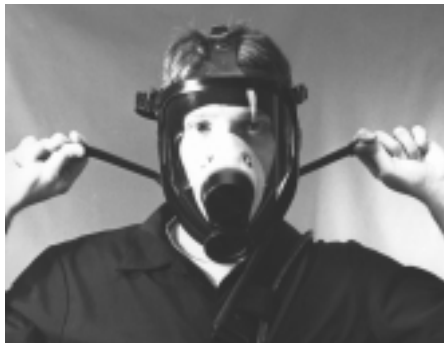


Figure 9

Adjust headstraps until the facepiece fits securely and evenly. Perform a negative pressure fit check:

- With facepiece on and secured, place your hand over the end of the breathing tube (see Figure 10).



Figure 10

- Inhale until the mask collapses inward slightly (indicating there is negative pressure). Hold your breath for five seconds.
- The mask is deemed to be in proper position if it remained collapsed while the breath was held, and no inward leakage of outside air was detected.
- If the mask doesn't collapse or if an inward leak is detected, re-adjust mask on face and repeat above steps until the test is passed.

⚠ WARNING

If you can not obtain a proper fit, try another mask size and repeat the same steps outlined above. If a proper fit is still not achieved, do not use this respirator. Failure to follow these instructions could result in death or serious injury.

Turn on the blower, and attach the breathing tube to the blower. With the air flowing into your respirator, you are now ready to enter the work area.

⚠ WARNING

The mask cover must be used when operating this respirator. This part protects the exhalation valve from outside interference. Failure to follow these instructions could result in death or serious injury.

Removing the Respirator

When finished working, leave the work area wearing the respirator and with the air still flowing.

Once completely outside the contaminated area, remove the respirator by lifting the tabs on the latches. Then remove the blower unit by uncoupling the belt buckle.

Troubleshooting

The following guide will enable you to locate and correct malfunctions:

Malfunction	Possible Cause	Solution
Low Battery Alarm is sounding, but Airflow Indicator shows adequate air flow	Low Battery	Re-charge battery.
No/low airflow into facepiece (Alarm sounding for low battery)	Clogged/damaged air purifying filter element Battery low Blower malfunction Breathing tube or facepiece damaged	Replace the filter cartridge. Re-charge battery. Replace blower. Replace breathing tube and/or facepiece.
Smell or taste contaminant	Equipment damaged or filter needs to be replaced Low airflow Gray rubber seal not present in mask inlet	Leave hazardous area immediately and check equipment. Replace filter. If the problem persists and no damage is found, return equipment for repair. See above. Insert seal and re-attach breathing tube
Blower unit does not run for full service life (8 hours with 2 battery packs; 4 hours with 1 battery pack)	Improper initial charge Prolonged storage of unit not on charger	Review "Initial Charging Procedure" on page 4.

PA40 Series Full Facepiece Powered Air-Purifying Respirator

Incorporating the Bullard Spectrum® Series Full Face Mask

Inspection and Cleaning

▲ WARNING

Avoid contaminant entry into the breathing tube, as this will compromise respiratory protection and could result in death or serious injury. Consult your local safety professional if you suspect that contaminant has entered the breathing tube. When cleaning the equipment, do the following:

Ensure water does not enter cartridges. Replace wet cartridges.

DO NOT use gasoline, organic-based solvents, or chlorinated degreasing fluids (such as trichloroethylene) as they will cause damage.

DO NOT immerse the equipment in water or other cleaning fluid as this may cause contamination in the breathing tube and blower interior that will be difficult to remove.

DO NOT store respirator in your work area or leave it unattended in a contaminated environment. Respirable contaminants can remain suspended in air for more than one hour after work activity ceases, even though you may not see them. Proper work practice requires you to wear the respirator until you are outside the contaminated area. If you set the respirator down in a contaminated environment, contaminants, dirt and dust could get into the respirator. When you put the respirator back on, you could breathe in contaminants upon reuse.

Failure to observe the instructions and warnings in this manual invalidates all performance statements and approvals for this equipment and could result in death or serious injury.

This respirator and all of its component parts and assemblies should be inspected for damage or excessive wear before and after each use to ensure proper functioning. Immediately remove the respirator from service and replace parts or assemblies that show any sign of failure or excessive wear that might reduce the degree of protection.

Use only complete NIOSH-approved Bullard Spectrum components and replacement parts on this respirator. Refer to the parts list for correct part numbers.

The respirator should be cleaned, inspected and sanitized at least weekly or more often if subjected to heavy use. Respirators used by more than one person must be cleaned, inspected and sanitized after each use. If not cleaned, contamination may cause illness or disease.

Remember, the air you breathe will not be clean unless the respirator you wear is clean.

Mask

Immerse the facepiece in warm water (about 120° F) with mild detergent or a germicidal disinfecting detergent. The respirator body and parts may be scrubbed gently with a cloth or soft brush. All foreign matter must be removed carefully from all surfaces of the exhalation valve flap and seat.

Wipe any areas still showing accumulations of foreign matter with a cloth moistened in a detergent or a solvent such as mineral spirits or naphtha, until clean.

Stubborn accumulations of paints, lacquers, or enamels may be removed with a cloth containing a paint, enamel, or lacquer stripping agent. Once the dirt or paint is loosened, it may be gently rubbed or brushed off.

Do not use volatile solvents for cleaning this respirator or any parts or assemblies. Strong cleaning and disinfecting agents, and many solvents, can damage the silicone rubber and plastic parts. Do not leave solvents and strong cleaning and sanitizing agents in contact with silicone rubber or plastic surfaces any longer than necessary to loosen the accumulations of dirt or contaminants.

Rinse the respirator in clean, warm water (about 120° F). Shake to remove excess water, and allow to air-dry away from direct heat, sunlight or contaminants.

Breathing Tube

Inspect the breathing tube for tears, cracks, holes or excessive wear that might reduce the degree of protection originally provided. Be sure the quick-disconnect fitting is screwed tightly into the breathing tube so no air can escape.

If any signs of excessive wear are present, replace the breathing tube assembly immediately or remove the respirator from service.

Hand-sponge breathing tube with warm water and mild detergent, rinse and air-dry. Do not get water inside the breathing tube. After cleaning, once again carefully inspect breathing tube for signs of damage.

Blower Unit

Once cartridges have reached the end of their useful life, discard in accordance with federal, state, and local guidelines, and in conformance with plant safety regulations.

Use a lint-free cloth moistened in a mild solution of soap and warm water to clean the outer surface of the equipment.

Re-charge the battery pack (see instructions on page 4).

Storage

When the apparatus is completely clean and dry, and after inspection, place it in a clean plastic bag or air tight container. Store in a clean, dry area, away from direct sunlight and sources of direct heat.

The storage temperature should be between 32° F to 90° F (0° C to 32° C) with humidity less than 90% RH.

PA40 Approval Label



PA40 Powered Air-Purifying Respirator
This respirator is approved only in the following configuration:

Bullard
Cynthiana, KY 41031 USA
1-800-827-0423



TC#	PROTECTION ¹	RESPIRATOR COMPONENTS										CAUTIONS AND LIMITATIONS ²							
		ALTERNATE FACEPIECE ASSEMBLIES	ALTERNATE BREATHING TUBE	ALTERNATE BLOWER UNIT	FILTER	AIR FLOW INDICATOR	BATTERY	ALTERNATE BELTS	ACCESSORIES										
17N-9462	HE	PASPEMML	PASPECS	PA4BT	PA4BU	PA3HE	PA4AFI	PA3BP	PA1SB	PA1DB	PA3SMC	PA3PG	PA3BPC	AFW45	PA1EB	PA1DEB	PL	LC	ABCFLJLMNOP
		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X

¹Protection

HE - High Efficiency Particulate Air Filter for Powered Air-Purifying Respirators

²Cautions and Limitations

- A. Not for use in atmospheres containing less than 19.5% oxygen.
- B. Not for use in atmospheres immediately dangerous to life or health.
- C. Do not exceed maximum use concentrations established by regulatory standards.
- F. Do not use this respirator if airflow is less than four cfm (115 lpm) for tight-fitting facepieces or six cfm (170 lpm) for hoods and/or helmets.
- 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 death or serious injury.
- L. Follow the manufacturer's instructions for changing cartridges and/or filters.
- M. All approved respirators shall be selected, fitted, used, and maintained in accordance with MSHA, OSHA, and other applicable regulations.
- N. Never substitute, modify, add, or omit parts. Use only exact replacement parts in the configuration as specified by the manufacturer.
- O. Refer to users instructions, and/or maintenance manuals for information on use and maintenance of these respirators.
- P. NIOSH does not evaluate respirators for use as surgical masks.

PA40 Series Full Facepiece Powered Air-Purifying Respirator

Incorporating the Bullard Spectrum® Series Full Face Mask

Ordering Information

CATALOG NUMBER	DESCRIPTION	CATALOG NUMBER	DESCRIPTION
Respirator Assembly		Replacement Parts and Accessories	
PA40SPEC4	PA4 Blower Assembly, PA5SPECML Mask, PA4BT Breathing Tube, PA3BP Battery Pack, and PA3SMC Charger	PA1SB	Standard belt
Blower Assemblies		PA1DB	Decon belt
PA4	PA40 Series blower unit (green), with external low voltage alarm and belt. Breathing tube, replacement battery, and charger sold separately.	PA1EB	Extension standard belt kit
Battery Chargers		PA1DEB	Extension decon belt kit
PA3SMC	Quick charger for PA3BP (2 ports)	PA4AFI	Air flow indicator
PA3GC	Table top gang charger for PA3BP (5 ports)	PA4BU	PA4 Blower housing unit, motor and impeller
Replacement Cartridges		PA4BT	Breathing tube assembly; includes tube and clamp
PA3HE	HE (6 per box)	PA1BTS	Breathing tube/cartridge seal
PA3OVAG	OV/CL/HC/SD/CD/HF (6 per box)	PA3BP	4 hour battery pack
PA3OVAGHE	OV/CL/HC/SD/CD/HF/HE (6 per box)	PA3PG	Plug for blower port
PA3AMMAHE	AM/MA/HE (6 per box)	PA3BPC	Battery port cover
PA3OVHE	OV/HE (6 per box)	PASPECML	Replacement facepiece with nose cup (M/L)
PA3NBC	OV/CL/HC/SD/CD/HF/FM/AM/MA/HE (6 per box)	PASPECS	Replacement facepiece with nose cup (S)

Replacement Parts Instructions for Bullard Spectrum Full Facepiece

The facepiece consists of the headstrap assembly, lens, facepiece flange (small or medium-large), lens clamp assembly, speaker diaphragm/exhalation valve assembly and noseclip.

To remove/replace speaker/exhalation body assembly, turn the large knarled ring on the outside of the mask counterclockwise and remove. The speaker/exhalation body assembly can now be removed from inside the mask.

To replace the exhalation valve, turn the exhalation valve seat counterclockwise from inside the mask, by grasping the two projecting fins on the seat. Grasp valve and pull valve stem out from valve seat. Replace with new exhalation valve by pulling stem through mounting hole in seat. Ensure valve lays flat on seat. Re-install seat in a valve housing by screwing in clockwise. Ensure that O-ring is present on valve seat and is in good condition.

Parts and Accessories for Spectrum Full Facepiece

Facepiece Component Replacement Parts

QNFT45	Quantitative Fit Test Kit – Includes test adapter, facepiece, sampling adapter, 1/8" barbed mask probe and HEPA filter cartridge
LCK	Lens Clamp Replacement Kit – Includes upper and lower clamps with screws and nuts
RLS	Lens replacement
FKL	Medium/large facepiece flange
FKS	Small facepiece flange
HSK	Includes headstrap with 5 buckles and 5 slides
MCK	Includes mask cover
SEK	Includes speaker diaphragm , outer locking ring, o-ring for speaker diaphragm, o-ring for speaker/exhalation body and speaker/exhalation body
EVO	Includes exhalation valve seat, o-ring for exhalation valve seat
LNK	Includes noseclip and 2 inhalation valve flaps

Facepiece Component Replacement Packages

6040	O-ring, Speaker Diaphragm (5/pkg.)
6041	O-ring, Speaker Exhalation (5/pkg.)
6042	O-ring, Exhalation Valve (5/pkg.)
6043	Inhalation Valve Flap (4/pkg.)
6059	Exhalation Valve, CF (5/pkg.)

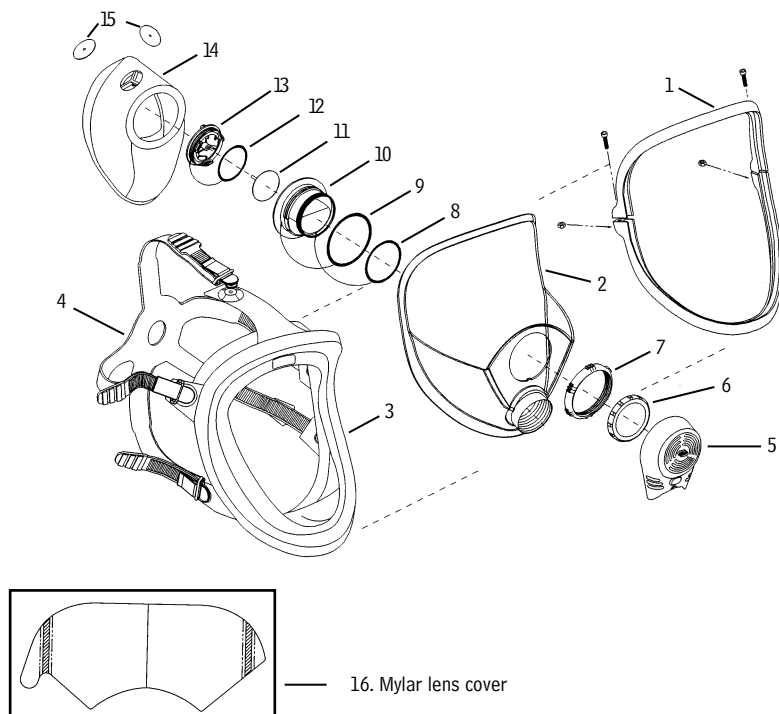
Accessories

AFW45	Anti-Fog Lens Wipes (10/pkg.)
SPECPL	Spectacle Frame Assembly
SPECLC	Mylar Lens Covers (25/pkg.)
FTR45	Fit Test Refill - Includes 15 feet of Tygon tubing, 25 suction cups and 25 clips
HFC45	HEPA cartridges for quantitative fit testing (6/carton)

PA40 Series Full Facepiece Powered Air-Purifying Respirator

Incorporating the Bullard Spectrum® Series Full Face Mask

Bullard Spectrum Full Facepiece



Cat. No.	Description	Cat. No.	Description
1. LCK	Lens Clamp Replacement	13. EVO	Exhalation Valve Seat
2. RLS	Replacement Lens	14. LNK	Nosecup
3. FKL & FKS	Facepiece Flange	15. LNK	Inhalation Valve Flaps*
4. HSK	Headstrap with Buckles and Slides	16. SPECLC	Mylar Lens Covers (25/pkg.)
5. MCK	Mask Cover		
6. SEK	Speaker Diaphragm		
7. SEK	Outer Locking Ring		
8. SEK	O-ring Speaker Diaphragm*		
9. SEK	O-ring Speaker/Exhalation*		
10. SEK	Speaker/Exhalation Body		
11. 6059	Exhalation Valve*		
12. EVO	O-ring for Exhalation Valve Seat*		

*See page 14 for replacement part packaging quantities.



Head Protection



Respiratory Protection



Fire and Rescue Safety



Thermal Imaging

Respirator Fit Testing

According to OSHA's revised Respiratory Standard, 29 CFR 1910.134, all tight-fitting facepieces must now be fit tested, regardless of the mode of operation. This includes all respirator models in the PA40 Series. Users must pass either a qualitative or quantitative fit test, and fit testing must be performed in the negative pressure mode. Bullard's QNFT45 fit test kit converts the Spectrum facepiece to the negative pressure mode, and can be used for quantitative fit testing. The instruction sheet that accompanies the kit provides guidance on its proper use.

Use the Bullard HFC45 HEPA filter cartridges for qualitative fit testing with irritant smoke, Saccharin or Bitrex (denatonium benzoate). Quantitative options include generated aerosol, ambient aerosol CNC (Portacount method), or controlled negative pressure (Dynatech Nevada Fit Tester 3000 method). The minimum fit factor for a full-face respirator is 500.

The qualitative fit test protocols that had existed in the substance-specific standards (except Bitrex, which is new) have been updated in the revised standard with minor changes and will now be used for all substances. Fit testing shall be performed prior to initial use, whenever a different respirator is used, and at least annually thereafter. An additional fit test must also be performed whenever there are changes in the employee's physical condition that could affect respirator fit, such as dental changes or an obvious change in body weight.

⚠ WARNING

Do not wear the PA40 full facepiece PAPR with prescription glasses because the temple pieces will interfere with the facepiece seal. Use only the SPECPL Spectacle Frame Assembly to mount prescription oculars. Do not wear the PA40 full facepiece PAPR if facial hair is present that comes between the sealing surface of the facepiece and the face, or that interferes with valve function. Failure to follow these instructions could result in death or serious injury.

Return Authorization

The following steps must be completed before Bullard will accept any returned goods. Please read carefully.

Follow the steps outlined below to return goods to Bullard for repair or replacement under warranty or for paid repairs:

1. Contact Bullard Sales Support by telephone or in writing at:

Bullard
1898 Safety Way
Cynthiana, KY 41031-9303
Toll-free: 877-BULLARD (285-5273)
Phone: 859-234-6616

In your correspondence or conversation with Sales Support, describe the problem as completely as possible. For your convenience, your sales support specialist will try to help you correct the problem over the phone.

2. Verify with your sales support specialist that the product should be returned to Bullard. Sales Support will provide you with written permission and a return authorization number as well as the labels you will need to return the product.
3. Before returning the product, decontaminate and clean it to remove any hazardous materials which may have settled on the product during use. Laws and/or regulations prohibit the shipment of hazardous or contaminated materials. Products suspected to be contaminated will be professionally discarded at the customer's expense.
4. Ship products to be returned, including those under warranty, with all transportation charges pre-paid. Bullard cannot accept returned goods on a freight collect basis.
5. Returned products will be inspected upon return to the Bullard facility. Bullard Sales Support will telephone you with a quote for required repair work which is not covered by warranty. If the cost of repairs exceeds stated quote by more than 20%, your sales support specialist will call you for authorization to complete repairs. After repairs are completed and the goods have been returned to you, Bullard will invoice you for actual work performed.

Bullard
1898 Safety Way
Cynthiana, KY 41031-9303
Toll free: 877-BULLARD (285-5273)
Tel: 859-234-6616
Fax: 859-234-8987
www.bullard.com

Bullard GmbH
Hochkreuzallee 36
53175 Bonn-Bad Godesberg
Germany
Tel: +49 228 931933 0
Fax: +49 228 931933 50
www.bullardextrem.com



©2003 Bullard. All rights reserved.
Spectrum Series is a registered trademark of Bullard.
"It's your life and you're worth it" is a trademark of Bullard.