

Powered Air Purifying Respirator (PAPR) Training for MAXAIR System

Please review the presentation and complete the quiz, which is posted on the last page.

Division of Occupational Health & Safety
Technical Assistance Branch
July 2024

At the end of this training, personnel will be able to:

- Understand the OSHA requirements for PAPR users
- Explain the function and use of a MAXAIR PAPR
- Demonstrate knowledge of performing pre-operational inspection of the MAXAIR PAPR
- Understand the limitations and cautions of the MAXAIR PAPR
- Demonstrate donning/doffing cuff system of MAXAIR PAPR
- Describe the proper storage of the MAXAIR PAPR
- Demonstrate proper cleaning/disinfection and/or disposal of contaminated MAXAIR PAPR components following use
- Understand the battery changing procedures
- Identify potential occupational hazards associated with PAPR usage

OSHA (1910.134) Requirements for PAPR Use

- OSHA's respirator standard, 29 CFR 1910.134, requires respirators to protect employees from breathing contaminated and oxygen-deficient air when adequate engineering controls are not feasible or while the controls are being instituted.
- Healthcare facilities, research facilities, animal handling facilities, laboratories, and facilities maintenance activities all have the potential to generate airborne contaminants via process, activity, or job. These contaminants can be biological, chemical, or radiological.
- Respirator use may place a physiological burden on personnel that varies with the type of respirator worn, the job and workplace conditions in which the respirator is used, and the employee's medical status.
- A medical evaluation is required to determine the employee's respirator ability. Occupational Medical Service (OMS) provides this service for NIH employees and contractors enrolled in the Biosurety program.
- Initial training on the respirator's selection, use, maintenance, storage, and limitations is required.
- Annual refresher training after that is required.
- A NIOSH-approved PAPR is required.
- Fit testing is NOT required for loose-fitting PAPRs.

What is a Powered Air Purifying Respirator?

A PAPR is an air-purifying respirator that removes particulate gases, vapors, aerosols, or air contaminants through filters, cartridges, or canisters. PAPRs do not supply oxygen and, therefore, cannot be used in an oxygen-deficient atmosphere or immediately dangerous to life or health (IDLH).

Information regarding PAPRs:

- Reusable components and replaceable filters or cartridges
- Can be used to protect against gases, vapors, or particulates if equipped with the appropriate cartridge, canister, or filter
- Battery-powered with motor/blower that pulls air through attached filters or cartridges, filters out contaminants, and creates a positive pressure within the headpiece
- Provides eye protection
- Low breathing resistance
- Loose-fitting PAPR does NOT require fit testing and can be used with facial hair
- Tight-fitting PAPR requires fit testing

MAXAIR PAPR Warnings

- MAXAIR® Systems are not intended for use in atmospheres immediately dangerous to life or health (IDLH), including explosive atmospheres where intrinsic safety is required for the safe operation of electronic equipment.
- MAXAIR sensor LEDs indicate when it can no longer maintain adequate protection for the user. When so indicated, failure to exit immediately to a safe area may be hazardous to the user's health.
- The use of MAXAIR Systems in an alarm condition is only for immediate exit to a safe environment.
- Do not use MAXAIR Systems near flame or other heat sources.
- MAXAIR Systems filters are not for use against oily particulates (paint mist, oil mist, detergents).
- Damaged and worn Filters must be replaced immediately.
- Never attempt to repair a damaged Hood, Cuff, Shroud, Filter Cartridge, or Filter Cover/Cap.
- Never use compressed air to clean MAXAIR Systems or Filters.
- All MAXAIR Systems Filter/Helmet configurations must be configured as described herein to maintain compatibility with NIOSH approval.

Intended Uses of the PAPR

A PAPR equipped with the **proper cartridge/filter** is intended to reduce or eliminate potential exposures to airborne contaminants (biological and organic vapor chemicals). The airborne hazards must be known before selecting PAPR cartridges.

There are **2 specific types of cartridges** utilized:

- High Efficiency (HE) aka HEPA aka P100- **HE cartridge**
- HE and Organic Vapor (OV)- **HE/OV cartridge**

HE (high-efficiency) labeled **cartridges** are only provided for powered air-purifying respirators. These HE-marked filters are 99.97% efficient against 0.3-micron particles such as dust, pollen, mold, bacteria, and any airborne particles and are oil-proof, and therefore their filter-media material has the exact same specification as a P100 filter.

Note that some cartridges come in combinations. It is common to utilize a **HE/OV combination cartridge** when both biological and OV chemical airborne hazards are anticipated.

PAPR MAXAIR System Features and Advantages:

- Compact, lightweight, fewer parts
- Safety Status LEDs- Always Visible in the peripheral vision
- Microcomputer Controlled User Adjustable Air Flow
 - Match air flow to work activity level
 - Laminar Flow- Low noise with a comfortable cooling effect
 - Whisper quiet for stethoscope use
- No Nose- no awkward air tube; eliminates chances of catching/snagging
- No bulky Blower Unit-optimum ease and freedom of movement
- Convenient Configuration Change
 - Cuff
 - Shroud
 - Hood



Cuff with Filter Cover Cap



Shroud with Filter Cover Cap



Standard Hood

PAPR MAXAIR System Features and Advantages: (cont.)

- Simplified De-Contamination
- Cost Effective Disposables
- Non claustrophobic
- Anti-fog lens
- No heat build-up
- No moisture build-up
- No facial pressure points
- Reduced CO2 build-up
- No restrictions for facial hair
- No restriction for glasses

Cautions

- The purchaser/user is responsible for determining the appropriateness of their MAXAIR Systems for each/any of their particular applications and environments.
- • All filters used with MAXAIR Systems have a finite useful life which is affected by:
 - The amount of contaminants in the air.
 - The type of contaminant in the air.
- • Used properly, MAXAIR Systems protect against airborne particulates at the level specified per the NIOSH label on the Filter/Filter Cartridge chosen for use.

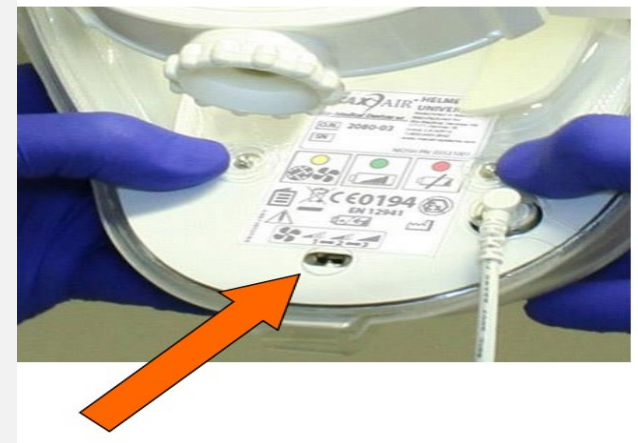
For more details regarding your system, refer to the MAXAIR System User's Instructions, P/N 03521015, and the package inserts Instructions For Use (IFU) included with each system component.

Visit the website, www.maxair-systems.com, for downloadable IFUs, UIMs, and additional training materials such as videos, competency tests, and FAQs.

- All MAXAIR Systems products are audited and certified to meet the rigorous standards of the
 - Food and Drug Administration (FDA)
 - Good Manufacturing Practice Regulations (GMP)
 - National Institute for Occupational Safety and Health (NIOSH)
- All MAXAIR Systems manufacturing is ISO Certified, 13485 ver 2003
- MAXAIR respiratory devices protect against aerosolized and airborne droplet particulates under OSHA 29 CFR 1910.134 Standards for Personal Protective Equipment. They are approved under NIOSH 42 CFR Part 84, a certification requirement for respiratory protective devices.
- • MAXAIR Systems are Computerized All-in-the-helmet Air Purifying Respirators. They represent advanced, highly differentiated designs evolved from the principles of conventional PAPRs (Powered Air Purifying Respirators) with many unique advantages. MAXAIR® CAPR® System – CAPR – Controlled Air Purifying Respirator
 - Comfort and convenience
 - Affordability
 - Performance
 - Reliability

How MAXAIR Works

- The blower pulls outside air in through the filter and gently distributes it around the face
- **Positive pressure** is maintained within the helmet and face/headcover
 - Prevents inhalation of potentially contaminated air
 - No need for fit testing as with negative pressure mask respirators
 - Makes breathing very easy
 - Prevents heat and moisture build-up
 - Prevents lens fogging and CO2 build-up
 - Eliminates facial pressure points
- The micro-computer-controlled blower allows the user to adjust the desired airflow level from Low, Medium, to High to meet their particular activity level.



How MAXAIR Works

- Safety Status LED Indicators – The Microcomputer controller uniquely monitors and indicates system air flow and battery charge status – Status is continuous, during real-time use, and unobtrusively displayed visually to users in their upper peripheral vision – Users are always alerted ahead of time of upcoming unsafe conditions regarding airflow and battery charge remaining to have time to move to safety to inspect the filter for change out, and the battery for re-charging or change out



Status Indicator LED MATRIX

All conditions (X indicates LED is lit)

CONDITION	LED				
	Yellow	Green3	Green2	Green1	Red
Battery charge ok 75% to 100%		X	X	X	
Airflow ok					
Battery charge ok 50% to 75%			X	X	
Airflow ok					
Battery charge ok 25% to 50%				X	
Airflow ok					
Battery charge low 0 to 25%					X
Airflow ok					
Battery charge low	X				X
Airflow low					
Battery charge low	X	X	X	X	
Airflow low	X		X	X	
Battery charge ok 75% to 100%	X				
Airflow low	X		X	X	
Battery charge ok 50% to 75%	X				
Airflow low	X			X	
Battery charge ok 25% to 50%	X				

System Configuration Basics

4 Main Components

1. Helmet fully assembled
with Cage, Liner, and
Power Cord

A. Cage

B. Liner

C. Power Cord

2. Battery

3. Belt

4. Charger



Assembly - Important Focus Points

The purpose of this check list is to ensure the following components are properly assembled:

- ☐ Filter Cartridge securely snapped on the helmet
 - All three snap tabs, right and left sides, and rear, are secured to the Helmet
 - There are no cuts, tears, or soiled areas of the Filter Media
 - Note: Filter will “tear” if assembled improperly***
- ☐ Filter Cover Cap (FCC) securely snapped over the helmet
 - Front FCC snap is securely positioned over the Helmet front DLC Mounting Post
 - FCC rear T-Tab is securely positioned over its rear Helmet Snap
- ☐ Helmet Headband Adjustments are positioned for secure and comfortable donning
 - The front headband bottom is within ½ inch of the eyebrows for clear visualization of the Safety LEDs
 - The Height Adjustment Tabs are in the same respective positions on both sides
 - Circumference ratchet knob set to secure Helmet on the head for all activities required
- ☐ DLC is secure at its three helmet attachment points and around the face
 - Tension is continuous between DLC and face from side to side and under chin
 - DLC Flappers are within ¼ inch of temples on each side

1 Cuff configuration described; Refer to User's Instructions, P/N 03521015, for assembly of other configurations

Helmet Preparation for CUFF System

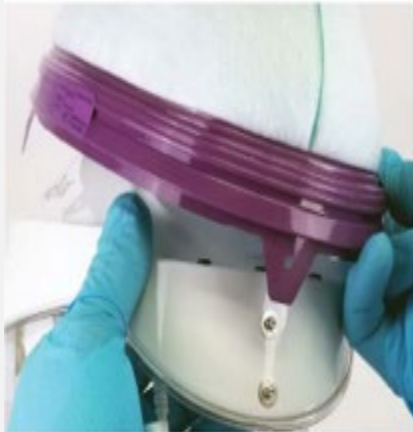
STEP 1: Remove SnapOn Cage by unsnapping the 3 Snap Tabs



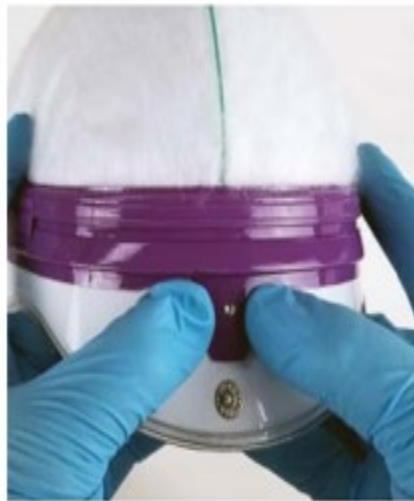
Helmet Preparation for CUFF System

STEP 2: Install Filter Cartridge of choice by attaching the 3 snap tabs

NOTE: Handle Filter Cartridge by the retainer ring to avoid rough contact with filter media.



2A: Align Filter Cartridge with Helmet rear upper snap



2B: Snap and secure rear tab over rear snap using fingers on either side



2C: Press filter cartridge retainer ring down to align side tabs over side snaps



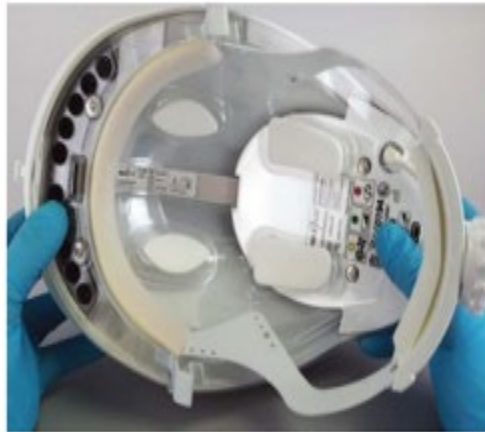
2D: Snap and secure the side tabs over both the left and right sides

Helmet Preparation for CUFF System

STEP 3: Install Filter Cover Cap



3A: Align and insert front adapter with indentation on inside of Filter Cover Cap



3B: Ensuring all 3 adapters are aligned and the front adapter is fully inserted into the indentation, press the Helmet into the Filter Cover Cap



3C: Pull Filter Cover Cap fully down on the helmet by squeezing in a downward motion, aligning the T-Tab hole (A) with the helmet rear bottom snap (B)

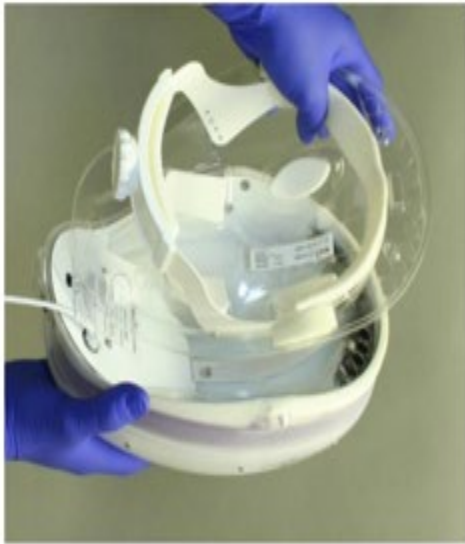


3D: Ensure the T-Tab is securely snapped on the helmet rear bottom snap, use thumb if necessary

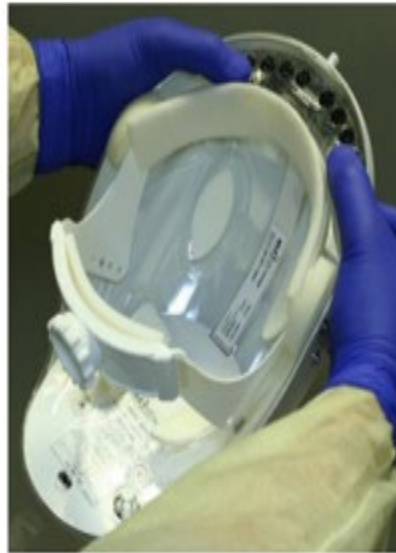
Helmet Preparation for Cuff System

STEP 4: Ensure Helmet Liner is Installed

NOTE: The Helmet Liner comes preassembled on the helmet; this instruction is solely if the liner requires reassembly.



4A: Place liner inside helmet



4B: Secure the two top snaps



4C: Secure the two bottom snaps



4D: Ensure bottom lip of liner is **flush** with the helmet, all the way around the entirety of the helmet

Disposable Lens CUFF – Size Choices



Generally, medium to large faces use ML; very small faces use SM. To select appropriate size, ensure **Conditions 1 & 2** are both met while wearing the fully assembled system

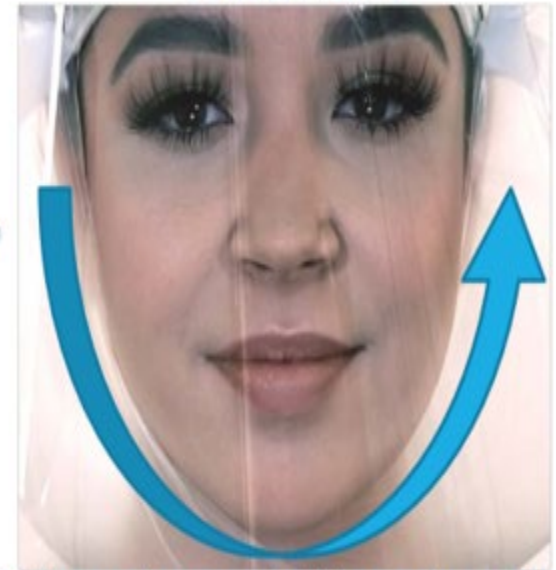
For proper fit, conditions **1 and 2** must be met. If they are not, switch to the other size of DLC

Condition 1



DLC Flappers are away from Lens, positioned perpendicular to temples, and in front of the Side Tabs

Condition 2



Slight tension can be felt continuously while sliding index finger between cuff and face from upper cheekbone, around chin, to the other cheekbone

Disposable Lens CUFF Assembly

Once the helmet is fully prepared and correct size is selected (see Slides 9-13), the Disposable Lens Cuff (DLC) can be assembled to the helmet.



1. Align DLC front alignment hole over front helmet TurnClip; position TurnClip to vertical position to lock DLC in place



2. Align and snap one DLC side attachment hole over side attachment post



3. Align and snap the other DLC side attachment hole over side attachment post



4. Pull DLC Peel Tab up, over and to the left to remove the Lens Protective Cover off the Lens

Assembly Reminder: Important Focus Points

The purpose of this checklist is to ensure the following components are appropriately assembled:

- HE Filter Cartridge securely snapped on the helmet - All three snap tabs, right and left sides, and rear, are secured to the Helmet - There are no cuts, tears, or soiled areas of the Filter Media Note: HE filter will “tear” if assembled improperly
- Filter Cover Cap (FCC) securely snapped over the helmet - Front FCC snap is securely positioned over the Helmet front DLC Mounting Post - FCC rear T-tab Tab is securely placed over its rear Helmet Snap
- Helmet Adjustment Tabs are positioned for secure and comfortable donning - The front headband bottom is within $\frac{1}{2}$ inch of the eyebrows for clear visualization of the Safety LEDs - The Height Adjustment Tabs are in the same respective positions on both sides – The helmet is secure on the head for all activities required
- DLC is secure at its three helmet attachment points and around the face – Tension is continuous between DLC and face from side to side and under the chin - DLC Flappers are within $\frac{1}{4}$ inch of temples on each side

Donning CUFF System – Battery & Belt



1: Obtain a charged battery, the charger light will illuminate green when the battery is fully charged

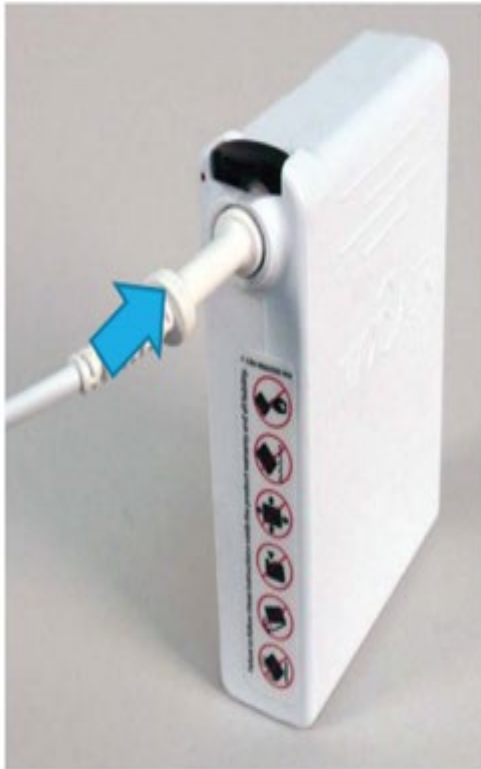


2: Clip battery to belt by moving the belt fully under and up to the top of the clip, so the clip detent rests on the clip base and **NOT** on the belt.



3: Place belt comfortably around waist with the battery near the right rear side

Donning CUFF System – Checking Indicator Lights



Connect helmet power cord to the battery and push until the secure connection audibly clicks



Upon initial connection all 5 indicator lights will illuminate



After 5-10 seconds the 3 green lights should illuminate, we recommend donning the helmet with no less than 2 green indicator lights illuminated

Indicator Light Meanings

Yellow	Low airflow: potential cause is a loaded filter. Doff system as soon as is safe and replace filter if necessary
3 Green	Battery Charge: ~75%-100%
2 Green	Battery Charge: ~50%-75%
1 Green	Battery Charge: ~25%-50%
Red	Battery Charge: 0%-25%, Doff system as soon as is safe, exchange discharged battery for charged battery.

Helmet Airflow Switch

Airflow Switch:

The Helmet is equipped with a switch to adjust the operating airflow. When the Helmet is first turned on it will start at a low level then the airflow will increase to a preset point according to the switch position

Lo

(~190 lpm, ~6.7 cfm)

Med

(~215 lpm, ~7.6 cfm)

Hi

(~240 lpm, ~8.5 cfm)

NOTE: The flow levels, in liters per minute, cubic feet per minute, are only approximate.



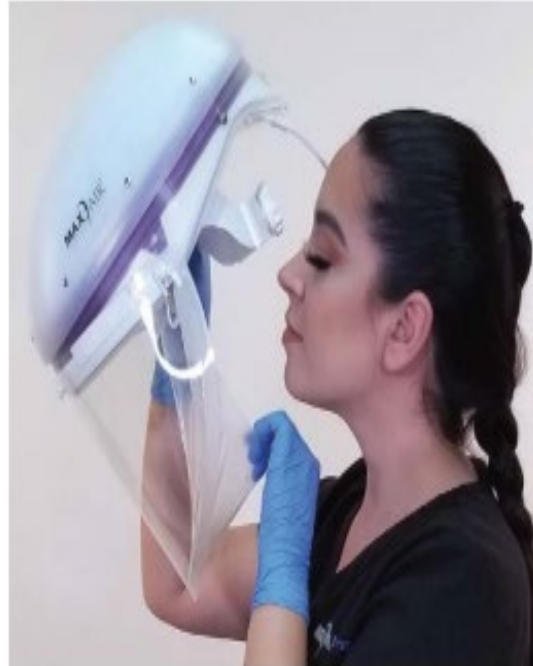
Recommended position for typical activities is Low



Donning CUFF System



1. Loosen ratchet adjustment knob counter-clockwise to ensure helmet will easily fit over head



2. Hold helmet by rear headband in one hand, pull front top edge of cuff down and place chin into the cuff, followed by pulling helmet over and down onto head



3. Slide fingers between cuff and face from each temple down and under the chin to properly position cuff and ensure slight tension between sides of face and under chin

Donning CUFF System



4. Ensure the DLC Flappers are away from the Lens, positioned perpendicular to the temples, and in front of the side tabs



5. Position helmet so front headband is within $\frac{1}{2}$ inch of the eyebrows so the indicator lights can clearly be seen in upper peripheral vision



6. Ensure rear headband is resting under occipital bone, above neck vertebrae, then tighten adjustment knob clockwise until the fit is secure, but do not over tighten to cause discomfort

Donning CUFF System



CAUTION:

If the Helmet is not secure and comfortable on the head, it may be necessary to change the Height Adjustment. The Height Adjustment raises and lowers the rear headband and the angle of the helmet with respect to the head, and properly positions the DLC Lens from the chin. This optimizes a secure and comfortable fit in conjunction with the Adjustment Knob for optimizing the circumference of the Headband. It also aids in proper positioning for easy visualization of the LED Safety Status Indicators. If necessary, unsnap the Height Adjustment tabs on each side of the Helmet Liner and reposition upward or downward, until the optimum fit for comfort and security is determined, ensuring that the same height adjustment hole is selected on both sides.

Doffing Cuff System: Option A



1. Turn front TurnClip to horizontal position



2. Grasp each side by the flappers and pull outwards to release DLC from side adapters

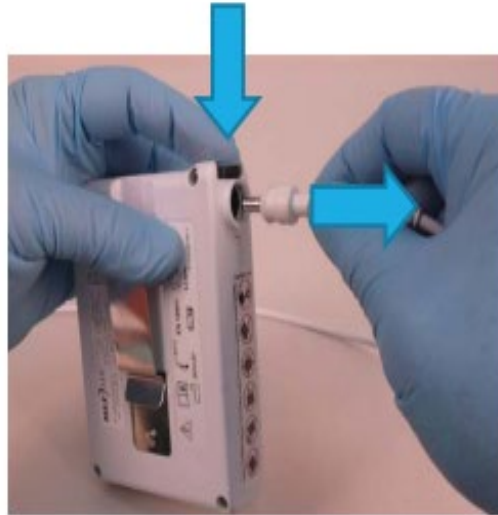


3. Continue pulling outward and forward to release DLC from front TurnClip; dispose per institutional protocol

Doffing CUFF System: Option A



4. Loosen headband adjustment knob by turning it counter clockwise and remove helmet from head



5. Disconnect helmet power cord from the battery by depressing the secure connector and pulling the power cord out



6. Remove battery belt from waist by unfastening the buckle



7. Depending on your charging schedule, connect the charger to the battery to prepare for next use

Doffing CUFF System: Option B



1. Loosen headband adjustment knob by turning it counter clockwise



2. Pull the DLC Cuff away from chin and lift helmet up, forward, and off the head

NOTE: This option leaves the DLC attached for next use; choose the appropriate doffing option per your institution's protocol and application

Doffing CUFF System: Option B



3. Disconnect helmet power cord from the battery by depressing the secure connector and pulling the power cord out



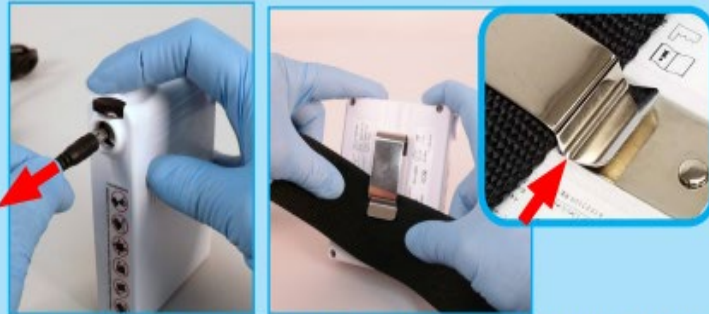
4. Remove battery belt from waist by unfastening the buckle



5. Depending on your charging schedule, connect the charger to the battery to prepare for next use

Donning the Hood System

Assemble and Don Battery and Belt



1. Remove a fully charged Battery from the Charger and place the Belt fully under the Battery Clip so that the Clip Detent touches the Clip, Metal-to Metal.
2. Place the Belt comfortably around the waist with the Battery near the side-back of the right hip and lock the buckles together.

Assemble The Hood to The Helmet



1. Snap Lens Front Alignment Hole over Helmet Front Mounting Post. Attach each Lens Side Alignment Holes over Helmet Side Mounting Posts.
2. Grasp the Hood at the seam between Filter and Shroud(s) and pull Hood up and over the Helmet.



2271PB-07 ML and SM
2271PS-07 ML and SM
Single Hoods



2272PB-07 ML and SM
Double Hoods

Donning the Hood System

Don the Assembled Helmet and Hood



1. Connect Helmet Power Cord to Battery, loosen Headband Ratchet Knob.



2. Pull Cuff top edge down, place Chin into Cuff (Single Hood Only). Pull Helmet down onto Head.



3. Check Cuff Tension¹ around Face (Single Hood Only). Tighten Ratchet knob to secure Helmet for all activities¹.



4. Pull Hood Shroud(s) down to shoulder level.

Complete Donning



1. Place inner Shroud inside body gown (Double Hood Only). Pull outer Shroud down fully.



2. Cup HLF back under Helmet back; Pull HLF forward and down fully covering Hood Filter.



3. Optional Filter Fluid Protection for PB Hoods Only: Place HFR FCC down onto Helmet, covering HLF and Filter.



4. Secure all ties.



1 Ensure less than one-half inch between Eyebrows and Helmet front bottom so Safety LEDs are easily seen.

Single Hoods Only

FCC Side Tabs



1 Ensure that the DLC Flappers are in front of the FCC Side Tabs



1 Ensure slight tension between Face and the Cuff, or use SM size.

Doffing the Hood System

Doff and Disassembly

Reverse Donning and Assembly steps.

Disconnect Battery from Helmet Power Cord

Connect Battery to Charger.



Ready for Next Use

Dispose of single use items per institutional protocol for contaminated waste.

Wipe down all reusable item surfaces with alcohol based wipes.



General System Decontamination

Once the system is doffed, follow your **institution's protocol** for decontamination. These are recommended methods.



Supplies:	▪ Decontaminating wipe ▪ Decontaminating agent such as: alcohol, bleach, or quaternary ammonia
Frequency:	Wipe between uses and between different users wearing the system
Accomplishes:	▪ Reduces cross contamination ▪ Extends useful life ▪ Improves hygiene

Procedure:

1. Inspect system and perform any assembly/disassembly instructions necessary for disposable items and for all components that have become worn or damaged.
2. Apply a suitable wipe with a decontaminating agent over all outside reachable surfaces, and then over all inside surfaces.
3. Let air dry and re-assemble or place in storage.



CAUTION: Do not immerse the battery, helmet and fan module into water or other liquid. This will cause irreparable damage to the helmet.



Comfort Strip Replacement

Front Comfort Strip



1. To remove damaged or soiled Front Comfort Strip, pull it away and off of the Velcro on the headband
2. To attach new Front Comfort Strip, align it with the center of the headband and attach with the loop side facing the Headband and press it on

Rear Comfort Strip



1. To remove damaged or soiled Rear Comfort Strip, pull it away and off of the Velcro on the headband
2. To attach new Rear Comfort Strip, attach the Velcro side to the rear headband.

NOTE: The Rear Comfort Strip is closed cell foam and may be easily cleaned with a decon wipe and reused until worn or otherwise unsuitable for use

Filter Cartridge Replacement



1. With one hand, hold the Helmet and FCC with the thumb against the FCC and the fingers on the inside of the Helmet. With the other hand, pull up on the T-Tab and unlatch it from the Rear Bottom Snap.



2. Continue pulling up on the T-Tab with one hand. Using a sliding motion with the thumb moving up and pushing the FCC up and off the Helmet, pull the Helmet down with the fingers (opposite the thumb and FCC) until the FCC is up and off the helmet.



Filter Cartridge Replacement

We recommend changing the filter cartridge if the yellow indicator light is consistently illuminated (See Slide 16), if the filter has visual signs of damage, or if the filter comes in contact with blood or bodily fluid. Consult your industrial hygienist for application specific recommendations regarding filter cartridge change schedules.



1. Remove the filter cartridge by first unsnapping the left and right filter cartridge snap tabs



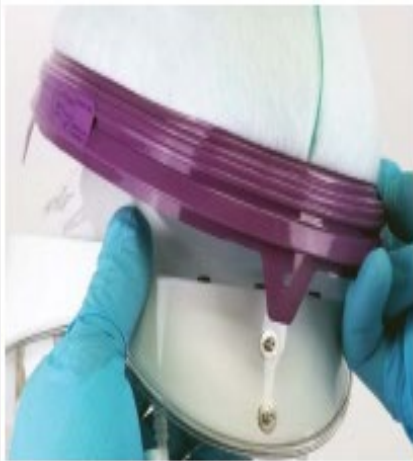
2. Using the front of the plastic retainer ring, lift up on the filter cartridge and pull it off the front of the helmet



3. Continue up and towards the rear to unsnap the rear tab of the filter cartridge, completing the removal of the cartridge from the helmet

Filter Cartridge Replacement – Installing New Cartridge

NOTE: Handle Filter Cartridge by the retainer ring to avoid rough contact with filter media.



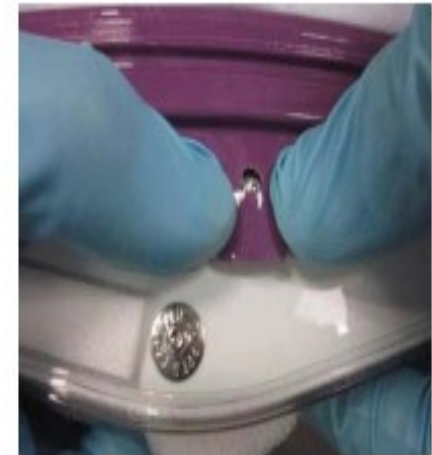
1: Align Filter Cartridge with Helmet rear upper snap



2: Snap and secure rear tab over rear snap using fingers on either side



3: Press filter cartridge retainer ring down to align side tabs over side snaps



4: Snap and secure the side tabs over both the left and right sides

Battery Charging

Charging Instructions

1. Connect charger to an appropriate 100v-240v mains source/outlet – the indicator light will turn green
2. Connect charger to batter – If battery requires charging the light will turn red; if green light stays illuminated the battery is sufficiently charged for use
3. When charging is complete, the green light will come on and the battery is ready for use.

Always remove the battery from the charger when fully charged and when the LED is Green. Never leave the battery on the charger past its maximum charge time.



Charging Time Specifications

NOTE: To optimize the usable life of lithium ion batteries, plan charging schedules according to the charging time specifications table for your particular battery

Battery	2600-01 Charger	
	Typical	Maximum
2500-30TSC (Large)	5 hours	10 hours
2500-37TSC (Medium)	3.8 hours	7.5 hours
2500-36TSC (Small)	2.5 hours	5.0 hours

Battery Storage

If the Lithium-Ion Battery (LIB) is not used regularly, it is recommended to store it at a 50% charge, the initial charge of the battery out of the box is 50%, this ensure 4-5 hours of emergency use prior to being fully charged.

Store in closed containers and packaging that prevent short circuits and damage during storage or transportation. In case of mixed storage of goods and articles, organize separate storage areas for LIBs, for example, by maintaining a distance of 2.5 meters between the LIB storage area and other goods.

Store in limited quantities and in isolated area with frequent surveillance.

Keep in a dry, cool and well-ventilated place, within the recommended storage temperature range of 0°C-35°C (32°F-95°F). Cooler and dryer environments of storage are safer and extend useful life. The temperature range of 19°C-25°C (66°F-77°F) at 30%-50% full charge will optimize battery useful life.



Frequent Asked Questions about MAXAIR PAPR:

- **What areas/applications can I use the MAXAIR for?**
- MAXAIR PAPR Systems can be configured with appropriate face/head covers to provide protection against airborne particulates and varying degrees of contact/splash, fluid, and impact in a broad range of markets, including but not limited to the following: Hospitals/Medical, EMS, Laboratory Research, Pharma/Bio-Technology, Dental, Restoration, Nuclear
- **If I don't use the system regularly and only for emergency preparedness, how often must the battery be maintained?**
- Upon initial purchase, the battery is delivered and can be stored "as is" (at about 50% of full charge) and will provide 4-5 hours of use without being charged. After that, we recommend recharging the battery at least annually or bi-annually.
Refer to the User's Instructions included with each Helmet shipment for details about intermittent use and long-term storage.
- **How often does the filter need to be changed?**
- It depends upon the application, the environment where it is used, the frequency and duration of use, and the organization's protocol for preventing cross-contamination.
- Regardless, MAXAIR CAPR's Yellow LED provides a self-monitoring function that effectively considers these concerns. The yellow LED will illuminate when airflow intake begins to be compromised near the threshold of 6 cfm (170 lpm). This visual warning provides the user ample time to exit the working environment and change out a heavily loaded filter.
- Otherwise, a minimum of every six to twelve months filter change-out is recommended.

Frequent Asked Questions about Batteries:

- **What is the standard MAXAIR System battery and how long does one battery charge last?**
- The 2500-36TSC Lithium-Ion Battery is the primary battery included in system configurations. It typically provides **8-10 hours** of continuous use per full charge, ideal in a low particulate density concentration, filter loading environment, as a Hospital. **This battery is small and lightweight.** The 2500-37TSC Lithium-Ion battery is an alternate for all systems; it typically provides 12-15 hours continuous use per full charge.
- **How many times can the battery be recharged?**
- The battery can be recharged between 450-500 times (also known as “full charge cycles”). A cycle is defined as a complete discharge and recharge. Partial cycle charging is safe and reliable with Lithium Ion batteries. Partial cycles are additive to make up complete cycles when estimating the number of charging cycles to expect from the useful life of a battery.
- **How long does it take to charge the battery?**
- The 2500-36TSC Lithium-Ion battery takes approximately **4-6** hours to completely re-charge; the 2500-37TSC requires approximately 5-7 hours for a complete recharge; the 2500-30TSC requires approximately 6-8 hours for a complete recharge.
- **How long can I leave the battery on the charger?**
- Do NOT leave batteries on the charger after they are fully charged and the Charger LED turns Green. There is no practical benefit to leaving a MAXAIR Lithium Ion Battery connected to a MAXAIR Charger after it is fully charged. Leaving batteries on chargers any longer than a maximum of 8-10 hours only increases risk of something between the mains power source and the battery to go wrong and adversely affect the battery. Once the Charger Green LED turns on, disconnect the Battery from the Charger.

Potential Occupational Hazards Associated with PAPR Use

If an employee utilizing a PAPR experiences the following situations, they should leave the area immediately, discontinue PAPR use, and seek medical attention if required.

- The airflow stops or falls below six cfm
- The PAPR alarms
- Filter breakthrough (smell of chemistry or biologicals in the headpiece)
- Dizziness
- Difficulty Breathing
- Respiratory Distress
- A change in activity or workplace configuration that could add additional or unknown stressors to the employee and or PAPR
- Please watch the below videos about the CAPR system.

Standard Maxair Training Series Videos for Cuff and Shroud Complete Systems

Videos: <https://maxair-systems.com/training-videos>

- **General Respiratory Protection Program Questions**
 - Division of Occupational Health and Safety (DOHS)
 - NIHrespirator@mail.nih.gov
 - 301-496-3457
- **Medical Screening and Medical Related Questions**
 - Occupational Medical Service (OMS)
 - 301-496-4411

- Please complete your training with the quiz to obtain the official training records.

Maxair PAPR quiz

- <https://forms.office.com/g/8FZf894Rxg>