

**EXAMPLE ONLY – THIS IS NOT INTENDED AS A RECOMMENDED SET OF STANDARD OPERATING PROCEDURES FOR YOUR FACILITY.**

**EACH FACILITY MUST DEVELOP THEIR OWN SPECIFIC SOP'S FOR THEIR USE OF PPE IN THEIR FACILITY.**

---

**WARNING: Always refer to and heed all Warnings, Cautions, and Notes in User's Instructions P/N 03521015 Rev K or later, particularly for important battery care and charging instructions and warnings.**

**PURPOSE:**

To protect staff from airborne pathogens during routine care for patients where protection from airborne contaminants is warranted.

**POLICY:**

MAXAIR CAPR Series Cuff Systems (Shroud and Hood Configurations are also available) are to be used by all health professionals entering negative airflow, Airborne Infection Isolation Rooms (AIIR) during hospitalization of patients requiring Airborne Precautions (See Exposure Control Plan).

## **Proper Assembly Procedure**

### **Assemble the Helmet Liner to the Helmet**

1. Begin by securing the Liner front edge under and against the front lip of the Helmet. The Liner front should be "caught" in this recessed area at the Helmet front.
2. Secure one front Liner Snap to the Helmet Snap by pressing the Liner Snap firmly to the Helmet Snap. Repeat for the other front Liner Snap. Then repeat for each of the two rear Liner Snaps.
3. Secure the Helmet Liner rear to the Helmet rear by pressing them together.
4. Ensure the Helmet Power Cord is secure to the Helmet.

### **Assemble the Filter Cartridge to the Helmet**

1. Hold the rear of Helmet upright with one hand, and with the other hand cap the Filter Cartridge over the Helmet from rear to front.
2. Fully secure the Filter Cartridge on the Helmet. Start at the front and go all around the Filter Cartridge. Use the flat surface around the Filter Cartridge, and carefully push it downward firmly until it meets with resistance and all snap tabs are in line with the Helmet snaps.
3. Pull the Filter Cartridge Snap Tabs over the Helmet Snaps and secure them together, starting with the rear, then one side, then the other side.

### **Assemble the Filter Cover Cap (FCC) to the Helmet**

1. Hold the Helmet, with Helmet Liner and Filter Cartridge installed, upright by its rear underside with one hand, and place the FCC over the front edge of the Helmet. Insert the Helmet mounting post through the FCC mounting hole. Pull the FCC over and down the back of the helmet. The side rivets should automatically slide over the Helmet side alignment snaps.

2. Lock the Filter Cover Cap in place by sliding it downward with your thumbs over the rear of the Helmet, secure the back T-Tab latch over the lower rear Helmet Snap, and secure the rear Helmet Pull-Tab to the FCC.

**NOTE: Shroud and Hood configurations are available. Refer to User's Instructions P/N 03521015 Rev K or higher.**

## **Donning the CAPR System**

1. Use the Battery clip to attach the Battery to the Battery Belt. Secure the Belt around the waist.
2. Attach the DLC Lens to the Helmet by pressing each of the Attachment Holes and the Alignment Hole, one at a time, over their corresponding Helmet Attachment Posts, on the right, center, and left sides of the helmet. Be sure that the DLC cuff faces to the inside of the helmet.

**NOTE:** For persons with medium to large faces, start with the 2365-02ML DLC. For persons with a small face, start with the 2365-02SM DLC.

Hold the helmet in one hand just behind the headband and snap one side DLC Attachment Hole over the same side Helmet Attachment Post.

Slide your hand over the DLC and over to the front center of the Helmet and ensure that the DLC center Alignment Hole snaps securely over the Helmet Center Alignment Post.

Then, continue to slide your hand along the top of the DLC and around to the other side of the Helmet and snap the other DLC side Attachment Hole over the other Helmet side Attachment Post.

3. With the DLC fully assembled to the Helmet, remove the Lens Protector by grasping the Peel Tab and gently pulling up and over, right to left.

## **Connect the Battery to the Helmet**

Push the Helmet Power Cord connector into the Battery connector to initiate air-flow. Handle the power cord by the connector, **not** the cord.

**CAUTION:** Push the cord connector all the way in until the secure lock mechanism audibly clicks.

**CAUTION:** If the charger LED was red when the battery was still connected, the battery is not fully charged. If it is necessary to use this non-fully charged battery, take very careful note of the helmet status indicator LEDs when the battery is connected to the Helmet Power Cord. Refer to the Status Indicator LED Matrix table on Page 7 as well as the information in Appendix A. to estimate the amount of useful time remaining on the battery in its not fully charged condition. Proceed once it is determined that there is sufficient charge on the battery for the next activity.

## **Don the Helmet**

1. Loosen the rotary adjustment knob counter-clockwise to insure the Helmet with easily fit over the head.
2. Hold the Helmet by the rear headband in one hand, pull the front top edge of the DLC Cuff down, and place the chin into the DLC Cuff. Then, pull the Helmet over and down on to the head.
3. Grasp the Cuff at its top edge of the DLC Cuff with the thumb and first fingers and pull it down and back, under the chin to insure a good seal.

Slide the fingers on each side of the face from under the chin and up to the temples to insure the cuff is pulled back as far as possible, and to insure a good seal **(AF)**.

**CAUTION:** Insure that the DLC Cuff is fit to the face all around the chin and up to the temples on each side, and that the DLC Flappers are away from the Lens and within ¼ inch of the temples on each side of the head.

**CAUTION:** Proper fit is achieved when -

- tension on the cuff is felt continuously while sliding the index or first finger between the cuff and the face all along the chin and up to the temples, from the right side of the face to the left.
- the Flappers on both left and right sides are touching or within ¼ inch of both right and left temples.

**WARNING: If both conditions, I and II, are not achieved, switch to the other size DLC for smaller head sizes.**

4. Position the Helmet so that the front headband is within ½ inch of the eyebrows, and the rear headband is resting under the occipital bone above the vertebrae on the neck, and then tighten the Adjustment Knob clockwise to insure the most secure fit of the helmet on the head for all activities. Do not over tighten to cause discomfort.

**CAUTION:** If the Helmet is not secure and comfortable on the head, it may be necessary to adjust 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 Front and Rear Headbands. If necessary, unsnap the Height Adjustment tabs on each side of the Helmet Liner and reposition upward or downward, until the optimum setting for comfort and secure fit is determined.

**CAUTION:** Optimum setting is achieved when the helmet is secure on the head for all movements required and the front headband is within 1/2 inch of the eyebrows to allow good visualization of the LEDs in the upper peripheral vision. Be sure to have both Height Adjustment tabs in the same hole position.

## Change the DLC for Continued Use

1. Remove the DLC from the Helmet by grasping the DLC sides, just below where they meet the bottom edge of the Helmet. Hold each side firmly with the thumb and first finger of each hand and pull straight out away from the Helmet and off the side Helmet Attachment Posts.
2. Continue to pull the DLC forward away from the front of the Helmet to remove it from the front Helmet Alignment Post and completely off the Helmet.
3. Dispose of the potentially contaminated DLC by approved institutional protocol for contaminated objects.
4. If the DLC is to be reused, decontaminate it by wiping down all inner and outer surfaces with an alcohol, bleach, or quaternary ammonia wipe.
5. If a new DLC is to be used, remove the appropriate size DLC from the DLC Dispensing Box.
6. Grasp the Peel Tab and remove the Lens Protector by pulling up and across the DLC, from right to left.
7. While holding the DLC just outside of the two side Attachment Holes and with the Cuff side of the DLC towards your face, snap one side DLC Helmet Attachment Hole to its respective side Helmet Attachment

Post.

8. While pulling the other side of the DLC to its respective side of the Helmet, ensure that the middle DLC Attachment Hole fits over the Center Helmet Alignment Post.
9. Complete the attachment by snapping the other side DLC Helmet Attachment Hole to its respective side Helmet Mounting Post on the opposite side of the helmet.

## **Doffing the Helmet**

***There are two, alternative protocols for doffing the CAPR Helmet.***

Alternative A. is doffing the Helmet leaving the DLC attached for the next use.

Alternative B. is removing the DLC for disposal and doffing the Helmet.

### **Alternate A. Doff the Helmet with the DLC attached for next use.**

1. Loosen the rear Headband Adjustment Knob (turn counterclockwise).
2. Hold the front top of the Helmet in one hand and with the other hand on the Adjustment Knob; lift the Helmet up and off the head.
3. Disconnect the Helmet Power Cord from the Battery by releasing the secure lock (press down on the black button above the Cord Connector) and pull the Power Cord Connector straight out of the Battery Connector.
4. Disconnect the Battery Belt from around the waist by un-snapping the buckle.
5. Ensure the Battery Charger is plugged into a properly grounded 110VAC wall outlet and that the LED indicator on the Charger is green. Connect the Battery to the charger by pushing the Charger Cord Connector into the Battery Connector. The Charger light should turn red within a few seconds, to indicate charging. If the Charger LED remains green it means that the Battery is satisfactorily charged and ready for the next use.

**WARNING: Ensure the Battery is removed from the Charger when the Charger LED turns green. Do not leave the Battery on the Charger after the Battery is charged and the light turns green and never longer than the typical maximum charging time per the Battery. Refer to User's Instructions P/N 03521015 Rev K or higher for details on Battery care and Charging instructions, warnings, cautions, and notes.**

6. The entire CAPR System may be decontaminated at this time, or prior to the next use, per the approved institutional protocol.

Decontamination may be accomplished by wiping down all inner and outer surfaces of the system with an alcohol, bleach, or quaternary ammonia wipe.

7. Store the CAPR System in the appropriate, designated location per the institutional protocol until the next use.

### **Alternate B: Remove and dispose of the DLC and doff the helmet.**

1. Remove the DLC from the Helmet by grasping the DLC sides, just below where they meet the bottom edge of the Helmet. Hold each side firmly with the thumb and first finger of each hand and pull straight out away from the Helmet and off the side Helmet Mounting Posts.
2. Continue to pull the DLC forward away from the front of the Helmet to remove it from the front Helmet Mounting Post and completely off the Helmet.
3. Dispose of the potentially contaminated DLC by approved institutional protocol for contaminated objects.
4. If the DLC is to be reused, decontaminate it by wiping down all inner and outer surfaces with an alcohol, bleach, or quaternary ammonia wipe.
5. Loosen the rear Headband Adjustment Knob by turning it counterclockwise.
6. Hold the front top of the Helmet in one hand and with the other hand on the Adjustment Knob; lift the Helmet up and off the head.
7. Disconnect the Helmet Power Cord from the Battery by releasing the secure lock (press down on the black button above the Cord Connector) and pull the Power Cord Connector straight out of the Battery Connector.
8. Disconnect the Battery Belt from around the waist by un-snapping the buckle.
9. Be sure the Battery Charger is plugged into a properly grounded 110VAC wall outlet and that the LED indicator on the charger is green. Connect the Battery to the Charger by pushing the Charger Cord Connector into the Battery Connector. The Charger light should turn red within a few seconds, to indicate charging. If the Charger LED remains green it means that the Battery is fully charged and ready for the next use.  
  
**WARNING: Ensure the Battery is removed from the Charger when the Charger LED turns green. Do not leave the Battery on the Charger after the Battery is charged and the light turns green and never longer than the typical maximum charging time per the Battery. Refer to User's Instructions P/N 03521015 Rev K or higher for details on Battery care and Charging instructions, warnings, cautions, and notes.**
10. The entire CAPR System may be decontaminated at this time, or prior to the next use, per the approved institutional protocol. Decontamination may be accomplished by wiping down all inner and outer surfaces of the system with an alcohol, bleach, or quaternary ammonia wipe.
11. Store the CAPR System in the appropriate, designated location per the institutional protocol until the next use.

## **CAPR Helmet Components Disassembly**

### ***Disassemble the Filter Cover Cap (FCC) from the Helmet***

1. Unsnap the Helmet Pull Tab, pull the tab downward and out away from the helmet to release the FCC from the Helmet. Lift the FCC up and forward, off the Helmet.
2. NOTE: If the FCC does not release it may be in the locked position, indicated by the gap at the top between the FCC and the snap adapter.

3. Press down on the lower back of the FCC to release the lock as indicated by the gap at the bottom between the FCC and the snap adapter. Then repeat the previous instructions.

### ***Disassemble the Filter Cartridge from the Helmet***

1. Un-snap either side Filter Cartridge Snap Tab from the Helmet Snap. Then un-snap the other side.
2. Grasp the Filter Cartridge purple retainer at the front and begin lifting the filter cartridge off the Helmet. Remove the Filter Cartridge from the Helmet with an un-hook motion to release the rear snap.

**NOTE: Dispose of the Filter Cartridge per institutional protocol for hazardous materials.**

### ***Disassemble the Helmet Liner from the Helmet (2071-01 from the 2070-03)***

**NOTE:** The Helmet Power Cord may remain connected to the helmet for all normal operation, donning/doffing, and assembly/disassembly. The Liner can be removed from under the Helmet Power Cord by allowing the Power Cord to be bypassed during Liner removal via the Liner Cord Slot.

1. Hold the Helmet upside down with one hand, and detach the front 2 snaps on the Helmet Liner from the helmet snaps by hooking the Headband on the Helmet Liner with your thumb and pushing off the tip of the helmet with your other fingers.
2. Continue to pull the Helmet Liner away from the Helmet via the Headband and Liner front edge, to detach the rear 2 snaps of the Helmet Liner from the Helmet.

### **Decontaminating the CAPR System**

3. All outer and inner surfaces of the assembled system may be wiped down with an alcohol, bleach, or quaternary ammonia wipe between uses and between different users wearing the system.
4. First inspect the system and perform any disassembly and assembly procedures necessary for all disposable items, and for all components that have become worn or damaged.
5. Apply a suitable wipe over all outside surfaces, and then over all inside surfaces.
6. If desirable, replace the DLC, Filter Cartridge, or Filter Cover Cap by following their assembly and disassembly procedures, respectively.
7. If desirable, replace the front headband Comfort Strip.
8. A disposable front Headband Comfort Strip is provided for added comfort. A rear, non-disposable Closed Cell Foam Comfort Strip is provide for added comfort and sizing for very small head sizes. They are attached by hook and loop to the Headband.
9. To remove a damaged or soiled front Comfort Strip, pull it away and off of the Headband.
10. To attach a new front Comfort Strip, align it parallel to the Headband with the loop side facing the Headband and press it on (only one side of the comfort strip will attach to the hook tape on the Headband).

11. The rear Closed Cell Foam comfort strip may be cleaned for reuse by wiping with an alcohol, bleach, or quaternary ammonia wipe.
12. The following warnings must be adhered to for maximum longevity of your system.

**WARNING: DO NOT IMMERSE THE HELMET AND FAN MODULE INTO WATER OR OTHER LIQUID. THIS WILL CAUSE IRREPARABLE DAMAGE TO THE HELMET.**

**WARNING: DO NOT USE SOLVENT OR ALCOHOL TO CLEAN THE HELMET.**

13. Isopropyl alcohol may be used to clean the Helmet. However, repeated long term use of isopropyl alcohol may deface the Helmet.

**CAUTION: Difficult to clean areas/air channels - the air channels should never need cleaning. If they do, the Filters are not being maintained properly or replaced at appropriate intervals.**

## **Cleaning and Maintenance of the CAPR System**

### ***Installing and Changing Comfort Strips***

1. A front and rear Headband Comfort Strip are provided for added comfort. They are attached by hook and loop to the Helmet Liner front and rear Headbands.
2. To remove a damaged or soiled front headband Comfort Strip, pull it away and off of the Headband.
3. To attach a new front headband Comfort Strip, align it parallel to the Headband with the loop side facing the Headband and press it on (only one side of the comfort strip will attach to the hook tape on the Headband).
4. The rear headband comfort strip is made of Closed Cell Foam and is not necessary to be removed. It may be
5. cleaned for reuse by wiping with an alcohol, bleach, or quaternary ammonia wipe.

### ***Cleaning the Outer and Inner surfaces of the CAPR System***

1. Use a damp cloth with mild detergent to clean all outer and inner exposed surfaces.
2. Isopropyl alcohol may be used to clean the CAPR System. However, repeated long term use of isopropyl alcohol may deface the CAPR System materials.

**WARNING: DO NOT IMMERSE THE HELMET AND FAN MODULE INTO WATER OR OTHER LIQUID. THIS WILL CAUSE IRREPARABLE DAMAGE TO THE HELMET.**

**WARNING: DO NOT USE SOLVENT OR ALCOHOL TO CLEAN THE HELMET.**

### ***Maintenance of the CAPR System and Filter Cartridges***

All components of the CAPR System must be inspected before each use. If there are tears or breaks, if there is contamination from blood or other bodily fluids not safely removed by following approved decontamination procedures, if there is compromise with the seal between the DLC and the Filter Cover Cap, or if any other functional compromise is noticed, replace the particular item by following the assembly and disassembly procedures for those particular items.

Filter Cartridges must be inspected before each use. If there are tears or breaks, or if there is compromise with the seal with the Helmet, replace the Filter Cartridge.

If the Filter is soiled or challenged with particulates such as to compromise its performance or causes the Yellow LED to be lit, the Filter Cartridge should be replaced by following its assembly and disassembly procedure.

MAXAIR Systems are very reliable, essentially sealed helmet systems that do not require periodic maintenance. All components are expected to provide reliable service for the full useful life of the system.

**If you have difficulty with the proper operation of a MAXAIR Systems helmet, first check for any visible damage to the outer and inner surfaces, and to the attached helmet power cord.**