



Recommendations for the Reprocessing of Reusable Elastomeric Respirators in Health-Care During a Pandemic

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Definitions

Alcohol-based hand rub (ABHR): An alcohol-containing preparation (e.g., liquid, gel, foam) designed for application to the hands to remove or kill microorganisms.

Cleaning: The physical removal of foreign material (e.g., dust, soil) and organic material (e.g., blood, secretions, excretions, microorganisms). Cleaning physically removes rather than kills microorganisms. It is accomplished with water, detergents, and mechanical action.

Contact time: The defined time for which surfaces of the medical device are exposed to a wet chemical or thermal disinfection process to achieve the appropriate level of disinfection or decontamination.

Decontamination: The process of cleaning, followed by the inactivation of microorganisms, in order to render an object safe for handling.

Detergent: A synthetic cleansing agent that can emulsify oil and suspend soil. A detergent contains surfactants that do not precipitate in hard water and may also contain protease enzymes and whitening agents.

Disinfectant: A chemical agent that kills most disease-producing microorganisms, but not necessarily bacterial spores. Disinfectants are applied only to inanimate objects. Some products combine a cleaner with a disinfectant.

Disinfection: A process that kills most disease-producing microorganisms. Disinfection does not destroy all bacterial spores. Medical devices must be cleaned thoroughly before effective disinfection can take place. There are three levels of disinfection – high, intermediate, and low.

Elastomeric respirator: A type of respirator with exchangeable filters that seals to the face using a mask made of an elastomeric material, which may be a natural or synthetic rubber.

Hand hygiene: A general term referring to any action of hand cleaning. Hand hygiene relates to the removal of visible soil and removal or killing of transient microorganisms from the hands. Hand hygiene is accomplished using soap and running water or an ABHR.

Health-care provider: Any person delivering care to a client, patient, or resident.

Health-care setting: Any location where health-care is provided, including settings where emergency care is provided, hospitals, complex continuing care, rehabilitation hospitals, long-term care homes, mental health facilities, outpatient clinics, community health centres and clinics, physician offices, dental offices, offices of allied health professionals, and home health-care.

Intermediate-level disinfection: A process capable of killing vegetative bacteria, mycobacteria including mycobacterium tuberculosis, fungi, and lipid, and non-lipid viruses.

Infection prevention and control (IPC): Evidence-based practices and procedures that, when applied consistently in health-care settings, can prevent or reduce the risk of transmission of microorganisms to health-care providers, clients/patients/residents, and visitors.

Manufacturer's instructions for use (MIFU): The written directions provided by the manufacturer or distributor of a product that contain the necessary information for the safe and effective use of the product.

Medical device: Any instrument, apparatus, appliance, material, or other article, whether used alone or in combination, intended by the manufacturer to be used for human beings for the purpose of diagnosis, prevention, monitoring, treatment, or alleviation of disease, injury, or handicap; investigation, replacement, or modification of the anatomy, or of a physiological process; or control of conception.

Medical device reprocessing department: A centralized area within the health-care setting for cleaning, disinfection, and/or sterilization of medical devices.

Noncritical medical device: Devices that either touch only intact skin (but not mucous membranes) or do not directly touch the client/patient/resident. Reprocessing of noncritical devices involves cleaning and may require low-level disinfection (e.g., blood pressure cuffs, stethoscopes).

Personal protective equipment (PPE): Special clothing or equipment worn by staff for protection against hazards.

Reprocessing: The steps performed to prepare used medical devices for reuse (e.g., cleaning, disinfection, and sterilization).

Routine practices: The approach to infection control used to minimize or prevent exposure to microorganisms in health-care settings (e.g., blood and body fluid, secretions, and excretions from all patients).

Semi-critical medical device: Medical device that comes into contact with non-intact skin or mucous membranes but ordinarily does not penetrate them (e.g., respiratory therapy equipment, trans-rectal probes, and specula).

Thermal disinfection: Moist heat that is applied at or above the recommended temperature, to all parts of the item, for the recommended time.

Washer-disinfector: A machine intended to clean and disinfect medical devices.

Preamble

While use of N95 respirators is the preferred PPE for airborne precautions within B.C. health authorities, the supply of the standardized 3M N95 product has not fully returned to normal levels due to very high international demand and global production disruptions. Deploying N95 respirator alternatives, including reusable elastomeric respirators, is a key strategy to ensure health-care workers continue to have access to appropriate PPE during the pandemic.

Use of the reusable elastomeric respirator is a medically accepted alternative in the event of a disruption in N95 respirator supply. This contingency approach relies on well-defined preparatory actions being taken within each health authority.

These include:

1. Working with the medical device reprocessing department (MDRD), infection prevention control (IPC), and occupational health & safety (OH&S) to develop a process for the reprocessing of elastomeric respirators with consideration to resource commitment/constraints, transfer between sites, distribution between and within sites, storage/access for staff, maintenance vs. replacement and capacity for reprocessing to meet demand.
2. Ensuring site or service specific processes for cleaning, storage, and quality assurance are established within each health-care entity for trained staff to follow.
3. Ensuring that individuals responsible for cleaning and reprocessing the elastomeric respirators are trained according to the site or service specific processes established within the health-care entity.

Prior to the COVID-19 pandemic, health-care had been a marginal user of elastomeric respirators. The majority of elastomeric respirators are used by workers for industrial, mining, and military purposes. However, when used within health-care during the COVID-19 pandemic, the reprocessing instructions within the manufacturer's instructions for use are not acceptable for the intended application of what is now included in the category of 'health-care PPE', as recognized by 3M through their continuous efforts to release updates to technical bulletins during the COVID-19 pandemic.¹

In a health-care setting, elastomeric respirators are classified as non-critical devices that are subject to intermediate-level disinfection between clinical uses. The process of how to conduct this level of reprocessing will be dependent on how devices are deployed (e.g. individually assigned vs. access to common fleet). In the event a site is considering deployment of an elastomeric fleet during a pandemic, it will be necessary to consider centralized reprocessing hence the need to consult with MDRD, IPC and OH&S while exploring this option prior to making an informed decision.

Participants in the development of this document are:

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- Sandra Swanson, MDR Operations Leader, Providence Health Care
- Connie Reid, Regional MDR Coordinator, Interior Health

These recommendations have been reviewed and endorsed by representatives from the B.C. Provincial Infection Control Network (PICNet) and Workplace Health and Safety from Vancouver Coastal Health, Fraser Health, Interior Health, the Provincial Health Services Authority, and B.C. Emergency Health Services (BCEHS) Infection Prevention and Control.

¹June 2020 technical bulletin: "Cleaning and Disinfecting 3M Reusable Elastomeric Half and Full Facepiece Respirators following Potential Exposure to Coronaviruses" from: <https://multimedia.3m.com/mws/media/17939590/cleaning-and-disinfecting-3m-reusable-respirators-following-potential-exposure-to-coronaviruses.pdf> (retrieved June 2020)

Overview: Elastomeric Half-Face Respirator (EHFR) Reprocessing

Purpose:	To help B.C. health-care settings establish a process to manage the reprocessing of elastomeric respirators supplied to frontline health-care workers, as a measure to manage the critical supply disruption of N95 disposable respirators during the pandemic.
Scope:	<p>This guidance is relevant for:</p> <ul style="list-style-type: none"> • Clinical areas that are traditionally high users of N95 respirators (e.g., intensive care units, operating rooms, emergency departments, medical laboratories, pharmacy). • Clinical areas and services assessed to be at the highest risk of airborne exposure where no environmental controls can be put into place to avoid this exposure (e.g., endoscopy procedure rooms, anesthesia service, respiratory therapy service, ear nose and throat surgeons, COVID-19 clinical care units, BCEHS). • Clinical staff or services involved in reprocessing respirators (e.g., medical device reprocessing, satellite reprocessing areas, clinical ward aides, end users). <p>Environment:</p> <ul style="list-style-type: none"> • All health-care facilities or services where elastomeric respirators are used. <p>Indications:</p> <ul style="list-style-type: none"> • This procedure is effective immediately until further notice.
Outcomes:	In consultation with IPC practitioner(s), OH&S consultant(s), and/or a MDR lead, health-care providers will be able to set up a process in accordance with one of the presented options to safely and effectively disinfect elastomeric respirators. The options presented range from access to MDR services for centralized reprocessing, to instructions for end-user disinfection for individually assigned elastomeric respirators.

General Introduction

The following elastomeric respirators have been tested and are appropriate for reuse following option 1A and 1B disinfection procedures. The elastomeric half-face respirator (EHFR) models, 3M series 6000, 3M series 7500 and Honeywell North 7700 are appropriate for reuse following the option 2 disinfection procedure.



3M Series 6000



3M Series 7500



Honeywell North 7700



North Series 7600



3M Series 6000

Option 1: Reprocessing Elastomeric Respirators

Options 1A and 1B provide guidance for reprocessing batches or a fleet of elastomeric respirators through a centralized medical device reprocessing service or within an appropriate space where reprocessing can be conducted by assigned, trained staff.

COLLECTION:

- At the end of a shift, any used EHFR and/or full-face respirator will be placed in a dedicated closed container and transported to a designated location for reprocessing as per established schedule.
- The end-user is to remove the filters from the facepiece before placing the respirator in the transport container.
- If a respirator needs any component (valve, gasket, strap) replaced, the end-user should place that unit in a plastic bag, attach a 'repair tag,' and place the bag in transport container.

WARNING: Filters on elastomeric respirators cannot tolerate chemical or thermal disinfection.

All filters **MUST** be removed, wiped, and stored by end-user prior to placing the respirator in a collection container.

Option 1A: Thermal Disinfection of EHFRS – Using a MDR Washer Disinfector System

DECONTAMINATION / DISINFECTION:

1. Don full PPE, appropriate for decontamination area of the Medical Device Reprocessing Department (gown, gloves, mask, goggles or faceshield and hat).
2. Place fully assembled respirators in **three tier manifold rack (figure 1) in instrument baskets**.
 - If not grossly contaminated, do not manually wash before disinfection in washer-disinfector.
 - Remove and discard any remaining filters on either side of the respirator, as they are now contaminated. End-user should remove filters before placing unit in collection container.
 - If grossly contaminated (visible blood and body fluids, debris, or make-up residue), manually wash in sink with neutral detergent, gently scrub and wipe device with nylon brush and disposable cloth. Depending on level of contamination, respirator may need to be disassembled for cleaning. Rinse and place in basket with other respirators to be disinfected in washer-disinfector.
 - If respirators have attached 'repair tag' (the repair tag may be in or on the plastic bag), replace parts after disinfection and drying process.
3. Load three pans per shelf (12 pans) or appropriate for washer-disinfector model.
 - Number of respirators/pan depends on size of pan.
 - Do not crowd the respirators.
 - Place respirator open area down.



Figure 1: Example of manifold rack to be used for washer disinfector loading.

4. Push manifold rack into washer-disinfector – choose appropriate cycle.

WARNINGS: Pans MUST be used to hold both half mask and full face elastomeric respirators. NEVER place elastomeric respirators directly on the header/manifold rack.

DRYING:

1. Upon completion of cycle, remove respirator from pan and place on a table covered with linen drape.
2. Carefully dry the excess moisture from the respirators. If available, use regulated compressed air on low setting (figure 2).
3. Place respirators in dedicated drying cabinet.
 - SET AT LOW TEMPERATURE FOR 1 HOUR (add time if not dry).



Figure 2: Use of regulated compressed air to dry excess moisture from respirator.

INSPECTION:

1. When dry, inspect respirators:
 - Check facepiece for cracks and tears. If any peeling/degradation of rubber over-molding inside the facepiece is observed, refer to appendix D.
 - Inspect face seal area for signs of distortion.
 - Examine inhalation valves and inhalation gaskets for signs of distortion, cracking, or tearing.
 - Ensure the respirator strap assembly is intact and has good elasticity.
 - Examine all plastic parts for signs of cracking or fatiguing. Ensure seal areas are in good condition.
 - Replace parts, as necessary.

STORAGE AND DISTRIBUTION:

1. Place each disinfected respirator in a clean plastic bag – labelled with size (small, medium, large).
 - For individually assigned half-face and full-face respirators, place each in a clean plastic bag labelled with designate's name.
2. Place bag in CLEAN, covered transport container.
3. Label exterior surface of transport container 'disinfected respirators' along with end-user area.
4. Place transport containers in designated area for transport to specific user department.

Option 1B: Chemical Disinfection Procedure – Using a Health Canada Approved Disinfectant²

DECONTAMINATION/CLEANING:

1. Don PPE for decontamination area of the Medical Device Reprocessing Department (gown, gloves, mask, face shield, hat).

² Government of Canada: Hard-surface disinfectants and hand sanitizers (COVID-19): List of disinfectants with evidence for use against COVID-19: <https://www.canada.ca/en/health-canada/services/drugs-health-products/disinfectants/covid-19/list.html#tbl1> (retrieved October 8, 2020)

2. Clean exterior and interior surfaces with a cloth that has been moistened with neutral detergent and water solution. Rinse with water.
3. Immerse facepiece(s) in chemical disinfectant solution. Soak for the required time recommended by manufacturer.
4. Remove from solution and rinse thoroughly.
5. Discard solution, following product manufacturer instructions.

WARNING: If grossly soiled (*visible blood and body fluids, debris or make-up residue*), respirator should be manually cleaned prior to disinfection. Refer to appendix A and appendix B for procedure.

DRYING:

1. Carefully dry the excess moisture from the respirators using a lint free cloth, if available use regulated compressed air on low setting (Figure 2).
2. Place masks into a dedicated drying cabinet set on a low temperature.

INSPECTION AND REASSEMBLY:

1. If disassembled for cleaning, assemble valves, gaskets, cover, and harness onto mask.
2. When dry, inspect respirators:
 - Check facepiece for cracks and tears. If any peeling/degradation of rubber over-molding inside the facepiece is observed refer to Appendix D.
 - Inspect face seal area for signs of distortion.
 - Examine inhalation valves and inhalation gaskets for signs of distortion, cracking or tearing.
 - Ensure the respirator strap assembly is intact and has good elasticity.
 - Examine all plastic parts for signs of cracking or fatiguing. Ensure seal areas are in good condition.
 - Replace parts as necessary.

STORAGE AND DISTRIBUTION:

1. Place in clean plastic bag - labelled (Small, Medium, Large).
2. Place bag in CLEAN covered transport container.
3. Label exterior surface of transport container "Disinfected Respirators" along with end user area.
4. Place transport containers in designated area for transport to specific user department.

Option 2: Reprocessing Individually Assigned EHFRs Using Accelerated Hydrogen Peroxide (AHP) Wipes

For this procedure, the following are assumed:

- EHFRs will be dedicated to the individual they have been issued to.
- EHFRs shall be cleaned and disinfected between each use and at end of shift.
- There will be a continued supply of Accel INTERvention and/or Accel PREvention wipes through PHSA supply chain.

CLEANING/DISINFECTION:

1. Ensure there is a clean surface to place the respirator on for cleaning, disinfecting, and drying.
2. Remove elastomeric respirator (using side straps).
3. Following point-of-care risk assessment, complete hand hygiene and don appropriate PPE.
4. Ensure filters and gaskets on the respirator are securely attached and in good condition.
 - If using a plastic cover over a canister filter, ensure it is intact and covering the filter.
5. Wipe interior surfaces of respirator first, then exterior surfaces and filter canister/plastic filter cover using AHP wipes (Accel INTERVention or PREVention). Ensure following minimum wet contact time:
 - Accel INTERVention wipes:³ one minute effective contact time.
 - Accel PREVention wipes:⁴ three minute effective contact time.

WARNING: If grossly soiled (*visible blood and body fluids, debris, or make-up residue*), respirator should be disassembled and manually cleaned prior to disinfection. Refer to appendix A and appendix B for procedure. Or follow established, health authority specific guidelines and protocols for managing grossly soiled EHFRs.

DRYING:

1. Allow respirator to completely dry before placing in storage container.

INSPECTION:

1. When dry, inspect respirator:
 - Check facepiece for cracks and tears. If any peeling/degradation of rubber over-molding inside the facepiece is observed, refer to appendix D.
 - Inspect face seal area for signs of distortion.
 - Examine inhalation valves and inhalation gaskets for signs of distortion, cracking, or tearing.
 - Ensure the respirator strap assembly is intact and has good elasticity.
 - Examine all plastic parts for signs of cracking or fatiguing. Ensure seal areas are in good condition.
 - Replace parts, as necessary.

STORAGE:

1. Place respirator in a dedicated plastic container that is clean and sanitized.
2. Ensure container is labelled with the name of the user.
 - Filter (cartridges) may be stored in the container with respirator if cleaned and disinfected. Store appropriately in a clean paper bag to minimize moisture and inhibit bacterial growth.

³ Diversy Accel INTERVention product info: <https://diverse.com/en/product-catalogue/accel-intervention-wipes-100906584>

⁴ Diversy Accel PREVention product info: <https://diverse.com/en/product-catalogue/accel-prevention-wipes-100906721>

Appendices: Managing Gross Contamination and Maintenance of EHFRS

This section is specifically to address two main issues outside of routine cleaning and disinfection processes, in addition to providing an example procedure for end-user management of individually assigned EHFRs based on content within this document.

Appendix A: Manual Cleaning for Grossly Soiled EHFRs

CLEANING:


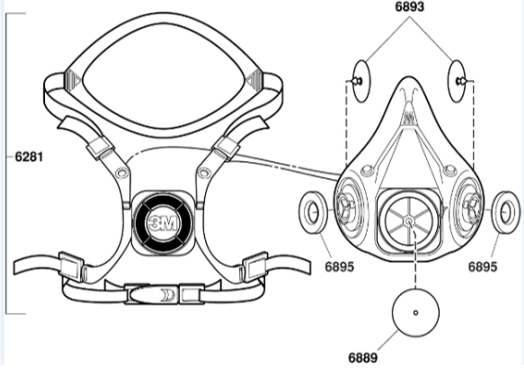
1. **Dissassemble respirator:** Refer to appendix B to identify make/model or page six for listing.
2. **Fill sink with water and neutral detergent solution:** Follow detergent manufacturer's recommended use dilution. The water temperature should not to exceed 49°C (120°F).
3. **Immerse facepiece(s) and components (cover, valves, and gaskets) in detergent and water solution:** Soak for the required time recommended by detergent manufacturer. Mask may need to be secured to ensure it remains submerged. If this is not possible, flip mask after two minutes.
4. **Wipe with a lint free cloth and a soft brush until clean:** Wipe while mask and components are submerged.
5. **Remove from detergent solution and rinse respirator thoroughly.** Rinse with water and hand-dry with a clean lint-free cloth.
 - If available, use compressed air on low setting to dry further.
 - Inspect to ensure the respirator and accessories are clean and completely dry before placement into the disinfectant solution.

Appendix B: Disassembly and Reassembly of EHFRs

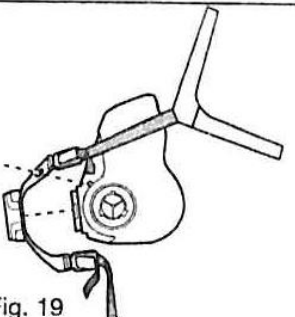
The following respirator models have attachments that can be replaced when damage is identified during the inspection and/or disinfection process.



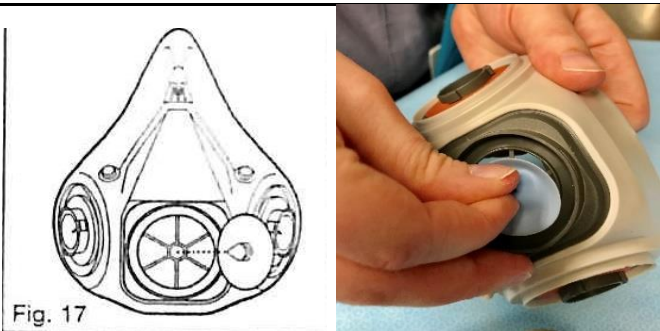
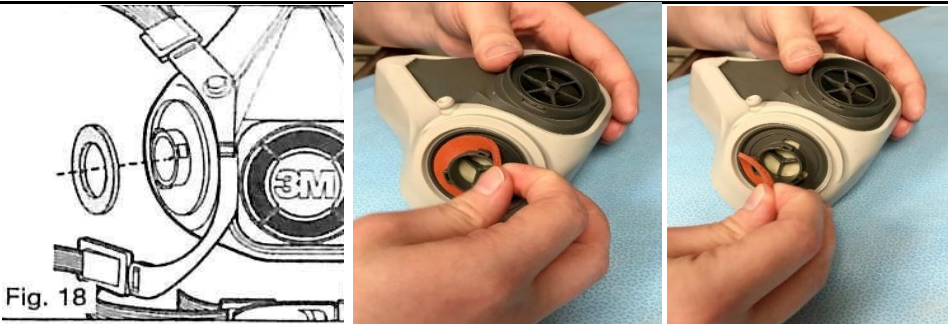
3M Series 6000

Overview of Parts: 3M Half Face Respirator Series 6000

	
<p>Assembly Parts:</p> <ul style="list-style-type: none">6281 – Respiratory strap assembly, exhalation cover6893 – Inhalation valve, x26889 – Exhalation valve x26895 – Inhalation gasket x26200 – Respirator	

Disassemble and Replace Attachments: 3M Half Face Respirator Series 6000

<p>Step 1: Remove respirator strap assembly and exhalation cover.</p> <p>NOTE: DO NOT PULL on strap assembly.</p>	 <p>Fig. 19</p>
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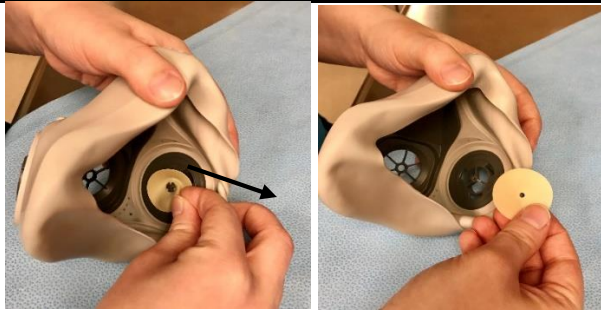
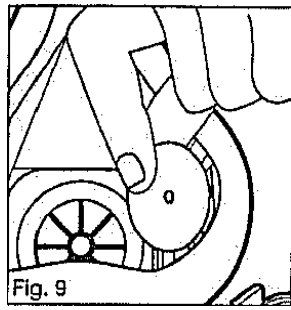
<p>Step 2: Disengage upper legs of valve cover assembly from facepiece buttons.</p>		
<p>Step 3: Remove exhalation cover by gently lifting up the lower strap lower edge of cover.</p> <p>Suggest using mosquito forcep or small elevator to lift up lower edge of cover.</p> <p>Photo: Exhalation cover.</p>		
<p>Step 4: Remove exhalation valve from valve seat.</p> <p>Grasp valve and pull valve stem away from valve seat.</p> <p>Examine exhalation cover and valve from signs of dirt, distortion, cracking, or tearing.</p> <p>Photo: Exhalation valve.</p>		
<p>Step 5: Remove inhalation gaskets (each side of exterior surface of facepiece) from facepiece inhalation port bayonet fittings.</p> <p>Examine for signs of distortion, cracking or tearing.</p> <p>Photo: Inhalation gaskets.</p>		

Step 6:

Remove inhalation valves (on posts at the inside of the facepiece inhalation ports), gently pulling valve away from posts.

Examine for signs of distortion, cracking, or tearing.

Photo: Removing inhalation valve.



Reassembly: 3M Half Face Respirator Series 6000

Step 1:

Place inhalation valves into position, ensuring edges are seated under the posts.

Photo: Inhalation valve.



Step 2:

Place inhalation gaskets into position, ensuring edges are seated under the three byonet lugs.

Photo: Inhalation gasket.



Step 3:

Place exhalation valve over exhalation port and press valve stem into centre hole. Valve should spin freely in mount when fully seated.

Photo: Attaching the exhalation valve.



Step 4:

Position strap assembly exhalation cover over facepiece exhalation port and snap into place by firmly pressing together.

Engage holes in upper legs of valve cover assembly with facepiece buttons.

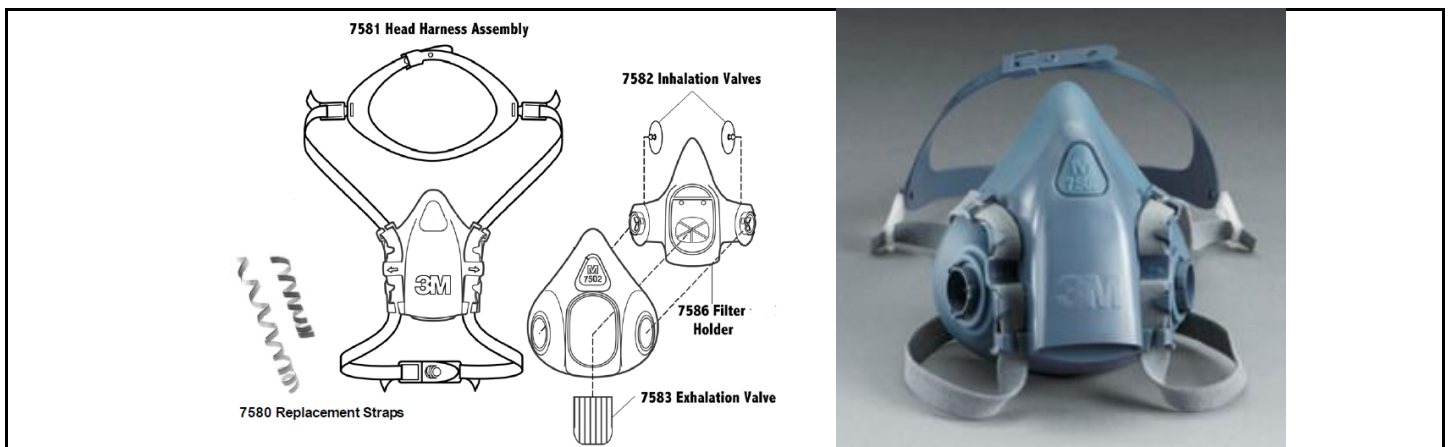
Photo 1: Strap assembly cover – snap into place

Photo 2: Upper leg holes engaged with facepiece buttons



3M Series 7500





Overview: 3M Half Face Respirator Series 7500



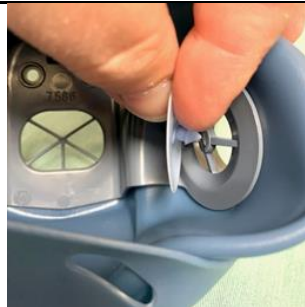


Parts:

- 7580 – Replacement harness straps
- 7581 (a) – Head harness assembly
- 7582 (b) – Inhalation valve
- 7582 (c) – Exhalation valve
- 7586 (d) – Filter holder

Dissassembly: 3M Half Face Respirator Series 7500

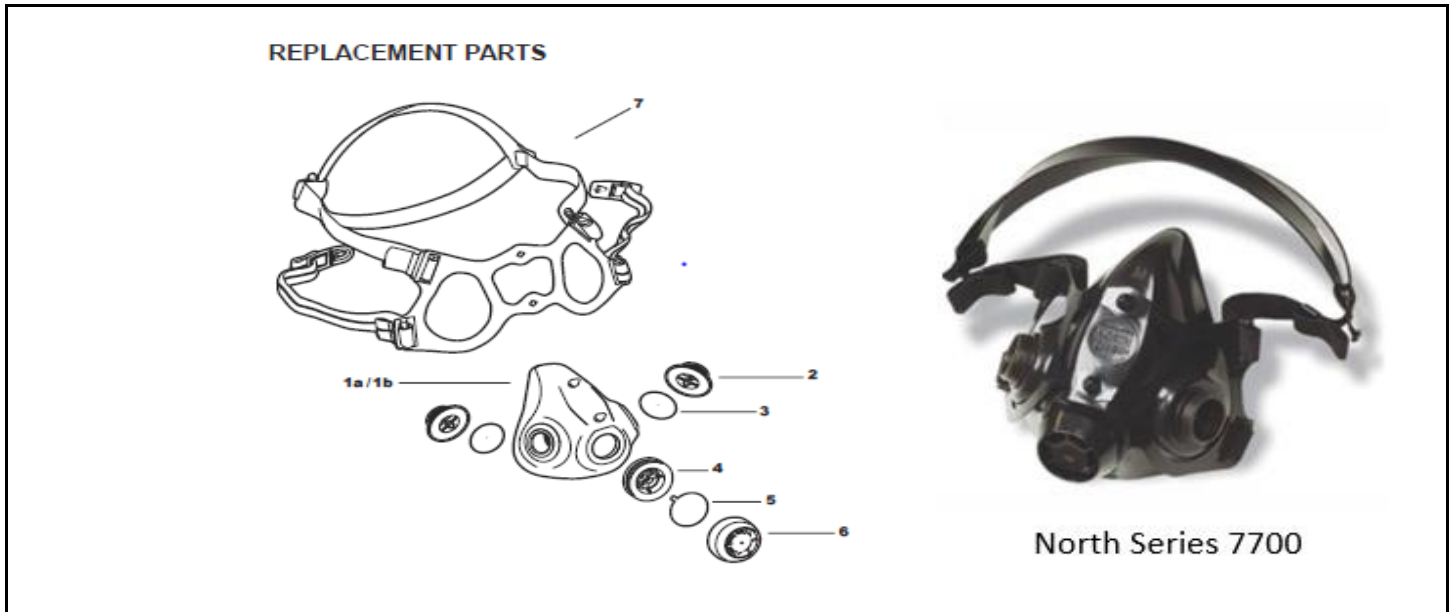
<p>Step 1: Check the face seal for cracks, tears and dirt.</p> <p>Check the head straps are intact and have good elasticity.</p> <p>Remove head harness assembly from facepiece.</p>		
<p>Step 2: Remove exhalation valve by gently pulling valve stems from seat.</p> <p>Examine valve for signs of dirt, distortion, cracking, or tearing.</p>		
<p>Step 3: Remove inhalation valve (both sides inside facepiece), gently pulling valve stem from seat</p> <p>Examine valve for signs of dirt, distortion, cracking, or tearing.</p>		
<p>Photo: Fully disassembled respirator.</p>		

Reassembly: 3M Half Face Respirator Series 7500

<p>Step 1: Place inhalation valve over inhalation port and press valve stem into centre hole. Valve should spin freely when fully seated.</p>	
<p>Step 2: Position exhalation valve stems over port and press into place. From inside facepiece, gently pull valve stems through openings into position.</p>	
<p>Step 3: Position head harness assembly over facepiece exhalation port and snap into place by firmly pressing together.</p>	

North Series 7700

Overview: North Half Face Respirator Series 7700



Parts:

- 1b: 770011S, M, L – Basic Facepiece for 7700, sizes small, medium, and large
- 2: 770016 – Cartridge connector
- 3: 770017 – Inhalation valve
- 4: 770019 – Exhalation valve seat
- 5: 770018 – Exhalation valve
- 6: 770020 – Exhalation valve guard
- 7: 770092 – Cradle suspension system

Disassembly: North Half-Face Respirator Series 7700

Step 1:

Check the face seal for cracks, tears, and dirt.

Check that the head straps are intact and have good elasticity.

Remove cradle suspension system, gently pulling away from posts of facepiece.



<p>Step 2: Remove exhalation valve guard by gently pulling guard off valve seat.</p>		
<p>Step 3: Remove exhalation valve by gently pulling valve stem from seat. Examine valve for signs of dirt, distortion, cracking, or tearing.</p>		
<p>Step 4: Remove inhalation valves (on posts inside the facepiece cartridge connectors). Examine for signs of distortion, cracking, or tearing.</p>		

Reassembly: North Half-Face Respirator Series 7700

<p>Step 1: Place inhalation valves in place, ensuring inside edge is seated under posts.</p>		
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Step 2:

Position exhalation valve stem over port and press into place. From inside facepiece, gently pull valve stem through opening into position.



Step 3:

Position exhalation valve guard over valve seat and snap into place by firmly pressing together.



Step 4:

Position cradle suspension system over posts of facepiece (noting 'TOP' and 'THIS SIDE OUT'), press into position.



Appendix C: Example Procedure Cleaning and Disinfection for the Use of Reusable Elastomeric Half-Facepiece Respirators During and Between Shifts (Fraser Health)

Cleaning and Disinfection Procedures for the Use of Reusable Elastomeric Half-Facepiece Respirators (EHFRs) During and Between Shifts

Elastomeric Respirators: Daily Use

Applicability: Elastomeric half-facepiece respirators (EHFR) issued to health-care professionals for individual, full-day use.

Respirators are not to be shared between individuals during a shift. Whether the respirator is permanently assigned to an individual or whether the respirator is only shared between shifts, the respirator must undergo the end-of-day cleaning and disinfection process.

Individuals must receive annual education, training, and fit-testing to use any of the respirators listed in this document.

Manufacturer	3M	North
Make	Elastomeric respirator	Elastomeric respirator
Model	6000, 7500 series	7700 series
Filter	P100 (7093)	P100 (7580P100)

Scope: Use of a fit-tested half-facepiece elastomeric respirator with P100 filters for provision of care to a patient where an N95 respirator is required but is either not available or an adequate fit cannot be obtained.

Process	Steps
1. Inspection of elastomeric respirator prior to donning.	1.1 Ensure respirator components are dry. 1.2 Label respirator on elastic straps with your name (do not write on the strap or apply tape). 1.3 Ensure filter gaskets are properly seated and in good condition. 1.4 Ensure respirator filters are properly attached to respirator. <ul style="list-style-type: none"> • If new filter, document change date (one year) on back of filter with permanent marker • If marked date is fading, reapply with a permanent marker. 1.6 Check facepiece for cracks, tears, and dirt. 1.7 Check facial seal area for distortion. 1.8 Examine inhalation and exhalation valves for signs of distortion, cracking, or tearing. 1.9 Check head straps are intact and have good elasticity. 1.10 Examine all parts for signs of cracking or fatiguing. 1.11 If signs of damage, do not use and request replacement parts or unit (as applicable).
2. Donning personal protective	2.1 Perform hand hygiene.

equipment (PPE) before entering room or in anteroom.	<p>2.2 Apply gown (as per routine practices).</p> <p>2.3 Apply elastomeric respirator and perform user seal check in accordance with <i>Instructions for Fitting: Elastomeric Half-Facepiece Style Respirator</i>.</p> <p>2.4 Apply protective eyewear or faces shield.</p> <p>2.5 Apply new pair gloves (gloves to cover the sleeve cuff of gown if is worn).</p>
3. Doffing PPE before exiting patient room.	<p>3.1 Remove gloves and gown.</p> <p>3.2 Perform hand hygiene.</p>
4. Exit room to hallway (or anteroom if provided).	<p>4.1 Open door with paper towel, or</p> <p>4.2 Open door and perform hand hygiene.</p>
5. Doffing PPE in hallway or anteroom.	<p>5.1 Remove eye protection (handle using side straps) of face shield.</p> <p>5.2 Perform hand hygiene.</p>
6. Quick cleaning of elastomeric respirator between patients, for single day usage.	<p>6.1 Don new pair of non-sterile nitrile exam gloves.</p> <p>6.2 Remove elastomeric respirator (handle using side straps).</p> <p>6.3 Wipe interior and exterior of respirator and filter cartridges using disinfectant wipes (e.g., Accel INTERVention wipe). Ensure surfaces remains wet with disinfectant, for the appropriate contact time as recommended by the manufacturer.</p> <p>6.4 Place respirator in clean area to dry and store in a labelled, sealable bag (e.g., Ziploc bag) between uses.</p> <p>6.5 Remove gloves.</p> <p>6.6 Perform hand hygiene.</p>

Elastomeric Respirators: End of Day Cleaning and Disinfection

Applicability: Elastomeric half-facepiece respirators issued to health-care workers for individual full-day use.

Manufacturer	3M	North
Make	Half-facepiece respirator	Half-facepiece respirator
Model	6000, 7500 series	7700 series
Filter	P100 (7093)	P100 (7580P100)

Scope: The cleaning and disinfection of respirators should be done in an area dedicated to such activities, either in a separate department or separate area. The staff following this next section must be appropriately trained in equipment cleaning. The manufacturers' instructions for use should accompany this document.

Process	Steps
1. Cleaning and disinfection of elastomeric respirators.	<p>1.1 Don new pair of exam gloves.</p> <p>1.2 Remove the P100 filter cartridges. Wipe the exterior surface of the filters with an Accel INVERVention wipe. Allow filters to dry and store in sealable bag with your respirator.</p> <p>1.3 Remove headband/yoke, by pulling from the bottom. Do not pull plastic</p>

straps.



1.4 Remove exhalation valve (1 piece).



1.5 Remove gaskets x 2 (1 per side).



1.6 Remove inhalation valves x 2 (1 per side).



1.7 Using one Accel INTERvention wipe at a time, wipe the interior, exterior, and all components, of the respirator, thoroughly.

1.8 Ensure items remain wet with disinfectant, for the applicable wipe contact time as recommended by the manufacturer.

1.9 Allow to dry (air dry or use absorbent towel).

1.10 Reassemble the respirator by putting all the components back together.

2. Storage.

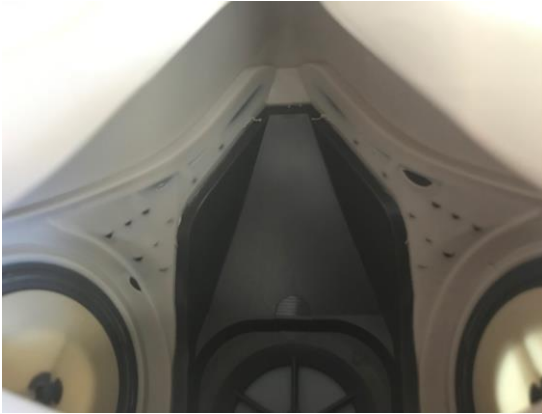
2.1 Store respirator in a labelled sealable bag (e.g. Ziploc bag).

2.2 Remove gloves.

2.3 Perform hand hygiene.

Appendix D: Reusable Respirator – Integrity and Inspection

Some staff and MDR have reported peeling or cracking of the lining, on the inside of the 3M 6000 half-face reusable respirators. Below are some pictures that represent the concern.



Acceptable Range of Manufacture

Health and Safety sent samples of respirators to 3M for analysis and assessment after the concern was reported in April 2020.

The 3M quality department reviewed the issue with manufacturing and determined that the respirators were within acceptable range of manufacture. Silicon rubber “over molding” is used on top of the nylon nosepiece (dark grey plastic). But in some cases, the silicon rubber may not totally cover the nylon nosepiece inside the facepiece. 3M has indicated that as long as users continue to be able to perform successful seal checks in accordance with Instructions for Fitting: Elastomeric Half-Facepiece Style Respirator, the respirators are safe to continue to use.

Recommendations

Where the EHFRs are distributed for individual use and maintenance, these respirators can continue to be used as long as the user continues to be able to obtain a seal as demonstrated through a successful seal check.

Where the EHFRs are reprocessed by MDR and part of a shared pool of supplies, they are to be pulled from service if there is visible peeling of the “over molding” silicon rubber inside the facepiece as this poses challenges in cleaning and disinfection of the inside of the respirators.

Additional Information

Contact workplace health and safety if you have any further questions.

As the scope and magnitude of EHFR use increases in health-care settings, other intermittent or chronic issues will develop as result of continued use over time. Where currently available reusable respirators were not originally designed for health care use, the familiar manufacturers (e.g. 3M / Honeywell North) will also be learning about the cumulative and compounding effects of reprocessing on both the design and integrity of materials used in manufacture.

Any concerns regarding the physical integrity of specific makes / models of EHFRs should also be reported to workplace health and safety. To manage this unknown lifecycle risk, health-care settings would be wise to consider a process regarding how to record, investigate, report, communicate and manage issues, inclusive of the risk of recalls / change.

