

### 03.104 CDRA Zeolite Filter Swapout (03. ECLSS)

#### OBJECTIVE:

To replace the Zeolite 5A and 13X Filters on the Carbon Dioxide Removal Assembly (CDRA).

#### EQUIPMENT:

Zeolite 5A filter (will be gathered during the procedure)  
Zeolite 13X filter (will be gathered during the procedure)  
Sticky notes  
Pen  
Flashlight  
Shop vacuum  
Portable anemometer  
PPE safety glasses  
PPE Kobalt work gloves  
PPE static wrist tether  
Orange caution cone 2x

#### NOTE

The CDRA requires the use of the Fan Dampener Assembly (FDA) for proper operation. The assembly prevents particulate matter from interfering with the infrared sensor and damaging the sampling pump. If the filter becomes clogged, the assembly must be replaced.

#### L1F Subf 1. DEACTIVATE MAIN CABIN FANS (IF ACTIVATED)

- 1.1 Don PPE gloves and safety glasses.
- 1.2 Remove floor panel 1F and temp stow.
- 1.3 Place orange caution cone next to open work area L1F subfloor to warn other crewmembers.



**Figure 1:** Cabin Fan Power Switches

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- 1.4 On Main Cabin Fan, pull switch out and push toward “OFF” to deactivate fan (see Figure 1).

Verify fan has audibly shut off.

- 1.5 On Secondary Cabin Fan, pull switch out and push toward “OFF” to deactivate fan (see Figure 1).

Verify fan has audibly shut off.

#### GMWS 2. DEACTIVATE AUX CABIN FANS (IF ACTIVATED)



**Figure 2:** Trace Contaminant Control Subassembly (TCCS) Panel

- 2.1 On TCCS Panel, check power switches of Aux Cabin Fan 1 and Aux Cabin Fan 2 are “OFF” (see Figure 2).

2.1.1 Move stowage as necessary in order to access the TCCS Panel.

2.1.2 If power switches of Aux Cabin Fan 1 and Aux Cabin Fan 2 are **NOT** “OFF”, flip each switch to “OFF”.

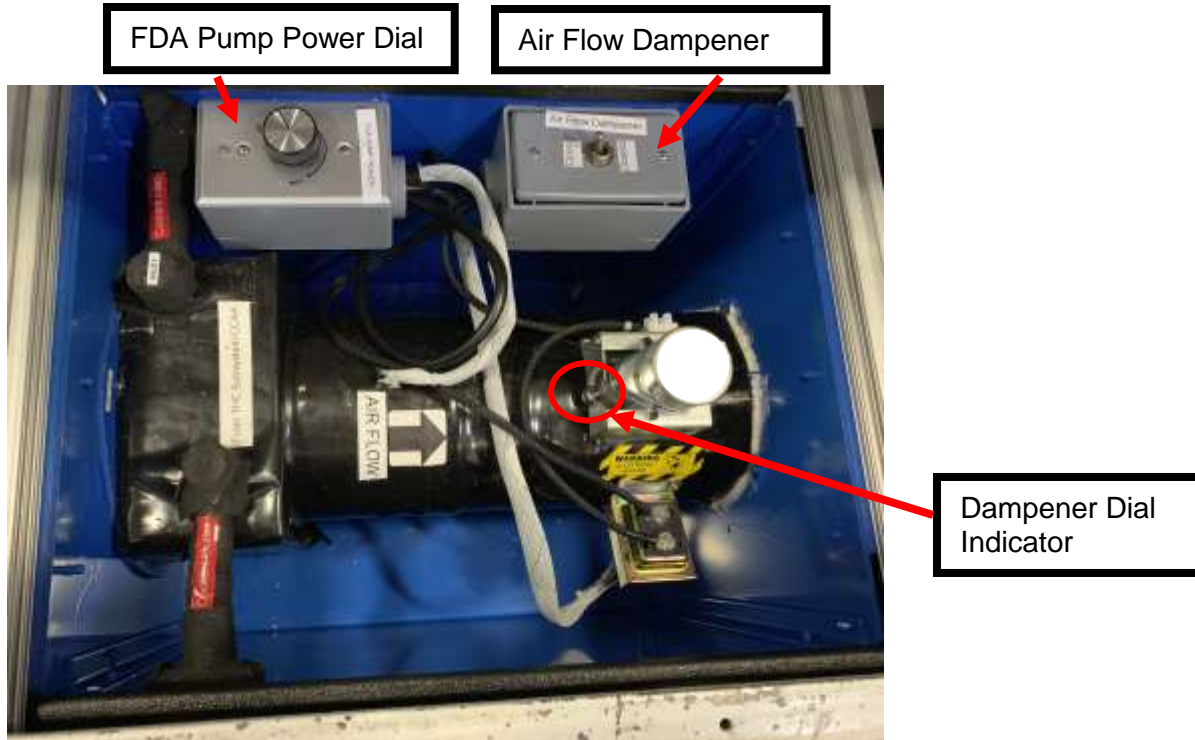
#### L1D Subf 3. DEACTIVATE FAN DAMPENER ASSEMBLY (FDA) PUMP (IF ACTIVATED)

- 3.1 Remove floor panel 1D and temp stow.

- 3.2 Don static wrist tether and attach to any unpainted metallic surface.

- 3.3 Place orange caution cone next to open work area L1D subfloor to warn other crewmembers.

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**Figure 3: Fan Dampener Assembly (FDA) Pump**

- 3.4 Turn FDA Pump Power Dial counterclockwise to “OFF” (see Figure 3). Listen for a click.

NOTE

Read step 3.5 before executing 3.4. Step 3.5 is time dependent and can be missed if not actively watching the Dampener Dial Indicator.

- 3.5 Flip Air Flow Dampener switch to “Closed” (see Figure 3).
- 3.6 Confirm Dampener Dial Indicator (metal Philips head screw with spring attached) rotates to fully closed (see Figure 3).
- 3.7 Detach static wrist tether.

#### 4. REMOVE SATURATED ZEOLITE 5A AND 13X FILTERS

- 4.1 Remove floor panel 1E and temp stow.
- 4.2 Attach static wrist tether to any unpainted metallic surface.

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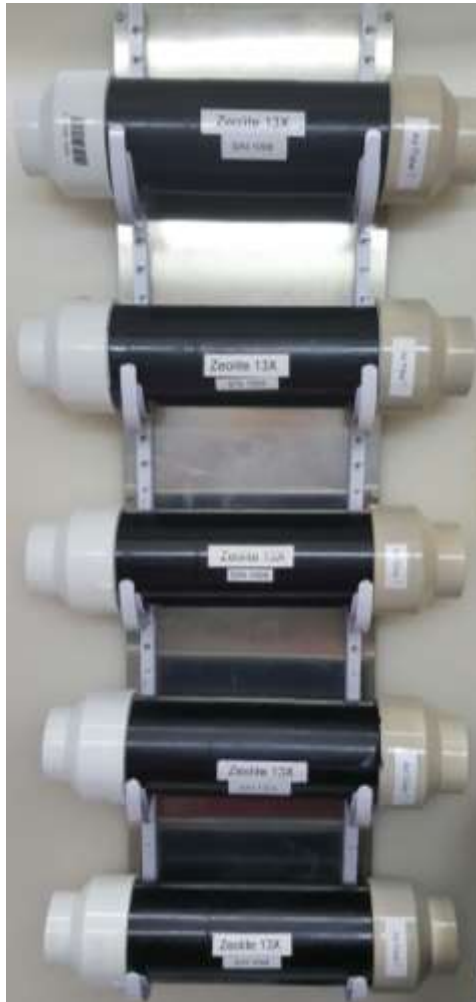


**Figure 4:** Zeolite Filter Assembly

- 4.3 Inspect filter assembly with flashlight for debris and clean as necessary with shop vacuum (see Figure 4).
- 4.4 Remove Zeolite 5A Filter from filter assembly Location 2.  
Label as used with sticky note.
- 4.5 Notify MCC of used Zeolite 5A Filter S/N.
- 4.6 Remove Zeolite 13X Filter from filter assembly Location 1.  
Label as used with sticky note.
- 4.7 Notify MCC of used Zeolite 13X Filter S/N.
- 4.8 Detach static wrist tether from metallic surface.

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#### ALC 5. RETRIEVE CLEAN ZEOLITE 5A AND 13X FILTERS



**Figure 5: Zeolite Canister Rack**

- 5.1 Remove QTY 1 clean Zeolite 5A Filter from Zeolite Rack located on Airlock Module Wall C (see Figure 5).

Stow used Zeolite 5A Filter in place of removed clean filter.

- 5.2 Inspect clean Zeolite 5A Filter with flashlight for damage/debris.

- 5.3 Remove QTY 1 clean Zeolite 13X Filter from Zeolite Rack located on Airlock Module Wall C (see Figure 5).

Stow used Zeolite 13X Filter in place of removed clean filter.

- 5.4 Inspect clean Zeolite 13X Filter with flashlight for damage/debris.

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#### L1E Subf 6. INSERT CLEAN ZEOLITE 5A AND 13X FILTERS

- 6.1 Attach static wrist tether to any unpainted metallic surface.
- 6.2 Inspect interior of hose and filter assembly with flashlight for debris and clean as necessary with shop vacuum.
- 6.3 Insert Clean Zeolite 5A Filter to filter assembly Location 2.
- 6.4 Notify MCC of clean Zeolite 5A Filter S/N for filter assembly Location 2.
- 6.5 Confirm clean Zeolite 5A Filter has same air flow direction as FDA.
- 6.6 Insert clean Zeolite 13X Filter to filter assembly Location 1.
- 6.7 Notify MCC of clean Zeolite 13X Filter S/N for filter assembly Location 1.
- 6.8 Confirm clean Zeolite 13X Filter has same air flow direction as FDA.
- 6.9 **On MCC GO**
  - Replace floor panel 1E and safely latch.
- 6.10 Doff static wrist tether.

#### L1D Subf 7. ACTIVATE FDA PUMP

**NOTE**  
FDA Pump Power Dial can be set from Low to High. When on, always leave dial set to high.

- 7.1 Flip Air Flow Dampener switch to “OPEN” (see Figure 3).
  - 7.1.1 Check that the Dampener Dial Indicator (metal Philips head screw with spring attached) rotates to fully open (see Figure 3).
- 7.2 Turn FDA Pump Power Dial to “ON” by rotating clockwise. After hearing click, stop rotation. Verify dial is set to high (see Figure 3).

#### L1F Subf 8. ACTIVATE MAIN CABIN FANS

- 8.1 On Main Cabin Fan, pull switch out and push toward “ON” to activate fan. (See Figure 1.)
  - Verify fan has audibly turned on.



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- 8.2 On Secondary Cabin Fan, pull switch out and push toward “ON” to activate fan. (See Figure 1.)

Verify fan has audibly turned on.

- 8.3 Replace floor panel 1F and safely latch.

#### 9. PERFORM ECLSS VENT CHECK



**Figure 6:** Cabin Output Vent C/D

**Figure 7:** Cabin Output Vent D/E

- 9.1 Gather portable anemometer and take reading in m/s of exhaust flow at cabin output vents C/D and D/E (Figures 6 and 7). Hold anemometer within an inch of the vent for 10 seconds to gather an accurate reading and report the highest reading to MCC.
- 9.2 Call MCC to confirm air flow is within expected range by reporting the flow. (Reading should be greater than 0.5 m/s.)
- 9.3 **On MCC GO**, relocate floor panel 1D and safely latch.
- 9.4 Doff PPE Kobalt work gloves and safety glasses.
- 9.5 Stow all equipment including orange caution cones.