

E01-SAA09FT06-030  
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ATTACHMENT  
Page 21 of**CRITICAL ITEM:** HEPA Filter**Find Number:** A147061**System:** Environmental Control Subsystem  
for the Payload Canister, Set 2**Failure Category:** 2**SAA No.:** 09FT06-030**NASA Part No.:** None**PMN/Name:** H70-1326**Mfr's Part No.:** American Filter Co.  
Astrocel 24"x24"x12"**Drawing/Sheet No.:** 79K22317**Function:** Filters particles from outlet air**Critical Failure Mode:** Pass contaminants (FMN 09FT06-030.012)**Cause:** Failure of filter media or leakage around gasket**Failure Effect:** Possible particulate contamination of payload**ACCEPTANCE RATIONALE:****Design:**

- o Filter medium and efficiency: nonwoven glass paper (boron-silicate microfiber), 99.97% minimum efficiency on 0.3 micron particles.
- o Separator material: flat sheet, pleated over 0.0015" (minimum thickness) corrugated-aluminium separators with hemmed edges.
- o Frame material: 14-gauge, galvaneal steel.
- o Frame style: double turn flanges both faces, neoprene gaskets
- o Sealant: high-temperature silicone (500 $\frac{1}{2}$  F/260 $\frac{1}{2}$  C - supply air)
- o Extrapolation from vendor data predicts a pressure drop of 1.7" H<sub>2</sub>O at 2000 cfm. The vendor manual states that the ECU supplies 75 to 150 lbs/min of conditioned air, which is equivalent to 1000 to 2000 cfm at 70 $\frac{1}{2}$  F.

**Test:**

Per File VI OMRSD requirements, the amount of particles in the air of the Payload Canister is monitored continuously by the I&CS

**Inspection:**

The pressure drop across the filter is measured and shown on a gauge that is periodically monitored.

**Failure History:**

There is no MDAC PRACA failure history in the critical mode. The HEPA filters are the same for both ECUs. Data on Set 1 from 1981 to present; data on Set 2 from 1984 to present.

**Operational Use:**

If the HEPA filter fails, the I&CS will detect an increase in particulates in the canister and the filter will be replaced.

Note: There is a modification pending which will prevent contamination from ECS flexible ducts from entering the canister. HEPA filters will be installed in the aft bulkhead of the canister downstream of the flexible ducts, and the HEPA filter in the ECU will be removed. This modification is documented by ESR 93629 and drawing 82K00218.