

USA Integrated Logistics CIL Sheet**Critical Item:** Filter **Quantity:** 1**Find Number:** ME286-0068-0016**Criticality Category:** 1**FMEA/CIL No:** STS88-0254 **System/Area:** MPS /
PAD (MLP), OPF**NASA Part No:** ME286-0068-0016 **PMN/Name:** S70-0958-02
MPS QD/Filter Set**Mfg./Part No:** Wintec 6267-520-16 **Drawing/Sheet No:** GW70-420958 &
G070-582011**Function:** Prevent facility Helium contaminants greater than 10 microns absolute from entering the Orbiter 750 PSIG GHe Regulation Panel at 50V41TP1 during pre-launch processing leak and functional checks in the OPF.**Critical Failure Mode/Failure Mode No:** Pass contaminates/FMN: STS88-0254.002**Failure Cause:** Manufacturing defect, wear, or corrosion.**Failure Effect:** Possible contaminated GHe supplied to Orbiter Pneumatic Actuation lines. Particulate contamination could result in line blockage or the jamming of one or more of the solenoid valves that pneumatically activate the Fill & Drain Valves, Prevalves, Bleed Valves, or He Crossover Valve. This effect may not be evident during pre-flight testing. Failure of these valves could result in uncontained engine damage, aft compartment over pressurization, and fire/explosion hazard. Possible loss of crew/vehicle. Reference Orbiter FMEA/CILs 03-1-0208-01 and 03-1-0209-1.**ACCEPTANCE RATIONALE****Design:**

- Non-separable, KC-fitting design
- Materials :
 - Body: 300 series corrosion resistant steel

- Element: welded, single layer, Dutch Weave, stainless steel, wire mesh
- Upstream filtration: S70-0695 -02 and -08 GN₂/GHe MPS Regulation and Control Panels in the OPF, filters A112846 and A83093(10 microns absolute)
- This is a final filter that sees fluid that meets SE-S-0073, STS Fluid Procurement and Use Control Specification.
- Contaminate capacity: 5.9 milligrams
- Pressure (PSIG):
 - Typical Operating Pressure: 750
 - Max. Allowable Working Pressure: 1500
 - Rated Flow: 60 SCFM @ 600
 - Proof: 2250
 - Burst: 6000
 - Element Collapse: 400 differential in either direction
- This final filter meets SN-C-0005, Space Shuttle Contamination Control Requirements.

Test: The ME286-0068 filter procurement specification requires the following tests:

- Acceptance Tests. Acceptance tests include product examination, proof pressure, cleanliness, bubble point, and drying per ARP 901.
- Performance Tests. One filter from each lot is subjected to the following tests: clean pressure drop, vibration, filtration and contamination capacity, and differential pressure.
- Micron rating of filter is assured annually by bubble point testing per ARP 901.

Inspection:

- OMI V6A77 requires an annual filter replacement with a filter that has been tested and cleaned to MA0110-301 Level 100A.
- OMRSD File VI, Volume 1, 800.97 requires an annual filter replacement.

Failure History:

- The PRACA database was queried and 1 failure was found on this component in the critical failure mode. The failure was failing bubble point test requirement of 10 microns absolute and did not involve collapse of the

filter element. The filter passed 11 microns after cleaning and routine testing, but was not to the degree to fail the system's cleanliness requirement of 100 microns absolute per MA0110-311.

- The GIDEP failure data interchange system was queried and no failure data were found on this component in the critical failure mode.

Operational Use:

- Correcting Action:
There is no action that is currently taken to mitigate the failure effect.
- Timeframe:
Since no correcting action is employed, timeframe does not apply.
- Delta P pressure can be monitored.