REV._

March 25, 1988 (Revised May 31, 1988)

FMEA #:60-S70-0790-01-FL1,FL2,FL3-01 -FL4,FL101-01 -FL102-01

> END ITEM EFFECTIVITY: X Х **OV102** OV103 **0V104**

MODEL NO: 570-0790-01

SUBSYSTEM: ECLSS

PART NUMBER: PART NAME: REFERENCE DESIGNATION:

ME286-0066 In-line Filter FL1, FL2, FL3, FL4 ME286-0068

In-line, Miniature Filter FL101 ,102

CRITICALITY NUMBER: 2

To filter NH3 down to 25 micron level prior to FUNCTION:

entering orbiter.

CRITICAL FAILURE MODE: Structural Deterioration of filter

element.

CAUSE: Material failure, corrosion.

FAILURE EFFECT ON:

(A) END ITEM: Loss of filtration capability possible.

- INTERFACING SUBSYSTEM(S): Potential clogging of the NH3 (B) vent subsystem in the Scupper assembly; \$70-0791-01.
- ORBITER: 'Possible deterioration of flight hardware due (C) to debris from filter breakdown.
- (D) PERSONNEL: No effect on personnel.

HAZARDS: Possible flight hardware damage due to debris. 1)

Possible flight hardware performance degradation 2) due to loss of coolant .

DATE: March 25, 1988 REV: May 31, 1988

ACCEPTANCE RATIONALE

DESIGN:

Review of assembly documents and Specification Material Document (SMD) ME286-0066, -0088 has provided design data points to be complied with for acceptance rationale. Design data points:

A delta pressure of 400 psig with no filtration breakdown. Static proof pressure test of 1.5 times normal, burst pressure in excess of 4 times operational pressures encountered. No external leakage at 400 psig helium. Maximum of 25 micron filtration, and not to exceed 12 psig pressure differential (50 psig for -0068) across filtration element with any loss of filtration.

TEST:

PRE-OPERATIONAL: Pressure check with GN2 at 150 psig for leak check and interface integrity. Gas sampling of assemblies for debris (level 500 clean) prior to ammonia servicing.

INSPECTION:

PRE-INSTALLATION: Per ME268-0066, ME268-0068, Per 5.1.2: The filter shall be examined to determine conformance to SCD in material, dimensions, construction and identification marking. The filter element weave pattern shall be in accordance with the manufacturer's drawing.

AGE LIFE: Per OMI S6013 (V6D41), the assembly is inspected annually for compliance to the material and assembly specifications.

OPERATION:

No operations apply to risk reduction.

DETECTION:

Pre-use and post servicing inspection of filters for possible loss of integrity or signs of wear.

CORRECTION:

Isolation and replacement.

FAILURE HISTORY:

Review of the PRACA Data Base has provided no failure history on the ME286-0066, or ME286-0068.