

REV. _____ A _____

DATE 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 X X
OV102 OV103 OV104

MODEL NO: S70-0790-01

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

FUNCTION: To filter NH₃ down to 25 micron level prior to 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.
- (B) INTERFACING SUBSYSTEM(S): Potential clogging of the NH₃ vent subsystem in the Scupper assembly; S70-0791-01.
- (C) ORBITER: Possible deterioration of flight hardware due to debris from filter breakdown.
- (D) PERSONNEL: No effect on personnel.

HAZARDS: 1) Possible flight hardware damage due to debris.
 2) Possible flight hardware performance degradation due to loss of coolant .

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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.