DATE: May 17, 1988

FMEA #: 43-S70-1130-03,-05,-06-QD02-04

END ITEM EFFECTIVITY:		
X	X	X
OV102	OV103	OV104

MODEL NO/NAME: S70-1130, OMS/RCS High-Pressure Helium Quick Disconnect Filter Assembly Set (VAFB)

ORBITER SUBSYSTEM: OMS/RCS

PART NUMBER:	PART NAME:	REFERENCE DESIGNATION:	QTY.:
GW70-421130-005	Quick Disconnect/	QD02	11
-006	Filter Assembly		4
-007			11

CRITICALITY NUMBER: 2

FUNCTION: Provides interface with the vehicle OMS, FRCS, ARCS high-pressure helium system disconnects and ground system fluid lines.

CRITICAL FAILURE MODE: Filter passes contamination.

CAUSE: Mechanical degradation.

FAILURE EFFECT ON:

(A) END ITEM: Loss of cleanliness level, possible end item damage.

(B) INTERFACING SUBSYSTEM(S): No damage to interfacing subsystems.

(C) ORBITER: Potential for damage to the orbiter airborne half coupling (possible source of external leakage).

(D) PERSONNEL: No effect.

HAZARDS: Introduction of contamination into the vehicle system.

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ACCEPTANCE RATIONALE

DESIGN: Per specification MC276-0017, all of the materials used in the filter assembly are 300 series corrosion resistant steel with the exception of a Teflon "O" ring, which is used as a seal between the case and element assembly. Both materials are, however, compatible with the operating media. The filter assembly is rated at 10 micron absolute (25 micron - maximum particle size).
The airborne half of the quick disconnect assembly (orbiter side) contains a filter which would catch any contaminants passed by the upstream GSE.

TEST: Per MC276-0017, the filter housing is an integral part of the coupling and is burst pressure rated at 10,000 psi (maximum operating pressure 4600 psig).

Per MC276-0017, the filters are bubble point tested annually.

INSPECTION: Per MC276-0017, the filter is examined to verify conformance to SCD in material, dimensions, construction and identification marking. The filter element weave pattern shall be in accordance with the manufacturer's drawing.

OPERATIONAL USE: No operations apply for reduction of risk.

If emergency shutdown is required, Appendix 2 of the OMI in use is initiated (Reference OMI's V2322, V1031 and V1180).

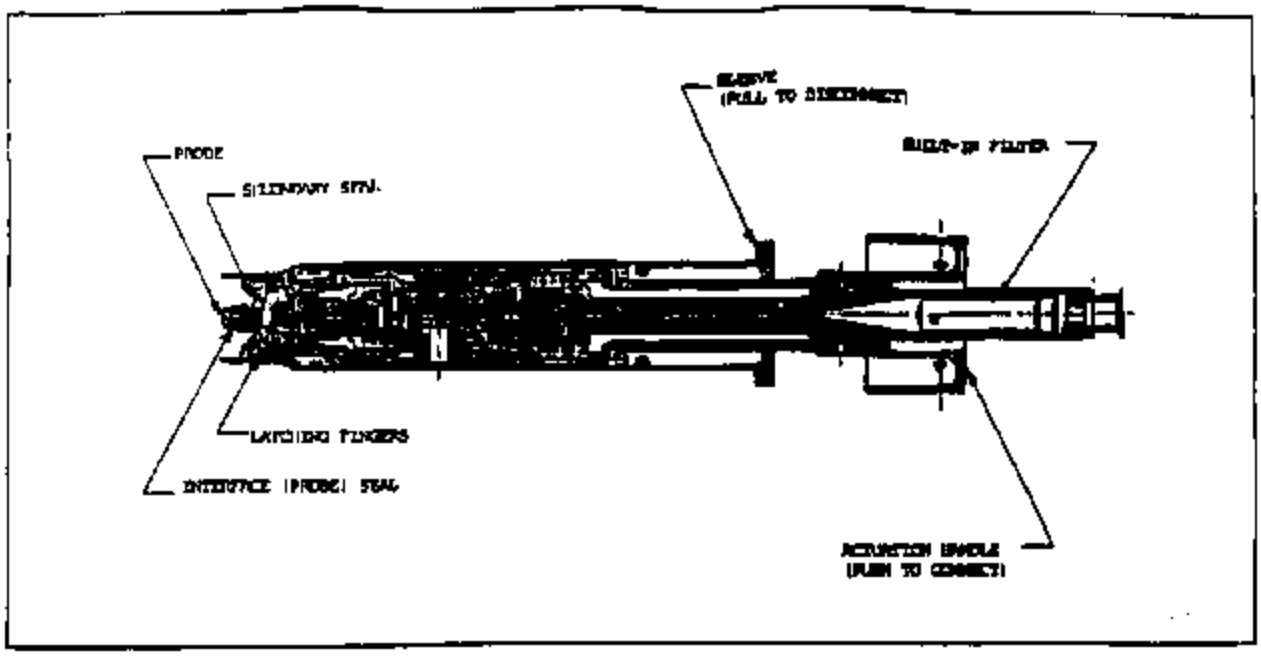
DETECTION: Detection of flow increase; fill time reduced.

CORRECTIVE ACTION: Isolation and replacement.

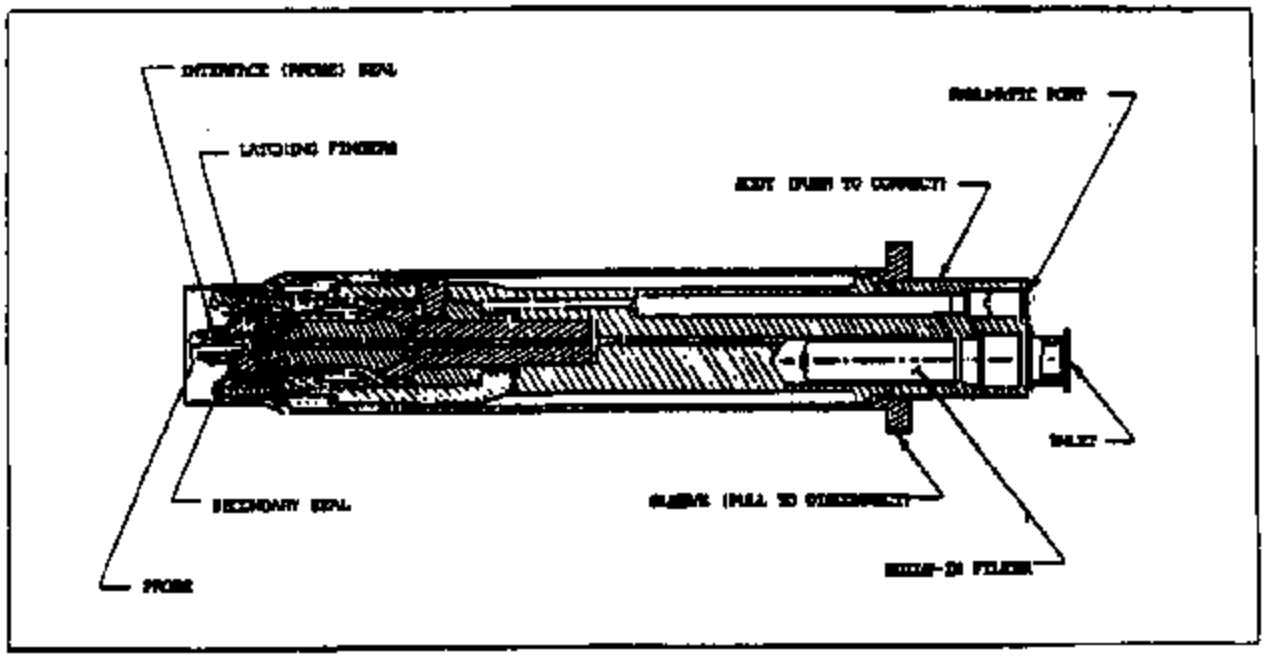
FAILURE HISTORY: Per the PRACA database, no failure history was reported for this particular mode.

END ITEM MODEL #S70-1130 DESCRIPTION

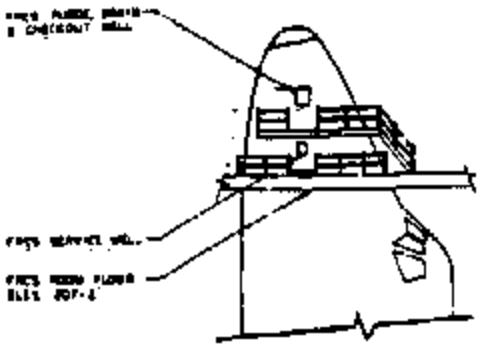
The high-pressure Helium quick-disconnect/filter assemblies provide an interface with the orbiter OMS, FRCS and ARCS high-pressure disconnects. High-pressure Helium gas is supplied, through these assemblies, to load subsystem Helium tanks.



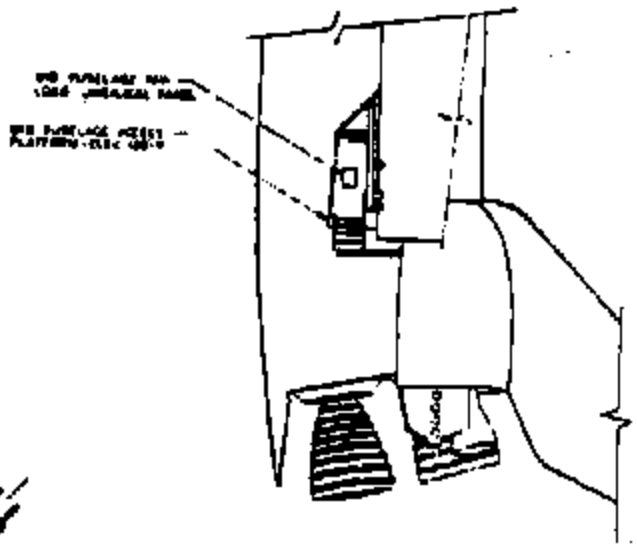
High-Pressure Manual Operated Ground Half Coupling (Cross-Section)



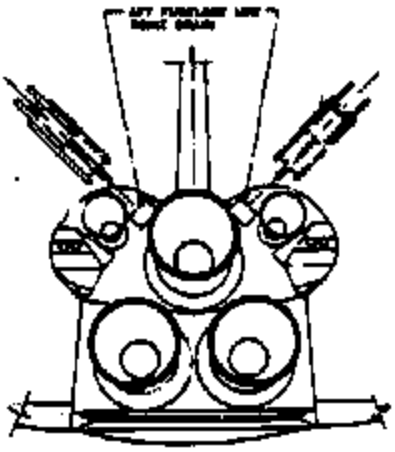
High-Pressure Pneumatic Operated Ground Half Coupling (Cross-Section)



FRCS PANEL LOCATIONS



MID FUSELAGE PANEL



AFT FUSELAGE PANEL

DATE: May 17, 1988

END ITEM: #S70-1130, OMS/RCS HIGH-PRESSURE HELIUM QUICK DISCONNECT/FILTER ASSEMBLY SET

PART NUMBER/REF. DESIGNATOR	PART NAME	QTY. (PER SYSTEM)	HDW. CRIT.
KSC MODEL			
GW70-421130-001, -004 (QD01)	Quick Disconnect/ Filter Assembly	68	2
VAFB MODEL			
GW70-421130-005 -006 -007 (QD02)	Quick Disconnect/ Filter Assembly	26	2

The OMRSD, File VI is in development and at the completion of this FMEA/CIL each critical item will be reviewed against the OMRSD and the OMRSD will be modified to cover all applicable requirements for each critical item.

TABLE 8 - 1
CRITICAL ITEMS LIST