REV. A

DATE March 25, 1988
(Revised May 31, 1988)

FMEA #:60-S70-0790-05-FC01
-MD111,112,113,114-01
-MD115,116,117,118-01

END ITEM EFFECTIVITY:

OV102	OV103	OV104
X	X	X

MODEL NO: S70-0790-05, 09, 10, 12

SUBSYSTEM: ECLSS

PART NUMBER:	PART NAME:	REFERENCE DESIGNATION:
MC276-0020	Manual locking Disconnect	MD111 MD112 MD113 MD114 MD115 MD116 MD117 MD118
ZE1454C-8-T8		FC1

CRITICALITY NUMBER: 2

FUNCTION: To provide interface for GSE oxygen, nitrogen, and water servicing to airlock assembly.

CRITICAL FAILURE MODE: Material failure / premature separation.

CAUSE: Material degradation.

FAILURE EFFECT ON:

(A) END ITEM: Loss of seal integrity will preclude any continued servicing.

(B) INTERFACING SUBSYSTEM(S): Loss of interface may render the dedicated GSE exposed to venting of high pressure servicing gas.

(C) ORBITER: Possible damage to flight hardware due to high pressure fluid discharge or debris carried downstream.

(D) PERSONNEL: Possible exposure to high pressure oxygen and nitrogen discharge and debris.

HAZARDS: High pressure oxygen or nitrogen discharge.
Possible flight hardware damage due to debris.
Possible enriched oxygen atmosphere.
Possible decreased oxygen atmosphere.

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ACCEPTANCE RATIONALE

DESIGN: Review of assembly documents and Specification Material Document (SMD) MC276-0020 has provided design data points to be complied with for acceptance rationale.

Design data points:

Operational envelope water operations (proof/burst pressure of 83/110 psig) exceeds the use envelope of 0 to 40 psig at full flow.

Operational envelope oxygen operations (proof/burst pressure of 1575/4200 psig) exceeds the use envelope of 0 to 900 psig at full flow.

Manual engagement and closure of disconnects with assurances of positive locking feature, connect/disconnect force of 4 to 30 pounds. Side load forces tolerance is 200 inch pounds (50 in-lbs at 4 inches).

TEST:

PRE-OPERATIONAL: Per operations instructions:

Pressure test to system operating pressures with GHe,GN_2:

G070-684765	ZE1454C-8-t8	: 60 psig proof 3 min
	MC276-0020-3102	: 60 psig proof 3 min
G070-582478	-1093	: 40 psig proof leak check
G070-582479	-1101	: 40 psig proof leak check
G070-582480	-3012	: 900 psig proof leek check
G070-582482	-1103	: 55 psig proof leak check
G070-684768	-3104,1343	: 55 psig proof check
G070-684767	-3104,1343	: 50 psig proof, 3 min

INSPECTION:

PRE-INSTALLATION: Per MC276-0020, Assembly drawings:
Acceptance Test: Examination of product, The AHC, the AHC cap the GHC, and the GHC cap shall each be carefully examined to determine conformance to the requirements of this specification. Particular attention shall be given to weight, workmanship, finish, dimensions, construction, identification, marking, traceability level, and to the use of certified materials and processes.

AGE LIFE: Per OMI S6013 (V6F27), the assembly is inspected annually for compliance to the material and assembly specifications.

PRE-OPERATIONAL: Per Operating Instructions:
Components are inspected for cleanliness per MA0110-311, level 300 by visual inspection of bagging and sealing of interface ports and/or research of applicable TAIR books prior to each use.

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ACCEPTANCE RATIONALE CONTINUED

OPERATION:
Manual attachment and monitored filling insure a secure connection by personnel.

DETECTION:
Visual detection of water discharge and monitoring of the flow control gages on the water servicing panel and the gas servicing unit. Oxygen operations involve the continued monitoring of the oxygen partial pressure indicators and onboard monitoring of the O_2 tank pressures.

CORRECTION:
Isolation and replacement.

FAILURE HISTORY:
Review of PRACA Data Base has provided failure history on item MC-276-0020 in the ECLSS Operations.

EICN: S70-0790-03-021-0013

QD would not mate/demate properly.
P/N MC276-0020-2234.
S/N 11362-A1Q77117.

Review of the PRACA data base has reviled no history of failure of the ZE1454C-8-T8 in ECLSS Gas or Fluid operations.