

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

ACCEPTANCE RATIONALE

DESIGN: Review of assembly documents and Specification Material Document (SMD) MC276-0035 has provided design data points to be complied with for acceptance rationale.

Design data points:

Operational envelope is to exceed the expected use envelope of 0 to 265 psig at 10,000 lbs/hr flow of Freon 114. Manual engagement and closure of disconnects with assurances of positive locking feature. Internal pressure design point of 0 to 265 psig @ 10,000 lbs/hr flow for the operational life of 10 years or 1000 cycles. Structural safety factor of better than 2:1 above design loads.

TEST:

PRE-OPERATIONAL: Per OMI V3537

Pressure test to system operating pressures with GHe, 110 ± 5 psig, are conducted prior to Freon 114 recirculation servicing. Physical inspection of interface.

INSPECTION:

PRE-INSTALLATION: Per MC276-0035 (5.1 - 5.1.5)

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, the assembly is inspected annually for compliance to the material and assembly specifications.

PRE-OPERATIONAL: Per OMI V3537

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.

OPERATION:

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

DETECTION: Visual detection of Freon 21 discharge.

CORRECTION: Isolation and replacement.

FAILURE HISTORY:

Review of FRACA Data Base has provided no structural fatigue failure history on item MC276-0035.

FREON CIRCULATION SET, S70-0790-2:

This assembly is provided to facilitate freon 114 circulation through the Orbiter T-O Umbilical Carrier Plate, left side aft fuselage (Figure 3.2). The set consists of in-line 25 micron filters on the inbound lines, self latching disconnects with automatic shut off, flex hoses for fluid routing and a GSE freon jumper for servicing and freon 114 internal routing.

The QD/Filter set is the last stage of GSE in the ECLSS OPF and MLP operations and is responsible for the interface between ground circulation and the vehicle. During pad separation operations, the quick disconnects are pressurized to 50 psig and experience 10 g's during retraction of the T-O umbilical carrier plate into the tail service mast. Detailed assembly drawing of the QD assemblies are seen in Figures 3.2. Individual component identification is given in table 3.2.

TABLE 3.2

ITEM	FUNCTION	LOCATION
1	Primary freon supply	Primary T-O Umbilical
2	Primary freon return	"
3	Freon servicing jumper	Umbilical GSE L/H

