

Critical Items List (CIL) Sheet

Critical Item: Disconnect, Quick, Female (2 items) **B/L:** 810.64
Find Number: 13D1, 13D2
Criticality Category: 1S
FMEA/CIL No.: STS88-0210/A **System/Area:** ECLSS/Pads
NASA Part No.: - **PMN/Name:** S70-0790-13/ECLSS, GN₂ Purge
Mfg. Part No.: Symetrics/502060-2152 **Drawing/Sheet No.:** G070-582489/1

Function: Provides quick connect and disconnect of fluid path (GN₂)

Critical Failure Mode/Failure Mode No.: Separate prematurely/STS88-0210.013

Failure Cause: Worn/broken latching locks or springs

Failure Effect: Loss of GN₂ purge. GH₂ accumulates in orbiter vacuum vent duct. Possible loss of life/vehicle during a hazardous condition. Failure is detectable visually.

Acceptance Rationale

Design:

This 3/8 inch female coupling is a mechanical connector which permits separation of a fluid system line without fluid loss. Both the male and female halves have integral poppet valves which stop flow when the halves are separated.

		<u>RATED:</u>	<u>ACTUAL:</u>
Temperature:	Fluid media	120°F	50-80°F
	Ambient	160°F	70-90°F
Pressure:	System Operating	55 psig	4 psig

	Proof	83 psig	-
	Burst	110 psig	-
Fluid Media:		Water/GN ₂	GN ₂
Material:	Body	15-5 Stainless Steel (precipitation hardened)	
	Sleeve Spring	17-7 Stainless Steel (precipitation hardened)	
	Wave Washer	17-7 Stainless Steel (precipitation hardened)	
	Spring		
	Latching Locks	15-5 Stainless Steel (precipitation hardened)	

Test:

At initial fabrication, the following is performed:

- Hydrostatically proof-pressure test to 1-1/2 times maximum operating pressure
- Hydrostatically burst-pressure test to 2 times maximum operating pressure
- Side-load test (bending moment to test for premature disconnection)
- Leakage verified bubble tight when checked with nitrogen at operating pressure

Disconnects are verified functional during system verification

Inspection:

KSC procedures require periodic inspection to suit individual system requirements.
OMRSD, File VI TBD.

Failure History:

The PRACA database was queried and no failure data were found on this component in the critical failure mode.

The GIDEP failure data interchange system was queried and no failure data were found on this component in the critical failure mode.

Operational Use:

Correcting Action: Reinitiate GN₂ purge.

Timeframe: Minutes