

FAILURE MODE EFFECTS ANALYSIS/CRITICAL ITEMS LIST

PMEA NUMBER: EC-PORT2-9 ORIGINATOR: JSC PROJECT: EDFT-03

PART NAME: CABLE CADDY	LRU/ORU PART NUMBER: SED39126406-301	QUANTITY: 1
PART NUMBER: SED39126406-301	LRU/ORU PART NAME: CABLE CADDY ASSY.	SYSTEM: GFE
LSC CONTROL NO: N/A	DRAWING/REF DESIGNATOR: SEE P/N	SUBSYSTEM: EVA
ZONE/LOCATION: PORT 2	EFFECTIVITY/AFFECT STAGE: STS-72	

CRITICALITY:

CRITICAL ITEM: Yes SUCCESS PATHS: 2
 CRITICALITY CATEGORY: 1R/2 SUCCESS PATH REMAINING: 1

END ITEM NAME: N/A
 END ITEM FUNCTIONAL: N/A
 END ITEM CAPABILITY: N/A
 END ITEM FAILURE TOLERANCE: N/A

REDUNDANCY SCREENS:

- A/1. C/O PRELAUNCH: Pass
2. C/O ON ORBIT: N/A for NSTS
- B/3. DETECTION FLIGHT CREW: N/A
4. DETECTION GROUND CREW:
- C/5. LOSS OF REDUNDANCY FROM SINGLE CAUSE: Pass

FUNCTION: The cable caddy holds 20 ft. of cable on a reel. It is mounted to an adapter plate on the ORU latch by 4 captive self locking bolts.

FAILURE MODE CODE: N/A for NSTS

FAILURE MODE: Inadvertent release of bolt.

CAUSE: Contamination, piece part failure, vibration.

REMAINING PATHS: 1 - EVA fastener

EFFECT/ MISSION PHASE:
 Launch/landing

CORRECTIVE ACTION: None, restraint design is fail safe.

-FAILURE EFFECTS-

END ITEM/LRU/ORU/ASSEMBLY: One EVA fastener is free.

SUBSYSTEM/NEXT ASSEMBLY/INTERFACE: N/A

SYSTEM/END ITEM/MISSION: None.

CREW/VEHICLE: Three fasteners must be engaged to ensure the structural integrity of the cable caddy for landing. Loose equipment in the PLB will cause significant damage to orbiter.

FAILURE MODE EFFECTS ANALYSIS/CRITICAL ITEMS LIST

FMEA NUMBER: EC-PORT2-9 ORIGINATOR: JSC PROJECT:EDFT-03

PART NAME: CABLE CADDY	LRU/ORU PART NUMBER: SED39126406-301	QUANTITY: 1
PART NUMBER: SED39126406-301	LRU/ORU PART NAME: CABLE CADDY ASSY.	SYSTEM: GFE
LSC CONTROL NO: N/A	DRAWING/REF DESIGNATOR: SEE P/N	SUBSYSTEM: EVA
ZONE/LOCATION: PORT 2	EFFECTIVITY/AFFECT STAGE: STS-72	

HAZARD INFORMATION:

HAZARD: N/A

HAZARD ORGANIZATION CODE: N/A

HAZARD NUMBER: N/A

TIME TO EFFECT: seconds

TIME TO DETECT: N/A

TIME TO CORRECT: N/A

FAILURE DETECTION/FLIGHT: Visual EVA, None during launch/landing

REMARKS:

-RATIONALE FOR ACCEPTABILITY-

(A) DESIGN: The Cable Caddy EVA bolts are self locking bolts which are used to attach the caddy to the OGLA. The bolt lock design uses a plate around the bolt head that is spring loaded to lock the bolt head. The lock is disengaged when a socket is placed on the bolt head and the plate and spring depressed allowing clearance around the bolt head for the bolt to turn. The Cable Caddy is designed to the requirements specified in JSC-39193, "Certification and Acceptance Requirements Document, Cable Caddy Assembly for Detailed Test Objective 671".

(B) TEST: (Applicable Requirements per JSC-39193.)

Acceptance: Functional(performed at predelivery acceptance, preinstallation acceptance, and pre/post environmental test.)

1) Bolts are torqued to 110 +/- 30 in-lb. and bolt lock visually verified to be in position.

Qualification:

Protoflight Vibration : A vibration test was performed to the following levels for a duration of 1 minute in each axis:

X AXIS	Y AXIS	Z AXIS
20 - 30 Hz +3 db/oct	20 - 45 Hz +10 db/oct	20 - 45Hz .009g ² /Hz
80 - 350 Hz .040g ² /Hz	45 - 600 Hz .060g ² /Hz	45 -70 Hz +12 db/oct
350 - 2000 Hz -3db/oct	600 - 2000 -10db/oct	70 - 600 Hz .050 g ² /Hz
		600 - 2000Hz -6 db/oct
6.1 grms	7.7 grms	7.0 grms

Thermal/Vacuum : Cable Caddy Assy subjected to a temperature of -100°F at a pressure of 1 x 10⁻⁵ torr.

(C) INSPECTION:

Fabrication - All Cable Caddy Assembly components are verified to generally clean individually. The Cable Caddy Assy is verified to be visually clean at predelivery acceptance.

FAILURE MODE EFFECTS ANALYSIS/CRITICAL ITEMS LIST

FMEA NUMBER: EC-PORT2-9

ORIGINATOR: JSC

PROJECT:EDFT-03

PART NAME: CABLE CADDY

LRU/ORU PART NUMBER: SED39126406-30;

QUANTITY: 1

PART NUMBER: SED39126406-301

LRU/ORU PART NAME: CABLE CADDY ASSY.

SYSTEM: GFE

LSC CONTROL NO: N/A

DRAWING/REF DESIGNATOR: SEE P/N

SUBSYSTEM: EVA

ZONE/LOCATION: PORT 2

EFFECTIVITY/AFFECT STAGE: STS-72

Test - Quality Assurance surveillance is required at all test and inspections. Discrepancy reports are written on all noncompliances.

(D) FAILURE HISTORY: None

(E) OPERATIONAL USE:

- 1) Operational Effect - Cable Caddy free of launch restraint. Vehicle damage will likely occur.
- 2) Crew Action - Crew must verify Cable Caddy is secure at end of EVA operations.
- 3) Crew Training - Crew trained in proper operation of Cable Caddy bolts during WETF training.
- 4) Mission constraint - None.
- 5) In Flight Checkout - Proper stowage of Cable Caddy verified during EVA operations, as specified in the EVA checklist.

(F) MAINTAINABILITY: N/A

 PREPARED BY: G. Wright

REVISION:

DATE:8/10/95

WAIVER NUMBER: