
FAILURE MODE EFFECTS ANALYSIS/CRITICAL ITEMS LIST

FMEA NUMBER: EC-MUT-06	ORIGINATOR: JSC	PROJECT: EDFT-04
PART NAME: END EFFECTOR ASSY	LRU PART NUMBER: SEG33106880-301,303,305,307	QUANTITY: 1
PART NUMBER: SEG33106890-301 -303	LRU PART NAME: MUT	SYSTEM: DTO 671
DRAWING: SEE P/N	SUBSYSTEM: EVA	EFFECTIVITY: STS-76 & Subsequent

CRITICALITY:CRITICAL ITEM? YES NO *SUCCESS PATHS: 3
SUCCESS PATHS REMAINING: 2CRITICALITY CATEGORY: 1R/3**REDUNDANCY SCREENS:**

- A - 1.) C/O PRELAUNCH: PASS
 - 2.) C/O ON ORBIT: N/A for NSTS
 - B - 3.) DETECTION FLIGHT CREW: PASS
 - 4.) DETECTION GROUND CREW: N/A for NSTS
 - C - 5.) LOSS OF REDUNDANCY FROM SINGLE CAUSE: PASS
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FUNCTION: The MUT end effector can be used for translating ORUs or as a crew restraint device. The end effector can be clamped to either a dogbone or 25 mm handrail for restraining an EVA crewmember. For translating ORUs the MUT will clamp onto a handrail located on the ORU. The MUT end effector uses an ECOM assembly which attaches to the ECOM socket on the MUT base assembly.

FAILURE MODE: End effector fails to release.

CAUSE: Contamination, galling, piece part defect.

FAILURE DETECTION: Visual and tactile.

REMAINING PATHS: Remaining jaw lock and equipment tether strapping end effector to handrail to prevent end effector separation from handrail during landing.

EFFECT/MISSION PHASE: EVA, landing.

CORRECTIVE ACTION: Cinch down secondary jaw lock. Disconnect EVA crewmember at ECOM and tether end effector to handrail.

-FAILURE EFFECTS-

END ITEM: End effector fails to function.

INTERFACE: End effector is stuck on handrail.

MISSION: Partial loss of remaining DTO objectives.

CREW/VEHICLE: Possible entrapment of crew if all four interfaces fail to separate. Possible impact damage to Orbiter due to loose equipment at landing if end effector separates from handrail.

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HAZARD INFORMATION:

HAZARD: YES _____ NO _____ *

HAZARD ORGANIZATION CODE: N/A

HAZARD NUMBER: N/A

TIME TO EFFECT: Hours.

TIME TO DETECT: Seconds.

TIME TO CORRECT: Minutes.

REMARKS:

-RETENTION RATIONALE-

- (A) DESIGN: N/A
 - (B) TEST: N/A
 - (C) INSPECTION: N/A
 - (D) FAILURE HISTORY: N/A
 - (E) OPERATIONAL USE: N/A
 - (F) MAINTAINABILITY: N/A
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PREPARED BY: M.D. Garner

REVISION:

DATE: 2/22/96