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PRINT DATE: 10/26/95

**FAILURE MODES EFFECTS ANALYSIS (FMEA) -- NONCRITICAL HARDWARE
NUMBER: M5-6MR-0024-X**

SUBSYSTEM NAME: ORBITER DOCKING SYSTEM

REVISION: 1 SEP 30, 1995

	PART NAME VENDOR NAME	PART NUMBER VENDOR NUMBER
LRU	: DOCKING SYSTEM POWER PANEL	V828-730150
SRU	: TOGGLE SWITCH	MC452-0102-7801

PART DATA

EXTENDED DESCRIPTION OF PART UNDER ANALYSIS:
SWITCH, TOGGLE, 3P/2P, MAINTAINED ON - PYRO PWR MN A AND MN C CONTROL
CIRCUIT.

REFERENCE DESIGNATORS: 36V73A7A3S3
36V73A7A3S4

QUANTITY OF LIKE ITEM: 2
(TWO)

FUNCTION:
THE SWITCHES PROVIDE MANUAL ACTIVATION OF THE PYROTECHNIC LOGIC AND
FIRE CIRCUITS ROUTED TO THE PFCU.

FAILURE MODES EFFECTS ANALYSIS (FMEA) -- NONCRITICAL FAILURE MODE
NUMBER: M5-6MR-0024-02

REVISION# 1 SEP 30, 1985

SUBSYSTEM NAME: ORBITER DOCKING SYSTEM

LRU: MC452-0102-7801

ITEM NAME: TOGGLE SWITCH

CRITICALITY OF THIS

FAILURE MODE: 1R3

FAILURE MODE:

FAILS CLOSED IN "ON" POSITION. CONTACT TO CONTACT SHORT.

MISSION PHASE:

OO ON-ORBIT

VEHICLE/PAYLOAD/KIT EFFECTIVITY: 104 ATLANTIS

CAUSE:

A) PIECE PART STRUCTURAL FAILURE, B) CONTAMINATION, C) VIBRATION, D) MECHANICAL SHOCK, E) PROCESSING ANOMALY

CRITICALITY 1/1 DURING INTACT ABORT ONLY? NO

CRITICALITY 1R2 DURING INTACT ABORT ONLY (AVIONICS ONLY)? NO

REDUNDANCY SCREEN

A) PASS
 B) N/A/FAILS
 C) PASS

PASS/FAIL RATIONALE:

A)

B)

TWO REMAINING PATHS DETECTABLE. FIRST FAILURE IS NOT DETECTABLE.

C)

METHOD OF FAULT DETECTION:

TELEMETRY CAN BE USED TO VERIFY POWER ON OR OFF FOR THE PSU 20 AMP BUSES. "PYROTECHNIC BUS STATUS (AP, BP, AND CP)" AND "PYRO CIRCUIT PROTECT CIRCUIT OFF" INDICATIONS IN THE APDS D&C PANEL.

MASTER MEAS. LIST NUMBERS:

V53X0765E
 V53X0766E
 V53X0797E
 V53X0798E
 V53X0796E

CORRECTING ACTION:

NONE

**FAILURE MODES EFFECTS ANALYSIS (FMEA) - NONCRITICAL FAILURE MODE
NUMBER: M5-6MR-0024-02**

- FAILURE EFFECTS -

(A) SUBSYSTEM:

DEGRADATION OF REDUNDANCY AGAINST INADVERTENT PYROTECHNIC SEPARATION.

(B) INTERFACING SUBSYSTEM(S):

UNWANTED COMMAND - ONE OF TWO PFCU LOGIC AND POWER CIRCUITS ALWAYS ENERGIZED.

(C) MISSION:

NO EFFECT.

(D) CREW, VEHICLE, AND ELEMENT(S):

FIRST FAILURE - NO EFFECT.

(E) FUNCTIONAL CRITICALITY EFFECTS:

POSSIBLE LOSS OF CREW OR VEHICLE AFTER FOUR FAILURES. 1) SWITCH FAILS CLOSED. NO EFFECT. 2) PFCU KQ1 OR KQ2 RELAYS FAIL CLOSED (DETECTABLE.) DEGRADED REDUNDANCY AGAINST PYROTECHNIC SEPARATION. 3) PYRO LOGIC BUS "B" CIRCUIT BREAKER FAILS CLOSED (DETECTABLE.) DEGRADED REDUNDANCY AGAINST PYROTECHNIC SEPARATION. 4) HOOKS PYRO FIRE SWITCH MULTIPLE CONTACT FAILURE. POSSIBLE INADVERTENT SEPARATION.

- TIME FRAME -

TIME FROM FAILURE TO CRITICAL EFFECT: DAYS

TIME FROM FAILURE OCCURRENCE TO DETECTION: MINUTES

TIME FROM DETECTION TO COMPLETED CORRECTIVE ACTION: N/A

TIME REQUIRED TO IMPLEMENT CORRECTIVE ACTION LESS THAN TIME TO EFFECT?
N/A

HAZARDS: DM20HA03

INADVERTENT/ERRONEOUS SEPARATION OF ODS FROM DOCKING MODULE PRIOR TO DOCKING WITH MIR

- APPROVALS -

PRODUCT ASSURANCE ENGINEERING
DESIGN ENGINEERING

:R. BLACKWELL
:T. NGUYEN

R. Blackwell
T. Nguyen