PRINT DATE: 06/01/94

FAILURE MODES EFFECTS ANALYSIS (FMEA) – CRITICAL HARDWARE
NUMBER: 05-2B-22101 -X

SUBSYSTEM NAME: COMM & TRACK: ULTRA HIGH FREQ COMM (UHF)
REVISION: 1 5/25/94

		PART NAME VENDOR NAME	PART NUMBER VENDOR NUMBER
LRU	:	PANEL 06	V070-730389
SRU	:	UHF MODE SELECT ROTARY SWITCH	ME452-0093-5027 (OV102)
SRU	:	UHF MODE SELECT ROTARY SWITCH	ME452-0093-5227 (OV103, OV104, OV105)

PART DATA

EXTENDED DESCRIPTION OF PART UNDER ANALYSIS:
UHF MODE SELECT ROTARY SWITCH, 5P5T

REFERENCE DESIGNATORS: 33V73A6S6

QUANTITY OF LIKE ITEMS: 1
ONE

FUNCTION:
ACTIVATES UHF TRANSCEIVER & SELECTS OPERATING MODE BY PROVIDING CLOSURE TO COMMON OF ONE OF FOUR CONTROL LINES.

PRINT DATE: 07/07/94

FAILURE MODES EFFECTS ANALYSIS (FMEA) – NONCRITICAL FAILURE MODE
NUMBER: 05-2B-22101 - 04

REVISION# 1 5/28/94

SUBSYSTEM NAME: COMM & TRACK: ULTRA HIGH FREQ COMM (UHF)
LRU: PANEL 06
ITEM NAME: UHF MODE SELECT ROTARY SWITCH

CRITICALITY OF THIS FAILURE MODE: 1R3

FAILURE MODE:
EVA SHORT TO COMMON WHILE IN SIMPLEX, OR SIMPLEX SHORT TO COMMON WHILE IN EVA.

MISSION PHASE:

PL	PRELAUNCH
LO	LIFT-OFF
OO	ON-ORBIT
DO	DE-ORBIT
LS	LANDING SAFING

VEHICLE/PAYLOAD/KIT EFFECTIVITY:
102 COLUMBIA
103 DISCOVERY
104 ATLANTIS
105 ENDEAVOUR

CAUSE:
MECHANICAL FAILURE, VIBRATION, SHOCK, CONTAMINATION.

CRITICALITY 1/1 DURING INTACT ABORT ONLY? NO
1

REDUNDANCY SCREEN
A) PASS
B) PASS
C) PASS

PASS/FAIL RATIONALE:
A)

B)

C)

- FAILURE EFFECTS -

(A) SUBSYSTEM:
(1) 2R/3 EVA - 296.8 OR 259.7 MHZ RECEIVER OUTPUT MUTED, NO RECEIVE FROM EVA 1, NO BACKUP.

(2) 1R/3 OTHER MISSION PHASES - POWER AMPLIFIER BYPASSED, 296.8 OR 259.7 MHZ RECEIVER OUTPUT MUTED.

(B) INTERFACING SUBSYSTEM(S):
(1) 2R/3 EVA - 296.8 OR 259.7 MHZ RECEIVER OUTPUT MUTED, NO RECEIVE FROM EVA 1, NO BACKUP.

(2) 1R/3 OTHER MISSION PHASES - POWER AMPLIFIER BYPASSED, 296.8 OR 259.7 MHZ RECEIVER OUTPUT MUTED.

(C) MISSION:
(1) 2R/3 EVA - AFTER SECOND FAILURE, LOSS OF EVA COMM, TERMINATE EVA.

(2) 1R/3 OTHER MISSION PHASES - AIR/GROUND - RANGE TO GROUND STATION LIMITED. WORST CASE LOSS OF UHF DOWNLINK VOICE.

(D) CREW, VEHICLE, AND ELEMENT(S):
(1) 2R/3 EVA - NO EFFECT.

(2) 1R/3 OTHER MISSION PHASES - NO EFFECT DUE TO FIRST FAILURE.

(E) FUNCTIONAL CRITICALITY EFFECTS:
AFTER THREE FAILURES (THIS SWITCH AND 2 S-BAND), POSSIBLE LOSS OF CREW/VEHICLE DUE TO LOSS OF STATE VECTOR UPDATE.

-DISPOSITION RATIONALE-

(A) DESIGN:
REFER TO APPENDIX A, ITEM # 2, ROTARY SWITCH

(B) TEST:
REFER TO APPENDIX A, ITEM # 2, ROTARY SWITCH

GROUND TURNAROUND TEST
ANY TURNAROUND CHECKOUT TESTING IS ACCOMPLISHED IN ACCORDANCE WITH OMRSD.

(C) INSPECTION:
REFER TO APPENDIX A, ITEM # 2, ROTARY SWITCH

(D) FAILURE HISTORY:
CURRENT DATA ON TEST FAILURES, FLIGHT FAILURES, UNEXPLAINED ANOMALIES, AND OTHER FAILURES EXPERIENCED DURING GROUND PROCESSING ACTIVITY CAN BE FOUND IN THE PRACA DATABASE.

(E) OPERATIONAL USE:
FOR EVA FUNCTION: EVA 2 RELAYS COMM FROM EVA 1 TO ORBITER. FOR AIR/GROUND: LOW POWER COMM RECEPTION MAY BE POSSIBLE BY VEHICLE ORIENTATION.

PRINT DATE: 07/07/94

FAILURE MODES EFFECTS ANALYSIS (FMEA) – NONCRITICAL FAILURE MODE
NUMBER: 05-2B-22101 - 04

- APPROVALS -

PAE MANAGER	: K. L. PRESTON	: K. L. Preston 7/5/94
PRODUCT ASSURANCE ENGR	: T. R. CLARK	: Terrance R. Clark
DESIGN ENGINEERING	: H. D HADDAD	: 7/7/94
NASA SSMA	:	: Michael Turner
NASA SUBSYSTEM MANAGER	:	: Nancy A Olson