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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 TRANSCIVER & SELECTS OPERATING MODE BY PROVIDING CLOSURE TO COMMON OF ONE OF FOUR CONTROL LINES.

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FAILURE MODES EFFECTS ANALYSIS (FMEA) - CRITICAL FAILURE MODE
 NUMBER: 05-2B-22101 - 02

SUBSYSTEM NAME: COMM & TRACK: ULTRA HIGH FREQ COMM (UHF) REVISION# 1 5/28/94
 LRU: PANEL 06
 ITEM NAME: UHF MODE SELECT ROTARY SWITCH CRITICALITY OF THIS FAILURE MODE: 2 2

FAILURE MODE:
 GUARD T/R SHORT TO COMMON IN SIMPLEX OR 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

REDUNDANCY SCREEN A) N/A
 B) N/A
 C) N/A

PASS/FAIL RATIONALE:
 A)
 B)
 C)

- FAILURE EFFECTS -

- (A) SUBSYSTEM:
 (1) 2/2 EVA - LOSS OF MISSION IF EVA IS REQUIRED LOSS OF 296.8 OR 259.7 MHZ TRANSMIT OR RECEIVE.
 (2) 1R/3 OTHER MISSION PHASES - SYSTEM DEFAULTS TO GUARD ONLY, THUS NO 296.8 OR 259.7 MHZ TRANSMIT OR RECEIVE.
- (B) INTERFACING SUBSYSTEM(S):
 (1) 2/2 EVA - LOSS OF MISSION IF EVA IS REQUIRED LOSS OF 296.8 OR 259.7 MHZ TRANSMIT OR RECEIVE.

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(2) 1R/3 OTHER MISSION PHASES - SYSTEM DEFAULTS TO GUARD ONLY. THUS NO 296.8 OR 259.7 MHZ TRANSMIT OR RECEIVE.

(C) MISSION:

(1) 2/2 EVA - LOSS OF MISSION IF EVA IS REQUIRED - LOSS OF MISSION DUE TO LOSS OF EVA COMM AND TRANSMISSION TO EMUS - WORST CASE - EVA MUST BE TERMINATED.

(2) 1R/3 OTHER MISSION PHASES - NO EFFECT.

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

(1) 2/2 EVA - LOSS OF MISSION IF EVA IS REQUIRED - NO EFFECT.

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

(E) FUNCTIONAL CRITICALITY EFFECTS:

(1) 2/2 EVA - LOSS OF MISSION IF EVA IS REQUIRED.

(2) 1R/3 OTHER MISSION PHASES - POSSIBLE LOSS OF CREW/VEHICLE AFTER 4 FAILURES (THIS SWITCH, 1 ADDITIONAL UHF, AND 2 S-BAND) 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:

NO CREW ACTION AVAILABLE FOR EVA. SYSTEM DEFAULTS TO GUARD CHANNEL (243.0 MHZ). GROUND STATION WILL MONITOR 243.0 MHZ WHEN NO SIGNAL IS RECEIVED ON PRIMARY CHANNELS (296.8 OR 259.7 MHZ).

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FAILURE MODES EFFECTS ANALYSIS (FMEA) - CRITICAL FAILURE MODE

NUMBER: 05-2B-22101 - 02

- APPROVALS -

P&E MANAGER	:	K. L. PRESTON
PRODUCT ASSURANCE ENGR	:	T. R. CLARK
DESIGN ENGINEERING	:	H. D. HADDAD
NASA SSMA	:	
NASA SUBSYSTEM MANAGER	:	

<i>K.L. Preston</i>	<i>7/12/94</i>
<i>T.R. Clark</i>	
<i>H. D. Haddad</i>	<i>7/12/94</i>
<i>Michael Bonney</i>	
<i>James A. O'Sullivan</i>	