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PRINT DATE: 06/13/94

FAILURE MODES EFFECTS ANALYSIS (FMEA) - CRITICAL HARDWARE
NUMBER: 05-28-22103 -X

SUBSYSTEM NAME: COMM & TRACK ULTRA HIGH FREQ COMM (UHF)
REVISION: 1 5/28/94

	PART NAME VENDOR NAME	PART NUMBER VENDOR NUMBER
LRU	: PANEL C6	V070-730389
SRU	: SWITCH, TOGGLE	ME452-0102-7201

PART DATA

EXTENDED DESCRIPTION OF PART UNDER ANALYSIS:
SWTCH, UHF TRANSMIT FREQUENCY TOGGLE SWITCH, 2PDT

REFERENCE DESIGNATORS: 33V73A6S7

QUANTITY OF LIKE ITEMS: 1
ONE POLE XMIT FREQ, ONE POLE SW SCAN

FUNCTION:
SELECTS 259.7 OR 296.8 MHZ FOR UHF TRANSMIT FREQUENCY.

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FAILURE MODES EFFECTS ANALYSIS (FMEA) - CRITICAL FAILURE MODE
NUMBER: 05-28-22103 - 03

REVISION# 1 5/25/94
SUBSYSTEM NAME: COMM & TRACK: ULTRA HIGH FREQ COMM (UHF)
LRU: PANEL 06
ITEM NAME: SWITCH, TOGGLE
CRITICALITY OF THIS FAILURE MODE: 2 2

FAILURE MODE:
CONTACT TO CONTACT SHORT OR BOTH CONTACTS SHORT TO CASE OR COMMON.

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 AND 258.7 MHZ RECEIVE, SINCE BOTH TRANSMITTERS ARE ACTIVE SIMULTANEOUSLY.

(2) 1R/3 OTHER MISSION PHASES - NO EFFECT ON DOWNLINK, BOTH GROUND RECEIVERS ACTIVE SIMULTANEOUSLY, LOSS OF UPLINK ON 296.8 OR 259.7 MHZ, GUARD T/R MODE NOT AFFECTED.

(B) INTERFACING SUBSYSTEM(S):
(1) 2/2 EVA - LOSS OF MISSION IF EVA IS REQUIRED LOSS OF 296.8 AND 259.7 MHZ RECEIVE, SINCE BOTH TRANSMITTERS ARE ACTIVE SIMULTANEOUSLY.

(2) 1R/3 OTHER MISSION PHASES - NO EFFECT ON DOWNLINK, BOTH GROUND RECEIVERS ACTIVE SIMULTANEOUSLY, LOSS OF UPLINK ON 296.8 OR 259.7 MHZ, GUARD T/R MODE NOT AFFECTED.

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FAILURE MODES EFFECTS ANALYSIS (FMEA) - CRITICAL FAILURE MODE
 NUMBER: 05-2B-22103 - 03

(C) MISSION:

(1) 2/2 EVA - LOSS OF MISSION IF EVA IS REQUIRED TRANSMISSION OF INTERFERING SIGNAL TO EVA 2 - 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 #1, TOGGLE SWITCH

(B) TEST:

REFER TO APPENDIX A, ITEM #1, TOGGLE SWITCH

GROUND TURNAROUND TEST

ANY TURNAROUND CHECKOUT TESTING IS ACCOMPLISHED IN ACCORDANCE WITH OMRSD.

(C) INSPECTION:

REFER TO APPENDIX A, ITEM #1, TOGGLE 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:

CREW MUST MANUALLY SELECT GUARD T/R. ASCENT POCKET CHECKLIST AND ENTRY POCKET CHECKLIST DIRECT CREW TO SELECT GUARD T/R IF OTHER COMM IS LOST.

- APPROVALS -

PAE MANAGER : K. L. PRESTON
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 NASA SSMA :
 NASA SUBSYSTEM MANAGER :

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