

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

SUBSYSTEM NAME: COMM & TRACK: UHF SPACE COMMUNICATION
 REVISION: 0 11/14/95

PART DATA

	PART NAME VENDOR NAME	PART NUMBER VENDOR NUMBER
LRU	: PANEL 06	V070-730389
SRU	: SWITCH, ROTARY	ME452-0093-5225

EXTENDED DESCRIPTION OF PART UNDER ANALYSIS:
 UHF MODE SELECT ROTARY SWITCH, 6P5P

REFERENCE DESIGNATORS: 33V73A6S6

QUANTITY OF LIKE ITEMS: 1
 ONE

FUNCTION:

ACTIVATES UHF - ATC TRANSCEIVER OR SPACE-TO-SPACE ORBITER RADIO (SSOR).
 SELECTS OPERATING MODE BY PROVIDING CLOSURE TO COMMON OF ONE OF FOUR
 CONTROL CIRCUITS.

FAILURE MODES EFFECTS ANALYSIS FMEA -- CIL FAILURE MODE

NUMBER: 05-2B-22101M-06

REVISION#: 0 10/03/96

SUBSYSTEM NAME: COMM & TRACK: UHF SPACE COMMUNICATION

LRU: PANEL 06

CRITICALITY OF THIS

ITEM NAME: SWITCH, ROTARY

FAILURE MODE: 2/2

FAILURE MODE:

EVA OR EVA "MODE COMMON" SHORT TO COMMON (MISSION STATION ATU: 28VDC)
WITHIN THE ROTARY SWITCH CONNECTOR PIN (PIN V TO U)

MISSION PHASE: OO ON-ORBIT

VEHICLE/PAYLOAD/KIT EFFECTIVITY: 102 COLUMBIA
 103 DISCOVERY
 104 ATLANTIS
 105 ENDEAVOUR
 AFTER SPACE COMM MODIFICATION

CAUSE:

PIECE PART STRUCTURAL FAILURE, CONTAMINATION, VIBRATION, MECHANICAL SHOCK,
PROCESSING ANOMALY, THERMAL STRESS

CRITICALITY 1/1 DURING INTACT ABORT ONLY? NO

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

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

PASS/FAIL RATIONALE:

A)

B)

C)

- FAILURE EFFECTS -

(A) SUBSYSTEM:

FAILURE MODES EFFECTS ANALYSIS (FMEA) - CIL FAILURE MODE
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LOSS OF MISSION IF EVA IS REQUIRED DUE TO LOSS OF BOTH STRINGS IN THE SSOR.
 INABILITY TO PERFORM STATION RENDEZVOUS DUE TO LOSS OF RF COMMAND AND
 VOICE COMMUNICATION TO SPACE STATION.

(B) INTERFACING SUBSYSTEM(S):

LOSS OF MISSION IF EVA IS REQUIRED DUE LOSS OF BOTH STRINGS IN THE SSOR.
 INABILITY TO PERFORM STATION RENDEZVOUS DUE TO LOSS OF RF COMMAND AND
 VOICE COMMUNICATION TO SPACE STATION.

(C) MISSION:

LOSS OF MISSION IF EVA IS REQUIRED. LOSS OF MISSION DUE TO LOSS OF EVA
 COMMUNICATION AND TRANSMISSION TO THE EMU'S. WORSE CASE - EVA MUST BE
 TERMINATED.

LOSS OF MISSION IF STATION RENDEZVOUS IS REQUIRED. LOSS OF MISSION DUE TO
 LOSS OF RF COMMAND AND/OR VOICE COMMUNICATION TO SPACE STATION. WORST
 CASE - STATION RENDEZVOUS MUST BE TERMINATED.

(D) CREW, VEHICLE, AND ELEMENT(S):
 NO EFFECT

- TIME FRAME -

TIME FROM FAILURE TO CRITICAL EFFECT: MINUTES

-DISPOSITION RATIONALE-

(A) DESIGN:

REFER TO APPENDIX A, ITEM NO. 2 - ROTARY SWITCH

(B) TEST:

REFER TO APPENDIX A, ITEM NO. 2 - ROTARY SWITCH

GROUND TURNAROUND TEST

ANY TURNAROUND CHECKOUT TESTING IS ACCOMPLISHED IN ACCORDANCE WITH -
 OMRSD.

(C) INSPECTION:

REFER TO APPENDIX A, ITEM NO. 2 - ROTARY SWITCH

(D) FAILURE HISTORY:

FAILURE MODES EFFECTS ANALYSIS (FMEA) - CIL FAILURE MODE

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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 COMM - CREW IS TRAINED TO SAFELY TERMINATE EVA IF MINIMUM REQUIRED COMM IS LOST.

FOR STATION RENDEZVOUS - ALTERNATE COMM LINKS WOULD BE USED IF AVAILABLE (E.G. RELAY VIA GROUND SITE OR A VHF RADIO LIKE USED FOR SHUTTLE MIR).

- APPROVALS -

PAE MANAGER	:	POLLY STENGER-NGUYEN	: <i>Polly Stenger-Nguyen 8/21/98</i>
PRODUCT ASSURANCE ENGR	:	VAN D. NGUYEN	: <i>Van Nguyen 8-20-98</i>
DESIGN ENGINEERING	:	G. J. SCHWARTZ	: <i>G. J. Schwartz 8-21-98</i>
NASA SSMA	:	MIKE PENNEY	: <i>Michael Penney 8-26-98</i>
NASA EPD&C SSMA	:		: <i>NA to EPD&C</i>
NASA SUBSYSTEM MANAGER	:	MARK A. CHAVEZ	: <i>Mark A. Chavez 8-26-98</i>
NASA EPD&C SUBSYS MGR	:		: <i>NA to EPD&C</i>
NASA MOD	:		: <i>Don K. From 8-26-98</i>
USA/SAM	:	KAREN BLUMENTZ	: <i>Karen Blumentz 8/26/98</i>