

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-05**

(A) SUBSYSTEM:

LOSS OF MISSION IF EVA IS REQUIRED DUE TO INABILITY TO SELECT EVA MODE.
INABILITY TO PERFORM STATION RENDEZVOUS DUE TO LOSS OF RF COMMAND AND
VOICE COMMUNICATION TO SPACE STATION.

(REFER TO "ADDITIONAL DATA" FOR LESS CRITICAL EFFECTS SCENARIOS).

(B) INTERFACING SUBSYSTEM(S):

LOSS OF MISSION IF EVA IS REQUIRED DUE TO INABILITY TO SELECT EVA MODE.
INABILITY TO PERFORM STATION RENDEZVOUS DUE TO LOSS OF RF COMMAND AND
VOICE COMMUNICATION TO SPACE STATION.

(REFER TO "ADDITIONAL DATA" FOR LESS CRITICAL EFFECTS SCENARIOS).

(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.

(REFER TO "ADDITIONAL DATA" FOR LESS CRITICAL EFFECTS SCENARIOS).

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

NO EFFECT

(REFER TO "ADDITIONAL DATA" FOR LESS CRITICAL EFFECTS SCENARIOS).

(E) FUNCTIONAL CRITICALITY EFFECTS:

(REFER TO "ADDITIONAL DATA" FOR LESS CRITICAL EFFECTS SCENARIOS).

-ADDITIONAL DATA-

OTHER MISSION PHASES: 1R3 PPP

(A) SUBSYSTEM:

OPERATES IN MODE LAST SELECTED - UNABLE TO SELECT ALTERNATE MODE.

(B) INTERFACING SUBSYSTEM(S):

OPERATES IN MODE LAST SELECTED - UNABLE TO SELECT ALTERNATE MODE.

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(C) MISSION:
NO EFFECT - FIRST FAILURE

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

- 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:
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.)

FOR ATC - USE ORBITER S-BAND SYSTEM FOR COMM.

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- APPROVALS -

P&E 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>Mike Penney 8-26-98</i>
NASA EPD&C SSMA	:	---	<i>NA to EPDC</i>
NASA SUBSYSTEM MANAGER	:	Mark A. Chaviz	<i>Mark A Chaviz 8-20-98</i>
NASA EPD&C SUBSYS MGR	:	---	<i>NA to EPDC</i>
NASA MOD	:	---	<i>Mark A Chaviz 8-26-98</i>
USA/SAM	:	KAREN Blumentritt	<i>Karen Blumentritt 8/26/98</i>