FAILURE MODES EFFECTS ANALYSIS (FMEA) – CIL HARDWARE
NUMBER:05-2A-21948M -X

SUBSYSTEM NAME: COMM & TRACK: AUDIO

REVISION: 0 10/03/96

PART DATA

	PART NAME **VENDOR NAME**	**PART NUMBER** **VENDOR NUMBER**
LRU	: PANEL A1A3	VO70-730347
SRU	: SWITCH, TOGGLE	ME452-0102-7201

EXTENDED DESCRIPTION OF PART UNDER ANALYSIS:
SWITCH, A/A (UHF) TOGGLE SWITCH, AIR-TO-AIR CHANNEL FOR THE UHF COMMUNICATIONS LINK, DPDT, ON-OFF.

REFERENCE DESIGNATORS: 36V73A1A3S33

QUANTITY OF LIKE ITEMS: 1
ONE SWITCH-TWO REDUNDANT POLES

FUNCTION:
D&C MANUAL CONFIGURATION OF THE AUDIO DISTRIBUTION SYSTEM (ADS) VIA THE RIGHT (PLT) AUDIO TERMINAL UNIT (ATU) OR THE MISION SPECIALIST (MS) ATU. SELECTS THE AUDIO DISTRIBUTION SYSTEM A/A CHANNEL FOR TRANSMISSION AND RECEPTION OF VOICE WITH THE UHF - SPACE-TO-SPACE ORBITER RADIO (SSOR). REDUNDANCY IS PROVIDED INTERNALLY AND SIMULTANEOUSLY BY TWO (2) POLES: ONE POLE IS CONNECTED TO THE RIGHT (PLT) ATU AND THE OTHER POLE IS CONNECTED TO THE MS ATU.

PRINT DATE: 08/20/98

FAILURE MODES EFFECTS ANALYSIS FMEA -- CIL FAILURE MODE

NUMBER: 05-2A-21948M-02

REVISION#: 0 10/03/96

SUBSYSTEM NAME: COMM & TRACK: AUDIO
LRU: PANEL A1A3
ITEM NAME: SWITCH, TOGGLE

CRITICALITY OF THIS FAILURE MODE: 2/2

FAILURE MODE:
SHORT-TO-CASE (GROUND)

MISSION PHASE:
LO LIFT-OFF
OO ON-ORBIT
DO DE-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.

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:
A/A TOGGLE SWITCH (S33) SHORT-TO-CASE (GROUND) WILL RESULTED LOSS OF SWITCHES A/G 1 (S31) AND A/G 2 (S32) SINCE ALL THREE SWITCHES SHARE A COMMON LINE. LOSS OF CAPABILITY TO SELECT ANY UHF SSOR AUDIO CHANNEL (LOSS OF UHF).

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(B) INTERFACING SUBSYSTEM(S):
LOSS OF CAPABILITY TO SELECT ANY UHF SSOR AUDIO CHANNEL (LOSS OF UHF).

(C) MISSION:
LOSS OF MISSION IF EVA OR STATION RENDEZVOUS VOICE COMMUNICATION IS REQUIRED.

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

(E) FUNCTIONAL CRITICALITY EFFECTS:

-ADDITIONAL DATA-

- TIME FRAME -

TIME FROM FAILURE TO CRITICAL EFFECT: MINUTES

-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.

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(E) OPERATIONAL USE:
FOR SSOR EVA COMM- CREW IS TRAINED TO SAFELY TERMINATE EVA IF MINIMUM REQUIRED COMM IS LOST.

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

- APPROVALS -

PAE MANAGER	: POLLY STENGER-NGUYEN	Polly Stenger-Nguyen 8/21/98
PRODUCT ASSURANCE ENGR	: VAN D. NGUYEN	Van Nguyen 8-20-98
DESIGN ENGINEERING	: D. Y. YOON	D Y Yoon 8-21-98
NASA SSMA	: Mike Penney	Michael Penney 8-26-98
UHF NASA SUBSYSTEM MANAGER	: mark R. Chmiel	Mark R Chmiel 8-26-98
NASA MOD	:	Carl W Bird 8-26-98
USA/SAM	: KAREN Blumenfeit	Karen Blumenfeit 8/26/98
AUDIO NASA SSM	EDDIE BURRELL	E. Burrell 8-26-98 Avionics DCE