

PAGE: 1

PRINT DATE: 05/31/94

FAILURE MODES EFFECTS ANALYSIS (FMEA) -- CRITICAL HARDWARE

NUMBER: 05-6PA-22001 -X

SUBSYSTEM NAME: EPD&C C&T: AUDIO (05-2A)

REVISION: 1 5/26/94

| | PART NAME VENDOR NAME | PART NUMBER VENDOR NUMBER |
|-------|--------------------------|------------------------------|
| ASSEM | : PANEL C3A7 | V070-730285 |
| LRU | : SWITCH, TOGGLE | ME452-0102-7103 |

PART DATA

EXTENDED DESCRIPTION OF PART UNDER ANALYSIS:

SWITCH, AUDIO CENTER TOGGLE SWITCH, AUDIO CENTRAL CONTROL UNIT POWER, SPDT - 3 POSITIONS ARE 1-OFF-2.

REFERENCE DESIGNATORS: 35V73A3A7S6

QUANTITY OF LIKE ITEMS: 1
ONE

FUNCTION:

POWER ON-OFF SWITCH FOR THE ACCU. CONNECTS THE ESS DC BUS 2CA TO ACCU NO. 1 OR MAIN DC BUS C TO ACCU NO. 2, OR TURNS BOTH OFF (CENTER POSITION).

**FAILURE MODES EFFECTS ANALYSIS (FMEA) -- CRITICAL FAILURE MODE
NUMBER: 05-6PA-22001 - 02**

REVISION# 1 5/26/94

SUBSYSTEM NAME: EPD&C C&T: AUDIO (05-2A)
LRU: PANEL C3A7
ITEM NAME: SWITCH, TOGGLE

CRITICALITY OF THIS
FAILURE MODE: 2 2

FAILURE MODE:
FAILS OPEN, PREMATURE OPEN, SHORT-TO-CASE (GROUND)

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:
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:
NO EFFECT ON EPDC.

(B) INTERFACING SUBSYSTEM(S):
LOSS OF BOTH ACCU'S.

(C) MISSION:
LOSS OF MISSION DUE TO LOSS OF ALL AUDIO.

FAILURE MODES EFFECTS ANALYSIS (FMEA) - CRITICAL FAILURE MODE
NUMBER: 05-6PA-22001 - 02

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

(E) FUNCTIONAL CRITICALITY EFFECTS:
AFTER FIRST FAILURE - LOSS OF MISSION DUE TO LOSS OF ALL AUDIO.

AFTER THREE FAILURES (THIS SWITCH AND 2 S-BAND), POSSIBLE LOSS OF
CREW/VEHICLE 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 VERIFY TWO WAY VOICE COMMUNICATION ON AIR TO
GROUND 1 (A/G 1), AIR TO GROUND 2 (A/G 2), AND AIR TO AIR (A/A) CHANNELS.
PERFORMED EVERY FLIGHT.

(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:
INSTALL ACCU BYPASS CABLE (IFM) FOR LIMITED AUDIO VIA THE NSP. USE THE
NORMAL NSP COMMAND CAPABILITY TO UPDATE THE STATE VECTOR.

- APPROVALS -

PAE MANAGER : K. L. PRESTON
PRODUCT ASSURANCE ENGR : T. R. CLARK
DESIGN ENGINEERING : H. D. HADDAD
NASA SSMA :
NASA EPD&C SSMA :
NASA SUBSYSTEM MANAGER :
NASA EPD&C SUBSYS MGR :

K. L. Preston 7/8/94
Terrence R. Clark
H. D. Haddad 7/7/94
Michael Berman
Edward Russell 7-18-94
Edna D. Daulton 10-5-94
D. D. Daulton 10/5/95