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FAILURE MODES EFFECTS ANALYSIS (FMEA) -- CRITICAL HARDWARE
NUMBER: 05-6EB-2011-X

SUBSYSTEM NAME: EPD&C - PAYLOAD BAY DOORS
REVISION : Z 05/16/90

		PART NAME VENDOR NAME	PART NUMBER VENDOR NUMBER
LRU	:	PANEL R13A2	V070-730338
SRU	:	FUSE, PLUG-IN TYPE	ME451-0018-0100

PART DATA

EXTENDED DESCRIPTION OF PART UNDER ANALYSIS:
FUSE (1 AMP), PAYLOAD BAY DOOR (PLBD) ENABLE CIRCUIT

REFERENCE DESIGNATORS: 32V73A13A2F37
: 32V73A13A2F38
: 32V73A13A2F39
: 32V73A13A2F40
: 32V73A13A2F41
: 32V73A13A2F42

QUANTITY OF LIKE ITEMS: 6
SIX

FUNCTION:
PROVIDES OVERCURRENT PROTECTION FOR THE DC CONTROL BUSES IN PLBD HYBRID RELAYS LOGIC CONTROL CIRCUITRY.

FAILURE MODES EFFECTS ANALYSIS (FMEA) -- CRITICAL FAILURE MODE
NUMBER: 05-6EB-2011-01

REVISION# 2 05/16/90 R

SUBSYSTEM: EPD&C - PAYLOAD BAY DOORS
LRU :PANEL R13A2
ITEM NAME: FUSE, PLUG-IN TYPE

CRITICALITY OF THIS FAILURE MODE:1R2

■ FAILURE MODE:
FAILS OPEN, FAILS TO CONDUCT

MISSION PHASE:
OO ON-ORBIT
DO DE-ORBIT

VEHICLE/PAYLOAD/KIT EFFECTIVITY: 102 COLUMBIA
: 103 DISCOVERY
: 104 ATLANTIS

■ CAUSE:
STRUCTURAL FAILURE, CONTAMINATION, VIBRATION, MECHANICAL SHOCK, PROCESSING ANOMALY, THERMAL STRESS

CRITICALITY 1/1 DURING INTACT ABORT ONLY? NO

REDUNDANCY SCREEN A) PASS
B) PASS
C) PASS

PASS/FAIL RATIONALE:
A)

B)

C)

- FAILURE EFFECTS -

■ (A) SUBSYSTEM:
FIRST FAILURE - INABILITY TO PROVIDE POWER TO ENABLE HYBRID RELAY

■ (B) INTERFACING SUBSYSTEM(S):
FIRST FAILURE - LOSS OF ASSOCIATED MOTOR

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FAILURE MODES EFFECTS ANALYSIS (FMEA) -- CRITICAL FAILURE MODE
NUMBER: 05-6EB-2011-01

■ (C) MISSION:
FIRST FAILURE - NO EFFECT

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

■ (E) FUNCTIONAL CRITICALITY EFFECTS:
AFTER SECOND FAILURE (REDUNDANT CIRCUIT FAILS), THE ASSOCIATED PLBD CANNOT BE OPERATED. POSSIBLE LOSS OF CREW/VEHICLE IF DOORS CANNOT BE CLOSED RESULTING IN UNSAFE CONFIGURATION FOR ENTRY (1R2). POSSIBLE LOSS OF MISSION IF DOORS CANNOT BE OPENED (2R3).

- DISPOSITION RATIONALE -

(A) DESIGN:
REFER TO APPENDIX D, ITEM NO. 4 - PLUG-IN FUSE

■ (B) TEST:
REFER TO APPENDIX D, ITEM NO. 4 - PLUG-IN FUSE

GROUND TURNAROUND TEST
SWITCH FUNCTIONS ARE VERIFIED BY CHECKING INITIAL MCA STATUS, CYCLING THE SWITCH FROM ENABLE TO DISABLE AND BACK, AND REVERIFYING MCA STATUS AFTER EACH POSITION CHANGE. TESTS ARE PERFORMED FOR EVERY FLIGHT AND LRU RETEST PER TABLE V37200.000.

■ (C) INSPECTION:
REFER TO APPENIX D, ITEM NO. 4 - PLUG-IN FUSE

■ (D) FAILURE HISTORY:
REFER TO APPENIX D, ITEM NO. 4 - PLUG-IN FUSE

■ (E) OPERATIONAL USE:
NONE IS REQUIRED FOR THE FIRST FAILURE. EVA CAPABILITY EXISTS TO CLOSE PAYLOAD BAY DOORS AFTER MULTIPLE FAILURES.

- APPROVALS -

RELIABILITY ENGINEERING: T. AI
DESIGN ENGINEERING : T. BANNIDY
QUALITY ENGINEERING : W. R. HIGGINS
NASA RELIABILITY :
NASA SUBSYSTEM MANAGER :
NASA QUALITY ASSURANCE :
NASA EPDC SUBSYS MGR
NASA EPDC Reliability

8/23/90
L. D. Cagan For S. Woodard 8/22/90