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S050250L  
ATTACHMENT -  
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FAILURE MODES EFFECTS ANALYSIS (FMEA) — CRITICAL HARDWARE  
NUMBER: MO-AAZ-320-X

SUBSYSTEM NAME: STABILIZED PAYLOAD DEPLOYMENT SYSTEM  
REVISION : 2 06/08/90

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	PART NAME VENDOR NAME	PART NUMBER VENDOR NUMBER
■ ASSEM :	PANEL A7A3	V790-773001
■ SRU :	CIRCUIT BREAKER	MC-54-0026-2030

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PART DATA

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■ REFERENCE DESIGNATORS: 36V73A7A3 - CB3  
                              : 36V73A7A3 - CB4

■ QUANTITY OF LIKE ITEMS: 2

■ FUNCTION:

PROVIDES ON/OFF SWITCHING AND OVERCURRENT PROTECTION FOR THE PEDESTAL DRIVE TRANSFER SYSTEM. CB3 PROVIDES POWER FROM MN A TO THE "ARM" AND "FIRE" CIRCUIT FOR SYSTEM A. CB4 PERFORMS THE SAME FUNCTION FROM MN B TO SYSTEM B.

FAILURE MODES EFFECTS ANALYSIS (FMEA) -- CRITICAL FAILURE MODE  
NUMBER: MO-AA2-320-02

SUBSYSTEM: STABILIZED PAYLOAD DEPLOYMENT SYSTEM REVISION# 2 06/08/90

ITEM NAME: CIRCUIT BREAKER CRITICALITY OF THIS FAILURE MODE:1R3

■ FAILURE MODE:  
FAILED CLOSED

MISSION PHASE:  
00 ON-ORBIT

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

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

CRITICALITY 1/1 DURING INTACT ABORT ONLY? NO

■ REDUNDANCY SCREEN A) PASS  
 ■ B) FAIL  
 ■ C) PASS

PASS/FAIL RATIONALE:

■ A)  
PRELAUNCH CHECKOUT

■ B)  
CANNOT CONFIRM THAT FAILURE RESIDES IN THE CIRCUIT BREAKER.

■ C)  
PHYSICAL AND ELECTRICAL ISOLATION OF REDUNDANT ELEMENT.

- FAILURE EFFECTS -

■ (A) SUBSYSTEM:  
LOSS OF OVERCURRENT PROTECTION.

FAILURE MODES EFFECTS ANALYSIS (FMEA) -- CRITICAL FAILURE MODE  
NUMBER: MO-AA2-320-02

- (B) INTERFACING SUBSYSTEM(S):  
NO EFFECT - FIRST FAILURE. TWO ADDITIONAL FAILURES ARE REQUIRED TO INADVERTENTLY ACTIVATE PEDESTAL TRANSFER DRIVE.
- (C) MISSION:  
NO EFFECT - FIRST FAILURE.
- (D) CREW, VEHICLE, AND ELEMENT(S):  
NO EFFECT - FIRST FAILURE.
- (E) FUNCTIONAL CRITICALITY EFFECTS:  
WITH CIRCUIT BREAKER FAIL CLOSED AND A FAILED "ON" ARM SWITCH AND FAILED "ON" FIRE SWITCH AN INADVERTENT PEDESTAL DRIVE TRANSFER WILL OCCUR. SUBSEQUENT LOSS OF SECONDARY PEDESTAL DRIVE COULD RESULT IN PARTIALLY DEPLOYED PAYLOAD PREVENTING PAYLOAD BAYDOOR CLOSURE. RESULTING IN POSSIBLE LOSS OF CREW AND VEHICLE.

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- DISPOSITION RATIONALE -  
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- (A) DESIGN:  
REFER TO APPENDIX D, ITEM 1.
- (B) TEST:  
REFER TO APPENDIX D, ITEM 1.  
  
OMRSD: GROUND TURNAROUND  
FREQUENCY OF CHECKOUT IS MISSION DEPENDENT. PIC BITE CIRCUITRY,  
VERIFIES ENERGY OUTPUT OF THE PIC'S. S0790A.230-I, -J, -K, -L.
- (C) INSPECTION:  
REFER TO APPENDIX D, ITEM 1.
- (D) FAILURE HISTORY:  
REFER TO APPENDIX D, ITEM 1.
- (E) OPERATIONAL USE:  
NONE.

FAILURE MODES EFFECTS ANALYSIS (FMEA) -- CRITICAL FAILURE MODE  
NUMBER: MO-AA2-320-02

- APPROVALS -

RELIABILITY ENGINEERING:	W. R. MARLOWE	<i>W. R. Marlowe 6/14/90</i>
DESIGN ENGINEERING :	T. TAUFER	<i>T. Tauffer 6/14/90</i>
QUALITY ENGINEERING :	M. F. MERGEN	<i>M. F. Mergen for 6/14/90</i>
NASA RELIABILITY :		<i>9/7/90</i>
NASA SUBSYSTEM MANAGER :		<i>5/25/90</i>
NASA EPD&C RELIABILITY :		<i>M. C. Duncan for T. Woodard 7/19/90</i>
NASA QUALITY ASSURANCE :		<i>9/20/90</i>
NASA EPD&C SUBSYS MGR :		<i>for F. Alawis 9/20/90</i>