

FAILURE MODES EFFECTS ANALYSIS (FMEA) -- CRITICAL HARDWARE  
 NUMBER: 05-6DS-2009A-X

SUBSYSTEM NAME: EPD&C-DRAG CHUTE

REVISION : 1 04/23/92

	PART NAME VENDOR NAME	PART NUMBER VENDOR NUMBER
■ LRU :	DRAG CHUTE CONTROLLER ASSY	V070-765440
■ SRU :	RESISTOR	RWRBOS1211FR

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 PART DATA  
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- EXTENDED DESCRIPTION OF PART UNDER ANALYSIS:  
RESISTOR - ISOLATION, 1.2K, 2W (JETTISON)
- REFERENCE DESIGNATORS: 50V76A214A1R1  
: 50V76A214A1R7  
: 50V76A214A1R13  
: 50V76A215A1R1  
: 50V76A215A1R7  
: 50V76A215A1R13
- QUANTITY OF LIKE ITEMS: 6  
THREE PER ASSEMBLY NO. 1 & NO. 2
- FUNCTION:  
PROVIDES ISOLATION FOR REDUNDANT ARM, FIRE 1, AND FIRE 2 COMMANDS WHICH ASSOCIATES WITH JETTISON CIRCUITRY.

FAILURE MODES EFFECTS ANALYSIS (FMEA) -- CRITICAL FAILURE MODE  
 NUMBER: 05-6DS-2009A-02

SUBSYSTEM: EPD&C-DRAG CHUTE  
 LRU :DRAG CHUTE CONTROLLER ASSY  
 ITEM NAME: RESISTOR

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CRITICALITY OF THIS  
 FAILURE MODE: 1R3

■ FAILURE MODE:  
 SHORT (END TO END)

MISSION PHASE:  
 DO DE-ORBIT

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

■ CAUSE:  
 STRUCTURAL FAILURE (MECHANICAL STRESS, VIBRATION), CONTAMINATION,  
 ELECTRICAL STRESS, THERMAL STRESS, PROCESSING ANOMALY

■ CRITICALITY 1/1 DURING INTACT ABORT ONLY? NO

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

PASS/FAIL RATIONALE:

■ A)  
 FAILS SCREEN "A" BECAUSE RESISTOR FAILURE IS NOT DETECTABLE DURING  
 GROUND TURNAROUND TEST WITHOUT INVASIVE TESTING.

■ B)  
 FAILS SCREEN "B" BECAUSE NO CAPABILITY TO DETECT A FAILED RESISTOR  
 INFLIGHT.

■ C)

- - FAILURE EFFECTS -

■ (A) SUBSYSTEM:  
 ISOLATION CAPABILITY IS LOST.

## FAILURE MODES EFFECTS ANALYSIS (FMEA) -- CRITICAL FAILURE MODE

NUMBER: 05-6DS-2009A-02

- (B) INTERFACING SUBSYSTEM(S):  
FIRST FAILURE - NO EFFECT

- (C) MISSION:  
FIRST FAILURE - NO EFFECT

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

- (E) FUNCTIONAL CRITICALITY EFFECTS:  
POSSIBLE LOSS OF CREW/VEHICLE DUE TO INABILITY TO JETTISON A PREMATURE DEPLOYED DRAG CHUTE. REQUIRES THREE ADDITIONAL FAILURES (PRIMARY DIODE IN REDUNDANT CIRCUIT SHORTS END-TO-END, ONE POLE OF REDUNDANT SWITCH SHORTS TO GROUND, AND PILOT MORTAR CARTRIDGE PREMATURELY OPERATED CAUSING PREMATURE DEPLOYMENT OF DRAG CHUTE) BEFORE EFFECT IS MANIFESTED.

| NOTE: FAILURE SCENARIO IS CREDIBLE ONLY AT ALTITUDES OF 40 TO 135 FEET.

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- DISPOSITION RATIONALE -  
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- (A) DESIGN:  
REFER TO APPENDIX E, ITEM NO. 3 - RESISTOR

- (B) TEST:  
REFER TO APPENDIX E, ITEM NO. 3 - RESISTOR

GROUND TURNAROUND TEST  
NONE

- (C) INSPECTION:  
REFER TO APPENDIX E, ITEM NO. 3 - RESISTOR

- (D) FAILURE HISTORY:  
REFER TO APPENDIX E, ITEM NO. 3 - RESISTOR

- (E) OPERATIONAL USE:  
NONE

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NUMBER: 05-6DS-2009A-02

- APPROVALS -

RELIABILITY ENGINEERING: T. AI  
 DESIGN ENGINEERING : T. POCKLINGTON  
 QUALITY ENGINEERING : W. R. HIGGINS  
 NASA RELIABILITY :  
 NASA SUBSYSTEM MANAGER :  
 NASA EPD&C RELIABILITY :  
 NASA QUALITY ASSURANCE :  
 NASA EPD&C SUBSYS MGR :

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