PRINT DATE: 10/17/91

FAILURE MODES EFFECTS ANALYSIS (FMEA) -- CRITICAL HARDWARE

NUMBER: 05-6G-2133-X

SUBSYSTEM NAME: EPD&C - HYDRAULICS (02-6)

REVISION : 2 10/16/91

		PART NAME VENDOR NAME	PART NUMBER VENDOR NUMBER
◘ LRU	:	AFT MCA-1	V070-765410
◘ LRU	:	AFT MCA-1	V070-765630
◘ SRU	:	RESISTOR	RWR80S1211FR

PART DATA

◘ EXTENDED DESCRIPTION OF PART UNDER ANALYSIS:
RESISTOR, CURRENT LIMIT, 1.21K OHM, 2W - LANDING GEAR EXTEND ISOLATION VALVE

◘ REFERENCE DESIGNATORS: 54V76A114R(J6-9)

◘ QUANTITY OF LIKE ITEMS: 1
ONE

◘ FUNCTION:
LIMITS CURRENT TO THE LANDING GEAR EXTEND ISOLATION VALVE POSITION INDICATION CIRCUIT.

FAILURE MODES EFFECTS ANALYSIS (FMEA) -- CRITICAL FAILURE MODE
NUMBER: 05-6G-2133-02

REVISION# 2 10/16/91 R

SUBSYSTEM: EPD&C - HYDRAULICS (02-6)
LRU :AFT MCA-1
ITEM NAME: RESISTOR

CRITICALITY OF THIS FAILURE MODE:1R3

■ FAILURE MODE:
SHORT (END TO END)

MISSION PHASE:
DO DE-ORBIT

■ VEHICLE/PAYLOAD/KIT EFFECTIVITY: 105 ENDEAVOUR 102 COLUMBIA
103 Discovery
104 Atlantis

■ 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)
"A" SCREEN FAILS DUE TO LACK OF A NON-INVASIVE TEST TO DETECT THE FAILED SHORT (END TO END) FAILURE MODE OF THIS RESISTOR.

■ B)
"B" SCREEN FAILS SINCE THE FAILED SHORT (END TO END) FAILURE MODE IS NOT DETECTABLE UNTIL THERE IS A SECOND FAILURE (SHORT TO STRUCTURE) OF A DOWNSTREAM COMPONENT.

■ C)

- FAILURE EFFECTS -

■ (A) SUBSYSTEM:
LOSS OF ABILITY TO LIMIT CURRENT TO THE AFFECTED ISOLATION VALVE POSITION INDICATION CIRCUIT

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■ (B) INTERFACING SUBSYSTEM(S):
LOSS OF ABILITY TO LIMIT CURRENT TO THE AFFECTED ISOLATION VALVE POSITION INDICATION CIRCUIT.

■ (C) MISSION:
NO EFFECT

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

■ (E) FUNCTIONAL CRITICALITY EFFECTS:
POSSIBLE LOSS OF CREW/VEHICLE AFTER THREE FAILURES - 1) THIS RESISTOR FAILS SHORT (END TO END), 2) ASSOCIATED EVENT INDICATOR SHORTS TO STRUCTURE WHEN THE LANDING GEAR EXTEND ISOLATION VALVE AND LIMIT SWITCH ARE [redacted] CLOSED, CAUSING LOSS OF AFT MCA-1 MAIN BUS A POWER RESULTING IN THE LOSS OF ABILITY TO OPEN THE AFFECTED ISOLATION VALVE, AND 3) FAILURE OF A BACKUP LANDING GEAR UPLOCK PYRO CARTRIDGE RESULTING IN THE LOSS OF CAPABILITY TO DEPLOY THE LANDING GEAR.

- DISPOSITION RATIONALE -

■ (A) DESIGN:
REFER TO APPENDIX E, ITEM NO. 3 - RESISTOR, WIRE WOUND

■ (B) TEST: TO TEST THIS FAILURE REQUIRES AN INVASIVE PROCED
REFER TO APPENDIX E, ITEM NO. 3 - RESISTOR, WIRE WOUND

GROUND TURNAROUND TEST
NONE

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

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

■ (E) OPERATIONAL USE:
NONE

FAILURE MODES EFFECTS ANALYSIS (FMEA) -- CRITICAL FAILURE MODE
NUMBER: 05-6G-2133-02

- APPROVALS -

RELIABILITY MANAGER	M. C. HOVE	10-17-91
RELIABILITY ENGINEERING	T. K. KIMURA	10-17-91
DESIGN MANAGER	G. M. ANDERSON	10-18-91
DESIGN ENGINEERING	G. A. FINNEMAN	10/18/91
SUBSYSTEM MANAGER	B. J. VAN METER	
QUALITY MANAGER	R. M. SPURLOCK	10/24/91
QUALITY ENGINEERING	H. R. HIGGINS	10/24/91
NASA RELIABILITY		2/3/92
NASA SUBSYSTEM MANAGER		for 2/4/92
NASA EPD&C RELIABILITY		12/2/91
NASA QUALITY ASSURANCE		11/13/91
NASA EPD&C SUBSYS MGR		12-3-91