SHUTTLE CRITICAL ITEMS LIST - ORBITER

SUBSYSTEM :ELECT POWER DIST & CONT FMEA NO 05-6 -2496 -1 REV:05/03/88

ASSEMBLY :AFT LCA-3 CRIT.FUNC: 1R
P/N RI :MC477-0265-0002 CRIT. HDW: 3
P/N VENDOR:
QUANTITY :4
:FOUR
:

VEHICLE EFFECTIVITY:	102 X	103 X	104 X
PHASE(S):	PL X LO X OO	DO	LS

REDUNDANCY SCREEN: A-PASS B-FAIL C-PASS

PREPARED BY:			APPROVED BY:	APPROVED BY (NASA):
DES	R	PHILLIPS	DES	SSM
REL	M	HOVE	REL	REL
QE	J	COURSEN	QE	QE

ITEM:
HYBRID DRIVER, TYPE V - CONTROL POWER, MAIN DC BUS "C"/L AND R SRB BUSES

FUNCTION:
HYBRID DRIVER PROVIDES SENSING OF ORBITER BUS A OR B UNDERVOLTAGE TO SRB DC BUSES AND INITIATES SWITCHING TO BACKUP ORBITER BUS C WHEN REQUIRED. 56V76A123HDC J8(27), J9(25, 54, 57)

FAILURE MODE:
LOSS OF OUTPUT, FAILS TO CONDUCT, FAILS TO TURN "ON"

CAUSE(S):
PIECE PART FAILURE, CONTAMINATION, THERMAL STRESS, MECHANICAL SHOCK, VIBRATION, PROCESSING ANOMALY

EFFECT(S) ON:
(A)SUBSYSTEM (B)INTERFACES (C)MISSION (D)CREW/VEHICLE (E)FUNCTIONAL CRITICALITY EFFECT:

(A) LOSS OF CONTROL OF REDUNDANT POWER FROM AFT ORBITER DC BUS TO SRB DC BUS A OR B.

(B) LOSS OF REDUNDANCY (ORB MAIN DC BUS C) TO ASSOCIATED SRB DC BUS.

(C,D) FIRST FAILURE - NO EFFECT. EACH SRB DC BUS HAS REDUNDANT POWER SUPPLIED FROM ORBITER MAIN DC BUSES.

(E) POSSIBLE LOSS OF CREW/VEHICLE IF BOTH SRB BUSES ARE LOST RESULTING IN LOSS OF SRB THRUST VECTOR CONTROL AS WELL AS LOSS OF RATE GYRO DATA FROM AFFECTED SRB. THE ADDITIONAL FAILURES REQUIRED ARE (1) SERIES RPC ON SAME SRB DC BUS FAILS "OFF" AND (2) RELAY FAILS OPEN ON THE OTHER DC BUS IN THE SAME SRB. FAILS "B" SCREEN BECAUSE FAILURE TO TRANSFER IS NOT DETECTABLE UNTIL

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SPOSITION & RATIONALE:
(A)DESIGN (B)TEST (C)INSPECTION (D)FAILURE HISTORY (E)OPERATIONAL USE:

.,B,C,D) DISPOSITION AND RATIONALE
REFER TO APPENDIX B, ITEM NO. 1 - HYBRID DRIVER

) GROUND TURNAROUND TEST
VERIFY ORB/SRB POWER INTERFACE BY ACTIVATING THE MASTER EVENT CONTROLLER SRB POWER COMMANDS AND MONITORING POWER STIMULI COMMANDS, DISCRETE EVENTS, AND OPERATIONAL BUS VOLTAGES. TEST IS PERFORMED FOR ALL FLIGHTS.

) OPERATIONAL USE
NONE