

SHUTTLE CRITICAL ITEMS LIST - ORBITER

SUBSYSTEM : R/RADAR & COM ANT DEPLOY FMEA NO 05-6EH-56010 -2 REV:02/07/89

ASSEMBLY : MID MCA 2 AND 4	CRIT. FUNC: 1R
P/N RI : RWR8051211FR	CRIT. HDW: 3
P/N VENDOR:	VEHICLE 102 103 104
QUANTITY : 2	EFFECTIVITY: X X X
: TWO (1 PER MCA)	PHASE(S): PL LO CO X DO LS

PREPARED BY:	DES	REL	QE	REDUNDANCY SCREEN: A-FAIL B-FAIL C-PASS	APPROVED BY: (NASA):
DES T BANHIDY	DES J.A.P. <i>[Signature]</i>	REL J HARADA	REL <i>[Signature]</i>	SSM <i>[Signature]</i>	SSM <i>[Signature]</i>
REL JPH 2-7-89		REL	QE	REL <i>[Signature]</i>	REL <i>[Signature]</i>
QE J COURSEN		QE		QE <i>[Signature]</i>	QE <i>[Signature]</i>

EPD+C-50M *[Signature]* 17K
 EPD+C-50M *[Signature]* 17K

ITEM: RESISTOR, CURRENT LIMITING (1.2K, 2W) - KU-BAND BCM STOW EXCITATION CIRCUIT

FUNCTION: PROVIDES CURRENT LIMITING TO BOOM STOW ENABLE II EXCITATION SIGNAL CIRCUIT.
 (102) - 40V76A118A3R14, 40V76A120A2R13
 (103,104) - 40V76A118A2R24, 40V76A120A2R32

FAILURE MODE: SHORT (END TO END)

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

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

(A) FIRST FAILURE - LOSS OF CURRENT LIMITING CAPABILITY ON AFFECTED PATH OF THE BOOM STOW ENABLE II EXCITATION CIRCUIT. AFTER TWO FAILURES, LOSS OF DC BUS ISOLATION. AFTER THREE FAILURES, LOSS OF NORMAL STOW CAPABILITY.

(B) NO EFFECT - FIRST AND SECOND FAILURES. AFTER THREE FAILURES, IF THE GIMBALS ARE VERIFIED TO BE LOCKED, THE DIRECT STOW SWITCH CAN BE USED TO STOW THE DEPLOYED ASSEMBLY. IF GIMBALS CANNOT BE VERIFIED TO BE LOCKED, JETTISON WILL BE REQUIRED.

(C,D,E) NO EFFECT - FIRST FAILURE. POSSIBLE LOSS OF CREW/VEHICLE AFTER FIVE FAILURES (RESISTOR FAILS SHORT, DIODE DOWNSTREAM OF AFFECTED RESISTOR FAILS SHORT, ASSOCIATED MAIN DC BUS OF AFFECTED RESISTOR SHORTS TO GROUND AND CAUSES LOSS OF VOLTAGE FOR THE BOOM STOW ENABLE II EXCITATION CIRCUIT, DIRECT STOW SWITCH FAILS OPEN LOSING ALL CAPABILITY

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TO STOW THE DEPLOYED ASSEMBLY, AND LOSS OF DEPLOYED ASSEMBLY JETTISON CAPABILITY) DUE TO THE LOSS OF ABILITY TO CLOSE THE PAYLOAD BAY DOORS.

FAILURE IS NOT DETECTABLE DURING GROUND TURNAROUND OR DURING FLIGHT SINCE THE FAIL SHORT MODE OF THIS RESISTOR DOES NOT AFFECT THE FUNCTIONAL OPERATION OF THE SUBSYSTEM UNLESS THERE ARE ADDITIONAL ASSOCIATED FAILURES.

DISPOSITION & RATIONALE:

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

(A-D) DISPOSITION AND RATIONALE

REFER TO APPENDIX E, ITEM NO. 3 - RESISTOR, WIRE WOUND

(B) GROUND TURNAROUND TEST

INVASIVE TESTING, REQUIRES MASTER VERIFICATION PLAN WAIVER.

(E) OPERATIONAL USE

THIS FAILURE RESULTS IN LOSS OF ABILITY TO DRIVE THE STOW MOTORS USING THE "DEPLOY/GND/STOW" SWITCH DUE TO LOSS OF THE BOOM STOW ENABLE TO SIGNAL. THE "DEPLOY/GND/STOW" SWITCH, HOWEVER, CAN STILL BE USED TO COMMAND THE GIMBAL LOCK SEQUENCE FOR LOCKING THE GIMBALS BUT THE DIRECT STOW SWITCH WILL BE USED FOR STOWING THE DEPLOYED ASSEMBLY. IF THE DEPLOYED ASSEMBLY CANNOT BE STOWED OR THE GIMBALS CANNOT BE LOCKED FOR ENTRY THE DEPLOYED ASSEMBLY WILL BE JETTISONED.