

SH TLE CRITICAL ITEMS LIST - BITER

117

SUBSYSTEM :R/RADAR & COM ANT DEPLOY FMEA NO 05-6EH-56010 -1 REV:05/21/90

ASSEMBLY :MID MCA 2 AND 4					
P/N RI :RWR8051211FR					
P/N VENDOR:					
QUANTITY :2	VEHICLE	102	103	104	
:TWO (1 PER MCA)	EFFECTIVITY:	X	X	X	
:	PHASE(S):	PL	LO	OO X DO	LS
:					

CRIT. FUNC: 1R
 CRIT. HDW: 3

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

PREPARED BY:		APPROVED BY:		APPROVED BY (NASA):	
DES T BANHIDY	DES <i>[Signature]</i>	SSM <i>[Signature]</i>	REL <i>[Signature]</i>	QE <i>[Signature]</i>	
REL <i>05-21-90</i>	J RESSIA	REL <i>05-21-90</i>			
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EPD&L SSM *[Signature]*
 EPD&L SSE *[Signature]*

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

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

FAILURE MODE:
 OPEN

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

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

(A) FIRST FAILURE - FAILING OPEN OF ONE RESISTOR WILL RESULT IN LOSS O
 REDUNDANCY. FAILING OPEN OF SECOND RESISTOR WILL RESULT IN LOSS O
 NORMAL STOW CAPABILITY.

(B) NO EFFECT - FIRST FAILURE. AFTER TWO FAILURES, IF THE GIMBALS AR
 VERIFIED TO BE LOCKED, THE DIRECT STOW SWITCH CAN BE USED TO STOW TH
 DEPLOYED ASSEMBLY. IF GIMBALS CANNOT BE VERIFIED TO BE LOCKED, JETTISO
 WILL BE REQUIRED.

(C,D,E) NO EFFECT - FIRST FAILURE. POSSIBLE LOSS OF CREW/VEHICLE AFTE
 FOUR FAILURES (RESISTOR FAILS OPEN, PARALLEL REDUNDANT RESISTOR FAIL
 OPEN, DIRECT STOW SWITCH FAILS OPEN LOSING ALL CAPABILITY TO STOW TH
 DEPLOYED ASSEMBLY. LOSS OF DEPLOYED ASSEMBLY JETTISON CAPABILITY) DU
 TO THE LOSS OF ABILITY TO CLOSE THE PAYLOAD BAY DOORS.

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FAILURE IS NOT DETECTABLE IN FLIGHT DUE TO THE PARALLEL REDUNDANCY OF POWER SOURCES FOR THE BOOM STOW ENABLE II EXCITATION CIRCUIT.

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

"KU-BAND BOOM STOW ENABLE II" VERIFIES THE INTEGRITY OF THE KU-BAND ANTENNA BOOM STOW ENABLE II FUNCTION BY USING BUS ISOLATION. THIS IS VERIFIED FOR FIRST FLIGHT; THEREAFTER, ON AN INTERVAL OF FIVE FLIGHTS, OR FOLLOWING LRU REPLACEMENT. TESTS WILL DETECT THE FAILED OPEN FAILURE MODE OF THE BOOM STOW ENABLE II EXCITATION SIGNAL CIRCUIT CONTAINING THE CURRENT LIMITING RESISTOR.

(E) OPERATIONAL USE

SECOND FAILURE RESULTS IN LOSS OF BOOM STOW ENABLE II DISCRETE WHICH CAUSES LOSS OF ABILITY TO DRIVE THE STOW MOTORS USING THE "DEPLOY/GND/STOW" SWITCH. 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.