SI. .TLE CRITICAL ITEMS LIST - .RBITER

SUBSYSTEM :R/RADAR & COM ANT DEPLOY FMEA NO 05-6EH-56013 -2 REV:05/21/90

ASSEMBLY :MID MCA 2 AND 4
P/N RI :JANTXV1N4246
P/N VENDOR:
QUANTITY :4
:FOUR (2 PER MCA)
:

CRIT. FUNC: 1R
CRIT. HDW: 3

VEHICLE EFFECTIVITY:	102	103	104
	X	X	X

PHASE(S): PL LO OO X DO LS

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

PREPARED BY:		APPROVED BY:	APPROVED BY (NASA):
DES	T BANHIDY	DES	SSM
REL	J RESSIA	REL	REL
QE	J COURSEN	QE	QE

EPDSC SSM
EPDSC SSE

ITEM:
DIODE (1 AMP) - KU-BAND ANTENNA STOW CIRCUIT

FUNCTION:
PROVIDES REVERSE CURRENT PROTECTION FOR THE STOW CIRCUIT
(102) - 40V76A118A1CR15, CR29; 40V76A120A1CR39, CR42
(103, 104) - 40V76A118A1CR30, CR34; 40V76A120A1CR22, CR39

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 ISOLATION FOR THE "DEPLOY/GND/STOW" SWITCH. AFTER TWO FAILURES, LOSS OF ABILITY TO STOW WITH ONE OF THE TWO ACTUATOR SYSTEMS. AFTER THREE FAILURES, LOSS OF STOW CAPABILITY.

(B) NO EFFECT - FIRST AND SECOND FAILURES. AFTER TWO FAILURES, LOSS OF ABILITY TO STOW WITH ONE OF THE TWO ACTUATOR SYSTEMS. AFTER THREE FAILURES, JETTISON WILL BE REQUIRED.

(C,D,E) NO EFFECT - FIRST FAILURE. POSSIBLE LOSS OF CREW/VEHICLE AFTER FOUR FAILURES (DIODE FAILS SHORT, "DEPLOY/GND/STOW" SWITCH CONTACT (18, 24, 6, OR 12) SHORTS TO CASE, STOW HYBRID RELAY IN REDUNDANT PATH FAILS OPEN, LOSS OF DEPLOYED ASSEMBLY JETTISON CAPABILITY) DUE TO THE LOSS OF ABILITY TO CLOSE THE PAYLOAD BAY DOORS.

FAILURE IS NOT DETECTABLE DURING FLIGHT SINCE THE FAIL SHORT MODE OF THIS DIODE DOES NOT AFFECT THE FUNCTIONAL OPERATION TO STOW UNLESS THERE ARE ADDITIONAL ASSOCIATED FAILURES.

SUBSYSTEM :R/RADAR & COM ANT DEPLOY FMEA NO 05-6EH-56013 -2 REV:05/21/9(

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

(A-D) DISPOSITION AND RATIONALE
REFER TO APPENDIX F, ITEM NO. 3 - DIODE

(B) GROUND TURNAROUND TEST
"KU-BAND STOW ISOLATION DIODE CHECK" VERIFIES THE INTEGRITY OF THE DIOI THROUGH BUS DROPS. WHEN BUS CA2 IS OFF AND KU-BAND POWER IS OFF, PANE SWITCHES ARE CONFIGURED TO DETECT A SHORTED DIODE, EVIDENCED BY BUS CA BEING ENERGIZED. WHEN KU-BAND IS IN STANDBY AND PANEL SWITCHES ARE RE CONFIGURED, A PRESENCE OF THE BOOM STOW INITIATE SIGNAL INDICATES SHORTED DIODE. A SIMILAR SITUATION EXISTS FOR SHUTTING BUS BC2 OFF THIS IS VERIFIED FOR FIRST FLIGHT; THEREAFTER, ON AN INTERVAL OF FIV FLIGHTS, OR FOLLOWING LRU REPLACEMENT.

(E) OPERATIONAL USE
AFTER THE THIRD FAILURE ("DEPLOY/GND/STOW" SWITCH) IF TIME PERMITS, A IN-FLIGHT MAINTENANCE PROCEDURE CAN BE PERFORMED TO BYPASS FAILURE O THIS SWITCH. IF THE IN-FLIGHT MAINTENANCE PROCEDURE CANNOT BE PERFORMED THE DEPLOYED ASSEMBLY WILL BE JETTISONED.