

SHUTTLE CRITICAL ITEMS LIST - ORBITER

SUBSYSTEM : R/RADAR & COM ANT DEPLOY FMEA NO 05-6EH-56052 -2 REV: 05/22/90

ASSEMBLY : MID MCA 2 AND 4
 P/N RI : JANTXV1N4246
 P/N VENDOR:
 QUANTITY : 2
 : TWO (1 PER MCA)
 :

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

CRIT. FUNC: 25
 CRIT. HDW: 2
 CRIT. HDW: 2

PREPARED BY:

DES T BANHIDY
 REL *gr* 5-22-90 J RESSIA
 QE J COURSEN

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

APPROVED BY: APPROVED BY (NASA):
 DES *S.B.K. [Signature]* SSM *[Signature]*
 REL *[Signature]* 5-21-90 G: REL *[Signature]*
 QE *[Signature]* 5-22-90 QE *[Signature]*

EPD&C USE: *[Signature]*
 UPD&C SSM: *[Signature]*

ITEM:

DIODE, BLOCKING (1 AMP), KU-BAND ANTENNA DEPLOYMENT POSITION ST INDICATION CIRCUIT

FUNCTION:

PROVIDES BLOCKING OF DA STOWED POSITION INDICATION SIGNAL/INHIBIT BETWEEN MID MCA 2 AND 4 STOW CIRCUITS. 40V76A118A1CR41, 40V76A120A1CR2

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 BETWEEN REDUNDANT STOW INDICATION CIRCUITS.

(B) NO EFFECT - FIRST FAILURE. AFTER SECOND FAILURE, LOSS OF LIM SWITCH, JETTISON WILL BE REQUIRED.

(C,D,E) NO EFFECT - FIRST FAILURE. POSSIBLE LOSS OF CREW/VEHICLE AFTER THREE FAILURES (DIODE FAILS SHORT; LIMIT SWITCH IN REDUNDANT STOW CIRCUIT FAILS SHORT; LOSS OF DEPLOYED ASSEMBLY JETTISON CAPABILITY) DUE TO LOSS OF ABILITY TO CLOSE THE PAYLOAD BAY DOORS.

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

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SUBSYSTEM :R/RADAR & COM ANT DEPLOY FMEA NO 05-6EH-56052 -2 REV:05/22/8

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 LIMIT SWITCH AND TALKBACK" VERIFIES THE INTEGRITY OF KU-BAND ANTENNA STOW LIMIT SWITCH AND THE TALKBACK FUNCTION CIRCUIT WHICH CONTAINS THE BLOCKING DIODE. THIS IS VERIFIED FOR FIRST FLIGHT THEREAFTER, ON AN INTERVAL OF FIVE FLIGHTS, OR FOLLOWING LRU REPLACEMENT.

(E) OPERATIONAL USE

FIRST FAILURE IS NOT DETECTABLE IN FLIGHT. AFTER TWO FAILURES, DC POWER CAN BE TURNED OFF TO THE MCA SUPPLYING POWER TO THE FAILED LIMIT SWITCH, THUS REMOVING POWER FROM THE INHIBITS TO THE STOW RELAYS OF THE MOTORS.