

SHUTTLE CRITICAL ITEMS LIST - ORBITER

SUBSYSTEM : EPD&C - COMM. & TRACK. FMEA NO 05-6PR-54052 -1 REV:06/28/86

ASSEMBLY : PNL R19				CRIT. FUNC: 2
P/N RI : JANTXV1N5551				CRIT. HDW: 2
P/N VENDOR:	VEHICLE	102	103	104
QUANTITY : 1	EFFECTIVITY:	X	X	X
: ONE	PHASE(S):	PL	LO	OO X DO LS

PREPARED BY:	DES H D MADCAD	REL 9/18 3-5-87 J Y HARADA	QE	REDUNDANCY SCREEN: A- B- C-	APPROVED BY:	APPROVED BY (NASA):
					DES <i>H. D. Madcad 8/27/86</i>	REL <i>J. Y. Harada 9/18/86</i>
					REL <i>J. Y. Harada 8-30-88</i>	QE <i>Don J. Lammert 8-29-88</i>
					EPDC REL <i>...</i>	CRIT SSM <i>...</i>

ITEM:
 CR2, DIODE, 3 AMPS, TRANSIENT SUPPRESSION

FUNCTION:
 PROVIDES TRANSIENT SUPPRESSION ON MAIN BUS C. THIS DIODE IS IN THE CB31 CIRCUIT. 32V73A15A1CR2.

FAILURE MODE:
 SHORT (END TO END)

CAUSE(S):
 STRUCTURAL FAILURE, MECHANICAL STRESS, VIBRATION.

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

EFFECTS ON ABILITY TO CONTROL, POSITION, OR LOCK ANTENNA GIMBALS - 3/3

- (A) NO EFFECT ON EPDC.
- (B,C,D) NO EFFECT ON LOCKING KU-BAND ANTENNA GIMBALS.

EFFECTS ON MISSIONS REQUIRING KU-BAND SYSTEM SUPPORT - 2/2

- (A) NO EFFECT ON EPDC.
- (B) LOSS OF POWER TO THE SPA RESULTING IN LOSS OF KU-BAND COMMUNICATION.
- (C,D) LOSS OF COMM MISSIONS REQUIRING KU-BAND DATA PROCESSING.

EFFECTS ON PROVIDING DATA TO NSP FOR STATE VECTOR UPDATE - 1R/3

- (A) NO EFFECT ON EPDC.
- (B,C,D) LOSS OF ONE OF THREE REDUNDANT PATHS TO SUPPLY DATA TO NSP FOR STATE VECTOR UPDATE. UHF PROVIDES AN INDEPENDENT PATH FOR STATE VECTOR

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UPDATE. AFTER FOUR FAILURES POSSIBLE LOSS OF CREW/VEHICLE DUE TO LOS OF STATE VECTOR UPDATE. NOTE- A SINGLE FAILURE OF A KU-BAND SPA DAS NUMBER -4001 CAN CAUSE THE LOSS OF POWER TO BOTH NSP'S, RESULTING IN ONLY ONE REMAINING PATH (UHF) TO UPDATE THE STATE VECTOR. THIS FAILURE CAN OCCUR DURING ANY MISSION PHASE. (KU-BAND POWERED ON OR OFF.)

DISPOSITION & RATIONALE:

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

(A,B,C,D) REFER TO APPENDIX F, ITEM # 4, DIODE

(B) TEST

GROUND TURNAROUND TEST- VERIFY FORWARD LINK OPERATION BY RECEIVING GROUND COMMAND TO CHANGE STEERING MODE. VERIFY RETURN LINK (FM/PM) OPERATION BY FRAME SYNC INDICATION OF 192 KBPS AT C & T STATION PERFORMED EVERY FLIGHT.

(E) OPERATIONAL USE

WORKAROUND TO REGAIN ABILITY TO CONTROL, POSITION, OR LOCK ANTENNA GIMBALS
NO EFFECT, NONE REQUIRED.

WORKAROUND TO REGAIN SUPPORT OF MISSION OBJECTIVES
COMM: NONE. RADAR: NO EFFECT, NONE REQUIRED.

WORKAROUND TO PROVIDE THE STATE VECTOR UPDATE
THE STATE VECTOR CAN BE UPDATED VIA THE NORMAL S-BAND COMMUNICATIONS LINK OR VIA UHF/AUDIO.