

SHUTTLE CRITICAL ITEMS LIST - ORBITER

SUBSYSTEM : EPD&C - COMM. & TRACK. FMEA NO 05-6PR-54050 -1 REV:06/28/88

ASSEMBLY : PNL R15				CRIT. FUNC:	2
P/N RI : MC454-0026-2050				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:		REDUNDANCY SCREEN:	A-	B-	C-
DES H D HADDAD		APPROVED BY:	APPROVED BY (NASA):		
REL 7-5-88 Y HARRADA		DES <i>[Signature]</i>	<i>[Signature]</i>		
QE		REL <i>[Signature]</i>	<i>[Signature]</i>		
		QE <i>[Signature]</i>	<i>[Signature]</i>		

EPDC REL *[Signature]*  
SAT 29MV *[Signature]*

ITEM: CB31, CIRCUIT BREAKER, 5 AMPS, KU-BAND SPA 28 VDC POWER.

FUNCTION: PROTECTS POWER CIRCUIT TO KU-BAND SPA. RECEIVES POWER FROM 35 AMP FUSE 40V76A33F18 (FMEA # 05-6-2278). 32V73A15CB31.

FAILURE MODE: FAILS OPEN, FAILS TO CONDUCT, FAILS TO CLOSE

CAUSE(S): STRUCTURAL FAILURE, CONTAMINATION, VIBRATION, MECHANICAL SHOCK, PROCESSING ANOMALY, THERMAL STRESS.

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 ANTENNA STOW.

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

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STATE VECTOR UPDATE. UHF PROVIDES AN INDEPENDENT PATH FOR STATE VECTOR UPDATE. AFTER FOUR FAILURES POSSIBLE LOSS OF CREW/VEHICLE DUE TO LOSS OF STATE VECTOR UPDATE. NOTE- A SINGLE FAILURE OF A KU-BAND SPA DASH 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 D, ITEM # 1, CIRCUIT BREAKER

(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.