

SHUTTLE CRITICAL ITEMS LIST - ORBITER

SUBSYSTEM : EPD&C - COMM. & TRACK. FMEA NO 05-6PG-21500 -2 REV: 01/05/8

ASSEMBLY : PNL ALA2				CRIT. FUNC: 1R	
P/N RI : JANTXV1N4246				CRIT. HDW: 3	
P/N VENDOR:		VEHICLE	102	103	104
QUANTITY : 2		EFFECTIVITY:	X	X	X
: TWO		PHASE(S):	PL	LG	X CC X DO X LS
:					

PREPARED BY:	DES	REL	QE	REDUNDANCY SCREEN:	A-FAIL	B-FAIL	C-PAS:
DES <i>[Signature]</i> G YATES	DES <i>[Signature]</i> 1-7-88	REL <i>[Signature]</i> 1-12-88	QE <i>[Signature]</i>	APPROVED BY:	APPROVED BY (NASA):		
REL <i>[Signature]</i> ALVAREZ	SSM <i>[Signature]</i> 2-8-88	REL <i>[Signature]</i> 2/2	QE <i>[Signature]</i>				
QE DNM <i>[Signature]</i> COURSEN	EPDC SSM <i>[Signature]</i> 1-2-88						
	EPDC REL <i>[Signature]</i>						

ITEM:
DIODES, NSP ACTIVATE S-BAND NETWORK SIGNAL PROCESSOR POWER CONTROL CIRCUIT, 2 DIODES.

FUNCTION:
IN CASE OF SWITCH FAILURE (S23), PREVENTS UNWANTED INPUTS TO THE GCIL COMMAND MODE DRIVERS DUE TO REVERSE CURRENT FLOW THROUGH THE CONTROL BUS AND INTO THE COMMAND MODE DRIVERS. TWO DIODES, 36V73A1A2A1SCR9, CR10.

FAILURE MODE:
FAILS SHORT CIRCUIT (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
(A) NO EFFECT ON EPD&C.
(B) FIRST FAILURE NO EFFECT. SECOND FAILURE (1 SWITCH) CAN CAUSE THE LOSS OF 1 OF 2 NSP'S (PNL AND CMD).
(C,D) AFTER FOUR FAILURES (THIS DIODE, 2 NSP, AND 1 UHF) POSSIBLE LOSS C CREW/VEHICLE DUE TO LOSS OF STATE VECTOR UPDATE CAPABILITY.

CRITICALITY 1R BECAUSE LOSS OF NETWORK SIGNAL PROCESSORS MAY PREVENT STATE VECTOR UPDATE.

FAILS SCREEN "A" BECAUSE SHORTED DIODES CANNOT BE DETECTED DURING GROUND TURNAROUND TESTING.

FAILS SCREEN "B" BECAUSE SHORTED DIODES CANNOT BE DETECTED DURING FLIGHT

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DISPOSITION & RATIONALE:

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

(A,B,C,D) REFER TO APPENDIX F, ITEM #3, DIODE.

(B) TEST

GROUND TURNAROUND TEST - NO TESTS ARE AVAILABLE TO DETECT SHORTED DIODES DURING GROUND TURNAROUND.

(E) OPERATIONAL USE

SWITCH TO OTHER NSP IN GCIL.