

SHUTTLE CRITICAL ITEMS LIST - ORBITER

SUBSYSTEM : EPD&C - MAIN PROP. FMEA NO 05-6J -2211 -1 REV:11/04/87

ASSEMBLY : AFT LCA 1, 2, 3 CRIT. FUNC: 1R  
 P/N RI : JANTXV4N4246 CRIT. HDW: 3  
 P/N VENDOR: VEHICLE 102 103 104  
 QUANTITY : 3 EFFECTIVITY: X X X  
 : THREE PHASE(S): PL X LO X OO DO LS  
 : 1 PER PREVALVE 1, 2, 3

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

PREPARED BY:	J BROWN	APPROVED BY:	<i>[Signature]</i>	APPROVED BY (NASA):	
DES		DES	<i>[Signature]</i>	EPDC SSM	<i>[Signature]</i>
REL	F DEFENSOR	REL	<i>[Signature]</i> 12-5-87	MPS SSM	<i>[Signature]</i>
QE	D MASAI	QE	<i>[Signature]</i>	EPDC REL	<i>[Signature]</i>
				MPS REL	<i>[Signature]</i>
				QE	<i>[Signature]</i>

ITEM:

DIODE, BLOCKING (1 AMP), LH2 PREVALVE 1, 2, & 3, OPEN COMMAND C BLOCKING DIODE.

FUNCTION:

DIODE ISOLATES MANUAL SWITCH COMMAND FROM MDM, CONDUCTS MDM COMMAND TO HDC FOR CONTROL OF REDUNDANT POWER TO OPEN SOLENOIDS FOR LH2 PREVALVE OPERATION. 54V76A121CR-J1(30), 55V76A122CR-J1(30), 56V76A123CR-J1(30).

FAILURE MODE:

OPEN, FAILS OPEN

CAUSE(S):

PIECE PART MECHANICAL FAILURE, CONTAMINATION, MECHANICAL SHOCK, VIBRATION, THERMAL STRESS

EFFECT(S) ON:

(A) SUBSYSTEM (B) INTERFACES (C) MISSION (D) CREW/VEHICLE (E) FUNCTIONAL CRITICALITY

(A) LOSS OF ONE OF TWO POWER PATHS TO OPEN SOLENOID

(B,C,D) NO EFFECT - FIRST FAILURE.

(E) POSSIBLE LOSS OF CREW/VEHICLE AFTER THIRD FAILURE (SECOND FAILURE - LOSS OF SECOND POWER PATH TO OPEN SOLENOID, BISTABLE FEATURE MAINTAINS PREVALVE IN OPEN POSITION. THIRD FAILURE - PREMATURE ACTUATION OF CLOSE SOLENOID) RESULTING IN PREMATURE LH2 PREVALVE CLOSURE WHILE ENGINE IS RUNNING. UNCONTAINED ENGINE DAMAGE DUE TO STARVATION CUTOFF. FAILS B SCREEN BECAUSE REDUNDANT POWER PATH MASKS FAILURE. NOTE - BISTABLE FEATURE NOT DEMONSTRATED BY TEST (CERTIFIED BY ANALYSIS). A FULL FLOW DETENT VERIFICATION TEST IS SCHEDULED FOR GFY 1988.

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DISPOSITION & RATIONALE:

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

(A-D) FOR DISPOSITION AND RATIONALE

REFER TO APPENDIX F, ITEM NO. 3 - DIODE.

(B) GROUND TURNAROUND TEST

MDM COMMAND REDUNDANCY, V41AEO.180F, 200F, 220F EVERY FLIGHT

(E) OPERATIONAL USE

NO CREW ACTION CAN BE TAKEN.

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