

SHUTTLE CRITICAL ITEMS LIST - ORBITER

SUBSYSTEM : EPD&C - MAIN PROP.

FMEA NO 05-6J -2392 -1

REV:11/04/87

ASSEMBLY : APT PCA-4, 5, & 6  
 P/N RI : JANTX1N1204RA  
 P/N VENDOR:  
 QUANTITY : 3  
 : THREE  
 : 1 PER PREVALVE 1, 2, & 3

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

CRIT. FUNC: 1R  
 CRIT. HDW: 3

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

PREPARED BY:  
 DES J BROWN  
 REL F DEFENSOR  
 QE D MASAI

APPROVED BY:  
 DES [Signature]  
 REL [Signature] 12-5-87  
 QE [Signature] 12/5/87

APPROVED BY (NASA):  
 EPDC SSM [Signature]  
 MPS SSM [Signature]  
 EPDC REL [Signature]  
 MPS REL [Signature]  
 QE [Signature]

ITEM:

DIODE, BLOCKING (12 AMP), LH2 PREVALVE 1, 2, & 3, OPEN COMMAND A RPC OUTPUT.

FUNCTION:

USED TO ISOLATE REDUNDANT MAIN BUS POWER TO A COMMON OPEN SOLENOID.  
 LOCATED AT RPC OUTPUT AHEAD OF OPEN COMMAND A HDC III. 54V76A134A4CR26, 55V76A135A4CR26, 56V76A136A4CR26.

FAILURE MODE:

OPEN, FAILS OPEN, FAILS TO CONDUCT POWER.

CAUSE(S):

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

EFFECT(S) ON:

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

(A) LOSS OF ONE OF TWO (OPEN COMMAND A) 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 WILL MAINTAIN LH2 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 GPY 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. 2 - DIODE, POWER-STUD MOUNTED.

(B) GROUND TURNAROUND TEST

MDM COMMAND REDUNDANCY TEST, V41AEO.180B, 200B, 220B EVERY FLIGHT.

(E) OPERATIONAL USE

NO CREW ACTION CAN BE TAKEN.