

SHUTTLE CRITICAL ITEMS LIST - ORBITER

SUBSYSTEM : EPD&C - ARS:COOLING' FMEA NO 05-5UB-2000 -1 REV:03/21/88

ASSEMBLY : PANEL L4 CRIT. FUNC: 1R  
P/N RI : MC454-0026-2030 CRIT. HDW: 2  
P/N VENDOR: VEHICLE 102 103 104  
QUANTITY : 6 (SIX), EFFECTIVITY: X X X  
: 3 PER FAN PHASE(S): PL LO X OO X DO X LS  
:

REUNDANCY SCREEN: A-PASS B-N/A C-PASS  
PREPARED BY: J BROWN APPROVED BY: APPROVED BY (NASA):  
DES J BROWN DES J BROWN SSM  
REL M HOVE REL M HOVE 8-22-88 REL J BROWN  
QE J COURSEN QE J COURSEN  
SPEC REL J BROWN 6/22/88  
EPD&C SW 22 6/22/88

ITEM:  
CIRCUIT BREAKER - 3 AMP, SINGLE POLE CABIN AIR FAN A & B. 31V73A4CB9E  
THROUGH CB100.

FUNCTION:  
PROVIDES AC BUS OVERLOAD AND CIRCUIT PROTECTION BETWEEN BUSES AND CABIN  
AIR FANS.

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

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

EFFECT(S) ON:  
(A) SUBSYSTEM (B) INTERFACES (C) MISSION (D) CREW/VEHICLE (E) FUNCTIONAL  
CRITICALITY EFFECT:  
(A, B) WITH LOSS OF ONE CIRCUIT BREAKER IN STANDBY FAN CIRCUIT, ASSOCIATED  
FAN MAY NOT START. LOSS OF ONE PHASE IN OPERATING FAN CIRCUIT RESULTS IN  
SLIGHTLY DEGRADED AIR FLOW (APPROX. 3%).  
(C) FIRST FAILURE - NO EFFECT.  
(D) FIRST FAILURE - NO EFFECT.  
(E) FIRST FAILURE RESULTS IN POTENTIAL LOSS OF STANDBY CABIN FAN.  
SUBSEQUENT LOSS OF OPERATING FAN RESULTS IN LOSS OF AVIONICS AIR COOLING.  
LOSS OF ALL AVIONICS AIR COOLING RESULTS IN POTENTIAL LOSS OF  
CREW/VEHICLE. SCREEN B IS N/A DUE TO STANDBY REDUNDANCY.

DISPOSITION & RATIONALE:  
(A) DESIGN (B) TEST (C) INSPECTION (D) FAILURE HISTORY (E) OPERATIONAL USE:  
(A, B, C, D) DISPOSITION AND RATIONALE  
REFER TO APPENDIX D, ITEM NO. 1, CIRCUIT BREAKER.

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SUBSYSTEM : EPD&C - APS:COOLING FMEA NO 05-60B-2000 -1 REV:03/21/85

(H) GROUND TURNAROUND TEST

EACH FAN IS VERIFIED FOR PROPER OPERATION PRIOR TO EACH FLIGHT. ALSO REMOTE AND CABIN SWITCH OPERATION MODES ARE VERIFIED PRIOR TO EACH FLIGHT.

(E) OPERATIONAL USE

-CREW RESPONSE  
-NONE

-TRAINING  
-NONE

-OPERATIONAL CONSIDERATION

-REAL TIME DATA SYSTEM ALLOWS FOR GROUND MONITORING.

-FAN THAT IS RUNNING WITH 1 CIRCUIT BREAKER FAILED SHOULD NOT BE TURNED OFF.