

SHUTTLE CRITICAL ITEMS LIST - ORBITER - 240 of 241

SUBSYSTEM : EPD&C - ARS:COOLING FMEA NO 05-SUB-4009 -1 REV:03/21/86

ASSEMBLY : PANEL L1A2 CRIT. FUNC: 1R  
 P/N RI : ME452-0102-7306 CRIT. EDW: 2  
 P/N VENDOR: VEHICLE 102 103 104  
 QUANTITY : 1 (ONE) EFFECTIVITY: X X X  
 : PER SUBSYSTEM PHASE(S): PL LO X DO X DO X LS

REDUNDANCY SCREEN: A-PASS B-N/A C-PASS  
 PREPARED BY: APPROVED BY: APPROVED BY (NASA):  
 DES J BROWN DES [Signature] SSM [Signature]  
 REL M HOVE REL [Signature] REL [Signature]  
 OE J COURSEN OE [Signature] OE [Signature]

ITEM: SWITCH, TOGGLE (3 POLE, THREE POSITION). LOOP 1 WATER PUMPS (A OR B).  
 31V73A1A2S3.

FUNCTION: PROVIDES OPERATING MODE CONTROL (GPC, OFF, ON) FOR THE LOOP 1 WATER PUMP SELECTED BY S44.

FAILURE MODE: FAILS OPEN, PREMATURE OPEN, FAILS CLOSED IN THE "OFF" POSITION, SHORT-TO-CASE (GROUND).

CAUSE(S): MECHANICAL SHOCK, VIBRATION, CONTAMINATION, PIECE PART STRUCTURAL FAILURE, PROCESSING ANOMALY

EFFECT(S) ON:  
 (A) SUBSYSTEM (B) INTERFACES (C) MISSION (D) CREW/VEHICLE (E) FUNCTIONAL CRITICALITY EFFECT:  
 (A) LOSS OF POWER TO BOTH PUMPS IN WATER COOLANT LOOP 1.  
 (B) LOSS OF WATER COOLANT LOOP PERFORMANCE UNTIL REDUNDANT LOOP IS ACTIVATED.  
 (C) LOSS OF FLOW IN ONE WATER COOLANT LOOP REQUIRES POSSIBLE ENTRY AT THE NEXT PRIMARY LANDING SITE.  
 (D) FIRST FAILURE - NO EFFECT.  
 (E) THIS FAILURE IN COMBINATION WITH LOSS OF REDUNDANT COOLANT LOOP RESULTS IN LOSS OF AVIONICS COOLING (AIR AND WATER COOLED AVIONICS). LOSS OF AVIONICS COOLING RESULTS IN POTENTIAL LOSS OF CREW/VEHICLE.

SCREEN B IS N/A DUE TO STANDBY REDUNDANCY.

SS0230A  
ATTACHMENT  
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SUBSYSTEM : EPD&C - ARS:COOLING FMEA NO 05-SUB-4009 -1 REV:03/21/88

DISPOSITION & RATIONALE:

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

(A, B, C, D) DISPOSITION AND RATIONALE  
REFER TO APPENDIX A, ITEM NO. 1 - TOGGLE SWITCH.

(B) GROUND TURNAROUND TEST  
EACH PUMP IS VERIFIED FOR PROPER OPERATION PRIOR TO EACH FLIGHT. ALSO,  
REMOTE, GPC AND CABIN SWITCH OPERATION MODES ARE VERIFIED PRIOR TO EACH  
FLIGHT.

(E) OPERATIONAL USE

- CREW RESPONSE
  - ACTIVATE REDUNDANT H2O COOLANT LOOP.
- TRAINING
  - CURRENT ECLSS TRAINING COVERS THE GENERIC EFFECTS OF THIS FAILURE.
- OPERATIONAL CONSIDERATION
  - REAL TIME DATA SYSTEM ALLOWS FOR GROUND MONITORING.

05-64B-10