

SHUTTLE CRITICAL ITEMS LIST - ORBITER

SUBSYSTEM : EPD4C - OMS  
 ASSEMBLY : PANEL C3A1  
 P/N RI : ME452-0102-7206  
 P/N VENDOR:  
 QUANTITY : 2  
 : TWO  
 : (ONE PER ENGINE)

FMEA NO 05-6L -2029 -1 REV:10/30/87  
 ABORT,  
 TAL, ATO.  
 VEHICLE 102 103 104  
 EFFECTIVITY: X X X  
 PHASE(S): PL LO X OO DO X LS

PREPARED BY: DES D SOVEREIGN  
 REL F DEFENSOR  
 QE J COURSEN

REDUNDANCY SCREEN: A-PASS B-PASS C-PASS  
 APPROVED BY: DES P. J. R. Berman  
 REL D. Michael Cl. Hove 11-12-87  
 QE DM [Signature]

APPROVED BY (NASA):  
 SSM John Thomas [Signature]  
 REL [Signature]  
 QE [Signature]  
 EPD4C SSM QP [Signature] for W.C. Stagg

ITEM:  
 SWITCH, TOGGLE, 2 POLES, 3 POSITIONS (OFF, ARM/PRESS, ARM), LEFT AND RIGHT OMS ENGINE CONTROL.

FUNCTION:  
 PROVIDES THE FLIGHT OR GROUND CREWS THE CAPABILITY TO MANUALLY SELECT THE "ENGINE ON" CONTROL MODES (OFF, ARM/PRESS, AND ARM) FOR THE LEFT AND RIGHT OMS ENGINE CONTROL VALVES 1 AND 2. 35V73A3A1S1, S2.

FAILURE MODE:  
 INADVERTENT CONTACTS OPENING, PREMATURE TRANSFER TO "OFF", FAILED IN THE "OFF" POSITION (BOTH CONTACT SETS).

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

EFFECT(S) ON:  
 (A) SUBSYSTEM (B) INTERFACES (C) MISSION (D) CREW/VEHICLE (E) FUNCTIONAL CRITICALITY

(A) LOSS OF POWER TO ENGINE CONTROL VALVE CIRCUIT.

(B) LOSS OF ABILITY TO FIRE OR CONTINUE FIRING OMS ENGINE.

(C) POSSIBLE EARLY MISSION TERMINATION. REDLINE ADDITIONAL PROPELLANT FOR RCS BACKUP DEORBIT. NEXT PLS DEORBIT IF SUFFICIENT PROPELLANT NOT AVAILABLE.

(D) NO EFFECT. CRITICALITY 1 FOR ABORT. REDUCED PROPELLANT FLOWRATE DURING DUMP MAY RESULT IN LOSS OF CREW/VEHICLE DUE TO EXCESSIVE VEHICLE DOWNWEIGHT OR UNCONTROLLABLE X OR Y-AXIS VEHICLE CENTER OF GRAVITY.

(E) POSSIBLE LOSS OF CREW/VEHICLE DUE TO INABILITY TO PERFORM OMS ENGINE BURN. REQUIRES ONE ADDITIONAL FAILURE (LOSS OF OTHER OMS ENGINE) AND INSUFFICIENT PROPELLANT FOR RCS BACKUP DEORBIT.

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SUBSYSTEM :EPD&C - OMS

FMEA NO 05-6L -2029 -1

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DISPOSITION & RATIONALE:

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

(A) FOR DISPOSITION AND RATIONALE

REFER TO APPENDIX A, ITEM NO. 1 - TOGGLE SWITCH.

(B) GROUND TURNAROUND TEST

V43CE0.100 PNEUMATIC SYSTEM ELECTRICAL CONTROL VERIFICATION; PERFORMED EACH FLIGHT. REDUNDANCY VERIFICATION OF CONTROL CIRCUIT PER FIGURE V43CA0.070-5.

S00FJO.040 POST ACTIVATION LEAK AND FUNCTIONAL TEST; PERFORMED EACH FLIGHT. VERIFIES BOTH CONTACTS OF THE ARM/PRESS SWITCH POSITION AND OPERATION OF THE GN2 PRESSURE ISOLATION VALVE.

(E) OPERATIONAL USE

REDLINE ADDITIONAL PROPELLANT TO PROTECT RCS 4+X DEORBIT. MISSION MODIFICATION OR EARLY MISSION TERMINATION MAY BE REQUIRED.