

SHUTTLE CRITICAL ITEMS LIST - ORBITER

SUBSYSTEM : EPD&C - OMS FMEA NO 05-6L -2007 -1 REV:10/30/87

ASSEMBLY : PANEL 014, 016 CRIT. FUNC: 1R  
P/N RI : ME451-0009-1001 CRIT. HDW: 3  
P/N VENDOR: VEHICLE 102 103 104  
QUANTITY : 2 EFFECTIVITY: X X X  
:TWO - ONE PER LEFT PHASE(S): PL LO X OO DO X LS  
:AND RIGHT OMS CIRCUITS

REDUNDANCY SCREEN: A-PASS B-FAIL C-PASS  
PREPARED BY: APPROVED BY: APPROVED BY (NASA):  
DES D SOVEREIGN DES P. E. R. Buser SSM John L. Harris  
REL F DEFENSOR REL W. J. Moore REL W. J. Moore  
QE J COURSEN QE W. J. Moore QE W. J. Moore  
*EPDC SSM at Camp for W.C. Stagg*

ITEM:

FUSE (1 AMP), LEFT AND RIGHT OMS - ENGINE CONTROL VALVE DRIVER POWER CONTROL.

FUNCTION:

CONDUCTS CONTROL CIRCUIT POWER AND PROVIDES CIRCUIT PROTECTION FOR THE OMS ENGINE VALVE DRIVER POWER CONTROL CIRCUITS. RIGHT - 33V73A16F12, LEFT - 33V73A14F14.

FAILURE MODE:

OPENS, PREMATURELY OPENS.

CAUSE(S):

CHEMICAL DEGRADATION, VIBRATION, THERMAL STRESS, MECHANICAL SHOCK.

EFFECT(S) ON:

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

(A) LOSS OF REDUNDANCY TO ENERGIZE ASSOCIATED COIL OF ENGINE CONTROL VALVE NO. 1 AND 2 (52V43LV005 AND 52V43LV006).

(B) LOSS OF INTERFACE REDUNDANCY - NO EFFECT. REDUNDANT CIRCUIT PROVIDES REQUIRED CONTROL POWER TO COMPLETE FUNCTION. NEXT RELATED FAILURE PRECLUDES AFFECTED OMS ENGINE OPERATION.

(C,D) NO EFFECT.

(E) POSSIBLE LOSS OF CREW/ VEHICLE DUE TO LOSS OF CONTROL OF ELECTRICAL POWER NECESSARY FOR THE OPERATION OF OMS ENGINE CONTROL VALVES. REQUIRES TWO OTHER FAILURES (FUSE FAILS OPEN ON REDUNDANT CIRCUIT, LOSS OF OTHER OMS ENGINE) BEFORE THE EFFECT IS MANIFESTED. FAILURE IS NOT DETECTABLE IN FLIGHT DUE TO LACK OF MONITORING MEASUREMENTS.

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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 D, ITEM NO. 2 - FUSE, AXIAL LEAD CARTRIDGE.

(B) GROUND TURNAROUND TEST

V43CEO.100 PNEUMATIC SYSTEM ELECTRICAL CONTROL VERIFICATION; PERFORMED EACH FLIGHT. REDUNDANCY VERIFICATION OF CONTROL CIRCUIT PER FIGURE V43CAO.070-5.

(E) OPERATIONAL USE

NO ACTION FOR FIRST FAILURE - NOT DETECTABLE. FOR SECOND FAILURE ON SAME SWITCH, REDLINE ADDITIONAL PROPELLANT FOR RCS BACKUP DEORBIT, POSSIBLE MISSION IMPACT (DECREASED PROPELLANT AVAILABLE FROM OMS TO RCS THROUGH INTERCONNECT FOR ON-ORBIT OPERATIONS). NEXT PLS DEORBIT IF PROPELLANT FOR RCS BACKUP NOT AVAILABLE.