SHUTTLE CRITICAL ITEMS LIST - ORBITER

SUBSYSTEM :EPD&C - FWD-RCS FMEA NO 05-6KF-2041 -1 REV:11/03/9

ASSEMBLY :PANEL O16
P/N RI :ME452-0102-7201
P/N VENDOR:
QUANTITY :1
:ONE
:

CRIT. FUNC: 2
CRIT. HDW: 2

VEHICLE EFFECTIVITY:	102	103	104
	X	X	X

PHASE(S): PL LO OO X DO LS

REDUNDANCY SCREEN: A- B- C-

PREPARED BY:
DES D SOVEREIGN
REL J BEEKMAN
QE

APPROVED BY:
DES
REL
QE

APPROVED BY (NASA):
SSM
REL
QE

ITEM:
TOGGLE SWITCH (2P2T) HERMETIC SEAL - FORWARD RCS REACTION JET DRIVERS FORWARD 2, AFT 1 AND AFT 2 ON/OFF CONTROL.

FUNCTION:
PROVIDES THE CREW THE CAPABILITY TO SWITCH "ON" OR "OFF" TWO SERIES REMOTE POWER CONTROLLERS (RPC) WHICH SUPPLY POWER TO FORWARD 2 REACTION JET DRIVER (RJD) FOR MANIFOLD F5. ALSO SUPPLIES SIMILAR SIGNALS TO TWO SERIES RPCS AND TWO SERIES TYPE III HYBRID DRIVERS WHICH SUPPLY POWER T AFT 1 AND AFT 2 REACTION JET DRIVERS, RESPECTIVELY, FOR MANIFOLDS L5 AN R5. 33V73A16S15.

FAILURE MODE:
FAILS TO CONDUCT, FAILS TO CLOSE, INADVERTENTLY OPENS

CAUSE(S):
PIECE PART STRUCTURAL FAILURE, CONTAMINATION

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

(A) LOSS OF FUNCTION

(B) LOSS OF INTERFACE FUNCTION - LOSS OF COMMAND TO INITIATE DRIVER POW TO THE REACTION JET DRIVERS FOR JETS L5/F5/R5.

(C) POSSIBLE MISSION MODIFICATION OR EARLY MISSION TERMINATION DUE TO LOSS OF VERNIER THRUSTERS. NO OTHER REDUNDANT VERNIER THRUSTERS ARE AVAILABLE TO COMPLETE THE REQUIRED FUNCTIONS. PRIMARY THRUSTER USAGE WILL RESULT IN HIGHER PROPELLANT CONSUMPTION RATE RESULTING IN EARLY MISSION TERMINATION.

(D) NO EFFECT.

SUBSYSTEM :EPD&C - FWD-RCS FMEA NO 05-6KF-2041 -1 REV:11/03/87

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

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

(B) GROUND TURNAROUND TEST
COMPONENT CHECKED OUT EVERY FLIGHT DURING GROUND TURNAROUND VIA THE GUIDANCE, NAVIGATION, AND CONTROL (GN&C) ORBITER MAINTENANCE REQUIREMENTS AND SPECIFICATIONS DOCUMENT (OMRSD) REQUIREMENTS FOR CHECKING THE PRIMARY AND VERNIER REACTION JET DRIVER POWER. THE TESTING CONSISTS OF CYCLING THRUSTER REACTION JET DRIVER LOGIC AND DRIVER SWITCHES WHILE MONITORING VEHICLE INSTRUMENTATION TO DETERMINE IF COMPONENTS HAVE FAILED.

(E) OPERATIONAL USE
PRIMARY THRUSTERS CAN BE USED FOR THE VERNIER FUNCTION. SOME MISSION OBJECTIVES MAY NOT BE MET DUE TO HIGHER PROPELLANT CONSUMPTION RATE ON PRIMARY THRUSTERS. MICROGRAVITY EXPERIMENTS WILL BE DISRUPTED DUE TO HIGHER ACCELERATION RATE OF PRIMARY THRUSTERS.