SHUTTLE CRITICAL ITEMS LIST - ORBITER

SUBSYSTEM :R/RADAR & COM ANT DEPLOY FMEA NO 05-6EH-56060 -4 REV:05/21/90

ASSEMBLY :RT SD CONSOLE PNL R13
P/N RI :ME452-0102-7463
P/N VENDOR:
QUANTITY :1
:ONE
:

CRIT. FUNC: 1R
CRIT. HDW: 2

VEHICLE EFFECTIVITY:	102	103	104
	X	X	X

PHASE(S): PL LO OO X DO LS

REDUNDANCY SCREEN: A-PASS B-N/A C-PASS

PREPARED BY:		APPROVED BY:	APPROVED BY (NASA):
DES	T BANHIDY	DES	SSM
REL 5-21-90	J RESSIA	REL	REL
QE	J COURSEN	QE	QE

EPDIC SSM
EPDIC SSE

ITEM:
SWITCH, TOGGLE - DIRECT STOW

FUNCTION:
PROVIDES DIRECT POWER FROM BUSES CA1, CA2, BC1, AND BC2 TO STOW DRIVER HYBRID RELAYS FOR IMMEDIATE STOWING OF THE DEPLOYED ASSEMBLY. PRIMARY FUNCTION OF THE DIRECT STOW SWITCH IS TO STOW THE DEPLOYED ASSEMBLY ONLY IF GIMBALS ARE VERIFIED TO BE LOCKED. 32V73A13A2S12

FAILURE MODE:
FAILS CLOSED, CONTACT-TO-CONTACT SHORT (TWO CONTACT SETS)

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

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

(A) FIRST FAILURE - SUPPLIES EITHER POWER OR CONTROL VOLTAGE TO BOTH OF THE TWO SERIES HYBRID RELAYS REQUIRED TO APPLY 3-PHASE AC POWER TO THE MOTOR. SECOND SWITCH FAILURE RESULTS IN AN INADVERTENT STOW OF THE DEPLOYED ASSEMBLY (IF PAYLOAD BAY MECHANICAL (PLBM) BUSES AC2 AND AC1 ARE ENERGIZED) WHICH MAY BE IN THE WRONG POSITION FOR SAFE STOWING OPERATIONS.

(B,C,D) NO EFFECT - FIRST FAILURE. POSSIBLE LOSS OF CREW/VEHICLE AFTER TWO FAILURES (FIRST SET OF SWITCH CONTACTS FAILS CLOSED, SECOND SET OF SWITCH CONTACTS FAILS CLOSED, ENERGIZING ALL STOW RELAYS). WITH PAYLOAD BAY MECHANICAL BUSES AC2 AND AC3 POWERED UP FOR OTHER PAYLOAD BAY ACTIVITIES, AN IMMEDIATE STOW OF THE ANTENNA WILL OCCUR. THE OUT-OF-CONFIGURATION STOW COULD CAUSE A COLLISION BETWEEN THE ANTENNA DISH AND THE DOOR AND/OR RADIATOR. THE RESULTING ANTENNA DEBRIS COULD LODGE BETWEEN DOOR HINGES AND/OR FORWARD DOOR LATCH MECHANISMS.

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

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

(B) GROUND TURNAROUND TEST
"KU-BAND DIRECT STOW" VERIFIES THE INTEGRITY OF THE KU-BAND DEPLOYE ASSEMBLY DIRECT STOW SWITCH WITH GIMBALS LOCKED AND BOOM STOW I AND I OFF. THIS IS VERIFIED FOR FIRST FLIGHT; THEREAFTER, ON AN INTERVAL O FIVE FLIGHTS, OR FOLLOWING LRU REPLACEMENT. THIS TEST FREQUENCY REFLECT THE CURRENT OMRSD AND REQUIRES A MASTER VERIFICATION PLAN WAIVER.

(E) OPERATIONAL USE
AN EVA COULD BE ATTEMPTED IN THE EVENT ANTENNA DEBRIS PREVENTS DOO CLOSURE.