

SHUTTLE CRITICAL ITEMS LIST - ORBITER

SUBSYSTEM : EPD&C - FREON ROTR DPLY FMEA NO 05-6EG-2010 -3 REV: 11/03/87

ASSEMBLY : PANEL R13A2					CRIT. FUNC: 1R	
P/N RI : ME452-0102-7403					CRIT. HDW: 2	
P/N VENDOR:		VEHICLE	102	099	103	104
QUANTITY : 2		EFFECTIVITY:	X		X	X
: TWO, ONE SYSTEM A		PHASE(S):	PL	LO	OO X DO X LS	
: AND ONE SYSTEM B						

PREPARED BY:		REDUNDANCY SCREEN:	A-PASS	B-PASS	C-PASS
DES J KRAGER		APPROVED BY:	APPROVED BY (NASA):		
REL T KIMURA		DES <i>[Signature]</i>	SSM <i>[Signature]</i>	<i>[Signature]</i>	<i>[Signature]</i>
QE W SMITH		REL <i>[Signature]</i>	REL <i>[Signature]</i>	<i>[Signature]</i>	<i>[Signature]</i>

ITEM:
SWITCH, TOGGLE, HERMETIC SEAL, 4 POLE 3 POSITION - PORT/STARBOARD
RADIATOR DEPLOYMENT/STOW ACTUATOR CONTROL CIRCUIT

FUNCTION:
PROVIDES THE CREW WITH THE CAPABILITY TO REMOTELY OPERATE THE PORT OR
STARBOARD RADIATOR DEPLOYMENT AND STOWAGE ACTUATOR MOTORS (SYSTEMS A AND
B) TO THE "DEPLOY" OR "STOW" POSITIONS OR TO DEACTIVATE THE CONTROL
CIRCUITRY BY SWITCHING TO THE "OFF" POSITION. 32V73A13A2S5, S7

FAILURE MODE:
INADVERTENT OPERATION, SHORTS (ROLLER/SPRING) MULTIPLE CONTACT SET

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 REDUNDANCY
- (B,C,D) LOSS OF INTERFACE REDUNDANCY - FAILURE MAY RESULT IN OPPOSING
COMMANDS TO A SINGLE MOTOR. AC BUS CIRCUIT BREAKER WILL TRIP RESULTING
IN LOSS OF MOTOR REDUNDANCY. SECOND FAILURE ON REDUNDANT MOTOR WILL
RESULT IN LOSS OF CAPABILITY TO STOW RADIATORS.
- (E) POSSIBLE LOSS OF CREW/VEHICLE AFTER SECOND FAILURE IF FAILURE
PRECLUDES STOWING AND PREVENTS CLOSING OF THE PAYLOAD BAY DOORS.

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

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(B) GROUND TURNAROUND TEST

"DEPLOY STBD RADIATOR - MTR 1 AND 2", AND "STOW STBD RADIATOR - MTR 1 AND 2", VERIFIES FUNCTIONAL OPERATION AND MONITORING FOR THE DEPLOYMENT AND STOWAGE OF THE STARBOARD RADIATORS, MOTORS 1 AND 2. FOR STARBOARD RADIATOR OPERATION ONLY, REMOVE MID MCA 1 AC-1 AND MID MCA 4 AC-3 POW (OPEN CIRCUIT BREAKER) TO PREVENT INADVERTENT MOVEMENT OF THE PORT RADIATOR. "DEPLOY PORT RADIATOR - MTR 1 AND 2", AND "STOW PORT RADIATOR - MTR 1 AND 2", VERIFIES FUNCTIONAL OPERATION AND MONITORING FOR THE DEPLOYMENT AND STOWAGE OF THE PORT RADIATORS, MOTORS 1 AND 2. FOR PORT RADIATOR OPERATION ONLY, REMOVE MID MCA 2 AC-3 AND MID MCA 3 AC-1 POW (OPEN CIRCUIT BREAKER) TO PREVENT INADVERTENT STARBOARD RADIATOR MOVEMENT.

ALL OF THE ABOVE TESTS ARE PERFORMED PRIOR TO EACH FLIGHT FOR WHICH PLANNED RADIATOR DEPLOY/STOW FUNCTION IS REQUIRED OR AFTER RADIATOR REPLACEMENT.

(E) OPERATIONAL USE

IF SWITCH FAILS SUCH THAT POWER IS INADVERTENTLY APPLIED TO MOTOR(S) POWER SHOULD BE REMOVED FROM AFFECTED MOTOR(S).