

SHUTTLE CRITICAL ITEMS LIST - ORBITER

SUBSYSTEM : EPD&C - FREON ROTR DPLY FMEA NO 05-SEG-2010 -1 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 OO X LS
: AND ONE SYSTEM B					

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

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) LOSS OF INTERFACE REDUNDANCY. THE AFFECTED SWITCH CONTACT SET CONTROL CIRCUIT IS DISABLED. WORST CASE IS LOSS OF TRANSFER FUNCTION OF FOUR CONTACT SETS. NO EFFECT. THE REDUNDANT CONTROL AND MOTOR STRING CAN COMPLETE THE FUNCTION BUT IN APPROXIMATELY TWICE THE TIME. FIRST FAILURE HAS NO EFFECT. SECOND RELATED FAILURE OCCURRING IN THE REDUNDANT STRING PRECLUDES NORMAL RADIATOR STOWING.

(C, D) NO EFFECT - FIRST FAILURE

(E) POSSIBLE LOSS OF MISSION AFTER SECOND FAILURE OF SWITCH TO ENERGIZE REDUNDANT PORT OR STARBOARD RADIATOR DEPLOYMENT CIRCUIT, POSSIBLE LOSS OF CREW/VEHICLE AFTER SECOND FAILURE OF SWITCH TO ENERGIZE REDUNDANT PORT OR STARBOARD RADIATOR STOW CIRCUIT RESULTING IN INABILITY TO STOW RADIATORS AND CLOSE PAYLOAD BAY DOORS.

SHUTTLE CRITICAL ITEMS LIST - ORBITER

SUBSYSTEM :EPD&C - FREON RDTR DPLY FMEA NO 05-6EG-2010 -1 REV:11/03/87

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

"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 POWER (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 POWER (OPEN CIRCUIT BREAKER) TO PREVENT INADVERTENT STARBOARD RADIATOR MOVEMENT.

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

(E) OPERATIONAL USE

EXTRAVEHICULAR ACTIVITY (EVA) CAPABILITY EXISTS TO STOW RADIATORS FOLLOWING SECOND FAILURE