

SHUTTLE CRITICAL ITEMS LIST - ORBITER

SUBSYSTEM : EPD&C - FREON ROTR DPLY FMEA NO 05-6EG-2001 -1 REV:11/03/87

ASSEMBLY : PANEL R13A2  
P/N RI : ME452-0102-7403  
P/N VENDOR:  
QUANTITY : 2  
: TWO  
:

VEHICLE	102	099	103	104
EFFECTIVITY:	X		X	X
PHASE(S):	PL	LO	CO X DO	LS

CRIT. FUNC: 1R  
CRIT. HDW: 2

PREPARED BY:	J KRAGER	DES	T KIMURA	REL	W SMITH	QE	DM	REDAUNDANCY SCREEN: A-PASS B-PASS C-PASS	APPROVED BY (NASA):	11/6/87
DES	J KRAGER	DES	T KIMURA	REL	W SMITH	QE	DM	APPROVED BY:	SSM	11/6/87
REL	T KIMURA	REL	W SMITH	QE	DM	RELD	DM	APPROVED BY:	SSM	11/6/87
QE	W SMITH	QE	DM	RELD	DM	APPROVED BY:	SSM	APPROVED BY:	SSM	11/6/87

ITEM:  
SWITCH, TOGGLE HERMETIC SEAL, 4 POLE 3 POSITION, PORT/STARBOARD RADIATOR LATCH ACTUATOR DRIVE CONTROL CIRCUIT..

FUNCTION:  
PROVIDES THE CREW WITH THE CAPABILITY TO REMOTELY OPERATE THE PORT AND/OR STARBOARD RADIATOR LATCH ACTUATOR MOTORS (SYSTEMS A AND B) TO THE "RELEASE" OR "LATCH" POSITIONS OR TO DEACTIVATE THE CONTROL CIRCUITRY BY SWITCHING TO THE "OFF" POSITION. 2V73A13A2S4, S6

FAILURE MODE:  
FALLS 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 - WORST CASE, LOSS OF TRANSFER FUNCTION OF FOUR LATCH CONTACT SETS. NO EFFECT - THE REDUNDANT CONTROL AND MOTOR STRING CAN COMPLETE THE FUNCTION BUT IN APPROXIMATELY TWICE THE TIME. FIRST FAILURE NO EFFECT. SECOND FAILURE OCCURRING IN THE REDUNDANT STRING PRECLUDES RADIATOR LATCHING AND MAY CAUSE LOSS OF FREON COOLANT LOOP.

(C,D) POSSIBLE VEHICLE/PAYLOAD DAMAGE OR LOSS OF COOLANT LOOP FOLLOWING SECOND FAILURE

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(E) PROBABLE PAYLOAD OR VEHICLE DAMAGE THROUGH LOSS OF ALL RADIATOR LATCH CONTROL CAPABILITY. POSSIBLE LOSS OF CREW/VEHICLE WITH FAILURE OF TOGGLE SWITCH OF REDUNDANT CIRCUIT DUE TO DAMAGE TO RADIATORS AND LOSS OF FREON COOLANT LOOPS.

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

"RELEASE STB RDTR LATCH 1-6 - MTR 1 AND 2", "LATCH STBD RDTR LATCH 1-6 - MTR 1 AND 2", "RELEASE STB RDTR LATCH 7-12 - MTR 1 AND 2", AND "LATCH STBD RDTR LATCH 7-12 - MTR 1 AND 2", VERIFIES FUNCTIONAL OPERATION AND MONITORING FOR THE RELEASING AND LATCHING OF THE STARBOARD LATCHES 1-12 MOTORS 1 AND 2. FOR STARBOARD RADIATOR LATCH GROUND OPERATIONS ONLY REMOVE MID MCA 1 AC-1, MID MCA 4 AC-2 AND MID MCA 4 AC-3 POWER (OPEN CIRCUIT BREAKER) TO PREVENT INADVERTENT PORT RADIATOR LATCH MOVEMENT. "RELEASE PORT RDTR LATCH 1-6 - MTR 1 AND 2", "LATCH PORT RDTR LATCH 1-6 - MTR 1 AND 2", "RELEASE PORT RDTR LATCH 7-12 - MTR 1 AND 2", AND "LATCH PORT RDTR LATCH 7-12 - MTR 1 AND 2", VERIFIES FUNCTIONAL OPERATION AND MONITORING FOR THE RELEASING AND LATCHING OF THE PORT LATCHES 1-12 MOTORS 1 AND 2. FOR PORT RADIATOR LATCH GROUND OPERATIONS ONLY, REMOVE MID MCA 2 AC-2, MID MCA 2 AC-3 AND MID MCA 3 AC-1 POWER (OPEN CIRCUIT BREAKER) TO PREVENT INADVERTENT MOVEMENT OF THE STARBOARD RADIATOR LATCHES.

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

NONE