

SHUTTLE CRITICAL ITEMS LIST - ORBITER

SUBSYSTEM : EPD&C - AFT-RCS

FMEA NO 05-6KA-2154 -1

REV: 11/03/87

ASSEMBLY : PANEL 07
 P/N RI : MC432-0222-0029
 P/N VENDOR:
 QUANTITY : 4
 : FOUR
 :

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

CRIT. FUNC: 1R
 CRIT. HDW: 2

PREPARED BY:
 DES D SOVEREIGN
 REL J BEEKMAN
 QE

REDUNDANCY SCREEN: A-PASS B-FAIL C-PASS
 APPROVED BY:
 DES *P.S. R. Owens*
 REL *Michael L. Tom 11-10-87*
 QE *[Signature]*

APPROVED BY (NASA):
 SSM *[Signature]*
 REL *[Signature]*
 QE *[Signature]*

EPD&C SCW [Signature]
11-10-87
12-10-87

ITEM:

EVENT INDICATOR - LEFT AND RIGHT AFT RCS FUEL AND OXIDIZER TANK ISOLATION VALVE 3/4/5 A AND B POSITION INDICATION.

FUNCTION:

PROVIDES A VISUAL INDICATION OF THE FUEL AND OXIDIZER TANK ISOLATION VALVE 3/4/5 A AND B POSITION. CIRCUITRY ALSO INTERCONNECTED WITH THE VALVE "CLOSE" RELAY INHIBIT LOGIC INPUTS.
 33V73A7DS8, 9, 11, 12.

FAILURE MODE:

SHORT TO GROUND

CAUSE(S):

PIECE PART STRUCTURAL FAILURE.

EFFECT(S) ON:

(A) SUBSYSTEM (B) INTERFACES (C) MISSION (D) CREW/VEHICLE

(A) LOSS OR DEGRADATION OF "TALK BACK" INDICATION FOR VALVE POSITION.

(B) LOSS OR DEGRADATION OF ISOLATION VALVE OR "CLOSE" RELAY INHIBIT LOGIC INPUT WHILE THE MANUAL SWITCH IS IN "OPEN" OR "CLOSE" POSITION. ALLOWS THE ASSOCIATED VALVE DRIVE TO BE ENERGIZED CONTINUOUSLY.

(C, D) NO EFFECT.

(E) FUNCTIONAL CRITICALITY EFFECT - POSSIBLE LOSS OF CREW/VEHICLE DUE TO CONTINUOUS DRIVE MOTOR OPERATION IN CONJUNCTION WITH A BELLOWS LEAK LEADING TO VALVE RUPTURE AND PROPELLANT RELEASE. REQUIRES 1 OTHER FAILURE (BELLOWS LEAK) BEFORE EFFECT IS MANIFESTED. A BELLOWS LEAK IS UNDETECTABLE EXCEPT BY PERFORMING A SNIFF CHECK OF THE VALVE'S ACTUATOR ON THE GROUND.

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DISPOSITION & RATIONALE:

(A) DESIGN (B) TEST (C) INSPECTION (D) FAILURE HISTORY (E) OPERATIONAL USE

(A-D) FOR DISPOSITION AND RATIONALE REFER TO APPENDIX G, ITEM NO. 1 -
EVENT INDICATOR.

(B) GROUND TURNAROUND TEST

COMPONENT CHECKED OUT EVERY FLIGHT DURING GROUND TURNAROUND. THE TESTING
CONSISTS OF CYCLING VALVE MANUAL SWITCHES AND/OR SENDING GENERAL PURPOSE
COMPUTER (GPC) COMMANDS TO CYCLE VALVES OR HEATERS WHILE MONITORING
VEHICLE INSTRUMENTATION TO DETERMINE IF COMPONENTS HAVE FAILED.

(E) OPERATIONAL USE

REMOVE POWER FROM RELAY BY PLACING MANUAL SWITCH IN GENERAL PURPOSE
COMPUTER (GPC) POSITION.