

SHUTTLE CRITICAL ITEMS LIST - ORBITER

SUBSYSTEM : EPD&C - FWD-RCS FMEA NO 05-6KF-2155 -1 REV: 11/03/87

ASSEMBLY : PANEL 08				CRIT. FUNC: 1R
P/N RI : MC432-0222-0029				CRIT. HDW: 2
P/N VENDOR:		VEHICLE	102 103 104	
QUANTITY : 4		EFFECTIVITY:	X X X	
: FOUR		PHASE(S):	PL X LO X OO X DO X LS X	
:				

		REDUNDANCY SCREEN:	A-PASS	B-FAIL	C-PASS
PREPARED BY:		APPROVED BY:	APPROVED BY (NASA):		
DES D SOVEREIGN		DES <i>R. Burns</i>	SSM <i>[Signature]</i>		
REL J BEEKMAN		REL <i>[Signature]</i> 11-14-87	REL <i>[Signature]</i> 11-14-87		
QE		QE <i>[Signature]</i> 11-14-87	QE <i>[Signature]</i> 11-14-87		

ITEM:

EVENT INDICATOR - FORWARD RCS FUEL AND OXIDIZER MANIFOLD 1, 2, 3, AND 4 ISOLATION VALVE.

FUNCTION:

PROVIDES A VISUAL POSITION INDICATION OF THE FUEL AND OXIDIZER MANIFOLDS 1, 2, 3, AND 4 ISOLATION VALVES SHOWING OPEN, CLOSED OR STRIPES (NULL).
33V73A8DS16,17,18,19

FAILURE MODE:

SHORT TO GROUND

CAUSE(S):

CONTAMINATION, VIBRATION, THERMAL SHOCK.

EFFECT(S) ON:

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

(A) LOSS OF "TALKBACK" INDICATION FOR VALVE POSITION.

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

(C,D) NO EFFECT FIRST FAILURE.

(E) FUNCTIONAL CRITICALITY EFFECT - POSSIBLE LOSS OF CREW/VEHICLE DUE TO CONTINUOUS 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 FOR RELAY BY PLACING MANUAL SWITCH IN GPC (GENERAL PURPOSE
COMPUTER) POSITION.