

FAILURE MODES EFFECTS ANALYSIS (FMEA) -- CIL HARDWARE**NUMBER: 05-6J-2064 -X****SUBSYSTEM NAME:** EPD&C - MAIN PROPULSION SYSTEM**REVISION:** 1 07/26/00

PART DATA

	PART NAME	PART NUMBER
	VENDOR NAME	VENDOR NUMBER
LRU	: PANEL R4	V070-730278
SRU	: SWITCH, TOGGLE	ME452-0102-7257, -8257

EXTENDED DESCRIPTION OF PART UNDER ANALYSIS:

SWITCH, TOGGLE (2 POLES, 3 POSITIONS, LEVER LOCK), LH2 HELIUM MANIFOLD REPRESSURIZATION VALVES (LV42,43).

REFERENCE DESIGNATORS: 32V73A4S2**QUANTITY OF LIKE ITEMS:** 1**FUNCTION:**

PROVIDES MANUAL CONTROL OF POWER TO LH2 HELIUM MANIFOLD REPRESSURIZATION VALVE SOLENOID.

FAILURE MODES EFFECTS ANALYSIS FMEA -- CIL FAILURE MODE

NUMBER: 05-6J-2064-01

REVISION#: 1 05/01/01

SUBSYSTEM NAME: D&C - MAIN PROPULSION SYSTEM

LRU: PANEL R4

CRITICALITY OF THIS

ITEM NAME: LH2 MANIFOLD REPRESS TOGGLE SWITCH

FAILURE MODE: 3/3

FAILURE MODE:

FAILS TO TRANSFER TO OPEN, CONTACT-TO-CONTACT SHORT (SINGLE "CLOSE" POLE).

MISSION PHASE: LS LANDING/SAFING

VEHICLE/PAYLOAD/KIT EFFECTIVITY:	102	COLUMBIA
	103	DISCOVERY
	104	ATLANTIS
	105	ENDEAVOUR

CAUSE:

PIECE PART STRUCTURAL FAILURE, CONTAMINATION, VIBRATION, MECHANICAL SHOCK, PROCESSING ANOMALY

CRITICALITY 1/1 DURING INTACT ABORT ONLY? YES

RTLS	RETURN TO LAUNCH SITE
TAL	TRANS-ATLANTIC LANDING

REDUNDANCY SCREEN

A) N/A
B) N/A
C) N/A

PASS/FAIL RATIONALE:

A)

B)

C)

- FAILURE EFFECTS -

(A) SUBSYSTEM:

LH2 MANIFOLD REPRESSURIZATION SYSTEM FUNCTION CONSIDERED NON MANDATORY FOR NOMINAL, AOA, AND ATO MISSIONS. NOMINAL POST DUMP RESIDUALS (APPROXIMATELY THREE LBM) ARE SUFFICIENT TO CAUSE PROPELLANT SYSTEM RUPTURE IN CASE OF RELIEF SYSTEM FAILURE, REGARDLESS OF REPRESS SYSTEM OPERATION.

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DURING RTLS AND TAL ABORT ENTRIES, FAILURE RESULTS IN LOSS OF THE LH2 MANIFOLD REPRESS (MANDATORY TO PRECLUDE FLAMMABLE CONCENTRATIONS IN THE LH2 PROPELLANT SYSTEM) CAUSING POSSIBLE FIRE/EXPLOSION HAZARD IN THE LH2 PROPELLANT SYSTEM.

(B) INTERFACING SUBSYSTEM(S):
SAME AS A.

(C) MISSION:
SAME AS A.

(D) CREW, VEHICLE, AND ELEMENT(S):
SAME AS A.

(E) FUNCTIONAL CRITICALITY EFFECTS:
NONE.

-DISPOSITION RATIONALE-

(A) DESIGN:
REFER TO APPENDIX A, ITEM NO. 1 - TOGGLE SWITCH.

(B) TEST:
REFER TO APPENDIX A, ITEM NO. 1 - TOGGLE SWITCH.

GROUND TURNAROUND TEST
ANY TURNAROUND CHECKOUT IS ACCOMPLISHED IN ACCORDANCE WITH OMRSD.

(C) INSPECTION:
REFER TO APPENDIX A, ITEM NO. 1 - TOGGLE SWITCH.

(D) FAILURE HISTORY:
REFER TO APPENDIX A, ITEM NO. 1 - TOGGLE SWITCH.

CURRENT DATA ON TEST FAILURE, FLIGHT FAILURE, UNEXPLAINED ANOMALIES, AND OTHER FAILURES EXPERIENCED DURING GROUND PROCESSING ACTIVITY CAN BE FOUND IN THE PRACA DATABASE.

(E) OPERATIONAL USE:

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NO CREW ACTION CAN BE TAKEN.

- APPROVALS -

S&R ENGINEERING	: W.P. MUSTY	:/S/ W.P. MUSTY
S&R ENGINEERING ITM	: P. A. STENGER-NGUYEN	:/S/ P.A. STENGER-NGUYEN
DESIGN ENGINEERING	: ANDY RIZVI	:/S/ ANDY RIZVI
MPS SUBSYSTEM MGR.	: TIM REITH	:/S/ TIM REITH
D&C SUBSYSTEM MGR.	: LAITH COTTA	:/S/ LAITH COTTA
MOD	: JEFF MUSLER	:/S/ JEFF MUSLER
USA SAM	: MICHAEL SNYDER	:/S/ MICHAEL SNYDER
USA ORBITER ELEMENT	: SUZANNEL LITTLE	:/S/ SUZANNE LITTLE
NASA SR&QA	: BILL PRINCE	:/S/ BILL PRINCE