

SHUTTLE CRITICAL ITEMS LIST - ORBITER

SUBSYSTEM : EPD&C - MAIN PROP. FMEA NO 05-6J -2058A -2 REV: 11/20/87

ASSEMBLY : AFT LCA-2  
P/N RI : MC477-0263-0002  
P/N VENDOR:  
QUANTITY : 1  
: ONE  
: 1 PER LH2 OUTBOARD FILL/DRAIN VALVE

VEHICLE	102	CRIT. FUNC:	1R
EFFECTIVITY:	X	CRIT. HDW:	2
PHASE(S):	PL X LO		103 104
			X X
			OO DO LS

REDUNDANCY SCREEN: A-PASS B-PASS C-PASS

PREPARED BY:	APPROVED BY:	APPROVED BY (NASA):
DES <i>J</i> J BROWN	DES <i>R. V. Brown</i>	EPDC SSM <i>[Signature]</i>
REL <i>g/f</i> DEFENSOR	REL <i>Mohamed El Han 12-5-87</i>	MPS SSM <i>[Signature]</i>
QE D MASAI	QE <i>[Signature]</i>	EPDC REL <i>[Signature]</i>
		MPS REL <i>[Signature]</i>
		QE <i>[Signature]</i>

ITEM:

CONTROLLER, HYBRID DRIVER (HDC), TYPE III, LH2 OUTBOARD FILL/DRAIN VALVE CLOSE SOLENOID CONTROL POWER.

FUNCTION:

CONDUCTS MAIN BUS POWER TO THE CLOSE SOLENOID OF THE LH2 OUTBOARD FILL/DRAIN VALVE. 5576A122AR J10(P).

FAILURE MODE:

INADVERTENT OUTPUT, FAILS ON, CONDUCTS PREMATURELY

CAUSE(S):

PIECE PART FAILURE, CONTAMINATION, MECHANICAL SHOCK, VIBRATION, THERMAL SHOCK

EFFECT(S) ON:

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

(A) PREMATURE ACTUATION OF CLOSE SOLENOID.

(B) NO EFFECT - FIRST FAILURE. BISTABLE FEATURE MAINTAINS FILL/DRAIN VALVE IN OPEN POSITION.

(C, D) NO EFFECT - FIRST FAILURE. POSSIBLE LOSS OF CREW AND VEHICLE AFTER SECOND FAILURE (PREMATURE DEACTUATION OF THE OPEN SOLENOID) RESULTING IN PREMATURE CLOSURE OF LH2 OUTBOARD FILL/DRAIN VALVE. TERMINATION OF PROPELLANT LOADING WHICH MAY CAUSE A PRESSURE SPIKE AND POSSIBLE RUPTURE OF ORBITER FILL LINE AND/OR GSE INTERFACE/FACILITY LINES. POSSIBLE AFT COMPARTMENT OVERPRESSURIZATION AND FIRE/EXPLOSION HAZARD. POSSIBLE LOSS OF ADJACENT CRITICAL FUNCTIONS DUE TO CRYO EXPOSURE.

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DISPOSITION & RATIONALE:

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

(A-D) DISPOSITION AND RATIONALE:

REFER TO APPENDIX B, ITEM NUMBER 1 - HYBRID DRIVER CONTROLLER.

(B) GROUND TURNAROUND TEST

COPPER PATH VERIFICATION, V41A20.111A EVERY FLIGHT

(E) OPERATIONAL USE

FLIGHT - NO CREW ACTION CAN BE TAKEN.  
GROUND - TERMINATE LOADING.