

SHUTTLE CRITICAL ITEMS LIST - ORBITER

SUBSYSTEM : EW&I/MPS

FMEA NO 05-7J -2000 -1 REV:03/17/89

LOCATION : SEE TABLE 05-7J-2000-1

CRIT.FUNC: 1

P/N RI QUANTITY

CRIT. 614: 1

1. NB6GE22-41XXXX 1
2. NB6GE24-61XXXX 1

VEHICLE	102	103	104	105
EFFECTIVITY	X	X	X	X

PHASE(S): PL LO X OO DO LS

REDUNDANCY SCREEN: A- N/A B- N/A C- N/A

PREPARED BY:
DES J BROWN
REL T KIMURA
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APPROVED BY:
DES *[Signature]*
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QE *[Signature]*

APPROVED BY (NASA):
EW&I SSM *[Signature]* 4/19/89
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SSM *[Signature]* 4-7-89
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ITEM:

CONNECTOR, PLUG, [(1.) 27 #20 CONTACTS, 14 #16 CONTACTS, (2.) 61 #20 CONTACTS] - LO2 RELIEF SHUTOFF VALVE CIRCUIT

FUNCTION:

PROVIDES MATE/DEMATE CAPABILITY FOR WIRING WHICH CONTAINS CIRCUITS FOR ENERGIZING THE LO2 RELIEF SHUTOFF VALVE CLOSE SOLENOID. FOR PLUG AND SHORTED PIN-TO-PIN PIN/SOCKET REFERENCE DESIGNATORS, SEE TABLE 05-7J-2000-1.

FAILURE MODE:

PIN-TO-PIN SHORT (HOT)

CAUSE(S):

PIECE PART FAILURE, CONTAMINATION, VIBRATION, MECHANICAL SHOCK, PROCESSING ANOMALY, THERMAL STRESS

EFFECT(S) ON:

(A) SUBSYSTEM (B) INTERFACES (C) MISSION (D) CREW/VEHICLE (E) FUNCTIONAL CRITICALITY EFFECT:

(A) LOSS OF CAPABILITY TO DE-ENERGIZE THE LO2 RELIEF SHUTOFF VALVE CLOSE SOLENOID CIRCUIT.

(B) INABILITY TO OPEN VALVE TO PROVIDE RELIEF CAPABILITY PRIOR TO LO2 DUMP.

SHUTTLE CRITICAL ITEMS LIST - ORBITER

SUBSYSTEM :EW&I/MPS

FMEA NO 05-7J -2000 -1 REV:03/17/85

(C,D) POSSIBLE LOSS OF CREW/VEHICLE IF A CRITICAL PIN IN THE CONNECTOR SHORTS TO A HIGH DC SOURCE (+28V) CAUSING VALVE TO CLOSE. THIS RESULTS IN A LOSS OF RELIEF CAPABILITY PRIOR TO LO2 DUMP LEADING TO A POSSIBLE RUPTURE OF LO2 MANIFOLD AND CAUSING LO2 LEAKAGE INTO AFT COMPARTMENT OVER PRESSURIZATION, AND FIRE/EXPLOSION HAZARD. POSSIBLE LOSS OF ADJACENT CRITICAL COMPONENTS DUE TO CRYOGENIC EXPOSURE.

A VENT PATH EXISTS (APPROXIMATELY 4 SCFM PER BLEED CHECK VALVE) THROUGH THE POGO SYSTEM TO THE SSME HPOT SEAL AND RELEASED OVERBOARD. THIS VENT PATH IS NOT CONSIDERED SUFFICIENT TO RELIEVE THE LO2 MANIFOLD IF THE MANIFOLD RELIEF SYSTEM FAILS.

REFERENCE CIL 05-6J-2017-2

DISPOSITION & RATIONALE:

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

(A,B,C,D) DISPOSITION AND RATIONALE

REFER TO APPENDIX K, ITEM NO. 1 - TYPE NB CONNECTOR, CIRCULAR, MINIATURE

(B) GROUND TURNAROUND TEST

V41ABO.070 - COMPLETE ELECTRICAL VERIFICATION (EVERY FLIGHT)

V41BIO.070 - PV7 RELIEF SHUTOFF VALVE RESPONSE TIME (EVERY FLIGHT)

(E) OPERATIONAL USE

LO2 MANIFOLD PRESSURE IS ON CAUTION AND WARNING.

POST MECO/PRE DUMP: START MPS PROPELLANT DUMP AS SOON AS POSSIBLE.

POST DUMP: OPEN THE LO2 FILL/DRAIN VALVES.

TABLE 05-7J-2000-1

PART NUMBER	PLUG REFERENCE DESIGNATOR	CONNECTOR LOCATION	PIN/SOCKET DESIG.
1. NB6GE22-41XXXX	40V77W88P436	1307 BULKHEAD	J-d
2. NB6GE24-61XXXX	40V77W49PB05	MID PCA-1	CC-BB CC-DD