

SHUTTLE CRITICAL ITEMS LIST - ORBITER

SUBSYSTEM : EPD&C - ATCS/RPCA FMEA NO 05-6WC-1012 -1 REV:06/10/88

ASSEMBLY : MID POWER CONTROL ASSY 1,2,3 CRIT. FUNC: 1R
 P/N RI : MC477-0261-0002 CRIT. EDW: 2
 P/N VENDOR: VEHICLE: 102 103 104
 QUANTITY : 4 (FOUR), EFFECTIVITY: X X X
 : ONE PER PHASE(S): PL LO OO X DO X LS
 : CONTROLLER

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

PREPARED BY:	J BROWN	APPROVED BY:	DES	SSM	APPROVED BY (NASA):
DES	M HOVE	DES	REL	REL	
REL	J COURSEN	REL	QE	QE	
QE		QE			

[Handwritten signatures and dates are present in the approval columns]

ITEM: HYBRID DRIVER CONTROLLER, TYPE I. RADIATOR BYPASS VALVE.

FUNCTION: PROVIDES POWER TO ACTIVATE MANUAL BYPASS VALVE CONTROL. 40V76A25AR46, AR47, 40V76A26AR38, 40V76A27AR23.

FAILURE MODE: LOSS OF OUTPUT, FAILS TO CONDUCT, FAILS TO TURN "ON"

CAUSE(S): PIECE PART STRUCTURAL FAILURE, MECHANICAL SHOCK, VIBRATION, THERMAL STRESS, CONTAMINATION, PROCESSING ANOMALY

EFFECT(S) ON: (A)SUBSYSTEM (B)INTERFACES (C)MISSION (D)CREW/VEHICLE

- (A,B) LOSS OF ONE REDUNDANT PATH FOR MANUAL BYPASS VALVE OPERATION.
- (C,D) NO EFFECTS.
- (E) FUNCTIONAL CRITICALITY EFFECT - LOSS OF ALL RADIATOR UNDER TEMP PROTECTION CAN FREEZE INTERCHANGER AND CAN RESULT IN LOSS OF ORBITER COOLING AND IN LOSS OF CREW/VEHICLE. WITH LOSS OF FIRST PATH, THREE PATHS REMAIN FOR RADIATOR TEMP CONTROL:
 - 1) "RAD CONTROLLER" SWITCH FAILING OPEN FOR THE ASSOCIATED LOOP.
 - 2) FAILURE OF REDUNDANT MANUAL BYPASS VALVE CONTROL.
 - 3) LOSS OF REDUNDANT FREON COOLANT LOOP.

SCREEN B FAILS BECAUSE FAILING ONE OF TWO HYBRID DRIVERS CANNOT BE DETECTED SINCE REDUNDANT DRIVER WILL AUTOMATICALLY PROVIDE CONTROL.

DISPOSITION & RATIONALE:

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

(A,B,C,D)
 REFER TO APPENDIX B, ITEM 1 - HYBRID DRIVER.

SHUTTLE CRITICAL ITEMS LIST - ORBITER

SUBSYSTEM : EPD&C - ATCS/RPCA FMEA NO 05-GWC-1012 -1 REV:06/10/8

(B) GROUND TURNAROUND TEST

MANUAL RADIATOR BYPASS HYBRID DRIVER CONTROLLERS ARE VERIFIED EVERY FD
FLIGHTS.

(E) OPERATIONAL USE

NONE FOR FIRST FAILURE, 'AUTO' BYPASS VALVE CONTROL WILL PERFORM
FUNCTION.