

SUBSYSTEM :R/RADAR & COM ANT DEPLOY FMEA NO 05-6EH-56021 -2 REV:05/21/90

ASSEMBLY :MID MCA 2 AND 4
 P/N RI :MC455-0135-0002
 P/N VENDOR:
 QUANTITY :4
 :FOUR (2 PER MCA)
 :

	VEHICLE	102	103	104
EFFECTIVITY:		X	X	X
PHASE(S):	PL	LO	OO X DO	LS

CRIT. FUNC: 1R
 CRIT. HDW: 2

PREPARED BY: DES T BANHIDY
 REL *gmr 5-21-90* J RESSIA
 QE J COURSEN

REDUNDANCY SCREEN: A-PASS B-FAIL C-PASS
 APPROVED BY: DES *S.S. 5-21-90*
 REL *Richard S. F. P. D.*
 QE *John S. 5-21-90*

APPROVED BY-(NASA):
 SSM *[Signature]*
 REL *[Signature]*
 QE *[Signature]*

ITEM:
 RELAY, HYBRID - BOOM STOW, MOTOR POWER

EPDSC SSM *[Signature]*
 EPDSC SSE *[Signature]*
R. D. C. For I S. 5-21-90
 7-11-90

FUNCTION:
 SWITCHES POWER FROM AC BUSES TO THE KU-BAND ANTENNA DEPLOYMENT ACTUATOR.
 STOW MOTOR ACTIVATION IS CONTROLLED BY THE PANEL SWITCH.
 40V76A12GK25, K2; 40V76A118K68, K14

FAILURE MODE:
 CLOSED, PREMATURELY CLOSSES

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:

(A) FIRST FAILURE - LOSS OF CONTROL OF ONE OF TWO SERIES CONNECTED HYBRID RELAYS USED FOR SWITCHING 3-PHASE POWER IN ONE OF TWO PATHS TO THE STOW ACTUATORS.

(B,C,D) NO EFFECT - FIRST FAILURE. POSSIBLE LOSS OF CREW/VEHICLE AFTER TWO FAILURES (HYBRID RELAY FAILS CLOSED, ASSOCIATED SERIES-CONNECTED HYBRID RELAY FAILS CLOSED). WITH PAYLOAD MECHANICAL BUSES AC2 AND AC3 POWERED UP FOR OTHER PAYLOAD BAY ACTIVITIES, AN IMMEDIATE STOW OF THE ANTENNA WILL OCCUR. THE OUT-OF-CONFIGURATION STOW COULD CAUSE COLLISION BETWEEN THE ANTENNA DISH AND THE DOOR AND/OR RADIATOR. THE RESULTING ANTENNA DEBRIS COULD LODGE BETWEEN DOOR HINGES AND/OR FORWARD DOOR LATCH MECHANISMS.

FIRST HYBRID RELAY FAILURE IS CONSIDERED AS NOT BEING READILY DETECTABLE IN FLIGHT ALTHOUGH OPERATIONAL STATUS MONITORING EXISTS FOR THESE HYBRID RELAYS. SUFFICIENT TIME MAY NOT BE AVAILABLE TO ALLOW CORRECTIVE ACTION TO BE PERFORMED.

SHOULDER CRITICAL ITEMS LIST - C-130

SUBSYSTEM :R/RADAR & CON ANT DEPLOY FMEA NO 05-6EH-56021 -2 REV:05/21/90

DISPOSITION & RATIONALE:

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

(A-D) DISPOSITION AND RATIONALE

REFER TO APPENDIX C, ITEM NO. 1 - HYBRID RELAY

(B) GROUND TURNAROUND TEST

"KU-BAND ANTENNA STOW MOTOR 1 AND 2" VERIFIES THE PROPER OPERATION OF THE STOW CIRCUIT CONTAINING HYBRID RELAYS FOR MOTORS 1 AND 2. HYBRID RELAY PERFORMANCE IS VERIFIED DURING IN-FLIGHT OPERATION. ON GROUND TESTING WOULD BE ACCOMPLISHED WHEN A VALID VERIFICATION IS UNOBTAINABLE DURING FLIGHT, OR FOLLOWING LRU REPLACEMENT. ALSO, SINGLE MOTOR OPERATION IS VERIFIED EVERY FLOW: DEPLOY MOTOR 1/STOW MOTOR 2 IS VERIFIED ON ODD FLOWS; AND DEPLOY MOTOR 2/STOW MOTOR 1 IS VERIFIED ON EVEN FLOWS.

(E) OPERATIONAL USE

AN EVA COULD BE ATTEMPTED IN THE EVENT ANTENNA DEBRIS PREVENTS DOOR CLOSURE.