

# FAILURE MODES AND EFFECTS ANALYSIS

ASSY NOMENCLATURE: RMS IFM DBC KIT  
ASSY P/N: 300317-3304-304

SYSTEM: REMOTE MANIPULATOR SYSTEM  
SUBSYSTEM: RMS IN-FLIGHT MAINTENANCE DBC KIT

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NAME AND DRAWING	FUNCTION	FAILURE MODE AND CAUSE	MISSION PHASE	FAILURE EFFECT ON			FAILURE DETECTION	CORRECTIVE ACTION TIME AVAILABLE/ TIME REQUIRED	CRIT. H/F	HAZARDS/REMARKS
				END ITEM	MISSION	CREW/VEHICLE				
EE COMMAND SIGNAL CIRCUIT, QTY. 1, (SET OF RESISTOR [R2], ZENER DIODES [D3, D4], AND CAPACITOR [C1]) SEE 3103307	Provides ref. signals for end effector commands	<b>6090 Mode:</b> Zener diode D4 fails short  <b>Cause:</b> • structural failure • mechanical stress • vibration • electrical stress • resistor R2 fails short	Orbit	Loss of ability to capture or rigidize EE. Capture command will give release command. Rigidize command will give desrigidize command. Release and desrigidize commands will be normal. <u>Worst Case</u> Unexpected payload motion. Incomplete rigidization. Crew action required.		Incomplete rigidization resulting in unexpected payload motion which could cause vehicle damage	Operator detects EE off nominal operation. EE TB's on RMS DBC panel may change	Release payload using backup release or jettison arm/payload combination  immediate/immediate	1/1	Crew action required to prevent motor burnout  <u>Redundancy Screens:</u> A - N/A B - N/A C - N/A
		<b>7090 Mode:</b> Zener diode D4 fails open, fails to conduct  <b>Cause:</b> • structural failure • mechanical stress • vibration • electrical stress • resistor R2 fails short	Orbit	Loss of desrigidize and release commands. Capture and rigidize commands operate normally. <u>Worst Case</u> Subsequent failure may result in inability to release payload. <u>Remaining</u> Backup mode. RMS Jettison		Subsequent failure may result in inability to release payload	Operator detects payload has not been released. EE TB's on RMS DBC panel do not change	Release payload using backup release or jettison arm/payload combination  immediate/hours	3/1R	<u>Redundancy Screens:</u> A - Pass B - Pass C - Pass