CIL
CRITICAL ITEMS LIST
FILE: CIL7/1

NAME P/N QTY	CRIT	FAILURE MODE & CAUSES	FAILURE EFFECT	RATIONALE FOR ACCEPTANCE
ELECTRICAL SIGNALS HARNESS ITEM 152 SV789152-E 111 1827-1 **	2/1RB	152FM02: ELECTRICAL OPEN, +5V, +14.2V OR -14.2V LINES. CAUSE: CABLE CHAFING AGAINST CONNECTOR SHELL OR SHIELD. IMPROPER CONNECTOR STRAIN RELIEF. FAULTY CONNECTION BETWEEN THE CONNECTOR AND THE LEAD WIRES.	END ITEM: LOSS OF CONTINUITY IN +5V, +14.2V OR -14.2 LINES. (+10V PRESENTLY NOT USED). GFE INTERFACE: LOSS OF CMS FUNCTION. MISSION: NONE FOR SINGLE FAILURE. CREW/VEHICLE: NONE FOR SINGLE FAILURE. POSSIBLE LOSS OF CREWMAN WITH LOSS OF ECC, OXYGEN OR LOW VENT FLOW.	A. DESIGN - EACH CONNECTOR/CABLE INTERFACE IS STRAIN RELIEVED BY POTTING THE CONDUCTORS IN PLACE. A RUBBER BACKSHELL IS THEN MOLDED OVER THE CONNECTOR/CABLE INTERFACE. EACH CONNECTOR/ADAPTER MATING INTERFACE IS LOCKED IN PLACE TO PREVENT ROTATION BY A MECHANICAL LOCK AND AN ADHESIVE LOCK. MP24 AND TEFLON COATED WIRE PROVIDES ELECTRICAL AND MECHANICAL PROPERTIES TO PREVENT BREAKAGE. THE CONDUCTORS ARE BUNDLED WITHIN A WOVEN COPPER STRANDED SHEATH WHICH CAUSES THEM TO ACT TOGETHER AND SHARE ANY LOADING PLACED ON THEM. A WOVEN NOMEX SHEATH IS ASSEMBLED OVER THE SHIELDED CABLES TO PROVIDE PROTECTION FROM ABRASION AND IMPACT. WIRE CRIMPING IS PER SVHS4409 (BASED ON MSFC-SPEC-Q-1A). B. TEST - COMPONENT ACCEPTANCE TEST - THE 152 HARNESS IS SUBJECTED TO ACCEPTANCE TESTING PER AT-EMU-152 PRIOR TO FINAL ACCEPTANCE. THIS TESTING INCLUDES THE FOLLOWING TESTS WHICH ENSURE THERE ARE NO WORKMANSHIP PROBLEMS WHICH WOULD CAUSE AN OPEN CIRCUIT ON THE +5V, +10V, -14.2V OR +14.2V LINES. CONTINUITY TESTING OF EACH CONDUCTOR AFTER COMPLETION OF HARNESS PULL TESTING (10 POUNDS) TO ENSURE THERE ARE NO OPEN CIRCUITS. THE PULL TEST IS DESIGNED TO PRE-STRESS EACH CONNECTOR/CABLE INTERFACE TO REFLECT PROBLEMS WHICH WOULD CAUSE OPEN CIRCUITS. PDA TEST - THE +5V, +8V, -14.2V OR +14.2V LINES ARE CHECKED DURING PLSS PDA TESTING PER SEMU-40-080, PARA. 35.0 TO ENSURE THERE ARE NO OPEN CIRCUITS WHICH WOULD AFFECT PLSS FUNCTIONS. CERTIFICATION TEST - THIS ITEM HAS COMPLETED THE STRUCTURAL VIBRATION AND SHOCK CERTIFICATION REQUIREMENTS DURING LO/01. ENGINEERING CHANGE 42006-527-2 ADDED CONNECTOR PULL TEST) HAS BEEN INCORPORATED AND CERTIFIED SINCE THIS CONFIGURATION WAS CERTIFIED. C. INSPECTION (CONTINUED) - TO ENSURE THERE ARE NO WORKMANSHIP PROBLEMS WHICH COULD CAUSE AN OPEN CIRCUIT IN THE HARNESS CONDUCTORS, THE FOLLOWING INSPECTIONS ARE PERFORMED.

CIL
CRITICAL ITEMS LIST
FILE: CIL2/1

NAME P/N QTY	CREW	FAILURE MODE & CAUSES	FAILURE EFFECT	RATIONALE FOR ACCEPTANCE
ELECTRICAL SIGNALS HARNESS ITEM 152 SV789152-2 (1)	2/IRU	152FM02: ELECTRICAL OPEN, +5V, -14.2V OR +14.2V LINES.		C. INSPECTION - CONTACT CRIMP SAMPLES ARE MADE PRIOR TO START OF CONTACT CRIMPING AND AT THE CONCLUSION OF CRIMPING AND SUBJECTED TO PULL TESTING TO ENSURE THE CRIMPING TOOLS ARE OPERATING PROPERLY. THIS ENSURES THERE WILL NOT BE ANY HIGH RESISTANCE PROBLEMS AT THE CONTACTS. HARNESS CABLES AND CONDUCTORS ARE VISUALLY INSPECTED PRIOR TO ASSEMBLY TO ENSURE THERE ARE NO DEFECTS WHICH WOULD CAUSE A OPEN CIRCUIT DUE TO BREAKAGE. CONNECTOR POTTING IS INSPECTED BEFORE AND AFTER POTTING TO INSURE THERE ARE NO DAMAGED CONNECTORS AND THAT THE CONDUCTORS ARE PROPERLY STRAIN RELIEVED TO PREVENT CONDUCTOR BREAKAGE. IN-PROCESS ELECTRICAL CHECKOUT OF THE HARNESS BEFORE AND AFTER POTTING AND MOLDING TO ENSURE THERE ARE NO OPEN CIRCUITS. D. FAILURE HISTORY - NONE FOR THIS FAILURE MODE. RELATED FAILURE: J-EMU-152-CORL (8/17/88) AN OPEN CIRCUIT IN THE HARD-LINE COMM. LINE WAS FOUND DURING FUNCTIONAL TESTING. THE FAILURE WAS DETERMINED TO BE CAUSED BY THE PULLEAD AND TWISTING THE HARNESS WAS NORMALLY EXPOSED TO DURING INSTALLATION ON THE PLSS. THIS HANDLING CAUSED THE WIRE TO BREAK. EC 42806-205 REVISED CABLE LENGTHS AND IMPROVED CABLE FLEXIBILITY. CLASS I EC 42806-827-2 CREATED THE SV789152-2 HARNESS CONFIGURATION BY ADDING A CONNECTOR PULL TEST REQUIREMENT TO THE ACCEPTANCE TEST REQUIREMENTS. E. GROUND TURNAROUND - GROUND TURNAROUND TESTER FEMU-H-001, OCH DISPLAY. F. OPERATIONAL USE - - CREW RESPONSE - PREEVA: TROUBLE SHOOT. IF NO SUCCESS, CONSIDER THIRD EMU IF AVAILABLE. OTHERWISE EMU IS NO GO FOR EVA. EVA: TERMINATE EVA WHEN DETECTED BY GROUND OR DURING CREWMEMBER'S STATUS CHECK. TRAINING - STANDARD EMU TRAINING COVERS THIS FAILURE MODE. OPERATIONAL CONSIDERATIONS - REFERENCE LOSS/FAILURE FLIGHT RULES: DEFINE EMU AS NO GO IF CREW AND GROUND DETERMINE INSUFFICIENT CMS DATA AVAILABLE AND; DEFINE EMU AS GO/NO GO FOR STANDBY ON SCU. EVA CHECKLIST AND TDF PROCEDURES VERIFY HARDWARE INTEGRITY AND SYSTEMS OPERATIONAL STATUS PRIOR TO EVA. REAL TIME DATA SYSTEM ALLOWS GROUND MONITORING OF EMU SYSTEMS.
LOZJ-2 MM				