

CIL
 CRITICAL ITEMS LIST
 FILE: CIL-309/2

NAME P/N QTY	CRIT	FAILURE MODE & CAUSES	FAILURE EFFECT	RATIONALE FOR ACCEPTANCE
ELECTRICAL HARNESS ASSEMBLY ITEM 425 SV771763-1 121	2/2	425FNON: ELECTRICAL SHORT, BUZZ POWER LINE. CAUSE: CABLE CHAFING AGAINST CONNECTOR SHELL OR SHIELD. IMPROPER CONNECTOR STRAIN RELIEF.	END ITEM: HIGH VEHICLE POWER CONSUMPTION, AND WILL SHUT DOWN. GFE INTERFACE: THE VEHICLE POWER SUPPLY IS CURRENT LIMITED TO 10 AMPS AND WILL SHUT DOWN. MISSION: LOSS OF USE OF ONE EMU. CREW/VEHICLE: NONE.	A. DESIGN - THE CABLE/CONNECTOR INTERFACES ON EITHER END OF THE ELECTRICAL HARNESS ARE STRAIN RELIEVED TO PREVENT EXCESSIVE CONNECTION LOADS AND POSSIBLE SHORTING. THE VEHICLE CONNECTOR UTILIZED A METAL STRAIN RELIEF TYPE BACKSHELL, THE AIRLOCK MATE AND DCN CONNECTOR INTERFACES HAVE RUBBER SEALS TO PREVENT CONTAMINATION FROM ENTERING AFTER BEING MATED TOGETHER. THE WIRE IS 425 AWG, PTFE/FLUOR COATED, TO PROVIDE THE REQUIRED INSULATION RESISTANCE. CONNECTORS ARE TIED TOGETHER AT 2-2 INCH INTERVALS AND SITUATED IN A CLOTH OUTER LAYER TO HOLD CABLES TOGETHER SO THEY SHARE ANY LOADING AND TO PREVENT IMPACT OR ABUSION OF CONDUCTORS. CRIMPING PER SWS4909 (BASED ON NAFIC-SPEC-Q-8A).
0299-1 8				B. TEST - COMPONENT ACCEPTANCE TEST - INSULATION RESISTANCE AND ISOLATION RESISTANCE TESTS ARE PERFORMED PER SV771763-1 OPERATION SHEETS MP'S 110 AND 120 RESPECTIVELY. THE INSULATION RESISTANCE TEST VERIFIES THAT THERE IS A MINIMUM OF 100 MEGOHMS RESISTANCE BETWEEN ANY CURRENT CARRYING CONDUCTOR AND THE HARNESS SHALL AT 500 VDC. THE ISOLATION RESISTANCE TEST VERIFIES THAT THE MINIMUM RESISTANCE BETWEEN EACH CURRENT CARRYING CONDUCTOR AND EVERY OTHER CURRENT CARRYING CONDUCTOR IS 1 MEGOHMS AT 50 VDC. THESE TEST ENSURE NO CONDUCTOR IS SHORTED TO ANY OTHER CONDUCTOR OR TO THE HARNESS SHELL, AND THAT NO CONDUCTOR HAS INSULATION DAMAGE.
				PDA TEST - INSULATION RESISTANCE AND ELECTRIC TESTS, IDENTICAL TO THE ABOVE COMPONENT TESTS, ARE PERFORMED PER STUJ-40-805, TESTS 25.0 AND 24.0 RESPECTIVELY TO INSURE THIS LINE HAS NOT SHORTED.
				CERTIFICATION TEST - THE ITEM COMPLETED THE 16 YEAR STRUCTURAL VIBRATION AND SHOCK CERTIFICATION REQUIREMENT DURING 10/83. ENGINEERING CHANGE 47004-124 DEFINITION OF MECHANICALLY LOCKED BACKSHELL WAS

CEL
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FILE: CEL-SOP/2

NAME P/N QTY	CRIT	FAILURE MODE & CAUSES	FAILURE EFFECT	RATIONALE FOR ACCEPTANCE
ELECTRICAL HARNES ASSEMBLY ITEM 425 SV771763-3 111	2/2	425FMD3) ELECTRICAL SHORT, SUIT POWER LINE,		<p>CERTIFICATION TEST - (CONTINUED) BEEN INCORPORATED AND DEEMED TO HAVE NO IMPACT ON CERTIFICATION SINCE THIS CONFIGURATION HAS CERTIFIED.</p> <p>C. INSPECTION - FINAL INSPECTION OF THE HARNES ASSEMBLY CHECKS FACE OF CONNECTION FOR CONDUCTIVE CONTAMINANTS. VISUAL INSPECTION OF CONNECTIONS PRIOR TO POTTING OPERATIONS TO INSURE THERE ARE NO DAMAGED CONDUCTORS AND THAT THE CONNECTIONS ARE PROPERLY ROUTED. IN-PROCESS ELECTRICAL CHECKOUT OF HARNES BEFORE AND AFTER POTTING TO INSURE THERE ARE NO SHORT CIRCUITS. VISUAL INSPECTION OF THE CONNECTIONS PRIOR TO ASSEMBLY OF OUTER SHEATH TO INSURE THERE ARE NO DAMAGED CONNECTIONS TO CAUSE A SHORT CIRCUIT.</p> <p>D. FAILURE HISTORY - NONE.</p> <p>E. GROUND TORNOWIND - TESTED PER FEMU-R-001, ORBITER POWER INTERFACE AND OPERATION PER STANDARD POWER UP (VIBR-02).</p> <p>F. OPERATIONAL USE - CREW RESPONSE - PRE/POSTEVA TROUBLESHOOT PROBLEM. IF NO SUCCESS, DISCONTINUE USE OF SCU POWER FUNCTION. OPERATE EMU ON BATTERY POWER. CONSIDER IN-SUIT BATTERY SWAP (USING SPARE BATTERIES). TRAINING - STANDARD EMU TRAINING COVERS THIS FAILURE MODE. OPERATIONAL CONSIDERATIONS - AT LEAST ONE SPARE EMU BATTERY IS MANIFESTED FOR EACH FLIGHT. EVA CHECKLIST PROCEDURES VERIFY HARDWARE INTEGRITY AND SYSTEMS OPERATIONAL STATUS PRIOR TO EVA.</p>
BZ99-2				