

CIL
 CRITICAL ITEM LIST
 FILE: CIL/1

NOE P/N QTY	CRIT	FAILURE MODE & CAUSES	FAILURE EFFECT	RATIONALE FOR ACCEPTANCE
ELECTRICAL SIGNALS WITH USE SWITCHES-1 010	R/X	IS27M12; ELECTRICAL OPEN IN STATUS LINES. CAUSE: CABLE CHIPPING GAINST CONDUCTOR SHELL OR SHIELD. IMPROPER CONNECTION STRAIN RELIEF. FAULTY CONNECTION BETWEEN THE CONNECTOR AND THE TRAN WIRE.	END USER: LOSS OF COMMUNITY IN STATUS LINE. O/E INTERFACE: LOSS OF ABILITY TO DISPLAY EMI BRANCHING BEARINGS ON DCN AND PERFORM SPLIT LEAK CHECK. INABILITY TO POSITION THE OPERATIONAL INTEGRITY OF THE END. MISSION: LOSS OF USE OF ONE CPU. SPLIT LEAK CHECK CANNOT BE PERFORMED. CREW/AVIATION: NONE.	A. DESIGN - OPEN CIRCUITS IN ANY OF THE CIRCUITS IN THE ITEM USE HARNESS IS MINIMIZED BY THE FOLLOWING: CONDUCTORS ARE HARD POINTED IN STYCAST 2051 IN THE AREA THAT THEY INTERFACE THE METAL BACKSHELLS TO MINIMIZE THEIR MOVEMENT AND CHANCE OF SHORTING TO THE BACKSHELL. THE CONDUCTORS ARE STRAIN RELIEVED AT THE CONNECTION/HARNESS INTERFACE WITH A FOLDED RUBBER BACKSHELL. THIS MINIMIZES THE EFFECTS OF CABLE TENSION ON THE INDIVIDUAL CONDUCTORS. CONDUCTORS ARE SHEATHED WITHIN A HOVEN WOVEN OUTER LAYER. THIS HOLDS THE CABLES TOGETHER TO SHARE ANY LOADING. BEE AND 024 AND TETRA JACKETED WIRES PROVIDE ELECTRICAL AND MECHANICAL PROPERTIES WHICH HELP PREVENT BREAKAGE. EACH CONDUCTOR/ADAPTER BAND INTERFACE IS LOCKED IN PLACE TO PREVENT ROTATION BY A COMBINED MECHANICAL AND ADHESIVE LOCK. WIRE CHIPPING IS PER 2456499 COATED ON MSC-SPEC-B-041. B. TEST - COMPONENT ACCEPTANCE TEST - THE HARNESS IS ACCEPTANCE DESIGNED PER THE FOLLOWING TESTS OF AT-010-152 TO ENSURE THERE ARE NO MANUFACTURING PROBLEMS WHICH WOULD CAUSE ACTUAL OR POTENTIAL OPEN CIRCUITS. PULL TEST - THIS TEST SUBJECTS EACH CONNECTION/HARNESS INTERFACE TO A SPECIFIC PULL TEST DESIGNED TO ENSURE TO ENSURE ANY STRESS ENCOUNTERED IN ACTUAL USE. THE INSULATION RESISTANCE BETWEEN EACH CONDUCTOR AND THE CABLES CONDUIT IS MEASURED DURING THE TEST TO ENSURE THERE IS NO SHORTING. THE TEST IS FOLLOWED BY A CONTINUITY CHECK OF EACH CONDUCTOR PATH TO ENSURE THERE ARE NO OPEN CIRCUITS. CONTINUITY TEST - THE RESISTANCE OF EACH CIRCUIT IS MEASURED TO INSURE THERE ARE NO OPEN CIRCUITS OR HIGH RESISTANCE PATHS. PWR TEST - THE STATUS LINES ARE CHECKED DURING THE PWR PWR TESTING PER PARA. 5.6 OF 2456-010. CERTIFICATION TEST - THIS ITEM HAS COMPLETED ONE (1) YEAR SIMULATED VIBRATION AND SHOCK CERTIFICATION REQUIREMENTS DURING 80/81. ENGINEERING CHANGES 41004-017-2 (INSULATION RESISTANCE CHECK DURING PULL TEST) AND 41004-018 (REMOVE CRIMP SPLICES) HAVE BEEN INCORPORATED AND CERTIFIED BY TEST SINCE THIS CONFIGURATION HAS CERTIFIED.

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01L
CRITICAL ITEMS LIST
FILE: 01L2/1

NAME P/N QTY	CRIT	FAILURE MODE & CAUSES	FAILURE EFFECT	RATIONALE FOR ACCEPTANCE
ELECTRICAL SIGNALS T169 152 SV709152-9 111	E/2	152FN12; ELECTRICAL OPEN IN STATUS LINES,		

01L-2

C. INSPECTION -
DURING HARNESS MANUFACTURING, THE FOLLOWING INSPECTIONS ARE PERFORMED TO INSURE THERE ARE NO OPEN CIRCUITS. VISUAL INSPECTION OF CONDUCTORS PRIOR TO POTTING OPERATIONS TO INSURE THERE ARE NO DAMAGED CONDUCTORS AND THAT THE CONDUCTORS ARE ROLLED PROPERLY. VISUAL INSPECTION OF THE HARNESS PRIOR TO AND AFTER RUBBER BOOT HOLDING PROCESS TO INSURE THERE ARE NO DAMAGED CONDUCTORS WHICH COULD CAUSE AN OPEN CIRCUIT. IN-PROCESS ELECTRICAL CHECKOUT OF THE HARNESS BEFORE AND AFTER POTTING AND WELDING TO INSURE THERE ARE NO OPEN CIRCUITS. VISUAL INSPECTION OF THE CONDUCTORS PRIOR TO APPLICATION OF THE OUTER SHEATH TO INSURE THERE ARE NO DAMAGED CONDUCTORS THAT COULD CAUSE AN OPEN CIRCUIT. CONDUCTOR CONTACT CRIMP SAMPLES ARE MADE PRIOR TO AND AFTER CRIMPING AND SUBJECTED TO PULL TESTING TO INSURE THE CRIMPING TOOLS ARE OPERATING PROPERLY. THIS ENSURES THERE WILL NOT BE ANY HIGH RESISTANCE PROBLEMS AT THE CONTACTS.

D. FAILURE HISTORY -
NONE, RELATED FAILURE;
THE FOLLOWING RDR'S WERE ISSUED FOR ITEM 152 DUE TO OPEN CIRCUITS:
RDR J-EMJ-152-001
ORDERED HARNESS CONDUCTOR DUE TO IMPROPER HARNESS INSTALLATION ON P103. EC43004-214 ISSUED TO INCREASE HARNESS LENGTH TO PREVENT THIS PROBLEM AND ALLOW PROPER INSTALLATION.

E. GROUND TURNAROUND -
TESTED PER FEHJ-R-401, EMP PERFORMANCE CHAMBER RUN, DCN DISPLAY VERIFICATION.

F. OPERATIONAL USE -
CREW RESPONSE - PRE-EVA; WHEN DETECTED DURING PERIODIC STATUS CHECK, REDUCE SPEED POSSIBLE USING R103, CONSIDER THIS EMI IF AVAILABLE. DISEMPOWER, EMP IS NO/GO FOR EVA. EVA; WHEN DETECTED DURING PERIODIC STATUS CHECK, TROUBLESHOOT USING R103, TERMINATE EVA.
TRAINING - STANDARD TRAINING COVERS THIS FAILURE MODE.
OPERATIONAL CONSIDERATIONS - EVA CHECKLIST PROCEDURES VERIFY HARDWARE INTEGRITY AND SYSTEM OPERATIONAL STATUS PRIOR TO EVA. REAL TIME DATA SYSTEM ALLOWS GROUND MONITORING OF EMP SYSTEMS. FLIGHT RULES DEFINE GO/NO GO CRITERIA RELATED TO EMI OPS.