CRITICAL ITEMS LIST

PROJECT: SRMS (-5 MCIU INSTALLED) SYSTEM: ELECTRICAL SUBSYSTEM
ASS'Y NOMENCLATURE: MCIU ASS'Y P/N: 5115SF160-5 SHEET: 1

FMEA REF.	FMEA REV.	NAME, QTY, & DRAWING REF. DESIGNATION	FAILURE MODE AND CAUSE	FAILURE EFFECT ON END ITEM	HDWR / FUNC. 2/1R CRITICALITY — RATIONALE FOR ACCEPTANCE SCREENS: A-PASS, B-PASS, C-PASS
2475	0	POWER CONDITIONER QTY-1 SCHEMATICS 812798 815444 2559054	MODE: LOSS OF +12V RAIL. CAUSE(S): (1) O/C OUTPUT INDUCTOR.	CPU WILL BE RE-INITIALIZED DUE TO NMI. LOSS OF COMMUNICATION WITH ABE, GPC AND O&C. GPC WILL STOP COMMUNICATIONS AFTER TWO GPC CYCLES. AUTOBRAKES. ARM COMES TO REST. LOSS OF COMPUTER SUPPORTED MODES. O&C INITIATES AUTO SAFING. LAMP TEST LOST. LOSS OF LIMPING DURING END EFFECTOR CAPTURE. LOSS OF EE AUTO DRIVE MODE. EE AUTO SEQUENCE IN PROGRESS WILL STOP. EE MANUAL DRIVE MODE IS STILL AVAILABLE. WORST CASE --- UNEXPECTED MOTION. SIX JOINT RUNAWAY. AUTOBRAKES. REDUNDANT PATHS REMAINING --- 1) AUTOBRAKES (FOR SAFING THE SYSTEM). 2) DIRECT DRIVE AND EE MANUAL MODE (FOR CONTINUING OPERATIONS).	DESIGN FEATURES --- EEE PARTS HAVE BEEN SELECTED AND CONTROLLED IN ACCORDANCE WITH SPAR-RMS-PA.003. THIS DOCUMENT DEFINES THE PROGRAM REQUIREMENTS FOR MONITORING AND CONTROLLING EEE PARTS. THE REQUIREMENTS INCLUDE PART SELECTION TO AT LEAST "ESTABLISHED RELIABILITY" LEVELS, AND ADEQUATE DERATING OF PART STRESS LEVELS. PROCEDURES AND ACTIVITIES ARE SPECIFIED TO ENSURE AT LEAST EQUIVALENT QUALITY FOR NONSTANDARD AND IRREGULAR PARTS. RELIABILITY ANALYSIS HAS CONFIRMED NO PARTS WITH GENERICALLY HIGH FAILURE RATES. AEROSPACE DESIGN STANDARDS FOR DETAILING ELECTRONIC PARTS PACKAGING, MOUNTING AND STRUCTURAL/MECHANICAL/INTEGRITY OF ASSEMBLIES ARE APPLIED. SUCH DESIGN HAS BEEN REVIEWED AND FOUND SATISFACTORY THROUGH THE DESIGN AUDIT PROCESS, INCLUDING THE USE OF RELIABILITY, MAINTAINABILITY AND SAFETY CHECKLISTS. MATERIAL SELECTION AND USAGE CONFORMS TO SPAR-SG.368 WHICH IS EQUIVALENT TO THE NASA MATERIALS USAGE REQUIREMENTS. WORST CASE ANALYSIS HAS BEEN CONDUCTED TO ENSURE THAT PERFORMANCE CAN BE MET UNDER WORST CASE TEMPERATURE AND AGING EFFECTS. EEE PARTS STRESS ANALYSIS HAS BEEN COMPLETED AND CONFIRMS THAT THE PARTS MEET THE DERATING REQUIREMENTS. PRINTED CIRCUIT BOARD DESIGNS HAVE BEEN REVIEWED TO ENSURE ADEQUATE CIRCUIT PATH WIDTH AND SEPARATION AND TO CONFIRM APPROPRIATE DIMENSIONS OF CIRCUIT SOLDER PADS AND OF COMPONENT HOLE PROVISIONS. PARTS MOUNTING METHODS ARE CONTROLLED IN ACCORDANCE WITH MSFC-STD-136 WHICH DEFINES APPROVED-MOUNTING METHODS, STRESS RELIEF, AND COMPONENT SECURITY. WHERE APPLICABLE, DESIGN DRAWINGS AND DOCUMENTATION GIVE CLEAR IDENTIFICATION OF HANDLING PRECAUTIONS FOR ESD SENSITIVE PARTS. BOARD ASSEMBLY DRAWINGS INCLUDE THE REQUIREMENTS FOR SOLDERING STANDARDS IN ACCORDANCE WITH NHB 5300.4(3) AND JSC 08800. TRANSFORMERS (AND INDUCTORS) ARE DESIGNED SPECIFICALLY FOR THE APPLICATION. THE DESIGN CRITERIA, INCLUDING CHOICE OF MATERIALS AND TEST REQUIREMENTS ARE IN ACCORDANCE WITH MIL-T-27. WORST CASE STRESS LEVELS DO NOT EXCEED THOSE ALLOWED BY SPAR-RMS-PA.003. ALL RESISTORS AND CAPACITORS USED IN THE DESIGN ARE SELECTED FROM ESTABLISHED RELIABILITY (ER) TYPES. LIFE EXPECTANCY IS INCREASED BY ENSURING THAT ALL ALLOWABLE STRESS LEVELS ARE DERATED IN ACCORDANCE WITH SPAR-RMS-PA.003. ALL CERAMIC AND ELECTROLYTIC CAPACITORS ARE ROUTINELY SUBJECTED TO RADIOGRAPHIC INSPECTION. DISCRETE SEMICONDUCTOR DEVICES SPECIFIED TO AT LEAST THE JX LEVEL OF MIL-S-19500. ALL DEVICES ARE SUBJECTED TO RE-SCREENING BY AN INDEPENDANT TEST HOUSE. SAMPLES OF ALL PROCURED LOTS/DATE CODES ARE SUBJECTED TO DESTRUCTIVE PHYSICAL ANALYSIS (DPA) TO VERIFY THE INTEGRITY OF THE MANUFACTURING PROCESSES. DEVICE STRESS LEVELS ARE, DERATED IN ACCORDANCE WITH SPAR-RMS-PA.003 AND VERIFIED BY DESIGN REVIEW.

PREPARED BY: MFWG SUPERCEDING DATE: NONE DATE: 11 JUL 91 CIL REV: U

CRITICAL ITEMS LIST

PROJECT: SRMS (-5 MCIU INSTALLED) SYSTEM: ELECTRICAL SUBSYSTEM
ASS'Y NOMENCLATURE: MCTU ASS'Y P/N: 51155F160-5 SHEET: 2

FMEA REF.	FMEA REV.	NAME, QTY, & DRAWING REF. DESIGNATION	FAILURE MODE AND CAUSE	FAILURE EFFECT ON END ITEM	HDWR / FUNC. 2/1R CRITICALITY	RATIONALE FOR ACCEPTANCE SCREENS: A-PASS, B-PASS, C-PASS
2475	0	POWER CONDITIONER QTY-1 SCHEMATICS 812798 815444 2559054	MODE: LOSS OF +12V RAIL. CAUSE(S): (1) O/C OUTPUT INDUCTOR.	CPU WILL BE RE-INITIALIZED DUE TO WMI. LOSS OF COMMUNICATION WITH ABE, GPC AND D&C. GPC WILL STOP COMMUNICATIONS AFTER TWO GPC CYCLES. AUTOBRAKES. ARM COMES TO REST. LOSS OF COMPUTER SUPPORTED MODES. D&C INITIATES AUTO SAFING. LAMP TEST LOST. LOSS OF LIMPING DURING END EFFECTOR CAPTURE. LOSS OF EE AUTO DRIVE MODE. EE AUTO SEQUENCE IN PROGRESS WILL STOP. EE MANUAL DRIVE MODE IS STILL AVAILABLE. WORST CASE --------- UNEXPECTED MOTION. SIX JOINT RUNAWAY. AUTOBRAKES. REDUNDANT PATHS REMAINING --------- 1) AUTOBRAKES (FOR SAFING THE SYSTEM). 2) DIRECT DRIVE AND EE MANUAL MODE (FOR CONTINUING OPERATIONS).		THE DESIGN OF THIS CIRCUIT ACCOMODATES ALL WORST CASE COMPONENT AND OPERATING ENVIRONMENTAL SPECIFICATIONS SUCH THAT ITS SPECIFIED PERFORMANCE REQUIREMENTS ARE MET AT ALL TIMES.

PREPARED BY: MFWG SUPERCEDING DATE: NONE DATE: 11 JUL 91 CIL REV: 0

CRITICAL ITEMS LIST

PROJECT: SRMS (-5 MCIU INSTALLED) SYSTEM: ELECTRICAL SUBSYSTEM
ASS'Y NOMENCLATURE: MCIU ASS'Y P/N: 51T55F160-5 SHEET: 3

FMEA REF.	FMEA REV.	NAME, QTY, & DRAWING REF. DESIGNATION	FAILURE MODE AND CAUSE	FAILURE EFFECT ON END ITEM	HDWR / FUNC. 2/1R CRITICALITY — RATIONALE FOR ACCEPTANCE SCREENS: A-PASS, B-PASS, C-PASS
2475	0	POWER CONDITIONER QTY-1 SCHEMATICS 812798 815444 2559054	MODE: LOSS OF +12V RAIL. CAUSE(S): (1) O/C OUTPUT INDUCTOR.	CPU WILL BE RE-INITIALIZED DUE TO NMI. LOSS OF COMMUNICATION WITH ABE, GPC AND D&C. GPC WILL STOP COMMUNICATIONS AFTER TWO GPC CYCLES. AUTOBRAKES. ARM COMES TO REST. LOSS OF COMPUTER SUPPORTED MODES. D&C INITIATES AUTO SAFING. LAMP TEST LOST. LOSS OF LIMPING DURING END EFFECTOR CAPTURE. LOSS OF EE AUTO DRIVE MODE. EE AUTO SEQUENCE IN PROGRESS WILL STOP. EE MANUAL DRIVE MODE IS STILL AVAILABLE. WORST CASE --- UNEXPECTED MOTION. SIX JOINT RUNAWAY. AUTOBRAKES. REDUNDANT PATHS REMAINING --- 1) AUTOBRAKES (FOR SAFING THE SYSTEM). 2) DIRECT DRIVE AND EE MANUAL MODE (FOR CONTINUING OPERATIONS).	ACCEPTANCE TESTS --- THE MCIU IS SUBJECTED TO THE FOLLOWING ACCEPTANCE ENVIRONMENTAL TESTING AS AN LRU. O VIBRATION: LEVEL AND DURATION - REFERENCE TABLE 3.2 O THERMAL: +40 DEGREES C TO -16 DEGREES C (2 CYCLES) QUALIFICATION TESTS --- THE MCIU IS SUBJECTED TO THE FOLLOWING LRU QUALIFICATION ENVIRONMENTS: O VIBRATION: LEVEL AND DURATION - REFERENCE TABLE 3.2 O SHOCK: BY SIMILARITY TO -3 MCIU O THERMAL: +51 DEGREES C TO -27 DEGREES C (10 CYCLES) O HUMIDITY: BY SIMILARITY TO -3 MCIU O EMC: MIL-STD-461 AS MODIFIED BY SL-E-0002 (TESTS CE01, CE03, CS01, CS02, CS06, RE02 (N/B), RS01, RS02 O LIFE: 630 OPERATING HOURS 1000 POWER ON/OFF CYCLES FLIGHT CHECKOUT --- PDRS OPS CHECKLIST (ALL VEHICLES) JSC 16987

PREPARED BY: MEWG SUPERCEDING DATE: NONE DATE: 11 JUL 91 CIL REV: 0

CRITICAL ITEMS LIST

PROJECT: SRMS (-5 MCIU INSTALLED) SYSTEM: ELECTRICAL SUBSYSTEM
ASS'Y NOMENCLATURE: MCIU ASS'Y P/N: 51T55T160-5 SHEET: 4

FMEA REF.	FMEA REV.	NAME, QTY, & DRAWING REF. DESIGNATION	FAILURE MODE AND CAUSE	FAILURE EFFECT ON END ITEM	HDWR / FUNC. 2/1R CRITICALITY — RATIONALE FOR ACCEPTANCE SCREENS: A-PASS, B-PASS, C-PASS
2475	0	POWER CONDITIONER QTY-1 SCHEMATICS 812798 815444 2559054	MODE: LOSS OF +12V RAIL. CAUSE(S): (1) O/C OUTPUT INDUCTOR.	CPU WILL BE RE-INITIALIZED DUE TO NMI. LOSS OF COMMUNICATION WITH ABE, GPC AND D&C. GPC WILL STOP COMMUNICATIONS AFTER TWO GPC CYCLES. AUTOBRAKES. ARM COMES TO REST. LOSS OF COMPUTER SUPPORTED MODES. D&C INITIATES AUTO SAFING. LAMP TEST LOST. LOSS OF LIMPING DURING END EFFECTOR CAPTURE. LOSS OF EE AUTO DRIVE MODE. EE AUTO SEQUENCE IN PROGRESS WILL STOP. EE MANUAL DRIVE MODE IS STILL AVAILABLE. WORST CASE ---------- UNEXPECTED MOTION. SIX JOINT RUNAWAY. AUTOBRAKES. REDUNDANT PATHS REMAINING ---------- 1) AUTOBRAKES (FOR SAFING THE SYSTEM). 2) DIRECT DRIVE AND EE MANUAL MODE (FOR CONTINUING OPERATIONS).	QA/INSPECTIONS ---------- DOCUMENTED QUALITY CONTROLS ARE EXERCISED THROUGHOUT DESIGN PROCUREMENT, PLANNING, RECEIVING, PROCESSING FABRICATION, ASSEMBLY, TESTING AND SHIPPING OF THE MCIU. GOVERNMENT SOURCE INSPECTION IS INVOKED AT VARIOUS LEVELS OF COMPONENT ASSEMBLY AND TEST OPERATIONS. MANDATORY INSPECTION POINTS ARE EMPLOYED AT VARIOUS LEVELS OF ASSEMBLY AND TEST. EEE PARTS INSPECTION IS PERFORMED AS REQUIRED BY SPAR-RMS-PA.003. EACH EEE PART IS QUALIFIED AT THE PART LEVEL TO THE REQUIREMENTS OF THE APPLICABLE SPECIFICATION. ALL EEE PARTS ARE 100% SCREENED AND BURNED IN, AS A MINIMUM, AS REQUIRED BY SPAR-RMS-PA.003, BY THE SUPPLIER. ADDITIONALLY, EEE PARTS ARE 100% RE-SCREENED IN ACCORDANCE WITH REQUIREMENTS, BY AN INDEPENDENT SPAR APPROVED TESTING FACILITY. DPA IS PERFORMED AS REQUIRED BY PA.003 ON A RANDOMLY SELECTED 5% OF PARTS, MAXIMUM 5 PIECES, MINIMUM 3 PIECES FOR EACH LOT NUMBER/DATE CODE OF PARTS RECEIVED. WIRE IS PROCURED, INSPECTED, AND TESTED TO SPAR-RMS-PA.003. RECEIVING INSPECTION VERIFIES THAT ALL PARTS RECEIVED ARE AS IDENTIFIED IN THE PROCUREMENT DOCUMENTS, THAT NO PHYSICAL DAMAGE HAS OCCURRED TO PARTS DURING SHIPMENT, THAT THE RECEIVING DOCUMENTS PROVIDE ADEQUATE TRACEABILITY INFORMATION AND SCREENING DATA CLEARLY IDENTIFIES ACCEPTABLE PARTS. PARTS ARE INSPECTED THROUGHOUT MANUFACTURE AND ASSEMBLY AS APPROPRIATE TO THE MANUFACTURING STAGE COMPLETED. THESE INSPECTIONS INCLUDE, PRINTED CIRCUIT BOARD INSPECTION FOR TRACK SEPARATION, DAMAGE AND ADEQUACY OF PLATED THROUGH HOLES, COMPONENT MOUNTING INSPECTION FOR CORRECT SOLDERING, WIRE LOOPING, STRAPPING, ETC. OPERATORS AND INSPECTORS ARE TRAINED AND CERTIFIED TO NASA NHB 5300.4(3A-1) STANDARD. CONFORMAL COATING INSPECTION FOR ADEQUATE PROCESSING IS PERFORMED USING ULTRAVIOLET LIGHT TECHNIQUES. POST P.C. BD. INSTALLATION INSPECTION, CLEANLINESS AND WORKMANSHIP (SPAR/GOVERNMENT REP. MANDATORY INSPECTION POINT) P.C. BD. INSTALLATION INSPECTION, CHECK FOR CORRECT BOARD INSTALLATION, ALIGNMENT OF BOARDS, PROPER CONNECTOR CONTACT MATING, WIRE ROUTING, STRAPPING OF WIRES ETC., PRE-CLOSURE INSPECTION, WORKMANSHIP AND CLEANLINESS (SPAR/GOVERNMENT REP. - MANDATORY INSPECTION POINT) PRE-ACCEPTANCE TEST INSPECTION, WHICH INCLUDES AN AUDIT OF LOWER TIER INSPECTION COMPLETION, AS BUILT CONFIGURATION VERIFICATION TO AS DESIGN ETC., (MANDATORY INSPECTION POINT). A TEST READINESS REVIEW (TRR) WHICH INCLUDES VERIFICATION OF TEST PERSONNEL, TEST DOCUMENTS, TEST EQUIPMENT CALIBRATION/ VALIDATION STATUS AND HARDWARE CONFIGURATION IS CONVENED BY

PREPARED BY: MFWG SUPERCEDING DATE: NONE

DATE: 11 JUL 91 CIL REV: 0

CRITICAL ITEMS LIST

PROJECT: SRMS (-5 MCIU INSTALLED) SYSTEM: ELECTRICAL SUBSYSTEM
ASS'Y NOMENCLATURE: MCIU ASS'Y P/N: 51155F160-5 SHEET: 5

FMEA REF.	FMEA REV.	NAME, QTY, & DRAWING REF. DESIGNATION	FAILURE MODE AND CAUSE	FAILURE EFFECT ON END ITEM	HDWR / FUNC. 2/1R CRITICALITY	RATIONALE FOR ACCEPTANCE SCREENS: A-PASS, B-PASS, C-PASS
2475	0	POWER CONDITIONER QTY-1 SCHEMATICS 812790 815444 2559054	MODE: LOSS OF +12V RAIL. CAUSE(S): (1) O/C OUTPUT INDUCTOR.	CPU WILL BE RE-INITIALIZED DUE TO NMI. LOSS OF COMMUNICATION WITH ABE, GPC AND D&C. GPC WILL STOP COMMUNICATIONS AFTER TWO GPC CYCLES. AUTOBRAKES. ARM COMES TO REST. LOSS OF COMPUTER SUPPORTED MODES. D&C INITIATES AUTO SAFING. LAMP TEST LOST. LOSS OF LIMPING DURING END EFFECTOR CAPTURE. LOSS OF EE AUTO DRIVE MODE. EE AUTO SEQUENCE IN PROGRESS WILL STOP. EE MANUAL DRIVE MODE IS STILL AVAILABLE. WORST CASE --- UNEXPECTED MOTION. SIX JOINT RUNAWAY. AUTOBRAKES. REDUNDANT PATHS REMAINING --- 1) AUTOBRAKES (FOR SAFING THE SYSTEM). 2) DIRECT DRIVE AND EE MANUAL MODE (FOR CONTINUING OPERATIONS).		QUALITY ASSURANCE IN CONJUNCTION WITH ENGINEERING, RELIABILITY, CONFIGURATION CONTROL, SUPPLIER AS APPLICABLE, AND THE GOVERNMENT REPRESENTATIVE, PRIOR TO THE START OF ANY FORMAL TESTING (ACCEPTANCE OR QUALIFICATION). ACCEPTANCE TESTING (ATP) INCLUDES AMBIENT, VIBRATION, AND THERMAL TESTING (SPAR/GOVERNMENT REP. - MANDITORY INSPECTION POINT).

PREPARED BY: MFWG SUPERCEDING DATE: NONE DATE: 11 JUL 91 CIL REV: 0

EXPEDITE PROCESSING

CRITICAL ITEMS LIST

PROJECT: SRMS (-5 MCIU INSTALLED) SYSTEM: ELECTRICAL SUBSYSTEM
ASS'Y NOMENCLATURE: MCIU ASS'Y P/N: 51155F160-5 SHEET: 6

FMEA REF.	FMEA REV.	NAME, QTY, & DRAWING REF. DESIGNATION	FAILURE MODE AND CAUSE	FAILURE EFFECT ON END ITEM	HDWR / FUNC. 2/1R CRITICALITY — RATIONALE FOR ACCEPTANCE SCREENS: A-PASS, B-PASS, C-PASS
2475	0	POWER CONDITIONER QTY-1 SCHEMATICS 812798 815444 2559054	MODE: LOSS OF +12V RAIL. CAUSE(S): (1) O/C OUTPUT INDUCTOR.	CPU WILL BE RE-INITIALIZED DUE TO NMI. LOSS OF COMMUNICATION WITH ABE, GPC AND D&C. GPC WILL STOP COMMUNICATIONS AFTER TWO GPC CYCLES. AUTOBRAKES. ARM COMES TO REST. LOSS OF COMPUTER SUPPORTED MODES. D&C INITIATES AUTO SAFING. LAMP TEST LOST. LOSS OF LIMPING DURING END EFFECTOR CAPTURE. LOSS OF EE AUTO DRIVE MODE. EE AUTO SEQUENCE IN PROGRESS WILL STOP. EE MANUAL DRIVE MODE IS STILL AVAILABLE. WORST CASE ---------- UNEXPECTED MOTION. STA JOINT RUNAWAY. AUTOBRAKES. REDUNDANT PATHS REMAINING ---------- 1) AUTOBRAKES (FOR SAFING THE SYSTEM). 2) DIRECT DRIVE AND EE MANUAL MODE (FOR CONTINUING OPERATIONS).	FAILURE HISTORY ---------- THERE HAVE BEEN NO FAILURES ASSOCIATED WITH THIS FAILURE MODE ON THE SRMS PROGRAM.

PREPARED BY: MFMG SUPERCEDING DATE: NONE DATE: 11 JUL 91 CTL REV: 0

CRITICAL ITEMS LIST

PROJECT: SRMS (-5 MCIU INSTALLED) SYSTEM: ELECTRICAL SUBSYSTEM
ASS'Y NOMENCLATURE: MCIU ASS'Y P/N: 511555F160-5 SHEET: 7

FMEA REF.	FMEA REV.	NAME, QTY, & DRAWING REF. DESIGNATION	FAILURE MODE AND CAUSE	FAILURE EFFECT ON END ITEM	HDWR / FUNC. 2/1R CRITICALITY — RATIONALE FOR ACCEPTANCE SCREENS: A-PASS, B-PASS, C-PASS
2475	0	POWER CONDITIONER QTY-1 SCHEMATICS 812798 815444 2559054	MODE: LOSS OF +12V RAIL. CAUSE(S): (1) O/C OUTPUT INDUCTOR.	CPU WILL BE RE-INITIALIZED DUE TO NMI. LOSS OF COMMUNICATION WITH ABE, GPC AND D&C. GPC WILL STOP COMMUNICATIONS AFTER TWO GPC CYCLES. AUTOBRAKES. ARM COMES TO REST. LOSS OF COMPUTER SUPPORTED MODES. D&C INITIATES AUTO SAFING. LAMP TEST LOST. LOSS OF LIMPING DURING END EFFECTOR CAPTURE. LOSS OF EE AUTO DRIVE MODE. EE AUTO SEQUENCE IN PROGRESS WILL STOP. EE MANUAL DRIVE MODE IS STILL AVAILABLE. WORST CASE --- UNEXPECTED MOTION. SIX JOINT RUNAWAY. AUTOBRAKES. REDUNDANT PATHS REMAINING --- 1) AUTOBRAKES (FOR SAFING THE SYSTEM). 2) DIRECT DRIVE AND EE MANUAL MODE (FOR CONTINUING OPERATIONS).	OPERATIONAL EFFECT --- LOSS OF DATA. AUTOBRAKES. LOSS OF COMPUTER SUPPORTED MODES. LOSS OF LIMPING. LOSS OF EE AUTO MODES. D&C DATA WILL BE INVALID. DIRECT DRIVE AND BACKUP AVAILABLE. EE MODE MANUAL AVAILABLE WITHOUT TALKBACKS. CREW ACTION --- SELECT DIRECT DRIVE. USE EE MODE MANUAL. SINGLE/DIRECT DRIVE SWITCH SHOULD BE PULSED TO MAINTAIN PROPER RATES. CREW TRAINING --- CREW IS TRAINED: TO ALWAYS OBSERVE WHETHER THE ARM IS RESPONDING PROPERLY TO COMMANDS. IF IT ISN'T, APPLY BRAKES. TO RECOGNIZE AND RESPOND TO ALL OFF-NOMINAL OPERATIONS OF THE END EFFECTOR. MISSION CONSTRAINT --- OPERATE UNDER VERNIER RATES WITHIN 10 FT OF STRUCTURE. THE OPERATOR MUST BE ABLE TO DETECT THAT THE ARM/PAYLOAD IS RESPONDING PROPERLY TO COMMANDS VIA WINDOW AND/OR CCTV VIEWS DURING ALL ARM OPERATIONS.

PREPARED BY: MFWG SUPERCEDING DATE: NONE DATE: 11 JUL 91 CIL REV: 0

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CRITICAL ITEMS LIST

PROJECT: SRMS (-5 MCIU INSTALLED) SYSTEM: ELECTRICAL SUBSYSTEM
ASS'Y NOMENCLATURE: MCIU ASS'Y P/N: 5T1555F160-5 SHEET: 8

FMEA REF.	FMEA REV.	NAME, QTY, & DRAWING REF. DESIGNATION	FAILURE MODE AND CAUSE	FAILURE EFFECT ON END ITEM	HDWR / FUNC. 2/1R CRITICALITY	RATIONALE FOR ACCEPTANCE SCREENS: A-PASS, B-PASS, C-PASS
2475	0	POWER CONDITIONER QTY-1 SCHEMATICS 812798 815444 2559054	MODE: LOSS OF +12V RAIL. CAUSE(S): (1) O/C OUTPUT INDUCTOR.	CPU WILL BE RE-INITIALIZED DUE TO NMI. LOSS OF COMMUNICATION WITH ABE, GPC AND D&C. GPC WILL STOP COMMUNICATIONS AFTER TWO GPC CYCLES. AUTOBRAKES. ARM COMES TO REST. LOSS OF COMPUTER SUPPORTED MODES. D&C INITIATES AUTO SAFING. LAMP TEST LOST. LOSS OF LIMPING DURING END EFFECTOR CAPTURE. LOSS OF EE AUTO DRIVE MODE. EE AUTO SEQUENCE IN PROGRESS WILL STOP. EE MANUAL DRIVE MODE IS STILL AVAILABLE. WORST CASE ---------- UNEXPECTED MOTION. SIX JOINT RUNAWAY. AUTOBRAKES. REDUNDANT PATHS REMAINING ---------- 1) AUTOBRAKES (FOR SAFING THE SYSTEM). 2) DIRECT DRIVE AND EE MANUAL MODE (FOR CONTINUING OPERATIONS).	SCREEN FAILURES ---------- N/A

PREPARED BY: MFMG SUPERCEDING DATE: NONE DATE: 11 JUL 91 CIL REV: 0

CRITICAL ITEMS LIST

PROJECT: SRMS (-5 MCIU INSTALLED) SYSTEM: ELECTRICAL SUBSYSTEM
ASS'Y NOMENCLATURE: MCIU ASS'Y P/N: S1155F160-5 SHEET: 9

FMEA REF.	FMEA REV.	NAME, QTY, & DRAWING REF. DESIGNATION	FAILURE MODE AND CAUSE	FAILURE EFFECT ON END ITEM	HDWR / FUNC. 2/1R CRITICALITY — RATIONALE FOR ACCEPTANCE SCREENS: A-PASS, B-PASS, C-PASS
2475	0	POWER CONDITIONER QTY-1 SCHEMATICS 812798 815444 2559054	MODE: LOSS OF +12V RAIL. CAUSE(S): (1) D/C OUTPUT INDUCTOR.	CPU WILL BE RE-INITIALIZED DUE TO NMI. LOSS OF COMMUNICATION WITH ABE, GPC AND D&C. GPC WILL STOP COMMUNICATIONS AFTER TWO GPC CYCLES. AUTOBRAKES. ARM COMES TO REST. LOSS OF COMPUTER SUPPORTED MODES. D&C INITIATES AUTO SAFING. LAMP TEST LOST. LOSS OF LIMPING DURING END EFFECTOR CAPTURE. LOSS OF EE AUTO DRIVE MODE. EE AUTO SEQUENCE IN PROGRESS WILL STOP. EE MANUAL DRIVE MODE IS STILL AVAILABLE. WORST CASE --- UNEXPECTED MOTION. SIX JOINT RUNAWAY. AUTOBRAKES. REDUNDANT PATHS REMAINING --- 1) AUTOBRAKES (FOR SAFING THE SYSTEM). 2) DIRECT DRIVE AND EE MANUAL MODE (FOR CONTINUING OPERATIONS).	OMRSD OFFLINE --- VARY INPUT VOLTAGE TO MCIU. VERIFY THE REGULATED VOLTAGES AT OUTPUT OF MCIU. OMRSD ONLINE INSTALLATION --- NONE OMRSD ONLINE TURNAROUND --- MONITOR MCPC BITE. VERIFY ABSENCE OF BITE BITS.

PREPARED BY: MFWG SUPERCEDING DATE: NONE DATE: 11 JUL 91 CIL REV: 0

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