

CRITICAL ITEMS LIST

PROJECT: RMS C-5 M (INSTALLED)  
 ASS'Y NON-RECYCLED

SYSTEM: ELECTRICAL MONITORING  
 ASS'Y PART 21152161-2

SHEET: 1

PMA REF.	PMA REV.	NAME, QTY, & DRAWING REF. DESIGNATION	FAILURE MODE AND CAUSE	FAILURE EFFECT AND END ITEM	HOW / FUNC. CRITICALITY	RATIONALE FOR ACCEPTANCE
1945	D	DIGITAL INTERFACE QTY. 1. SCHEMATIC B12796	<p>NOTE: CORRUPT DATA TRANSFER TO/FROM 98C</p> <p>CAUSE(S):                      1) SERIAL OUTPUT CIRCUIT FAILS LOW.                      2) SERIAL TO PARALLEL CONVERSION CIRCUIT FAILS.                      3) ADDRESS BIT OF INPUT TO PARALLEL TO SERIAL CONVERSION CIRCUIT FAILS.</p>	<p>LOSS OF COMMUNICATION WITH 98C INTERFACE WILL INITIATE 98C COMMUNICATION FAILURE DETECTION. AUTOMATED. AAR COMES TO REST. CPC GOES INTO SILE MODE. LOSS OF COMPUTER SUPPORTED MODES. ARE COMMUNICATION PATH REMAINS OPERABLE. LOSS OF LIMPING DURING EMP EFFECTOR CAPTURE.</p> <p>IF 98C RESPONSE OR COMMAND BITS ARE CORRUPT: ONE OR MORE 98C COMMANDS MAY FAIL OR. 98C MAY OR COMMANDS AS SOON AS 98C MODE SWITCH SET TO AUTO.</p> <p>FOR CAUSE 1: 98C COMMAND DATA FAILS TO ALL "0" AND RESPONSE DATA IS CORRUPT.</p> <p>FOR CAUSE 2: 98C RESPONSE DATA BIT FAILS TO "1".</p> <p>FOR CAUSE 3: 98C COMMAND ADDRESS BIT FAILS TO "0" OR "1". 98C RESPONSE DATA IS CORRUPT.</p> <p>Worst Case                      -----                      UNEXPECTED PAYLOAD</p>	<p>DESIGN FEATURES</p> <p>98C PARTS HAVE BEEN SELECTED AND CONTROLLED IN ACCORDANCE WITH SPAR-RMS-PA.003. THIS DOCUMENT DEFINES THE PROGRAM REQUIREMENTS FOR MONITORING AND CONTROLLING 98C 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 GENERALLY 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-SC.588 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. 98C PARTS STRESS ANALYSIS HAS BEEN COMPLETED AND CONFIRMS THAT THE PARTS MEET THE OPERATING REQUIREMENTS.</p> <p>PRINTED CIRCUIT BOARD DESIGNS HAVE BEEN REVIEWED TO ENSURE ADEQUATE CIRCUIT PAIR WIDTH AND SEPARATION, AND TO CONFIRM APPROPRIATE DIMENSIONS OF CIRCUIT SOLDER PADS AND OF COMPONENT HOLE PROVISIONS.</p> <p>PARTS MOUNTING METHODS ARE CONTROLLED IN ACCORDANCE WITH NSFC-STD-134 WHICH DEFINES APPROVED MOUNTING METHODS, STRESS RELIEF, AND COMPONENT SECURITY.</p> <p>WHERE APPLICABLE, DESIGN DRAWINGS AND DOCUMENTATIONS HAVE CLEAR IDENTIFICATION OF HANDLING PRECAUTIONS FOR ESD SENSITIVE PARTS.</p> <p>BOARD ASSEMBLY DRAWINGS INCLUDE THE REQUIREMENTS FOR SOLDERING STANDARDS IN ACCORDANCE WITH NHB 5300.4(3) AND JSC 60000.</p> <p>DISCRETE SEMICONDUCTOR DEVICES SPECIFIED TO AT LEAST THE IN LEVEL OF MIL-S-19500. ALL DEVICES ARE SUBJECT TO RE-SCREENING BY AN INDEPENDENT TEST HOUSE. SAMPLES OF ALL PRODUCTION LOT/DATE CODES ARE SUBJECT 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.</p> <p>THE DESIGN UTILIZES PROVEN CIRCUIT TECHNIQUES AND IS IMPLEMENTED USING TTL AND CMOS LOGIC DEVICES.</p> <p>CMOS DEVICES OPERATE AT LOW POWER AND HENCE DO NOT EXPERIENCE SIGNIFICANT OPERATING STRESSES. THE TECHNOLOGY IN MAKING, AND DEVICE RELIABILITY HISTORY IS WELL DOCUMENTED. ALL STRESSES ARE ADDITIONALLY REDUCED BY DERATING THE APPROPRIATE PARAMETERS IN ACCORDANCE WITH SPAR-RMS-PA.003. SPECIAL HANDLING PRECAUTIONS ARE USED AT ALL STAGES OF MANUFACTURE TO PRECLUDE DAMAGE/STRESS DUE TO ELECTROSTATIC DISCHARGE.</p> <p>DESIGN, CONSTRUCTION, AND PHYSICAL DIMENSIONS ARE AS SPECIFIED</p>	

PREPARED BY:

MWG

SUPERSEDED DATE:

NONE

DATE: 11 JUL 91

CIL REV: D

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EXPEDITE PROCESSING

**CRITICAL ITEMS LIST**

PROJECT: RMS (3 MCW INSTALLED)  
 RMS'9 NOMENCLATURE: NEW

SYSTEM: ELECTRICAL SUBSYSTEM  
 ASSY P/N: 2102100-3 SHEET 1

PRC# REF.	PRC# REV.	NAME, QTY & DRAWING REF. DESTINATION	FAILURE MODE AND CAUSE	FAILURE EFFECT AND P/N	HOW / P.N.C. IDENTIFIED	RATIONALE FOR ACCEPTANCE
1945	0	DIGITAL INTERFACE QTY: 1 SCHEMATIC B12796	MODE: CORRUPT DATA TRANSFER TO/FROM DEC  CAUSE(S): 1) SERIAL OUTPUT CIRCUIT FAILS LOW. 2) SERIAL TO PARALLEL CONVERSION CIRCUIT FAILS. 3) ADDRESS BIT OF INPUT TO SERIAL CONVERSION CIRCUIT FAILS.	MOTION, UNCOMMANDS END EFFECTOR AUTO RELEASE SEQUENCE IF NO CREW ACTION REQUIRED. ANNUNCIATED.  REDUNDANT PATHS REMAINING ----- 1) AUTOMANUAL AND RE MODE SWITCH (FOR SAVING THE SYSTEM) 2) DIRECT DRIVE AND RE MANUAL MODES (FOR CONTINUOUS OPERATIONS)	MODE SET TO AUTO.	IN MIL-H-38510 B. SAMPLING INSPECTION AND SCREENING ARE CONDUCTED ACCORDING TO MIL-STD-883 METHODS 5003 AND 5004.

PREPARED BY: HPMG SUPERSEDING DATE: NONE

DATE: 11 JUL 91 CIL REVI 0

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**CRITICAL ITEMS LIST**

PROJECT: RMS (5 MCIU INSTALLED)  
 ASS'Y NOMENCLATURE: MCIU

SYSTEM: ELECTRICAL POSITION  
 ASS'Y P/N: 21152100-5 SHEET 1

PMEA REF.	PMEA REV.	NAME BY DRAWING NO. DESIGNATION	FAILURE MODE AND CAUSE	FAILURE EFFECT OR OTHER	HOW / FUNC. LIMITED BY RATIONALE FOR ACCEPTANCE SCREENING: 400 A, 1000 B, 1000 C
1945	0	DIGITAL INTERFACE QTY. 1. SCHEMATIC 812796	MODE: CORRUPT DATA TRANSFER TO/FROM OBC  CAUSE(S): 1) SERIAL OUTPUT CIRCUIT FAILS LOW. 2) SERIAL TO PARALLEL CONVERSION CIRCUIT FAILS. 3) ADDRESS BIT OF INPUT TO PARALLEL TO SERIAL CONVERSION CIRCUIT FAILS.	LOSS OF COMMUNICATION WITH OBC INTERFACE WILL INITIATE OBC COMMUNICATION FAILURE DETECTION. AUTOCRAKES. ARM COMES TO REST. OBC GOES INTO IDLE MODE. LOSS OF COMPUTER SUPPORTED MODES. ARE COMMUNICATION PATH REMAINS OPERABLE. LOSS OF LIMPING DURING END EFFECTOR CAPTURE.  IF OBC RESPONSE RE COMMAND BITS ARE CORRUPT: ONE OR MORE RE COMMANDS MAY FAIL ON. EE MAY BE COMMANDED AS SOON AS EE MODE SWITCH SET TO AUTO.  FOR CAUSE 1: OBC COMMAND DATA FAILS TO ALL "0" AND RESPONSE DATA IS CORRUPT.  FOR CAUSE 2: OBC RESPONSE DATA BIT FAILS TO "1".  FOR CAUSE 3: OBC COMMAND ADDRESS BIT FAILS TO "0" OR "1". OBC RESPONSE DATA IS CORRUPT.  WORST CASE UNEXPECTED PAYLOAD	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 DL-8-8802 (TESTS: CE81, CE85, CS01, CS02, CS06, RE02 (R/F), RS01, RS02) O LIFE: 430 OPERATING HOURS 1800 POWER ON/OFF CYCLES  FLIGHT CHECKOUT PDRS OPS CHECKLIST (ALL VEHICLES) JSC 10987

PREPARED BY: MFNG SUPERSEDING DATE: NONE

DATE: 11 JUL 99 CIL REV: 0

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**CRITICAL ITEMS LIST**

PROJECT: SRMS 1-5 MCIU INSTALLED  
 ASSY NOMENCLATURE: MCIU

SYSTEM: ELECTRICAL SUBSYSTEM  
 ASSY P/N: 51122160-2

SHEET: 4

FMEA REF.	FMEA REV.	NAME, QTY & DRAWING REF. DESIGNATION	FAILURE MODE AND CAUSE	FAILURE EFFECT OR END ITEM	HOW / FUNC. CRT 2/12 CRITICALITY RATIONALE FOR ACCEPTANCE SCREENS: MTR A-700, B-PASS, C-PASS
1965	0	DIGITAL INTERFACE QTY. 1. SCHEMATIC 812796	<p>MODE: CORRUPT DATA TRANSFER TO/FROM D/C</p> <p>CAUSE(S):                      1) SERIAL OUTPUT CIRCUIT FAILS LOW.                      2) SERIAL TO PARALLEL CONVERSION CIRCUIT FAILS.                      3) ADDRESS BIT OF INPUT TO PARALLEL TO SERIAL CONVERSION CIRCUIT FAILS.</p>	<p>NOTION. UNCOMMANDS END EFFECTOR AUTO RELEASE SEQUENCE, IF EEY CREW ACTION REQUIRED. ANNUNCIATED.</p> <p>REUNDANT PATHS REMAINING</p> <p>SPAR</p> <p>1) AUTOBRAKES AND DE MODE SWITCH (FOR SAVING THE SYSTEM).</p> <p>2) DIRECT DRIVE AND RE MANUAL MODES (FOR CONTINUING OPERATIONS)</p>	<p>DA/INSPECTIONS</p> <p>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.</p> <p>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.</p> <p>M/E IS PROCURED, INSPECTED, AND TESTED TO SPAR-RMS-PA.003.</p> <p>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.</p> <p>PARTS ARE INSPECTED THROUGHOUT MANUFACTURE AND ASSEMBLY AS APPROPRIATE TO THE MANUFACTURING STAGE COMPLETED. THESE INSPECTIONS INCLUDE:</p> <p>PRINTED CIRCUIT BOARD INSPECTION FOR TRACK SEPARATION, DAMAGE AND ADEQUACY OF PLATED THROUGH HOLES,</p> <p>COMPONENT MOUNTING INSPECTION FOR CORRECT SOLDERING, WIRE LOOPING, STRAPPING, ETC. OPERATORS AND INSPECTORS ARE TRAINED AND CERTIFIED TO NASA WH 5100.4(3A-1) STANDARD.</p> <p>CONFORMAL COATING INSPECTION FOR ADEQUATE PROCESSING IS PERFORMED USING ULTRAVIOLET LIGHT TECHNIQUES.</p> <p>POST P.C. BD. INSTALLATION INSPECTION, CLEANLINESS AND WORKMANSHIP (SPAR/GOVERNMENT REP. MANDATORY INSPECTION POINT)</p> <p>P.C. BD. INSTALLATION INSPECTION, CHECK FOR CORRECT BOARD INSTALLATION, ALIGNMENT OF BOARDS, PROPER CONNECTOR CONTACT MATING, WIRE ROUTING, STRAPPING OF WIRES ETC.,</p> <p>PRE-CLOSURE INSPECTION, WORKMANSHIP AND CLEANLINESS (SPAR/GOVERNMENT REP. - MANDATORY INSPECTION POINT)</p> <p>PRE-ACCEPTANCE TEST INSPECTION, WHICH INCLUDES AN AUDIT OF LOWER TIER INSPECTION COMPLETION, AS BUILT CONFIGURATION VERIFICATION TO AS DESIGN ETC., (MANDATORY INSPECTION POINT).</p> <p>A TEST READINESS REVIEW (TRR) WHICH INCLUDES VERIFICATION OF TEST PERSONNEL, TEST DOCUMENTS, TEST EQUIPMENT CALIBRATION/ VALIDATION STATUS AND HARDWARE CONFIGURATION IS CONDUCTED BY</p>

PREPARED BY: MEVG SUPERSEDING DATE: NONE

DATE: 11 JUL 91 CIL REV: 0

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**CRITICAL ITEMS LIST**

PROJECT: RMS 1-5 (CIVIL INSTALLED)  
 ASSY NOMENCLATURE: ECU

SYSTEM: ELECTRICAL SUBSYSTEM  
 ASSY P/N: 21152100-2 SHEET: 5

FMEA REF.	FMEA REV.	NAME, QTY, & DRAWING REF. DESIGNATION	FAILURE MODE AND CAUSE	FAILURE EFFECT ON END ITEM	HOW / FUNC. CRITICALITY RATIONALE FOR ACCEPTANCE SCREENS: <u>WPP, D-PASS, E, PMS, F-7000</u>
1945	D	DIGITAL INTERFACE QTY. 1. SCHEMATIC B12796	MODE: CORRUPT DATA TRANSFER TO/FROM D&C  CAUSE(S): 1) SERIAL OUTPUT CIRCUIT FAILS LOW. 2) SERIAL TO PARALLEL CONVERSION CIRCUIT FAILS. 3) ADDRESS BIT OF INPUT TO PARALLEL TO SERIAL CONVERSION CIRCUIT FAILS.	LOSS OF COMMUNICATION WITH D&C INTERFACE WILL INITIATE D&C COMMUNICATION FAILURE DETECTION. AUTOBRAKES. ARM COMES TO REST. CPU GOES INTO IDLE MODE. LOSS OF COMPUTER SUPPORTED MODES. ABE COMMUNICATION PATH REMAINS OPERABLE. LOSS OF LIMPING DURING END EFFECTOR CAPTURE.  IF D&C RESPONSE OR COMMAND BITS ARE CORRUPT: ONE OR MORE OR COMMANDS MAY FAIL ON. EE MAY BE COMMANDED AS SOON AS EE MODE SWITCH SET TO AUTO.  FOR CAUSE 1: D&C COMMAND DATA FAILS TO ALL "0"'S, AND RESPONSE DATA IS CORRUPT.  FOR CAUSE 2: D&C RESPONSE DATA BIT FAILS TO "1".  FOR CAUSE 3: D&C COMMAND ADDRESS BIT FAILS TO "0" OR "1". D&C RESPONSE DATA IS CORRUPT.  WORS1 CASE UNEXPECTED PAYLOAD	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. - MANDATORY INSPECTION POINT).

PREPARED BY: HMG SUPERCEDING DATE: NONE

DATE: 11 JUN 91 CIL REV: 0

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**CRITICAL ITEMS LIST**

PROJECT: SRMS (-5 MCIU INSTALLED)  
 ASS'Y NOMENCLATURE: DCIU

SYSTEM: ELECTRICAL SUBSYSTEM  
 ASS'Y P/N: 21152100-3

SHEET: 6

FMEA REF.	FMEA REV.	NAME, QTY, & DRAWING REF. DESIGNATION	FAILURE MODE AND CAUSE	FAILURE EFFECT ON END ITEM	MODE / FUNC. CIPP, S/W, CRITICALITY	RATIONALE FOR ACCEPTANCE
1945	0	DIGITAL INTERFACE QTY. 1 SCHEMATIC 812794	<p>MODE: CORRUPT DATA TRANSFER TO/FROM DAC</p> <p>CAUSE(S):                      1) SERIAL OUTPUT CIRCUIT FAILS LOW.                      2) SERIAL TO PARALLEL CONVERSION CIRCUIT FAILS.                      3) ADDRESS BIT OF INPUT TO PARALLEL TO SERIAL CONVERSION CIRCUIT FAILS.</p>	<p>MISSION. UNCOMMANDED END EFFECTOR AUTO RELEASE SEQUENCE IF BE TMODE CREW ACTION REQUIRED, ANNUNCIATED.</p> <p>REDUNDANT PAIRS REMAINING</p> <p>-----                      -N/A-                      1) AUTOBRAKES AND BE TMODE SWITCH (FOR SAVING THE SYSTEM).                      2) DIRECT DRIVE AND EG MANUAL MODES (FOR CONTINUING OPERATIONS)</p>	<p>FAILURE HISTORY</p> <p>THERE HAVE BEEN NO FAILURES ASSOCIATED WITH THIS FAILURE MODE ON THE SRMS PROGRAM.</p>	<p>SCREENS: <del>ALL</del> A-1, A-2, A-3, A-4, A-5</p>

PREPARED BY: MEMO SUPERSEDING DATE: NONE

DATE: 11 JUL 91

CIR REV: 0

**EXPEDITE PROBLEMS**

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**CRITICAL ITEMS LIST**

PROJECT: RMS (S MCIU INSTALL)  
 ASS'Y NOMENCLATURE: MCIU

SYSTEM: ELECTRICAL SUBSYSTEM  
 ASS'Y P/N: 21152710-3

SHEET: 2

FMEA REF.	FMEA REV.	NAME, DTY, & DRAWING REF. DESIGNATION	FAILURE MODE AND CAUSE	FAILURE EFFECT ON END ITEM	HOW / FUNC. CRITICALITY	RATIONALE FOR ACCEPTANCE SCREENS: A-A-TALL, B-FALL, C-TALL
1945	0	DIGITAL INTERFACE DIV. 1. SCHEMATIC B12706	<p>MODE: CORRUPT DATA TRANSFER TO/FROM D&amp;C</p> <p>CAUSE(S): 1) SERIAL OUTPUT CIRCUIT FAILS LOW. 2) SERIAL TO PARALLEL CONVERSION CIRCUIT FAILS. 3) ADDRESS BIT OF INPUT TO PARALLEL TO SERIAL CONVERSION CIRCUIT FAILS.</p> <p>IF D&amp;C RESPONSE EE COMMAND BITS ARE CORRUPT: ONE OR MORE EE COMMANDS MAY FAIL ON. EE MAY BE COMMANDED AS SOON AS EE MODE SWITCH SET TO AUTO.</p> <p>FOR CAUSE 1: D&amp;C COMMAND DATA FAILS TO ALL "0"'S, AND RESPONSE DATA IS CORRUPT.</p> <p>FOR CAUSE 2: D&amp;C RESPONSE DATA BIT FAILS TO "1".</p> <p>FOR CAUSE 3: D&amp;C COMMAND ADDRESS BIT FAILS TO "0" OR "1". D&amp;C RESPONSE DATA IS CORRUPT.</p> <p>WORST CASE UNEXPECTED PAYLOAD</p>	<p>LOSS OF COMMUNICATION WITH D&amp;C INTERFACE WILL INITIATE D&amp;C COMMUNICATION FAILURE DETECTION. AUTOBRAKES. ARM COMES TO REST. OPC GOES INTO IDLE MODE. LOSS OF COMPUTER SUPPORTED MODES. ARM COMMUNICATION PATH REMAINS OPERABLE. LOSS OF LIMPING DURING END EFFECTOR CAPTURE.</p> <p>IF D&amp;C RESPONSE EE COMMAND BITS ARE CORRUPT: ONE OR MORE EE COMMANDS MAY FAIL ON. EE MAY BE COMMANDED AS SOON AS EE MODE SWITCH SET TO AUTO.</p> <p>FOR CAUSE 1: D&amp;C COMMAND DATA FAILS TO ALL "0"'S, AND RESPONSE DATA IS CORRUPT.</p> <p>FOR CAUSE 2: D&amp;C RESPONSE DATA BIT FAILS TO "1".</p> <p>FOR CAUSE 3: D&amp;C COMMAND ADDRESS BIT FAILS TO "0" OR "1". D&amp;C RESPONSE DATA IS CORRUPT.</p> <p>WORST CASE UNEXPECTED PAYLOAD</p>	<p>OPERATIONAL EFFECTS LOSS OF DATA. AUTOBRAKES. LOSS OF COMPUTER SUPPORTED MODES. LOSS OF LIMPING. POSSIBLE LOSS OF EE AUTO MODES. D&amp;C DATA MAY BE INVALID. DIRECT DRIVE AND BACKUP AVAILABLE. EE MODE MANUAL AVAILABLE POSSIBLY WITHOUT TALKBACKS.</p> <p>CREW ACTION SELECT DIRECT DRIVE. USE EE MODE MANUAL. SINGLE/DIRECT DRIVE SWITCH SHOULD BE PULSED TO MAINTAIN PROPER RATES.</p> <p>CREW TRAINING CREW IS TRAINED TO ALWAYS OBSERVE WHETHER THE ARM IS RESPONDING PROPERLY TO COMMANDS. IF BY BEN'T, APPLY BRAKES. TO RECOGNIZE AND RESPOND TO ALL OFF-NOMINAL OPERATIONS OF THE END EFFECTOR.</p> <p>MISSION CONSTRAINT EE MODE SWITCH SHOULD BE RETURNED TO THE OFF POSITION IMMEDIATELY AFTER SPEC DRIVE TIME HAS ELAPSED. OPERATE UNDER VERMIER 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.</p> <p>SCREEN FAILURES N/A</p> <p>DMRSB OFFLINE EXERCISE THE MCIU/D&amp;C DATA BUS. VERIFY NO D&amp;C COMM ERRORS.</p> <p>DMRSB ONLINE INSTALLATION NONE</p> <p>DMRSB ONLINE TURNAROUND EXERCISE THE MCIU/D&amp;C DATA BUS. VERIFY NO D&amp;C COMM ERRORS.</p>	

PREPARED BY:

MWG

SUPERSEDING DATE: NONE

DATE: 11 JUL 91

EIL REV: 0

**CRITICAL ITEMS LIST**

PROJECT: SRM 1-5 NEW INSTALLED  
 ASS'Y NOMENCLATURE: BLTU

SYSTEM: ELECTRICAL SUBSYSTEM  
 ASS'Y P/N: 21122100-2

SHEET: 8

FMEA REF.	FMEA REV.	NAME QTY & DRAWING REF. DESIGNATION	FAILURE MODE AND CAUSE	FAILURE EFFECT ON END ITEM	HOW / FUNC. EFF. 2/10 CRITICALITY	RATIONALE FOR ACCEPTANCE SCREENS: <u>200-A-PASS, B-PASS, C-PASS</u>
1045	0	DIGITAL INTERFACE QTY. 1. SCHEMATIC 012790	MODE: CORRUPT DATA TRANSFER TO/FROM DAC  CAUSE(S): 1) SERIAL OUTPUT CIRCUIT FAILS 10M. 2) SERIAL TO PARALLEL CONVERSION CIRCUIT FAILS. 3) ADDRESS BIT OF INPUT TO PARALLEL TO SERIAL CONVERSION CIRCUIT FAILS.	NOTION. UNCOMMANDED END EFFECTOR AUTO RELEASE SEQUENCE IF EE CREW ACTION REQUIRED. ANNUNCIATED.  REDUNDANT PATHS REMAINING ----- NOTE: 1) AUTHORIZED AND EE MODE SWITCH (FOR LEAVING THE SYSTEM) 2) DIRECT DRIVE AND EE MANUAL MODES (FOR CONTINUING OPERATIONS)	MODE SET TO AUTO.	

PREPARED BY: MMG

SUPERSEDING RATE: NONE

DATE: 19 JUL 91

CTL REV: 0

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