

CRITICAL ITEMS LIST

PROJECT: SRMS
ASS'Y NOMENCLATURE: TRANSLATIONAL HAND CONTROLLER

SYSTEM: D&C CONTROLS SUBSYSTEM
ASS'Y P/N: 51155E110 SHEET: 1

P/N & REV.	REV.	NAME, QTY & DRAWING REF. DESIGNATION	FAILURE MODE AND CAUSE	FAILURE EFFECT ON END ITEM	HOWR / FUNC. I/I CRITICALITY	RATIONALE FOR ACCEPTANCE
1600	4	TRANS-LATIONAL HAND CONTROLLER QTY-1 SPAR P/N 51155E110	<p>MODE: PERMANENT OUTPUT ON ONE OR MORE AXES. POSSIBLE HARDOVER.</p> <p>CAUSE(S): (1) MECHANICAL FAILURE SEIZURE OF BEARINGS, ROLLERS, ETC. (2) FRACTURED RETURN SPRING.</p>	<p>ARM COMMANDED IN UNDEFINED DIRECTION AT UP TO MAXIMUM PERMISSIBLE RATES. IF HARDOVER DETECTED CPC WILL DROP INTO IDLE. OTHERWISE CANNOT ENTER MANUAL MODES.</p> <p>WORST CASE</p> <p>UNEXPECTED MOTION, 6 JOINT RUNAWAY. UMANNUNCIATED CREW ACTION REQUIRED.</p> <p>REDUNDANT PATHS REMAINING</p> <p>N/A</p>	<p>DESIGN FEATURES</p>	<p>THE MOVING-PARTS COUNT IS LOW. ALL MOVING PARTS ARE SUPPORTED BY PRECISION BEARINGS WHICH ARE DRY LUBRICATED. BEARING STRESSES AND ROTATIONAL SPEEDS ARE LOW.</p> <p>THE SPUR GEAR SEGMENTS ARE PRECISION GROUND AND DRY LUBRICATED.</p> <p>STRESS ANALYSIS FOR GIBBAL TRUNNIONS, BEARINGS, LINKAGES, AND GEARS HAS CONFIRMED ADEQUATE SAFETY MARGINS UNDER WORST CASE INPUT LOADING - 300 POUNDS INTO/OUT OF HANDGRIP, 150 POUND SIDE LOAD APPLIED TO HAND GRIP IN ANY LATERAL DIRECTION. REFER TO TABLE 14.6 FOR MARGINS OF SAFETY.</p> <p>STRENGTHS OF THE MECHANICAL LINKAGE SYSTEMS HAVE BEEN DEMONSTRATED BY DESIGN PROOF-TESTS. THE STAINLESS STEEL INDEX RING AFFORDS ADDITIONAL PROTECTION AGAINST DAMAGE DUE TO EXTERNALLY APPLIED LOADS</p> <p>THE BASIC TRANSDUCER DESIGN IS IDENTICAL IN FORM, MATERIALS AND PROCESSES, TO THE ORBITER RHC TRANSDUCER. THE WINDINGS ARE IMPREGNATED AND POTTED IN THE FORM OF STATOR WINDINGS. HENCE THERE ARE NO MOVING CONTACTS AND HEAT TRANSFER TO THE TRANSDUCER CASE ENSURES LOW TEMPERATURE STRESS.</p> <p>EACH TRANSDUCER ASSEMBLY COMPRISES AN INPUT SHAFT, CENTERING SPRING AND THE BASIC TRANSDUCER, MOUNTED IN THE HOUSING WITH THREE BEARINGS. EACH TRANSDUCER ASSEMBLY IS SUBJECTED TO AN ACCEPTANCE TEST PRIOR TO ASSEMBLY TO THE HAND CONTROLLER MECHANISMS. SPRING LIFE HAS BEEN DEMONSTRATED TO 100000 CYCLES.</p> <p>THE TWO HALVES OF THE CASE HOUSING HAVE THE MATING EDGES MACHINED TO FORM AN OVERLAPPING SEAL. THESE EDGES ARE COATED WITH AN EPOXY SEALANT ON ASSEMBLY. INGRESS OF PARTICULATES THROUGH THE INPUT SHAFT BEARING IS PRECLUDED BY A FLEXIBLE SEALING BOOT.</p> <p>ALL THREADED FASTENERS ENGAGE IN SELF LOCKING THREADS.</p>

PREPARED BY: RMS

SUPERCEDING DATE: 06 OCT 87

APPROVED BY: _____

DATE: _____

CRITICAL ITEMS LIST

PROJECT: SRMS
 ASS'Y NOMENCLATURE: TRANSLATIONAL HAND CONTROLLER

SYSTEM: D&C CONTROLS SUBSYSTEM
 ASS'Y P/N: 5155E118 SHEET: 2

P/N & REF.	REV.	PART QTY & DRAWING REF. DESIGNATION	FAILURE MODE AND CAUSE	FAILURE EFFECT ON END ITEM	HOUR / FUNC. I/I CRITICALITY	RATIONALE FOR ACCEPTANCE
1600	4	TRANS-LATIONAL HAND CONTROLLER QTY-1 SPAR P/N 5155E118	<p>MODE: PERMANENT OUTPUT ON ONE OR MORE AXES. POSSIBLE HANDOVER.</p> <p>CAUSE(S): (1) MECHANICAL FAILURE SEIZURE OF BEARINGS, ROLLERS, ETC. (2) FRACTURED RETURN SPRING.</p>	<p>ARM COMMANDED IN UNDEFINED DIRECTION AT UP TO MAXIMUM PERMISSIBLE RATES. IF HANDOVER DETECTED GPC WILL DROP INTO IDLE. OTHERWISE CANNOT ENTER MANUAL MODES.</p> <p>WORST CASE UNEXPECTED MOTION. 6 JOINT RUNAWAY. UNANNUNCIATED CREW ACTION REQUIRED.</p> <p>REDUNDANT PATHS REMAINING N/A</p>		<p>ACCEPTANCE TESTS</p> <p>THE THC IS SUBJECTED TO THE FOLLOWING ACCEPTANCE ENVIRONMENTAL TESTING AS AN SAU.</p> <ul style="list-style-type: none"> O VIBRATION: LEVEL AND DURATION REFERENCE TABLE 1 O THERMAL: +100 DEGREES F TO 0 DEGREES F (12 HRS PER CYCLE) 2 CYCLES TOTAL. <p>THE THC IS TESTED AS PART OF THE D&C SUBSYSTEM WHICH CONSISTS OF D&C PANEL, THC, AND RHC; PER TP347. THE THC IS FURTHER TESTED AS PART OF THE RMS SYSTEM TESTS (TP510 RMS STRONGBACK TEST AND TP552 FLAT FLOOR TEST), WHICH VERIFIES THE ABSENCE OF THE FAILURE MODE.</p> <p>QUALIFICATIONS TESTS</p> <p>THE THC HAS BEEN SUBJECTED TO THE FOLLOWING QUALIFICATION TEST ENVIRONMENTS.</p> <ul style="list-style-type: none"> O VIBRATION: LEVEL AND DURATION REFERENCE TABLE 1 O SHOCK: 20G/11MS - 3 AXES (6 DIRECTIONS) O THERMAL: +140 DEGREES F TO -23 DEGREES F (6 CYCLES) 12 HRS PER CYCLE O HUMIDITY: 95% RH MAINTAIN AT 120 DEGREES F FOR 6 HRS AND DECREASE FROM 120 DEGREES F TO 02 DEGREES F IN 16 HRS.) 10 CYCLES TOTAL. O ENG: R1L-STD-461 AS MODIFIED BY SL-E-0002 (TESTS CE01, CE03, CS01 (DC/AC), CS02, CS06, RE02 (B/W) RS02, RS03, RS04. <p>FLIGHT CHECKOUT</p> <p>PDRS OPS CHECKLIST (ALL VEHICLES) JSC 16987</p>

PREPARED BY: MEUC

SUPERSEDING DATE: 06 OCT 87

APPROVED

RMS/D&C - 408

DATE: _____

CRITICAL ITEMS LIST

PROJECT: SRMS
 ASS'Y NOMENCLATURE: TRANSLATIONAL HAND CONTROLLER

SYSTEM: DBC CONTROLS SUBSYSTEM
 ASS'Y P/N: S1155ET10

SHEET: 3

P/N REV.	REV.	NAME, QTY & DRAWING REF. DESIGNATION	FAILURE MODE AND CAUSE	FAILURE EFFECT ON END ITEM	HOUR / FUNC. I/I CRITICALITY	RATIONALE FOR ACCEPTANCE
1600	4	TRANS -LATIONAL HAND CONTROLLER QTY-1 SPAR P/N S1155ET10	<p>MODE: PERMANENT OUTPUT ON ONE OR MORE AXES. POSSIBLE HARDOVER.</p> <p>CAUSE(S): (1) MECHANICAL FAILURE SEIZURE OF BEARINGS, ROLLERS, ETC.</p> <p>(2) FRACTURED RETURN SPRING.</p>	<p>ARM COMMANDED IN UNDEFINED DIRECTION AT UP TO MAXIMUM PERMISSIBLE RATES. IF HARDOVER DETECTED CPC WILL DROP INTO IDLE. OTHERWISE CANNOT ENTER MANUAL MODES.</p> <p>WORST CASE</p> <p>UNEXPECTED NOTION, & JOINT RUNAWAY. UNANNUNCIATED CREW ACTION REQUIRED.</p> <p>REDUNDANT PATHS REMAINING</p> <p>N/A</p>	<p>QA/INSPECTIONS</p> <p>-----</p> <p>UNITS ARE MANUFACTURED UNDER DOCUMENTED QUALITY CONTROLS. THESE CONTROLS ARE EXERCISED THROUGHOUT DESIGN PROCEDURE, PLANNING, RECEIVING, PROCESSING, FABRICATION, ASSEMBLY, TESTING AND SHIPPING OF THE UNITS. MANDATORY INSPECTION POINTS ARE EMPLOYED AT VARIOUS STAGES OF FABRICATION ASSEMBLY AND TEST. GOVERNMENT SOURCE INSPECTION IS INVOKED AT VARIOUS CONTROL LEVELS.</p> <p>THE TRANSDUCER ASSY CONSISTING OF A TRANSDUCER, DRY LUBE BEARINGS AND SPRINGS ETC. ARE BOUGHT OUT PARTS AS REQUIRED BY CAE SPEC PS01706. INSPECTIONS ARE PERFORMED BY THE SUPPLIER CLIFTON PRECISION TO VERIFY THAT EACH MANUFACTURING, ASSEMBLY AND TEST OPERATION IS SATISFACTORILY COMPLETED. THE TRANSDUCER ASSEMBLY IS ACCEPTANCE TESTED BY CLIFTON, WHICH INCLUDES INSULATION RESISTANCE CHECKS, AMBIENT PERFORMANCE, VIBRATION, THERMAL CYCLING AND POST THERMAL PERFORMANCE. THE ASSEMBLIES ARE SOURCE INSPECTED BY CAE QUALITY ASSURANCE PRIOR TO SHIPMENT TO CAE. QUALITY CONTROL OF ASSEMBLY IS PERFORMED AT THE TNC ASSEMBLY LEVEL.</p> <p>RECEIVING INSPECTION VERIFIES THAT THE HARDWARE RECEIVED IS AS IDENTIFIED IN THE PROCUREMENT DOCUMENTS, THAT NO DAMAGE HAS OCCURRED DURING SHIPMENT AND THAT APPROPRIATE DATA HAS BEEN RECEIVED WHICH PROVIDES ADEQUATE TRACEABILITY INFORMATION AND IDENTIFIES ACCEPTABLE PARTS.</p> <p>THE TNC ASSY IS INSPECTED THROUGHOUT MANUFACTURE AND ASSEMBLY AS APPROPRIATE TO THE MANUFACTURING STAGE COMPLETED.</p> <p>THE MECHANICAL LINKAGE, GEAR TRAINS, TRANSDUCER MECHANISM AND GIMBAL STRUCTURES ARE DIMENSIONALLY CHECKED USING STANDARD INSPECTION TECHNIQUES, AND LUBRICATION APPLICATION VERIFIED WHERE APPROPRIATE.</p> <p>DRY LUBE BEARINGS RECEIVE DIMENSIONAL INSPECTION AT THE SUPPLIER AND VERIFICATION BY RECEIVING INSPECTION PRE-ASSEMBLY INSPECTION VERIFIES CIRCULARITY OF BALL TRACKS AND INNER/OUTER RACE DIMETERS. AFTER ASSEMBLY PRIOR TO LUBRICATION, RADIAL CLEARANCE MEASUREMENTS ARE TAKEN. FOLLOWING LUBRICATION, RUN-IN/BURNISHING AND CLEANING OF DRY LUBE BEARINGS, SPECIALIZED BEARING INSPECTION EQUIPMENT AT SPAR IS USED TO VERIFY QUALITY AND STICTION LEVELS THROUGH STRIP CHART RECORDING OF TORQUE TRACES. BEARINGS ARE THEN RETURNED TO THE SUPPLIER FOR FINAL RADIAL CLEARANCE MEASUREMENTS. GOVERNMENT SOURCE INSPECTION IS INVOKED ON ALL BEARING PROCUREMENTS.</p> <p>PRECLOSURE INSPECTION IS PERFORMED TO CHECK FOR FREEDOM OF MOVING PARTS ADEQUATE RETENTION OF WIRING, GENERAL WORKMANSHIP AND CLEANLINESS.</p> <p>(SPAR/GOVERNMENT REP. - MANDATORY INSPECTION POINT).</p> <p>PRE-TEST INSPECTION OF TNC ASSY. INCLUDES AN AUDIT OF LOWER TIER INSPECTION COMPLETION, AS BUILT CONFIGURATION VERIFICATION TO AS DESIGN ETC. (SPAR/GOVERNMENT REP. - MANDATORY INSPECTION POINT).</p>	<p>UNITS ARE MANUFACTURED UNDER DOCUMENTED QUALITY CONTROLS. THESE CONTROLS ARE EXERCISED THROUGHOUT DESIGN PROCEDURE, PLANNING, RECEIVING, PROCESSING, FABRICATION, ASSEMBLY, TESTING AND SHIPPING OF THE UNITS. MANDATORY INSPECTION POINTS ARE EMPLOYED AT VARIOUS STAGES OF FABRICATION ASSEMBLY AND TEST. GOVERNMENT SOURCE INSPECTION IS INVOKED AT VARIOUS CONTROL LEVELS.</p> <p>THE TRANSDUCER ASSY CONSISTING OF A TRANSDUCER, DRY LUBE BEARINGS AND SPRINGS ETC. ARE BOUGHT OUT PARTS AS REQUIRED BY CAE SPEC PS01706. INSPECTIONS ARE PERFORMED BY THE SUPPLIER CLIFTON PRECISION TO VERIFY THAT EACH MANUFACTURING, ASSEMBLY AND TEST OPERATION IS SATISFACTORILY COMPLETED. THE TRANSDUCER ASSEMBLY IS ACCEPTANCE TESTED BY CLIFTON, WHICH INCLUDES INSULATION RESISTANCE CHECKS, AMBIENT PERFORMANCE, VIBRATION, THERMAL CYCLING AND POST THERMAL PERFORMANCE. THE ASSEMBLIES ARE SOURCE INSPECTED BY CAE QUALITY ASSURANCE PRIOR TO SHIPMENT TO CAE. QUALITY CONTROL OF ASSEMBLY IS PERFORMED AT THE TNC ASSEMBLY LEVEL.</p> <p>RECEIVING INSPECTION VERIFIES THAT THE HARDWARE RECEIVED IS AS IDENTIFIED IN THE PROCUREMENT DOCUMENTS, THAT NO DAMAGE HAS OCCURRED DURING SHIPMENT AND THAT APPROPRIATE DATA HAS BEEN RECEIVED WHICH PROVIDES ADEQUATE TRACEABILITY INFORMATION AND IDENTIFIES ACCEPTABLE PARTS.</p> <p>THE TNC ASSY IS INSPECTED THROUGHOUT MANUFACTURE AND ASSEMBLY AS APPROPRIATE TO THE MANUFACTURING STAGE COMPLETED.</p> <p>THE MECHANICAL LINKAGE, GEAR TRAINS, TRANSDUCER MECHANISM AND GIMBAL STRUCTURES ARE DIMENSIONALLY CHECKED USING STANDARD INSPECTION TECHNIQUES, AND LUBRICATION APPLICATION VERIFIED WHERE APPROPRIATE.</p> <p>DRY LUBE BEARINGS RECEIVE DIMENSIONAL INSPECTION AT THE SUPPLIER AND VERIFICATION BY RECEIVING INSPECTION PRE-ASSEMBLY INSPECTION VERIFIES CIRCULARITY OF BALL TRACKS AND INNER/OUTER RACE DIMETERS. AFTER ASSEMBLY PRIOR TO LUBRICATION, RADIAL CLEARANCE MEASUREMENTS ARE TAKEN. FOLLOWING LUBRICATION, RUN-IN/BURNISHING AND CLEANING OF DRY LUBE BEARINGS, SPECIALIZED BEARING INSPECTION EQUIPMENT AT SPAR IS USED TO VERIFY QUALITY AND STICTION LEVELS THROUGH STRIP CHART RECORDING OF TORQUE TRACES. BEARINGS ARE THEN RETURNED TO THE SUPPLIER FOR FINAL RADIAL CLEARANCE MEASUREMENTS. GOVERNMENT SOURCE INSPECTION IS INVOKED ON ALL BEARING PROCUREMENTS.</p> <p>PRECLOSURE INSPECTION IS PERFORMED TO CHECK FOR FREEDOM OF MOVING PARTS ADEQUATE RETENTION OF WIRING, GENERAL WORKMANSHIP AND CLEANLINESS.</p> <p>(SPAR/GOVERNMENT REP. - MANDATORY INSPECTION POINT).</p> <p>PRE-TEST INSPECTION OF TNC ASSY. INCLUDES AN AUDIT OF LOWER TIER INSPECTION COMPLETION, AS BUILT CONFIGURATION VERIFICATION TO AS DESIGN ETC. (SPAR/GOVERNMENT REP. - MANDATORY INSPECTION POINT).</p>

PREPARED BY: MEG

SUPERCEDING DATE: 06 OCT 87

APPROVED BY: _____

DATE: _____

CRITICAL ITEMS LIST

PROJECT: SRMS
 ASS'Y NOMENCLATURE: TRANSLATIONAL HAND CONTROLLER

SYSTEM: D&C CONTROLS SUBSYSTEM
 ASS'Y P/N: 51155E110

SHEET: 4

P/REA REF.	REV.	NAME, QTY & DRAWING REF. DESIGNATION	FAILURE MODE AND CAUSE	FAILURE EFFECT ON END ITEM	HDMR / FUNC. I/I CRITICALITY	RATIONALE FOR ACCEPTANCE
1600	4	TRANS-LATIONAL HAND CONTROLLER QTY-1 SPAR P/N 51155E110	MODE: PERMANENT OUTPUT ON ONE OR MORE AXES. POSSIBLE HARDOVER. CAUSE(S): (1) MECHANICAL FAILURE SEIZURE OF BEARINGS, ROLLERS, ETC. (2) FRACTURED RETURN SPRING.	ARM COMMANDED IN UNDEFINED DIRECTION AT UP TO MAXIMUM PERMISSIBLE RATES. IF HARDOVER DETECTED GPC WILL DROP INTO IDLE. OTHERWISE CANNOT ENTER MANUAL MODES. WORST CASE ----- UNEXPECTED MOTION. 6 JOINT RUNAWAY. UNANNUNCIATED CREW ACTION REQUIRED. REDUNDANT PATHS REMAINING ----- N/A		<p>A TEST READINESS REVIEW (TRR) WHICH INCLUDES VERIFICATION OF TEST PERSONNEL, TEST DOCUMENTS, TEST EQUIPMENT CALIBRATION/ VALIDATION STATUS AND HARDWARE CONFIGURATION IS CONVENED BY 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).</p> <p>ACCEPTANCE TESTING (ATP) INCLUDES AMBIENT PERFORMANCE, THERMAL AND VIBRATION TESTING. (SPAR/GOVERNMENT REP. - MANDATORY INSPECTION POINT).</p> <p>INTEGRATION OF D&C PANEL, RMC, THC AND MCIU. INSPECTIONS ARE PERFORMED AT EACH STAGE OF INTEGRATION, WHICH INCLUDES GROUNDING CHECKS, INTER CONNECT CABLE VERIFICATION, CONNECTOR INSPECTION FOR BENT OR PUSHBACK CONTACTS ETC.</p> <p>SUB-SYSTEM PERFORMANCE TESTING (ATP), INCLUDES AN AMBIENT PERFORMANCE TEST. (MANDATORY INSPECTION POINT).</p> <p>SRMS SYSTEMS INTEGRATION. THE INTEGRATION OF MECHANICAL ARM SUBASSEMBLIES AND THE FLIGHT CABIN EQUIPMENT TO FORM THE SRMS. INSPECTIONS ARE PERFORMED AT EACH PHASE OF INTEGRATION WHICH INCLUDES GROUNDING CHECKS, THRU WIRING CHECKS, WIRING ROUTING, INTERFACE CONNECTORS FOR BENT OR PUSH BACK CONTACTS ETC.</p> <p>SRMS SYSTEMS TESTING - STRONGBACK AND FLAT FLOOR AMBIENT PERFORMANCE TEST. (SPAR/GOVERNMENT REP. - MANDATORY INSPECTION POINT)</p>

PREPARED BY: MEMG

SUPERCEDING DATE: 04 OCT 87

APPROVED BY: SRMS/D&C - 410

DATE: _____

CRITICAL ITEMS LIST

PROJECT: SBMS
 ASS'Y NOMENCLATURE: TRANSLATIONAL HAND CONTROLLER

SYSTEM: D&C CONTROLS SUBSYSTEM SHEET: 5
 ASS'Y P/N: 51155E110

P/N REF.	REV.	NAME QTY & DRAWING REF. DESIGNATION	FAILURE MODE AND CAUSE	FAILURE EFFECT ON END ITEM	HOUR / FUNC. I/I CRITICALITY	RATIONALE FOR ACCEPTANCE
1600	4	TRANS-LATIONAL HAND CONTROLLER QTY-1 SPAR P/N 51155E110	MODE: PERMANENT OUTPUT ON ONE OR MORE AXES. POSSIBLE HARDOVER. CAUSE(S): (1) MECHANICAL FAILURE SEIZURE OF BEARINGS, ROLLERS, ETC. (2) FRACTURED RETURN SPRING.	ARM COMMANDED IN UNDEFINED DIRECTION AT UP TO MAXIMUM PERMISSIBLE RATES. IF HARDOVER DETECTED CPC WILL DROP INTO IDLE. OTHERWISE CANNOT ENTER MANUAL MODES. WORST CASE UNEXPECTED MOTION. & JOINT RUNAWAY. UNANNUNCIATED CREW ACTION REQUIRED. REDUNDANT PATHS REMAINING ----- N/A	FAILURE HISTORY -----	THERE HAVE BEEN NO FAILURES ASSOCIATED WITH THIS FAILURE MODE ON THE SBMS PROGRAM.

PREPARED BY: RFHG

SUPERCEDING DATE: 06 OCT 87

APPROVED BY:

DATE: _____

CRITICAL ITEMS LIST

PROJECT: SRMS
 ASS'Y NOMENCLATURE: TRANSLATIONAL HAND CONTROLLER

SYSTEM: D&C CONTROLS SUBSYSTEM SHEET: 6
 ASS'Y P/N: 51155E110

P/HA REF.	REV.	NAME QTY & DRAWING REF. DESIGNATION	FAILURE MODE AND CAUSE	FAILURE EFFECT ON END ITEM	HDMR / FUNC. I/I	CRITICALITY RATIONALE FOR ACCEPTANCE
1600	4	TRANS-LATIONAL HAND CONTROLLER QTY-1 SPAR P/N 51155E110	MODE: PERMANENT OUTPUT ON ONE OR MORE AXES. POSSIBLE HARDOVER. CAUSE(S): (1) MECHANICAL FAILURE SEIZURE OF BEARINGS, ROLLERS, ETC. (2) FRACTURED RETURN SPRING.	ARM COMMANDED IN UNDEFINED DIRECTION AT UP TO MAXIMUM PERMISSIBLE RATES. IF HARDOVER DETECTED GPC WILL DROP INTO IDLE. OTHERWISE CANNOT ENTER MANUAL MODES. WORST CASE UNEXPECTED MOTION. & JOINT RUNAWAY. UNANNUNCIATED CREW ACTION REQUIRED. REDUNDANT PATHS REMAINING N/A		<p>OPERATIONAL EFFECTS</p> <p>ARM DOES NOT RESPOND PROPERLY TO COMMANDS OR DRIVES WITHOUT COMMAND. WHEN THE COMMAND IS REMOVED, THE ARM CONTINUES TO DRIVE.</p> <p>CREW ACTION</p> <p>APPLY BRAKES.</p> <p>CREW TRAINING</p> <p>THE CREW WILL BE TRAINED TO ALWAYS OBSERVE WHETHER THE ARM IS RESPONDING PROPERLY TO COMMANDS. IF IT ISN'T, APPLY BRAKES.</p> <p>MISSION CONSTRAINTS</p> <p>OPERATE UNDER VERNIER RATES WITHIN 10 FT OF STRUCTURE. THE OPERATOR MUST BE ABLE TO DETECT THAT THE ARM IS RESPONDING PROPERLY TO COMMANDS VIA WINDOW AND/OR CCTV VIEWS DURING ALL ARM OPERATIONS.</p> <p>SCREEN FAILURES</p> <p>N/A</p> <p>OHMSD OFFLINE</p> <p>DEFLECT THC TO FULL TRAVEL FOR EACH AXIS AND RELEASE VERIFY HANDGRIP RETURNS SMOOTHLY TO NULL POSITION WITH NO OVERSHOOT</p> <p>OHMSD ONLINE INSTALLATION</p> <p>NONE</p> <p>OHMSD ONLINE TURNAROUND</p> <p>DEFLECT THC TO FULL TRAVEL FOR EACH AXIS AND RELEASE VERIFY HANDGRIP RETURNS SMOOTHLY TO NULL POSITION WITH NO OVERSHOOT</p>

PREPARED BY: HWG

SUPERSEDING DATE: 06 OCT 97

APPROVED: RMS/D&C - 412

DATE: _____