

CRITICAL ITEMS LIST

PROJECT: EXTRAVEHICLE AIR COMMUNICATIONS UNIT

SYSTEM: EMI COMMUNICATIONS

ASSY NOMENCLATURE: EXTRAVEHICLE AIR COMMUNICATIONS UNIT

ASSY P/N: 8329400 (REV) SHEET: 1 OF 1

P/N REF.	REV.	NAME, QTY & DRAWING REF. DESIGNATION	FAILURE MODE AND CAUSE	FAILURE EFFECT ON END ITEM	REQD / FUNC. 3/288 CRITICALITY RATIONALE FOR ACCEPTANCE
EVC-090		EXTRAVEHICLE AIR COMMUNICATOR PCA P/N: 8329400 QTY: 1	MODE: SHORTED DC INNER INPUT; PHINBY CAUSE: VIBRATION, SHOCK, TEMP. CYCLE, ICE PARTS FAILURE	LOSS OF REDUNDANT POWER INPUT PATH. AFTER SECOND FAILURE, WORST CASE IS LOSS OF ALL EVC FUNCTION	<p>DESIGN FEATURES: THE EXTRAVEHICLE AIR COMMUNICATOR (EVC) DESIGN IS BASED ON HARDWARE WHICH WAS BUILT BY RCA FOR AVIATION (INNER END ONLY). A MIL-SPEC PROCUREMENT FOR NON-CRITICAL EQUIPMENT ALLOWED THE USE OF VENDOR PRACTICES AND PRACTICES ON MIL-SPEC PARTS. PARTS AND MATERIALS WERE OBTAINED FROM ONLY MIL-SPEC PARTS.</p> <p>THERE ARE TWO SEPARATELY RATED POWER INPUT LEADS FOR EACH EVC INHW. INPUTS ARE COMBINED THROUGH DIODES FOR REVERSE FAULT PROTECTION. CONNECTIONS ARE MADE WITH MIL-A-16070 TETRA INSULATED WIRE. WIRE HARNESS IS STAPLED IN PLACE WITH EPDM TO PREVENT STRAIN AND CHAFFING. UNIT IS ENVIRONMENTALLY SEALED TO PREVENT CONTAMINATION.</p>

CRITICAL ITEMS LIST

PROJECT: EXTREMELY HIGH PRIORITY UNIT

SYSTEM: LAND COMMUNICATIONS

RSS'Y NOMENCLATURE: EXTREMELY HIGH PRIORITY COMMUNICATION (EVC)

RSS'Y P.N.: 0379400 (EVC) SERIAL: 2 of 2

ITEM REF.	REV.	NAME, QTY & DRAWING REF. DESIGNATION	FAILURE MODE AND CAUSE	FAILURE EFFECT ON END ITEM	HAZ / FUNC. CRITICALITY	RATIONALE FOR ACCEPTANCE
EVC-090 (CONF'D)		EXTREMELY HIGH COMMUNICATOR REV P.N.: 0379400 QTY: 1	MODE: STARTED DC POWER INPUT; PRIMARY CAUSE: VIBRATION, SHOCK, TEMP. CYCLE, EEE PARTS FAILURE	LOSS OF DOMINANT POWER INPUT PATH. AFTER SECOND FAILURE, WORST CASE IS LOSS OF ALL EVC FUNCTION	HAZ / FUNC. CRITICALITY	<p>TEST:</p> <p>(1) CERTIFICATION TEST: ONE-TIME TEST ON DUAL MODEL EVC; ELECTRICAL PERFORMANCE VERIFIED SEPARATELY FOR PRIMARY AND SECONDARY POWER INPUTS BEFORE AND AFTER ENVIRONMENTAL EXPOSURE:</p> <ul style="list-style-type: none"> • TEMPERATURE - 5 CYCLES FROM 15 F TO 155 F OPERATING AND 1 CYCLE TO -65 F NON-OPERATING. PRIMARY AND SECONDARY POWER INPUTS VERIFIED SEPARATELY DURING TEMPERATURE. • SHOCK - TERTIAL PEAK SINUSOIDAL WITH 20g PEAK AND 11 msec DURATION APPLIED 3 TIMES FOR EACH AXIS IN BOTH + AND - DIRECTIONS. TOTAL OF 18 SHOCKS. <p>LANDING SHOCK & ACCELERATION ENVIRONMENTS CERTIFIED BY ANALYSIS</p> <ul style="list-style-type: none"> • VIBRATION - TEST-INDUCED (ENV) - 5 MIN IN 2 AXES <ul style="list-style-type: none"> 20 TO 100 Hz - INCREASING 3 INCHES 100 TO 350 Hz - CONSTANT 0.007g/Hz 350 TO 2000 Hz - DECREASING 3 INCHES FLIGHT-INDUCED - 40 MINUTES PER AXIS <ul style="list-style-type: none"> 20 TO 150 Hz - INCREASING 6 INCHES 150 TO 1000 Hz - CONSTANT 0.01 g/Hz 1000 TO 2000 Hz - DECREASING 6 INCHES <p>PRIMARY AND SECONDARY POWER INPUTS VERIFIED SEPARATELY DURING FLIGHT-INDUCED VIBRATION.</p>

CRITICAL ITEMS LIST

PROJECT: EXTRAVEHICULAR VEHICLE BY UNIT

SYSTEM: EVA COMMUNICATIONS

ISSY NOMENCLATURE: EXTRAVEHICULAR COMMUNICATION (EVC)

ISSY P/N: 0J79400 (R21)

SHEET: 2 of 6

ITEM REF.	REV.	NAME, QTY & DRAWING REF. DESIGNATION	FAILURE MODE AND CAUSE	FAILURE EFFECT ON END ITEM	INIT / FINC. 3/200 CRITICALITY	RATIONALE FOR ACCEPTANCE
EVC-000 (CONT'D)		EXTRAVEHICULAR COMMUNICATOR RCA P/N: 0J79400 QTY: 1	NOTE: SHUTTED DC POWER INPUT; PRIMARY CAUSE: VIBRATION, SHOCK, TEMP. CYCLE, EEE PARTS FAILURE	LOSS OF RECOGNIZED POWER INPUT PATH. AFTER SECOND FAILURE, WORST CASE IS LOSS OF ALL EVC FUNCTION	TEST: (CONT'D)	<ul style="list-style-type: none"> o VIBRATION - UNIT OPERATED IN SHAKED ENVIRONMENT TO 10-5 100R FOR SIX HOURS. o SALT-FOG, HUMIDITY, AND FUNGUS CERTIFIED BY ANALYSIS. <p>(2) MANUFACTURING ACCEPTANCE TEST: ENVIRONMENTAL SCREEN AND COMPLETE ELECTRICAL PERFORMANCE TEST.</p> <ul style="list-style-type: none"> o TEMPERATURE - ONE AND ONE HALF CYCLES FROM 20 F TO 135 F, WITH PRIMARY AND SECONDARY POWER INPUTS VERIFIED SEPARATELY. o VIBRATION - 1 MINUTE PER AXIS MINIMUM <ul style="list-style-type: none"> 20 TO 80 Hz - INCREASING 3 dB/OCT 80 TO 150 Hz - CONSTANT 0.04g/Hz 150 TO 2000 Hz - DECREASING 3 dB/OCT <p>(3) PREINSTALLATION ACCEPTANCE TEST (PIAT) PERFORMED PERIODICALLY AT JSC PRIOR TO DELIVERY OF END-ITEM FOR END INSTALLATION. INCLUDES COMPLETE ELECTRICAL PERFORMANCE WITH PRIMARY AND SECONDARY POWER INPUTS SEPARATELY VERIFIED. (PIA NO. EEC-02-1410)</p>

CRITICAL ITEMS LIST

PROJECT: EXTREMELY LOW FREQUENCY (ELF)

SYSTEM: ELF COMMUNICATIONS

ASSY NOMENCLATURE: EXTREMELY LOW FREQUENCY (ELF) COMMUNICATOR (ELC)

ASSY P/N: 0379400 (RC1)

SHEET: 3 of 6

P/N REV.	REV.	NAME, QTY & DRAWING REF. DESIGNATION	FAILURE MODE AND CAUSE	FAILURE EFFECT ON END ITEM	HARD / FUNC. 3/249 CRITICALITY RATIONALE FOR ACCEPTANCE
EVC-090 (CONT'D)		EXTREMELY LOW COMMUNICATOR DCR P/N: 0379400 QTY: 1	MODE: SHORTED DC POWER INPUT; PRIMARY CAUSE: VIBRATION, SHOCK, TEMP. CYCLE, EEE PARTS FAILURE	LOSS OF REDUNDANT POWER INPUT PATH. AFTER SECOND FAILURE, WORST CASE IS LOSS OF ALL EVC FUNCTION	<p>TEST: (CONT'D)</p> <p>(4) GROUND (THROUGH) TEST -</p> <ul style="list-style-type: none"> • EVC/EMI INTEGRATION TEST PERFORMED FIRST TIME EVC IS INSTALLED IN EMI. POWER INPUT CIRCUITS ARE NOT SEPARATELY VERIFIED. (EE2-79-016) • COMBINED CHECKOUT PROCEDURE IS PERFORMED PRIOR TO EMI UPTURN CHANGE TEST SEQUENCE AND PRIOR TO DELIVERY FOR FLIGHT. POWER INPUT CIRCUITS ARE NOT SEPARATELY VERIFIED. (SEMU-016) • ORBITER/EMI FUNCTIONAL CHECKOUT IS PERFORMED BY VEHICLE INSTALLATION. POWER INPUT CIRCUITS ARE NOT SEPARATELY VERIFIED. (WH 01103.2) • FAILURE MODE CANNOT BE DETECTED WITHOUT INVASIVE TEST.

CRITICAL ITEMS LIST

PROJECT: EXTENSION OF MOBILITY UNIT

SYSTEM: EXTENSION UNIT

ISSUE NUMBER: EXTENSION COMMUNICATOR (EUC)

ISSUE DATE: 12/14/68 PAGE: 2 OF 6

FMEA REF.	REV.	NAME, QTY & DRAWING REF. DESIGNATION	FAILURE MODE AND CAUSE	FAILURE EFFECT ON END ITEM	TIME / FREQ. / CRITICALITY RATIONALE FOR OCCURRENCE
EUC-09B (CONT'D)		EXTENSION COMMUNICATOR MCH P/N: 8379400 QTY: 1	MODE: SHORTED OR POWER INPUT; PRIMARY CAUSE: VIBRATION, SHOCK, TEMP. CYCLE, ETC. PARTS FAILURE	LOSS OF EXTENDED POWER INPUT DATA AFTER SECOND FAILURE, LOSS CASE IS LOSS OF ALL EUC FUNCTION	<p>DESCRIPTION: THE EUC EXTENSION UNIT IS A CRITICAL ITEM IN THE MOBILITY UNIT. IT PROVIDES EXTENDED RANGE COMMUNICATION FOR THE MOBILITY UNIT. FAILURE OF THIS UNIT WOULD RESULT IN LOSS OF COMMUNICATION AND LOSS OF DATA. THIS UNIT IS CRITICAL TO THE OPERATION OF THE MOBILITY UNIT.</p> <p>FAILURE HISTORY: THE MOBILITY UNIT HAS BEEN OPERATED FOR THREE YEARS. THERE HAVE BEEN NO FAILURES OF THE MOBILITY UNIT. THE ONLY PROBLEMS IN THE MOBILITY UNIT SINCE THE...</p> <p>1. DESCRIPTION: THIS UNIT IS A CRITICAL ITEM IN THE MOBILITY UNIT. IT PROVIDES EXTENDED RANGE COMMUNICATION FOR THE MOBILITY UNIT. FAILURE OF THIS UNIT WOULD RESULT IN LOSS OF COMMUNICATION AND LOSS OF DATA. THIS UNIT IS CRITICAL TO THE OPERATION OF THE MOBILITY UNIT.</p> <p>RECOMMENDATION: THIS UNIT IS A CRITICAL ITEM IN THE MOBILITY UNIT. IT PROVIDES EXTENDED RANGE COMMUNICATION FOR THE MOBILITY UNIT. FAILURE OF THIS UNIT WOULD RESULT IN LOSS OF COMMUNICATION AND LOSS OF DATA. THIS UNIT IS CRITICAL TO THE OPERATION OF THE MOBILITY UNIT.</p>

MODEL: EXTREMELY HIGH IMPACT (EHI)
 ASSY PART NUMBER: EXTREMELY HIGH IMPACT (EHI)
 CONFIGURATION: (EHI)

MODEL: (EHI)
 ASSY P.N.: (EHI)
 SHEET: 1 OF 1

FMEA REF.	REV.	NAME, QTY & DRAWING REF. DESIGNATION	FAILURE MODE AND CAUSE	FAILURE EFFECT ON END ITEM	RISK / FREQ. RATIONALE FOR PRIORITY
EUC-090 (CONT'D)		EXTREMELY HIGH IMPACT (EHI) QTY: 1 REF. P. N.: 0329400	MODE: SHOCK TO PARTS AREA; IMPACT CAUSE: VIBRATION, SHOCK, TEMP. CYCLE, EEE PARTS FAILURE	LOSS OF ELECTRICAL POWER THROUGH PARTS PARTS SEPARATE FAILURE, IMPACT LOSS OF PARTS IN ALL EEC FUNCTIONS	FAILURE HISTORY: (EHI) IN SERVICE THERE WAS NO REPORT OF THE PARTS AREA FOR FAILURE MODES WHICH WOULD BE THE CAUSE OF THE PARTS AREA FAILURE MODE (EHI) CORRECTIVE ACTION THE PARTS TO BE CHECKED SHOULD BE CHECKED AND THE PARTS SHOULD BE TEST. CORN RESPONSE: - SIGNAL FAILURE AND REPAIR BY CORN BY PARTS AND REPAIR - THE CORNMENT PARTS TO BE CHECKED PARTS (EHI), PARTS OF THE PARTS PARTS REPAIRMENT OF EHI. TRAINING: - PARTS TO BE CHECKED TO DETERMINE THE PARTS LOSS OF PARTS REPAIRMENT OF EHI. OPERATIONAL CONSIDERATIONS: - PARTS TO BE CHECKED TO DETERMINE THE PARTS LOSS OF PARTS REPAIRMENT OF EHI. PARTS TO BE CHECKED TO DETERMINE THE PARTS LOSS OF PARTS REPAIRMENT OF EHI.