

FAILURE MODES EFFECTS ANALYSIS (FMEA) - NON-CIL HARDWARE
NUMBER:05-2B-22100M -X

SUBSYSTEM NAME: COMM & TRACK: UHF SPACE COMMUNICATION
REVISION: 0 11/14/95

PART DATA

	PART NAME	PART NUMBER
	VENDOR NAME	VENDOR NUMBER
LRU	: UHF - ATC TRANSCEIVER (GFE)	8379452

EXTENDED DESCRIPTION OF PART UNDER ANALYSIS:
UHF - AIR TRAFFIC CONTROL (ATC) TRANSCEIVER (GFE)

REFERENCE DESIGNATORS: 83V74A21

QUANTITY OF LIKE ITEMS: 1
ONE

FUNCTION:
 PROVIDES UHF SIMPLEX VOICE COMMUNICATION BETWEEN ORBITER AND GROUND FOR PRELAUNCH, LIFT-OFF, DE-ORBIT, AND LANDING-SAFING. COMMUNICATIONS TO GROUND WILL BE DONE THROUGH A/A CHANNEL. UHF - ATC SYSTEM IS BACKUP TO S-BAND FOR AIR/GROUND COMMUNICATION

REFERENCE DOCUMENTS: VS70-740119

FAILURE MODES EFFECTS ANALYSIS FMEA -- NON-CIL FAILURE MODE

NUMBER: 05-2B-22100M-02

REVISION#: 0 11/14/95

SUBSYSTEM NAME: COMM & TRACK: UHF SPACE COMMUNICATION

LRU: UHF - ATC TRANSCEIVER (GFE)

CRITICALITY OF THIS

ITEM NAME: UHF - ATC TRANSCEIVER (GFE)

FAILURE MODE: 1R3

FUNCTIONAL CRITICALITY/

REQUIRED FAULT TOLERANCE/ACHIEVED FAULT TOLERANCE:1R/2/2

FAILURE MODE:

LOSS OF TRANSMITTER KEY FUNCTION.

MISSION PHASE: PL PRE-LAUNCH
 LO LIFT-OFF
 DO DE-ORBIT
 LS LANDING/SAFING

VEHICLE/PAYLOAD/KIT EFFECTIVITY: 102 COLUMBIA
 103 DISCOVERY
 104 ATLANTIS
 105 ENDEAVOUR
 AFTER SPACE COMM MODIFICATION

CAUSE:

PIECE PART FAILURE, CONTAMINATION, VIBRATION, MECHANICAL SHOCK, PROCESSING ANOMALY, THERMAL STRESS

CRITICALITY 1/1 DURING INTACT ABORT ONLY? NO

REDUNDANCY SCREEN A) PASS
 B) PASS
 C) PASS

PASS/FAIL RATIONALE:

A)

B)

C)

CORRECTING ACTION: NONE

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CORRECTING ACTION DESCRIPTION:
NO CREW ACTION AVAILABLE TO RESTORE UHF TRANSMIT CAPABILITY.

- FAILURE EFFECTS -

(A) SUBSYSTEM:
LOSS OF TRANSMIT OF UHF VOICE.

(B) INTERFACING SUBSYSTEM(S):
LOSS OF TRANSMIT OF UHF VOICE.

(C) MISSION:
NO EFFECT - FIRST FAILURE

(D) CREW, VEHICLE, AND ELEMENT(S):
NO EFFECT - FIRST FAILURE

(E) FUNCTIONAL CRITICALITY EFFECTS:
AFTER THREE FAILURES (THIS TRANSCEIVER AND 2³S-BAND), POSSIBLE LOSS OF
CREW/VEHICLE DUE TO LOSS OF STATE VECTOR UPDATE.

- TIME FRAME -

TIME FROM FAILURE TO CRITICAL EFFECT: MINUTES

- APPROVALS -

PRODUCT ASSURANCE : VAN D. NGUYEN
DESIGN ENGINEERING : D. Y. YOON

VanDuyen 8-20-98
D. Y. Yoon 8-20-98