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PRINT DATE: 06/29/92

FAILURE MODES EFFECTS ANALYSIS (FMEA) -- CRITICAL HARDWARE

NUMBER: 06-18-0710-X

SUBSYSTEM NAME: ARS - COOLING

REVISION : 7 06/26/92

	PART NAME VENDOR NAME	PART NUMBER VENDOR NUMBER
■ LRU :	REGENERABLE CO2 REMOVAL SYSTEM	MC623-0016
■ SRU :	MUFFLER, INLET	V070-623634

PART DATA

- EXTENDED DESCRIPTION OF PART UNDER ANALYSIS:
REGENERABLE CO2 REMOVAL SYSTEM INLET MUFFLER
- QUANTITY OF LIKE ITEMS: 1
- FUNCTION:
ATTENUATES NOISE AT THE INLET OF THE REGENERABLE CO2 REMOVAL SYSTEM FAN.

FAILURE MODES EFFECTS ANALYSIS (FMEA) -- CRITICAL FAILURE MODE
NUMBER: 06-1B-0710-01

SUBSYSTEM: ARS - COOLING
LRU :REGENERABLE CO2 REMOVAL SYSTEM
ITEM NAME: MUFFLER, INLET

REVISION# 7 06/26/92 R

CRITICALITY OF THIS
FAILURE MODE:1/1

■ FAILURE MODE:
GROSS EXTERNAL LEAKAGE

MISSION PHASE:
00 ON-ORBIT

■ VEHICLE/PAYLOAD/KIT EFFECTIVITY: 102 COLUMBIA
: 105 ENDEAVOUR

■ CAUSE:
MECHANICAL SHOCK, VIBRATION, CORROSION

■ CRITICALITY 1/1 DURING INTACT ABORT ONLY? NO

■ REDUNDANCY SCREEN A) N/A
■ B) N/A
■ C) N/A

PASS/FAIL RATIONALE:

- A)
- B)
- C)

- FAILURE EFFECTS -

■ (A) SUBSYSTEM:
NO EFFECT - SYSTEM WILL OPERATE AT HIGH NOISE LEVEL.

■ (B) INTERFACING SUBSYSTEM(S):
GROSS EXTERNAL LEAKAGE MAY RESULT IN LOSS OF COOLING AIR FLOW THROUGH
FLIGHT DECK AVIONICS LRU'S.

■ (C) MISSION:
POSSIBLE EARLY MISSION TERMINATION IF MAGNITUDE OF LEAK IS AFFECTING
FLIGHT DECK AVIONICS COOLING OR RCRS SOUND LEVEL IS UNACCEPTABLE.

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■ (D) CREW, VEHICLE, AND ELEMENT(S):
POSSIBLE LOSS OF CREW/VEHICLE DUE TO FAILURE OF THE AFFECTED AVIONICS
AS THE RESULT OF LRU OVERHEATING.

■ (E) FUNCTIONAL CRITICALITY EFFECTS:

- DISPOSITION RATIONALE -

■ (A) DESIGN:

THE INLET MUFFLER HOUSING/DUCT ASSEMBLY IS CONSTRUCTED FROM RIGID
ARAMID FABRIC EPOXY MATERIAL APPROXIMATELY 15 INCHES LONG AND PREFORMED
TO FIT INTO THE RCRS DUCTING. THE "SCOTTFELT" ACOUSTIC FOAM LINER IS
ENCLOSED WITHIN THE MUFFLER HOUSING ASSEMBLY.

■ (B) TEST:

QUALIFICATION TEST:

THE INLET MUFFLER HOUSING/DUCT IS CERTIFIED BY SIMILARITY TO THE AIR
REVITALIZATION SYSTEM (ARS) COOLING DUCTING SINCE THE BASIC CONSTRUCTION
AND MATERIAL USED ARE THE SAME. THE ACOUSTIC FOAM LINER IS CERTIFIED BY
SIMILARITY TO THE IMU MUFFLER SINCE THE FOAM MATERIAL USED IS THE SAME.

OMRSD:

ANY TURNAROUND CHECKOUT TESTING IS ACCOMPLISHED IN ACCORDANCE WITH OMRSD
AT SYSTEM LEVEL.

■ (C) INSPECTION:

RECEIVING INSPECTION

INCOMING MATERIAL IDENTIFICATION AND CERTIFICATION VERIFIED BY
INSPECTION.

CONTAMINATION CONTROL

CLEANLINESS LEVEL VERIFIED BY INSPECTION AT DETAIL LEVEL.

ASSEMBLY/INSTALLATION

ASSEMBLY AND INSTALLATION VERIFIED BY INSPECTION.

CRITICAL PROCESSES

FABRICATION OF LAMINATED DETAILS VERIFIED BY INSPECTION. ASSEMBLY
ADHESIVE BOND OPERATIONS VERIFIED BY INSPECTION.

TESTING

N/A

HANDLING/PACKAGING

HANDLING AND PARTS PROTECTION PER R. I. REQUIREMENTS.

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- (D) FAILURE HISTORY:
NO FAILURE HISTORY.
- (E) OPERATIONAL USE:
SHUT DOWN THE RCRS AND INSTALL NEW LIQH CANISTERS. THE LIQH CANISTER SUPPLY IS ADEQUATE FOR 3 ADDITIONAL DAYS.

- APPROVALS -

RELIABILITY MANAGER : T. J. EAVENSON
 DESIGN ENGINEERING : P. J. CHEN
 QUALITY ENGINEERING : E. OCHOA
 NASA RELIABILITY :
 NASA SUBSYSTEM MANAGER :
 NASA QUALITY ASSURANCE :

K.L. Proctor for 6/24/92
~~ASCL~~ *Mar. 2002*
~~for K.L. Proctor for T.J. Eavenson 6/24/92~~
~~for 6/24/92~~ *W. H. ... 9/18/92*
~~W. H. ... 9/18/92~~
~~W. H. ... 9-21-97~~
K.L. Proctor