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PRINT DATE: 10/12/85

FAILURE MODES EFFECTS ANALYSIS (FMEA) - NON-CIL HARDWARE

NUMBER: M8-1MR-E024-X

SUBSYSTEM NAME: ECLSS - MIR

REVISION: 2 9/15/85

	PART NAME VENDOR NAME	PART NUMBER VENDOR NUMBER
LRU	: NUT, FLEXIBLE AIR DUCT COUPLING	V727-634115-001

PART DATA**EXTENDED DESCRIPTION OF PART UNDER ANALYSIS:**

FAN PACKAGE MUFFLER INLET/CABIN ARS FLOOR SUPPLY VENTURI NOZZLE FLEXIBLE AIR DUCT COUPLING NUT

REFERENCE DESIGNATORS:QUANTITY OF LIKE ITEMS: 2
TWO**FUNCTION:**

PROVIDES QUICK CONNECT/DISCONNECT OF THE FLEXIBLE AIR DUCT AT TWO POINTS: ORBITER CABIN ARS FLOOR SUPPLY VENTURI NOZZLE AND FAN PACKAGE MUFFLER INLET.

REFERENCE DOCUMENTS: V519-634115
V727-634115
M072-643400
M072-643829

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

NUMBER: M8-1MR-0024- 01

REVISION# 2 9/15/95

SUBSYSTEM NAME: ECLSS - MIR

LRU: NUT, FLEXIBLE AIR DUCT COUPLING

ITEM NAME: NUT, FLEXIBLE AIR DUCT COUPLING

CRITICALITY OF THIS

FAILURE MODE: 1R3

FAILURE MODE:

UNABLE TO DISCONNECT

MISSION PHASE:

OO ON-ORBIT

VEHICLE/PAYLOAD/KIT EFFECTIVITY: 104 ATLANTIS

CAUSE:MECHANICAL SHOCK, PHYSICAL DAMAGE, OVER TIGHTENED, CORROSION/
CONTAMINATION

CRITICALITY 1/1 DURING INTACT ABORT ONLY? NO

CRITICALITY 1R2 DURING INTACT ABORT ONLY (AVIONICS ONLY)? N/A

REDUNDANCY SCREEN

A) PASS

B) N/A

C) PASS

PASS/FAL RATIONALE:

A)

B)

N/A - AT LEAST TWO REMAINING PATHS ARE DETECTABLE IN FLIGHT.

C)

METHOD OF FAULT DETECTION:

PHYSICAL OBSERVATION

CORRECTING ACTION: CREW COULD REMOVE FLEXIBLE DUCT USING QUICK
DISCONNECT NUT ON OTHER END. THE CREW COULD SEPARATE THE FLEXIBLE DUCT
FROM THE ELBOW AT EITHER END BY REMOVING THE FLEXIBLE DUCT CLAMP OR
CUTTING THE FLEXIBLE DUCT IN THE EVENT THE DUCT CANNOT BE REMOVED. ONCE
SEPARATED THE FLEXIBLE DUCT CAN BE STOWED AND HATCH "A" CLOSED.**REMARKS/RECOMMENDATIONS:**COUPLING NUTS CAN BE SCREWED OR UNSCREWED DURING FLIGHT. EACH REQUIRES
SIX FULL 360 DEGREE TURNS TO REMOVE WHICH TAKES ABOUT 22 SECONDS TO
ACCOMPLISH.

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

NUMBER: M8-1MR-E024-01

- FAILURE EFFECTS -**(A) SUBSYSTEM:**

UNABLE TO REMOVE FLEXIBLE DUCT AT ONE END - FAN PACKAGE MUFFLER INLET OR CABIN ARS FLOOR SUPPLY VENTURI NOZZLE.

(B) INTERFACING SUBSYSTEM(S):

NO EFFECT ON ORBITER INTERFACING SUBSYSTEMS.

(C) MISSION:

NO EFFECT. MISSION OBJECTIVES ARE MET WITH FLEXIBLE DUCT ATTACHED.

(D) CREW, VEHICLE, AND ELEMENT(S):

NO EFFECT FIRST FAILURE. LOSS OF CAPABILITY TO CLOSE HATCH "A" FOLLOWING SECOND FAILURE COULD JEOPARDIZE SAFETY OF CREW AND VEHICLE.

(E) FUNCTIONAL CRITICALITY EFFECTS:

FIRST FAILURE (UNABLE TO DISCONNECT COUPLING NUT ON FAN PACKAGE MUFFLER INLET SIDE OF FLEXIBLE DUCT) - NO EFFECT

SECOND FAILURE (UNABLE TO DISCONNECT COUPLING NUT ON CABIN ARS FLOOR SUPPLY VENTURI NOZZLE SIDE OF FLEXIBLE DUCT) - UNABLE TO CLOSE HATCH "A" IN A TIMELY MANNER, WHEN REQUIRED.

THIRD FAILURE (EXCESSIVE PRESSURE LEAK WITHIN TUNNEL ADAPTER HABITABLE VOLUME) - WORST CASE, LOSS OF CAPABILITY TO ISOLATE CABIN FROM TUNNEL ADAPTER ENVIRONMENT RESULTING IN EXCESSIVE LOSS OF CABIN CONSUMABLES. CREW/VEHICLE SAFETY JEOPARDIZED WITH LOSS OF CONSUMABLES.

DESIGN CRITICALITY (PRIOR TO DOWNGRADE, DESCRIBED IN (F)): N/A

(F) RATIONALE FOR CRITICALITY DOWNGRADE:

NONE. THE CRITICALITY OF THIS FAILURE MODE REMAINS UNCHANGED.

- TIME FRAME -

TIME FROM FAILURE TO CRITICAL EFFECT: HOURS TO DAYS

TIME FROM FAILURE OCCURRENCE TO DETECTION: IMMEDIATE

TIME FROM DETECTION TO COMPLETED CORRECTIVE ACTION: MINUTES TO HOURS

IS TIME REQUIRED TO IMPLEMENT CORRECTIVE ACTION LESS THAN TIME TO EFFECT?

YES

RATIONALE FOR TIME TO CORRECTING ACTION VS TIME TO EFFECT:

CREW WOULD HAVE AMPLE TIME TO REMOVE THE FLEXIBLE DUCT AND CLOSE HATCH "A" BEFORE LOSS OF CONSUMABLES BECAME CATASTROPHIC.

HAZARDS REPORT NUMBER(S): DM10HA08(F)

HAZARD(S) DESCRIPTION:

LOSS OF ABILITY TO ISOLATE THE ODS.

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NUMBER: M8-1MR-E024-01

- APPROVALS -

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