

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

NUMBER: 02-2A-021114 -X

SUBSYSTEM NAME: FLIGHT CONTROL MECH - RUDDER SPEED BRAKE &amp; BF

REVISION: 0 02/02/88

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 PART DATA
 

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	PART NAME	PART NUMBER
	VENDOR NAME	VENDOR NUMBER
ASSY	: BODY FLAP ACTUATION	MC621-0056-0083
SRU	: FILTER SCREEN	

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## EXTENDED DESCRIPTION OF PART UNDER ANALYSIS:

FILTER SCREEN

## REFERENCE DESIGNATORS:

QUANTITY OF LIKE ITEMS: 3  
THREE (ONE EACH HYD SYSTEM)

## FUNCTION:

SCREEN TYPE FILTERS ARE INCORPORATED AT THE VALVE MODULE PRESSURE PORTS P1, P2 AND P3 TO PREVENT INSOLUBLE CONTAMINANTS FROM ENTERING THE BODY FLAP SYSTEM.

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

NUMBER: 02-2A-021114-02

REVISION#: 1 08/07/98

SUBSYSTEM NAME: FLIGHT CONTROL MECH - RUDDER SPEED BRAKE &amp; BF

LRU:

ITEM NAME: FILTER SCREEN

CRITICALITY OF THIS  
FAILURE MODE: 1R3

## FAILURE MODE:

RESTRICTED OR NO FLOW

## MISSION PHASE:

DO DE-ORBIT

## VEHICLE/PAYLOAD/KIT EFFECTIVITY:

102	COLUMBIA
103	DISCOVERY
104	ATLANTIS
105	ENDEAVOUR

## CAUSE:

DEGRADED FILTER, CONTAMINATION

CRITICALITY 1/1 DURING INTACT ABORT ONLY? NO

## REDUNDANCY SCREEN

A) PASS  
B) FAIL  
C) PASS

## PASS/FAIL RATIONALE:

A)

B)

FAILS REDUNDANCY SCREEN "B" SINCE 100% RATE IS UNDETECTABLE BY CREW.

C)

## - FAILURE EFFECTS -

## (A) SUBSYSTEM:

LOSS OF ONE HYDRAULIC MOTOR RPM/TORQUE INPUT INTO SUMMER DIFFERENTIALS.  
(HYDRAULIC BRAKE IS APPLIED WITH ABSENCE OF HYDRAULIC FLUID PRESSURE,  
PREVENTING REMAINING TWO HYDRAULIC MOTORS FROM BACKDRIVING FAILED  
HYDRAULIC MOTOR). BODY FLAP OPERATES AT 100% RATE.

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**(B) INTERFACING SUBSYSTEM(S):**  
NONE.

**(C) MISSION:**  
NONE

**(D) CREW, VEHICLE, AND ELEMENT(S):**  
LOSS OF MISSION. CREW/VEHICLE AFTER LOSS OF REMAINING TWO HYDRAULIC MOTORS. RESULTING IN LOSS OF BODY FLAP FUNCTION.

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**-DISPOSITION RATIONALE-**

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**(A) DESIGN:**  
FILTER SIZED FOR VEHICLE LIFE. PROVEN DESIGN COMPATIBLE WITH REQUIREMENTS OF SE-F-0044 RATED 200 MICRON - ABSOLUTE - CLEANABLE - ELEMENT SIZED FOR WORST CASE CONTAMINANT LEVEL - 100 MISSION LIFE. UPSTREAM 5 MICRON MAIN FILTER AND SERVICING CART FILTER.

**(B) TEST:**  
QUALIFICATION TESTS: PERFORMANCE, OPERATING LIFE, QUIESCENT LEAKAGE AND IMPULSE CYCLING. TESTED DURING POWER DRIVE UNIT (PDU) AND QUALIFICATION TESTING TO LEVEL 190.

ACCEPTANCE TESTS: PROOF PRESSURE, PROOF LOW PRESSURE, QUIESCENT LEAKAGE, FAILURE MODE TEST AND FUNCTIONAL TEST.

GROUND TURNAROUND TEST  
ANY TURNAROUND CHECKOUT TESTING IS ACCOMPLISHED IN ACCORDANCE WITH OMRSD.

**(C) INSPECTION:**  
RECEIVING INSPECTION  
MATERIAL AND PROCESS CERTIFICATIONS VERIFIED. FABRICATION AND INSPECTION DATA ON FILE.

CONTAMINATION CONTROL

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FORMAL CONTAMINATION CONTROL PLAN VERIFIED. PROCESS AND CORROSION PROTECTION PROVISIONS VERIFIED. ASSEMBLY VERIFIED TO BE FREE OF PARTICULATES. FLUID SAMPLE REQUIREMENTS VERIFIED. CLEANING TO LEVEL 190 VERIFIED BY INSPECTION.

**ASSEMBLY/INSTALLATION**  
ASSEMBLY AND INSTALLATION OPERATIONS VERIFIED BY SHOP TRAVELER MANDATORY INSPECTION POINTS (MIPS).

**TESTING**  
ACCEPTANCE TESTS CERTIFICATION VERIFIED.

**HANDLING/PACKAGING**  
HANDLING AND PACKAGING REQUIREMENTS ARE VERIFIED.

**(D) FAILURE HISTORY:**  
CURRENT DATA ON TEST FAILURES, FLIGHT FAILURES, UNEXPLAINED ANOMALIES, AND OTHER FAILURES EXPERIENCED DURING GROUND PROCESSING ACTIVITY CAN BE FOUND IN THE PRACA DATA BASE.

**(E) OPERATIONAL USE:**  
NONE.

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**- APPROVALS -**

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EDITORIALLY APPROVED  
TECHNICAL APPROVAL

: BNA  
: VIA APPROVAL FORM

: J. Kamala 8-15-98  
: 95-CIL-009\_02-2A