

**FAILURE MODES EFFECTS ANALYSIS (FMEA) - CIL HARDWARE
NUMBER: 07-2D-ES7 -X****SUBSYSTEM NAME: CREW ESCAPE - EMERGENCY EGRESS SLIDE
REVISION: 0 08/01/88**

PART DATA

	PART NAME	PART NUMBER
	VENDOR NAME	VENDOR NUMBER
LRU	: SLIDE ASSEMBLY	MC623-0015-0007
SRU	: VALVE/REGULATOR	30001-1 PICO/SARGENT

QUANTITY OF LIKE ITEMS: 1**FUNCTION:**

VALVE/REGULATOR PROVIDES FILL PORT FOR RESERVOIR. RELEASES PRESSURANT GAS FROM 3000 PSI CYLINDER WHEN ACTUATED BY LANYARD AND DELIVERS FLOW AT 400 PSI MAX TO INTERCONNECT HOSE AND ASPIRATOR TO INFLATE SLIDE TO A NOMINAL PRESSURE OF 2.75 PSI.

REFERENCE DOCUMENTS: D103030 ISI

FAILURE MODES EFFECTS ANALYSIS FMEA - CIL FAILURE MODE

NUMBER: 07-2D-E57- 02

REVISION#: 1 09/02/98

SUBSYSTEM NAME: CREW ESCAPE - EMERGENCY EGRESS SLIDE

LRU: SLIDE ASSEMBLY

CRITICALITY OF THIS

ITEM NAME: VALVE/REGULATOR

FAILURE MODE: 1R2

FUNCTIONAL CRITICALITY/

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

FAILURE MODE:

OUTPUT PRESSURE HIGH (POTENTIAL UNDERINFLATION).

MISSION PHASE:

LS LANDING SEQUENCE

VEHICLE/PAYLOAD/KIT EFFECTIVITY:	102	COLUMBIA
	103	DISCOVERY
	104	ATLANTIS
	105	ENDEAVOUR

CAUSE:

BROKEN PIECE PART

CRITICALITY 1/1 DURING INTACT ABORT ONLY? YES

LS LANDING SEQUENCE

REDUNDANCY SCREEN	A) PASS
	B) FAIL
	C) PASS

PASS/FAIL RATIONALE:

A)

B)

"B" SCREEN FAILS BECAUSE THERE IS NO TEST AVAILABLE TO DETECT FOR THIS FAILURE IN FLIGHT.

C)

METHOD OF FAULT DETECTION:

CREW OBSERVATION OF SLIDE DEPLOYMENT.

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CORRECTING ACTION: MANUAL

CORRECTING ACTION DESCRIPTION:

IF SLIDE FAILS TO INFLATE, USE DESCENT DEVICE (SKY GENIE) THROUGH SIDE HATCH OPENING OR OVERHEAD WINDOW. FOR PARTIAL INFLATION, FIRST TWO CREWMEMBERS TO EGRESS CAN HOLD SLIDE FOR OTHER CREWMEMBERS.

REMARKS/RECOMMENDATIONS:

NO OVERPRESSURE RELIEF EXISTS BETWEEN REGULATOR OUTLET AND ASPIRATOR INLET. RESERVOIR DOES NOT CONTAIN SUFFICIENT GAS TO OVERINFLATE SLIDE.

- FAILURE EFFECTS -

(A) SUBSYSTEM:

POSSIBLE RUPTURE OF HOSE, FAILURE TO INFLATE SLIDE.

(B) INTERFACING SUBSYSTEM(S):

NONE.

(C) MISSION:

NONE

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

OTHER SUBSYSTEM FAILURES MUST OCCUR BEFORE USE OF THE EMERGENCY SYSTEM IS REQUIRED. POSSIBLE LOSS OF CREW IF RAPID EMERGENCY EGRESS IS REQUIRED.

(E) FUNCTIONAL CRITICALITY EFFECTS:

AFTER OTHER SUBSYSTEM FAILURES OCCUR REQUIRING THE USE OF THE EMERGENCY SYSTEM, A SINGLE FAILURE OF THE VALVE/REGULATOR CAN RESULT IN POSSIBLE INJURY/LOSS OF CREW.

- TIME FRAME -

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TIME FROM FAILURE TO CRITICAL EFFECT: IMMEDIATE

TIME FROM FAILURE OCCURRENCE TO DETECTION: SECONDS

TIME FROM DETECTION TO COMPLETED CORRECTING ACTION: N/A

**IS TIME REQUIRED TO IMPLEMENT CORRECTING ACTION LESS THAN TIME TO EFFECT?
N/A**

**RATIONALE FOR TIME TO CORRECTING ACTION VS TIME TO EFFECT:
EMERGENCY EGRESS USING SKY GENIE WOULD EXCEED MAXIMUM ALLOWABLE TIME OF
60 SECONDS.**

-DISPOSITION RATIONALE-

(A) DESIGN:

TECHNOLOGY-BASE ESTABLISHED IN COMMERCIAL AIRLINE HARDWARE. PROVEN COMPONENTS IN INFLATION SYSTEM. OUTPUT PRESSURE IS CONTROLLED BY AN ORIFICE.

(B) TEST:

ACCEPTANCE TESTS OF SLIDE ASSEMBLY INCLUDE TWO DEPLOYMENT TESTS. SUPPLIER ACCEPTANCE TESTS OF VALVE/REGULATOR ARE TBS.

QUALIFICATION TESTS OF SLIDE ASSEMBLY INCLUDE 40 DEPLOYMENT TESTS.

PERIODIC MAINTENANCE INCLUDES REPLACING O-RINGS AND RELUBRICATING AFTER TEN CYCLES OR THREE YEARS AND INFLATION TEST OF SLIDE ASSEMBLY EVERY 18 MONTHS PER ISI DOCUMENT 35-D102900 AND OMRSD FILE II, VOLUME 3

GROUND TURNAROUND TEST

ANY TURNAROUND CHECKOUT TESTING IS ACCOMPLISHED IN ACCORDANCE WITH OMRSD.

(C) INSPECTION:

RECEIVING INSPECTION

CERTIFICATION OF PROCESSES AND MATERIALS INCLUDING STRENGTH, COMPOSITION, HEAT TREAT AND CORROSION PROTECTION ARE VERIFIED BY INSPECTION.

CONTAMINATION CONTROL

CLEANLINESS OF SIGNIFICANT SURFACES TO LEVEL GC (GENERALLY CLEAN) OF MA0110-301 IS VERIFIED BY INSPECTION.

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ASSEMBLY/INSTALLATION

CONFORMANCE OF DETAIL PARTS AND ASSEMBLY TO DRAWING REQUIREMENTS ARE VERIFIED BY INSPECTION. PARTS PROTECTION AND HANDLING PROVISIONS ARE VERIFIED BY INSPECTION.

TESTING

O-RING LUBRICANT AROUND POPPET SHAFT AND ATP ARE VERIFIED BY INSPECTION

HANDLING/PACKAGING

PROPER PACKAGING TO LEVEL A OF MIL-STD-794 IS VERIFIED BY INSPECTION.

(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. FAA GENERIC FAILURE DATA DOES NOT INCLUDE SUFFICIENT DETAIL TO CORRELATE WITH THIS FAILURE MODE.

(E) OPERATIONAL USE:

OPERATION EFFECT OF FAILURE: POSSIBLE LOSS OF LIFE.

CREW ACTION: BRING SKY GENIE DOWN FROM FLIGHT DECK AND EGRESS USING CARABINERS.

CREW TRAINING: CREW IS TRAINED IN ABOVE PROCEDURE.

MISSION CONSTRAINTS: NONE. MISSION WOULD BE TERMINATED PRIOR TO USE OF SLIDE.

INFLIGHT CHECKOUT: NONE.

- APPROVALS -

EDITORIALLY APPROVED

: BNA

: J. Kemura 9-3-98

TECHNICAL APPROVAL

: VIA APPROVAL FORM

: 96-CIL-032_07-2D