

**FAILURE MODES EFFECTS ANALYSIS (FMEA) -- CIL HARDWARE
NUMBER: 07-2D-ES4 -X**

**SUBSYSTEM NAME: CREW ESCAPE - EMERGENCY EGRESS SLIDE
REVISION: 3 05/17/91**

PART DATA

	PART NAME VENDOR NAME	PART NUMBER VENDOR NUMBER
LRU	. EMERGENCY EGRESS SLIDE SYSTEM	MC623-0015-0007 D102900
LRU	: INBD STOWAGE CONTNR COVER ASSY	MC623-0015-0010
LRU	: OUTBD STOW CONTR COVER ASSY	MC623-0015-0011
LRU	: EMERGENCY EGRESS SLIDE SYSTEM	MC623-0015-0012 D102900-1
LRU	. INBD STOWAGE CONTNR COVER ASSY	MC623-0015-0013
LRU	: OUTBD STOW CONTNR COVER ASSY	MC623-0015-0014

EXTENDED DESCRIPTION OF PART UNDER ANALYSIS:

QUANTITY OF LIKE ITEMS: 2
1 INBOARD COVER, 1 OUTBOARD COVER

FUNCTION:

THE INBOARD STOWAGE CONTAINER COVER ASSEMBLY PROVIDES HARD SURFACE PROTECTION FOR FOLDED SLIDE PACK AND PROTECTS SLIDE PACK FROM SIDE HATCH THROUGH-TRAFFIC DURING GROUND SERVICING. THE INBOARD COVER ALSO SECURES THE EMERGENCY EGRESS SLIDE PACK WHEN IN THE FOLDED/STOWED POSITION. THE INBOARD AND OUTBOARD COVERS ACT AS STRUCTURAL MEMBERS TO WITHSTAND ASCENT AND CRASH LOADS.

FAILURE MODES EFFECTS ANALYSIS FMEA -- CIL FAILURE MODE

NUMBER: 07-2D-ES4-01

REVISION#: 4 09/02/98

SUBSYSTEM NAME: CREW ESCAPE - EMERGENCY EGRESS SLIDE

LRU: EMERGENCY EGRESS SLIDE SYSTEM

CRITICALITY OF THIS

ITEM NAME: OUTBD STOW CONTNR COVER ASSY

FAILURE MODE: 1R2

FAILURE MODE:

FAILS TO RELEASE

MISSION PHASE:

LS LANDING/SAFING

VEHICLE/PAYLOAD/KIT EFFECTIVITY:

102	COLUMBIA
103	DISCOVERY
104	ATLANTIS
105	ENDEAVOUR

CAUSE:

BINDING DUE TO STRUCTURAL DEFORMATION, AIR IN SLIDE PACK

CRITICALITY 1/1 DURING INTACT ABORT ONLY? NO

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)

- FAILURE EFFECTS -

(A) SUBSYSTEM:

THE SLIDE CANNOT BE USED IF THE STOWAGE CONTAINER COVER CANNOT BE RELEASED.

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(B) INTERFACING SUBSYSTEM(S):

FAILURE OF THE STOWAGE CONTAINER COVER TO RELEASE HAS NO EFFECT ON INTERFACING SUBSYSTEMS.

(C) MISSION:

NO EFFECT ON MISSION.

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

OTHER SUBSYSTEM FAILURES MUST OCCUR BEFORE USE OF THE EMERGENCY SYSTEM IS REQUIRED. POSSIBLE INJURY TO, OR 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 INBOARD/OUTBOARD STOWAGE CONTAINER COVER ASSEMBLY CAN RESULT IN POSSIBLE INJURY/LOSS OF CREW.

-DISPOSITION RATIONALE-

(A) DESIGN:

COVER IS RELEASED BY THE DISENGAGEMENT OF TWO OVERCENTER LATCHES ACTUATED BY MANUAL ROTATION OF HANDLE AT TOP OF COVER. COVER IS ALUMINUM ALLOY BOX STRUCTURE TO RESIST WALKING AND PUSH OFF LOADS. HAS A FACTOR OF SAFETY OF 1.4 MINIMUM WITH POSITIVE MARGINS ON ALL COMPONENTS.

(B) TEST:

ACCEPTANCE TESTS INCLUDE TWO DEPLOYMENT TESTS AND ONE FINAL PACKING TEST TO DEMONSTRATE COMPLIANCE WITH 30 LB RELEASE PULL FORCE REQUIREMENT.

QUALIFICATION TESTS INCLUDE 40 DEPLOYMENT TESTS FROM SIMULATED SIDE HATCH. CERTIFICATION IS BASED ON QUALIFICATION TESTS SUPPORTED BY ANALYSIS FOR VIBRATION/SHOCK ENVIRONMENTS AND STRUCTURAL STRENGTH.

PERIODIC MAINTENANCE INCLUDES INFLATION TEST AND REPACKING EVERY 18 MONTHS PER ISI DOCUMENT 35-D102900.

GROUND TURNAROUND TEST

ANY TURNAROUND CHECKOUT TESTING IS ACCOMPLISHED IN ACCORDANCE WITH OMRSD.

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(C) INSPECTION:

RECEIVING INSPECTION

CERTIFICATION OF PROCESSES AND MATERIALS INCLUDING STRENGTH, COMPOSITION, HEAT TREAT AND ANODIZING IS VERIFIED BY INSPECTION.

CONTAMINATION CONTROL

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

ASSEMBLY/INSTALLATION

METAL FORMING AND RIVET PROCESSING ARE VERIFIED BY INSPECTION. CONFORMANCE OF DETAIL PARTS AND ASSEMBLY TO DRAWING REQUIREMENTS IS VERIFIED BY INSPECTION. PARTS PROTECTION AND HANDLING PROVISIONS ARE VERIFIED BY INSPECTION.

CRITICAL PROCESSES

PASSIVATION, ANODIZING, AND HEAT TREAT PROCESSES ARE VERIFIED BY INSPECTION.

NONDESTRUCTIVE EVALUATION

FLUORESCENT PENETRANT INSPECTION OF SPRING PER MIL-I-6866, SENSITIVITY TYPE 1, LEVEL 2, METHOD B PER MIL-I-25135 PRIOR TO PASSIVATION IS VERIFIED BY INSPECTION.

TESTING

IN-PROCESS AND FINAL ATP TESTS 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.

(E) OPERATIONAL USE:

OPERATIONAL 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 THE SLIDE.

INFLIGHT CHECKOUT

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NONE.

- APPROVALS -

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TECHNICAL APPROVAL	: VIA APPROVAL FORM	: 96-CIL-032_07-2D