SHUTTLE CRITICAL ITEMS LIST - ORBITER

SUBSYSTEM :CREW ESCAPE-EGRESS - PYRO FMEA NO P7-2A-480054-1 REV:03/17/88

ASSEMBLY :EMERGENCY EGRESS WINDOW
P/N RI :SKD26100108
P/N VENDOR:
QUANTITY :2
:ONE IN CREW MODULE
:ONE EXTERIOR

CRIT. FUNC: 1
CRIT. HDW: 1

VEHICLE EFFECTIVITY:	102	103	104
PHASE(S): PL	X	X	X
LO			
OO			
DO			
LS	X		

REDUNDANCY SCREEN: A- B- C-

PREPARED BY:
DES R. H. YEE
REL M. B. MOSKOWITZ
QE E. M. GUTIERREZ

APPROVED BY:
DES
REL
QE

APPROVED BY (NASA):
SSM
REL
QE

ITEM:
T-HANDLE INITIATOR, OVERHEAD WINDOW SEVERANCE SYSTEM

FUNCTION:
INITIATE WINDOW SEVERANCE FUNCTION WITH EITHER THE INTERIOR CREW COMPARTMENT T-HANDLE OR THE EXTERIOR (RIGHT-HAND SIDE) ACCESS DOOR T-HANDLE BY GROUND CREW.

FAILURE MODE:
NO OUTPUT

CAUSE(S):
DUAL PRIMER FAILURE, DUAL SHIELDED MILD DETONATING CORD (SMDC) BOOSTER FAILURE, DUAL SEAR/FIRING PIN MECHANISM JAM, STRUCTURAL FAILURE, CONTAMINATION OF EXPLOSIVE MIX.

EFFECT(S) ON:
(A)SUBSYSTEM (B)INTERFACES (C)MISSION (D)CREW/VEHICLE

(A) LOSS OF INITIATION CAPABILITY.

(B,C) NONE.

(D) POSSIBLE LOSS OF CREW IF CENTER CONSOLE T-HANDLE FAILS AND GROUND CREW IS NOT AVAILABLE AT LANDING SITE.

DISPOSITION & RATIONALE:
(A)DESIGN (B)TEST (C)INSPECTION (D)FAILURE HISTORY (E)OPERATIONAL USE

(A) DESIGN
EITHER T-HANDLE IS DESIGNED TO FUNCTION WITH EITHER OR BOTH OF TWO INDEPENDENT (REDUNDANT) FIRING PIN INPUTS.

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(B) TEST

QUALIFICATION TESTS: SALT FOG, RANDOM AND TRANSIENT VIBRATION, THERMAL CYCLING, PRESSURE CYCLING, SHOCK, -65 DEG F/AMBIENT/+160 DEG F FIRINGS (WITH SINGLE AND DUAL FIRING PINS), FLIGHT SAFETY LOCK MECHANISM RELEASE TEST, 2 VERIFICATION TESTS (BREADBOARD) AT ROCKWELL/DOWNEY.

ACCEPTANCE TESTS: EXAMINATION OF PRODUCT, X-RAY, N-RAY, HELIUM LEAK TEST, 200 LB. HANDLE PULL TEST, IN PROCESS 100% FLIGHT SAFETY LOCK MECHANISM RELEASE, LOT ACCEPTANCE FIRINGS ON RANDOM UNITS.

OMRSD: NO TURNAROUND TESTS.

(C) INSPECTION

RECEIVING INSPECTION
RAW MATERIAL IS VERIFIED BY INSPECTION TO ASSURE SPECIFIED SHUTTLE REQUIREMENTS ARE SATISFIED. ALL SPECIAL PROCESSES ARE VERIFIED BY INSPECTION/CERTIFICATION.

CONTAMINATION CONTROL
CONTAMINATION CONTROL AND CORROSION PROTECTION PROCESSES AND STORAGE ENVIRONMENTS ARE MONITORED AND VERIFIED BY INSPECTION.

ASSEMBLY/INSTALLATION
VISUAL INSPECTION, ID PERFORMED, PARTS PROTECTION VERIFIED BY INSPECTION.

NONDESTRUCTIVE EVALUATION
PARTS ARE X-RAYED AND N-RAYED TO VERIFY CORRECT ASSEMBLY AND PRESENCE OF ALL DETAIL PARTS AND EXPLOSIVES. X-RAYS AND N-RAYS ARE REVIEWED BY NASA QUALITY AND NASA ENGINEERING, AND DCAS.

CRITICAL PROCESSES
HEAT TREATING IS VERIFIED.

TESTING
DESTRUCTIVE LOT ACCEPTANCE TESTING PERFORMED BY SAMPLE SIZE VERSUS LOT SIZE. EACH INITIATOR ASSEMBLY IS CERTIFIED BY NASA ENGINEERING AND QUALITY ASSURANCE.

HANDLING/PACKAGING
HANDLING AND PACKAGING REQUIREMENTS VERIFIED BY INSPECTION.

(D) FAILURE HISTORY

THERE HAVE BEEN NO ACCEPTANCE TEST, FIELD OR FLIGHT FAILURES ASSOCIATED WITH THIS FAILURE MODE.

(E) OPERATIONAL USE

NONE.