

SHUTTLE CRITICAL ITEMS LIST - ORBITER

SUBSYSTEM :ACTUATION MECH-RADIATORS FMEA NO 02-4G -186 -1 REV:03/07/88

ASSEMBLY :RADIATOR LATCH MECHANISM	CRIT. FUNC:	1
P/N RI :T01P31359	CRIT. HDW:	1
P/N VENDOR:TULSA DIVISION	VEHICLE	102 103 104
QUANTITY :4	EFFECTIVITY:	X X X
:TWO PER SIDE	PHASE(S):	PL LO OO X DO LS

PREPARED BY:	REDUNDANCY SCREEN:	A-	B-	C-
DES M. A. ALLEN	APPROVED BY:	APPROVED BY (NASA):		
REL M. B. MOSKOWITZ	DES <i>D. Campbell</i>	SSM	<i>R.C. Moore 3/18/88</i>	
QE W. J. SMITH	REL <i>M.B.M. Moskowitz</i>	REL	<i>W.J. Smith</i>	
	QE <i>W.S. ...</i>	QE	<i>...</i>	

ITEM:  
SHEAR FITTING

FUNCTION:  
REACTS DYNAMIC X-DIRECTION LOADS FROM RADIATOR INTO PAYLOAD BAY DOOR DURING LAUNCH AND BOOST VIBRATION.

FAILURE MODE:  
FAILS TO ENGAGE

CAUSE(S):  
CONTAMINATION, BURR, STRUCTURAL DEFLECTIONS, MISALIGNMENT, MISADJUSTED

- EFFECTS ON:
- (A) SUBSYSTEM (B) INTERFACES (C) MISSION (D) CREW/VEHICLE
  - (A) SHEAR FITTING WILL NOT ENTER SOCKET IN RADIATOR DURING STOWING, RADIATOR CANNOT BE STOWED, POWER DRIVE UNIT (PDU) TORQUE LIMITER SLIPS.
  - (B) POSSIBLE INABILITY TO CLOSE PAYLOAD BAY DOORS, IMPAIRMENT OF FUSELAGE STRUCTURAL INTEGRITY.
  - (C) VEHICLE UNSAFE IN DESCENT PHASE IF PAYLOAD BAY DOORS ARE NOT CLOSED AND LATCHED.
  - (D) POSSIBLE LOSS OF CREW/VEHICLE.

SHUTTLE CRITICAL ITEMS LIST - ORBITER

SUBSYSTEM :ACTUATION MECH-RADIATORS FMEA NO 02-4G -126 -1 REV:03/07/83

DISPOSITION & RATIONALE:

(A)SUBSYSTEM (B)INTERFACES (C)MISSION (D)CREW/VEHICLE

(A) DESIGN

MATERIAL - BE-CU BUTTONS CHOSEN FOR HIGH STRENGTH/LCW WEAR AND GOOD FRICTION CHARACTERISTICS. RADIATOR STOWAGE MECHANISM DESIGNED FOR HIGH MARGIN OF CAPABILITY VS REQUIREMENT.

(B) TEST

QUALIFICATION TESTS: QUALIFICATION TESTS OF RADIATOR DEPLOYMENT MECHANISM ON FORWARD 15 FT. PAYLOAD BAY DOOR TEST ARTICLE (287) INCLUDE LIFE CYCLES, OPERATION WITH SIMULATED THERMAL DISTORTIONS OF HINGE LINE, AND VIBRO-ACOUSTIC. RADIATOR MECHANISM RIGGED PER CONTROLLED SPECIFICATION ME0308-0023 AND V070-634530.

OMRSD: GROUND TURNAROUND INCLUDES VISUAL INSPECTION OF HARDWARE TO INSURE THAT PARTS ARE NOT BROKEN OR DEFORMED AND MONITORING FUNCTIONAL TEST FOR EVIDENCE OF BINDING OR JAMMING. THESE TESTS ARE PERFORMED FIRST FLIGHT AND FOR EVERY FLIGHT WHERE THE RADIATORS WILL BE DEPLOYED.

(C) INSPECTION

RECEIVING INSPECTION

MATERIAL IS VERIFIED BY PHYSICAL/CHEMICAL PROPERTIES BY CERTIFICATION IN RECEIVING INSPECTION.

CONTAMINATION CONTROL

CLEANLINESS REQUIREMENTS VERIFIED BY INSPECTION.

ASSEMBLY/INSTALLATION

MACHINED FITTING VERIFIED BY INSPECTION FOR COMPLIANCE TO ENGINEERING DRAWING. LOCATION AND FINAL INSTALLATION OF FITTING CONTROLLED BY FINAL ASSEMBLY JIG TOOL LOCATORS AND VERIFIED BY INSPECTION.

NONDESTRUCTIVE EVALUATION

MACHINED FITTINGS SUBJECTED TO PENETRANT INSPECTION VERIFIED BY INSPECTION.

CRITICAL PROCESSES

HEAT TREATING VERIFIED BY INSPECTION.

HANDLING/PACKAGING

HANDLING AND PACKAGING REQUIREMENTS VERIFIED BY INSPECTION.

(D) FAILURE HISTORY

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

(E) OPERATIONAL USE

NONE.