

SHUTTLE CRITICAL ITEMS LIST - ORBITER

SUBSYSTEM : LANDING DECELERATION FMEA NO 02-1F -G09-CO-G01 REV:06/27

ASSEMBLY : MLG STRUT ACTUATOR  
P/N RI : MC287-0034  
P/N VENDOR: PARKER-BERTEA  
QUANTITY : 2  
: ONE PER ACTUATOR  
:

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

CRIT. FUNC:  
CRIT. HDW:

REDUNDANCY SCREEN: A-FAIL B-FAIL C-P

PREPARED BY:

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ITEM:

ORIFICE, ANTICAVITATION

FUNCTION:

PROVIDES PASSAGE FOR MAKEUP FLUID TO REACH OPPOSITE SIDE OF PI DURING EXTEND MODE. ASSURES RELIEF OF VACUUM ATTEMPTING TO RET GEAR.

FAILURE MODE:

BLOCKED

CAUSE(S):

CONTAMINATION

EFFECT(S) ON:

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

(A, B) CAVITATION OF GROSS SIDE OF ACTUATOR DURING EXTENSION.

(C, D) POSSIBLE LOSS OF CREW/VEHICLE WITH TWO FAILURES: FAILURE OF TO FULLY LOCK IN EXTENDED POSITION DUE TO CAVITATION VACUUM BE PISTON AND FAILURE OF THE DOWNLOCK BUNGEE TO OVERCOME RESISTANCE CAVITATION VACUUM FORCES; FAILURE TO LOCK GEAR INTO POSITION MAY RE IN GEAR COLLAPSE.

(E) FUNCTIONAL CRITICALITY EFFECTS-SEE ITEM (D) ABOVE. "A" SCREEN FAILED BECAUSE IN ORDER TO VERIFY THE CHECK VALVE FUNCTION, THE BU MUST BE DEACTIVATED. ALTHOUGH GEAR COLLAPSE WOULD BE DETECTED, THERE INSUFFICIENT TIME TO CORRECT THE PROBLEM. ("B" SCREEN IS FAILED.)

DISPOSITION & RATIONALE:

(A) DESIGN (B) TEST (C) INSPECTION (D) FAILURE HISTORY (E) OPERATIONAL USE

(A) DESIGN

UPSTREAM SIDE OF ORIFICE IS PROTECTED WITH AN 80 MICRON MINIMUM FILT SYSTEM CLEANLINESS IS TO LEVEL 220 PER MA0110-301. EXTEND AND RETE PORTS ARE PROTECTED WITH AN 80 MICRON FILTER.

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(B) TEST

QUALIFICATION-RANDOM VIBRATION AND ENDURANCE TESTS REPRESENTATIVE MISSION ENVIRONMENT. ACTUATOR EXTEND TIME TEST, PROOF PRESSURE TEST POST TEST PROCEDURE INCLUDES DISASSEMBLY AND INSPECTION OF WORKING COMPONENTS.

ACCEPTANCE-ACTUATOR EXTEND TIME TEST, UNIT CLEANLINESS TEST.

OMRSD-THERE IS NO TEST AVAILABLE.

(C) INSPECTION

RECEIVING INSPECTION  
CERTIFICATION RECORDS AND CERTIFIED TEST REPORTS ARE MAINTAINED  
CERTIFYING MATERIAL AND PHYSICAL PROPERTIES.

CONTAMINATION CONTROL  
SUPPLIER TEST STAND FLUID PARTICLE COUNT CHECKED TWICE A DAY, WHEN APPLICABLE. FLUID CONTAMINATION PARTICLE COUNT CONDUCTED PRIOR TO AND AFTER ATP, A FLUID SAMPLE IS DRAWN TO VERIFY FLUID CLEANLINESS. CONTAMINATED, ACTUATOR IS CYCLED AND FLUSHED UNTIL CONFIRMATION ATTAINED. SYSTEM CLEANLINESS IS VERIFIED TO LEVEL 220 PER MA0110-301

CRITICAL PROCESSES  
HEAT TREAT PROCESS IS VERIFIED BY INSPECTION.

NDE  
INSPECTION VERIFIES THAT DETAIL PARTS ARE MAGNETIC PARTICLE OR PENETRATION INSPECTED, DEPENDING ON THE ALLOY.

ASSEMBLY/INSTALLATION  
INSPECTION