

SHUTTLE CRITICAL ITEMS LIST - ORBITER

SUBSYSTEM : LANDING DECELERATION FMEA NO 02-1F -H01-FL-K01 REV:06/27

ASSEMBLY : NLG STRUT ACTUATOR

P/N RI : MC287-0034

P/N VENDOR: PARKER-BERTEA

QUANTITY : 1

: ONE PER ACTUATOR

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

CRIT. FUNC:

CRIT. HDW:

PREPARED BY:

DES

REL

QE

N LEVERT

C NELSON

M SAVALA

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

APPROVED BY:

DES

REL

QE

APPROVED BY (NASA):

SSM

REL

QE

ITEM:

FILTER, EXTEND PORT

FUNCTION:

FILTERS FLUID TO INLET SIDE OF EXTEND PORT TO PROTECT INTERNAL ACTU PARTS. FILTER IS 80 MICRON.

FAILURE MODE:

BLOCKED, INLET-SIDE OF EXTEND PORT

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 BEHIND 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, THER 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:

SYSTEM FILTRATION IS 5 MICRON. SYSTEM CLEANLINESS IS TO LEVEL 220 MA0110-301. FILTER MATERIAL IS 304 CRES.

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(B) TEST

QUALIFICATION-RANDOM VIBRATION AND ENDURANCE TESTS REPRESENTATIVE MISSION ENVIRONMENT. ACTUATOR EXTEND TIME 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 ON CERTIFYING MATERIAL AND PHYSICAL PROPERTIES.

CONTAMINATION CONTROL  
SYSTEM CLEANLINESS IS VERIFIED TO LEVEL 220 PER MA0110-301. FLUORESCENT CONTAMINATION PARTICLE COUNT CONDUCTED PRIOR TO ATP.

CRITICAL PROCESSES  
TIG WELDING IS VERIFIED BY INSPECTION.

ASSEMBLY/INSTALLATION  
INSPECTION OF DIMENSIONS AT FINAL INSPECTION IS VERIFIED.

TESTING  
ATP IS VERIFIED BY INSPECTION. BUBBLE POINT TESTING IS VERIFIED BY INSPECTION.

HANDLING/PACKAGING  
HANDLING AND PACKAGING REQUIREMENTS ARE VERIFIED BY INSPECTION.

(D) FAILURE HISTORY

THERE IS NO HISTORY OF FAILURE FOR THIS FAILURE MODE.

(E) OPERATIONAL USE

NONE