

SHUTTLE CRITICAL ITEMS LIST - ORBITER

SUBSYSTEM : LANDING DECELERATION FMEA NO 02-1F -G09-FL-K01 REV:06/27

ASSEMBLY : MLG STRUT ACTUATOR				CRIT. FUNC:
P/N RI : MC287-0034				CRIT. HDW:
P/N VENDOR: PARKER-BERTEA		VEHICLE	102 103 104	
QUANTITY : 2		EFFECTIVITY:	X X X	
: ONE PER ACTUATOR		PHASE(S):	PL LO OO DO X LS	

PREPARED BY:		REDUNDANCY SCREEN:	A-FAIL B-FAIL C-P
DES N LEVERT	APPROVED BY:	DES	APPROVED BY (NASA):
REL C NELSON	<i>N. Levert</i>	REL	SSM <i>R. Balunas</i>
QE M SAVALA	<i>M. Savala</i>	QE	<i>M. Savala</i>

ITEM:  
FILTER, EXTEND PORT

FUNCTION:  
FILTERS FLUID TO INLET SIDE OF EXTEND PORT TO PROTECT INTERNAL ACTUATOR 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 (A) TO FULLY LOCK IN EXTENDED POSITION DUE TO CAVITATION VACUUM BEING APPLIED TO PISTON AND FAILURE OF THE DOWNLOCK BUNGEE TO OVERCOME RESISTANCE TO CAVITATION VACUUM FORCES; FAILURE TO LOCK GEAR INTO POSITION MAY RESULT IN GEAR COLLAPSE.

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

(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.

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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  
SYSTEM CLEANLINESS IS VERIFIED TO LEVEL 220 PER MAO110-301. FLUO  
CONTAMINATION PARTICLE COUNT CONDUCTED PRIOR TO ATR.

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