SHUTTLE CRITICAL ITEMS LIST - ORBITER

SUBSYSTEM :LANDING DECELERATION FMEA NO 02-1F -G09-TO-F01 REV:06/27/

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

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

REDUNDANCY SCREEN: A-N/A B-N/A C-N/

PREPARED BY:		APPROVED BY:	APPROVED BY (NASA):
DES	N LEVERT	DES	SSM
REL	C NELSON	REL	REL
QE	M SAVALA	QE	QE

ITEM:
TIMING ORIFICE

FUNCTION:
CONTROLS HYDRAULIC FLUID INTERCHANGE FROM ONE SIDE OF PISTON TO OTHER ACHIEVE PROPER GEAR DEPLOYMENT TIME.

FAILURE MODE:
BLOCKED

CAUSE(S):
CONTAMINATION

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

(A,B) LANDING GEAR WILL NOT DEPLOY DUE TO HYDRAULIC LOCKUP OR WILL H INCREASED EXTENSION TIME.

(C) NONE, COMMITTED TO LANDING.

(D) POSSIBLE LOSS OF CREW/VEHICLE IF GEAR DOES NOT DEPLOY.

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

(A) DESIGN
THE ORIFICE IS PROTECTED BY 80 MICRON FILTERS IN THE ACTUATOR CONTR VALVE MODULE EXTEND AND RETRACT PASSAGES AND A 5 MICRON SYSTEM SUPP FILTER. SILTING IS UNLIKELY DUE TO THE ORIFICE SIZE WHICH RANGES FR 0.163 TO 0.268 INCH FOR THE MAIN LANDING GEAR.

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

ACCEPTANCE-ACTUATOR EXTEND TIME TEST, UNIT CLEANLINESS TEST.

OMRSD-EXTEND--LEFT AND RIGHT MAIN LANDING GEAR FROM CREW STATIC PERFORMED PRIOR TO EACH MISSION. POST LANDING HYDRAULIC RESERVO EFFLUENT SAMPLES, PERFORMED AFTER EVERY FLIGHT; VERIFY THAT RESULTS FLUID SAMPLE CONTAMINATION MEET SPECIFICATION. GENERAL REQUIREMENT 5. VERIFY ALL HYDRAULIC FLUID USED TO SERVICE VEHICLE IS PER MIL-H-83282.

(C) INSPECTION

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

CONTAMINATION CONTROL
SUPPLIER TEST STAND FLUID PARTICLE COUNT CHECKED TWICE A DAY, WH APPLICABLE. FLUID CONTAMINATION PARTICLE COUNT CONDUCTED PRIOR TO AT 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 MAO110-301.

CRITICAL PROCESSES
HEAT TREAT PROCESS IS VERIFIED BY INSPECTION.

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

ASSEMBLY/INSTALLATION
INSPECTION OF DIMENSIONS AT FINAL INSPECTION. COMPONENT PARTS VERIFI UNDAMAGED PRIOR TO CLEANING AND PACKAGING.

TESTING
ATP IS VERIFIED BY INSPECTION.

HANDLING/PACKAGING
PARTS PROTECTION TO PRECLUDE CONTAMINATION DURING SHIPMENT IS VERIFIED INSPECTION.

(D) FAILURE HISTORY
THERE IS NO HISTORY OF FAILURE FOR THIS FAILURE MODE.

(E) OPERATIONAL USE
NONE