

SHUTTLE CRITICAL ITEMS LIST - ORBITER

SUBSYSTEM : EW&I/LAND GEAR & CNTRL FMEA NO 05-7BA-2001 -1 REV:03/05/90

LOCATION : SEE TABLE 05-7BA-2001-1

P/N RI	QUANTITY	VEHICLE	102	103	104	105
1. NLS6GT12-35XX	1					
2. NLS6GT14-35XX	1					
3. NLS6GT18-35XX	1	EFFECTIVITY	X	X	X	X
4. NLS6GT22-35XX	2					
5. NLS6GT24-35XX	1	PHASE(S):	PL	LO	OO	DO X LS

CRIT. FUNC: 1
CRIT. HDW: 1

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

PREPARED BY: DES Q DANG
REL T KIMURA
QE J COURSEN

APPROVED BY: DES Q DANG
REL T KIMURA
QE J COURSEN

Handwritten signatures and dates:
G. Brown 3/12/90
Melvin P. Hunt 3-12-90
J. P. ... 3-12-90

APPROVED BY (NASA):
EW&I SSM
EW&I REL
SSM
REL
QE

Handwritten signatures and dates:
4/17/90
4/17/90
4/24/90
3/28

ITEM:

CONNECTOR, PLUG, [(1.) 22 #22 CONTACTS, (2.) 37 #22 CONTACTS, (3.) 66 #2 CONTACTS, (4.) 100 #22 CONTACTS, (5.) 128 #22 CONTACTS] - LANDING GEAR DOWN COMMAND CIRCUIT.

FUNCTION:

PROVIDES MATE/DEMATE CAPABILITY FOR WIRING THAT CONTAINS COMMANDS FOR ENERGIZING THE LANDING GEAR DOWN RELAYS. FOR PLUG AND SHORTED PIN-TO-PI PIN/SOCKET REFERENCE DESIGNATORS, SEE TABLE 05-7BA-2001-1.

FAILURE MODE:

PIN-TO-PIN SHORT (HOT)

CAUSE(S):

PIECE PART FAILURE, CONTAMINATION, VIBRATION, MECHANICAL SHOCK, PROCESSING ANOMALY, THERMAL STRESS

EFFECT(S) ON:

(A) SUBSYSTEM (B) INTERFACES (C) MISSION (D) CREW/VEHICLE (E) FUNCTIONAL CRITICALITY EFFECT:

- (A) INADVERTENTLY ENERGIZES THE LANDING GEAR DOWN LATCHING RELAY COILS.
- (B) LANDING GEAR DOWN RELAY CONTACTS ARE CLOSED. LANDING GEARS WILL BE DEPLOYED UPON ACTIVATION OF ARM SWITCH.

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(C,D) LANDING GEARS WILL BE EXTENDED AS SOON AS ARM SWITCH IS ACTIVATED BECAUSE LANDING GEAR DOWN RELAY HAS ALREADY BEEN ENERGIZED. THIS MAY OCCUR AT A TIME WHEN THERE IS A LIGHT WEIGHT VEHICLE, STRONG HEAD WINDS AND LOW VEHICLE ENERGY WHICH COULD LAND VEHICLE SHORT OF RUNWAY AND MAY CAUSE VEHICLE DAMAGE RESULTING IN POSSIBLE LOSS OF CREW/VEHICLE.

REFERENCE CIL 05-6BA-2115-3

DISPOSITION & RATIONALE:

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

(A,B,C,D) DISPOSITION AND RATIONALE

REFER TO APPENDIX K:

ITEM NO. 3 - TYPE NLS CONNECTOR, CIRCULAR, MINIATURE

(B) TEST

GROUND TURNAROUND TEST - VERIFY LANDING GEAR CIRCUITRY OPERATION BY TESTING: ARM AND DOWN PUSHBUTTON SWITCHES, ARM/DOWN RESET SWITCH, CORRESPONDING LIGHT INDICATORS, AND HYDRAULIC VALVE OPERATIONS. TESTS ARE PERFORMED PER PARAGRAPHS:

- V51AAO.010 "EXTEND NLG FROM CREW STATION" (EVERY FLIGHT)
 - V51AAO.011 "EXTEND RMG FROM CREW STATION" (EVERY FLIGHT)
 - V51AAO.012 "EXTEND LMG FROM CREW STATION" (EVERY FLIGHT)
 - V51AHO.010 "LDG CIRCUITRY BUS REDUNDANCY TEST" (EVERY FIFTH FLIGHT)
 - V55ADO.010 "PYRO FIRING TEST - CDR INITIATED LDG" (EVERY FLIGHT)
 - V55ADO.030 "PYRO FIRING TEST - PLT INITIATED LDG" (EVERY FLIGHT)
- AND LRU REPLACEMENT PER TABLE V51Z00.000.

(E) OPERATIONAL USE

GEAR IS NORMALLY ARMED AT TWO THOUSAND FOOT ALTITUDE WHICH ASSURES MAKING THE RUNWAY THRESHOLD EXCEPT FOR THE WORSE CASE COMBINATION OF LIGHT WEIGHT VEHICLE, STRONG HEAD WINDS AND LOW VEHICLE ENERGY. CREW TRAINS SHUTTLE TRAINING AIRCRAFT AT TWO THOUSAND FOOT ALTITUDE TO MAKE FLIGHT ADJUSTMENTS TO COMPENSATE FOR INADVERTENT GEAR EXTENSION. IF DOWN RELAY FAILS CLOSED PRIOR TO ARM SWITCH ACTIVATION, CREW WILL DELAY "ARM" UNTIL IT IS SAFE TO DEPLOY LANDING GEAR. CREW WILL SEE "DOWN" PBI LIGHT ON AT THE GROUND WILL SEE THE ASSOCIATED TELEMETRY MEASUREMENT ON WHEN DOWN SWITCH FAILS.

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PART NUMBER	PLUG REFERENCE DESIGNATOR	CONNECTOR LOCATION	PIN/ SOCKET DESIG.
1. NLS6GT12-35XX	34V73A8W1P7	PANEL F8A5	14-21 15-21
2. NLS6GT14-35XX	34V73A6W1P7	PANEL F6A5	32-21 32-22 32-23 32-31 32-33 32-37
3. NLS6GT18-35	30V77W4P9282	PANEL F8	6-2 6-5 6-12 6-13
4. NLS6GT22-35XX	30V77W4P9263	PANEL F6	51-40 51-41 51-52
	81V77W8P143	FWD PCA-1	70-59 70-69 70-71
5. NLS6GT24-35XX	30V77W4P617	FWD LEFT PRODUCTION BREAK	48-36 48-37 48-59 48-60