CRITICAL ITEMS LIST (CIL)

SYSTEM:	ASI	FUNCTIONAL CRIT:	1
SUBSYSTEM:	Nose Cone Assembly	PHASE(S):	b
REV & DATE:	J, 12-19-97	HAZARD REF:	S.11
DCN & DATE:			
ANALYSTS:	L. Hansen/E. Howell		

FAILURE MODE: Structural Failure

FAILURE EFFECT: b) Loss of mission and vehicle/crew due to LO2 tank structural failure or debris source to orbiter.

TIME TO EFFECT: Immediate

FAILURE CAUSE(S): A: Improper Manufacture
B: Failure of Attaching Hardware

REDUNDANCY SCREENS: Not Applicable

FUNCTIONAL DESCRIPTION: Provides environmental protection for LO2 cover plate and nose compartment components.

FMEA ITEM CODE(S)	PART NO.	PART NAME	QTY	EFFECTIVITY
4.1.2.1	80911041202-080	Nose Cone Fairing Assembly	1	LWT-54 thru 80, 82-84
	80911041232-009		1	LWT-81, 85 & Up

REMARKS:

CRITICAL ITEMS LIST (CIL)
CONTINUATION SHEET

SYSTEM:	ASI	REV & DATE:	J, 12-19-97
SUBSYSTEM:	Nose Cone Assembly	DCN & DATE:	
FMEA ITEM CODE(S):	4.1.2.1		

RATIONALE FOR RETENTION

DESIGN:

A, B: The Nose Cone Fairing Assembly is a 29.74 inch long truncated 78.76-degree cone. The 80911041202 nose cone is constructed of aluminum skin stiffened by 5 frames, a collar, and vertical stringers. The 80911041232 nose cone is a composite graphite/phenolic shell not requiring an external TPS application with the forward fairing assembly integral to the cone. Materials are selected in accordance with MMC-ET-SE16 which requires repetitive conformance of composition and properties. The aluminum nose cone is designed to the required ultimate safety factor of 1.4 and the composite nose cone is designed to the required ultimate safety factors of 1.5 for areas of continuity and 2.0 for areas of discontinuity (ET Stress Report 826-2188).

B: Attaching hardware is designed to the required ultimate safety factor of 1.4 and is selected from the Approved Standard Parts List (ASPL 826-3500), installed per STP2014 and torqued using values specified on Engineering drawings. Tensile installation loads are sufficient to provide screening for major flaws in individual fasteners.

TEST:

The Nose Cone Fairing Assembly is certified. Reference HCS MMC-ET-TM08-L-S002.

Vendor:

B: Attaching hardware is procured and tested to Standard drawings 26L2, 26L30, 34L2 and 34L3.

INSPECTION:

Vendor Inspection - Lockheed Martin Surveillance:

A, B: Verify materials selection and verification controls (MMC-ET-SE16; drawing 80911041203 and Standard drawings 26L2 and 34L2 for LWT-54 thru 80, 82-84; drawing MS21060, Standard drawings 26L30 and 34L3 for LWT-81, 85 & up).

A: Inspect dimensions (drawing 80911041203 for LWT-54 thru 80, 82-84).

MAF Quality Inspection:

A, B: *Verify materials selection and verification controls (drawing 80911041233 and STM-H-718 for LWT-81, 85 & Up).

A: *Inspect dimensions (drawing 80911041233 for LWT-81, 85 & Up).

A: *Verify density, fiber volume, compression strength and modulus (drawing 80911041233 and STP7524 for LWT-81, 85 & up).

A: *Witness thermographic inspection for internal defects (drawing 80911041233 and STP7524 for LWT-81, 85 & up).

A, B: Verify installation and witness torque (drawing 80911041200 for LWT-54 thru 80, 82-84; drawing 80911041230 for LWT-81, 85 & up).

B: Inspect that attaching hardware is free from damage (drawing 80911041200 and STP2014 for LWT-54 thru 80, 82-84; drawing 80911041230 & STP2014 for LWT-81, 85 & up).

B: Verify insert locking feature (drawing 80911041200 and STP2014 for LWT-54 thru 80, 82-84; drawing 80911041230 and STP2014 for LWT-81, 85 & up).

B: Witness locking torque of nutplates at final installation of nose cone (drawing 80911041230 and STP2014 for LWT-81, 85 & up).

* NOTE: CIL inspections are performed by Lockheed Martin at MSFC.

FAILURE HISTORY:

Current data on test failures, unexplained anomalies and other failures experienced during ground processing activity can be found in the PRACA data base.