

CRDE # 1

CRITICAL ITEMS LIST

NAME P.N QUANTITY	CRIT	FAILURE MODE & CAUSE:	POTENTIAL EFFECT
Latch Pin Assembly PARTY 2428-11 Item 5.1 100	170	5.11001 Latch Pin Fails to engage. CAUSE: Defective material, loose thread Expansion.	POTENTIAL EFFECT END ITEM: Loss of use of one Latch Pin. EFE INTERFACES: Unable to secure one Payload Latch. MISSION: Complete EVA with exception of one Latch Pin Installation. Unable to secure one Latch. REMOVABLE: Vehicle damaged by loose latch during reentry. Loss of crew and vehicle.

ASSEMBLY DRAWING NUMBER: LATCH PIN CADDY (1159) 2428-11
 Reference: 1159DC11
 Prepared by: C. Hartman
 Superseding date: 0788
 Approved by: H. Malvey
 Date: 1184 Rev: K

RATIONALE FOR ACCEPTANCE

A. DESIGN:
 The Latch Pin is fabricated from 17-7PH stainless steel and is heat treated to a 1025 condition. High strength material and heat treated condition preclude wear and fracture. The pin is also passivated to meet 75 specification.
 The Latch Pin Caddy is stored in a foam cushion in the Payload Bay 150 to protect it from the possibility of damage from impact.

B. TESTS:
 Component Acceptance test: NONE
 PBA test -
 The following tests are conducted at the Latch Pin assembly level in accordance with ILE Document 10107 246802:
 1. Interface with Passive Latch.
 Certification test -
 A Certification Stress Analysis was performed to verify the structural integrity of the Latch Pin Assembly. The analysis considers the weight of the Passive Latch with any attaching hardware to be 50 lbs or less and a loading condition of 90 emergency landing load. The following results were obtained:

	Applied Stress (PSI)	Allowable Stress (PSI)	Margin of Safety
Shear	3,000	85,000	27.33
Bending	27,963	125,000	1.56

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ASSEMBLY NAME/PART NUMBER: LATCH PIN (A000710150-20292-00)
 Reference: LFCA0011
 Prepared by: E. Martean Approved by: M. Mahley
 Superseding Date: 8/88 Date: 1/89 Rev: 4

NAME P/N QUANTITY	CRIT	FAILURE MODE & CAUSES	FAILURE EFFECT	RATIONALE FOR ACCEPTANCE
Latch Pin Assembly 10139-20292 of Item 5.1 Two	101	5. ITEM 5 Latch Pin fails to engage.		<p>1. INSPECTIONS: Components and material manufactured to ILC requirements at an approved supplier are documented from procurement through shipping by ISM supplier. ILC incoming receiving inspection verifies that the materials received are as identified in the procurement documents, that no damage has occurred during shipment and that supplier certification has been received which provides traceability information.</p> <p>The following WIP's are performed during the Latch Pin manufacturing process to ensure the failure causes are precluded from the fabricated item:</p> <p>1. Inspection for damage or material degradation.</p> <p>During P&R, the following inspection points are performed at the Latch Pin Assembly level in accordance with ILC Document 10139-20292:</p> <p>1. Inspection for damage or material degradation.</p>

CRITICAL ITEMS LIST

ASSEMBLY NAME/PART NUMBER: LATCH PIN CABBY/10159-20192-01
Reference: LFCABIC
Prepared By: C. Harlan Approved By: M. Millroy
Superseding Date: Date Y/BB Rev: _____

NAME P/N QUANTITY	CRJI	FAILURE MODE & CAUSES	FAILURE EFFECT	RATIONALE FOR ACCEPTANCE
Latch Pin Assembly 10159-20261-01 1000 S.1 1ea	1/1	S.1FNHY Latch Pin fails to engage.		<p>D. FAILURE HISTORY: None</p> <p>E. DRIVING SURROUNDINGS: During ground turnaround, in accordance with SLE Document 10107-74715, the Latch Pin is inspected for damage. An interlock fail-check with the passive latch is performed per SMI V5850.</p> <p>F. OPERATIONAL USE:</p> <ol style="list-style-type: none"> 1. Crew Response PRE/PBST EVA - N/A EVA - Attempt to remove unspanned latch from payload bay rail and transport to crew compartment for reentry stowage. 2. Training Crew briefing. 3. Operational Considerations Minimal impact. Test may require additional time.

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