

## CRITICAL ITEMS LIST

ASSEMBLY NAME/TASK NUMBER: LATCH PIN CADDY/10159-24251-01  
 Reference: IPEARCEL  
 Prepared By: C. Wainman  
 Supervising Date: 8/28  
 Approved By: W. Miller  
 Date: 1-89 Rev: A

NAME P/N QUANTITY	FAST	FAILURE MODE & CAUSES	FAILURE EFFECT	RATIONALE FOR ACCEPTANCE												
Latch Pin Assembly 1M159-24251-01 Item 5.1 1 ea	1/2	SLIP/IN Loss of Hex Pin after installation on Latch.  CAUSE: Vehicle Vibration, Defective Material, Damage.	END ITEM: Latch Pin comes loose from Latch.  SFC INTERFACE: Latch is free floating on Payload Bay Rampdoor. Latch Pin is free floating in Payload Bay.  MISSION: Unable to successfully complete rescue.  EFFECT/VEHICLE: Vehicle damaged by loose Latch during recovery. Loss of crew and vehicle.	<b>A. DESIGN:</b> Hex Pin is fabricated from 15-05 AP stainless steel and is heat treated to a 185V condition. High strength material and heat treated condition preclude wear and breakage. The pin also passivated to 68-P-35 specifications.  The Latch Pin Caddy is stowed in a foam cushion on the Payload Bay FSA to protect it from the possibility of damage from impact.  <b>B. TEST:</b> Component Acceptance Test - None  PDR Test - The following tests are conducted at the Latch Pin Assembly level in accordance with ILC Document 10107-70400:  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 490 emergency landing load. The following results were obtained:												
				<table border="1"> <thead> <tr> <th></th> <th>Applied Stress (PSI)</th> <th>Allowable Stress (PSI)</th> <th>Margin of Safety</th> </tr> </thead> <tbody> <tr> <td>Shear</td> <td>3,400</td> <td>85,000</td> <td>27.35</td> </tr> <tr> <td>Bending</td> <td>27,463</td> <td>125,000</td> <td>3.55</td> </tr> </tbody> </table>		Applied Stress (PSI)	Allowable Stress (PSI)	Margin of Safety	Shear	3,400	85,000	27.35	Bending	27,463	125,000	3.55
	Applied Stress (PSI)	Allowable Stress (PSI)	Margin of Safety													
Shear	3,400	85,000	27.35													
Bending	27,463	125,000	3.55													

Document No. 10107-70712A  
 Release Date

Page 01-12 of 01-14

SH0210W  
 ATTACHMENT -  
 Page 90 of 153

ICB  
CRITICAL ITEMS (CSI)

ASSEMBLY NAME/PART NUMBER: LATCH PIN CARRY/10159-24292 W3  
 Reference: LPEAD010  
 Prepared by: E. Marlean  
 Approved by: R. Mathey  
 Superseding Date: 8/88  
 Date: 1/89 Rev: A

NAME P/N QUANTITY	CRIT	FAILURE MODE & CAUSES	FAILURE EFFECT	RATIONALE FOR ACCEPTANCE
Latch Pin Assembly 10159 20241-01 11ea S.1 1ea	1/1	S.1EM1e loss of Max Pin after installation on Latch.		<p><b>C. INSPECTION:</b>            Components and material manufactured in IIC requirements at an approved supplier are documented from procurement through shipping by the supplier. IIC 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 NIP's are performed during the Latch Pin manufacturing process to assure the failure causes are precluded from the fabricated items:</p> <ol style="list-style-type: none"> <li>1. Inspection for damage or material degradation.</li> </ol> <p>During PDA, the following inspections points are performed at the Latch Pin Assembly level in accordance with IIC Document 10187-70490:</p> <ol style="list-style-type: none"> <li>1. Inspection for damage or material degradation.</li> <li>2. Verify proper interface with Passive Latch.</li> </ol> <p><b>D. FAILURE MODES:</b>            None</p>

CII  
CRITICAL ITEMS LIST

ASSEMBLY NAME/PART NUMBER: LATCH PIN EMBODYING 159-20201-01  
Reference: IPCABEIL  
Prepared By: C. Hoffman Approved By: N. Mathes  
Superseding Date: 9/88 Date: 1/89 Rev: A

NAME P/N QUANTITY	CN11	FAILURE MODE & CAUSES	FAILURE EFFECT	RATIONALE FOR ACCEPTANCE
Latch Pin Assembly 159-20201-01 1188 S.1 1ea	974	S.1F010 Loss of Hex Pin after installation on Latch.		<p>E. GROUND TURNAROUND: During ground turnaround, in accordance with IEC document 16147-70753, the Hex Pin is inspected for damage and replaced, if necessary. An interface fit-check with the Passive Latch per DME 4505B.</p> <p>F. OPERATIONAL USE:</p> <ol style="list-style-type: none"> <li>1. Crew Response - None</li> <li>2. Training Crew briefing.</li> <li>3. Operational Considerations Catastrophic failure, Loss of crew and vehicle.</li> </ol>