

CIL
Critical Item List

Assembly Name/Part Number: Torque Multiplier/10155-20359-01
Reference: CIL 780617
Prepared By: C. Neelman
Superseding Date: 1/89
Approved By: W. Dittney
Date: 8/89 Rev: A

NAME ID# REV	CRIT	FAILURE MODE & CAUSES	FAILURE EFFECT	RAVIONALE FOR ACCEPTANCE
Torque Multiplier 10155- 10155-01 Rev 9.0	U/A	<p>EFFECTS: Physical jamming of gear system.</p> <p>CAUSE: Selective material. Impact. Bumped housing, skin dings, throat housing, input hubcap, input shaft, input ring or output ring gear. Contamination or foreign material in gear system.</p>	<p>LOSS OF FUNCTION: Unable to insert latch balls.</p> <p>MISSION: Unable to Jettison Payload. Periculis AVB.</p> <p>CONSEQUENCE: Loss of crew and vehicle.</p>	<p>A. DESIGN: The Torque Multiplier Gear System is fabricated from 3240 steel and electroless nickel plated. It was manufactured by the York J Company per Rockwell International specification MS102-0010.</p> <p>Tight tolerances and close fit between the main housing and the upper housing reduces the possibility of foreign material entering the Gear System Assembly. The Torque Multiplier has a VC level cleanliness requirement during both the assembly and acceptance operations, which is further protection from contamination.</p> <p>The Torque Multiplier is stored in a foam cushion in the Payload Bay PDA to protect it from the possibility of damage from impact.</p> <p>B. TEST: Component Acceptance Test - Gear</p> <p>FAA Test - The following tests are conducted at the Torque Multiplier Assembly level in accordance with ILC Agreement 10107-70459: 1. Functional test to verify proper operation.</p>

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DATE 8/10/89
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Critical Item List

Assembly Name: Part Number: Torque Multiplier/10150-26259 of
 Reference: ILL FROM I
 Prepared By: E. Hartman Approved By: H. Mathes
 Superseding Date: 9/88 Date: 1/88 Rev: A

NAME SP/N IRY	CRIT	FAILURE MODE & CAUSES	FAILURE EFFECTS	RAITONALE FOR ACCEPTANCE
Torque Multiplier 10059 26298-01 Item 3.4 Baa	1/1	5.488C Physical jamming of gear system.		<p>Certification Test - The Torque Multiplier was tested to 6740 requirements of eight cycles and exhibited no evidence of damage. It was certified for the worst case PER Storage temperature range of -200 degrees F to +150 degrees F.</p> <p>E. INSPECTION: Components and material manufactured to ILC requirements at an approved supplier are documented from procurement through shipping by the 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 SIP's are performed during the Torque Multiplier Assembly manufacturing process to ensure the failure causes are precluded from the fabricated item:</p> <ol style="list-style-type: none"> 1. Inspection of all components for damage or material degradation. 2. Verify proper lubrication. 3. Verify cleanliness to VC level.

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Critical Items List

Assembly Name/Part Number: Torque Multiplier/10107-70200 (1)
Re-revised: CIL FROM L1
Prepared By: C. Harlan Approved By: H. Mithey
Superseding Date: 9/88 Date: 1/89 Rev: A

NAME P/N ID#	CR#	FAILURE MODE & CAUSES	FAILURE EFFECT	RATIONAL FDS ACCEPTANCE
Torque Multiplier 10107- 70200-4) Item 5.4 One	171	3.98112 Physical jamming of gear system.		<p>During IBA, the following inspection points are performed at the Torque Multiplier Assembly level in accordance with ILL Document 10107-70690.</p> <ol style="list-style-type: none">1. Verify conformance to drawing.2. Inspection for damage or material degradation.3. Verification of successful completion of functional test.4. Verify cleanliness to VC level. <p>B. FAILURE HISTORY None</p> <p>C. GROUND TURNAROUND During ground turnaround, in accordance with ILL Document 10107-70715, the Torque Multiplier Assembly is disassembled, cleaned, relubricated, reassembled and tested for proper operation. It is then cleaned to VC level.</p> <p>F. OPERATIONAL USE:</p> <ol style="list-style-type: none">1. Crew Response Pre/Post EVA - N/A EVA - Transport torque Multiplier to crew compartment and attempt to repair.

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CIL
Critical Items List

Assembly Name/Part Number: Torque Multiplier/14159 34254-01
Reference: CIL_180911
Prepared By: E. Marlow
Superseding Date: 9/88
Approved By: W. Withy
Date: 1/89 Rev: A

NAME P/N QTY	CRIT	FAILURE MODE & CAUSES	FAILURE EFFECT	RATIONALE FOR ACCEPTANCE
Torque Multiplier 14159- 124294-01 11ea 3.0 0ea	1/1	3. 11M12 Physical locking of gear system.		<ol style="list-style-type: none"> 1. Training Crew briefing. 2. Operational Considerations Catastrophic failure. Possible loss of crew/vehicle.

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