

EIL
Critical Items List

Assembly Name/Part Number: Torque Multiplier (159 24007 of
Reference: EIL 180M1)
Prepared By: C. Maritan Approved By: M. Wilkey
Superseding Date: 7/88 Date: 1/87 Rev: A

INSTR SP/N IDTY	CRIT	FAILURE MODE & CAUSES	FAILURE EFFECT	RATIONALE FOR ACCEPTANCE
Knob 18159 28259-01 Item 3.4 1066	1/1	5.4FN1) Loss of Knob. CAUSE: Defective material on thread adhesive. Broken captive screw or retaining ring.	END ITEM: Knob separated from Torque Multiplier and lost. B/E INTERFACE: Unable to interface with Torque Branch. Unable to loosen latch bolts. MISSION: Unable to Jettison Payload. Terminate EVA. CREW/VEHICLE: Loss of crew and vehicle.	A. DESIGN The Torque Multiplier Knob and Knob Captive Screw are fabricated from 15-5 PH stainless steel, heat treated to H1450 condition and passivated per DD-P-15 specifications. The retaining ring is an off-the-shelf item fabricated from Beryllium copper. Loss of the captive screw is precluded in design by adherence to standard engineering torque requirements for screw installation and the use of thread lock adhesive. The screw is installed using Loctite 6292, medium strength, and torqued to 9.5 in/lbs to ensure that it remains in place. The shelf life of Loctite is carefully monitored to eliminate unacceptable degradation. B. TEST: Component Acceptance Test - None PPA Test - The following tests are conducted at the Torque Multiplier Assembly level in accordance with ILC Document 10187-7069a

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CIL
Critical Items List

Assembly Name/Part Number: Torque Multiplier/10154-20159-14
 Reference: CIL FROM I
 Prepared By: C. Harlan Approved By: W. Mathey
 Superseding Order: N/A Sales I/O: New: A

NAME P/N QTY	CRIT	FAILURE MODE & CAUSES	FAILURE EFFECT	RATIONALE FOR ACCEPTANCE
2web 10159 20159 A1 1100 S.0 Dca	1/1	S.9FM01 Loss of load.		<p>B. Functional test to verify proper operation of each.</p> <p>Certification Test - The Torque Multiplier was tested to S/AB requirements of eight cycles and exhibited no evidence of damage. It was certified for the worst case PSA Storage temperature range of -298 degrees F to +338 degrees F.</p> <p>C. 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 RIP's are performed during the Torque Multiplier Assembly manufacturing process to ensure the failure causes are precluded from the fabricated step:</p>

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DLI
Critical Items List

Assembly Blueprint Number: Torque Multiplier 70157 20258 of
Reference: CIL 160111
Prepared by: C. MacLean Approved By: H. Mathey
Supervising Oiler 938 Date: 1/87 Rev: A

NAME SPIN DIV	CRIT	FAILURE MODE & CAUSES	FAILURE EFFECT	RATIONALE FOR ACCEPTANCE
Knob 101459 101299-01 Item 5, 6 1000	1/1	5.46 Npl Loss of Knob.		<ol style="list-style-type: none"> 1. Inspection of all components for damage or material degradation. 2. The absence of Loctite is controlled by inspection. 3. Verification that Loctite shelf life is within specification. 4. Witness of Loctite application and torque of captive screw. <p>During PBA, the following inspection points are performed at the Torque Multiplier Assembly level in accordance with ILC Document 10107-70690.</p> <ol style="list-style-type: none"> 1. Inspection to drawing and documentation. 2. Inspection for damage or material degradation. 3. Verification of successful completion of functional test. <p>D. FAILURE HISTORY None</p> <p>E. GROUND TURNAROUND During ground turnaround, in accordance with ILC Document 10107-70783, the Torque Multiplier Assembly is inspected for damage and functionally tested for proper operation.</p>

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Critical Item List

Assembly Name/Part Number: Torque Multiplier 10159-20159-01
 Reference: CIL_FK011
 Prepared By: C. Hartman Approved By: H. Milhey
 Superceding Date: N/A Date: 1/89 Rev: A

INAME	FAILUR	MODE &	FAILURE EFFECT	RATIONALE FOR ACCEPTANCE
IP/W	CAUSE	LANDES		
IDIV				
7nob	U/I	S.4FND1		
10159-		Loss of		1. OPERATIONAL USE:
20289-01		7nob.		1. Crew Response
19100 S.4				Pre/Post EVA - N/A
800				EVA - If knob can be retained, transport Torque Multiplier to crew compartment and attempt to repair.
				2. Training
				Crew briefing.
				3. Operational Considerations
				Catastrophic failure. Possible loss of crew/vehicle.

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