CIL
Critical Items List

Assembly Name/Part Number: Torque Multiplier/10159-20259-01
Reference: CIL_TRQMLT
Prepared By: C. Hartman
Superseding Date: 9/88
Approved By: A. Withey
Date: 1/89 Rev: A

NAME P/N QTY	CRIT	FAILURE MODE & CAUSES	FAILURE EFFECT	RATIONALE FOR ACCEPTANCE
Reaction Ring Assembly 10159-20113-01 Item 5.4 One	1/1	5.4FM1 Loss of restraint strap. CAUSE: Defective webbing or thread. Broken stitches. Worn or abraded webbing. Damage to Reaction Ring.	END ITEM: Torque Multiplier separated from strap and is lost. GFE INTERFACE: Unable to loosen latch bolts. MISSION: Unable to Jettison Payload. Terminate EVA. CREW/VEHICLE: Loss of crew and vehicle.	A. DESIGN: The Restraint Strap is fabricated from one-inch Nomex webbing (MIL-T-5038 specification) which is capable of withstanding a proof load of 819 lbs. The strap is stitched with size "E" Nomex thread, multicord, twisted and bonded (MIL-T-43636 specification). All cut ends of webbing are coated with VFC-F-800 resin to prevent fraying or unravelling. The cut end of the webbing is passed through the Reaction Ring, folded in a loop configuration and stitched with a 13/16" x 13/16" "Box-X" stitch pattern through all thicknesses of loop. Three additional rows of stitching are added to each end of the "Box-X" to provide further strength. Stitching is terminated by back tacking 3-5 stitches to prevent seam separation. All stitching is lock stitch type 301 per FED-STD-751, 7 to 10 stitches per inch. The Reaction Ring is fabricated from 15-5 PH stainless, heat treated to H1025 condition, and passivated per QQ-P-35 specifications. The Torque Multiplier is stowed in a foam cushion in the Payload Bay FSA to protect it from the possibility of damage from impact. B. TEST: Component Acceptance Test - None

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Assembly Name/Part Number: Torque Multiplier/10159-20259-01
References: CIL 9/89
Prepared By: L. [illegible]
Approved By: R. Walker
Superseding Date: 9/88
Date: 6/89 Rev: A

NAME P/N QTY	CRIT	FAILURE MODE & CAUSES	FAILURE EFFECT	RATIONALE FOR ACCEPTANCE
Reaction Ring Assembly 10159-120317-01 Item 5.4 One	1/1	5.4FM10 Loss of restraint strap.		PDA Test - None Certification Test - The restraint strap is fabricated from the same Nomex webbing as the EVA Waist Tether which is certified to withstand a proof load of 1219 lbs without failure. 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. The following MIP's are performed during the Torque Multiplier Assembly manufacturing process to assure the failure causes are precluded from the fabricated items 1. Inspection of all components for damage or material degradation. 2. Inspection of seams and stitching.

CIL
Critical Items List

Assembly Name/Part Number: Torque Multiplier/10154-20250-01
Reference: CIL 10001
Prepared By: T. Morton
Superseding Date: 9/88
Approved By: G. Withey
Date: 1/89 Rev A

NAME P/N QTY	CRIT	FAILURE MODE & CAUSES	FAILURE EFFECT	RATIONALE FOR ACCEPTANCE
Ratchet Wrench Assembly 10150-20513-01 Item 5.4 One	2/1	5.4FM04 Loss of restraint strap.		During PDA, the following inspection points are performed at the Torque Multiplier Assembly level in accordance with ILC Document 0111? 70490. 1. Verify conformance to drawing. 2. Inspection for damage or material degradation. D. FAILURE HISTORY None E. GROUND TURNAROUND During ground turnaround, in accordance with ILC Document 10107-RATIE, the Torque Multiplier Assembly is inspected for damage, functionally tested for proper operation. F. OPERATIONAL USE: 1. Crew Response Pre/Post EVA - N/A EVA - If tool is not lost, restrain using wrist tether. 2. Training Crew briefing. 3. Operational Considerations Catastrophic failure if tool is lost. Possible loss of crew/vehicle.

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