

EII  
Critical Items List

Assembly Name/Part Number: Torque Multiplier (D)159-20259 (1)  
 Reference: EIL 14001  
 Prepared By: E. Hartman Approved By: M. Withey  
 Sponsoring Date: 9/80 Date: 1/84 Rev: A

NAME P/N QTY	CALL	FAILURE MODE & CAUSES	FAILURE EFFECT	RATIONALE FOR ACCEPTANCE
Cam Arm 11054- (203) 01 Item 5.4 None	1/1	5.41004 Physical sewing in up position.  CAUSE: Contamination or foreign material. Defective or damaged shoulder screw or torsion spring.	END ITEM: Unable to use Cam Arm.  BTE INTERFACE: Unable to remove Torque Multiplier from latch bolt in event of jam.  MISSION: Unable to continue insuring bolts. Terminate EVA.  OPER/VEHICLE: Loss of crew and vehicle.	A. DESIGN: Tight tolerances and close fit between the Cam Arm cover and the shoulder screw, Cam Arm and Reaction Ring reduces the possibility of foreign material entering the Cam Arm Assembly. The Torque Multiplier has a VI level cleanliness requirement during both the assembly and acceptance operations which is further protection from contamination.  The Cam Arm shoulder screws are lubricated from 15-5 PH stainless, heat treated to H1050 condition, and passivated per D P-35 specifi- cations. The torsion springs are made from 1-302 stainless steel and passivated per 80-P-35 specifications. High strength material and heat treated condition of the shoulder screw preclude wear and breakage.  The Torque Multiplier is stowed in a foam cushion in the Payload Bay FSR 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 10259 of  
 References: EIL 140003  
 Prepared By: E. Hartman Approved By: S. Mithey  
 Superseding Date: 9/89 Date: 1/89 Rev: A

NAME C/P/N CRIT	CRIT	FAILURE MODE & CAUSES	FAILURE EFFECT	RAIIONALE FOR ACCEPTANCE
ECas Arm 10459- 020301-10 Blue 5.0 Dns	1/1	S. REMNS Physical jumping in up position.		<p>FDA Test                      The following tests are conducted at the                      Torque Multiplier Assembly level in accordance                      with IIC Document 1014J-10690:                      1. Functional test to verify proper                      operation of Cas Arm.</p> <p>Certification Test -                      The Torque Multiplier was tested to S/PAB                      requirements of eight cycles and exhibited no                      evidence of damage. It was certified for the worst                      case FSA Storage temperature range of -700 degrees F                      to +130 degrees F.</p> <p>E. INSPECTION:                      Components and material manufactured to 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>

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III  
Critical Items List

Assembly Name: Fail Number: Torque Multiplier (159 20258-01)  
Reference: ILL IN0111  
Prepared By: E. Barlow Approved By: H. Mithay  
Succeeding Date: 1/88 Date: 1/89 Rev: A

NAME	CHIT	FAILURE MODE & CAUSES	FAILURE EFFECT	RAIIONALE FOR ACCEPTANCE
Cam Arm 10159- 20301 01 Item 5.4 One	1/8	5.4F006 Physical jamming in up position.		<p>The following RII's are performed during the Torque Multiplier Assembly manufacturing process to assure the failure causes are precluded from the fabricated steel:</p> <ol style="list-style-type: none"> <li>1. Inspection of all components for damage or material degradation.</li> <li>2. Verification of cleanliness to VC level.</li> </ol> <p>During PBA, the following inspection points are performed at the Torque Multiplier Assembly level in accordance with IIC Document 10107-20400.</p> <ol style="list-style-type: none"> <li>1. Verify conformance to drawing.</li> <li>2. Inspection for damage or material degradation.</li> <li>3. Verification of successful completion of functional test.</li> <li>4. Verification of cleanliness to VI level.</li> </ol> <p>B. FAILURE HISTORY None</p> <p>C. GROUND TURNAROUND During ground turnaround, in accordance with IIC Document 10107-70713, the Torque Multiplier Assembly is inspected for damage, functionally tested for proper operation, and cleaned to VC level.</p>

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Central Files List

Assembly Name-Part Number: Torque Multiplier (J0155 24259-01)  
 References: CFI, 180N11  
 Prepared By: G. Harlan Approved By: H. Withey  
 Superseding Data: 9788 Date: 1/89 Rev: A

NAME P/N QTY	ERR	FAILURE MODE & CAUSE	FAILURE EFFECT	RATIONALE FOR ACCEPTANCE
1. Can Area 2. (0159- 3. 20500-01 4. Item 5. A 5. One	1/1	5. 41M06 Physical jamming in up position.		1. OPERATIONAL USE: 1. Crew Response Pre/Post EVA - N/A EVA - Use prybar/hammer from PSA tools to attempt to pry Torque Multiplier from latch ball. 2. Training Crew briefing. 3. Operational Considerations Catastrophic failure. Possible loss of crew/vehicle.

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