

CIA
Critical Items List

Assembly Name/Part Number: Reaction Arm Assembly/10159-20260-01
 Reference: CIL 009H
 Prepared By: E. Hartman
 Approved By: R. Milroy
 Superseding Date: 7/80
 Date: 1/79 Rev: A

NAME P/N REV	CRIT	FAILURE MODE & CAUSE	FAILURE EFFECT	RATIONALE FOR ACCEPTANCE
Strap Assembly 110059- 120200-01 Item 3.3 None	1/1	<p>S. 3F011 Loss of strap assembly.</p> <p>CAUSE: Subsistence material. Worn or abraded webbing. Broken stitches Broken buckle or pivot. Loss of shoulder screw. Defective thread adhesive. Loss of snap hook.</p>	<p>END ITEM: Strap assembly separated from Reaction Arm and lost.</p> <p>BYE INTERFACE: Unable to restrain Reaction Arm. Loss of Reaction Arm. Unable to engage latch balls.</p> <p>DISSEM: Terminate EVA. Unable to Jettison Payload.</p> <p>CRASH/VENICLE: Loss of crew and vehicle.</p>	<p>A. DESIGN: The Reaction Arm Restraint Strap is fabricated from one-inch Nomex webbing (MIL-F-303D specification) and stitched with size "E" Nomex thread (cutlaced, twisted and bonded MIL-F-43634 specification). All cut ends of webbing are coated with KEL-F-808 resin to prevent fraying or unraveling. The cut ends of webbing is passed through the pivot and buckle, folded in a loop configuration and stitched with a 13/16" x 25/16" "Box-T" stitch pattern through all thicknesses of loop. Three additional rows of stitching are added to each end of the "Box-T" to provide further strength. Stitching is terminated by back locking 3-5 stitches to prevent seam separation. All stitching to each stitch type 301 per FED-STD-721, 7 to 20 stitches per inch.</p> <p>The Strap Pivot is fabricated from 15-5 PH stainless steel, heat treated to 91000 condition and passivated per QQ-P-35 specifications. Buckle Assembly Components are either copper plated per MIL-C-14250 or nickel electrodeposit per QQ-N-299. The shoulder screw is an off-the-shelf item fabricated from 303 stainless steel and passivated. The Snap Hook is an off-the-shelf item fabricated from stainless steel.</p>

**EIL
Critical Items List**

Assembly Name/Part Number: Reaction Arm Assembly/10139-20200-01
 Reference: EIL_RAAH
 Prepared By: E. Harrison
 Approved By: M. Withey
 Superseding Note: 1/80
 Date: 1/89 Rev: A

IRAME IP/N IRIV	CRIT	FAILURE MODE & CAUSES	FAILURE EFFECT	RATIONALE FOR ACCEPTANCE
IStrap IAssembly 10139- 20200-01 Item 5.5 None	1/1	5.2PH11 Loss of strap assembly.		<p>Loss of shoulder screws is precluded in design by adherence to standard engineering torque requirements for screw installation and the use of thread lock adhesive. The shoulder screw is installed using Loctite 242, medium strength, and torqued to 23 in/lbs to insure that it remains in place.</p> <p>The shelf life of Loctite is carefully monitored to eliminate unacceptable deterioration.</p> <p>D. TEST: Component Acceptance Test - None</p> <p>PDA Test - The following tests are conducted at the Reaction Arm Assembly level in accordance with ILC Document 10097-70490 1. Functional test of buckle to verify proper operation. 2. Functional test of Strap Hook to verify proper operation. 3. Functional test to verify strap unlatches freely.</p> <p>Certification Test - None</p>

SH0210W
 ATTACHMENT -
 Page 116 of 153

Document No. 10107-70712A
 Release Date
 Page 83-6 of 83-12

CPL
Critical Item List

Assembly Name/Part Number: Reaction Arm Assembly/10159-20200-01
 Reference: CIL_NARR
 Prepared By: C. Heston
 Superseding Date: 9/00
 Approved By: W. Wichey
 Date: 1/09 Rev: A

ISSUE IP/N IDY	CRIT	FAILURE MODE & CAUSE	FAILURE EFFECT	RATIONALE FOR ACCEPTANCE
101/rap 100assembly 10159- 120200-01 Item 5.1 Issue	1/1	3.3F01) Loss of strap assembly.		<p>CI INSPECTION Components and exterior manufactured to ILC requirements of 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 NIP's are performed during the Strap and Reaction Arm 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 defective exterior. 2. Inspection of all seams and stitching. 3. The issuance of Loctite is controlled by inspection. 4. Verification of Loctite shall life is within specification. 5. Witness of Loctite application and torque of shoulder screw.

CIL
Critical Item List

Assembly Name/Part Number: Reaction Arc Assembly/18159-20240-01
 Reference: CIL 3000
 Prepared By: C. Hartman Approved By: M. Withey
 Superseding Date: 9/88 Date: 1/89 Rev: A

NAME IP/N IDIV	CRI	FAILURE MODE & CAUSE	FAILURE EFFECT	RATIONALE FOR ACCEPTANCE
Strap Assembly 18159- 120200-01 Item 3.3 000	1/1	3. IFM1 Loss of strap assembly.		<p>During PMA, the following inspection points are performed at the Reaction Arc Assembly level in accordance with ILC Document 18107-70690:</p> <ol style="list-style-type: none"> 1. Verify conformance to drawing. 2. Inspection for damage or material degradation. 3. Verify successful completion of functional tests. <p>D. FAILURE HISTORY: None</p> <p>E. GROUND TURNAROUND: During ground turnaround, in accordance with ILC Document 18107-70713, the Reaction Arc Assembly is inspected for damage and proper operation.</p> <p>F. OPERATIONAL USE:</p> <ol style="list-style-type: none"> 1. Crew Response Pre/Post EVA - N/A EVA - Restrain both Reaction Arc and Torque Multiplier using Torque Multiplier Restraint Strap.

PJE/RAA - 8

SH0210W
ATTACHMENT -
Page 118 of 153

Release Data
Page B3-8 of B3-12

CCA
Critical Items List

Assembly Ques/Part Number: Reaction Arm Assembly/10159-20240-01
 Reference: EIL 8888
 Prepared By: E. Morison
 Supervising Sales: 9/88
 Approved By: R. Wilkey
 Sales: 8/89 Rev: 2

NAME ID/N ID/Y	CRIT	FAILURE MODE & CAUSE	FAILURE EFFECT	RATIONALE FOR ACCEPTANCE
101rap 1000000 10129- 10200-01 Item 3.3 0000	1/0	3.3/111 Loss of strap assembly.		<ol style="list-style-type: none"> 2. Training Crew briefing. 3. Operational Considerations Minimal impact. Fuel usefulness unaffected. Task may require additional time.