

# CRITICAL ITEMS LIST

Reference Designator:

Name/Quantity: Reentry Anti-G Suit Assy. (1)

Drawing Reference: SED46111835-301

Project: Government Furnished Equipment

LRU Name/Quantity: Reentry Anti-G Suit Assy. (1)

LRU Part Number: SED46111835-301

Subsystem: CEE

Effectivity: All Orbiters

Failure Mode Number 9.1.1	Criticality 1R/2	Failure Effect	Retention Rationale					
<b>FUNCTION</b>  Worn underneath Advanced Crew Escape Suit (ACES) during reentry. Provides orthostatic protection during entry phase of mission by providing gas counter pressure on body lower extremities.		<b>END ITEM</b>  Loss of anti-g garment pressure/orthostatic protection	<ol style="list-style-type: none"> <li><b>1. DESIGN FEATURES TO MINIMIZE FAILURE MODE</b> <ol style="list-style-type: none"> <li>A. The bladder material (urethane coated nylon) is ultrasonically sealed</li> <li>B. Bladder is protected by Nomex material restraint layer</li> <li>C. Garment worn underneath the ACES coverall for additional protection</li> </ol> </li> <li><b>2. TEST OR ANALYSIS TO DETECT FAILURE MODE</b> <ol style="list-style-type: none"> <li>A. <b>Acceptance Test</b> (S/AD JSC 23003)                             <ol style="list-style-type: none"> <li>1. Anti-g suit structural test at 5.6 psig for 15 minutes (no damage)</li> <li>2. Anti-g suit leak test at 2.5 psig for 15 minutes (50 scfm max)</li> </ol> </li> <li>B. <b>Certification</b> (Brooks Air Force Doc: IAS/IAA-92-0264)                             <ol style="list-style-type: none"> <li>1. Brooks Air Force testing ( ) conducted to verify level of orthostatic protection is equivalent or greater than currently used CSU-13, G-suit.</li> <li>2. Complete structural and leakage testing per the requirements identified above. (2A).</li> </ol> </li> <li>C. <b>Turnaround Testing</b> (S/AD JSC 23003)                             <ol style="list-style-type: none"> <li>1. Anti-g suit structural test at 36 months, 5.6 psig for 5 minutes (no damage)</li> <li>2. Anti-g suit leak test at 2.5 psig for 5 minutes (PIA) (spec 100 scfm max)</li> </ol> </li> </ol> </li> <li><b>3. INSPECTION</b> <ol style="list-style-type: none"> <li>A. <b>Acceptance Inspection</b> (Krug Doc: KLSJ320212)                             <ol style="list-style-type: none"> <li>1. Mandatory inspection points of seam assembly, cementing, sewing procedures during assembly</li> <li>2. Visual inspection of restraint for defects during assembly</li> </ol> </li> </ol> </li> </ol>					
<b>Failure Mode and Cause</b>  Mode: Leakage/rupture  Cause: <ol style="list-style-type: none"> <li>1. Defective material</li> <li>2. Leaking interface at pressure assembly connection</li> </ol>		<b>Mission</b>  N/A  <b>Crew/Vehicle</b>  Loss of vehicle/crew if both commander and pilot blackout						
<b>Redundancy Screens</b>  A - Pass B - N/A C - Pass	<b>Remaining Paths - 1</b>  One crewmember can safely land vehicle							
<b>Interface</b>  N/A								
<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 33%;">Mission Phase</th> <th style="width: 33%;">Time to Effect</th> <th style="width: 33%;">Time to Correct</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">Entry</td> <td style="text-align: center;">Seconds</td> <td style="text-align: center;">N/A</td> </tr> </tbody> </table>	Mission Phase	Time to Effect	Time to Correct	Entry	Seconds	N/A		
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# CRITICAL ITEMS LIST

Reference Designator: \_\_\_\_\_ Project: Government Furnished Equipment Subsystem: CEE  
 Name/Quantity: Reentry Anti-G Suit Assy. (1) LRU Name/Quantity: Reentry Anti-G Suit Assy. (1) Effectivity: All Orbiters  
 Drawing Reference: SED46111835-3D1 LRU Part Number: SED46111835-301

Failure Mode Number 9.1.1	Criticality 1R/2	Failure Effect	Retention Rationale
<b>FUNCTION</b>  Worn underneath ACES during reentry. Provides orthostatic protection during entry phase of mission by providing gas counter pressure on body lower extremities		<b>END ITEM</b>  Loss of anti-g garment pressure/orthostatic protection	<b>B. Turnaround Inspection (S/AD JSC 23003)</b>  1. Inspection of seams, restraint layer for physical damage/structural integrity (PIA)  <b>4. FAILURE HISTORY</b>  None - New item - A virtually identical anti-g suit is currently in limited use by the Air Force and has had no known failures.  <b>5. OPERATIONAL USE</b>  A. Operational effect of failure - Possible loss of crew if commander and pilot both blackout B. Crew action - None C. Crew training - Crew is trained in proper use of the anti-g suit assembly D. Mission constraints - None E. Inflight checkout - None - Crew could inspect anti-g suit but not repair or replace defective suit
<b>Failure Mode and Cause</b>  Mode: Leakage/rupture  Cause:  1. Defective material 2. Leaking interface at pressure assembly connection		<b>Mission</b>  N/A  <b>Crew/Vehicle</b>  Loss of vehicle/crew if both commander and pilot blackout	
<b>Redundancy Screens</b>  A-Pass B-N/A C-Pass	<b>Remaining Paths - 1</b>  One crewmember can safely land vehicle	<b>Interface</b>  N/A	
<b>Mission Phase</b>	<b>Time to Effect</b>	<b>Time to Correct</b>	
Entry	Seconds	N/A	

Prepared BY: P.E. Hooper

Superseding Date: N/A

Approved By: B.W. Sauser

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