

NAME P/N QTY	CRIT	FAILURE MODE & CAUSES	FAILURE EFFECT	RATIONALE FOR ACCEPTANCE
BRIEF/WAIST ASSEMBLY, ITEM 104 ----- 0104-210605- 07/08/09/10/11/12 (1)	2/1R	104FM19 Loss of tether bracket. Defective material; broken bracket.	END ITEM: Loss of tether attachment. GFE INTERFACE: Crewman untethered from vehicle. MISSION: Terminate EVA. CREW/VEHICLE: Possible loss of crewman with loss of second tether bracket. TIME TO EFFECT /ACTIONS: Seconds. TIME AVAILABLE: Minutes. TIME REQUIRED: Seconds. REDUNDANCY SCREENS: A-PASS B-PASS C-PASS	A. Design - The waist bearing tether bracket is fabricated from 17-4 stainless steel casting or bar stock. The brackets are machined or cast/machined, ultrasonic cleaned, passivated and either electropolished or dry hone finished. Maximum load on the bracket transmitted via the EVA waist tether is 390 lbs. The bracket is designed to withstand 585 lbs. B. Test - PDA - component acceptance - see inspection. Certification Test - A new tether bracket was pull tested on Test Request 883 4107-03. Load was 585 lbs. per S/AD. The bracket was pulled in five directions. An aluminum mounting plate was built for the test. Helicoils of the same length as those in a waist bearing were installed to simulate actual tether bracket mounting in the suit. No bracket or fixture failure was observed. The "D" shaped opening was measured to determine if yield occurred. Before and after dimensions were within .005 of each other, well within measurement error. 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 hardware received are as identified in the procurement documents, that no damage has occurred during shipment and that supplier certifications have been received which provide traceability information. The bracket castings are radiographically inspected to detect the presence of flaws prior to machining and magnetic particle inspected after machining. The brackets that are machined from plate stock are magnetic particle inspected to detect the presence of flaws. During PDA, the following inspection points are performed at the LTA assembly level in accordance with ILC Document 0111-710112: 1. Visual inspection for damage. 2. Visual inspection for proper orientation of bracket. D. Failure History - None. E. Ground Turnaround - None, for every component within its limited life requirements. Every four years or 229 hrs of manned pressurized time (in conjunction with waist bearing maintenance) the tether bracket is removed from the bearing and visually inspected for structural integrity/material damage or degradation. F. Operational Use - Crew Response - Pre/post-EVA : Troubleshoot problems, if no success, continue EVA operations using remaining bracket. Use third LTA, if available.

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104FM19

EVA : If necessary, perform orbiter rescue if not docked to the International Space Station (ISS). If necessary, perform SAFER self rescue if docked to ISS. Upon return to vehicle, use remaining bracket to continue EVA.

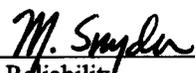
Special Training - Crew trained to perform orbiter rescue.

Operational Considerations - Not applicable.

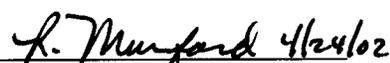
EXTRAVEHICULAR MOBILITY UNIT
SYSTEMS SAFETY REVIEW PANEL REVIEW
FOR THE
I-104 LOWER TORSO ASSEMBLY (LTA)
CRITICAL ITEM LIST (CIL)
EMU CONTRACT NO. NAS 9-97150

Prepared by: 
HS - Project Engineering

Approved by: 
NASA - SSA/SSM


HS - Reliability

 5/24/02
NASA - EMU/SSM

 4/24/02
HS - Engineering Manager

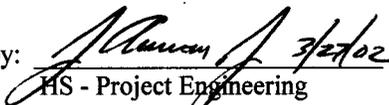
 5.29.02
NASA - S & MA

 5-30-02
NASA - MOD

 6/04/02
NASA - Crew

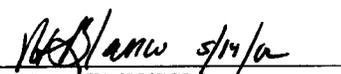
 6/3/02
NASA - Program Manager

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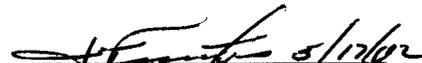
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HS - Reliability

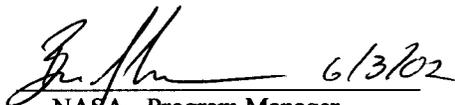
 5/14/02
NASA - EMU/SSM

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NASA - MOD

 6/04/02
NASA - Crew

 6/13/02
NASA - Program Manager