

CRITICAL ITEMS LIST

ASSY NOMENCLATURE: WINCH ADAPTER

SYSTEM: 4.2

ASSY P/N: SED 33102348

SUBSYSTEM: 5.1

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FMEA		NAME, QTY & DRAWING REF DESIGNATION	CRITY	FAILURE MODE AND CAUSE	FAILURE EFFECT OR END ITEM	RATIONALE FOR ACCEPTANCE
REF	REV					
10		EVA WINCH ADAPTER ASSEMBLY (1) SED 33102348	2/IR	Mode: Hook breaks Cause: Material failure	Unable to trade RMS which prevents closing the payload bay doors. Redundancy - RMS jettison system.	<p>1. Design Features to Minimize Failure Mode</p> <ul style="list-style-type: none"> a. Safety factor of 1.4. b. Safety margin of 1.1. c. Working load of 584 lbs <p>2. Test or Analysis to Detect Failure Mode</p> <p><u>Acceptance</u></p> <p>Functional Test -- Complete functional testing to assure that all parts function properly.</p> <p><u>Certification</u></p> <ul style="list-style-type: none"> a. Certification test consists of: deploy and reel in 5 feet of rope, confirm that the reel rotates freely and does not freewheel for more than one half turn, apply a 840 lbs load to the hook while the rope is engaged in cam cleats, and confirm that the assembly does not fail under load b. Thermal qualification testing to certify this tool for the worst case PSA storage temperature environment of -250°F to +350°F for 160 hours. <p><u>Turnaround</u></p> <ul style="list-style-type: none"> a. Complete functional testing will be performed once a year, or after each mission use to assure that all parts function properly b. Replace Kevlar rope after each mission use c. Inspect Kevlar rope for fraying or other damage once a year

PREPARED BY P. F. Hoover

SUPERSEDING DATE

APPROVED BY T. O. Ross

DATE 9/28/00

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ATTACHMENT
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CRITICAL ITEMS LIST

ASSY NOMENCLATURE: WINCH ADAPTER

SYSTEM: 4 2

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FMEA		NAME, QTY & DRAWING REF DESIGNATION	CRITY	FAILURE MODE AND CAUSE	FAILURE EFFECT ON END ITEM	RATIONALE FOR ACCEPTANCE
REF	REV					
ID		EVA WINCH ADAPTER ASSEMBLY, (1) SED 33102348 (Continued)	2/18	Mode: Hook breaks Cause: • Material failure	Unable to cradle RMS which prevents closing the payload bay doors. Redundancy - RMS jettison system.	<p>3. Inspection</p> <p><u>Manufacturing</u> (Completed)</p> <ul style="list-style-type: none"> a. Verify the as-built configuration. b. Accomplish NDE on hook prior to assembly. c. Verify certificate of compliance for materials. <p><u>Turnaround</u></p> <ul style="list-style-type: none"> a. Inspect for visible damages, surface contamination, and clean according to P52B/MA-05001. b. Verify completion of functional test for reacceptance. <p>4. Failure History</p> <p>15CEC0344 - During the -200°F cold case test the Teflon rollers would not rotate and the hook latch would not close completely by itself and operated stiffly.</p> <p>5. Operational Use</p> <ul style="list-style-type: none"> a. <u>Operational Effect of Failure</u> - The rope could not as easily be attached to the RMS. This would increase the length of the EVA task. b. <u>Crew Action</u> - The crew will have to tie the rope to the RMS. c. <u>Crew Training</u> - These crew actions will be incorporated into the EVA crew training flow. d. <u>Missing Components</u> - None identified. e. <u>In Flight Check-out</u> - The crew will visually inspect the hook at the time of use.

PREPARED BY P. F. Hodder

SUPERVISING ENGINEER

APPROVED BY T. D. Ross

DATE 9/28/99

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