

CRITICAL ITEMS LIST

ASSY NOMENCLATURE: WINCH ADAPTER

SYSTEM: 4.2

ASSY P/N: SED 3310234B

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 3310234B	2/1R	Mode: Unable to adjust rope length Cause: • Cam cleat contamination • Cam cleat breaks	Unable to cradle 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. Working load of 500 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 free-wheel for more than one half turn, apply a 640 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 stowage temperature environments 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: J. J. King

DATE: 01/01/01

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DATE: 01/01/01

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 ATTACHMENT 1
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CRITICAL ITEMS LIST

ASSY NOMENCLATURE: WINCH ADAPTER

SYSTEM: 4.2

ASSY P/N: SED 33102348

SUBSYSTEM: 5.7

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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					
18		EVA WINCH ADAPTER ASSEMBLY, (1) SED 33102348 (Continued)	2/1A	<p>Mode: Unable to adjust rope length</p> <p>Cause • Cam cleat contamination • Cam cleat breaks</p>	<p>Unable to cradle RMS which prevents closing the payload bay doors.</p> <p>Redundancy- RMS jettison system.</p>	<p>3. Inspection.</p> <p><u>Manufacturing</u> (Completed)</p> <p>a. Verify the as-built configuration. b. Accomplish NDE on piece parts prior to assembly. c. Verify certificate of compliance for materials. d. Clean according to drawing requirements.</p> <p><u>Turnaround</u></p> <p>a. Perform visual inspection for potential damage, surface contamination, and clean according to PS2B/PIA 05001 b. Verify completion of functional test for reacceptance</p> <p>4. Failure History. JSCC0344 - 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> <p>a. <u>Operational Effect of Failure</u> Failure of the cam cleat would prevent the crewman from adjusting the length of the rope. An alternate method of getting the rope off the reel would have to be performed, increasing the length of the EVA task but not seriously affecting the EVA.</p> <p>b. <u>Crew Action</u> The rope could be cut off the reel using the EMU scissors stowed on the suit. This would eliminate the hook on the end of the rope so the rope would have to be tied to the RMS, but this would not be difficult. Also, the cam cleats could not be used to secure the rope at a particular length if the winch was being used in combination with the rope reel and high forces were expected. In this case the rope would have to be tied to the winch hook also.</p> <p>c. <u>Crew Training</u> This crew action will be incorporated into the EVA crew training flow.</p> <p>d. <u>Mission Constraints</u> None identified.</p> <p>e. <u>In Flight Checkout</u> The crew will visually inspect the winch adapter as it is being used.</p>

PROJECT #
 ATTACHED
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PREPARED BY P. F. Hooper

SUPERSEDING DATA

APPROVED BY T. O. Ross

DATE 9/20/88

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