

# 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	CMT'Y	FAILURE MODE AND CAUSE	FAILURE EFFECT OR END ITEM	RATIONALE FOR ACCEPTANCE
REF	REV					
1G		EVA WINCH ADAPTER ASSEMBLY, (1) SED 33102348	2/1R	Mode: Adapter plate breaks  Cause: • Material failure	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"> <li>a. Safety factor of 1.4</li> <li>b. Working load of 584 lbs.</li> </ul> <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"> <li>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</li> <li>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.</li> </ul> <p><u>Turnaround</u></p> <ul style="list-style-type: none"> <li>a. Complete functional testing will be performed once a year, or after each mission use to assure that all parts function properly</li> <li>b. Replace Kevlar rope after each mission use</li> <li>c. Inspect Kevlar rope for fraying or other damage once a year</li> </ul>

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# 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	QNTY	FAILURE MODE AND CAUSE	FAILURE EFFECT ON ITEM	RATIONALE FOR ACCEPTANCE
REF	REV					
1G		EVA WINCH ADAPTER ASSEMBLY, (1) SED 33102348 (Continued)	2/1R	Mode: Adapter plate 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 (Completed)</u></p> <ul style="list-style-type: none"> <li>a. Verify as-built configuration.</li> <li>b. Accomplish NDE on plate prior to assembly</li> <li>c. Verify certificate of compliance for materials</li> </ul> <p><u>Turnaround</u></p> <ul style="list-style-type: none"> <li>a. Visually inspect adapter plate for evidence of damage</li> <li>b. Inspect for surface contamination and clean according to PS28/PIA-DS001.</li> </ul> <p>4. Failure History</p> <p>JSCEC0344 - 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 stillly</p> <p>5. Operational Use.</p> <ul style="list-style-type: none"> <li>a. <u>Operational Effect of Failure</u> - Breaking of the adapter plate would not totally disable the winch adapter. It would disable the function of the cam cleats to secure the rope at a fixed length because the cam cleats are mounted to the adapter plate</li> <li>b. <u>Crew Action</u> - The crew would have to tie the rope to the winch hook instead of being able to just hook the winch hook directly to the adapter plate interface.</li> <li>c. <u>Crew Training</u> - These crew actions will be incorporated into the EVA crew training flow</li> <li>d. <u>Mission Constraints</u> - None identified</li> <li>e. <u>In Flight Checkout</u> - The crew will visually inspect the adapter plate at the time of use</li> </ul>

PREPARED BY P. F. Hopper

DATE: 08/11/00

APPROVED BY J. D. Ross

DATE: 08/11/00

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