

**EVA & Crew Equipment Project
CRITICALITY ANALYSIS**

PAGE 1 of 2
DATE: 5/30/95

The purpose of this worksheet is to determine whether a formal CIL is required for the hardware being analyzed. All groundrules and definitions contained in NSTS 22205 are applicable and shall be used in filling out this worksheet.

Subsystem: EVA Tools

Vehicle Effectivity: ALL OV-102 OV-103 OV-104 OV-105

Flight Effectivity: STS- 69 & Subs First Flight: STS- 71

LRU Part Name: APAS Capture Latch Tool Qty. 1
LRU P/N: 33Y.6516.003

List additional individual LRUs, if different from above.
NOTE: If page 2 is applicable, use a separate page for each LRU.

LRU Name	<u>N/A</u>	Part No.	<u>N/A</u>	Qty.	<u>N/A</u>
LRU Name	<u>N/A</u>	Part No.	<u>N/A</u>	Qty.	<u>N/A</u>

A. What is the WORST CASE effect of loss of FUNCTION assuming no redundant paths, like or unlike, are available? (Check only ONE.)

1. Loss of life/vehicle 2. Loss of Mission 3. Other

B. How many redundant paths available? Number: 1

Redundancy Screens (applicable if 1R or 2R):

A (Detectable during ground turnaround.)	<input checked="" type="checkbox"/> Pass	<input type="checkbox"/> Fail	<input type="checkbox"/> N/A (Crit 1, 2, or 3)
B (Readily detectable during flight.)	<input checked="" type="checkbox"/> Pass	<input type="checkbox"/> Fail	<input type="checkbox"/> N/A (Crit 1, 2, or 3)
C (Loss of all redundant hardware is not the result of a single credible cause.)	<input checked="" type="checkbox"/> Pass	<input type="checkbox"/> Fail	<input type="checkbox"/> N/A (Crit 1, 2, or 3)

NOTE: Failure to pass all three screens results in the hardware being classified as a "Critical Item".

C. What is the WORST CASE effect of loss of the ITEM being analyzed considering all available redundant paths are operating within specified limits, and assuming that any nominal crew action will be performed? (Check only ONE.)

1. Loss of life/vehicle 2. Loss of Mission 3. Other

Identify the WORST CASE criticality of the HARDWARE (Check only ONE).

<u>COLUMN 1</u>	<u>COLUMN 2</u>	<u>COLUMN 3</u>
<input type="checkbox"/> 1/1	<input checked="" type="checkbox"/> 1R/3	<input type="checkbox"/> 2R/3
<input type="checkbox"/> 2/2		<input type="checkbox"/> 3/3
<input type="checkbox"/> 1R/2 (Passes screens A and B and C)		
<input type="checkbox"/> 1R/2 (Fails screens A or B or C)		
<input type="checkbox"/> 1R/3 (Fails screens A or B or C)		
<input type="checkbox"/> 2R/3 (Fails screens A or B or C)		

If the Criticality is in COLUMN 1, a formal CIL and WAIVER is required.
If the Criticality is in COLUMN 2, fill out PAGE 2 and submit for information only.
If the Criticality is in COLUMN 3, fill out PAGE 2 and retain in cert file.

EVA & Crew Equipment Project
CRITICALITY ANALYSIS

FAILURE MODE NUMBER: ACLT-1

Page 2 of 2
DATE: 5/30/95

LRU Part Name: APAS Capture Latch Tool LRU P/N: 33Y.6516.003
Piece Part Name: N/A Piece P/N: N/A

CRITICALITY: 3/3 2R/3 X 1R/3

Function: The APAS Capture Latch Tool is emergency hardware (per NSTS 22206, Rev D, para 3.4.2.1) used for the emergency EVA release of the "soft dock" APAS capture latches during the Russian MIR docking missions. Two failures of the APAS capture latch release mechanism must occur before this tool is used.

Failure Mode: The APAS Capture Latch Tool fails to depress the APAS capture latch emergency release pins.

Cause: Contamination or misalignment of APAS Capture Latch Tool parts.

Mission Phase: Launch/Ascent X On-Orbit Entry/Landing Intact Abort

Time to Effect: Immediate Seconds X Minutes Hours Days

Time to Correct: Immediate Seconds X Minutes Hours Days

List Remaining Paths if 1R or 2R:

1. Direct activation of the APAS capture latch emergency release pins by an EVA gloved hand without the use of tools.
2. Activation of the APAS capture latch emergency release pins by holding an EVA equipment tether hook in each EVA gloved hand.
3. The 86-bolt contingency EVA.

Failure Effect on:

End Item: Loss of Function
Mission: None
Crew/Vehicle: None
Interface: None

Failure Detection Method:

In Flight: Tool fails to operate properly.
On Ground: During Pre-installation (PIA) Testing and CEIT.

Corrective Action:

- None, 3/3 item will not be used.
- None, 1R/3 or 2R/3 item is last in a string of redundant paths.
- X None, item is 1R/3 or 2R/3, and other paths are available if failure occurs.
- Replace with spare.

NOTE: If there are more failure modes for this item, repeat this sheet for each failure mode.

Prepared By: Ronald W. Cook Date: 5/30/95

Approved By: (NASA SSMA) *[Signature]* Date: 5/31/95

Approved By: (SSMA) *Ronald W. Cook* Date: 5/31/95