EVA & Crew Equipment Project
CRITICALITY ANALYSIS

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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 22206 are applicable and shall be used in filling out this worksheet.

Subsystem: EVA Tools

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

Reference Designator:
Name: Wrench, 7/16-inch Ratcheting Box End Qty 3
Drawing Ref. SE039126186-701

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

LRU Name N/A Part No. N/A Qty. N/A
LRU Name N/A Part No. N/A Qty N/A

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

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

B. How many redundant paths available? Number: 3

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

A	(Detectable during ground turnaround.)	X Pass	___ Fail	___ N/A(Crit 1,2,or 3)
B	(Readily detectable during flight.)	X Pass	___ Fail	___ N/A(Crit 1,2,or 3)
C	(Loss of all redundant hardware is not the result of a single credible cause.)	X Pass	___ Fail	___ 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 assumming that any nominal crew action will be performed? (Check only ONE.)

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

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

COLUMN 1	COLUMN 2	COLUMN 3
___ 1/1	X 1R/3	___ 2R/3
___ 2/2		___ 3/3
___ 1R/2 (Passes screens A and B and C)		
___ 1R/2 (Fails screens A or B or C)		
___ 1R/3 (Fails screens A or B or C)		
___ 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.

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FAILURE MODE NUMBER 7.16WRENCH-1 Page 1 of 2
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LRU Part Name: Wrench, 7.16-inch Ratcheting Box End LRU P/N SED39125186-701
Piece Part Name: N/A Piece P/N N/A

CRITICALITY ___ 3/3 ___ 2R/3 X 1R/3

Function: Wrench is emergency hardware (per NSTS 22206, Rev D, para 3.4.3.h) used for loosening 7/16" hex head bolts during the 96-bolt contingency EVA on all MIR docking flights

Failure Mode: Wrench spins freely preventing loosening (or tightening) of bolt

Cause: Contaminant in wrench

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. Wrench, 7/16-inch Ratcheting Box End (second unit)
2. Wrench, Adjustable (two available)
3. Pliers, Vice-Grip

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

Failure Detection Method:
In Flight: Wrench would spin freely
On Ground: During Pre-Installation Acceptance (PIA) testing inspections

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

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