U.S. Gov't

EVA & Crew Equipment Project
CRITICALITY ANALYSIS

Page 1 of 2
DATE: 10/22/96

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

Reference Designator:
Name: Pistol Grip Tool (PGT) Qty. 1
Drawing Ref. GE1557000 (Goddard Space Flight Center built tool)

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

LRU Name Same as Above Part No. N/A Qty. ___
LRU Name N/A Part No. N/A Qty. ___

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: 4

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 or 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: 80-PGT-1

DATE: 10/22/96

LRU Part Name: Pistol Grip Tool (PGT) LRU P/N: GE1557000
Piece Part Name: N/A Piece P/N: N/A

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

Function:
The Pistol Grip Tool (PGT) is a self-contained, micro-processor controlled, battery powered, 3/8 inch drive hand held tool. This tool is used to apply torque to mechanical interfaces and fasteners.

Failure Mode:
PGT fails to deliver adequate torque to restow DTO 671 hardware (e.g. ORU Battery Simulator, Cable Caddy, and Articulating Portable Foot Restraint) in the payload bay during STS-80.

Cause:
1. Failure of the PGT Electronics system.
2. Failure of the PGT Mechanical system.

Mission Phase:	___ Launch/Ascent	X On-Orbit	___ Entry/Landing	___ Intact Abort		
Time to Effect:	X Immediate	___ Seconds	___ Minutes	___ Hours	___ Days	
Time to Correct:	___ Immediate	___ Seconds	X Minutes	___ Hours	___ Days	

List Remaining Paths if 1R or 2R:
1. Upon failure of PGT electronics, place PGT in "manual rachet" mode
2. Upon failure of PGT mechanical system, use Shuttle power tool
3. Use torque wrench located in Starboard PSA
4. Jettison the STS-80 DTO 671 hardware

Failure Effect on:

End Item:	X Loss of Function		
Mission:	X N/A - 3/3	___ Other	
Crew/Vehicle:	___ N/A - 3/3	X Other	
Interface:	___ N/A - 3/3	X Other	

Failure Detection Method:
In Flight: (Electrical) Visual indication from PGT display
(Mechanical) Crew visual feedback (bolt indicators) and crew tactile feedback (crew trained to detect proper torque levels)
On Ground: Pre-flight testing of PGT.

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.

Approved By: Ronald W. Cook Date: 10/22/96
JSC EVA FSS&MA (NS22)

Approved By: _____ Date: _____
JSC Payload and Crew Equipment Assurance Branch (NS2)