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SuperSMITH™ 6.0AA

(Released December 2021)and later

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Weibull Library Organization

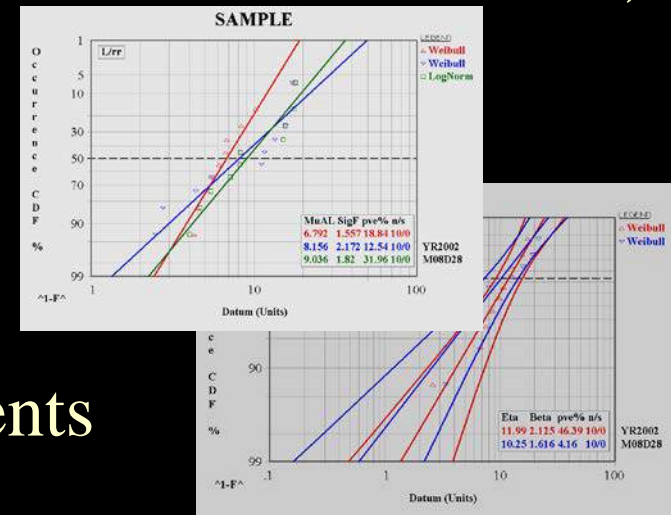
Data Collection Recommendations

Tip: Use <ctrl> L
To view page by page
in full screen mode.

Use <esc> to cancel.

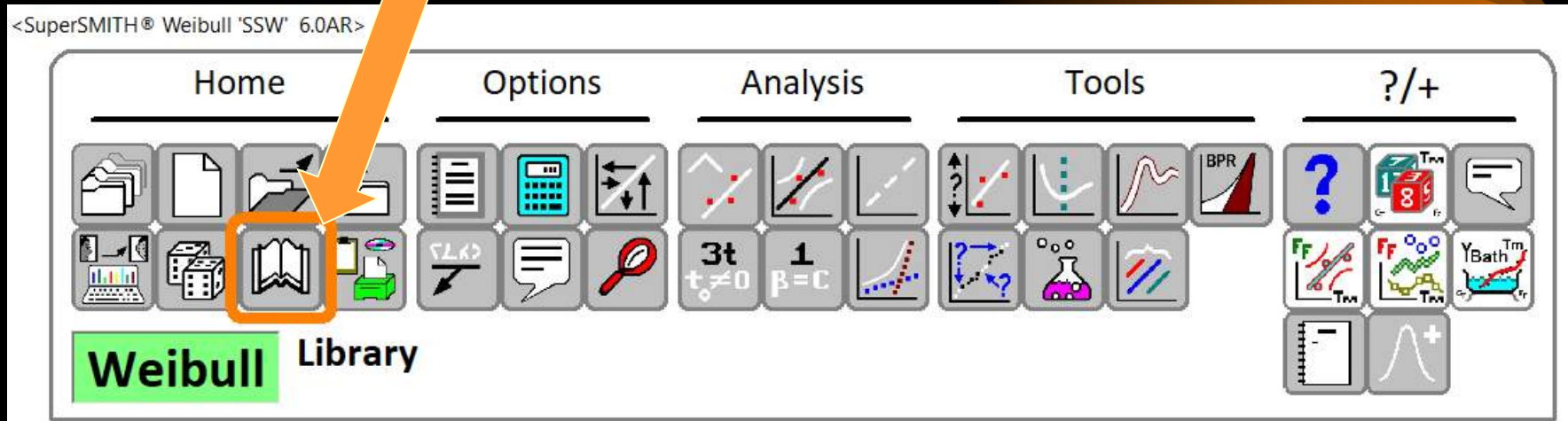
Weibull Library Goals

- Searchable index of previous results
- Summary of analysis + reference to full data
- Simple text format for future flexibility
- Save intermediate file (w/ later verification)
- Standard organization
 - No more than 20 fields
 - Essential universal info
 - Additional info in comments



Weibull Library

Easily Generate Library Items



- Most Important Part of Weibull Engineering
 - Useful as Lessons-Learned database
 - Enables and justifies Weibayes for improved results
- Software Can Help Easily Generate Library Items after Each Analysis

Many Features in New Library

Ref: C:\Smithdat\WLR_Smithdat.csv

Weibull Library



Current Reference file

Enter Text ...



Keyboard: Type <Ctrl>+ <Key>
For Action

Search or reset the reference file

Load a reference file to look for data

Row	Path\File	Title 1	Date	By	Device	Equipr
1	C:\SMITHdat\	The Weibull Data Plot	Y2020M05D09			
2			Y2024M08D22			
3			Y2020M05D09			
4		ture of Failure Mode	Y2020M05D09	rba		
5	C:\SMITHdat\Fig1-5.w	NACA WIND GUST LOADS	Y2020M05D09			
6	C:\SMITHdat\Fig2-1.w	Weibull Probability Plot	Y2020M05D09			
7	C:\SMITHdat\Fig2-2.v	Probability Density Funct				
8	C:\SMITHdat\Fig2-2.w	Probability Density Funct				
9	C:\SMITHdat\Fig2-3.v	MTTF/Eta = Gamma[1+(1/				
10	C:\SMITHdat\Fig2-4.w	RIVET FAILURES	Y2020M05D09			
11	C:\SMITHdat\Fig2-5.w	RIVET FAILURES	Y2020M05D09			
12	C:\SMITHdat\Fig3-1.w	SAMPLE SIZE THREE	Y2020M05D09			
13	C:\SMITHdat\Fig3-2.w	SAMPLE SIZE TEN	Y2020M05D09			
14	C:\SMITHdat\Fig3-3.w	SAMPLE SIZE 100	Y2020M05D09			
15	C:\SMITHdat\Fig3-5.w	Effect of Suspensions	Y2020M05D09			
16	C:\SMITHdat\Fig3-6.w	First and Last Point 90% Range	Y2020M05D09			
17	C:\SMITHdat\Fig3-7.w	Bearings Often Need t zero	Y2020M05D09			
18	C:\SMITHdat\Fig3-8.w	t zero Improves the Fit	Y2020M05D09			
19	C:\SMITHdat\Fig3-9.w	Steel - Fracture Toughness	Y2020M05D09	rba		
20	C:\SMITHdat\Fig3-9-Zoomed.w	Steel - Fracture Toughness	Y2020M05D09	rba		
21	C:\SMITHdat\Fig3-10.w	t zero Improves the Fit	Y2020M05D09			
22	C:\SMITHdat\Fig3-11.w	1971-72-73 Vintage Cables	Y2020M05D09			

B ... Open Library With File
Save *NO/Yes

C ... Copy Data To Clipboard

D ... Load Data File

E ... Edit Header File

G ... Order Grid Column

H ... Header: *NO/yes

L ... Library File:

* = SELECTED Of Options
Same Line Item

Use Menu to Review or Update choices

Each data set gets its own line in the output

Press/release <alt> then number for keyboard selection

Cyan with “Ø”: Data from plot (no change)

Green with “@”: Data Entered. (can change)

Yellow with “O”: Data needed. (Select to change)

S ... Save Library Data To File

1

@ Data Set: *2 Of 3 Sets

2

Ø Path\File: C:\SMITHdat
Ø \FIG3-11.w

3

Ø Title 1: 1971-72-73 Vintage
Ø Cables

4

Ø Date: Y2024M08D23

5

@ By:

6

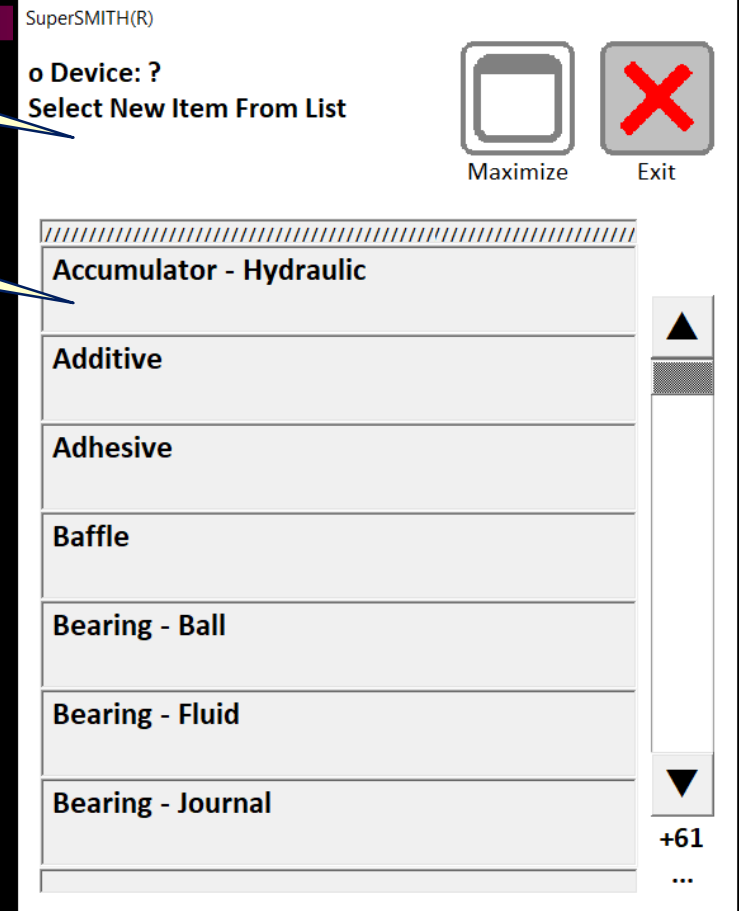
O Device: ?

7

Fixed List Menu Items

Example when “Device” is selected

Most menu items are from Defined Lists.
Choose the most appropriate






Variable Entry items (Comments)

2. Add to the text, or replace it

1. Optional: Click a template.
("Part #:" or "Part Name:")

SuperSMITH(R)

o Comment 1: ?
Select Template And Edit Text

 OK  Maximize  Exit

Part #: 12345

Part #:

Part Name:

Copy/Save the Data

- Each Copy/Save will save one data set from the file. If you have 3 data sets in the file, you will need to do 3 “saves” to save them.

Turn the Headers/Titles On or Off

Copy to clipboard to paste into Excel or other database

Save this Data set to the current Data File

R ... Load Reference File

D ... Load Data File

L ... Library File:

G ... Order Grid Column

H ... Header: *NO/yes

C ... Copy Data To Clipboard

S ... Save Library Data To File

Each Weibull Library Record (= Automatic From Analysis)*

- * **Path\Filename of complete analysis ... (update if changed)**
- * **Title ...** at top of Weibull plot
- * **Date record created ... YYYY-MM-DD**
- * **By ...** person saving the record ... including password ID designation ...
- **Type of device ...** bearing, seal, housing, shaft, solder joint, connector, IC, lamp...
- **Type of equipment ...** actuator, motor, valve, pump, conveyor, controller, display ...
- **Type of mechanism (root cause) ...** fracture, thinning, leaking, open-circuit, mixed ..
- **Type of customer duty cycle ...** continuous, on-off schedule, load level, impact ...
- **Type of environment ...** humid, hot, sub-zero, 20DegC-35DegC, vibration, shock ...
- * **Model type ...** W, N, L, G-, G+ ...
- * **Fit type ...** rr, rrs, mle, RBAMD, ...
- * **Confidence type ...** pvD90, fm-95, ...
- * **Data units ...** hours, cycles, months, miles, inches, degK, ...
- * **Data typical value ...** Eta, Mu, MuAL, Xi (lo-med-hi) ...
- * **Data variability value ...** Beta, Sigma, SigF, Del (lo-med-hi) ...
- * **Data t0 value ...** t0 (lo-med-hi value) ...
- **Comment fields(Qty = 4) ...** customizable for each individual library
- * **Set(Set Number)Set size/Suspensions**

Weibull Library Comment Field Possibilities

- Comment 1: Detailed Item Description
 - Part Number
 - Part Name
- Comment 2: Detailed Application Description
 - Product Line or Product Model
 - Customer
 - Military or Non-Military
- Comment 3: Detailed Time Period
 - Record Reference Number
 - Beginning of Period to End of Period (Calendar Time)
- Comment 4: References
 - Report Number
 - Test Procedure

WLR_Smithdat.csv File

(Typical Weibull Library File)

1 Header Row and 2 Records Shown

Path\File, Title 1, Date, By, Device, Equipment, Cause, Duty, Environment, Model, Fit Method, Confidence, Unit, Typical (Lo/Med/Hi), Variability (Lo/Med/Hi), t0 (Lo/Med/Hi), Comment 1, Comment 2, Comment 3, Comment 4, Set()n/s

C:\Smithdat\18WHEELR.W, 18 Wheeler Steering Failures, Y2020M05D09, rba,,,,,, W2P, RR,, miles, 69362, 3.2569,,,,,, Set(1)10010/10000

C:\Smithdat\BWSOPAC.W, Southern Pacific BiWeibull, Y2020M05D09,,,,,, W2P, RR, U90, units, 242.62, 1.194,,,,,, Set(1)304/238

WLR_Smithdat.csv - Excel

	A	B	C	J	K	L	M	N	O	P	U
	Path\File	Title 1	Date	Model	Fit Met	Confide	Unit	Typical	Variabil	t0 (Lo/M	Set()n/s
1	C:\SMITHdat\Fig1-1.w	The Weibull Data Plot	Y2020M05D09	W2P	RR			1095.9	2.2756		Set(1)15/0
3	C:\SMITHdat\Fig1-2.v	Failure Forecast	Y2024M08D22	W2P	rr		(Months)	0	0		Set(1)60/0
4	C:\SMITHdat\Fig1-3.w	Bearings Often Need t zero	Y2020M05D09	W2P	RR		revolution	82.842	2.617		Set(1)22/0
5	C:\SMITHdat\Fig1-4.w	Cusp, Corners, & Doglegs Indicate a Mixture	Y2020M05D09	W2P	RR		Hours	895.14	0.55241		Set(1)19/0
6	C:\SMITHdat\Fig1-5.w	NACA WIND GUST LOADS	Y2020M05D09	G+	RR			0.9358	0.16642		Set(1)23/0

NOTE: Can aggregate individual data files into a Master File

Can open data file as a spreadsheet

Under the hood

- In the %appdata% directory, there is an ini
 - SSWLib.ini
 - Stores Definition Files and Reference Files
- Definition File (Usually starts with “WLD”)
 - Defines Data file, Headers, and what user can change.
- Reference File (Usually starts with “WLR”)
 - Typically a modified data file, but can have any number of columns and rows
- Data File (Usually starts with “WD”)
 - Data saved by SuperSMITH™ according to the Definition File.

Coming Soon..



- Ability to customize Definition Files
- Added documentation on protecting and backing up your reference data. Treat it like product drawing information for backup and security.
- Additional guides to setting up a library.