SuperSMITH® 5.0 and Earlier Revision History

>>> For SS Weibull

'5.0DT - 23 Dec 2021 (File Version 5.0.0.420)
' Abernethy Risk: Risk Analysis Types "Standard" & "RBA1 Occurrence" now close for single installation equipment [Propst, B.]

'5.0DS - 28 Oct 2021 (File Version 5.0.0.419)
'METHOD/INPUT: Expanded 'Insp1' solution for rr Weibayes [T. Marquart]
'HELP FILE: Updated large Icons, added Screen Resolution, Windows 11 detection

'5.0DR - 04 May 2021 (File Version 5.0.0.418)
'LABEL Y-AXIS: Transposing for Side-By-Side label senses all colors in font
'COMMON BETA: Revised code to account for unsolved slope (=0) [Marquart]
'CONTOURS WITH UNSOLVED DATA SETS: Improved labels on SSV plot [Marquart]
'HELP FILE: Updated Large Icons
'SMITHDICE: Improved Language dropdown

'5.0DQ - 12 Oct 2020 (File Version 5.0.0.417)
'Distribution Analysis: Added "3P=NO For Discovery Data" for Weibull 3P with Discovery in data set
'Confidence Menu: Show Option "P..." as comment only (no "P") if method <> lr
'Dice Program: Added YB_Math module for virus tolerance
'Language files in subroutine rather than separate files
'HELP FILE: Added Acronym list to help file
'HELP FILE: Large Icon format for tablets
'HELP FILE: <Shift><F3> to find previous item on page
'HELP FILE: Font Size now applies to Help text as well as directory tree

'5.0DP -25 May 2020 (File Version 5.0.0.416)
'Color Choices: Expanded/Improved selection
'Added Language options to SuperSMTH(R) Dice
'HELP File: Added file Size to in System File Check
'Setup1.exe Modification to address "Invalid Line in Setup Information File" on certain computer configurations.

'5.0D0 - Skipped

'5.0DN -06 Apr 2020 (File Version 5.0.0.414)
'Update of Language Files

'5.0DM - 30 Mar 2020 (File Version 5.0.0.413)
'Assurance: Improved curve placement for Gumbel Upper using fm confidence
'Chi-Squared Solution: Now handles up to 32000 degrees of freedom, esp. for Abernethy Risk (R. Schop)
'New Program: Added SuperSMITH(R) Dice access

'5.0DL - 20 Jan 2020 (File Version 5.0.0.412)

'Print Setup Delay: Removed beginning delay for printer access
'Distribution Analysis: Only asks to change to 'optimum' if large data set
'File Input: Limited mle unbiasing method to appropriate for specified model
HELP File: Renamed "Product Information" to "Product Information & Benchmarking"
HELP File: Added list format to the [Benchmarking Section](#)
HELP File: Added SW version verification notes in Benchmarking Section

'5.0DK - 07 Oct 2019 (File Version 5.0.0.411)
'3D Plot: Made input change icon more robust for new changes selected in menu
'Automatic Point Quantity Merge: Changed logic for better use of absolute value (A. Jochimczyk)
'Method/Input: Activated menu item H for current equations
'Distribution Analysis: Clarified likelihood results
HELP File: Renamed "File" menu item to "Home"
HELP File: Added Home/System Files Check menu item to check system files
HELP File: Added Home/Find SS Files menu item to search for program and data directories
HELP File: Modified Search so words like "probit" will show definitions/icons before the flow chart

'5.0DJ - 21 Jan 2019 (File Version 5.0.0.410)
'Mixture/Batch Detect: Added option to change detect % (R. Schop)
'MLE Update Improved: Ref: SAE Class 11 DEC 2018
'Ssmple / Special Data Sets: Changed AIAG menu item letters from A-F to R-W
'Set Comparison: LR Test improved for Normal and LogNormal
'Splash Screen and About: Changed "LLC" to "(TM)" and added new logo image

'5.0DI - Skipped for disambiguation

'5.0DH - 24 Aug 2018 (File Version 5.0.0.408)
'Demonstrate/Sample Menu: Bypassed compiler issue with error checking routine
'Demonstrate/Sample Menu: Improved logic for menu interaction
'3-Parameter Weibull: Removed nuisance message about special curve type
'Plot: Distribution abbreviation improved for Gumbel

'5.0DG - 05 JUN 2018 (File Version 5.0.0.407)
'Drop-Down Menus: Matched cursor with highlight
'Grid Menus: Replaced checkboxes with asterisks for future larger formatting
'Right Mouse-Button: De-activated exit question
'Number Entry Box: Increased size in preparation for new bigger icons, etc.
'3D Likelihood Plot: Added solution parameter values if only one data set
'3D Likelihood Plot: Reinstated function of Exit icon
'Additional Uncertainty: Improved consistency of lower bound adjustment
'Abernethy Risk: Planned Suspension calculation improved: (R. Unkle & colleague)
'Demonstration / Sample: Limited display for input parameters to active model
'Distribution Analysis: 3P Weibull change to 2P Weibull clears all t0

'5.0DF - 7 APR 2018 (File Version 5.0.0.406)
'About/Opening Screen: Improved language translation
'DEMO: Added "Paste" icon for DEMO to FULL Special Name input
'DEMO: Removed Change From Full To DEMO

'Former Results: Added unique file names to avoid filename "collision"
'Languages: Added new words for About / Opening screen
'Abernethy Risk: Mixture model input improved for accuracy
'BPR: Added flags for XI% display and TL$ display
'BPR: Made XI% and TL$ available only with unlocking password in DEMO
'DEMO: Modified allowable test planning inputs
'DEMO: Modified optimum replacement inputs
'Normal/Lognormal mle: Re-instated solution for occurrences only
'Simulation Display: Added "prr%" option for Fit Comparison + Display

'5.0DE --03 MAR 2018 (File Version 5.0.0.405)
'Calculator: Added "H...Gaussian (Normal)" option
'Code: Changed subroutines starting "wpgage", etc. to "ParamBoxSSW_P", etc.
'Data Identification on Plot: Added to on-plot zoom capability (per T. Marquart)
'Display: Added plotting indication in header for large slow-loading data sets
'DEMO version: idemodatareal% changed to idemodatachange%
'DEMO version: Data altering includes input Y-Values
'Error Checking: Added to routines accessed with Form2.Picture1 (the plot)
'Former Results: Assigned top of image as first location of main results
'Language: Added "Home" to translatable words
'Output: Save Parameter Only To Clipboard enhanced to add Marker Line values
'Output: Save Parameter Only To Clipboard added to Visual for Crow/AMSAA values
'BPR: Added 'Wilkins Modified' type
'BPR: Added option for TL$ on plot
'Confidence: Added message to delete Single Set Confidence Only for contour test
'Dimensions: Expanded maximum quantity of data sets to 16 (per T. Marquart)
'Goodness of Fit for AD: Clarified low value display
'mle-Interval Solution: Improved starting point and final results (per T. Marquart)
'mle Modified Solution: Added RBAjjm solution (per Juanjo Mindeguia)
'MC Special Simulation: Added RBAjjm method
'MC Special Simulation: Improved display of pAD% for results
'Optimum Replacement / Abernethy Risk: Added menu item "K...No Modified Options..."
'Sample/Simulate: Added method type Find Better Fit [FBF] vs. Precise Sample
'Sample/Simulate: Restored and clarified Sample-From-Sample capability
'Test - Wang Additional Time: Corrected result to reflect actual experience (per R. Unkle)
'Warranty Format Input: Revised import for easier handling of all data arrangements

'5.0DD -- 07 AUG 2017 (File Version 5.0.0.404)
'Conversion from text to value: Improved robustness for very large number entry
'Languages: Clarified entries for French and German
'Languages: Fixed issue with disappearing point sequence #'s in data grid
'Languages: Removed some "compound" words, & replaced with individual words
'Marker Points: Improved retention of points in file
'Warranty Data Import: Clarified menu choices for input format
'Special Monte Carlo Simulation: Clarified Type descriptions
'Additional Probability Plot: Changed "S...Suspension Histogram" to "Y..."
'Additional Probability Plot: Added "S...Set Comparison"
'Analysis Drop-Down Menu: Added " / Comparison" to "Confidence"

'Data Import: Added capability for 2-Column input of Value and F/S (Failure/Suspension)
'Optimum Replacement: Added option to include time value of money
'Set Comparison: Added icon for this above Calculator and Confidence menus
'Set Merge with Confidence: No set merge without removal of confidence first
'Help file: Icon Map link for Fulton Risk (SSV) was pointing to Abernethy Risk (SSW)

'5.0DC -- 21 APR 2017 (File Version 5.0.0.403)
'About Box: Changed background color of "Yes, I agree..." section to yellow to match
'Drag-For-Select Label: Turned off for results display
'Language Processing: Improved translation for Abernethy Risk output
'Language Words: Added "Execution" (Performance) and "Main" to associated LANGFILES
'Option Explicit: All code now invokes Option Explicit
'Set Label Edit: Removed label selection issue with extra labels selected
'Standard Number Display: For #'s between 0.1 and 1.0, reduced to 4 sig figures (was 7)
'Start/About Box: Clarified messages
'Zoom: Clarified menu items F and H
'Zoom: Hide set feature enhanced to add all yes or all no selections
'BPR 1-Click: Added XI% output option
'BPR Exit: Option N reinstates original plot style upon exit
'Message for zero slope: Clarified message for all distributions
'Method/Input: For Weibayes, only applicable methods rr and mle allowed (no rrs, no RBA)
'PFEV-Step-Stress: Removed issue with RBAmd adjustment for regression (per J. Sharp)
'Test Requirements: Added consideration of tzero time shift (per R. Unkle)
'Test Requirements: Added check for excessively large Beta value
'Weibayes Menu: Changed LFAIL option letter from "L" to "F"
'Weibayes Menu: Added option "L...Parameter Start Lock"
'Zoom: Removed option for 1:1 scaling except for Weibull model

'5.0DB -- 09 FEB 2017 (File Version 5.0.0.402)
`Menu width: increased width of menu due to truncated display on some machines
`Number Entry: Clarified increment description
`Touch Slider: Now interfaces with Big Inforation Display text box
`3-Parameter Menu: Added "Standard" to "[rr]" for Method For t0 menu item
`3-Parameter Menu: Selection of "N...None" also resets search method to rr
`Confidence: Removed nuisance message for LR confidence
`Distr. Analysis: No longer uses pAD% for model selection
`Inspect Option #1: Removed percent sign from label
`Set Comparison: Clarified error message when dimension not enough for LR test

'5.0DA -- 06 JAN 2017 (File Version 5.0.0.401)
`Data Import: Data quantity set to zero (deleted) when input quantity is zero (per Alfred Jochimczyk)
`Marker Point Addition: Removed nuisance appearance of first point during addition
'3D Likelihood Plot: Removed restriction for showing tooltip for Input Change icon
`Abernethy Risk: Improved robustness for Option Z fit with partial suspensions considered
`Label/Style Select: Can select Equation/Method box to get equation change
`Label/Style Select: Can select Equation/Method box to get method/input change
`Output Menu: Added "...Input For Value Only Text Output"
`Output Menu: Added "...Value Only Text Output to Clipboard"

`BATCH Operation: Added [nxxxx] option for clipboard output

'5.0CZ -- 24 OCT 2016 (File Version 5.0.0.3.26)
`Menu Option Boxes: Removed possibility of lingering images upon plot selection
`Setup Menu: Added menu item for Change DEMO to FULL
`Abernethy Risk: Improved robustness for Option Z fit with partial suspensions considered

'5.0CY -- 11 SEP 2016 (File Version 5.0.0.325)
`Updated Help file load routine to display help faster.
`Updated the silent install to suppress dialog boxes and status bars.
`FileName: Eliminated possibility of change of default data filename to function filename
`Accelerated Testing: Added flag to .w file for confidence active or not
`BPR: Added "OK" icon for Select Process Reliability Point / Change Point On Plot
`Confidence: Improved likelihood ratio assurance calculation for lower percentages
`Confidence Recalc: Improved robustness for Gumbel and Normal point deletion
`Confidence Contour: Removed prompt for single or double (always double now)
`Goodness-of-Fit: Added "Automatic" selection (pve% for regression / pAD% for mle)
`Goodness-of-Fit: Clarified display of goodness of fit in report
`MouseWheel: 3-D Plot polarity changed for left side to match arrow buttons
`Plot: Removed nuisance Y-axis lines for extreme zoom
`Sample/Demonstrate: Resets Sample Type now from Sample-To-Sample to Monte Carlo after "New ... Clear Data"

'5.0CX --15 JUL 2016 (File Version 5.0.0.324)
`Added Nelson Recurrent Events, Crow-AMSAA, and Kaplan-Meier to Models in Help file
`Added note on ASTM C1239 to Methods in Help file
`Added graphs and tables for Normal and LogNormal in Methods in Help file
`File Save: Restriction added to prevent Visual overwriting Weibull file
`File Save: Restriction added to prevent Weibull overwriting Visual file
`Help Menu: Added icon in HELP group for About
`Help Menu: Consolidated menu items from 7 to 4 compatible with icon quantity
`Language Translation: Created separate module for language options (SMITH_5L.BAS)
`Language Translation: Created Function-fs_LangLogic(smessage) in SMITH_5L.BAS
`Label/Style Edit Buttons: Enlarged and consolidated for easier touch operation
`Label/Style Icon on Large Plot: Added to improve accessibility
`Merge Sets: Undo available immediately after merge
`Merge Sets: Point labels retained
`Number Display: Improved display on plot and report
`Plot: Added Label/Style Icon on large plot to improve accessibility
`Plot: Added Output/Export Icon on large plot to improve accessibility
`Plot: Added Okay/Exit Icon on large plot to improve accessibility
`Plot: Display of Suspensions and Discoveries expanded to include on bottom scale
`Plot/Edit: Improved H... Hide/Display of points
`Setup Icon: Changed image to reflect more modern laptop computer
`Setup Menu: Added item "W...Display Options ... On Big Plot"
`Weibull Library: Defaults to file name different than data file
`Zoom Menu: Changed "G..." item to "W...Display Options ... On Big Plot"
`Zoom: Added size-changing box to indicate zoom

`3D Plot: Increased locations within user interface for access
`Abernethy Risk: Added icon for Automatic Total Reset
`Abernethy Risk: Removed hang issue with Outside Interaction Correction
`Confidence: Added option to show parameter confidence limits on plot
`Confidence: Improved lr solution for negative data (Normal + Gumbel)
`Confidence Contour: Mitigated use of letter "X" in file (contour titles)
`Dice Icon: Added Sample-From-Sample to Sample Type for one or more sets
`Interaction: Added `Parameter Change To Present Plot Results` Option (D. Keisic)
`Naming: Changed lognormal parameter `MuAL` to `Med` for median
`Optimum Replacement: Added icon for Automatic Total Reset
`Plot Display: Improved automatic change for usage of negative data value

'5.0CW --26 JAN 2016 (File Version 5.0.0.323)
`Updates of ActiveX controls
`Updated Setup1.exe file for administrators to run a quiet install
`Added File Version number to the file properties (5.0.0.323)
`Added Help section on "Technical Notes" for Administrators
`Control-Box Buttons: Enlarged for easier touch operation
`Data Grid: Midsize button enlarged for easier touch operation
`Former Results: Expanded from 4 maximum to 20 maximum
`Former Results: Removed plot title from file name for retrieval
`Help Menu: Changed "L...Information Display (Big / Small)" to item "K..."
`Setup Menu: Added item K, "Information Display (Big / Small)"
`Program Exit Button: Updated display of button name for mouse
`Zoom: Enlarged Icons for Output Display Choice On Big Plot
`3D Plot: Enabled finger swipe (mouse click-drag) capability for figure rotation
`View Additional Probability Plot: Icon added to Plot/Report menu
`Report Goodness-of-Fit Description: Changed "Bad" to "Small"
`Report Goodness-of-Fit Description: Changed "Very Bad" to "Very Small"
`Report Goodness-of-Fit Description: Changed "Good" to "Big"
`Report Goodness-of-Fit Description: Changed "Very Good" to "Very Big"

'5.0CV -- 14 DEC 2015
`Weibull Library: Changed menu item letter for "Clear Clipboard"
`Inspect Option 1: Improved conversion from Standard Point-By-Point
`Method/Input: Added "1...Point-By-Point Inspect1 ..." menu item to "Fit Method..."

'5.0CU -- 03 DEC 2015
`Plotting: Improved plotting of confidence bounds with 3-parameter when Scale-As-Recorded
`Code Change: Sub chkdecimal moved from SMITH_1A.BAS to SMITH_2A.BAS
`Code Change: Sub fylprodrateout moved from SMITH_1A.BAS to SMITH_4A.BAS
`Code Change: Sub fylprodrateout1 moved from SMITH_1A.BAS to SMITH_4A.BAS
`Code Change: Sub fylusagerateout moved from SMITH_1A.BAS to SMITH_4A.BAS
`Code Change: Sub fylusagerateout1 moved from SMITH_1A.BAS to SMITH_4A.BAS
`File Check: Changed so that "\\" on the front of a path is okay (for server locations)
`Icon Layout: Removed option for old icon layout in Setup section
`Labels Above Tabs: Added for clarity
`Mouse Wheel: Capability added for data grid (by Carl Tarum)

`[Mouse Wheel](): Capability added for number input box (by Carl Tarum)
`Output Icon: Added to large plot display
`Removed nuisance display of the word "Select"
`Abernethy Risk: Improved forecast with Planned Suspensions
`Accel. Test / Step Load: Added item "K...Random # Start Lock ... "
`Confidence Menu: Changed item "V...Random # Start Lock ... " to item "K..."
`Data Conversion: Improved transform from Kaplan-Meier to Inspect Option #1
`Mixture: Improved storage/retrieval of data file
`Outlier Test: Improved with new routines to enhance accuracy
`Plot: New parameter box option for `n/s`(`o/s`) display with B- or X- or RC-Values
`Simulation: Added RBAmd, RBApb, RBAmu, and mleN-1 methods to Model Parameter Value
`Simulation: Changed Interaction counter to LONG type
`Simulation: Form header now displays Interaction counter value at intervals
`Sample: Improved MC sample generation for mixtures with suspensions

'5.0CT --- 2 MAY 2015
`Screen Resolution: Changed obvious screen resolution variables from INT to LONG type
`Outlier Calc: Changed calculation variables from INT to LONG type
`Double Precision to Single: Mitigated VB6 Csng() hang issue for value 2
`Marker Line: Revived implementation for existing fit
`Dimensions: Removed nuisance shut-down when downsizing at minimum
`Risk & Optimum-Replacement: Fixed table display where there was no space between #`s

'5.0CS - 17 APR 2015
`Number Display: Removed error display issue with number display format (per A. Jochimczyk)
`Zoom: Disconnected X-Value zoom from Y-Value zoom (per D. Keisic)
`Zoom: Added icon for X-Range + Y-Range Lock on regular large plot display (per D. Keisic)
`Zoom Menu: Added option to display Zoom icon added above (Yes/No)
`Zoom Menu: Added icon for X-Range + Y-Range Lock
`3D Likelihood Plot: Added icon to menus with Z...3D Likelihood Plot option
`Method/Input: Added Z...3D Likelihood Plot to menu options
`Sample/Demonstrate: Changed parameter entry to expand input options
`Sample/Demonstrate: Menu reorganized for better mixture options

5.0CR - 26 Mar 2015
`Button Menus: Exit now restarts originating menu to re-display option boxes
`Line Display Menu: Added option for Label Pointer Line Maximuize (=Yes/No)
`Parameter Box: # display agrees better with requested accuracy (per A. Jochimczyk)
`Plot/Report Tabs: Enhanced Display
`Terminology: Clarified Plot/Report icon and tab cursor-movement messages

5.0CQ - 19 Jan 2015
`Data grid: Removed grid moving when button-menu selected
`Parameter Box: Improved number display (Alfred Jochimczyk)
`Parameter Box: New option to show Fit Comparison with Display of B-value, X-value, or RC-value
(Alfred Jochimczyk)
`mle-Interval Solution: Adjusted step-to-step change ratio to improve solution (Takushi Kitano)
`mle-Interval Solution: Improved for lognormal, when initial SigF ("beta#") is too low

`Method/Input: Added "T..." option to menu for tracking solution path
`Report: Removed non-relevant "-9E+30" text line from Marker Line report

5.0CQ - 19 Jan 2015
`Data grid: Removed grid moving when button-menu selected
`Parameter Box: Improved number display (Alfred Jochimczyk)
`Parameter Box: New option to show Fit Comparison with Display of B-value, X-value, or RC-value (Alfred Jochimczyk)
`mle-Interval Solution: Adjusted step-to-step change ratio to improve solution (Takushi Kitano)
`mle-Interval Solution: Improved for lognormal, when initial SigF ("beta#") is too low
`Method/Input: Added "T..." option to menu for tracking solution path
`Report: Removed non-relevant "-9E+30" text line from Marker Line report

5.0CP - 09 Dec 2014
`Icon Layout: Moved HELP... and ADDITIONAL... icons left to match SSY
`List Color: Changed to match SSY
`Menus: Added "Slide-Select" for improved touch-screen operation
`Set Labels: Contour plot no longer changes lowercase "x" to uppercase "X"
`Zoom Menu: Changed "Automatic Reset" menu item to "Automatic Total Reset"
`Zoom Menu: Added icon for "Automatic Total Reset"
`Zoom Menu / Add Data On Plot: <Esc> or (X) returns immediately to Zoom menu
`BPR: Re-instated "Exit" icon for change point edit on plot
`Calculator/Chi^2: Added [Chi^2(2D)]/2D where "D" (or "N") = degrees of freedom
`Calculator: Expanded menu items for improved output choices
`Equation Label: Added "3" on end when using Lognormal 3-parameter
`Quality Limit Comparison: Rearranged menu for future addition of Cpk
`Report: ln likelihood display for Reduced Bias Adjustment (RBA) now matches with Precise Reading
`Distribution Select: Changed "Y...Weibayes" to "U...Weibayes"
`Distribution Select: Added "Y...Ybath(TM)"
`Tabs Over Results Box: Enlarged vertically + added highlight for active selection
`Zoom: Restored "X" box on plot for exit for menu options "C" and "D"
`Installation: Program Setup1 now checks and uninstalls prior installation
`Installation: Program Setup1 now will prompt to copy data files

5.0CN - 14 May 2014
`BPR: Added "lock-out" messages for other options when BPR is active
`BPR: Clarified plot display options for both BPR% and Eff%
`BPR: Settings for plot persist upon exit from BPR menu when "Plot Format For Exit = BPR"
`Data Wizard: Restored complete operation of Edit Special
`Monte Carlo Confidence: Consolidated trial quantity input between SSW and SSV
`Monte Carlo Seeds: Converted to 4 seed numbers and re-activated seed setting
`Plot/Report: Menu item "Q...B-Value[%] Select" changed to "Q...List Select For Report"
`Precise Reading: Added option "P...Marker Point On Plot For B-Value Or X-Value"
`Zoom: In option E, added Marker Point At B-Value and Marker Point At X-Value
`Made Revision History a main topic on help file

5.0CM - 25 Mar 2014
`Color Edit: Added icon on plot for Label / Style edit

`Former Results: Added capability to overlay with Active Results
`Abernethy Risk: Improved forecast for Planned Replacement w/ 100% Occurrence Correction (for George Guarassi)
`Abernethy Risk: Improved forecast for Planned Suspension w/ small failure probability (for George Guarassi)
`BPR/Options For 1-Click Analysis: Added Option "P...BPR Parameter On Plot = Eff% or pve%"
`BPR/Zoom: Added menu item "R...Range For Linear Scale Zoom
`Precise Reading: Added menu item "0...Back To Parameter Select" to 2nd Menu

5.0CL - 20 Jan 2014
`Data Grid: Point label editing is now allowed when Y-Value Display is active

5.0CK - 02 JAN 2014
`Chi^2 routine: Nuisance Iteration messages removed
`Edit Special: Changed sub-menu item D . . . to sub-menu item F . . .
`Set Comparison: Improved LR test results display with some data sets hidden (hidden = not considered)

5.0CJ - 04 Dec 2013
`Precise reading: qtyoccrinput#() redimensioned to at least 25
`Inspect Option 1: Corrected occurrence quantity for sets after a deleted set (per A. Jochimczyk)

5.0CI - Skipped for clarity in version numbering

5.0CH - 04 Nov 2013
`BPR Sensitivity: Added Eta value display in results (per Jose Wilkins)
`BPR Sensitivity: Added "Add Line On Plot" button to slider form
`BPR 1-Click: Removed option "L" nameplate line fitting unless batch processing (per Jose Wilkins)
`Files: Pop-up message added when bringing SSV file into SSW
`Inspect Option 1: Locked out only one occurrence grid entry (per Ronald Schop)
`Plot Return: Improved plot return after adding marker points or data points

5.0CG - 03 Sep 2013
`Change ccc in best practice guide to PVE above 10%
`Executable Name: Changed "ybath.exe" to "smithy.exe"
`Interval MLE: Improved `discovery` sequence positioning (Todd Marquart)
`Probit 3 Grouped Data: Decreasing sample size now okay
`Report: Added clearer wording for goodness-of-fit measure (pve% and pAD%)
`Set Comparison: Clarified contour plot title for one occurrence in data set (John Smith III)
`Set Comparison: Added clearer wording for amount of difference (pff-value)
`Variable Usage Rate Input: Now allows "..." symbol for input
`Vertical Scale Type: Added parts for each 1000 ("/K") for occurrence and reliability (Dennis Keisic)
`YBath(TM) from SSW: Improved cancel of search for output file
`Added SmithHlp compatibility for Microsoft kb 187553

5.0CF - 22 July 2013
`Batch Run (-7 switch): Removed former B-values used from current call
`Goodness of Fit: Changed Modified Anderson-Darling abbreviation from "pA%" to "pAD%"
`Abernethy Risk: Added capability for hand entry of mixture solution

`PFEV Step Load: Added type of fit method selected to output display
`PFEV Step Load: Added to menu H...Weibull Fit for method selection
`PFEV Step Load: Added to menu Y...View/Save XY Data or Function
`Improved Search in help file (Jumps to found text on page)
`Help topic now expands with single click
`Added Help Index

5.0CE - 13 Jun 2013
`File Access: Can input `.W` or `.V` file without extension entered
`Batch Processing: Added -6... switch for B-values(X-values,RC-values) on plot
`Batch Processing: Added -7... switch for B-values(No X-values, No RC-values) in report
`Batch Processing: Added -8N and -8P switches for whether negative values are allowed
`Batch Processing: Removed alphanumeric letter options A,B,C,W for -iX switch
`Batch Processing: Added alphanumeric letter options A,B,C,W to new -jX switch
`Data Input: Now allows input of ">0<#" input for a discovery (converts to discovery)

5.0CD - 23 Feb 2013
`Improved YBath compatibility

5.0CC - 22 Feb 2013
`Help file: New algorithm improves speed. Fixed non-US functionality issues.

5.0CB - 22 Jan 2013
`BPR: Reinstated fit line and marker line tracking when files are merged (for Paul Barringer)
`Dimensions: Removed cause of nuisance subscript message (for Juanjo Mindeguia)
`Mixture [BATCH] Detect: Changed threshold for Comparison #3 from 90% to 60% (For Ronald Schop)
`Mixture [BATCH] Detect: Changed wording of `Results` to `Estimate` (for Ronald Schop)
`Mixture [BATCH] Detect: Removed automatic beginning BATCH check for every data set
`Risk-Abernethy: Improved Planned Suspension for large removal quantities
`Risk-Abernethy: Renewal + Planned-Suspension allowed at same time (for Claudio Ligorio)
`Test Requirements: Probability Of Acceptable Results more robust for large `r` ratio
`MTBF: Can enter own acronym for expected occurrence interval (for Larry Tyson)
`Language: Improved robustness of Eta, Beta, t0, and Mtbf naming
`SSHelp program updated for other regions

5.0CA - 30 Nov 2012
`Automatic Data Order Caution: Moved menu item from Start Lock Options to Setup Menu
`BATCH PROCESSING: Reinstated -zX1_X2_Y1_Y2 zoom set functionality
`Abernethy Risk: Now bypasses additional replacement when planned replacement is active
`Abernethy Risk: Increased robustness of warranty limit calculation to allow zero aging
`BATCH Processing: Added -4x switch for Plotting Position Type (rr, br, mr, hr, nr, kr)
`BATCH Processing: Added -5x switch for Data Display Type (n/s, o/s)
`Barringer Process Reliability (BPR): Upgraded Zoom option F and removed Zoom option G
`Grid Label Box: Added designation of "Y-Value" when Y-Value display selected
`Gumbel Distribution: Clarified error message for meaning of Negative Value
`Menus: Added more option boxes for menu items
`PFEV(Step-Stress): Improved import of step-stress sequence
`PFEV(Step-Stress): Locked out alternate solution for B-Value

`Test Requirements: Streamlined input/output code
`Test Requirements: Put Test Type into Menu heading
`Help file now attempts to display damaged help file instead of stopping.

5.0C - 20 Sep 2012
`Set Label Edit: Removed possibility for "Label 0" edit
`Data Grid Display: Added option to show/hide Y-Values for Weibull program in Setup Menu
`Plot Display: Probability scale label text now does not change if importing SSV file
`Test Requirements: Re-instated solution for finding test item quantity given time and reliability

5.0BZ - 13 Sep 2012
`Languages: Changed name from "Default" to "Default English [American]"
`Plot Label Characters: ",", "X", and space " " are now decoded from temporary file save
`Abernethy Risk: Added "Now" to Present Risk terminology
`Abernethy Risk: Improved Robustness for extremely large suspension values
`File Load: Automatic recalculate activated for non-FF files
`Goodness-of-Fit: Added option to hide when using regression for Weibayes-type solution
`Goodness-of-Fit: Added "O" in front of fit label if correlation is only for linear data trend on scaling
`Label Save: Improved robustness
`Likelihood Solution: Added logic in derivative estimation to improve robustness
`Plot Label Characters: The ",", the "X", and the space " " are now coded for temporary file save
`Test Requirements: Improved additional usage section ("Fulton" and "Wang")
`Goodness-of-Fit: Added "O" in front of fit label if correlation is only for linear data trend on scaling
`Zoom Menu: Added menu option "G..." function to menu option "F..." (Removed option "G")

5.0BY - 5 MAY 2012
`Help File: New comprehensive HELP released for 5.0BX version
`Help File: Changed name of "Flow Chart" to "Best Practices Guide"
`Help File: Easier SSW and SSV access to Best Practices Guide (Analysis Wizard - Flow Chart)
`Abernethy Risk: Reinstated ability to choose pre-set usage rate options (D, H, M, Y)
`Zoom: Added point label option to view point as point value instead of symbol
`Risk (Abernethy): Changed number separator (delimiter) from "," to ";" for easier use in Europe (per R. Schop)

5.0BX - 21 Apr 2012
`Chi-Squared: Added chi2choose subroutine to select between Chi-Squared methods
`Chi-Squared: Added chi2CDFchoose subroutine to select between Chi-Squared methods
`Chi-Squared: Added chi2DOFchoose subroutine to select between Chi-Squared methods
`Confidence Menu: Changed "S...Single Set..." to "I...Single Set..."
`Confidence Menu: Added "S...Set Comparison / Difference Indication
`Export: Improved output for Data List To Clipboard
`File Input: Improved automatic report analysis of multiple data sets
`Former Results: Green checkmark now activates
`Interaction (MC): Added information about decreasing error to output
`Mixture SSW: Automated recalculation for new method selection
`Mixture SSW Batch Indication: Removed adjustment to mle slope
`Set Comparison: Added more "Additional" information in report
`Setup Start-Lock: Moved menu items "G", "H", and "L" inside Zoom / Hide Options item

`Three-Parameter (t0): Added start-lock for scale type (AR / NAR) in Setup

5.0BW - 7 Apr 2012
`Data Import: Improved import of text files
`File Input: Added automatic report analysis of multiple data sets (per Todd Marquart)
`Goodness-Of-Fit: Anderson-Darling pA% added to report for mle (when active)
`Method/Input: Reinstated `Inspect Option 1` method to remain selected after initial choice

5.0BV - 15 Mar 2012
`API: Eliminated only API call ... per Carl Tarum
`File Save: Added filename to data in file (helps with Former Results) ... fylflpnamelasts$, fylflnamelasts$
`Main Screen: Improved transition from Maximized to Normal
`Zoom: Added arrow buttons for X-Range And Y-Range Lock: Select On Plot (requested by T. Marquart)
`Zoom: Added reset-to-automatic button for X-Range And Y-Range Lock: Select On Plot
`Big Occurrence Sets: Replaced slow calculation loop with faster `no-loop` algorithm
`Big Occurrence Sets: Automatic change to Inspect1 method
`Calculator/Remaining-Life: Added measuring `units` label to input/output items in menu
`Interaction(Calculator/Demonstrate): Activated item V...View Interaction Plot With SSV
`Interaction(Calculator/Demonstrate): Enhanced item V to show PDF limits (when limited)
`Confidence Menu: Changed "Special Confidence Curve" to "Confidence Special Curve"
`Confidence Menu: Improved dialogue box terminology
`Likelihood Ratio: Contours and LR Test locked out when 3-parameter (t0) is active
`Risk: Increased detail of `units` description for Abernethy Additional output

5.0BU - 23 Dec 2011
`Warranty Import: Modified data paste import algorithm to allow all zeroes in top row
`Warranty Import: Modified data file import algorithm to ignore labels in top row
`Weibayes Calculation: Reverted to allowing confidence for single occurrence data sets

5.0BT - 13 Dec 2011
`Abernethy Risk: Improved result after deletion of Planned Suspension
`Chi-Squared Function: Improved accuracy with routines by Carl Tarum

5.0BS - Skipped

5.0BR - 30 Nov 2011
`Abernethy Risk: Time adjustment for warranty limit with output intervals less than months (per
R. Schop)
`Test Planning: Clarified Test Requirement menu wording for items D and E
`Three Parameter Weibull: Restriction added for t0 solution with discovery-type data values
`Weibayes Eta: Removed conficting option for mmle (requested by N. Mihaylov)

5.0BQ - 25 Oct 2011
`Abernethy Risk: Improved extended range calculation for Planned Suspensions [req. by Charlie Bonnen]
`Automatic Data Files Load: Removed to avoid nuisance error message [Carl Tarum]
`PFEV Common Slope: Improved clarity of output for sparse data
`Probability Plot: Changed display of interval data when multiple [req. by Todd Marquart]
`Quality Limit Comparison (6-Sigma): Improved output for Cpk values up to 2.75 [req. by Dennis Keisic]

5.0BP - 15 Oct 2011
`Abernethy Risk: Improved results for 100% Occurrence Correction
`Demonstrate/Sample: Added type I suspension capability for single set simulation
`HELP File Access: <F1> key accesses custom HELP file
`HELP File Search: "Eta" and "Beta" and other distribution parameters added
`Information Display: "Big" information display expanded and readability improved
`Message For No Tools: Clarified explanation for no Tools availability in special circumstances
`Network Operation: Improved installation plus file storage/retrieval on network drives
`PFEV: Extrapolation allowed for S/N Curve
`Special Characters - Not For Text: `{` and `}` characters reserved for batch processing
`Weibayes Beta Same Each Set: Improved Robustness
`Weibayes Eta (for all distributions): Removed confidence calculation from pure mle solution
`Weibull Library: Added option for Failure Mechanism causes per Dan Daley

5.0BN - 1 Jul 2011
`Abernethy Risk: Removed input data adjustment ... 3-parameter results improved [for FAA]
`Abernethy Risk: Removed RBA adjustment for grouped data (overestimates present risk)
`BPR: New Option "L" automatically fits Nameplate Line through any % point

5.0BM - 28 Jun 2011
`Softcopy Total Report (and standard Report): Tab lineup improved
`Data Grid: Improved Data Wizard selection range
`MLE Solution: Improved robustness for interval mle

5.0BL - 1 Jun 2011
`Zoom/Point Symbol Display: Added `Slow Point Display` option to menu
`Batch Detection: Simplified 3rd (automatic) test to a non-parametric comparison
`MLE Solution: Restored a former solution process for more robust solution

5.0BK - Intermediate version - not generally released

5.0BJ - Intermediate version - not generally released

5.0BI - 22 Jan 2011
Label Edit: Label-only filename saved to configuration file
Plot: Point colors can now be assigned according to point label
Plot: Point symbol rendering adjusted for stronger outlines
Plot / Report / Table Tabs: Added A...Activate Plot (or Report) to menu
Warranty: Expanded alternate orientations (MOP-MIS, MIS-MOP, MOP-MOA, MOA-MOP, etc.)
Warranty: Improved import of data with blanks
Additional SuperSMITH(TM): Added (for 1 data set or more) V...View Additional Probability Plot ...
Batch Detect: Added comparison #3 with likelihood ratio
Data Input: Clarified data entry type descriptions
Plot Display: Set label, n/s still shown when no analysis possible (1 occr w/ rr, etc.)(Marquart)
Weibayes Icon Menu: Defaults to 63.21206% confidence when no occurrences

5.0BH - 24 Nov 2010

Label File: Separated from retention of data file name
Plot/Report/Table menu: Clarified options
Quality Limit Comparison: Now has option for cPk as well as PPM
Report Tab (top of results box): Now accesses Plot/Report/Table menu
Abernethy Risk: Coordinated all variable sequence input menus
Abernethy Risk: Improved correlation between different output ranges
Abernethy Risk Menu: Clarified analysis units
Abernethy Risk: Calibrated present risk with/without future planned replacement
Test Planning: Extended to non-life situations (e.g. tests for sufficient elec. current per German
Mojica, Aerocivil)
Three-parameter (t0) Solution: Added double precision for improved accuracy
Three-parameter (t0) Solution: Clarified input menu and selections
Weibayes Confidence for Zero Failures: Nominal estimate changed to median estimate

5.0BG - 9 Oct 2010
DEMO: Input data alteration magnified
DEMO: Only one program needs to unlocked for all to be unlocked
Data Grid: Synchronized display of selected data points before/after screen re-size
Menus: Highlighted selected menu option box choices with capital letters
Precise Reading: Expanded capability to read from marker lines
Abernethy Risk: Re-organized output display to make results clearer and more consistent
Abernethy Risk: Improved calculation for Scheduled (`hard`) Replacement
Abernethy Risk: Now tolerant to negative value entry for Production and Planned Suspension
Abernethy Risk: Improved risk solution for Weibull 3-parameter model
Abernethy Risk: Improved designation of time for 60 year forecast plot
Auto load: Improved automatic program start and file load for selection just from file list
PFEV Accel. Testing: Solution more robust for extraploation to New Variable Value
PFEV Accel. Testing: Reduced bias solution improved for Lognormal, Normal, and Gumble models
t0 Solution: Removed possibility for mle solution for t0 when using rr fit method

5.0BF - 2 Aug 2010
Zoom: Added a menu selection for X-Axis value standard scientific format (1E+6) or (1000000)
Zoom: Moved items (Suspension + Discovery ..., Plot Side Symbol ...) to Point Symbol Display menu
Label/Style Edit: Added Line Edit Icon (Next To Symbol Edit Icon)
Accelerated Testing: Made it easier to change between rr and mle solution types
Confidence Menu: Clarified both Fit Method and Fit Comparison entries
Confidence: Removed nuisance message for Assurance calculation
Confidence: Removed unecessary re-calculation for pv Monte Carlo confidence
Method/Input: Added menu item V...Value Start [VS] Input For Parameter [mle Only]
Plot: Removed indication of "No (/ Select)" for confidence if no confidence selected
Report: Clarified indication of solution parameters

5.0BE - 10 Jul 2010
DEMO: Curves now smooth for auxiliary plots (LR Contours, Abernethy Risk, & Optimum Replacement)
File Name Reset: Auto program launch resets filename
Analysis: Improved robustness of display for very small samples
File Name: Removed file name retension if sample data is activated
Mixture Menu: Clarified partial % affected (BATCH) Y-Scale selection

Plot Size: Restricted to fit closer to data (w/ and w/o suspensions)
Test Requirement Menu (Initial): Clicking on checkmark now goes to standard menu
Weibayes (Equation Menu): Expanded to Weibull 3P and Lognormal distributions
Zoom (Line Intersection): More robust for Gumbel distribution

5.0BD - 7 Jun 2010
Labels: Improved high-resolution aspect ratio of label boxes for first file load
Menus: Removed appearance of selection boxes after selection is made
Abernethy Risk: Clarified the terminology used for the menu selections
Abernethy Risk: Added 100% Occurrence Correction for New Renewal / Production Item
Calculator/Confidence: Improved sample size estimate for likelihood ratio test of difference
Confidence: Added W...Dimension [d.o.f.] For Likelihood Ratio Method to menu
Confidence: Adjusted the Justified Likelihood Function (JLF) for milder contour adjustment
Display of Suspensions: Improved for Gumbel, Normal
Method: Improved likelihood solution robustness for Gumbel and Normal with suspensions
Test Requirements: Added option for test type ... time-based or value-based
Test Requirements: Clarified menu options
Test Requirements: Improved test menu for Gumbel+ distribution
Test Requirements: Added option R...r ... Ratio Estimate Of (Life Capability) / (Life Goal)

5.0BC - 15 May 2010
Clipboard: Improved robustness for sending text to the clipboard
Drop-down Menus: Increased width for language changes
HELP File: Improved system finding of file location
Opening Screen (About): Clarified lower button
Plot Grid: Added option for Grid Line Size Lock in Label/Style selection and in menu for plot line type selection
Zoom: Fit line hide (points still visible) more robust
3D Likelihood Plot: Added Button for Change Type (View Location or Function Location)
Data Input: Suspension entry more robust with respect to subsequent export
Gumbel: Improved mle solution for data sets with large suspension quantities
Gumbel Upper: Improved 3D Likelihood Plot for this distribution
Lognormal: Streamlined mle solution for data sets with suspensions
Mixture: Added Batch Detection requirement for minimum 20 occurrences and 20 suspensions
Mixture: Added Batch Detection direct link to View Additional Plot requested by Ronald Schop
Probit: Confidence limits on parameters added for beta-binomial confidence -- mean(lo,hi) not showing for regr
Sample: Clarified menu for type of suspensions in sample data sets
Weibayes: Clarified selection and display of which method (rr or mle) used for solution

5.0BB - 20 Jan 2010
Batch Processing: If brackets, [...], are omitted, software will linger after analyzing data file
Data Cut/Copy: Improved speed and added an indication of progress [for Marquart]
Data Import: No longer inserts zeroes automatically for spaces
Data Import: Warranty format input now allows blank entries (for zeroes)
Font Select(Labels): Improved ease of font change
Label Edit: Improved set label placement on plot immediately after label edit finish

Random # Generator: Switched to Carl Tarum`s routine
Significant Figures: Improved for very large and very small numbers [for Barringer]
Start-up (Information) Screen: Made existing icons active (formerly only images)
Zoom Menu: Added selection R...Precise Range For Linear Scale Zoom (does not round)
3D Likelihood Plot: Duplicated option in Plot/Report choices (also in Precise Reading)
Batch Detection: Added to Mixture Analysis Options (requested by Ronald Schop)
Calculator: Added choice for contour test to Set Comparison / Difference Indication
Data Entry: More robust for single occurrence data sets
Dimensions: More robust for Monte Carlo simulation
Marker Line: Improved selection of line and limited quantity of marker lines to 12
PFEV(Step): Set # displayed when entering step/stress sequence
Set Comparison: Improved analysis for very small data sets
Weibayes Menu: Added Weibayes Report selection to show Input and Output of analysis
Ybath(TM) Activation: Clarified exit process at top of SSW program when Ybath is active

5.0BA - 10 Sep 2009

All Source Code: Substituted all 3rd-party code with native Fulton Findings code

Active Results Tabs: Normalized placement of second tab for all resolutions

Data Input By Keyboard: Now asks whether to display point label on plot for 1st-time entry

Data Wizard: Added Data Wizard button to data grid

Data Wizard: Improved user interface for point label edit

Data Wizard: Improved set label edit

Drag-Drop: Replaced slow moving programming language routines with fast Fulton Findings routines

Drop-Down Menu Items: Changed menu order to better agree with icon placement

Icons: Increased size of data grid icons when grid is full screen

Language: Changed Spanish word for Print to Impression

Menus: Normalized mouse location metrics for more robust operation in all resolutions

Point Labels: Improved user interface for editing and displaying some or all of point labels

Precise Reading on Plot: Improved number display

BPR Menu: Total Production Sensitivity calculation improved

BPR 1-Click Automatic Fit: Improved identification of selected points by % input

BPR 1-Click Automatic Fit: Warning added when dimension change needed to add marker line

Confidence Menu: Okay button (checkmark) now produces same as A...Activate in menu

Interval-MLE: Improved robustness for interval-only data without much data-to-data variability

Label Edit Parameter Box: Removed option to show Mu and Sig on Plot for Weibull and Gumbel

PFEV: Improved label for line at new value(s)

PFEV: Improved standard error calculation

PFEV-Step-Stress: Improved ease of entry for step-stress sequence

PFEV-Step-Stress: Improved plot of line fornew values(s) of engineering variable(s)

PFEV-Step-Stress: Improved response to data change

Precise Reading: Enabled reading of marker lines 2 and above especially for PFEV

Rank Table and B-Value List: Improved display of values close to 1

Sample/Simulate: Improved robustness of MC sample results storage

Test Requirements: Simplified menu, added notes, and clarified menu items

Test Requirements: Expanded possible range of values entered for B-Value % and Reliability

Test Requirements: Improved accuracy of calculation for non-Weibull test planning

5.0B - 28 May 2009

BPR: Added menu option for Total Production Sensitivity ... Estimate For Input Change

BPR: Removed menu option for Total Production Display ... now always displayed

BPR: Added Nameplate Production and Production Effectiveness to output

Demonstrate/Sample: Improved robustness and organization of Special MonteCarlo Simulation

Demonstrate/Sample: Special MonteCarlo (MPV-Type) now includes median results

Demonstrate/Sample: Special MonteCarlo (MPV-Type) output options expanded

File Load: Increased robustness for loading with small set quantity

Method: Added Reduced Bias Adjustment Median+ (RBApb) from Paul Barringer

Method RBApb for Beta: Adjusted C4 power from 3.5 to 3.52 per Paul Barringer MC Results

Method RBApb for Eta: Added C4 power of -0.217 per Paul Barringer MC results

5.0AZ - 31 Mar 2009

Main Screen: Icon layout simplified and organized for more logical layout

Main Screen: Removed nuisance message occurring during resize

Menus: Added option buttons to selected menu choices

Plot Color Select: Lock Change By File option added to exclude color choices from data file

Zoom: Plot point display options expanded to include display of points with specific point labels

Zoom: Plot point display start lock improved

Zoom: Improved Point Symbol Type entry with new icon on plot edit screen

Batch: Improved BPR automatic analysis

BPR: Added pve% (goodness of fit) for fit of selected points

BPR: Moved BPR icon to main screen and removed from Mixture section

BPR: Analysis expanded to 12 sets at a time (if no Nameplate analysis)

BPR: Added 1-Click analysis capability

Label Edit: Added symbol icon for edit of point symbols

Mixture Menu: Simplified and implemented numbers for activation selections

Normal Distribution: Switched to more precise calculation routine from Carl Tarum

Solution: Removed indication of solution for 1 data value if no slope given

Zoom: Added value display for vertical-scale cursor location during marker point addition

5.0AY - Intermediate Version for development

5.0AX - 15 Jan 2009

File Access: Removed old-style file dialogue box

Normal Distribution: Changed to more precise estimates programmed by Carl Tarum

Batch Processing: Added BPR solution with -2_X_Y_Z inputs on command line and [Bx] outputs

BPR: Automatic solution for reliability point improved by solving at last crossing point

BPR: Color of BPR confidence line can be linked to data set color

BPR Zoom: Added option to hide standard set labels, only showing line labels

BPR Zoom: Added option to put all text analysis results simultaneously into clipboard

Data Grid: Switched to VB6 for programming and new MSFlexGrid for grid object

Dimensions: Expanded marker line quantity to 24 maximum (minus active data set quantity)

PFEV: Improved display of fit line for suspension-only data set when common slope used

Test Planning: Added option for Sudden Death Test Time (% Of Full)

5.0AW - 6 Dec 2008

Goodness-of-fit (g.o.f): Added column to plot parameter box when using mle for fit & AD g.o.f

BPR: Added visibility of std. dev. in parameter box (but only when in BPR menu)

BPR: Added designation of parameter box location in BPR zoom menu

BPR: Default now is 8.3 of top points for nameplate line Option K fit

BPR: Default now is 25 for Beta for nameplate line Option K fit

5.0AV - 28 Nov 2008

DEMO Version: Added note on plot DEMO ONLY - DATA ALTERED

Dimensions: Expanded to eliminate nuisance Out Of Range message

File Save: Simplified files access routines and especially automatic load of sample data

BPR: Added fit line thickness option for BPR Zoom

BPR: Removed reliability-from-confidence in Production Line options (already in Change Point)

BPR: Added visibility of calculated reliability in parameter box (but only when in BPR menu)

Dimensions: Maximum data set quantity on same plot increased to 12

Dimensions: Maximum marker line quantity is now compliment of data set quantity (up to 20)

PFEV: Immediate update of analysis for standard PFEV when fit method is changed

Plot: Simplified the X-axis and Y-axis automatic numbering

5.0AU - 15 Nov 2008

Capability: Compatible with recent new revision of IEC-61649

Information Display: Reset default to Tooltips with Select Display

Abernethy Risk: Changed nomenclature for upper / lower bounds in menu and output

BPR: Added % of upper data fit for production line

BPR: Added % of upper data fit for nameplate line

BPR: Added option to find reliability by intersection between data and production line lower bound

Confidence Menu: Clarified options

Interval-MLE: Note added for changing to/from discoveries/intervals on automatic data sequence change

Label Input: SSV Y-Axis no longer over-writes existing SSW label

Partial % Affected (3P): Minimum allowable % affected (batch) based on highest occurrence plot position

Point Representation: More robust for suspension display when 1st point is a suspension

PFEV Menu: Clarified options

Step Stress: Marker Line label clarified when B-Value parameter previously selected for regular PFEV

Vertical Plotting Position: Removed extra adjustment for Bernards approximation for a 1-point plot

Vertical Plotting Position: Removed extra adjustment for binomial method

Vertical Plotting Position: Improved location of supension points (when shown) for frequency table input

5.0AT - 25 Aug 2008

Value Entry Box: Clarified function of selectable items

Total Picture: Menu item re-instated for switching negative-or-positive display of suspensions

Accelerated Test (Fit): More robust for data sets with only suspensions

Accelerated Test (Plot Line At New ... Value): Default engineering variable is last entry

Confidence: Initializes all X-Values to avoid nuisance misplot due to previous use of different method

PVE% and CCC: No longer quantity-adjusted for Probit2 and Probit3, while Kaplan-Meier still adjusted

Risk: Improved display for Abernethy Additional Estimates when RBA1 method is selected

Step-Stress: Improved wording about single-load solution naturally giving lower slope than multi-load data

5.0AS - 8 Aug 2008

Start Lock: Now includes Point Symbol Type

5.0AR - 25 Jul 2008

ACH Plotting: Returned ability to evaluate suspensions for plotting of the actual data

Batch Mode Processing: File name shown on plot if this setup option was previously chosen

Data Wizard: Changed E...Delete Special to E...Edit Special

Data Wizard: For E...Edit Special, Added T...Occurrence Only Change To Suspension

File Access Error Message: More details like ... FILE-NAME, PATH, EXPLANATION

Icon Select: Improved icon click response

Information Display: Added option in HELP menu for Big Information Display (Big Letters)

Information Display: Added option in information menu for Big Information Display (Big Letters)

Information Display: When magnified also shows data grid selections

Software Name: Standardized on SuperSMITH(TM), officially registered name

Software Name: Changed acronyms to SSW (Weibull), SSV (Visual), and SSY (Ybath)

Warranty Format Import: Now allows blank cells in source data to represent zero occurrences

Zoom: T...Point Side Symbol Display menu item changed to U...

Zoom: Added menu item T...Suspension + Discovery ... Plot Display = Yes / No

Zoom: Menu item T... available to select for change even with no data

Abernethy Risk: Enabled 0...None / Reset entry for Planned Suspension Expected

Abernethy Risk: Table output for SSW plot coordinated with range selected

BPR: For Nameplate Line ... added input type I...Plot Point Fit With Upper Data Point (simplified version of H)

BPR: For Nameplate Line ... added input type J...Plot Point Fit With Additional Upper Point on Production Line

Confidence: Message improved about method mismatch between lr confidence and rr fit

Distribution Analysis: Improved presentation of comparison method [req. by Anthony Cerra, FAA N.E.]

Input: Improved robustness for suspension data pasted from clipboard and method changed from standard to interval-mle

Plot Vertical Axis: Value-label zig-zag pattern (for readability) more stable

5.0AQ - 22 Mar 2008

Batch Processing: The -L option (run, file-load, linger) was change to -h (hold)

Batch Processing: The -yffffffff option (library item save option) was changed to -Lffffffff

Batch Processing: Added -1_E_X_Y option to create a marker line, E=Equations, X=Location, Y=Scale

Batch Processing: Added [zc], [zp], and [zfxxxxxxxx] options for Precise Reading

Batch Processing: The -xV option (V is some value) was added for input of a horizontal axis value

Batch Processing: The -yV option (V is some value) was added for input of a vertical axis value

Precise Reading: <Enter> returns to main menu now

Zoom: Hide option (Yes / No) returns to main screen now

Risk (Abernethy): Discovery and interval type probability also doubled for RBA present risk

Risk (Abernethy): Method expanded to handle data values significantly higher than median

5.0AP - 5 Mar 2008

Abernethy Risk: Added Abernethy Additional Estimates for MTBF, RATE, AVAL, and T-vs-O

Calculator: Changed MTTF to MTBF for Option Q...With Planned Renewal

Confidence (lr): Removed nuisance subscript out of bounds indication

Data Import: Made probit method more robust to single column data entry

Rank Table: Automatically rounds up/down to closest significant figure

Setup: Changed name of option T...Anaysis Distribution Equations to E...Distribution Equations

T-zero Solution: Option M...Method For Finding t0 ... mle result now more robust

Weibayes: Solution line can be automatic even if there are no occurrences

5.0A0 - Skipped This Version #

5.0AN - 25 Jan 2008

Distribution/Program Name Box: Improved location and sizing for different screen resolutions

Monte Carlo: Default random # seed changed to 3939889 (was 3979771) for wider default spread

VISTA (Microsoft) Operating System: Added more automatic help information

Batch Processing: Added true report output format for Abernethy Risk and Optimum Replacement

Batch Processing: Improved confidence estimation and distribution analysis

Plot Y-Scale: Options to show fractions (Occur and Not Occur) instead of percent

Risk Outside Interaction Correction: Added percent-type input

Risk Production and Additional Usage / Test Time: Changed menu options A and B to C and K

Weibayes (Green Label): Re-instated regression solution option

Weibayes (Green Label): Regression through a single-data occurrence point added

Weibayes (Green Label): Added special regression solution (Y-vs-X)

Weibayes (Green Label): Added pure mle solution option as well as median mle solution

5.0AM - 23 Oct 2007

Drawing Line On Plot: Improved number display box locations to avoid cursor on top of box

Files: More robust for spaces in file names

Calculator <Student Version>: Reinstated Chi^2

Data Import: Added Stacked-type format ... X-Value Point-Quantity Suspension-Type Point-Label

Data Wizard: Added Data Sorted By Point Label (for Stacked-type Import)

Distribution Analysis <Student Version>: Reinstated

Method/Input: Clarified menu choices

Method/Input <Student Version>: Removed K...Likelihood Ratio Minimum from menu choices to simplify

Method/Input <Student Version>: Reinstated pve% option for Regression Fit Comparison + Display Type

Plot/Report <Student Version>: Reinstated pve% option for Regression Fit Comparison + Display Type

Test Plan <Student Version>: Reinstated with 3 test items maximum and 1 allowable failure maximum

5.0AL - 5 Sep 2007

Batch Processing: DEMO does not accept input data without altering

Batch Processing: Activated -u option (version on results) by rearranging subroutine call sequence

Batch Processing: Added option -g to set Regression Fit Comparison + Display Type (r^2, pve%, pA%)

Crow/AMSAA: Confidence selection saved in initialization file

Label Edit: Caution added about using underline character _ (reserved as delimiter)

Modified mle: Removed intermittent refusal to convert for lognormal

Three Parameter: Partial % Affected robustness improved for change of method

Weibull Library: Clarified activation choices menu items

Weibull Library: Added 1...Instantaneous Item Save

Weibull Library: Removed activation choices menu choice N (n/s always saved with item now)

Weibull Library: Combined activation choices menu choices T and U into one choice T

Weibull Library: Added choice N...None ... Reset / Clear for compatibility to other menus

Weibull Library: Added choice X...Exit for compatibility to other menus

Weibull Library: Changed item save menu choice Z to choice N for compatibility with other menus

5.0AK - 18 Aug 2007

File Save: Extension .w added automatically to FF filenames saved from WSW (if no extension specified)

Zoom: Improved location of intersection points for large suspension quantity

5.0AJ - 7 Aug 2007

Variable Usage/Production: Now can use comma or period for delimiter as appropriate

5.0AI - 26 Jun 2007

Text File Import: Improved import with commas and spaces

Batch Processing: Can specify 3 parameter solution with 3 or 3AR after -e option on command line

Batch Processing: Can specify Weibayes analysis with -e option (method must be mle) with Beta input

Batch Processing: Can specify modified mle method with -m2(#) options ... # = 0, 1, 2, 3

Confidence Menu: Improved clarity and operation for MC trial size

Three-Parameter: Automated solution for early suspensions

Three-Parameter: No positive t-zero solution allowed if discoveries in data set

5.0AH - 21 May 2007

Batch Processing: Added option -u to put version info on plot and report

Zoom: Right mouse click returns to main screen

Confidence: Removed additional shift for Gumbel+ fm method

Confidence Contour: Added B-Value vs. Beta capability

Interval-MLE: Discovery type data counted for RBA solution

Marker Line: New option in menu (similar to Zoom item), Add Line By Plot (Click + Drag)

Set Comparison: Added capability for probit pff-Value

Set Comparison: Improved user-inteface and clarified terminology

Zoom: Changed terminology from Add-On-Plot to Add-By-Plot

5.0AG - 2 May 2007

Confidence (pv): Removed nuisance message about not enough data when suspensions are present

Dimensions: Default is now 10 sets x 2400 entries to start

5.0AF - 1 May 2007

BPR: Extended the total loss calculations to grouped data format (probit, KM)

Data Grid Entry: Removed nuisance restriction blocking change from suspension to occurrence

Confidence(pv): Removed nuisance repeat of dimension limit statement

LR Contours: Added FF lr test difference indication to plot title

Marker Line: Changed terminology to this instead of Only Line

Marker Point: Changed terminology to this instead of Special Point

Marker Line Point Entry: Negative for Gumbel & Normal now okay even when negative <> suspension

Present Risk (Now): Removed orginal method for calculation ... now only uses double failure effect

Weibull Library: Removed nuisance entry of -9.123E+32 upon cancel

Weibayes (Equation Label): Removed rr capability for solution for improved clarity in results

Weibayes (Icon): Added menu item for putting line on plot upon activation

5.0AE - 12 Apr 2007

Color Sequence: Revised default color sequence for points/lines

Input Data: Improved data type recognition

BPR: Extended the loss calculations to grouped data format

5.0AD - 2 Apr 2007

Results To Clipboard: Removed nuisance notification that output did occur

Language (English): Replaced Buyer with Consumer

Language (English): Replaced Seller with Producer

Menus: Analysis reset option standardized to N...None ... Reset (located just before X...Exit)

Scaling: Log scale numbering expanded in highest scale

About Dialogue Box Display: Removed nuisance reset upon activation

Accelerated Test: Improved analysis for large suspension quantities

Calculator: Moved A...Anderson Darling to D... Anderson Darling

Confidence: Removed nuisance message for LR confidence on interval-mle data

Confidence: Improved smoothness of LR confidence for very small data sets

Export Results: Streamlined output for option F...Save Parameter Only To Clipboard

PFEV for Probabilistic Miners Rule: Moved R...Reset to N...New

PFEV: Removed lock-out of standard data plot confidence bounds

Risk Titles: Put Abernethy Risk first and then Quantity Expected

Test Requirement: Added Producer Risk and Consumer Risk to output

Test Requirement: Added Additional Item Test Time (per Julius Wang)

Test Requirement: Expanded and clarified display

Test Requirement: Swapped test requirement K and L choices to agree with handbook notation

Test Requirement: Added link to Life Remaining (from Calculator)

5.0AC - 3 Mar 2007

BPR: Improved handling of results for multiple data sets

PFEV: Changed Probabilistic S/N Curve to Probabilistic Miners Rule

Risk: Analysis Type now defaults to Standard (was Former)

Risk: Analysis Type RBA option removed

5.0AB - 21 Feb 2007

Data Entry: Update to ensure correct entry of occurrences and suspensions

Plot: Update for better line plotting near lower left axes point

5.0AA - 15 Feb 2007

Confidence: Added Likelihood Value Grid

Demonstrate/Sample: Removed nuisance program stoppage at parameter input

5.0A - 6 Feb 2007

File Line Input: Improved robustness with additional end-of-file check

Icons: New look for icons for better recognition

BPR: Zoom Select-On-Plot allows multiple resizing before returning to menu

Confidence: Improved robustness of new lr solution calculation for regression fit

Confidence: Improved accuracy of standard PFEV confidence using LR

Goodness-Of-Fit: Implemented Carl Tarums updates to Dr. Bobs CCC model

Goodness-Of-Fit: Updates to Dr. Bobs CCC model verified by Paul Barringer

Goodness-Of-Fit: Implemented Carl Tarums updates to Wes Fultons pve model

PFEV: Selection option for S/N scale orientation

PFEV: Simplification/separation of menu options

PFEV: Standard error for PFEV fit automatically shown in PFEV results

PFEV: Step-Stress parameter confidence expanded and improved

Sample/Simulate: Improved robustness of changing distributions

4.0WX - 14 Dec 2006

Mixture/BPR: Moved icon back to main screen

4.0WW - 10 Dec 2006

Plot Color Yes/No: Simplified choice from Plot/Report menu

Abernethy Risk: Improved Next Expected Occurrence for RBA output

Data Type Display: Now using >< for interval symbol display

Data Type Display:Suspension display okay now for inspect option 1

Library Save: Moved Weibull Library icon to main screen

Method Change: Removed nuisance file message and replot of additional analysis data

Optimum Replacement and Risk: Removed nuisance output display with numbers too far apart

4.0WV - 14 Oct 2006

Data Import: Improved consistency of Point Label input

Grid Label: Added " _ Point Name" to data format description

Method/Input: Improved ease-of-use for selecting mle unbias method

Date Format: Added Year-Mo-Day format

Nomenclature: Removed "Prediction" from Precise Reading section

Accerated Test (PFEV): Improved capability for viewing B-Values on S/N Curves

Critical Correlation: Improved normal/lognormal values for N = 3 to 30

Data Import: Improved robustness of data input especially for warranty data

Setup: Weibull Library selections now have drop-down options (from text files)

Special Monte Carlo Simulation: Added MPV capability for t0, r/LL, B-Value-1, B-Value-2

Plot Display: Option for display of suspension and discovery data on plot

Plot Display: Improved display of Interval-MLE data on plot

Prr Display: Improved consistency of display for set delete

pve Adjustment for W2P: New pve values based upon latest research

Remaining Life Analysis: Added capability in Calculator section

4.0WU - 11 Jul 2006

Batch Processing: Report B-value list now as selected by user (saved in .INI file)

Calculator: Added Mixture Expected Occurrence Ratio to Interactions (Mode A vs. B)

Confidence: Pivotal MC confidence can save parameters as well as r and LL

Confidence: Random number start lock put in menu (not prompted each time)

Critical Correlation: Improved values for Weibull 2-parameter for N = 3 to 30

Demonstrate/Sample: Added Mixture Expected Occurrence Ratio to Interactions (Mode A vs. B)

Weibayes: Added capability for very large suspension quantities

4.0WT - 21 Jun 2006

Zoom: Clarified selection menu for At Value

BPR: Default quantity for Calculator Y-Scale value set to actual quantity

4.0WS - 14 Jun 2006

Selection Dialogue Box: Improved return to previous selection for <ESC> or Close

Zoom Dialogue Box: Clarified which entries not yet entered

4.0WR - 13 May 2006

Data Sort: Improved robustness for interval-mle type data

Equation Change: Removed nuisance mle modified message for normal distribution selection

Library Item Save: Clarified confidence output for parameters

Method/Input: Changed the default LRM to 50%

Method/Input: Clarified choices for normal distribution mle-modified

Method/Input: Improved robustness of automatic recalculation

Rank Table: Improved display of data type

Special Monte Carlo: Removed restriction that sample distribution = analysis distribution

4.0WP - 3 May 2006

Help: Added analysis comment capability

Batch Operation: Added save picture/report as bitmap file

Color Choices: Added option for same for all points and lines

Color Choices: Standardized and clarified color dialogue box

Output: Added save picture as bitmap file

Zoom Menu: Simplified F... At Value data entry

Calculator: Added Anderson-Darling goodness of fit

Demonstrate/Sample: Special Monte Carlo simulation options added

Distribution Analysis: Added Anderson-Darling goodness of fit

Import: Warranty data transform improved for warranty limit

Method/Input: Added Likelihood Ratio Minimum for Distribution Analysis

Plot/Report: Added Anderson-Darling goodness of fit

Rank Table: Improved output to display plotting position values for suspensions

Risk Analysis: Improved robustness for production with planned replacement

4.0WN - 1 Mar 2006

Demo: Enhanced notice of altered input data

File: Removed input capability forvery old (Dos) format

Point Labels: Enhanced capability

Set/Line Labels: Attached end of pointer line to plot grid value

Temp Files: Added title names

Zoom: Refined location of additional line on plot

Confidence: Clarified method part of menu

Method/Input: Clarified input data type selection

Normal/Gumbel Distributions: Negative value designation does not change if data present

Optimum Replacement: Added option to display lower cost output only for plot

Risk Analysis: Made output more robust forall distributions

Student Version: Removed access to WSV for Risk and Plot/Report options

Test/Additional Usage: Refined output when no production is present

Weibayes: Clarified message fo ricon ... Not For Grouped Or Interval Data

Ybath Results in WSW: Improved display of log likelihood for mle solution

Zoom: Scaling automatically includes single point datas (even with no fit line)

4.0WM - 27 Nov 2005

High Suspension Count: Improved consitency of calculation

Data Entry/Import: Automatic recognition of grouped data import (in FF format)

Data Entry/Import: Improved robustness of data acceptance

Prediction/Precise Reading: Improved consistency of high resolution display

4.0WL - 11 Nov 2005

Data Entry/Import: Improved data quantity capability (esp. for micro-electronics)

Data Entry/Import: Added import capability for point labels

Data Export(Hardcopy/Softcopy): Easy row and column export to clipboard

Data Wizard: Added point quantity merge (change multiple entries to frequency entry)

File Input: Restore of Chr$(13) when depleted for small files

Icon Selection Display: Icon borders get lighter when cursor moves over them

Icon Follow-Box: Improved descriptions

Setup: Removed unnecessary options from menu display

Setup: Returns to menu after selection with display of choice

Setup: Does not double option for point quantities past maximum

Setup: Sample File Copy choice presented immediately after installation

Zoom: Added X-Range and Y-Range Lock Start

Calculator: Removed H... and L... options to consolidate to I... option

Confidence: Improved probit confidence icon display

Data Import/Entry: Automatic option to change to interval-mle or grouped data

Data Type Display: New option for o/s (occurrence quantity/suspension quantity)

File Save: Clarified caution for saving loaded WSV file as WSW format

Method: Removed different modified mle results for Mixture, Distr. Analysis and Predict

Method: Clarified naming for fit method choices

Method: Reset standard rr fit to X-on-Y for Inspect Option #1

Only Line: Not deleted upon Weibull-2 to Weibull-3 change

PFEV: Improved beta confidence display and output

PFEV: Improved display of data and curve fit with WSV

PFEV: Improved storage/retrieval of step-stress results

PFEV: Improved robustness of step-stress results

PFEV: Only line for untested value shows fit type

PFEV: <ESC> key stops lengthy step-stress calculations

Predict: Added B-Value list and X-Value list outputs

Report: Improved tolerance to large Eta values

Risk: Added import capability for variable usage/production rate

Risk: Improved automatic conversion of variable usage/production rate

Risk: Added Outside Interaction Correction Ratio for helpful/detrimental seasonal effects

Sample: Added I...Interaction (like in calculator)

Test Requirements: Added U...Usage Time to Demonstrated Capability

Weibayes: Clarified confidence indication (WBm = Weibayes using modified mle, 0 = mle)

Weibayes: Removed "mle" from option title

Warranty Data Input: Warranty Limit for Input Ages (no failures/time after warranty)

4.0WK - 10 Mar 2005

Additional: Removed video launch button

Language/Currency: Moved menu item A...File Name On Plot, to K...

Setup: Starting menu is general

Zoom: X-Range + Y-Range Lock At Value improved

Calculator: Mean to Eta conversion more tolerant to zero input

Confidence: pv method more robust

Interval mle: Solution for small data sets more robust

Predict: Return to predict menu from results upon <ESC> for only line

Library: Added menu options D,U,V to allow appending library items to output

Lock: Clarified lock for method, etc.

Method: Automatic Conversion of Probit data to Interval mle data improved

Method: Added G...Fit Type For mle Modified and removed dialogue box

Method: Added J...Input Type Inspect Sample to Sample = Difference or No Difference

Method: Interval MLE - now can select with standard data

Plot/Report: The n/s designation adjusted for Difference or No Difference in Grouped Data

Risk: Added RBA for forecast to address issue found by Paul Barringer

Risk: Added RBA1 for looking only at occurrence expectation

Risk: RBA adjustment now for both forecast and present

Risk and Optimum Replacement: Improved response to <ENTER> key for menu

Setup: Activate or Exit in menus goes back to start of Setup

Softcopy Total Report: Rank Table output limited to 300 points due to clipboard restrictions

Subroutine: Renamed "suspns" to "allptcount"

Suspension: Automatic ranking for same-valued suspensions and occurrences more robust

3-Parameter: Find-Optimum off response clarified

4.0WJ - 1 Oct 2004

Batch Run: Clarified display for input suggestions

Data Wizard: Added point labels (especially for S/N info)

Label/Style: Added caution for saving of labels only

Library File Save: Now does not change default data file name

Menus: Replaced parenthesis with alternate punctuation for clarity

Zoom: Added H...X-Range + Y-Range Lock Reset To Former

Accelerated Test: Added Y...View XY Data + Function With WSV

Batch Processing: Improved execution for -iX command

BPR: Changed BPR Zoom to special functions only with return to BPR

BPR: Precise reading on plot now returns to BPR

BPR: Added H...Start New Change Point List With Each Edit = Yes/No

BPR: Vertical label defaults to Reliability

Calculator: Made eta-to-mean calculation double precision for std. dev.

Confidence: LR contour display more consistent after data change

Confidence: LR contour save/view improved

Method Change: Added automatic conversion capability for probit-to-intv5(mle)

Mixture Analysis: Ybath activation changed ... added special menu

Optimum Replacement: Length-of-view and block-replacement saved with file

Regression: Y-on-X now standard for both Inspect Option#1 and Grouped

Regression: pve% display consistency enhanced

Small Data Sets: Clarified message about Weibayes and mle analysis

Sample/Demonstrate: Added early, late, and internal type suspensions

Warranty Import: Default method is now Inspect Option #1

4.0WH - 7 Apr 2004

Confidence: Added menu item for Save Contour/Simulation Data

Confidence: Removed Save Contour/Simulation Data prompt for pv and lr confidence

Confidence: Improved contour robustness for probit lr method

Precise Reading parameter select: Changed letters of basic options E,I,L to Q,R,Z to avoid conflict

BPR: Nameplate colors same as Production colors for Same As Data Set option

Equation Label: Added 3-Parameter Weibull

Sort: Improved for high starting data values to avoid nuisance Beta < 0 message

4.0WG - 17 Mar 2004

File Access: Improved tolerance for bad file name entry

File Access: Improved input of former files

Data Import: Improved consistency of .PRN file import

Data Import: Improved robustness of Paste from clipboard

Plot symbols: Improved consistency of symbol rendering on plot

Standard message box: Improved response for <ENTER> key

Batch-Run: Added capability to automatically load label file

Zoom: Removed Point Symbol Automatic? prompt for Zoom reset

CCC and PVE%: Improved accuracy for large data sets and Inspect Option 1 (W2P & N/LN)

Plot/Analysis: Increased suspension quantity allowed

Risk: Added lower/all-affected options for Wauben suspension quantity adjustment

Weibull Library: Added memory for filename of single item save

Weibull Library: Added memory for titles of user-selected comment fields

Demonstrate/Simulate/Sample: Clarified sampling from mixture

Demonstrate/Simulate/Sample: 100% suspension sample okay

Method/Input: Improved clarity of menu selections

Confidence: Removed truncated message for pv (when low mc trial quantity selected)

Mixture Analysis: Improved fit type display for file save/load

4.0WF - 25 Jan 2004

Set comparison: Improved consistency of results for all fit methods

4.0WE - 12 Jan 2004

-File: Network file access improved for standard files

-File: Added former file list to file drop-down and setup

-File: Added get last .tmp results to former file list

-Additional probability plot: Added occurrence/suspension histogram

-Data export: Alternative for saving data without x in format

-Risk analysis: Added term Wauben Modified to option Z

-Risk analysis: Set selection does not reset automatically for option Z

-Data input: Automatic option to convert to interval-MLE

-Outlier test: Improved accuracy and clarified rewording of output

-MLE: Improved solution for Gumbel and lognormal

-Interval-MLE: Improved repeatability for value scale changes

-Interval-MLE: Improved sorting of duplicate values

-Test requirement: Allowed confidence input less than 50%

-Accelerated test: Automatic label edit for added data set

-Confidence: Added lr confidence and contours for probit data

-Confidence: Added indication of completion % for lr and pv

-Calculator: Added MTTF calculator for renewal

-Plot labels: Multi-line automatic word wrap for longer note on plot

4.0WD - 9 Nov 2003

- Setup file copy: Removed additional dialog box

- Set Comparison & Distribution Analysis: Improved ease of use for mle fit method

- Quantity expected: Added the word, expected, to appropriate menu entries

- Confidence: Improved pv confidence for mle fit method

4.0WC - 1 Nov 2003

- Risk: Clarified change in forecast range effect on production/usage sequence

- MLE-Interval: Improved solution for large numbers

- Setup: Reinstated key-press for language/currency menu

- Calculator: Added MTTF with renewal calculation (and inverse)

- PVE%: Improved display for file input with Inspect Option #1

- Sort: Robust system workaround to avoid register page fault for large data sets

- Parameter box: Added option to change location

- 3-parameter: Added upper limit options

4.0WB - 20 Sep 2003

- Files: Changed default output format to HTML

- Files: Added data file format selection to Setup/File-Copy icon

- Files: Moved open/get/import merge/no-merge selection to Setup/File-Copy icon

- Files: Moved .tmp file retrieval to Setup/File-Copy icon

- Probabilistic S/N curve: Improved accuracy and ease-of-use

- Method/Input: Automatic conversion of point-by-point data to probit format

- Demonstrate/Sample: Revised probit and KM sampling

- Correlation: Revised probit and KM pve% calculation

- Likelihood: Improved calculation accuracy for probit data

- Confidence: Higher precision possible for pv/mc calculations

- Risk: Added option to adjust fit-line solution for suspension proportion effect

- Risk: Revised designation of planned replacement (A) and (F)

- Risk: Added percent affected to planned replacement

- Risk: Usage rate and production rate past 5 years more robust

- Risk: Clarified parameter and data set selections

- Data wizard: Added swap with quantity for x-value and y-value transform

- Hardcopy: Printing orientation change process clarified

4.0WA, 12 Jun 2003

- BPR plot: Improved color consistency for plot labels and parameter info

- 3D Likelihood plot: Added Help message

- Set comparison: Clarified output language

- Demonstrate/Sample menu: Clarified language

4.0W, 19 May 2003

- Display accuracy: Easier to set

- Special points: Not shown for import with transform

- Add line on plot: Slope value displayed during line selection

- Plot labels: Clearer near plot borders

- CDF calculation: Improved robustness in tails

- Risk: Clipboard output more robust

4.0V, 28 May 2003

- Step-Stress: Removal of limits for p variable

 - Automatic data order comment: Only started in setup

- Zoom: Added entry/delete of special point on plot to D...add-data-point-on-plot

- Weibull library: Added option to save library text line to clipboard

- Risk: Mixture equations used when mixture analysis is active

- Risk: Interval calculations improved for range > 60 months

- Risk: Clipboard text output now only sequential

- Risk: Clipboard text output for each month for range > 60 months

- Risk: (<>) after parameter display indicates mismatch for data set solution

- Risk: Improved results message for no suspension case

- Risk: Added L...Start Lock For New Analysis

- Risk: Added Z...Suspension Quantity For Analysis

- Risk: Menu item A is now Activate, item D combines parameter and data select

- Opt. repl.: Menu item A is now Activate, item D is parameter select

- Batch risk: Added present risk type, output range, and planned repl. type

- Mixture: Allows higher percentage of points for first mechanism (90%)

- Calculator: Allows beta > 1000 for eta/mean conversion and cv calc

- Method: Easier transition from Insp1 to RBAmd

- Point hide: Improved plot indication of method, confidence, fit, and data size

4.0UA, 19 Jan 2003

- Step-Stress: Removal of limits for p variable

4.0U, 19 Jan 2003

- Hardcopy/Softcopy: Improved printer orientation selection

- Data-Import: Improved recognition of > and < in first lines

- Data-Import: Improved recognitioin of data with first row labeling

- Program Label: Added additional access to Visual software

- Step-Stress: Improved accuracy and robustness of solution

4.0T, 6 Dec 2002

- Additional WSV plots: Improved interface for lines-only plots

- Main screen: Different colors for WSW and WSV analysis labels

- Zoom: Added Point-Sequence to Plot Symbol Type

- Calculator: Increased upper limit of Beta to 1000 in mean-to-eta and eta-to-mean

- Barringer process reliability: Improved entry and retrieval of change points

- Risk: Added delay capability for start of new parameters for replacement parts

- Risk: Improved usage of new parameters for replacement parts

4.0SD - 19 Sep 2002

- Import: Allows top row with non-numeric information

- Setup: Lock for color by set sequence (automatic) or by data / line

- Setup: Start lock for data point hide (additional probability plot)

- Help: Simplified access to Analysis Wizard (Flow Chart)

- Help: Improved access to Contents page

- Help: Clarified program organization with Icon Map - Software Tour

- Zoom: Added interval mle calculation for partial % affected

- Barringer process reliability: Choice for production line color to track data color

- Report: Added coefficient of variation (Cv%)

- Calculator: Added coefficient of variation (Cv%)

- Risk: Improved output for small data sets and small usage rate

- Point-by-point vertical position: Added Blom and Kaplan-Meier

- Only line: Improved user-interface for line delete

- Confidence: Added automatic point-by-point method select (single set only)

4.0SC (Not Distributed)

4.0SB, 13 Sep 2002

- Setup: Added Weibull library icon

- Color selection (Setup & Labels): Color by set sequence (automatic) or by data / line

- Setup: Added line hide default choice to Start Lock

4.0SA, 20 Aug 2002

- Data grid: Improved data handling robustness for set delete

- WeiBayes icon: Default confidence set to 50%

- WeiBayes icon: Confidence level remains at last choice for session

4.0S, 30 Jul 2002

- Legend: Reinstated legend label to graph

- Additional uncertainty: Choice linked to file contents upon retrieval

- Confidence: Monte Carlo method robustness improved

- Confidence: Likelihood ratio method for small values improved

- Barringer Process Reliability(BPR): Removed fit line unhide after probit fit on graph

- BPR: Production line for each set (add/remove)

- BPR: Nameplate line for each set (add/remove)

- BPR: Reliability and change points for each set (add/remove)

- BPR: Rank value item added to menu

- BPR: Precise reading item added to menu

- Zoom: Partial percent affected item for batch analysis added to menu

4.0R, 8 Jul 2002

- Plot symbols: Added set sequence (1,2,3 . . . or A,B,C . . .)

- Test requirements: Improved report output options

- Step load: Added limits for p variable

- Step load: Improved solution convergence

- File save: WIN/DOS icon reinstated for compatibility with older software

- Point size: Added midsize and very large options

- Barringer process reliability: Default to midsize points

- Plot parameter display: r^2-ccc^2 agreement with report improved

- PFEV: Added solution for same beta each set

- Marker lines: Added capability for up to 10 marker lines

- Regression correlation: Improved accuracy of calculation

- Failure forecast output: Improved consistency

4.0PA, PB, PC - 14 Jun 2002

- Improved existing capabilities with easier user interface

4.0P, 28 Feb 2002

- Accelerated Test: Step-stress data analysis added

- Accelerated Test: Improved storage of equations

- Calculator: Poisson and Gamma expanded

- Gumbel +/-: Reset for sample data

- Confidence: Total (Additional) Uncertainty capability

- Parameter Box: Items lined up

- Probit: Confidence for Normal and Gumbel negative values improved

- Risk: Added Q...Planned Suspensions

- Risk: Improved/expanded time interval change interaction

- Test Planning: Added Step-stress accelerated test sequence

- Zoom: Fit Line Display Truncated (Yes/No) added

- Zoom: Find intersection enhanced

- Zoom: Added X-Scale Value Display (Minimum/Maximum)

4.0N, 15 Jan 2002

- P-value estimate (pve%) added

- Critical correlation coefficient (ccc) improved

- pmle-value removed

- Sample data loading improved

- Vasan-Fulton former usage to test ratio simplified

4.0M, 1 Dec 2001

- Fit function display improved

- Warranty matrix conversion enhanced

- Line only (marker line) from 2 points improved

4.0L, 1 Nov 2001

- Plot display of r^2 improved

- Warranty matrix conversion for Kaplan-Meier improved

4.0K, 3 Oct 2001

- Redimension - improved indication for point quantity > maximum

- Plot label output for R-C display improved

4.0J, 15 Aug 2001

- Data Wizard - added merge capability

- Hardcopy/Softcopy - added EXPORT nomenclature

- Export to clipboard - added parameter values

- Batch processing - improved confidence

- Confidence - fm confidence modification label more consistent

4.0H, I - Intermediate versions

4.0G, 17 Jul 2001

- Plot/Report Menu - added submenu for selection

- Plot labels - added half character length for italics

- Direct to main screen after first session

- Data Wizard - improved response to total set question

- Printing - improved plot output for note, labels and border

- Batch Operation - improved output especially to printer

- Rank Table - shows `susp` for suspension instead of y-value

- Report - display of 3-parameter p-value after pv confidence

- Allow save of suspensions only

- Method/Input - Reset resets WeiBayes to Weibull

- Risk - added G...Precise Decimal Display option

- Removed duplication of set #2 parameters upon file loading

- Method/Input - Minor rearrangement of menu plus icon separators

- Risk - Added time value of money to cost display

- Three-parameter - Improved on-graph edit

- Test planning - added Acceptable Results Probability calculation

4.0F, 20 Mar 2001

- Improved overwriting with new versions

- Allow file type setting with -L on command line

- Improved import with commas

- Added system busy indicator for 3D plotting

- Added description for set comparison output

- Improved WeiBayes selection

- Improved equation selection with label

- Improved t0 interaction with equation label

- Added full 3-parameter confidence for pv confidence

- Added ability to save correlation values for pv confidence

- Improved 1-failure plotting position

4.0E, 1 Mar 2001

- Persistent data with redimension

- Reinitialize file name upon getting former results

- DEMO to FULL memory enhanced

- Added edit key function to large data grid

- Improved 3D plotting

- Exit from BPR defaults to BPR style plot

- Improved Failure Forecast for planned replacement > char. value

- Added Confidence menu and Method/Input menu

- Equation label interaction improved especially for WeiBayes with few failures

- Hourglass indicator activated for 3D plot

4.0D, 12 Dec 2000

- Added Italian language file

- Added additional language file capability (general)

- Removed property value 380 message

- Improved HPGL interface

4.0C - 4 December 2000

- Added exponential and Rayleigh choices to WeiBayes in Setup

- Improved additional set file input for set quantity > 5

- Added transform for changing between grouped data methods

- Improved message for no large data set pv confidence

- Improved probability plot rank value entry

- Added y-value column to probit/km rank table

4.0B - 29 November 2000

- Deleted reference to WSV for marker line only display (no data)

- Lengthened fit line for normal with small sigma

4.0A, 20 November 2000

- Added extreme value distribution

- Simplified confidence selection

- Improved Accelerated Testing, PFEV, and Probabilistic S/N Curve

- Improved Zoom icon

- Improved data import

- DEMO to FULL file copy capability

- Changed name of PFEV to Accelerated Test

- Pull-down menus enhanced

- Y-axis label toggles between side-by-side and stacked

- Risk confidence changed to Weibayes

- Increased accuracy of normal approximation with Dick Petschauer

- RBA now risk calculation by Dick Petschauer (w/ ideas from Dr. Bob and Wes)

- Improved report page numbering and WeiBayes text output

- Added consideration for outlier calculation with suspensions

- Improved range lock input in zoom

- Updated batch operation

- Added security to DEMO-to-FULL code saved to disk

- Hilighted risk confidence indication in red

- Added Quantity to present risk display

- Added addition/subtraction transform to data wizard

- Added Vasan-Fulton former usage ratio to 3-parameter icon

- Added different distribution for replacements to risk analysis

- Added A...all, and F...expected only to planned replacement

- Changed to internal 3D likelihood presentation

- Added nr confidence to lognormal (no suspensions)

- Improved upper/lower confidence for parameters

- Added Probability Plot (Y-Axis) Rank Value to calculator

- Added quantity transform to data wizard

3.0Y, 6 Apr 2000 - Clarified suspension quantity input

- Simplified R-C calculation for set quantity > 1

- No file name display on plot after point edited

- Additional 3-column import format (qty, F/S, time)

- Risk usage and production rates now have 3-parameter (w/ t0) distribution

- Risk with scheduled replacement improved for no renewal

- Improved batch distribution analysis

- Changed exponential equation choice to WeiBayes

- Clarified exit from distribution analysis

- Added x & y scale lock (zoom) for batch processing

3.0X, 29 Feb 2000 - Added Find-Intersect to Zoom menu

- Added RBA factor for median results

- Added R-C value display on graph

- Expanded terms for fm Weibull confidence

- Clarified import with commas

- Clarified toggle choices

- Distribution analysis returns to set choice

- Added jump directly to Zoom menu from Barringer menu **3.0W**, Clarified Barringer Process Reliability (BPR) output

- Removed nuisance message for mc & pv confidence

- Improved lr and fm confidence robustness

- Improved data wizard handling of suspension changes

- Reduced total report memory requirements

- Improved B-value percentage selection

- X-values rounded on X-axis

- Vertical plotting position choice now saved

3.0V, 20 Oct 1999 - Total Report option added

- Recalc for repeat selection of Normal equations

- Reinstated sqr() back to sig1 and sigF1 calculation

- New plot resets data grid to set 1 point 1

- File name and software version on results capability

- Data wizard transform (only x-axis)

- PFEV plot labels can be edited

3.0U, 17 Aug 1999 - Reinstated Inspect Option #1 fitting

- Improved reset of initial parameter values for Risk and Optimum Replacement

- Increased accuracy of stored values for parameters

- Added View additional probability plot - WSV output to clipboard to plot/report

- Confidence contour output combines all contours into one file

- Changed WeiBayes 50% confidence wording to No

- Removed items B and C from BPR input menu

3.0T, 5 Aug 1999 - Improved Optimum Replacement and Risk input

- Improved batch processing

- Improved Distribution analysis output

- Improved Mixture analysis output

3.0S, 17 July 1999 - Improved batch processing capability

- Improved Barringer Process Reliability interface and added B.P.R to Mixture Label

- Added Probabilistic S/N Curve to Parameter as Function of Engineering Variable

- Added confidence capability to Abernethy Risk analysis

- Added WinSMITH(TM) Visual plot of risk and optimum replacement results

- Added prompt for changing distributions in Distribution Analysis

- Improved agreement between HPGL output colors and standard colors on screen

- Added data wizard functionality

3.0R, 17 June 1999 - Reinstated batch operation

- Improved mc & pv confidence, sets # 2 and above

- Inspect option #1 can now convert to/from mle method directly

- Changed C4 estimate for N=1 from 0.5 to 0.6

- Revised WeiBayes menu to show latest calculation before menu entry

- Revised WeiBayes default confidence to account for frequency table

3.0P, 7 May 1999 - Clarified risk analysis input selections

- Clarified test requirements input selections

- Corrected Chi^2 array for d.o.f. of 20 and p of 5%

- Rearranged subroutines for new programs

- Reinstated predict option for only lines

3.0N, 22 Apr 1999 - Clarified risk analysis input selections

- Clarified test requirements input selections

- Revised and expanded Barringer reliability

- Removed nuisance message for MLE routine (no failures)

3.0M, 27 Mar 1999 - YBath(TM) access from any path location

- Improved convergence of MLE routine

- Report shows page sequence indication

- Added exponential to calculator menu

- Improved data grid paging

- Added point size selection in Barringer menu

- Improved test planning initial slope value entry

3.0L, 16 Mar 1999 - Added capability for individual fit line display on/off

- Added Barringer Process Reliability calculation

- Added Justified Likelihood Function (JLF) contour capability

- Reset to standard method also resets regression axis

- More tolerant to right mouse click when adding new sets/lines on graph

- Beta < 0.07 triggers limits to plot lines vertically to maintain better fit

- Large values of Eta put back into engineering notation

- Improved L.A.N. unlocking of DEMO to FULL

- Can now toggle display of <LOG> on x-axis for zoom on/off

3.0K, Added only line capability to Zoom/Hide add line/set option

- Improved Abernethy risk description in Help file

3.0H, 1999 Jan 04 - Improved array dimension capability for max. # of marker lines

- Added C4 computation routine

- Risk analysis distribution entry for usage rate and production rate

 3.0J, 1999 Feb 14 - Implemented RBA factor and improved c4 calculation

- Output directly to printer fixed at Courier 12

- Three parameter menu correctly shows t0 solution method choice

- Added caution note for distribution analysis w/ < 20 occurrences

- Report output to clipboard can be ASCII output or graphics output

- Added text note capability on plot

- Added reset to standard selection for method / data input icon

3.0G, 1998 Dec 03 - Added precise reading on plot capability in prediction menu

- Added set-/-line-on-plot capability with cursor position indicators in zoom menu

- Added set-/-line-on-plot point quantity and precise / random type in zoom menu

- Added enter-point-on-plot capability to zoom menu

- The word FROZEN replaced with the word LOCK in zoom menu

- Reorganized code so that only 2 of 19 files are custom (others are common)

- Improved robustness of interval mle calculation

- Removed the word EQUIVALENT from set comparison results

- Easier output for set comparison results

3.0F, 1998 Nov 13 - Improved multi-variable capability PFEV analysis

- Added Sica-Luko correction in Test Requirement section for sudden death testing

- Improved arrangement of hardcopy/softcopy menus

3.0E, 1998 Nov 1 - Added graphic Delete/Cut/Copy capability to Zoom menu

- Added plot side symbol display to Zoom menu

- Previous results mini-graphs can now be re-clicked to recall data

- Message box now details options for mini-graph recall

- Extended data grid for hi-res display

- Added sum type for random point interaction

- Improved mixture analysis for normal and lognormal data

- Streamlined likelihood evaluation for normal and lognormal analysis

- Increased precision of risk analysis output

3.0D, 1998 Oct 1 - Extended icon tool bar side-to-side for high resolution

- mixture report p-value display sequence same as set comparison

3.0C, 1998 Sep 14 - Changed Svensk language to Svenska in Program

- Changed PFEV solution for common slope to weighted geometric mean

- Added mle solution for probit and Kaplan-Meier

3.0B, 1998 Sep 5 - Compatible with WinSMITH(TM) Visual 3.0B

- Added Espanol language capability

- Added Svensk language capability

3.0A, 1998 Sep 1- New DEMO to FULL unlock password coding

- Individual limits on decimal significance (in Setup) now for general, life, and slope

- Set comparison only for sets not hidden (with Zoom)

- Improved large sample accuracy for critical correlation coefficient (ccc)

- Added third parameter to demonstrate/sample simulation

- Ensured that report parameter low and high confidence display follows set deletion

2.1B, 98/7/9 - Clarified production rate and usage rate variable input for risk

- Added significant figure control to B-Values and X-Values displayed on plot

2.1A, 98/6/30 - Expanded display of now risk value

- Added set label edit capability to the data grid

- Added warranty length (mos) and warranty length (x-units) limits to risk

- Added planned replacement to risk

- Added variable usage rate and variable production rate to risk (seasonal)

- Added password accessibility to convert DEMO to FULL version

- Added mean (occurrence sum) to report and predict sections

2.0Z, 98/5/30 - Added Windows Printer (HI-RES) hardcopy output option

- Renamed standard bitmap output to Windows Printer (WYSIWYG)

- Added line = minimize/maximize to Zoom menu for plot line thickness

- Improved labeling on HPGL hardcopy output

- Added Additional File Path for improved access to additional FF programs

- Improved risk output accuracy for Kaplan-Meier method

- Added Normal nr confidence method and removed nc confidence method

- Clarified set comparison output by putting FF p-value first and biased mle second

- Also improved terminology of set comparison output with Equivalent Confidence

2.0Y, 98/4/21 - Compatible with WinSMITH Visual 2.0Y

2.0X, 98/4/14 - Added more detailed explanation of batch capability

, removed nuisance message for very large data sets

2.0W, 98/3/30 - Added limit correction option to warranty data analysis

2.0V, 98/3/24 - Reinstated okay button for calculator

- Improved HPGL output

- Improved correlation and distribution analysis for data quantity = 2

2.0U, 98/3/12 - Removed OK button from calculator and hardcopy/softcopy

- Improved fault tolerance of font selection

- Revised terminology on plot to "r^2-ccc^2" for critical correlation display

- Allow only line negative values for "-=<0" selected for normal distribution

2.0T, 98/2/10 - **Font Selection and Color Selection** added for plot output

- **German translation** added

- Added improved icon information choices (+ tooltips, +none)

- Significant figures selection added to setup/language/decimal section

- Added three dimensional plot capability for likelihood function

- Test requirements clarified

- Added capability for suspension simulation with precise sample selected

- Improved binomial calculator capability

- 3D log likelihood plotting added

2.0S, 98/1/12 - Enhanced compability with YBath(TM)

- **Demo capability**

- File list update improved

- Conservative p-value (pff) used on graph for WinSMITH(TM) mixture

2.0R, 97/12/02

- Added tabs on active results window for switching between plot and report

- Clarified report and predict options for mixture analysis

- Updated YBath(TM) icon to icon from Bathtub Software (TM)

- Modified file save format to include WSV parameters

2.0P, 97/11/21 - Improved maximum lognormal likelihood function convergence

2.0N, 97/11/17 - Display of r^2 label on plot now not only when Ybath activated

- Display of n/s clarified to indicate current data instead of latest mixed mode result

- Ybath correlation changed to r^2

2.0M, 97/11/10 - **YBath(TM) mixture compatibility**

- The t0 (third parameter) solution can use either rr or mle method (rr default)

- BiWeibull enhancement in for mixture analysis

- Access to AVI video files provided

- Both Beta (sig, sigF) and eta (mu, muAL) solutions for param. = F(engr. variable)

- Option to lock the start sequence for mc/pv confidence to get repeatability

- Exponential lock for Weibull (beta = 1)

- Added eta-to-mean into calculator section

2.0L, Prototype for version 2.0M

2.0K, 1997/9/30 - Added risk capability for interval mle

- Added mean-to-eta into calculator section

- Set comparison now displays likelihood values

- **French translation** file added

2.0J, 1997/8/28 - Decimal operation for FF data files improved

- **Monte Carlo Pivotal (pv) confidence** method added

2.0H, 1997/8/2 - Decimal operation improved

- Gamma function convergence improved

- Dauser shift capability added

- **Monte Carlo (mc) confidence** method added

- Time gage and <ESC> key exit added to probabilistic analysis

- Label placement stabilized

- P-Value correlation added with mc confidence

- Point symbol automatic/big/small added

2.0G, 1997/7/9 - Import capability improved

- Imbedded data sets

2.0F, 1997/7/7 - Import capability expanded:

- **warranty data import and analysis (inspect or Kaplan-Meier)**

- column data can be X-value, Occurrence Quantity, Suspension Quantity

- column data can be X-value, Occurrence Quantity, Sample Size

- column data can be multiple sets

- import can be either from clipboard or from ASCII file

- improved data display for probit/km when changing methods

- Parameter As Function Of Engineering Variable . . . allows common slope or not, rank regression or mle solution of common slope, easy save of XY data and function data

- Batch processing improved

- Language capability improved

- Test/ binomial increased accuracy (esp. 95% cum/conf.)

- Risk/Optimum-Replacement plotting easier

2.0E, 1997/3/31 - Log Likelihood values for predict/precise readings improved

- Distribution analysis uses maximum likelihood (mle) techniques for mle method

- Report shows maximum log likelihood values

2.0D, 1997/3/26 - Added double precision to PFEV section

2.0C, 1997/3/20 - Reorganization of data grid display especially for probit and KM

2.0B, 1997/3/15 - **Interval maximum likelihood** capability expanded and improved

- File list update immediately upon change

- Highlighted command button selected with <ENTER> key

- Optimum replacement steady state failure rate, replacement rate and MTBF added

- Optimum replacement highlighted in table with red color

- Added start lock feature to preselect equations and method upon startup

- Added confidence limits on mean value in report

- Initialization file common with other software

- (2.0B data grid needed reorg. - all purchased 2.0B replaced w/ 2.0C)

2.0A, 1997/2/25 - **Language** and **currency** selection added

- **Regional decimal symbol** recognition added

- Point-by-point interval analysis with mle method (first easy-access implementation)

1.1R, 96/12/23 - Text file input more robust

- Clipboard input more robust (notifies user if too big)

1.1P, 96/12/4 - Added interactive curve label pointer line

- SigF <= 1 not allowed for lognormal only line input

- Curve label position more stable

1.1N, 96/11/25 - Moved negative data value definition from setup to method/input

- Added set selection buttons in WeiBayes, Distribution analysis & Single set confidence

1.1M, 96/11/15 - Likelihood ratio confidence plot display more robust

- Added 1/Beta power to WeiBayes lower confidence with failures

- Clarified parameter-as-function-of-engineering-variable

- Added Windows printer & clipboard buttons to first hardcopy/softcopy menu

- Can now automatically annotate curve label for prediction output

1.1L, 96/11/7 - Import of ASCII file data more robust

- Parameter as function of engineering variable clarified and more robust

1.1K, 96/10/25 - Added mean rank, binomial, and Nelson`s plot rank methods

- Added safeguards for selecting fit method for probit data input

- Grid line edit improved for Normal distribution

- Method/Data-input terminology and codes (displayed on plot) clarified

- Added non-integer expected value for poisson

- Added confidence lock (remembers confidence configuration)

- Improved file input from BW

- Improved import of ASCII file without skipping

- Added **parameter as function of engineering variable** (accelerated testing)

- Improved robustness of likelihood ratio confidence

- Now shows plot=on/off, report=on/off and table=on/off for clarity

- Changed wording of B-value selection to a specific reference...select B-values

- Added built-in word wrap for printer object (not done by Windows) to avoid crash

- Added .HGL to wording for saving FF picture file to assist in file name selection

1.1J, 96/9/25 - Added access to **Windows Calculator**

- Added **factor** to test-length terminology in test requirements

- r now not forced to 1.0 while finding best t0 with frequency table entry for point quantity above 2 (1.1G,1.1H and 1.1I affected, all purchased copies upgraded)

1.1I, 96/9/15 - Added more batch capability (probit 3-column text file input)

- Added **risk analysis for probit and Kaplan-Meier** (KM) data

- Changed cut/paste format to make more general

- Changed terminology of input format for probit and KM to Grouped instead of Interval

1.1H, 96/9/3, Added **partial distribution** (tail-comparison) to strength-load interaction, etc.

- Reorganized button display for confidence and eliminated OK button in places

- Removed possibility for flicker for fast video or high resolution video

- Removed possibility for same software to appear in Additional (+...)

- Histogram from file entry clarified

- Added more detailed batch capability

1.1G, 96/8/12 - Added **next expected** occurrence to Risk

- Graphics to Clipboard sequence time can be added to accomodate system speed

- Removed any possible sources of flicker for mouse moves (except dragging)

- Added selection to label/style section to choose grid lines

- Clarified n/s in results for frequency table entry

- Point-quantity-2 adjustment to r so that r always = 1 for quantity 2

1.1F, 96/8/7 - Report setting of b-values separated from selecting report

- Added **Strength-Load Interaction** and **Life-Usage Interaction** to Calculator

1.1E, 96/7/31 - Retrieval of file after using FF Additional button improved

1.1D, 96/7/19 - Display accomodates Win95 status bar at bottom of screen

- Improved input for risk option to ease use of WeiBayes on data sets

- Command line specifies configuration paths (.INI), and temp (.TMP) files

- Random point comparison for 2 different distributions (convolution, interference)

- Okay button now activates viewing for Optimum Replacement and Risk results

1.1C, Can **find best t0 now with maximum likelihood** method

- Filename display updates immediately after saving file

- Image object used for opening screen (instead of picture object)

- Highlight in grid more stable with size changes

- Only line # 2 can be turned off individually

- Zoom improved below 10% occurrence

- None button added to text input box

- Plot parameter style input improved

1.1B, **Probit and Kaplan-Meier confidence at any level**

- Prompt to confirm exit upon <ESC> from main screen

- Now checks whether file save is to existing file

- Title box appears in label edit for keyboard data entry

- Reset data grid evaluation to restore entry past point #2 for 1 set dimensions

- Chi-squared...degrees of freedom=6...%=90...changed 1.064 to 10.64

- Can now enter negative mu for normal distribution Risk/Optimum-Replacement

- Time gage and <ESC> enabled for all confidence methods

- Better terminology for probit and Kaplan-Meier selections

- Paste from external spreadsheet ignores commas in number format

- Added double column ASCII output to distribution analysis

- Batch capability expanded

- Recalc for entry of all DOS format data files

- <F> and <1-F> occurrence display linked to zoom frozen entry

- All dialogue boxes now fully translatable

- Cannot inadvertently unload disclaimer screen

- Risk/Optimum-Replacement defaults to set #1 data and set#1 parameters

1.1A, **Binomial confidence** capability added back

- Very large quantity of failures and suspensions allowed in WeiBayes shift

- Reporting improved:

- hardcopy/firmcopy/softcopy added for all analyses

- X-value readouts added for plot parameter box (like B-values option)

- Data list to ASCII file can be sequential or in column format

- Added common dialogue box for printer activation and printer selection

- Changed default button on opening screen to exit button

- Added prompt to save unstored active results if any before exiting

- Added button on main screen to access other Fulton Findings programs

1.0J, 3/25/96 - Added **Undo** function for data grid edit

- Added Wayne Nelson`s **WeiBayes confidence** with failures

- Allow larger numbers in frequency table

- Changed Delete to Clear for New...Reset

- Clarified number of sample sets entry

- Risk and Optimum Replacement file output now in order sequence

- Sample to file no longer ordered for non-interval data

- Menu entries highlighted (and shown in message box if message box is big)

- Additional checking of correct integer values for grid properties

1.0I, 3/13/96 - **Pull-down menu** structure improved

- Bias terminology for mle clarified

1.0H, 3/12/96 - Batch access with filename after program .exe name

- Reinstated robust plot calculation

- Automatic plot title for ASCII import

- Pull-down menu structure

- Only line selection of fit line captures method (rr/mle)

1.0G, Added **dimension doubler** in Setup for more point capability

- Added set labels in data grid

- Results from last session (not reset) are easily retreived in Data/Get from file

- Extra grid column available by scrolling (if within dimensions) for easier set addition

- Changed wording from **% FF** to **% with FF** in Calculator/set-compare

- Message for Weibull/Lognormal distribution analysis when negative = <0

- Clarified distribution analysis wording (removed **optimum** for 3 parameter solution)

- Added underline in risk/optimum-replacement to clarify grouping of results

1.0F, Automatic tracking of correlation coefficient for set deletion

- Filenames for results activation changed to prevent duplication

- Added R...reset to previous results menu

1.0E, Improved t0 find best routine for values close to maximum

- Reduced extra space in hardcopy/softcopy

- Correlation values cleared upon entry of DOS file

- Moved plot output color on/off from hardcopy/softcopy to plot/report/table

1.0D, Dashed box does not move in menus

1.0C, Added a word for mle (Lower Bias) message

- Improved risk interval display table

- Improved interval Demo/Sample

1.0B, Improved data edit when entry started below first cell

1.0A, First Windows-based version of both WinSMITH(TM) Weibull and WinSMITH Visual software bundled into the SuperSMITH(TM) package.