NEWSTUFF LIST

VERSION 5.00

NEW PROGRAM FEATURES/FIXES IN VERSION 5.00

1. ITER MDUMP and ITER MDUMPA dump change or difference values now, not derivative values. (1/4/2006)

2. The data output window font has been changed to COURIER. The default font size id 8 points and can be reset to any value from 2 to 36 points from a new item in the UTILITY menu. The font size is remembered from session to session and is passed to the file and macro editors. (2/1/2006)

3. The optimization menus have been resized for 1024x768 (lowest resolution supported) resolution. (2/1/2006)

4. SOLCEN and DERLIM have been removed from the program. (2/6/2006)

5. The program operating condition "LINTOL" has been added to support the addition of a second numeric word in the ITER ADJUST command. (2/7/2006).

LINTOL	This sets the fractional tolerance to determine if a change value in the damped least squares change matrix is sufficiently small compared to its associated operand value to be considered "linear" in change matrix space. If it is not and the second numeric word of the ITER ADJUST command is present, the DINMUL will automatically be changed so that the linearity condition is regained. **Default value = 0.1. Valid values are > 0.0 and < or = to 1.0.**

6. ITER ADJUST has been added to adjust the condition of the change matrix in optimization. (2/7/2006)

ITER ADJUST , (n , m) or **IT A , (n , m)** or **IT ADJ (n , m)** "ITER ADJUST" adjusts the lengths of each column in the change matrix used in damped least squares optimization by adjusting the variable "dincr" values so that the sums of the absolute values of each column of the change matrix (column totals) are each equal to the average of the sum of all the column totals. If "n" is present (any value), no new matrix is created if one already exists, else a new matrix is created. If "m" is present (any value), then the program operating condition "LINTOL" is used per the description for "LINTOL" to automatically re-set the DINMUL value, else the DINMUL value is left unchanged by "ITER ADJUST".

7. DINMUL has a new minimum value of 1.0D-15 assigned . (2/8/2006).

DINMUL	This is the multiplicative factor used with variable increment or "dincr" scaling. **Default value = 1.0. Minimum value - 1.0D-15**

8. The "RESOLVE" command has been renamed "RSV" and the "SV command has been added. command . (2/9/2006).

SV - The "SV" command initiates an abbreviated Levenberg-Marquart Damped Least Squares (DLS) optimization cycle using the current damping factor. If a derivative matrix already exists, it is used instead of calculating a new matrix. If no derivative matrix exists, then this command operates exactly as if it had been an "ITER" command.
RSV - The "RSV" command acts by issuing a "RESTORE" command followed by a "SV" command and is useful when doing a PFAC search by hand. If no derivative matrix exists, then this command operates exactly as if it had been an "ITER" command.

9. The "RESTORE MIN" command operation has been completely re-written for greatly improved performance . (2/9/2006).

RESTORE MIN - The "RESTORE MIN" initiates a search along the current solution vertor for a minimum solution. The derivative matrix is not used.

10. The "DAMPING" command has been removed as has the MEIRONA automatic damping as it was far too unstable "GET DMPMODE" has also been removed from the "GET" capability . (2/11/2006).

11. ITER POWL has been completely re-done. It is faster and better than before. (3/13/2006).
ITER POWL , n or **IT P , n** - "ITER POWL" causes "n" (blank=1) cycles of Powell's optimization method to be performed. Each cycle of "ITER POWL" or "IT P" causes one full cycle of "Powell's Method" to be performed. If a damped least squares matrix exists, that matrix is made used. Powell's method is powerful and unrelated to the "damped least squares" method. It is provided as another tool which may have some merit in freeing some "stuck" systems. The damping factor has no effect during "ITER POWL.

12. TYPE 24 AND 25 special surfaces removed. (3/14/2006).

13. Random ray error at a surface is now operational (3/15/2006).

RAY ERROR SURFACE FLAG

RAYERROR , ray error in arc-sec - The "RAYERROR" command designates the current surface to be an imperfectly manufactured surface for which random surface errors such as surface roughness exist. The error is expressed as the one sigma ray angle deviation in arc-seconds. The angular distribution of the error is assumed to be gaussian but the gamma orientation is distributed uniformly. The error is applied to a ray and to its associated differential rays (if they exist). The error is applied after any other ray surface interactions occurr. Issued from the CMD level, this command lists all the non-zero RAYERROR settings in the current lens configuration. If all RAYERROR settings are zero, no output is produced.

14. Permanent macro issuance has been simplified. (5/17/2006).

PERMANENT MACROS - Permanent macros are provided with the program and stored in the PERMAC directory. In order to list, edit, create or delete a permanent macro, change to the PERMAC directory, perform the macro operation and then, return to the default macro library directory. The example below, shows how to load the manufacturers lens librarys after the program is first installed. To run a permanent macro, simply issue the macro name. The program automatically searches the permanent macro library if the macro name issued is not in the current macro directory.

LODLENS

15. The circa 2006 Post 2000, Schott Glass catalog, named "SCH2000" has been added to the program. (6/14/2006).

16. The syntax for ther LOADPROF command has been extended to take a user provided file name. (7/6/2006).

PROFIT OPERATING CONDITIONS
LOADPROF (OPTIONAL FILE NAME) - The "LOADPROF" command causes the current PROFIT.DAT file to be read and processed. If an optional file name is entered, that file is loaded. After each stock item (data with the same stock symbol) is processed, All the items are written into an archieval binary file PROFDAT.DAT. A second binary file PROFLIB.PRF is written which remembers the sequential number of each stock in the current database, the stock's symbol, the company descriptor, the starting and ending record number for that symbol and the total number or days for that symbol as saved in PROFDAT.PRF

17. Ray clearancing operands have been added (7/25/2006).

PREDEFINED REAL RAY COMPOSITE OPERANDS (Not available in GET or Tolerancing)				
OPERAND NAME	"i" (nw#3)	"j" (nw#4)	"k" (nw#5)	DESCRIPTION

CLEARX	fob#1.ray#1 example: 001.012	fob#2.ray#2 example: 034.005	surf#1.surf#2 example: 005.007	"i" and "j" are decimal entries with three digits to the left of the decimal point and four digits to the right. "k" is a decimal entry with three digits to the left of the decimal point and three digits to the right. For "i" and "j", the input represents the FOB and RAY numbers representing two rays as defined in the current Fields and Rays definitions. For "k", the input represents two surface numbers. The value returned as the "clearance-X" operand is: The signed, globally referenced, perpendicular-distance from the "first" ray (Vector A) as defined by "i" leaving the "first" surface defined in "k" to a point (point B) defined by the intersection of the "second" ray as defined in "j" with the "second" surface defined in "k". The calculation is performed on an XZ-plane projection. The returned operand value is positive if the point B lies above or to the right of the line (vector A), otherwise it is negative. All calculations are referenced to the global coordinate system of surface (surf#2). The first ray defined by fob#1, ray#1 leaving surf#1 defines vector A. The second ray defined by fob#2, ray#2 intersecting surf#2 defines point B. The returned value is the XZ-plane component of the perpendicular distance from point B to vector A. All calculations are performed in the global coordinate system referenced to the vertex of surf#2.
CLEARY	fob#1.ray#1 example: 001.0012	fob#2.ray#2 example: 034.0005	surf#1.surf#2 example: 005.007	"i" and "j" are decimal entries with three digits to the left of the decimal point and four digits to the right. "k" is a decimal entry with three digits to the left of the decimal point and three digits to the right. For "i" and "j", the input represents the FOB and RAY numbers representing two rays as defined in the current Fields and Rays definitions. For "k", the input represents two surface numbers. The value returned as the "clearance-Y" operand is: The signed, globally referenced, perpendicular-distance from the "first" ray (VectorA) as defined by "i" leaving the "first" surface defined in "k" to a point (point B) defined by the intersection of the "second" ray as defined in "j" with the "second" surface defined in "k". The calculation is performed on a YZ-plane projection. The returned operand value is positive if the point B lies above or to the right of the line (vector A), otherwise it is negative. All calculations are referenced to the global coordinate system of surface (surf#2). The first ray defined by fob#1, ray#1 leaving surf#1 defines vector A. The second ray defined by fob#2, ray#2 intersecting surf#2 defines point B. The returned value is the YZ-plane component of the perpendicular distance from point B to vector A. All calculations are performed in the global coordinate system referenced to the vertex of surf#2.

18. The LOADPROF command has been expanded to do auto loading and auto plotting of a single issue. (8/24/06)

LOADPROF (OPTIONAL FILE NAME) - The "LOADPROF" command causes the current PROFIT.DAT file to be read and processed. If an optional file name is entered, that file is loaded. After each stock item (data with the same stock symbol) is processed, All the items are written into an archieval binary file PROFDAT.DAT. A second binary file PROFLIB.PRF is written which remembers the sequential number of each stock in the current database, the stock's symbol, the company descriptor, the starting and ending record number for that symbol and the total number or days for that symbol as saved in PROFDAT.PRF. If the optional file associated with the optional file name exists and it is a single issue file, and automatic "LOADISSU (issue name)" and "PLOTISSU" commands will be issued.

NEW PROGRAM FEATURES/FIXES IN VERSION 3.00

1. KDP2 version 3.0 has faster ray tracing is available with optional source code in its PREMIUM user support option.

NEW PROGRAM FEATURES/FIXES IN VERSION 2.00

1. KDP2 is a complete re-write of the source code of the old KDP. The user interface is the same and it is 100% compatible with designs and macros developed in earlier programs (KDP, ROADRUNNER and PRG). 1/1/2006.