```
====================================================================== Complot
                                                                       Complot
     PROGRAM COMPLOT                                                   Complot
     ===============                                                   Complot
     VERSION 83-1 (FEBRUARY, 1983)                                     Complot
     VERSION 83-2 (MAY, 1983)                                          Complot
     VERSION 83-3 (DECEMBER, 1983) *MAJOR MODIFICATION.                Complot
                                   *ADDED SELECTION OF PLOTS BY MAT OR Complot
                                    ZA/MT/ENERGY RANGE (EV).           Complot
                                   *ADDED VARIABLE AXIS UNITS (PROGRAM Complot
                                    CONTROLLED..X=MILLI-EV, EV, KEV,   Complot
                                    MEV...Y=MILLI-BARNS, BARNS).       Complot
     VERSION 84-1 (APRIL, 1984)    *ADDED SELECTION BY REACTION/ENERGY Complot
                                    RANGE.                             Complot
                                   *ADDED IDENTIFY DATA POINTS OPTION  Complot
                                    (SMALL BOX DRAWN AROUND EACH CROSS Complot
                                     SECTION AND RATIO POINT).         Complot
                                   *IMPROVED NON-IBM GRAPHICS INTERFACE Complot
                                    (ALL CHARACTER POSITIONING NOW     Complot
                                     BASED ON CHARACTER, NOT RASTER,   Complot
                                     SIZE).                            Complot
     VERSION 85-1 (APRIL, 1985)    *SPECIAL I/O ROUTINES TO GUARANTEE  Complot
                                    ACCURACY OF ENERGY.                Complot
                                   *DOUBLE PRECISION TREATMENT OF      Complot
                                    ENERGY (REQUIRED FOR NARROW        Complot
                                    RESONANCES).                       Complot
                                   *ADDED (ZA,MT) EQUIVALENCE OPTION.  Complot
                                   *ADDED SMALL PLOT OPTION.           Complot
     VERSION 85-2 (AUGUST, 1985)   *FORTRAN-77/H VERSION              Complot
     VERSION 86-1 (JANUARY, 1986)  *ENERGY DEPENDENT SCATTERING RADIUS Complot
     VERSION 86-2 (DECEMBER, 1986) *DOUBLE PRECISION PLOT SCALING      Complot
                                    (REQUIRED FOR NARROW ENERGY RANGES) Complot
     VERSION 88-1 (JULY 1988)      *MAJOR REVISION TO MAKE CODE EASILY Complot
                                    INTERFACEABLE TO ALMOST ANY PLOTTER Complot
                                   *WARNING..INPUT PARAMETERS FROM BEEN Complot
                                    CHANGED (SEE, DESCRIPTION BELOW)   Complot
                                   *COMPUTER INDEPENDENT SOFTWARE      Complot
                                    CHARACTERS.                        Complot
                                   *COLOR PLOTS.                       Complot
                                   *MT NUMBER DEFINITIONS FROM DATA    Complot
                                    FILE READ BY PROGRAM               Complot
                                   *FORTRAN-77 REQUIRED (FORTRAN-H NO  Complot
                                    SUPPORTED BY THIS PROGRAM).        Complot
                                   *OPTION...INTERNALLY DEFINE ALL I/O Complot
                                    FILE NAMES (SEE, SUBROUTINE FILEIO Complot
                                    FOR DETAILS).                      Complot
                                   *IMPROVED BASED ON USER COMMENTS.   Complot
     VERSION 88-2 (OCTOBER 1988)   *IMPROVED BASED ON USER COMMENTS.   Complot
                                   *ADDED LIVERMORE CIVIC COMPILER     Complot
                                    CONVENTIONS.                       Complot
                                   *UPDATED TO USE NEW PROGRAM CONVERT Complot
                                    KEYWORDS.                          Complot
     VERSION 89-1 (JANUARY 1989)   *PSYCHOANALYZED BY PROGRAM FREUD TO  Complot
                                    INSURE PROGRAM WILL NOT DO ANYTHING Complot
                                    CRAZY.                             Complot
                                   *FORTRAN-77/FORTRAN-H COMPATIBLE    Complot
                                   *SPECIAL ENDF/B MATERIAL DEFINITIONS Complot
                                    (ZA.LT.1000) FROM DATA FILE READ   Complot
                                    BY PROGRAM.                        Complot
     VERSION 89-2 (MARCH 1989)     *ADDED ENDF/B-V AND VI MT           Complot
                                    DEFINITIONS. PROGRAM WILL DETERMINE Complot
                                    ENDF/B FORMAT BASED ON MF=1,       Complot
                                    MT=451 AND USE AS PPROPRIATE MT    Complot
                                    DEFINITIONS. IF NO MF=1, MT=451    Complot
                                    PROGRAM WILL USE ENDF/B-VI         Complot
                                    MT DEFINITIONS.                    Complot
     VERSION 90-1 (AUGUST 1990)    *A NEW PROGRAM                      Complot
                                   *ADDED INTERACTIVE MOUSE INPUT      Complot
                                   *ADDED 3 CHARACTER FONTS            Complot
                                   *ADDED PHOTON DATA, MF=23 AND 27    Complot
                                   *ADDED FORTRAN SAVE OPTION.         Complot
```

```
                              *ADDED MAXIMUM RATIO RANGE WHEN      Complot
                               PLOTTING RATIOS.                    Complot
                              *ADDED GRID TYPES                    Complot
                              *ADDED VARIABLE LINE THICKNESS       Complot
                              *WARNING...INPUT PARAMETER FORMAT    Complot
                               HAS BEEN CHANGED...SEE DESCRIPTION  Complot
                               BELOW.                              Complot
VERSION 92-1 (JANUARY 1992)   *ADDED INCIDENT CHARGED PARTICLES    Complot
                               (IDENTIFIED IN PLOT TITLES)         Complot
                              *ADDED COMPLETELY COMPATIBLE I/O     Complot
                               FOR READING FLOATING POINT NUMBERS. Complot
VERSION 92-2 (MAY 1992)       *CORRECTED DESCRIPTION OF INPUT      Complot
                               PARAMETERS AND EXAMPLE PROBLEMS.    Complot
                              *ADDED VARIABLE CHARACTER SIZE INPUT Complot
VERSION 93-1 (MARCH 1993)     *UPDATE FOR ON SCREEN GRAPHIC        Complot
                               OUTPUT USING THE LAHEY COMPILER     Complot
                              *ADDED NU-BAR (TOTAL, DELAYED,       Complot
                               PROMPT).                            Complot
VERSION 94-1 (JANUARY 1994)   *VARIABLE ENDF/B DATA FILENAMES      Complot
                               TO ALLOW ACCESS TO FILE STRUCTURES  Complot
                               (WARNING - INPUT PARAMETER FORMAT   Complot
                               HAS BEEN CHANGED)                   Complot
                              *CLOSE ALL FILES BEFORE TERMINATING  Complot
                               (SEE, SUBROUTINE ENDIT)             Complot
VERSION 95-1 (MARCH 1995)     *CORRECTED CROSS SECTION             Complot
                               MULTIPLIER FOR EQUIVALENCES         Complot
                              *CORRECTED RATIO SCALING, FOR        Complot
                               MAXIMUM RATIO LESS THAN 1.0         Complot
VERSION 96-1 (JANUARY 1996)   *COMPLETE RE-WRITE                   Complot
                              *IMPROVED COMPUTER INDEPENDENCE      Complot
                              *ALL DOUBLE PRECISION                Complot
                              *UNIFORM TREATMENT OF ENDF/B I/O     Complot
                              *IMPROVED OUTPUT PRECISION           Complot
                              *DEFINED SCRATCH FILE NAMES          Complot
                              *INCREASED PAGE SIZE FROM 24000      Complot
                               TO 48000 POINTS                     Complot
VERSION 97-1 (APRIL 1997)     *INCREASED PAGE SIZE FROM 48000      Complot
                               TO 480000 POINTS                    Complot
VERSION 99-1 (MARCH 1999)   *CORRECTED CHARACTER TO FLOATING       Complot
                             POINT READ FOR MORE DIGITS            Complot
                            *UPDATED TEST FOR ENDF/B FORMAT        Complot
                             VERSION BASED ON RECENT FORMAT CHANGE Complot
                            *GENERAL IMPROVEMENTS BASED ON         Complot
                             USER FEEDBACK                         Complot
VERS. 2000-1 (FEBRUARY 2000)*GENERAL IMPROVEMENTS BASED ON         Complot
                             USER FEEDBACK                         Complot
VERS. 2002-1 (MAY 2002)     *INPUT PARAMETERS OPTIONAL             Complot
                            *CONTROL MINIMUM RATIO RANGE BY INPUT  Complot
                            *OPTIONAL BLACK OR WHITE BACKGROUND    Complot
VERS. 2004-1 (SEPT. 2004)   *ADDED INCLUDE FOR COMMON               Complot
                            *INCREASED PAGE SIZE FROM 480000       Complot
                             TO 600000 POINTS                      Complot
                            *ADDED NEW REICH-MOORE TO FILE2 TO     Complot
                             ALLOW IDENTIFICATION OF RESOLVED AND  Complot
                             ANY FOLLOWING UNRESOLVED RESONANCE    Complot
                             REGIONS.                              Complot
VERS. 2007-1 (JAN.  2007)   *CHECKED AGAINST ALL ENDF/B-VII.       Complot
                            *INCREASED MAXLOAD TO 600,000 FROM     Complot
                             12,000                                Complot
VERS. 2009-1 (JAN.  2009)   *IGNORED DIFFERENCES NEAR RESONANCE    Complot
                             REGION BOUNDARIES (RESOLVED AND       Complot
                             UNRESOLVED).                          Complot
VERS. 2010-1 (July  2010)   *Allow comparison plot even if there   Complot
                             is no difference (just see data).     Complot
                            *ONLY plot linearly interpoolable data Complot
                            *Include threshold energy points to    Complot
                             show cross sections, but NOT ratios   Complot
                             near threshold.                       Complot
VERS. 2011-1 (Jan.  2011)   *Increased MT.DAT from 200 to 1,000    Complot
                             entries, to accommodate new MTs.      Complot
VERS. 2012-1 (Aug.  2012)   *Increased incident particle list to   Complot
```

```
                          include photon (ZA = 0).              Complot
                         *Added CODENAME                        Complot
                         *32 and 64 bit Compatible              Complot
                         *Added ERROR stop                      Complot
VERS. 2013-1 (Nov. 2013) *ONLY use min/max ratios to decide     Complot
                          whether or not to plot - non-positive Complot
                          cross sections are no longer used.    Complot
                         *Limited per-cent differences to fit   Complot
                          output format = -9999 to +9999 %.     Complot
                         *OUT9 replaced NORMX                   Complot
VERS. 2015-1 (Jan. 2015) *Added MF=10 Radionuclide Production   Complot
                          which requires longer plot titles.    Complot
                         *Restricted character size multiplier  Complot
                          to 0.5 to 1.5 to accommodate longer   Complot
                          plot titles.                          Complot
                         *Replaced ALL 3 way if statements.     Complot
VERS. 2015-2 (Mar. 2015) *Corrected tables for X and Y axis     Complot
                          labels = see change search for 2015-2 Complot
VERS. 2015-3 (Oct. 2015) *Allow multiple LRF=7 regions plus     Complot
                          unreslved region - earlier assumed    Complot
                          LRF=7 never used unrsesolved.         Complot
VERS. 2017-1 (May  2017) *For MF=2 use MT=151 to define         Complot
                          Unresolved Resonance Region (URR).    Complot
                          Ignore NJOY MT=152 and 153.           Complot
                         *All floating input parameters changed Complot
                          to character input + IN9 conversion.  Complot
                         *Added MF=4 Legendre Coefficient       Complot
                          Comparison: f1 through f6             Complot
Vers. 2018-1 (Jan. 2018) *Doubled in core storage to 1,200,000. Complot
                         *Replaced Q MeV by MT= at top of plots Complot
                          (Q value in ENDF is now only defined  Complot
                           in MF=3, making it difficult for all Complot
                           other MF now treated by this code)   Complot
                         *Initial Linear X scaling for MF=1     Complot
                          (nu-bar) and MF=4 (Legendre) =        Complot
                          this can be turned OFF by ZOOM        Complot
                         + Unless energy range is requested =   Complot
                          allows MF=1 and 4 default Linear X    Complot
                          scaling to be turned off by input     Complot
                          parameters, i.e., by COMHARD          Complot
                         *Zoom lower energy limit restricted    Complot
                          1.0d-5 eV - to lower zoom of linear   Complot
                          energy plots (otherwise cannot find   Complot
                          actual lower limit on plot).          Complot
                         *Added NRO = energy dependent scatter  Complot
                          radius to reading FILE2 parameters    Complot
                          to define unresolved energy range.    Complot
                         *Corrected energy dependent scatter    Complot
                          for all resonance types (see, above   Complot
                          remarks).                             Complot
Vers. 2019-1 (June 2019) *Additional Interpolation Law Tests    Complot
                         *Checked Maximum Tabulated Energy to   Complot
                          insure it is the same for all MTs -   Complot
                          if not, print WARNING messages.       Complot
                                                                Complot
2015-2 Acknowledgment                                           Complot
=====================                                           Complot
I thank Chuck Whitmer (TerraPower,WA) for reporting the errors  Complot
that led to the 2015-2 Improvements in this code.               Complot
                                                                Complot
I thank Jean-Christophe Sublet (UKAEA) for contributing MAC     Complot
executables and Bojan Zefran (IJS, Slovenia) for contributing   Complot
LINUX (32 or 63 bit) executables. And most of all I must thank  Complot
Andrej Trkov (NDS, IAEA) for overseeing the entire PREPRO project Complot
at IAEA, Vienna. This was a truly International team who worked Complot
together to produce PREPRO 2015-2.                              Complot
                                                                Complot
OWNED, MAINTAINED AND DISTRIBUTED BY                            Complot
-----------------------------------                             Complot
THE NUCLEAR DATA SECTION                                        Complot
INTERNATIONAL ATOMIC ENERGY AGENCY                              Complot
```

P.O. BOX 100 Complot
A-1400, VIENNA, AUSTRIA Complot
EUROPE Complot
Complot

ORIGINALLY WRITTEN BY Complot
---------- Complot
Dermott E. Cullen Complot
Complot

PRESENT CONTACT INFORMATION Complot
---------- Complot
Dermott E. Cullen Complot
1466 Hudson Way Complot
Livermore, CA 94550 Complot
U.S.A. Complot
Telephone 925-443-1911 Complot
E. Mail RedCullen1@Comcast.net Complot
Website RedCullen1.net/HOMEPAGE.NEW Complot
Complot

AUTHORS MESSAGE Complot
---------- Complot
THE COMMENTS BELOW SHOULD BE CONSIDERED THE LATEST DOCUMENTATION Complot
ALL RECENT IMPROVEMENTS. PLEASE READ ALL OF THESE COMMENTS BEFORE, Complot
PARTICULARLY THE COMMENTS CONCERNING MACHINE DEPENDENT CODING. Complot
Complot
AT THE PRESENT TIME WE ARE ATTEMPTING TO DEVELOP A SET OF COMPUTER Complot
INDEPENDENT PROGRAMS THAT CAN EASILY BE IMPLEMENTED ON ANY ONE Complot
OF A WIDE VARIETY OF COMPUTERS. IN ORDER TO ASSIST IN THIS PROJECT Complot
IT WOULD BE APPECIATED IF YOU WOULD NOTIFY THE AUTHOR OF ANY Complot
COMPILER DIAGNOSTICS, OPERATING PROBLEMS OR SUGGESTIONS ON HOW TO Complot
IMPROVE THIS PROGRAM. HOPEFULLY, IN THIS WAY FUTURE VERSIONS OF Complot
THIS PROGRAM WILL BE COMPLETELY COMPATIBLE FOR USE ON YOUR Complot
COMPUTER. Complot
Complot

PURPOSE Complot
------- Complot
COMPARE ENDF/B FORMATTED DATA FROM TWO SEPARATE INPUT TAPES. Complot
REACTIONS ARE CONSIDERED TO BE COMPARABLE IF THEY HAVE THE SAME Complot
(ZA,MF,MT). RESULTS ARE PRESENTED IN GRAPHICAL FORM. Complot
Complot
IN THE FOLLOWING FOR SIMPLICITY THE ENDF/B TERMINOLOGY--ENDF/B Complot
TAPE--WILL BE USED. IN FACT THE ACTUAL MEDIUM MAY BE TAPE, CARDS, Complot
DISK OR ANY OTHER MEDIUM. Complot
Complot

ON WHAT COMPUTERS WILL THE PROGRAM RUN Complot
---------- Complot
THE PROGRAM HAS BEEN IMPLEMENTED ON A VARIETY OF COMPUTERS FROM Complot
CRAY AND IBM MAINFRAME TO SUN WORKSTATIONS TO AN IBM-AT PC. THE Complot
PROGRAM IS SMALL ENOUGH TO RUN ON VIRTUALLY ANY COMPUTER. Complot
Complot
THE PROGRAM USES A SIMPLE CALCOMP LIKE GRAPHICS INTERFACE Complot
(DESCRIBED BELOW) AND ALLOWS THE USER SPECIFY THE PHYSICAL SIZE Complot
OF THE PLOTTER BEING USED, BY INPUT PARAMETERS. USING THESE Complot
CONVENTIONS THIS PROGRAM CAN BE EASILY INTERFACED TO VIRTUALLY Complot
ANY PLOTTER. Complot
Complot
FOR SPECIAL CONSIDERATIONS SEE THE SECTIONS BELOW ON, Complot
(1) COMPUTER DEPENDENT CODING Complot
(2) PLOTTER/GRAPHICS TERMINAL INTERFACE Complot
Complot

GRAPHICS INTERFACE Complot
---------- Complot
THIS PROGRAM USES A SIMPLE CALCOMP LIKE GRAPHICS INTERFACE WHICH Complot
REQUIRES ONLY 3 SUBROUTINES...PLOTS, PLOT AND PEN (DESCRIBED IN Complot
DETAIL BELOW). ALL CHARACTERS AND SYMBOLS ARE DRAWN USING TABLES Complot
OF PEN STROKES (SUPPLIED WITH THIS PROGRAM). USING THIS METHOD Complot
THE PROGRAM SHOULD BE SIMPLE TO INTERFACE TO VIRTUALLY ANY PLOTTER Complot
OR GRAPHICS TERMINAL AND THE APPEARANCE AND LAYOUT OF THE PLOTS Complot
SHOULD BE INDEPENDENT OF WHICH PLOTTER IS USED. Complot
Complot

2015 PLOTTER DIMENSIONS Complot
========== Complot

```
PLOTTER DIMENSIONS ARE IN INCHES - NOT CM, MM, OR CUBITS.          Complot
THIS IS DONE FOR HISTORICAL REASONS AND HOPEFULLY THIS WILL        Complot
NOT INCONVENIENCE ANYONE - IN PRACTICE I HAVE USED EXACTLY THE     Complot
SAME DIMENSION = X = 0 to 12.5 and Y = 0 to 10 FOR DECADES         Complot
TO PRODUCE BOTH ON-SCREEN AND HARDCOPY POSTSCRIPT PLOTS.           Complot
                                                                   Complot
I STRONGLY SUGGEST THAT YOU NOT CHANGE THESE DIMENSIONS UNLESS     Complot
YOU MUST = BASED ON THE PLOT SIZE YOU OBTAIN WHEN YOU FIRST RUN    Complot
THIS CODE.                                                         Complot
                                                                   Complot
PROGRAM IDENTIFICATION                                             Complot
----------------------                                             Complot
AS DISTRIBUTED THE FIRST FRAME OF PLOTTED OUTPUT WILL DOCUMENT     Complot
THE PROGRAM NAME, VERSION AND INSTALLATION. THIS INFORMATION IS    Complot
STORED AS DATA IN THE ARRAY VERSES NEAR THE BEGINNING OF           Complot
SUBROUTINE FRAME1. IF YOU WISH TO CUSTOMIZE THE OUTPUT TO IDENTIFY Complot
YOUR INSTALLATION CHANGE THE LAST TWO LINES OF THE ARRAY (VERSES). Complot
                                                                   Complot
ENDF/B FORMAT                                                      Complot
-------------                                                      Complot
THIS PROGRAM ONLY USES THE ENDF/B BCD OR CARD IMAGE FORMAT (AS     Complot
OPPOSED TO THE BINARY FORMAT) AND CAN HANDLE DATA IN ANY VERSION   Complot
OF THE ENDF/B FORMAT (I.E., ENDF/B-I, II,III, IV, V OR VI FORMAT). Complot
                                                                   Complot
BOTH SETS OF EVALUATED DATA MUST BE IN THE ENDF/B FORMAT. ONLY     Complot
SECTIONS OF FILE 2 (RESONANCE PARAMETERS) AND FILES 3, 23 AND 27   Complot
(TABULATED DATA) WILL BE READ AND ALL OTHER SECTIONS WILL BE       Complot
SKIPPED. IN FILE 2 THE ONLY IMPORTANT INFORMATION IS THE ENERGY    Complot
LIMITS OF THE RESOLVED AND UNRESOLVED RESONANCE REGION WHICH IS    Complot
LOCATED IN THE SAME FIELDS IN ALL VERSIONS OF THE ENDF/B FORMAT.   Complot
SIMILARLY THE FORMAT OF FILES 3, 23 AND 27 IS THE SAME IN ALL      Complot
VERSIONS OF ENDF/B. THEREFORE THIS PROGRAM CAN BE USED WITH DATA   Complot
IN ANY ENDF/B FORMAT (I.E. ENDF/B-I, II, III, IV, V OR VI).        Complot
                                                                   Complot
CROSS SECTION INTERPOLATION                                        Complot
---------------------------                                        Complot
CROSS SECTIONS MUST BE IN EITHER HISTOGRAM (I.E., INTERPOLATION    Complot
LAW 1) OR LINEARLY INTERPOLABLE (I.E. INTERPOLATION LAW 2) FORM.   Complot
IF THEY ARE NOT A WARNING MESSAGE WILL BE PRINTED AND EXECUTION    Complot
WILL BE TERMINATED. SEE INSTRUCTIONS BELOW ON HOW TO CONVERT       Complot
DATA TO HISTOGRAM OR LINEARLY INTERPOLABLE FORM.                   Complot
                                                                   Complot
REACTION INDEX                                                     Complot
--------------                                                     Complot
THIS PROGRAM DOES NOT USE THE REACTION INDEX WHICH IS GIVEN IN     Complot
SECTION MF=1, MT=451 OF EACH EVALUATION.                           Complot
                                                                   Complot
SECTION SIZE                                                       Complot
------------                                                       Complot
SINCE THIS PROGRAM USES A LOGICAL PAGING SYSTEM THERE IS NO LIMIT  Complot
TO THE NUMBER OF POINTS IN ANY SECTION, E.G., THE TOTAL CROSS      Complot
SECTION MAY BE REPRESENTED BY 200,000 DATA POINTS.                 Complot
                                                                   Complot
DATA SELECTION                                                     Complot
--------------                                                     Complot
THE USER MAY SPECIFYING THE DATA TO BE COMPARED BY INPUTTING UP    Complot
TO 100 MAT/MT/ENERGY OR ZA/MT/ENERGY RANGES. IF THE UPPER LIMIT    Complot
OF THE MAT OR ZA RANGE IS LESS THAN THE LOWER LIMIT IT WILL BE SET Complot
EQUAL TO THE LOWER LIMIT (I.E. THIS INDICATE ONLY COMPARE ONE      Complot
MAT OR ZA). IF THE UPPER LIMIT IS STILL ZERO IT WILL BE SET TO     Complot
9999 (NO LIMIT). IF THE UPPER MF OR MT LIMIT IS ZERO IT WILL BE    Complot
SET TO 99 OR 999, RESPECTIVELY (NO LIMIT). IF THE UPPER ENERGY     Complot
LIMIT IS ZERO IT WILL BE SET TO A LARGE NUMBER (NO LIMIT).         Complot
                                                                   Complot
THE LIST OF RANGES MUST BE TERMINATED BY A BLANK LINE (I.E. ZERO   Complot
LOWER AND UPPER MAT/MF/MT OR ZA/MF/MT LIMITS).                     Complot
                                                                   Complot
IF THE FIRST RANGE LINE IS BLANK THIS LINE WILL TERMINATE THE      Complot
LIST OF REQUESTS (I.E. A SECOND BLANK LINE NEED NOT BE INPUT)      Complot
AND ALL PHYSICALLY COMPARABLE DATA WILL BE PLOTTED.                Complot
                                                                   Complot
```

```
WHICH REACTIONS WILL BE PLOTTED                                          Complot
------------------------------                                           Complot
THOSE REACTIONS WITH THE SAME (ZA, MF, MT) WILL BE COMPARED, BUT         Complot
ONLY THOSE DATA WHICH DIFFER BY A USER SPECIFIED ALLOWABLE               Complot
DIFFERENCE WILL BE PLOTTED. IN ORDER TO FORCE ALL COMPARABLE             Complot
REACTIONS TO BE PLOTTED THE USER NEED ONLY SPECIFY AN ALLOWABLE          Complot
DIFFERENCE OF ZERO.                                                      Complot
                                                                         Complot
EQUIVALENT REACTIONS                                                     Complot
--------------------                                                     Complot
IN ORDER TO COMPARE REACTIONS WHICH HAVE DIFFERENT ZA, MF OR MT          Complot
THE USER IS ALLOWED TO SPECIFY AN EQUIVALENCE LIST OF UP TO              Complot
100 (ZA,MF,MT) COMBINATIONS ON THE MASTER FILE WHICH ARE TO BE           Complot
EQUATED TO DIFFERENT (ZA,MF,MT) ON THE SECOND FILE. THIS OPTION          Complot
MAY BE USED TO COMPARE SIMILAR REACTIONS FROM DIFFERENT MATERIALS         Complot
(E.G. IRON AND NICKEL INELASTIC SCATTERING) OR DIFFERENT REACTIONS        Complot
FROM THE SAME OR DIFFERENT MATERIALS (E.G. U-235 CAPTURE AND             Complot
FISSION - IN WHICH CASE THE RATIO WILL BE THE CAPTURE TO FISSION         Complot
RATIO) OR THE SAME REACTION IN DIFFERENT VERSIONS OF THE ENDF/B          Complot
FORMAT WHICH MAY BE ASSIGNED DIFFERENT MT NUMBERS, E.G., THE             Complot
PHOTOELECTRIC CROSS SECTION IS MT=602 IN ENDF/B-V AND EARLIER            Complot
VERSIONS OF ENDF/B, BUT IS MT=522 IN ENDF/B-VI.                          Complot
                                                                         Complot
IN THESE EQUIVALENCE LISTS A ZERO FIELD IMPLIES ALL. FOR EXAMPLE,        Complot
TO EQUATE MT=522 FROM ONE FILE TO MT=602 ON THE OTHER, FOR ALL           Complot
MATERIALS, ONE NEED ONLY SPECIFY ZA=0, MF=23, MT=522 EQUIVALENT          Complot
TO ZA=0, MF=23 AND MT=602.                                               Complot
                                                                         Complot
PLOT FORMATS                                                             Complot
------------                                                             Complot
THE TWO CROSS SECTIONS ARE CONSIDERED TO BE A STANDARD (THE FIRST        Complot
CROSS SECTION) AND A CROSS SECTION TO BE COMPARED TO THE STANDARD         Complot
(THE SECOND CROSS SECTION). THE OUTPUT FROM THIS PROGRAM IS A            Complot
SERIES OF PLOTS. EACH PLOT WILL CONTAIN THE STANDARD CROSS SECTION       Complot
AND IN ADDITION THE USER MAY SPECIFY THAT EACH PLOT ALSO CONTAIN         Complot
THE SECOND CROSS SECTION AND/OR THE RATIO OF THE SECOND CROSS            Complot
SECTION TO THE FIRST CROSS SECTION.                                      Complot
                                                                         Complot
THE USER MAY SELECT ONE OF THE FOLLOWING FIVE PLOT FORMATS (THE          Complot
NUMBER PRECEDING THE OPTION IS THE VALUE OF THE PLOT MODE SELECTOR       Complot
THAT THE USER SHOULD SPECIFY AS INPUT ON THE FIRST LINE).                Complot
                                                                         Complot
(0) THE STANDARD CROSS SECTION (I.E. FIRST EVALUATION) AND THE           Complot
    RATIO OF THE SECOND EVALUATION TO THE FIRST EVALUATION. THE          Complot
    DATA WILL BE PRESENETED AS TWO SUB-PLOTS PER PLOT WITH THE           Complot
    STANDARD CROSS SECTION IN THE UPPER HALF OF THE PLOT AND THE         Complot
    RATIO IN THE LOWER HALF OF THE PLOT.                                 Complot
                                                                         Complot
(1) THE STANDARD CROSS SECTION (I.E. FIRST EVALUATION) AND THE           Complot
    SECOND EVALUATION. THE DATA WILL BE PRESENTED AS TWO SUB-PLOTS       Complot
    PER PLOT WITH THE STANDARD CROSS SECTION ON THE UPPER HALF           Complot
    OF THE PLOT AND THE SECOND CROSS SECTION IN THE LOWER HALF OF        Complot
    THE PLOT.                                                            Complot
                                                                         Complot
(2) THE STANDARD CROSS SECTION (I.E. FIRST EVALUATION) AND THE           Complot
    SECOND EVALUATION. THE DATA WILL BE PRESENTED AS ONE PLOT            Complot
    CONTAINING BOTH THE STANDARD AND SECOND CROSS SECTION. THE           Complot
    STANDARD CROSS SECTION WILL BE PRESENTED AS A SOLID LINE AND         Complot
    THE SECOND CROSS SECTION WILL BE PRESENTED AS A DASHED LINE.         Complot
                                                                         Complot
(3) THE STANDARD CROSS SECTION, SECOND CROSS SECTION AND RATIO OF        Complot
    THE SECOND CROSS SECTION TO THE FIRST CROSS SECTION. THE DATA        Complot
    WILL BE PRESENTED AS THREE SUB-PLOTS PER PLOT WITH THE               Complot
    STANDARD CROSS SECTION IN THE UPPER THIRD OF THE PLOT, THE           Complot
    SECOND CROSS SECTION IN THE MIDDLE THIRD AND THE RATIO OF THE        Complot
    TWO IN THE LOWER THIRD OF THE PLOT (RECOMMENDED OPTION).             Complot
                                                                         Complot
(4) THE STANDARD CROSS SECTION, SECOND CROSS SECTION AND RATIO OF        Complot
    THE SECOND CROSS SECTION TO THE FIRST CROSS SECTION. THE DATA        Complot
    WILL BE PRESENTED AS TWO SUB-PLOTS PER PLOT WITH THE STANDARD        Complot
    AND SECOND CROSS SECTION ON THE SAME SUB-PLOT IN THE UPPER           Complot
```

```
    TWO THIRDS OF THE PLOT AND THE RATIO OF THE TWO IN THE LOWER   Complot
    THIRD OF THE PLOT. THE STANDARD CROSS SECTION WILL BE          Complot
    PRESENTED AS A SOLID LINE AND THE SECOND CROSS SECTION WILL BE Complot
    PRESENTED AS A DASHED LINE.                                    Complot
                                                                   Complot
ADDITIONAL PLOT FEATURES                                           Complot
------------------------                                           Complot
IN ADDITION TO THE CROSS SECTIONS AND/OR RATIO THE FOLLOWING       Complot
INFORMATIONS WILL BE INCLUDED ON EACH PLOT.                        Complot
                                                                   Complot
(1) AN IDENTIFICATION FOR EACH SET OF CROSS SECTIONS (UP TO 30     Complot
    CHARACTERS FOR EACH SET).                                      Complot
                                                                   Complot
(2) THE MAXIMUM NEGATIVE AND POSITIVE PER-CENT DIFFERENCE BETWEEN  Complot
    THE TWO CROSS SECTIONS.                                        Complot
                                                                   Complot
(3) ARROWS INDICATING THE ENERGY AT WHICH THE MAXIMUM DIFFERENCES  Complot
    (MINIMUM AND MAXIMUM RATIO) OCCUR.                             Complot
                                                                   Complot
(4) THE ENERGY LIMITS OF THE RESOLVED AND UNRESOLVED RESONANCE     Complot
    REGION (IF THEY FALL WITHIN THE ENERGY LIMITS OF THE PLOT).    Complot
                                                                   Complot
RATIO DATA                                                         Complot
----------                                                         Complot
IF RATIO OUTPUT IS REQUESTED THE RATIO WILL BE DEFINED AT EACH     Complot
ENERGY THAT APPEARS IN EITHER EVALUATION. BETWEEN THESE ENERGIES   Complot
THE RATIO WILL BE PLOTTED ASSUMING LINEAR DEPENDENCE BETWEEN       Complot
TABULATED VALUES. FOR HISTOGRAM OR LINEARLY INTERPOLABLE CROSS     Complot
SECTIONS THIS REPRESENTATION WILL POINT OUT ALL EXTREMA OF THE     Complot
RATIO, BUT NOT NECESSARILY THE ENERGY DEPENDENCE BETWEEN TABULATED Complot
VALUES.                                                            Complot
                                                                   Complot
IF THE EVALUATED DATA IS NOT IN EITHER HISTOGRAM OR LINRARLY       Complot
INTERPOLABLE FORM THE RATIO MAY NOT EVEN FIND ALL EXTREMA. FOR     Complot
EXAMPLE, IF ONE EVALUATION IS LINEARLY INTERPOLABLE AND THE        Complot
OTHER NON-LINEAR, BUT BOTH AGREE AT ALL TABULATED ENERGIES THE     Complot
RATIO WILL APPEAR TO BE EQUAL TO UNITY AT ALL ENERGIES, BUT IN     Complot
FACT THE CROSS SECTION BETWEEN TABULATED ENERGIES MAY BE QUITE     Complot
DIFFERENT USING LINEAR VS. NON-LINEAR INTERPOLATION. FOR THIS      Complot
REASON ONLY LINEARLY INTERPOLABLE OR HISTOGRAM DATA IS ALLOWED     Complot
AS INPUT TO THIS PROGRAM.                                          Complot
                                                                   Complot
LINEAR INTERPOLABLE                                                Complot
-------------------                                                Complot
ALL CROSS SECTIONS MAY BE CONVERTED TO LINEARLY INTERPOLABLE FORM   Complot
BE USING PROGRAM LINEAR (UCRL-50400, VOL. 17, PART A).             Complot
                                                                   Complot
HISTOGRAM                                                          Complot
---------                                                          Complot
ALL LINEARLY INTERPOLABLE CROSS SECTION MAY BE CONVERTED TO        Complot
HISTOGRAM (I.E. MULTIGROUP) FORM BY USING PROGRAM GROUPIE          Complot
(UCRL-50400, VOL. 17, PART D).                                     Complot
                                                                   Complot
INPUT UNITS                                                        Complot
-----------                                                        Complot
UNIT  DESCRIPTION                                                  Complot
----  -----------                                                  Complot
  2   INPUT LINE                                                   Complot
  9   MT DEFINITIONS.                                              Complot
 10   FIRST ENDF/B FORMATTED EVALUATION (STANDARD).                Complot
 11   SECOND ENDF/B FORMATTED EVALUATION.                          Complot
 17   SOFTWARE CHARACTERS.                                         Complot
 18   SOFTWARE SYMBOLS AND LINE TYPES                              Complot
                                                                   Complot
OUTPUT UNITS                                                       Complot
------------                                                       Complot
UNIT  DESCRIPTION                                                  Complot
----  -----------                                                  Complot
  3   NORMAL OUTPUT REPORT.                                        Complot
 16   PLOTTER UNIT                                                 Complot
                                                                   Complot
```

```
SCRATCH UNITS                                                       Complot
-------------                                                       Complot
UNIT  DESCRIPTION                                                   Complot
----  -----------                                                   Complot
 12   SCRATCH UNIT FOR FIRST EVALUATION                             Complot
 13   SCRATCH UNIT FOR SECOND EVALUATION                            Complot
 14   SCRATCH UNIT FOR RATIO (ONLY USED IF RATIOS REQUESTED).       Complot
                                                                    Complot
OPTIONAL STANDARD FILE NAMES (SEE SUBROUTINE FILIO1 AND FILIO2)     Complot
-------------------------------------------------------------       Complot
UNIT  FILE NAME                                                     Complot
----  ----------                                                    Complot
  2   COMPLOT.INP                                                   Complot
  3   COMPLOT.LST                                                   Complot
  9   MT.DAT                                                        Complot
 10   ENDFB.IN1    (OR AS READ FROM INPUT)                          Complot
 11   ENDFB.IN2    (OR AS READ FROM INPUT)                          Complot
12-14 (SCRATCH)                                                     Complot
 15   PLOT.CHR                                                      Complot
 16   (PLOTTER UNIT...USUALLY A DUMMY)                              Complot
                                                                    Complot
INPUT PARAMETERS                                                    Complot
---------------------------------------------------------------------Complot
LINE  COLUMNS  FORMAT  DESCRIPTION                                  Complot
----  -------  ------  -----------                                  Complot
  1     1-11    E11.4  LOWER X LIMIT OF PLOTTER                     Complot
       12-22    E11.4  UPPER X LIMIT OF PLOTTER                     Complot
       23-33    E11.4  LOWER Y LIMIT OF PLOTTER                     Complot
       34-44    E11.4  UPPER Y LIMIT OF PLOTTER                     Complot
       45-55     I11   NUMBER OF PLOTS PER FRAME IN X DIRECTION     Complot
       56-66     I11   NUMBER OF PLOTS PER FRAME IN Y DIRECTION     Complot
       67-70     F4.1  CHARACTER SIZE MULTIPLIER                    Complot
                       = 0 TO 1    - NORMAL CHARACTER SIZE          Complot
                       = OTHERWISE - CHARACTERS SCALED BY THIS      Complot
                                     FACTOR                         Complot
                                                                    Complot
                       PLOT ORIENTATION IS BASED ON THE UPPER X     Complot
                       LIMIT                                        Complot
                       = .GT.0 - X HORIZONTAL/Y VERTICAL            Complot
                       = .LT.0 - Y HORIZONTAL/X VERTICAL            Complot
                       AFTER TESTING THE UPPER X LIMIT WILL BE      Complot
                       SET TO ITS ABSOLUTE VALUE.                   Complot
  2     1-72     A72   FILENAME FOR FIRST ENDF/B DATA FILE          Complot
                       (LEAVE BLANK FOR ENDFB.IN1)                  Complot
  3     1-72     A72   FILENAME FOR SECOND ENDF/B DATA FILE         Complot
                       (LEAVE BLANK FOR ENDFB.IN2)                  Complot
  4     1-11     I11   RETRIEVAL MODE (0=MAT, 1=ZA)                 Complot
       12-22     I11   GRID (SPEED) OPTION.                        Complot
                       = 0 - TICK MARKS ON BORDER                   Complot
                       = 1 - SOLID AT COARSE INTERVALS              Complot
                       = 2 - DASHED AT COARSE INTERVALS             Complot
                       = 3 - SOLID AT COARSE AND FINE INTERVALS     Complot
                       = 4 - DASHED AT COARSE AND FINE INTERVALS    Complot
                       = 5 - SOLID COARSE/DASHED FINE INTERVALS     Complot
       23-33     I11   SHOULD BORDER BE PLOTTED AROUND EACH PLOT    Complot
                       = 0 - NO                                     Complot
                       = 1 - YES                                    Complot
       34-44     I11   LINE THICKNESS                               Complot
                       = 0 TO  5 - LINES AND CHARACTERS             Complot
                       =-1 TO -5 - ONLY LINES                       Complot
       45-55     I11   OUTPUT MODE                                  Complot
                       =-1 - ONLY COMPARISON LISTING. NO PLOTS.     Complot
                       = 0 - CROSS SECTION OVER RATIO.              Complot
                       = 1 - CROSS SECTION OVER CROSS SECTION.      Complot
                       = 2 - TWO CROSS SECTIONS ON SAME PLOT.       Complot
                       = 3 - CROSS SECTION OVER CROSS SECTION OVER  Complot
                             RATIO.                                 Complot
                       = 4 - TWO CROSS SECTIONS ON SAME PLOT OVER   Complot
                             RATIO.                                 Complot
       56-66     I11   STARTING PLOT NUMBER                         Complot
                       = 0     - DO NOT NUMBER PLOTS                Complot
```

			= .GT.0 - NUMBER PLOTS IN LOWER LEFT HAND	Complot
			CORNER STARTING WITH INPUT NUMBER	Complot
	67-70	I41	BACKGROUND COLOR	Complot
			= 0 = BLACK	Complot
			= OTHERWISE = WHITE	Complot
5	1-11	E11.4	ALLOWABLE FRACTIONAL DIFFERENCE. USED WHEN	Complot
			PLOTTING RATIOS. ANY REACTION WHERE THE	Complot
			TWO EVALUATIONS DIFFER BY MORE THAN THE	Complot
			ALLOWABLE DIFFERENCE WILL BE PLOTTED. IF	Complot
			ZERO IS INPUT THE STANDARD ALLOWABLE	Complot
			DIFFERENCE OF 0.001 (0.1 PER-CENT) WILL BE	Complot
			USED.	Complot
	12-22	E11.4	MAXIMUM ALLOWABLE RATIO. IF RATIOS ARE	Complot
			PLOTTED THEY WILL BE IN THE RANGE RATMAX	Complot
			TO 1/RATMAX. IF 0.0 IS INPUT THERE WILL	Complot
			BE NO LIMIT ON THE RANGE OF THE RATIOS.	Complot
			THIS OPTION MAY BE USED TO IGNORE LARGE	Complot
			DIFFERENCES OVER VERY NARROW ENERGY RANGES	Complot
			(WHICH MAY BE UNIMPORTANT) AND ALLOW ONE	Complot
			TO SEE IMPORTANT, BUT SMALLER DIFFERENCES,	Complot
			OVER EXTENDED ENERGY RANGES.	Complot
6	1-40	40A1	IDENTIFICATION FOR UPPER EVALUATIONS	Complot
7	1-40	40A1	IDENTIFICATION FOR LOWER EVALUATIONS	Complot
			(IDENTIFICATIONS SHOULD BE LEFT ADJUSTED	Complot
			TO START IN COLUMN 1).	Complot
8-N	1- 6	I6	LOWER MAT OR ZA LIMIT (SEE SELECTION MODE,	Complot
			INPUT LINE 1, COLUMNS 1-11).	Complot
	7- 8	I2	LOWER MF LIMIT	Complot
	9-11	I3	LOWER MT LIMIT	Complot
	12-22	E11.4	LOWER ENERGY LIMIT	Complot
	23-28	I6	UPPER MAT OR ZA LIMIT (SEE SELECTION MODE,	Complot
			INPUT LINE 1, COLUMNS 1-11).	Complot
	29-30	I2	UPPER MF LIMIT	Complot
	31-33	I3	UPPER MT LIMIT	Complot
	34-44	E11.4	UPPER ENERGY LIMIT	Complot
	45-55	I11	IDENTIFY EVALUATED DATA POINTS OPTION.	Complot
			= 0 - DO NOT IDENTIFY DATA POINTS.	Complot
			= 1 - IDENTIFY DATA POINTS (BY DRAWING A	Complot
			SMALL BOX AROUND EACH POINT).	Complot
	56-66	I11	INTERACTIVE INPUT FLAG	Complot
			= 0 - NO INTERACTIVE INPUT ALLOWED	Complot
			= 1 - INTERACTIVE INPUT ALLOWED	Complot
			*SETTING THIS OPTION =1 WILL TURN ON THE	Complot
			MOUSE AFTER EACH PLOT AND ALLOW YOU TO	Complot
			INTERACTIVELY SPECIFY PLOT LIMITS.	Complot
			*IF YOU DO NOT WISH TO INTERACT WITH A PLOT	Complot
			OR IF YOU HAVE NO INTERACTIVE CAPABILITY	Complot
			THIS OPTION SHOULD BE SET = 0.	Complot
				Complot
			*WARNING...DATA POINTS IDENTIFIED OPTION IS	Complot
			NOT RECOMMENDED FOR PLOTS CONTAINING MANY	Complot
			(I.E. THOUSANDS) OF DATA POINTS SINCE IT	Complot
			WILL MERELY INCREASE THE RUNNING TIME OF	Complot
			THE PROGRAM AND STILL NOT ALLOW ONE TO	Complot
			ACCURATELY SEE DATA POINTS.	Complot
				Complot
			*UP TO 100 MAT OR ZA RANGES ARE ALLOWED.	Complot
			THE LIST IS TERMINATED BY A BLANK LINE.	Complot
			IF THE UPPER LIMIT IS LESS THAN THE LOWER	Complot
			LIMIT IT WILL BE SET EQUAL TO THE LOWER	Complot
			LIMIT. IF THE FIRST RANGE LINE IS BLANK	Complot
			ALL DATA WILL BE RETRIEVED. IF THE UPPER	Complot
			MT LIMIT IS ZERO IT WILL BE SET EQUAL TO	Complot
			999 (NO LIMIT). IF THE UPPER ENERGY LIMIT	Complot
			IS ZERO IT WILL BE INTREPRETED TO MEAN NO	Complot
			LIMIT. IF THE FIRST RANGE LINE SPECIFIES	Complot
			ZERO LOWER AND UPPER MAT OR ZA RANGE IT	Complot
			WILL TERMINATE THE LIST BE RANGE LINES	Complot
			(A SECOND BLANK LINE NEED NOT BE INPUT)	Complot
			AND THE ENTIRE RANGE OF MATS WILL BE	Complot
			COMPARED FOR THE SPECIFIED MT AND ENERGY	Complot

```
                        RANGES.                                          Complot
                                                                         Complot
N+1-M                   EQUIVALENCES                                     Complot
          1- 6      I6  MASTER ZA.                                       Complot
          7- 8      I2  MASTER MF.                                       Complot
          9-11      I3  MASTER MT.                                       Complot
         12-17      I6  EQUIVALENT ZA FROM SECOND FILE.                  Complot
         18-19      I2  EQUIVALENT MF FROM SECOND FILE.                  Complot
         20-22      I3  EQUIVALENT MT FROM SECOND FILE.                  Complot
         23-33    E11.4 MULTIPLICATION FACTOR. ANY EQUATED ZA,MF,        Complot
                        MT DATA WILL BE MULTIPLIED BY THIS FACTOR.       Complot
                       *THIS OPTION MAY BE USED TO RE-NORMALIZE          Complot
                        THE SECOND CROSS SECTION OR IF COMPARING         Complot
                        ONE CONSTITUENT OF A MIXTURE TO THE MIXED        Complot
                        CROSS SECTION THIS MAY BE USED TO CONVERT        Complot
                        THE SECOND CROSS SECTION TO BARNS PER MIXED      Complot
                        ATOM BY USING A MULTIPLICATION FACTOR WHICH      Complot
                        IS EQUAL TO THE NUMBER OF ATOMS OF THE ONE       Complot
                        CONSTITUENT PER ATOM OF THE MIXTURE.             Complot
                        = 0.0 - ON INPUT WILL BE INTERPRETED AS 1.0      Complot
                        (WITH THIS CONVENTION THE USER NEED ONLY         Complot
                        INPUT MULTIPLICATION FACTORS IF THEY ARE         Complot
                        NOT 1.0).                                        Complot
                       *UP TO 100 MAT OR ZA EQUIVALENCES ARE             Complot
                        ALLOWED.                                         Complot
                       *THE LIST IS TERMINATED BY A BLANK LINE.          Complot
                       *A ZERO INPUT FIELD IMPLIES ALL. TO EQUATE        Complot
                        A GIVEN MT NUMBER TO ANOTHER MT NUMBER YOU       Complot
                        NEED MERELY SPECIFY ZA=0 ON INPUT.               Complot
                       *NOTE, IN ALL CASES THE TITLE AT TOP OF PLOT      Complot
                        WILL ONLY INDENTIFY MASTER (ZA,MF,MT). THE       Complot
                        USER INPUT TITLES MUST BE USED TO IDENTIFY       Complot
                        THE SECOND REACTION (SEE, EXAMPLE INPUT 4        Complot
                        BELOW).                                          Complot
                                                                         Complot
  EXAMPLE DEFINITION OF PLOTTER                                          Complot
  ----------------------------                                           Complot
  2015 - WARNING - THE FOLLOWING DESCRIPTION IS OUT-OF-DATE.             Complot
  TODAY THE DIMENSIONS OF THE PLOTTER ARE IN INCHES.                     Complot
                                                                         Complot
  THE FIRST INPUT LINE DEFINES THE DIMENSIONS OF THE PLOTTER BEING       Complot
  USED IN ANY UNITS (INCHES, CENTIMETERS, MILLIMETERS, ANYTHING)         Complot
  WHICH APPLY TO THE PLOTTER. IN ADDITION THE FIRST LINE DEFINES         Complot
  HOW MANY PLOTS SHOULD APPEAR ON EACH FRAME. THE PLOTTING AREA          Complot
  DEFINED ON THE FIRST INPUT LINE MAY BE SUBDIVIDED INTO ANY NUMBER      Complot
  OF PLOTS IN THE X AND Y DIRECTION. FOR EXAMPLE, TO PRODUCE A           Complot
  SERIES OF FRAMES EACH CONTAINING 3 PLOTS IN THE X DIRECTION AND        Complot
  2 PLOTS IN THE Y DIRECTION (6 PLOTS PER FRAME) COLUMN 45-55 OF         Complot
  THE FIRST INPUT LINE SHOULD BE 3 AND COLUMNS 56-66 SHOULD BE 2.        Complot
                                                                         Complot
  IF THE LOCAL PLOTTER USES DIMENSIONS OF INCHES IN ORDER TO OBTAIN      Complot
  10 X 10 INCH FRAMES WITH 3 X 2 PLOTS PER FRAME THE FIRST INPUT         Complot
  LINE SHOULD BE,                                                        Complot
                                                                         Complot
    0.0       10.0      0.0     10.0              3          2          Complot
                                                                         Complot
  IF THE LOCAL PLOTTER USES DIMENSION OF MILLIMETERS THE SAME            Complot
  PHYSICAL SIZE PLOT MAY BE OBTAINED IF THE FIRST INPUT LINE IS,         Complot
                                                                         Complot
    0.0      254.0      0.0    254.0              3          2          Complot
                                                                         Complot
  FOR SIMPLICITY THE FOLLOWING EXAMPLE INPUTS WILL NOT DISCUSS THE       Complot
  PHYSICAL DIMENSIONS OF THE PLOTTER AND THE FIRST INPUT LINE WILL       Complot
  IN ALL CASES INDICATE 10 X 10 INCH PLOTS WITH ONLY 1 PLOT PER          Complot
  FRAME.                                                                 Complot
                                                                         Complot
  IN THE FOLLOWING EXAMPLES IN ALL CASES THESE OPTIONS WILL BE USED,     Complot
  1) DASHED GRID       - COLUMNS 12-22 OF SECOND INPUT LINE =  1         Complot
  2) NO BORDER         - COLUMNS 23-33 OF SECOND INPUT LINE =  0         Complot
  3) LINE THICKNESS    - COLUMNS 34-44 OF SECOND INPUT LINE = -2         Complot
  4) OUTPUT MODE       - COLUMNS 45-55 OF SECOND INPUT LINE =  3         Complot
```

```
   5) FIRST PLOT NUMBER - COLUMNS 56-66 OF SECOND INPUT LINE =  1     Complot
                                                                      Complot
   EXAMPLE INPUT 1                                                    Complot
   ---------------                                                    Complot
   RETRIEVE MATS 1023, 1056 AND 1065 THROUGH 1072, MT = 1 AND 2       Complot
   (TOTAL AND ELASTIC) FROM THE FIRST INPUT FILE AND COMPARE TO       Complot
   ANY SECTION FROM THE SECOND FILE THAT HAS THE SAME ZA/MF/MT. ONLY  Complot
   COMPARE DATA OVER THE ENERGY RANGE 0.1 EV TO 1 KEV. IDENTIFY       Complot
   THE TWO SETS OF DATA AS ENDF/B-V AND ENDF/B-IV, RESPECTIVELY.      Complot
   ONLY PLOT THOSE REACTIONS WHICH DIFFER AT ONE OR MORE ENERGIES     Complot
   BY MORE THAN 1 PER-CENT (NOTE, 1 PER-CENT = 0.01 AS INPUT          Complot
   FRACTION). NO EQUIVALENT REACTIONS ARE SPECIFIED. FILERNAMES       Complot
   ARE STANDARD (THSE CAN EITHER BE EXPLICITLY INCLUDED, OR SIMPLY    Complot
   LEFT BLANK).                                                       Complot
                                                                      Complot
   THE FOLLOWING 12 INPUT LINES ARE REQUIRED.                         Complot
                                                                      Complot
      0.0       10.0      0.0     10.0              3          2      Complot
 ENDFB.IN1                                                            Complot
 ENDFB.IN2                                                            Complot
        0          1        0       -2              3          1      Complot
     0.01        0.0                                                  Complot
 ENDF/B-V DATA (STANDARD)                                             Complot
 ENDF/B-IV DATA                                                       Complot
 1023 3  1 0.1            3  2 1000.0               0                 Complot
 1056 3  1 0.1            3  2 1000.0               0                 Complot
 1065 3  1 0.1       1072 3  2 1000.0               0                 Complot
                                  (TERMINATES REQUEST LIST)           Complot
                                  (TERMINATES EQUIVALENCE LIST)       Complot
                                                                      Complot
   EXAMPLE INPUT 2                                                    Complot
   ---------------                                                    Complot
   TO USE ALL OF THE SAME OPTIONS AS SPECIFIED IN EXAMPLE INPUT 1,    Complot
   EXCEPT TO RETRIEVE U-235, U-238 AND PU-239 THROUGH PU-242 THE      Complot
   FOLLOWING 12 INPUT LINES ARE REQUIRED.                             Complot
                                                                      Complot
      0.0       10.0      0.0     10.0              3          2      Complot
 ENDFB.IN1                                                            Complot
 ENDFB.IN2                                                            Complot
        1          1        0       -2              3          1      Complot
     0.01        0.0                                                  Complot
 ENDF/B-V DATA (STANDARD)                                             Complot
 ENDF/B-IV DATA                                                       Complot
92235 3  1 0.1            3  2 1000.0               0                 Complot
92238 3  1 0.1            3  2 1000.0               0                 Complot
94239 3  1 0.1      94242 3  2 1000.0               0                 Complot
                                  (TERMINATES REQUEST LIST)           Complot
                                  (TERMINATES EQUIVALENCE LIST)       Complot
   EXAMPLE INPUT 3                                                    Complot
   ---------------                                                    Complot
   TO USE ALL OF THE SAME OPTIONS AS SPECIFIED IN EXAMPLE INPUT 1,    Complot
   EXCEPT TO RETRIEVE AND COMPARE ALL MATS THE FOLLOWING 10 INPUT     Complot
   LINES ARE REQUIRED.                                                Complot
                                                                      Complot
      0.0       10.0      0.0     10.0              3          2      Complot
 ENDFB.IN1                                                            Complot
 ENDFB.IN2                                                            Complot
        0          1        0       -2              3          1      Complot
    0.01        0.0                                                   Complot
ENDF/B-V DATA (STANDARD)                                              Complot
ENDF/B-IV DATA                                                        Complot
   1 1  1 0.0       999999999 0.0                  0                 Complot
                                  (TERMINATES REQUEST LIST)           Complot
                                  (TERMINATES EQUIVALENCE LIST)       Complot
                                   NOTE, ZERO LOWER AND UPPER         Complot
                                   MAT LIMITS INDICATES NO LIMIT.     Complot
                                                                      Complot
   EXAMPLE INPUT 4                                                    Complot
   ---------------                                                    Complot
   RETRIEVE U-235 AND EQUATE THE FISSION CROSS SECTION (MT=18) ON     Complot
   THE MASTER FILE TO CAPTURE (MT=102) ON THE SECOND FILE. PLOT       Complot
```

```
   THE CAPTURE, FISSION AND CAPTURE TO FISSION RATIO OVER THE ENERGY  Complot
   RANGE 0.0253 EV TO 1 KEV. THE FOLLOWING 11 INPUT LINES ARE         Complot
   REQUIRED.                                                          Complot
                                                                      Complot
      0.0       10.0      0.0     10.0              3          2      Complot
 ENDFB.IN1                                                            Complot
 ENDFB.IN2                                                            Complot
        1          1        0       -2              3          1      Complot
     0.01        0.0                                                  Complot
 FISSION                                                              Complot
 CAPTURE                                                              Complot
92235 3 18 0.0253   92235 3 18 1000.0               0                 Complot
                                    (TERMINATES REQUEST LIST)         Complot
92235 3 18 92235 3102               (MULTIPLICATION OF 1.0 INFERRED)  Complot
                                    (TERMINATES EQUIVALENCE LIST)     Complot
                                                                      Complot
   EXAMPLE INPUT 5                                                    Complot
   ---------------                                                    Complot
   IN DIFFERENT VERSIONS OF THE ENDF/B FORMAT DIFFERENT MT NUMBERS    Complot
   ARE ASSIGNED TO THE SAME REACTION. FOR EXAMPLE, IN ENDF/B-V AND    Complot
   EARLIER VERSIONS OF ENDF/B THE PHOTOELECTRIC CROSS SECTION IS      Complot
   MT=602, WHILE IN ENDF/B-VI IT IS MT=522. IN ORDER TO COMPARE       Complot
   ASSUMING THAT THE MASTER IS ENDF/B-VI AND THE OTHER ENDF/B FILE    Complot
   IS ENDF/B-V (OR EARLIER) YOU MAY EQUATE MT=522 TO 602.             Complot
                                                                      Complot
   WHEN COMPARING PHOTOELECTRIC CROSS SECTIONS WE EXPECT THERE TO BE  Complot
   LARGE DIFFERENCES NEAR EDGES, SINCE IT IS UNLIKELY THAT TWO        Complot
   INDEPENDENT EVALUATIONS USE EXACTLY THE SAME EDGE ENERGIES. FROM   Complot
   A PRACTICAL VIEWPOINT THESE DIFFERENCES ARE NOT IMPORTANT IF THEY  Complot
   ONLY OCCUR OVER NARROW ENERGY RANGES NEAR ENERGIES. HOWEVER THESE  Complot
   LARGE DIFFERENCES MAY MAKE IT DIFFICULT TO SEE DIFFERENCES OVER    Complot
   OTHER ENERGY RANGES, WHICH MAY BE IMPORTANT. IN ORDER TO BE ABLE   Complot
   TO SEE IMPORTANT DIFFERENCES IN THE FOLLOWING COMPARISON WE WILL   Complot
   CONSTRAIN THE PLOTTED RATIO TO THE RANGE ABOUT 0.9 TO 1.1 IN       Complot
   ORDER TO BE ABLE TO SEE DIFFERENCES OF UP TO 10 PER-CENT. WE WILL  Complot
   DO THIS BY SPECIFYING A MAXIMUM RATIO OF 1.1, WHICH WILL IN TURN   Complot
   DEFINE A MINIMUM RATIO OF 1/1.1, OR ABOUT 0.9.                     Complot
                                                                      Complot
   IN ORDER TO COMPARE THE PHOTOELECTRIC CROSS SECTION FOR ALL        Complot
   MATERIALS THE FOLLOWING 11 INPUT LINES ARE REQUIRED.               Complot
                                                                      Complot
      0.0       10.0      0.0     10.0              3          2      Complot
 ENDFB.IN1                                                            Complot
 ENDFB.IN2                                                            Complot
        0          1        0       -2              3          1      Complot
     0.01        1.1                                                  Complot
ENDF/B-VI                                                             Complot
ENDF/B-V                                                              Complot
   023522           999923522                       0                 Complot
                                    (TERMINATES REQUEST LIST)         Complot
   023522     023602                (MULTIPLICATION OF 1.0 INFERRED)  Complot
                                    (TERMINATES EQUIVALENCE LIST)     Complot
                                                                      Complot
   EXAMPLE INPUT 6                                                    Complot
   ---------------                                                    Complot
   THE SAME EXAMPLE AS ABOVE, EXCEPT THAT DIFFERENT FILENAMES WILL    Complot
   BE USED TO READ THE DATA FROM A FILE TREE STRUCTURE. THE FOLLOWING Complot
   11 INPUT LINES ARE REQUIRED.                                       Complot
                                                                      Complot
      0.0       10.0      0.0     10.0              3          2      Complot
 /Evaluated/ENDFB6/PHOTON.IN                                          Complot
 /Evaluated/ENDFB5/PHOTON.IN                                          Complot
        0          1        0       -2              3          1      Complot
     0.01        1.1                                                  Complot
ENDF/B-VI                                                             Complot
ENDF/B-V                                                              Complot
   023522           999923522                       0                 Complot
                                    (TERMINATES REQUEST LIST)         Complot
   023522     023602                (MULTIPLICATION OF 1.0 INFERRED)  Complot
                                    (TERMINATES EQUIVALENCE LIST)     Complot
                                                                      Complot
```

```
     EXAMPLE INPUT 7                                                          Complot
     ---------------                                                          Complot
     THE OUTPUT FOR ALL OF THE ABOVE EXAMPLES ARE ORIENTED WITH X             Complot
     HORIZONTAL AND Y VERTICAL. TO CHANGE THE ORIENTATION OF THE PLOTS        Complot
     YOU NEED MERELY SPECIFY A NEGATIVE UPPER X LIMIT OF THE SIZE OF          Complot
     THE PLOTS ON THE FIRST INPUT LINE.                                       Complot
                                                                              Complot
     THE FOLLOWING EXAMPLE IS EXACTLY THE SAME AS THE ABOVE EXAMPLE,          Complot
     EXCEPT THAT THE ORIENTATION OF THE PLOTS HAS BEEN CHANGED. THE           Complot
     FOLLOWING 11 INPUT LINES ARE REQUIRED.                                   Complot
                                                                              Complot
       0.0      -10.0      0.0     10.0              3          2            Complot
  /Evaluated/ENDFB6/PHOTON.IN                                                 Complot
  /Evaluated/ENDFB5/PHOTON.IN                                                 Complot
         0          1         0       -2              3          1           Complot
      0.01        1.1                                                         Complot
 ENDF/B-VI                                                                    Complot
 ENDF/B-V                                                                     Complot
    023522            999923522                       0                      Complot
                                      (TERMINATES REQUEST LIST)               Complot
    023522     023602                 (MULTIPLICATION OF 1.0 INFERRED)        Complot
                                      (TERMINATES EQUIVALENCE LIST)           Complot
                                                                              Complot
===== PLOTTER/GRAPHICS TERMINAL INTERFACE ============================== Complot
                                                                              Complot
      NON-INTERACTIVE                                                         Complot
     ------------------------------------------------------------------------ Complot
      THIS PROGRAM USES A SIMPLE CALCOMP LIKE INTERFACE INVOLVING             Complot
      ONLY 5 SUBROUTINES,                                                     Complot
                                                                              Complot
      STARPLOT     - INITIALIZE PLOTTER                                       Complot
      NEXTPLOT     - CLEAR SCREEN FOR NEXT PLOT                               Complot
      ENDPLOTS     - TERMINATE PLOTTING                                       Complot
                                                                              Complot
      PLOT(X,Y,IPEN)        - DRAW OR MOVE FROM LAST LOCATION TO (X,Y),       Complot
                              END OF CURRENT PLOT OR END OF PLOTTING.         Complot
            IPEN =   2 - DRAW                                                 Complot
                 =   3 - MOVE                                                 Complot
                                                                              Complot
      PEN(IPEN)             - SELECT COLOR.                                   Complot
          IPEN- COLOR = 1 TO N (N = ANY POSITIVE INTEGER)                     Complot
                                                                              Complot
      BOXCOLOR(X,Y,IFILL,IBORDER) - FILL A RECTANGLE WITH COLOR               Complot
               X,Y                = DEFINE THE CORNERS OF THE BOX             Complot
                   IFILL          = COLOR TO FILL BOX WITH                    Complot
                         IBORDER  = COLOR OF BORDER OF BOX                    Complot
                                                                              Complot
      INTERACTIVE                                                             Complot
     ------------------------------------------------------------------------ Complot
      THIS PROGRAM INCLUDES AN INTERACTIVE INTERFACE FOR USE WITH A           Complot
      MOUSE. THE INTERFACE INVOLVES 2 SUBROUTINE,                             Complot
                                                                              Complot
      INTERACT(MYACTION)              - WHETHER OR NOT INTERACTION            Complot
               MYACTION               = 0 - NO (RETURNED BY INTERACT)         Complot
                                      = 1 - YES (RETURNED BY INTERACT)        Complot
                                                                              Complot
      MOUSEY(IWAY,XI,YI,IWAY1,IWAY2) - READ POSITION OF MOUSE                 Complot
                             IWAY    = 0 - NO INPUT                           Complot
                                     = 1 - LEFT BUTTON                        Complot
                                     = 2 - MIDDLE BUTTON                      Complot
                                     = 3 - RIGHT BUTTON                       Complot
                                     = 4 - KEYBOARD INPUT                     Complot
                             XI      = X POSITION IN LOCAL UNITS              Complot
                             YI      = Y POSITION IN LOCAL UNITS              Complot
                             IWAY1   = MINIMUM ALLOWABLE IWAY                 Complot
                             IWAY2   = MAXIMUM ALLOWABLE IWAY                 Complot
                                                                              Complot
     AS USED BY THIS PROGRAM IWAY1   = 1                                      Complot
                             IWAY2   = 4                                      Complot
     KEYBOARD INPUT (IWAY=4) MEANS NO ZOOMED PLOT REQUESTED.                  Complot
     MOUSE INPUT (IWAY=1 TO 3) MEANS A ZOOMED PLOT IS REQUESTED.              Complot
```

```
MOUSEY WILL BE CALLED ONCE TO SEE IF A ZOOMED PLOT IS REQUESTED.   Complot
IF IT IS XI WILL BE USED TO DEFINE ONE X (E.G., ENERGY) LIMIT OF   Complot
THE ZOOMED PLOT. MOUSEY WILL THEN BE CALLED A SECOND TIME TO       Complot
DEFINE A SECOND XI TO DEFINE THE OTHER X LIMIT OF THE ZOOMED       Complot
PLOT.                                                              Complot
                                                                   Complot
IF YOU DO NOT WANT INTERACTION YOU SHOULD INCLUDE THE FOLLOWING    Complot
SUBROUTINES IN YOUR GRAPHIC INTERFACE,                             Complot
                                                                   Complot
SUBROUTINE INTERACT(MYACTION)                                      Complot
MYACTION=0                                                         Complot
RETURN                                                             Complot
END                                                                Complot
SUBROUTINE MOUSEY(IWAY,XI,YI,IWAY1,IWAY2)                          Complot
IWAY=4                                                             Complot
XI=0.0                                                             Complot
YI=0.0                                                             Complot
RETURN                                                             Complot
END                                                                Complot
                                                                   Complot
ALTERNATIVE INTERACTIVE                                            Complot
------------------------------------------------------------------ Complot
IF YOU DO NOT HAVE A MOUSE BUT WOULD STILL LIKE TO INTERACTIVE     Complot
INPUT YOU CAN REPLACE SUBROUTINE ACTION IN THIS PROGRAM.           Complot
                                                                   Complot
AS DISTRIBUTED SUBROUTINE ACTION USES A MOUSE TO DEFINE LOWER      Complot
AND UPPER ENERGY (OR X) LIMITS WHICH ARE USED TO PRODUCE THE       Complot
NEXT PLOT. A CALL TO ACTION IS OF THE FORM,                        Complot
                                                                   Complot
CALL ACTION(KACTV,XACT1,XACT2)                                     Complot
                                                                   Complot
            KACTV   = 0 - NO INTERACTIVE INPUT                     Complot
                    = 1 - INTERACTIVE INPUT                        Complot
            XACT1   = LOWER ENERGY LIMIT                           Complot
            XACT2   = UPPER ENERGY LIMIT                           Complot
                                                                   Complot
IF THERE IS NO INTERACTIVE INPUT THE PROGRAM WILL PROCEED TO THE   Complot
NEXT PLOT REQUESTED BY NON-INTERACTIVE INPUT.                      Complot
                                                                   Complot
IF THERE IS INTERACTIVE INPUT THE PROGRAM WILL USE XACT1 AND       Complot
XACT2 TO DEFINE THE ENERGY LIMITS OF THE NEXT PLOT USING THE       Complot
SAME DATA AS APPEARED ON THE LAST PLOT. AS WITH NON-INTERACTIVE    Complot
INPUT, IF YOU SELECT AN ENERGY RANGE WHERE THE MAXIMUM DIFFERENCE  Complot
IS LESS THAN THAT SPECIFIED BY INPUT NO PLOT WILL BE PRODUCED      Complot
AND THE CODE WILL PROCEED TO THE NEXT PLOT REQUESTED BY            Complot
NON-INTERACTIVE INPUT.                                             Complot
                                                                   Complot
YOU CAN REPLACE SUBROUTINE ACTION FOLLOWING THE ABOVE CONVENTIONS  Complot
TO ALLOW INTERACTION VIA DIRECT READ OF X LIMITS, LIGHTPEN OR      Complot
WHATEVER FACILITIES YOU HAVE AVAILABLE.                            Complot
                                                                   Complot
INTERFACING                                                        Complot
------------------------------------------------------------------ Complot
IN ORDER TO INTERFACE THIS PROGRAM FOR USE ON ANY PLOTTER WHICH    Complot
DOES NOT USE THE ABOVE CONVENTIONS IT IS MERELY NECESSARY FOR THE  Complot
THE USER TO WRITE 5 SUBROUTINES DESCRIBED ABOVE AND TO THEN CALL   Complot
THE LOCAL EQUIVALENT ROUTINES.                                     Complot
                                                                   Complot
COLOR PLOTS                                                        Complot
------------------------------------------------------------------ Complot
TO SELECT PLOTTING COLORS SUBROUTINE PEN (DESCRIBED ABOVE) IS USED Complot
TO SELECT ONE OF THE AVAILABLE COLORS. WHEN RUNNING ON A MAINFRAME Complot
USING AN IBM GRAPHICS TERMINAL OR ON AN IBM-PC USING A HEWLETT-    Complot
PACKARD PLOTTER THE GRAPHICS INTERFACE (DESCRIBED ABOVE) WILL      Complot
PRODUCE COLOR PLOTS.                                               Complot
                                                                   Complot
BLACK AND WHITE PLOTS                                              Complot
------------------------------------------------------------------ Complot
WHEN PRODUCING BLACK AND WHITE HARDCOPY ON A MAINFRAME THE USER    Complot
SHOULD ADD A DUMMY SUBROUTINE PEN TO THE END OF THE PROGRAM TO     Complot
IGNORE ATTEMPTS TO CHANGE COLOR. ADD THE FOLLOWING SUBROUTINE,     Complot
```

```
                                                                      Complot
SUBROUTINE PEN(IPEN)                                                  Complot
RETURN                                                                Complot
END                                                                   Complot
                                                                      Complot
CHARACTER SET                                                         Complot
--------------------------------------------------------------------- Complot
THIS PROGRAM USES COMPUTER AND PLOTTER DEVICE INDEPENDENT SOFTWARE Complot
CHARACTERS. THIS PROGRAM COMES WITH A FILE THAT DEFINES THE PEN    Complot
STROKES REQUIRED TO DRAW ALL CHARACTERS ON AN IBM KEYBOARD (UPPER  Complot
AND LOWER CASE CHARACTERS, NUMBERS, ETC.) PLUS AN ALTERNATE SET OF Complot
ALL UPPER AND LOWER CASE GREEK CHARACTERS AND ADDITIONAL SPECIAL   Complot
SYMBOLS.                                                              Complot
                                                                      Complot
THE SOFTWARE CHARACTER TABLE CONTAINS X AND Y AND PEN POSITIONS TO Complot
DRAW EACH CHARACTER. IF YOU WISH TO DRAW ANY ADDITIONAL CHARACTERS Complot
OR TO MODIFY THE FONT OF THE EXISTING CHARACTERS YOU NEED ONLY     Complot
MODIFY THIS TABLE.                                                    Complot
                                                                      Complot
CONTROL CHARACTERS                                                    Complot
--------------------------------------------------------------------- Complot
IN THE SOFTWARE CHARACTER TABLE ALL CHARACTERS TO BE PLOTTED WILL  Complot
HAVE PEN POSITION = 2 (DRAW) OR = 3 (MOVE). IN ADDITION THE TABLE  Complot
CURRENTLY CONTAINS 4 CONTROL CHARACTERS,                              Complot
                                                                      Complot
PEN POSITION = 0                                                      Complot
----------------                                                      Complot
SHIFT THE NEXT PRINTED CHARACTER BY X AND Y. 3 CONTROL CHARACTERS  Complot
ARE PRESENTLY INCLUDED IN THE SOFTWARE CHARACTER TABLE TO ALLOW    Complot
SHIFTING.                                                             Complot
                                                                      Complot
{   = SHIFT UP (FOR SUPERSCRIPTS.............X= 0.0, Y= 0.5)      Complot
}   = SHIFT DOWN (FOR SUBSCRIPTS.............X= 0.0, Y=-0.5)      Complot
\   = SHIFT LEFT 1 CHARACTER (FOR BACKSPACE...X=-1.0, Y= 0.0)      Complot
                                                                      Complot
PEN POSITION =-1                                                      Complot
----------------                                                      Complot
SELECT THE NEXT PRINTED CHARACTER FROM THE ALTERNATE CHARACTER     Complot
SET. AT PRESENT THIS CONTROL CHARACTER IS,                            Complot
                                                                      Complot
]   = SWITCH TO ALTERNATE CHARACTER SET                               Complot
                                                                      Complot
THESE 4 CONTROL CHARACTERS ARE ONLY DEFINED BY THE VALUE OF THE    Complot
PEN POSITION IN THE SOFTWARE CHARACTER TABLE (I.E., THEY ARE NOT   Complot
HARD WIRED INTO THIS PROGRAM). AS SUCH BY MODIFYING THE SOFTWARE   Complot
CHARACTER TABLE THE USER HAS THE OPTION OF DEFINING ANY CONTROL    Complot
CHARACTERS TO MEET SPECIFIC NEEDS.                                    Complot
                                                                      Complot
THESE CHARACTERS MAY BE USED IN CHARACTER STRINGS TO PRODUCE       Complot
SPECIAL EFFECTS. FOR EXAMPLE, TO PLOT SUBSCRIPT 5, B, SUPERSCRIPT  Complot
10 USE THE STRING,                                                    Complot
                                                                      Complot
}5B{1{0                                                               Complot
                                                                      Complot
TO PLOT B, SUBSCRIPT 5 AND SUPERSCRIPT 10 WITH THE 5 DIRECTLY      Complot
BELOW THE 1 OF THE 10 WE CAN USE THE BACKSPACE CHARACTER TO        Complot
POSITION THE 1 DIRECTLY ABOVE THE 5 USING THE STRING,                 Complot
                                                                      Complot
B}5\{1{0                                                              Complot
                                                                      Complot
TO PLOT UPPER CASE GREEK GAMMA FOLLOWED BY THE WORD TOTAL (I.E.,   Complot
RESONANCE TOTAL WIDTH) USE THE STRING.                                Complot
                                                                      Complot
]G TOTAL                                                              Complot
                                                                      Complot
NOTE, WHEN THESE CONTROL CHARACTERS ARE USED THEY ONLY EFFECT THE  Complot
NEXT 1 PRINTED CHARACTER (SEE, ABOVE EXAMPLE OF PLOTTING SUPER-    Complot
SCRIPT 10 WHERE THE SHIFT UP CONTROL CHARACTER WAS USED BEFORE THE Complot
1 AND THEN AGAIN BEFORE THE 0 AND THE BACKSPACE AND SHIFT UP       Complot
CONTROL CHARACTERS WERE USED IN COMBINATION).                         Complot
                                                                      Complot
```

```
     IF THESE 4 CONTROL CHARACTERS ARE NOT AVAILABLE ON YOUR COMPUTER   Complot
     YOU CAN MODIFY THE SOFTWARE CHARACTER TABLE TO USE ANY OTHER 4     Complot
     CHARACTERS THAT YOU DO NOT NORMALLY USE IN CHARACTER STRINGS (FOR  Complot
     DETAILS SEE THE SOFTWARE CHARACTER TABLE).                         Complot
                                                                        Complot
     STANDARD/ALTERNATE CHARACTER SETS                                  Complot
     ------------------------------------------------------------------ Complot
     THE SOFTWARE CHARACTER TABLE CONTAINS 2 SETS OF CHARACTERS WHICH   Complot
     ARE A STANDARD SET (ALL CHARACTERS ON AN IBM KEYBOARD) AND AN      Complot
     ALTERNATE SET (UPPER AND LOWER CASE GREEK CHARACTERS AND SPECIAL   Complot
     CHARACTERS). TO DRAW A CHARACTER FROM THE ALTERNATE CHARACTER SET  Complot
     PUT A RIGHT BRACKET CHARACTER (]) BEFORE A CHARACTER (SEE THE      Complot
     ABOVE EXAMPLE AND THE SOFTWARE CHARACTER TABLE FOR DETAILS). THIS  Complot
     CONTROL CHARACTER WILL ONLY EFFECT THE NEXT 1 PLOTTED CHARACTER.   Complot
                                                                        Complot
     SUB AND SUPER SCRIPTS                                              Complot
     ------------------------------------------------------------------ Complot
     TO DRAW SUBSCRIPT PRECEED A CHARACTER BY }. TO DRAW SUPERSCRIPT    Complot
     PRECEED A CHARACTER BY { (SEE THE ABOVE EXAMPLE AND THE SOFTWARE   Complot
     CHARACTER TABLE FOR DETAILS). THESE CONTROL CHARACTER WILL ONLY    Complot
     EFFECT THE NEXT 1 PLOTTED CHARACTER.                               Complot
                                                                        Complot
     BACKSPACING                                                        Complot
     ------------------------------------------------------------------ Complot
     TO BACKSPACE ONE CHARACTER PRECEED A CHARACTER BY \ (SEE, THE      Complot
     ABOVE EXAMPLE AND THE SOFTWARE CHARACTER TABLE FOR DETAILS). THIS  Complot
     CONTROL CHARACTER WILL PERFORM A TRUE BACKSPACE AND WILL EFFECT    Complot
     ALL FOLLOWING CHARACTERS IN THE SAME CHARACTER STRING.             Complot
                                                                        Complot
     PLOT DIMENSIONS                                                    Complot
     ---------------                                                    Complot
     ARE DEFINED BY USER INPUT. INTERNALLY THE PROGRAM WILL CREATE A    Complot
     PLOT IN APPROXIMATELY A4 OR 8-1/2 BY 11 INCH FORMAT. DURING        Complot
     OUTPUT THE PLOT IS TRANSFORMED TO THE UNITS (INCHES, CENTIMETERS,  Complot
     MILLIMETERS, WHATEVER) OF THE PLOTTER BEING USED AND OUTPUT.       Complot
                                                                        Complot
===== PLOTTER/GRAPHICS TERMINAL INTERFACE ============================== Complot
======================================================================== Complot
```