```
====================================================================== Merger
                                                                       Merger
    PROGRAM MERGER                                                      Merger
    ==============                                                      Merger
    VERSION 80-1 (JANUARY 1980)                                        Merger
    VERSION 80-2 (DECEMBER 1980)                                       Merger
    VERSION 82-1 (JANUARY 1982)                                        Merger
    VERSION 83-1 (JANUARY 1983)*NEW, MORE COMPATIBLE I/O UNIT NUMBERS. Merger
    VERSION 85-1 (AUGUST 1985) *FORTRAN-77/H VERSION                   Merger
    VERSION 86-1 (JANUARY 1986)*ENDF/B-VI FORMATS                      Merger
    VERSION 88-1 (JULY 1988)   *OPTION...INTERNALLY DEFINE ALL I/O     Merger
                                FILE NAMES (SEE, SUBROUTINES FILIO1    Merger
                                AND FILIO2 FOR DETAILS).               Merger
                               *IMPROVED BASED ON USER COMMENTS.       Merger
    VERSION 89-1 (JANUARY 1989)*PSYCHOANALYZED BY PROGRAM FREUD TO     Merger
                                INSURE PROGRAM WILL NOT DO ANYTHING    Merger
                                CRAZY.                                 Merger
                               *UPDATED TO USE NEW PROGRAM CONVERT     Merger
                                KEYWORDS.                              Merger
                               *ADDED LIVERMORE CIVIC COMPILER         Merger
                                CONVENTIONS.                           Merger
    VERSION 92-1 (JANUARY 1992)*UPDATED BASED ON USER COMMENTS         Merger
                               *ADDED FORTRAN SAVE OPTION              Merger
    VERSION 92-2 (JULY 1992)   *ALLOW UP TO 99 ENDF/B DATA FILES.      Merger
                                (TO ALLOW MANAGEMENT OF THE ENTIRE     Merger
                                 ENDF/B SYSTEM).                       Merger
    VERSION 94-1 (JANUARY 1994)*VARIABLE ENDF/B DATA FILENAMES         Merger
                                TO ALLOW ACCESS TO FILE STRUCTURES     Merger
                                (WARNING - INPUT PARAMETER FORMAT      Merger
                                HAS BEEN CHANGED)                      Merger
                               *ONLY SPECIFY FILENAMES - NO UNIT       Merger
                                NUMBERS ON INPUT (WARNING - INPUT      Merger
                                PARAMETERS FORMAT HAS BEEN CHANGED)    Merger
                               *CLOSE ALL FILES BEFORE TERMINATING     Merger
                                (SEE, SUBROUTINE ENDIT)                Merger
                               *REQUEST LOG DELETED                    Merger
    VERSION 96-1 (JANUARY 1996) *COMPLETE RE-WRITE                     Merger
                                *IMPROVED COMPUTER INDEPENDENCE        Merger
                                *ALL DOUBLE PRECISION                  Merger
                                *ON SCREEN OUTPUT                      Merger
                                *UNIFORM TREATMENT OF ENDF/B I/O       Merger
                                *IMPROVED OUTPUT PRECISION             Merger
    VERSION 99-1 (MARCH 1999)   *GENERAL IMPROVEMENTS BASED ON         Merger
                                 USER FEEDBACK                         Merger
    VERS. 2000-1 (FEBRUARY 2000)*GENERAL IMPROVEMENTS BASED ON         Merger
                                 USER FEEDBACK                         Merger
    VERS. 2002-1 (MAY 2002)     *OPTIONAL INPUT PARAMETERS             Merger
    VERS. 2004-1 (MARCH 2004)   *ADDED INCLUDE TO DEFINE COMMON        Merger
                                *ADDED TEND LINE IF NO DATA RETRIEVED  Merger
    VERS. 2007-1 (JAN.  2007)   *CHECKED AGAINST ALL ENDF/B-VII.       Merger
    VERS. 2007-2 (JUNE  2007)   *UP, TO 1,000 ENDF/B FILES.            Merger
                                *72 CHARACTER FILE NAMES.              Merger
    VERS. 2010-1 (Apr.  2010)   *General update based on user feedback Merger
    VERS. 2012-1 (Aug.  2012)   *Added CODENAME                        Merger
                                *32 and 64 bit Compatible              Merger
                                *Added ERROR stop                      Merger
    VERS. 2015-1 (Jan.  2015)   *Replaced ALL 3 way IF Statements.     Merger
    VERS. 2017-1 (May   2017)   *Updated based on user feedbck.        Merger
                                                                       Merger
    OWNED, MAINTAINED AND DISTRIBUTED BY                               Merger
    ---------------------------------                                  Merger
    THE NUCLEAR DATA SECTION                                           Merger
    INTERNATIONAL ATOMIC ENERGY AGENCY                                 Merger
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P.O. BOX 100                                                    Merger
A-1400, VIENNA, AUSTRIA                                         Merger
EUROPE                                                          Merger
                                                                Merger
ORIGINALLY WRITTEN BY                                           Merger
-----------------------------------                             Merger
Dermott E. Cullen                                               Merger
                                                                Merger
PRESENT CONTACT INFORMATION                                     Merger
---------------------------                                     Merger
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                                                                Merger
AUTHORS MESSAGE                                                 Merger
--------------                                                  Merger
THE COMMENTS BELOW SHOULD BE CONSIDERED THE LATEST DOCUMENTATION Merger
FOR THIS PROGRAM INCLUDING ALL RECENT IMPROVEMENTS. PLEASE READ  Merger
ALL OF THESE COMMENTS BEFORE IMPLEMENTATION, PARTICULARLY THE    Merger
COMMENTS CONCERNING MACHINE DEPENDENT CODING.                   Merger
                                                                Merger
AT THE PRESENT TIME WE ARE ATTEMPTING TO DEVELOP A SET OF COMPUTER Merger
INDEPENDENT PROGRAMS THAT CAN EASILY BE IMPLEMENTED ON ANY ONE   Merger
OF A WIDE VARIETY OF COMPUTERS. IN ORDER TO ASSIST IN THIS PROJECT Merger
IT WOULD BE APPECIATED IF YOU WOULD NOTIFY THE AUTHOR OF ANY     Merger
COMPILER DIAGNOSTICS, OPERATING PROBLEMS OR SUGGESTIONS ON HOW TO Merger
IMPROVE THIS PROGRAM. HOPEFULLY, IN THIS WAY FUTURE VERSIONS OF  Merger
THIS PROGRAM WILL BE COMPLETELY COMPATIBLE FOR USE ON YOUR       Merger
COMPUTER.                                                       Merger
                                                                Merger
PURPOSE                                                         Merger
-------                                                         Merger
THIS PROGRAM IS DESIGNED TO SELECTIVELY RETRIEVE DATA OFF OF FROM Merger
1 TO 10 ENDF/B DATA TAPES AND TO MERGE THE SELECTED DATA INTO A  Merger
SINGLE MAT/MF/MT ORDERED FINAL OUTPUT FILE.                     Merger
                                                                Merger
IN THE DISCUSSION THAT FOLLOWS FOR SIMPLICITY THE ENDF/B        Merger
TERMINOLOGY---ENDF/B TAPE---WILL BE USED. IN FACT THE ACTUAL    Merger
MEDIUM USED MAY BE TAPE, CARD, DISK OR ANY OTHER MEDIUM.        Merger
                                                                Merger
ENDF/B FORMAT                                                   Merger
-------------                                                   Merger
THIS PROGRAM ONLY USES THE ENDF/B BCD OR CARD IMAGE FORMAT (AS   Merger
OPPOSED TO THE BINARY FORMAT) AND CAN HANDLE DATA IN ANY VERSION Merger
OF THE ENDF/B FORMAT (I.E., ENDF/B-I, II,III, IV OR V FORMAT).   Merger
                                                                Merger
THE ONLY NUMERICAL DATA THAT THIS PROGRAM READS IS THE ZA FROM THE Merger
FIRST CARD OF EACH SECTION AND THE MAT/MF/MT FROM EACH CARD.     Merger
SEQUENCE NUMBERS ARE IGNORED ON INPUT AND ALL OTHER FIELDS ARE   Merger
READ AS HOLLERITH. AS SUCH THIS PROGRAM NEED NOT DISTINGUISH     Merger
BETWEEN DIFFERENT VERSIONS OF THE ENDF/B FORMAT.               Merger
                                                                Merger
IT IS ASSUMED THAT THE DATA IS CORRECTLY CODED IN THE ENDF/B     Merger
FORMAT AND NO ERROR CHECKING IS PERFORMED. IN PARTICULAR IT IS   Merger
ASSUMED THAT THE MAT, MF AND MT ON EACH CARD IS CORRECT. SEQUENCE Merger
NUMBERS (COLUMNS 76-80) ARE IGNORED ON INPUT, BUT WILL BE        Merger
CORRECTLY OUTPUT ON ALL CARDS.                                  Merger
                                                                Merger
SECTION SIZE                                                    Merger
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          ------------                                          Merger
          SINCE THIS PROGRAM ONLY READS THE DATA ONE CARD AT A TIME THERE   Merger
          IS NO LIMIT TO THE SIZE OF ANY GIVEN SECTION, E.G. THE TOTAL      Merger
          CROSS SECTION MAY BE DESCRIBED BY 200,000 DATA POINTS.            Merger
                                                                  Merger
          SELECTION OF DATA                                       Merger
          -----------------                                       Merger
          THE USER MAY CHOOSE TO MERGE ALL DATA OR THE USER MAY SPECIFY     Merger
          THAT ONLY CERTAIN DATA SHOULD BE SELECTED. THE DATA TO BE         Merger
          SELECTED IS DEFINED BY SPECIFYING UP TO 100 MAT/MF/MT OR          Merger
          ZA/MF/MT RANGES. EACH RANGE IS DEFINED BY LOWER AND UPPER LIMITS  Merger
          OF MAT/MF/MT OR ZA/MF/MT.                               Merger
                                                                  Merger
          REQUEST LIMITS                                          Merger
          --------------                                          Merger
          IN ORDER TO SIMPLIFY THE INPUT OF SELECTION REQUESTS THE FOLLOWING Merger
          CONVENTIONS HAVE BEEN INTRODUCED IN ORDER TO DEFINE THE UPPER     Merger
          LIMITS OF REQUESTS IF THEY ARE NOT DEFINED BY INPUT (I.E., IF THEY Merger
          ARE ZERO).                                              Merger
                                                                  Merger
          (1) MAT OR ZA - IF THE UPPER LIMIT IS ZERO IT IS SET EQUAL TO THE  Merger
                          LOWER LIMIT.                            Merger
          (2) MF OR MT  - IF THE UPPER LIMIT IS ZERO IT IS SET EQUAL TO THE  Merger
                          MAXIMUM POSSIBLE VALUE, 99 OR 999 RESPECTIVELY.    Merger
                                                                  Merger
          WITH THESE CONVENTIONS AN ENTIRE EVALUATION MAY BE SELECTED BY     Merger
          MERELY SPECIFYING THE LOWER LIMIT OF MAT OR ZA. THE UPPER MAT OR   Merger
          ZA LIMIT WILL BE SET EQUAL TO THE LOWER LIMIT, THE LOWER LIMITS OF Merger
          MF/MT WILL BE 0/0 AND THE UPPER LIMITS OF MF/MT WILL BE SET TO     Merger
          99/999. THIS WILL CAUSE ALL SECTIONS OF A SINGLE EVALUATION TO BE  Merger
          SELECTED.                                               Merger
                                                                  Merger
          SATISFYING SELECTION CRITERIA                           Merger
          -----------------------------                           Merger
          IN ORDER FOR A SECTION TO MEET THE SELECTION CRITERIA SPECIFIED    Merger
          BY ONE OF THE RETRIEVAL REQUESTS, EACH OF THE THREE FIELDS (       Merger
          MAT/MF/MT OR ZA/MF/MT) MUST INDIVIDUALLY SATISFY THE CORRESPONDING Merger
          LIMITS OF THE REQUEST. IT IS NOT SUFFICIENT THAT THE MAT OF A      Merger
          SECTION LIE BETWEEN THE MINIMUM AND MAXIMUM MATS OF A REQUEST. THE Merger
          MF AND MT WILL ALSO BE INDIVIDUALLY COMPARED TO THE MF AND MT      Merger
          LIMITS OF THE REQUEST. FOR EXAMPLE, A SECTION WITH MAT/MF/MT=      Merger
          2500/3/2 DOES NOT SATISFY A REQUEST THAT SPECIFIES A REQUEST USING Merger
          THE RANGE 2000/3/1 THROUGH 3000/3/1. THIS REQUEST SPECIFIES ALL    Merger
          MATERIALS WITH MAT BETWEEN 2000 AND 3000, BUT ONLY THOSE SECTIONS  Merger
          WITH MF/MT=3/1. SIMILARLY A REQUEST FOR 2000/3/1 THROUGH 3000/99/  Merger
          999 WILL NOT SELECT ANY SECTIONS WITH MF=1 OR 2, SINCE THE         Merger
          REQUEST SPECIFIES ALL MATERIALS WITH MAT BETWEEN 2000 AND 3000,    Merger
          BUT ONLY THOSE SECTIONS WITH MF= 3, OR MORE.            Merger
                                                                  Merger
          DUPLICATE SECTIONS                                      Merger
          ------------------                                      Merger
          IF TWO OR MORE SECTIONS WITH THE SAME MAT/MF/MT ARE FOUND EITHER   Merger
          ON THE SAME OR DIFFERENT TAPES, THE SECTION FROM THE TAPE DEFINED  Merger
          EARLIEST IN THE INPUT CARDS WILL BE COPIED TO THE FINAL TAPE AND   Merger
          ALL OTHER SECTIONS WITH THE SAME MAT/MF/MT WILL BE SKIPPED. THE    Merger
          OUTPUT REPORT WILL INDICATE WHICH SECTIONS WERE COPIED FROM WHICH  Merger
          TAPES, AS WELL AS WHICH SECTIONS ARE DUPLICATE AND WERE SKIPPED.   Merger
                                                                  Merger
          REACTION INDEX                                          Merger
          --------------                                          Merger
          THIS PROGRAM DOES NOT UPDATE THE REACTION INDEX IN MF=1, MT=451.   Merger
          FOR EACH MATERIAL THE PROGRAM WILL FOLLOW THE CONVENTIONS          Merger
          DEFINED ABOVE AND ONLY COPY ONE SECTION MF=1, MT=451 AND SKIP      Merger
```

ALL OTHERS (IF MORE THAN ONE). THIS CONVENTION HAS BEEN ADOPTED
BECAUSE MOST USERS DO NOT REQUIRE A CORRECT REACTION INDEX FOR
THERE APPLICATIONS AND IT WAS NOT CONSIDERED WORTHWHILE TO INCLUDE
THE OVERHEAD OF CONSTRUCTING A CORRECT REACTION INDEX IN THIS
PROGRAM. HOWEVER, IF YOU REQUIRE A REACTION INDEX FOR YOUR
APPLICATION AFTER RUNNING THIS PROGRAM YOU MAY USE PROGRAM
DICTIN TO CREATE ONE.

RETRIEVAL STATISTICS

THERE WILL ALWAYS BE AN OUTPUT REPORT LISTING INDICATING WHICH
SECTIONS WHERE SELECTED, WHICH DUPLICATE SECTIONS WERE SKIPPED,
WHICH TAPE THE SECTION WAS ON, WHICH REQUEST (MAT/MF/MT OR
ZA/MF/MT RANGE) CAUSED THE SECTION TO BE SELECTED AND HOW MANY
CARDS WERE IN THE SECTION. IN ADDITION THE USER MAY OPTIONALLY
OBTAIN A FILE CONTAINING THE SAME INFORMATION. THIS FILE MAY BE
COMBINED WITH OTHER SIMILAR FILES OUTPUT BY THIS PROGRAM IN ORDER
TO ACCUMULATE RETRIEVAL STATISTICS OVER A PERIOD OF TIME. IF
SPECIFIED THIS FILE WILL CONTAIN THE FOLLOWING INFORMATION IN
6I7 FORMAT.

(1) ZA
(2) MAT
(3) MF
(4) MT
(5) NUMBER OF CARDS IN SECTION
(6) REQUEST NUMBER THAT CAUSED SECTION TO BE SELECTED

INPUT FILES

UNIT DESCRIPTION
---- -----------
  2   INPUT CARDS (BCD - 80 CHARACTERS/RECORD)
VARY FROM 1 TO 99 ENDF/B DATA FILES (BCD - 80 CHARACTERS/RECORD)

OUTPUT FILES

UNIT DESCRIPTION
---- -----------
  3   OUTPUT REPORT LISTING (BCD - 120 CHARACTERS/RECORD)
 10   MERGED ENDF/B DATA (BCD - 80 CHARACTERS/RECORD)

OPTIONAL STANDARD FILE NAMES (SEE SUBROUTINES FILIO1 AND FILIO2)

UNIT FILE NAME   DESCRIPTION
---- ---------- -----------
  2   MERGER.INP INPUT PARAMETERS
  3   MERGER.LST OUTPUT LISTING
 11   ENDFB.OUT   RETRIEVED ENDF/B DATA
 12   ENDFB.IN1   ENDF/B DATA TO READ...FILENAMES WILL BE DEFINED
 13   ENDFB.IN2   IN THE ORDER ENDFB.IN1, ENDFB.IN2,...ENDFB.I99
 14   ENDFB.IN3   CORRESPONDING TO THE FIRST, SECOND,...99-TH
 15   ENDFB.IN4   ENDF/B DATA FILE TO READ.
 16   ENDFB.IN5
 17   ENDFB.IN6
 18   ENDFB.IN7
        .
        .
110   ENDFB.I99

 INPUT CARDS

 CARD COLUMNS FORMAT DESCRIPTION

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 ----   -------   ------   -----------                              Merger
   1     1-72     A72      FILENAME FOR MERGED OUTPUT.              Merger
                           (LEAVE BLANK FOR STANDARD = ENDFB.OUT)  Merger
   2     1-66     16A4,A2  MERGED FILE LABEL                       Merger
                           IF BLANK - LABEL FROM FIRST FILE READ WILL Merger
                           BE OUTPUT                               Merger
         67-70    I4       MERGED FILE ENDF/B NUMBER               Merger
                           IF ZERO - NUMBER OF FIRST FILE READ WILL Merger
                           BE OUTPUT.                              Merger
         71-72    I2       RETRIEVAL CRITERIA                      Merger
                           = 0 - MAT/MF/MT RANGES                  Merger
                           = 1 - ZA/MF/MT RANGES                   Merger
 3-N     1-72     A72      FILENAME FOR FILE TO RETRIEVE DATA FROM Merger
                           (LEAVE BLANK FOR STANDARD..ENDFB.IN1,ETC.) Merger
                           TERMINATE LIST OF FILES WITH A LINE THAT Merger
                           SAYS END OR end                         Merger
 VARY    1- 6     I6       LOWER PRIMARY LIMIT (MAT OR ZA)         Merger
         7- 8     I2       LOWER MF LIMIT                          Merger
         9-11     I3       LOWER MT LIMIT                          Merger
        12-17     I6       UPPER PRIMARY LIMIT (MAT OR ZA)         Merger
        18-19     I2       UPPER MF LIMIT                          Merger
        20-22     I3       UPPER MT LIMIT                          Merger
                           RANGES OF MAT/MF/MT OR ZA/MF/MT TO BE   Merger
                           RETRIEVED ARE SPECIFIED BY DEFINING     Merger
                           ONE RANGE (LOWER AND UPPER LIMITS) PER  Merger
                           CARD. THE USER MAY SPECIFY 0 TO 100     Merger
                           RANGES AND THE LIST OF REQUEST RANGES   Merger
                           IS TERMINATED BY A BLANK CARD. IF       Merger
                           THE FIRST CARD IS BLANK (0 REQUESTS)    Merger
                           ALL DATA WILL BE RETRIEVED. IF THE UPPER Merger
                           PRIMARY CRITERIA (MAT OR ZA) IS LESS THAN Merger
                           THE LOWER PRIMARY CRITERIA, THE UPPER   Merger
                           PRIMARY CRITERIA WILL BE SET EQUAL TO   Merger
                           THE LOWER PRIMARY CRITERIA. IF THE UPPER Merger
                           MF OR MT LIMIT IS ZERO, OR BLANK, IT    Merger
                           WILL BE SET TO THE MAXIMUM POSSIBLE     Merger
                           VALUE, I.E. MF=99 OR MT=999 (SEE        Merger
                           EXAMPLE INPUT).                         Merger
                                                                   Merger
     EXAMPLE INPUT NO. 1                                           Merger
     -------------------                                           Merger
     MERGE ENDF/B DATA ONTO UNIT 10 FROM UNITS 11, 12, 13 AND 14.  Merger
     RETRIEVE DATA BY MAT NUMBER. RETRIEVE MATS 1103, 1106, ALL MATS Merger
     BETWEEN 1204 AND 1215, MF=1, 3, 4 AND 5 OF MAT 1219 AND MF=3, Merger
     MT=1 OF MAT 1304. USE STANDARD FILENAMES.                     Merger
                                                                   Merger
     THE FOLLOWING 13 INPUT CARDS ARE REQUIRED.                    Merger
                                                                   Merger
 ENDFB.OUT                                                         Merger
 EXAMPLE FILE LABEL FOR MERGER                             0 0     Merger
 ENDFB.IN1                                                         Merger
 ENDFB.IN2                                                         Merger
 ENDFB.IN3                                                         Merger
 ENDFB.IN4                                                         Merger
 END                                                               Merger
   1103                        4317  (UPPER LIMIT SET TO 1103/99/999) Merger
   1106                        4317  (UPPER LIMIT SET TO 1106/99/999) Merger
   1204        1215            4317  (UPPER LIMIT SET TO 1215/99/999) Merger
   1219 1      1219 1          4317  (UPPER LIMIT SET TO 1219/ 1/999) Merger
   1219 3      1219 5          4317  (UPPER LIMIT SET TO 1219/ 5/999) Merger
   1304 3  1   1304 3  1       4317  (UPPER LIMIT COMPLETELY DEFINED) Merger
                                     (BLANK CARD TERMINATES REQUESTS) Merger
                                                                   Merger
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  EXAMPLE INPUT NO. 2                                              Merger
  ------------------                                               Merger
  THE SAME AS EXAMPLE 1, EXCEPT SPECIFY FILENAMES                  Merger
                                                                   Merger
\ENDFB6\MERGED.LIB                                                 Merger
EXAMPLE FILE LABEL FOR MERGER                                0 0 Merger
ENDFB6.PART1                                                       Merger
ENDFB6.PART2                                                       Merger
ENDFB6.PART3                                                       Merger
ENDFB6.PART4                                                       Merger
END                                                                Merger
  1103                    4317  (UPPER LIMIT SET TO 1103/99/999) Merger
  1106                    4317  (UPPER LIMIT SET TO 1106/99/999) Merger
  1204      1215          4317  (UPPER LIMIT SET TO 1215/99/999) Merger
  1219 1    1219 1        4317  (UPPER LIMIT SET TO 1219/ 1/999) Merger
  1219 3    1219 5        4317  (UPPER LIMIT SET TO 1219/ 5/999) Merger
  1304 3  1 1304 3  1     4317  (UPPER LIMIT COMPLETELY DEFINED) Merger
                                (BLANK CARD TERMINATES REQUESTS) Merger
                                                                   Merger
============================================================= Merger
```