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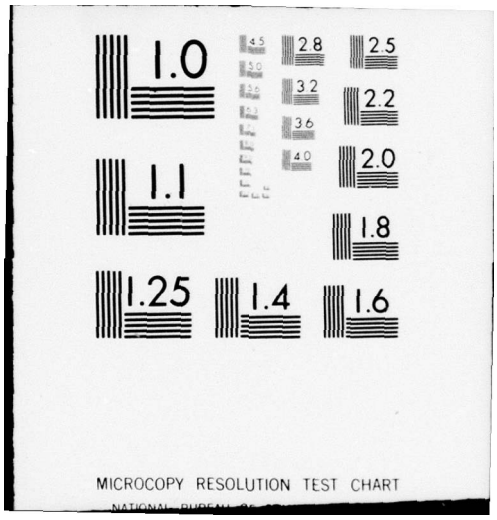
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TECHNICAL MEMORANDUM
TM 190-78
1 DECEMBER 1978

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LEVEL II

COMMAND & CONTROL TECHNICAL CENTER

DESCRIPTION OF THE CRD80 PROGRAM

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COMMAND AND CONTROL TECHNICAL CENTER

Technical Memorandum TM 190-78

1 December 1978

DESCRIPTION OF THE CRD80 PROGRAM

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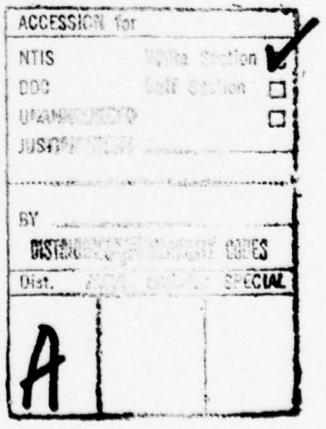

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ABSTRACT

This Technical Memorandum (TM) describes the CRD80 program. CRD80 is an interactive, time-sharing FORTRAN program for adding, deleting, changing, and moving 80-character card-image records on a file. CRD80 capabilities are described and user instructions are included.

SECTION 1. INTRODUCTION

This section contains a general description of the CRD80 program, its hardware and software requirements, and a list of pertinent reference material.

1.1 General Description

CRD80 is an interactive, time-sharing FORTRAN program which allows the user to modify an 80-character card-image BCD file. The file must be a permanent file resident in the users catalog. The file may consist of data input records or the source language statements of a program. CRD80 may be used to alter the content of any record on the file, to rearrange the order of the records on the file, to delete existing records from the file, and to add new reocrds to the file. Single records or contiguous blocks of records may be moved, added, or deleted by simple user commands input from a terminal: e.g., "d 10" (delete the tenth record). If the user does not know the relative positions of records on the file he wishes to modify, he may first use CRD80 to produce a file listing which will show the record number (relative location) of each record. He may then modify the file in a subsequent execution of CRD80.

The original file is not altered by CRD80 unless the user elects to resave the modified file with the same catalog name as the original file. The user may elect to save the modified file under another catalog name or simply elect to discard it. In either case, the original file is not altered.

When the user selects a record on the file to be modified, the record is displayed for inspection. After the modification, the updated record is displayed for user acceptance or rejection of the alteration. Modifications entered by the user do not alter the record number sequence of the input file. That is, if the user orders record 10 deleted and then wishes to change record 11, he enters "C 11" (change the 11th record), not "C 10." Assuming no other additions or deletions, record 11 on the old file will become record 10 on the new file, but, during CRD80 command entry phase, the record numbering of the file being modified remains constant. Before the user makes a decision concerning the disposition of the modified file or concerning the output options, he is afforded the opportunity to have any or all of the records on the new file displayed at the terminal.

The capabilities described above are discussed in more detail in the following sections. Additional capabilities of CRD80 are also described later. A source listing of CRD80 is included in the appendix.

1.2 Hardware

The CRD80 program requires the following minimum hardware items for successful execution:

a. HIS Series 60 (level 66)/6000 computer

b. Available core memory: 32K words

c. Sufficient disk space to accommodate, in addition to the permanent file to be modified, a temporary file requirement of 235 links.

d. One online or remote printer if hardcopy output is desired.

e. One VIP 7705 interactive remote terminal (use of another terminal may require coding modifications).

1.3 Support Software

The CRD80 program requires the following HIS software support package for successful operation.

a. General Comprehensive Operating Supervisor (GCOS)

b. Time-Sharing System (TSS)

c. Series 6000 TSS FORTRAN Compiler

d. General Macro Assembler Program (GMAP)

e. Series 6000 Time-sharing Applications Library, User Master Catalog Library/APPLIB

1.4 References

Information on the programming conventions used in CRD80 may be found in the following Honeywell Information System, Inc., manuals:

a. Honeywell Information Systems, Inc., FORTRAN, Order No. BF67, Rev. 1, Wellesley Hills, Mass., March 1973

b. Honeywell Information Systems, Inc., Time-Sharing System General Information Manual, Order No. DD22, Rev. 0, Wellesley Hills, Mass., April 1974

c. Honeywell Information Systems, Inc., Time-Sharing FORTRAN, Order No. BR70, Rev. 1, Wellesley Hills, Mass., February 1973

d. Honeywell Information Systems, Inc., TSS Programmer's Reference Manual, Order No. DD17, Rev. 0, March 1974

e. Honeywell Information Systems, Inc., Honeywell Time-Sharing Application Library Guide, Volume IV - Business and Finance, Order No. DA46, Rev. 1, June 1973.

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SECTION 2. USER INSTRUCTIONS

In this section examples of user-terminal dialog and accompanying explanatory text concerning the dialog are interspersed with other descriptive text. To avoid confusion, the user-terminal dialog is separated from other text by a series of asterisks: (***). Messages from the terminal to the user are in capital letters and underlined to distinguish them from the user responses. User responses are in lower case letters and not underlined. It should be understood when operating the terminal that the messages displayed are not actually underlined and may be in lower case letters. The message texts, however, are identical to those indicated in the following sections. All terminal dialog between the user and the terminal is left justified. Explanatory remarks concerning the dialog are offset to the right to distinguish them from the terminal messages and the user responses.

2.1 Logging On and Off the Terminal

The following procedures for logging on and off the terminal are system dependent.

To log on:

* * *

User logs onto terminal.

```
$*$log24,tss

USERID?
```

User enters his USERID and password.

```
674cdp09$password

IDENT?
```

User enters his identification.

```
1820513/30/4513,crd80
```

CLASSIFICATION OF YOUR OUTPUT?

User enters appropriate classification: UZZ,CZZ, SZZ,TZZ, etc.

uzz

CLASSIFICATION OF FILES YOU WILL CREATE?

User enters appropriate classification.

uzz

SYSTEM?

User enters his catalog file name for CRD80.

forty O 674idp00/csc/idagam/crd80

READY?
*

User enters run command. Since CRD80 references a routine on APPLIB, the file APPLIB must be referenced as a user random library. The r denotes read permission.

run = (ulib)library/applib,r

THIS PROGRAM ADDS, DELETES, CHANGES 80 CHARACTER RECORDS
ENTER THE CAT/FILE STRING OF THE RECORD FILE YOU WISH TO MODIFY

User enters the catalog file string for his file.

674idp00/csc/idagam/verfyy

If the file attachment is not successful, one of several messages similar to the following will appear:

NAME NOT IN MASTER CATALOG
FILE ATTACHMENT UNSUCCESSFUL. REASON UNKNOWN IF NOT STATED ABOVE.

ISTAT RETURNED = 000000004001
DO YOU WISH TO TERMINATE CRD80. PLEASE ANSWER YES OR NO

User does not wish to terminate CRD80.

n

ENTER THE CAT/FILE STRING OF THE RECORD FILE YOU WISH TO MODIFY

User enters the catalog file string for his file.

674idp00/csc/idagam/verfy1

CAT/FILE STRING OF YOUR INPUT FILE IS 674IDP00/CSC/IDAGAM/VERFY1

RECORD NUMBERS MUST BE WITHIN RANGE OF 1 TO 9999
THESE NUMBERS ARE THE POSITION OR LOCATION ON THE FILE
DO NOT USE MORE THAN 4 DIGITS FOR A RECORD NUMBER

RECORD IDENT MEANS THE FIRST 10 CHARACTERS ON A RECORD
WHEN THEY ARE USED TO INDICATE A SEQUENTIAL LOCATION
DO YOU WISH CRD80 TO MONITOR THE IDENT SEQUENCE? ENTER
--YES--IF YOUR FILE CONTAINS RI AND YOU WISH TO MONITOR THE IDENT SEQUENCE
--NO--IF THIS FILE DOES NOT HAVE RECORD IDENTS OR IF YOU WISH TO IGNORE ANY RECORD IDENTS IT MAY HAVE.

User file does not contain record idents.

n

If y had been entered, CRD80 would check the new file to ensure that the records were in ascending sequence according to the first 10 characters on the records. Discrepancies would be marked on the printer copy with "SEQ" or "DUPL" indicating a record not in sequence or a record whose ident was a duplicate of the preceding record, respectively.

* * * *

The program will then read the input file and modify it according to user commands which will be described later.

When the modification is completed or the user elects to terminate CRD80, the user logs off as follows:

* * * *

User calls system.

syst

SYSTEM?

User logs off.

bye

* * * *

2.2 User Command Menu

The User Command Menu in CRD80 is displayed in two formats: (1) the tutorial menu in which detailed response instructions are displayed for each command and (2) a short menu containing only the first character of a command entry. The tutorial menu is initially displayed and thereafter is displayed only if the user enters an incorrect command. The user does not have to call for the command menu. Immediately after the input file has been read and the number of records on it has been reported to the user, the command menu will appear. It will reappear in either tutorial or short form following execution of any command except the command signifying there is no more command input and the command to terminate the program. The tutorial form of the command menu is shown below.

* * * *

ENTER ONE OF FOLLOWING RESPONSES AS LETTER, SPACE, NUMBER

ENTER ONE CHARACTER	THEN ENTER ONE SPACE OR COMMA	THEN ENTER ONE NUMBER
R .... READ A RECORD	NUMBER OF A RECORD ON OLD FILE	
A .... ADD A RECORD	NUMBER OF A RECORD ON OLD FILE AFTER WHICH THIS NEW RECORD IS TO BE INSERTED. ENTER NUMBER 0 IF RECORD WILL PRECEDE ALL OLD	
C .... CHANGE A RECORD	NUMBER OF A RECORD ON OLD FILE WHICH YOU MAY WISH TO CHANGE	

```
D .... DELETE A RECORD    NUMBER OF A RECORD ON OLD FILE
E .... END OF MY INPUT    ENTER NUMBER 0
       EXECUTE NOW
S .... STATUS REPORT      ENTER NUMBER 0
T .... TERMINATE CRD80    ENTER NUMBER 9--FILE UNCHANGED.
```

User wishes to look at second record.

```
r 2
```

* * * *

The short form of the command menu is shown in the following user-terminal dialog.

* * * *

```
NEXT R,A,C,D,E,S,T COMMAND?
```

User wishes to terminate CRD80 execution.

```
t,9
```

Note that this response uses a comma instead of a space to separate the letter and the number. Either may be used.

```
CRD80 PROGRAM TERMINATED
```

* * * *

The remainder of this section describes the procedures, starting with the command menu, to accomplish the various types of file modifications possible with CRD80. In all instances where data entries in a record are required, CRD80 will display header lines containing card column markings to enable the user to make the entry in the correct column position of the record. Partial column marking header lines are shown below over an example of a record.

* * * *

```
        1         2         3...7         8
12345678901234567890123456789O....01234567890
THIS IS A SAMPLE RECORD
```

* * * *

It should be noted that file modifications can be made in any record order desired. That is, record 7 can be changed, then record 2 deleted, then a record added after record 15, etc. However, more efficient execution results if modifications are made in ascending sequence of record numbers.

2.2.1 Adding a Record or a Block of Records. The procedures for adding a single record and for adding a contiguous block of records is shown in this subsection. Records may be inserted anywhere in the file. Records may also be added after the last record in the old file. By using record number 0, records may be added ahead of the initial record in the old file.

* * * *

NEXT R,A,C,D,E,S,T COMMAND?

User wishes to insert two new records following the third record in the file.

a,3

HOW MANY RECORDS --- UP TO 7 -- DO YOU WISH TO ADD AFTER RECORD NUMBER 3?? ENTER A NUMBER FROM 1 TO 7. IF YOU DO NOT WISH TO ADD ANY RECORDS AFTER RECORD 3 ENTER 0.

User wishes to add two new records which will follow record 3 in the modified file in the order in which he will enter them.

2

WHEN CARD COLUMN MARKING GUIDE APPEARS ENTER NEW RECORD WHICH WILL BE ADDED AFTER RECORD 3.
DO NOT ENTER MORE THAN 2 RECORDS

```
         1         2
01234567890123456789012345....etc.
```

User enters new records to be added.

this is first new record
this is second new record

```
          1         2
01234567890123456789012345....etc.
THIS IS FIRST NEW RECORD
THIS IS SECOND NEW RECORD
ARE THE ABOVE 2 RECORDS TO BE ADDED AFTER RECORD 3 AS A
CONSECUTIVE BLOCK CORRECT??  Y--YES, N--NO.
```

User responds that entries are correct. If the user had entered n, the short command menu would be displayed.

```
Y
```

* * * *

2.2.2 Deleting a Record or Block of Records. The procedures for deleting a single record and for deleting a contiguous block of records are shown in this subsection.

* * * *

```
NEXT R,A,C,D,E,S,T COMMAND?
```

User wishes to omit the fifth and sixth records of the old file from the new, modified file.

```
d 5

          1         2
01234567890123456789012345....etc.
THE FIFTH RECORD IN THE OLD FILE

WHAT'S TO BE DONE WITH THIS RECORD--NUMBER 5--??
ENTER ONLY ONE OF THE FOLLOWING CHARACTERS
C--CHANGE IT
D--DELETE IT---SINGLE RECORD DELETE
DB--DELETE CONSECUTIVE BLOCK OF RECORDS WITH THIS
    BEING FIRST RECORD OF THE BLOCK OF RECORDS
M--MOVE IT---SINGLE RECORD MOVE
B--BLOCK MOVE OF MORE THAN ONE CONSECUTIVE RECORD WITH THIS
   BEING THE BEGINNING RECORD OF THE BLOCK OF RECORDS
R--RETURN IT UNCHANGED
```

User wishes to delete a block of two records.

db

If user had wished to delete only record 5, he would have entered d and the short command menu would have been displayed. Entering an r would also have returned the user to the command menu display.

FIRST RECORD NUMBER OF BLOCK TO BE DELETED IS 5
ENTER RECORD NUMBER OF LAST RECORD IN BLOCK TO BE DELETED

User wishes to delete records 5 and 6.

6

THIS IS SIXTH RECORD IN THE OLD FILE (sample record)
THIS IS LAST RECORD 6 OF BLOCK BEGINNING WITH
RECORD 5 DO YOU WISH TO DELETE THIS BLOCK Y--YES, N--NO.

User confirms deletion of records 5 and 6.

Y

If n had been entered, user would be assured block would not be deleted and the short command menu would have been displayed.

* * * *

2.2.3 Changing a Record or Changing and Then Moving a Record. The procedures for changing a single record and for moving (or relocating) a record that has been changed are described in this subsection. Only single records (no blocks) may be changed or changed and moved.

* * * *

NEXT R,A,C,D,E,S,T COMMAND?

User wishes to change record 7

c,7

WHEN OLD RECORD 7 IS SHOWN
ENTER THE COMPLETE CHANGED RECORD
1 2
01234567890123456789012 34....etc.
RECORD SEVEN IS IN ERRORRRR AND NOT CORRECT

User corrects the error in record 7 by entering initial character of record and overwriting any characters to be changed. The cursor is simply moved over correct characters until it passes the end of the record entry. Characters are deleted by spacing over them.

Record 7 was in error and is now correct.

RECORD SEVEN WAS IN ERROR AND IS NOW CORRECT
IS ABOVE RECORD ENTRY CORRECT? ENTER ONLY ONE LETTER
N---NO, NOT CORRECT
Y---YES, CORRECT
M---RECORD ENTRY IS CORRECT AND NOW I WISH TO MOVE IT

User wishes to move record.

m

If user had responded with n, he would have been shown the old record again and the process repeated. If y had been entered, the short command menu would then be displayed.

ENTER NUMBER OF A RECORD ON OLD FILE AFTER WHICH THIS CHANGED RECORD 7 IS TO BE INSERTED. ENTER NUMBER 0 IF THIS RECORD WILL PRECEDE ALL THE RECORDS ON THE OLD FILE.

User wishes changed record 7 to follow record 8.

8

The short command menu is then displayed.

* * * *

2.2.4 Moving a Record or Block of Records. The procedures for moving a record or a block of records are described in this subsection.

* * * *

```
NEXT R,A,C,D,E,S,T COMMAND?
```

User wishes to move a block of three records beginning with record 10 (records 10, 11, and 12) to a position in the file after record 20. First, he reads record 10 to be sure that it is the correct starting record for the block.

```
r 10

          1         2
01234567890123456789012345...etc.
10.222  AAA  TENTH RECORD 10

WHAT'S TO BE DONE WITH THIS RECORD -- NUMBER 10 -- ?
ENTER ONLY ONE OF THE FOLLOWING CHARACTERS
C -- CHANGE IT
D -- DELETE IT --- SINGLE RECORD DELETE
DB -- DELETE CONSECUTIVE BLOCK OF RECORDS WITH THIS
      BEING FIRST RECORD OF THE BLOCK OF RECORDS
M -- MOVE IT --- SINGLE RECORD MOVE
B -- BLOCK MOVE OF MORE THAN ONE CONSECUTIVE RECORD WITH
     THIS BEING THE BEGINNING RECORD OF THE BLOCK OF RECORDS
R -- RETURN IT UNCHANGED
```

User wishes to move a block of records beginning with this record.

```
b
```

If user had wanted to move only record 10, he would have entered an m. He would then be asked for the record number which this record would follow. The short command menu then would be displayed.

```
FIRST RECORD NUMBER OF BLOCK TO BE MOVED IS 10
ENTER LAST RECORD NUMBER OF BLOCK, THEN ENTER COMMA OR SPACE
ENTER RECORD NUMBER OF A RECORD NOW ON OLD FILE WHICH THIS
BLOCK OF CONSECUTIVE RECORDS WILL FOLLOW ON NEW FILE
EXAMPLE  IF FIRST RECORD WAS 7, ENTER 10,35 AND RECORDS
          7,8,9,10 WILL FOLLOW RECORD 35 ON NEW FILE
```

User enters number of last record in block to be moved and enters a 20 since he wants records 10, 11, and 12 to follow record 20.

```
12,20
```

The short command menu is then displayed.

* * * *

2.2.5 Reading a Record. The procedure for reading a record on the old file is described in this subsection. This capability enables the user to verify that the records on the file he is reading correspond in location and content to those printed from a previous listing of the file. It also enables a user to look at any record on a file which he may want to examine to identify its contents but not necessarily to modify.

* * * *

```
NEXT R,A,C,D,E,S,T COMMAND?
```

User wishes to see first record.

```
r 1

          1         2
01234567890123456789012345....etc.
CPREP1    IDAGAM II PREPROCESSOR PROGRAM

WHAT'S TO BE DONE WITH THIS RECORD -- NUMBER 1 --??
ENTER ONLY ONE OF THE FOLLOWING CHARACTERS
C -- CHANGE IT
D -- DELETE IT --- SINGLE RECORD DELETE
DB -- DELETE CONSECUTIVE BLOCK OF RECORDS WITH THIS
      BEING FIRST RECORD OF THE BLOCK OF RECORDS
M -- MOVE IT --- SINGLE RECORD MOVE
B -- BLOCK MOVE OF MORE THAN ONE CONSECUTIVE RECORD WITH THIS
     BEING THE BEGINNING RECORD OF THE BLOCK OF RECORDS
R -- RETURN IT UNCHANGED
```

User does not wish to modify record.

```
r
```

Record will not be modified, relocated, or deleted. The short command menu is then displayed.

* * * *

This example illustrates the use of CRD80 to examine the content of a file. The first record indicates that the file contains a computer program called PREP1. CRD80 may be used to alter the coding in this program. If no alteration is desired when the short command menu is displayed, the user should enter the terminate command. In altering any file, the user should be aware that CRD80, as presently coded, will write the modified file in BCD. If an ASCII file is processed by CRD80, the user must perform a BCDASC conversion on the modified file after CRD80 has terminated.

2.2.6 Executing All Modifications Ordered. The procedure for executing the modifications to the file ordered by the user is described in this subsection. This procedure does not alter the old file in any way. The necessary data to accomplish the creation of a new, modified file are stored in internal areas in CRD80. The command to execute informs the program that there will be no more modification input from the user. Therefore, the user command menu will no longer be displayed and the program will begin creating the new file, using temporary files, based on the modifications already ordered. The new file may later be saved on a permanent file, resaved with the same catalog file string as the old file (in which case the contents of the old file are replaced with those of the new file), or the new file may be discarded.

* * * *

NEXT R,A,C,D,E,S,T COMMAND?

User has no more modifications to make to the file and wishes to build the new file.

e 0

NNNN CARDS HAVE BEEN PROCESSED

After each group of 50 records has been processed, this message will be displayed indicating the cumulative number (NNNN) of records processed. Additional messages displayed during program execution are described in section 3.

* * * *

2.2.7 Terminating Program Execution. The procedure for terminating the CRD80 program is described in this subsection. As discussed in subsection 2.1, if the user is unable to attach the file he wishes to modify, he may elect to terminate the program at that point. During the file modification process (but prior to commanding execution of the modifications ordered), he may terminate the program as previously shown in subsection 2.2 using the terminate command from the user command menu. Reasons for terminating might include the following: user belatedly realizes he has the wrong file; user discovers he has made unwanted modifications; user receives a warning the system is going down before he can complete the file update session. Regardless of termination reason, once the terminate command is entered, all modifications made are lost.

* * * *

NEXT R,A,C,D,E,S,T COMMAND?

User wishes to terminate CRD80.

t 9

CRD80 PROGRAM TERMINATED

All files are removed from the users available file table (AFT) and program execution stops.

* * * *

2.2.8 Requesting Status of Record Modifications. The procedures for requesting the status of record modifications is described in this subsection. It is possible, in making a great number of modifications, that a user may not recall which record was last altered in proceeding through a large file. The status report alleviates this problem by displaying the last records, if any, which have been placed in the add, change, or delete storage areas as a result of an add, change, or delete record command.

* * * *

NEXT R,A,C,D,E,S,T COMMAND?

User requests a status report.

s,0

RECORD FOLLOWING 6 LAST OF 2 IN ADD BUFFER
1034 MICHAEL STREET, ARLINGTON, VA.

The above record was added following record 6 and is the last of two records which so far have been ordered added to the old file.

NO RECORDS IN CHANGE BUFFER

The user has not ordered any changes to any existing records on the old file.

RECORD 12 LAST OF 4 RECORDS IN DELETE BUFFER
3822 RAPHAEL STREET, FALLS CHURCH, VA.

The user has, thus far, ordered four records deleted from the old file, the last one being record 12.

IF MOVE WAS LAST ENTRY, SAME RECORD IN ADD AND DELETE BUFFER

If the users last command had been a move record command, the records displayed as the last records in the add and delete buffer would be identical. In the example shown, the records are not the same. If the user has been changing his file by proceeding in ascending sequence of record numbers from the beginning of the file, the above status report would indicate he has made six changes to the file, the last being a command to delete record 12.

TRANSMIT A SPACE TO RESUME

User depresses space bar and then depresses transmit key to resume program execution.

space,transmit

* * * *

SECTION 3. PROGRAM EXECUTION

This section contains the user-terminal dialog which occurs after the user has entered the execute command.

3.1 General

When the user finishes with file modification input and enters the execute command, the user command menu is no longer displayed. CRD80 begins processing those file modifications which have already been ordered. The altered file is constructed on a temporary file using: (1) records read from the old file, and (2) data previously entered by user commands and stored in CRD80 storage areas. The terminal messages displayed during this process are shown in the following subsections with the user responses. The user-terminal dialog is presented in the same sequence that occurs during program execution.

3.2 File Processing Messages

* * * *

NNNN CARDS HAVE BEEN PROCESSED
NUMBER OF CARDS READ FROM OLD INPUT FILE IS NNNN
TRANSMIT A SPACE TO RESUME

space,transmit

* * * *

3.3 Print Heading Label Message

* * * *

IF YOU INTEND TO SAVE OUTPUT ON A NEW FILE, ENTER THE NEW CAT/FILE STRING -- MAX 30 CHARACTERS -- OR ENTER -- SAME -- IF OUTPUT WILL BE RESAVED UNDER SAME CAT/FILE STRING AS OLD INPUT FILE

User elects to save the newly modified file.

674idp00/csc/idagam/newf

If user had entered "same", the newly modified file would have been resaved on the same catalog file string as the old file, thus replacing the contents of the old file with the contents of the modified file. This cat/file string will appear on any printer output. The user later has the opportunity to change the file disposition after viewing the new file.

* * * *

3.4 File Inspection Message

* * * *

DO YOU WISH TO SEE ANY RECORDS ON YOUR NEW FILE, YES OR NO

User wishes to examine file.

Y

TO SEE SEGMENT OF THE FILE, ENTER THE STARTING RECORD NUMBER
FOLLOWED BY THE ENDING RECORD NUMBER FOR THE SEGMENT

EXAMPLE RESULT
10 12 *RECORDS 10, 11, 12 DISPLAYED*
10,10 RECORD 10 DISPLAYED
ENTER FIRST AND LAST RECORD NUMBERS
ENTER '0,0' WHEN YOU HAVE COMPLETED VIEWING THE NEW FILE

User wishes to see first two records.

1 2

THIS IS RECORD ONE
THIS IS RECORD TWO

TRANSMIT A SPACE TO RESUME

space,transmit

ENTER FIRST AND LAST RECORD NUMBERS
ENTER '0,0' WHEN YOU HAVE COMPLETED VIEWING THE NEW FILE

User does not wish to see more records.

0,0

NNNN CARDS PROCESSED FROM ASCII TO BCD
NUMBER OF RECORDS WRITTEN TO NEW ASCBCD FILE IS NNNN
TRANSMIT A SPACE TO RESUME

space,transmit

* * * *

3.5 Print/Display Options Messages

* * * *

DO YOU WANT A PRINTED COPY OF FILE? --YES--OR--NO--

User wants a printer copy of file.

Y

If the user had entered no, the print options menu below would not be displayed.

ENTER ONE OF THE NUMBERS BELOW TO SHOW PRINTER SELECTED			
1	PRINT AT SAGA	- AT -	UNCLASSIFIED FILES ONLY
2	PRINT AT F-SITE	- BH -	
3	PRINT AT MAIN SITE	- -	
4	PRINT ELSEWHERE	-??-	USER MUST KNOW THE TWO CHARACTER STATION CODE

User elects to use SAGA printer.

1

COPY YOUR SNUMB
3333T
TRANSMIT A SPACE TO RESUME

space,transmit

* * * *

3.6 File Disposition Options Menu

* * * *

```
WHAT DO YOU WISH TO DO WITH THE FILES?
ENTER ONE RESPONSE          FOR ACTION SHOWN BELOW
QUIT OR Q                   DISCARD THE NEW CHANGED FILE
RESAVE OR R                 RESAVE ONLY THE NEW FILE, NOT OLD
                            WARNING -- OLD FILE WILL BE LOST
SAVE OR S                   SAVE BOTH NEW AND OLD FILES
```

User wishes to save both files.

```
s
```

```
IS THE CAT/FILE STRING FOR YOUR NEW FILE CORRECT AS SHOWN?
674IDP00/CSC/IDAGAM/NEWF  THIS IS DESCRIPTION ON YOUR PRINT
COPY    ANSWER  Y--YES, CORRECT,  N--NO, NOT CORRECT
```

User realizes the file name is wrong.

```
n
```

If y entered, the next message would not appear.

```
ENTER NEW CAT/FILE STRING FOR NEW FILE
```

User enters correct cat/file string.

```
674idp00/csc/idagam/newer
```

User should note this correction on the printer copy when it is received.

```
NEW DATA FILE SAVED  674IDP00/CSC/IDAGAM/NEWER
CRD80 PROGRAM HAS COMPLETED.  NORMAL EXIT
```

User files have been removed from AFT. User then logs off unless he has another file to process with CRD80.

* * * *

SECTION 4. PROGRAM LIMITS AND EXCEPTION MESSAGES

This section describes the program limits in CRD80 and explains the terminal messages displayed in exceptional circumstances when normal program execution has been interrupted by a user error.

4.1 Program Limits

CRD80 is limited to use on files with fewer than 10,000 card-image records. Storage areas to hold file modification commands are currently programmed for a maximum of 200 records. In any one execution, CRD80 will accept 200 record changes, 200 record additions, and 200 record deletions. Record relocation move commands decrease the available storage in both the add and delete storage areas. Thus, if 200 records were changed, 150 records deleted and 175 records added, only 25 records could be relocated in the file since there are already 175 records in the add storage area. If any of the modification limits are exceeded, the program will not terminate, but the user is warned that the modification will not be made. Should this occur, the user should save the new file, run CRD80 again using the new file as input, order the excess modifications to be made, and then resave the newest file on the former new file. Unless the user is confident of record locations in the file, however, it is advisable to wait until a printer copy of the output from the first execution is available. Changes do not affect record numbering but additions, deletions, and moves will alter the relative location of records in the file. If a file contains 10,000 or more records, CRD80 will display a message to the user and then terminate.

4.2 Exception Messages

Exception messages will be displayed when the normal execution of the program cannot proceed because of user response errors or because the program limits have been exceeded. Messages following any illegal user entry are self-explanatory, and the correct user responses are self-evident. For this reason, and because they do not contribute to the user's understanding of CRD80, they are not included in this publication. Generally, if a user answers a query and the query is displayed again, the user did not make a legal response. The unsuccessful file attachment message is shown in subsection 2.1.

* * * *

FILE EXCEEDS 9999 RECORDS. CRD80 TERMINATING
CRD80 TERMINATED

The input file exceeds program limits.

NNNNN IS AN ILLEGAL RECORD NUMBER, MAX IS NNNN. TRY AGAIN.

There is no record on the input file with a relative location number of the magnitude requested.

CHANGE ENTRY LIMIT IS EXCEEDED. CHANGE WILL NOT BE MADE.

User has attempted to make a record change which exceeds the program limit. Change is not accepted and user command menu is displayed.

ADD ENTRY LIMIT EXCEEDED. RECORD BLOCK NOT ADDED.

User has attempted to add a record, but the entry would exceed the program limit. Record will not be added and user command menu will be displayed.

RECORD CANNOT BE MOVED. ADD OR DELETE BUFFER FILLED.

User has ordered a record relocated, but move would exceed program limit. Record will not be moved and user command menu will be displayed.

NNN AND NN ILLEGAL FOR BLOCK RECORDS MOVE. LAST RECORD NUMBER OF BLOCK NN NOT LARGER THAN FIRST NNN

User has specified a block record move with an entry such that the last record in the block has a smaller number than the first. User is then queried concerning disposition of first record as shown in subsection 2.2.5.

NNNN ILLEGAL. MINIMUM IS 0, MAXIMUM IS NNN.

User has specified a block record move with an entry for the record number which the block will follow in the file which is either negative or exceeds the maximum number of records on the file. User is then queried concerning disposition of first record as shown in subsection 2.2.5.

N RECORDS IN THIS BLOCK. REMAINING STORAGE IN THE ADD OR DELETE BUFFERS INSUFFICIENT. BLOCK CANNOT BE MOVED.

User has specified a block record move containing more records in the block than can be accommodated without exceeding program limits. No records will be moved, and user will be queried concerning disposition of first record as shown in subsection 2.2.5.

N OR NNNN ILLEGAL. MINIMUM IS 1, MAXIMUM NNN.

User has ordered a block of records deleted but the ending record number does not correspond to a record number on the file. No deletions are made, and user will be queried concerning disposition of first record as shown in subsection 2.2.5.

NNN AND NN ILLEGAL FOR BLOCK DELETE

User has entered a record number for the last record in the block which is not greater than the number of the beginning record. No deletions are made, and user will be queried concerning disposition of first record as shown in subsection 2.2.5.

N RECORDS IN BLOCK. REMAINING STORAGE IN DELETE BUFFER INSUFFICIENT. BLOCK DELETE CANNOT BE MADE.

User has ordered a block of records deleted. The number of records in the block would cause program limits to be exceeded. The block will not be deleted. User is then queried concerning disposition of first record in block as shown in subsection 2.2.5.

FIRST NUMBER GREATER THAN SECOND

User has requested to see a segment of the new file, but the record number of the last record in the segment is smaller than the number of the first record. User instructions for viewing a segment are displayed and user is again asked to respond.

NN AND NN ARE ILLEGAL. NUMBER MUST BE IN RANGE 1 TO N

User has requested to see records whose numbers are not included in the number range of records written to the new file.

ENTER TWO CHARACTER STATION CODE. IF YOU DO NOT KNOW PROPER CODE ENTER --NN-- YOU WILL HAVE ANOTHER CHOICE.

This message will be displayed if a user requests a remote printer whose station code is not included in the printer options menu. User may either enter the station code or NN. If NN entered, the printer options menu will again be displayed.

SECTION 5. CONCLUSION

CRD80 was developed to provide a simple, efficient method for correcting or updating large data files. Its use does not require the caution or expertise required by the time-sharing text editor subsystem or the use of batch mode processing requiring card punching and knowledge of record and control cards. Consequently, a nonprogrammer analyst can quickly and accurately correct or update a data file. It is impossible to destroy the original input file inadvertently. Since all modifications entered by the user are displayed for his approval or rejection and he is afforded a final review before deciding on file disposition, the possibility of introducing errors is minimal. The simple commands are quickly assimilated by the average user. Usage by CCTC and SAGA personnel confirm the value of CRD80 as a highly useful program for modifying data files of under 10,000 records.

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APPENDIX

SOURCE LISTING

```
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      CHARACTER FFW*1/00140000000000/
      CHARACTER VT*1/00210000000000/,HOME*1/00240000000000/
      CHARACTER TERM*2,TERM1*11,DATE*8,QUESTION*3,HELP*3
      CHARACTER REPLY*6,NEW*6,OLD*6,IDENT*10,LTR*6
      CHARACTER CATFILE*30,CATFILEX*30,CAT1*60
      CHARACTER CATFIL*37,IFIL*36
      CHARACTER HDR1*40(4),STAR*1,MEDIA*1,SEM*1,REV*22
      CHARACTER INCARD*80,OTCARD*80
      CHARACTER ICARD*10,LCARD*10
      CHARACTER JCARD*70,MCARD*70
      CHARACTER AREC*80(200),DREC*80(200),CREC*80(200)
      CHARACTER AIREC*80(200)
      CHARACTER NERR*4,DUPL*4
      DIMENSION BUF1(380),BUF2(380)
      DIMENSION ARECN(200),DRECN(200),CRECN(200)
      INTEGER A,D,AI,AN,ARECN,DRECN,CRECN,C,CN
      INTEGER BUF1,BUF2,ISTAT
      LOGICAL ISEQ,ICHECK
      DATA REV/"CRD80 VERSION 01-04-78"/
C     *** FILE ATTACHMENT STATUS RETURN WORDS SYSYTEM DEPENDENT ***
      DATA SEM,ISTAT1,ISTAT2/";",04000000000000,04037000000000/
      DATA ISTAT3,ISTAT4/00000000004001,00000000004003/
      DATA ISTAT5,ISTAT6/00000000004004,00000000004005/
      DATA ISTAT7,ISTAT8/00000000004033,00000000004034/
      DATA ISTAT9,ISTAT10/00000000004035,00000000004036/
      DATA ISET/00120150770021/
      DATA JSET/00120150133013/
      DATA KSET/00150120000021/
      DATA LSET/00150770000021/
      DATA MSET/00150120770021/
      DATA HDR1/
     &"          1          2          3          4",
     &"          5          6          7          8",
     &"12345678901234567890123456789012345678901234567890",
     &"12345678901234567890123456789012345678901234567890"/
C
C     INITIALIZE VARIABLES
C
      A=0
      AI=0
      AN=0
      CN=0
      D=0
      C=0
      M=0
      N1=12
      N2=13
C
C     CLEAR STORAGE AREAS
C
      DO 1 I=1,200
      ARECN(I)=0
      CRECN(I)=0
      DRECN(I)=0
 1    CONTINUE
```

```
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C       *** FPARAM SYSTEM DEPENDENT FEATURE ***
        CALL FPARAM (1,84)
        CALL FPARAM (3,ISET)
        CALL FPARAM (2,6)
C       *** FILE CREATION SYSTEM DEPENDENT FEATURE ***
        CALL CREATE (13,300000,0,IT1)
        CALL CREATE (14,300000,0,IT1)
        CALL CREATE (15,300000,0,IT1)
        WRITE (06,90)
        WRITE (06,91)
        WRITE (06,92) REV
        WRITE (06,93)
 2      WRITE (06,94)
        READ (05,95) IFIL
        ENCODE (CATFIL,96) IFIL,SEM
        ENCODE (CATFILE,97) IFIL
        WRITE (06,118) FFW
C       *** FILE ATTACHMENT SYSTEM DEPENDENT FEATURE ***
        CALL ATTACH (08,CATFIL,1,0,ISTAT,BUF1)
        IF (ISTAT.EQ.ISTAT1.OR.ISTAT.EQ.ISTAT2) GO TO 4
        ISTAT=FLD(0,12,ISTAT)
        IF (ISTAT.EQ.ISTAT3) WRITE (06,98)
        IF (ISTAT.EQ.ISTAT4) WRITE (06,99)
        IF (ISTAT.EQ.ISTAT5) WRITE (06,100)
        IF (ISTAT.EQ.ISTAT6) WRITE (06,101)
        IF (ISTAT.EQ.ISTAT7) WRITE (06,102)
        IF (ISTAT.EQ.ISTAT8) WRITE (06,103)
        IF (ISTAT.EQ.ISTAT9) WRITE (06,104)
        IF (ISTAT.EQ.ISTAT10) WRITE (06,105)
        WRITE (06,106) ISTAT
 3      WRITE (06,107)
        READ (05,114) REPLY
        IF (REPLY.EQ."YES".OR.REPLY.EQ."Y") GO TO 88
        IF (REPLY.EQ."YES".OR.REPLY.EQ."Y") GO TO 88
        IF (REPLY.EQ."NO".OR.REPLY.EQ."N") GO TO 2
        IF (REPLY.EQ."NO".OR.REPLY.EQ."N") GO TO 2
        WRITE (06,196)
        GO TO 3
 4      WRITE (06,108) IFIL
        WRITE (06,109)
        WRITE (06,110)
        WRITE (06,111)
        WRITE (06,90)
        WRITE (06,112)
C       ASK USER IF IDENT SEQUENCE MONITORING DESIRED
C
 5      WRITE (06,113)
        READ (05,114) REPLY
        IF (REPLY.EQ."YES".OR.REPLY.EQ."Y") ISEQ=.TRUE.
        IF (REPLY.EQ."YES".OR.REPLY.EQ."Y") ISEQ=.TRUE.
        IF (REPLY.EQ."NO".OR.REPLY.EQ."N") ISEQ=.FALSE.
        IF (REPLY.EQ."NO".OR.REPLY.EQ."N") ISEQ=.FALSE.
        IF (REPLY.EQ."YES".OR.REPLY.EQ."Y") GO TO 6
        IF (REPLY.EQ."YES".OR.REPLY.EQ."Y") GO TO 6
        IF (REPLY.EQ."NO".OR.REPLY.EQ."N") GO TO 6
```

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      IF (REPLY.EQ."NO".OR.REPLY.EQ."N") GO TO 6
      GO TO 5
 6    CONTINUE
C
C     READ OLD RECORD FILE ON FILE 8
C
      DO 7 I=1,10000
      READ (08,115,END=8) INCARD
 7    CONTINUE
      WRITE (06,116)
      PAUSE "TRANSMIT A SPACE TO CONTINUE"
      GO TO 88
 8    CONTINUE
      IMAX=I-1
      WRITE (06,118) FFW
      WRITE (06,117) IMAX
      PAUSE "TRANSMIT A SPACE TO RESUME"
      REWIND 8
      IPOS=1
      CALL FPARAM (3,ISET)
 9    CONTINUE
      CALL FPARAM (3,ISET)    •
      WRITE (06,118) FFW
      WRITE (06,120)
      GO TO 11
 10   WRITE (06,118) FFW
C
C     DISPLAY USER COMMAND MENU
C
      WRITE (06,119)
 11   CONTINUE
      READ (05,121) LTR,NUM
      IF (LTR.EQ."T") GO TO 88
      IF (LTR.EQ."T") GO TO 88
      IF (LTR.EQ."S".OR.LTR.EQ."S") GO TO 43
      IF (LTR.EQ."E") GO TO 47
      IF (LTR.EQ."E") GO TO 47
      IF ((LTR.EQ."R").AND.(NUM.GE.1.AND.NUM.LE.9999)) GO TO 12
      IF ((LTR.EQ."R").AND.(NUM.GE.1.AND.NUM.LE.9999)) GO TO 12
      IF ((LTR.EQ."A").AND.(NUM.GE.0.AND.NUM.LE.9999)) GO TO 27
      IF ((LTR.EQ."A").AND.(NUM.GE.0.AND.NUM.LE.9999)) GO TO 27
      IF ((LTR.EQ."C").AND.(NUM.GE.1.AND.NUM.LE.9999)) GO TO 12
      IF ((LTR.EQ."C").AND.(NUM.GE.1.AND.NUM.LE.9999)) GO TO 12
      IF ((LTR.EQ."D").AND.(NUM.GE.1.AND.NUM.LE.9999)) GO TO 12
      IF ((LTR.EQ."D").AND.(NUM.GE.1.AND.NUM.LE.9999)) GO TO 12
      GO TO 9
C
C     READ A RECORD ON OLD FILE
C
 12   CONTINUE
      IF ((NUM.LT.1).OR.(NUM.GT.IMAX)) WRITE (06,118) FFW
      IF ((NUM.LT.1).OR.(NUM.GT.IMAX)) WRITE (06,122) NUM,IMAX
      IF ((NUM.GE.1).AND.(NUM.LE.IMAX)) GO TO 13
      PAUSE "TRANSMIT A SPACE TO RESUME"
      GO TO 10
```

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 13    CONTINUE
       IF (NUM.EQ.IPOS) GO TO 17
       IF (NUM.GT.IPOS) GO TO 14
       REWIND 8
       IR=NUM
       N=1
       IPOS=1
       GO TO 15
 14    CONTINUE
       N=1
       IR=NUM-IPOS+1
 15    DO 16 I=N,IR
       READ (08,115) INCARD
 16    CONTINUE
       IPOS=IPOS+(IR-N)+1
       GO TO 18
 17    READ (08,115) INCARD
       IPOS=IPOS+1
 18    CONTINUE
       IF (LTR.EQ."C") GO TO 20
       IF (LTR.EQ."C") GO TO 20
 19    WRITE (06,118) FFW
       WRITE (06,123) HDR1
       WRITE (06,124) INCARD
C
C      ASK USER WHAT IS TO BE DONE WITH RECORD SHOWN
C
       WRITE (06,125) NUM
       READ (05,114) REPLY
       IF (REPLY.EQ."DB".OR.REPLY.EQ."DB") GO TO 37
       IF (REPLY.EQ."C".OR.REPLY.EQ."C") GO TO 20
       IF (REPLY.EQ."D".OR.REPLY.EQ."D") GO TO 25
       IF (REPLY.EQ."M".OR.REPLY.EQ."M") GO TO 33
       IF (REPLY.EQ."R".OR.REPLY.EQ."R") GO TO 10
       IF (REPLY.EQ."B".OR.REPLY.EQ."B") GO TO 35
       GO TO 18
C
C      CHANGE RECORD
C
 20    CONTINUE
       WRITE (06,118) FFW
       WRITE (06,126) NUM
       CALL FPARAM (3,JSET)
       WRITE (06,123) HDR1
       WRITE (06,124) INCARD
       CALL FPARAM (3,KSET)
       READ (05,128) OTCARD
       WRITE (06,124) OTCARD
       CALL FPARAM (3,ISET)
       WRITE (06,127)
       READ (05,114) REPLY
       IF (REPLY.EQ."Y".OR.REPLY.EQ."Y") GO TO 21
       IF (REPLY.EQ."M".OR.REPLY.EQ."M") GO TO 23
       GO TO 20
 21    CONTINUE
```

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      ENCODE (INCARD,128) OTCARD
      C=C+1
      IF (C.GT.200) WRITE (06,129)
      IF (C.GT.200) PAUSE "TRANSMIT A SPACE TO RESUME"
      IF (C.GT.200) GO TO 22
      CRECN(C)=NUM
C     ENTER CHANGED RECORD IN CHANGE OUT BUFFER
C
      ENCODE (CREC (C),130) INCARD
      GO TO 10
 22   C=200
      GO TO 10
C
C     MOVE A CHANGED RECORD
C
 23   CONTINUE
      WRITE (06,118) FFW
      WRITE (06,131) NUM
      READ (05,140) NUM1
      IF ((NUM1.LT.0).OR.(NUM1.GT.IMAX)) WRITE (06,118) FFW
      IF ((NUM1.LT.0).OR.(NUM1.GT.IMAX)) WRITE (06,122) NUM1,IMAX
      IF((NUM1.LT.0).OR.(NUM1.GT.IMAX))PAUSE "TRANSMIT SPACE TO RESUME"
      IF ((NUM1.LT.0).OR.(NUM1.GT.IMAX)) GO TO 23
      IF ((A.GE.200).OR.(D.GE.200)) GO TO 24
      A=A+1
      D=D+1
      DRECN(D)=NUM
      ENCODE (DREC (D),130) INCARD
      ARECN(A)=NUM1
      ENCODE (AREC (A),115) OTCARD
      GO TO 10
 24   CONTINUE
      WRITE (06,118) FFW
      WRITE (06,141)
      WRITE (06,132)
      READ (05,114) REPLY
      IF (REPLY.EQ."U".OR.REPLY.EQ."U") GO TO 10
      IF (REPLY.EQ."C".OR.REPLY.EQ."C") GO TO 21
      GO TO 24
C
C     DELETE RECORD
C
 25   CONTINUE
      D=D+1
      IF (D.GT.200) WRITE (06,133)
      IF (D.GT.200) PAUSE "TRANSMIT SPACE TO RESUME"
      IF (D.GT.200) GO TO 26
      DRECN(D)=NUM
      ENCODE (DREC (D),130) INCARD
      GO TO 10
 26   D=200
      GO TO 10
C
C     ADD A NEW RECORD
C
```

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 27    CONTINUE
       IF ((NUM.LT.0).OR.(NUM.GT.IMAX)) WRITE (06,118) FFW
       IF ((NUM.LT.0).OR.(NUM.GT.IMAX)) WRITE (06,122) NUM,IMAX
       IF((NUM.LT.0).OR.(NUM.GT.IMAX)) PAUSE "TRANSMIT A SPACE TO RESUME"
       IF ((NUM.LT.0).OR.(NUM.GT.IMAX)) GO TO 10
       WRITE (06,118) FFW
C
C      ADD BLOCK
C
       WRITE (06,134) NUM,NUM
       READ (05,140) NUM1
       WRITE (06,118) FFW
       IF ((NUM1.LT.1).OR.(NUM1.GT.7)) GO TO 10
       WRITE (06,135) NUM
       WRITE (06,136) NUM1
       CALL FPARAM (3,MSET)
       WRITE (06,123) HDR1
       AI=0
 28    AI=AI+1
       IF (AI.GT.NUM1) GO TO 29
       READ (05,115) AIREC(AI)
       GO TO 28
 29    CONTINUE
       WRITE (06,118) FFW
       WRITE (06,123) HDR1
       DO 30 MX=1,NUM1
       WRITE (06,124) AIREC(MX)
 30    CONTINUE
       WRITE (06,137) NUM1,NUM
       READ (05,114) REPLY
       IF (REPLY.EQ."Y".OR.REPLY.EQ."Y") GO TO 31
       GO TO 10
 31    CONTINUE
       IF ((A+NUM1).GT.200) WRITE (06,138)
       IF ((A+NUM1).GT.200) PAUSE "TRANSMIT A SPACE TO RESUME"
       IF ((A+NUM1).GT.200) GO TO 10
       DO 32 MX=1,NUM1
       A=A+1
       ARECN(A)=NUM
       ENCODE (AREC (A),115) AIREC(MX)
 32    CONTINUE
       GO TO 10
C
C      MOVE RECORD
C
 33    CONTINUE
       IF ((A.GE.200).OR.(D.GE.200)) GO TO 34
       A=A+1
       D=D+1
C
C      FIRST DELETE
C
       DRECN(D)=NUM
       ENCODE (DREC (D),130) INCARD
C
```

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C       NEXT OBTAIN NEW LOCATION
C
        WRITE (06,139)
        READ (05,140) NUM
        ARECN(A)=NUM
        ENCODE (AREC (A),115) INCARD
        GO TO 10
 34     CONTINUE
        WRITE (06,141)
        PAUSE "TRANSMIT A SPACE TO RESUME"
        GO TO 10
C
C       MOVE CONSECUTIVE BLOCK OF RECORDS
C
 35     CONTINUE
        WRITE (06,118) FFW
        WRITE (06,142) NUM
        READ (05,140) NUM1,NUM2
        IF (NUM1.LE.NUM) WRITE (06,143) NUM1,NUM2,NUM1,NUM
        IF (NUM1.LE.NUM) PAUSE "TRANSMIT A SPACE TO RESUME"
        IF (NUM1.LE.NUM) GO TO 19
        IF ((NUM2.LT.0).OR.(NUM2.GT.IMAX)) WRITE (06,144) NUM2,IMAX
        IF((NUM2.LT.0).OR.(NUM2.GT.IMAX)) PAUSE "TRANSMIT SPACE TO RESUME"
        IF ((NUM2.LT.0).OR.(NUM2.GT.IMAX)) GO TO 19
        IF ((NUM1.LT.2).OR.(NUM1.GT.IMAX)) WRITE (06,145) NUM1
        IF((NUM1.LT.2).OR.(NUM1.GT.IMAX)) PAUSE "TRANSMIT SPACE TO RESUME"
        IF ((NUM1.LT.2).OR.(NUM1.GT.IMAX)) GO TO 19
        MNUM=NUM1-NUM+1
        MNA=A+MNUM
        MND=D+MNUM
        IF ((MNA.GT.200).OR.(MND.GT.200)) WRITE (06,146) MNUM
        IF((MNA.GT.200).OR.(MND.GT.200)) PAUSE "TRANSMIT SPACE TO RESUME"
        IF ((MNA.GT.200).OR.(MND.GT.200)) GO TO 19
        DO 36 MX=1,MNUM
        IF (MX.GT.1) NUM=NUM+1
        IF (MX.GT.1) READ (08,115) INCARD
        A=A+1
        D=D+1
        DRECN(D)=NUM
        ENCODE (DREC (D),130) INCARD
        ARECN(A)=NUM2
        ENCODE (AREC (A),115) INCARD
 36     CONTINUE
        IPOS=IPOS+MNUM-1
        GO TO 10
C
C       DELETE BLOCK
C
 37     CONTINUE
        WRITE (06,118) FFW
        WRITE (06,147) NUM
        READ (05,140) NUM1
        IF (NUM1.LE.NUM) WRITE (06,148) NUM,NUM1
        IF (NUM1.LE.NUM) PAUSE "TRANSMIT A SPACE TO RESUME"
        IF (NUM1.LE.NUM) GO TO 19
```

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      IF ((NUM.LT.1).OR.(NUM1.GT.IMAX)) WRITE (06,149) NUM,NUM1,IMAX
      IF((NUM.LT.1).OR.(NUM1.GT.IMAX)) PAUSE "TRANSMIT SPACE TO RESUME"
      IF ((NUM.LT.1).OR.(NUM1.GT.IMAX)) GO TO 19
      MNUM=NUM1-NUM+1
      MND=D+MNUM
      IF (MND.GT.200) WRITE (06,150) MNUM
      IF (MND.GT.200) PAUSE "TRANSMIT A SPACE TO RESUME"
      IF (MND.GT.200) GO TO 19
      DO 38 MX=1,MNUM
      IF (MX.GT.1) READ (08,115) INCARD
 38   CONTINUE
      IPOS=IPOS+MNUM-1
      WRITE (06,124) INCARD
      WRITE (06,151) NUM1,NUM
      READ (05,114) REPLY
      IF (REPLY.EQ."Y".OR.REPLY.EQ."Y") GO TO 39
      WRITE (06,152) NUM,NUM1
      PAUSE "TRANSMIT A SPACE TO RESUME"
      GO TO 10
 39   CONTINUE
      NUM=NUM-1
      IF (NUM.LT.1) GO TO 41
      REWIND 8
      DO 40 MX=1,NUM
      READ (08,115) INCARD
 40   CONTINUE
 41   CONTINUE
      NUM=NUM+1
      IPOS=NUM
      DO 42 MX=NUM,NUM1
      D=D+1
      DRECN(D)=MX
      READ (08,115) INCARD
      ENCODE (DREC (D),130) INCARD
      IPOS=IPOS+1
 42   CONTINUE
      GO TO 10
C
C     STATUS REPORT
C
 43   CONTINUE
      WRITE (06,118) FFW
      IF (A.LT.1) WRITE (06,153)
      IF (A.LT.1) GO TO 44
      WRITE (06,154) ARECN(A),A
      WRITE (06,124) AREC(A)
 44   CONTINUE
      IF (C.LT.1) WRITE (06,155)
      IF (C.LT.1) GO TO 45
      WRITE (06,156) CRECN(C),C
      WRITE (06,124) CREC(C)
 45   CONTINUE
      IF (D.LT.1) WRITE (06,157)
      IF (D.LT.1) GO TO 46
      WRITE (06,158) DRECN(D),D
```

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      WRITE (06,124) DREC(D)
 46   CONTINUE
      WRITE (06,159)
      PAUSE "TRANSMIT A SPACE TO RESUME"
      GO TO 10
C     EXECUTE
 47   CONTINUE
      REWIND 8
C
C               READ OLD INPUT FILE
      INCTR=0
      NRNEW=0
 48   CONTINUE
      READ (08,115,END=55) INCARD
      INCTR=INCTR+1
      IF (MOD(INCTR,50).EQ.0) WRITE (06,161) INCTR
C
C               CHECK IF A RECORD IS TO BE ADDED
C
      IF (A.LT.1) GO TO 50
      DO 49 K=1,A
      IF (ARECN(K).NE.(INCTR-1)) GO TO 49
      WRITE (13,115) AREC(K)
      WRITE (14,115) AREC(K)
      NRNEW=NRNEW+1
 49   CONTINUE
C
C               CHECK IF RECORD IS TO BE DELETED
C
 50   CONTINUE
      IF (D.LT.1) GO TO 52
      DO 51 K=1,D
      IF (DRECN(K).EQ.INCTR) GO TO 48
 51   CONTINUE
C
C     CHECK IF RECORD IS TO BE CHANGED
C
 52   CONTINUE
      IF (C.LT.1) GO TO 54
      DO 53 K=1,C
      IF (CRECN(K).NE.INCTR) GO TO 53
      WRITE (13,115) CREC(K)
      WRITE (14,115) CREC(K)
      NRNEW=NRNEW+1
      GO TO 48
 53   CONTINUE
 54   CONTINUE
      WRITE (13,115) INCARD
      WRITE (14,115) INCARD
      NRNEW=NRNEW+1
      GO TO 48
 55   CONTINUE
      NROLD=INCTR
      WRITE (06,118) FFW
      REWIND 8
```

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      WRITE (06,162) NROLD
      PAUSE "TRANSMIT A SPACE TO RESUME"
C
C               CHECK IF THERE ARE MORE ADD RECORDS FOR NEW FILE
      IF (A.LT.1) GO TO 57
      DO 56 K=1,A
      IF (ARECN(K).LT.NROLD) GO TO 56
      WRITE (13,115) AREC(K)
      WRITE (14,115) AREC(K)
      NRNEW=NRNEW+1
 56   CONTINUE
 57   CONTINUE
      ENDFILE 13
      REWIND 13
      ENDFILE 14
      REWIND 14
C
      WRITE (06,163) NRNEW
      PAUSE "TRANSMIT A SPACE TO RESUME"
      WRITE (06,118) FFW
      INCTR=0
      CALL DATIM (DATE,TIME)
      WRITE (13,164) DATE,TIME
      WRITE (13,165) REV
      WRITE (13,166) IFIL
      WRITE (06,167)
      READ (05,191) CATFILEX
      WRITE (13,168) CATFILEX
      WRITE (13,169)
 58   READ (14,115,END=61) INCARD
      IF (ISEQ) DECODE (INCARD,160) ICARD,JCARD
      INCTR=INCTR+1
      IF (MOD(INCTR,50).EQ.0) WRITE (06,161) INCTR
      NERR="    "
      IF (INCTR.LT.2) GO TO 60
      IF (ISEQ) GO TO 59
      GO TO 60
C
C     CHECK RECORD IDENT SEQUENCE IF USER HAS SO REQUESTED
C
 59   CONTINUE
C     *** KOMPCH SYSTEM DEPENDENT FEATURE ***
      L=KOMPCH(ICARD,0,LCARD,0,10)
      NERR="    "
      IF (L.EQ.0) NERR="DUPL"
      IF (L.EQ.1) NERR="SEQ "
 60   CONTINUE
      WRITE (13,170) INCTR,INCARD,INCTR,NERR
      DECODE (INCARD,160) LCARD,MCARD
      GO TO 58
 61   CONTINUE
      REWIND 14
C
      INCTR=0
      WRITE (06,118) FFW
```

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C
C       ASK IF DISPLAY OF RECORDS ON NEW FILE IS DESIRED
C
        WRITE (06,171)
 62     READ (05,114) REPLY
        IF (REPLY.EQ."YES".OR.REPLY.EQ."Y") GO TO 63
        IF (REPLY.EQ."YES".OR.REPLY.EQ."Y") GO TO 63
        IF (REPLY.EQ."NO".OR.REPLY.EQ."N") GO TO 75
        IF (REPLY.EQ."NO".OR.REPLY.EQ."N") GO TO 75
        WRITE (06,196)
        GO TO 62
 63     IPOS=1
 64     WRITE (06,172) FFW
 65     WRITE (06,173)
        READ (05,140) NUM,NUM2
        IF ((NUM.EQ.0).AND.(NUM2.EQ.0)) GO TO 73
        IF (NUM2.LT.NUM) WRITE (06,174) NUM,NUM2
        IF (NUM2.LT.NUM) PAUSE "TRANSMIT A SPACE TO RESUME"
        IF (NUM2.LT.NUM) GO TO 64
        IF ((NUM.LT.1).OR.(NUM2.GT.NRNEW)) GO TO 66
        GO TO 67
 66     WRITE (06,175) NUM,NUM2,NRNEW
        GO TO 65
 67     CONTINUE
        IF (NUM.EQ.IPOS) GO TO 71
        IF (NUM.GT.IPOS) GO TO 69
        IBK=IPOS-NUM
        DO 68 I=1,IBK
        BACKSPACE 14
        IPOS=IPOS-1
        IF (NUM.EQ.IPOS) GO TO 71
 68     CONTINUE
 69     CONTINUE
        N=1
        IR=NUM-IPOS
        DO 70 I=N,IR
        READ (14,115) INCARD
 70     CONTINUE
        IPOS=IPOS+(IR-N)+1
 71     WRITE (06,118) FFW
        CALL FPARAM (3,JSET)
        WRITE (06,123) HDR1
        NX=NUM2-NUM+1
        NR=NX
        IF (NR.GT.10) NR=10
        DO 72 I=1,NR
        READ (14,115) INCARD
        WRITE (06,124) INCARD
        IPOS=IPOS+1
        NUM=NUM+1
 72     CONTINUE
        PAUSE "TRANSMIT A SPACE TO RESUME"
        IF (NUM.LE.NUM2) GO TO 71
        WRITE (06,118) FFW
        GO TO 65
```

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 73    CONTINUE
       WRITE (06,118) FFW
       INCTR=0
       IBK=IPOS-1
       IF (IBK.EQ.0) GO TO 75
       DO 74 I=1,IBK
       BACKSPACE 14
 74    CONTINUE
 75    CONTINUE
C
C      *** FMEDIA SYSTEM DEPENDENT FFATURE ***
       CALL FMEDIA (14,2)
       CALL FMEDIA (15,2)
C
C      READ NEW ASCII FILE 14 AND WRITE NEW BCD FILE 15
C
 76    READ (14,115,END=78) OTCARD
       INCTR=INCTR+1
       IF (INCTR.GT.NRNEW) GO TO 77
       WRITE (15,115) OTCARD
       IF (MOD(INCTR,100).EQ.0) WRITE (06,176) INCTR
       GO TO 76
 77    CONTINUE
       WRITE (06,177) NRNEW
 78    CONTINUE
       WRITE (06,118) FFW
       WRITE (06,178) INCTR
       PAUSE "TRANSMIT A SPACE TO RESUME"
       ENDFILE 13
       REWIND 13
       REWIND 14
       WRITE (06,118) FFW
       ENDFILE 15
       REWIND 15
       WRITE (06,179)
C
C      ASK USER IF PRINTED COPY OF NEW FILE IS WANTED
C
 79    READ (05,114) REPLY
       IF (REPLY.EQ."YES".OR.REPLY.EQ."Y") GO TO 80
       IF (REPLY.EQ."YES".OR.REPLY.EQ."Y") GO TO 80
       IF (REPLY.EQ."NO".OR.REPLY.EQ."N") GO TO 82
       IF (REPLY.EQ."NO".OR.REPLY.EQ."N") GO TO 82
       WRITE (06,196)
       GO TO 79
 80    CONTINUE
       WRITE (06,118) FFW
C
C      ASK USER WHERE COPYIS TO BE PRINTED
C
       WRITE (06,180)
       READ (05,140) NUM
       IF ((NUM.LT.1).OR.(NUM.GT.4)) GO TO 80
       IF (NUM.EQ.4) WRITE (06,181)
       IF (NUM.EQ.4) READ (05,114) REPLY
```

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      IF ((NUM.EQ.4).AND.(REPLY.EQ."NN".OR.REPLY.EQ."NN")) GO TO 80
      IF (NUM.EQ.4) ENCODE (TERM1,182) REPLY
      IF (NUM.EQ.4) GO TO 81
      IF (NUM.EQ.1) TERM="AT"
      IF (NUM.EQ.2) TERM="BH"
      IF (NUM.EQ.1.OR.NUM.EQ.2) ENCODE (TERM1,182) TERM
      IF (NUM.EQ.3) TERM="ZZ"
      IF (NUM.EQ.3) ENCODE (TERM1,182) TERM
      CALL FMEDIA (13,0)
C     *** CALLSS SYSTEM DEPENDENT FEATURE ***
 81   CALL CALLSS (TERM1)
      WRITE (06,183)
      PAUSE "TRANSMIT A SPACE TO RESUME"
      CALL FPARAM (3,ISET)
C
C     ASK USER WHAT FILE DISPOSITION DESIRED
C
 82   WRITE (06,184) FFW
      READ (05,185) REPLY
      IF (REPLY.EQ."QUIT".OR.REPLY.EQ."Q") GO TO 87
      IF (REPLY.EQ."QUIT".OR.REPLY.EQ."Q") GO TO 87
      IF (REPLY.EQ."RESA".OR.REPLY.EQ."R") GO TO 83
      IF (REPLY.EQ."RESA".OR.REPLY.EQ."R") GO TO 83
      IF (REPLY.EQ."SAVE".OR.REPLY.EQ."S") GO TO 84
      IF (REPLY.EQ."SAVE".OR.REPLY.EQ."S") GO TO 84
      WRITE (06,186)
      PAUSE "TRANSMIT A SPACE TO RESUME"
      GO TO 82
 83   ENCODE (CAT1,187) CATFILE
      CALL CALLSS ("REMO 08#")
      CALL CALLSS (CAT1)
      WRITE (06,188) CATFILE
      PAUSE "TRANSMIT A SPACE TO RESUME"
      GO TO 87
 84   CONTINUE
      WRITE (06,189) CATFILEX
      READ (05,114) REPLY
      IF (REPLY.EQ."Y".OR.REPLY.EQ."Y") GO TO 86
      IF (REPLY.EQ."N".OR.REPLY.EQ."N") GO TO 85
      GO TO 84
 85   CONTINUE
      WRITE (06,190)
      READ (05,191) CATFILEX
 86   CONTINUE
      ENCODE (CAT1,192) CATFILEX
      CALL CALLSS (CAT1)
      WRITE (06,193) CATFILEX
      PAUSE "TRANSMIT A SPACE TO RESUME"
C
C     REMOVE FILES
C
 87   CONTINUE
      CALL CALLSS ("REMO 08#")
      CALL CALLSS ("REMO 13#")
      CALL CALLSS ("REMO 14#")
```

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      CALL CALLSS ("REMO 15#")
      WRITE (06,194)
      GO TO 89
 88   CONTINUE
      CALL CALLSS ("REMO 13#")
      CALL CALLSS ("REMO 14#")
      CALL CALLSS ("REMO 15#")
      CALL CALLSS ("REMO 08#")
      WRITE (06,195)
 89   CONTINUE
      STOP
C
C
 90   FORMAT (//)
 91   FORMAT (54HTHIS PROGRAM ADDS,DELETES,CHANGES 80 CHARACTER RECORDS)
 92   FORMAT (A22)
 93   FORMAT (3H    )
 94   FORMAT (53HENTER THE CAT/FILE STRING OF THE RECORD FILE YOU WISH,1
     &0H TO MODIFY)
 95   FORMAT (A36)
 96   FORMAT (A36,A1)
 97   FORMAT (A30)
 98   FORMAT (26HNAME NOT IN MASTER CATALOG)
 99   FORMAT (17HPERMISSION DENIED)
 100  FORMAT (21HFILE BUSY. TRY LATER.)
 101  FORMAT (30HINCORRECT CAT/FILE DESCRIPTION)
 102  FORMAT (24HCAT/FILE SECURITY LOCKED)
 103  FORMAT (34HILLEGAL CHARACTER IN CAT/FILE NAME)
 104  FORMAT (29HILLEGAL CAT/FILE LIST REQUEST)
 105  FORMAT (11HAFT IS FULL)
 106  FORMAT (51HFILE ATTACHMENT UNSUCCESSFUL. REASON UNKNOWN IF NOT,//,3
     &4HSTATED ABOVE.      ISTAT RETURNED= ,012)
 107  FORMAT (56HDO YOU WISH TO TERMINATE CRD80?  PLEASE ANSWER YES OR N
     &O)
 108  FORMAT (39HCAT/FILE STRING OF YOUR INPUT FILE IS  ,A36)
 109  FORMAT (48HRECORD NUMBERS MUST BE WITHIN RANGE OF 1 TO 9999)
 110  FORMAT (54HTHESE NUMBERS ARE THE POSITION OR LOCATION ON THE FILE)
 111  FORMAT (49HDO NOT USE MORE THAN 4 DIGITS FOR A RECORD NUMBER)
 112  FORMAT (54HRECORD IDENT MEANS THE FIRST 10 CHARACTERS ON A RECORD,
     &/,52HWHEN THEY ARE USED TO INDICATE A SEQUENTIAL LOCATION)
 113  FORMAT (55HDO YOU WISH CRD80 TO MONITOR THE IDENT SEQUENCE? ENTER
     &,//,61H--YES--IF YOUR FILE CONTAINS RI AND YOU WISH TO MONITOR THE
     & ,/,60H        IDENT SEQUENCE.
     & ,/,55H--NO---IF THIS FILE DOES NOT HAVE RECORD IDENT OR IF    ,/,5
     &5H        YOU WISH TO IGNORE ANY RECORD IDENTS IT MAY HAVE)
 114  FORMAT (A6)
 115  FORMAT (A80)
 116  FORMAT (44HFILE EXCEEDS 9999 RECORDS. CRD80 TERMINATING)
 117  FORMAT (24HOLD INPUT FILE CONTAINS ,I4,8H RECORDS)
 118  FORMAT (A1)
 119  FORMAT (30H NEXT R,A,C,D,E,S,T  COMMAND??)
 120  FORMAT (56HENTER ONE OF FOLLOWING RESPONSES AS LETTER,SPACE,NUMBER
     & ,/,61H ENTER ONE   THEN ENTER ONE          THAN ENTER
     &  ,/,61H CHARACTER   SPACE OR COMMA          ONE NUMBER
     &   ,/,61H R  .....   READ A RECORD....  NUMBER OF A RECORD ON OLD
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     &FILE,/,61H A  .....   ADD  A RECORD....  NUMBER OF A RECORD ON OLD
     & FILE,/,61H                                AFTER WHICH THIS NEW REC
     &ORD IS,/,61H                                TO BE INSERTED. ENTER N
     &UMBER 0,/,61H                               IF RECORD WILL PRECEDE
     & ALL OLD,/,61H C  .....   CHANGE A RECORD..  NUMBER OF A RECORD ON
     & OLD FILE,/,61H                              WHICH YOU MAY WISH T
     &O CHANGE  ,/,61H D  .....   DELETE A RECORD..  NUMBER OF A RECORD
     &ON OLD FILE,/,61H E  .....   END OF MY INPUT..  ENTER NUMBER 0
     &             ,/,61H            EXECUTE NOW
     &              ,/,61H S  .....   STATUS REPORT....  ENTER NUMBER 0
     &               ,/,61H T  .....   TERMINATE CRD80..  ENTER NUMBER 9-
     &-FILE UNCHANGED)
 121  FORMAT (V)
 122  FORMAT (1H ,I5,35H IS AN ILLEGAL RECORD NUMBER,MAX IS,I4,10H TRY A
     &GAIN)
 123  FORMAT (2(1H ,2A40,/))
 124  FORMAT (1H ,A80)
 125  FORMAT (43HWHAT'S TO BE DONE WITH THIS RECORD--NUMBER ,I4,5H --??,
     &/,42HENTER ONLY ONE OF THE FOLLOWING CHARACTERS,/,12HC--CHANGE IT,
     &/,35HD--DELETE IT---SINGLE RECORD DELETE,/,49HDB--DELETE CONSECUTI
     &VE BLOCK OF RECORDS WITH THIS,/,46H    BEING FIRST RECORD OF THE B
     &LOCK OF RECORDS,/,31HM--MOVE IT---SINGLE RECORD MOVE,/,61HB--BLOCK
     & MOVE OF MORE THAN ONE CONSECUTIVE RECORD WITH THIS  ,/,61H   BEIN
     &G THE BEGINNING RECORD OF THE BLOCK OF RECORDS        ,/,23HR--RET
     &URN IT UNCHANGED )
 126  FORMAT (16HWHEN OLD RECORD ,I4,10H IS SHOWN ,/,33HENTER THE COMPLE
     &TE CHANGED RECORD)
 127  FORMAT (54HIS ABOVE RECORD ENTRY CORRECT?  ENTER ONLY ONE LETTER ,
     &/,19HN---NO, NOT CORRECT,/,16HY---YES, CORRECT,/,53HM---RECORD ENT
     &RY IS CORRECT AND NOW I WISH TO MOVE IT)
 128  FORMAT (A80)
 129  FORMAT (52HCHANGE ENTRY LIMIT EXCEEDED. CHANGE WILL NOT BE MADE)
 130  FORMAT (A80)
 131  FORMAT (54HENTER NUMBER OF A RECORD ON OLD FILE AFTER WHICH THIS ,
     &/,15HCHANGED RECORD ,I4,38H IS TO BE INSERTED. ENTER NUMBER 0 IF ,
     &/,59HTHIS RECORD WILL PRECEDE ALL THE RECORDS ON THE OLD FILE   )
 132  FORMAT (56HDO YOU WISH OLD RECORD RETURNED TO THE FILE UNCHANGED O
     &R,/,61HDO YOU WISH THE CHANGED RECORD TO REPLACE IT IN SAME LOCATI
     &ON,/,61HAS BEFORE?  U--RETURN UNCHANGED, C--REPLACE OLD WITH CHANG
     &ED )
 133  FORMAT (52HDELETE ENTRY LIMIT EXCEEDED. DELETE WILL NOT BE MADE)
 134  FORMAT (54HHOW MANY RECORDS--UP TO  7--DO YOU WISH TO ADD AFTER  ,
     &/,14HRECORD NUMBER ,I4,41H ??  ENTER A NUMBER FROM 1 TO  7.  IF YO
     &U,/,44HDO NOT WISH TO ADD ANY RECORDS AFTER RECORD ,I4,11H ENTER 0
     &   )
 135  FORMAT (55HWHEN CARD COLUMN MARKING GUIDE APPEARS ENTER NEW RECORD
     &,/,33HWHICH WILL BE ADDED AFTER RECORD ,I4)
 136  FORMAT (23HDO NOT ENTER MORE THAN ,I3,8H RECORDS)
 137  FORMAT (14HARE THE ABOVE ,I2,34H RECORDS TO BE ADDED AFTER RECORD
     &,I4/,49HAS A CONSECUTIVE BLOCK CORRECT??   Y--YES,  N--NO)
 138  FORMAT (49HADD ENTRY LIMIT EXCEEDED.  RECORD BLOCK NOT ADDED)
 139  FORMAT (56HENTER RECORD NUMBER OF A RECORD NOW ON THE OLD FILE THA
     &T,/,61HTHIS RECORD WILL FOLLOW IN ITS NEW LOCATION ON NEW FILE
     &   )
 140  FORMAT (V)
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 141   FORMAT (51HRECORD CANNOT BE MOVED. ADD OR DELETE BUFFER FILLED)
 142   FORMAT (44HFIRST RECORD NUMBER OF BLOCK TO BE MOVED IS ,I4,/,59HEN
     &TER LAST RECORD NUMBER OF BLOCK,THEN ENTER COMMA OR SPACE,/,59HENT
     &ER RECORD NUMBER OF A RECORD NOW ON OLD FILE WHICH THIS ,/,59HBLOC
     &K OF CONSECUTIVE RECORDS WILL FOLLOW ON NEW FILE       ,/,59HEXAMP
     &LE  IF FIRST RECORD WAS 7,ENTER 10,35 AND RECORDS     ,/,59H
     &   7,8,9,10 WILL FOLLOW RECORD 35 ON NEW FILE         )
 143   FORMAT (1H ,I4,5H AND ,I4,38H ILLEGAL FOR BLOCK RECORDS MOVE. LAST
     & ,/,23HRECORD NUMBER OF BLOCK ,I4,23H NOT LARGER THAN FIRST ,I4)
 144   FORMAT (1H ,I4,36H ILLEGAL.  MINIMUM IS 0, MAXIMUM IS ,I4)
 145   FORMAT (28HLAST RECORD NUMBER OF BLOCK ,I4,11H IS ILLEGAL)
 146   FORMAT (1H ,I4,47H RECORDS IN THIS BLOCK.   REMAINING STORAGE IN ,
     &/,62HTHE ADD OR DELETE BUFFERS INSUFFICIENT. BLOCK CANNOT BE MOVED
     &.)
 147   FORMAT (46HFIRST RECORD NUMBER OF BLOCK TO BE DELETED IS ,I4,/,58H
     &ENTER RECORD NUMBER OF LAST RECORD IN BLOCK TO BE DELETED.)
 148   FORMAT (1H ,I4,5H AND ,I4,25H ILLEGAL FOR BLOCK DELETE)
 149   FORMAT (1H ,I4,4H OR ,I4,31H ILLEGAL. MINIMUM IS 1,MAXIMUM ,I4)
 150   FORMAT (1H ,I4,46H RECORDS IN BLOCK. REMAINING STORAGE IN DELETE,/
     &,50HBUFFER INSUFFICIENT.  BLOCK DELETE CANNOT BE MADE.)
 151   FORMAT (20HTHIS IS LAST RECORD ,I4,25H OF BLOCK BEGINNING WITH ,/,
     &7HRECORD ,I4,48H DO YOU WISH TO DELETE THIS BLOCK?  Y--YES,N--NO)
 152   FORMAT (13HRECORD BLOCK ,I4,6H THRU ,I4,20H WILL NOT BE DELETED)
 153   FORMAT (24HNO RECORDS IN ADD BUFFER)
 154   FORMAT (17HRECORD FOLLOWING ,I4,9H LAST OF ,I3,14H IN ADD BUFFER)
 155   FORMAT (27HNO RECORDS IN CHANGE BUFFER)
 156   FORMAT (7HRECORD ,I4,9H LAST OF ,I3,25H RECORDS IN CHANGE BUFFER)
 157   FORMAT (27HNO RECORDS IN DELETE BUFFER)
 158   FORMAT (7HRECORD ,I4,9H LAST OF ,I3,25H RECORDS IN DELETE BUFFER)
 159   FORMAT (55HIF MOVE WAS LAST ENTRY,SAME RECORD IN ADD,DELETE BUFFER
     &)
 160   FORMAT (A10,A70)
 161   FORMAT (1H+,I6,26H CARDS HAVE BEEN PROCESSED)
 162   FORMAT (46HNUMBER OF RECORDS READ FROM OLD INPUT FILE IS ,I4,///)
 163   FORMAT (41HNUMBER OF RECORDS WRITTEN TO NEW FILE IS ,I4)
 164   FORMAT (1H1,6X,14HDATE CRD80 RUN,2X,A8,2X,4HTIME,2X,F10.6,/)
 165   FORMAT (1X,A22,/)
 166   FORMAT (1H ,6X,32HOLD INPUT FILE CAT/FILE STRING--,A36,/)
 167   FORMAT (56HIF YOU INTEND TO SAVE OUTPUT ON A NEW FILE ENTER THE NE
     &W,/,61HCAT/FILE STRING--MAX 30 CHARACTERS--OR ENTER--SAME--IF OUTP
     &UT,/,61HWILL BE RESAVED UNDER SAME CAT/FILE STRING AS OLD INPUT FI
     &LE )
 168   FORMAT (1H ,6X,32HOUTPUT ON FILE CAT/FILE STRING--,2X,A36,/)
 169   FORMAT (/,49H                                                ,/)
 170   FORMAT (1H ,I4,4H   *,A80,4H*   ,I4,2H  ,A4)
 171   FORMAT (48HDO YOU WISH TO SEE ANY RECORDS ON YOUR NEW FILE.,/9HYES
     & OR NO)
 172   FORMAT (A1,53HTO SEE SEGMENT OF THE FILE, ENTER THE STARTING RECOR
     &D,/,60HNUMBER FOLLOWED BY THE ENDING RECORD NUMBER FOR THE SEGMENT
     &.,/,4X,54HEXAMPLE            RESULT                          ,/
     &,4X,56H10   12            RECORDS 10,11,12 DISPLAYED.        ,/,
     &4X,56H10,10                RECORD 10 DISPLAYED.              )
 173   FORMAT (36HENTER FIRST AND LAST RECORD NUMBERS.,/,56HENTER '0,0' W
     &HEN YOU HAVE COMPLETED VIEWING THE NEW FILE)
 174   FORMAT (13HFIRST NUMBER ,I4,21H GREATER THAN SECOND ,I4)
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 175  FORMAT (/,I4,1X,I4,43H ARE ILLEGAL. NUMBER MUST BE IN RANGE 1 TO ,
     &I4)
 176  FORMAT (1H+,I6,34H CARDS PROCESSED FROM ACSII TO BCD)
 177  FORMAT (19HEOF NOT READ AFTER ,I4,8H RECORDS)
 178  FORMAT (/,48HNUMBER OF RECORDS WRITTEN TO NEW ASCBCD FILE IS ,I4,/
     &/)
 179  FORMAT (52HDO YOU WANT A PRINTED COPY OF FILE?  --YES--OR--NO--)
 180  FORMAT (56HENTER ONE OF THE NUMBERS BELOW TO SHOW PRINTER SELECTED
     & ,/,61H 1   PRINT AT SAGA          -AT-  UNCLASSIFIED FILES ONLY
     &  ,/,61H 2   PRINT AT F-SITE        -BH-
     &   ,/,61H 3   PRINT AT MAIN SITE    -ZZ-
     &    ,/,61H 4   PRINT ELSEWHERE       -??-  USER MUST KNOW THE TWO
     &     ,/,61H                                  CHARACTER STATION CODE
     &      )
 181  FORMAT (54HENTER TWO CHARACTER STATION CODE.  IF YOU DO NOT KNOW ,
     &/,55HPROPER CODE ENTER--NN-- YOU WILL HAVE ANOTHER CHOICE.  )
 182  FORMAT (5HRMTE ,A2,4H 13#)
 183  FORMAT (5(/),17H COPY YOUR SNUMB ,5(/))
 184  FORMAT (A1,49HWHAT TO YOU WISH TO DO WITH THE FILES              ,/,
     &57H  ENTER ONE RESPONSE      FOR ACTION SHOWN BELOW           ,/,57H
     &  QUIT     OR  Q           DISCARD THE NEW CHANGED FILE     ,/,58H  R
     &ESAVE OR  R             RESAVE ONLY THE NEW FILE, NOT OLD,/,57H
     &                      WARNING--OLD FILE WILL BE LOST  ,/,57H  SAVE
     & OR  S             SAVE BOTH NEW AND OLD FILES     )
 185  FORMAT (A6)
 186  FORMAT (52HILLEGAL RESPONSE.  PLEASE REPLY CORRECTLY WHEN ASKED)
 187  FORMAT (8HPERM 15;,A30,1H#)
 188  FORMAT (23HNEW DATA FILE RESAVED  ,A30)
 189  FORMAT (56HIS THE CAT/FILE STRING FOR NEW FILE CORRECT AS SHOWN?
     & ,/,1H ,A30,5X,39HTHIS IS DESCRIPTION ON YOUR PRINT COPY ,/,61HANS
     &WER  Y--YES,CORRECT,  N--NO, NOT CORRECT                      )
 190  FORMAT (42HENTER NEW CAT/FILE STRING FOR THE NEW FILE)
 191  FORMAT (A30)
 192  FORMAT (8HPERM 15;,A30,1H#)
 193  FORMAT (21HNEW DATA FILE SAVED  ,A30)
 194  FORMAT (40HCRD80 PROGRAM HAS COMPLETED. NORMAL EXIT)
 195  FORMAT (24HCRD80 PROGRAM TERMINATED)
 196  FORMAT (42HPLEASE ENTER YOUR ANSWER    YES   OR  NO  )
      END
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This Technical Memorandum (TM) describes the CRD80 program. CRD80 is an interactive, time-sharing FORTRAN program for adding, deleting, changing, and moving 80-character card-image records of a file. CRD80 capabilities are described and user instructions are included.

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