digital

edit

utility program

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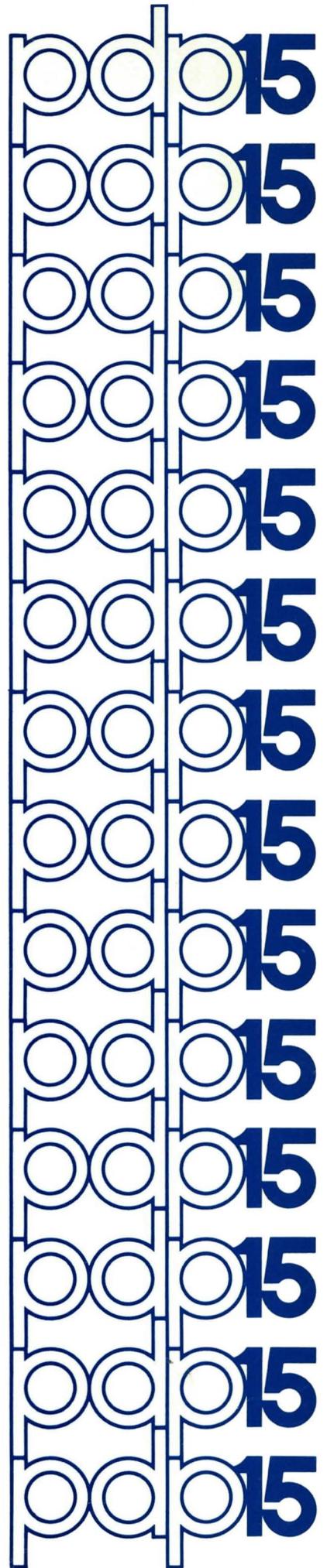
P D P - 1 5

T E X T   E D I T O R

Utility Program

The operation and use of the PDP-15 Utility Program EDIT is described
in this manual. The information presented is valid for use in either
the ADVANCED Software System (ADSS) or the Disk Operating System (DOS)
environments. Differences between editing in ADSS and in DOS environ-
ments are indicated.

It was assumed in the preparation of this manual that the reader is
familiar with the operation of the PDP-15 equipment and the contents
of the software manual describing the features of the particular
monitor system in use, that is:

    a)   for ADS users, PDP-15/20/30/40 ADVANCED Monitor Software
         System manual, DEC-15-MR2B-D;

    b)   for DOS users, DOS Software System Users Manual, DEC-15-MRDA-D.

PDP-15 UTILITY PROGRAMS MANUAL, DEC-15-YWZB-D

The PDP-15 Utility Programs manual is comprised of a set of individual
manuals, each of which describes the operation and use of a PDP-15
Utility Program. The manuals which make up the Utility Programs set
are listed in the following Application Guide. In addition, the
Application guide also indicates the order number of each manual and
the specific PDP-15 Monitor Software Systems in which the program
described may be used.

The Utility Manuals may be ordered either individually, by using the
title and order number given with each mauual, or as a set, by
referencing "PDP-15 Utility Programs Manual, DEC-15-YWZB-D".

CONTENTS

SECTION 1

INTRODUCTION

The Text Editor (EDIT) is a powerful context-editing program that allows the modification and creation of symbolic source programs and other ASCII text material[1]. By means of keyboard commands, the Editor is directed to bring a line, or group of lines, from the input file to an internal buffer. The user can then, by means of additional commands, examine, delete, and change the contents of the buffer, and insert new text at any point in the buffer. When the line or block of lines has been edited, it is written into a new file on the output device.

The Editor is most frequently used to modify MACRO and FORTRAN IV source programs, but it can also be used to edit any symbolic text.

The EDIT program operates in either the ADVANCED Monitor (ADSS) or the Disk Operating (DOS) Software System. Two versions of the EDIT program designed to use available CRT display systems for soft-copy display purposes during EDIT operations are described in Appendices B and C.

Appendix B contains a description of the use of EDITVP, an editor program which utilizes the VP15A Storage Tube Display unit as the editing data display device instead of the console printer. This editor program may be used in both the ADVANCED and DOS software systems.

Appendix C contains a description of the use of EDITVT, an editor program which utilizes the VT15 Graphic Display Unit as the editing display device instead of the console printer. This editor program may be used only in DOS software systems.

A summary of the standard Editor commands is presented in Appendix A.

---

[1]The Editor reads and writes standard IOPS ASCII lines. The characteristics of IOPS ASCII text are described in the ADVANCED Monitor manual for the PDP-15/20/30/40 Systems Software (ADSS) (DEC-15-MR2B-D), and in the DOS Software System Users Manual (DEC-15-MRDA-D)

SECTION 2

FUNCTIONAL DESCRIPTION

2.1 CONTROL MODES

The Editor operates in either an EDIT or INPUT control mode. In the
EDIT (or Command) Mode, the program accepts and acts upon control word
and data strings to open and close files; to bring lines of text from
an open file into the work area; to change, delete, or replace the
line currently in the work area; and to insert single or multiple lines
after the line in the work area. In Input (or Text) Mode, lines from
the keyboard are interpreted as text to be added to the open file.
Commands are available for conveniently changing control mode.

2.2 DATA MODES

Data from the input file is made available for editing in two ways:
in Line-by-Line Mode or in Block Mode.

The Line by Line data mode is the program "default" mode if both the
input and output devices are directoried devices. If either or both
of the devices involved are non-directoried, the program default is
the Block Mode.

2.2.1 Line-by-Line Data Mode

In Line-by-Line Data Mode, a single line is the unit of the input file
available to the user for modification at any point. The line currently
available is specified by a pointer, which can be thought of as moving
sequentially through the file, starting just before the first file line,
in response to typed editing commands. When a file is opened at the be
beginning of an editing session, the first line of that file can be
brought into the work area and is available for modification. This
line remains in the work area until the user requests that a new line
be brought in. The pointer then moves down the file until the line
requested is encountered. That line is brought to the work area and,
as the "current" line, can be modified. Lines previously skipped
over are no longer available for editing by the user, but are written
in the output file. Thus, at any point in a single edit run in
Line-by-Line mode, the user is able to modify only the portion of the
input file consisting of the current line and all lines between the

current line and the end of the file (i.e., the current line and all lines below it).

2.2.2 Block Data Mode

In Block Data Mode, a user-specified portion[1] of the input file is held in a core buffer for editing until the user requests that the contents of the buffer be added to the output file. A group of Editor commands is available for use in Block Mode only (see Section 4) in addition to the commands used in line-by-line editing.

When the user is operating in Block Mode, commands to the Editor are honored only with respect to that portion of the input file currently occupying the buffer. The lines of text in the buffer are made available for modification through the use of normal locative requests and can be reaccessed until the buffer is emptied by the user.

Unless deleted, lines passed over in Block Mode are available to the user until the contents of the buffer are written in the output file. Consider, for example, the editing request to search for and bring in a specified line. In Line-by-Line Mode, the result is a scan of (possibly) the entire file below the pointer. The same request in Block Mode provides a search of the entire buffer below the pointer, but no further.
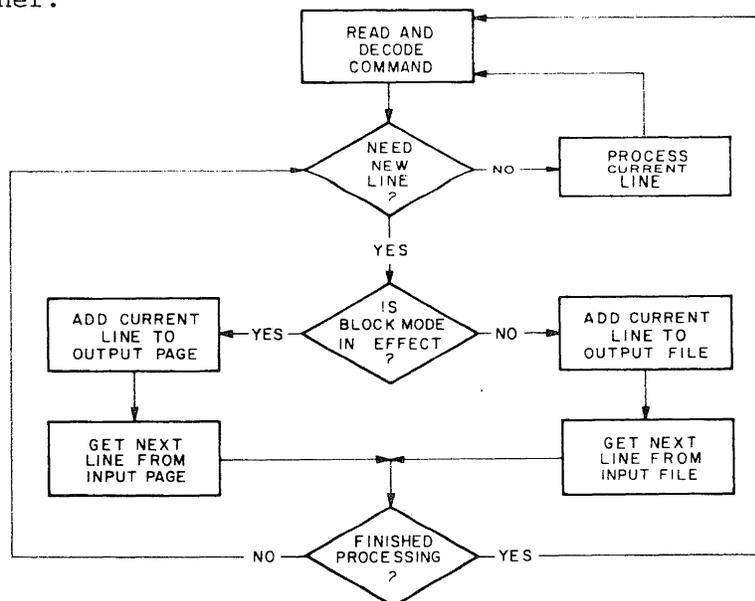
Figure 2-1.   Schematic of Line Processing in
Block and Normal Modes

---

[1] If not specified, a group of 55_{10} lines is assumed (default size) by the Editor.

Block Mode has another advantage: rapid correction of editing command errors. If the user finds that he has typed the wrong command, he can immediately correct it, because the buffer has not been added to the output file. In Line-By-Line Mode, a command error may cause the program to bypass a line in which a change is needed. The user must then output a new input file and begin editing again (i.e. via the TOP(T) command).

2.3 DATA FILES

The following paragraphs describe the Monitor I/O features utilized by the Editor program, how data may be added to files and the operations performed on the Editor output files.

2.3.1 Using Monitor I/O

In both DOS and ADSS software environments, the Editor makes use of the monitors' Input/Output Programming System (IOPS) for I/O transfer operations. In DOS systems, the Editor communicates with IOPS via separate Device Assignment (DAT) and User File Directory (UFDT) tables. Refer to the DOS User's manual (DEC-15-MRDA-D) for a description of these tables and their use.

TABLE 2-1

Standard DAT and UFDT Slot Assignments for ADSS and DOS Monitors

ADVANCED MONITOR .DAT Slot Assignments

.DAT Entry Number	Used for
-3	Teleprinter output; messages to user
-2	Keyboard input; text and commands
-14	File input
-15	Scratch or edit file output
-10	Subsidiary input
+10	VP 15A (EDITVP only)

DOS MONITOR .DAT Slot Assignments

.DAT	DEVICE	UIC[1]	USE
-15	DKA	GEP[1]	Output/Scratch
-14	DKA	GEP	I/O
-10	TTA	GEP	Secondary Input
+10	VPA	GEP	(EDITVP only)

[1]The current UIC will be given here, GEP is an example.

In ADSS systems communications with IOPS is carried out via a DAT table (refer to ADSS Monitor manual DEC-15-MR2B-D).

In both software systems the tables involved are provided with a set of standard "slot" device and UIC assignments (shown in Table 2-1); these assignments may be altered for an editing operation by using the monitor ASSIGN command, prior to loading the Editor program, to change the table assignments as desired (refer to the respective monitor or keyboard guide for procedure - see Table 1-1).

2.3.2 Input and Subsidiary Files

The Editor accepts inputs from:

a)   the console keyboard (i.e. commands and text entries),

b)   a file input device/UFD which contains the file to be edited,

c)   a subsidiary input device/UFD which contains, normally, prepared material to be inserted into the object file.

If the file input and subsidiary inputs are ignored (not assigned) by the user, the Editor assumes that all inputs will come from the keyboard.

When used, the subsidiary input device must contain non-file structured data, normally the paper tape and card reader devices are used. However, DECtape or disk devices may be assigned as subsidiary devices if they contain information written in a non-file structured manner (refer to appropriate monitor manual). If a device which normally contains file structured data is specified as the subsidiary device, the Editor outputs the following message:

.DAT-10 IS FILE ORIENTED

DO YOU WISH TO CONTINUE ?

on the console printer.

The user then either:

a)   types the word YES to continue the operation, or

b)   enters any other word or character to return operations to the monitor where .DAT-10 may be reassigned.

2.3.3 Output Files

The Editor attempts to determine whether the input and scratch devices are file-structured immediately on receiving control after having been loaded. If either one of the devices is not file-structured, then the scratch device (DAT entry -15) is assigned as the final output device. If both devices are file-structured, the scratch device is assigned an intermediate function and the input device is used as the final output device.

If, in DOS editing operations, the same device and UIC are specified as both the input and output devices, then the file CLOSE operation will cause the edited file to be renamed, not recopied.

The intent, in all cases, is to allow replacement of the input file by the edited output file. This is possible only when the input and output devices can be both read and written. If replacement can be accomplished (both devices are file-structured), the following sequence of events takes place when the files are closed after editing.

   a. The intermediate output file is read from the scratch
       device and written on the input device under a
       temporary name.
   b. The old input file is deleted from the input device.
   c. The intermediate output file is deleted from the
       scratch device.
   d. The intermediate output file, temporarily named and now
       residing on the input device, is given the name previously
       assigned to the old (now deleted) input file.
   e. The output file is closed and immediately becomes
       available for use.

If no replacement can be accomplished, no change is ever made to the input file. If the output device is file-oriented, the new edited file is properly entered in the file directory for that device under the name given in the OPEN, CLOSE, or EXIT command sequences.

The possible destinations of the new edited file are summarized in Table 2-2.

Note that in the process of file housekeeping, there is always at least one copy of the output file available on one, or both, of the devices. Further, the original input file is not deleted until the new file has been successfully written and closed. A system failure,

therefore, can never result in total loss of data. Recovery procedures
to be used in case of difficulty are outlined in Chapter 5.

TABLE 2-2

Output File Conventions for the Text Editor

Input Device	Scratch or Output Device	Edited File Appears as:	Input File is:
File oriented	File oriented	Input Device	Deleted
File oriented	Non-file oriented	Output Device	Unchanged
Non-file oriented	File oriented	Output Device	Unchanged
Non-file oriented	Non-file oriented	Output Device	Unchanged

2.4 USE OF THE CTRL P KEYBOARD COMMAND

The command CTRL P when:

a) issued during the entry of a command string (before
    terminator) causes the Editor to be restarted.

b) issued during the process initiated by a command string,
    aborts the process on completion of the current logical
    sequence (ignored during MOVE command operations);

c) issued during an INPUT mode, causes all data entered on
    the current line to be deleted and switches the mode to
    EDIT. A second CTRL P entry at this time would restart
    the Editor.

2.5 CHARACTER ERASE AND LINE DELETE KEYBOARD COMMANDS

Two keyboard commands are provided the user which permit the deletion
(erasure) of individual characters of a line and the deletion of a
line or line segment. The command:

a) RUBOUT, permits the deletion of individual characters.
    Each operation of the keyboard RUBOUT key deletes the
    last entered (non-erased) character of the current line.
    The symbol (\) is echoed on the console printer each
    time RUBOUT is used. The following illustrates the
    RUBOUT operation:

results in the line   >A

2-6

b) CTRL U causes the deletion from the current line of all
characters entered before the CTRL U was issued. Each
CTRL U entry causes the symbol (@) to be echoed at the
console printer. The following illustrates the
CTRL U operation:

          Deletes inputs entered before @

          > A B C D E @ F G H I⟩

results in a final line of

          > F G H I⟩

                              NOTE

          In addition to its editorial function, CTRL U
          may also be used to terminate Editor output
          operations. Entered at any time during an
          output operation, CTRL U immediately terminates
          the operation and initiates a carriage/return.

During editorial operations, neither the RUBOUT nor CTRL U command
affects previously prepared text.

SECTION 3

EDITING OPERATIONS

The Editor always begins in the EDIT mode and assumes that the user
wishes to modify some (named or unnamed) file. When first loaded or
restarted, the EDITOR program outputs the message:

> EDITOR Vnnx   where: nn = a one- or two-digit
>   version number

at the console printer and waits for the user's first command.

3.1 MODIFYING AN EXISTING FILE

If the input device is file-structured (disk, drum, magnetic tape, or
DECtape), the first command to the Editor must be:

> OPEN filename ext)

where "filename" is the primary name[1] of the wanted file residing on
the input device and "ext" is its extension.[2]   Ext can be omitted
and, if so, is assumed to be SRC. If the file specified is not found
in the directory, the program assumes that the user wishes to create
a file named "filename ext". Accordingly, when it has been determined
that the named file is absent from the input device, the Editor types:

> FILE filename ext NOT FOUND.
> INPUT

INPUT mode is entered and subsequent lines from the keyboard are in-
serted in a new temporarily named file on the output device.

If the specified file is present on the input device, an intermediate
temporarily named file is opened for writing on the output device, and
the input file is opened for reading. The user may then proceed to
make the necessary changes in the input file.

---

[1]Maximum of six characters permitted for "filename".

[2]Maximum of three characters permitted for "ext".

If the input device is not file-structured (e.g., paper tape reader, card reader), the user's first command after program initialization can be any edit request. The OPEN command is not required for nonfile-structured devices.

3.2 INPUT/EDIT MODES

To enter <u>text</u> from the keyboard, the Editor must be in INPUT Mode. To carry out an edit function on the current line, the Editor must be in EDIT Mode.

Control may be changed at any time with a line of zero length (typing a carriage return only). The Editor command INSERT (without arguments) also causes a mode change. After the user changes control modes, the Editor types INPUT or EDIT, indicating the control mode in effect.

3.3 CREATING A NEW FILE

When both input and output devices are file-structured, the user can issue in EDIT mode the OPEN command, followed by the name he wishes to assign to his new file. Since a file of the name given is guaranteed not to be found (if the user has properly chosen his new name), INPUT Mode is immediately entered, following the standard error message. The name specified is assigned to the final output file if no other name is given in the CLOSE command.

If the output device is file-structured, a temporarily named file is opened for writing; input lines from the keyboard are added to it as they are entered. If the output device is not file-structured, the file-naming conventions may be bypassed.

3.4 EDIT BLOCK MCDE

If the BLOCK mode is not the current Editor default mode (refer to paragraph 2.2), the user must enter the keyboard command BLOCK ON to establish this data mode.

During Block mode edit operations, the input file is edited in multi-line groups rather than line-by line. Each group of lines is loaded (read) into a Block buffer where edit operations are performed. On completion of the edit operations, the contents of the block buffer are written into an output file. The number of lines within each "buffer

group" may be specified by the user by means of a "SIZE" command
(see paragraph 4.22). If not specified, the Editor assumes a default
size of 55_{10} lines.

To return to a line-by-line Edit Mode, the user must issue a "BLOCK OFF"
command. If the BLOCK OFF command is issued before the Block Buffer is
empty, the Editor outputs the message:

        BUFFER NON-EMPTY

at the console printer. The user must then empty the buffer before
the Block Edit Mode can be terminated. Block buffers are emptied using
the command WRITE (refer to 4.3.2).

3.5   CLOSING THE NEW FILE

When the user, after modifying or entering an input file, is satisfied
that all needed operations have been carried out, he must close out
the input and output files using the edit command:

        CLOSE␣␣filename␣␣ext⟩

which initiates the sequence of events described in paragraph 2.3.3.
Neither "filename" nor "ext" need be specified if previously given in
the OPEN command. Any filename and ext given in the CLOSE command
string override the names given in the OPEN command.

3.6   ERROR-HANDLING CONVENTIONS

3.6.1   Command String Errors

All mistakes in the use of Edit Mode control words result in a common
complaint by the Editor. Although the possible errors in usage fall
into a number of distinct categories, the program makes no attempt to
differentiate among error types. The reasons for this common treatment
lie in the requirement that the Editor take some cognizance of its
memory allocation (relatively obscure error types need as much memory
for recognition and response as do the more usual mistakes) and in the
fact that the treatment rendered makes the error self-explanatory.

Command string errors, then, all result in the single typed comment,

        NOT A REQUEST:

followed, on the next line, by the request line with which the Editor had trouble.

Usual types of command string errors include the following:

    a. The edit control word issued was not among those in the
        program's repertoire.
    b. A SIZE command was issued with a missing argument or an
        argument of "1".

When the BRIEF Mode (see Paragraph 4.2.7) is ON, the Editor command and the command line in error are replaced by a single typed question mark:

        ? ⟩

3.6.2 Premature End-of-File

During the processing of some commands, it occasionally happens that a read is attempted which moves the pointer below the last line of a logical (or physical) group. Consider, for example, the effect of a numeric argument in the GET n command line. The program reads successive lines from the subsidiary input device until exactly n lines have been read. If, in the process of reading, it is discovered that fewer than n lines are physically present on the secondary input medium (paper tape, say), then a premature end-of-file condition is said to exist. An improperly formulated FIND request (the character string typed is absent from the file) results in a similar condition.

Depending on the character of the incoming group of lines (block buffer, secondary input medium, or input file), the appearance of an unexpected end-of-file causes a comment to be typed to inform the user of the difficulty. The form of the message is:

$$\text{END OF } \begin{Bmatrix} \text{BUFFER} \\ \text{FILE} \end{Bmatrix} \text{ REACHED BY:}$$

followed, on the next line, by the edit request which caused the problem.

A premature end-of-file causes the pointer to be left <u>below</u> the final line of the group being read.

3.6.3 Read Errors and Line Overflow

During DOS editing operations, inputs from either the input or
subsidiary file are checked for two possible errors (in ADSS operations,
only inputs from the input file are checked. Whenever a line contain-
ing an error is found, it is printed at the console and made the
"current line" to enable it to be modified by the user.

The first type of error occurs when the input file device handler
detects either incorrect parity or a faulty checksum in the incoming
line. The printed comment is:

> READ ERROR:

followed by the line in which the error was encountered.

The second difficulty results from the appearance of a line which is
too long to be contained in the program's internal buffers. Any line
of more than 89_{10}[1] characters plus a terminator results in the
comment:

> TRUNCATED:

followed by the first (leftmost) 89 characters of the long line. The
remaining right-end characters are discarded. The user has the choice,
after either type of error, of modifying the line which causes the
complaint (via any manipulative request) or of allowing the line to
stand as is in the output file (via any locative request).

3.6.4 Block Mode Buffer Overflow

When Block Mode is in effect, it is possible for an attempted addition
of a line to the Block Mode Buffer to exceed the buffer's capacity.
This might occur, for example, during the processing of a READ request
if the number of input lines (previously defined by a SIZE command) is
too great to be accommodated by the memory available. When the
capacity of the buffer is exceeded, the program types the comment:

> BUFFER CAPACITY EXCEEDED BY:
> (offending line)

---

[1] A 90_{10}-character line is permitted in the ADSS Monitor System.

To eliminate this error condition, the operator must delete the excess (offending) line. The user should control carefully the size specification of the buffer and lines entered to ensure that this error condition is avoided.

3.6.5 File Naming and Calling Errors

Errors in file name usage can be classified in three general groups: 1) either the named file cannot be found, 2) a name has not been given to the file at a point where one is needed, or 3) a name has been given which cannot be used.

3.6.5.1 Absent File - If the file named in the OPEN request line cannot be found on the device associated with .DAT slot -14, the assumption is made that the user wishes to create a new file with the name given. The program prints the comment:

        FILE [filename ext] NOT FOUND.

and changes to Input Mode.

3.6.5.2 Absent File Name - If no file name is given either in an OPEN request line or as an argument to the CLOSE command, the program, after attempting to process the CLOSE request, prints:

        NO FILE NAME GIVEN.

The next edit request must be another CLOSE naming the file.

If no OPEN command is issued (a new file is being created), any locative request (FIND, NEXT) results in the comment:

        NO INPUT FILE PRESENT.

3.6.5.3 Identically Named Files - The problem of duplicate file names is apparent on two levels. In the first case, it is possible for a previous edit run to have been aborted with one of the Editor's temporary files (normally .TFIL1 EDT) closed on the output device. The closing of the temporary file created during the current edit run results in the deletion of the line-named file from the previous run. To enable the retrieval of prior work, the Editor types the comments:

```
FILE .TFIL1 EDT IS PRESENT ON OUTPUT DEVICE.
PLEASE RENAME IT OR IT WILL BE DELETED.
```

If the user wishes to preserve the contents of .TFIL1 EDT, he must
rename it using the CALL request (see Paragraph 3.7).

At the second level, it may happen that the file name given in a CLOSE
sequence is identical to that of another file on the (current) output
device. In such cases, the program types:

a) in DOS systems, the message:

```
                 PLEASE TYPE IN ANOTHER NAME
```

and outputs a go-ahead symbol (>). The Editor then waits
for the user to enter another file name and extension
(SRC assumed if none given). The request message will
be repeated until an acceptable file name is entered.

b) in ADSS systems, the message:

```
                 PLEASE USE ANOTHER NAME
```

A second CLOSE request (with a unique name) can then be
given.

If file processing has proceeded to a point at which recovery, as
described above, is impossible, the Editor recognizes a priority scheme
when file name difficulties are encountered. An attempt is made, first,
to ensure that the new (modified) version of the file being edited is
left on .DAT slot -14 and properly named. If that is impossible, the
program tries to leave the new file (again, properly named) on
.DAT slot -15. If that cannot be done either, then the new file is
left on .DAT slot -15 and is named .TFIL1 EDT. The Editor then reports
the nature of the difficulty, the final destination of the file, and
its current name, thus:

```
          FILE [filename ext] IS PRESENT ON OUTPUT DEVICE
          YOUR EDITED FILE IS ON .DAT-15 (OR -15) AS [newfile ext]
          ORIGINAL FILE DELETED.
```

The user now knows the residence of his edited file (.DAT-14 or
.DAT-15) and the name under which it can be accessed.

3.6.5.4 Nothing in File - The following error message can result from issuing CLOSE command prior to WRITE command when Block Mode is ON, or by having OUTPUT turned off when a WRITE or CLOSE command is issued:

        NOTHING IN FILE

In any event, the control returns to the Editor. The contents of the buffer remain unchanged. In the case of file-oriented input and output, the input file is left unchanged.

3.7 FILE RENAMING AND DELETION

The Editor provides two commands:

    a) CALL DELETE
    b) CALL RENAME

which enable the user to either delete or rename any file on the Editor's input or output devices/UFD's.

These commands are described in detail in Section 4.

SECTION 4

EDIT MODE COMMANDS

4.1 INTRODUCTION

The form and use of each command permitted in Edit Mode are described
in this section. The command descriptions are presented in five (5)
basic functional groups (i.e., setup, I/O, locative, manipulative,
and close); examples are given where possible. The following conven-
tions are observed throughout this section:

    a.   Where commands may be abbreviated, the legal
         abbreviation is specified, within brackets,
         immediately after the command's full name. For
         example, "NEXT [N] - indicates that the command
         NEXT may be abbreviated as "N"

    b.   When arguments may be added to or are required
         as part of a command, the command name must be
         separated from its argument by a single blank
         character (space ___). The blank delimiter is
         considered as part of the command, not part of
         the command's argument string. For example,
         the command RETYPE___/COMMENT results in the
         line: /COMMENT.

If more than one blank appears between the command and its argument
string, all blanks except the first are considered as part of the
argument.

For example, the statement:

         FIND___ ___ ___/COMMENT ⏎

results in a search for a line which begins with the character string

         ___ ___/COMMENT ⏎

4.1.1 Example File

The following file or portions of it are used throughout this
section to illustrate the operations performed by the Edit commands.
The contents of this file (i.e., EXAMP) are meaningless; this enables
the command functions to be demonstrated without regard to proper
programming techniques or requirements. The file is:

```
                   .TITLE   EXAMP    /EDIT COMMAND DEMONSTRATOR
         TAG1      AAA      /LINE 1
                   BBB
                   CCC
         TAG2      DDD      /LINE 4
                   EEE
                   FFF
         TAG3      GGG      /LINE 7
                   HHH
                   III
                   .END
```

4.2 SETUP COMMANDS

Edit Mode setup commands are required at the start of an editing
session to define and give parameters for the possible Editor features
which the user may employ and to delete or remove the file residing
on the input device. The setup commands are described, individually,
in paragraphs 4.2.1, through 4.2.9.

4.2.1 CALL RENAME Command

Form:

$$CALL\text{\textunderscore}\text{\textunderscore}RENAME\text{\textunderscore}\text{\textunderscore}\begin{Bmatrix} INPUT \\ OUTPUT \end{Bmatrix}\text{\textunderscore}\text{\textunderscore}OLDNAM\text{\textunderscore}\text{\textunderscore}EXT\text{\textunderscore}\text{\textunderscore}NEWNAM\text{\textunderscore}\text{\textunderscore}EXT \text{)}$$

Description:
This command must be used before the "OPEN" command (see 4.2.3) is
issued. It may be used repeatedly, and may be issued in any order
with the "CALL DELETE" command (see 4.2.2).

The RENAME command permits the user to change the name of any file
located on either the input or output device. No abbreviation is
permitted.

Example:
The following example illustrates the use of the RENAME command in
a DOS system to rename input file XXX SRC to the name NMTST SRC.

```
         02-OCT-71                      listing of current UFD in
     DIRECTORY LISTING   (VIC)            DOS System
       2436 FREE BLKS
          1 USER FILES
          1 USER BLKS
   XXX    SRC        1  02-OCT-71       entry for file "XXX SRC"
```

```
EDITOR V18A
>CALL RENAME INPUT XXX SRC NMTST SRC    RENAME Command, change name
>                                         of file XXX SRC to NMTST SRC


        02-OCT-71                       listing of resultant UFD
DIRECTORY LISTING    (VIC)
    2436 FREE BLKS
        1 USER FILES
        1 USER BLKS
NMTST    SRC         1  02-OCT-71       entry of renamed file
```

4.2.2 CALL DELETE Command

Form:

$$\text{CALL}\_\_\text{DELETE}\_\_\begin{Bmatrix}\text{INPUT}\\\text{OUTPUT}\end{Bmatrix}\_\_\text{FILNAM}\_\_\text{EXT}\,)$$

Description:

This command must be issued before the "OPEN" command (see 4.2.3) is
issued. It may be used repeatedly and may be issued in any order with
the "CALL RENAME" command (4.2.1). The DELETE command permits the
user to delete any file from the directory of any device (or UFD)
used as either the input or output device. No abbreviations are
permitted.

Example:

The following example illustrates the use of the DELETE command in
a DOS system to delete the file "NMTST SRC" from the current (input)
UFD.

```
        02-OCT-71                       listing of current UFD in DOS
DIRECTORY LISTING    (VIC)                System
    2436 FREE BLKS
        1 USER FILES
        1 USER BLKS
NMTST    SRC         1  02-OCT-71       entry for file "NMTST SRC"



EDITOR V18A
>CALL DELETE INPUT NMTST SRC            DELETE Command, delete file NMTST
>                                         from input device (i.e., current
                                          UFD)
```

```
            02-OCT-71                          listing of resultant UFD
      DIRECTORY LISTING   (VIC)
         2437 FREE BLKS
            0 USER FILES
            0 USER BLKS
```

4.2.3   OPEN Command

Form

        OPEN␣␣filename␣␣ext)

Description:
Edit Mode operations are initiated by the entry of this command.
When entered, the Editor searches the Input device for the named
file, if the file is found the program outputs the word "EDIT" and
a go-ahead symbol (i.e., >); if the file is not found, the program
outputs the message:

        FILE NOT FOUND
        INPUT

The word "INPUT" indicates that an intermediate write file has been
opened on the output device. Any inputs from the Keyboard are
written into the intermediate file, line-by-line.

Normal files found on the input device are open for reading and
subsequent Edit operations.

Example:
The following are examples of the responses obtained when an exist-
ing and a non-existent file are named in an OPEN command.

```
    EDITOR V18A          ⎫
   >OPEN EDTST SRC       ⎬       opening an existing file
    EDIT                 ⎭
    >
```

```
    ↑P                   ⎫
    EDITOR V18A          ⎪
   >OPEN AAA SRC         ⎬       OPEN Command referencing
    FILE AAA SRC NOT FOUND.⎪           a nonexisting file
    INPUT                ⎭
```

4.2.4   BLOCK ON/OFF Command

Form:

$$\text{BLOCK}\underline{}\begin{Bmatrix}\text{ON}\\\text{OFF}\end{Bmatrix})$$

Description:

This command (normally OFF) is used to establish a mode of operation
in which the Editor sets up a buffer in core to retain a defined sub-
set of the input file for edit operations. The size of the block
"buffer" may be set by the user during the Edit "SIZE" command or
a default size of 55_{10} lines may be accepted.

Once established, the block buffer is loaded by a "READ" command; all
normal editing operations may then be performed on the contents of the
buffer. On completion of editorial operations, the contents of the
buffer are output onto the output file by a WRITE command. A RENEW
command which writes the contents of the buffer onto the output file
and then loads the next subset of the input file into the buffer may
also be used.

The Block Mode may be turned ON or OFF at any time during the edit
operations. Once the size of the buffer is established, it will re-
main in effect until the Editor is restarted or another SIZE command
is issued.

<center>NOTE</center>

> If either the input or the scratch file device is a
> non-directoried device, the Block Mode is automatically
> turned ON by Edit. If both input and scratch devices
> are directoried devices, Block Mode is set OFF when
> Edit is loaded.

The command

        BLOCK)

(without arguments) is equivalent to

        BLOCK__ON)

Example:

1)   Assuming that the example file EXAMP SRC is on the input device
and is opened, the following commands set up a Block Mode with a 4-line
buffer and loader and prints out the buffer:

<center>4-5</center>

```
↑P
 EDITOR V18A
>OPEN EXAMP SRC
EDIT
>BLOCK ON                          set up BLOCK Mode
>S 4                               set SIZE of buffer to 4 lines
>READ                              load buffer from input file (EXAMP SRC)
>P 5                               PRINT contents of buffer
        .TITLE  EXAMP    /EDIT COMMAND DEMONSTRATOR
TAG1    AAA      /LINE 1
        BBB
        CCC
>
```

CONTENTS OF BLOCK MODE BUFFER

2) When the Block Mode is OFF, the entire input file is loaded,
line-by-line, into the Editor work area; this is illustrated by the
following:

```
EDIT
>WRITE                             empty buffer
>BLOCK OFF                         turn BLOCK mode OFF
>T                                 go to the top of the file in core
>P 20                              PRINT up to 20 lines
        .TITLE  EXAMP    /EDIT COMMAND DEMONSTRATOR
TAG1    AAA      /LINE 1
        BBB
        CCC
TAG2    DDD      /LINE 4          printout of file
        EEE                       loaded in core for
        FFF                       Edit operations
TAG3    GGG      /LINE 7
        HHH
        III
        .END
END OF FILE REACHED BY:           message printed to indicate that the
P 20                              end of the file was reached before
>                                 20 lines were printed.
```

4.2.5   SIZE [S] Command

Form:

     SIZE␣␣N␩   where N is a decimal number which specifies
                  the number of lines which the Block Mode
                  buffer is to contain.

NOTE:

    The name SIZE may be abbreviated as "S"
    (e.g., S␣␣N␩)

Description:
This command is effective only during Block ON Mode operations. It
enables the user to specify, in number of lines, the size of the
current Block Mode buffer. A size greater than 1 must be specified
or an error will occur.

If a SIZE command is not used, the Editor program assumes a default
size of 55_{10} lines. The default size is restored each time the
Editor is restarted.

Whenever a BLOCK ON command is given, it should be followed by a
SIZE command unless the default size is acceptable.

Example:
The command

    a)   S␣5   establishes a 5-line buffer
    b)   S␣100   establishes a 100-line buffer

4.2.6 VERIFY [V] ON/OFF Command

Form:

$$\text{VERIFY}\_\left\{\begin{array}{l}\text{ON}\\\text{OFF}\end{array}\right\}\text{J}$$

NOTE:
The name VERIFY may be abbreviated as "V"
(e.g., V␣ON ⏎)

Description
The VERIFY command (normally ON) enables the user to determine whether
or not a response is printed for certain Edit commands to verify that
they were carried out. Some of the responses printed are:

    a)   the line brought into the work area as the result of
        a FIND or LOCATE command is printed
    b)   the last line of a file or block buffer brought in
        by the BOTTOM command is printed
    c)   the new line resulting from a CHANGE request is
        printed.

With the VERIFY mode OFF, only error messages are printed.

The command:

        VERIFY⟩   (or V ⟩)

is equivalent to

        VERIFY␣␣ON   (or V␣␣ON ⟩)

Example:

The following example illustrates the function of the VERIFY mode:

```
            .TITLE  EXAMP   /EDIT COMMAND DEMONSTRATOR
    TAG1    AAA     /LINE 1  ⎫
            BBB              ⎬ current contents of block buffer
            CCC              ⎭
    >T                      go to top of buffer
    >VERIFY ON              turn Verify Mode ON
    >F TAG                  find line in buffer containing string "TAG"
    TAG1    AAA     /LINE 1  total line is printed to Verify operation
    >T                      go to Top of buffer
    >VERIFY OFF             turn Verify Mode OFF
    >F TAG                  repeat FIND command
    >                       a go-ahead symbol is printed to indicate
                            operation was completed, the line is not
                            printed.
```

4.2.7 BRIEF ON/OFF Command

Form:

$$\text{BRIEF}\text{␣␣}\left\{ \begin{array}{l} \text{ON} \\ \text{OFF} \end{array} \right\} \text{⟩}$$

Description:

This command (normally OFF) enables the user to determine if the
printed response to certain Edit commands is printed in a full
(BRIEF OFF) or an abbreviated (BRIEF ON) form. For example, response
made to the FIND, LOCATE, and BOTTOM commands will contain only items
in the tag, operation code, and address fields, if the BRIEF mode is
ON.

The VERIFY mode must be ON for the BRIEF mode command to have any
effect on printed response.

The command given without an ON/OFF argument (e.g., BRIEF⟩) is
equivalent to a BRIEF␣␣ON⟩ command.

Example:

The following example illustrates the manner in which the BRIEF mode
affects the response to the command F␣␣TAG⟩:

```
 VERIFY ON
>BRIEF OFF                          turn Brief Mode OFF
>T                                  go to Top of buffer
>F TAG                              find line containing the string "TAG"
TAG1    AAA        /LINE 1          total line is printed to Verify operation
>T                                  go to Top of buffer
>BRIEF ON                           turn Brief Mode on
>F TAG                              repeat Find command
TAG1    AAA                         an abbreviated line is printed to
>                                       Verify operation
```

4.2.8 OUTPUT ON/OFF Command

Form:

$$\text{OUTPUT} \sqcup \left\{ \begin{matrix} \text{ON} \\ \text{OFF} \end{matrix} \right\} \; \rangle$$

Description:

The OUTPUT command is always ON when the Editor is loaded into core,
and during normal Edit operations. When set to OFF, the OUTPUT
command enables all Edit commands to be used; however, no data will
be output to the output or scratch devices on .DAT-15. Also a
"NOTHING IN FILE" message is output on the console printer if a WRITE
or CLOSE command is issued.

This command may be issued at any time during file edit operations.
Its use enables the operator to go through a file and output only
selected portions of the file to what will be the final or new file
when a CLOSE command is issued.

Example:
The following example illustrates the use of the OUTPUT command; as
shown, this command is used to delete a segment of the file being
edited.

```
↑P
 EDITOR V18A
>OPEN EXAMP SRC                              open demonstration program
EDIT
>P 12                                        Print 12 lines of current file
         .TITLE   EXAMP   /EDIT COMMAND DEMONSTRATOR ─────────────
TAG1     AAA      /LINE 1                                        ▲
         BBB                                                     │
         CCC                                                     │
TAG2     DDD      /LINE 4                                        │
         EEE                         current (original) contents │
         FFF                         of file being edited.       │
TAG3     GGG      /LINE 7                                        │
         HHH                                                     │
         III                                                     │
         .END                 ───────────────────────────────── ▼
>T                                           go to Top of file
>F TAG2                                       Find line starting with "TAG2"
TAG2     DDD      /LINE 4                      printout of selected line
>OUTPUT OFF                                   OUTPUT "OFF" command
>F TAG3                                       Find line starting with "TAG3"
TAG3     GGG      /LINE 7                      printout of selected line
>OUTPUT ON                                    OUTPUT "ON" command
>B                                            go to Bottom of file
         .END                                 printout of last line in file
>CLOSE                                        Close file and terminate Edit operations

 EDITOR V18A
>OPEN EXAMP SRC                              reopen demonstrator program
EDIT
>P 12                                        Print 12 lines
         .TITLE   EXAMP   /EDIT COMMAND DEMONSTRATOR ──────▲────────
TAG1     AAA      /LINE 1                                  │
         BBB                          contents of the demonstrator
         CCC                          program as modified by the
TAG3     GGG      /LINE 7             OUTPUT ON/OFF command in the
         HHH                          previous Edit operation.
         III                                               │
         .END                 ───────────────────────────── ▼
END OF FILE REACHED BY:
P 12
>
```

4-10

4.2.9   KEEP [K] Command

Form:

KEEP␣␣savnam␣␣ext)   where "savnam" = the name of the
                             file to be saved. If an
                             extension is not given, "SRC"
                             is assumed.

NOTE

KEEP may be abbreviated as "K" (e.g.,
K␣␣savnam␣␣ext)).

Description:

This command causes the file on .DAT-14 when it is issued, to be pre-
served for back-up purposes. As many KEEP commands may be issued as
desired; however, each "savnam" must be different from any other file
name on the device at .DAT-14. Normally, the KEEP command may be
issued only while the input file is at .DAT-14 (i.e., the numbers of
TOPs issued must be even, 0, 2, 4,...). However, if the same device
and UIC are assigned to both the I/O and scratch functions (such as
operating with a file in a DOS UFD) the number of TOPs issued with the
KEEP command need not be even. The actual renaming of the input file,
however, is not done until the next TOP, CLOSE, EXIT, or ICLOSE
command is issued.

Example:

The following example illustrates the use of the KEEP command in a DOS
system to maintain both the original and edited files:


```
      02-OCT-71
DIRECTORY LISTING   (JAN)
   2437 FREE BLKS                           listing of UFD on
      1 USER FILES                          input .DAT slot
      1 USER BLKS
EXAMP   SRC         1  02-OCT-71            note single file entry
```

```
EDITOR V18A
>OPEN EXAMP SRC
EDIT
>KEEP EXAMP                          keep file "EXAMP SRC" intact on input dev.
>F TAG                               Find file line  beginning "USING"
TAG1     AAA      /LINE 1            printout verifying Find operation
>T                                   go to the Top of the file
FILE EXAMP SRC IS PRESENT ON INPUT DEVICE.  request for new name for output
PLEASE TYPE IN ANOTHER NAME.         file initiated by T (TOP) com'd
>EXAMP2                              new name
>CLOSE                               Close file and restart Editor

   EDITOR V18A
>
```

```
   02-OCT-71                    ⎤
DIRECTORY LISTING   (JAN)      ⎮   listing of UFD on
   2436 FREE BLKS              ⎬   input .DAT slot after
      2 USER FILES             ⎮   Edit operations
      2 USER BLKS              ⎦
EXAMP2 SRC        1  02-OCT-71 --⎤- original file
EXAMP  SRC        1  02-OCT-71 --⎦- new file
```

4.3   INPUT/OUTPUT COMMANDS

The Edit Mode commands which are used to input and output data during
editing operations are described in paragraphs 4.3.1 through 4.3.4.

4.3.1   READ Command

Form:

        READ ⟩

Description:

The READ command is permitted in the BLOCK ON mode of operation only.
This command fills the Block buffer with sequential lines from the
input file. Once filled, the buffer must be emptied before another
READ command can be issued (see WRITE and RENEW). The number of input
file lines read into the current block buffer is determined either by
the value specified in a previously entered SIZE (S) command or, if
S is not given, the default value (i.e. 55_{10}) is used.

On the completion of a READ operation, the current line pointer is
positioned one line above the first line of the buffer.

Example:

The following illustrates the manner in which the READ command is used to load a four-line Block Buffer.

```
   EDITOR V18A
>OPEN EXAMP SRC
 EDIT
>BLOCK ON                    turn BLOCK mode ON
>S 4                         set up a four-line block buffer
>READ                        fill buffer from input file
>P 5                         PRINT five lines
          .TITLE   EXAMP    /EDIT COMMAND DEMONSTRATOR ─────────────┐
 TAG1     AAA     /LINE 1                                           ▲
          BBB                                        contents of    │
          CCC                                        block buffer   ▼

>WRITE                       WRITE buffer contents on output/scratch file
>READ                        fill buffer with next sequential set of lines
>P 5                         PRINT five lines
 TAG2     DDD     /LINE 4    ───────────────────────────────────────▲
          EEE                                        contents of    │
          FFF                                        block buffer   │
 TAG3     GGG     /LINE 7    ───────────────────────────────────────▼
>
```

4.3.2 WRITE Command

Form:

        WRITE⟩

Description:

This command is permitted in only BLOCK ON modes of operation. It causes the contents of the current block buffer to be written onto the output file and then clears the buffer. The WRITE Command may be issued at any time during a Block mode Edit operation.

4.3.3 RENEW Command

Form:

        RENEW⟩

Description:

This command is permitted only during BLOCK ON modes of operation. The RENEW command causes a buffer write-clear-fill sequence of

operations to be performed. This command replaces a WRITE, READ
command sequence.

On the completion of a RENEW operation, the current line pointer is
positioned one line above the first line of the buffer.

Exammple:


```
 EDITOR V18A
>OPEN EXAMP SRC
EDIT
>BLOCK ON                           turn BLOCK mode ON
>S 4                                set up a 4-line buffer
>READ                               fill buffer from input file
>P 5                                PRINT 5 lines
           .TITLE  EXAMP   /EDIT COMMAND DEMONSTRATOR
TAG1    AAA     /LINE 1
        BBB                                          } contents of buffer
        CCC
>RENEW                              write, clear and fill buffer
>P 5                                PRINT 5 lines
TAG2    DDD     /LINE 4
        EEE                                          } new contents of buffer
        FFF
TAG3    GGG     /LINE 7
>
```

4.3.4   GET [G] Command

Form:

         GET␣n)   where n is a decimal number.

                            NOTE:
              GET may be abbreviated as "G" (e.g., G␣n)).

Description:
This command causes n lines from the subsidiary input device to be
added to the output file. New lines are added below the current line.
When command processing is complete, the nth line read is left in the
work area as the current line. If n is omitted, it is assumed to be 1.

If an end-of-medium condition is encountered on the subsidiary input
device before n lines are read, the error message

         END OF MEDIUM REACHED BY:

         GET   n

is printed. The pointer remains at the last line read.

Example:

The following printout illustrates the manner in which data from a
subsidiary input device is inserted into a file using the GET command.


```
 EDITOR V18A
>OPEN EXAMP SRC
EDIT
>L TAG2                      LOCATE line containing string "TAG2"
TAG2    DDD      /LINE 4     verification printout
>GET 3                       GET 3 lines from subsidiary dev; insert in file
>T                           go to TOP of file
>P 20                        PRINT 20 lines
        .TITLE   EXAMP   /EDIT COMMAND DEMONSTRATOR
TAG1    AAA      /LINE 1
        BBB
        CCC
TAG2    DDD      /LINE 4                              inserted
THIS MESSAGE IS BEING ADDED TO THE OUTPUT FILE         lines      contents
FROM THE SUBSIDARY INPUT DEVICE (PR IN THIS CASE)                 of file
USING THE GET COMMAND
        EEE
        FFF
TAG3    GGG      /LINE 7
        HHH
        III
        .END
END OF FILE REACHED BY:
P 20
>
```


4.4   LINE POINTER CONTROL (LOCATIVE) COMMANDS

During editing operations, the Editor program maintains a pointer
which identifies the current line (i.e., the line which any subsequent
editing operations will affect or will be referenced to).

Commands are provided which permit the user to control the positioning
of the "current line" line pointer and to cause the pointer to be set
to a line identified only by a text string contained by the line. The
commands provided enable the user to: 1) set the line pointer to
either the Top or Bottom of a file or buffer, 2) move the line pointer
a specified number of lines away from its current position, and 3)
make a line, identified only by a text string, the current line.

4.4.1 TOP [T] Command

Form:

    TOP ⟩

                            NOTE
            This command may be abbreviated as "T"
            (e.g., T ⟩).

Description:

The T command causes the line pointer to be moved to one line position
<u>above</u> the first line of the file or buffer being edited. The pointer
is positioned in this manner to enable the user to insert, if desired,
data before the first line of the file or buffer. The TOP command
may be entered at any time during the Edit operations.

Example:

The following example illustrates the use of the TOP command and
the fact that it is positioned above the current file or buffer.


```
  EDITOR V18A
>OPEN EXAMP SRC
EDIT
>L TAG2                       LOCATE line in file containing string "TAG2"
TAG2     DDD        /LINE 4   verification printout
>TOP                          go to TOP of file
>P                            PRINT current line (nothing is printed since
>N          go to NEXT line    pointer is above first line of the file)
>P                            PRINT current line
        .TITLE  EXAMP    /EDIT COMMAND DEMONSTRATOR   first line in file
>
```


4.4.2 NEXT [N] Command

Form:

    NEXT␣n ⟩   where n is a decimal number.

                            NOTE
            This command may be abbreviated as "N"
            (e.g., N␣n⟩)

Description:

This command enables the user to move the line pointer a specified
number (i.e., n) of lines towards the bottom (end) of a file or

buffer. The NEXT operation begins with the line current when the command was issued and ends with the line pointer at the position "current line + n". During the line-by-line (File) mode, lines skipped over are added to the output file.

The N command may be issued at any time during Edit operations. If a value is not given for n, it is assumed to be 1.

If an N command results in the pointer being moved past the last line of the file or buffer, the error message:

$$\text{END OF} \begin{Bmatrix} \text{FILE} \\ \text{BUFFER} \end{Bmatrix} \text{REACHED BY:}$$

NEXT n

is printed at the console.

Example:
The following illustrates the use of the NEXT command:

```
 EDITOR V18A
>OPEN EXAMP SRC
EDIT
>P 2                                    PRINT two lines
        .TITLE   EXAMP    /EDIT COMMAND DEMONSTRATOR  first line of file
>NEXT 3                                 move pointer three lines
>P                                      PRINT current line
        CCC                             current line
>N 2                                    move pointer two lines
>P                                      PRINT current line
        EEE                             current line
>N                                      move pointer one line
>P                                      PRINT current line
        FFF                             current line
>N 12                                   move pointer twelve lines
END OF FILE REACHED BY:        )        error message
N 12                           )
>                              )
```

4.4.3 BOTTOM [B] Command

Form:

      BOTTOM⏎

NOTE:

This command may be abbreviated as "B"
(e.g., B⏎).

Description:
The B command causes the line pointer to be moved to the final line
of the file or buffer being edited. In a file mode of operation, any
lines skipped over are added to the output file.

Example:
The following verifies that the B command will move the pointer to
the last line of a buffer:


```
 ↑P
 EDITOR V18A
>OPEN EXAMP SRC
EDIT
>BLOCK ON              turn BLOCK mode ON
>S 5                   setup a five-line buffer
>READ                  load buffer from input file
>P 6                   PRINT six lines (i.e.buffer contents)
          .TITLE  EXAMP   /EDIT COMMAND DEMONSTRATOR⎤
TAG1      AAA     /LINE 1                            |
          BBB                                        ⎬ current contents
          CCC                                        |   of buffer
TAG2      DDD     /LINE 4                            ⎦
>T                     move pointer to TOP of buffer
>BOTTOM                move pointer to last line of buffer
TAG2      DDD     /LINE 4  line printed to verify operation
>
```


4.4.4 FIND [F] Command

Form:
      FIND␣string⏎
NOTE:

This command may be abbreviated as "F"
(e.g., F␣string⏎).

Description:
The F command causes a sequential line-by-line search to be made of
the file or buffer being edited for the first occurrence of a line

which begins with the specified "string". The search starts below the
current line; if the specified line is found, it becomes the current
line and is printed at the console. If a line starting with the
given "string" is not found, the line pointer is positioned immediately
below the last line of the file (or buffer) and the message:

$$\text{END OF} \left\{ \begin{array}{l} \text{FILE} \\ \text{BUFFER} \end{array} \right\} \text{REACHED BY:}$$

FIND (or F) "string"

is printed at the console.

In entering an identifying "string", the user must ensure that it
matches exactly the beginning of the line to be found. The command
"string" must include all tabs and/or spaces preceding or within the
first portion of the desired line.

Example:

The following illustrates the use of the "F" command.


```
 EDITOR VI8A
>OPEN EXAMP SRC          open demonstration program
EDIT
>FIND TAG3               make line starting "TAG3" current
TAG3    GGG     /LINE 7  verification printout
>T                       go to TOP of file
>FIND .END               make line starting ".END" current
END OF FILE REACHED BY:  error message, the line was not found
FIND .END                   (the user omitted the tab preceding .END)
>
```

4.4.5   LOCATE [L] Command

Form:

        LOCATE␣string⟩

                        NOTE

        This command may be abbreviated as "L"
        (e.g., L␣string⟩).

Description:

This command causes a sequential line-by-line search to be made of
the file or buffer being edited for the next occurrence of a line
containing the specified "string". The identifying "string" may be
numeric, alphabetic, or alphanumeric and need not be a complete word.
The "string" given, however, should be unique, within the file or
buffer, to the desired line.

The initiated search starts at the current line; if the specified line is found, it becomes the current line and is printed at the console. If the identified line is not found, the line pointer is moved immediately below the last line of the file or buffer and the message:

END OF $\left\{\begin{array}{l}\text{FILE}\\\text{BUFFER}\end{array}\right\}$ REACHED BY:

LOCATE (or L) "string"

is printed at the console.

Example:

The following illustrates the use of the "L" command:

```
 EDITOR V18A
>OPEN EXAMP SRC              open demonstration program
EDIT
>LOCATE TAG3                 make line containing "TAG3" current
TAG3    GGG    /LINE 7       verification printout
>T                          go to TOP of file
>L G3                        make line containing "G3" current
TAG3    GGG    /LINE 7       verification printout
>T                          go to TOP of file
>L NE 7                      LOCATE line containing "NE 7"
TAG3    GGG    /LINE 7       verification printout
>T                          go to TOP of file
>L ZZZ                       make line containing "ZZZ" current
END OF FILE REACHED BY:      error message,  no line containing "ZZZ"
L ZZZ                          was found
>
```

4.5   TEXT MODIFICATION AND MANIPULATIVE COMMANDS

The Edit Mode commands which enable the user to view, change data, and modify the structure of the current file or buffer are described in paragraphs 4.5.1 through 4.5.11. Explicit examples of the use of this type of Edit command are given wherever possible.

4.5.1   PRINT [P] Command

Form:

PRINT␣n)   where n is a decimal number.

NOTE

This command may be abbreviated as "P" (e.g., P␣n)).

Description:

This command permits the user to print, at the console, one line or a group of "n" lines of the current file or buffer. Print operations start at the current line; the last line printed becomes the current line. If no value is given for "n", it is assumed to be 1; the command "P)" causes the current line to be printed; however, it will also remain the "current" line after being printed.

After a "T" TOP command, the user must specify n+1 lines to get the desired printout, since the line pointer will be one line above the first line of the file or buffer.

If the value of n is too large, it will cause the current file/buffer line pointer to be moved past the last line of the file/buffer and the message

$$\text{END OF} \left\{\begin{array}{c} \text{FILE} \\ \text{BUFFER} \end{array}\right\} \text{REACHED BY:}$$

P␣n

is printed at the console.

Example:

The following annotated listing illustrates the use of the "P" command.

```
  EDITOR V18A
>OPEN EXAMP SRC          OPEN demonstration program
EDIT
>PRINT 5                 PRINT 5 lines
        .TITLE  EXAMP  /EDIT COMMAND DEMONSTRATOR ⎫  lines printed.
TAG1    AAA     /LINE 1                           ⎬  note only four
        BRB                                       ⎪  lines printed
        CCC                                       ⎭  because line
>P 2                           PRINT 2 lines         pointer was above
        CCC                 ⎫                         first file line
TAG2    DDD     /LINE 4 ⎬  response
>P                      ⎭  PRINT current line
TAG2    DDD     /LINE 4    response
>P 10                      PRINT ten lines
TAG2    DDD     /LINE 4
        EEE
        FFF                   all remaining file lines printed
TAG3    GGG     /LINE 7       in response to the P 10 command
        HHH
        III
        .END
END OF  FILE REACHED BY:⎫   error message; the end of file was reached
P 10                     ⎬  before ten lines were printed
>                        ⎭
```

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4.5.2 DELETE [D] Command

Form:

DELETE␣␣n↵   where n is a decimal number.

NOTE

This command may be abbreviated as "D
(e.g., D␣n↵).

Description:

The D command enables the user to delete one line, or a group of "n"
lines from the current file or buffer. If a value for n is not given,
the value 1 is assumed. Whenever a line is deleted, the line pointer
is moved to the next sequential line. If the value of n is given too
large, the pointer is moved below the last line in the file or buffer,
an end-of-file/buffer message is printed at the console.

Example:

The following example illustrates the use of the "D" command.


```
   EDITOR V18A
 >OPEN EXAMP SRC           OPEN demonstrator program
 EDIT
 >BLOCK ON                 turn BLOCK mode ON
 >S 6                      establish a six line buffer
 >READ                     load buffer
 >P 7                      PRINT contents of buffer
        .TITLE   EXAMP    /EDIT COMMAND DEMONSTRATOR ⎫
 TAG1   AAA      /LINE 1                             ⎪
        BBB                                          ⎪
        CCC                                          ⎬  contents of
 TAG2   DDD      /LINE 4                             ⎪  block buffer
        EEE                                          ⎭
 >T                        go to TOP of buffer
 >L BBB                    LOCATE line containing "BBB"
        BBB                verification printout
 >DELETE                   DELETE current line
 >T                        go to TOP of buffer
 >P 7                      PRINT contents of buffer
        .TITLE   EXAMP    /EDIT COMMAND DEMONSTRATOR ⎫
 TAG1   AAA      /LINE 1                             ⎪  contents of
        CCC                                          ⎬  block buffer;
 TAG2   DDD      /LINE 4                             ⎪  note line con-
        EEE                                          ⎪  taining BBB
 END OF BUFFER REACHED BY:                           ⎭  is gone
 P 7
```


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```
>T                              go to TOP of buffer
>L CCC                          LOCATE line containing "CCC"
         CCC                    verification printout
>D 3                            DELETE 3 lines including current line
END OF BUFFER REACHED BY:
D 3
>T                              go to TOP of buffer
>P 6                            PRINT contents of buffer
         .TITLE  EXAMP  /EDIT COMMAND DEMONSTRATOR  ⎫
TAG1     AAA    /LINE 1                             ⎬  contents of
END OF BUFFER REACHED BY:                          ⎪  buffer after
P 6                                                ⎭  DELETE operation
>
```

4.5.3   RETYPE [R] Command

Form:

        RETYPE␣␣line⟩

                                NOTE

        This command may be abbreviated as "R:
        (e.g., R␣␣line⟩).

Description:

This command causes the current line to be replaced, entirely, by the
"line" given in the command.

Example:

The following illustrates the use of the "R" command:


```
 EDITOR V18A
>OPEN EXAMP SRC                 OPEN demonstration program
EDIT
>P 6                            PRINT six lines
         .TITLE  EXAMP  /EDIT COMMAND DEMONSTRATOR  ⎫
TAG1     AAA    /LINE 1                             ⎪
         BBB                                        ⎬  first six lines
         CCC                                        ⎪  of file
TAG2     DDD    /LINE 4                             ⎭
>T                              go to TOP of file
>L BBB                          LOCATE line containing "BBB"
         BBB                    verification printout
>RETYPE THIS MESSAGE REPLACES LINE BBB       RETYPE command
>T                                      TOP command
>P 6                                    PRINT six lines
         .TITLE  EXAMP  /EDIT COMMAND DEMONSTRATOR  ⎫
TAG1     AAA    /LINE 1                             ⎪  first five lines
THIS MESSAGE REPLACES LINE BBB                     ⎬  of file; note
         CCC                                        ⎪  change in line
TAG2     DDD    /LINE 4                             ⎭  "BBB"
>
```

4.5.4   INSERT [I] Command

Form:

        INSERT *)*

                                NOTE
            This command may be abbreviated as "I"
            (i.e., I*)*).

Description:

This command enables the user to insert via the keyboard, one or more
lines between selected lines of the current file or buffer. When the
I command is issued and the operating mode is changed from EDIT to
INPUT, the user may key in any desired data. The INPUT operation is
terminated by the entry of a blank line (i.e., a line containing only
a *)*). Once the EDIT mode is restored, the current line pointer will
be positioned at the last line entered when in input mode.

Example:

The following illustrates the use of the I command.


```
   EDITOR V18A
  >OPEN EXAMP SRC              OPEN demonstrator program
   EDIT
  >P 6                         PRINT six lines
         .TITLE   EXAMP    /EDIT COMMAND DEMONSTRATOR  ⎫
   TAG1  AAA      /LINE 1                              ⎪  first five lines
         BBB                                           ⎬  of current file
         CCC                                           ⎪
   TAG2  DDD      /LINE 4                              ⎭
  >T                           TOP
  >L BBB                       LOCATE line containing "BBB"
         BBB
  >INSERT                      INSERT command
   INPUT                       INPUT mode identifier
   1111  ADDED LINE  ⎫
   2222  ADDED LINE  ⎬         inserted material
   3333  ADDED LINE  ⎭

   EDIT                        EDIT mode identifier
  >T                           TOP
  >P 10                        PRINT ten lines
         .TITLE   EXAMP    /EDIT COMMAND DEMONSTRATOR  ⎫
   TAG1  AAA      /LINE 1                              ⎪
         BBB                                           ⎪
   1111  ADDED LINE                                    ⎬  contents of file;
   2222  ADDED LINE                                    ⎪  note inserted
   3333  ADDED LINE                                    ⎪  material
         CCC                                           ⎬
   TAG2  DDD      /LINE 4                              ⎪
         EEE                                           ⎭
  >
```

4.5.5   INSERT [I] Line Command

Form:

          INSERT␣␣line⟩

                                        NOTE

          This command may be abbreviated as "I"
          (e.g., I␣␣line⟩).

Description:

This command enables the user to insert single "lines" between lines
of a current file or buffer without changing the operating mode. When
an I␣␣line command is issued, the current line is added to the output
file and the command "line" data becomes the current line. Note that
the insertion is made below the line current when the command is issued.
The operation remains in the Edit Mode throughout the execution of
this command.

Example:

The following illustrates the use of the I␣␣line command.


```
  EDITOR V18A
 >OPEN EXAMP SRC            OPEN demonstrator program
 EDIT
 >P 6                       PRINT six lines
          .TITLE   EXAMP   /EDIT COMMAND DEMONSTRATOR  ⎫
 TAG1     AAA      /LINE 1                             ⎪
          BBB                                          ⎬ first five
          CCC                                          ⎪ lines of
 TAG2     DDD      /LINE 4                             ⎭ current file
 >T                         TOP
 >L BBB                     LOCATE line "BBB"
          BBB
 >INSERT 1111 INSERTED LINE  INSERT command
 >T                         TOP
 >P 10
          .TITLE   EXAMP   /EDIT COMMAND DEMONSTRATOR  ⎫ contents of
 TAG1     AAA      /LINE 1                             ⎪ current file;
          BBB                                          ⎪ note inserted
 1111 INSERTED LINE                                    ⎬ line immediately
          CCC                                          ⎪ after line "BBB"
 TAG2     DDD      /LINE 4                             ⎪
          EEE                                          ⎪
          FFF                                          ⎪
 TAG3     GGG      /LINE 7                             ⎭
 >
```

4.5.6   CHANGE [C] Command

Form:

        CHANGE␣/string 1/string 2/⏎

Description:
This command enables the user to replace selected portions of a
current line. Part "/string1/" of the command identifies the portion
of the current line to be replaced; part "/string 2/" specifies the
new data to be entered. Both /string 1/ and /string 2/ may contain
any number of characters, including $\emptyset$.

Null (blank) spaces to be replaced or entered are indicated by two
consecutive separators (i.e., /'s) such as //.

If the number of characters in the current line, including the terminator,
exceeds 90_{10} as the result of a CHANGE command, the message:

      TRUNCATED

is printed at the console and the excessive right-hand characters of
the current line are discarded.

When the VERIFY Mode is ON, the changed current line is automatically
printed at the console on completion of the CHANGE operation.

Example:
The following illustrates the use of the C command.

```
EDITOR V18A
>OPEN EXAMP SRC                       OPEN demonstration program
EDIT
>P 4                                  PRINT four lines
        .TITLE  EXAMP   /EDIT COMMAND DEMONSTRATOR  ⎫ first three
TAG1    AAA     /LINE 1                             ⎬ lines of
        BBB                                         ⎭ current file
>T                                    TOP
>L TAG                                LOCATE line containing "TAG"
TAG1    AAA     /LINE 1
>CHANGE /TAG/ADD/                     CHANGE "TAG" to "ADD" in current line
ADD1    AAA     /LINE 1               verification printout
>T
>L .T                                 LOCATE line containing ".T"
        .TITLE  EXAMP   /EDIT COMMAND DEMONSTRATOR
>C /TOR/TION/                                            CHANGE command
        .TITLE  EXAMP   /EDIT COMMAND DEMONSTRATION      changed line
>T
>L BBB                                LOCATE line "BBB"
        BBB
>C //TAGB/                            add "TAGB" to line using CHANGE command
TAGB    BBB
>T
>P 4
        .TITLE  EXAMP   /EDIT COMMAND DEMONSTRATION ⎫ first three
ADD1    AAA     /LINE 1                             ⎬ lines of modified
TAGB    BBB                                         ⎭ file
>T                                    TOP
>L TAGB                               LOCATE line containing "TAGB"
TAGB    BBB
>C /TAGB//                            use null string to delete "TAGB"
        BBB
>
```

4.5.7 OVERLAY [O] Command

Form:

        OVERLAY␣␣n⟩   where n is a decimal number.

                                NOTE
                This command may be abbreviated as "O"
                (e.g., O␣␣n⟩).

Description:

This command enables the user to delete one or more lines and to
insert lines input from the keyboard in place of the deleted material.
The number of lines to be deleted in an "O" operation is specified by
the value assigned to n. If n is omitted from the command, 1 is
assumed. When an "O" command is issued, the indicated lines are
deleted and the operating mode is changed from EDIT to INPUT.

The user may then enter any number of desired lines to replace the deleted lines. The INPUT mode is terminated and the EDIT mode restored by the entry of a blank line (i.e., a line containing only a $)$ or ALT MODE entry.

Example:
The following illustrates how the O command is used to delete one line and replace it with two lines input from the console keyboard.

```
 EDITOR  VI8A
>OPEN EXAMP SRC              OPEN demonstrator program
EDIT
>P 5                        PRINT five lines
        .TITLE  EXAMP   /EDIT COMMAND DEMONSTRATOR ⎫
TAG1    AAA     /LINE 1                            ⎬ first four lines
        BBB                                        ⎪ of current file
        CCC                                        ⎭
>T
>L CCC                      LOCATE line "CCC"
        CCC
>OVERLAY                    OVERLAY line "CCC"
INPUT                       INPUT mode identifier
THIS INPUT LINE IS TO REPLACE (OVERLAY) LINE CCC ⎫ keyed in
THIS LINE IS TO BE INSERTED BETWEEN NEW LINE AND TAG2 ⎬ lines

EDIT                        restore EDIT mode
>T
>P 8
        .TITLE  EXAMP   /EDIT COMMAND DEMONSTRATOR ⎫ first six lines
TAG1    AAA     /LINE 1                            ⎪ of current file
        BBB                                        ⎬ showing the
THIS INPUT LINE IS TO REPLACE (OVERLAY) LINE CCC  ⎪ input overlays
THIS LINE IS TO BE INSERTED BETWEEN NEW LINE AND TAG2 ⎪
TAG2    DDD     /LINE 4                            ⎪
        EEE                                        ⎭
>
```

4.5.8   APPEND [A] Command

Form:

        APPEND␣␣string$)$

                        NNOTE

            This command may be abbreviated as "A"
            (e.g., A␣␣string$)$).

Description:
The A command enables the user to add (append) data to the current line. The appended data will be placed after the last character of the

original line and may contain spaces and tabs as well as alphanumeric
characters.

Example:
The following illustrates the use of the A command:


```
 EDITOR V18A
>OPEN EXAMP SRC                      OPEN demonstrator program
EDIT
>P 6
        .TITLE  EXAMP    /EDIT COMMAND DEMONSTRATOR  ⎤
TAG1    AAA     /LINE 1                              ⎥   first five
        BBB                                          ⎬   lines of
        CCC                                          ⎥   current file
TAG2    DDD     /LINE 4                              ⎦
>T
>L BBB                               LOCATE line "BBB"
        BBB
>APPEND         /LINE 2              add " tab /LINE 2" to current line
>N
>P
        CCC
>A      /LINE 3                      add " tab /LINE 3" to current line
>T
>P 6
        .TITLE  EXAMP    /EDIT COMMAND DEMONSTRATOR  ⎤
TAG1    AAA     /LINE 1                              ⎥
        BBB     /LINE 2                              ⎥   printout of first
        CCC     /LINE 3                              ⎬   five file lines
TAG2    DDD     /LINE 4                              ⎥   showing added
>                                                    ⎦   material
```


4.5.9   MOVE Command (DOS SYSTEMS ONLY)

Form:

        MOVE␣␣n␣␣string⟩   where n is a decimal number

Description:
The MOVE command enables the user to move the current line or n lines
including the current line from their position in the file or buffer
to a position immediately above (preceding) the file/buffer line
identified by the command "string". Any desired decimal value may be
assigned to n; it may not be omitted from the command.

If the value of n is too large, an END of File Reached message is given
but nothing is moved from its original position.

The command "string" should be the first characters of the line; where
spaces and tabs are used as field delimiters, they must be entered as
part of the identifying text "string".

Example:
The following example illustrates the use of the MOVE command.

```
   EDITOR V18A
   >OPEN EXAMP SRC              OPEN demonstrator program
   EDIT
   >P 6
          .TITLE  EXAMP   /EDIT COMMAND DEMONSTRATOR ⎫  printout of
   TAG1   AAA     /LINE 1                            ⎬  first five
          BBB     /LINE 2                            ⎭  file lines
          CCC     /LINE 3
   TAG2   DDD     /LINE 4
   >T
   >L TAG                       LOCATE line containing "TAG"
   TAG1   AAA     /LINE 1       current (LOCATEd) line
   >MOVE 1 TAG2                 MOVE current line to position above line TAG2
   >T
   >P 6
          .TITLE  EXAMP   /EDIT COMMAND DEMONSTRATOR ⎫  printout of
          BBB     /LINE 2                            ⎬  first five file
          CCC     /LINE 3                            ⎭  lines; note
   TAG1   AAA     /LINE 1                               moved line
   TAG2   DDD     /LINE 4
   >
```

During a BLOCK ON state:

   a) If the number of lines specified in the MOVE command exceeds
       or equals the size of the current block buffer, the Editor
       outputs the message:

                        SIZE TOO SMALL
       on the console printer and waits for the next user entry.

Example:

```
 ↑P
 EDITOR V18A
>OPEN EXAMP SRC
EDIT
>BLOCK ON
>S 5
>READ
>L TAG1
TAG1     AAA      /LINE 1
>MOVE 10 TAG2
SIZE TO SMALL
>P
TAG1     AAA      /LINE 1        note, current line is unchanged
>
```

      b)   If the MOVE command specifies more lines to be moved than
           are in the block buffer, EDIT outputs the error message:

                 NOT ENOUGH LINES
                 >

        on the console printer and waits for the next user entry.

<div align="center">NOTE</div>

        Neither of the above error conditions changes
        the position of the current line pointer or
        affects the contents of the block buffer.

During a BLOCK MODE OFF state:

    If the MOVE command specifies more lines to be moved than exist
    in the current file, EDIT outputs the error message:

                 NOT ENOUGH LINES
                 END OF FILE REACHED BY:
                 (MOVE command entered)
    on the console printer and waits for the next user entry.

Example:

```
 ↑P
 EDITOR V18A
>OPEN EXAMP SRC
EDIT
>L BBB
        BBB       /LINE 2
>MOVE 15 TAG3
NOT ENOUGH LINES
END OF FILE REACHED BY:
MOVE 15 TAG3
>
```

If there is not enough buffer space to store the lines being moved,
the Editor outputs the message:

        NOT ENOUGH BUFFER SPACE

at the console printer and waits for the next user entry. Neither of
the above conditions affects the lines specified in the MOVE command;
however, in an "END OF FILE" error condition, the current line
pointer is moved past the last line in the file and there will be no
"current line". The user must then enter a "TOP" command and specify
another line with a FIND or LOCATE command.

Whenever a "NOT ENOUGH BUFFER SPACE" error occurs, the current line
pointer is moved to the line which caused the overflow condition. If
the line containing the text string specified in the MOVE command is
not found, EDIT outputs the error message:

      LINES MOVED TO END
      END OF $\left\{\begin{matrix} \text{BUFFER} \\ \text{FILE} \end{matrix}\right\}$ REACHED BY:
      (MOVE COMMAND)

and waits for the next user entry.

When an error of this type occurs, the lines to be moved are deleted
from their original positions in the file and are placed at the end
of the file. The lines are not lost but it is difficult to recover
from this condition, care should be taken in entering the MOVE command
(text string) to prevent this error from occurring...

Example:
In the following example, line "TAG1" was erroneously moved to below
the last line of the file when it was to be placed after the
".TITLE" line.

The user recovered from this error by utilizing the MOVE command to
move the 9 lines between ".TITLE" and "TAG1" lines to a false posi-
tion identified by string "ZZZ". The command results in the specified
9 lines being moved below the last line of the file (i.e., "TAG1")
thus correctly positioning all lines of the file.

```
     EDITOR V18A
    >OPEN EXAMP SRC
    EDIT
    >L TAG1
    TAG1      AAA        /LINE 1
    >MOVE 1 BBB                              bad command; tab before "BBB" not included
    LINES MOVED TO END          ⎫
    END OF FILE REACHED BY:      ⎬ resulting error message
    MOVE 1 BBB                   ⎭
    >T
    >P 12
              .TITLE   EXAMP   /EDIT COMMAND DEMONSTRATOR
              BBB
              CCC
    TAG2      DDD        /LINE 4
              EEE
              FFF
    TAG3      GGG        /LINE 7
              HHH
              III
              .END
    TAG1      AAA        /LINE 1        resulting position of line "TAG1"
    >T
    >L BBB
              BBB                       ⎫
    >MOVE 9 ZZZ                         ⎬ MOVE lines "BBB" through ".END" to
    LINES MOVED TO END                 ⎬ end of file, i.e., below line "TAG1"
    END OF FILE REACHED BY:             ⎭
    MOVE 9 ZZZ
    >T
    >P 12
              .TITLE   EXAMP   /EDIT COMMAND DEMONSTRATOR
    TAG1      AAA        /LINE 1
              BBB
              CCC
    TAG2      DDD        /LINE 4                        printout of
              EEE                                       resulting file
              FFF
    TAG3      GGG        /LINE 7
              HHH
              III
              .END
    >
```

                              NOTE

        The above recovery procedure is acceptable for short
        files; however, when editing long files it is more
        realistic to enter a CTRL P (Editor restart) and to
        reopen the file. A CTRL P command entered during
        the processing of the MOVE command is ignored. After
        the MOVE has been processed then a new CTRL P command
        will be honored.

4.5.10   CONVERT Command (DOS SYSTEMS ONLY)

Form:

        CONVERT␣/string 1/string 2/⤸

                              NOTE

          The use of the last separator (/) is optional.
          Any character not in string1 or string2 may
          be used as a delimiter.

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Description:
The CONVERT command enables the user to change a specific item or
data set which is repeated throughout a file using only one command.

In the execution of this command, EDIT scans the entire buffer or file
(BLOCK mode ON/OFF) and each time that it finds a line string which
matches "string 1" it replaces that string (converts) with that of
"string 2" of the command.

If a "string 2" is not given in the CONVERT command, all line strings
matching the given "string 1" are deleted from the buffer (or file).
On completion of a CONVERT command, the "current line pointer" points
to the first line below the last line in the file or buffer (i.e. End
Of File/Buffer condition).

If, during the convert process, the current line overflows (i.e.,
exceeds 90 characters including the terminator), it is truncated and
the following message is output at the console printer:

        (truncated line)
        TRUNCATED

After outputting the above the Editor continues with the convert
operation.

A "string 1" must be given in the CONVERT command, otherwise the
message:

        NO STRING

is output at the console printer and the Editor waits for the next
user command.

Example:
The following illustrates the use of the CONVERT command.

```
  EDITOR V18A
>OPEN EXAMP SRC
EDIT
>P 12
        .TITLE  EXAMP   /EDIT COMMAND DEMONSTRATOR  ⎫
TAG1    AAA     /LINE 1                             ⎪
        BBB                                         ⎪
        CCC                                         ⎪
TAG2    DDD     /LINE 4                             ⎪
        EEE                                         ⎪
        FFF                                         ⎬
TAG3    GGG     /LINE 7                             ⎪
        HHH                                         ⎪  original
        III                                         ⎪  file
        .END                                        ⎭
>T
>CONVERT /TAG/ADD/
>T
>P 12
        .TITLE  EXAMP   /EDIT COMMAND DEMONSTRATOR  ⎫
ADD1    AAA     /LINE 1                             ⎪
        BBB                                         ⎪
        CCC                                         ⎪
ADD2    DDD     /LINE 4                             ⎬  converted
        EEE                                         ⎪  file
        FFF                                         ⎪
ADD3    GGG     /LINE 7                             ⎪
        HHH                                         ⎪
        III                                         ⎪
        .END                                        ⎭
>
```

IF "string 1" is never found, then the message

<center>NOT FOUND</center>

is output on the console printer and the Editor waits for the next
user command.

4.5.11 LC (Line Convert) Command (DOS SYSTEM ONLY)

Form:

        LC⎵n⎵/string 1/string 2/⟩

<center>NOTE</center>

> The use of the last separator (/) in the com-
> mand is optional. Any character not in string 1
> or string 2 may be used as a delimiter in this
> command.

Description:
This command performs the same type of operation as the CONVERT com-
mand (see 4.5.10); however, it enables the user to specify the
number (n) of lines to be scanned during the convert operation.

The value assigned n indicates the number of lines to be scanned
including the current line. The last line scanned is printed and is
made the current line. The value n cannot be omitted from the com-
mand.

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If the end of the file (or buffer) is reached by the LC command,
the message:

END OF FILE
        BUFFER REACHED BY

LC /STRING1   (Note command line starting with
                   second separator is not typed)

is typed on the console.

```
 EDITOR V18A
>OPEN EXAMP SRC
EDIT
>P 12
        .TITLE  EXAMP    /EDIT COMMAND DEMONSTRATOR ┐
TAG1    AAA     /LINE 1                             │
        BBB                                         │
        CCC                                         │
TAG2    DDD     /LINE 4                             │  original
        EEE                                         ├  file
        FFF                                         │
TAG3    GGG     /LINE 7                             │
        HHH                                         │
        III                                         │
        .END                                        ┘
>T
>LC 5 /TAG/ADD                  Line Convert command
ADD2    DDD     /LINE 4         current line after convert operation
>T
>P 12
        .TITLE  EXAMP    /EDIT COMMAND DEMONSTRATOR ┐
ADD1    AAA     /LINE 1         converted line      │
        BBB                                         │
        CCC                                         │
ADD2    DDD     /LINE 4                             ├  converted
        EEE                                         │  file
        FFF                                         │
TAG3    GGG     /LINE 7                             │
        HHH                                         │
        III                                         │
        .END                                        ┘
>
```

4.5.12 MODIFY [M] Command (DOS SYSTEMS ONLY)

Form:

　　　　MODIFY␣string)   or ALT MODE

NOTE

This command may be abbreviated as "M"
(e.g., M␣string)   or ALT MODE).

Description:

This command causes the contents of the current line up to the last
character of the specified "text string" to be printed at the console.
The user may then add characters to the current line via the console
keyboard. The input operation may be terminated with either:

a) an ALT MODE character which specifies that the remainder
    (unprinted portion) of the original line is to be
    added to the modified line;

b) a RETURN ( )) character which specified that the unprinted
    portion of the original line is to be deleted.

A line may contain a maximum of 90 characters (including terminator);
when this limit is reached during MODIFY operations, the Editor
performs a RETURN operation and outputs a go-ahead symbol (>). Care
must be taken to ensure that the final line size does not exceed
90 characters since characters above this limit are dropped from the
final line.

NOTE

The RUBOUT and CTRL U commands may be used for data
keyed in during MODIFY operations; however, they
will not affect the contents of the original line.

CTRL P should not be used during MODIFY operations;
if the user wishes to go back to the original line,
CTRL U should be entered to delete any new added
data and the operation terminated by ALT MODE to
restore the original line.

Example:

```
 EDITOR V18A
>OPEN EXAMP SRC                     OPEN demonstrator program
 EDIT
>P 12
         .TITLE    EXAMP    /EDIT COMMAND DEMONSTRATOR ⌐
 TAG1    AAA       /LINE 1                             |
         BBB                                           |
         CCC                                           |
 TAG2    DDD       /LINE 4                             |
         EEE                                           |
         FFF                                           } original
 TAG3    GGG       /LINE 7                               file
         HHH                                           |
         III                                           |
         .END                                          |
>T                                                     |
>L TAG2                                                ⌐
 TAG2    DDD       /LINE 4
>MODIFY DDD                        MODIFY command
 TAG2    DDD       NEW DATA WITH RETURN TERMINATOR    modified line
>P                                     ───────────► new data
 TAG2    DDD       NEW DATA WITH RETURN TERMINATOR    new form of line TAG2
>L TAG3
 TAG3    GGG       /LINE 7
>MODIFY GGG
 TAG3    GGG       NEW DATA WITH ALT MODE TERMINATOR      /LINE 7  modified
>P                                     ────────────► new data     line
 TAG3    GGG       NEW DATA WITH ALT MODE TERMINATOR      /LINE 7  new form
>B
         .END
>CLOSE

 EDITOR V18A
>
```

4.6 EDIT CLOSE OPERATION COMMANDS

The EDIT Mode commands which are used to terminate EDIT operations
and to write the edited program onto the final output device are
described in paragraphs 4.6.1 through 4.6.4.

4.6.1 CLOSE Command

Form:

> CLOSE␣filename␣extension⟩

Description:
If an input file is present, the current line and all lines in that
file falling below the current line are appended to the output file,
and the output file is closed. If no input file is present, the
current line is added to the output file, and the output file is
closed. No further editing is permitted.

If the extension is omitted, it is assumed to be SRC. If no file name
is given, the name assigned in the OPEN command line is used

Neither file name nor ext need be given for nonfile-oriented output
device.

4.6.2 ICLOSE Command

Form:

> ICLOSE ⟩

Description:
The ICLOSE command effects the closing of the current input file only.
The output file remains open. A new input file can be referenced
after the ICLOSE request by issuing an OPEN command. ICLOSE provides
a facility for combining source files during an editing run.

```
  EDITOR V18A
>OPEN EXAMP SRC           OPEN demonstrator program
EDIT
>P 5                      PRINT five lines
        .TITLE   EXAMP    /EDIT COMMAND DEMONSTRATOR ⎫
TAG1    AAA      /LINE 1                             ⎪
        BBB                                          ⎬ first four
        CCC                                          ⎭ file lines
>ICLOSE                   CLOSE Input file, retain current output file
>OPEN FILEA SRC           OPEN file named "FILEA SRC"
EDIT
>P 5                      PRINT five lines of file FILEA SRC
        CCC     line current in previously opened file when ICLOSE issued
        .TITLE ICLOSE EXAMPLE                      ⎫
TAGA    1111                                       ⎪  first four lines
TAGB    2222                                       ⎬  of file FILEA SRC
TAGC    3333                                       ⎭
>CLOSE


  EDITOR V18A
>OPEN FILEA SRC           OPEN modified file
EDIT
>P 10
        .TITLE   EXAMP    /EDIT COMMAND DEMONSTRATOR ⎫
TAG1    AAA      /LINE 1                             ⎪
        BBB                                          ⎪
        CCC                                          ⎬ contents of file
        .TITLE ICLOSE EXAMPLE                        ⎪ modified using
TAGA    1111                                         ⎪ ICLOSE command
TAGB    2222                                         ⎪
TAGC    3333                                         ⎭
        .END
>
```

4.6.3   SCLOSE Command

Form:

        SCLOSE $\pmb{)}$

Description:
This command permits the placement of an edited file onto the current
output device without the .DAT-14 to .DAT-15 recopy process. It is
particularly useful in closing long files which have only minor
changes.

In employing the command SCLOSE, always use a file name different from
that used with the OPEN command given for the file. Files closed in
this manner are normally left on .DAT-15.

4.6.4   EXIT [E] Command (DOS SYSTEMS ONLY)

Form:
        EXIT $\pmb{)}$

                              NOTE
               This command may be abbreviated as "E"
               (e.g., E$\pmb{)}$).

Description:
The EXIT command performs the same operations as the CLOSE command
except that control is returned to the Monitor after the file is
closed instead of to the EDITOR program.

Example:

                 EDITOR V18A
                 >OPEN FILEA SPC
                 EDIT
                 >B
                 BBBB
                 >EXIT

                 DOS-15 V1A
                 $

APPENDIX A

SUMMARY OF EDITING COMMANDS

COMMAND	ABBREVIATION	OPERATION	PARAGRAPH REFERENCE
APPEND	A	Add "string at the rightmost end of the current line.	4.5.8
BLOCK $\left\{\begin{array}{c} ON \\ OFF \end{array}\right\}$	none	Set program to operate in block mode (ON) or in line-by-line mode (OFF).	4.2.4
BOTTOM	B	Bring last line of file to work area.	4.4.3
BRIEF $\left\{\begin{array}{c} ON \\ OFF \end{array}\right\}$	none	Set brief mode to print truncated (ON) or full (OFF) lines.	4.2.7
CHANGE	C	Replace, in the current line, the first occurrence of "string 1" with "string 2".	4.5.6
CLOSE	none	Terminate editing on input file.	4.6.1
CONVERT	none	Change contents of all lines in the file (or buffer) identified by a given text string (#1) to that of a second given text string (#2).	4.5.10
DELETE	D	Discard the current line.	4.5.2
EXIT	none	Transfer control to Monitor.	4.6.4
FIND	F	Bring first line beginning with "string" to work area.	4.4.4
GET	G	Add lines from subsidiary input device after (below) current line.	4.3.4
ICLOSE	E	Close, and transfer control to Monitor. (V5A GO TO Monitor.)	4.6.2
INSERT	I	Change mode to input.	4.5.4
INSERT string	I string	Add "string", as a complete line, to the file after (below) the current line.	4.5.5
KEEP	K	Keep (i.e., preserve) the original file (on. DAT-14) for backup purposes.	4.2.9
LC (Line Convert)	LC	Same as CONVERT command except that the number of lines to be converted is specified in the command.	4.5.11
LOCATE	L	Bring first line containing "string" to work area.	4.4.5

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COMMAND	ABBREVIATION	OPERATION	PARAGRAPH REFERENCE
MODIFY	none	Search the current line for a specified text string; when it is found, accept new inputs from the keyboard and append them to the line starting after the last character of the given text string.	4.5.12
MOVE	none	Move a specified number of lines including the current line, to a position in the file (or buffer) immediately above a line identified by a given text string.	4.5.9
NEXT	N	Bring next consecutive line to work area.	4.4.2
OPEN	none	Prepare file on input device for editing.	4.2.3
OVERLAY	O	Replace multiple lines.	4.5.7
PRINT	P	Print the current line on the Teletype.	4.5.1
READ	none	Fill block buffer from input file.	4.3.1
RENEW	none	Perform buffer WRITE/READ functions.	4.3.3
RETYPE	R	Replace current line with "string".	4.5.3
SCLOSE	none	Close file and leave on output device.	4.6.3
SIZE	S	Set total lines to occupy block buffer.	4.2.3
TOP	T	Reset pointer to beginning of file.	4.4.1
VERIFY $\left\{\begin{array}{l}\text{ON}\\\text{OFF}\end{array}\right\}$	V	Set VERIFY mode to print (ON) or ignore printing (OFF) lines after processing CHANGE, LOCATE, and FIND requests.	4.2.6
WRITE	none	Add block buffer to output file.	4.3.2

SPECIAL COMMANDS

CALL DELETE $\left\{\begin{array}{l}\text{INPUT}\\\text{OUTPUT}\end{array}\right.$		Delete named file from input or output device. (No abbreviation.)	4.2.2
CALL RENAME $\left\{\begin{array}{l}\text{INPUT}\\\text{OUTPUT}\end{array}\right.$		Rename named file located on specified input or output device. (No abbreviation.)	4.2.1

APPENDIX B

EDITVP

In PDP-15 ADSS or DOS systems which have a VP15A Storage Tube Display Unit in their hardware configuration, the user can call program EDITVP for use in editing operations in place of EDIT. The program EDITVP permits the storage tube to be used as a display device during editing operations. All standard editing commands (as described in Section 4) may be used in EDITVP operations with the following exceptions:

a) TV $\begin{cases} \text{ON} \\ \text{OFF} \end{cases}$ The TV ON command enables the operation of the display tube; this command implies VERIFY OFF (no console printer output). The command TV OFF disables the VP display operations; however, this command does not imply VERIFY ON.

During EDITVP editing operations, if any part of the current line is modified (as with RETYPE, CHANGE, OVERLAY or DELETE commands) a dashed line is drawn through the displayed line containing the change.

DISPLAY CONTROLS

The VP15A display unit is provided with two pushbutton controls, ERASE and VIEW, which are located on the right front panel of the CRT enclosure. These controls are used in the following manner:

a) ERASE   when operated, it causes the current display to be erased from the display.

b) VIEW   The normal brightness of displayed data fades after 90 seconds unless renewed; this control enables the user to renew (brighten) the display when desired.

WARNING
The same display should not be maintained on the CTR for a period exceeding 15 minutes; if this occurs, the phosphor of the display CRT may be damaged.

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DISPLAY MODES

The VP15A CRT is capable of displaying 56, 72-character lines. If the data file to be displayed exceeds the 56-line display capacity, the display will operate in either a SCAN or PAGE mode, depending on the type of handler installed in the system (VPA or VPA.S) for theVP15A[1].

SCAN Mode

When the VPA device handler is installed in the operating system, the VP15A display operates in a SCAN mode. In this mode, each time the display screen is filled it is erased automatically after the 56th line is written and is refilled from the display fiee. This fill-erase-rewrite cycle is continued until the screen is completely or partially filled and no more data is in the file to be displayed. The last display is not erased but remains and may be renewed (brightened) manually by the viewer when necessary.

PAGE Mode

When the VPA.S handler is installed in the operating system, the VP15A display operates in a PAGE mode. In this mode, the erase-rewrite operations of the display are controlled by the settings of the unit ERASE control and the computer console switch ACSØ. With the ERASE and ACSØ controls set, each time the display is filled (i.e. full page) the display is not automatically erased and the next set of data displayed. This operation is not performed until the ERASE control is actuated by the user. This feature permits the user to manually advance through a file being edited, page by page.

EDITING OPERATIONS

The following notes describe some of the features of EDITVP and the manner in which it performs some of the basic editing functions.

---

[1]The type of VP15A handler available in the DOS operating system will be that selected by the System Manager during the configuration of the system.

a) Announcements, error messages and ">" symbols are echoed on the console printer, with one exception: the message "DAT SLOT xxx IS FILE ORIENTED", which depends on the entry state of ↑X (Control X).

b) Locative operations, the file lines passed over during locative operations are displayed as the file is scanned. The last line displayed is always the current line (found line).

c) CONVERT and LC command operations, only those lines changed in a file as the result of the command are displayed.

d) GET Command, the data to be added to a file from the subsidiary device is displayed on the screen as it is added to the current file or buffer.

e) DELETE Command, on the execution of a DELETE command, dashed lines are drawn through deleted items.

f) PRINT Command, the PRINT command implies "hard copy"; the line(s) selected by the command are output on the console printer. The current line is always the last line displayed.

g) Clear Screen Commands, the display screen is cleared by the entry of any of the following commands:
   1) TOP
   2) CLOSE
   3) EXIT
   4) TV OFF
   5) Change the state of #6 pushbutton and screen will clear when the next output is made to the VT15 (e.g., new line added, mode change).

APPENDIX C

EDITVT

DOS systems which have a VT15 Graphics Display unit permit the user
to employ program EDITVT for editing purposes. Program EDITVT enables
the user to perform soft-copy editing of files using the VT15 display
as a file data display device. Data is displayed in sets of either
56, 72-character lines or 28, 72-character lines. The EDITVT commands
and the editing functions performed are essentially the same as those
of the standard Editor Program (EDIT).

SETUP COMMANDS

The following command must be issued to the monitor prior to loading
EDITVT:

   a) $ VT ON   Enables the VT display unit.

   b) $ HALF ON/OFF This command is optional; it enables the
                       user to set up a half-screen display (i.e.,
                       28, 72-character lines) condition in which
                       only half the screen is used for display.
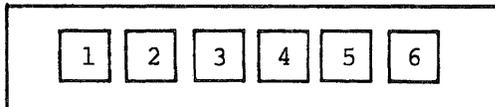
The program EDITVT is loaded into core by the command "EDITVT" given
to the monitor. Once loaded, the program will announce itself by
outputting its name and version number on the console printer.   The
user must then input the command "TV ON" to initiate the VT15 display
operations. VT15 display operations may be stopped at any time by
the command "TV OFF".

VT-15 CONTROLS AND DISPLAY MODES

CONTROLS
The VT-15 Display console contains a horizontal strip of six square
push-to-light pushbuttons which are used in display operations.   These
pushbuttons are unmarked since their function is determined by soft-
ware and may vary according to the particular program (system or user)
which is in control of the system.

In EDIT operations, only the two rightmost pushbuttons are needed;
these switches are referred to as #'s 5 and 6, based on the
following numbering scheme:

```
┌─────────────────────────────────┐
│  ┌─┐ ┌─┐ ┌─┐ ┌─┐ ┌─┐ ┌─┐        │
│  │1│ │2│ │3│ │4│ │5│ │6│        │
│  └─┘ └─┘ └─┘ └─┘ └─┘ └─┘        │
└─────────────────────────────────┘
```

DISPLAY MODES

The VT-15 Display operates in two display modes:

a) SCROLL Mode - When the #5 pushbutton is in the OFF (unlit)
                  position, the display is in the SCROLL mode.
                  In this mode, when the display screen is
                  full, the next line of data to be displayed
                  causes the displayed material to "roll" upwards,
                  line-by-line, with new data displayed at the
                  bottom of the screen.

b) PAGE Mode   - When the #5 pushbutton is on the ON (lit)
                  position, the display is in the PAGE mode.
                  In this mode, when the screen is full, the
                  next entered material for display causes the
                  complete, full-screen display (i.e., PAGE)
                  to be erased; the new material is then dis-
                  played starting at the top line of the screen.

                          WARNING
            The EDITOR may appear hung when #5 is ON (lit)
            and the page is full (i.e., waiting for change
            in state of #6).

PAGING OPERATION

When a large file is to be displayed in the PAGE mode, the #6 control
pushbutton is used to advance the display through the file page
(screen) by page (screen). Each time this pushbutton is actuated,
the screen is cleared and the next set of data available is displayed.

EDITING OPERATIONS

The following notes describe some of the features of EDITVT and the
manner in which it performs some of the basic editing functions.

a) Announcements, error messages and ">" symbols are echoed on the console printer, with one exception: the message "DAT SLOT xxx IS FILE ORIENTED", which depends on the entry state of ↑X (Control X).

b) Locative operations, the file lines passed over during locative operations are displayed as the file is scanned. The last line displayed is always the current line (found line).

c) CONVERT and LC command operations, only those lines changed in a file as the result of the command are displayed.

d) GET Command, the data to be added to a file from the subsidiary device is displayed on the screen as it is added to the current file or buffer.

e) DELETE Command, on the execution of a DELETE command, the line(s) affected are erased from the screen and the remainder of the file is rolled up to fill the deleted (erased) line(s).

f) PRINT Command, the PRINT command implies "hard copy"; the line(s) selected by the command are output on the console printer. The current line is always the last line displayed.

g) Clear Screen Commands, the display screen is cleared by the entry of any of the following commands:
1) TOP
2) CLOSE
3) EXIT
4) TV OFF
5) Change the state of #6 pushbutton and screen will clear when the next output is made to the VT15 (e.g., new line added, mode change).

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