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TITLE	OS/8 EDIT PLUS
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OS-8 EDIT PLUS

1. INTRODUCTION:

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EDIT PLUS is designed for editing input from terminals with both upper and lower case characters. All codes from 200 to 377 except those used for control characters can be stored. Line-feeds are used for control but are always paired with carriage returns in the output.

Input and output pass through a 138 character line buffer. The rubout echoes the characters deleted and the input of a line-feed causes the input line to be typed back as in the OS-8 Monitor. CTRL-P is used for splitting lines in searches.

W and X search commands have been implemented which duplicate the J and F commands except that no file output occurs. An H search has been implemented which duplicates the S search except that carriage returns in the text do not terminate output lines. They cause return to edit mode so that spaces may be inserted or hyphens removed. A warning bell (setable by using ODT) permits control of line length when editing text for a 132 character line printer on a 72 character terminal such as the Model 38 Teletype (with automatic line return).

A Z command has been implemented which calls the command decoder in the middle of operation. Output files can be changed and/or input file lists extended, restarted, continued, or replaced. The B option has been changed to preserve format and a T option implemented which permits tabs to be changed to spaces on output. The tab settings are table driven and their individual positions can be changed by using ODT. Chaining to EDIT PLUS is legal.

The number of characters that the text buffer can hold has been increased despite a small reduction in packing efficiency. This has been accomplished at the expense of the I/O buffers which now hold two and three blocks respectively. This makes DECTape operation a little slower.

To the operator, EDIT PLUS appears to be a modification of OS-8 EDIT. In the following discussion, it is assumed that the user is familiar with OS-8 EDIT and only the differences will be discussed. In fact, there is very little similarity in the manner in which they operate. EDIT PLUS is as nearly pure code as practical. No instruction modification is used. Input options alter table entries and other routines use flags or semaphores.

2. LOADING AND CALLING EDIT PLUS:

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EDIT PLUS is loaded and called in the usual way. No special specifications are needed. EDIT PLUS should be saved before operation. It modifies its own start routine. A typical loading and calling sequence might appear:

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.R ABSLDR
*PTR:$
.SAVE SYS:EDIT
.R EDIT
*OUTPUT.PA<INPUT1,INPUT2,INPUT3/D
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3. COMMAND DECODER RESPONSES:

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There are four conditions under which the command decoder will request instructions for input and output, at the start, on an output file full condition, on a monitor restart, or on the Z command. In the first case, any tentative files will be deleted. In the second, return from the command decoder will be to the sequence of operations which were interrupted. In other respects the routines are actually alike.

EDIT PLUS will accept only one output file at a time. That file stays open until full, closed by a Q or E command, or replaced by another. EDIT PLUS will fill an output file to the last word before calling FULL. It then closes the file and asks for another. EDIT PLUS should later be used for merging the files. Moving the first file may lose the last line. If the Z command is used and another output specified, the first is closed before the second is opened. The T and D options are available only when an output is specified. The T option converts tabs to spaces on output. The D option is the same as in OS-8 EDIT. In the absence of any output extension, PA is supplied.

EDIT PLUS will accept up to 9 input files at a time. The default input extension is .PA. If under the output full condition or a Z command, no input is specified, the current input is continued unless the command line was terminated by alt-mode. In that case it is restarted. If an input list is specified, it replaces the current list and the first input is opened. In all cases the current contents of the text buffer remain undisturbed.

Overwriting the input file (as in *INPUT.PA<INPUT/D) is possible but, as in OS-8 EDIT, dangerous. If excessive text is inserted, the output can overwrite input which has not yet been read. This generally occurs when the total insertion (including carriage returns and line feeds) exceeds 1152 characters. It can occur with no insertion if the output file is changed using the Z command.

EDIT PLUS can be restarted following the Q and E commands or a CTRL-C which is not intercepted by an I/O handler. Following the Q and E commands the output file will have been closed, but following a CTRL-C it is still open. If a handler intercepts the CTRL-C, the I/O operation will not be complete and the output may over-write itself.

3. CONTROL CHARACTERS:

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The following description of the EDIT PLUS control characters assumes that the reader is familiar with OS-8 EDIT. There are four distinct modes under which the characters are input. The term "command" refers to the input of major instructions to the editor. "Input" mode refers to the introduction of text from the keyboard via A, I, and C commands. "File" input mode refers to input from any OS-8 input handler (system, tape, etc.). "Search" refers to keyboard input during searches.

CTRL-C: Call monitor - same.

CTRL-O: Terminate teletype output - same.

CTRL-FORM: Search mode: continue text scan - same.

Input mode: return to command mode - same.

CTRL-U: Cancel current input line - same.

Rubout: File mode: ignored.

Other modes: delete last character - same except that the character deleted is echoed.

Line-feed: Input and search modes: reprint the current line.

Command mode: print the next line - same.

File mode: ignored.

CTRL-P: Search mode: end this line and start another (replaces the line-feed of OS-8 EDIT).

Carriage-return: Search mode: end line, ignore rest of text line - same.

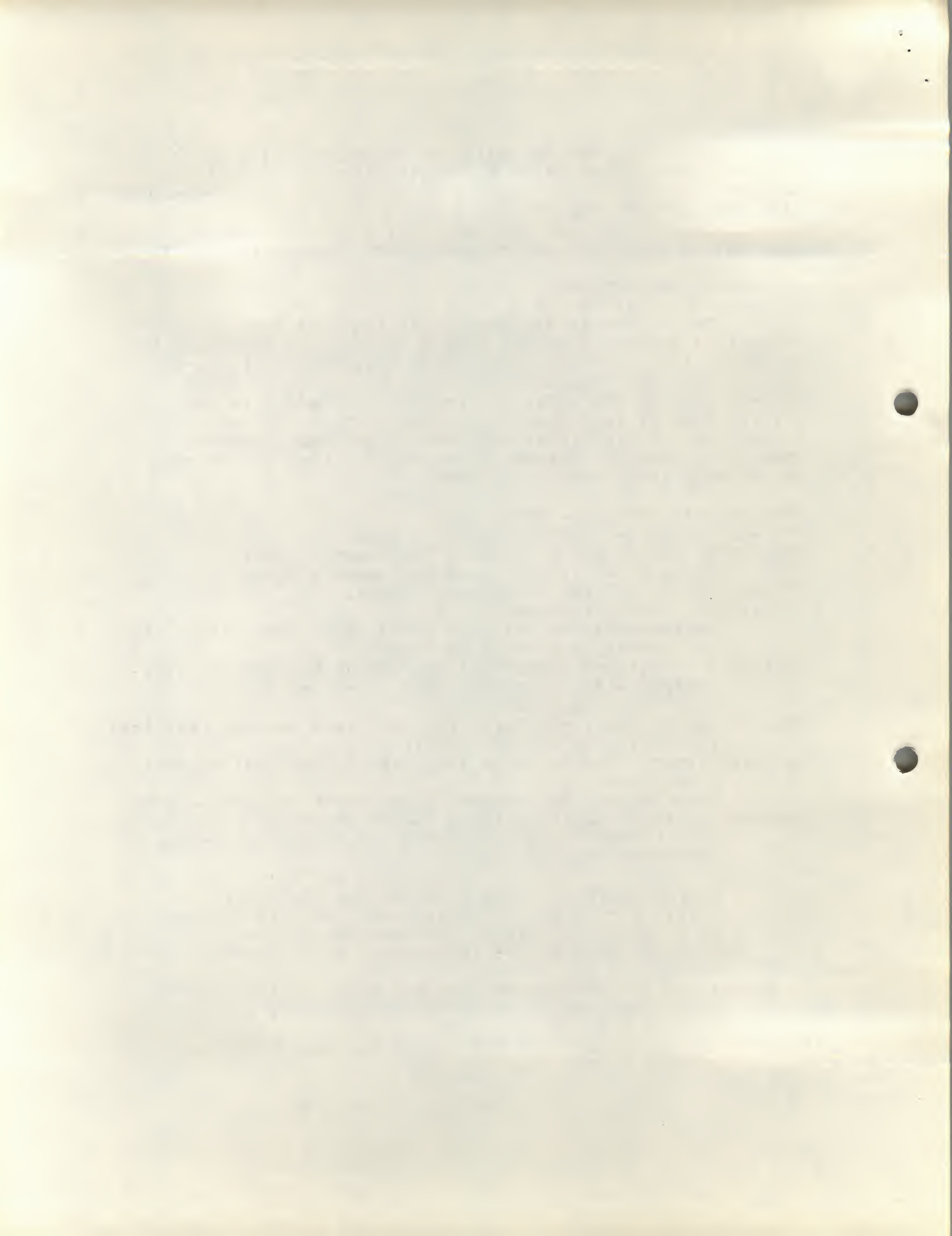
Other modes: end current line, start new line - same.

CTRL-BELL: Search mode: redefine search character - same except that in EDIT PLUS the scan of text does not resume following the definition.

' (single quote): In command mode and in the definition of search strings: start a search for the current search string at the first line. This is the same as in OS-8 EDIT except that may now be used in command lines in the same manner as the double quote.

" (double quote): In command mode and in the definition of search strings: start a search at the next line - same.

~, =, <, >, ., /, +, -, \$, and , have the same meaning as in OS-8 EDIT.



4. EDIT PLUS COMMANDS:

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Most of the following commands are essentially the same as those used in OS-8 EDIT and are therefore marked only "same".

- A: Append - same.
- B: Buffer: The B command causes EDIT PLUS to report the number of character locations (not computer words) still available in the text buffer. No reserve is allowed. Two or three characters will be required for termination of each line.
- C: Change - same.
- D: Delete - same.
- E: Exit - same.
- F: Continue inter-buffer search - same.
- G: Get - same.
- H: Stream search command, new.
- I: Insert - same.
- J: Define string and start inter-buffer search - same.
- K: Kill - same.
- L: List - same.
- M: Move - same.
- N: Next - same.
- P: Punch - same.
- Q: Quit - same.
- R: Read - same.
- S: Character search - same.
- T: Trailer - same.
- V: Line print - same.
- W: New dump inter-buffer search.
- X: New continue dump inter-buffer search.
- Y: Dump-next - same.
- Z: New re-open I/O list command - see section 2.
- Alt-mode: Define string, start intra-buffer search - same.

5. J, F, W, AND X SEARCHES:

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The reader should be familiar with the J and F inter-buffer search commands in OS-8 EDIT. These have been implemented in EDIT PLUS with only small changes. The most significant change is in the definition of the search string. The search string may contain carriage returns; it may extend over several lines, though not over buffer boundaries. The search buffer can hold 31 characters and is common to all string search modes. Thus, the J, F, and X commands can be used to continue the search for the currently defined string. The search algorithm has been

improved so that when a match attempt fails, the next attempt starts at the character following the one at which the previous attempt started. The back-up following a failure is positive permitting no skips.

The J and F commands search the current buffer for a match. If none occurs, the buffer is written to the output file, a new buffer is fetched from the input, and it is searched. The write-read-search sequence continues until all input is exhausted or a match occurs. The W and X commands correspond to the J and F commands except that instead of writing the buffer to the output, it is dumped. The sequence is kill-read-search.

6. CHARACTER SEARCHES:

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The S search command remains essentially unchanged. The CTRL-P command is used for splitting lines instead of the line feed. The line feed causes the current line to be re-printed. The use of CTRL-bell to define a new search character does not cause return to searching, so additional editing can be performed before continuing the scan. This is particularly useful in multi-line searches where the line is to be chopped off with a carriage return but the next line requires a different search character.

The H command permits searching to the end of one line or merging and re-dividing multiple lines. The H search stops and rings the bell at the end of each line. The text is supplied to the line buffer as a stream with no carriage returns. It must be divided by the operator into new lines. If the line buffer does fill up, a new line is generated. When it is desired to insert a word in a line which has no room for that word, an H search is used to insert the word. The test character can then be made a space, and the rest of that line and several additional lines scanned word by word with each line trimmed to proper length. The H search uses many of the same routines as the S search and is similar in operation. When the bell rings to announce the end of a line, either a carriage return or a CTRL-P can be used to terminate the line. The next line has not been opened, so no text is lost.

Care must be taken in using the CTRL-O command during an H search. As soon as a line has been printed, it is deleted from the text buffer. The only copy of it is then in the line buffer. On the CTRL-O command, the contents of the line buffer are lost. Usually the CTRL-O command is used when no further editing is desired; that is when the line boundaries are correct. Using CTRL-O when the last line boundary was preserved by pressing CTRL-P when the bell rang aborts the search with no loss of information.

7. TABS AND LINE BELL:

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EDIT PLUS uses a tabulation table in which each tab position may be individually set. Sixteen positions are available. ODT may be used to reset the table which is at 3400 in field one. The seventeenth position must be set beyond the end of the buffer. The tabs are currently set at intervals of eight positions. Ribbon color change codes for the Model 38 teletype can cause tabulation errors in EDIT PLUS because it does not recognize the two character sequence as non-printing.

The line buffer has a bell set at column 124 for use in writing text on a 72 character terminal for printing on a 128 or 132 column printer. The automatic carriage return on the Model 38 Teletype permits such editing, but one character is lost on the fly-back. OS-8 permits the writing of a handler which will split such lines. The text can be composed, listed via the handler, then (via the Z command) output one buffer to each output file. Output intended for the line printer can be edited on an 8 1/2 inch Model 38 and output using the V command.

Under the B option, the input is scanned for spaces and when a space is found, the input is scanned for subsequent spaces. The spaces are counted until some other character is encountered or a tab position is reached. If a tab position is reached, a tab is stored and the process starts over. Otherwise, the spaces are output to the text buffer. Thus, if it is desired to change the tab positions but not change the format of the text, the text can be copied with the T option using the old tab setting and then copied using the B option with the new tab positions.

8. SPECIAL APPLICATIONS:

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EDIT PLUS was designed for editing business and accounting files with special non-printing flags. It was designed for the rapid extraction of sub-account summaries. Calling EDIT PLUS and using the W search permits location of the subaccount entries while discarding other entries. The desired entries are output with m,nP commands. At the end of the input list, additional inputs can be scanned or the same list scanned for a different subaccount. The files assembled in this manner must then be re-edited to format them into appropriate pages.

EDIT PLUS has been used in extracting specific routines from large source programs. In writing new programs, routines are first extracted from tapes of other program sources. These are segmented into many short files by frequent use of the Z command to specify new output files. The new source

is then written in many short files. These are then merged into several large files. The merging of files requires the frequent respecification of input files as more than nine inputs are merged into each output.

For debugging corrections to PAL8 sources, the ability to search for multi-line text strings is a convenience since often certain sequences of commands need to be corrected, but the individual commands occur much more frequently than the sequences.

This write-up was written and edited using EDIT PLUS. Frequent corrections were made which required re-organizing of the line boundaries. The H search was used for this.

