Note: As of 01-Mar-86, customer support
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LOGICAL SYSTEMS INC.

LS-LED

TRS-80   MODEL 4

**LOGICAL
SYSTEMS
INC.**

MILWAUKEE, WI

CATALOG #L-30-021

VERSION # _____

LS-LED

LS-LED   S/N   20241

The LSI Text Editor is a general purpose screen oriented text editor designed to allow
creation and modification of ASCII and certain other text files. The syntax used to
enter LS-LED (which will be referred to as LED from this point on) is as follows:

```
==================================================================
|                                                                |
| LED filespec (parm, parm, ...)                                 |
|                                                                |
| filespec           This is the name of the file you            |
|                    are going to edit. If not entered           |
|                    on the command line, it will be             |
|                    prompted for. For any LED filespec,         |
|                    a default extension of /TXT will be         |
|                    used if no extension is specified.          |
|                                                                |
| ASCII              Indicates ASCII file. Bit 7 of each         |
|                    character is reset on loading.              |
|                                                                |
| END=nn             Specify a SAVE byte (usually Ø) for         |
|                    the file. Used to create a text             |
|                    `file compatible with other text            |
|                    editors. nn can be hex or decimal.          |
|                                                                |
| SAVE="filespec"    Specify a filespec for saving the           |
|                    text to be different from the               |
|                    filespec that was loaded.                   |
|                                                                |
| TABS               Expand tabs when loading a file             |
|                    with imbedded tabs. Tab stops used          |
|                    are every "8" character positions.          |
|                    Otherwise, tabs will appear as              |
|                    graphics blocks.                            |
|                                                                |
| WP                 Specify a Word Processing text file         |
|                    which ends with a hex ØØ byte that          |
|                    will be retained. Otherwise, this           |
|                    byte is stripped and the file will          |
|                    be read until an end-of-file is             |
|                    detected.                                   |
|                                                                |
| XLATE=X'aabb'      Perform a character translation on          |
|                    loading and saving the text file.           |
|                    "aa" is the character translated.           |
|                    "bb" is the value when in memory.           |
|                    This is used primarily to get ØØ's          |
|                    or FF's into a text file.                    |
|                                                                |
| abbr: All parameters may be abbreviated to their               |
|       first character.                                         |
|                                                                |
==================================================================
```

NOTE: Key generation and video representations will vary, depending upon the machine
being used. Consult the Machine Dependent Hardware Addendum (located at the end of
this manual) for specific information on a given installation.

PARAMETER DETAILS

The ASCII parameter can be used to force LED to reset bit 7 of every byte loaded. This can be used, for instance, to convert a file which has been created by some other type of text editor into an ASCII file. The reverse process cannot be performed. Once a file has been loaded with the ASCII parameter, bit 7 of any byte that had been reset cannot be restored.

LED does not add any special terminating character to the file when it is saved. Certain word processors use unique terminating characters to indicate the file's end rather than rely on the end-of-file pointer. If LED is being used to prepare text for use with a different word processor, the END= parameter may be needed.

The SAVE parameter can be useful if the edited output is to be written to a file different from that used for input. If the SAVE parameter is omitted, the function can still be invoked by using the NAME command to change the document's name.

Certain files may have imbedded tab characters (X'Ø9'). If a file is to be edited with tabs expanded to normal 8 column positions, use the TAB parameter. The spaces generated by loading with the TAB parameter cannot be compressed when saving the file.

LED will load a text file until the end-of-file pointer is reached. Some applications generate text files without a "true" end-of-file pointer. Where this is the case, a character is usually imbedded in the text to indicate the end of the file. When the WP parameter is specified, the file will be read in until either the end of file is encountered, or the character X'ØØ' is read. If WP is not specified, LED will discard any X'ØØ' byte on loading text and will continue to load until an end-of-file is reached. This is a means for removing X'ØØ' bytes from a file.

LED will never load X'ØØ' bytes. LED also uses X'FF' bytes to indicate block markers. If a text file legitimately contains one or the other, the XLATE parameter may be used. The X'ØØ' or X'FF' can be translated to some other unused byte while being edited. The reverse process will automatically be invoked. Any character translated on loading will be restored to its original value on saving. LED only provides a single-character translation.

CHARACTER DISPLAY

Character values X'2Ø' through X'BF' will be displayed as their true character. Character values outside of this range will be displayed as some type of graphics character (depending on the installation). The true value of any character can be obtained by positioning the cursor over the character, and noting the associated hex character, which is displayed on the bottom right portion of the screen.

MODES OF OPERATION

LED has four different modes of operation. "Standard" mode is defined as the mode in which characters entered will overtype any already at the cursor position. "Insert" mode inhibits overtyping of characters by shifting the entire text one character position as each "insert" character is entered. In "insert line" mode, a line of spaces will be inserted automatically into the text to provide a line buffer for text entry. The term, "open a line", will be used to imply a line insert. The last mode is "delete" mode. This mode deletes characters, spaces, lines, etc. The bottom informational line will display the mode which is presently active. Regardless of the mode currently active, the cursor will be a flashing character, and its position will dictate where the desired operation is to take place. Deletions will be made from and including the character over which the cursor is positioned. Insertions will be made to the left of the current cursor position.

CURSOR POSITIONING

The cursor position is used to indicate the place in the text where changes are to be made. There are various methods available to position the cursor. These include moving the cursor transparently through the text up, down, left or right. Additional cursor control commands include moving the cursor left or right to the next tab stop, positioning the cursor to the beginning or end of a line, positioning the cursor to the top or bottom of the text, and scrolling the screen display up or down a page. Further information on cursor positioning on a given installation can be found in the Machine Specific Hardware Addendum.

ERROR MESSAGES

When an error situation occurs, an appropriate error message will appear on the bottom left portion of the screen. If the error in question is not related to some type of disk operation, normal operation procedures can be used after the error is displayed. If the error is related to a disk operation (e.g. the filespec entered for an INS-FILE command does not exist, or the disk used for a file save is write-protected), the information on the screen will appear to shift, and the cursor will appear below the error message. This is to draw attention to the fact that a disk related error has occurred. If such an error situation does occur, press any key, and the normal video display will reappear.

PROMPT LINE

When LED is first entered, a single line of prompting information will be displayed at the bottom of the screen. Immediately above this information will be a white line. The line will be used to split the screen into two windows. If the filespec entered identifies an existing text file, the top window will display as much of your file as can be displayed. The prompting information line will look like this:

```
.............................{Filename/EXT:Ø-R}( Ø):X'ØØ'|ØØØØØ
<-------------1------------><------2------><3><-4-><-5-><--6->
```

The information will be displayed in various fields. These fields will contain:

<1> Current status such as INSERT, DELETE, etc. This field will also be used to display prompts and error messages.

<2> Will contain the Filename/EXT of the current save file.

<3> Will contain "-N" to indicate a NEW file or an "-R" to indicate a REPLACED file. A new file is the result of the filespec identifying a non-existant file. If the filespec identified an existing file, it would be reflected as "replaced".

<4> Indicates the current cursor column. It is useful for establishing tab stops or columnizing text.

<5> Displays the hex value of the character at the cursor position. It is useful for determining the specific character value of control characters unused by LED. It is also useful when working with graphic characters.

<6> Displays the amount of memory available. This will be constantly updated as characters are added or deleted.

COMMAND FUNCTIONS

All major command functions of LED are invoked by depressing a specific key sequence
which activates the desired function. A menu which depicts the labeling of the keys
can be displayed. This menu will be placed in the bottom window, thus shortening the
top window. It is recommended that you keep the menu visible at all times until you
become proficient at remembering the LED control keys. Further information on
activating LED functions can be found in the Machine Specific Hardware Addendum.

The remainder of this manual will explain the use and results of all LED functions.

INSRT

The INSRT command will allow the insertion of characters, lines and blocks to be made
within the text. In this mode, characters are inserted instead of overtyped. All text
to the right (and below the cursor where applicable) will be shifted by one character
position to make room for the inserted character. Insert can also be used followed by
"LIN" to place LED into the insert-line mode. Certain actions will cause LED to exit
the insert mode. If the <BREAK> or <LEFT ARROW> keys are depressed, LED will return to
the standard mode. If DEL is depressed, LED will exit the insert mode and enter the
delete mode. All other cursor movements will maintain the insert mode. With this
arrangement, columnized text may be easily generated while in the insert line mode.

There is one type of insert mode which will occur without activating the INSRT
function. This will happen when the cursor is positioned over a carriage return or a
block marker in the standard mode. Neither of these two characters can be overtyped.
If characters are entered with the cursor positioned over one of these characters, any
characters entered will be inserted to the left. Also, carriage returns and block
markers will be inserted into the text when they are entered. To eliminate either a
carriage return or a block marker from the text, the DEL function can be used.

INSRT may also be used in conjunction with blocks of text. For more information on
inserting blocks, refer to the BLK command.

LIN

If LED is in the standard mode, the LIN command will perform a positioning of the
cursor to the beginning of the line on the screen. This will be video column zero as
noted by the column counter in the bottom window.

If LED is in the insert mode, the LIN command will open up a blank line for text
insertion. While in the insert line mode, additional lines will be opened up
automatically when the last character in the blank text insertion area is used. As
long as the insert line mode is active, blank lines will be opened up when needed, and
no overtyping will occur. It may be desireable to enter multiple insert line commands
if a large amount of text is to be inserted. This will increase the speed with which
the inserted text is displayed on the video. It is important to realize that if the
operating system's type ahead feature is active, no keystrokes will be lost when
inserting a line if the video display needs to be adjusted.

Depression of the <BREAK> key will close up any trailing spaces created by INSRT-LIN.
If the <BACK-ARROW> key is pressed while inserting a line, the insert line mode will
be terminated; however, any trailing spaces due to the insertion will remain. To
remove these trailing spaces from the text, the DEL-SPA sequence may be used.

If LED is in the delete mode, the LIN function will delete a line of text for each
depression of LIN. A line of text is denoted as all text from the present cursor
position up to and including the last character on the video line containing the
cursor character.

DEL

The DEL function will put LED into the delete mode. The delete mode can be used to
delete a character, a word, a series of contiguous spaces, a line, a block, or from
the current cursor position to either the top or bottom of the text. Any depression of
DEL will delete the character at the current cursor position. While in the delete
mode, the following function keys may be used:

        WORD   LIN
        SPA   BLK
        END   TOP

Using any of these function keys with DEL will cause a multiple deletion of characters
as defined by the function key. All delete functions (except BLK) occur relative to
the current cursor position. The following will describe the actions that will occur
when DEL is used with any of the above functions.

   WORD - Will delete the current word. A word is identified as all characters from
   the current cursor position up to and including the first space, comma, right
   parenthesis, or <ENTER>. The delete mode will remain active after the word has
   been deleted.

   LIN - Will delete the current line. A line of text is denoted as all text from
   the present cursor position up to and including the last character displayed on
   the video line containing the cursor. The delete mode will remain active after
   the line has been deleted.

   SPA - Will delete all contiguous spaces from the current cursor position to the
   first non-space character found. If the cursor is not positioned over a space,
   nothing will be deleted. The DEL-SPA is a convenient way of closing up blank
   spaces created by a series of INSRT-LIN operations. The delete mode will remain
   active after the SPA command has completed.

   BLK - Will delete the currently marked block, if one exists. If a block does not
   exist, the message "Marker Error" will appear on the bottom left corner of the
   screen, and the delete mode will remain active. If a properly marked block does
   exist, the prompt "Delete Block?" will appear on the bottom left of the screen.
   To delete the block, press <Y>; otherwise, press <N>, and no deletion will occur.
   In either case, after the "Delete Block?" prompt is answered, the delete mode
   will be terminated. When deleting a block, make sure that the cursor is not
   positioned on a block marker, since the DEL command will delete one character
   before BLK can be entered. To delete a block without entering the delete mode,
   the single function key DEL-BLK can be used.

   END - Will delete ALL text from the current cursor position to the end of the
   text. A message prompt: "Delete to end of text?" will appear on the bottom left
   corner of the screen. Answering the prompt with <Y> will delete the text, while
   answering <N> will perform no deletion. In either case, after the prompt is
   answered, the delete mode will be terminated.

   TOP - Will delete ALL text from the beginning to the current cursor position. A
   message prompt: "Delete to TOP of text?" will appear on the bottom left corner of
   the screen. Answering the prompt with <Y> will delete the text, while answering
   <N> will perform no deletion. In either case, after the prompt is answered, the
   delete mode will be terminated.

Depression of any other key will exit the delete mode and return to the standard mode.

WORD

If LED is in the standard mode, the WORD function will cause the cursor to be positioned over the next word. If LED is in the delete mode, the WORD function will delete a word (see DEL). A word is identified as all characters from the current cursor position up to and including the first space, comma, right parenthesis, or <ENTER>.

BLK

The BLK function will allow manipulation of a specified part of text, and is used in conjunction with several other functions. Before any functions involving blocks can be used, the block must be marked. This is done in the standard mode by entering the BLK command. A "block marker" will be inserted at the current cursor location, and will be displayed as a graphics character. To utilize a block, a pair of block markers must appear within the text. In this manner, any text contained within the block markers will be acted upon by the specific block function. To utilize a block function, exactly two block markers must appear in the text. If there are less than two block markers in the text (or in some cases more than two - see INS-FILE), and a block function is requested, the error message "Marker Error" will appear on the bottom left hand corner of the screen. A "Marker error" will also occur if the standard mode is active and the BLK command is issued with two blocks already in the text. Block markers cannot be overtyped. If the cursor appears over a block marker, any characters which are typed will be inserted to the left of the block marker.

The following functions can be used with blocks.

> INSRT   - If the insert mode is active when the BLK command is issued, the currently marked block will be inserted at the cursor position, and the original block will be left unchanged. If the cursor appears within a block when the INSRT BLK sequence is issued, an appropriate error message will appear.

> DEL   - If the delete mode is active when the BLK command is issued, the prompt "Delete block?" will appear on the lower left hand corner of the screen. Answering this prompt with <Y> will delete the text contained within the block, and will remove the block markers from the text. If <N> is given as a response to this prompt, the block will remain as is, and the standard mode will be in effect (see also DEL-BLK).

> UNMRK   - The UNMRK command can be issued in any mode, and will remove (unmark) all block markers from the text, regardless of the number existing.

> WRT-BLK - This command will allow the text contained within block markers to be written to a separate file. For more information, refer to WRT-BLK.

END

END is used to position the cursor to the end of the text if LED is in the standard or insert mode.

If the delete mode is currently active, the END command will allow the deletion of all text from the current cursor position to the end of text. A message prompt: "Delete to end of text?" will appear prior to performing the delete. If this prompt is answered with <Y>, the text will be deleted. If the prompt is answered with <N>, no text will be deleted. In either case, the delete mode will be aborted, and the standard mode will be in effect.

TOP

TOP is used to position the cursor to the top of the text if LED is in the standard or insert mode.

If the delete mode is currently active, the TOP command will allow the deletion of all text from the top of the text to the current cursor position. A message prompt: "Delete to TOP of text?" will appear prior to performing the delete. If this prompt is answered with <Y>, the text will be deleted. If the prompt is answered with <N>, no text will be deleted. In either case, the delete mode will be aborted, and the standard mode will be in effect.

SPA

The SPA command can be used as a cursor positioning command, and will skip over contiguous spaces and advance the cursor to the first non-space character. This will be the result of issuing the SPA command while in either the standard or insert mode.

If the SPA command is issued in the delete mode, all contiguous spaces from the current cursor position to the first non-blank character will be deleted. If the cursor is not positioned over a space, then nothing will be deleted. After the spaces have been deleted, the delete mode will remain active. The DEL-SPA is a convenient way of closing up blank spaces created by a series of INSRT-LIN operations.

TAB

The TAB command is used to set or reset tab stops. A tab stop is indicated as a period on the line separating the command window from the text window. The TAB command acts as a toggle, relative to the current cursor position. If a tab stop does not exist at the current cursor position when the TAB command is issued, one will be set. If a tab stop does exist, it will be reset. All tab stops can be reset by entering the TAB command followed by the ALL command.

MENU

The MENU command will act as a toggle, to either display or remove the menu from the bottom portion of the screen. If the menu display is desired, but the command sequence needed to engage the menu display is forgotten, press the <BREAK> key, and a message will appear on the bottom left of the screen, indicating how to engage the menu display.

SAVE

The SAVE command will initiate a text save operation without leaving LED. Text will be saved to the file specified upon entry into LED, unless the SAVE parameter was specified or a NAME command was used to redefined the filespec. Prior to performing the save, the prompt "Save file?" will appear. To save the text to the current filespec, answer this prompt with <Y>, otherwise press <N>, and the text will not be saved. Additionally, if the current text file contains block markers, the prompt "Marker in text, Continue?" will appear on the lower left portion of the screen. To perform a save with the block markers in the text, answer this prompt with <Y>. If the text is not to be saved with block markers, press <N>.

INDNT

The INDNT command is used to establish an indentation position after every depression of the <ENTER> key. Indentation will be established at the current cursor position when the INDNT command is issued. The depression of INDNT will not change the current mode of LED. Once indentation is placed in effect, it can be deactivated by positioning the cursor at video position zero and then entering the INDNT command. If it is desired to retain indentation but temporarily override its effects, position the cursor to the beginning of the line after depressing the <ENTER> key.

FND

The FND command is used to perform a search for a specified string of characters. The search string will be prompted for on the bottom left portion of the screen. The search will begin from the first character to the right of the current cursor position. If the search string is found within the text, the cursor will be positioned over the first character matching the search string. If the string is not found, an appropriate message will appear on the bottom left portion of the screen, and the cursor position will be unaffected. Note that in order for FND to work, an exact character for character match must be detected. This implies that the cases of characters (lower case vs. upper case) involved in the search must be the same.

The dollar sign ($) character may be used in the search string, and will act as a "wild card" character. As an example, if the search string L$D was specified, a match would occur for any three character sequence where the first character in the sequence was <L>, and the third character was <D>, regardless of the second character (e.g. LED, LiD, L&D, etc.).

Two additional functions will work with the FND command. They are the AGN and ALL commands. After a FND command has been issued, the AGN command may be used to locate the next occurrence of the search string. It will perform in the same manner as entering an actual FND command, using the last specified search string. ALL may also be used in a similar manner. As each search string is found, it will appear momentarily on the screen until the next one is found. This is useful for finding the last occurrence of a search string. If <BREAK> is pressed in the middle of a FND-ALL operation, the global find will be terminated.

CHG

The CHG command is used to replace (change) text strings identified with the FND command. The last search string specified in a FND command will be used as the target of the change. After the CHG command has been issued, a prompt will appear on the bottom left portion of the screen for the replacement string. Enter the string which is to replace the current FND string. Upon entering, a FND will be performed, and the search string will be replaced with the CHG string. After a CHG command has been entered, if the FND string is located, the cursor will be positioned on the last changed character. If the FND string is not located, the cursor position will not be affected. Note that if a FND has just been performed, and it is desired to change this occurrence of the string, the cursor must be backspaced one position prior to entering the CHG command.

The AGN and ALL commands may be used in conjunction with the CHG command. The AGN command will locate the next occurrence of the current FND string, and make the appropriate replacement. The ALL command will replace all occurrences of the FND string with the replacement string. If <BREAK> is pressed in the middle of a CHG-ALL operation, the global change will be terminated.

HEX

The HEX command will allow hexadecimal characters (with the exception of X'ØØ') to be entered into the text. This is useful for entering characters which cannot be typed directly from the keyboard. It may be used in either the standard or insert mode. After the HEX command has been issued, the prompt "Hex (2 digits):" will appear on the bottom left portion of the screen. At this prompt, two hex digits (Ø-9,A-F) should be entered. Any non-hex entry will be ignored. The HEX mode will remain active until the <BREAK> key is pressed.

UNMRK

The UNMRK command is used to remove all block markers. After entering this command, all block markers will be removed from the text, without affecting any text within the block.

DNP

The DNP command is used to scroll the text down one page of the display. A page of text is considered to be the screen area in the top window. After the DNP command is issued, the current line on which the cursor is positioned will be the top line of the new display screen (if enough text exists below the current cursor position), and the cursor will be positioned on the bottom line of the display window.

UPP

The UPP command is used to scroll the text up one page of the display. A page of text is considered to be the screen area in the top window. After the UPP command is issued, the current line on which the cursor is positioned will be the bottom line of the new display screen (if the re-drawing of the screen permits), and the cursor will be positioned on the top line of the display window.

ALL

The ALL command is used with the FND, CHG, and TAB commands to perform global operations. For more information, refer to the above mentioned commands.

AGN

The AGN command is used with the FND and CHG command to repeat the previously entered command. For more information, refer to the above mentioned commands.

NAME

The NAME command can be used to change the filespec associated with the currently accessed text. This is useful if changes have been made to a text file, and it is also desired to retain the original text file. After entering the NAME command, the prompt "Save filename:" will appear on the bottom left portion of the screen. Enter the filename to be used to save the currently accessed text. If the filename entered corresponds to an already existing file, a "-R" (indicating Replaced) will appear next to the filename in the command line window. If the filename entered represents a new file, a "-N" will appear, and the new file will created according to the normal operating system procedures. In either case, performing a NAME command will only rename the text file, and will NOT save the text. To save the text, issue the SAVE command after changing the filename.

EXIT

The EXIT command is used to exit LED and return to the DOS level. If no changes have been made to the text since the last SAVE operation, or the text file has not been renamed with the NAME command, the message "No changes" will appear on the bottom left portion of the screen, and a return to DOS will be done. If changes have been made, the prompt "Changes made. Save?" will appear. Answer this prompt with <Y> if the text is to be saved, or <N> if the text is not to be saved. If <BREAK> is pressed, the "Changes made" prompt will disappear, and LED will remain in the standard mode.

DEL-BLK

The DEL-BLK command can be used to delete the currently marked block of text. It functions identically to the DEL command followed by the BLK command, with the exception that a character will not be deleted before the block is deleted. With the two command sequence (DEL and BLK), the delete mode must first be entered, which will delete the character over which the cursor is positioned, before allowing the block to be deleted. The DEL-BLK command key will allow the deletion of a block without having to enter the delete mode first. For more information, refer to DEL and BLK.

WRT-BLK

The WRT-BLK command will allow the currently marked block to be written to a disk file which is separate from the current filename. If no block exists, the message "Marker error" will appear on the bottom left portion of the screen. If there is a properly marked block within the text, the prompt "Block filename" will appear. Answer this prompt with the desired filename, and the currently marked block will be saved to disk using this filename (the block markers will NOT be saved in the file). This will have no effect on the current file name for the entire text file. To abort the block save, answer the "Block filename" prompt by pressing the <BREAK> key.

NOTE: Text written to disk using the WRT-BLK function will be saved as it appears. Any special save function specified upon entry to LED (such as XLATE or END=Ø) will have no effect when saving a block.

INS-FILE

The INS-FILE command will allow the contents of a disk file to be inserted into the current text file. After the command is entered, the prompt "Insert filename" will appear on the bottom left portion of the screen. Answer this prompt by typing in the file that is to be inserted into the text. The insertion will take place to the left of the current cursor position, similar to the insert mode. After the insertion is made, the cursor will be positioned over the first inserted character.

If the text file to be inserted is too large (i.e. there is not enough memory to contain the current text file plus the text file to be inserted), an appropriate error message will be displayed. If the file name specified does not exist, an appropriate error message will be displayed. At this point, press the <BREAK> key, and LED will restore the video and resume operation in the standard mode.

To abort the INS-FILE command, press the <BREAK> key in response to the "Insert filename" prompt, and the standard mode will be activated.

NOTE: Text loaded from disk using INS-FILE will be loaded as is. Any special load function used upon entry to LED (such as TAB or XLATE) will have no effect on the insert. The load will terminate either at the end of file, or if the character X'ØØ' is encountered. Also, if block markers appear in the current text as well as in the inserted file, more than two block markers may be present in the text. Prior to performing any block operations, the number of block markers must be reduced to two.

As noted on Page 3 of the manual, there are various methods of positioning the cursor while in LED. When running on the Model 2/12 computer, the following chart should be used as a guideline to perform cursor positioning.

Position Cursor to:		Key Sequence to Use:
One line Up	--------------	<UP-ARROW>
One line Down	--------------	<DOWN-ARROW>
One character Right	--------------	<RIGHT-ARROW>
One character Left	--------------	<LEFT-ARROW>
Next tab stop Left	--------------	<CTRL> <X>
Next tab stop Right	--------------	<CTRL> <Y>
Beginning of line	--------------	<ESC> <LEFT-ARROW>
		LIN command (standard mode)
End of line	--------------	<ESC> <RIGHT-ARROW>
Beginning of text	--------------	<ESC> <UP-ARROW>
		TOP command (standard mode)
		<ESC> <ESC>
End of text	--------------	<ESC> <DOWN-ARROW>
		END command (standard mode)

Listed below is a sample display of the menu which will appear in the command window.

```
_____•_____•_____•_____•_____•_____•_____•_____•_____•_____
DNP  UPP INDNT TAB  HEX UNMRK ALL MENU NAME  SAVE WRT-BLK INS-FILE EXIT
F1   F2   [1]  [2]  [3]  [4]  [5] [6]  [7]   [8]   [9]     [0]    [-]   []=ESC
INSRT LIN DEL  WORD     BLK  SPA  TOP  END   FND   CHG  AGN  DEL-BLK
 {F}  {G} {D}  {W}      {E}  {N}  {T}  {Z}   {V}   {R}  {U}   {Q}        {}=CTRL
                                       {LED/TXT:0-R}      ( 0):X'3E'|18833
```

The solid line containing period breaks is the current tab stop status line. The next four lines indicate how the LED functions are invoked. They are grouped in pairs of two. That is to say, the DNP command is invoked by depressing the <F1> key, the UPP command is invoked by depressing the <F2> key, etc.

The top row of commands (TAB, HEX, UNMRK, etc.) are activated by use of the <ESC> (escape) key. To use any commands which require the <ESC> key, first press <ESC>, and then press the desired function key.

The bottom row of commands (INSRT, LIN, DEL, etc.) are activated by use of the <CTRL> (control) key. To use any commands which require the <CTRL> key, first press <CTRL>, and while keeping it held down, press the desired function key.

<CTRL> <Y> and <CTRL> <X> (the tab positioning keys) will position the cursor transparently through the text to the next tab stop or the end/beginning of the current line, which ever comes first. If columnized text is to be created, the best method to use is to first open up one or more lines of spaces (via INSRT-LIN), and then perform the tabbing to create the text. Also, if the cursor is positioned at the end of text, a line of spaces must be opened if tab positioning is to be used, since the TAB-RIGHT command will have no effect if the cursor is positioned at the end of text (i.e. there is no text to tab through at the end of text).

As noted on Page 3 of the manual, there are various methods of positioning the cursor while in LED. When running on the Model 4 computer, the following chart should be used as a guideline to perform cursor positioning.

Position Cursor to:		Key Sequence to Use:
One line Up	--------------	<UP-ARROW>
One line Down	--------------	<DOWN-ARROW>
One character Right	--------------	<RIGHT-ARROW>
One character Left	--------------	<LEFT-ARROW>
Next tab stop Left	--------------	<SHIFT> <LEFT-ARROW>
Next tab stop Right	--------------	<SHIFT> <RIGHT-ARROW>
Beginning of line	--------------	<CLR> <LEFT-ARROW>
		LIN command (standard mode)
End of line	--------------	<CLR> <RIGHT-ARROW>
Beginning of text	--------------	<SHIFT> <UP-ARROW>
		TOP command (standard mode)
		<CLR> <UP-ARROW>
End of text	--------------	<SHIFT> <DOWN-ARROW>
		END command (standard mode)
		<CLR> <DOWN-ARROW>

Listed below is a sample display of the menu which will appear in the command window.

```
         .        .        .        .        .        .        .        .        .
 DNP  UPP INDNT TAB   HEX UNMRK ALL  MENU NAME   SAVE WRT-BLK INS-FILE EXIT
 F1   F2   [1]  [2]  [3]  [4]  [5] [6]  [7]   [8]   [9]     [Ø]    [-]    []=CLR
 INSRT LIN DEL  WORD   BLK SPA  TOP  END  FND  CHG  AGN  DEL-BLK
  {F}  {G} {D}  {W}   {E}  {N}  {T}  {Z}  {V}  {R}  {U}    {O}           {}=CTRL
                                         {LED/TXT:Ø-R}      ( Ø):X'3E'|18833
```

The solid line containing period breaks is the current tab stop status line. The next four lines indicate how the LED functions are invoked. They are grouped in pairs of two. That is to say, the DNP command is invoked by depressing the <F1> key, the UPP command is invoked by depressing the <F2> key, etc.

The top row of commands (TAB, HEX, UNMRK, etc.) are activated by use of the <CLR> (clear) key. To use any commands which require the <CLR> key, first press <CLR>, and while keeping it held down, press the desired function key.

The bottom row of commands (INSRT, LIN, DEL, etc.) are activated by use of the <CTRL> (control) key. To use any commands which require the <CTRL> key, first press <CTRL>, and while keeping it held down, press the desired function key.

<SHIFT> <RIGHT-ARROW> and <SHIFT> <LEFT-ARROW> (the tab positioning keys) will position the cursor transparently through the text to the next tab stop or the end/beginning of the current line, which ever comes first. If columnized text is to be created, the best method to use is to first open up one or more lines of spaces (via INSRT-LIN), and then perform the tabbing to create the text. Also, if the cursor is positioned at the end of text, a line of spaces must be opened if tab positioning is to be used, since the TAB-RIGHT command will have no effect if the cursor is positioned at the end of text (i.e. there is no text to tab through at the end of text).

IMPORTANT NOTICE

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