```
*+*+*+*+*+*+*+*+*+*+*+*+*+*
+                         +
*    M I K E Y T E R M    *
+       Version  4.0      +
*+*+*+*+*+*+*+*+*+*+*+*+*+*
```

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Documentation Written by Donald D. Hutchison

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INTRODUCTION

MIKEYTERM is an advanced, user friendly, general purpose terminal program that supports many of the popular file transfer protocols, such as ASCII, XMODEM, and pure binary. Advanced buffer entry is also provided, as well as support for modems, printers, and BOTH disk and tape systems.

First time users will find MIKEYTERM to be easy to use and extremely forgiving, yet experienced users will find their most wanted features included. Users may also configure MACRO key definitions for specific functions, such as CompuServe ID's and passwords. In addition, MIKEYTERM may be used with the more common "smart" modems.

Version 4.0 includes support for the standard CoCo serial port at 300 baud, the Radio Shack RS-232 Program Pack or PBJ 2-SP card for 1200 baud and higher speeds, and the PBJ WordPack or WordPack II. MIKEYTERM will adjust itself automatically to use whichever of these hardware additions is present.

MIKEYTERM requires a fully implemented 64K Color Computer (or TDP-100) using either Disk BASIC Version 1.0 or Version 1.1, although many custom ROMs function equally well. At least one disk drive, a cassette recorder/player, a printer, and a modem will enable the user to avail himself of all of the features that are inherent in MIKEYTERM.

MIKEYTERM does NOT support any version of JDOS.

Getting Started With MIKEYTERM

MIKEYTERM comes pre-configured to the following settings:

            Full duplex
            RS232 Pack baud rate = 300
            Printer baud rate = 600
            7-bit word length
            No parity
            No linefeed on carriage return
            Auto buffering on
            Buffer open at startup
            Startup at Main Menu
            Word wrap enabled
            Auto halt off
            Cursor color for closed buffer is dark blue. (&HAF)
            Cursor color for open buffer is yellow. (&H9F)
            No predefined strings for control keys.
            No ASCII filter values
            For WordPack and WordPack II:
                Slow, blinking cursor

            Solid block to indicate open buffer
            Underline to indicate closed buffer

These settings are the common defaults for most information services and
bulletin board systems.

A BASIC program has been provided with MIKEYTERM in order to allow the
user to set the default options to whatever is desired.   CNFG40.BAS is
menu driven and fairly straightforward in itself, so this section will
cover only those aspects which may not be obvious.

The function of "CNFG40" is to allow one to customize MIKEYTERM to the
most convenient default values for:

                1.   Function key definitions
                2.   Duplex, full or half
                3.   Word length, 7 or 8 bits
                4.   Auto Halt ON/OFF
                5.   Linefeed on carriage return ON/OFF
                6.   Auto-buffering ON/OFF
                7.   Cursor colors
                8.   Buffer initially open or closed
                9.   Word wrap ON/OFF
               10.   Initial entry into Communications or the Main Menu.
               11.   RS232 Pack baud rate
               12   Printer baud rate
               13.   WordPack defaults
               14.   ASCII filter values

CNFG40.BAS is set up to configure Mikeyterm version 4.0 only, and will
work with either cassette or disk systems.

Because things can go wrong and accidents can happen, be sure to use a BACKUP copy of Mikeyterm. Simply insert the BACKUP copy of the distribution disk into your default drive and enter the line RUN "CNFG40" [ENTER] to begin. You'll be prompted for the necessary information as you progress.

The first question asked by "CNFG40" is "Filename to configure?". Just pressing the [ENTER] key will load the distribution version of MIKEYTERM.

Text input is NOT required for the control key string definitions. For these, just pressing [ENTER] will advance to the next (optional) string definition, or you may enter any apropriate string of text that you choose.

Text string length for the configurable keys is limited to 31 characters. You may use all keyboard characters up to and including this length. "CNFG40" will alert you if you attempt to use strings that are too long. You will then be prompted to re-enter the desired string.

The "ASCII Filter" is an extremely useful mechanism for filtering out annoying control characters, but may have little practical value in normal day-to-day communications. If you specify a filter it will be active anytime you're in Communications mode in either 7 or 8-bit mode. XMODEM transfers are NOT affected.

If you just hit [ENTER] at the first "received value" prompt no filtering will take place and you may continue with the rest of the configuration process. If, however, you have to deal with a host computer that sends a "DEL" character (ASCII 127) at the beginning of every line, (or some other useless control code) you can filter it out by using the ASCII filter.

You may filter any 3 ASCII values you want. "Filter" means that you may do one of two things with any three data values: (1) you may "discard" a character by replacing its ASCII value with a zero byte (null), or (2) you may change a byte by replacing its ASCII value with any other ASCII value.

For example, let's say we want to discard ASCII 127's as they come in. Here's what the configuration program would show:

        Received value   127
    Replacement value   0

This is repeated for up to three values. If you want to stop after one value, just hit [ENTER] when prompted for the second "Received value" and your one-byte ASCII filter will be saved.

Next, we'll set our default printer baud rate. Here, just enter the value you would use if you were going to print something from a BASIC program. This would be the same value you normally poke into location 150. For example, if you have a 1200 baud printer you would usually use "POKE 150,41" to set the baud rate. Here you just enter the 41, or whatever works for you with BASIC.

Next, you'll be asked several questions about how MIKEYTERM should communicate with other systems and computers. If in doubt about exactly which communications parameters you should select,   choosing   the following will usually provide successful communication with the great majority of BBS's and telecommunication services:

            Full duplex   7-bit word length   Auto halt OFF
                 No linefeed on carriage return
              Automatic buffer open/close option ON

The "Auto Halt" feature needs a little explanation, since it isn't implemented in most other terminal programs.   When in Communications with the "Auto Halt" feature turned ON, (and assuming that the host supports XON/XOFF protocol) leaving Communications will send a control-S to disable the host's transmission. When returning to Communications, MIKEYTERM will send a control-Q to restart the host's transmission.

This means that if there was any traffic pending, it will be sent at this time. It is even possible to exit in mid-sentence, if desired. When returning to Communications, all defaults and communication parameters will be restored, just as before. (It's a good idea to leave this feature OFF if in doubt about the host.)

Linefeeds are not normally needed since they are usually supplied by the host, so the "linefeed on carriage return" option is generally set to "no". However, linefeeds must be inserted after each carriage return when operating in half-duplex mode, especially while communicating with another Color Computer. If half-duplex operation is chosen, a linefeed after a carriage return option is automatically set to "on", but may be reset to "no" through the "Change Parms" option.

Automatic buffer control is a desirable option, as it is used by most BBS systems for downloading purposes. When initiating a download, the BBS or the host will send a special character (a control-R) to open MIKEYTERM's buffer. After the download is complete, the BBS or host will send another special character (a control-T) to close the buffer. Normally, the automatic buffer option should be set to "yes" unless its operation would cause undesirable effects. (Note: automatic buffer control is not possible in the 8-bit mode. If you have selected 8-bit mode, the automatic buffering option will be ignored by MIKEYTERM.)

The cursor colors are normally set to yellow for an "open" buffer, and to dark blue for a "closed" buffer unless overridden during the configuration process. Just pressing the [ENTER] key at the prompt for each cursor value will automatically assign the above default cursor colors.

You may define any values that you desire for the cursor characters, just as long as they are each greater than 128 (&H80).   You may even define a checkerboard cursor if you like! The "CNFG40" program will optionally display all possible cursor colors for you, if desired. After viewing them, you'll be returned to the cursor selection menu where you can insert the desired colors. (Note that this is for the normal video, not the 80 column Wordpak.)

Next, you'll be prompted for the initial status of the buffer, whether
"open" or "closed".   Normally, you should choose to have the buffer
"open", but the option is provided for those who choose otherwise.

You'll then be asked to choose whether you want "word wrap" enabled.
(Incidentally, this option is only in effect for the normal 32-column
text screen, and will NOT affect the WordPack display.)   It's generally
best to choose "yes" at this point, in order that MIKEYTERM will format
the screen display into 32-character lines. Words that would normally
be "broken" at the right-hand side of the screen will then be "wrapped"
around to begin on the next line.   This option will produce the most
readable display for most people.

You'll then be asked for the initial entry point into MIKEYTERM.   Until
you become familiar with the operation of the program, you may choose to
enter at the "Main Menu".   Later on, it's a simple matter to change the
entry point to "Communications".

The next series of questions is for those of you that have the PBJ
Wordpak 80 column card.   You may specify two different kinds of cursors
to provide you with visual feedback on whether your buffer is open or
closed.   They are specified separately and may blink slow, fast, or not
at all.   You may also specify the size of each cursor.   A size
specification of zero is a huge solid block on both the Wordpak-I and
Wordpak-II.   A one-pixel-high underline is a 7 for Wordpak-I and a 9 for
Wordpak-II.   Use anything you like in the range 0 through 7 for the
Wordpak-I, or 0 through 9 for the Wordpak-II.

If you have the Radio Shack "Custom" keyboard #277-1019, (the one with
the arrow keys all on the right-hand side and a "CTRL" and "ALT" key on
the left) and you want to use the "CTRL" key instead of down-arrow for a
"control" key, specify <Y> at the appropriate prompt.

If you have an RS232 Pak or a PBJ 2-SP you may set your default start-up
baud rate.   MIKEYTERM 4.0 will support baud rates between 110 and 9600
baud using these hardware serial ports.

At this time, you have (FINALLY!) completed "CNFG40", and you'll be
asked for a filename for your customized version of MIKEYTERM.   Use a
standard formatted disk to save it.

By the way, NEVER give anyone a customized copy of MIKEYTERM! The reason
for this is that your configuration data is stored within your
customized version(s) in the area from &HE00 to &HEFF.   Your
configuration data could conceivably include things like your User ID
numbers, personal passwords, etc.

C O M M U N I C A T I O N S

Main Menu Option 1

"Communications" is where you'll undoubtedly spend most of your time, so it's a good idea to get off to a good start. If you haven't run the "CONFIG" program yet or used Main Menu Option #8 to adjust your communications parameters, then now is the time to do so.

If in doubt about exactly which communications parameters you should use, the following are usually successful when used with the great majority of BBS's and telecommunication services:

                300 baud   7-bit word length
                No parity   Full duplex
                Auto halt OFF

                No local linefeed on carriage return
                Automatic buffer open/close option ON

When auto-buffering is ON and your parameters are setup for 7-bit mode, receipt of a control-R (hexadecimal 12) will open the buffer and turn the cursor to yellow if the buffer wasn't previously open. A control-T (hexadecimal 14) will close the buffer and turn the cursor to dark blue.

(The buffer is closed automatically whenever the buffer is filled.) This protocol, sometimes called either DC2/DC4 protocol or "ASCII buffer capture", is used by CompuServe and many of the more popular BBS systems. (Note: the cursor colors may be modified to your taste by using the "CONFIG" program.)

In 8-bit mode, detection of the buffer open/close control characters is not possible since those characters may form a part of the incoming data stream. If auto-buffering has been set to ON, it will be ignored in 8-bit mode and data will be stored in the buffer only if the buffer has been opened manually.

Operation

All single-key commands may be entered in either upper or lower case text.   In all cases, the <down-arrow> key is used as a "control" key, since the Color Computer lacks a designated "control" key.   (Most other terminal programs use this convention also.)

To send a control character, press <down-arrow> and simultaneously press the control key of your choice.

                Example: <down-arrow>+<C> will send a control-C.

<BREAK> will send a control-C.   <SHIFT>+<BREAK> will do the same, and so will <control>+<C>.

<control>+<?> will send a true line-break.

<Right-arrow> will transmit a space.   If you wish to transmit a horizontal tab, then use the <control>+<right-arrow> pair.

<CLEAR> will send a left bracket ([) character.

<SHIFT>+<right-arrow> will send a right bracket (]) character.

<SHIFT>+<zero> toggles the display and the keyboard between the upper- and lower-case modes.   Selecting lowercase mode affects what is displayed on the screen and sent from the keyboard, but does NOT affect the data that is being stored in the buffer.

<control>+<CLEAR> issues an "escape" character, decimal 27.

<control>+<=> will issue a "rubout" character, decimal 127.

Control Key Designations

1   Open/close the buffer

2   Adjust RS-232 Pack baud rate between 110 and 9600 baud

3   XMODEM transmit from the buffer
     <BREAK> will abort at the end of the block being sent

4   XMODEM receive into the buffer
     <BREAK> will abort immediately

5   Exit Communications into Display mode, and
     display most recent data in the buffer

6   Send predefined text string

7   Exit Communications and go to the Main Menu

8   Send predefined text string

9   Transmit the buffer

0   Send predefined text string

XMODEM File Transfer

One of the more noteworthy features in MIKEYTERM is the inclusion of the XMODEM protocol originally developed by Ward Christensen, a landmark pioneer in computer communications. The purpose of the XMODEM protocol is to guard against inaccuracies in file transfer caused by bad signals on the telephone line. It is an error-detecting, error-correcting protocol that ensures accurate transmission and receipt of data and binary files. The protocol is in wide use today among a variety of microcomputer systems and telecommunication services.

To operate with the XMODEM protocol, both computers must have communications software that is capable of executing the XMODEM protocol. The file transfer will proceed, block by block, until the end of the file is reached. The transfer will then terminate automatically.

The XMODEM routine in MIKEYTERM has been tested with other implementations of the protocol and will give you good results. If the other computer is also running MIKEYTERM, you can definitely be assured of a rapid and accurate file transfer.

For those who are interested, a technical description of how the file transfer takes place can be found in Appendix C at the end of this documentation.

Receiving a File: Control-4

To start the receive, press press control-4. From here on, the process is almost automatic. Once the receiving process is in operation, a block count will be displayed along with a count of the number of retries attempted and the number of timeouts that have occurred. Usually, these last two parameters will be zero.

When the receive operation is complete, you'll be prompted to hit [ENTER] or [BREAK] in order to continue. After doing this, save the file to disk or tape using the appropriate option from the Main Menu.

If you need to terminate receipt of the file at any time, press [BREAK].

Transmitting a File: Control-3

To start the XMODEM transmit routine, press control-3. The file to be transmitted must be in the buffer already. Once the transmission is in progress, no further action is required on your part. The transmission routine will terminate automatically at the end of the file.

If the program detects an error while transferring the file, you will
see the "retries" count increase as MIKEYTERM tries to recover from the
error. If successful, the "retries" count will again be zero.

In some cases, MIKEYTERM will not be able to recover, particularly if
the line signal is degraded. The transfer will automatically terminate
after repeated errors. You can also terminate manually at any time by
pressing [BREAK].

If the XMODEM transfer does not succeed, please do not assume that there
is something wrong with your computer or with MIKEYTERM. It is
suggested that you hang up, re-establish communications over a new line,
and try again.

A Note on Communications Terminology

The MIKEYTERM prompts and documentation generally avoid use of the words
'uploading' and 'downloading'. However, a convention in the mainframe
world has been to use 'uploading' to refer to transmitting a file to a
remote computer and 'downloading' to refer to receiving a file from a
remote computer.

Advanced Features:

Certain remote computer systems may send unwanted characters to your
computer. If you have need to strip or convert certain characters as
they are being received, you can specify those and the required
stripping/conversion using MIKEYTERM's ASCII filter capabilities. Use
the CNFG40 program to configure up to three filtered values according to
your particular needs.

Using the Buffer

All routines that output from the buffer (tape, disk, printer, transmit buffer, and XMODEM transmit) will use the start and end marks. Reading a file into the buffer will automatically set the start and end marks for that file. However, if the buffer is marked later, these marks will be honored instead.

For example: A disk file is loaded into the buffer for upload. It is desired to leave the buffer open because a record of the session is to be saved or printed. This is permitted with MIKEYTERM. The incoming data will simply be appended to the end of the existing file in your buffer.

The best part is that the end mark won't be altered. It is still positioned to mark the end of the file that was loaded. When the time comes to transmit or upload, only the file that was loaded will be sent, and nothing more.

Whenever you exit Communications mode, MIKEYTERM remembers all of the parameters that you set, things like whether word wrap was on/off, whether the buffer was opened or closed, your ENTIRE screen and cursor position, etc. When re-entering Communications, all of these parameters will be restored, just as if you'd never left.

When in combat with the "Auto Halt" feature turned ON, (assuming that the host supports XON/XOFF protocol) the act of leaving Communications will issue a control-S to the host so that while the user is away scanning the buffer (or any other function) the host won't send anything. Upon returning to Communications mode, MIKEYTERM will send a control-Q to restart the host's transmission. That way if any traffic was pending, it will be sent at that time. It is even possible to exit right in the middle of a line, if necessary. When returning to Communications, conditions will be restored to normal, just as if the exit had never occurred. (It's a good idea to leave this feature OFF if in doubt about your host.)

What Is Saved In The Buffer

Received data that is to be saved in the buffer will be appended to any existing buffer data. Please refer to the section on "Marking the Buffer" for further details.

When in 7-bit mode, all data received from the RS-232 interface will go into the buffer except:

                Linefeeds   (Hex 0A)
                Control-R   (Hex 12)   (Open buffer)

```
Control-T    (Hex 14)    (Close buffer)
Null         (Hex 00)
Rubout       (Hex 7F)
```

When in 8-BIT mode, everything received from the RS-232 port is saved in the buffer if it is open. Data sent from the keyboard is not saved in the buffer in Communications mode.

D I S P L A Y

Main Menu Option 2

The Display mode is provided in order that users may view the contents of the buffer. The following commands are supported by MIKEYTERM:

<T>op   Move to the top of the buffer

<B>ottom   Move to the bottom of the buffer

<Down-arrow>   Move down one line

<Up-arrow>   Move up one line

<SHIFT>+<down-arrow>   Move down a full screen

<SHIFT>+<up-arrow>   Move up 12 lines

<P>rint   Print the contents of the buffer. If a
                        portion of the buffer has been marked,
                        then only that portion will be printed.

<BREAK>   Return to MIKEYTERM's Main Menu.   If you
                        are printing, the <BREAK> will abort the
                        print operation and redisplay the screen
                        from which printing was initiated.

<spacebar>   Return   to   Communications   mode.

<F>ind   Find a character string in the buffer.
                          You will be prompted for a "search
                          string". Type in the string for the
                          search and hit <ENTER>. Use upper and/or
                          lower case as required. The buffer will
                          then be scanned for the first occurrence
                          of the search string.

                          When found, a full screen will be
                          displayed beginning with the search
                          string. If the search string is not
                          found, the screen from which the search
                          was initiated will then be redisplayed.

<N>ext   Find the next occurrence of the search
                          string defined previously with the "F"
                          function. If another occurrence of the
                          string cannot be found, then the current
                          screen will be re-displayed.

                Marking the Buffer for Saving or Printing

To mark a portion of the buffer, the Display mode must first be selected
from the Main Menu. You may mark any portion of the buffer for output
to disk, tape, or printer. While there are no restrictions on the
nature of the data that can be marked, saving marked portions of binary
data (such as M/L programs or compressed BASIC programs) may produce
undesirable and/or unpredictable results. The user is urged to use
caution.

Here's how to mark the buffer. Put the first line of the start of the
portion you wish to save on the screen somewhere using the up and down
arrow keys. (Use the <SHIFT> also, if necessary.) Push <M> for "MARK".
A blue cursor will appear at the upper left-hand corner of the screen.
Position the cursor at the START of the line of the portion of the
buffer that you want to save, then push <S> for "START". The blue
cursor will then disappear and you'll hear a tone to inform you that the
mark was made.

Now the end mark. Use the up and down arrow keys (and the <SHIFT>, if
you choose) to put the last line of the chosen area on the screen. Push
<M> for mark. The blue cursor will be visible again. Place it UNDER
the last line of the portion that you wish to save, then push <E> for
"END". The cursor will disappear and again you'll hear a tone to inform
you that the end point is now marked also.

NOTES: You may mark EITHER the starting point or the ending point first
        for the portion to be saved.

Generally, it's best to mark the buffer ONLY if it contains pure ASCII
data. Attempting to mark the start and/or end points of binary files
(such as M/L or compressed BASIC) is an approximation at best, and will
usually cause unpredictable and/or disastrous results!

Anytime you push <M> for mark, the "word wrap" feature will be disabled
and the screen will be "unwrapped". This means that the lines within
the buffer will "break" at the right side of the screen, rather than
being formatted for 32 characters per line. (This is necessary in order
to let you mark the buffer accurately.) Don't let this concern you,
because all of your default parameters (including "word wrap") will be
restored when you return to Communications. In the meantime, you may
turn the "word wrap" function on and off (while you're in display mode)
by pressing the <W>.

Now that the buffer has been marked, you may save the marked portion of
the buffer to disk or tape, print it, or transmit it. All functions
that output from the buffer (tape, disk, printer, or transmit buffer)
use the start and end marks. If you never mark the buffer, the marks
will remain the same as the LOGICAL start and end of your buffer. This
means that if you load a file into the buffer, the start and end marks
will be adjusted to reflect the true start and end points of the file
that you just loaded. The file may then be saved, printed, (if approp-
riate) or transmitted.

However, if you sign-on to your favorite BBS, even with the buffer open,
YOU MUST MARK THE BUFFER before saving, printing, or transmitting any
portion of the buffer. If in doubt, it's ALWAYS best to mark the buffer
manually.

M O D E M

Main Menu Option 3

This option is primarily designed to support the Radio Shack Modem II. MIKEYTERM will program the Modem II to dial a phone number using "slow rotary" dialing. A 3 to 11 digit phone number may be set at any time using Main Menu Option 8. (Change parms)

Those wishing to use the Hayes SmartModem may enter the appropriate command string into the buffer using the "Buffer Entry" option from the Main Menu.

> Example: To dial a number using the Hayes' "TouchTone"
>   method, use Main Menu Option 7 (Buffer Entry)
>   to enter the string "AT DT 237-8113 <ENTER>" into
>   the buffer in order to dial the local phone
>   number of 237-8113. (Without quotes, of course.)

After entering Communications, a control-9 will send the command string to the SmartModem.

A more reasonable alternative is the use of the "CONFIG" program to define one of the function keys with the required command string, which can then be used to send the string to the Hayes SmartModems.

R E S E T   B U F F E R

Main Menu Option 4

Choosing <4> at the Main Menu will allow the entire buffer to be cleared. This action will make available the full buffer capacity.

You will be asked to verify that you REALLY want to erase the buffer. Anything besides a "Y" will abort the operation. The buffer is automatically cleared before loading files from disk or tape.

The amount of used and free buffer space is displayed (in decimal) whenever the Main Menu is selected.

T A P E   U T I L I T Y

Main Menu Option 5

This portion of MIKEYTERM is provided for those who wish to use tape I/O. It is menu-driven for simplicity of operation.

MIKEYTERM will read most common tape files into the buffer, and will write files to tape in either ASCII or binary format. The buffer will be automatically cleared before the file is loaded.

It's usually convenient to position the tape to be read at the beginning of the file However, loading of a cassette file may begin practically anywhere on the tape because a general purpose routine is used to locate the start of the file.

To use the tape utility portion of MIKEYTERM, hit <5> at the Main Menu. You'll be asked if you want to:

        [1] Read a tape into MIKEYTERM's buffer, or
        [2] Write the buffer (or a marked portion) to tape.

Choose whichever option is appropriate. <BREAK> will return you to the Main Menu.

If writing the buffer to tape, you'll be prompted for the file type:

        [1] ASCII, or
        [2] Binary

Again choose whichever type is appropriate to your situation. If you choose [2], you'll be given the opportunity to supply the starting and execute addresses (in hexadecimal) that will be written to tape. This is necessary because MIKEYTERM has no way of knowing this information following a file transfer. If you merely press <ENTER>, binary files written to cassette will be given start and execute addresses of zero. (The user should use whatever offset is appropriate when loading the tape from BASIC.)

You'll then be prompted to prepare your cassette machine. Hit <ENTER> whenever you're ready.

MIKEYTERM writes "gapped" files to tape. The starting and stopping motion that you may notice from your cassette recorder is normal while MIKEYTERM is writing the buffer to tape.

DISK   UTILITY

Main Menu Option 6

The disk utility portion of MIKEYTERM is also menu-driven in order to
make it friendly and easy to use, as well as to provide the user with
good error recovery and descriptive messages. It was provided to allow
MIKEYTERM's users to read files from disk into the buffer, save to disk
from the buffer, and obtain disk directory displays.   All drives are
supported.

A directory display (in two-column format) can be obtained by entering
the drive number in response to the "FILENAME?" prompt. Free disk space
is also indicated.   After the directory is displayed, you will be
re-prompted for the filename.

There are no restrictions on the filename as long as you use at least
two characters. (One character entries are interpreted as drive numbers
for purposes of obtaining directory displays.) Use upper and/or
lowercase characters as appropriate.

The default extension is TXT.   If a blank extension is desired for
reading or writing a file, use a "/" after the filename followed by an
<ENTER> at the "FILENAME?" prompt.

     Example: TESTFILE/<ENTER>   or   TESTFILE/:1<ENTER>

A drive number may be appended to the filename if a drive other than the
current default drive is to be used. It must be separated from the
extension with a colon.

     Example: TESTFILE/TXT:1<ENTER>

The data in the buffer (or a marked portion) may be written to disk as
any file type you choose. When a disk file is read into the buffer, the
file type is displayed. Note that the buffer is automatically cleared
before loading a file.

Rewriting an existing disk file is permitted by MIKEYTERM.   However,
you'll be notified that the file already exists, and asked if you want
to overwrite it. If you respond with a "Y", the file will be over-
written. Any other response will abort the operation.

The <BREAK> key will abort any operation except actual disk I/O.   When
in doubt, use it and start over.

Disk and Tape File Compatability

Only ASCII files can be freely transferred from tape to disk and vice versa. However, transfer of any file type from disk to disk is no problem with MIKEYTERM.

The following file types are supported when saving the buffer to disk. They are menu-selectable from within MIKEYTERM's "Disk Utility" function.

    (1)   BASIC program / ASCII format
    (2)   BASIC program / Compressed (binary) format
    (3)   Machine language program
    (4)   Data / ASCII
    (5)   Data / Binary

You may save the data in your buffer (or any portion of it) in ANY of the above formats. No checks are ever performed on the contents of the buffer regarding data type. This makes it possible to transmit any type of disk file to another user of MIKEYTERM as long as the sender loads it from disk and the receiver saves it on disk as the same file type that the sender transmitted.

Machine language programs loaded from disk will have their start and execute addresses preserved, as well as the file length. Compressed BASIC programs will also function normally.

This also makes it possible to save your buffer data as something that it is not. For example, you may save ASCII data files as machine language programs if you wish. MIKEYTERM will be able to read it, but BASIC may not.

NOTE: These features of MIKEYTERM are extremely flexible, and the user

is cautioned to exercise due care in their use.

A Caution For Tape Users

Because of differing file types, disk files in M/L format will require
conversion to CoCo tape format before they may be saved to tape. A
utility program, TAPCNV, is supplied on the distribution disk for this
purpose.

Specifically, M/L programs known to have been submitted IN DISK FORMAT
to CompuServe or BBS's will require conversion before being saved to
tape in a usable form.   This is due to a basic incompatibility between
the two file types, (disk versus tape) and is NOT a consequence of using
MIKEYTERM and/or XMODEM.

Simply type CLOADM "TAPCNV":EXEC and follow the program prompts to
convert any M/L tape files that you've downloaded into the proper
format for tape systems.

B U F F E R   E N T R Y

Main Menu Option 7

Selecting this option will present you with a blank screen. Simply type in any desired data or messages that you wish to send, a screenful at a time. To edit, just use the arrow keys to move the blue, nondestructive cursor anywhere that you wish on the screen.

The orange blocks that you'll see when you hit <ENTER> indicate where you have "carriage return" characters on the screen. This is a convenience feature of MIKEYTERM, since it allows you to enter your text in lines of a certain length.

The Color Computer displays lines 32 characters long, so you may enter lines up to 64 characters long, for example, by simply entering the data until two screen lines are almost full on your screen. Pressing the <ENTER> at this point will terminate the line with a carriage return, and ensure that the length of the line doesn't exceed 64 characters. Similarly, 80-character lines can be entered by pressing the <ENTER> after two and one-half lines or less have been entered.

Some editors that are used on BBS's or CompuServe (in particular) will not allow lines longer than a certain preset limit, say 64 or 80 characters. MIKEYTERM, by displaying the carriage return characters on the screen as orange blocks, allows you to avoid the frustration of having to edit the contents of the buffer in order to deal with this problem.

To put the screen in the buffer, just press the <BREAK>. Your screen data will be appended to any existing data in the buffer, and then you will be returned to the Main Menu.

    NOTE: Once the screen data has been moved to the buffer, it
           CANNOT be edited further by MIKEYTERM. It is advisable
           to edit the text carefully BEFORE pressing the <BREAK>.

If you desire, you may enter more data into the buffer by re-entering BUFFER ENTRY mode. The DISPLAY mode may be used to view or print the buffer contents or portion thereof.

If you wish to abort and return to the Main Menu without moving any screen data to the buffer, then use <SHIFT>+<CLEAR>.

C H A N G E   P A R A M E T E R S

Main Menu Option 8

This menu option will allow you to view or change some of the internal parameters used by MIKEYTERM. Use the up and down arrow keys to position the "->" marker on the line that contains the parameter to be changed. Use the <ENTER> key to toggle the selected option through its allowable parameters. When the parameter reads as desired, nothing further is required. The options are then set as they are displayed.

The baud rate for the printer may be set from this menu also. Instead of entering a phone number, type an "*" followed by the hexadecimal value that you would normally POKE into locations &H95 & &H96 (149 and 150 in decimal). Leading zeroes are not required but you many use them if you choose. If more than 4 hexadecimal characacters are entered, only the last 4 are used. To use MIKEYTERM with a 1200 baud printer, for example, you would enter "*0029" or just "*29". (Don't use the quotes, of course.) Naturally, the printer and the modem may not be used simultaneously, due to current hardware and software limitations of the Color Computer.

The <spacebar> will return you to Communications, while the <BREAK> key will return you to the Main Menu.

Miscellaneous Notes:

When 8-bit word length is selected, parity is automatically set to "NONE". This is a requirement and may not be modified.

When half duplex is selected, "Linefeed on carriage return" is automatically set to "YES". This is the usual case for successful operation by your Color Computer, but may be changed to "no" if desired. Note also that in half-duplex mode, the characters that you send from the keyboard will NOT be stored in the buffer since they are not received from the serial interface. (A half-duplex host doesn't "echo" the characters you send back to you, as a full-duplex host would.)

E X I T

Main Menu Option *

Typing an "*" (asterisk) at the Main Menu will produce the prompt:

ARE YOU SURE ?   (Y)

Any reply other than a 'Y' will return you to the Main Menu. A 'Y' will
reset all disk drive heads to track zero (if a disk system is in use)
and then initialize BASIC.

Going Online F-A-S-T

Since MIKEYTERM is supplied pre-configured for successful operation with most BBS's and information services, there really isn't a reason to avoid going online NOW! It's EASY!

First, just type in LOADM "<filename>": EXEC.   The <filename> is the name you've given to your customized version of MIKEYTERM if you've run the "CONFIG" program, or use "MTERM" if you're running from a BACKUP copy of the distribution disk.

After the program is loaded into your computer, you'll see MIKEYTERM's distinctive title screen displayed. At this point, you'll probably just want to push the "1" to enter communications mode, unless you need to alter some of the default settings.

Don't worry about pressing the wrong keys.   If you happen to make a mistake, the <BREAK> key will exit all modes except Communications, where you'll have to use either control-5 or -7. If you press any key other than those between 1-8 or the <*> key, you'll receive the "*-INVALID OPTION-*" message from MIKEYTERM. In any case, you haven't

harmed anything.

Next, dial your favorite BBS or information service, (use the directions supplied by that service) and await the high-pitched tone from the distant modem.   When you hear it, just put your modem into the "ORIGINATE" position, (see your modem instructions for information if you need it) and you're ONLINE with the host!

At this point, you'll need to transmit either a control-C or an <ENTER> to get the ball rolling. After that, you've successfully entered the fascinating world of TELECOMPUTING!

Have FUN!!

QUICK SUMMARY

I.   COMMUNICATIONS Mode:

A.   Special Characters

To Send	Press these keys
Control characters:	<down-arrow> + control key

Horizontal tab:	<control> + <right-arrow>
[	<CLEAR>
]	<SHIFT> + <right-arrow>
Escape	<control> + <CLEAR>
Rubout	<control> + <->
True line break	<control> + <?>

B.   Control Key Designations:

1   Open/close the buffer

2   Adjust RS232 pack baud rate between 110 and 9600 baud

3   XMODEM transmit from the buffer

4   XMODEM receive into the buffer

5   Exit Communication into Display mode

6   Send predefined text string

7   Exit Communication and go to the Main Menu

8   Send predefined text string

9   Transmit the buffer

Ø   Send predefined text string

II.   DISPLAY Mode:

<T>op   Move to the top of the buffer

<B>ottom   Move to the bottom of the buffer

<Down-arrow>   Move down one line

<Up-arrow>   Move up one line

<SHIFT>+<down-arrow>   Move down a full screen

<SHIFT>+<up-arrow>   Move up 12 lines

<P>rint   Print the contents of the buffer

<BREAK>   Return to MIKEYTERM's Main Menu

<spacebar>   Return to Communication mode

<F>ind   Find a character string in the buffer

<N>ext   Find next occurrence of search string

The following description of XMODEM protocol is included as background information for the, technically interested, and may be omitted by others.

XMODEM is an asynchronous, "receiver driven" file transfer protocol that is configured for 8 data bits, no parity, and one stop bit. The protocol imposes no restrictions on the contents of the data being transmitted. No checks are performed for control characters in the 128-byte data blocks. Absolutely any kind of data may be sent - binary, ASCII, "compressed" BASIC, etc. The protocol has not yet been formally adapted to a 7-bit environment for the transmission of ASCII-only (or unpacked hex) data.

XMODEM's popularity is due to the fact that it is an "Error Detecting, Error Correcting" protocol. Transmission errors due to phone line noise or other electrical disturbances will be detected and the block containing the error will be retried up to 10 times. After 10 consecutive errors or "timeouts" the transmission is aborted with a message indicating the reason.

MIKEYTERM transmits only from the buffer. By using a buffer, MIKEYTERM eliminates the time-consuming disk access time that's found in some other terminal programs.

Once the protocol is put into effect, the transmitter waits for the receiver to send an NAK character (ASCII 21). Meanwhile, the receiver sends NAK signals every ten seconds. Once the transmitter detects an NAK, it starts to send the file in sections of 128 bytes.

Actually, more than 128 bytes are sent for each block. At the beginning of the block is an SOH character (ASCII 01), followed by the ASCII character representing the block number, followed by the ASCII character of the "one's complement" of the block number. Then the 128 bytes of the file are sent. Finally, the block concludes with a hex byte that represents the sum of the ASCII values of the 128 bytes sent (the "checksum" character).

A typical data block looks like this:

        1-byte SOH ("Start of Header", or hex 1)
        1-byte block number, starting with 1
        1-byte complement of the block number (255-block #)
        1 block of 128 bytes of data
        1-byte checksum: The sum of the data bytes only,
                         discarding any carry

The way that file transfer proceeds is something like this: since the protocol is "receiver driven", the sender waits for the receiver to send him an initial NAK ("negative acknowledgement", which is a hexadecimal

15). Then a block is sent and the sender waits for the receiver to send

either a NAK or an ACK ("positive acknowledgement", which is a hexadecimal 6). The receiver checks the block to verify that everything is in order. First it makes sure that the block started with an SOH. Then it makes sure that the block number is correct. Then it performs its own calculations on the 128 data bytes and compares its own checksum with the one received from the transmitter.

If everything is in order, the receiver sends an ACK character (ASCII 06) to the transmitter, indicating that the next block is to be sent. If the receiver can't verify, it sends an NAK, requesting that the block be sent again. This continues, block by block, until the entire file has been sent and verified.

At the end of the file, the transmitter sends an EOT character (ASCII 04). The receiver acknowledges the EOT with an ACK, and the transfer terminates.

MIKEYTERM uses a few deviations from the XMODEM standard that permit the user to transmit ASCII files freely. This deviation, while not part of the original specification, is consistent with the recommendation of the author of the XMODEM protocol for purposes of adapting it to a 7-bit environment.

The differences are listed here in brief:

1. A linefeed/carriage-return pair is inserted at the end of the data
    to be transmitted. This ensures that the last data line ends with
    a carriage-return.

2. A linefeed is inserted after each carriage-return if one does not
    already follow it in the buffer.

3. Blocks are padded with 127 blanks with a carriage return in
    the 128th position. This ensures that the last block, if shorter
    than 128 bytes, will be terminated with a carriage-return.

4. The user will be prompted as to whether the file is in ASCII format
    when XMODEM TRANSMIT is selected. (Control-3 while in
    Communications.) Answer [Y] or [ENTER] if so, and Mikeyterm will
    handle the rest for you. Binary files will be sent "as-is".

The End