Chapter 3
MTERM Commands

This reference chapter describes each option in the MTERM command menu. The options are described in the order in which they are used.

The command menu consists of two parts, the options table located in the upper portion of the screen and the status table displayed at the bottom of the screen. The options table contains a list of commands that you can select. The status table (the shaded area of the screen shown below) displays the current status of 12 of these commands as well as information concerning the state of your system buffer.

Command Menu

To enter the MTERM command mode from terminal mode, press **MENU**. The screen displays the following menu:

```
MTERM Command menu:

A: Set/examine MacroKeys                K: Execute CP/M-80 command
B: Buffer switch                        L: Load buffer from file
C: Clear buffer                         M: Display/print buffer
D: Duplex switch                        N: Auto-dial telephone
E: Exit MTERM                           O: Change/examine tables
F: Set display width                    P: Save MTERM data file
G: LF suppression switch                Q: Load MTERM data file
H: CR suppression switch                R: Set RS-232C parameters
I: Modem switch                         S: Save buffer to file
J: Printer output switch                T: Transmit buffer switch

B: Close    H: Off      Baud: 300    Prty: Even     Buf totl: 34094
D: Full     I: One      Word: 7      Xmit: Off      Buf used: 0
G: On       J: Off      Stop: 1      Dspw: 80       Buf free: 34094
```

Types of Command Action

To select one of the menu options, press the letter that appears to the immediate left of the desired command. There are several types of action that commands take: switching, intermediate action, parameter changing, and extended action.

Switching. You use switching commands to turn an option on or off. When you press the key to alter one of these commands, the status area of the menu changes to reflect the new status. The switching commands are:

B	H
D	I
G	J

Parameter Changing. You use these commands to change a parameter. After you select one of these, you are prompted to enter further data. The parameter-changing commands are:

F	Q
K	R
L	S
P	T

Intermediate Action. You use these commands to begin a particular action. These commands do not necessarily cause any immediate display change. The intermediate-action commands are:

C
D

Extended Action. You use these commands to define additional information or initiate an action that will go on for a period of time. Each of these commands requires a separate menu. When you press the key for one of these commands, you call up a submenu. The extended-action commands are:

A	N
M	O

Command Descriptions

The remainder of this chapter discusses each of the MTERM commands in detail. The commands are presented in the order in which you will use them for the following functions:

setup
working
closing down
special functions
buffer usage
trouble shooting

Setup commands

You use two commands for ordinary setup: I to specify your type of modem and N to dial.

I: Modem switch

Use this switching command to configure MTERM to work with the auto-dial feature of certain modems. Each modem has its own unique characteristics. MTERM supports the following modems:

1 Hayes Smartmodem
2 Comrex
3 Pulse-dialing modems
4 Undefined

Option 1 works with the Hayes Smartmodem 300 or the Hayes Smartmodem 1200. Option 2 works with the Comrex Com-Municator CR-103. Option 3 works with pulse dials, using whatever configuration the MTERM.DAT file currently indicates. Most modems that use pulse-dialing will work with option 3, provided that the MTERM.DAT file is configured correctly.

When you press **I**, the status area at the bottom of the command menu changes to display a new modem number, which will be one more than the current setting.

For example, if you have previously selected the Comrex modem, the screen is displaying:

I: Two

When you press **I**, the screen switches to display one number higher:

I: Three

which will give you the configuration for a pulse-dialing modem. To get back to the Comrex setting, press **I** three more times.

Each modem has its own particular characteristics. If you have an auto-dial modem and want to know if MTERM will work with it, contact your Epson dealer.

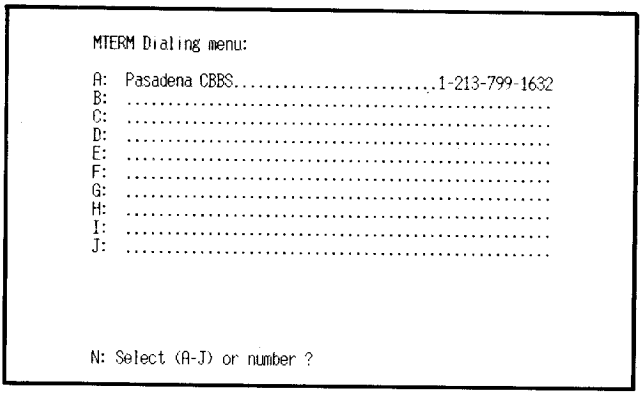
At this point, you need not be concerned with anything except the type of modem you have. The type of dialing (touch-tone or pulse) is controlled at the time you place the call. (Some modems are auto-dial, but still do not support touch-tone dialing.)

N: Auto-dial telephone

Use this extended-action command to select a telephone number to be dialed by MTERM. This command displays a sub-menu from which you select the telephone number to be dialed. Before you press **N**, make sure that the Modem switch feature (command I) is set for the correct modem.

You can type in the telephone number each time you communicate, or you can store numbers in the dialing menu and type in one letter per number. You use the Change/examine tables feature (command O) to maintain the dialing menu.

When you press **N**, the screen clears and displays the following menu:



The dialing menu shows all your stored telephone numbers. To select one of the numbers, press its letter and **RETURN**. MTERM dials the number and immediately returns you to terminal mode.

For example, the screen above contains one telephone number. If you press **A** followed by **RETURN** at the Select prompt, MTERM dials 12137991632.

If the dialing menu does not contain the number you wish to dial, simply type the number and press **RETURN**. You can use punctuation (parentheses and hyphens). When you press **RETURN**, MTERM dials the number. (The number is not entered into the dialing menu. For information about adding entries to the dialing menu, see the O command.)

If you select an invalid letter or type something that is not a telephone number, MTERM returns you to terminal mode without dialing anything.

The Hayes smartmodems can be connected to both pulse and touch-tone phones. If your telephone system is capable of the faster touch-tone dialing, you will probably want to use it. If you cannot get touch-tone phones in your area, then you must use pulse-dialing.

If the Modem switch feature (command I) is set for the Hayes modem, MTERM defaults to pulse-dialing. At the time that you place a call, however, you can cause the Hayes modem to use the touch-tone method by pressing a **T** for touch-tone in front of either the selection letter or the phone number.

Once MTERM starts to dial, it does not automatically disconnect. If there is no answer or if anything occurs to prevent establishing a connection, it waits for 30 seconds, hangs up the phone, and returns you to the dialing menu. To return to the dialing menu before the 30 seconds are up, press **UNDO**.

If you need to disconnect the phone manually, press **X** and **RETURN** at the selection prompt. Press **MENU** to return to the command menu.

Working commands

In ordinary communicating, you use five commands:

- D to get the system to show you what you're typing
- J to send a copy to the printer
- K to delete a file
- P to preserve a group of settings
- Q to switch between groups of settings.

D: Duplex switch

Use this switching command to switch back and forth between full duplex and half duplex. This command shows you, in the status area (D), which duplex is currently active.

Half duplex immediately displays (echos) on your screen each character you type; this is called local echo. Full duplex sends each character to the receiving computer, which returns it to your system before it is displayed on your screen; this is called remote echo.

Full duplex is the most common method of transmitting because you are able to verify what has been received at the other end. If a transmission error should occur, you see the character displayed incorrectly on your screen and can request or initiate retransmission of the data.

In half duplex, the character sent is immediately displayed on your screen as it is transmitted. You must assume that the transmission was correct.

If you can read what the remote computer sends you but cannot see what you are typing, select half duplex mode. If every character you type displays twice, select full duplex.

If you are unsure which form of duplex to use, contact the person responsible for the other system. Your form of transmission must be compatible with the remote or host system. The flexibility of the MTERM software makes it possible for you to communicate with either type of system.

J: Printer switch

Use this switching command to activate the printer. When you press **J**, the status display on the bottom of the command menu switches between On and Off.

When the printer switch is on, MTERM sends to the printer every character that is sent to the display screen.

If information is being received at a faster rate than the printer is capable of working, the overflow is stored in the memory buffer of the QX-10 until the printer can catch up. This is known as *spooling*.

Most printers, including the Epson FX, RX, and LQ models, can handle the normal 300 baud rate—about 30 characters per second (cps)—with no difficulty. However, if you have a daisy-wheel printer working at 13 or 25 cps or a converted typewriter that puts out 8 to 10 cps, the input of data to your system will be faster than the output to your printer. You will need MTERM's spooling feature.

The printer buffer used for spooling holds approximately 1,500 characters. If this buffer becomes full, the error message:

*** Printer off ***

displays and the printer turns off. No more characters will be printed. Therefore, if you are receiving data from a timesharing service at 1200 baud or faster and you want hardcopy, it is important to have a printer that can print at least 120 cps.

If your printer is slow, set the memory buffer to open (see the B command). This causes the information to be temporarily stored in the computer's buffer so that you can save it to diskette and print it later by using the Display/print buffer feature (command M).

The printer switch is used primarily when working at 300 baud to provide hardcopy, either of a particular message or of the entire session.

K: Execute CP/M-80 commands

Use this parameter-changing command to execute one of two CP/M-80 commands: DIR or ERA. You can view a directory (DIR) or delete a file (ERA) without exiting from MTERM to perform these CP/M-80 commands.

You enter K from the command menu, respond to prompts, and return to communication without disturbing the program and without losing any incoming data (provided you return to terminal mode before the capture area overflows).

When you press **K**, MTERM displays:

```
K: Enter CP/M-80 command ?
```

You have two choices:

- Type *ERA* to delete a specific file, then type the filename. When the delete is done, press any key to return to the command menu.

- Type *DIR* to display a drive's directory, then type the drive identifier. It is not necessary to follow this letter with a colon. Press any key to return to the command menu.

For example, to delete the filename TEST.DAT, enter the following command:

```
K: Enter CP/M-80 command ?  ERA TEST.DAT  <return>
```

This deletes TEST.DAT on the current drive. To specify a drive, precede the filename with the drive designator. For example, type *A:TEST.DAT* to delete the file named TEST.DAT on the left drive. Type *B:TEST.DAT* to delete the file named TEST.DAT on the right drive.

To display a diskette's directory, enter the following command:

```
K: Enter CP/M-80 command ? DIR RETURN
```

The directory of the current drive is displayed. To specify the left or right drive, you must include the drive letter A or B. For the left drive, type *DIR* and *A:*, then press **RETURN**. For the right drive, type *DIR* and *B:*, then press **RETURN**. Press **UNDO** to display the command menu.

P: Save MTERM data file

MTERM stores all default command settings, translation tables, phone number tables, option parameters, and MacroKeys in a file on the disk. You use this parameter-changing command to perform the saving.

The standard default file is called MTERM.DAT. You may create as many alternate files containing different settings as your diskette space permits. You save each group of settings under a different filename.

Every time you load MTERM, you must specify a file. To use the standard file, press **MAIL** followed by **RETURN** with no filename. To use an alternate file, press **MAIL** followed by the filename and then press **RETURN**.

When you press **P**, the following prompt is displayed at the bottom of the command menu:

```
P: Filename ?
```

Type the name of the file to contain the settings you want. If you want to save these settings as the permanent defaults, type MTERM.DAT in response to the Filename prompt. Use any available CP/M-80 filename for an optional file.

As soon as the file is saved, MTERM returns you to the command menu.

Character-by-character technical documentation of the contents of the MTERM.DAT file is included in Appendix B, Technical Notes.

Q: Load MTERM data file

Use this parameter-changing command to switch MTERM settings while in the middle of a communication session. You can load completely new settings and translation tables, thus changing the program around entirely from the current configuration. One reason you might want to do this is to load a different set of Macro-Keys.

When you press **Q** from the command menu, the following prompt is displayed:

```
Q: Filename ?
```

Type the name of the file on your diskette that contains the new MTERM settings. After loading the new settings, MTERM returns you to the command menu. You see immediately what has been done to alter the configuration.

For example, if you use your computer primarily to communicate with CompuServe, your MTERM.DAT default file can contain the appropriate configuration for CompuServe. If you sometimes use The Source as well, you will want a second file on the disk (probably called SOURCE.DAT) to contain the appropriate configuration for The Source.

When you want to call The Source, you can load MTERM and its Source configuration by pressing **MAIL** and typing *SOURCE.DAT* from the CP/M-80 command level (A>). However, if you are already in the program with the CompuServe settings, you can

change them without exiting MTERM by pressing **Q** and typing *SOURCE.DAT* when the Filename prompt appears. When you type *SOURCE.DAT*, MTERM loads the new settings from the file SOURCE.DAT.

Using this feature, you can have any number of MTERM configurations prepared on the disk, and you can change from one to another with a minimum of time and effort. Just remember, it is up to you to use the file of MTERM settings that is compatible with your modem and the network you are using.

Closing down command

You only need one command to close down MTERM: E.

E: Exit MTERM

Use this immediate-action command to leave MTERM and return to the CP/M-80 command level. As soon as you press **E** at the command menu, the screen clears and MTERM returns you to the CP/M-80 A > prompt.

Before you leave MTERM, make sure you save any changes you made, such as changes to telephone numbers or the MacroKeys. Use the Save MTERM data file feature (command P).

Special function commands

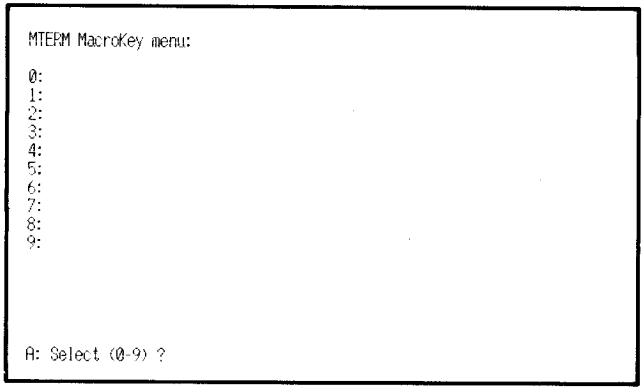
Two commands, A and O, let you define MacroKeys and change MTERM table settings.

A: Set/examine MacroKeys

MTERM features 10 user-defined MacroKeys. You generate MacroKeys using the 10 keys (0 - 9) on the numeric keypad that is located on the far right of your keyboard. Pressing just the number key produces the digit as normal. These keys become MacroKeys only when you hold down the **CTRL** key at the same time you press the number key.

Use this extended-action command to define a string of from 1 to 64 characters to be associated with each MacroKey.

As soon as you press **A** for the Set/examine MacroKeys feature, MTERM displays the following menu:



Press the number that corresponds to the MacroKey you wish to define, and then press **RETURN**. MTERM displays:

```
A: Text ?
```

Type in the text you wish to assign to this MacroKey, using 64 characters or less. Do not press **RETURN** until you have entered the entire message.

The following punctuation characters have special meanings when used as part of a MacroKey message:

semicolons (;)	=	carriage return
apostrophe (')	=	1-second delay
ampersand (&)	=	link one MacroKey to another

Suppose, for example, you define MacroKey 7 as follows:

John Q. Public;''Boca Raton, FL;&2

When you use MacroKey 7, MTERM transmits the name John Q. Public, followed by a carriage return and a pause of approximately two seconds. It then transmits the city name—Boca Raton, FL—and another carriage return. Finally, the &2 causes MTERM to link to MacroKey 2, and the contents of MacroKey 2 will be transmitted immediately following the contents of MacroKey 7.

As another example, assume that Sam Jones, a territorial sales representative, makes a daily report to his home office. He always begins his report the same way, with his name, district, division, and the heading *Daily Sales and Activity Report for* the current date. To avoid having to type this repetitive information every day, he can set up two of the MacroKeys as follows:

MacroKey 4 Sam Jones;Manhattan Dist. #17;Widget Div.;&5
MacroKey 5 Daily Sales and Activity Report for

Pressing MacroKey 4 causes the following to be transmitted:

Sam Jones
Manhattan Dist. #17
Widget Div.
Daily Sales and Activity Report for

The cursor is positioned at the end of the last line so that Sam can fill in the date.

In this example, four lines of text have been transmitted by using only one MacroKey, **CTRL/4**.

There are two ways you can use the stored information for a MacroKey. First, when you are in terminal mode and you press a particular MacroKey, the information stored for that key is transmitted automatically.

Second, if you are using either a Hayes Smartmodem or a Comrex ComMunicator CR-103 modem, you can instruct MTERM to automatically answer the phone. When a remote computer dials your number, MTERM will answer the phone and send out whatever message you have stored in MacroKey 0—for example, "You have reached my number. Please enter your password."

Each MTERM data file can have its own set of 10 user-defined MacroKeys. By using multiple data files, you can define as many MacroKeys as you wish.

To return to the command menu, press **UNDO**.

O: Change/examine tables

The extended-action command to Change/examine tables has two major functions. It keeps track of the telephone numbers you use frequently, and it serves as a translator between different computer languages.

To select Change/examine tables, press **O** from the command menu. This prompt is displayed:

```
O: Which table (TE,KI,DO,PR,BI,BO,RI,RO) ?
```

You use the first option (TE) for storing telephone numbers in the dialing menu. The remaining seven options (KI through RO) give you access to translation tables. These tables provide the information MTERM needs to translate between computer languages.

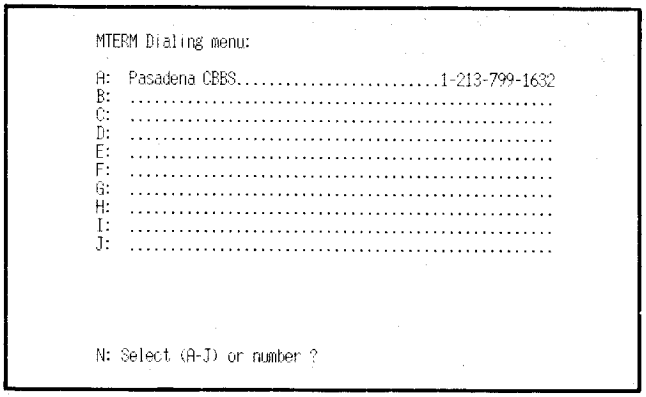
The first four options have single-letter forms. The following list identifies each table code with its name and, for the first four, the single-letter abbreviation.

TE - Telephone numbers, abbreviated: T
KI - Keyboard translation, abbreviated: K
DO - Display, abbreviated: D
PR - Printer, abbreviated : P
BI - Buffer input to the system, no abbreviation
BO - Buffer output from the system, no abbreviation
RI - Input from another system, no abbreviation
RO - Output to another system, no abbreviation

Type in your choice and press **RETURN**. The screen clears, then displays the table you have selected.

The next subsections describe the options for the O command.

TE - *The phone number table.* This table makes up the standard dialing menu. When you press **T**, the dialing menu is displayed:



When you type in the letter of your choice and press **RETURN**, MTERM prompts you:

```
O: New name ?
```

Type a name of 27 characters or less that will help you remember whose number you are placing in the table. You have 27 characters with which to describe the number. When you finish typing in the name, press **RETURN**. The left portion of the line following the letter you selected displays the new name, and you get the next prompt:

```
O: New number ?
```

Enter the telephone number; it can have 15 characters including punctuation. This is adequate for local, long-distance, and even overseas numbers. Remember, MTERM ignores all punctuation, such as parentheses or dashes, between numbers. Because it is easier for you to read telephone numbers with the punctuation included, we recommend that you use punctuation.

When you finish typing the number, press **RETURN**. The right portion of the line following the letter you selected now displays the new number. MTERM returns you to the dialing menu so you can type in a new entry or change any of the other numbers. When you are finished updating the dialing menu, return to the command menu by pressing **UNDO**.

As an example of changing a number, assume that a local network changes its number but not its name. Select the correct line by typing in the associated letter. Skip the name by pressing **RETURN**. Type in the new number and press **RETURN**. On the display line, the number changes but the name does not.

If you wish to erase a name or number without replacing it, select the associated letter on the dialing menu. When MTERM asks for name and number, press the space bar followed by **RETURN**.

KI, DO, PR, BI, BO, RI, and RO — *Device translation tables.* These seven options provide translation tables. MTERM is configured to communicate properly with most networks and computers. These tables allow you to modify MTERM to communicate with special-purpose systems. See Appendix B for details.

Buffer commands

Six commands allow you to control the MTERM buffer. Use B to open and close the buffer, C to clear it, L to load one or more of your disk files into it, M to check what's in it, S to write its contents to a disk file, and T to transmit its contents.

B: Buffer switch

Use this switching command to open and close the MTERM buffer, which either stores data for transmission or captures data as it is received.

When you press **B**, the status display (B) in the status area changes to either Open or Close. Whatever the current status, it is reversed when **B** is pressed.

The buffer is the area that is left after you load the MTERM program into random access memory (RAM). In other words, this is the area of memory available for you to use.

The three items in the lower-right side of the status display area show the total size of the buffer (Buf totl), the amount of data currently in the buffer (Buf used), and the amount of free space remaining in the buffer (Buf free).

MTERM allows a remote device to automatically open and close the buffer. To open a buffer, the transmitting system simply sends a CTRL/R (ASCII 12H). To close a buffer, the transmitting system sends a CTRL/T (ASCII 14H). Most bulletin boards and other communication networks automatically send these control codes when they are downloading programs.

When MTERM receives a CTRL/R, it displays the message:

*** Buffer open ***

When it receives a CTRL/T, it displays the message:

*** Buffer closed ***

When the buffer is full, MTERM displays the error message:

*** Buffer full ***

and closes the buffer. Any data received after this will be lost.

C: Clear buffer

Use this intermediate-action command to clear the buffer of any current data. The *Buf used* status message returns to zero when you use this command.

MTERM does not automatically clear the buffer every time it is opened. You may fill it with several segments of data from a single remote source or from multiple remote sources and save them as one file. When you want to put new data into a clean buffer, you must first clear the buffer with the C command.

Once the buffer is cleared, you have no way of retrieving the information that was previously stored in it. Therefore, if you wish to save any information that is in the buffer, make sure you save it to diskette or print it before you clear the buffer.

Using this command does not affect the buffer open/closed status. If the buffer is open when you clear it, it remains open.

L: Load buffer from disk

When MTERM is transmitting, you use this parameter-changing command to fill the buffer with data from a specified disk file before sending it. When MTERM is receiving, you use this command to send the data first to the buffer (assuming the buffer is open) and later to store the buffer's contents on disk.

When you press **L**, this prompt displays:

```
L: Filename ?
```

Type the name of a data file that is already stored on your diskette, then press **RETURN**.

The filename must be a standard CP/M-80 filename with no extensions. If the file you are loading is too large for the buffer, MTERM displays the error message:

*** Buffer full ***

and terminates the operation. You can access only the part of the file that was stored in the buffer.

If MTERM successfully loads your file, it returns you to the command menu, and the *Buf used* display changes to reflect the amount of data that the buffer contains.

This command does not clear the buffer prior to beginning the load (use command C for that). Because of this, you can assemble several small text files in the buffer and transmit them as one. Once the buffer is loaded, you may add more data from a second file by repeating the procedure.

M: Display/print buffer

Use this extended-action command to examine the contents of the buffer. With this command you can check the information in the buffer before saving it to disk.

When you press **M** from the command menu, the status area displays the prompt:

```
M: Device  (D)isplay  (P)rinter  ?
```

Press **D** and **RETURN** or **RETURN** only to display the buffer contents on your screen. Press **P** and **RETURN** to display and also print out the buffer contents.

As soon as you make your choice, the screen clears and the listing begins. If you select the printer and it is not on-line, the program stops, and the computer seems not to respond to anything you do. If you have a printer, make sure it is turned on and is on-line. If you do not have a printer or cannot use it, terminate MTERM processing by pressing **UNDO**.

While you are examining the buffer contents, you can stop the movement of the screen and/or the printer. Press the space bar to freeze the display. To resume the display's movement, press the space bar again.

When MTERM finishes displaying the buffer, it pauses and waits for you to press any key to return to the command menu.

Note: If the buffer is empty, the Display/print buffer feature returns immediately to the command menu.

S: Save buffer E file

Use this parameter-changing command to save the contents of the buffer to one of your diskettes. You use this command to store files you have received from a remote computer onto disk.

When you press **S** from the command menu, MTERM displays the following prompt:

```
S: Filename ?
```

To save the buffer to disk, type the name of the file you wish to use. The name must be a standard CP/M-80 filename. If you are using screen reformatting, MTERM stores the text in its reformatted form (see commands F and H).

The following command:

```
S: Filename ? MSGS.TXT  <return>
```

saves the contents of the buffer into a file named MSGS.TXT. This file can be recalled and printed, processed with a word processing program, stored for future use, or transmitted to another remote station.

T: Transmit buffer

Use this parameter-changing command to transmit the contents of the buffer to a remote computer. You use this command primarily for transmitting data files that you have previously prepared.

Although you can enter data while you are connected to a timesharing service, your typing speed cannot keep up with the transmission speed of the communication line. Creating a file while you transmit it, therefore, can be a costly activity. It is better to prepare in advance the file you wish to send.

When you are ready to transmit, load the file into the buffer using the Load buffer from file feature (command L). Once the file is loaded into your buffer, the next step is to transmit it using this feature (command T).

When you press **T** from the command menu, the status area displays the prompt:

```
T: Prompt string (use ";" for RETURN) ?
```

Because most communication services cannot send or accept a continuous stream of data, MTERM must use commands to control transmission and reception. When MTERM has received and processed a line of data, it waits for a prompt command (also called a prompt *string*) from the transmitting system to indicate that it is ready to receive the next line of data.

If you know the prompt string used by the system that is receiving your file, enter it at the T prompt followed by **RETURN**. This ensures that MTERM will not out-run the receiving computer by transmitting a continuous stream of characters.

If you are not sure what the prompt string is, enter a ; (semicolon) for a carriage return, followed by **RETURN**. MTERM will wait for a carriage return before transmitting the next line.

If you don't need to use prompted output, press **RETURN**. For example, you don't need prompting when you are transmitting a long text file that will not need to be formatted for a video screen but will simply be stored at the other end as a text file.

Following the prompt string, MTERM asks you to define any character delay as follows:

```
T: Character delay (0-255) ?
```

Some services process the data that they receive character by character. Such systems need more time than those that use line-by-line processing. MTERM can transmit data with a delay between each character if the remote system needs it.

You can define up to 255 units of delay. Each unit is approximately .025 seconds in length. For example, if you enter a delay value of 10, MTERM waits about a quarter of a second between characters.

This delay option is seldom used because it is slower and not as effective as line-by-line, prompted transmission. MTERM includes the ability to send delays, however, so that you can transmit data under any circumstances.

Type the number of units of delay and press **RETURN** or press **RETURN** only for no delay.

The next option specifies the transmission time. The prompt is:

```
T: Transmit time (hh.mm.ss) ?
```

Use this option for unattended transmission. By setting the time of day that you wish to have the communication occur, you can take advantage of the off-peak, lower connect rates.

You can use this feature, for instance, to set everything up before you go home from work. Then, several hours later, after the telephone company and timesharing service rates go down, the computer automatically dials the telephone number and transmits the requested file.

You enter the desired time, including periods, and press **RETURN**.

In the next two subsections, we first discuss immediate transmission, then delayed transmission.

Immediate transmission. To start transmitting the buffer contents without delay, use the following procedures:

1) Press **N** to request the dialing menu and select the telephone number. Press **RETURN**.

2) Press **MENU** to select the command menu.

3) Press **L** followed by the name of the file you wish to transmit. Press **RETURN**.

4) Press **T** for the Transmit buffer feature.

5) Press **RETURN** to use the prompt string default.

6) Press **RETURN** to use the character delay default.

7) Press **RETURN** for immediate transmission; the Xmit status display at the bottom of the screen displays On.

8) Press **MENU** to return to terminal mode.

As soon as you return to terminal mode, MTERM begins transmitting the buffer.

If the phone is not answered or if something else is wrong with the line, the carrier cannot be established. If the carrier is not established within 30 seconds of specifying the transmit time for the Transmit buffer feature, MTERM terminates and hangs up the phone. MTERM leaves you in terminal mode and restores keyboard control. To manually terminate the transmission before the end of this delay, press **MENU**.

Here is an example of how you use the T command sequence for immediate transmission of the data in your buffer. This example assumes that the prompt string for the remote system is a carriage return and that no delay characters are needed.

After you press **T** in command mode, you respond to the prompts as follows:

PROMPT	RESPONSE
T: Prompt string (use ";" for C/R) ?	RETURN
T: Character delay (0-255) ?	RETURN
T: Transmit time (hh.mm.ss) ?	RETURN

MTERM returns to the command menu. Press **MENU** to select terminal mode. MTERM immediately sends the contents of the buffer, with prompted output. Until MTERM receives a carriage return from the remote system, it does not tranmsit the next line. (There is no delay between individual characters.)

Delayed transmission. To use the automatic, timed transmission feature, enter the time you wish to transmit the buffer in the specified format (hh.mm.ss—use periods as delimiters between the figures). Notice that this is a 24-hour clock, which means that 3:00 in the afternoon is entered as 15.00.00.

As soon as you enter the time for transmission, MTERM displays the MTERM dialing menu. Select the telephone number you wish to dial, as usual.

MTERM returns to the command menu. You must select terminal mode by pressing **MENU**. You may continue normal terminal operations. When the system clock reaches the time you have set, MTERM will dial the number you have chosen and begin to transmit the contents of the buffer.

Note: For unattended, timed transmission to work, the system clock *must* be set to the correct time, and the computer *must* be left in terminal mode.

For example, assume a number of branch offices or sales representatives must submit regular reports to a central location. Each remote station can be assigned a particular time during the night to transmit its report to headquarters. Prior to leaving the office for the day, the sales representative or branch office worker loads the report into the buffer and sets the system for automatic, timed transmission.

There is no need to have an operator on duty to transmit the report, and the central system will be able to receive each report in an orderly way, without having to accommodate several remote stations attempting to log on at the same time.

Here is an example of how you respond to the prompts for an automatic, timed transmission:

PROMPT	RESPONSE
T: Prompt string (use ";" for C/R) ?	> RETURN
T: Character delay (0-255) ?	RETURN
T: Transmit time (hh.mm.ss) ?	01.45.00

When the dialing menu appears, select the letter that corresponds to the phone number of the remote system to which you wish to transmit the contents of your buffer (for example, press **B** and **RETURN**). MTERM returns you to command mode. Press **MENU** to return to the terminal mode.

In this example, the system waits until 01:45:00 (a quarter to two in the morning), connects the phone, and dials the number identified by the letter B. When the remote phone is answered and the carrier is established, MTERM returns to terminal mode and waits. Whenever it receives the prompt character (>), it transmits another line of the data from the buffer. When the transmission is complete, MTERM hangs up the phone.

Note: When you enter the command parameters to transmit the buffer, remember that the buffer does not actually begin transmitting until you return to terminal mode.

If for any reason you wish to terminate while transmitting, return to the command menu and press **T** again. This terminates the transmission.

Troubleshooting commands

You use four MTERM commands to solve particular problems: F to reformat your screen, G to control line feeds, H to control carriage returns, and R to specify choices of several options concerning the serial port.

F: Display width

You use this parameter-changing command to reformat an incoming transmission for your screen by changing the width of a line. (You only use this feature if you want to change the length of lines that you are receiving.)

When communicating with a wide variety of computer systems, you may find that some of them use screens formatted differently from yours. Most use an 80-character line; some use a 40-character line; still others use a 32-character line. To make the best use of the QX-10's 80-character screen, MTERM lets you reformat lines of data as they come in.

To activate the screen reformatting procedure, set the display width parameter to a common setting, such as 74. When MTERM receives the 74th character, it waits for a space and translates the space into a carriage return. This forces the next word to be dis-

played at the beginning of a new line. If no space arrives before the end of the line is reached, MTERM splits the word.

When you press **F**, the following prompt displays:

```
F: Display width ?
```

Enter the desired width (any number between 1 and 80) and press **RETURN**. Note that MTERM will accept values up to 99, but if you enter a value greater than 80, you disable the QX-10 screen reformatting.

The default value for this option is 80, which provides no reformatting. This works well for most communication services.

When you use the screen reformatting option, you should also use the Carriage-return suppression feature (command H) to place formatting of the text entirely under MTERM's control. Also note that while MTERM's reformatting works very well with long streams of continuous text, it may misalign menus or message headers.

G: LF suppression

Use this switching command to tell MTERM to ignore all incoming, single line feeds.

Most computer systems use the American Standard Code for Information Interchange (ASCII). The ASCII set was originally designed for use with teletypes. Teletypes are very basic, unintelligent computer devices. They require two codes at the end of every line.

The first code sends a carriage return to indicate the end of line. Before the next line can be printed, however, the system must also send the code to advance (feed) the paper one line.

Most modern computers need only one code for both functions, and receiving either the carriage return or the line feed suffices. If such a system receives both codes, the line feed displays as an extra blank line on the screen (or printout).

When you press **G**, the status display (G) on the bottom line of the command menu switches to either On or Off.

When this option is turned on and two or more line feeds are received, only the first will be ignored. Sometimes a service sends you a stream of line feeds to act as a clear screen or a top of form. Because only the first line feed is ignored, this signal for top of form will still work.

When the LF suppression feature is turned off, MTERM displays every line feed it receives.

The default value is on because this method is most commonly used.

H: CR suppression

You use this switching command to perform another type of screen reformatting: suppression of carriage returns. When you specify suppression of carriage returns, MTERM ignores any carriage returns it receives from a remote system.

When you press **H**, the status display (H) on the bottom of the command menu switches to either On or Off. When this feature is on, the carriage return is translated into a space.

If MTERM receives two or more carriage returns, it changes only the first to a space. Sometimes a service sends you a stream of carriage returns which act to clear the screen or to give a top of form. Because only the first carriage return is changed to a space, this signal for top of form will still work.

You suppress carriage returns to allow text that is wider than the screen you are using to fill in the display in a readable fashion.

This command works together with the Set display width feature (command F).

When you receive a line longer than MTERM expects, it wraps the text around. If, for example, the system transmitting to you is

sending a line that is 80 characters, your display width is set at 60 characters and CR suppression is off, you see something like the following screen:

```
An English person chooses a local pub in a deeply complex wa
y, forming a bond
that will last for life, so when my wife and I arrived in En
gland one winter
and rented a flat on Myddelton Square, in the North London b
orough of Islington,
I approached the problem of choosing my own local with an at
titude ...
```

In order to make the above text appear normal, you would set the display width feature (command F) to a value just less than 80 (the width of your screen line). And you would set the CR suppression feature to on.

With these two parameters set, MTERM splits the longer line at an appropriate place and ignores the carriage return so that the text can wrap around in a readable fashion:

```
An English person chooses a local pub in a deeply complex
way, forming a bond that will last for life, so when my wife
and I arrived in England one winter and rented a flat on
Myddelton Square, in the North London borough of Islington,
I approached the problem of choosing my own local with an
attitude ...*
```

*Bill Barich "A Reporter at Large" *The New Yorker*. Oct. 17, 1983

This feature also expands narrow text to fit a wider screen.

Reformatting is only useful for dealing with large blocks of text. Menus and tables will no longer look right if they are reformatted without carriage returns. Therefore, use discretion when reformatting.

R: Set RS-232C parameters

You use this parameter-changing command to specify some very basic hardware system options. This is the portion of the system that is concerned with the physical transmission of data.

This command allows you to specify the following options:

baud rate
data bits per character
the number of stop bits
parity type

Each of these options is explained in the following subsections. The rule for all options is to adjust to whatever the remote computer demands.

The procedure for the Set RS-232C parameters feature begins with the baud rate selection. When you press **R** from the command menu, MTERM displays the prompt for the baud rate.

When you either specify a rate or press **RETURN**, MTERM displays the next prompt. This happens two more times until all the options have been covered. To return to the command menu at any time, press **UNDO**.

R: *Baud rate*

The baud rate prompt looks like this:

```
R: Baud ?
```

You can change the baud rate (the number of bits per second) that MTERM and your modem are using to transmit and receive. Most communication services accommodate a variety of baud rates. The baud rate you specify depends on the capabilities of the modem you are using and on the quality of the communication line.

Type one of the valid baud rates from the following list:

50	150	1800	4800
75	300	2000	7200
110	600	2400	9600
134	1200	3600	

The default for MTERM is 300 baud because it is the most common transmission rate in use.

If you wish to leave the baud rate unchanged, just press **RETURN** at this prompt.

R: *Bits per character*

The next prompt you see is:

```
R: Word length (7 or 8 bits) ?
```

This option allows you to set the number of data bits (binary digits—zeros and ones) that make up a transmitted character. The number of bits in a character is sometimes referred to as a word.

Different applications require different settings. You specify whatever word length is required by the remote system.

Type one of the valid word lengths (in bits) from the following:

7
8

The default word length for MTERM is seven bits. To leave this word length unchanged, just press **RETURN** in response to this prompt.

R: *Number of stops*

The next prompt is:

```
R: Number of stop bits (1 or 2) ?
```

This prompt asks for the number of stop bits, either one or two, you wish to use when transmitting data. Here, too, you will have to adjust your terminal to whatever the remote computer uses.

One stop bit is the most common value, and is, therefore, the default for MTERM. To leave the number of stop bits unchanged, simply press **RETURN**.

R: *Parity*

The final query is used to define bit parity. The prompt is:

```
R: Parity  (O)dd  (E)ven  (N)one ?
```

Parity is a form of error checking. The parity bit, if it is used, is an extra bit that is added by the transmitting system to each group of bits that form a character.

If odd parity is being used and the total number of ones in the byte is an even number (2, 4, or 6), the parity bit is set to one. If odd parity is being used and the total number of ones in the byte is an odd number (1, 3, 5, or 7), the parity bit is set to zero.

Conversely, if even parity is being used and the total number of ones in the byte is an even number (2, 4, or 6), the parity bit is set to a zero. If even parity is being used and the total number of ones in the byte is an odd number (1, 3, 5, or 7), the parity bit is set to a one.

The receiving system counts the number of bits to ensure that the parity is correct. If a parity error occurs, MTERM assumes that there is a problem, such as noise on the line, and that the data received is inaccurate. Parity errors may necessitate the retransmission of data.

This option allows you to indicate whether you wish to use even parity, odd parity, or no parity. Press **O** for odd, **E** for even, or **N** for none. To leave the parity option unchanged, press **RETURN**.

Even parity is the most common form of parity error checking and therefore the MTERM default. However, you will need to adjust to the parity requirements of the system with which you are communicating.

When you have finished entering the RS-232C parameters, MTERM returns to the command menu, where the status area changes to reflect your alterations.

Chapter 4
MTERM Messages

As you use MTERM, there are two types of messages that appear from time to time. The first are called *advice messages*. These appear on the screen to advise you about what is going on at any particular time. An example of an advice message is:

Awaiting ENQ

This message does not require you to do anything—it is provided for your information only.

Since advice messages are detailed in the command descriptions, they are not included here.

The second type of message, an *error message*, requires your attention and may require some action. If, for example, the message:

*** Buffer Full ***

appears on your screen while you are receiving data from another system, something must be done or you risk losing data.

This chapter lists all error messages displayed by MTERM. It provides an explanation of why the message appears and recommends action(s) to correct the error condition. For your convenience, we list the messages in alphabetical order.

MTERM provides four error messages:

*** Buffer closed ***

A CTRL/T has been received from the transmitting system; this causes MTERM to close its buffer.

Action: none.

*** Buffer full ***

The MTERM buffer is full. This occurs if you are receiving and there is no more room in the buffer, or if you are loading a file from disk that is larger than the available buffer space. If receiving, MTERM automatically closes the buffer. During file load, MTERM terminates the operation.

Action: while receiving, quickly select the command menu and save the buffer to disk (use S - Save buffer to file).

*** Buffer open ***

A CTRL/R has been received from the transmitting system; this causes MTERM to open its buffer.

Action: none.

*** Printer off ***

The MTERM printer buffer used for spooling is full. (This buffer holds up to 1,500 characters.) The printer automatically shuts itself off.

Action: open the MTERM buffer (using command option B - Buffer switch) so the data can be stored in a larger buffer, saved to disk, and printed later.