

TM

MCTerm



For

Commodore Computers
4000 and 8000 Series



Madison Computer
1825 Monroe Street
Madison, WI 53711

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**McTERM
TELECOMMUNICATIONS
FOR THE
COMMODORE COMPUTER**

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Version 1.21e

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ACKNOWLEDGEMENTS

Software by Paul Schick and Karl Matzke. The manual was written by Steve McCarthy and Paul Schick. The documentation section was written by Paul Schick and Karl Matzke. Additional product support supplied by Dean Bridge and Paul Matzke.

TRADEMARKS

References are made throughout the manual to various names and manufacturers, they are:

Anderson-Jacobson: Anderson-Jacobson
Apple Computer Inc.: Apple
Bausch & Lomb: Houston Instruments - HI-Pad Digitizer
Tablet
Business Computer Corp: Bizcomp 1080,1084
Commodore Business Machines, Inc.: CBM, PET
Hayes Microcomputer Products, Inc.: Hayes SmartModem
Lexicon Corp.: Lex-11
NEC Information Systems, Inc.: NEC Spinwriter
Novation, Inc.: Novation CAT, DCAT
Penril Corp.: Penril 300/1200
Processor Technology Corp.: Processor Tech Sol
Professional Software Inc.: WordPro
Readers Digest: The Source
Tandy Corp.: TRS-80
Universal Data Systems: UDS 212 LP
Visicorp: Visicalc

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McTerm vX.XXX (c)80,81 Madison Computer

<input type="checkbox"/> Terminal mode	<input type="checkbox"/> Baud rate	110
<input type="checkbox"/> Exit program	(speed)	300 <
		600
		1200
<input type="checkbox"/> Upper case lock	<input type="checkbox"/> Parity	none <
on		mark
off <		even
<input type="checkbox"/> Local echo		odd
on <		
off		
<input type="checkbox"/> Send a disk file with block crc		
with out crc		
copy session to disk or printer		
<input type="checkbox"/> Open file		
<input type="checkbox"/> Filename is "0:mc term conv,seq"		
<input type="checkbox"/> Communication	translation for	
pet to ascii <	<input type="checkbox"/> Word pro	on
pet to pet		off <

Choose an item by typing a letter from a white square.

McTERM - AN INTRODUCTION

The computers of Commodore Business Machines have been evolving through many stages of improvement and enhanced capabilities. Their computers offer some of the finest computer options found on many of the largest computers. These computers are used for word processing, instrumentation control, instruction, accounting, and mathematical analysis. The computers are simple and compact, yet they are powerful devices which may be used almost anywhere.

The equipment has improved as people have developed greater needs and demands for the equipment. Now that these computers are performing the demanded functions, users are looking for methods to link these computers to each other. There are many reasons for linking computers: simple conversations between people, the exchanging of data or programs, or as a means to access large amounts of information stored at another site, possibly in another computer. The equipment for these applications has been available, but computer users have found difficulties in the communication compatibility of the various computers. McTerm solves this problem. It is a program which allows the user to change the parameters governing the communication protocols. Thereby allowing the computer user to control incompatibility problems. Now that the computer can perform as an intelligent terminal, it becomes the gateway to extensive networks of knowledge.

McTerm offers the Commodore computers this increased versatility. These computers can now be linked to each other or to other computers through various communication networks. The swift and efficient transfer of information now expands the horizons of any computer owner. Electronic communication is now at your finger tips.

EQUIPMENT - CONFIGURATION

The McTerm program is designed to run on Commodore PET and CBM computers except those having the original, calculator-keyboard Basic (see below, under "TESTED EQUIPMENT", for identification of those ROMS). It runs on the large-keyboard 32N and 32B models, those variously referred to as having 2.0 or 3.0 Basic, as well as on the 4032 "fat-40" series and the 8032 80-column series. In all cases, 32K of local memory (RAM) is required. The mass storage device may be the Commodore 2031, 2040, 4040, 8050, or 8250 disk drive. The C2N cassette drive may be used to load the McTerm program into the computer, but is not compatible with the disk file handling features of the McTerm program.

McTerm turns the user port into a TTL level RS-232 type port. A modem which accepts this TTL-level signal is required; a cable for this connection is included in the McTerm package. Alternatively, an amplifier cable which provides standard RS-232 voltages is available at extra cost; consult the "installation" section of this manual.

The McTerm and the WordPro wordprocessing programs complement each other nicely. WordPro 3, 3-Plus, 4 and 4-Plus all work well in conjunction with the McTerm program.

TESTED EQUIPMENT

The McTerm package has been tested and proven to work reliably on most Commodore computer equipment. However, please note carefully the following:

The 2022, 2023 and 4022 Commodore printers are not fast enough to produce printed copy while you are actually sending and receiving on-line. If you have one of those printers, you may save your session to disk and print it out afterward. On the other hand, the Mannesman Tally CBM-8024 printer is fast enough to work directly at 300 baud or slower speeds.

The 2031 single disk drive has only one drive unit, whereas McTerm normally expects two, causing confusing error messages. This is easy to remedy; see the section "DEFAULT MODE: ALTERATIONS" for details on altering line 1350 of the Basic program to take care of this.

The McTerm package operates on either 40 or 80 column screens without modification. It operates with 1.0 or 2.0 DOS on 2031, 2040, 4040, 8050 or 8250 disk drives. One side of the supplied disk is in 4040 format, and the other side is in 8050 format, so you may read it regardless of which drive you have.

The Commodore CBM 8010 modem is an essentially unbuffered IEEE modem. It is compatible neither with the RS-232 McTerm connection nor with proper operation of an advanced, complex program such as McTerm, even at the low speed of 300 baud.

SPECIAL CONFIGURATION PROBLEMS:

- McTerm will not operate at all with the ROMs originally provided with calculator-keyboard PETs. (This ROM set contains a 28-pin 6540-011 or 6540-019 ROM at UH1, possibly numbered 901439-01 or 901439-09; alternatively there may be a 24-pin 2316-011 or 2316-019 ROM numbered 901447-01 or 901447-09 at UH1).

- If your computer has 3.0 Basic it will usually have a (correctible) bug in the video ROM which disables interrupts during screen scrolling. This causes some characters to be garbled as the cursor reaches the end of the screen and scrolling occurs. If your computer has 3.0 Basic and this problem, you may purchase a correction ROM from Madison Computer; please contact your dealer for further details. This bug is discussed further in the "documentation" section of this manual.

Connections and items of equipment which have been tested and shown to be reliable include:

ITEM	BAUD RATE	CONFIGURATION
Modems		
Novation CAT(DCAT)	300	Standard
Lexicon LEX-11	300	Modified Cable
Com Data	300	Standard
Anderson-Jacobson Some models	300	Standard Modified cable
Penril 300/1200	both 300 & 1200	Penril Cable

Hayes SmartModem	300	Standard
Bizcomp - 1080	300	Their Cable Special program version included on McTerm disk called "mc term biz1080"
- 1084	300	Standard cable
- 1022	300	Standard cable
UDS 212 LP	1200	Standard

Other Connections:

To Processor Tech Sol 200	300	Crossed Cable (pins 2 and 3)
PET to PET	110-1200	Special Cable, available from Madison Computer or your local dealer.
With Houston Instrument's - HI-Pad Digitizing Tablet 300-2400		Special cable for hardwired connec- tions.

The McTerm package contains the software routines necessary to make the Commodore a host computer connected to other terminals. Routines to send, receive, and translate character strings are included in the ROM. These may be called by programs you write.

Standard	300	Hayes SmartModem
Special Cable	300	Alcom - 1080
Special program		
version included		
on McTerm disk		
called McTerm		
101080*		
Standard cable	300	- 1084
Standard cable	300	- 1021
Standard	1500	IBM 312 LP
		Other Connectors:
Crossed Cable	300	To Processor Tech
(pins 2 and 3)		Set 300
Special Cable	100-1500	SET to SET
available from		
Madison Computer		
local		

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The McTerm package contains the software routines necessary to
 make the Commodore a host computer connected to other terminals.
 Routines to send, receive, and translate character strings are
 included in the ROM. These may be called by programs you write.

**McTERM
THE PACKAGE****CAUTION**

Do NOT remove the chip from the protective casing until it is to be installed.

Upon receiving your McTerm Communication Package you should immediately inspect the contents to insure that everything is enclosed. Every McTerm package should include the following:

- * The manual.
- * A diskette, or cassette, containing the McTerm program.
- * A cable.
- * A computer chip (ROM), labelled with the current version number.
- * An end user agreement, with return envelope.

If any of these items is missing, you should contact your dealer or Madison Computer immediately in order to complete your package.

THE PARTS - A GENERAL DESCRIPTION

1. The MANUAL should be the latest version available, with the version number listed on the inside front page. Be sure to check the very last pages of the manual for late updates.

2. The DISKETTE may be read by any Commodore 5-1/4" disk drive as of this printing. The 8050 version is on one side and the 4040 version is on the other side. You should make a copy of the master disk at the earliest possible time. Copy the files onto a disk formatted on your own drive. Set the master aside in a safe place, so you will always be able to go back to it if necessary.

If you are using a 2040 drive, read the 4040 side of the disk. Your drive will be able to read the master, but you must not write onto it. Since the 2040 drive and the 4040 drive look at the disk differently, you would be likely to damage or erase the program files on the master, losing valuable information. Copy the files onto a disk formatted on your drive.

If you are using a 2031 single drive, you should be able to read the 4040 side of the disk without difficulty. But you should still use some other disk to save conversations (sessions).

The cassette version of the program is identical to the disk version, and the disk commands in it refer to the disk. If you should ever acquire one of the compatible disk drives, you may transfer the McTerm program to disk and use it exactly as you would have used the disk version. However, McTerm disk commands cannot operate a cassette.

The files on the diskette include:

* "mc term vx.xx"

* "fast playb x.xx" - a faster but simpler screen version of the playback program.

* "playback vx.xx" - a program to allow McTerm users without WordPro programs to display and/or print stored conversation (session) files. Playback cannot read WordPro files, but it does read "prg" or "seq" files containing sequential PETASCII data.

* "convert v.9" - an interesting program for more experienced programmers. It reads lines from a PETASCII sequential listing file and converts them to a Commodore Basic program file. The result is an executable Basic program, which is then saved on disk. "Convert" cannot translate Basic dialects, but it can save typing effort.

* "pet to wp vx.xx" - a program to change PETASCII sequential files into WordPro files. This program converts a sequential PETASCII conversation file into a file or a set of files which can be edited by the WordPro program. It is of course possible to save the conversation to disk as a WordPro file in the first place, but this program provides extra flexibility when that is not desirable.

* "mc term biz1080" - the same McTerm program, slightly altered to operate the Bizcomp 1080 modem.

NOTE: * Where x.xx equals the current version number

3. The CABLE connects the parallel user port to an RS-232 type modem. It cannot connect anything to the IEEE bus, nor can it connect to an IEEE device such as the CBM 8010 modem. A special cable providing full RS-232 voltages is available. It has an extra connection to a power source inside the computer.

4. The COMPUTER CHIP (ROM) is an integral part of the package. This chip includes machine language routines which greatly increase the speed of complex operations. The chip is not a mere "security" gimmick, but, rather, it is used extensively by the McTerm Basic program. If other chips are competing for the same socket, then a device should be used which allows placement of more than one chip in the same socket (consult the directions that come with the switching device for its proper use). There are several devices on the market which work quite well, allowing the user to run various programs without physically altering the computer to run each one. (NOTE: On occasion the ROM chip may have a different version number from the program. The McTerm program will display a message if it is incompatible.)

5. The END-USER AGREEMENT is included to provide a useful means for Madison Computer to contact McTerm users for later notices. It also informs the user of the legal limitations of the programs and their use.

The following pages are a copy of the end user agreement included in your McTerm package. It is a handy reference and file copy for the end user. If you did not receive another copy of this agreement, please contact:

End-User Agreement
Madison Computer
1825 Monroe Street
Madison, WI 53711

Please indicate the version number of your program, the name and address of the dealer where the program was purchased, and a copy of the sales receipt.

It is essential to return the End-User agreement to Madison Computer in order to receive support for your product. Madison Computer will not provide support to those without an End-User agreement on file.



User Limited License Agreement

Madison Computer, 1825 Monroe, Madison, WI 53711 USA. 608-255-5552

In accordance with the terms below Madison Computer ("MC") agrees to provide ("user") with the right to use the McTerm telecommunications program (version.....) developed by MC on one computer.

In addition, the parties agree as follows:

1. DEFINITION: McTerm is defined to be as set forth in the McTerm manual which is incorporated by reference in this agreement upon receipt by user. McTerm consists of software on a diskette or cassette, a ROM chip, modem cable, and a manual.
2. USE: User agrees and warrants that he or she will use McTerm on one computer only. Any modification made to McTerm, or development of programs based on McTerm, are considered as part of McTerm, and may not be resold.
3. COPYRIGHT: User agrees to maintain the copyright notices on all copies of MC software and documentation.
4. RESTRICTION ON USE: User agrees not to lend, sell, copy or otherwise distribute software and documentation obtained from MC or any software or documentation derived from that obtained from MC in any way.
5. GUARANTEE: MC grants to the user the right to return McTerm to his or her dealer within 14 days from the date of purchase. The full price will be refunded if the returned product is in fully sellable condition, is accompanied by complete documentation, and if the user retains no copy of the product.
6. OBLIGATIONS: MC may provide substantial support of its products. However, any support provided in no way obligates MC to provide further advice or service.
7. OPERATOR SKILLS: User agrees that he or she will review the existing product manual and will work under this agreement with the full knowledge and agreement that MC products require operator skill and experience to use fully and effectively. MC shall not be held responsible for any difficulties arising from the lack of this skill on the part of the dealer or user.
8. LIQUIDATED DAMAGES: User recognizes that MC has gone through considerable time and expense to develop MC products, and that MC would be damaged by any unauthorized copying, reproduction, or distribution of MC's product materials. In the event user breaches this agreement by unauthorized reproduction of MC's materials, user agrees to pay at MC's option as liquidated damages, for each occurrence of the unauthorized act of copying or reproducing or distribution of MC's materials, the sum of \$5000.00 (five thousand U.S. dollars) in lieu of MC proving actual damage.
9. ASSIGNMENT: This agreement shall not be assigned, delegated, sub-contracted or transferred.

10. GOVERNING LAW: This agreement shall be governed and interpreted in accordance with the laws of the State of Wisconsin and venue for all suits brought under this agreement shall be in Dane County, Wisconsin. The prevailing party shall be entitled to reasonable attorney fees and costs.

11. UPDATE POLICY: MC may, at its option, from time to time, revise the performance of its products and and provide dealers and users with the opportunity to acquire such updates. However, in so doing, MC incurs no obligation to furnish additional revisions to any MC user. Updates and customer service will be provided only to users with properly signed User Limited License Agreement on file at MC.

12. WARRANTIES AND EXCLUSIONS: MC WARRANTS THAT MCTERM WILL PERFORM IN THE MANNER DESCRIBED IN THE MANUAL PROVIDED BY MC FOR MCTERM. MC MAKES NO OTHER EXPRESS OR IMPLIED WARRANTIES OF ANY SORT, INCLUDING WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. THE USER AGREES THAT NO REPRESENTATIONS BEYOND THE MANUAL HAVE BEEN RELIED ON IN ANY WAY BY THE USER IN PURCHASING MCTERM.

13. AMENDMENTS: This agreement shall be changed only in writing signed by both parties.

14. This agreement is not in effect until signed by the user and signed by MC upon its return.

..... Business Name User Signature
..... Address Name (Please Print)
..... Dealer from whom you purchased McTerm Phone
 Date of Purchase

Accepted at Madison Computer on:
by:

Keep one copy of this agreement for your files and send the signed original to: Madison Computer, 1825 Monroe St., Madison WI 53711.

INSTALLATION OF McTERM

If requested, any Commodore dealer will be pleased to assist with the installation of this package and the ROM computer chip.

INSTALLING THE COMPUTER CHIP

- 1) For maximum safety, unplug the computer from the electrical outlet.
- 2) Using a Phillips head screwdriver, unscrew and open the case of the computer, so that the upper part swings up on the rear hinge. Please use extra care to avoid dropping or jerking the upper part, which is surprisingly heavy. There should be a rod mounted either in the upper or lower part of the case to support the upper part in the open position.
- 3) Install the special ROM chip in the appropriate user socket. Please check below for the proper place of installation for your computer model. **CAUTION:** The computer chip is static sensitive; it can be rendered useless if handled incorrectly. The chip should not be removed from its protective casing until just before it is installed.

***** For: 2001 series (B and N models), and
 4000 series with the 9" screen:

The ROM chip will be installed in the UD3 socket, located in the third-to-last major row of computer chips from the rear of the computer board. The UD3 socket is the second chip socket going across from the right in that row. The 2001 series computers normally have three empty ROM sockets, and the UD3 socket is the rightmost of the three. The 4000 series computers will normally have two empty ROM sockets, and the UD3 position is also the rightmost empty socket. The chip has an edge with a scalloped semi-circle indentation. This indentation, when the chip is properly installed, will be on the same side as on the other chips in the row. Before installing the chip, "ground" yourself by touching the metal computer case with one hand. While staying grounded, carefully remove the chip from its casing. Be sure to align the pins with the holes in the socket. Gently, but firmly, push the chip into the socket. Be careful not to bend any of the pins, as this may permanently damage the chip.

***** For 8000 series computers, and
4000 series with the 12" screen:

The ROM chip will be installed in the UD12 socket, located in the second row of computer chips from the right of the computer board. The UD12 socket is the rearmost chip socket in that row. The chip has an edge with a scalloped semi-circle indentation. That edge must face the left side of the computer, as with the other chips on the board. Before installing the chip "ground" yourself by touching the metal computer case with one hand. While staying grounded, carefully remove the chip from its casing. Be sure to align the pins with the holes in the socket. Gently, but firmly push the chip into the socket. Be careful not to bend any of the pins, as this may permanently damage the chip.

If the chip is being installed into a ROM switching device at these board locations, please consult the instructions supplied with that device for proper installation.

4) Close the computer and screw the case together.

INSTALLING THE CABLE

1) The cable is connected to the computer on the back side. Looking directly at the computer from the rear, you will see three edge connector slots. The one on the right usually goes to the disk drive or the printer, the one in the center is the slot to connect the cable to the modem. (On some models this opening has been blocked. It can be opened, but use extreme care. Be careful not to damage the inside circuit board. You may wish to have your local dealer perform this operation.) The cable should be evenly and firmly pushed onto the board edge. The proper orientation of the McTerm cable is with the label on the topside of the cable.

2) The other end of the cable is to be connected to the modem. It is a male RS-232 connector, which plugs into the appropriate connector on the modem. Consult the modem manufacturer's instructions for further details.

NOTE - FOR 12 VOLT SWING (FULL-VOLTAGE) CABLES AND MODEMS: Some modems require full RS-232 signal voltages. A special cable is supplied for those modems. This cable will generally have an extra, thin lead which is to be connected to a power source inside the computer. Unplug the computer from the power line and open it as if to install the ROM. This is essential to avoid damage to the cable.

There should be a row of six pins with a group of two and a group of four, labelled "J10" and located on the board near the large black heat sink. On the boards for computers with the nine inch monitor the J10 position is located near the middle of the heat sink. On computers with the 12 inch monitor the J10 position is located near the heat sink but toward the front of the computer. Slide the connector carefully onto the pins. The connector from the cable has a key (a blocked hole) to match the missing pin, so do not force it. THE WIRES FROM THE CABLE TO THE POWER CONNECTOR ARE FRAGILE! NEVER REMOVE THE POWER CONNECTOR BY PULLING ON THE WIRES!!! They will break, voiding any warranty on the cable. If you should ever remove the connector, please grasp the connector, not the wires.

CBM 2031 DISK DRIVE PROGRAM ALTERATION: Persons using the single disk drive should alter the McTerm Basic program. The program normally searches for files on two drives, drive 0 and drive 1. This causes errors on the 2031, which has no drive 1, but doesn't know it. Consult the section, "DEFAULT MODE: ALTERATIONS," for details on altering line 1350 to take care of this.

INSTALLATION COMPLETED

All of the hardware is now installed. The power may now be turned on and the program loaded into the computer. When the computer is turned on, it should display the word "ready" and a blinking cursor after a short delay, exactly as usual. If it doesn't, turn it off immediately to reduce the chances of damage. Typically, this problem is caused by installing the ROM chip upside down, that is, with the scalloped notch toward the wrong end of the socket. Occasionally, the chip will have become defective in handling or a pin (leg) will have become folded underneath instead of going into the socket. In that event, operation of the computer may nearly always be restored by removing the chip. If you have any doubt or confusion, get help from your Commodore dealer.

NOTE - FOR 12 VOLT SWING (FULL-VOLTAGE) CABLES AND
 MODEMS: Some modems require full RS-232 signal
 voltages. A special cable is supplied for these
 modems. This cable will generally have an extra, thin
 lead which is to be connected to a power source inside
 the computer. During the connector from the power line
and open it as it to install the ROM. This is
essential to avoid damage to the cable.

There should be a row of six pins with a group of two
 and a group of four, labeled "J18" and located on the
 board near the large black heat sink. On the boards
 for computers with the nine inch monitor the J18
 position is located near the middle of the heat sink.
 On computers with the 12 inch monitor the J18 position
 is located near the heat sink but toward the front of
 the computer. Slide the connector carefully onto the
 pins. The connector has a key (a
 blocked hole) to match the missing pin, so do not
THE WIRES FROM THE CABLE TO THE POWER
CONNECTOR ARE FRAGILE! NEVER REMOVE THE POWER

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THE 5.25 DISK DRIVE PROGRAM ALTERNATE: Persons using the single
 disk drive should also use the McTerm Basic program. The program
 normally searches for files on two drives, Drive 0 and Drive 1.
 This causes errors on the 5.25, which has no Drive 1, but
 doesn't know it. Consult the section, "DEFAULT MODES,
 ALTERNATE," for details on altering line 1350 to take care of
 this.

INSTALLATION COMPLETE

All of the hardware is now installed. The power may now be
 turned on and the program loaded into the computer. When the
 computer is turned on, it should display the word "ready" and a
 blinking cursor after a short delay, exactly as usual. If it
 doesn't, turn it off immediately to reduce the chances of
 damage. Typically, this problem is caused by installing the ROM
 chip upside down, that is, with the notched notch toward the
 wrong end of the socket. Occasionally, the chip will have become
 defective in handling or a pin (lead) will have become folded
 underneath instead of going into the socket. In that event,
 operation of the computer may nearly always be restored by
 removing the chip. If you have any doubt or confusion, get help
 from your Commodore dealer.

LOADING THE McTERM PROGRAM

Once the ROM chip has been properly installed in the socket, the McTerm Basic program needs to be loaded into main memory. Follow the directions as appropriate for disk or cassette.

- 1) Start with all of the equipment OFF and then turn all of the equipment ON. This way all of the equipment will be initialized together. Make sure everything turns ON properly. This procedure ensures a "clean" computer without trailing bits and pieces of previously run programs. The computer often is not left in a completely neutral state when programs finish running or are "newed". This applies especially to programs which add extra commands to Basic, or programs which contain "protection" gimmicks. The McTerm program usually is able to detect this and display a message, but resetting the equipment is safest.
- 2) Place your disk in drive zero, or your cassette into the cassette recorder.
- 3) If you are using a CBM 2040 disk drive, then type: `open1,8,15,"i0":close1` and press "RETURN." This will initialize your disk drive. Users of other Commodore disk drives may skip this step.
- 4) For disk: type-- `load"*",8` --and press "RETURN." The disk drive will make a noise and the red file light will flash on momentarily as the disk drive searches for the first program. When the disk drive is finished, the cursor will return to the screen and the screen should display:

```
### commodore basic ###  
  
xxxxx bytes free  
  
ready  
open1,8,15,"i0":close1  
  
ready  
load"*",8  
  
searching for *  
loading  
ready  
[]
```

* On a graphics computer (e.g. 2001-N or 4032), the above display will be in upper case.

* The first line may also include a comment as to which level of basic the machine uses.

* The "xxxxx" represents the number of free bytes in the computer.

* The "[" represents a blinking cursor.

* On a computer with 4.0 Basic, you may press the shift key and the "RUN-STOP" key at the same time instead of typing 'load"',8' and then 'run'.

5) For disk with Bizcomp 1080 modem and Bizcomp PET cable:
Type-- load"mc term biz1080",8 --and press RETURN.

6) For tape: type-- load --and press "return". You should get a message saying to press "play" on the cassette. Do so. After the tape is loaded, your screen will look somewhat similar to what is shown above for disk.

7) At this point the program is loaded into the computer. Type "run" and press "RETURN". The screen will now show the main menu for the McTerm program.

McTERM - MAIN MENU

The main menu display allows the user to adjust the communication protocol and to record or transmit disk files. All settings start out at values which reflect the most commonly used configuration. The settings may be changed temporarily through this menu, before or during communication. They will revert to their original values each time the McTerm program is re-"run". To change the configuration permanently, see "Default modes: Alterations". For example, if you use a 1200-baud modem, you can alter the program so that it will display a speed of 1200 whenever it is run, instead of displaying 300.

The menu is divided into several functional boxes. The name of each function starts with a highlighted, inverse-video letter. To choose a particular function, type its highlighted letter. A column of highlighted numbers will then appear beside the choices under that function. Type whichever number is next to the desired choice. Alternatively, type the "off/rvs" key, the "escape" key, or the space bar to leave the choice alone and return to the menu.

Try this with the "baud rate" box. Place the arrow beside any particular speed by typing the letter "b" to get the numeric selector, then typing a number from one to four. Now type "b" again. Type the "rvs" key. This time, the arrow is put back wherever it was.

The available functions and the letters used to choose them are:

(LETTER) ITEM

- | | |
|---|---|
| (t) <u>T</u> erminal | (o) <u>O</u> pen/Close a
disk/printer file |
| (e) <u>E</u> xit | (f) <u>F</u> ilename |
| (b) <u>B</u> aud Rate (Speed) | (c) <u>C</u> ommunication type |
| (p) <u>P</u> arity | (w) <u>W</u> ordPro file (on/off) |
| (l) <u>L</u> ocal echo | (u) <u>U</u> pper/Lower Case lock |
| (s) <u>S</u> end file
(w or w/o crc) | |

BAUD RATES (default: 300)

The choices are 110, 300, 600, and 1200 baud. The rate of transmission depends on the modem and on the capability of the computer you are linking to. Most modems for microcomputers will communicate at 300 baud (the default mode of the program). Ordinary voice grade telephone lines readily accommodate 110 and 300 baud. They usually, but not always, accommodate 600 and 1200 baud as well. Special modems are required for transmission at 600 and 1200 baud. It is also possible to link two PET/CBM machines directly by wire; in this case any of the baud rates will work.

"300 baud" means 300 "bits per second." In PET to ASCII mode, each character contains nine or ten bits. These include one "character start" bit, seven "data" bits, one optional "parity" bit, and one "character end (stop)" bit. Therefore, 300 baud is 30 or 33.3 characters per second, depending on whether there is a parity bit.

PARITY (default: none)

This setting is important when communicating with a host, timesharing system. The host may require any one of the settings--none, mark, even or odd. Some hosts adapt automatically to your setting. Check with your timesharing supplier if there is a problem. To choose the proper parity, type "p". The numeric selector will appear next to the four choices. Type whichever number is next to the desired choice. The arrow will reappear next to that choice.

TERMINAL MODE

Terminal mode replaces the main menu and provides a screen for communication as a terminal. Once the functional settings are correct, type a "t" to enter terminal mode. If the disk (or printer) is open, a reminder line will indicate whether it is currently accepting text. To return to the main menu at any time from terminal mode, press the off/rvs key (control), followed by the stop key.

If the host computer's communication produces "garbage" on the screen, return to the main menu (press off/rvs, then run/stop), make the necessary corrections, and return to the terminal mode. Most timesharing hosts will stay on-line while you do this.

EXIT PROGRAM

To leave the McTerm program, type "e". If you were saving to disk, the file will automatically be closed. The PET/CBM screen will clear, and the "ready." message will appear. Enter the word "run" to restart the McTerm program, or else load and run some other program, as you wish. Always exit or close the disk file before turning the system power off. If you turn power off while the text file is open, it will be lost. If you re-"run", check the functional settings, which return to their default values each time the program is run.

It is advisable to properly log off a timesharing host system before you exit or hang up the phone line. On some systems, other users could accidentally get time on your account, at your expense, if you fail to do this.

UPPER CASE LOCK (default: off)

It is sometimes convenient to type all letters in upper case (capitals); some host timesharing systems cannot accept lower case. Type "u" and then "1" or "2" to unlock or lock this shifting action. Note that the number keys are not shifted to punctuation marks by this shift.

LOCAL ECHO (default: on)

The required setting depends on the computer you are communicating with. Some computers return (echo) each character as you type it; use local echo "off" in this event. Others do not return the characters; use local echo "on" in this case.

If you cannot see what you type, try turning local echo "on".

If you see everything you type double--tthhaatt iiss, ddoouubbllee--try turning local echo "off".

The local echo setting does not in any way alter the characters sent out. It only determines if each character is immediately put on the screen when it is typed.

SEND A DISK FILE

This is a specialized feature of McTerm. It allows the user to send complete files from a Commodore disk drive to another computer. This bulk transmission of information greatly increases the speed and efficiency of telecommunication.

The two choices available are to send the disk file 1) blocked, with Cyclic Redundancy Checking (CRC), or 2) unblocked, without CRC. In CRC (block) mode, the McTerm program divides the file into blocks and adds sixteen check bits to each block. The receiving computer analyzes each block to see if it is garbled or lost, and asks for it to be sent again if necessary. This is the most accurate way to send files between PET/CBM computers.

In non-CRC (unblocked) mode, the file is sent to the other computer character by character. This protocol is intended to be used to enter files created on the PET/CBM into an ASCII timesharing system. It is not possible to check for garbled or lost characters in this mode. This mode sends files in a streaming fashion, without waiting for linefeeds. The McTerm program may be altered so that it must wait for the receiving computer to send back a line feed. To perform this alteration please see Section Six - "Default settings: alterations".

To receive a CRC (blocked) file from another CBM/PET, no special action is required. You must be in terminal mode when the other operator enters the "send with CRC" mode. A message will appear on your screen. If you choose to receive the file, answer "y" for "yes" and specify which drive you want it put on. The proper messages will appear on the other operator's screen, and transmission will start. If for some reason, you get out of sequence with the other operator, both of you should cancel the request, wait thirty seconds so that both computers are back in conversational mode, and try again.

A blocked CRC protocol is the only accurate way to send files from one computer to another over telephone lines. The unblocked mode is provided only to allow you to communicate with other computers that do not accept blocked data.

To send a file, type "s" and then choose one of the two protocols. You may list the directory prior to entering the name of the file. Type "return" to stop the listing and restart it on drive 1. Type "off/rvs" to stop the listing altogether. Use the space bar to pause.

When the message "Type file name" appears, type the name of the file you wish to send. You may use the wild-card question mark

("?") and asterisk ("*") according to Commodore disk drive rules. Use the delete key to make corrections. Type the "return" key to enter the name. When the file is found, its exact name and type will be posted so that you can verify that a wild-card name found the intended file.

If the name of the file is entered improperly, or if the file is not on the disk, appropriate error messages will be displayed, and you may list the directory again and/or enter another file name.

NOTE: WordPro "memorize" files are saved in a form which is generally useless for transmission to mainframe (timesharing) computers. To send WordPro information to a mainframe, it is almost always best to print the file to the disk from WordPro, rather than to use a memorized copy. (See the WordPro manual.)

To leave "send" mode prior to sending a file, use the "off/rvs" key. As usual, it provides an "escape".

To leave "send" mode while a file is being sent, type any character on the keyboard. In CRC (block) mode, transmission will cease at the end of the block, and you will be returned to terminal mode after a timeout which forces the receiving computer into conversational mode. In non-CRC (unblocked) mode, transmission will cease at the end of the line going out, and you will be returned to terminal mode immediately.

FILENAME/OPEN FILE

McTerm is capable of saving a computer conversation (session) on disk or on a fast printer. Three actions are required to record on disk: naming the file, clearing files on the disk having that same name, and starting the recording process. Only one action is required to record on the printer: starting the process. [NOTE: Except at 110 baud, the CBM 2022, 2023 and 4022 printers are normally not fast enough for this, so it is best to save your session on disk and print the recording out afterwards.]

The first action is to name the disk file. Type the letter "f", for "filename". The file name already on the menu may be used as is, or serve as an example. To change the name, first type the drive number, 0 or 1, to select the drive on which to record. The program will then type a colon for you and blank the rest of the line. Type the file name, up to 16 characters unless WordPro

translation is on. If Wordpro translation is on, a dash and a two-digit serial number will be added to the file name, so type only 13 or fewer characters. WordPro files have to be very short, only 110 to 300 lines. Each time this limit is reached, McTerm imbeds a link (nx:) command line in the text, ends the file, and starts a new one with the next higher sequence number.

You may use the delete ("inst/del") key to make corrections to the file name. If the diskette on which you are recording might possibly be read on a CBM graphics computer, it is best to avoid shifted letters. After the file name appears exactly as you want it, press "return" to enter it. McTerm will then enter the filetype "seq" or "prg" for you, unless you have typed a comma and a filetype after the name. It enters "seq" except when WordPro translation is on, in which case it enters "prg". This is satisfactory for most normal use.

Example (with WordPro translation on):

"0:mc term conv-01,prg" is a sample name. It might have been entered by typing "0", then typing "mc term conv" and pressing "return". Since WordPro translation was "on" for this example, the computer added "-01,prg" to the name. When "0:mc term conv-01" is full, the command line "nx:mc term conv-02" is imbedded in the text and "0:mc term conv-01" is closed (ended). Further text goes to "0:mc term conv-02" until it is also full, and so on. New files with successive numbers are opened, one after another, as often as necessary.

NOTE:

Be careful not to use the name of a program or other useful file as your file name! Check the disk directory or alter your file name if you are unsure about this.

Opening the disk or printer:

The next actions are to clear duplicate files (disk only), and, finally, to open the disk or printer, making it ready to receive text. Type the letter "o". Answer the question "disk or printer?" by typing "d" for disk, or "p" for printer. (Use the "off/rvs" key to get out if you didn't want to open the disk or printer).

If you choose "p", then the "open" line on the display changes to a "close" line and the printer is immediately opened. No further action is required for this selection. Note that the printer must be fast enough to keep up with the

transmission/reception speed (baud rate) you have chosen.

If you choose "d", then you must allow files with duplicate names to be cleared from the disk before text can be saved. Suppose the file name on the McTerm display is "mc term conv". The computer asks, 'scratch "mc term conv*"? y/n'. The asterisk means that all files whose names start out exactly as indicated will be cleared. Examples of files which would be cleared in this instance are "mc term conv-05", "mc term conv", "mc term conver.", and so on. If your file name were "t", then all files whose names started with the letter "t" would be cleared! Only if there is no asterisk is just one file, with the exactly matching name, cleared. This is completely consistent with 4040/8050 file naming rules.

If it is acceptable to clear the indicated files or file, type a "y", for "yes". Otherwise, type an "n" or use the "off/rvs" key to escape. When the files are cleared, a message flashes indicating the number cleared ("scratched".) The disk is then opened and the "open" line on the display changes to a "close" line.

Once again, to leave this selection mode at any point, use the "off/rvs" key. Note that this will not stop the scratching (clearing) of files once it has started. The disk unit scratches the files on its own.

COMMUNICATION MODE (default: PET to ASCII)

Type the letter "c" to get the numeric selector. To link to another PET/CBM, choose "PET to PET." This sets the word length to 8-bits and sets transmission and reception to PETASCII. To link to any other computer (e. g. The Source (TM)), choose "PET to ASCII". This sets the word length to 7-bits and sets transmission and reception to regular, standard ASCII. To leave the choice alone, type "escape", "rvs", or a space.

NOTE:

- PET to ASCII: The standard ASCII carriage return returns the cursor to the beginning of the same line. This is represented in a recorded disk text file as a "return" followed by a "crsr-up". All other ASCII characters are likewise translated to PETASCII equivalents in the disk file.

- PET to PET: All text is treated as normal PETASCII characters and is not translated. The double-quote (shifted "2" key) will in all respects behave in its standard, peculiar fashion. Cursor

motions following an odd number of double-quotes will be displayed as inverse-video tokens instead of being performed.

WORDPRO TRANSLATION (default: off)
(default file length: 110 lines)

Type a "w" to get the numeric selector. Turn WordPro translation "on" if, and only if, you will want to edit the conversation text saved to disk with WordPro. With translation "on", a sequence of WordPro compatible files is saved when the disk is opened, as described in detail under "filename/open file". Because all blank areas, including all trailing blanks at the ends of partial lines, are saved as strings of "space" characters under WordPro, the WordPro files are quite voluminous. Make sure there is plenty of room on the disk.

NOTE:

- The line length for WordPro translation is chosen according to the screen width (40 or 80) of the computer which is recording the files.
- The default length of 110 lines is set for the version of WordPro which allows the smallest number of lines. If your WordPro version allows more than 110 lines, you may wish to alter this setting. To do so, see "default mode alterations".

DEFAULT MODES: ALTERATIONS

The McTerm program's default values are set for "typical" use. The program comes up set for use as a 300 baud terminal communicating with a mainframe computer. These defaults may be changed to accommodate your needs or preferences. In order to do this you will alter certain lines in the McTerm program and save the altered version on disk. Save the altered version under a new name so you will always have the original version to go back to if you make a mistake.

To alter the program, exit ("off/rvs" then "run/stop" to leave terminal mode, "e" to leave menu mode) and list lines 1200 to 1400. The Commodore Basic command for this is "list 1200-1400". Enter it by pressing the "return" key.) The screen will then display (listed on following page):

```

1200 rem *****
1210 rem *****
1220 rem *****
1230 rem *****
1240 rem *****
1250 rem *****
1260 rem *****
1270 rem *****
1280 rem *****
1290 rem *****
1300 rem *****
1310 rem *****
1320 rem *****
1330 rem *****
1340 rem *****
1350 rem *****
1360 rem *****
1370 rem *****
1380 rem *****
1390 rem *****
1400 rem *****

```

To change a default value, move the cursor to the desired position on the screen with the cursor direction keys, being very careful not to disturb any of the text. Type over the

list 1200-1400

```
1200 rem *****control page settings**
      ****
1210 yb=2:rem** baud rate (300 baud)
1220 yp=1:rem** parity (none)
1230 yl=1:rem** local echo (on)
1240 yu=2:rem** upper case lock (off)
1250 yw=1:rem** pet to ascii
      communication
1260 yt=2:rem** wordpro translation
      (off)
1270 mx=110:rem** max. lines in file
      (110-wp4+,140-wp4,350-wp3,280-wp3+)
1280 vs$="v1.2lc":rem** version #
1290 na$="0:McTerm conv.,seq":rem**
      filename for copy to disk
1300 rem *****
1310 pp=4 :rem** printer ieee 488 port
1320 sy=3 :rem** 1 for ASCII printer,
      2 for Commodore Printer(03 ROM),
      3 for Commodore
1330 lh=2 :rem** 1 to wait for line feed
      on no-crc file transfer, 2 to not
      wait
1340 ph=1 :rem** 1 to print control
      char; 2 do not print control char
1350 iy=0 :rem** 1 to suppress ready/
      mismatch queries in file send
1360 cb=0 :rem** 128 for carrier
      detect in use, 0 not in use
1370 ta$="" :rem** characters to
      append to line in s2 file send
1380 zo$="" :rem** xon character
1390 zf$="" :rem** xoff character
1395 yd$="" :rem** dial command for
      intelligent modem
1396 rem sample for hayes yd$="ATD555-1212" ;
      for bizcomp 1022 yd$="d5551212"
1400 rem *****
```

```
ready
[]
```

To change a default value, move the cursor to the desired position on the screen with the cursor direction keys, being very careful not to disturb any of the text. Type over the

quantity or number you wish to change. When the line you are on contains the correct, desired value, press "return" to enter it. It is advisable to change the comment in the area following the word "rem" to help you understand the altered setting in the future. When you have made your changes, list 1200-1400 once again to verify that they are all entered correctly into the computer.

Whenever a line has been changed in this way, the change affects only the copy of the program in memory. If you wish to use the altered version in the future, save it on disk. Save it under a new name so that you will always have the original version to go back to in case of error.

Useful values for various settings are as follows:

For line 1210, yb can be:

- 1 for 110 baud
- 2 for 300 baud
- 3 for 600 baud
- 4 for 1200 baud

For line 1220, yp can be:

- 1 for no parity
- 2 for mark parity
- 3 for even parity
- 4 for odd parity

For line 1230, yl can be:

- 1 for local echo on
(sometimes incorrectly called "half duplex")
- 2 for local echo off
(sometimes incorrectly called "full duplex")

For line 1240, yu can be:

- 1 for upper case letters only
- 2 for upper and lower case letters

For line 1250, yw can be:

- 1 for Pet to ASCII translation of characters
- 2 for Pet to Pet conversations,
no ASCII translation

For line 1260, yt can be:

- 1 for saving disk files as WordPro files
- 2 for saving disk files as sequential files
(Program or sequential files)

For line 1270, mx can be up to:
350 for wordpro 3 files
280 for wordpro 3 plus files
140 for wordpro 4 files
110 for wordpro 4 plus files

In general, mx should be at least five lines less than the maximum number of lines your version of WordPro can handle.

Note: the "nx:" command imbedded in the text at the end of each file has no effect under wordpro 2.

For line 1280,
vs\$ is simply the version number of the McTerm program. To avoid difficulty if you ever have questions or problems with McTerm, please do not alter this.

For line 1290,
You may change the file name between the quote marks as you wish, so long as the new file name is no more than 13 characters in length. Be sure to include the disk drive number and the file type (prg or seq) along with the name. Carefully follow the existing format for this.

For line 1310,
The variable pp can be the printer IEEE device number. Use whatever is appropriate to your printer.

For line 1320, sy can be:
1 for the proper case and mode translation for ASCII printers
2 for the proper case and mode translation for Commodore 2022 and 2023 printers with the "03" printer ROM, otherwise
3 for all of the other Commodore printers

For line 1330, lh can be:
1 for the computer to wait for a line feed from the receiving computer at the end of a line to continue, (during file send without crc)
2 to not wait during non-crc file transmission

For line 1340, ph can be:
1 to print control characters on the screen during transmission
2 to not print the control characters during transmission

For line 1350, iy can be:

- 0 for normal activity,
- 1 to turn off error messages for drive not ready or type mismatch. A setting of "1" is recommended for users of the CBM 2031 disk drive. Otherwise, the program will constantly display error messages indicating that the second drive is not ready. For the single disk drive user, this is already quite obvious.

A setting of "0" is recommended for users of the CBM 8050 disk drive, which sometimes forgets that there is a disk in the drive. This situation arises when one tries to open or send a file. The setting of "0" allows you to initialize the drive before giving up on a disk operation.

For line 1360, cb can be:

- 128 to indicate if a signal carrier is present during transmission, if the connected modem uses RS-232 pin number 8 to indicate carrier presence. The purpose of this is to display a message if carrier is lost, or if carrier is not present at sign-on.
- 0 if the modem does not use pin 8 for the carrier detection

For lines 1370, 1380 and 1390:

These lines handle some of the special operations required by some timeshare networks. Sometimes special characters or character strings are needed to assist the host computer. A character string or a "chr\$()" may be added in the null character("") position in these lines.

Line 1370 is for a string to be added to the end of each line during file send without CRC (unblocked). If this is needed, it is typically chr\$(10) (ASCII linefeed).

Line 1380 is for an XON character, typically chr\$(17) (control-q).

Line 1390 is for an XOFF character, typically chr\$(19) (control-s).

XON and XOFF are used only in order to slow down a host timesharing system to accommodate your printer. This may or may not be effective with your host.

Line 1395 is for a phone number and dial command for an auto dial modem. This allows the user to enter a single, commonly used telephone number in the McTerm program itself for modems with programmed auto-dialing.

Two examples for modems which we have tested would be for the Hayes Smart Modem where you would type:

```
yd$="ATD555-1212"
```

and the Bizcomp 1022 where you would type:

```
yd$="d5551212"
```

NOTE: You would substitute the number of your choice for 555-1212.

When you have a number entered in your program a Dial command will appear on your menu. When all your menu settings are correct, press "D" to dial. The modem will dial your phone number and McTerm will automatically place you in the terminal mode.

STOP BITS

McTerm always transmits 2 stop bits, however it is compatible with systems which use 1 or 2 stop bits. If the sending or host computer has only one stop bit, it will not affect the computer using McTerm. The number of the stop bits can not be changed or altered easily. A more in-depth discussion of this can be found in the "ROM Documentation and Advanced Programming" section, starting on page 14-5.

TERMINAL MODES

McTerm is flexible enough to meet a great variety of communication needs. It allows you to communicate at any one of many speeds, to converse with another PET/CBM user, and to exchange files with timesharing systems and with other PET/CBM systems. Conversations may be recorded for future use, and may even be saved in a format suitable for editing.

The basic menu selections which control the communication process have been discussed previously. Now it is time to explain what to do once those settings are in order. You will then enjoy the benefits of talking with other computers and the people who use them.

[The following sections pertain to communication over the telephone system with a modem. It is also possible to wire a PET computer directly to another PET computer. Cables for this are available from Madison Computer. We have had good experience at 1200 baud for lengths up to 400 feet; longer hookups may be possible. For further details, contact us.]

PREPARATION FOR A COMMUNICATION SESSION

The first step is to check that all cables are secure and that the modem is plugged into an outlet (if required) and turned on. The McTerm cable plugs into the PET/CBM with label side up. The "D" shaped connector ensures correct connection to the modem. Consult the directions supplied with the modem for connection to the telephone system.

The next step is to load the McTerm program into the computer and run it. For 4.0 Basic CBM/PET systems (8032 and others), we suggest you keep McTerm as the first file on your communication disk. Loading the McTerm program is then as simple as pressing the shift and the "run/stop" keys at the same time! (Otherwise, follow the directions for loading a program given in your particular Basic manual.)

The third step is to verify the settings on the main McTerm menu and type in the appropriate commands to make any needed changes. If you have a variable-speed modem, make sure the modem and the McTerm menu show the same baud rate (speed) setting!

NOTE: the program as we supply it contains settings suitable for "typical" 300 baud timesharing systems. Your timesharing supplier will usually tell you such

things as baud rate, required parity setting, whether local echo (often incorrectly called "half-duplex") is required, and so on. In order to ensure smooth sailing and avoid frustrating trial and error, it is best to check up on this in advance.

The fourth step is to enter terminal mode and dial the other computer with which you wish to communicate.

ORDINARY TERMINAL MODE

Once you have checked the equipment and cables, and adjusted the settings in the main menu, you are ready to enter terminal mode. Be sure the baud rate, parity, and local echo settings are correct. Then type the letter "t" to enter terminal mode. The screen clears and a line appears--

"*** To get to control mode, type the rvs key then the stop key."

If you haven't done so before, try typing the "off/rvs" key followed by the "run/stop" key (type them in succession; don't press both at once). The main menu should reappear. Type a "t". You should be back in terminal mode. The reminder line will scroll off the screen once the screen fills with text.

Now you are ready to dial up and communicate. Call your favorite timesharing system, for example, The Source (TM). If you get a busy signal, hang up and try again, just as with any other telephone call. Wait for the line to stop ringing and answer. You should get a high-pitched, whistling tone. If someone says, "hello", you probably have a wrong number.

Now, if you have an acoustic modem, with rubber cups for the telephone receiver (handset), place the receiver promptly, carefully, and firmly into the cups. If you have a manually operated direct-wire modem (no rubber cups), press the button, if necessary, to complete the connection, or follow whatever other directions the manufacturer provided. Either way, you should now have a signal light indicating that the connection is complete.

If you have a modem which automatically does the dialing for you, follow the manufacturer's directions for dialing with a terminal. This typically involves typing some sort of "dial" command at the PET/CBM keyboard, followed by a telephone number. The modem will typically send back messages indicating busy signal, connection OK, and so on.

You should now be in communication with the other computer. Typically you will receive some sort of a confirming message and a password will be requested. Sometimes you must type one or two carriage returns first, to establish the connection. Follow whatever directions you were given in order to "log on".

You have now reached your first McTerm milestone--using your CBM/PET just like any other terminal.

NOTE: McTERM CONTROL KEY--Some timesharing systems require the use of a "control key". A "control key" is a special shift key which shifts the letter keys so they produce an extra set of communication codes called "control characters". For example, a "control-m" produces exactly the same code as the "return" key. Your PET/CBM keyboard has no such key.

To type a "control character", first type the "off/rvs" key. Then type the character. Type the keys in succession; don't type both at once. For example, if you were instructed by your timesharing supplier to use a "control-e" for something, you would type the "off/rvs" key followed by the "e" key. If you had local echo turned on, a reverse-field (highlighted) letter "e" would appear at the cursor location.

Some control key functions are:

Control @	= a break key
Control (space)	= a null key
Control u	= an interrupt key

Some control key functions do not send any code out. You learned earlier to type "off/rvs" followed by "run/stop" to leave terminal mode. The McTerm control-"run/stop" function exits terminal mode, but sends nothing to the other computer.

For further in-depth discussion of these characters, please refer to the ROM documentation section of this manual.

SAVING YOUR TERMINAL CONVERSATION

The McTerm program has the valuable, unique capability of saving your terminal-mode conversations and sessions onto disk. (Sorry, not onto cassette.) It is possible to start and stop recording to omit unwanted text without leaving terminal mode. Multiple files for WordPro editing may be created automatically! (For details, see the section, "Filename/Open File.")

1) **Adjust the menu settings** (baud rate, parity, local echo, and upper/lower case) appropriately to converse with the other computer. Review this in the section on Ordinary Terminal Mode.

2) **Create the filename ("f")** for this conversation. You will be required to **specify the drive number (0 or 1) with the filename**. Double-check the filetype and WordPro translation setting. Do you want a single, general-purpose file saved, or do you prefer a sequence of files suitable (only) for WordPro editing?

3) **Open ("o")** the file and respond to the question on scratching other files with similar names. If you allow the files to be scratched, the disk drive light will come ON, indicating an open file on the disk. Until the file is closed again, **DO NOT REMOVE THE DISK!!** To avoid losing entire files or possibly an entire disk, switch disks only while files are closed and the drive is not running.

4) **Enter terminal mode ("t")** and establish contact with the other computer.

5) When you have finished any preliminaries and are ready to save your session, type the **"off/rvs"** key and then the **"clr/home"** key. The word "start" will appear in inverse video. From this time on, everything which appears on the screen will be saved on disk in the previously named file. Type **"off/rvs"- "clr/home"** again to stop the recording process. The word "stop" is displayed; from this time on, text which appears on the screen no longer goes to disk. You may "start" and "stop" whenever you like throughout the session.

If WordPro translation is ON, a sequence of 110-line (we suggest you alter this default value if your version of WordPro accepts more lines) "prg" files is created as necessary. Each time a new file is started, a message is displayed. If you intend to edit the files with WordPro, do not change the type to "seq".

If WordPro translation is OFF, only one file is created. This single file holds the full text in the order it was saved, without the translation to screen code and the extra blanks required by WordPro. This single file should usually be of type "seq", but "prg" is permissible. The difference between "seq" and "prg" files is that the first two characters in a "prg" file are treated by the CBM/PET as the two bytes of a memory load address.

You may return to the main menu at any time by typing "off/rvs" followed by "run/stop". This does not disturb the conversation, change the "start"- "stop" setting, or alter the disk file. (However, it does clear the text off the screen.) You may need to do this to change the "local echo" or "upper case" setting once you have logged onto a timesharing system.

6) To close the conversation file, return to the main menu (rvs then stop). Close the file either by typing "o" to close and stay in the McTerm program, or by typing "e" to exit the McTerm program.

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if Wordpro translation is OFF, only one file is created. This single file holds the full text in the order it was saved, without the translation to screen code and the extra blanks required by Wordpro. This single file should usually be of type "pdc", but "prg" is permissible. The difference between "pdc" and "prg" files is that the first two characters in a "prg" file are treated by the IBM/PC as the two bytes of a memory load address.

The way to return to the main menu at any time by typing "exit" followed by "enter". This does not disturb the conversation, change the "start" setting, or alter the disk file. However, it does clear the text off the screen. You may need to do this to change the "local echo" or "upper case" setting and you have logged onto a timesharing system.

To close the conversation file, return to the main menu (via then accept). Close the file either by typing "o" to close and stay in the return program, or by typing "e" to exit the return program.

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SEND/RECEIVE DISK FILES

So far, we have explained how to communicate with another computer and how to save the conversation. It is sometimes desirable and more accurate to send complete disk files which have been prepared in advance. Examples of such files include programs, WordPro files, Visicalc files, letters, data collection files and reports. Reports and statements could be sent in to a central office. Price charts could be sent to a field office. The possibilities are endless. McTerm is capable of sending and receiving entire files.

Sending a complete file automatically is clearly more accurate and cost-effective than retyping the information. The McTerm program provides two ways to send files. These are: 1) blocked, with CRC ("cyclic redundancy check") testing, and 2) unblocked, without CRC testing.

To exchange files with another McTerm CBM/PET, always use blocked CRC mode. Each block (segment of the file) is tested for integrity as it is received. If it fails the test, the receiver automatically asks for it to be sent again until it is right. The test is not completely foolproof, but it is extremely good.

To exchange files with other computers, you will generally have to use unblocked, non-CRC mode. This will usually be so when you send and receive programs or information from a timesharing system. In this case, treat the information with some skepticism, as noise on the telephone line occasionally garbles the text. Of course it is still much more accurate to send the information this way than to retype it.

The next two sections explain how to send and receive disk files with and without CRC. A later section explains how to send and receive WordPro files. The combination of WordPro text editing and McTerm block mode text exchange provides a powerful, accurate tool for the PET/CBM owner. This combination of wordprocessing and telecommunication is the beginning of real electronic mail.

NOTE: Files cannot be sent to or from cassette. Cassette operation is too slow and ties up components inside the PET/CBM which are required for serial communication.

SEND AND RECEIVE FILES - WITH CRC

Sending files with CRC provides effective correction of transmission errors which occur on the telephone system. Since VisiCalc files and WordPro "memorized" files cannot be transmitted as unblocked ASCII lines at the present time, those files must be sent in CRC mode. Consequently, they can be sent only to another CBM/PET.

SENDING FILES WITH CRC

1) Set the appropriate baud rate (speed). Place the computer in PET to PET communication mode (automatically no parity) and turn local echo ON.

2) Establish communication with the other computer in terminal mode and make sure you can talk to each other. Both computers must be set up according to (1) above.

3) When you have both agreed that it is time to send the file, type "off/rvs" followed by "run/stop" to get the main menu. Type "s" for 'send a disk file', and type "1" to send 'with CRC'. If you get the message:

Must switch sender and receiver
to Pet-to-Pet mode

then you were not in PET to PET mode as instructed.

Normally, you will get the message:

Send disk file
List directory? [y/any character]

You now have a chance to view the directory and determine the correct spelling of the name of the file to be sent. (If you decide to send nothing, type the "off/rvs" key to escape.) Type "y" for "yes" to list the directory on the screen. Use the space bar to pause, the "return" key to skip to drive 1, and the "off/rvs" key to stop the listing. Type "n" to proceed directly to entering the file name.

When you get the prompt:

>> Type filename "

type the desired file name and press the return key to enter it. You may use the prefix "0:" or "1:" to specify drive 0 or 1. You may use the wild cards "*" and "?" according to standard disk

drive rules. As soon as a file is found, the name you typed is replaced by the exact name and type of the file found. If the file found is not the intended one, type "off/rvs" and try again.

4) Once the file has been found and opened, a message containing the file name is sent to the other computer, asking it if it is "ok" and ready to receive the file. The sending computer displays:

```
Asking OK for "filename,prg"  
Waiting for reply  
Press any key to quit
```

Allow some time for the other operator to direct the file to a disk drive, and so on (or to cancel). Once the other computer is set up, transmission begins. The "waiting for reply" display is then replaced by "transmitting data."

Each time your computer sends a block, a serial block number is displayed. Relax and watch these numbers go by. If the other computer asks for a repeat transmission, a message will be displayed. Consider it an indication that the CRC check is doing its job. If there are frequent retransmissions, you have a noisy telephone connection.

While the transmission is in progress, you cannot type information on the keyboard or receive from the other computer. You may discontinue the transmission by "typing any key"; so may the receiving operator. This forces a timeout. During the timeout, for up to fifteen seconds, one computer may already be in terminal mode while the other is still expecting to send or receive blocks. Be patient.

If the receiving operator refuses the file by answering "no" to the "ok to receive" query, you will receive a message stating that the block transmission has been "cancelled." If you cancel before transmission starts, your computer will send a similar message to the other computer. Both computers will return to terminal mode, usually without a timeout. The screen will display:

```
Cancelled  
**To get to control mode, type the rvs key the stop key **
```

When the block transmission has been completed, the screen will display "done" and the computer will return to terminal mode. Normal completion of this kind involves only a brief timeout to close the files. The screen prompt will now be:

Done

**To get to control mode, type the rvs key the stop key **

RECEIVING FILES WITH CRC

1) Adjust the baud rate to the appropriate, agreed-on value. Set PET to PET communication mode, and turn local echo ON. There should automatically be no ("none") parity.

2) Enter the terminal mode ("t") and establish contact with the other computer. Make sure you can talk to each other.

3) When the other, sending, operator opens a file to send it to you in block CRC mode, you get a query: "receive-(filename,filetype)", "is that ok?" If you type "n", for "no", your computer sends back a cancellation message and both computers revert to terminal mode. If you type "y", for "yes", you are then asked whether you want the file on drive 0 or drive 1. Type "0" or "1".

If you already have a file with the same name, you are asked to allow it to be scratched (cleared). If you refuse (type "n") your computer sends a cancellation message and both computers revert to terminal mode. If there was no pre-existing file, or if you did allow it to be scratched, your computer sends a "start transmission" message and the new file is transferred.

4) During the transmission, the serial number of the block being saved on disk will be displayed on the screen. Relax and watch the numbers go by. Again, if a block is not received correctly, your computer will request a repeat and display a message. Take this to indicate that the CRC check is doing its job. If there are many retransmissions, you have a noisy telephone connection. You may discontinue by "typing any key." This forces a timeout. For up to fifteen seconds, one computer may be in terminal mode while the other is expecting to send or receive blocks. Be patient.

5) When the transmission is complete, both computers will display "done" and revert to terminal mode with a brief timeout to close files.

NOTE: If you are expecting to receive a file, and you get a query of the form: Q(the filename),(the file type), that is, the letter "Q" followed by the name, a comma, and the type, you are probably in PET to ASCII mode. Type two control-u characters to cancel (so the other operator won't have to wait long to realize something is amiss), and re-adjust your computer.

You may switch back and forth at will between sending and typing. You could go into transmitting basic, then send a program from a file to get it entered, modify it by typing, and then run it. In some cases it may even be possible to build a file series of commands you enter into a file and send the file across whenever you would have typed the commands in from a sheet of paper.

SENDING FILES WITHOUT CRC

1) Adjust the main menu settings (send rate, parity, local echo, upper/lower case) appropriately to compare with the other computer. Your computer MUST be in the PET to ASCII communication mode, the standard default.

2) Establish communication with the other computer.

3) When you decide to send a file, press "s" to send the file, and "t" to send without CRC. The main menu will be replaced by:

Send disk file
[file directory] (any character)

Type a "y", for "yes", to list the directory on the screen. Use the space bar to pause, the "return" key to skip to drive 1, and the "delete" key to stop. You may determine the spelling of the name of the file you intend to send in this way. If you prefer not to see the directory, type "n", for "no".

The following line will appear:

>> filename "

Type the filename. You may use the wild card characters "*" and "?" according to standard disk drive rules. Use the delete key ("backspace") to make corrections. Type a "return" to enter the

SEND AND RECEIVE FILES - WITHOUT CRC

This way of sending is exactly like letting your CBM/PET do the typing for you. Since the receiving computer cannot tell whether you or your computer are doing the typing (except for speed), no special program or modification is required at the receiving end. Although you lose CRC block checking in this mode, you gain the ability to send files to virtually any computer you can type into.

You may switch back and forth at will between sending and typing. You could go into timesharing Basic, then send a program from a file to get it entered, modify it by typing, and then run it. In some cases it may even be possible to build a fixed series of commands you often use into a file and send the file across whenever you would have typed the commands in from a sheet of paper.

SENDING FILES WITHOUT CRC

- 1) Adjust the main menu settings (baud rate, parity, local echo, upper/lower case) appropriately to converse with the other computer. Your computer **MUST** be in the PET to ASCII communication mode, the standard default.
- 2) Establish communication with the other computer.
- 3) When you decide to send a disk file, press "s" to 'send disk file', and "2" to 'send without crc.' The main menu will be replaced by:

```
Send disk file
List directory? [y/any character]
```

Type a "y", for "yes", to list the directory on the screen. Use the space bar to pause, the "return" key to skip to drive 1, and the "off/rvs" key to stop. You may determine the spelling of the name of the file you intend to send in this way. If you prefer not to see the directory, type "n", for "no".

The following line will appear:

```
>> Filename "
```

Type the filename. You may use the wild card characters "*" and "?" according to standard disk drive rules. Use the delete key ("inst/del") to make corrections. Type a "return" to enter the

name once it appears correctly in the window. The name as you have typed it will be replaced by the exact name and type of the file actually found. Any disk drive error messages will be posted.

4) Once the file is found and opened, the disk drive activity light will remain on. Do not remove the disk while the file is open. Switch disks only when files are closed and the drive is not running/ You are then asked:

[W]ordpro print file, [P]rogram listing,
[O]ther kind of file?

[W] is for sending WordPro files "printed" to disk from WordPro. "Memorized" files cannot be sent under this option. Check your WordPro manual or the "file preparation" section of this manual for details on how to "print" a file to disk from WordPro.

[P] is for sending Basic programs listed to "seq" files. A "dsave" or "save filename,8" listing cannot be sent under this option. (To make the proper kind of file, load the Basic program, enter 'open 2,8,2,"filename,s,w"'; then 'cmd 2'; then 'list'. When the cursor comes back, enter 'close 2'.) Check the "file preparation" section of this manual for details on how to list a Basic program to disk.

[O] is for sending any other kind of PETASCII file. It sends the file verbatim, without altering or removing any characters, line feeds, or carriage returns.

These choices are needed so that files will be sent with proper padding and formatting. This is particularly important with WordPro files, which have unusually placed linefeeds and carriage returns.

Again, for further details on WordPro "print" files and Basic program "seq" listings, see the section on "file preparation" in this manual."

5) After you have typed one of these letters, the program displays:

Transmitting data
Press any key to quit

The lines in the file are displayed on the screen in order as they are sent out to the other computer. A line counter is displayed as a help. (It is not added to the text sent out.) The file is a continuous send, without the waiting for line feeds

from the other computer. If it is desired to have McTerm wait for a line feed before sending the next line, the program will need to be altered. This is simply accomplished, please see "Default modes: Alterations. If is possible, use the wait, this will avoid sending lines before the other computer may be ready.

Any messages from the other computer are displayed as they come along. For example, if you are sending a Basic program across, you may get error messages just as if you were typing it in.

You may "press any key" to stop sending and continue on manually. The message "transfer halted" will be displayed and your computer will revert to terminal mode.

When the file has been completely sent, the program displays:

Done

To get to control mode, type the rvs key and then the stop key

and reverts to terminal mode.

RECEIVING FILES WITHOUT CRC

The only difference between this send mode and normal operation is that the sending CBM/PET is doing the typing automatically. On a receiving PET/CBM running McTerm in PET to ASCII mode, it is possible to record or print the text, and so on, exactly as usual. (See "Saving Your Terminal Conversation.") It will be necessary on a receiving CBM/PET to type a linefeed to get each successive line. (Alternatively, have the other operator send continuously.)

The receiving computer may be a timesharing system such as The Source (TM). Again, since it cannot know whether you are typing or sending a file, you may freely switch back and forth between typing and sending. You may enter programs or data from files, and in some cases, command sequences as well.

FILE PREPARATION FOR FILE SENDING

The McTerm program provides the Commodore computer owner with a versatile means of transmitting information from one place to another. Information may be exchanged between CBM/PET computers or between CBM/PET computers and other (ASCII) computers. Earlier sections of this manual explained how to use the CBM/PET with the McTerm program as a terminal for conversational communication. Later sections explained how to communicate more efficiently and accurately by transferring entire files automatically.

Files to be sent to another PET/CBM in CRC blocked mode need no special preparation. They may be sent intact and unmodified to any compatible equipment. (But note, for example: 4.0 Basic programs may not run on 2.0 Basic systems.) At this time, "rel" files cannot be sent.

Some files need a little preparation before they are transferred to non-CBM/PET computers. For example, the easiest, most cost-effective way to compose text is to use your CBM/PET with a program such as WordPro. This reduces large monthly computer bills and/or eliminates bargain, red-eye-rate editing sessions.

However, the WordPro text is "memorized" as "screen poke" codes that other machines don't understand. Similarly, Commodore Basic programs are "save"-ed as abbreviated binary codes other machines don't understand. Preparation consists of creating a sequential, PETASCII copy of the coded text, which the McTerm program can translate to standard ASCII when it is sent out.

PREPARING WORDPRO TEXT

FOR COMMUNICATION MODE: PET TO PET

No preparation required. Send the WordPro "memorized" file just like any other file.

FOR COMMUNICATION MODE: PET TO ASCII

The McTerm program can send WordPro text to non-Commodore computer equipment. However, the text must be re-recorded on the disk as PETASCII text instead of binary screen codes. To do this:

1) Load the WordPro program. Set the desired file length. Set the desired printer device number. CHOOSE "OTHER" AS THE KIND OF PRINTER (IF ASKED), AND "CBM" AS THE PRINTER (AS AGAINST "ASCII") regardless of what you actually have. Set the desired disk drive device number.

2) "Recall" or type the text as usual, except for one slight adjustment. The first line of the file should have a formatting statement setting the left margin at column 1. Do not allow the default value to become a part of the text file. In WordPro III, III+, IV and IV+, this command starts with a check mark (a control character followed by the "/" key) in column one followed by "lml", for left margin and column 1, and a carriage return.

3) Keep a copy of this text for future use with the WordPro program. The WordPro program refers to this process as "memorizing" the file.

4) To prepare the text for transmission, it must be "printed to the disk."

5) The desired text file should be loaded into WordPro memory.

6) Put WordPro in "output" mode with the 'control o' function.

7) Instead of sending the file to the printer, send the file to the disk. Press "d" to indicate "output to disk". Some versions of WordPro ask one more question at this point. That question is:

CBM, ASCII, or Printer?

Choose "CBM".

8) A drive number will be requested. Specify the appropriate drive number, 0 or 1, and press the "return" key.

9) A filename will be requested. Specify a name which is not already on the directory. Don't use the same name as the 'memorized' copy. The file you are saving will be a sequential file, which WordPro cannot recall. You should end up with two copies, the sequential copy you are now making, and a "memorized" copy, under two different names.

10) Type in the desired filename and press the return key. The WordPro program will then begin to write the file to the disk as an PETASCII file. This PETASCII file is the file to "send" with the McTerm program. (The McTerm program takes care of converting the PETASCII to standard ASCII.)

NOTE: This operation can also be used for connected (linked) files. After pressing 'o' for "output" in step #7, press 'g' for "global" before pressing 'd' for "disk". For the filename, specify the first file in the linked chain. The program will continue through the chain and build the entire text into the PETASCII file.

PREPARING BASIC PROGRAMS

Listing a Commodore Basic program to disk is a slightly more technical operation than printing WordPro files to disk.

COMMUNICATION MODE: PET TO PET

No preparation is required to send a Commodore Basic program to another CBM/PET. Simply send the 'dsave'-ed or 'save "filename",8' file as is.

COMMUNICATION MODE: PET TO ASCII

The text of the program must be listed to the disk as if it were being printed on a CBM printer. The result is a PETASCII sequential file. Do the following:

1) Load the Basic program into the CBM/PET as if you intended to run it, but don't run it.

2) Type the command:

```
open2,8,2,"0:sample,seq,write"
```

and press "return". The disk drive activity light will come on, and screen will respond with "ready." and a cursor. In the example, "0:" is the number (0 or 1) of the drive on which to put the text, and "sample" is the file name; choose drive number and file name as you see fit.

3) Type the command:

cmd2:list (return)

This command lists the program to disk. Unless the program is very short, the drive will start spinning. The listing may take some time. When the cursor returns to the screen, the listing is done.

4) Type the command:

close2 (return)

This will close the file on the disk drive and turn OFF the file light. The newly created file is in the proper form for transmission. This file will end with the word "ready", a period, and a carriage return; this extra line usually doesn't bother the receiving computer.

SOFTWARE TRANSLATIONS

Since microcomputers differ from one brand to another, there may be problems running programs written for other computers on your CBM/PET. Each brand may use the same language, BASIC, but each uses a slightly different 'dialect.' Specifically, programs written in BASIC for the Apple or TRS-80 computers may not run on the CBM/PET without modification. The McTerm package can send and receive programs, saving much typing effort, but it does not "know" about Basic dialects. After you have received a program, you may modify it so the Commodore computer can understand it.

There are some tools available to help with this. We give suggestions for those 1) with and 2) without the WordPro program:

TRANSLATION USING WORDPRO

1) Establish communication with the other computer. This may be done over the telephone using a suitable ASCII communication package in the other computer and compatible modems. Set one modem to "originate", and the other to "answer". If you prefer a direct connection, exercise extreme care in connecting the correct lines (connector pins) together. To avoid damage to the equipment, please consult a technician if you are not familiar with this operation.

2) The other computer should be set to communicate in ASCII code. Set the McTerm program to "PET to ASCII" with WordPro translation ON.

3) Create an appropriate "filename" for the program and "open" the file.

4) Have the other operator send you the program. When the transmission is finished you will have received the program as a WordPro file or a set of WordPro file.

5) Run WordPro, choosing "OTHER" printer type (if asked) and a "CBM" printer (as against "ASCII" or "Spinwriter". "Recall" the program text.

6) Use the search-and-replace functions to replace stereotyped words and phrases used by the other computer with equivalent words or phrases used by the CBM/PET. Some portions of the program may have to be modified by hand. There are many books

available which explain the differences between various brands of Basic. One of these is "The BASIC Handbook," published by CompuSoft. [NOTE: Graphics functions and commands are likely to be difficult or impossible to translate.]

Special note: the action of the "if" statement varies considerably between dialects. When an "if" statement whose dependent clause is a group of statements separated by colons (":") fails, in Commodore Basic, the entire group of statements (on the rest of the line) is skipped. In some Basics, only the first statement is skipped. For example, on the Commodore, the statement:

```
if 0<>1 then i=2:j=3:k=4
```

does nothing. In some Apple dialects it sets j to 3 and k to 4.

7) After the program is ready to run on the CBM/PET, it must be printed to disk (written out in PETASCII sequential form.)

8) Enter "output" mode by pressing the control key (off/rvs) and then "o" for output. Type "d" to specify output to disk. The status line will display, "Disk File: Drive # ?." Enter "0" or "1" and then the file name. [NOTE: If the program to be output is in several linked files, then type "g" for global before typing the "d" for the disk output. The status line will prompt with "Global:"; enter the name of the first file. The entire text in the linked chain will be built into the sequential file.]

9) A PETASCII copy of the program is now on disk. You may view it with "playback" or "fast playback". Use the "Convert" program on the McTerm disk to create a "prg" copy which can be loaded into memory and run.

This sort of thing can work in reverse. List a Commodore Basic program to disk in PETASCII form as previously described. Use "pet to wp" on the McTerm disk to convert the text into a series of files which can be "recalled" by WordPro. Edit the text to conform to the requirements of the other computer. Finally, print it to disk and send it to the other computer.

NOTE: WordPro changes double quotes (") to single quotes (') when it prints the file to disk.

TRANSLATION WITHOUT WORDPRO

1) Establish communication with the other computer. This may be done over the telephone, using a suitable ASCII communication package on the other computer, and compatible modems. Set one modem to "originate" and the other to "answer". If you prefer a direct connection, use extreme care to ensure the correct lines (or pins) are connected together. To avoid damage to the equipment, please consult a technician if you are not familiar with this operation.

2) The other operator should send you the program as ASCII text. Set the McTerm program to "PET to ASCII", with WordPro translation OFF.

3) Supply a filename ("f") and open the file ("o"). Make sure you type "off/rvs" followed by "clr/home" before the text starts coming across, so it will be recorded.

4) Once the program has been received in a disk file, run "Convert" from the McTerm disk to change it into a (possibly incorrect) Commodore Basic program. Most lines will appear just as they came across when you load and list the "prg" version, but some may not be correct for Commodore Basic.

5) Go through the text in the usual way for Basic programs, by listing lines and modifying them, and alter it so that it can run under Commodore Basic without producing error messages. There are many books available which explain the difference between various brands of Basic. Two of these are "The BASIC Handbook" published by Compusoft and "The Basic Conversions Handbook for Apple, TRS-80, and PET Users". [NOTE: Graphics functions and commands are likely to be difficult or impossible to translate.]

Special note: the action of the "if" statement varies considerably between dialects. When an "if" statement whose dependent clause is a group of statements separated by colons (":") fails, in Commodore Basic, the entire group of statements (on the rest of the line) is skipped. In some Basics, only the first statement is skipped. For example, on the Commodore, the statement:

```
if 0<>1 then i=2:j=3:k=4
```

does nothing. In some Apple dialects it sets j to 3 and k to 4.

This method, without WordPro, may appear to be easier to use; however the power of searching (locally and globally) is lost. A great deal of time can be saved by using WordPro. (Despite the fact that it changes double quotes (") to single quotes ('), when it prints to disk).

With experience you will become more accustomed to the ins and outs of transferring programs, and it will become easier.

PLAYBACK

Not everyone using McTerm will also own a copy of the WordPro program. Therefore, this package includes a simple program to allow the user to list or display any text file recorded in PETASCII. (WordPro translation OFF). Such files include conversation files stored by McTerm, files "printed" to disk by WordPro, and text files saved by the Commodore Assembler/Editor package. "Playback" does not work in a sensible manner with files "memorized" by WordPro or with files recorded in WordPro translation. Those files are stored in "screen poke" code rather than PETASCII.

Playback has a limitation in that it was designed to print to only "Commodore" printers. This program will not do the proper ASCII conversion for non-Commodore printers.

To use the program:

- 1) Load and run "Playback".
- 2) The program will ask for the name of the text file to be listed. Any disk drive error messages will be displayed.
- 3) The program will then ask where to send the listing. The choices are: to the screen only, to the printer only, or to both. Of course, the printer is much slower than the screen. Once you have made the choice, listing will begin.

"Playback" displays or lists only; it is not a text editor. We suggest you use WordPro or a similar program to edit or alter the text.

Since it can be difficult to time the "start" of the McTerm saving process exactly, we suggest "start"-ing a little early if you are losing part of the first line of the intended recording.

Use the space bar to pause and restart the scrolling of the text. Use the "off/rvs" key to stop altogether.

PLAYBACK

Not everyone using McTerm will also own a copy of the wordpro program. Therefore, this package includes a simple program to allow the user to list or display any text file recorded in wordpro. (Wordpro translation files) Such files include converted files stored by McTerm, files "printed" to disk by wordpro, and text files saved by the Commodore Assembler/Editor package. "Playback" does not work in a standard manner with files "recorded" by wordpro or with files recorded in wordpro translation. These files are stored in "screen poke" code rather than wordpro.

Playback has a limitation in that it was designed to print to only "Commodore" type printers. **This page intentionally left blank** ASCII conversion for non-Commodore printers.

To use the program:

- 1) Load and run "Playback".
- 2) The program will ask for the name of the text file to be listed. Any disk drive error messages will be displayed.
- 3) The program will then ask where to send the listing. The choices are: to the screen only, to the printer only, or to both. Of course, the printer is much slower than the screen. Once you have made the choice, listing will begin.

"Playback" displays or lists only; it is not a text editor. We suggest you use wordpro or a similar program to edit or alter the text.

Since it can be difficult to time the "start" of the McTerm saving process exactly, we suggest "start"-ing a little early. If you are listing part of the first line of the intended recording, use the space bar to pause and restart the recording of the text. Use the "delete" key to stop altogether.

CONVERT PRELIMINARY VERSION

LIMITATIONS: The program which is to be converted must meet two limitations. 1)The program can not have any line numbers higher than 63899 (look for any statements with high values). 2)Any particular line in the program should not have more than 80 characters in it, even if the line may be tokenized into a shorter form.

The "Convert" program was designed to change PETASCII sequential files into PETASCII program files. This allows the user to change a PETASCII Basic program listing into a program file which may be loaded and run on a CBM/PET computer. This is an important step in the software translation process.

A program may be received from another computer as a PETASCII file or as a WordPro file. If the program was not originally written for the CBM/PET, some commands in the program may need to be changed. If you have WordPro, and the program listing is not being sent by a Commodore computer, save the listing with WordPro translation ON. It will then be possible to do repeated searches for commands which need altering, ensuring that all instances of those commands are found. If you do not have the WordPro program, it will be necessary use "Convert" directly on the received, untranslated PETASCII listing. Some lines will cause syntax errors, and parts of those lines may be missing from the program file created by "Convert". Using a printed listing (created by "Playback") of the PETASCII file, it will be necessary to load the program file and go through it line by line to create a program which can run properly on the CBM/PET.

The following steps should be taken in order to operate the program:

- 1) Load the Convert v.9 program into the computer's memory.
- 2) The program will give the user a brief description of itself. It will also caution the user that the program to be converted should not contain any lines with line numbers higher than 63899.
- 3) The program will have a prompt asking the user for the name and type of the file to be translated into PETASCII. The user should type in the proper filename and type.
- 4) The next prompt will ask the user on which drive to save the program, "0 or 1."
- 5) The user will then need to supply a filename to the program. This will be the name of the executable program once the program has been saved. Convert will automatically save the translated program. An appropriate prompt will be supplied for naming the file.
- 6) When the user presses the carriage return, after naming the file, the Convert program will then read the ASCII file and begin to change it into a PETASCII file. The screen will display the line being read and translated. It will also display many other things which at this point will appear to be quite confusing. The easiest reply to these lines is for the user to basically disregard them, and wait for the program to finish it's operation. The user will know that his program is finished when the screen prompts the user with a save command, the file name of the saved file, the ready prompt, and a flashing cursor. THE CURSOR WILL NOT RETURN TO THE USER UNTIL THE FILE HAS BEEN COMPLETELY TRANSLATED.

The other comments on the screen are providing steps and commands to the Convert program. The program acts in several steps, exhibiting several of these to the user along the way. Convert will add itself to the other file, alter the program, then erase itself from the new program and then save the final version of the program to the disk. This may appear confusing,

however this program will accomplish a much needed task in the software translation process.

Since this is a preliminary version of the program there may be errors which occur from time to time during its use. If there are any problems which do occur, the staff at Madison Computer will be pleased to respond to them in an effort to find any further bugs or exceptions to the operation of this program.

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AUTO-DIAL MODEMS

Many questions have been asked about two fairly popular and generally available auto-dial modems. Both of these modems run at 300 baud and are relatively inexpensive. The following section is included not to recommend a particular modem, but to answer questions which have arisen numerous times.

AUTO-DIAL WITH: BIZCOMP 1022

Please note and follow the instruction manual from the manufacturer for the proper installation of the modem.

Starting on page 15 in the manufacturer's manual, there is a listing of the possible commands. Use those commands to perform the various functions of the modem. Page 27 explains the messages that are returned to the screen.

EXAMPLE:

TO DIAL - Enter the terminal mode; then type d and the telephone number.

d5551212 (press return)

Dashes between the numbers may or may not be used.

The words "Dial Tone" will be displayed, indicating a dial tone connection. The letter "C" will indicate a carrier connection. Proceed with normal terminal activity.

TO HANG UP - Press the delete key; then the control key; then the "D" key. The word "disconnect" will be displayed on the screen, indicating a disconnection.

AUTO-DIAL WITH: HAYES SMART MODEM

Please note and follow the instruction manual from the manufacturer for the proper installation of the modem.

To activate the majority of the commands with the smart modem the user needs to "get the attention" of the Smart Modem. This is initially done by typing a capital "AT" while in the terminal mode. Once the communication has started, a different procedure is needed, since the "AT" characters could occur during a normal session. To get the attention of the modem while a connection is established: 1) wait one second, and 2) type "+++" and wait one second.

EXAMPLE:

TO DIAL - Enter terminal mode (it may be preferable to turn off the local echo; before entering the terminal mode type "L and 2"); type capital AT. The modem will respond with an "OK" message so you can tell it is "listening." To dial type: AT D(telephone number).

AT D5551212 (return key)

NOTE: For touch tone telephones type AT DT5551212.

The modem will respond with "OK," and dial the number. The user should be able to hear the dial tone and the pulse dialing [or touch-tones (TM) if chosen] from the modem's speaker. When the signal is picked up by the modem, the message "CONNECT" will appear on the screen. Once a connection has been made with another computer, the high tones will be heard briefly before the speaker is turned off. At this time, the connection is established and one may proceed as usual.

TO HANG UP - It is necessary to get the modem's attention in order to hang up (disconnect). Pause for at least one second and then type: +++ (no return is needed). The modem will then display the "OK" message on the screen. This indicates that the modem is temporarily listening, rather than transmitting. To hang up, type: AT h0 (return key). The modem will then disconnect the telephone line and display the message "OK" on the screen.

PROGRAMMED AUTO-DIALING

The above information allows the user to dial the telephone number from within the terminal mode. One of McTerm's features allows you to enter a phone number in the program itself for modems with programmed auto-dialing.

This capability hasn't been expanded beyond a single number since there are a multitude of modems which can be used for auto-dialing and each operate slightly differently.

Line 1395 in the McTerm program is used for this purpose.

Line 1395 is for a phone number and dial command for an auto dial modem. Two examples would be for the Hayes Smart Modem where you would type:

```
yd$="ATD555-1212"
```

and the Bizcomp 1022 where you would type:

```
yd$="d5551212"
```

NOTE: Substitute the phone number of your choice for 555-1212.

When you have a number entered in your program a Dial command will appear on your menu. When all your menu settings are correct, press "D" to dial. The modem will dial your phone number and McTerm will automatically place you in the terminal mode.

See section 6, pages 2 and 5.

PROGRAMMED AUTO-DIALING

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Line 1335 in the McTerm program is used for this purpose.

Line 1335 is for a phone number and dial command for an auto dial modem. Two examples would be for the Hayes Smart Modem where you would type:
yds="ATDT555-1212"
and the Bitcomp 1021 where you would type:
yds="d555112"

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When you have a number entered in your program's dial command will appear on your menu. When all your menu settings are correct, press "D" to dial. The modem will dial your phone number and McTerm will automatically place you in the terminal mode.

See section 6, pages 3 and 5.

McTERM
ROM DOCUMENTATION
AND
ADVANCED PROGRAMMING

SYSTEM CALL LOCATIONS

System setup (sys+0)

Reserves buffer space and activates serial send and receive by setting up internal values, altering the memory protect pointer, and setting the interrupt service vector. This call is to be done exactly once to set up the communication routines. Once it is done, other calls may be made. The setup call is not to be done again, however, unless an XX call is done.

Some other calls LOCK UP THE PET if the setup call has not been done first.

Usage: since the end-of-memory pointer is reset, this setup call MUST be followed immediately by a RUN or CLR statement, so that all of the BASIC pointers are properly set. Failure to do so will cause the BASIC program to crash, possibly after running correctly for some time.

Example (32K PET):

```
10 SYS 36864:RUN 20
20 REM PROGRAM CONTINUES HERE
```

RC (sys+3)

Places characters from the receive buffer into the string QR\$. All characters received in the buffer since the last call are used unless the CI lead in flag is enabled. No receive buffer contents placed in QR\$ on previous calls are placed there again unless the CI lead in flag is enabled. If no new characters came in since the previous call, then QR\$ is returned null. If more than one character came in, then LEN(QR\$)>1, and the characters in QR\$ are stored left to right in the order they were received.

A simple BASIC loop which receives characters and places them in proper order on the screen is:

```
100 SYS RC :PRINT QR$; :GOTO100
```

SE (sys+6)

Transmits all of the characters, leftmost first, in the string QS\$ in asynchronous serial format as defined by the CI flag and the BR baud rate index. Translation options are noted in the CI flag documentation. If QS\$ is null, nothing is done.

A simple BASIC loop which takes characters from the keyboard, displays them on the screen, and transmits them is:

```
100 GETA$ :IFA$=""THEN 100
110 PRINT A$;
120 QS$=A$:SYS SE
130 GOTO 100
```

XX (sys+9)

Disables serial transmission and reception by restoring the interrupt service vector to the value it had just before the last SYS(SS) call. If two SYS(SS) calls are done without a SYS(XX) call between them, then these routines cannot be disabled, because the previous service vector is lost.

BK (sys+12)

Toggles the serial transmit line, that is, if it is marking, change it to spacing, and if it is spacing, change it to marking. Character transmission leaves the line marking. Thus, code which transmits a BREAK is:

```
100 SYS BK:T=TI
110 IF TI-T<60 THEN 110
120 SYS BK
```

US (sys+15)

Bit 5 of the CI location enables a mode where QR\$, when it begins with a specified lead in character, is returned at each SYS(RC) call still starting at that lead in character, rather than starting as normally with the first fresh character not previously returned. If this is happening, then the SYS(US) call is needed to release the beginning of QR\$ to the first character not previously returned. Otherwise, QR\$ would grow indefinitely. The lead in mode is

intended to allow the accumulation of characters contained in escape sequences.

If CI bit 5 is disabled, then SYS(RC) always resets the beginning of QR\$, so that SYS(US) has no effect.

CC (sys+18)

Compute CRC on the string QC\$, if LEN(QC\$)>2, else no action. In normal usage, one has a string, and appends two CHR\$(0) to it. SYS(CC) replaces the two characters by the CRC checksum value. A second SYS(CC) normally restores both of the characters to CHR\$(0).

One normally does the first call just before transmitting a string. If the receiving computer assembles the received string in its entirety and does a SYS(CC), the last two characters are normally restored to CHR\$(0). If they are restored to something else, then the received string contains a transmission error, usually due to electrical noise. The receiver can then request a retransmission.

Although errors are possible which cannot be detected by this procedure, it is nonetheless very effective. The error detection ability varies with the polynomial used. (See locations for flag and value passing).

AP (sys+21)

Translates string QR\$ from seven bit ASCII to eight bit displayable PETASCII. Bit 7 of each character is ignored.

The following program loop receives ASCII characters as the receive portion of a simple, backspacing ASCII terminal:

```
100 SYS RC :SYS AP: PRINT QR$; :GOTO100
```

Translations are as follows:

```
ASCII C/R CHR$(13):=CHR$(13)+CHR$(145)
```

```
ASCII L/F CHR$(10):=CHR$(17)
```

```
ASCII B/S CHR$(8) :=CHR$(157)
```

Alphanumeric characters are translated to PETASCII. ASCII braces become PET graphics. The ASCII DLE and all other ASCII control characters are REMOVED FROM QR\$.

Adjacent ASCII carriage returns (C/R) and linefeeds (L/F) are combined into single PET CHR\$(13) characters, so that received page ejects in QR\$ don't cause QR\$ to become oversized on translation. Successive ASCII C/R characters are also combined, for the same reason.

If the translation causes QR\$ to grow to a length over 255, then the first character LEFT\$(QR\$,1) will be returned with ASCII value 255, and QR\$ is ruined.

Translation may be disabled by setting CI bit 6.

PA (sys+24)

Translates string QS\$ from eight bit PETASCII to seven bit ASCII. Bit 7 of each character is masked to zero.

Translations are as follows:

```
PETASCII CRSR DOWN CHR$(13):=CHR$(10)
PETASCII CRSR BACK CHR$(157):=CHR$(8)
PETASCII DELETE CHR$( 20):=CHR$(127)
```

PETASCII uppercase is translated to ASCII uppercase. Pet upper/lowercase mode is assumed.

Translation may be disabled by setting CI bit 6.

LOCATIONS FOR FLAG AND VALUE PASSING

CI

- Bit7 == 0 Force end of returned string QR\$ on each carriage return.
- Bit7 == 1 No effect.
- Bit6 == 0 No effect.
- Bit6 == 1 SYS(AP) and SYS(PA) translations are disabled.
- Bit5 == 0 No effect.
- Bit5 == 1 Force end of returned string QR\$ ahead of each lead in character LC. Also hold beginning of QR\$ at a lead in character, to permit accumulation of escape sequences. QR\$ grows until released by SYS(US).
- Bit4 == 0 Stop key disabled and returns control-c (chr\$(3)).
- Bit4 == 1 Stop key enabled and returns no character code.
- Bit3 == 0 Apply 7-bit mask to QR\$ (return seven-bit characters).
- Bit3 == 1 Return full eight-bit characters in QR\$.
- Bit2 == 0 Transmit seven-bit words.
- Bit2 == 1 Transmit eight-bit words.

Bits 1 and 0 are:

Bit 1	Bit 0	
1	1	== Odd parity bit appended
1	0	== Even parity bit appended
0	1	== Mark parity bit appended
0	0	== No parity bit appended

Notes:

Enabling CI bit7 forces QR\$ to end on every incoming carriage return, even though more characters are available. QR\$ continues to end normally or be returned null if characters are not available. QR\$ continues to start normally with the character following the last character in the previous QR\$. This option permits one to test the incoming string for carriage returns using the form RIGHT\$(QR\$,1) without taking the time and code to test every imbedded character.

Enabling CI bit5 has three functions. FIRST, it forces QR\$ to end on the character PRECEDING the specified LC lead in character. SECOND, once a QR\$ is returned which begins with the LC, that is, following the QR\$ with the forced ending, the beginning of QR\$ is held at the LC. Each succeeding SYS(RC) returns a longer QR\$, beginning at the LC, as more characters come in. This enables one to collect incoming escape sequences easily. THIRD, since the forced LC ending is enabled, the flag WF is set nonzero if the returned QR\$ has stopped growing because another LC character is waiting (as opposed to not growing because no characters have come in).

To release QR\$, use the SYS(US) call. The next SYS(RC) call will return characters beginning with the one following the last character returned by the previous call.

STOP BITS: McTerm always transmits 2 stop bits, however it is compatible with systems which use 1 or 2 stop bits. If the sending or host computer has only one stop bit, it will not affect the computer using McTerm.

LC (CI+1)

POKE the ASC value of the lead in character for escape sequence trapping here. This is usually the default ASCII ESC, which is CHR\$(27).

WF (CI+2)

PEEK the lead in character waiting flag here. Value is zero if no character is waiting, otherwise nonzero.

BR (CI+3)

POKE the baud rate here, as follows:

75 baud: POKE BR,0
110 baud: POKE BR,6
300 baud: POKE BR,12
600 baud: POKE BR,18
1200 baud: POKE BR,24

(CI+4) and (CI+5)

This is the CRC polynomial in 6502 (low-high) sequence. It is a 16-bit 6502 binary number representing the low order 16 terms of the CRC polynomial. The default value represents the IBM CRC16 polynomial. An X**16 most significant term is built into the CRC generation code.

OTHERS

Other memory locations are used internally and are not recommended for PEEKing and POKEing.

OPERATION NOTES**Basic 3.0 bugs**

Basic 3.0 contains bugs which disturb the video display and disable the interrupts during screen scroll. A replacement for the UD8 rom is available to correct this problem. The symptom is loss or garbling of incoming and outgoing characters when the screen scrolls. By Basic 3.0 we mean the Basic contained, e.g., in the 16B, 32B, 16N, and 32N, older 40 column models. This Basic lacks the disk commands found in Basic 4.0.

Specify business or graphics keyboard when ordering this ROM.

Basic 2.0

Basic 2.0 or earlier versions are not compatible with this software. By Basic 2.0 we mean the Basic contained in the 8K, calculator-keyboard PET models. There was a 3.0 Basic upgrade for those models; however, note that no correction ROM for the screen scrolling problem is available for old 8K models.

Wedge

The highest memory location used is \$7E6F. This leaves sufficient room for Wedge 4.0, 4.1, 4.2, or Universal Wedge.

CABLE WIRING CONFIGURATION

Not all of the pins are used on the McTerm cable. The ones which are used are as follows:

1	Ground
2	Transmit data
3	Receive data
7	Ground
8	Carrier detect

On Occasion other wires may be used for specialty wiring configurations, they would be:

The connection for wiring the Penril modem or Bell cables:

9 Connected to 20

For direct connection to computers:

4 Connected to 5

6 Connected to 20

These various connections are often used, however the user should consult the appropriate equipment manuals before making any changes to the McTerm cable. Madison Computer will not be responsible for any damage caused by improper wiring.

COMMON PROBLEMS AND QUESTIONS

- 1) Does McTerm work with an IEEE modem?
 - NO, McTerm works only with RS-232 type modems.
- 2) Does McTerm perform the PETASCII to ASCII translation?
 - YES
- 3) I can't get the McTerm menu:
 - Flip the disk over, use the format on the other side.
 - McTerm cable is on upside down.
 - The ROM is in a ROM switching device and the switch is in the wrong position.
 - Owners of 2040 disk drives may need to initialize the drive before loading the program.
 - The McTerm computer chip (ROM) is "zapped." The ROM may have received a damaging static charge due to improper handling. Also check for bent or broken pins on the chip due to improper handling.
- 4) Double characters are displayed on the screen when typing:
 - Set modem to full duplex.
 - Set McTerm menu to local echo off (full duplex).
- 5) I can't see what I type:
 - Set McTerm menu to local echo on (half duplex).
- 6) I can receive but can not send characters:
 - Need the special 12 volt swing cable for the modem.
- 7) Screen receives garbage after a screen scroll
 - You are using 3.0 Basic and need a correction ROM for the video chip. This is available from Madison Computer.
- 8) McTerm drops characters at high speeds:
 - Remove devices like the SADI which slow the IEEE bus.
 - Turn off (Kill) non McTerm software, such as: Power, Programmer's Tool-Kit, Command-O, etc.
- 9) Receive garbage on the screen instead of data from other computer:
 - Match your baud rate with that of the other computer.
 - Select proper communication mode (character set).
 - Bizcomp 1080 modem: requires line change. Line 1070 should be altered to contain "sys a+36" instead of "sys a." Also, must use McTerm version 1.20 or later, with Bizcomp's cable.

- 10) How many "Stop Bits" are sent?
- Two stop bits are sent, however this is also compatible with most systems requiring only one.
- 11) How can I add line feeds after all returns? Commonly used in Telex type activity.
- Alter line 300 from:
300 if p\$=cr\$ then if yw=1 then p\$=p\$+"[down cursor]"
- to become:
300 if p\$=cr\$ then if yw=1 then qs\$=qs\$+chr\$(10)
- 12) Can McTerm be used with Telex?
- No, not completely, however some enterprising users have found ways to do it. McTerm actually has to be substantially altered to work with the Telex network. A separate package should be made available soon to perform normal Telex functions.
- 13) What are the settings for "The Source"?
300 or 1200 Baud
Local echo off
No Parity
PET to ASCII Code
- 14) What are the "X-on and X-off" characters?
- This will vary from system to system, you should check with a technician from the telecommunication data service. Many systems will use a control-s to stop and a control-q to start. In hex values, this would be 11 to stop and 13 to start. The McTerm program wants the character string values placed in lines 1380 and 1390. If your system needs these X-on and X-off characters then the lines should be altered as follows:
- ```
1380 zo$=chr$(17) : rem** xon character
1390 zf$=chr$(19) : rem** xoff character
```



