VIP™ Library

Softlaw

VIP Terminal™

Tele-communications System

Operator's Manual

Softlaw Corporation

For the Commodore 64 Personal Computer

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PART ONE
Introduction

What Does VIP Terminal Have to Offer?

VIP Terminal is your key to the world of communications. VIP Terminal is a full featured, machine code smart terminal program that allows the user to communicate with any host computer or microcomputer with RS-232 capabilities. And it gives you a professional 80 column display!

VIP Terminal is totally user-friendly. It gives you task icons, built-in help, pop-up menus - this might be the funnest game you'll ever own! Yet it has features to please the most experienced user:

* 80 column display, plus 40, 64 & 106 columns!
* Auto-dial with all popular modems.
* 20 programmable keys.
* 16 entry telephone directory with auto log-on.
* Receive and send BASIC or machine language program files as well as sequential files.
* Upload & download protocol: ASCII, CBM ASCII, CBM-Punter, Xmodem, Xon/Xoff & binary.
* Built-in ASCII/CBM ASCII conversion.
* Virtual memory disk access.
* Works with any printer to print your data.
* Full screen editor.
* Built-in clock and alarm.
* Word Wrap for a formatted display.
* Supports G4 graphics mode for pictures.
* Auto buffer option for downloading programs.
* Change RS-232 Parameters for communication with computers using non-standard protocols.
* Baud rates of 50, 75, 110, 134.5, 150, 300, 600 &1200.
* Standard 128 symbol ASCII character set with ESCAPE & line break.
* Selectable Trapping of unwanted characters.

Getting VIP Terminal Up and Running

Welcome to VIP Library and to telecommunications. Let's get you using your new VIP Terminal right now! First, load VIP Terminal from your disk. Place your program disk in the drive, type LOAD"DESKTOP",8,1 on your computer and then press 'RETURN'. The drive will become active and the program will begin to load. If you have trouble loading the program, try moving the disk drive to the right side of your monitor, cleaning the disk heads or having the drive aligned. VIP Terminal is not compatible with the Buscard II or the MSD CIE IEEE interfaces. It will, however, work with MSD drives used serially.

The Desktop Environment

When loading, the first thing to appear will be the Desktop Environment of VIP Library. VIP Terminal is only one of a whole Library of software planned for the Commodore 64. You can have a whole bookshelf full of totally compatible software, all of the highest quality, with the most up-to-date features. For word processing you can have VIP Writer, an extremely powerful and versatile tool. For your home budget needs we offer VIP Finance. And there's VIP Calc, VIP Database and on and on.

To link these programs together we offer the desktop environment. This is the colorful screen you see when you load the program. The desktop environment contains the essential parts of your Commodore workstation.

The pointing hand is controlled by the joystick, in game port #2, or by the keyboard. Provided you

own each program, you can select any volume of the Library to load. Just move the hand to the volume and press 'FIRE' or 'RETURN'.

To load VIP Terminal, move the hand to the VIP Terminal volume and press 'FIRE' or 'RETURN'. The program will load, placing you in the clock menu.

You should take the time while the program is loading to adjust your monitor to your liking. You can alter color, tint, brightness and contrast to meet your tastes. The desktop is black, and you should adjust the contrast to get it perfectly black. This will assure the greatest clarity in your display. If you own a 1701 or 1702 Commodore monitor, you should consult Appendix B for hints for getting the best display. You should know that if you use the front jacks on these monitors you will not get a satisfactory display.

How Do I Get Help

You have just purchased a program which has gone through stringent testing. Be assured that VIP Terminal DOES function properly. It is now your responsibility to carefully read and refer to this manual and to thoroughly understand the systems with which you wish to communicate to be able to use this program correctly. Although our customer service representatives will be happy to answer questions, we cannot be a consulting service to solve problems you encounter while working with special systems, printers, interfaces and set-ups. In order to continue to sell such high quality software at such affordable prices, we must rely on you the user to solve hardware and system problems by reading and using this carefully designed manual.

Three Easy Steps to Going On-line

Believe it or not you are on the verge of talking with your computer using VIP Terminal. It is as simple as moving the hand to the telephone book, pressing the fire button, or pressing the 'f8' key, to get to the telephone directory, dialing the phone number, and you're off.

There are essentially three steps to going on-line. You've got to set your modem type; you've got to complete an entry; and you've got to dial the number. All three are conveniently done from the telephone directory.

After loading the program, you are in the clock directory. You may first wish to set the date and time. Use of the clock menu is discussed in Part Two. Here, move the hand to the telephone book and press 'FIRE' or 'RETURN', or press 'f8'. Now you're in the telephone directory.

The first thing to do is select your modem type. Move the hand to point at the modem type selection and press 'FIRE' or 'RETURN'. Now select your modem type. If your modem is not listed, read the section devoted to the telephone directory in Part Two.

Now you can complete an entry. First move the hand to the Mode selection and press 'FIRE' or 'RETURN' to change "Dial" to "Edit". Next move the hand to point at one of the sixteen entries and press 'FIRE' or 'RETURN'. You may now enter the name of the person you wish to call and press 'RETURN'. Next, you should enter the phone number, and you may change any of the other parameters if the system you are calling happens to have other requirements. (These parameters are discussed in

the section devoted to the terminal parameters menu.)

Once you are done, move the hand back to the Mode selection and change "Edit" back to "Dial". Now you are ready to dial. Move the hand to your entry and press 'FIRE' or 'RETURN'. You will be prompted for dialing according to your modem type.

If you have a CBM Automodem, a Westridge a HES II, a TotalModem, or a Mitey Mo, the number may be automatically dialed. If you have a 1600 Vicmodem, you will have to manually dial, and then, when you hear that the phone is ringing, plug the handset plug into the modem. (If you have touch-tone service you will be able to "auto-dial" too by putting your handset a couple of inches from your monitor's speaker. When you press a key, the phone number tones will come out the speaker!) If you have a Hayes-type modem, you may either be able to auto-dial, or you will have to manually dial. If you have a Hayes type modem, please read the section devoted to the telephone directory, and consult your modem manual.

Once your modem responds to the carrier tone, VIP Terminal will take you right to the terminal mode. You are on your way! Now all you have to do is maneuver your way through the maze of menus. Try pressing 'C=' and 'H' to get terminal help.

And That's Just the Beginning . . .

It's just this easy to log on to all sorts of systems, from CompuServe to your computer at school. As you can see, VIP Terminal is real easy to use! But this is only the beginning. Auto-dial, auto

log-on, sending short messages, sending and receiving programs and the like, all these and more are possible with VIP Terminal.

The rest of this manual is devoted to teaching you how to use VIP Terminal. First comes an introduction to communications techniques. This is meant for those new to using terminals. Next comes the section explaining just how to use VIP Terminal. (Much of this part of the manual is capsulized on the program disk and can be called from the help menu and read right off the disk.) The next section contains information on how to send and receive files. Finally, there is an extensive appendix which contains useful information, such as an ASCII character chart, and hints on getting the best 80 column display.

Just about everything you should need to communicate is in this manual, so feast your mind!

Introduction to Communication Techniques

Now that you have had some hands-on experience with logging on to an information service, you might be interested to learn a little about what's going on behind the scenes. Although it's really pretty simple to get on a system, the more you know about telecommunications, the better use you will be able to make of the wealth of information that is at your fingertips.

What is a Terminal Program?

Computers have opened undreamed of vistas for high technology information transfer. Your computer gives you the ability to communicate with other computers, and more importantly, with other people who have information to give you, from gossip to programs that you can use on your computer. Information services offer an astounding variety of data for you to consume; bulletin board systems offer you a chance to communicate and share ideas with people having similar interests. A whole new world is at your fingertips. New friends, new vistas, new futures rest in your computer.

These powerful abilities are possible despite the fact that the BBS you talk to may be based on an IBM Personal Computer, or the computer at work is a Univac mainframe. All you need is a terminal program to turn your computer into a communication tool. So, what is a terminal program?

Well, a terminal program is a communication program. The word "terminal" comes from the name for what the "end user" used to communicate with

large mainframes. Mainframes are built like your micro. There's the processor, the memory and the device used to talk to the processor and use the memory. These are usually all distinct units connected with cables. Since many people use mainframes, they all must have a device to talk to the computer. That device is called a terminal, meaning the end point of the computer. It usually consists of a keyboard for data entry, and a means of data display for response from the computer, either a printer or a screen. Nowadays, most terminals are of the screen variety. The terminal possesses the ability to talk to the computer using communication protocols, and that is its only function. Only now are terminals being equipped with their own processors and separate memory. Once you have one of these terminals, you can talk to many different computers.

Your micro, on the other hand, is a distinct unit containing computer, memory and user interface (keyboard) all in one piece. There is no need for a separate terminal for talking to the computer. Because your micro is a discrete, comprehensive unit, it is not designed or initially equipped for talking to other computers.

Still, with the right equipment and software, your micro can be made to "emulate" or act like a terminal for talking with other computers, be they mainframes or other micros. In fact, since your micro has its own processor and memory, it is capable of being quite a sophisticated terminal. The hardware needed to make your micro into a terminal is a modem to hook up to the telephone lines; the software you need is a terminal emulation program to give your computer the communication protocols and thus "emulate" a mainframe terminal. Of course, a modem is not absolutely required, since

computers can be "hard wired" together to form a network. A terminal program, however, is required.

Terminal programs vary from dumb terminal programs to ultra smart terminals. Dumb terminal programs only allow you to "chat" with other computers, using only the other computer's memory and processor. All that is supplied is the protocol for using the modem and a display format. Ultra smart terminals, on the other hand, allow you to receive, process, transmit, save and load data, with many many features which make the data transfer process effortless. VIP Terminal for your computer is one of these ultra smart terminals. It allows the full range of data transfer features, with every convenience built in, from auto-dial to programmable keys.

So just what are those "communication protocols" anyway? And what do I care?

Communications Protocol

You care a lot. Your ability to use your computer to talk to other computers depends on these protocols. Computers all "talk" different languages, have different hardware and electronic specifications, and use different software. What makes it possible for these systems to "talk" to each other are the standard communication protocols and communications equipment.

These standard protocols have been built into terminal software and hardware. To "talk" with other computers you need your computer, a terminal program and a modem. The remainder of this section will discuss how each of these helps you and how to use them for your basic communication needs.

The Structure of Information

The most basic thing which is necessary for communication between different computers is a standard system for representing data. One computer must know what the other computer means in computerese.

Computers "think" with electricity, and this limits them to two states: off and on. All data in the computer is stored as binary digits ("bits") which are off or on. This feature makes binary arithmetic the basis for manipulating data in computers. Eight bit computers deal with data in eight-bit chunks called "bytes". The sequence of eight bits per byte allows up to 256 numeric combinations of ones and zeros per byte. 256 has thus become a standard number of things allowed by computers.

These 256 combinations must be used for storing and handling all commands, instructions and data in your computer. Obviously, there are more than 256 different commands, instructions and forms of data. The computer uses different hardware and software to handle different tasks in 256 unit chunks.

One of the most important of these chunks is used to define how data is represented, i.e., the letters of the alphabet, punctuation, numbers and graphic characters. 256 separate types of data are allowed. Each character is assigned a number so that the computer can deal with it as a discrete character.

The ASCII System

All computers think and talk with numbers; people, however, communicate with symbols. The designers of computers have devised a system for our symbols to be uniformly used by computers so that computers can communicate. This system has the acronym ASCII, standing for American Standard Code for Information Interchange.

The ASCII system is a very limited standard. Of the 256 possible symbols, the ASCII standard covers only the first 128. The first 32 symbols are called control codes; the remaining 96 symbols are the letters of the alphabet, in upper and lower case, numbers, punctuation and other standard keyboard symbols. Let's discuss each separately.

First the 96 ASCII symbols, represented by the decimal numbers from 32 to 127. These symbols, from the space character (32) to the rubout character (127) are standard with every system adhering to ASCII, which is nearly every type of computer made. These symbols comprise the alphabet, numbers, etc. No matter the computer, the same symbol will always be assigned the same number. A space will always be 32, "A" will always be 65, and so on. This standardization allows free transfer of data between computers since each computer will interpret the numbers to be the same characters.

The control characters are different. Control characters, covering numbers 0 through 31, are symbols used to control display and communication functions in computers and print functions in printers. Control characters cover such things as the "bell" character to sound a bell, the formfeed character, linefeeds, and escape. Although they

have been assigned standard names, they do not always have the same function in all computers or printers. Thus control characters must be used carefully. This is especially true in data communications where control characters are used extensively to control data transfer. Only a few of these control codes have standard functions in controlling data transfer.

What of the remaining 128 symbols from 128 to 255? These symbols are not standardized yet, although there is great likelihood that they will be in the near future. Now, each computer, printer or other device uses these symbols for different things. Your computer uses them for screen representation of its graphics symbols which you probably use in your programs. Your printer may use them for a special character set, such as foreign characters or the Japanese alphabet. These symbols are infrequently used for communications between computers, primarily for sending binary data and pictures. This is only possible when both computers communicating are identical, or one uses codes compatible with the other computer.

This all seemed so simple, right? Well, your Commodore 64 is one of those few computers which does not adhere to pure ASCII. Your Commodore has what is called CBM ASCII. It differs only in that the upper case and lower case letters of the alphabet have switched places in the chart. Thus, where a decimal 65 would give you a capital "A" with ASCII, you will get an "a" with CBM ASCII. VIP Terminal allows you to choose how you wish to transfer files. You can either transfer in pure ASCII; or you can have what you receive in pure ASCII converted to CBM ASCII when saved, and everything in CBM ASCII changed to pure ASCII when sent. (See page 69.)

The Digital Communications World

The ASCII system is the standard basis for all text communications, be they a letter or your business calculations. But data communications requires more than a standard for symbol representation. Other standards are required to get the symbols from one computer to another.

Most communication is done over the phone, although computers may be wired to talk directly to each other. There are several steps for the ASCII symbols to get from your computer to another computer. First, the binary representations of the symbols must be translated into electric pulses to get out of the computer; next the electric pulses must be changed to sound waves to use the phone lines; then the sound must be changed back into electric pulses to go to the computer, and then the electric pulses must be changed back into the binary to represent the symbols.

This relatively simple sequence requires some pretty sophisticated hardware and software for error free transmission. The first step is to prepare the data for transmission. This step occurs in an UART (Universal Asynchronous Receiver/Transmitter) in your computer which puts your data into a proper format for transmission.

Data is sent as binary digits, ones and zeros. Data cannot just be sent as raw symbols, one after another, without thought to the receiving computer. If so, the transmission speeds could be different, and the receiving computer could easily get lost, not knowing when one symbol ends and the next begins. Instead, several things must be systematized to assure that both computers know

what is being sent. To do this a protocol has to be established to govern the speed of transmission and the way each symbol is sent.

ASCII data is usually sent using an asynchronous protocol. Asynchronous means that the talking computers are not tied to the same timer to know when data is being sent. Instead, data is sent at a prescribed rate in discrete, recognizable units. The receiving computer does not react to a timing pulse but to the receipt of a new data unit. These units are called "data frames".

A data frame contains four distinct parts. The first part is a start bit. This is a single binary digit which tells the receiving computer that a new piece of data is arriving. After the start bit comes the piece of data, the "word". Each "word" is a group of seven or eight consecutive binary digits which represent a character or symbol. After the word comes the parity bit if any. The parity bit is used occasionally to monitor the accuracy of the transmission. In such systems, but not your computer, the parity bit has a preset value, and if it varies, the transmission will be aborted or restarted. What you should know is that if parity is set incorrectly, many characters will be turned into "garbage". The last element of the data frame is the stop bit. Stop bits tell the receiving system that this data frame is done, and it can look for another start bit.

The data frame protocol is alterable, since some computers require different protocols than others. However, there is a favorite protocol for almost all ASCII communications: one start bit, a word length of seven, even parity and one stop bit. VIP Terminal defaults with this protocol, except that parity is set to spaced.

The data frame is set up in the UART. It supplies the protocol which will be used for communications. From the UART, the data goes to the RS-232 port on its way out of the computer. The RS-232 port is a device which translates the digital value of the data into an electrical signal with different voltage levels for a one or a zero. The next step is for the data as electrical signal to go to the modem.

The MODEM, standing for "MOdulator/DEModulator", is a device which turns electrical signal to sound waves for transmission over the phone lines. It receives the RS-232 voltage signal and changes it to two different pitches. These pitches are then sent over the phone lines to the other modem which then turns them back into electrical voltage signals. The RS-232 port of the receiving computer then turns these pulses into ones and zeros. The receiving UART decodes these ones and zeros to get the actual data sent.

In order for data to be accurately exchanged, it must be sent at a preset rate. This rate is called the baud rate. Baud rate is a measure of the velocity of data transmission, essentially equivalent to the number of bits sent per second. Each system must be set to the same baud rate for effective transmission. Most systems which use the phone lines use a baud rate of 300, or 300 binary digits per second. Other common rates are 600 and 1200, and much higher baud rates are possible, although these higher rates may not be used with standard modems or use the phone system.

Computers can talk to each other in a couple of different ways. The most common are called full duplex and half duplex communications. Full duplex means that both systems can talk to each other at

the same time. Each computer is capable of sending information while listening carefully to hear if the other computer is saying something. In full duplex the receiving computer receives the data you are sending and echoes it back to you. This is how you get your own screen display. Surprise, surprise! In full duplex your screen display is the result of what the other computer sends on its own, or echoes back. This is a great check on the accuracy of your transmission.

Half duplex, on the other hand, means that the computers take turns talking; first one talks, then the other talks. Interruptions by the other computer can cause the sending computer to garble some of the data which it is sending. In half duplex the receiving computer does not echo back what you send. Instead, you service your own display directly.

Let's try not to make this too confusing. Almost all communication is done in full duplex, so don't worry. VIP Terminal is a full duplex terminal, although you may change the duplex status if you have to. One thing you should be mindful of is that using the wrong duplex setting, either with this terminal or with your modem, can cause two characteristic results. One is that when you type, the characters do not appear on the screen; the other is that when you type, two characters appear for each one that you typed. When you see this, it is time to check your duplex settings. To avoid troubles, always set the duplex setting of your modem to full and leave it there. You can fully control duplex with your terminal program.

These are the essential elements of communication protocol. In VIP Terminal, these protocol elements are controlled in the terminal parameters menu.

Receiving Pictures

Pictures, "graphics", are increasingly becoming a big part of the communication world. Information services and BBS's use pictures to tell who they are and to entertain.

Graphics at present are computer specific: a picture must usually be created for each different type of computer. This is because there is, as of yet, no standard graphics "character" set. Every computer uses the numbers from 128 to 255 for entirely different graphics characters (see the discussion of the ASCII system above). Thus, where the number 255 is a triangle in one system, it is an orange block in another system.

Currently, the most popular graphics mode is the so-called "G4" graphics mode. This mode, which is used by Compuserve and many other information services, uses rather large colored blocks (called "pixels" for "picture elements") to create pictures. The term "G4" refers to Graphics in the quarter-block mode. The pixel can be divided in quarters, and different shapes are made depending on how many quarters are used, and on their positions. Any of nine colors may be used for each pixel.

VIP Terminal will accept G4 graphics. Systems which send G4 graphics will ask if the user can accept graphics and what machine is being used. Once it is determined that you own a compatible computer, pictures will be readied for transmission.

VIP Terminal has a special G4 mode for accepting these pictures which works automatically. It is discussed in the section on the terminal mode.

Transferring BASIC Programs

Many of you are interested in trading or downloading BASIC programs from friends or BBS's, or using BASIC programs written on other computers. VIP Terminal will do the job just fine. Before you attempt to transfer BASIC programs, however, you first should know a little about how your C64 uses them.

When you type BASIC programs into your C64, and when you list them, they look just like ASCII text which you can read. When the C64 saves the program to disk, however, the program is not saved in a sequential format, but in a "tokenized" program format: BASIC keywords such as "PRINT" are replaced by single token characters when the program is saved to conserve space. Thus, when you save a program to disk, you are not saving a listing, but the program itself. Of course, you can load it in and list it, but if you tried to print the disk file of your BASIC program to get a listing, you would just get garbage.

For this reason, you must decide how you wish to transfer any BASIC program. If you wish to transfer the program itself to another C64, then fine, use the CBM-Punter protocol discussed below. Whoever receives the program will be able to load it in and use it. However, if you wish to send or receive a BASIC program to or from another type of computer, or if you wish to send a listing, you will have to follow the procedures outlined in Appendix K for creating sequential listings out of program files, and creating programs out of sequential listings.

VIP Terminal™

Tele-communications System

PART TWO
Using VIP Terminal

System Overview

How VIP Terminal Works

The focus of VIP Terminal is the terminal mode. This is where you actually talk to other systems. You have at your fingertips a complete 128 ASCII character keyboard so that you can send all standard keyboard characters plus all control characters. Your screen is capable of showing up to 106 characters per line. And with the built-in clock you can always keep track of on-line time. Also built into the terminal mode are several keyboard commands so that you can directly access other features of the program without leaving the terminal mode. Also available are help tables and icons so that you can easily go from the terminal mode for help or to change some parameter.

The remaining portions of the program revolve around the terminal mode. There are menus devoted to altering communication parameters, storage of data, printing of data, altering of the screen display, entry of phone numbers and log-on protocol, and "programming" of keys for automatic sending of short messages when in the terminal mode.

Once you have made your alterations, telephone entries, programmed messages, etc., you can save these out as your own customized terminal environment. From then on, every time you use VIP Terminal, it will look just like you want it to, with all your favorite defaults. You can even have multiple environments, each customized for a particular purpose.

Getting Around in VIP Terminal

VIP Terminal has been made to be easy to use, no matter your experience. Using VIP Terminal is just plain fun! It is constructed with nine selections, all represented by icons at the bottom of the screen. These options are selected by using the joystick to point the hand at them, or by using the keyboard.

To use the joystick, it must be plugged into the game port 2. Now, just move the hand as if you were playing a game. You can move it all over the screen, and point it to the left or right. When you point at one of the icons and press the fire button, the menu governed by that icon will appear. The same icons are governed by the function keys and the 'RESTORE' key.

To make a selection in the menus, move the hand to the selection and press 'FIRE' or 'RETURN'. If you decide not to change that selection, just press 'FIRE' or 'RETURN' again. Within many of the selections you may also control a "pencil" to choose from the several options. The pencil is controlled by the joystick. When the pencil is over the box next to your selection, press the fire button or 'RETURN' and the selection will be made. To use the keyboard instead, press the number corresponding to your selection.

While in VIP Terminal you have nine menu choices. You may go to any menu at any time either by using the hand and joystick or by using the keyboard. The nine menus are:

HELP The question mark is for help. When you select this icon, either by pressing 'f1' or by using your joystick, you will be given a help menu to aid your understanding of the program.

OPTS "Opts" stands for System Options. This menu governs such things as color options, number of characters per line, and terminal parameters.

TALK Talk is the terminal mode. It puts you into the screen used when you talk to other systems. It is from here that you control the transmission of files. From this option you can also control many of the options of the terminal through two keystroke commands using the Commodore key ('C=') plus a letter of the alphabet. Talk has its own help table to make everything easy.

TIME Time is the menu in which you set the date, time and alarm, and control display of the clock on the screen.

PRINT This menu governs setting up VIP Terminal to match your printer. You may also print your workspace from this menu.

KEYS In this menu you may program up to twenty keys to send short messages. These messages are sent by pressing the 'CTRL' or the 'C=' key plus one of the keys from 1 thru 0.

FILE The File menu provides the means to view, edit, print, save and load files, programmed keys, telephone directories, and the like. From here you also get to perform many other disk functions such as calling a directory, renaming files and scratching files.

TEL # This is the Telephone Directory. In the telephone directory you can create up to 16 listings. The listings will include the name of the person you wish to call, the telephone number with any special dialing instructions to the modem for auto-dial, communication protocol for that person and an identification string for easy log-on. From this menu you can institute auto-dial and redial, or set parameters.

RESTORE The exit sign shows you the way out. You may return to the Desktop Environment or to BASIC.

Here's a typical road map for using VIP Terminal. When you start the program you are in the clock menu. This is the natural place to start since you will usually wish to set the date and time of day. From there you will usually go to the file directory to load your "environment", which contains your preferred defaults, the telephone directory, and programmed messages. From there you can also load any file which you may wish to upload. The next stop is usually the telephone directory from which you will dial the telephone. Once you have connected, the system will automatically send you to Talk.

Now it's time to discuss each of these selections in depth so that you can get going.

HELP The Help Menu

Since you are new to the program, you may first wish to use the help feature. VIP Terminal features a full-scale on-line help to make learning to use this program as easy as possible. To go to the help menu, either move the hand to the question mark at the bottom of the screen and press the fire button or press 'f1' from the keyboard. A list with a short description of each of the icons now appears on the screen.

In addition to these short descriptions of the icons, you also have access to detailed explanations on the program disk of each of the options. To use this feature, keep your program diskette in the drive, move the hand to the selection you wish to have explained and press 'FIRE' or 'RETURN'. The file will then load, and the first page will be displayed. The bottom line tells you to press the space bar or the fire button to read the next page. You may press 'STOP' to exit back to the help menu. When you reach the end of the file you will be told to press the space bar to return to the help menu.

In addition, you may get help with ASCII character codes by selecting the ASCII help line. This will display a chart of the 128 ASCII characters with their decimal equivalents. This chart gives essentially the same information as is contained in Appendix A of this manual. The ASCII chart is especially useful for determining the decimal value of the characters to be used to open and closed your workspace, those used to pause and resume transmission, and the decimal values of characters to be stripped and/or replaced. These options are all dealt with in the terminal parameters menu.

OPTS The Systems Options Menu

One of the first things you will want to do with your program is experiment with the color options, the characters per line options and other cosmetic options to see which combination will work best for you. The Systems options menu lets you play with these and many more options, including cursor shape and audible margin. Perhaps most importantly, the Systems options menu is one of three places from which you may alter terminal parameters and protocols so that you can talk to other computers. Or has the fun made you forget that that is why you purchased this program?

Let's look at the menu to see just what it contains. On the left side are the selections, and on the right side are the settings which come with the program:

```
        System  Options

Screen display  Narrow 80
Highlight color     White
Character color    Lt Blu
Screen color         Blue
Border color         Blue
Cursor color       Yellow
Cursor type         Block
Cursor blink          Yes
Audible margin         72
Key click             Yes
Word wrap             Yes
Task icons            Yes
Set  Terminal  Parameters
```

Each of these selections except the last is fairly self-explanatory. The last selection, Terminal Parameters, has its own menu when selected. It will be discussed after the others have been explained.

Screen Displays

The screen display selection controls the number of characters on the screen and the character set chosen. VIP Terminal uses high resolution graphics to allow more than twice the number of characters per line than come standard with your Commodore 64. There are four different screen widths: the standard 40, plus 64, 80 and 106 characters per line. These screen displays are independent of the text format as transmitted. Thus, because some BBS's and other information services format the display for C64's at 40 columns, you will only receive 40 columns even though you have selected the 80 column display.

The 64 character display is about the maximum for easy readability on a television set. We recommend a monitor for the 80 and 106 column displays. (See the discussion in Appendix B relating to using the 1701 and 1702 Commodore monitors.)

VIP Terminal also offers a choice of character sets in the 64 and 80 displays, each designed for maximum readability. Character sets are chosen according to the width of the characters in pixels (picture elements), either three (narrow), four (medium) or five (wide). Obviously, the wider the characters are, the easier they are to read. However, the more characters per screen, the more narrow the characters, so that in the 106 display, there is no choice of character sets.

VIP Terminal comes with a default screen width of 80 characters with the narrow character set. To change the display width, move the hand to the line with the option and press 'FIRE' or 'RETURN'. The line will then change color for highlight, and the icons at the bottom of the screen will be replaced by the options available for that selection. You may then use the joystick to move the pencil at the bottom of the screen to the appropriate box and press the fire button or you may instead press the number corresponding to the selection you wish to make. For the 64 and 80 displays you will then be asked to select the character size. Once you have done this, that option will no longer be highlighted and you will be free to move the hand.

Changing Colors

The next five selections in the option menu allow you to control the various display colors. You may change the character, screen and border colors, the highlight color and the cursor color. The screen color controls the border color unless you specify a different border color. Highlight color controls the color of the characters when a particular menu option has been singled out for altering, the clock color, and the color of the Commodore help menu and prompts in the terminal mode in the 40 column display. It also governs the color of the menu titles and the color of the pencil. The cursor color controls the color of the cursor and of the hand, except that the hand is always cyan in the icon area.

To alter any of these colors, move the hand to the line and press 'FIRE' or 'RETURN'. At the bottom of the screen will appear the sixteen color choices available with your C64, with corresponding numbers and with boxes for the pencil. Make your selections. If you decide not to change the color, press 'FIRE' or 'RETURN' again to move the hand.

A hint on colors. You will generally find that the primary colors, green, red and blue, will have less bleeding. That's why VIP Terminal comes with a dark blue screen with light blue characters. The use of non-primary colors will often lead to your letters bleeding into the background, becoming difficult to read. By the way, don't be afraid to adjust the color controls on your TV or monitor to get just the right tints.

Cursor Options

You may not only change the color of your cursor, you may also change it from a block to an underline, and you may change it from blinking to non-blinking. These options toggle.

Other Visual and Aural Conveniences

VIP Terminal offers several other conveniences to fit just about every mood and taste. You may set an audible margin so that you hear a beep when the cursor reaches the column you indicate. This helps you in the entry of text. You may also choose to turn on "key click" so that each time you press a key a click is emitted. This is especially helpful to touch typists.

Word wrap, also called a formatted display, is a feature which stops words from being chopped in half when the end of the line is reached. Instead, any word which would be chopped is moved to the next line. You may choose to have this feature on or off.

Similarly, you may choose to eliminate the display of task icons. The icon display may be turned off in the terminal mode. This will also give you 25 lines per screen instead of the the 20 available when icons are displayed.

Selecting options with these is the same as outlined above, except for the audible margin option. With this option you have to type in the column number of the column at which you wish to hear a beep. Common practice is to set the audible margin eight columns less than your screen width. If you do not want the beep, set audible margin to zero.

Terminal Parameters

The terminal parameters menu is one of two places where communication protocol is controlled. The other is through the telephone directory menu. From either menu you can control such things as baud rate, parity, duplex and the other essential parameters for communications. The difference is that the telephone directory allows you to preset the essential parameters for each entry in the directory for total convenience. The telephone directory does not, however, contain all the parameters in the terminal parameters menu.

The terminal parameters menu may be entered either through the system options menu, or by pressing 'C=' 'S' while in Talk:

Terminal Parameters

Baud rate			300
Parity			Spaced
Stop bits			1
Duplex			Full
Backspace			Destructive
Linefeeds			None
Strip	127	Replace	0
Strip	0	Replace	0
Strip	0	Replace	0
Pause character (Xon)			19
Resume character (Xoff)			17
Open buffer character			18
Close buffer character			20
Transmit mode			Xon/Xoff
Transmit speed			Fast

Each of these parameters may be changed by moving the hand to the selection and pressing 'FIRE' or 'RETURN'. The selection will then be highlighted, and if there are several options, they will be displayed at the bottom of the screen.

Baud Rate, Parity, Stop Bits & Duplex

The first four selections are the most common communication parameters. Baud rate controls the speed of transmission. The default is 300 baud, although you may select from 50 to 2400 baud, depending on your needs. When using a baud rate of 1200 or more you should also select half duplex. This is discussed below.

The next two selections are part of the data frame. You may select the number of stop bits and the status of your parity bit. You may have either one or two stop bits and parity of odd, even, mark, space or none. The number of stop bits and the parity setting are determined by the needs of the host system. The default is one stop bit and spaced parity. Use two stop bits ONLY where required when under 150 baud. If you select a parity of none, you will be asked to pick a word length of 7 or 8. Select the word length needed by the host.

Duplex is initially set to full, which means that both you and the receiving system may send data at the same time. Duplex should be controlled by VIP Terminal. DO NOT change the setting on your modem; keep the setting on your modem at full duplex. In full duplex, you send text and the other system echos it back to your screen for you to see. This is the duplex setting used by most systems. You may also want to set VIP Terminal to half duplex, which

means that only one of the systems may send data at one time. In half duplex you send a character to the other system, but it is not echoed back. Instead, your system also sends a character, or echo, to your display.

If you are in half duplex and the host is in full duplex, you will get double characters of everything you type, the echo and what you send to your screen. (If you have accidentally set your modem to half duplex as well, you'll get three of each character you type!) If you are in full duplex and the host is in half duplex, what you type will not be displayed at all since there is no echo. This should help if trouble shooting is necessary.

Using 1200 Baud

When you communicate at 1200 baud, the chances of encountering an error are greater than when you transmit at lower baud rates. This is because the C64 6510 microprocessor itself is used to process both incoming and outgoing serial signal levels. (The C64 does not have a special UART chip to do this as do many other computers.)

The higher speed is problematic in full duplex because in full duplex, every character you type is echoed back by the host. The microprocessor thus must both process and send the character, and receive and process the echoed character. This added work can lead to data loss at 1200 baud. To lessen the burden on the microprocessor you should switch to half duplex. Then the microprocessor will only have to process outgoing data, and VIP Terminal will take over the job of echoing characters to the screen.

Linefeeds

Linefeeds are characters which advance the cursor down one line. Usually, carriage returns are treated as a carriage return plus a line feed, putting the cursor one line down at the beginning of the line. Sometimes, however, linefeeds must be added to carriage returns to advance it to the next line. You may choose to add linefeeds to INcoming carriage returns, OUTgoing carriage returns, BOTH or NONE.

The most commonly used linefeeds are for incoming carriage returns. Some systems do not send a linefeed with a carriage return. This results in your text being overwritten. If your text is being overwritten, you should opt to have incoming linefeeds to give the missing linefeed. On the other hand, if you have selected linefeeds and text is being printed every other line, this indicates that two linefeeds are being sent. You should then opt for no linefeeds to get rid of one.

Outgoing linefeeds are required for transmitting to some information services. When you choose out linefeeds, a linefeed will be added to each carriage return you send out.

Backspace

In the Talk mode you may backspace the cursor when entering text using the 'DEL' key or the CRSR left key. This backspace may be one of two kinds: destructive or non-destructive. The destructive backspace will move the cursor back one character and delete the character backspaced over. The

non-destructive backspace just moves the cursor back without affecting any characters.

Stripping & Replacing Characters

At times you will wish to trap certain characters in text being sent to you. Sometimes you will just want to totally strip out these characters, while other times you may wish to have them replaced in the text with other characters. For example, Dow Jones Information Service does not send a clear screen command after each page, but only sends a home cursor command, a decimal 28. VIP Terminal, however, will respond to a decimal 12, a formfeed, to home the cursor AND clear the screen. Thus, when using Dow Jones, you can strip incoming 28's and replace them with 12's so that the screen will be cleared when Dow Jones homes the cursor.

The program comes defaulted so that rubout characters, decimal 127, are stripped for your convenience. We do this to make sure than no rubouts are sent to your printer.

To strip a character, select one of the three strip and replace options and type in the decimal number of the character to be stripped, then type the number of the character to replace it, if any. The decimal numbers may be obtained from Appendix A.

Data Transfer Protocol

The remaining six selections involve conventions for transferring data using 'C=' 'X', 'R', 'T' and 'W' (see pages 59-64).

Pause/Resume

Pause and resume characters are used by most systems to control data transfer. When the receiving system can no longer process data it automatically sends a pause character; when it can process incoming data again it sends the resume character. This assures that no data is lost during the "downtime". This procedure is commonly called Xon/Xoff (X for "transmit").

VIP Terminal uses the pause/resume characters in two settings. First, it responds to these characters when sending data. Second, whenever you leave the terminal mode while on line for any reason, a pause character is sent to the other system. When you return to the terminal mode a resume character is then sent.

The pause and resume characters are initially set to 19 (Control S) and 17 (Control Q), the conventional Xon/Xoff protocol. To test if your host uses Xon/Xoff, when data is being received, hold 'CTRL' and press 'S'. The data should stop. Press 'CTRL' 'Q' to resume transmission.

The pause/resume protocol is especially important for virtual transfer of files and for printing incoming files. Your system must use the same characters as the host system to avoid loss of data. (Virtual data transfer is discussed later.)

If your host uses different pause and resume characters, you may change them. To do so, select either line and then type in the number of the control code you need. If you need help, check the ASCII chart in Appendix A.

Open/Close Buffer

Many systems support the automatic transfer of data with a system for opening the workspace, sending the data and then closing the workspace. Control codes are used to open and close the workspace. The usual codes are Control R (18) to open the workspace and Control T (20) to close the workspace. VIP Terminal supports this feature; these codes are also an integral part of the E-Mail feature of VIP Terminal discussed in the telephone directory section. Initially the open and close characters are set to 18 and 20. You may set them to whatever the host requires.

To alter the open and close characters, select the line and enter the number of the control character required. If you need help, check the ASCII chart in Appendix A.

Transmit Mode

There are several common modes used by the information services for transmitting data which you may select:

Xon/Xoff This is the most common mode. Data is transferred freely except where one system cannot process it, at which time an Xoff character is sent to pause transmission. Transmission is resumed with an Xon character. This mode uses the pause and resume characters you have set.

No Delay The no delay mode is totally unfettered transmission. There is no "handshaking" between the systems.

Prompted Often, prompted transmission is used. After each line is sent, the system waits for a specified prompt before the next line is sent. VIP Terminal allows you to specify any character as a prompt. The decimal equivalent of the number must be given (see the ASCII chart in Appendix A). This mode is often used for uploading messages to BBS's.

Delayed In delayed transmission, each line is sent at a given interval of time after the last line was sent. You may specify a delay in 1/10ths of a second, up to 25.5 seconds.

Hardwire The hardwire mode is a special mode for those wishing to print using a RS-232-C printer. Those interested should consult Appendix C.

Transmit Speed

Some systems have difficulty receiving data when uploaded at the established baud rate. This is often due to the need to process the data in some way as it is being received. If you encounter this problem you may use this selection to get a slower transmit speed for your data. When you have selected Slow, data will be transmitted at a speed of ten characters per second.

TEL # Telephone Directory

VIP Terminal comes with a 16-entry telephone directory so that you can make your communications fully automatic. It is from here that you can automatically dial your listings. You may save your directory and reload it for reuse. You may even create more than one directory file.

For each entry in your directory you give the name, dialing sequence, and various communications parameters. Once you have a completed entry you can choose to auto-dial or set the parameters before manually dialing the number. VIP Terminal will also redial at any interval from 20 to 255 seconds.

Completing an Entry

You may do one of two things with the directory. You may make an entry or dial an entry. These are controlled by the mode selection which gives you a choice of dial or edit. The first thing you will wish to do is set your modem type. If you have a commodore-type auto-dialing modem, including the Commodore 1650, Westridge, TotalModem, or Microbits modem, select 1650; if you have the HES II or Mitey Mo modems, select HES II; if you have the Vicmodem, HES I modem or other Commodore-style non-autodialing modem, select 1600; if you have any other type of auto-dialing smart modem, select Hayes. Hayes is also the category for other non-Commodore style acoustic non-autodialing modems. Use of Hayes-type modems requires a VIC 1011A or compatible interface.

The next step is to make your entries. To do this you must first change the mode from dial to edit.

Move the hand to the mode selection and press 'FIRE' or 'RETURN' to toggle to edit. Now you're ready to make your entries.

The telephone directory shows sixteen entries, six selections, and below them, a parameter area. The parameter area displays the parameters of the entry at which the hand is pointing. (We have included an entry for CompuServe for your convenience and as an example.) To make an entry, move the hand to an open listing and press 'FIRE' or 'RETURN'. The entry will be highlighted. You may now enter the name of the entity whose phone number you wish to enter. Finish by pressing 'RETURN'. The highlight now moves to the parameter area, starting with the phone number.

Entry of phone numbers may have one of two purposes. Those with true auto-dial modems will wish to enter proper dialing sequences so that they can set the parameters and automatically dial and redial commonly used numbers. We say dialing sequence because auto-dial modems sometimes require certain commands before the number is sent to it to have it auto-dial. Predial sequences vary with each different type of modem. You will have to consult your modem manual to learn the proper sequence for you. (1650 and HES II type modems do not have any predial sequences.)

Even if you only have a 1600 Vicmodem, the phone number entry can still be used to "auto-dial" with your modem. This feature is only available to those with touch-tone telephones, since it is done by sending such tones to your phone via the speaker in your monitor. You must set the volume correctly and position the phone near the speaker. The tones will automatically dial your number. (HES I Modem users should consult Appendix I.) On the other hand,

those without auto-dial modems and without touch tone service can still use the directory to dial since dialing "sets" the parameters for the entry dialed and initiates auto-log-on once you get carrier. And it never hurts to have those commonly used phone numbers stored so you don't have to look them up all the time.

While entering the phone number, start with any required predial sequence. You may include a pause between different parts of the sequence. This is helpful, for example, in dealing with systems which require that you dial 9 first to get the dial tone. The exact pause is determined by the pause length selection in the directory. You may set the pause in increments of 1/10ths of a second, from 0 to 255. Once you have set the pause length, you may implement it anywhere in your number sequence by inserting a "P", for example, 9P987-6543.

After completing the dialing sequence, you may set the parameters for that particular number. From the telephone directory you may change baud rate, parity, stop bits, duplex, and linefeeds. These are all explained in the discussion of the terminal parameters menu above. Of course, if the parameters for your number do not differ from the default parameters this will be easy. Just press 'RETURN' until you reach the enquire string section. If you wish at any time to abort the entry process, press 'STOP'. Everything you have entered up to that time will be retained.

The last step is to set up the enquire/response sequence. This feature is used to log on to systems automatically. It allows you eliminate the tedious task of giving your user ID number and password; VIP Terminal will do it automatically. The object is to enter the initial log-on question sent by the host

into the enquire string area, and your response into the response string area. The initial log-on question could be a request for your user ID number, your name, or other identification information. Be sure to type the enquire and response strings in exactly. If you wish to imbed control codes in your response string, you cannot just press 'CTRL' plus the control key. Instead, press the 'UP ARROW' key (next to the '*' key) and then the control key, e.g., 'UP' and then 'C' for control C. Carriage returns are required in most cases to end a response. To end your message with a carriage return, a control M, you must put a control M in the response string by pressing 'UP ARROW' and then 'M'.

Although you may only set up one enquire response string, don't forget that you can use programmed keys for logging on as well. You can program messages containing your password, name, address, and whatever else is needed. Auto log-on is a snap!

Dialing Your Numbers

You may dial numbers and go on-line directly from the terminal mode. Because 1650 and HES II style modems use pulse dialing, which requires precise timing, users must auto-dial numbers from the telephone directory. Of course, it is also most convenient to begin every session from the telephone directory menu.

You may dial your number directly from this menu. To dial, first make sure that the mode selection in the telephone directory is set to dial. Move the hand to the entry you wish to call and press 'FIRE' or 'RETURN'. Whenever you do this, whether or not

you are auto-dialing, the parameters for that entry are "set" so that everything will be ready for perfect communications. You next will be prompted to take the appropriate actions. You may stop the dialing process, except when the number is actually being dialed, by pressing 'STOP'.

When using the 1600 selection, you may "auto-dial" or you may manually dial. Auto-dialing requires that you have touch tone service. To auto-dial, set the volume on your monitor to the low to medium setting, place the handset about three inches from the speaker for proper sound transfer and press 'FIRE' or 'RETURN'. The proper tones will be routed to the speaker in your monitor. If you do not have touch tone service you will have to manually dial. Do not press 'FIRE' or 'RETURN' for auto-dial; just dial your phone. In either case, listen for carrier on your phone. When you hear carrier on the line, plug the handset plug into the modem. Do not hang up the phone! When your modem responds to the carrier signal, VIP Terminal will automatically send you to the terminal mode and execute your enquire/response sequence.

The 1650 and HES II selections allow true auto-dial. Just follow the instructions and press 'FIRE' or 'RETURN' to dial. When dialing, a tone will be heard for each number sent to your modem. The 1650 and HES II type modems are pulse-dial modems; they do not generate touch tones. We have given you tones to let you know that the number is being dialed. When carrier is received and the modem responds, VIP Terminal automatically sends you to the terminal mode and executes your enquire/response sequence.

You may also manually dial a number using your 1650 or HES II type modem from the terminal mode.

To do so, first put the modem off hook by pressing 'C=' '-'; next switch the T-D switch to T and dial the number. When you get carrier, press 'C=' '+' to have the modem pickup the phone lines, switch the T-D switch back to D, and hang up the phone. Done!

The Hayes selection is used for RS-232 modems such as the Hayes Smartmodem, as well as RS-232 acoustic modems. The former have auto-dial built in; the latter do not. VIP Terminal, however, allows those with touch tone service to "auto-dial" with an acoustic modem. These RS-232 modems require an RS-232 interface, such as the VIC 1011A. For proper operation with the Commodore 64, you must make sure that the interface used has proper carrier detection.

To auto-dial with a Hayes Smartmodem-type modem, just press 'FIRE' or 'RETURN'. When carrier is detected and the modem responds, VIP Terminal will send you to the terminal mode and execute your enquire/response sequence.

To auto-dial with manual dialing acoustic modems (requires touch tone service), set the volume on your monitor to the low to medium setting, place the handset about three inches from the speaker for proper sound transfer and press 'T' for touch tone dialing. The proper tones will be routed to the speaker in your monitor. If you do not have touch tone service you will have to manually dial. Do not press 'T' for auto-dial; just dial your phone. In either case, listen for carrier on your phone. When you hear carrier on the line, place the handset into the modem. When your modem responds to the carrier signal, VIP Terminal will automatically send you to the terminal mode.

Automatic Redial

If you often use BBS's you know that the number is frequently busy when you call. If you have an auto-dial modem, VIP Terminal will automatically redial the number until it gets through. When the number is dialed and no carrier tone is received, the system waits the amount of time set with the redial delay selection (from 20 to 255 seconds), then hangs up, and redials the number until it gets through or until you press 'STOP'. This works with the touch tone auto-dialing as well.

Auto Answer and E-Mail

VIP Terminal permits those with auto-answer modems to use their C64 to answer their phones automatically and receive messages. The auto-answer selection allows automatic answering, plus receipt of messages. You would choose this option if you wished to monitor incoming messages and interact. The E-Mail selection, on the other hand, will not only answer the phone and take a message; it will also automatically save it to disk and then clear your workspace for a new message. This option allows totally automatic electronic mail. Both auto-answer and E-Mail will handle multiple calls. E-Mail will hang up after each caller is done and return to the wait status to handle subsequent callers.

These features can be put to many uses. Your friends can call and leave messages. Or you can call from work and send a file home, the file being transmitted while you are on your way there!

To use either selection, move the hand to your choice and press 'FIRE' or 'RETURN' to toggle the "no" to "yes". Those with the 1650 modem will be prompted for the proper switch settings on the modem for auto-answer. VIP Terminal will then await a call. You may press 'STOP' to abort E-Mail.

How Messages Are Sent and Received

Once you have made your selection, VIP Terminal will remain in the telephone directory awaiting a call. When you are called, VIP Terminal will answer on the first ring and send a carrier tone for 20 seconds. When responsive tones are received, VIP Terminal will automatically sound an alarm to indicate that someone has called, and then go to the terminal mode and will send the caller a greeting and will give the time of the call. In order to see what he or she is typing or sending the caller will have to be in half duplex.

To send you a message in E-Mail, the caller must first send you an open workspace character, defined by you in the terminal parameters menu. Although you could stick with the standard CTRL R to open your workspace, you may instead choose a character which only your friend has been told, thus assuring better security. After your workspace has been opened, everything the caller sends will be put in your capture buffer. When the caller is done, he or she must send the close workspace character set in the terminal parameters menu, initially a CTRL T. VIP Terminal will then save the contents of the workspace to disk, and await further messages. The name of the file saved will be the time of the save. VIP Terminal will also save the file if the workspace becomes full.

If you have not selected E-Mail, the capture buffer will not be open. The caller may automatically open your capture buffer by sending the open workspace character before beginning to send the data. After sending the data the caller should send the close workspace character to close the buffer. The file sent will not be automatically saved.

Once VIP Terminal has answered, you are switched to the terminal mode. If you wish to interrupt the E-Mail functioning when a message is coming in, press any key. This will stop the file from being automatically saved after it is received. You can now interact with the caller.

TALK The Terminal Mode

What is the Terminal Mode?

Pressing 'FIRE' with the hand on the talk icon or pressing the 'f3' key will take you to the terminal mode. You may also get there from the telephone directory. The terminal mode is the interactive mode of VIP Terminal. Here you do your talking with other systems, and your sending and receiving of files. You may connect with another system from the telephone directory, or directly from the terminal mode.

To connect with another system from the terminal mode, follow the same dialing instructions found in the telephone directory explanation. When you have carrier you will already be in the terminal mode ready to go.

When you are on line with another system, you will remain on line unless you hang up your phone or disconnect your modem. Thus, once you are on line you can go out of the terminal mode by pressing any function key for another menu, or by moving the hand to any icon and pressing 'FIRE'. When you do, a pause character is sent to the host. When you return to the terminal mode a resume character is sent to resume communications.

You should be aware that some BBS's may have an auto disconnect feature to disconnect you if you do not act within a certain period of time. If so, you should not stay in other menus for long.

The terminal mode contains several unique features to make communications nearly effortless.

Display Mechanics

In the terminal mode, the display will be the one you selected from the options menu. The screen width is the maximun line width for receiving data. Of course, some information services may format their lines to be only 32, 40 or 64 characters long, and this will be the length of those lines when they come to you. If you want longer lines, you will have to change the display parameters of the information service if it allows this.

The icons are initially displayed when you are in the terminal mode. If, however, you do any virtual printing, saving or sending of files, the icons will be turned off. They will again reappear only if you leave the terminal mode and come back. Of course, you may also choose to permanently turn off the icons in the terminal mode from the system options menu.

Once you have entered the terminal mode, the icons will be displayed, but the hand will disappear. To get the hand, press the fire button. Now you can go to any menu using the joystick. To instead return to the terminal press the fire button again. For your convenience, a pause character is also sent whenever you press the fire button of your joystick to get the hand. The next time you press 'FIRE' to return to the terminal, a resume character is sent. What could be better for armchair communications? When you want to rest, or stop to get a sandwich, press 'FIRE' to pause transmissions. When you are ready, press 'FIRE' to resume!

You will stay in the display you have selected unless the graphics mode is being used, in which case the display will be changed automatically to

the 40 column display. Once the graphics have been received you may return to your selected display by pressing 'C=' 'G'.

You should also note that when transmitting at 1200 baud it is best to use half duplex for the best display.

The entire standard 128 symbol ASCII character set, including Control A (CTRL A) through Control Z (CTRL Z) is supported (see Appendix A). Most of the ASCII characters are on the keyboard, but the control characters must be specially generated. To get a control letter press the 'CTRL' key and then the letter of the alphabet. An Escape character (decimal 27) is generated by first pressing 'CTRL' then pressing 'Left Bracket', or by pressing 'STOP'.

If you press 'SHIFTLOCK' your keyboard will only produce the shifted versions of the letters on the keys. If you press 'C=' 'SHIFT' only the keys containing the letters of the alphabet will be shifted; numbers and punctuation may still be typed. When in the lowercase mode the keyboard will function like an ordinary typewriter and lowercase characters will be displayed on the screen.

VIP Terminal also has a strip and replace feature so that you may strip any incoming character (see the terminal parameters menu).

Several other keys perform local screen control functions. The arrow keys move the cursor up, down, left and right. The right arrow is the tab key, and moves the cursor eight spaces to the right. Pressing the 'Home' key homes the cursor to the upper left-hand corner; 'Shift' 'Home' will clear your screen. The 'Delete' key will backspace the cursor. 'Shift' 'STOP' key sends a true line break.

'SHIFT' 'DELETE' sends a rubout (decimal 127). 'STOP' sends an escape character. Programmed key messages can be sent by pressing the appropriate key sequence (see the programmed key menu).

Graphics Support

'DELETE'	Backspace	Decimal 8
'SHIFT' 'DELETE'	Rubout	Decimal 127
'STOP'	ESCape	Decimal 27
'SHIFT' 'STOP'	Line Break	200 millisecond
'HOME'	Moves Cursor Home	
'SHIFT' 'HOME'	Clears Screen	
'C=' '1'-'0'	Send Programmed Messages	
'CTRL' '1'-'0'	Send Programmed Messages	

VIP Terminal supports the G4 Graphics mode, used by CompuServe and other information services, for receiving pictures, etc. When the Graphics mode is going to be used, the information service will send an escape G4 to turn it on. This will automatically switch the screen display to the 40 column display. When finished transmitting in the Graphics mode the service will transmit an escape GN command to turn off the mode. You may return to the screen display that you originally selected by pressing 'C=' 'G'.

Meta Commands

As a help in controlling your display and communication protocol, several keyboard commands are available from the Terminal mode. These commands are called meta commands in the industry. The commands consist of the Commodore key ('C=') plus a letter:

Meta Commands

'C=' 'A'	Abort Upload
'C=' 'B'	Toggle Backspace
'C=' 'C'	Toggle Clock Display On/Off
'C=' 'D'	Toggle Duplex
'C=' 'E'	Send Enquire Response
'C=' 'F'	Toggle Formatted Display
'C=' 'G'	Toggle 40 Column / Selected Display
'C=' 'H'	Meta Key Help
'C=' 'L'	Log Virtual Files
'C=' 'N'	Toggle Touch Tone
'C=' 'P'	Toggle Printer On/Off
'C=' 'R'	Receive a File
'C=' 'S'	Terminal Parameters Menu
'C=' 'T'	Transmit a File
'C=' 'V'	CBM-Punter File Transfer
'C=' 'W'	Toggles Workspace Open/Closed
'C=' 'X'	Transmit Workspace
'C=' '+'	Pickup '-' Hangup

Most of these meta commands merely provide a fast means for altering a parameter appearing in another menu, such as the terminal parameters menu. The 'C=' 'S' command actually lets you go right to the terminal parameters menu to change the communications parameters. However, several of the meta commands are distinct features.

'C=' 'A' Abort Upload

Whenever you are uploading a file, either from your workspace, or using virtual or the CBM-Punter format, pressing 'C=' 'A' will abort transmission. If you wish to retransmit the file you will have to begin all over again.

'C=' 'B' Toggle Backspace

VIP Terminal comes with a destructive backspace. This is discussed above in the system options menu. You may change it to non-destructive either from the system options menu, or from the terminal mode by pressing 'C=' 'B'. This is a toggle, so you may change it back and forth at will.

'C=' 'C' Toggle Clock Display On/Off

The real-time clock is displayed in the upper right-hand corner of the screen. You may toggle between display and no display either in the clock menu or by pressing 'C=' 'C' in the terminal mode.

'C=' 'D' Toggle Duplex

In the Terminal Mode, VIP Terminal operates in standard RS-232 protocol as a standard 300 baud terminal with spaced parity, 1 start bit, 1 stop bit, and full duplex. This standard RS-232 protocol in most cases need not be changed. Some systems, however, require the receiving computer to transmit

in half duplex. 'C=' 'D' toggles duplex between half and full.

'C=' 'E' Send Enquire Response

The auto log-on feature in the telephone directory allows you to automatically send a log-on string in response to a log-on request (or enquire string) sent by the host system. Since this log-on response usually includes confidential information such as your password and ID number, VIP Terminal will only automatically send it once. This is to avoid the possibility of someone on an interactive system sending the log-on request to try to learn your password. If your first response to the host did not get through, you may send the response string again by pressing 'C=' 'E' until it does.

'C=' 'F' Toggle Formatted Display

In the system options menu you were able to choose to have wordwrap, for a formatted display, either on or off. Using 'C=' 'F' you can toggle wordwrap from the terminal mode as well.

'C=' 'G' Toggle 40 Display

Whenever a picture is sent by a host system using G4 graphics, your screen will be switched to the 40 column display. After the picture has been sent you will remain in the 40 column display until you decide to go back to your original display. To return to your selected display press 'C=' 'G'.

'C=' 'H' Meta Key Help

To help you remember the meta key functions a meta key help table is built in. For display press 'C=' 'H'. The display only occupies the right-hand side of the screen so that you can keep track of previous data.

'C=' 'L' Log Virtual Files

This meta command toggles the logging of your session on the disk using the straight transfer method discussed in the outline of 'C=' 'R', Receive Virtual File command, below. This meta command will only work when you have opened a file using the 'C=' 'R' command. 'C=' 'L' is a toggle for sending incoming data to your disk. If you leave the terminal mode using the function keys, or if you press 'C=' 'R', disk log will be terminated.

'C=' 'N' Toggle Touch Tone

VIP Terminal has touch tone dialing capabilities so that those with acoustic modems can auto-dial. This is built right into the telephone directory, but you can also touch tone dial from the terminal mode. To touch tone dial, press 'C=' 'N'. Now, when you press the number keys, plus "*" and "#", the proper sound will be emitted from the speaker in your monitor. Place your telephone receiver close to the speaker, adjust the volume, and dial! When you press 'C=' 'N' again, the number keys will return to numeric input.

'C=' 'P' Toggle Printer On/Off

Pressing 'C=' 'P' toggles your printer on and off for printing what is being displayed on your screen. You must have properly set up your printer from the print menu before printing.

'C=' 'R' Receive a File

Virtual file transfer is an alternate to using your workspace area to transfer files (see 'C=' 'W' and 'C=' 'X'). "Virtual" refers to direct transfer of data to disk without retaining it in the computer's memory. Virtual file transfer allows you to upload or download files as large as your disk. You are not limited by the size of your workspace. Virtual file transfers may take one of two forms, error checking, CBM-Punter, or no error checking, straight transfer. The error checking method, CBM-Punter, is discussed at the 'C=' 'V' command.

The straight transfer method splits your file by lines and transmits them one at a time until the whole file is sent. There is no error checking of any kind. Because there is no error checking, if it is at all possible the Punter method should be used.

Receiving Files To receive a straight virtual file, first press 'C=' 'R'. You will be asked to specify a file name. Once you have done so, a file will be opened. The saving of incoming data is controlled by using 'C=' 'L'. Press 'C=' 'L' to begin saving and 'C=' 'L' to halt. The file will remain open for more logging until you press 'C=' 'R' again or if you leave the terminal mode. Then the download will be stopped and the file closed.

When you are receiving a file using the straight method, the only terminal mode acceptable is Xon/Xoff. Thus, if you are receiving a file from another VIP Terminal using the straight method, the other system must select the Xon/Xoff transmit mode.

'C=' 'S' Terminal Parameters Menu

While in the terminal mode you may have the need to change some terminal parameter which is not controlled by a toggle, such as the transmit mode. You may go directly to the terminal parameters menu from the terminal mode by pressing 'C=' 'S'.

'C=' 'T' Transmit a File

This meta command is used to begin virtual transmission of files using the straight method discussed above at 'C=' 'R'.

Transmitting Files To transmit a file using the straight method, choose this selection and give the file name. The file will then be transmitted. You may abort the transmission from the terminal mode by pressing 'C=' 'A'. Transmission will also be aborted if you leave the terminal mode.

Straight transmission of a file will use the transmit mode selected from the terminal parameters menu. Your selection will depend on the mode used by the receiving system.

'C=' 'V' CBM-Punter File Transfer

This command governs the method of transferring files using the error checking CBM-Punter format. "Virtual" refers to direct transfer of data to disk without retaining it in the computer's memory. Virtual file transfer allows you to upload or download files as large as your disk. You are not limited by the size of your workspace.

Virtual CBM-Punter transfer is supported by Punter host systems. It is initiated with VIP Terminal by pressing 'C=' 'V'. You press 'C=' 'V' when the host prompts for a start signal or an 'A' to abort the load or save that you initiated. When you press 'C=' 'V' the following will appear on your screen:

```
          CBM File Transfer Menu

1  Receive File
2  Transmit File to Host
3  Transmit File to Term
STOP to return to terminal

Enter Selection :
```

The CBM-Punter method uses a checksum format to send files broken down into blocks of data. A block of data is sent in a special format, together with a checksum, that is, a number obtained from adding all the bytes of the block. The receiving system adds up the numbers of the block, and if this number corresponds to the checksum sent, the block is received, converted to its original form, and saved out. If there is a discrepancy, the receiving system requests that the block be sent again. This is done until the block is properly received.

Any data, including text, BASIC and machine language programs, may be sent using the error checking method of virtual file transfer. To use the Punter method, the receiving system must be Punter compatible. Thus, you may send any data to a friend using Punter protocol if he or she owns a copy of VIP Terminal.

Punter Transfer

File transfers using the Punter method are done without displaying the transfer. All that is shown is the receipt of blocks. To send or receive files, enter the number corresponding to your choice. Pressing 'STOP' will return you to the terminal mode.

Transmitting Files Transmission of a file using the Punter method is different depending on whether the receiving computer is the host or another VIP Terminal, or other Punter-compatible terminal program. A host is a BBS or other information service.

To transmit, first be sure the disk containing the file to be transmitted is in your drive, then select the appropriate option. You will be prompted for a file name. Once you have given the name, you will be asked to specify whether the file is a program file or a sequential file. From there, VIP Terminal will take over until the file has been transmitted. All that will appear on your screen are hyphens for each block successfully sent and colons for each block unsuccessfully sent. Don't worry about any blocks unsuccessfully sent. VIP Terminal sends them again until they are received. If this happens a lot, however, you should have your modem or cables

checked out. Once the file has been sent, you will be returned to the terminal mode. Transmission may be aborted by pressing 'A'. Transmission will be aborted if you leave the terminal mode.

Receiving Files Receiving files using the Punter method is identical to transmitting files except that you will not have to specify the file type.

When transferring between two VIP Terminals, set both to half duplex. The person sending the file will initiate the transfer. When the receiving system gets a message to press 'C=' 'V', it should then proceed to the Punter menu and receive the file. Once initiated, the rest is automatic.

NOTE: A new Punter protocol has been introduced because the original Punter bulletin boards were unreliable. This latest protocol is still untested, and thus, cannot be supported by VIP Terminal. VIP Terminal is therefore only compatible with old Punter BBS's. To replace our previous reliance on Punter, an Xmodem utility has been supplied on the disk. Xmodem is a tried and tested industry-wide protocol which is used by many BBS's and information services for many different computers. We highly recommend its use. See Appendix J, page 111.

'C=' 'W' Toggles Workspace Open/Closed

Instead of using virtual download techniques to receive files, you may instead choose to have the file sent to your workspace for editing, printing or partial saving. 'C=' 'W' toggles your workspace open and closed for receiving files into your workspace area. When you press 'C=' 'W' a message is printed on the screen telling you whether you

have opened or closed the workspace. Your workspace may be opened and closed at will to capture incoming text. This is in addition to the automatic capture buffer option discussed in the terminal parameters menu. Whenever data is being received, if you leave the terminal mode or if the system cannot process the data as fast as it is coming in, a pause character is sent to the host. A resume character is sent to the host when you return to the terminal mode or when the system has caught up.

'C=' 'X' Transmit Workspace

An alternative to transmitting using virtual techniques is to transmit files directly from your workspace. The first step is to load the file to be transmitted into your workspace using the file directory. Next, select the proper transmit mode and transmit speed from the terminal parameters directory. Then, enter the terminal mode and prepare the host to receive your file. To transmit your workspace, press 'C=' 'X'. If you find that some BBS's and information services cannot handle text uploaded at a straight 300 baud, use the slow transmit speed im the terminal parameters menu.

'C'=' '+' Pickup '—' Hangup

The Pickup/Hangup command is created for 1650 and HES II type modem users. You can go off line using 'C=' '-'. This will hang up your phone. 'C=' '+' is to pickup carrier once you have manually dialed the phone from the terminal mode. For manual dialing with 1650 and HES II modems see page 46.

KEYS The Programmable Keys Menu

VIP Terminal allows you to pre-write messages to automatically send when you go on line. These messages can range from log-on responses of name, user ID number and password, to actual short messages. These can be very helpful for many things. For example, if you are calling long distance and want to leave a short message quickly you might wish to pre-write a message using one or more programmed keys.

Creating Programmed Keys

There are twenty key sequences that can be programmed: 'CTRL' '0' thru '9' and 'C=' '0' thru '9'. Programming is simple. Move the hand to the entry and press 'FIRE' or 'RETURN'. That entry will now be highlighted and a cursor will appear in the blank space below the entry section.

Now type in your message, using up to 127 keystrokes. If you wish to imbed control codes in your message, you cannot just press 'CTRL' plus the control key. Instead, press the 'UP ARROW' key and then the control key, e.g., 'UP' and then 'C' for control C. Carriage returns are required in most cases to end a response. To end your message with a carriage return, a control M, you must put a control M in the file by pressing 'UP ARROW' and then 'M'.

When you have finished, press 'FIRE' or 'RETURN'. Now the first fifteen characters will be displayed in the entry position. Whenever the hand is pointing at that entry the entire message will be displayed in the editing area.

Your messages may be edited at any time. Editing is similar to creating a new message. Just type your new message over the old one. When you are done, press 'FIRE' or 'RETURN'. Only what you have newly typed will be included as your new message. If you wish to clear any message, move the hand to the entry and press 'FIRE' or 'RETURN', then hold the 'SHIFT' key and press the 'CLR' key. That message will then be cleared and you may enter a new message.

Sending Your Programmed Messages

When on-line you may very easily send any or all of your programmed messages. All you have to do is press the key sequence corresponding to your message. Thus, if you have programmed the key sequence 'CTRL' '1' to be your password, when you are asked for your password press 'CTRL' and then '1' and your password will be sent.

Saving Your Programmed Messages

Your programmed messages may be saved for constant reuse. Saving of your programmed key file is discussed in the explanation of the file management menu.

TIME The Clock Menu

Real time plays a big role in all communications. Many information services charge for use by the minute or hour. And, of course, if you are calling long distance, you will want to know how long you have been on the phone. In addition, when you use the electronic mail feature of VIP Terminal, you will want to know the time and date that people called and left messages.

Because of this obvious need, VIP Terminal has a real-time clock which may be displayed. This clock will chime once at the quarter hour, twice on the half hour, three times at three quarter hours and the number of times of the hour on the hour. The clock menu is devoted wholly to controlling your time use. In the clock menu you can set the date, the time to the second, and the time for an alarm to sound. You may also select whether you wish to have the clock displayed on the screen, and whether you wish the chime to sound.

To set the date or the time, move the hand to the selection and press 'FIRE' or 'RETURN'. A cursor will appear at the beginning of the number entry area. Enter the date or time. and when you specify a.m. or p.m. by using "a" or "p" your time will be logged.

You may choose to display or not display the clock. If you choose to display it, it will always appear in the upper right-hand corner of the screen. Even if you do not display the clock, it will continue to keep time, and may be re-displayed at any time. Display of the clock may also be toggled from the terminal mode using the meta C command.

Using the Alarm

VIP Terminal comes with an alarm which will be activated at the time you specify. To set the alarm, make your time entry, and then be sure to enable the alarm with the enable alarm selection. The alarm consists of a short ditty, followed by 250 bells. You can stop the alarm by pressing any key.

FILE The File Management Directory

The file management directory controls the storage and editing of non-virtual files. This menu has the following selections:

```
                File Management

                Disk directory
                List disk file
                Scratch disk file
                Rename disk file
                Format diskette
                Load workspace
                Save workspace
                View workspace
                Edit workspace
                Clear workspace
                Load environment
                Save environment
                Device Number  8
                CBM Conversion Yes
  Workspace used:       remaining:
  Blocks needed to save the workspace
```

CBM ASCII Conversion

Computers and information services other than Commodore use pure ASCII; your C64 and most of its software use CBM ASCII. These two differ in that upper and lowercase letters are switched. A conversion is needed from one form of ASCII to the other.

For those wishing to send CBM ASCII files to systems which use pure ASCII, or to use downloaded ASCII files with CBM ASCII programs, VIP Terminal provides an automatic conversion. When you select

CBM conversion, everything you download in pure ASCII and save will be saved in CBM ASCII, and everything you upload from disk in CBM ASCII will be converted to pure ASCII before being sent. If you do not choose conversion, all data will be saved or sent exactly as it comes in.

The Workspace

VIP Terminal has a capture buffer, or workspace, for data manipulation. The workspace area consists of oodles of bytes of memory for files to be uploaded, downloaded, created and viewed. At the bottom of the file management menu you are told the number of bytes used and remaining in your workspace and the number of blocks that the contents would consume on the disk. Actual opening, closing, uploading and downloading of your workspace are controlled from the terminal mode with meta keys.

Viewing Your Workspace

You can view the contents of your workspace from the file management menu. Move the hand to the view workspace selection and press 'FIRE' or 'RETURN'. The first page of your workspace will be displayed in the 40 column format. All displays of the workspace area are in the 40 column display, no matter what display you have selected. Only the terminal mode allows non 40 column displays.

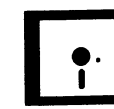
To go to the next page of your workspace press the space bar. To exit to the file management menu press 'STOP'.

Editing Your Workspace

VIP Terminal contains an editor so that you can both create files in your workspace and do simple editing of files you have loaded into the workspace area such as inserting and deleting text. You may also print or save your workspace while in the edit mode.

When you choose the edit workspace selection the first page of the workspace will be displayed, with the cursor in the upper left-hand corner. Above the cursor is a byte location indicator. It tells you the byte number in the workspace where the cursor is located. If the cursor is at the end of the file the indicator tells the total number of bytes used.

You are free to enter text by just typing it in. You may enter all standard keyboard characters, including all control codes from control A to control Z (except control H and J). You will also be able to see all control characters which have been downloaded into your workspace. Control characters appear in the editor as the character in the highlight color. For example, control C is displayed as a C in the highlight color. The carriage return, a control M, is, however, represented by a block in the editor.



While in the editor you have several editing commands at your disposal:

Arrow Keys The arrow keys move the cursor up, down, left and right. If the arrow keys are held down the movement will repeat.

'HOME' The 'HOME' key moves the cursor to the beginning of the file.

'CLR' The 'CLR' key, which is the shifted 'HOME' key, moves the cursor to the end of the file.

'DEL' The delete key is a destructive backspace. It deletes the character where the cursor resides and moves the cursor back one space. If held down, the function will repeat.

'INST' The insert key toggles character insert. Initially the edit mode allows typeover. This means that if you type over text, you replace the text typed over with the new text. If you press the 'INST' key, you will enter the perpetual insert mode. Now each character you type will be inserted into the text. To get back to the typeover mode press 'INST' again. When you are in the perpetual insert mode the cursor changes to the highlight color.

'STOP' Pressing 'STOP' at any time will cause you to exit back to the file management menu.

Once you have entered text or edited it, you may also save, print or delete the whole workspace or part of it right from the editor. These three functions are performed from the position of the cursor to the end of the file. Thus, you may move the cursor to the point in the file from which you wish to begin printing, saving or have deleted, and press the appropriate function key. This feature is helpful when you consecutively download several files, but you want to print or save them

separately. You should begin saving or printing from the last file downloaded, delete that file and move back in your workspace to the beginning.

'C=' 'S' controls saving your file. When you press 'C=' 'S' you will be prompted for a file name, and then the file from the cursor to the end will be saved.

'C=' 'T' governs deleting text to the top of your workspace. When you press 'C=' 'T' the file from the cursor to the top will be deleted.

'C=' 'B' governs deleting text to the bottom of your workspace. When you press 'C=' 'B' the file from the cursor to the bottom will be deleted.

'C=' 'P' controls printing. When you press 'C=' 'P' the file from the cursor to the end will be printed.

You may also save the entire workspace using the save workspace selection, and you may print the entire workspace by using the print workspace selection of the print menu.

Saving and Loading Workspace

You may save your workspace (as a sequential file ONLY) to your disk at any time. You may also load any sequential file into your workspace for manipulation. You may even load several files one after the other. The "Blocks required" message below the selections tell you the number of blocks required on the disk to save your workspace.

To save or load, move the hand to the desired selection and press 'FIRE' or 'RETURN'. You will then be prompted for the file name. To save or load, give appropriate name and press 'RETURN' All save and load commands follow the conventions contained in your disk manual. You may also save portions of your capture buffer from the edit mode.

If you encounter an error whenever accessing the disk, the appropriate error message will be given on the status line in the menu. If you need further explanation of the error messages, see pages 43-46 of your disk manual.

Calling a Directory of Your Disk

You may call a disk directory at any time, and you may also load any file you wish while viewing your directory. To call a directory, move the hand to the directory selection and press 'FIRE' or 'RETURN'. The first page of the directory of the disk in the specified device number will be displayed. (The device number is set with the device number selection.)

The directory display contains the same information given with the directory command in DOS, with the addition of an indicator of the number of files on the disk. At the bottom of the screen are displayed two options: If you press 'L', you will be prompted for the name of a file to load. You may also go to the next directory page by pressing the space bar or 'FIRE'. Pressing 'STOP' will take you to the file management menu.

Viewing and Clearing Workspace

You can view the workspace area at any time by moving the hand to the view workspace selection and pressing 'FIRE' or 'RETURN'. You may page forward through your workspace by pressing the space bar. Pressing 'STOP' will take you back to the file management menu.

You may clear your workspace by moving the hand to that selection and pressing 'FIRE' or 'RETURN'. You will be prompted to confirm whether you wish to clear your workspace. This command will totally clear your workspace, so be sure that anything of value in it is saved first.

Change File Name

You may change the name of any file on your disk directly from the file management menu. Move the hand to the change file name selection and press 'FIRE' or 'RETURN'. You will be prompted for the name of the file to be changed and the new name. 'STOP' aborts the name change; pressing 'RETURN' without any entry returns you to the previous step.

Scratching Disk Files

To scratch a file from your disk, move the hand to the scratch file selection and press 'FIRE' or 'RETURN'. You will be prompted for the name of the file to be scratched. Give the name and press 'RETURN' to scratch the file.

Initializing a Diskette

At times when using VIP Terminal you will have the need to initialize a new diskette to store data. To do so, place the unformatted diskette into your drive, move the hand to the format diskette selection and press 'FIRE' or 'RETURN'. You will be prompted for the name to be given to the disk and the identification information. VIP Terminal will then check the disk to see if it is already formatted and if it already contains data.

If the disk is unformatted, the system will ask for a disk name and I.D. information, and will then automatically format the disk. If the disk is formatted or contains data, you will be told the current name of the disk and asked for the new name and I.D. information. You will then be prompted to press 'RETURN' to format the disk. When the formatting is done, the directory of the disk will be displayed. Press the space bar to return to the file management menu.

Set Device Number

VIP Terminal starts with a default device number of 8 for the disk version. If you have more than one drive, you will have to change the device number before you can access that drive. To change the device number, choose this selection. You will be prompted to give the new device number.

Save and Load Your Terminal Environment

When VIP Terminal is loaded for the first time there are several default values for screen color, baud rate and the like. As you use VIP Terminal for the first time, you will determine your choice of screen size and color and many other options, you will fill your phone directory and you will program several messages. You now can save your selections and entries out as your own personal environment to be used the next time you use VIP Terminal.

To save your environment, place a formatted data disk in the drive (NOT the program disk), move the hand to the save environment selection and press 'FIRE' or 'RETURN'. You will now be asked to give the name of your environment. The default name for the environment is "Environment". You may use any name to save your environment, or you may press 'RETURN' to save it with the default name.

You may save as many environments as you like. Each environment may contain entirely different parameters, telephone directory entries and programmed messages.

When you load VIP Terminal the next time and you wish to have your own customized environment, move the hand to the load environment selection and press 'FIRE' or 'RETURN'. You will be prompted for the file name. If you wish to load the default "Environment", press 'RETURN'; otherwise enter the name of your environment and press 'RETURN'. The environment will be loaded and immediately implemented.

List Disk File

You may list any diskfile to the screen or to the printer. This feature is helpful for printing diskfiles which will not fit into your workspace.

To list a diskfile, move the hand to the List Disk File selection and press 'Fire' or 'Return'. You will then be asked for the file name. When the file has been found on the disk, you will be asked whether you wish to have the file listed to the 'S'creen or the 'P'rinter. If you wish to print the file, be sure the printer is properly connected before you press 'P'; otherwise the file will be listed to the screen.

PRINT Printer Setup

VIP Terminal works with any printer and printer interface that can be used with the C64. Printing files is done one of three ways. One is virtual printing, that is, printing text as it is received. This is controlled in the terminal mode with the meta P command. The second method is to list a disk file to the printer. This was discussed in the file management menu section. The second method of printing is to print the contents of your workspace directly to your printer. You may print your workspace from the print menu or from the edit mode of the file menu. (Printing from the file management menu was discussed above.)

The first step for printing a file from your workspace is loading it in your workspace area, which is done from the file directory. Once you have loaded the file, and edited it if you like, you are ready to print. The print menu is the place for setting up your printing parameters. Once these are set up, you can print your workspace at any time, either from the file directory or from the print menu. The print menu has six entries:

To print your file, you must have your printer connected, you must have selected the correct device number and secondary address and you must have selected the proper printer type.

Print Menu

Printer Status	Not ready
Print Workspace	No
Device #	4
Secondary Address	7
Printer Type	1525
Linefeed After CR	Strip

You may select from three types of printers: 1525-type printers, other Commodore printers and other ASCII printers. 1525-type printers are those which are electronically identical to the 1525 printer, such as the MPS 801 printer. CBM-type printers are other Commodore printers, such as the 1526, and Commodore emulating interfaces such as the Cardco G. The ASCII setting is ONLY used when you have changed the default of your printer interface to an ASCII setting and have changed the secondary address accordingly (see your interface manual).

The default device number is four, and the default secondary address is seven. These may be altered. Some printers require that linefeeds be sent after each carriage return to advance the paper a line. If yours does, select "Add"; if not, select "Strip".

Once you have set up, you may print your entire workspace from this menu by selecting "Print Workspace". You may pause printing by pressing the space bar; pressing 'STOP' will abort printing. Editing and partial printing are done from the file management directory.

Due to a hardware inconsistency, Cardco interfaces will occasionally lock up. This is caused by improper power-up. The proper sequence is: turn on the monitor, then the computer and then the disk drive. Last, plug in the wire from the interface to the datasette connector. If you still encounter problems, you will have to turn off your disk drive while printing. Call Cardco for more information.

For those using the 1526 printer, the proper power-up sequence is to first turn on the computer, then the printer, and last the drive and monitor. Otherwise, the printer will not function properly.

EXIT Leaving VIP Terminal

The Exit sign shows you the way out. When you select this icon, either with the hand or by pressing 'RUN/STOP' and 'RESTORE', you will be presented with three exit choices. You may return to the terminal mode, to the Desktop, or you may return to BASIC. Of course, you may also use the the function keys or the joystick to go to any menu.

You may wish to go to the Desktop to use other VIP Library programs. If you return to the Desktop, you may return to VIP Terminal just as you did in the first place, except that VIP Terminal will not have to be reloaded, and all your current settings will be retained.

VIP Terminal™

Tele-communications System

PART THREE
Exchanging Data

Sending and Receiving Programs and Things

For most of you, the purpose of owning a terminal program is to send and receive programs, messages and other files. VIP Terminal is well equipped to help you do this. This section is devoted to helping you send and receive files.

Exchanging Data

Information services and BBS's have the basic purpose of exchanging information. You can send them some of yours and you can take some of theirs. There are news stories, stock quotes, user group lists, program listings, programs, you name it.

Display and Keyboard Control

Sending and receiving information is made more convenient by the use of standard screen and keyboard controls. Many systems make use of the standardized use of the 32 control codes of the ASCII system to control communication functions. VIP Terminal was designed to be able to send all 32 control codes, and to respond to the common protocols. Here are just a few industry standards:

Control C is a 'break' character which, when sent, will generally halt the current task being carried out by the host.

Control G is a bell character. When received, a bell sound will be heard. This is commonly used by information services.

Control H is a backspace, and is used to move the cursor backwards one space on the receiving computer.

Control I is a tab character. It will move the cursor eight spaces to the right.

Control K sends a reverse line feed. This moves the cursor up one line.

Control L is a clear screen command. It is commonly used to clear the screen of the receiving computer for a new message.

Control M is a carriage return. It forces the cursor on the receiving system to the beginning of the line.

Control R is commonly used to open the storage area in the receiving computer so that something can be sent it.

Control T is commonly used to close the storage area in the receiving computer when data is no longer being sent.

This is by no means a definitive list, but it should give you an idea of what is being asked for when control codes are mentioned.

The last two control codes, Control R and Control T, are commonly used to support automatic downloading of ASCII data. The system will usually ask if your terminal allows automatic downloading. If you say yes, when you select some program or

other data for downloading, the system will open your workspace, dump the data and automatically close your workspace. Pretty neat!

These control codes are getting more and more standardized. The more they do the better for all.

Using Dow Jones

Communicating with Dow Jones Information Service requires some changes to the default paramaters. Dow Jones does not send a clear screen command after each page, but only sends a home cursor command, a decimal 28. Unchanged, this would leave your old text on the screen when new text is coming in. To take care of this, you can strip incoming 28's and replace them with 12's (formfeeds) so that the screen will be cleared when Dow Jones homes the cursor. Strip and replace is dicsussed on page 36. Be sure to make a Dow Jones environment.

Data Transfer Protocols

In addition to these display and keyboard standards, there are special protocols used for the actual transmission of data. The whole idea with such protocols is to structure information and control its flow to assure the most convenient and reliable transfer of data.

Information-specific protocols govern how a specific type of information is sent and received. Different protocols are used for different data. For example, programs require a very high degree of reliability in transmission. One wrong byte and the

program will not function properly. ASCII files, on the other hand, are not so vulnerable since we can easily read them and work with them even if there are a few characters which have been garbled. Thus, different protocols have been developed to reach different levels of reliability.

In the Commodore world there are several major types of information-specific protocols. The three most important are the non-error checking protocol, the CBM-Punter protocol and Xmodem. The non-error checking protocol is used to send text files, messages, etc. It really is a non-protocol since nothing special is done to the text when it is transmitted. The text is sent just as it is - an "I" for an "I" and a "2" for a "2". The only exception is that if you have selected CBM Conversion, text is converted from regular ASCII to CBM ASCII and vice versa (see page 69).

Programs should be transmitted using the CBM-Punter or the Xmodem protocol. With these protocols, a program is taken off the disk, changed into a special format with a checksum - a number which is the sum of all the numbers in the file - and sent. When it is received by VIP Terminal, it is read, and if the checksum is correct, it is changed back into a program and saved. If the checksum is incorrect, the sender is asked to send it again. The checksum makes sure that the program is sent without any errors.

The CBM-Punter and Xmodem protocols are used by many bulletin board systems serving Commodore computer users. Programs which you can download from the BBS are sent in either format. Of course, if a person to whom you wish to send a program also has a VIP Terminal, you may send programs to him or her using CBM-Punter protocol.

Uploading & Downloading Files

With VIP Terminal there are two ways to send and receive files. First, you may use your workspace as a buffer to receive files sent or to hold files to be transmitted to someone else. The second method is to use virtual memory to transfer files directly to or from your disk. You would usually use the workspace method for shorter files which do not require great fidelity in transmission. The CBM-Punter and Xmodem methods are ideal for sending programs where you don't want even one byte of data to be missed or garbled.

Using Your Workspace for File Transfer

You may use your workspace, accessed from the file directory, for receiving and sending files. Receiving files into your workspace may either be done manually or automatically. In either case, workspace file transfer is controlled using meta commands from the terminal mode.

Automatic Workspace Operation

VIP Terminal supports automatic workspace control by the host. This feature allows you to download programs from bulletin board systems and other computers without lifting a finger. While on-line, VIP Terminal waits for the open workspace character, set in the terminal parameters menu, to automatically open your workspace. Upon receipt of the open workspace character, your workspace is opened and incoming text is stored. At the end of

the download the system waits for a close workspace character, also set in the terminal parameters menu, to automatically close your workspace. Upon receipt of the close workspace character your workspace is closed. Once you have the text in your workspace, you may exit the terminal mode and save the file.

Manual Operation

To manually open your workspace you must be in the terminal mode. From this mode press 'C=' 'W'. To manually close your workspace, press 'C=' 'W' again. When your workspace is full, it will close automatically and you will be told that your workspace is full. A pause character will be sent to the other system to stop transmission. You may then go to the file directory, save your workspace, clear it, and then return to the terminal mode. To have the data again flow into your workspace, send a resume character to the other system.

In either case, manual or automatic, whenever data is being received, if you leave the terminal mode or if the system cannot process the data as fast as it is coming in, a pause character is sent to the host. A resume character is sent to the host to resume transmission when you return to the terminal mode or when the system has caught up.

Transmitting Files From Workspace

To send a file from your workspace you must start by loading the data or program to be transmitted into your workspace. If the computer on the other end will support automatic workspace open and close,

you can open the workspace area on the other end by pressing 'CTRL' 'R', and close the workspace area by pressing 'CTRL' 'T' (or whatever workspace open and close characters the other system has set). To send the data press the 'C=' 'X'. Press 'C=' 'A' to stop sending. If you leave the terminal the transfer will be terminated.

Virtual File Transfer

The alternative to using your workspace to transfer files is to send files directly from your disk and to receive files directly onto your disk. This method has two advantages. First, the size of files you can send and receive using virtual techniques is limited only by the storage space available. The second advantage arises from the special CBM-Punter and Xmodem protocols used to send files with 100% accuracy.

"Virtual" refers to direct transfer of data to disk without retaining it in the computer's memory. Virtual file transfer allows you to upload or download files as large as your disk. You are not limited by the size of your workspace.

Virtual file transfer has two different modes. The first is a straight transfer of files without any checking for accuracy while transmitting. The second is the CBM-Punter or the Xmodem transfer methods which have error checking.

The straight transfer method sends your file by lines, sending them one at a time until the whole file has been sent. There is no error checking of any kind. Because there is no error checking, the CBM-Punter method should be used where feasible.

The CBM-Punter and Xmodem methods use a checksum format to send files broken down into blocks of data. A block of data is sent in a special format, together with a checksum, that is, a number obtained from adding all the bytes of the block. The receiving system adds up the numbers of the block, and if this number corresponds to the checksum sent, the block is received, converted to its original form, and saved out. If there is a discrepancy, the receiving system requests that the block be sent again. This is done until the block is properly received. CBM-Punter file transfer is controlled by the meta commands which are discussed in the section devoted to the terminal mode.

NOTE: A new Punter protocol has been introduced because the original Punter bulletin boards were unreliable. This latest protocol is still untested, and thus, cannot be supported by VIP Terminal. VIP Terminal is therefore only compatible with old Punter BBS's. To replace our previous reliance on Punter, an Xmodem utility has been supplied on the disk. Xmodem is a tried and tested industry-wide protocol which is used by many BBS's and information services for many different computers. We highly recommend its use. See Appendix J, page 111.

Straight Transfer

Transmitting Files Transmitting files using the straight, non-error checking method is controlled by the 'C=' 'T' command from the terminal mode. When you press 'C=' 'T', you will be asked for the name of the file to be transmitted, and then the file will be sent. You may abort transmission by pressing 'C=' 'A'. Transmission will also be stopped if you leave the terminal mode.

Straight transmission of a file will use the transmit mode selected from the terminal parameters menu. Your selection will depend on the mode used by the receiving system.

Receiving Files To receive a file press 'C=' 'R' from the terminal mode. You will be asked to specify a file name for the file. Once you have done so, a file will be opened. The saving of incoming data is controlled by using 'C=' 'L'. Press 'C=' 'L' to begin saving and 'C=' 'L' to halt. The file will remain open for more logging until you press 'C=' 'R' again or until you leave the terminal mode. Then the download will be stopped.

When you are receiving a file using the straight method, the only mode acceptable is Xon/Xoff. Thus, if you are receiving a file from another VIP Terminal using the straight method, the other system must select the Xon/Xoff transmit mode.

CBM-Punter Transfer

Although we recommend use of the Xmodem utility where possible, you may still use CBM-Punter with old Punter BBS's and between VIP Terminals.

File transfer using the CBM-Punter method is initiated by pressing 'C=' 'V' from the terminal mode. You press 'C=' 'V' when prompted by the host system that it is waiting for a start signal or an 'A' for abort. A selection menu will then appear on your screen, allowing you to transmit to a host or to another terminal, receive, or return to the terminal. File transfers using the CBM-Punter method are done without displaying the transfer. Only the receipt of blocks is displayed.

Transmitting Files Transmission of a file using the CBM-Punter method is different depending on whether the receiving computer is the host or another VIP Terminal, or other CBM-Punter compatible terminal program. A host is a BBS or information service.

To transmit, press 'C=' 'V' from the terminal mode and select the number corresponding to your choice. You will be prompted for a file name and the file type, either program or sequential. Then VIP Terminal will take over until the file has been transmitted. All that will appear on your screen are hyphens for each block successfully sent and colons for each block unsuccessfully sent. Don't worry about any blocks unsuccessfully sent. VIP Terminal sends them again until they are received. If this happens a lot, however, you may wish to have your modem or cables checked out. Once the file has been transmitted, you will be returned to the terminal mode.

Receiving Files Receiving files using the CBM-Punter method is identical to transmitting files except that you will not have to specify the file type for saving, as that is controlled by the host.

Communications Between Two VIP Terminals

To communicate with another computer equipped with a VIP Terminal, one person must set his modem to the "answer" mode and the other person must set his modem to the "originate" mode (see modem operators manual). For proper operation, both VIP Terminals should be set to half duplex. When transferring files, both computers must use the same transmit mode (see the terminal parameters menu).

VIP Terminal™

Tele-communications System

APPENDICES

Appendix A
The Standard ASCII Character Set

VIP Terminal offers a full 128 character ASCII keyboard. The following table describes how to create and recognize the 128 characters. The first column provides the ASCII symbol; the second column gives the display of that symbol by your computer. The third and fourth columns give the numeric equivalents of the ASCII symbols in the decimal and hexadecimal number system. The final column tells you how to generate the ASCII character. The first 32 symbols have no screen representations since they are control codes.

ASCII	DISPLAY	DEC	HEX	KEY(S)
NULL	None	0	0	'CTRL'-'@'
CTRL A	None	1	1	'CTRL'-'A'
CTRL B	None	2	2	'CTRL'-'B'
CTRL C	None	3	3	'CTRL'-'C'
CTRL D	None	4	4	'CTRL'-'D'
CTRL E	None	5	5	'CTRL'-'E'
CTRL F	None	6	6	'CTRL'-'F'
CTRL G	None	7	7	'CTRL'-'G'
CTRL H	None	8	8	'CURSOR BACK' or 'DEL'
CTRL I	None	9	9	'CURSOR RIGHT' or 'CTRL'-'I'
CTRL J	None	10	A	'CURSOR DOWN'
CTRL K	None	11	B	'CURSOR UP' or 'CTRL'-'K'
CTRL L	None	12	C	'CTRL'-'L'
CTRL M	None	13	D	'RETURN' or 'CTRL'-'M'
CTRL N	None	14	E	'CTRL'-'N'
CTRL O	None	15	F	'CTRL'-'O'
CTRL P	None	16	10	'CTRL'-'P'
CTRL Q	None	17	11	'CTRL'-'Q'
CTRL R	None	18	12	'CTRL'-'R'
CTRL S	None	19	13	'CTRL'-'S'
CTRL T	None	20	14	'CTRL'-'T'
CTRL U	None	21	15	'CTRL'-'U'
CTRL V	None	22	16	'CTRL'-'V'

ASCII	DISPLAY	DEC	HEX	KEY(S)
CTRL W	None	23	17	'CTRL'-'W'
CTRL X	None	24	18	'CTRL'-'X'
CTRL Y	None	25	19	'CTRL'-'Y'
CTRL Z	None	26	1A	'CTRL'-'Z'
ESCAPE	None	27	1B	'STOP' or 'CTRL'-'['
FS	None	28	1C	'CTRL'-'POUND'
GS	None	29	1D	'CTRL'-']'
RS	None	30	1E	'CTRL'-'UP ARROW'
US	None	31	1F	'CTRL'-'LEFT ARROW'
SPACE	SPACE	32	20	'SPACE BAR'
!	!	33	21	'!'
"	"	34	22	'"'
#	#	35	23	'#'
$	$	36	24	'$'
%	%	37	25	'%'
&	&	38	26	'&'
'	'	39	27	'''
(	(	40	28	'('
)	)	41	29	')'
*	*	42	2A	'*'
+	+	43	2B	'+'
,	,	44	2C	','
-	-	45	2D	'-'
.	.	46	2E	'.'
/	/	47	2F	'/'
0	0	48	30	'0'
1	1	49	31	'1'
2	2	50	32	'2'
3	3	51	33	'3'
4	4	52	34	'4'
5	5	53	35	'5'
6	6	54	36	'6'
7	7	55	37	'7'
8	8	56	38	'8'
9	9	57	39	'9'
:	:	58	3A	':'
;	;	59	3B	';'
<	<	60	3C	'<'
=	=	61	3D	'='

ASCII	DISPLAY	DEC	HEX	KEY(S)
>	>	62	3E	'>'
?	?	63	3F	'?'
@	@	64	40	'@'
A	A	65	41	'A'
B	B	66	42	'B'
C	C	67	43	'C'
D	D	68	44	'D'
E	E	69	45	'E'
F	F	70	46	'F'
G	G	71	47	'G'
H	H	72	48	'H'
I	I	73	49	'I'
J	J	74	4A	'J'
K	K	75	4B	'K'
L	L	76	4C	'L'
M	M	77	4D	'M'
N	N	78	4E	'N'
O	O	79	4F	'O'
P	P	80	50	'P'
Q	Q	81	51	'Q'
R	R	82	52	'R'
S	S	83	53	'S'
T	T	84	54	'T'
U	U	85	55	'U'
V	V	86	56	'V'
W	W	87	57	'W'
X	X	88	58	'X'
Y	Y	89	59	'Y'
Z	Z	90	5A	'Z'
[	[	91	5B	'['
\	\	92	5C	'POUND'
]	]	93	5D	']'
^	^	94	5E	'UP ARROW'
_	_	95	5F	'LEFT ARROW'
`	`	96	60	'SHIFT' '@'
a	a	97	61	'a'
b	b	98	62	'b'
c	c	99	63	'c'
d	d	100	64	'd'

ASCII	DISPLAY	DEC	HEX	KEY(S)
e	e	101	65	'e'
f	f	102	66	'f'
g	g	103	67	'g'
h	h	104	68	'h'
i	i	105	69	'i'
j	j	106	6A	'j'
k	k	107	6B	'k'
l	l	108	6C	'l'
m	m	109	6D	'm'
n	n	110	6E	'n'
o	o	111	6F	'o'
p	p	112	70	'p'
q	q	113	71	'q'
r	r	114	72	'r'
s	s	115	73	's'
t	t	116	74	't'
u	u	117	75	'u'
v	v	118	76	'v'
w	w	119	77	'w'
x	x	120	78	'x'
y	y	121	79	'y'
z	z	122	7A	'z'
{	{	123	7B	'SHIFT' '+'
|	|	124	7C	'SHIFT' 'POUND'
}	}	125	7D	'SHIFT' '-'
~	~	126	7E	'SHIFT' 'UP ARROW'
RUBOUT		127	7F	'SHIFT' 'DEL/INST'

Other Terminal Mode Command Keys

'HOME'	Moves cursor home
'CLR'	Clears the screen
'DELETE'	Backspaces cursor
'SHIFT' 'STOP'	Sends line breaks
'CTRL' or 'C=' '1' thru '0'	Send key messages

Appendix B
Using the 1701 and 1702 Monitors

The 64, 80 and 106 column displays of VIP Terminal were designed to work well with the 1701 and 1702 monitors. In fact, VIP Terminal was designed using both. We have found these monitors to be of exceptional quality when used with your C64, with quite distinct displays if properly hooked up.

Proper set up requires that you use the correct video cable and that you attach it to the monitor correctly. The correct place for connection is the three RCA plug arrangement located at the top of the monitor at the rear, not the jacks at the front of the monitor. To use these rear jacks, you must have the proper cable, which may not be that which came with your monitor. The earlier C64's only have a five-prong video output. To use this video output, you must buy a five-pin din, four RCA plug out adaptor cable. This is a common cable, available at most every electronics store. Common brands are Calectro, G.C. Electronics, and Herald Electronics. Later C64's have an eight-prong video output. The proper cable for this output is supplied with the monitor.

Although the jacks at the rear of the monitor are color coded, these codes are for Commodore cables, and may not correspond to the colors of cables from independent manufacturers. You will have to experiment until you get the picture right. With our G.C. Electronics cable, the yellow plug goes into the white jack, the red plug goes into the yellow jack, and the white plug goes into the red jack. The fourth black plug does not have a jack and is not plugged in.

Appendix C
Interfacing RS-232-C Printers

Any RS-232-C printer can be used with VIP Terminal since, like a modem, it is just another RS-232-C device. The Commodore 64 does not, however, have a true RS-232-C port, since the signal levels are not correct. Therefore, an adaptor, such as the VIC 1011A, must be used in the RS-232 port to use a serial printer with the C64.

Since your modem also uses the RS-232 port on your Commodore, you may not have both your modem and your RS-232-C printer connected to your computer at the same time. This, of course, means that if you are using an RS-232-C printer, you will not be able to receive data and print simultaneously using VIP Terminal. Instead, you will have to print the data from your workspace.

To properly use your serial printer you will not only have to obtain an RS-232-C adaptor, you will also have to make a special cable to adequately control your printer. The special cable is required because of the need for "printer handshaking". As a rule a printer prints slower than the computer sends information for printing. Without some way for the printer to indicate when its buffer is full, there would be data loss. This method is called "printer handshaking". VIP Terminal supports five handshaking methods, or transmit modes, to prevent data loss. You may use any of them, but you will have to customize a cable to use the one you select. There are three different wiring configurations, depending on the transmit mode. Select the mode you wish to use from the terminal parameters menu, and then refer to the diagram mentioned at the end of the description for the proper configuration.

Not Delayed This method, as the name implies, sends data to the printer in a continuous stream with no pauses. This method assumes that the computer is sending the data slower than the printer is able to print. Configuration I will give the proper cable.

Delayed This method sends data to the printer one line at a time, pausing at the end of each line to give the printer time to finish printing it. This requires configuration I.

Prompted This method sends data to the printer one line at a time, waiting at the end of each line for the printer to send a character back indicating its readiness to receive more data. This requires configuration II.

Xon/Xoff This method sends data to the printer in a continuous stream until the printer sends back a pause character (Xoff) indicating that its internal buffer is full. Once the printer has emptied its buffer it will send a resume character (Xon) indicating that it is able to receive more data. This requires configuration II.

Hardwire This method sends data to the printer in a continuous stream as long as a dedicated wire to the computer labeled Clear To Send (CTS) carries a high level (+) signal when connected to a wire from the printer labeled Printer Ready. To halt printing, the printer must place a low level (-) signal on its Printer Ready line indicating that its internal buffer is full. Once the printer has emptied its buffer, it places a high level (+) signal on its Printer Ready line indicating that it is able to receive more data. This requires configuration III.

In the following diagrams, the columns give the pins coming out of the VIC 1011A and the corresponding pins of the printer which must be connected.

Configuration	VIC 1011A Pin #	Printer Pin Name
I	2	Data In
	7	Signal Ground
II	2	Data In
	3	Data Out
	7	Signal Ground
III	2	Data In
(Clear to Send)	5	Printer Ready
	7	Signal Ground

Once properly connected, you may use your printer by setting the proper baud rate, turning parity off, and selecting the proper mode from the terminal parameters menu. Since RS-232-C printers are not serviced by the regular printer jack of the C64, the print menu in VIP Terminal does not apply to them. Instead, printing is done by "transmitting" your workspace through the terminal mode using either the workspace transfer method (meta X) or the straight virtual transfer method (meta T) (see Part Three and the discussion of the terminal mode). You must have selected the Hayes modem type in the telephone directory. Transmit your file to your printer just as you would send it to another computer.

Appendix D
E-Com Procedures

VIP Terminal will work with E-Com run by the U.S. Post Office. The editor accessed through the file management menu has a byte counter which will help you conform to the parameters set out in the E-Com literature. The ETX character is generated in the editor by pressing 'CTRL'-'C'. To get the necessary linefeed after the carriage return, select "Out" for linefeeds in the terminal parameters menu.

For more information about E-Com, contact your local post office and ask how to contact the local E-Com representative.

Appendix E
Using the Hayes Smartmodem

VIP Terminal lets you take full advantage of the features of your Hayes Smartmodem and other RS-232C modems. VIP Terminal assumes that it is connected to the C64 with a VIC 1011A adaptor or its electronic equivalent. For proper use of the Hayes, however, you should set the dip switches to the following settings: 1-down, 2-up, 3-down, 4-up, 5-down, 6-up, 7-up and 8-down or up. The seventh switch controls single line versus multi- line arrangements. Consult you manual if you have any questions.

If you have to manually dial with your Hayes-type modem, you should set your redial delay to 30 or more seconds to give ample time for the pulse dialing. With the Hayes, the correct command for pulse dialing in your predial sequence is ATDP.

Appendix F
Using VIP Terminal with Compuserve

To initiate communications, CompuServe requires a that you type CTRL C or CIS'RETURN', whichever works with your system. VIP Terminal comes with a telephone directory listing set for using CompuServe. As long as you have the word CompuServe in the top, upper left-hand listing, whenever you call that listing, the required Control C logon character is automatically sent. The auto logon sequence is set to give your user I.D. number. You may use the programmable keys to give your password, and any other information you wish to give CompuServe for auto logon.

Many of you will wish to use CompuServe frequently. We suggest that when using CompuServe, you indicate that you have a Vidtex-type terminal. To do this, GO CIS-9, the Default menu, pick selection 2, and then enter a '1' for Vidtex. This will allow you to make the most of CompuServe.

In particular, CompuServe uses G4 graphics, which assumes a 40 column display. The G4 graphics mode works automatically with VIP Terminal, but you will find that it is most attractive if you have chosen a dark background, such as gray 1. We also recommend that you use spaced parity, that you have your cursor non-blinking, no audible margin, and that you turn the task icons off. For an enjoyable graphics demonstration, GO CIS-99.

For uploading text files we suggest that you use prompted upload, with a colon as the prompt; for uploading programs, we suggest that you use the Xmodem utility on the disk (see Appendix J). For downloading files, refer to the Utilities.Help file on the disk (see Appendix J).

Appendix G
ASCII Display Control Code Summary

VIP Terminal will respond to a number of ASCII control codes. These are often used by host systems to control your screen display. The following control codes are responded to by VIP Terminal in the following manner:

'CTRL' 'G'	Bell
'CTRL' 'H'	Backspace
'CTRL' 'I'	Tab right eight characters
'CTRL' 'J'	Moves cursor down one line
'CTRL' 'K'	Moves cursor up one line
'CTRL' 'L'	Clear screen (formfeed)
'CTRL' 'M'	Carriage return
'CTRL' 'X'	Moves cursor left one space
'CTRL' 'Y'	Moves cursor right one space
'CTRL' '['	Initiate escape sequence
'CTRL' '\'	Moves cursor home
'CTRL' '^'	Clear to end of line
'CTRL' '_'	Clear to end of screen

Appendix H
VT52 Display Escape Sequences

VIP Terminal shares certain escape sequences with the DEC VT52 terminal. VIP Terminal is NOT, however, a VT52 emulator. VIP Terminal responds to the following escape sequences in the indicated manner:

```
'ESC' 'A'          Moves cursor up one line
'ESC' 'B'          Moves cursor down one line
'ESC' 'C'          Moves cursor right one space
'ESC' 'D'          Moves cursor left one space
'ESC' 'H'          Homes cursor
'ESC' 'J'          Clear to end of screen
'ESC' 'j'          Clear screen, home cursor
'ESC' 'K'          Clear to end of line
'ESC' 'Y' (Line) (Column)  Position cursor
```

Appendix I
Using The HES Modem

The HES Modem I, unlike the 1600 VICMODEM, does not indicate carrier. This affects how you use VIP Terminal. Dialing from the telephone directory requires that VIP Terminal be able to detect carrier. Once carrier is detected, the Terminal automatically shifts to the terminal mode. Since HES Modem does not indicate carrier, VIP Terminal will not automatically shift to the terminal mode when you have carrier.

This means that HES Modem users may not wish to dial numbers from the telephone directory. However, there still are advantages to using the telephone directory, such as setting the parameters. To use the telephone directory, you will have to manually detect carrier, and then press 'f3' or use the joystick to get to the terminal mode. Of course, you may also dial directly from the terminal mode.

For those techies out there, if you wish to modify your HES Modem I to give carrier detect to the modem, disassemble the modem and connect pin 2 of the TMS99532 modem chip to pin H of the 24 pin connector using a small piece of solid insulated wire. If you do not know what you are doing, please go to a qualified service technician.

Appendix J
Some Helpful Utility Programs

The VIP Terminal diskette contains several utility programs which you may find useful. Also included is a file called "UTILITIES.HELP". This is a text file which explains the use of all these utilities. You may view it using the View Disk File command from the Disk Manager; you may also print it from the Disk Manager with the Print Disk File command.

The first utility is VIP Disk Manager. This utility gathers in one place many useful disk commands, some of which are not in the File Directory in VIP Terminal. This utility is loaded by typing: LOAD"VIP-DISK-MANAGER",8. When it has loaded, type RUN and press 'Return'.

The second utility is called "IMG-TO-PGM". This utility converts "image" files downloaded from CompuServe into program files so that you can use them. It is loaded by typing: LOAD"IMG-TO-PGM",8. When it has loaded, type RUN and press 'Return'.

The third utility is called "BASIC-TO-PGM". This utility is used to changed sequential BASIC listings into BASIC program files so that they can be run. It is loaded by typing: LOAD"BASIC-TO-PGM",8. When it has loaded, type RUN and press 'Return'.

A fourth utility to convert your BASIC program files into BASIC sequential listings is explained in the UTILITIES.HELP file.

A fifth utility is an Xmodem terminal program. This program gives you another way to reliably transfer programs to systems which support it. It too is explained in the UTILITIES.HELP file.

Appendix K
Transferring BASIC Listings

Those of you wishing to transfer BASIC program sequential listings, or wishing to transfer BASIC programs between differnt types of computers must use two of the utilities on the disk (see Appendix J) to convert BASIC programs to and from ASCII.

This is because your C64 does not save programs in ASCII, but in a tokenized format not used by other computers. To transfer a listing of a BASIC program, you first must create an ASCII listing of the program on your disk. This is easily accomplished using the utility discussed in the Utilities Help file on the disk. (See Appendix J.) Once you have listed the program to disk, you have an ASCII file which you can transfer. If the recipient of the BASIC ASCII listing wishes to actually use the program with his or her C64, he or she must use the BASIC-TO-PGM utility on the disk to convert the listing to a function program.

An ASCII listing must also be created to transfer a BASIC program created on a C64 to a non-C64 computer, since that computer will not use the C64 tokenizing method. The receiving computer will be able to convert the ASCII listing back into a program for more work.

Of course, if the program is sent back to you from the non-C64 computer, it will come in ASCII and have to be reconverted to a program file for use with your C64 using the BASIC-TO-PGM utility on the disk. Be sure, when writing BASIC programs on other computers for use on your C64, not to exceed the 80 character per line limit of the C64 and not to use BASIC keywords not available with your C64.