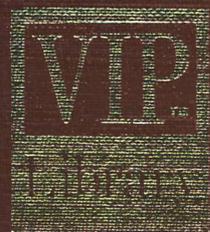


VIP Terminal™

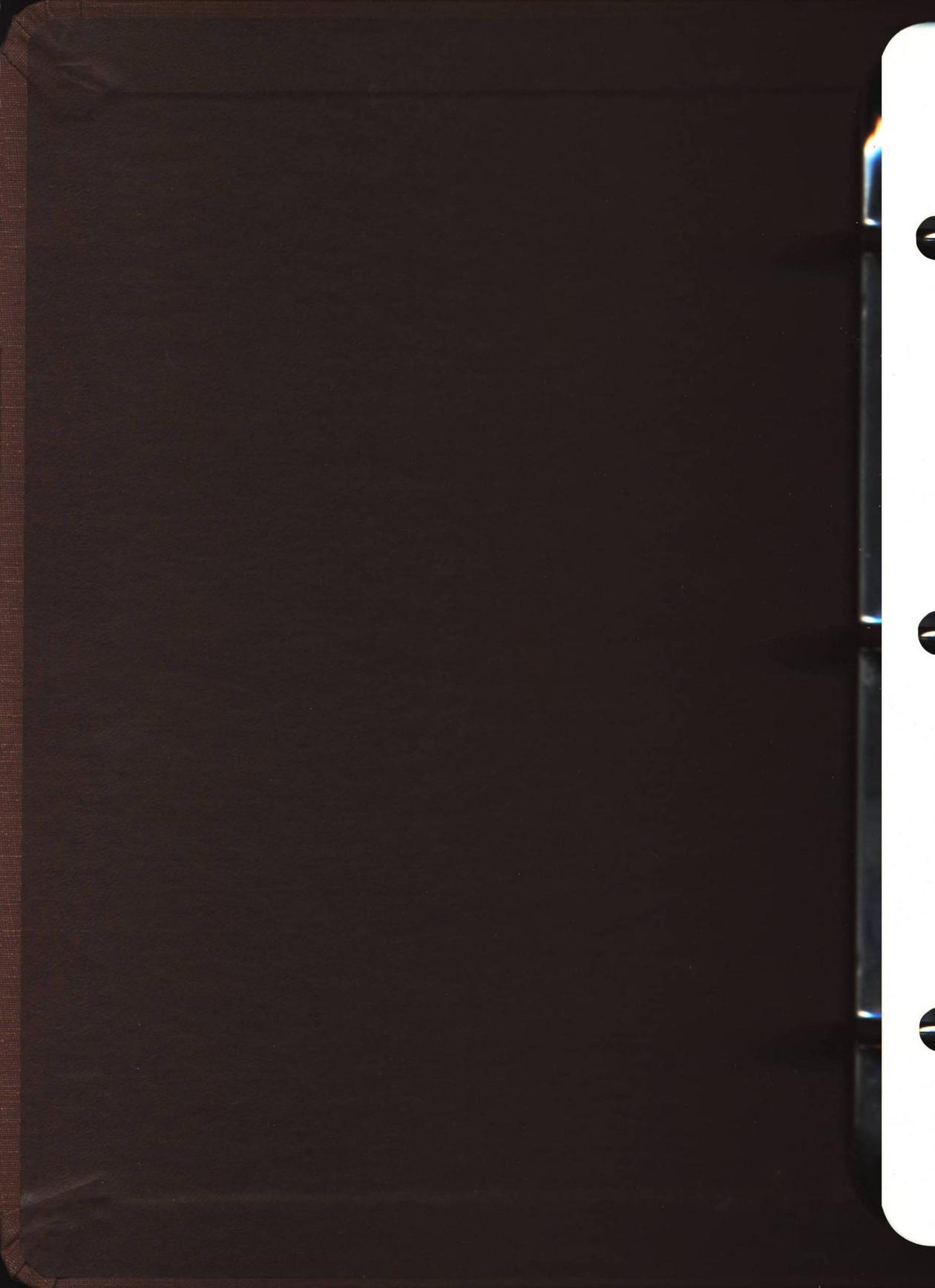


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Tele-communications System



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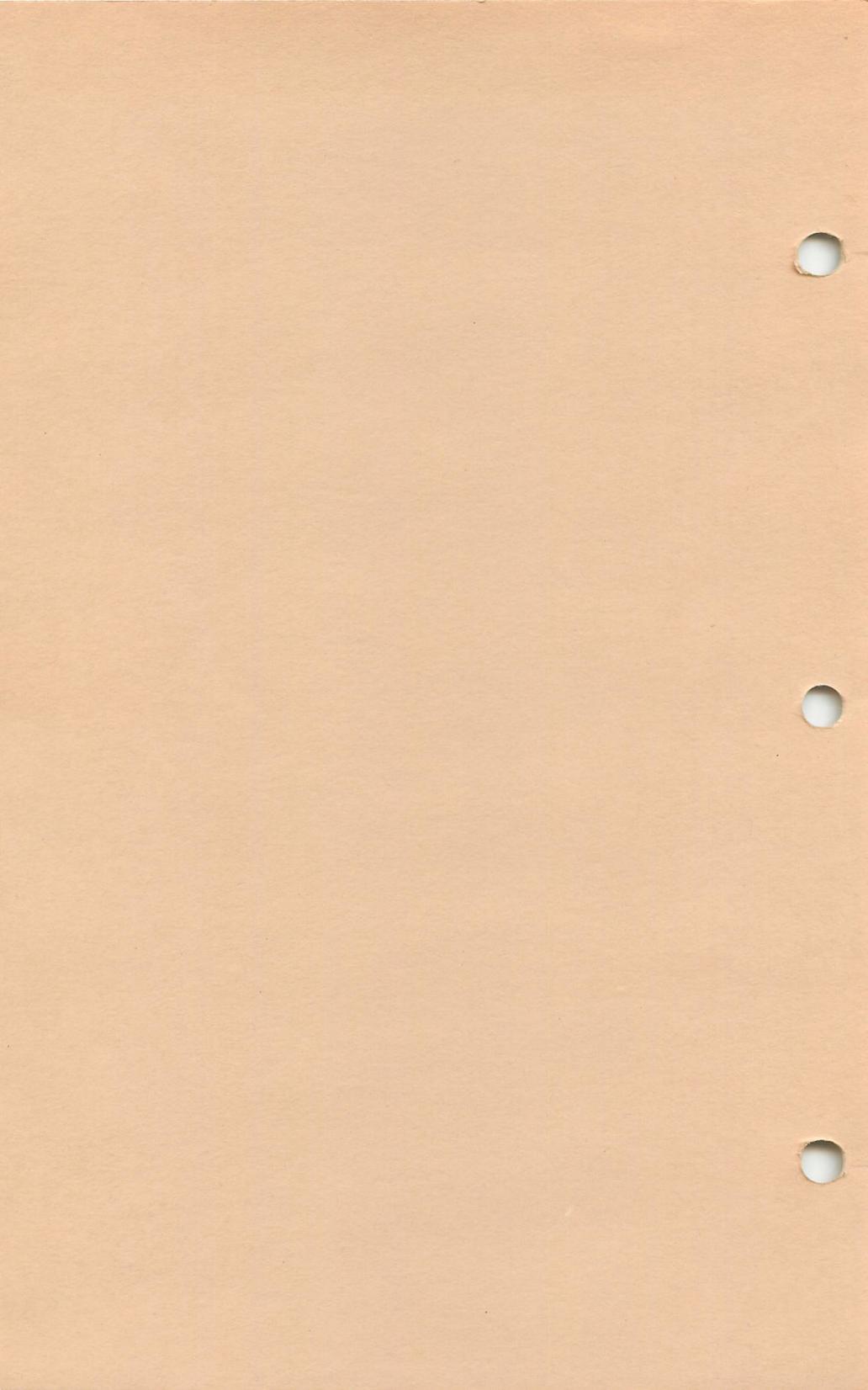
VIP TerminalTM

Tele-communications System

Operator's Manual

SoftLaw
Corporation

For the TRS-80 Color and TDP System 100 Personal Computer





VIP TerminalTM

Tele-communications System

Operator's Manual



For the TRS-80 Color and TDP System 100 Personal Computer

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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 tape or disk. To do this, turn on your system, first the monitor and disk drive and then the computer. Next take out your program tape or disk. If you are using the tape version, ready your cassette recorder and place the program tape in it. Make sure that it is rewound to the beginning of the tape. Be sure that the cable is properly connected to the computer and the tape recorder. Now, type CLOADM on your computer and press 'ENTER'. Next press the PLAY button on your tape recorder.

If you are using the disk version, first make sure that your disk drive is on. Next, place the program disk in the drive and type LOADM"TERMINAL" on your computer and press 'ENTER'. The drive will become active and the program will begin to load.

When loading from either tape or disk, a billboard will appear, and then the Master Menu of the Terminal. Now take your tape out of the cassette or the disk out of the drive and place it away for safe keeping.

You are almost ready to begin using VIP Terminal. But first, if you are using the disk version, be sure to backup your VIP Terminal onto another disk using the Backup command from BASIC (see your Disk manual). This will assure that you will have the original should something happen to the one you use all the time. Those using tape should know that the it contains two copies of the program. If the first one fails to load. the second one can be used.

THREE EASY STEPS TO COMPUSERVE

Believe it or not you are on the verge of talking with your computer. It is as simple as pressing the '1' key, dialing the telephone number of CompuServe, and connecting with CompuServe. You're off!

Let's go through it more slowly. Here we will assume that you wish to connect with CompuServe, the national information service. We will also assume that you have their phone number. You've connected your modem, turned it on and switched it to the originate position. To get connected with CompuServe after loading VIP Terminal, press the '1' key. This will put you in the Communicate mode. Your screen will go into a hi-res mode which will allow lowercase letters with 51 characters per line and 21 lines per screen. A cursor is in the upper left-hand corner and VIP Terminal is waiting for you to go on line.

Now it is time to call Compuserve. If you do not have a smart modem which will automatically dial numbers for you, you will have to manually dial the phone. (A hint for Hayes Smartmodem owners - type 'ATDT' and then the phone number and press 'ENTER'.) With an acoustic modem, when you hear a high pitched whining sound, place the receiver in you modem. With a direct connect modem, dial the number and when you hear the high pitched tone, hang up your phone and your modem will do the rest.

You're on! Now all you have to do is maneuver your way through the maze of menus and the like. First press the 'CLEAR' key and then the 'C' key. This sends CompuServe the Control C which they require for logging on. Now you will be prompted all the way.

It's just this easy to log on to all sorts of systems, from Bulletin Boards Systems (BBS's) to your computer at school. As you can see, VIP Terminal is real easy to use!

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 is 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. 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 a terminal, 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 equipment that have been developed for communications.

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 unit of data is assigned a number so that the computer can deal with it as a discrete unit.

Other 256 unit chunks are used for machine language instructions, tokenized BASIC commands, locations and the like. The interpretation of the exact correlation of each number in the computer, from 1 to 256, depends on the hardware and software using the number.

The chunk to which we will devote most attention will be those 256 units which are assigned to the data symbols. It is a proper understanding of these symbols which are most crucial to useful data communications.

The ASCII System

All computers think and talk with numbers; people, however, communicate with symbols. The designers of computers have devised a means 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 beep, 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.

The Digital Communications World

The ASCII system is the standard basis for all text communications, be it 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 a UART (Universal Asynchronous Receiver/Transmitter) which puts the data into a proper format for sending.

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 between five and 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. Finally are the stop bits. These bits tell the receiving system that this data frame is done and that 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 standard protocol for almost all ASCII communications: one start bit, a "word" length of seven, even parity and one stop bit. This protocol will handle 95% of all communications, and thus is the default setting of VIP Terminal.

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 then 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 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 check on the accuracy of your transmission.

Half duplex, on the other hand, means that the computers take turn 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 setting.

These are the essential elements of communication protocol. Many of these will be discussed below in sections devoted to them.

How To Connect With Popular Information Services

VIP Terminal allows you to communicate with virtually any information service, bulletin board system (BBS), or computer. That's saying a lot, since there are hundreds of them out there. Just to name a few, you can talk to CompuServe, The Source, and Dow Jones Information Service. With VIP Terminal you can also send data to these information services and save or print information you have received from them.

These information services and bulletin boards have all developed independently over time. Moreover, many of them compete with each other for the dollars of the consumer. For these reasons, many have developed their own special log-on sequences and command structures. When you sign up for these services you will have to learn the protocol that each has established. This is not to say that there have not developed some fairly standard practices. You will find that many systems use the same commands and protocol for the more elementary functions.

With VIP Terminal you have total control over the communication parameters so that no matter what the special protocol, log-on sequence or command is for any system, you will be able to handle it easily and conveniently. Let's go through the fundamentals of a simple chat session to teach you some of the fundamentals of communicating.

- Logging On

Logging on to a system is easy, once you've got an idea of what you're up to. There are several essential steps. First you've got to prepare your modem, computer, peripherals and VIP Terminal. This initial preparation is of the essence, since this is where most of the mistakes are made.

So how do you properly prepare your system? First, you must know the communication protocol of the system with which you wish to communicate. Most systems out there communicate at 300 baud in full duplex, using seven bit words with even parity, one start bit and one stop bit. This is now almost the universal protocol for BBS's and information services. However, Different protocols may be required for other systems or even for different functions in the same system.

For example, 300 baud is fairly standard, and most modems are configured for strictly 300 baud communications. However, 300 baud is considered too slow for many purposes. For this reason it is slowly being supplanted by 600 and even 1200 baud systems. Of course, to communicate at a baud rate greater than 300 you have to have a modem which can handle these higher baud rates. These modems are also becoming more common and cheaper. Incidentally, for those real important data "dumps", big business and others use satellite transmissions, and transmit at rates that would boggle your mind!

Another example of a situation where you would have to change the protocol is the transmission of graphics. Graphics, or pictures, usually in color, require the eight-bit word length for transmission. This is because graphics characters are represented by the numbers from 128 to 255, which in the binary number system require eight digits for representation. Numbers below 127 only require seven digits for representation. For example, the number 127 translated into binary is a sequence of seven ones: 1111111. The number 128 takes eight digits: 10000000. Graphics will be discussed more below.

Fortunately, VIP Terminal is preset with a default of the standard protocol parameters: 300 baud, seven bit even parity, one start bit, one stop bit and full duplex. Modems also come defaulted to full duplex. Thus, system preparation can be as simple as turning

on your computer and modem and loading in VIP Terminal. Of course, if you have to change any of the communication parameters, you will have to go to the Change Parameters menu and make the changes.

OK, so your system is ready to go. Now you have to take the second step: calling the information service. How you call depends on what type of hardware you have. The first step is to go into the Communicate mode by pressing '1' from the Master Menu. The next step is to dial the number of the system you wish to reach. With an acoustic modem you will have to manually dial the number, await response from the service, and then insert the hand piece into the modem.

If you have a direct connect modem the sequence is slightly different. In fact, the sequence will differ depending on the how "smart" your direct connect modem is. Many modems nowadays perform a great variety of functions which you can directly control. It is not uncommon to see auto-dialing, auto answering, programmable telephone numbers and all sorts of other features in very inexpensive modems.

VIP Terminal is fully equipped to make the most of your smart modem. Built in to VIP Terminal are KSM's, (keystroke multipliers) to allow fully automatic dialing of your favorite numbers. KSM's allow you to send instructions to your modem to have it dial your phone when you send it the number, plus much, much more.

Now you've dialed the number. If the number is not busy, and if your call is answered, with an acoustic modem you will hear the high-pitched whine of the inquiring system. Place the hand piece in the cradle of the modem. With a direct connect modem, the whine will go directly into the modem and then the computer. The high pitched whine is a carrier tone. When a modem receives a carrier tone it sends back an answer

tone and signals the user that a carrier has been detected. When the carrier detect ("CD") light on your modem lights up, you may then hang the phone up and begin to communicate.

So you're connected. It's time to get the attention of the other system. Some systems require that you press 'ENTER' several times to get their attention; others require that a certain control code be sent; still others will immediately start to send information. Once you've got its attention, the next step is to log on to the system to tell it who you are. Whatever the system, you will be asked to log on. Logging on for the first time takes a bit of time since you will be asked to supply a bit of information, such as your address, computer system and protocol, and for pay services, billing information. (Note that frequently systems will not echo back your password or ID information when you type it in so that anyone who may be looking over your shoulder cannot read it. If you want to read it you will temporarily have to be in half duplex.) Once you have registered, subsequent log-ons require only your name, identification number if any, and password. No matter the system, you will be prompted all the way. You usually will first be prompted for your name, and then your password, etc.

Because the log on sequence for systems does not change, you can use the KSM feature of VIP Terminal to set up your log on sequence for each system you wish to use. The Programmed Keys feature allows you to "program" a series of keystrokes so that you can automatically send all the keystrokes by pressing one key. Thus, you could set up one key each to give your name, then your password, user ID number, billing information, and commands to get to the menu you wish to first peruse. Then, once you have connected, you could press each key in sequence. Boom! Your name, password, etc., will be sent and you will have logged on!

Once you have logged on you can begin to use the features of the information service or BBS. Information services and BBS's are almost totally menu driven. This means that you are presented with a screen of choices with the keys to press to select your choice. You will first be given the master menu, from where you will often be shunted to sub menus. For example, one selection of the master menu may be "Local News". If you select that, you may be presented with a further choice of a number of subject areas. Once you select a particular subject area you may then be presented with individual items of news to choose from. Each menu along the way will allow you to ask for help to explain the commands and selections available.

Aside from menu commands, information services and BBS's frequently use several all purpose control commands. These commands control such things as editing, uploading and downloading files, clearing the screen, etc. These commands are usually not listed in any of the menus, although they may be listed in help tables or literature disseminated by the information service. Many of these commands will be discussed in later sections of this manual devoted to using such commands.

- 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, machine language programs, you name it.

Information exchange is where protocols really become important. There are a few different protocols to allow the sending and receiving computer to control the flow of information. These protocols are built

around the 32 control codes of the ASCII system. 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 standards in the industry:

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

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 on the receiving computer.

Control J is a linefeed, used to move the cursor down a line on the receiving system.

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, and if you have selected that option with VIP Terminal, when you select some program or other data for downloading, the system will open your buffer, dump the data and automatically close your buffer. Pretty neat!

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

- Sending and 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 merely entertain. In the future graphics may begin to have more uses for interactive program execution, such as with task icons, and other uses.

Graphics at the present are computer specific. This means that a picture must 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 might be a triangle in one system, it might be an orange block in another system. Therefore, only pictures created for your computer will work with your computer.

VIP Terminal is fully compatible with systems which send and receive low resolution graphics. Systems which send graphics will generally ask the user if he or she can accept graphics and what machine is being used. Once it is determined that you own a computer, pictures which can be used with it will be readied for being sent. Since graphics characters use the numbers from 128 to 255 which require eight bits in binary for

representation, you will have to use the eight bit word length with no parity when sending or receiving graphics. You select this from the Change Parameters menu.

If you have the desire you can also send your own pictures. VIP Terminal is not a graphics editor. You will have to create the picture using some other graphics editor and then load it into the VIP Terminal for transmission.

ABOUT THIS MANUAL

This operation manual assumes that you are familiar with the basics of communicating with computers, including the elementary concepts of terminal programs and modems. This manual cannot take the place of your modem manual and the books on the market explaining how to communicate with computers. If you want more background, we highly recommend that you read *Microcomputer Data Communications Systems* by Frank J. Derfler, Spectrum, 1982.

GETTING STARTED

System Overview

VIP Terminal is your key to the world of communications. CompuServe, Dow Jones, bulletin boards, the mainframe at work - all the information you need or want can be accessed by your computer.

VIP Terminal is a full fledged smart terminal program that allows the user to communicate with any host computer or microcomputer with RS-232 capabilities. It can handle any system and any kind of text. Once you master the simple concepts of communications you'll jump freely from transmitting to processing data.

VIP Terminal is totally user-friendly, yet it has outstanding features to please even the most experienced user, such as:

- * True Lowercase Display with descenders and option of 32 by 16 and 51, 64 and 85 by 21 or 24 displays.
- * Memory Sense to automatically sense your computer's memory, from 16 to 64K, for maximum data storage.
- * Word Wrap Around to eliminate a split-word display.
- * Supports Graphics Mode for reception of pictures.
- * Auto Buffer option for downloading BASIC programs.
- * Change RS-232 Parameters to allow communication with computers using non-standard RS-232 protocol.

- * Print all or any part of the information received from the host computer.
- * Receive and send BASIC or machine language programs as well as ASCII files.
- * Save and Load BASIC or machine language programs as well as ASCII files.
- * Create ASCII files that are compatible with all VIP Library programs.
- * Lower Case & Upper Case & the standard 128 symbol ASCII character set with ESCAPE & line break.
- * Optional Lower Case Masking to the video display.
- * Ten Key Stroke Multipliers (KSM's) to ease repetitive tasks and reduce on-line time.
- * Selectable Trapping to mask out unwanted characters.
- * Programmable Upload Prompt for efficient data transfer.

The Master Menu

After loading the tape or disk version, a menu will appear with a list of single-key-entry Selections. This, as well as all other menus in VIP Terminal are in the 32 by 16 screen display. Display options, including display size, color, inverse display and lines of text per page, are discussed in Selections '1' and '2'. The following is a list of the selections available with a brief description of their functions. The numbers preceding the selections will be used as reference numbers in this manual.

- '1' Communications—Puts you on-line in the communicate mode to communicate with other computers.
- '2' Chg Parameters—Allows you to select display size, baud rate, word length, parity, stop bits, duplex, etc...
- '3' Clear Buffer & Auto Buffer—Allows you to clear your buffer of data received in the communicate mode and use Auto Buffer
- '4' Tape to Buffer—Loads any BASIC or machine language program or ASCII file tape into the buffer.
- '5' Buffer to Tape—Saves the buffer contents to tape in either ASCII or binary format.
- '6' Display Buffer—Displays the information stored in the buffer to the screen.
- '7' LPRINT Buffer—Prints the entire contents of the buffer to any printer at selectable baud rates.
- '8' Maintain KSM's—Allows you to create and/or edit up to 10 messages that can be sent with a single keystroke.

'9' Disk Commands—Allows you to call a directory or save, load, kill, rename or append disk files (disk version only).

'@' Exit to BASIC—Allows you to exit the program and return to BASIC.

At the bottom of the screen in the menu is a display of your buffer space used and buffer space remaining. This information will be useful when you are downloading programs and other information.

A final section of this manual, entitled "Operational Guidelines", provides a general discussion of how to receive and transmit data to and from the buffer while communicating and how to communicate between two computers each using VIP Terminal.

'1' Communicating Using VIP Terminal (Connect MODEM Before Entering the Communicate Mode)

Unplug Your Joysticks!

Pressing '1' will put you in the communicate mode. You will be in a default screen display of 51 characters per line and 21 lines per screen (51 by 21). To change from this display see Selection '2'. For the 51, 64 and 85 displays you may toggle between a white or green background by pressing 'CLEAR'-SHIFT"8', and you may invert the screen (light characters on a dark background) by pressing 'CLEAR'-SHIFT"7'. In the 32 by 16 display 'CLEAR'-SHIFT"8' will toggle screen color between green and orange. 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 32 by 16 display. Once the graphics have been received you will remain in the 32 by 16 display until you change the display. You may return to the display you were in from the Communicate Mode by pressing 'CLEAR'-SHIFT"9', or you may go to any display you desire by going to Selection '2'.

The system is preset to allow word wrap around so that when you receive or transmit data, if a word would be split at the end of a line to continue on the next line, the whole word will appear on the next line. You may at any time toggle wrap around off or on by pressing 'CLEAR'-'1'.

In the Communicate Mode VIP Terminal operates in standard RS-232 protocol as a standard 300 baud terminal with a word length of 7 bits, even parity, 1 start bit, 1 stop bit, and full duplex. This standard RS-232 protocol in most cases need not be changed.

While on line, you can type upper and lowercase or upper case only by pressing 'SHIFT"0' just as with BASIC. The 'BREAK' key sends a true line break.

Pressing 'SHIFT' '@' at any time will return you to the menu. Key Stroke Multipliers can be sent by pressing the appropriate key sequence (see Selection '8' and Appendix A). The 'CLEAR' key acts as a control key. Any key pressed after the 'CLEAR' key will be a control character.

EXAMPLE: If you press 'CLEAR' then press 'C', the "C" is sent as a control C (decimal 3).

'CLEAR'-'L' is a clear screen command which is used to clear the screen of your counterpart when in Full Duplex, both screens when in Half Duplex.

Most communicating is done with the receiving computer in Full Duplex and the host computer in Echo-plex. Some systems, however, require the receiving computer to transmit in Half Duplex. The Duplex status may be set from Selection '2' (below).

You may at times have a need to switch from seven bit even parity to eight bit transmission (see Selection '2') while in the Communicate Mode. This is particularly helpful for those modems which require programming in the eight bit mode, even if you will be transmitting in the seven bit even parity mode. (See "Using Intelligent Modems" in the Operational Guidelines section.) To toggle between these modes while in the Communicate Mode press 'CLEAR'-'!':

The entire standard 128 symbol ASCII character set, including Control A (CTRL A) through Control Z (CTRL Z) is supported (see Appendix A). An ESCAPE key (decimal 27) is generated by first pressing 'CLEAR' then pressing 'SHIFT' 'Down'. VIP Terminal automatically traps Nulls (decimal 0) and Rubouts (decimal 127) from entering the system to assure compatibility with other ASCII files. VIP Terminal also has selectable character trapping to trap any character or range of characters (see Selection '2').

Lowercase may be masked. Masking is enabled by pressing 'SHIFT' '0' to toggle the case mode. A case mode indicator is displayed on the upper right-hand corner of the screen as an "L" or a "U". An "L" indicates the lowercase mode; a "U" indicates the uppercase mode. When in the uppercase mode, all incoming lowercase characters will be converted to uppercase for the display, but will not be converted, and will remain as lowercase characters in the buffer. The keyboard will also be solely uppercase. When in the lowercase mode the keyboard will function like an ordinary typewriter and lowercase characters will be displayed on the screen.

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 32 by 16 and the word length to 8 since graphics are represented by 8 bit word lengths. When finished transmitting in the Graphics mode the service will transmit an escape GN command to turn off the mode. This will return your system to the word length you originally selected, but you will remain in the 32 by 16 display until you change it either back to your previous display by pressing 'CLEAR'-'SHIFT' '9' from the Communicate Mode, or to any display you desire by going to Selection '2'.

When you are in the Communicate Mode and 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 Communicate Mode by pressing 'SHIFT' '@' to change parameters (Selection '2'), clear your buffer (Selection '3'), save and load files (Selections '4', '5' and '9'), create KSM's (Selection '8'), and display the buffer to the screen (Selection '6'). You cannot, however, print files (Selections '6'-'7')

and remain on line since printing requires that you disconnect the modem from the RS-232 port in your computer, as the printer also uses that port. Once you have finished, return to the menu and press '1' to return to the Communicate Mode. Be aware, however, that some BBS's may have an auto disconnect feature to disconnect you if you do not act within a certain period of time. Thus, long tape saves may not be advisable.

See Appendix A for a complete list of key functions during the Communicate Mode. See also the final section of this manual entitled "Operational Guidelines" for a discussion of how to use the buffer while transmitting and receiving data during the Communicate Mode.

Key Functions During the Communicate Mode - Summary

ASCII	DEC	HEX	FUNCTION	KEY(S)
None			line break	'BREAK'
None			control	'CLEAR'
CTRL C	3	3	control C	'CLEAR'-'C'
CTRL H	8	8	backspace	'LEFT ARROW'
CTRL J	10	0A	linefeed	'DOWN ARROW'
CTRL L	12	0C	formfeed	'CLEAR'-'L'
ESCAPE	27	1B	ESCAPE	'CLEAR' 'SHIFT' 'DOWN ARROW'
None			return to menu	'SHIFT' '@'
None			toggle color	'CLEAR' 'SHIFT' '8'
None			toggle display	'CLEAR'-'SHIFT' '9'
None			toggle 8 bit/7 bit	'CLEAR' ':'
None			toggle inverse	'CLEAR' 'SHIFT' '7'
None			toggle wordwrap	'CLEAR' '-'

'CLEAR'-'A' thru 'Z' are sent from the Communicate Mode by pressing 'CLEAR', then pressing the command letter from A to Z. See Appendix A.

'2' Changing Parameters

Parameters include the display parameters and the RS-232 parameters. Initially the parameters are set for a pleasing display and for communicating with almost all information services and bulletin board systems (BBS's). You may, however, desire a different display option; or you may need to change the RS-232 parameters to conform to some system or to another computer. Thus, you may find yourself returning to this Selection occasionally while communicating to change parameters.

When selecting parameters you should be aware of some conventions. Each parameter has a default value selected for its general applicability. The default value will remain until changed. When coursing this menu selecting parameters for some new communication need, you may press the desired letter or number, or press 'ENTER'. Pressing 'ENTER' has a different effect depending on whether the parameter may be changed with a 'Y'es or 'N'o response or not. The effect of 'ENTER' with those that may be altered with a 'Y' or 'N' is to always select 'N', or the default parameter. Thus, if you have previously selected other than the default value in a 'Y'/'N' selection by pressing 'Y', pressing 'ENTER' the next time through the menu will act as a 'N' and change the parameter back to its default rather than retaining your non-default selection. For example, if you press 'Y' to have linefeeds sent to the screen, pressing 'ENTER' the next time through will return to the default of no linefeeds.

On the other hand, in options not changeable with a 'Y'/'N' response, pressing 'ENTER' has the opposite effect. Although the first time through the menu pressing 'ENTER' will retain the default value, once you have selected a non-default option, pressing 'ENTER' on subsequent times through the menu will retain the new non-default option. Thus, for example,

if you select a line length of 64 characters by pressing '2', this will be retained the next time through if you press 'ENTER'.

Pressing 'BREAK' while coursing the menu will return you to the menu, changing all parameters you have altered up to that point. The rest will remain what they were prior to your entry of the menu.

Display Parameters

VIP Terminal offers an astounding variety of display options. There are nine different display sizes and four different display color choices (16K tape and disk users excepted). This variety should be able to satisfy just about every need and taste.

The display size options vary by the number of characters per line and the number of lines per page. You may choose from the standard 32 by 16 display and several hi-res displays with lowercase characters: 51 characters per line and 21 lines on the screen (51 by 21), 51 by 24, 64 by 21, 64 by 24, 85 by 21 and 85 by 24. Lowercase is offered in all these displays, with descenders on lowercase characters which extend below the line. Additionally, in the 64 by 21 and 64 by 24 displays, you have the choice of two character sets, a narrow one and a wide one. The difference between the 21 and 24 line per screen options is that some people may find the character set more attractive and easy to read with only 21 lines per screen since there is more space between lines. The color options are black characters on a green or white background and green or white characters on a dark background (inverse display). (In the 32 by 16 display the color options are a green or orange background.) Note that in the inverse displays, although the background in the display area is dark, the border areas are either green or white (the same color as the characters).

This is due to the video display generator ("VDG") graphics chip used in your which cannot be changed.

The densest hi-res display, 85 characters per line, may be difficult for some to read well, and is nearly impossible to read when you have selected all uppercase characters. It is offered primarily for formatting, rather than for editing or reading text, so that you can look at your text to see if it was properly formatted. Of course, if your TV or monitor allows you to read this display, so much the better.

Some may find all of the hi-res displays hard to read. This may be due to the inadequacies of the common color TV, the background color you have chosen, and/or the amount of interference you are experiencing. You can vary the color controls on your TV; you also can try to eliminate sources of interference with your TV or monitor by repositioning cables, etc. If none of these helps and you still desire to have a clear, crisp display, you may have to consider getting a new TV or monitor. This topic is discussed in Appendix B, "What To Do If Your TV Display Is Hard To Read."

OK, now you know the options. So what would make you choose any particular display? Aside from certain speed, graphics and host format considerations, the choice depends on your mood, your visual acuity, the quality of your monitor and the degree of interference you are experiencing when using your computer. First the speed consideration. The 32 by 16 display is the standard display and is built right into the hardware. On the other hand, the other displays are software created, taking up memory space and requiring software routines to process and display characters on the screen. The extra processing time for the hi-res displays makes them somewhat slower than the 32 by 16 display. Thus, for example, you will notice that when you use the 32 display scrolling is quite fast, whereas, when you use the hi-res displays scrolling is

somewhat slower. This effect is due to the extra processing time necessary. We assure you that everything is being processed as fast as is possible. Because of this processing speed difference, hi-res modes are limited to transmissions at 1200 baud or less, the vast majority of all communications; the system will automatically revert to the 32 by 16 display when you select a baud rate over 1200 (see Selection '2'). We recommend that if you are using a baud rate over 300 you should use the 32 display.

When downloading information from another system, we recommend that you select the 32 by 16 display and that you turn the word wrap feature off. Further, whenever transmitting at rates over 300 baud, yours and the host system should also be configured to have more than one stop bit. These actions should ensure error free transfer.

The graphics consideration was discussed in Selection '1'. The graphics mode requires the use of the 32 by 16 mode; however, the system is set up to automatically switch to the 32 by 16 display when graphics are being received. The display will remain at 32 by 16 until you change it back to what you originally selected by pressing 'CLEAR'-SHIFT'9'.

Host systems, BBS's, etc., also influence the display option you will choose since they often send text in predetermined line lengths, i.e., 40, 64 and 80 characters per line. The 51 display is the choice for systems which send 40 character lines, such as Apple bulletin boards. Since many BBS's set up for TRS-80 Models I and III use the 64 character line, the 64 display is ideal for such uses. The 85 display is excellent for systems that send 80 character lines. The system involved will tell you what its format is, and often you can actually specify the format you desire the system to use.

Outside of these constraints you have wide latitude to match VIP Terminal to your tastes and monitor or TV performance. Monitor performance was discussed above. Here it should be emphasized that the white background does not work very well on a color TV unless the color is turned down to give you a black and white display. This is because white, unlike green, is not one of the primary colors used by the color TV; instead, it is a composite of all three, red, blue and green. If you select the white display on a color TV you get color blooms and bleeding which blotch up the characters and make them very difficult to read. It is best to either use the pure green display or turn the color down on your color TV.

As for your tastes, well, there's no accounting for tastes. What we hope is that given the available display options you will find one that perfectly suits your needs.

From Selection '2' you may choose any of the above displays, number of lines and character set, with the default display being 51 by 21. (Note that all menus remain in the 32 by 16 display.) Changes in display color and inverse displays are controlled from the Communicate mode, discussed in Selection '1'. Selection of the display size, line number and character set may ONLY be done from Selection '2'. To select the desired option press the corresponding number from the menu.

DISPLAY 0=32 1=51 2=64 3=85

Press the desired number for the line length desired. Pressing 'ENTER' will give you a line length of 51 (or your previous selection). Note that the 32 display will be forced for baud rates over 1200 (see below). (We recommend that if your are using a baud rate over 300 you use the 32 display.) If you select '2' for a 64 character line, you will additionally be prompted for the character set:

Narrow Characters Y/N

Press 'Y' for the narrow character set. 'N' or 'ENTER' will give you the wide set. You should be aware that you may find the narrow character set harder to read since the characters are narrower. Note that selection of character sets is only available with the 64 character display option.

Lines 1=21 2=24

Press the desired number for the number of lines desired. Pressing 'ENTER' will give you 21 lines (or your previous selection).

RS-232 Protocol Parameters

Although VIP Terminal is preset for standard RS-232 protocol which is used for almost every communication need, it allows you to change RS-232 parameters to conform to most any host computer which requires a different protocol. (In most cases the host computer will allow you to change its parameters as well. Consult the host computer operating manual for specific instructions.) You may change RS-232 parameters in the following order by making the desired selection. You do not have to change every parameter, you only have to decide about parameters up to the last parameter you want changed. If you then press 'BREAK' to go to the menu, the remaining parameters will remain as you selected them before.

Baud Rate

1 = 110	2 = 300	3 = 600	4 = 1200
5 = 2400	6 = 4800	7 = 9600	

Baud rates under 2400 may be used with both Full and Half Duplex transmissions; baud rates of 2400 or more are limited to Half Duplex transmission. Moreover, the display will be forced to the 32 display for baud rates over 1200. (We recommend that if you are using a baud rate over 300 you should use the 32 display.) Upon initial setting of parameters press 'ENTER' for 300 baud (or your previous selection) or press the number for the baud rate desired.

The Data Frame The following parameters, Word Length, Parity, and Stop Bits, constitute the elements of a data frame which is the fundamental unit used to asynchronously transmit data via RS-232. Data is transmitted in "words" which are binary numbers with symbolic significance. For example, ASCII symbols have numeric equivalents (see Appendix A) up to 127 decimal, which, when translated into their binary equivalents, can take up to seven bits to represent.

Therefore, standard ASCII is sent in the seven bit word length. Since the receiving computer must know when to begin and end reading a word, the words are preceded and followed by one start and one or more stop bits. An error checking bit, called a parity bit, is added when the word length is seven. All these bits, the start bit, the word bits, the parity bit, if any, and the stop bits as a unit are called a "data frame". If your communication need requires a data frame structure different from the standard RS-232 protocol, the exact structure of the data frame must be specified by you. It will be determined by the communication functions you are performing and the requirements of the communicating systems.

Word Length

Press 'ENTER' to retain the preselected word length (initially 7 bits for standard ASCII and other seven bit transmissions) or select a word length 8 bits (not including the parity bit). When transferring files created using VIP Library programs, the eight bit word length should be chosen if you are including characters over 127 decimal, such as format markers, since these characters from the Extended ASCII Character Set require an eighth bit in their binary representations.

Note: Parity is only allowed with the 7 bit word length and will be set to 'N'one if an 8 bit word length is selected. When the word length is reset to other than 8 bit, parity must be reset to the desired status or it will remain at None.

Parity: 'O'dd 'E'ven 'N'one

Press 'ENTER' to retain the preselected parity (initially Even) or select the desired parity: 'E'ven, 'O'dd, or 'N'one.

Stop Bits

Press 'ENTER' to retain the preselected number of stop bits (initially 1 bit) or select the number of stop bits from 1 to 9.

Duplex: 'H'alf 'F'ull 'E'cho

Press 'ENTER' to retain the preset duplex (initially Full) or select the desired duplex: 'H'alf, 'F'ull, or 'E'cho.

Note: 'H'alf duplex echoes what you are sending back to your screen; 'F'ull duplex does not. 'E'cho is restricted to 600 baud or less and is used to communicate with full duplex only terminals which do not have local echo (I.E. VIDTEX(tm)*).

Line Feed: Y/N

Press 'ENTER' if you do not desire line feeds after carriage returns on the video screen (initially set to 'N'o), or press 'Y'es if the incoming data has no linefeeds after carriage returns (text being over-written), and thus line feeds are necessary.

Pass Control Characters Y/N

The system allows you to elect whether you want to have control codes masked and reacted to when receiving text (i.e., Auto Buffer, bell, Graphics mode, etc.), or passed to the buffer to be stored without reaction. This selection may be implemented regardless of word

length. Press 'Y' to have control characters passed to the buffer without reaction such as when you wish to receive binary files; 'N' or 'ENTER' will mask control characters for reaction by the system.

*Vidtex is a registered trademark of the Tandy Corp.

Character Trapping: Y/N

VIP Terminal permits you to trap characters which you do not desire to be displayed on the screen. If you do not wish to use the character trapping feature, press 'ENTER' since the system is initially set to 'N'o. If you press 'Y', the system will present the following prompts for you to define the characters to be trapped:

Relation: Less Than, Equal, Greater Than

Enter the desired relationship (only one may be selected), less than, greater than, or equal to and then answer the following prompt:

Number: (0-255)

Type a number between 0 and 255 which corresponds the decimal value of the character(s) which you wish to trap (not store in the buffer or display on the video screen) (see Appendix A for the decimal values of the letters).

EXAMPLE 1: 'LESS THAN' 6

EXAMPLE 2: = 10

EXAMPLE 3: 'GREATER THAN' 126

In Example 1, the Relation "less than" and the Number 8 traps all characters with a decimal value from 0 to 7 (i.e., all control codes below decimal 8).

In Example 2, the Relation "equal to" and the Number 10 traps all linefeed characters (decimal 10)

In Example 3, the Relation "greater than" and the Number 126 traps all characters greater than Decimal 126.

Upload Mode

'D'elay 'N'o Delay 'P'rompted

VIP Terminal incorporates an upload delay after each line is sent to wait for response from the host before sending the next line. Pressing 'D' or 'ENTER' will select the upload delay option. Press 'N' to disable the upload delay option or press 'P' for prompted upload.

Upload Prompt

If you press 'P' the Upload Prompt is selected, and you may select any printable character as the prompt by typing it in. By pressing 'ENTER' the default character "" is selected. In addition, you can press 'CLEAR' (CTRL) and any letter for a CTRL code prompt. An example of a CTRL prompt would be for uploading to CompuServe. Since CompuServe does not have a printable prompt, you must use a linefeed prompt Upload Prompt (CTRL J). To select CTRL J, press 'CLEAR' and then 'J'.

'X'on / 'X'off Y/N

Xon/Xoff is a feature used by many BBS's, information services, micros and mainframes to control the receipt of data uploaded from other systems. When the receiving system can no longer receive information it sends a decimal 19 to automatically pause, temporarily, the transmitting system (Xoff). This is done to avoid "choking" the receiving computer, giving it time to process the data error free. When the receiving system is ready to receive data again it sends an Xon, a decimal 17. When this option is selected from the menu, the system will automatically respond to Xon/Xoff when sent by the receiving system.

'3' Clearing Input Buffer & Hi-Res, Using Auto Buffer

Clear Buffer Y/N

This option will allow you to clear your input buffer so that you can accept new text. The status of your buffer can be checked on the indicators in the menu. Press 'Y' or 'N' for the desired result, or press 'ENTER' to leave the buffer untouched.

Kill Hi-res Y/N

You may opt to kill the hi-res display alternatives so that you can use the extra 7K of buffer space consumed by the system to create the hi-res displays. This feature may only be selected when your buffer is empty, since it clears the text buffer (but not the KSM buffer) when implemented. Thus, if you have determined that you need extra space to download or upload a long file or several files, first save anything of value in your text buffer, then kill the hi-res displays, and finally, go on line and download or upload your files. To kill the hi-res displays, press 'Y' in response to the Kill Hi-Res Display Y/N menu selection. ('N' or 'ENTER' will select use of the hi-res displays.)

Auto Buffer Y/N

Auto Buffer, a feature supported by most bulletin board systems (BBS's), allows you to automatically capture BASIC programs or other data being sent. It allows your computer to react to the control codes sent to perform the functions desired such as ringing a bell or opening and closing the buffer. The Auto Buffer option may not be used for sending binary files and will not work if you have elected to Pass Control Codes. The Auto Buffer is initially on.

When you have selected the Auto Buffer option, once you have indicated to the BBS that you are ready

to receive the BASIC program, the BBS will send a Control R (decimal 18, hex 12) which will automatically open your buffer; when the BBS has finished sending the program it will send a Control T (decimal 20, hex 14) to close the buffer. In the Auto Buffer mode Linefeeds (decimal 10, hex 0A) are automatically stripped out from the incoming program. See the section entitled "Operational Guidelines."

'4' Loading a Tape into VIP Terminal

VIP Terminal will allow you to load an ASCII file, a BASIC program saved in ASCII, or a machine code program into its buffer. Press '4' to load a tape into the buffer. You may continue to load files until the buffer is full. You have to use Selection '3' to clear the buffer.

Ready Cassette Press Any Key

Ready the cassette player and press any key to begin the loading process. By pressing 'BREAK' you will exit to the menu. If an error occurs while loading press any key to exit to the menu and press '4' to try again. If the textfile on the tape being loaded into your computer is too large for your buffer, a "Full" message will be displayed on the screen.

Note: To be loaded, BASIC programs must have been saved in ASCII, i.e: CSAVE"TESTFILE",A (see your BASIC manual for more information about CSAVE"TESTFILE",A).

'5' Creating a Tape Using VIP Terminal

VIP Terminal allows you to save the buffer contents to a tape in one of two formats: ASCII or binary. Pressing '5' provides the following prompts to save the buffer contents.

1=ASCII 2=BINARY

Pressing '1' creates an ASCII tape that can be loaded back into your computer as a BASIC program or into VIP Library programs, or an editor/assembler or any other program that uses ASCII files for further formatting, manipulation, etc. Pressing '2' makes a machine language program tape able to be loaded back into your computer. 'BREAK' returns to the menu.

Name

Type the name of the file to be saved to tape (8 characters or less), or press 'ENTER' for no name.

Ready Cassette Press Any Key

Ready the cassette recorder and press any key to begin saving. After saving, the menu will appear.

Note: VIP Terminal creates machine code tapes with a starting address of 0000. To load these tapes into your computer enter the following:

```
CLOADM"TESTFILE",start address 'ENTER'
```

The offset address specified serves as the start address. If the start and execute addresses are the same, type EXEC'ENTER'. Otherwise type EXEC (execute address) 'ENTER'.

'6' Displaying the Buffer to the Screen

VIP Terminal allows you to page forward through the entire buffer after loading a file or after receiving data in the Communicate Mode; it also allows you to selectively send any page of text to the printer. The text will be displayed in the display size you have chosen from selection '2' when setting parameters, unless the buffer contains graphics, in which case you MUST select the 32 by 16 display to view the buffer.

Press '6' to display the buffer. Press any key to page forward ONLY through the text or press 'BREAK' to return to the menu.

Pressing 'P' at any time will initiate printing by displaying a baud rate table and then ask if you want linefeeds to be sent to the printer (see Selection '7'). (The printer must be connected before attempting to use this feature.) After you select the appropriate baud rate (default of 600), and determined whether you want linefeeds because your printer needs them (default 'N'o), the system will send the rest of the text in the buffer to the printer starting with the page of text presently being displayed. Pressing 'Space Bar' will pause printing; press any key to resume printing; press 'BREAK' to stop printing.

'7' LPRINT Buffer Contents
(Connect Printer Before Entering This Mode)

VIP Terminal allows you to send the buffer contents to your printer at rates from 110 to 9600 baud. When you press '7' it will elicit a menu to select the baud rate and ask whether you want linefeeds sent to the printer. Once you have selected the desired baud rate, and determined whether you want linefeeds, the text will be sent to the printer.

Baud Rate

1=110	2=300	3=600	4=1200
5=2400	6=4800	7=9600	

Select the desired baud rate or press 'ENTER' for 600 baud.

Linefeeds Y/N

Select the desired result or press 'ENTER' for no linefeeds. The system will then print the entire buffer contents.

Pressing the 'Space Bar' will pause printing; pressing any key will resume printing. You may press 'BREAK' to return to the menu. If the printer is not connected or not on-line, the system will wait until the printer is ready before sending any data. To selectively print the buffer contents refer to Selection '6'.

'8' Maintain KSM's (Keystroke Multipliers)

VIP Terminal allows you to create up to 10 KSM's of up to 250 characters each. Each of the KSM's corresponds to its respective key sequence 'CLEAR'-'0-9'. KSM's may be transmitted during the Communicate Mode and are useful to perform repetitive log-on tasks, send quick messages, etc.

Creating KSM's

To create a KSM press '8' for Maintain KSM's. "KSM=0" will be displayed at the upper left-hand corner of the screen. The following commands are used to create and edit KSM's.

'E'dit

Press 'E' to edit (create) KSM0. You may now type KSM0. When you have finished typing, press 'ENTER'. The newly entered KSM will be displayed at the top of the screen.

CR: Y/N

Pressing 'Y'es will place a carriage return at the end of the KSM just entered. Pressing 'N'o will not.

'Up(Arrow)' Move 'Down(Arrow)' Move

At this point you have created KSM0. Press the 'Down Arrow' key to move to the next KSM to be created or displayed. Pressing the 'Up Arrow' key will move back through the previous KSM's. Press 'E'dit and repeat the last few steps to create as many KSM's as you need (up to 10). To clear an old KSM, press 'E'dit and then press 'ENTER'. This will erase the KSM. Pressing 'BREAK' will exit to the menu.

Saving and Loading KSM's

The entire set of 10 KSM's comprises a KSM file and can be saved to tape or to the diskette to be loaded at a later time.

'S'ave to Tape 'L'oad from Tape

Saving and loading KSM's to and from tape follow directly from the KSM creation menu and have the same procedures as those for saving and loading regular tape files set out in Selections '4' and '5'. Once you have finished creating your KSM's you may save them by pressing 'S'. You will be prompted for a name (up to eight characters). Once you have entered the name, ready your cassette, begin to record, and press any key. It's best to save your KSM files on separate tapes, well marked, so that you can easily use them later. To load your tape KSM file ready your cassette, press 'L' from the KSM menu, press any key, and then press "Play" on your recorder.

Disk Access

KSM disk access is the same as regular disk access (see Selection '9') except that you must use the commands "KL" (KSM load) and "KS" (KSM save) rather than "DL" and "DS". The "KL" and "KS" commands are reserved for the special KSM file buffer. All other system disk access rules and commands apply. It is suggested that the extension "/KSM" be used when saving KSM files to differentiate these files from your regular VIP files.

To save a KSM file to the diskette, mount a formatted diskette into Drive 0. Press '9' for Disk Commands. Now type 'K'-S' followed by the filename, the extension "/KSM" and press 'ENTER'.

EXAMPLE: KSBBS80C/KSM'ENTER'

In this example, the file "BBS80C/KSM" will be saved to the diskette mounted in Drive 0.

Important: Use "KS", not "DS", to save a KSM file, or the main file contents will be saved to the disk rather than your KSM file contents.

To load a KSM file from the diskette, mount the diskette into Drive 0. Press '9' for Disk Commands. Now type 'K'-'L', the filename, extension "/KSM" (if you have used this extension) and press 'ENTER'.

EXAMPLE: KL BBS80C/KSM'ENTER'

In this example, the file "BBS80C/KSM" will be loaded from the diskette mounted in Drive 0.

Important: Use "KL", not "DL", to load a KSM file or the KSM file will be loaded into the main file buffer rather than the KSM file buffer.

Using KSM's While Communicating

After creating your KSM's, press '1' to Communicate on-line. To send a KSM, press 'CLEAR' plus the number (0 to 9) corresponding to the KSM you wish to send.

The uses for KSM's are endless, and can't be completely covered in this manual. One use for KSM's is to create a prepared message to be put on a BBS or information service. Sending message prepared before you call long distance will save you some money since you won't have to key them in when you get on line. Another use for KSM's is to log-on to a BBS. Try a simple log-on sequence using KSM's following the examples below:

KSM0= 987/654-3210 'CR' (auto dial modems only!)
KSM1= John Doe 'CR'
KSM2= Secret password 'CR'
KSM3= Anytown, USA 'CR'

The "'CR'" after each line represents a Carriage Return that is added at the end of the KSM as outlined above. If a 'CR' is not added when the KSM is created, while on-line you will have to manually press 'ENTER' after you send the KSM.

'9' Disk Commands (Disk Version Only!)

VIP Terminal allows you to load "DL", save "DS", rename "DR", change default name "DN", and kill "DK" disk files, and display a disk directory "DI". Press '9' for Disk Commands. Pressing 'BREAK' at any time after a command has been executed will return you to the menu.

The system initializes a default extension of "/VIP" and a default drive number of ":0". These defaults can be changed at any time. The default extension assumes the last extension used and is changed by entering a new extension during any disk access ("DS", "DL" "DN" "DR" or "DK"). The same is the case with the default drive number. More about changing the defaults in later sections.

Displaying a Diskette Directory

To display a disk directory mount a diskette in Drive 0 (default drive), press '9' for Disk Commands, then press 'D'-'I'-'ENTER'. The directory for Drive 0 will be displayed with the drive number and number of free granules displayed on the Command line. If the number of entries exceeds 1 page the display will pause. To continue to the second page of entries press any key except 'BREAK'. A maximum of 68 entries is allowed. When you have found the file that you are seeking, press 'BREAK' to escape the directory and freeze the last directory page displayed.

The directory gives the filename followed by the number of granules each file occupies on the disk, and an "A" or "B" indicating whether the file is in ASCII or binary.

EXAMPLE: TESTFILE/VIP 4 A

The "4" represents the number of granules that the file occupies on the diskette. The "A" indicates that the diskfile is saved in the ASCII format. Only ASCII files may be loaded from diskette into VIP Terminal.

If VIP Terminal encounters a diskfile that has a fault in its granule allocation, an asterisk will appear in place of the number of granules in the directory. This indicates that the diskette is faulty, and may not be written to. The faulty diskfile may not be loaded, but diskfiles on the same diskette not followed by an asterisk may be loaded. (You may use VIP Disk-ZAP to correct disk errors.)

If you wish to display the directory for any drive other than Drive 0, type 'D'-I' followed by the drive number, and then press 'ENTER'. The directory will be displayed for the drive number that you specified.

EXAMPLE: DI3

This example will display the directory for the diskette mounted in Drive 3.

Saving a File to the Diskette

VIP Terminal saves files to a diskette in the ASCII format for compatibility with VIP Library files, BASIC programs saved in ASCII (see your BASIC manual) and all other programs using the pure ASCII format. There is no binary save format to disk.

VIP Terminal verifies each sector after it is written to ensure accurate data storage. If an error occurs during a Disksave, an "Error" prompt will appear on the status line. If this happens, you should resave the file on a different diskette, or on the same diskette using a different filename.

Before VIP Terminal saves a file to a specific drive it first checks to see if the file already exists on the diskette mounted in the drive specified. If the file exists, the system will save the new file over the old one, If the file does not exist the file will be saved to the diskette mounted in the drive specified.

To save any file to disk, press '9' for Disk Commands. Then mount a formatted diskette in Drive 0. Do not use VIP Terminal master diskette. Type 'D-'S' followed by the filename (not to exceed 8 characters) and press 'ENTER'. If the same file name already exists on the disk, you will then be prompted with: "Are you sure?" If you press 'Y' the file will be saved; pressing any other key will abort the save. If the same file name is not on the disk, the file will immediately be saved.

EXAMPLE: DSTESTFILE 'ENTER'

In this example the file "Testfile/vip" will be saved on the diskette mounted in Drive 0, and "Testfile saved" will be displayed on the command line. Press 'BREAK' to return to the menu.

If you wish to use a different extension such as "/BAS", type the extension after the filename.

RULE: Extensions must be preceded by a "/" or a ".".

EXAMPLE: DSTESTFILE/BAS 'ENTER'

In this example, the file "Testfile/bas" will be saved on the diskette mounted in Drive 0.

If you wish to save your file to a diskette mounted in a drive other than Drive 0, type ":" followed by the number of the drive on which you wish your file to be saved.

RULE: Drive numbers must be preceded by a ":".

EXAMPLE 1: DSTESTFILE:1 'ENTER'

EXAMPLE 2: DSTESTFILE/BAS:2 'ENTER'

In example 1, the file Testfile/vip will be saved on the diskette mounted in Drive 1. In example 2, the file Testfile/bas will be saved to the diskette mounted in Drive 2.

Using and Changing Diskname Defaults

After you have saved a file to disk (or performed any other disk access), the filename, extension, and drive number are stored in a buffer and are retained for later use. To display the last filename used press '9' for Disk Commands, then type 'D'-N' 'ENTER'. The last name, extension and drive number will be displayed on the Command line. Because the filename is retained in a buffer, you can save the same file without entering the filename, extension, or drive number each time. You can also change the default file name at any time to be able to automatically access a file with a different name or extension. Just type 'D'-N', the new file name default and then press 'ENTER'. The same disk name rules discussed above apply.

To save a file using the existing filename type 'D'-S' and press 'ENTER' 'Y'. Your file will be saved to the diskette mounted in Drive 0 with the filename "Testfile/vip".

To save a file using the existing filename to a diskette mounted in a drive other than Drive 0, type 'D'-S' followed by the drive number and press 'ENTER' 'Y'. Your file will be saved to the diskette mounted in the drive specified with the filename "Testfile/vip".

Loading a File from the Diskette

Only ASCII Files May Be Loaded from Diskette into the VIP Terminal

VIP Terminal allows you to load any ASCII file from diskette including VIP Library files, BASIC programs saved in ASCII (consult your BASIC manual) and editor/assembler source files. You can not load binary files from the disk.

To load or append any file saved in ASCII press '9' for Disk Commands, then press 'D'-'L' followed by the filename and drive number, then press 'ENTER'. If no extension is specified, the default extension will be used.

EXAMPLE: DLTESTFILE/VIP:0

VIP Terminal will look for the file Testfile/vip on Drive 0. If the file is found, it will be loaded from the diskette. If the file does not exist, a "File not found" message will appear on the Command line.

As mentioned earlier, the filename, extension and drive number are retained allowing you to load the previously entered file by typing 'D'-'L' and pressing 'ENTER'.

EXAMPLE 1: DLTESTFILE/BAS:2

EXAMPLE 2: DL

Example 1 will load the file Testfile/bas from the diskette mounted in Drive 2. Example 2 will load the previously entered file, in this case, Testfile/bas from the diskette mounted in Drive 2.

Appending Text Files

The system will allow you to load as many files as will fit in the buffer until the buffer is full. To append one file after another, load the first, then load the second. A "Full" message will be displayed on the Command line if the file to be appended is too large to fit in the buffer.

Using and Changing Diskname Defaults

As was discussed in the section on saving files to disk, a buffer retains the last filename accessed. See the discussion above for information on using and changing diskname defaults.

Renaming Disk Files

The system will allow you to rename your disk files without having to resave your file. All file name rules discussed above apply concerning filenames and extensions. To rename your file press '9' for Disk Commands, type 'D'-R' plus the file name you want changed and then press 'ENTER'. After you have pressed 'ENTER' the system will respond with the prompt: "New file name?" You may then type in the new file name and press 'ENTER'. The system will then rename your file.

EXAMPLE: DRTESTFILE 'ENTER' NEWNAME 'ENTER'

The above example renames "Testfile/vip" to "Newname/vip."

Killing Textfiles

To kill a file from the diskette, press '9' for Disk Commands, then type 'D'-K' followed by the filename,

extension and drive number and press 'ENTER'. The system will respond with "Are you sure?". A 'Y' response will kill the file; any other key will abort the kill.

EXAMPLE: DKTESTFILE/VIP:0 'ENTER' 'Y'

This example will kill the file Testfile/vip from the diskette mounted in Drive 0.

As with all other commands, "DK" will kill the previously entered file by typing 'D'-'K'-'ENTER' and answering the "Are you sure?" prompt with a 'Y'.

EXAMPLE: DK'ENTER' 'Y'

This example will kill the previously entered file Testfile/vip from the diskette mounted in Drive 0.

Transferring Tape Files to Disk

VIP Terminal supports cassette I/O allowing you to load any text file from tape and transfer it to the disk or vice versa. (See Selection '4', Tape to Buffer, and Selection '5', Buffer to Tape). The binary save and load formats are for cassette only, not disk.

'@' Exit to BASIC

You may at times desire to permanently exit VIP Terminal and return to BASIC to use another program, etc. To do so type '@' from the main menu. You will be prompted "Exit to BASIC Y/N." Press 'Y' to exit to BASIC.

O P E R A T I O N A L G U I D E L I N E S

The following information is offered to help you with some of the common communication procedures.

Automatic Buffer Operation

VIP Terminal has a unique Auto Buffer feature which allows you to download BASIC programs from Bulletin Board Systems (BBS) and other computers without lifting a finger. While on-line, the system waits for a CTRL R (decimal 18) to automatically open the buffer. Upon receipt of the CTRL R, the buffer is opened and the BASIC program is stored. At the end of the download the system waits for a CTRL T (decimal 20) to automatically close the buffer. Upon receipt of the CTRL T, the buffer is closed. You can now exit the Communications Mode and save the program.

Manual Operation

To manually open the input buffer, press 'SHIFT' 'Left Arrow'. To manually close the buffer, press 'SHIFT' 'Left Arrow' again. This toggles the input buffer status indicator in the upper left hand corner of the screen. When the indicator is orange ("Open" in the 51, 64 and 85 displays) the buffer is open and the received data will be stored. When the buffer is within 120 characters of being filled, the video screen will flash to its opposite color to give you an early warning that the buffer is near full. When the buffer is full the buffer will close automatically, turning the buffer status flag to "@" ("Closed" in the hi-res displays).

Transmitting Information to Another Computer

1) Start by loading the data or program to be transmitted into VIP Terminal.

2) Next set the RS-232 parameters to conform to those of the other computer if they are not seven bit, even parity, one start bit, one stop bit (see Selection '2'). Note: If the information to be transferred is machine language (binary), or a VIP Library file which contain characters over decimal 127, an 8 bit word length is required, and you must press 'Y' in response to the "Pass Control Characters" option in Selection '2'.

3) Select the proper duplex setting to conform to the host computer.

4) Plug in your modem and enter the Communicate Mode. Now you're ready to communicate. If the computer on the other end will support automatic buffer open and close, you can open the buffer on the other end by pressing 'CLEAR'-'R', and close the buffer by pressing 'CLEAR'-'T'. To send the data press the 'Right Arrow'. Press any key to stop sending.

NOTE: If the data being sent is binary, it will appear as graphics blocks, cross hatch characters, and other assorted garbage. This is normal.

Receiving Information from Another Computer

1) First set the RS-232 parameters to conform to the other computer. If the information to be received is binary or you are transmitting VIP Library files containing characters with a value over 128 decimal, you must select the eight bit word length, and you must press 'Y' to select the "Pass Control Characters" option in Selection '2'.

2) Now plug in your modem and go on-line. You will notice "Closed" ("@" in the 32 display) in the upper left hand corner indicating that the buffer is closed. When you are ready to receive data press 'SHIFT'Left Arrow' to open the buffer and let the data flow in. If you are receiving a BASIC program, it is advisable to use the Auto Buffer option, if the host computer supports it, to insure that there will be no direct statement in file ("DS") error when loading the program into BASIC (see section on downloading BASIC programs below). If the amount of data is within 120 characters of filling the buffer, the screen will change to indicate full. If this happens you may be able to pause the host computer so you can save the data (see the host computer's manual for specific instructions). After the data is loaded, press 'SHIFT'@' to return to the menu. At this point the data can be displayed, saved, printed, etc. You can use the Buffer Open and Close command to selectively save what you are receiving.

Helpful Hints for Downloading BASIC Programs

Frequently, when trying to load a BASIC program that has been downloaded from a BBS into your computer, you will encounter a "DS" (direct statement in file) error. There are numerous causes for this error. Sometimes it is caused by acoustic modems. More often than not, however, the error is due to improper file formatting, poor maintenance of program files by BBS operators (sys-op's) or even faulty or defective BBS equipment. If these errors persist, it is advisable that you contact the sys-op to rectify the problem.

In the event that an error such as this arises and you have VIP Writer word processing system or some other pure ASCII file editor, the error can be corrected. To correct a "DS" error, load the program into your computer and LIST the program to locate the last line number loaded. The error will lie just

after this line. Load the program into VIP Writer, locate and correct the problem and re-save the program. Note that more than one error may be present in the downloaded program, making it necessary to repeat this procedure.

Helpful Hints for Uploading BASIC Programs

Uploading BASIC programs to BBS's is a common practice. After you have selected the upload option from the BBS menu the BBS prompts you to begin sending, and awaits your transmission. In most BBS's, end of transmission is signalled by the first null line received from you, i.e., the first line having only a carriage return. This practice causes some problems for those desiring to upload BASIC programs created on your computer using BASIC.

BASIC programs are usually sent after having been saved in the ASCII format (CSAVE"FILENAME",A'ENTER' for tape and SAVE"FILENAME",A'ENTER' for disk). When saved in the ASCII format the first character put in the file by the computer is a carriage return. This start-of-file carriage return causes problems when uploading the program to a BBS. When you attempt to upload a BASIC program in its ASCII format to a BBS by pressing the 'Right Arrow' in the Communicate Mode, the first character sent is the start of file carriage return. Since BBS's often treat a bare carriage return as a null line, and thus as an end of transmission signal, they will stop receiving your upload when the first character of your BASIC file, the carriage return, is received, and will not accept any of your program.

The fix for this is simple. To fool the BBS, before sending your BASIC program, press '0' to indicate line zero, then press the 'Right Arrow'. Now the start-of-file carriage return will be received by the BBS after the '0' and will be interpreted as the end

of a program line zero. The rest of your BASIC program will then be accepted.

Transmitting and Receiving Binary Files

Binary files range from machine language programs to tokenized BASIC programs. Transmitting and receiving binary files is simple and has only two requirements. You must select the eight bit word length, and you must select to Pass Control Codes when receiving binary files (see Selection '2'). Binary files include bytes with values from 0 to 255, requiring all eight bits of the data word, and thus cannot be transmitted in less than the eight bit word length. Moreover, if you don't pass control codes, they will be reacted to by VIP Terminal.

Using Intelligent Modems

There are several excellent intelligent modems on the market. If you own such a modem, the instruction manual that came with it will tell you how to program it for your various purposes, including dialing telephone numbers.

Those of you who own a Radio Shack Modem II should know that all programming of this modem must be done using the 8 bit word length (see Selection '2'). To recommence communication functions after finishing programming the modem you will have to switch back to the 7 bit word length (if that's the word length you desire) and reset parity to EVEN if that's what you desire. Programming may be done from the Communicate Mode by pressing 'CLEAR'-': to toggle from seven bit even parity to eight bit no parity for your programming and then toggling back to seven bit even parity when you have finished programming and wish to transmit in the seven bit word length.

Communicating 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 may be set to half duplex, or one to echo and one to full duplex.

Communicating with Dumb Terminals

To communicate with a dumb terminal using VIP Terminal, one person must set his modem to originate (see you modem manual), and the Echo setting (Selection '2') should be used to support the dumb terminal's video display.

A P P E N D I X A

Key Functions During the Communicate Mode

ASCII DEC/HEX	FUNCTION	KEY(S)
None	line break	'BREAK'
None	control	'CLEAR'
CTRL C 3 3	stx	'CLEAR'-'C'
CTRL H 8 8	backspace	'LEFT ARROW'
CTRL J 10 0A	linefeed	'DOWN ARROW'
CTRL K 11 0B	vertical tab	'CLEAR'-'K'
CTRL L 12 0C	clear screen	'CLEAR'-'L'
CTRL M 13 0D	carriage return	'ENTER'
CTRL R 18 12	open host buffer	'CLEAR'-'R'
CTRL T 20 14	close host buffer	'CLEAR'-'T'
None 27 1B	escape	'CLEAR'-'SHIFT'-'DOWN ARROW'
None	toggle displays	'CLEAR'-'SHIFT'-'9'
None	toggle input buffer	'SHIFT'-'LEFT ARROW'
None	send buffer	'RIGHT ARROW'
None	return to menu	'SHIFT'-'@'
None	toggle color	'CLEAR'-'SHIFT'-'8'
None	toggle 8 bit / 7 bit	'CLEAR'-'.'
None	toggle inverse video	'CLEAR'-'SHIFT'-'7'
None	toggle wordwrap	'CLEAR'-'-'

KSM COMMANDS DURING COMMUNICATIONS

'CLEAR'-'1'	.....Send KSM 1
'CLEAR'-'2'	.....Send KSM 2
'CLEAR'-'3'	.....Send KSM 3
'CLEAR'-'4'	.....Send KSM 4
'CLEAR'-'5'	.....Send KSM 5
'CLEAR'-'6'	.....Send KSM 6
'CLEAR'-'7'	.....Send KSM 7
'CLEAR'-'8'	.....Send KSM 8
'CLEAR'-'9'	.....Send KSM 9
'CLEAR'-'0'	.....Send KSM 0

DISK COMMANDS

'D'-'I'.....Read Directory
'D'-'K'.....Kill a Disk File
'D'-'L'.....Load a Disk File
'D'-'N'.....Display & Change Diskname Default
'D'-'R'.....Rename a Disk File
'D'-'S'.....Save a Disk File
'K'-'L'.....Load a KSM File
'K'-'S'.....Save a KSM File

APPENDICES (Continued)

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 from your keyboard.

A note about displays in the various screen options. The first 32 symbols have no screen representation since they are control codes, not standard alphabet, number, punctuation, etc., characters. Further, the hi-res screens display the ASCII symbols themselves wherever the 32 by 16 screen displays an inverse character. The Delete character is displayed in the hi-res displays as a cross hatch character. All characters having a decimal value over 127, such as graphics blocks, are represented on the hi-res screen as a cross hatch character. These characters have the standard representation in the 32 by 16 display.

ASCII	DISPLAY	DEC	HEX	KEY(S)
NULL	None	0	0	'CLEAR'-'@'
CTRL A	None	1	1	'CLEAR'-'A'
CTRL B	None	2	2	'CLEAR'-'B'
CTRL C	None	3	3	'CLEAR'-'C'
CTRL D	None	4	4	'CLEAR'-'D'
CTRL E	None	5	5	'CLEAR'-'E'
CTRL F	None	6	6	'CLEAR'-'F'
CTRL G	None	7	7	'CLEAR'-'G'
CTRL H	None	8	8	'CLEAR'-'H'
CTRL I	None	9	9	'CLEAR'-'I'
CTRL J	None	10	A	'CLEAR'-'J'
CTRL K	None	11	B	'CLEAR'-'K'
CTRL L	None	12	C	'CLEAR'-'L'
CTRL M	None	13	D	'CLEAR'-'M'

APPENDICES (Continued)

ASCII	DISPLAY	DEC	HEX	KEY(S)
CTRL N	None	14	E	'CLEAR'-'N'
CTRL O	None	15	F	'CLEAR'-'O'
CTRL P	None	16	10	'CLEAR'-'P'
CTRL Q	None	17	11	'CLEAR'-'Q'
CTRL R	None	18	12	'CLEAR'-'R'
CTRL S	None	19	13	'CLEAR'-'S'
CTRL T	None	20	14	'CLEAR'-'T'
CTRL U	None	21	15	'CLEAR'-'U'
CTRL V	None	22	16	'CLEAR'-'V'
CTRL W	None	23	17	'CLEAR'-'W'
CTRL X	None	24	18	'CLEAR'-'X'
CTRL Y	None	25	19	'CLEAR'-'Y'
CTRL Z	None	26	1A	'CLEAR'-'Z'
ESCAPE	None	27	1B	'CLEAR'-'SHIFT''DOWN ARROW'
FS	None	28	1C	'CLEAR'-'SHIFT''CLEAR'
GS	None	29	1D	'CLEAR'-'SHIFT''RIGHT ARROW'
RS	None	30	1E	'CLEAR'-'UP ARROW'
US	None	31	1F	'CLEAR'-'SHIFT''UP 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'

APPENDICES (Continued)

ASCII	DISPLAY	DEC	HEX	KEY(S)
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	'='
>	>	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	'SHIFT' 'DOWN ARROW'

APPENDICES (Continued)

ASCII	DISPLAY	DEC	HEX	KEY(S)
\	\	92	5C	'SHIFT' 'CLEAR'
]	]	93	5D	'SHIFT' 'RIGHT ARROW'
^	↑	94	5E	'UP ARROW'
⌘	Left Ar	95	5F	'SHIFT' 'UP ARROW'
⌘	INVERSE @	96	60	'CLEAR'-'SHIFT' '1'
a	a	97	61	'a'
b	b	98	62	'b'
c	c	99	63	'c'
d	d	100	64	'd'
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'
{	INVERSE [	123	7B	'CLEAR'-'SHIFT' '2'
|	INVERSE \	124	7C	'CLEAR'-'SHIFT' '3'
}	INVERSE]	125	7D	'CLEAR'-'SHIFT' '4'
~	INVERSE ↑	126	7E	'CLEAR'-'SHIFT' '5'
DEL	INV LE AR	127	7F	'CLEAR'-'SHIFT' '6'

APPENDICES (Continued)

Appendix B

What to do if Your TV Display is Hard to Read

After loading your VIP Terminal program and using it for a while you may be dissatisfied with the screen display when you are using the 51, 64, or 85 displays. You may notice that when you are using color you have a rainbow of colors on the screen instead of the background color of green or white that you wanted, making it nearly impossible to read your text. This inability to have a sharp, clear, crisp display is NOT a problem with the program, it is a problem of the computer and your particular TV.

Unfortunately, color TV's were not made to be used with computers. Color pictures are made from a composite of blue, green and red. Although they may be easily controlled by the scanning techniques used to generate TV shows, that scanning technique is not adequate to control the screen the way the computer does by controlling individual spots (or pixels) on the screen. Thus, when the background color is not a pure color, red, green or blue, the color cannot be controlled to be pure. Shadows and blooms of other colors mix in. This causes the black letters to sometimes be blotched or to have shadows so that they are difficult to read. The smaller the letters the greater the problem. Thus, the 85 display may be very hard to read.

Of course the 85 display, and to some extent the 64 display, were not designed for entering and editing text unless you use a monitor. They were designed for formatting purposes. If you can use them to input text, so much the better.

There are some things that can be done to help make the displays more readable. First, you can use the green background to avoid the problems associated with color mixing. You could also get a color monitor for

APPENDICES (Continued)

better control of your display colors. Alternatively, you can use a black and white TV instead of a color TV. If all else fails, the 32 by 16 display will definitely work with your color TV.

Although many find the 32 by 16 display too small, others like it because it is easier to read, and since the lines are short like those of a newspaper, review is faster. Of course, the 32 by 16 display retains the reverse video display used by your computer for displaying lowercase characters, and you may find this unsatisfactory. There is, however, a fix for this. The LCA-47 Lowercase Adapter sold by Micro Technical Products, Inc., Mesa, Arizona will give you true lowercase with the 32 by 16 mode.

The final option is to buy a monitor, a special kind of video machine, for displaying your text.

APPENDICES (Continued)

Appendix C

Other VIP Library Programs

Each of the programs in the VIP Library, with the exception of VIP Speller and VIP Disk-ZAP, were specifically designed to create files compatible with other programs in the Library. With the Library you can perform the essential home business tasks and combine the results for many purposes.

VIP Writer is one of the central programs in the Library. It contains the most sophisticated editing and printing features, and it is to be used to create all reports combining files created on other applicable Library programs. A close companion is VIP Speller. The Speller can be used to correct typos and misspellings in VIP Writer files.

VIP Calc is used to create financial or mathematical reports. It contains sophisticated print functions for independent printing of such reports. You may create files usable by VIP Writer for reports to be combined with other text.

VIP Terminal is a communications program capable of transferring and receiving any ASCII file, including VIP Library files. ASCII files can be transferred to VIP Writer for further editing. The Terminal program also allows you to transfer files to work, clubs or friends. You can also print files received from others.

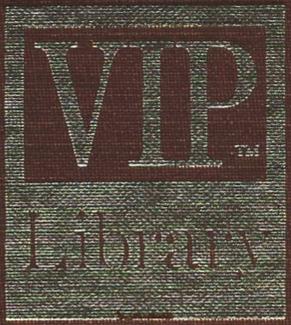
VIP Database, similar to VIP Calc, has its own sophisticated print functions for independent printing of database files. You can also create files for use with VIP Writer.

VIP Disk-ZAP is a disk repair utility designed to repair any kind of file. Of course, it therefore will also work on other Library files.

NOTES

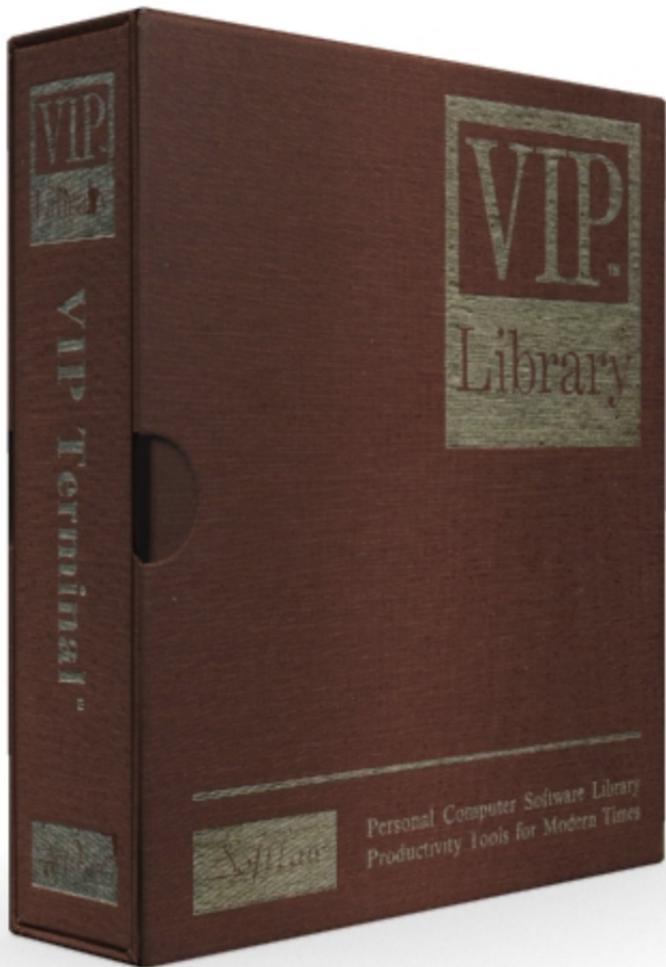
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