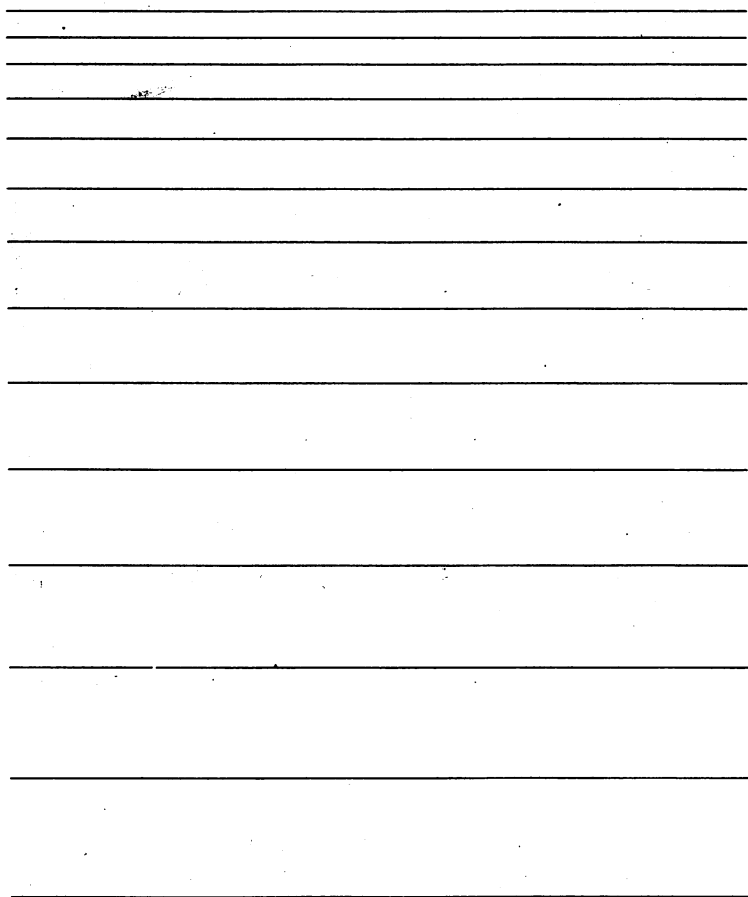


**USER'S MANUAL**



PIONEER

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## INTRODUCTION

Welcome to the world of telecomputing with CONNECT 64, the intelligent terminal program that lets you use your Commodore 64 to communicate with other computers automatically over telephone lines.

With CONNECT 64 and your Commodore 64 home computer, you will be able to automatically send, receive, store, or print large amounts of information.

CONNECT 64 allows your Commodore 64 to automatically dial and log on to most frequently used data bases. It is preset for many of the popular data bases and also lets you adapt your system to communicate with almost any other computer. CONNECT 64 even keeps track of your logon time.

- Here are a few of the many features of CONNECT 64:
  - \*\* Simple to use and completely operated by selecting options from menus.
  - \*\* Automatically dials and logs on to eight of your favorite systems.
  - \*\* Automatically sends, receives, stores, and prints large amounts of information.
  - \*\* Preset to your favorite data bases with options that allow you to select other communication protocols.
  - \*\* Offers you two different ways to save transmitted information: continuously or one screen at a time.
  - \*\* Makes extensive use of special function keys.
  - \*\* Saves you money by reducing your connect-time charges.
  - \*\* Easy to understand, step-by-step documentation.

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## PART I

### GETTING STARTED

#### WHAT YOU WILL NEED

To use CONNECT 64, you will need the following equipment:

- == the Commodore 64 Personal Computer
- == a video monitor or a television set
- == one disk drive
- == a telephone line with a standard modular telephone jack
- == Commodore-formatted disks for file storage

.....

## HOW TO SET UP YOUR MODEM

In order to telecommunicate with CONNECT 64 you need to follow the instructions below, which explain how to connect your modem to your computer and the telephone.

You should have:

The 64 Modem

The 6-foot modular telephone cable

Your telephone line

1. Make sure your Commodore 64 is turned OFF.
2. Look at the 64 Modem and find the parts shown in the diagram.
3. Disconnect your telephone line from the telephone and plug it into the LINE jack on the 64 Modem.
4. Connect one end of the six-foot telephone cable to the base of the telephone and the other end to the PHONE jack on the 64 Modem.
5. Insert the wide connector on the 64 Modem into the connector port on the right hand side of the back of the Commodore 64.
6. Check the installation by setting the DIAL/TALK switch (labeled D/T) on the 64 Modem to T. All functions of the telephone should work normally. If they do not, check the connection between the PHONE jack and the telephone, and the connection between the LINE jack and the telephone line to the wall.

To use your telephone normally:

Set the DIAL/TALK switch to T.

To telecommunicate:

Set the DIAL/TALK switch to D.

You are now ready to telecommunicate!

## LOADING CONNECT 64 (BOOTING UP)

Here are the steps to begin using CONNECT 64. This process is called "booting up" your computer.

1. First, turn on your computer, disk drive, and video display. You will see the message:

```
**** COMMODORE 64 BASIC V2 ****
```

```
64K RAM SYSTEM 38911 BASIC BYTES FREE
```

```
READY.
```

2. Hold your CONNECT 64 disk with your thumb on the label, and insert it label side up into the disk drive. Gently close the door, and type in the following command:

```
LOAD"TT",8
```

Press RETURN and after a few seconds, the following will appear on your display:

```
**** COMMODORE 64 BASIC V2 ****
```

```
64K RAM SYSTEM 38911 BASIC BYTES FREE
```

```
READY.  
LOAD"TT",8  
SEARCHING FOR TT  
LOADING  
READY.
```

3. Now type the command:

```
RUN
```

Then press RETURN. You will see a title screen, and after a couple of minutes, the main menu: CHOOSE DIALING OPTION.



PART II

OVERVIEW OF THE FEATURES

OF CONNECT 64

CHOOSE DIALING OPTION MENU  
(THE MAIN MENU)

The Choose Dialing Option menu is the heart of CONNECT 64. From this main menu, you will be able to auto-dial, auto-logon, dial from the keyboard, and enter or edit entries in your dialing directory.

CHOOSE DIALING OPTION  
(set modem switches)

- f1    press f1 to auto-dial  
      and auto-logon  
      \*\*\*\*\*
- f3    press f3 to manual dial  
      with the numbers on  
      the computer keyboard
- f5    press f5 to enter  
      the auto-logon  
      information
- f7    press f7 to hang  
      up the phone  
      and disconnect

Press RETURN for other features

The following is a brief survey of the commands from this menu. Each of the sub-menus will be discussed in greater detail.

- f1 allows you to use entries listed in the dialing directory to auto-dial and auto-logon.
  - f3 lets you type in a phone number which CONNECT 64 dials and connects for you.
  - f5 lets you enter and edit the phone numbers and logon sequences for your favorite data bases and bulletin boards.
  - f7 hangs up the phone and confirms the disconnection for you.
- RETURN takes you to the OTHER FEATURES menu.

AUTO-DIAL AND AUTO-LOGON  
(F1 FROM THE CHOOSE DIALING OPTION MENU)

You will be presented with the Phone Directory of the names and numbers that are entered in your directory files. To auto-dial and auto-logon, simply choose the number you want and CONNECT 64 does the rest. The number you select will be dialed, and your computer will wait to detect the carrier signal.

If the carrier signal is not detected within 30 seconds, the modem will hang up, and you will be returned to the Choose Dialing Option menu. If a carrier signal is detected, the screen will clear, and you will see the message:

terminal ready

CONNECT 64 will then enter the auto-logon sequence for you.

MANUAL DIAL FROM KEYBOARD  
(F3 FROM THE CHOOSE DIALING OPTION MENU)

Simply type in the phone number you wish to dial. The telephone number you enter will be dialed automatically, and CONNECT 64 will wait for a carrier signal. You may type # at any time to exit. If no carrier signal is detected within 30 seconds, you will be returned to the main Choose Dialing Option menu. If a carrier signal is detected, the screen will clear, and you will see the message:

terminal ready

You may then enter the correct logon sequence for the network or computer you are calling.

**ENTER LOGON INFORMATION  
(F5 FROM THE CHOOSE DIALING OPTION MENU)**

By pressing f5 from the main menu (Choose Dialing Option), you can create and edit the auto-dial and auto-logon directory. When you make this selection, you will be asked to confirm it. Loading the Phone Directory will erase any information currently in the buffer (your computer's temporary memory). As many as eight names, numbers, and logon sequences can be stored in the Phone Directory. Choose the number of the file you want to create or change from the directory. If you want to create a new number, the files are already set up for you.

When you wish to create a logon file, follow these steps:

1. Enter the file name in the space provided, then press RETURN. (The cursor will move to the next input line each time you press RETURN. If you wish to go back to correct something, use the cursor-movement keys on the lower right of your keyboard.)
2. Enter the telephone number. Non-numeric characters in the telephone number will be ignored, except for the letter P, which you can insert before a number to produce a five-second pause in the auto-dialing operation. (This feature is useful for business telephone systems which require a pause to gain access to an outside line.)
3. Enter your logon information. You may enter up to 15 lines of message and carriage returns (CR). Under "time," enter the the number of seconds of pause you need before sending each message. CONNECT 64 is preset for ten seconds per line. If you wish to change the standard ten-second pause, simply type over it. Always add a "0" (zero) before a number less than ten.

If you want to send a carriage return after a line of message, press RETURN; if you do not, change the Y in the CR column to N for no. Control characters in your message are designated by an arrow-up character (^). To send only a carriage return, enter ^m on the message line and change the CR column to "N" for no.

Your computer will terminate the logon sequence when it encounters a blank line. If you are not sure how many carriage returns or how long a pause to insert before you type in the password, test the sequence using the Manual Dial feature.

After you have entered your logon information, press f1 to exit the logon file. Return to the Phone Directory, and select the number of the file you wish auto-dialed and auto-logged on. CONNECT 64 will do the rest!

HANG UP THE PHONE  
(F7 FROM THE CHOOSE DIALING OPTION MENU)

Pressing f7 on the main Choose Dialing Option menu hangs up the phone and disconnects you from the computer or service you were calling.

This is also how you may exit a data base.

.....

OTHER FEATURES MENU  
(RETURN KEY FROM THE CHOOSE DIALING OPTION MENU)

You will be presented with this menu if you press RETURN from the main Choose Dialing Option menu. This menu allows you to choose screen colors (if you have a color video display), enter terminal mode, or set up your system to auto-answer.

OTHER FEATURES

- f1      press f1 to change colors  
         and terminal parameters
- f3      press f3 to return to  
         the main menu
- f5      press f5 for terminal  
         mode menu
- f7      press f7 to enter  
         auto-answer mode

From this menu, you will also be able to reset the terminal parameters. CONNECT 64 comes preset with the most common communications parameters, so you will not need to change them to use most data bases.

The following is a brief survey of your choices in the Other Features menu:

- f1 provides a series of four menus of color and terminal parameters.
- f3 returns you to Choose Dialing Option, the main menu.
- f5 places your computer back in terminal mode to continue communication with a computer that is already on-line.
- f7 sets up your computer to automatically wait for and connect with an incoming call.

SELECT COLORS AND TERMINAL PARAMETERS MENUS  
(F1 FROM THE OTHER FEATURES MENU)

When you press f1 on the Other Features menu, a series of four menus will be displayed. These sub-menus let you select terminal color and terminal communications parameter options.

The terminal communications parameters are settings that determine how information is transferred from one computer to another. CONNECT 64 comes preset with the most commonly-used communications protocols.

You will not need to change any of these parameters to use most data bases, time share systems, and bulletin boards. For special situations, simply use the appropriate function key to change the default settings.

COLORS

If you have a color video display, you may want to select the background, border, and character colors on your video display. A series of fifteen different colors will appear as you continue to press the appropriate function key.

STOP BITS, BIT WORD LENGTH, AND BAUD RATE

This is the second menu in this series. It lets you change the stop bits, bit word length, and baud rate. You will not need to change these items to use most data bases, time-share systems, and bulletin boards.

STOP BITS are part of each transmitted character and are used to delineate a byte, which represents one character. The CONNECT 64 default value for the number of stop bits is one.

BIT WORD LENGTH is the number of bits used to represent a character (a byte). The default bit word length is 8.

BAUD RATE is the rate at which information is transmitted. The CONNECT 64 default value is 300.

#### PARITY, DUPLEX, AND TEXT-SAVING MODE

The third menu in this series lets you change the parity and the duplex parameters. You will not need to change these items to use most data bases, time-share systems, and bulletin boards.

This menu also lets you select the way in which you receive data.

PARITY is a means of checking for errors in each character of information transmitted. Usually no parity bits are transmitted, but even and odd parity checking is available. CONNECT 64 is preset for no parity checking.

DUPLEX refers to the way in which information is transmitted between two computers. In full-duplex communication, both systems can send and receive information simultaneously. In half-duplex, only one at a time can send or receive data. The CONNECT 64 default is full duplex.

The last item on this menu allows you to change the way you want to save transmitted information. You have a choice between two different modes: CONTINUOUS or PAGE-SAVE. CONNECT 64 is preset to the Continuous data save mode.

CONTINUOUS mode is used to save all transmitted information continuously into one file. This is useful for saving large files.

PAGE-SAVE mode is useful for saving small amounts of information. All of the information appearing on a screen is saved as a "page."

- IMPORTANT: If you change the data-saving mode, you will erase any data saved in the buffer (your computer's temporary memory).

## ECHO, TRANSLATION, AND ONLINE CLOCK

The last menu in this series of terminal options will allow you to change the echo and translation.

This menu will also let you set the online clock.

The NORMAL ECHO setting lets you see what you type on your keyboard while telecommunicating. CONNECT 64 is set on normal echo. If you do not see the characters you are typing, this usually means that the computer with which you are communicating does not provide an echo. If this occurs, switch the setting to local echo, and the characters you type should appear on your screen.

TRANSLATION refers to the code computers use to communicate with one another. CONNECT 64 is preset to the ASCII code for communication with other non-Commodore computers. When communicating with other Commodore computers, you may use the Commodore translation, but only if the other computer is sending non-translated Commodore code.

The ONLINE CLOCK provides a record of your connect-time. The connect-time is the amount of time your computer is connected by telephone lines to another computer. Data bases and time-share systems often bill by the amount of time you are connected.

To start the clock, press f5, and a timer will keep track of your connect-time. When in terminal mode, press f7 to display your connect-time. To reset the clock, return to this menu, and press f5 twice.

## TERMINAL MODE (F5 FROM THE OTHER FEATURES MENU)

Use this option when you are already connected to a system. Press f4, and you will be presented with one of the following menus, depending on which data-save mode you selected earlier:

THE TERMINAL MODE MENU IN CONTINUOUS DATA SAVE

or

THE TERMINAL MODE MENU IN PAGE-SAVE

AUTO-ANSWER  
(F7 FROM THE OTHER FEATURES MENU)

F7 from the Other Features menu allows you to set up your computer to automatically wait for and connect with an incoming call. If a call is received, it will be answered, and the CONNECT 64 program will display a message on your screen indicating that your terminal is ready.

THE TERMINAL MODE MENU IN CONTINUOUS DATA SAVE

CONTINUOUS MODE, which allows you to save incoming data continuously, is useful for saving large text files. You may also use the CONTINUOUS MODE to save programs. The standard Commodore 64 can temporarily save over 38 pages of text in the buffer.

In Terminal Mode the F-Keys  
Have These Functions:  
(continuous mode)

f1	start data save	f2	auto-dial and auto- logon menu
f3	stop data save	f4	show f-key labels
f5	scroll through text	f6	read/upload from disk
f7	enter terminal mode/clock	f8	save data to disk or printer



If your computer is in CONTINUOUS save when your computer is in terminal mode, you will be shown a menu describing the uses of the special function keys:

- f1        saves all incoming data to the buffer from the moment you press this key. When using this method to save information, be sure to press f1 immediately before the transmission of the first line of the information you wish to save. In this mode, if the information is already on the screen, it is too late to save it.  
  
          During the data-saving process, when you press f1, the amount of memory remaining in your computer will be displayed in a corner of the screen.
- f2        returns you to Choose Dialing Option, the main menu.
- f3        stops the data saving process.
- f4        displays this menu at any time during data saving without interrupting the process.
- f5        allows you to view the information stored in the buffer. Scrolling displays the data by continuously moving text from the bottom to the top of the screen. Hold the f5 function key down, and the data will scroll on the screen; release the key and scrolling will stop. Press any other key to return to the main menu.
- f6        lets you retrieve files from the disk to view or send.
- f7        lets you exit from the menu and begin or return to the terminal mode for telecommunicating.
- f8        gives you the option to save the information in the buffer on the disk or print it out.

## THE TERMINAL MODE MENU IN PAGE-SAVE

PAGE-SAVE mode allows you to save all the information displayed on a given screen. Screens or "pages" are stored in memory sequentially (one right after the other) until all available memory is used up. The major advantage of PAGE-SAVE is that information can be saved after it has been displayed on your screen. You will find this useful when the amount of the computer's memory is limited. Each page is numbered as it is stored in memory.

### In Terminal Mode the F-Keys Have These Functions: (page-save mode)

f1	save screen to memory	f2	auto-dial and auto- login menu
f3	examine screens forward	f4	show f-key labels
f5	examine screens backward	f6	read/upload from disk
f7	enter terminal mode/clock	f8	save data to disk or printer

If you selected PAGE-SAVE earlier on, when you are in terminal mode the following menu will be displayed:

- f1 saves the page currently on screen. When you see a screen that you want to save, press f1 and the page will automatically be numbered and saved in memory.
- f2 returns you to Choose Dialing Option, the main menu.
- f3 lets you examine the pages stored in memory in sequence.
- f4 displays this menu at any time during data saving without interrupting the process.
- f5 lets you examine the pages stored in memory in reverse order.
- f6 lets you retrieve files from the disk to view or send.
- f7 lets you exit from the menu and begin or return to the terminal mode for telecommunicating.
- f8 gives you the option to save the information in the buffer on the disk or print it out.

.....

#### DOWNLOADING (RECEIVING) INFORMATION

When your computer is in terminal mode (communicating with another computer), you will be able to receive and save data in the buffer (temporary memory) of your computer. CONNECT 64 provides two ways of downloading (receiving) the information, continuously (CONTINUOUS) or one screen at a time (PAGE-SAVE).

If you are in terminal mode and would like to review the uses of your special function keys, press f4, and you will be presented with the appropriate terminal menu without interruption of your terminal connection.

Remember, changing data-save modes erases any information in your computer's temporary memory, known as the "buffer." Changing data-save modes is also the standard method for clearing the buffer without turning the computer off. If, for example, you wish to temporarily save information in the buffer but not store it on disk, return to the Other Features Menu, and press the data save function key (f5 on the third Terminal Parameters screen) twice.

.....

STORING INFORMATION ON THE DISK  
(F8 FROM BOTH TERMINAL MODES)

Follow these steps to save information in both the CONTINUOUS and PAGE-SAVE modes.

1. Press F8 in terminal mode to transfer data from the buffer and store it on the disk.
  2. You will be asked to "Choose the saving device." Select 2 for disk.
  3. You will be asked to enter a file name to identify the information you are going to store.
  4. Take your CONNECT 64 disk out of the drive and replace it with a Commodore-formatted disk for storage. The space is limited on your CONNECT 64 disk, and you should not save data on it.
  5. In PAGE-SAVE mode, the page currently on the screen will be saved in the disk file.  
  
In CONTINUOUS mode, the entire contents of the buffer will be saved or printed.
- It is a good idea to make a note of the file names and the mode in which information was saved. When retrieving the files from disk, our computer must be in the same data-saving mode as when the files were saved.

.....

READING (RETRIEVING) INFORMATION  
(F6 FROM BOTH TERMINAL MODES)

When you retrieve information from disk, it will be loaded into the buffer. Follow these steps:

1. Press f6, "read/send from disk," from either of the Terminal Mode Menus.
2. Choose the option "READ into memory from disk." Reading a file is the process of copying information from a storage disk and storing it in the computer's memory. This only copies the data and does not erase it.
3. Take your CONNECT 64 disk out of the disk drive, and replace it with the appropriate data-storage disk.
4. If you enter a dollar sign (\$), a directory of the storage disk will be displayed. Be sure that your terminal is in the same data-save mode in which you originally stored your data.
5. To examine the contents of the file use the function keys from the appropriate data-saving mode. In the CONTINUOUS mode, the function keys may be used to examine the contents of the file or to print it. In PAGE-SAVE mode, the retrieved page is displayed until you press any key. The screen is then erased from the buffer, not stored in memory.
6. When you are finished, press f4, and you will be taken back to the Terminal Mode Menu.

\*\*\*\*\*

**UPLOADING (SENDING) INFORMATION  
(F6 FROM BOTH TERMINAL MODES)**

Uploading transmits information from a storage disk to another computer. You can only upload (transmit) from CONTINUOUS mode. After you have determined what information you wish to transmit, follow these steps:

1. Press f6. "read/send from disk," from either of the Terminal Mode Menus.
2. Choose the option "TRANSMIT (Upload) a file from disk."
3. Take your CONNECT 64 disk out of the disk drive, and replace it with the appropriate data-storage disk.
4. If you enter a dollar sign (\$), a directory of the storage disk will be displayed. Be sure that your terminal is in CONTINUOUS data-save mode and that you originally stored your data in this mode. Your computer must be in the CONTINUOUS mode to transmit data.
5. Check that the computer you are calling is ready to receive your transmission. You will be asked to enter a file name. Once you enter the file name and press RETURN, the transmission will begin. The entire file will be transmitted.
6. During the transmission, the operator of the remote computer (the one receiving the transmission) may pause, restart, or abort your transmission by simultaneously pressing one of the following sets of control characters:

CTRL with S temporarily stops the upload.

CTRL with Q restarts the upload.

CTRL with C aborts the upload.

7. You can abort (stop and abandon) the upload yourself by holding down the "S" key on your keyboard. The transmission of your file will stop, and you will be returned to the TERMINAL MODE menu.

The method used for creating a file to be transmitted is up to you. The file may be one that was originally saved with CONNECT 64 or it may be a file you created with a word processor. If your word processor saves text as program files, specify the file name in this manner:

"filename.p,r"

Note that after you type in your file name, you must also type a P (for program) and an R (for read). Separate them with commas and place double quotes around the entire command.

You can also send BASIC programs if you convert them to text files. To create a text file from your BASIC program, load the program into memory, and type the following:

OPEN 2,8,2,"0:filename.s,w":CMD 2:LIST

Be sure to type this command exactly as printed. When the save is completed (and the flashing cursor returns to the screen), type:

CLOSE 2

Before you upload the newly-created file, you must clear your system by turning off your computer and disk drive for a moment, restart your system, load the file, and then transmit it as you would any other file.

Note that unless you and the remote computer are both in Commodore Mode (as opposed to ASCII), graphics characters cannot be transmitted successfully because they do not have any ASCII representation.

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#### PRINTING INFORMATION (F8 FROM BOTH TERMINAL MODES)

To transfer information to your printer, be sure the printer is properly connected and turned on when you boot up CONNECT 64. Follow these steps from the Terminal Mode Menu:

Press f8 and you will be prompted to "Choose the saving device."

Select option 2, printer.

In PAGE-SAVE mode, the page currently on screen will be printed. In CONTINUOUS mode, the entire contents of the computer's memory will be printed.

\*\*\*\*\*

## PART III

### SPECIAL EQUIPMENT CONSIDERATIONS

#### CALL WAITING

If you have the Call Waiting feature with your telephone, you will be disconnected if you get a call while communicating with CONNECT 64. If this occurs, reconnect and try again. You may also disable Call Waiting by following these steps:

1. With the DATA/VOICE switch on your modem switched to VOICE, pick up the telephone receiver, and dial 9.
2. Click the telephone switchhook to receive the dial tone of your second line.
3. Switch the DATA/VOICE switch to DATA.
4. Hang up the telephone receiver.

Anyone now calling you will get a busy signal, and your connection cannot be interrupted by an incoming call.

When you finish communications, switch your modem back to VOICE. Your phone can now be used for normal voice communications. If you have used the above procedure to disable Call Waiting, do not use your phone for a few minutes, and both lines will clear automatically.

#### WALL PHONES

If you have a wall phone and are using the 64 Modem, the telephone cable from the TELCO jack on your 64 Modem must be connected to the jack behind the telephone. You will need to remove the phone from the wall to connect this cable. You will no longer be able to use this telephone for normal voice communications unless you purchase a special adapter kit.

#### PRINTER

Connect your printer according to your printer user's manual. To transfer information to your printer, be sure the printer is connected and turned on when you boot up CONNECT 64.



PART IV  
TROUBLESHOOTING

PROBLEM	POSSIBLE SOLUTION
-----	
Unable to connect	<ul style="list-style-type: none"><li>- check that you have connected your equipment correctly</li><li>- check that DATA/VOICE switch is on DATA</li><li>- check to see that the phone number is in order</li><li>- check that you have entered your auto-logon information correctly</li></ul>
Receiving scrambled characters	<ul style="list-style-type: none"><li>- possible noise on line from weak connection</li><li>- check that extension phones are on hook</li><li>- check communications parameters</li></ul>
Disconnected	<ul style="list-style-type: none"><li>- check phone line connection</li><li>- check that extensions are on hook</li><li>- disable call waiting; see "Call Waiting"</li><li>- check to see that phone number is in order</li></ul>
Printer won't print	<ul style="list-style-type: none"><li>- check that you printer is on and correctly connected</li><li>- check that you are printing from the same mode in which you downloaded</li></ul>
Receiving double letters	<ul style="list-style-type: none"><li>- switch parameter from half to full duplex</li></ul>
Receiving no letters when you type	<ul style="list-style-type: none"><li>- switch parameter to local echo</li></ul>
Interference with radio or TV	<ul style="list-style-type: none"><li>- move the equipment farther away</li><li>- plug the computer into a different electrical outlet</li></ul>

APPENDIX A NETWORK ACCESS NUMBERS

TWIXET NUMBERS:

STATE	CITY	PHONE	STATE	CITY	PHONE	
ALABAMA	ANNISTON	205/236-2655		PALM SPRINGS	619/320-8772	
	BIRMINGHAM	205/942-4141		PALO ALTO	415/366-1892	
	HUNTSVILLE	205/882-3883		PASADENA	818/388-1888	
	MOBILE	205/343-8414		PLEASANT HILL	415/682-3851	
	MONTGOMERY	205/265-4578		PLEASANTON	415/462-8988	
ALASKA	TUSCALOOSA	205/349-5678		PORONA/DIAMOND BAR	714/594-4567	
	ANCHORAGE	907/538-7222		PORT HUENENE	805/985-7843	
	FAIRBANKS	907/456-3282		RANCHO BERNARDO	619/485-1998	
	JUNEAU	907/789-7889		REDDING	916/223-8449	
	PRUDHOE BAY	907/659-2777		REDWOOD CITY	415/366-1892	
ARIZONA	PHOENIX	602/254-5811		RIVERSIDE/COLTON	714/378-1288	
	TUCSON	602/798-8764		SACRAMENTO	916/448-4388	
ARKANSAS	FT SMITH	581/782-3218		SALINAS	488/443-4333	
	HOT SPRINGS	581/321-9741		SAN CLEMENTE	714/498-9584	
	JONESBORO	581/932-1147		SAN DIEGO	619/294-3378	
	LITTLE ROCK	581/666-6886		SAN FRANCISCO	415/974-1368	
	SPRINGDALE	581/756-2281		SAN JOSE/SANTA CLAR	488/988-8188	
CALIFORNIA	ALHAMBRA	818/388-1888		SAN LOUIS OBISPO	805/546-8541	
	ANTIOCH	415/778-3428		SAN PEDRO	213/435-8988	
	ARCADIA	818/388-1888		SAN RAFAEL	415/492-9328	
	BAKERSFIELD	805/325-8366		SANTA ANA	714/966-8313	
	BEVERLY HILLS	818/789-9882		SANTA BARBARA	805/963-9241	
	BURBANK	818/841-7898		SANTA CLARA	488/988-8188	
	BURLINGAME	415/952-4757		SANTA CRUZ	488/475-8981	
	CANOGA PARK	818/789-9882		SANTA MONICA	213/821-2257	
	CHICO	916/893-1876		SANTA ROSA	787/527-6188	
	CONCORD	415/682-3851		SHERMAN OAKS	818/789-9882	
	CORONA	714/371-2291		STOCKTON	289/467-8681	
	COVINA/DIAMOND BAR	714/594-4567		THOUSAND OAKS	805/496-3473	
	CUPERTINO/STA CLARA	488/988-8188		VALLEJO	787/557-8333	
	DAVIS/WOODLAND	916/753-3722		VAN NUYS	818/789-9882	
	DIAMOND BAR	714/594-4567		VISALIA	289/625-5523	
	EL SEGRUNDO	213/648-1281		VISTA	619/941-6788	
	ESCONDIDO	619/941-6788		N. COVINA/DIAMOND BA	714/594-4567	
	EUREKA	787/445-3281		WALNUT CREEK	415/938-9558	
	FREMONT	415/498-7566		COLORADO	COLORADO SPRINGS	383/598-1883
	FRESNO	289/442-4328			DENVER	383/838-9218
	HAYWARD	415/438-2988		FORT COLLINS	383/221-8687	
	LANCASTER	805/945-7841		GREELEY	383/356-8425	
	LONG BEACH	213/435-8988		PUEBLO	383/543-3313	
	LOS ANGELES	213/626-2488		CONNECTICUT	BLOOMFIELD	283/242-7148
	LOS ANGELES	213/623-8588			BRIDGEPORT	283/367-6821
	MANTUA	805/985-7843			DANBURY	283/797-9539
	MAR VISTA	213/821-2257			DARTEN	283/965-8888
	MARTINA DEL REY	213/821-2257			FAIRFIELD	283/226-5258
	MISSION HILLS	818/789-9882			HARTFORD	283/242-7148
	MODESTO	289/571-8488			MERIDEN	283/235-5188
	MTM VIEW/SANTA CLAR	488/988-8188			NEW HAVEN	283/773-8882
	NAPA	787/257-2656			NEW LONDON	283/444-1789
NEWPORT BEACH	714/966-8313	STANFORD	283/965-8888			
NORTHBRIDGE	818/789-9882	WATERBURY	283/755-5994			
NORWALK	213/435-8988	WESTPORT	283/226-5258			
OAKLAND	415/438-2988	D. C.	WASHINGTON	783/691-8288		
ONTARIO/DIAMOND BAR	714/594-4567		WASHINGTON	783/691-8398		
OXNARD/PORT HUENENE	805/985-7843					

T NUMBERS:

	CITY	PHONE	STATE	CITY	PHONE
ARIZ	DOVER	302/670-0449	INDIANA	EVANSVILLE	812/464-0101
	WILMINGTON	302/429-8112		FT WAYNE	219/422-2501
DA	BOCA RATON	305/395-7338		HIGHLAND	219/830-6333
	CLEARWATER	813/796-2166		INDIANAPOLIS	317/257-3461
	DAYTONA BEACH	904/255-4703		KOKOMO	317/457-7257
	FORT MYERS	813/936-4221		LAFAYETTE	317/742-8189
	FT PIERCE	305/466-0561		MARION	317/662-0091
	FT LAUDERDALE	305/463-0002		MUNCIE/ANDERSON	317/200-2477
	GAINESVILLE	904/376-0939		SOUTH BEND	219/234-5005
	JACKSONVILLE	904/721-0100	IOVA	TERRE HAUTE	812/232-3605
	LAKELAND	813/688-5776		CEDAR RAPIDS	319/363-7514
	LONGWOOD	305/841-0828		DES MOINES	515/277-7752
	MELBOURNE	305/676-4336		DUBUQUE	319/556-0263
	HERRITT ISLE	305/459-0671		IONA CITY	319/354-7371
	MIAMI	305/624-7900		MARSHALLTOWN	515/753-0667
	OCALA	904/351-0070		SIOUX CITY	312/252-1601
	ORLANDO	305/841-0020		WATERLOO	319/233-9227
	PANAMA CITY	904/769-9446	KANSAS	LAURENCE	913/749-8271
	PENSACOLA	904/477-3344		LEAVENWORTH	913/682-2660
	SARASOTA	813/365-6980		MANHATTEN	913/776-5109
	ST. PETERSBURG	813/796-2166		MISSION	913/304-1544
	TALLAHASSEE	904/870-2267		SALINA	913/823-7106
	TAMPA	813/932-7070		SHAWNEE/MISSION	913/304-1544
	N. PALM BEACH	305/471-9318		TOPICKA	913/233-1602
IA	ALBANY	912/803-2246		WICHITA	316/265-1241
	ATHENS	404/546-8167	KENTUCKY	BOULING GREEN	502/782-0436
	ATLANTA/MORCROSS	404/446-0270		LEXINGTON	606/253-3463
	AUGUSTA	404/722-7967		LOUISVILLE	502/499-7110
	COLUMBUS	404/327-0396		OMAHA	502/605-1310
	DAVENPORT	912/744-0605	LOUISIANA	ALEXANDRIA	318/443-9544
	HARRISBURG	404/424-0025		BATON ROUGE	504/291-2650
	ROME	404/291-1000		LAFAYETTE	318/237-9500
	SAVANNAH	912/232-6751		LAKE CHARLES	318/436-1633
	HONOLULU	808/520-4450		MONROE	318/322-4109
	MOBILE	206/343-0404		NEW ORLEANS	504/524-4371
	IDaho FALLS	206/523-2964		SHREVEPORT	318/600-5040
	POCATELLO	208/233-2501	MAINE	AUBURN	207/706-0645
	AURORA	312/859-1143		BANGOR	207/947-1196
	BELLEVILLE	618/233-2230		LEWISTON	207/706-0645
	CHAMPAIGN	217/356-7552		PORTLAND	207/775-5971
	CHICAGO	312/922-4601	MARYLAND	ABERDEEN	301/272-3000
	DANVILLE	217/431-3133		BALTIMORE	301/547-0100
	DECATUR	217/422-0612		CUMBERLAND	301/722-7710
	DOWNERS GROVE	312/790-4400		HAGERSTOWN	301/293-1072
	FOREST PK/RIV. FORES	312/771-9667		HYERSVILLE	301/293-1072
	FREEDPORT	815/233-5505		ROCKVILLE	301/770-1600
	GLEN ELLYN/WHEATON	312/790-4400	MASSACHUSETTS	ATTLEBORO	617/226-4471
	JOLIET	815/727-1019		BOSTON	617/292-1900
	KANKAKEE	815/932-8050		BROCKTON	617/504-6073
	LAKE ZURICH	312/430-3771		FALL RIVER	617/675-1750
	LIBERTYVILLE	312/362-0020		FITCHBURG	617/343-0400
	PEORIA	309/637-5961		FRANKINGHAM	617/620-1264
	ROCK ISLAND	309/794-0731		LAURENCE	617/601-0002
	ROCKFORD	815/390-6090		LOWELL	617/452-0019
	SPRINGFIELD	217/753-7905		NEW BEDFORD	617/390-0596
	ST CHARLES	312/859-1143		PITTSFIELD	413/442-0905
	URBANA	317/336-7552		SPRINGFIELD	413/701-6090

TYMNET NUMBERS:

STATE	CITY	PHONE	STATE	CITY	PHONE
	TAUNTON	617/822-7799	NEW JERSEY	ATLANTIC CITY	609/745-6688
	MOBURN	617/935-2857		CHERRY HILL	609/605-5688
MICHIGAN	WORCESTER	617/791-9888		EATONTOWN	201/542-2188
	ANN ARBOR	313/662-8282		ENGLWOOD CLIFFS	201/894-6258
	BATTLE CREEK	616/962-1851		JERSEY CITY	201/432-4987
	BENTON HARBOR	616/925-3134		LYNDHURST	201/468-8188
	CADILLAC	616/775-3429		LYNDHURST	201/468-8188
	DETROIT	313/962-2878		MOORESTOWN	609/665-5688
	FLINT	313/732-7383		MORRISTOWN	201/539-1222
	FREELAND	517/695-6751		NEWARK	201/624-1212
	GRAND RAPIDS	616/459-2384		PERKINSKIN	609/665-5688
	JACKSON	517/782-8584		PISCATAWAY	201/981-1988
	KALAMAZOO	616/388-2138		PRINCETON	609/452-1816
	LANSING	517/482-5721		RIDGEWOOD	201/445-8346
	MANISTEE	616/725-6573		TRENTON	609/989-8488
	MIDLAND/FREELAND	517/695-6751		WAYNE	201/785-4488
	MUSKEGON	616/725-8136	NEW MEXICO	ALBUQUERQUE	505/242-6344
	PLYMOUTH	313/459-8988		LAS CRUCES	505/524-1944
	PORT HURON	313/985-6885		SANTA FE	505/988-5353
	SAGINAW/FREELAND	517/695-6751	NEW YORK	ALBANY	518/458-8388
	SOUTHFIELD	313/424-8824		BINGHAMTON	607/772-1153
	ST. JOE/BENTON HRBR	616/925-3134		BUFFALO	716/849-6618
	TRAVERSE CITY	616/946-3826		CORNING	607/962-4481
MINNESOTA	DULUTH	218/722-7441		ELMIRA	607/737-5818
	HAMKATO	507/625-9481		HEMPSTEAD	516/485-7422
	MINNEAPOLIS	612/333-2799		HUNTINGTON	516/428-1221
	ROCHESTER	507/289-1988		ITHACA	607/257-6681
MISSISSIPPI	JACKSON	601/355-9741		MELVILLE	516/428-1221
	MERIDIAN	601/695-8216		NINOLA	516/294-3128
	PASCAGOULA	601/769-6582		NEW YORK	212/532-8437
	PASCAGOULA	601/769-6673		NEW YORK	212/685-4414
	VIKSBURG	601/634-6678		NEW YORK	212/269-6965
MISSOURI	BRIDGETON	314/731-2384		NEW YORK	212/785-5488
	COLUMBIA	314/875-1298		NEW YORK	212/689-8888
	JEFFERSON CITY	314/634-3273		NIAGARA FALLS	716/285-2561
	JOPLIN	417/782-3837		POUGHKEEPSIE	914/473-8481
	KANSAS CITY/MISSION	913/384-1544		ROCHESTER	716/248-8888
	ROLLA	314/364-3486		RONKONOMA	516/467-5178
	SPRINGFIELD	417/831-5844		SYRACUSE	315/437-7111
	ST JOSEPH	816/232-1897		UTICA	315/735-2291
	ST LOUIS	314/421-5118		WHITE PLAINS	914/684-6875
	ST LOUIS	314/621-4668	NORTH CAROLINA	ASHEVILLE	704/253-3873
MONTANA	BILLINGS	406/252-4888		CHARLOTTE	704/376-2545
	BOZEMAN	406/586-7638		CHARLOTTE	704/376-2544
	BUTTE	406/494-6615		DURHAM	919/549-8952
	GREAT FALLS	406/727-8188		FAYETTEVILLE	919/325-4282
	HISSOULA	406/728-2415		GREENSBORO	919/273-8332
NEBRASKA	LINCOLN	402/475-8659		GREENVILLE	919/758-7854
	OMAHA	402/397-8414		HIGH POINT	919/882-6858
NEVADA	LAS VEGAS	702/293-8388		RALEIGH	919/829-8536
	RENO/CARSON CITY	702/885-8411		WILMINGTON	919/343-8778
NEW HAMPSHIRE	MANCHESTER	603/623-8489		WINSTON-SALEM	919/761-1183
	NASHUA	603/882-8435	NORTH DAKOTA	BISMARK	701/223-6839
	SALEM	603/893-6288		FARGO	701/232-2884

	GRAND FORKS	781/775-8531			
	HINOT	781/838-1114			
OHIO	AKRON	216/335-1861			
	CANTON	216/455-8866			
	CINCINNATI	513/489-2188			
	CLEVELAND	216/241-8824			
	COLUMBUS	614/221-1852			
	DAYTON	513/223-3847			
	HAMILTON	513/894-1521			
	LINA	419/224-2998			
	MANSFIELD	419/526-6867			
	MARYSVILLE	513/644-8896			
	SPRINGFIELD	513/324-3816			
	TOLEDO	419/255-7798			
	WARREN	216/394-6529			
	YOUNGSTOWN	216/744-5326			
OKLAHOMA	ARDMORE	405/223-1552			
	ENID	405/233-7983			
	LANTON	405/355-8745			
	OKLAHOMA CITY	405/347-6387			
	TULSA	918/582-4433			
OREGON	EUGENE	503/485-8827			
	MEDFORD	503/773-1257			
	PORTLAND	503/226-8627			
	SALEM	503/399-1453			
PENNSYLVANIA	ALTOONA	814/946-8888			
	BETHLEHEM	215/865-6978			
	DOMININGTON	215/873-8368			
	ERIE	814/456-8581			
	GREENSBURG	412/837-3888			
	HARRISBURG	717/763-6481			
	KING OF PRUSSIA	215/337-9988			
	LANCASTER	717/397-7731			
	LEVITTOAN	215/736-8495			
	NEW CASTLE	412/652-4223			
	MORRISTOWN	215/666-9198			
	PHILADELPHIA	215/751-8788			
	PITTSBURGH	412/642-6778			
	READING	215/372-4473			
	SCRANTON	717/346-4516			
	STATE COLLEGE	814/237-6488			
	VAL FORGE/MORRISTON	215/666-9198			
	WILKES BARE	717/822-1272			
	YORK	717/846-3988			
PUERTO RICO	SAN JUAN	809/792-9988			
RHODE ISLAND	NEWPORT	401/847-8582			
	PROVIDENCE	401/273-8288			
	WONSOCKET	401/765-2488			
SOUTH CAROLINA	CHARLESTON	803/577-8452			
	COLUMBIA	803/254-7563			
	GREENVILLE	803/271-9213			
	SPARTANBURG	803/582-7524			
SOUTH DAKOTA	RAPID CITY	605/341-5337			
	SIOUX FALLS	605/335-8788			
			TENNESSEE	CHATTANOOGA	615/265-1828
				JACKSON	981/434-2114
				KNOXVILLE	615/698-1943
				MEMPHIS	981/527-8886
				NASHVILLE	615/885-3338
				OKRIDGE	615/482-9888
			TEXAS	AMARILLO	886/383-8384
				AUSTIN	512/444-3288
				BAYTOWN	713/422-9746
				BROWNSVILLE	512/341-2251
				BRYAN/COLLEGE STA.	489/779-8184
				CORPUS CHRISTI	512/883-8888
				DALLAS	214/638-8888
				DENTON	817/565-9273
				EL PASO	915/533-1453
				FT WORTH	817/877-3638
				HOUSTON	713/596-6788
				KILLEEN	817/634-2818
				LONGVIEW	214/236-4841
				LUBBOCK	886/797-8765
				MCALEEN	512/631-8828
				MIDLAND	915/683-5645
				MEDERLAND/PT. ARTHU	489/724-8726
				ODESSA	915/563-3745
				SAN ANTONIO	512/225-8882
				TYLER	214/592-1372
				WACO	817/752-1642
				WICHITA FALLS	817/761-1315
			UTAH	OGDEN	881/627-2822
				PROVO/OREN	881/375-8445
				SALT LAKE CITY	881/364-8788
				VERMONT	882/658-2123
				BURLINGTON	882/223-3519
				MONTPELIER	882/223-3519
			VIRGINIA	CHARLOTTESVILLE	884/971-1881
				FAIRFAX	783/691-8288
				FAIRFAX	783/691-8398
				LINCOLNBURG	884/328-1983
				HIDLOTHIAN	884/744-4868
				MEMPHIS NEWS	884/596-7688
				NORFOLK	884/855-7751
				PETERSBURG	884/862-4788
				RICHMOND	884/744-4868
				ROANOKE	783/344-2762
				WILLIAMSBURG	884/872-9592
			WASHINGTON	EMERSON	286/825-7728
				OLYMPIA	286/438-2772
				RICHLAND	509/375-3367
				SEATTLE	286/285-8189
				SPOKANE	509/747-4185
				TACOMA	286/273-1589
				VANCOUVER	286/693-8371
				YAKIMA	509/453-1591
			WEST VIRGINIA	CHARLESTON	384/345-9575
				HARTINGTON	384/325-4886

STATE	CITY	PHONE
WISCONSIN	MORGANTOWN	384/292-2175
	PARKERSBURG	384/428-8511
	APPLETON	414/722-9588
	BELOIT	608/365-6883
	BROOKFIELD	414/785-1614
	EAU CLAIRE	715/834-4138
	GREEN BAY	414/432-3864
	LA CROSSE	608/785-1458
	MADISON	608/221-4211
	MADISON	608/221-8991
	MILWAUKEE	414/785-1614
	MEDIAN	414/722-9588
	OSHKOSH	414/235-1882
RACINE	414/632-3886	
WYOMING	NEST BEND	414/334-1248
	CASPER	387/235-8164

## TELENET NUMBERS:

AREA		PHONE	AREA		PHONE	AREA		PHONE
STATE	CODE CITY		STATE	CODE CITY		STATE	CODE CITY	
AL	285 BESSERER	328-2310	916 SACRAMENTO	448-6262	CA	484 ATHENS	549-4524	
	285 BIRMINGHAM	328-2310	488 SALINAS	443-4948		484 ATLANTA	577-8911	
	285 FLORENCE	767-7968	714 SAN BERNADINO	824-9888		484 AUSTIN	798-4119	
	285 HUNTSVILLE	539-2281	415 SAN CARLOS	591-8726		484 COLUMBUS	571-8556	
	285 MOBILE	432-1688	619 SAN DIEGO	231-1922		912 HAOON	741-1811	
	285 MONTGOMERY	269-8898	415 SAN FRANCISCO	362-6288		912 SAVANNAH	236-2685	
	285 SHEFFIELD	767-7968	488 SAN JOSE	294-9119	HI	888 HONOLULU	524-8118	
AK	987 ANCHORAGE	276-8271	415 SAN MATEO	591-8726	IA	319 CEDAR RAPIDS	364-8911	
	987 JUNEAU	586-9788	213 SAN PEDRO	548-6141		482 COUNCIL BLUFFS	341-7733	
AR	581 LITTLE ROCK	372-4616	415 SAN RAFAEL	492-8752		319 DAVENPORT	324-2445	
AZ	682 MESA	254-8244	714 SANTA ANA	558-6861		515 DES MOINES	288-4483	
	682 PHOENIX	254-8244	885 SANTA BARBARA	682-5361		319 IOWA CITY	351-1421	
	682 SCOTTSDALE	254-8244	488 SANTA CLARA	294-9119	ID	288 BOISE	343-8611	
	682 TEMPE	254-8244	488 SANTA CRUZ	425-8455	IL	512 ARLINGTON HEIGHTS	938-8588	
	682 TUCSON	747-8187	213 SANTA MONICA	386-2984		512 AURORA	859-8483	
CA	213 ALHAMBRA	587-8989	787 SANTA ROSA	598-9325		389 BLOOMINGTON		
	714 ANAHEIM	558-6861	289 STOCKTON	473-2856		217 CHAMPAIGN	384-6428	
	885 BAKERSFIELD	327-8146	488 SUNNYVALE	294-9119		312 CHICAGO	938-8588	
	415 BURLINGAME	591-8726	213 TORRANCE	548-6141		312 CINCINNATI	938-8588	
	213 CANOGA PARK	386-2984	818 WOODLAND HILLS	887-3168		217 DECATUR	422-8835	
	714 COLTON	824-9888	415 WOODSIDE	856-9995		314 EAST ST LOUIS	421-4998	
	213 COMPTON	516-1887	885 VENTURA	656-6768		815 JOLIET	722-8783	
	415 COORD	676-2834	CO	383 AURORA	337-6888		312 OAK PARK	938-8588
	213 COVINA	338-1638	383 BOULDER	337-6888		389 PEORIA	637-8578	
	488 CUPERTINO	294-9119	383 COLORADO SPRINGS	635-5361		965 ROCKFORD	965-8488	
	619 ES CONDIDO	741-7756	383 DENVER	337-6888		312 SMOCKIE	938-8588	
	213 EL MONTE	587-8989	383 LAKEWOOD	337-6888		217 SPRINGFIELD	753-1373	
	714 FULLERTON	558-6861	CT	283 DANBURY	794-9875		217 URBANA	384-6428
	289 FRESNO	233-8961	283 BRIDGEPORT	335-5855	IN	812 BLOOMINGTON	332-1344	
	714 GARDEN GROVE	898-9828	283 GREENWICH	348-8787		812 EVANSVILLE	424-7693	
	818 GLENDALE	587-8989	283 HARTFORD	247-9479		219 FT. WAYNE	426-2268	
	415 HATHARD	881-1382	283 HILFORD	624-5954		219 GARY	882-8888	
	213 HOLLYWOOD	689-9848	283 NEW HAVEN	624-5954		317 INDIANAPOLIS	635-9638	
	213 HOLLYWOOD	937-3588	283 STAFFORD	348-8787		317 KOKORO	455-2468	
	714 HUNTINGTON BEACH	558-6861	283 WATERBURY	753-4512		317 LAFAYETTE	742-1165	
	213 INGLEWOOD	689-9848	DC	283 WEST HARTFORD	247-9479		219 NISHAUKA	233-7184
	213 INGLEWOOD	937-3588	282 WASHINGTON	429-7896		219 OSCEOLA	233-7184	
	213 LOS ANGELES	689-9848	DE	382 WILMINGTON	454-7718		219 SOUTH BEND	233-7184
	213 LOS ANGELES	937-3588	FL	385 BOCA RATON	368-8388		812 TERRE HAUTE	234-8429
	415 LOS ALTOS	856-9995	815 CLEARWATER	323-4826	KS	816 KANSAS CITY	221-9988	
	213 LONG BEACH	548-6141	984 DAYTONA BEACH	252-9914		913 TOPEKA	233-9888	
	213 MARINA DEL REY	386-2984	385 FT. LAUDERDALE	764-4585		316 WICHITA	262-5669	
	289 MODOSTO	576-2852	984 GAINESVILLE	377-3885	NY	582 BOWLING GREEN	782-7941	
	488 MONTEREY	375-2675	984 JACKSONVILLE	353-1818		582 FRANKFORT	875-4654	
	415 MOUNTAIN VIEW	856-9995	385 MIAMI	372-8238		686 LEXINGTON	333-8312	
	714 NEWPORT BEACH	558-6861	385 ORLANDO	422-4888		582 LOUISVILLE	589-3588	
	213 NORWALK	484-2237	984 PENSACOLA	438-4562	LA	584 BATON ROUGE	343-8753	
	415 OAKLAND	836-4911	385 POMPANO BEACH	941-5445		318 LAFAYETTE	234-1895	
	885 OXNARD	656-6768	815 ST PETERSBURG	323-4826		318 MONROE	387-6338	
	415 PALO ALTO	856-9995	815 SARASOTA	348-8216		584 NEW ORLEANS	524-4894	
	213 PASADENA	587-8989	984 TALLAHASSEE	681-1982		318 SHREVEPORT	221-5833	
	415 REDWOOD CITY	591-8726	815 TAMPA	224-9928	NE	287 AUGUSTA	622-3123	
	714 RIVERSIDE	824-9888	385 W PALM BEACH	833-6691		287 PORTLAND	773-4219	

## TELENET NUMBERS:

AREA	STATE	CODE	CITY	PHONE	AREA	STATE	CODE	CITY	PHONE	AREA	STATE	CODE	CITY	PHONE	
	MD		361 ANNAPOLIS	224-8558		NJ	689 ATLANTIC CITY	348-8661			485 NORMAN			232-4546	
			361 BALTIMORE	962-5818			281 BAYONNE	623-6818			485 OKLAHOMA CITY			232-4546	
			282 BETHESDA	429-7896			281 JERSEY CITY	623-6818			485 STILLWATER			624-1112	
			361 DUNDALK	962-5818			689 HARLTON	596-1582			918 TULSA			584-3247	
			282 ROCKVILLE	429-7896			281 MORRISTOWN	455-8275		OR	583 EUGENE			683-1468	
			282 SILVER SPRING	429-7896			281 NEW BRUNSWICK	745-2982			583 MEDFORD			779-6343	
			361 TOWSON	962-5818			281 NEWARK	623-6818			583 PORTLAND			295-3626	
	MA		617 ARLINGTON	292-8688			281 PASSAIC	778-5688			583 SALEM			376-7712	
			617 BOSTON	292-8688			281 PATERSON	684-7568			PA	215 ALLENTOWN			435-3338
			617 BROOKLINE	292-8688			689 PRINCETON	795-5587				814 ERIE			899-2241
			617 CAMBRIDGE	292-8688			689 TRENTON	989-8847				717 HARRISBURG			236-6862
			413 CHICOPEE	781-3811			281 UNION CITY	623-6818				814 JOHNSTOWN			535-7572
			413 HOLYOKE	781-3811		NM	505 ALBUQUERQUE	243-4479				215 KING OF PRUSSIA			337-4388
			617 LEXINGTON	865-1558		NY	518 ALBANY	465-8444				412 PENN HILLS			286-9952
			617 MEDFORD	292-8688			687 BINGHAMTON	772-6642				215 PHILADELPHIA			574-8622
			617 NEWTON	292-8688			718 BUFFALO	847-1448				412 PITTSBURGH			286-9952
			617 QUINCY	292-8688			516 DEER PARK	667-5566				717 SCRANTON			961-5321
			617 SOMERVILLE	292-8688			516 HEMPSTEAD	292-8328				215 UPPER DARBY			574-8622
			413 SPRINGFIELD	781-3811			212 NEW YORK	736-8899				717 YORK			846-6552
			617 WALTHAM	292-8688			914 Poughkeepsie	473-2248			RI	481 PROVIDENCE			751-7912
			617 WORCESTER	755-4748			716 ROCHESTER	454-3432				481 WARWICK			751-7912
	MI		313 ANN ARBOR	996-5995			518 SCHENECTADY	465-8444			SC	883 CHARLESTON			722-4383
			616 BATTLE CREEK	968-8929			315 STRAUSSE	472-5583				883 COLUMBIA			254-8695
			513 DETROIT	964-5538			518 TROY	465-8444				883 GREENVILLE			253-3485
			313 FLINT	235-8517			518 UTICA/ROME	797-8928				883 SPARTANBURG			585-3465
			616 GRAND RAPIDS	774-8966			914 WHITE PLAINS	328-9199			SD	685 PIERRE			224-8481
			616 KALAMAZOO	345-3886			784 ASHEVILLE	252-9134				685 SIOUX FALLS			336-8593
			517 LANSING	484-8862		NC	784 CHARLOTTE	332-3131				TH	615 BRISTOL		968-1138
			517 SAGINAW	798-5166			919 DAVIDSON	549-8139				615 CHATTANOOGA			756-1161
			513 SOUTHFIELD	827-4718			919 DURHAM	549-8139				615 KNOXVILLE			523-5588
			513 WARREN	575-9152			919 FAYETTEVILLE	323-4581				981 MEMPHIS			521-8215
	MO		218 DULUTH	722-1719			919 GREENSBORO	273-2851				615 NASHVILLE			244-3782
			612 KANSAS CITY	341-2459			919 HIGH POINT	899-2253			TX	915 ABILENE			676-9151
			612 ST. PAUL	341-2459			919 RALEIGH	549-8139				886 AMARILLO			372-6934
			314 FLORISSANT	421-4998			919 RESEARCH TRI. PARK	549-8139				512 AUSTIN			928-1138
			314 JEFFERSON CITY	634-5178			919 WINSTON-SALEM	725-2126				512 CORPUS CHRISTI			884-9836
			816 KANSAS CITY	221-9988		ND	781 GRAND	663-2256				214 DALLAS			748-8127
			314 ST. LOUIS	421-4998			216 GRAND	670-5115				915 EL PASO			532-7887
			417 SPRINGFIELD	864-4814		OH	216 CANTON	452-8983				817 FORT WORTH			332-4387
	RS		681 JACKSON	969-8836			513 CINCINNATI	579-8998				489 HOLUSTON			762-4382
	RT		486 BILLINGS	245-7649			216 CLEVELAND	575-1658				713 HOUSTON			227-1818
			486 HELENA	443-8888			614 COLUMBUS	463-9348				512 LACKLAND			225-8884
	NE		482 LINCOLN	475-4964			513 DAYTON	461-5254				214 LONGVIEW			236-3196
			482 OMAHA	341-7733			216 ELTRIA	323-5859				886 LEBBOCK			747-4121
			683 CONCORD	224-1824			216 EUCLID	575-1658				915 MIDLAND			961-9811
			683 HAMORSTER	688-1428			216 KENT	678-5115				489 NEDERLAND			722-3722
			683 NASHUA	889-8618			216 PAPA	575-1658				915 ODESSA			561-9811
			683 PORTSMOUTH	431-2382			419 TOLEDO	255-7881				915 SAN ANGELO			944-7621
	NY		782 LAS VEGAS	737-6861			216 YOUNGSTOWN	743-1296				512 SAN ANTONIO			225-8884
			782 RENO	827-6988		OK	485 BETHANY	232-4546				915 TERMINAL			861-9811
												817 WACO			752-9743



TELEPHONE NUMBERS:

	AREA	STATE CODE CITY	PHONE
	001	SALT LAKE CITY	801-8149
	202	ALEXANDRIA	429-7096
	202	AMANDALE	429-7096
	004	CHESAPEAKE	625-1186
	202	FAIRFAX	429-7096
	202	FALLS CHURCH	429-7096
	703	HERNDON	435-1088
	004	NEWPORT NEWS	596-6400
	004	NORFOLK	625-1186
	004	PORTSMOUTH	625-1186
	004	RICHMOND	788-9902
	703	ROANOKE	344-2036
	202	SPRINGFIELD	429-7096
	202	VIENNA	429-7096
	004	VIRGINIA BEACH	625-1186
T	002	BURLINGTON	064-0000
	002	MONTPELIER	229-4966
A	206	AUBURN	939-9902
	206	BELLEVUE	447-9012
	206	LONGVIEW	577-5039
	206	SEATTLE	447-9012
	509	SPOKANE	455-4071
	206	TACOMA	627-1791
	509	WENATCHEE	663-6227
II	715	EAU CLAIRE	032-1211
	414	GREEN BAY	432-2015
	608	MADISON	257-5010
	414	MILWAUKEE	271-5914
	414	RACINE	952-7217
IV	304	CHARLESTON	345-6471

## APPENDIX B

### FEDERAL COMMUNICATIONS COMMISSION REGULATIONS

This modem has been granted a registration number by the Federal Communications Commission, under Part 68 Rules and Regulations For Direct Connection to the Telephone Lines. In order to comply with these FCC rules, the following instructions must be carefully read and applicable portions followed completely:

1. Direct connection to the telephone lines may be made only through the standard plug-ended cord furnished to the utility-installed jack. No connection may be made to party or coin phone lines. Prior to connecting the device to the telephone lines, you must do the following:

2. Call your telephone company and inform them you have an FCC registered device you desire to connect to their telephone lines. Give them the number(s) of the line(s) to be used, the make and model of the device, the FCC registration number, and ringer equivalence. This information will be found on the device or enclosed with instructions as well as the jack suitable for your device.

3. After the telephone company has been advised of the above you may connect your device if the jack is available, or after the telephone company has made the installation.

4. Repairs to the device may be made only by the manufacturer or his authorized service agency. This applies at any time during a and after warranty. If such unauthorized repair is performed, registration, connection to the telephone lines, and the remainder of warranty period all become null and void.

5. If, through abnormal circumstances, harm to the telephone lines is caused, the device should be unplugged until it can be determined if it device is the source of damage. It should not be reconnected until necessary repairs are effected.

6. Should the telephone company notify you that your device is causing harm, the device should be unplugged. The telephone company will, where practicable, notify you that temporary discontinuance of service may be required. However, where prior notice is not practicable, the telephone company may temporarily discontinue service, if such action is reasonably necessary. In such cases the telephone company must a) promptly notify you of such temporary discontinuance, b) afford you the opportunity to correct the condition, and c) inform you of your rights to bring a complaint to the FCC under their rules.

7. The telephone company may make changes in it's communications facilities, equipment, operations or procedures, where such action is reasonably required in the operation of its business and is not inconsistent with FCC rules. If such changes can be reasonably expected to render any customer's device incompatible with telephone company facilities, or require modification or alteration, or otherwise materially affect its performance, written notification must be given to the user, to allow uninterrupted service.

8. In order to reduce radio interference, pass phone cord and line cord through a ferrite toroidal core 3 times.

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## APPENDIX C

### MODEM SPECIFICATIONS

Connect 64 includes a full-featured, auto-dial, auto-answer modem with the following specifications:

Used On: Commodore 64

Capability: Bell System 103

Data Rate: 300 Baud

Connection: Direct to phone line (USOC RJ11 jack)

Modulation: Frequency Shift Keying (FSK)

Frequencies: 2225 HZ  
2225 HZ  
1270 HZ  
1070 HZ

XMT PWR on Phone Line: -12 dbm nominal +-3 db

Rcv PWR Range: -9 dbm to -42 dbm

Computer Interface: 1 TTL Load

Power Requirement: 9VAC @ 50ma from computer

Dial Mode: Pulsed by hook relay

Temp. Range: 15 C to 40 C

Internal OSC Frequency: 4.0 MHZ

FFC: Complies with Part 15 and Part 68

Modem Input Controls (TTL): TXDATA (mark/space)  
Off/On hook/CPD

Modem Outputs (TTL): RX Data  
Ring Indicator  
Carrier Detect

Data Format: Serial, Binary, Asynchronous

