



PC Card™ Installation Guide

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Introduction

Your 56K PC Card provides downloads up to 56 Kbps when connected to compatible central site equipment. Because it is a dual-mode fax modem, your PC Card automatically selects the ITU V.90 standard or K56flex when either is available. For other sites you'll get fast, reliable data connections at send and receive speeds up to 33.6 Kbps. The PC Card also features fax capability at speeds up to 14.4 Kbps.

This modem conforms to the PC Card (PCMCIA) Type II standard for personal computer cards. The PC Card is also flash memory upgradeable for both controller and digital signal processor (DSP) code. This means that you can add any future improvements or features with a simple software download.

When used with fax and data communications software, your PC Card handles virtually all communications operations, so you can send and receive faxes and data without having to know the modem's commands. However some AT commands are included should you want to make changes to your software configuration.

What You Need

Make sure that your modem package includes the following items in addition to this installation guide:

- Your PC Card modem
- A PC Card phone cord
- Fax and data communications software.

To use the modem you need the following additional hardware:

- A computer with a PC Card Type II, Type III, or Toshiba 16mm slot, a 3.5-inch disk drive for software installation, a minimum of 4 MB RAM (8 MB recommended), and a hard drive with at least 5 MB available
 - **PC-compatible:** 386-20 or faster, running Windows 3.1, 3.11, 95, 98, or NT 4.0
 - **Macintosh:** 68040 or faster, running System 7.1 or higher
- For software supplied on a CD-ROM disc, a CD drive.

Note: *“PCMCIA” and “PC Card” are sometimes used interchangeably. “PCMCIA” refers to the Personal Computer Memory Card International Association, which sets the standards for add-in memory and communications cards. It holds the trademark for PC Card, which is what you call one of these add-in cards.*

Setting Up the Fax Modem

Setting up your modem for the first time involves three basic steps, summarized here and explained in more detail in the following sections.

- *Installing the Modem:* Insert the card gently but firmly into the PC Card slot, connect the phone cord to the modem, and plug the other end of the phone cord into a telephone jack. Illustrated instructions are in this chapter.
- *Configuring Your Operating System:* Turn to the appropriate section for instructions on Windows 95/98, Windows 3.1/3.11, or Windows NT installation. Windows 95, 98, and NT have their own native card and socket software for PC Card installation.
- *Installing Your Communications Software:* Install and configure your fax software and data communications software. For help, refer to the online software documentation. Additional advice on setting up fax and communications software is available in Chapter 2 of this manual.

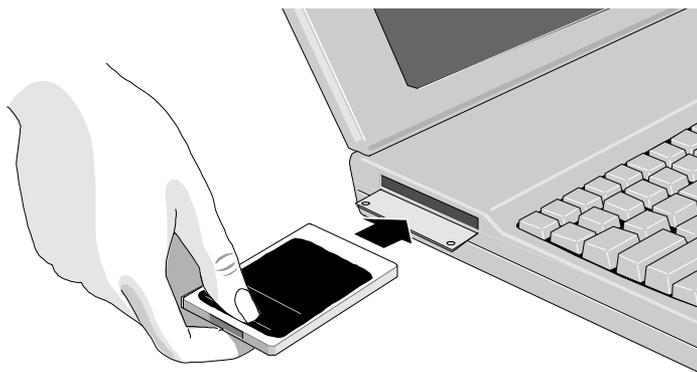
You may also want to test your modem once your communications software is installed.

After you have set up the modem, you can insert and remove the modem card as needed. You don't need to reconfigure your system each time you insert the PC Card.

Step 1: Installing the Modem

Installing the PC Card modem

- 1** Turn off the computer, if the computer's instructions recommend that you do so before installing a PC Card. Otherwise you do not need to turn the computer off. (If you're not sure, it is always safe to turn off the computer first.)
- 2** With the top of the modem card facing up, insert the modem into the PC Card Type II, Type III, or Toshiba 16mm card slot in your computer as shown below.



Note: *The actual PC Card slot or slots may be anywhere on your computer or in an external drive.*

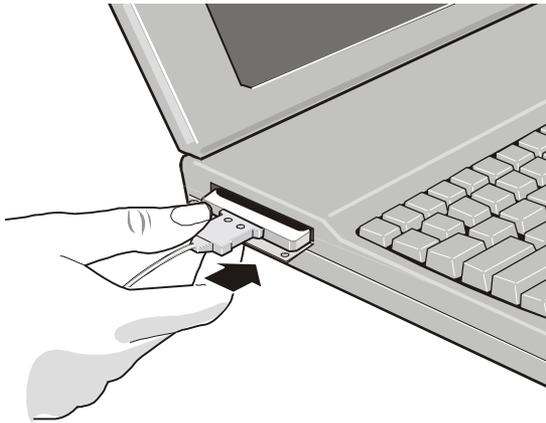
- 3** Push the modem *firmly but gently* until it is seated inside the slot and you cannot push it any further.



CAUTION

Align the card very carefully before you push it all the way into the slot. Otherwise you may damage the connector pins.

- 4** Connect the phone cable to the modem card as shown in the following illustration. You should feel the connector snap into place. If necessary, press the side latches on the connector while installing it. If the cable's connector still does not fit easily into the card, turn the connector over and try again.



Note: ***To remove the phone cord from the modem, press the side latches on the connector to release the lock.***

- 5** Plug the other end of the cable into the modular telephone jack (receptacle) on your wall.

If you want to plug both the modem cable and a telephone cable into one wall jack, you may be able to use a phone line splitter, which is available anywhere telephone equipment is sold.

- 6** Turn the computer back on, if you turned it off in Step 1.

When you are finished using the modem, you can leave the PC Card in the computer or remove it. The PC Card has a power-saving “sleep” mode to conserve battery power.

For Macintosh users, proceed to **Step 3: Installing Your Communications Software** on page 15.

For PC Users, proceed to **Step 2: Configuring Your Operating System**.

Step 2: Configuring Your Operating System

Please refer to the installation instructions below for Windows 95 or 98. If you have Windows 3.1 or 3.11, please turn to page 12. For Windows NT, please turn to page 13.

Windows 95 or 98

For Windows 95 or 98 users, in order to use a PCMCIA-compatible card of any type, you must have Windows PC Card support installed. If you are unsure of this, click **Start | Settings | Control Panel**. If you see the PC Card (PCMCIA) icon (right) in the Control Panel window, proceed. If not, consult your Windows 95 or 98 documentation for instructions on installing this software from your Windows installation disc.



If your fax modem is plugged in when your computer is on, Windows briefly displays a message box stating **New Hardware Found**. Otherwise a similar message appears the next time you start Windows. When the message box appears:

- 1** Insert the Utilities disk supplied with your fax modem. It contains driver files to allow your computer to work with the fax modem.

Depending on your version of Windows you will see either the **Update Device Driver Wizard** or **Install driver from disk provided by hardware manufacturer** screen.

- 2** Click **Next** or **OK**.

Select the floppy drive if necessary. The computer looks for the floppy disk and identifies the modem. The modem will then automatically be installed and you will

be prompted to click **Finish**. (There may be an acknowledgment beep afterwards, depending on your system.)

Continue on to page 15 and **Step 3: Installing Your Communications Software**.

Windows 3.1 or 3.11

To use the PC Card you must have card management software installed. If your computer came with a PC Card slot, then in almost all cases card management software was installed with your system (typically PhoenixCard Manager Plus from Phoenix Technologies or SystemSoft's CardWizard). Card management software, also called "card and socket services," lets your communications software know whether or not the modem is inserted and available.

If you already have card management software installed, continue to **Step 3: Installing Your Communications Software** on page 15.

In the unlikely event that you do not have card management software installed, we suggest that you get in touch with your laptop's manufacturer.

Windows NT

Note 1: *You must be running Windows NT version 4.0 or higher. If the native PC Card services is not already installed, please see your Windows NT user documentation for PC Card modem installation.*

Note 2: *The PC Card must be inserted before starting your computer.*

To ensure that the device has been detected by the system, open the **Control Panel** and select **PC Card (PCMCIA)**. This modem should be listed under the **Socket Status** tab. Select **Properties**. Under **Device Status** “The device is working properly” should be listed along with a COM port number. Click **OK** to exit the **PC Card** dialog box.



Setting Up Your Modem

- 1** Click **Start**. Under **Settings** select **Control Panel**.
- 2** Open **Modems**.
- 3** Select **Add**. In the **Install New Modem** dialog box click **Next**. Windows NT now looks for the modem. When the modem is found it is listed as **Standard Modem**.
- 4** Click **Change**.
- 5** In the **Install New Modem** dialog box, click **Have Disk**.
- 6** Insert the Utilities diskette that came with your fax modem.
- 7** In the **Install from Disk** dialog box type **A:** (or the correct letter of your floppy drive) and click **OK**.
- 8** In the next dialog box, select **PCMCIA 56K Fax Modem** from the list and click **OK**.
- 9** Click **Next**.
The message **Your modem has been set up successfully** appears.
- 10** Click **Finish**. If the **Modem Properties** box appears click on **Close** to exit the **Modem** dialog box.

Continue below with **Step 3: Installing Your Communications Software**.

Step 3: Installing Your Communications Software

Please refer to your fax and data software guide for setting up your communications software. You may also want to read **General Fax Modem Use** on page 17 for additional fax and data configuration tips. Then continue with the rest of this section for procedures to test your fax modem and remove it from your computer.

Testing the Fax Modem

After you install and configure your fax and communications software (and your card management software if needed), you can test whether the modem is properly connected.

If you have installed data communications software (sometimes called terminal software), start up the software. As part of its startup routine, it may send the command **AT** to the modem and receive the response **OK**. This indicates that your fax modem is working.

If you do not see an **AT** command and response, type **AT** and press the **Enter** key. The modem should display the word **OK** on your screen. If you do *not* see this response, make sure that the data communications software is configured for the same COM port that is specified in the card management software. Then enter the **AT** command again. If the modem still does not respond, see the **Troubleshooting** Chapter on page 26. When you finish the test, you can exit the software.

If you have installed fax software, you may be given an opportunity to register the software with its publisher. If there is a registration form, follow the steps for registering the software. If you are unable to transmit the registration form, make sure that the fax software is configured for the same COM port specified in the card management software. Then try transmitting the form again. When you finish the registration, you can exit the software.

You are now ready to use your modem.

Removing the PC Card Fax Modem

When you are not using the modem you can leave it in the slot or remove it.

For Windows 95 or 98:

Your Windows configuration may vary slightly. If you have a PCMCIA icon in the lower right side of your screen, click on it and follow the screen instructions. If you do not have a PCMCIA icon, you may eject the PC Card manually whenever the modem is not active.

For Windows 3.1 or 3.11:

The PC Card can be ejected any time when it is not in use.

For Windows NT:

You must shut down your computer before ejecting the PC Card.

For Macintosh:

The PC Card can be ejected any time when it is not in use.

To physically remove the modem, follow these steps:

- 1** Unplug the phone cord from the wall jack and disconnect it from the modem. To disconnect the phone cord from the modem, press the side latches on the connector and pull gently.
- 2** Check your computer for a release button or latch before sliding the modem out of the PC Card slot. For more information, see your computer's documentation.
- 3** Slide the modem out of the slot.

General Fax Modem Use

This chapter provides general tips for using the modem and setting up communications software. If you already have installed and used fax and communications software with your PC Card, this chapter is optional.

For information about how to install software, refer to the documentation that came with the software.

Using Fax and Data Communications Software

Fax and data communications programs send a string of AT command settings to the modem as soon as you start up the software. The string is called an *initialization string*. The software determines which commands go into the initialization string based on the device you select during installation. The commands remain in effect throughout the communications session, unless the software sends other commands to override them.

The software uses other AT command strings for other purposes. For example, when you make a call from your modem, the software inserts AT commands in a *dial string* with the phone number you are calling. You can use the AT command strings that are provided with the software.

It is sometimes necessary, however, to add other AT commands to initialization strings. Some AT commands are suggested in the following sections and in the **Troubleshooting** Chapter. You can also find a discussion on the World Wide Web at www.modems.com. Click on **Reference** and then on **AT Command Sets**.

In setting up your software, you may be asked to enter certain information. Most programs have default settings that are correct for use with this modem, and there will be no need to change them. You should, however, check the following items.

Tips for Setting Up Fax Software

- You may be asked to select the “modem type” from a menu. If you don’t see this modem listed by name on the menu, select a **V.90, K56flex, 56K, or V.34 modem with 14,400 send/receive fax.**
- Your telephone service may include Call Waiting, which you can temporarily suspend by pressing ***70**; if so, include **ATDT*70,** (you must include the comma, which inserts a brief pause to allow the phone company to respond) in the software’s dial string or dial prefix. If your software doesn’t have a dial prefix option, you need to insert the code for each phone number in the dialing directory. If you need to dial a special code number, such as **9,** to get an outside line, put the number (followed by a comma) before the phone number.

Tips for Setting Up Data Communications Software

- You may be asked to select the “modem type” from a menu. If you don’t see this modem listed by name on the menu, select a name that includes **V.90**, **K56flex**, or **56K** if possible.
- In the dialing directory, all entries can be set to the highest rate the software supports. The modem will auto-negotiate the highest speed connection between itself and the other modem.
- If your software suggests an initialization string for this modem, you should use it. If this modem is not listed by your software and no initialization string is suggested, use the following initialization string: **AT &F &C1 &D2**.

Note: *If you are familiar with AT commands and you save any settings in the modem’s non-volatile memory using the modem’s &W command, remove the &F from the initialization string. Otherwise, the contents of the initialization string will override the saved settings.*

- If the software does not provide a dial string, use **ATDT** for tone dialing.
- If your telephone service includes Call Waiting, which you can temporarily suspend by pressing ***70**, include **ATDT*70**, in the dial prefix option (including the comma). If your software does not have a dial prefix option, you need to insert the code for each phone number in the dialing directory. If you need to dial a special code number, such as **9**, to get an outside line, put the number (followed by a comma) before the phone number.
- While using your software and modem you will rarely, if ever, need to send AT commands directly to the modem. However if you want to enter AT commands, you must do so from the software’s terminal mode.

To use AT commands in terminal mode

- 1** Start your data communications program.
- 2** Change to terminal mode (also called command, local, direct, or dumb mode).
- 3** Type the AT command you need and press the **Enter** key.

When you finish, you can return to the data communications program's standard user interface. See the software's documentation if you need help.

The modem is in data mode when it is communicating online with another modem, such as a bulletin board service (BBS) or a modem at your work or home. While in data mode, the modem does not respond to AT commands. To communicate with your modem without disconnecting the call, use active options in the software's user interface or the **+++** escape sequence. However communicating directly with your modem during a call is seldom necessary.

Returning to the Factory Settings

Note: *Many programs require that the modem initialize (or start up) with command settings &C1 and &D2, the factory default settings, in the initialization string.*

To return to the factory default settings for the modem

- In terminal mode, type **AT &F** and press the **Enter** key.

To return to the basic settings expected by many data communications programs for IBM PC compatibles

- In terminal mode, type **AT &F** and press the **Enter** key.

To return to the basic settings expected by many data communications programs for Macintosh computers

- In terminal mode, type **AT &F &D0** and press the **Enter** key.

Hot Swapping the Fax Modem Card

Your PC Card modem hardware supports hot swapping (or “hot plugging”). This means that after installing the modem you can remove and re-insert the modem as you need to without powering down or restarting (rebooting) your computer. If you are using Windows 95 or 98, or Windows 3.1 or 3.11 with PC Card 2.x-compliant card management software, or a Macintosh, hot swapping is supported automatically.

Windows NT does not support hot swapping. When using Windows NT, you **must** shut down the computer before you insert your PC Card modem.

Note: *For reliable communications, you should insert the modem card before you start up your data communications or fax software. Otherwise the modem will not receive the initialization string from the software. You should remove the modem only after you exit the software or the modem may not receive important call termination information.*

Conserving Power

To conserve power when the modem is running on the computer's battery, the PC Card defaults to sleep mode when not in use. When the modem is in sleep mode, it "wakes up" as soon as it senses activity such as a modem command or an incoming call.

To disable sleep mode

- Change the **S24** command in the initialization string to **S24=0**, or add it if it is not present.

For example, if the current initialization string is:

AT&C1&D2

change it to:

AT&C1&D2S24=0

<p>Note: <i>You can set S24 to any value between and including 1 and 255 seconds (0 = off.)</i></p>
--

Disabling the Computer's Sleep Mode When Using Auto-Answer

Many notebook computers also have a sleep mode. It is usually implemented by software that automatically shifts the computer to a reduced operating speed when the processor has been idle for more than a specified period of time. If you want the modem to answer incoming data or fax calls when you are away from the computer, you may need to disable the computer's sleep mode. See your computer's documentation for instructions. You should also enable the auto-answer function in the fax or data communications software.

Traveling with the Fax Modem

When you pack your computer for travel, you can leave the modem in the PC Card slot and simply disconnect and pack the phone cable. The modem does not draw power from the computer battery when the computer is off.

Troubleshooting

If your modem is not working, please read this chapter *and* the communications software documentation carefully.

For installation problems, refer to **Setting Up the Fax Modem** on page 7.

This chapter covers four categories: general troubleshooting, echo troubleshooting, dial troubleshooting, and online troubleshooting.

General troubleshooting

If the modem does not respond to commands, or stops working completely...

(The following solutions apply to many other problems as well.)

Make sure the modem is inserted securely in the PC Card slot.

Your modem may have not been initialized. Exit and restart your communications software application.

The most common error with modems is that more than one piece of hardware is assigned to the same COM port, or that the software is not configured for the same COM port as the modem. For example, if the modem is configured for **COM2**, the software should be configured for **COM2**. Your card management software should make sure that no other device installed in your computer is trying to use the same COM port setting as the modem. You can check that you have used the correct COM port setting in your software.

Note that if your computer has an external serial port, it can create a conflict, even if you are not using the port. This holds true for serial ports on cards, peripheral devices, and built-in serial ports. Some trackball pointing devices are assigned to a serial port. In general, when a PC has one built-in serial port, the port is assigned to **COM1**. If you don't know which COM port to use, try configuring your modem for **COM2**; then be sure to configure your data communications and fax software to match.

If the modem seems to connect to the remote modem, but nothing appears on your screen. Or, if the modem will not hang up reasonably quickly at the end of a call...

Your modem may not be receiving the required initialization string from your software. Exit and reenter your software program.

If the modem does not auto-answer...

Your computer may be in sleep mode. In addition to enabling auto-answer in your fax or data communications software, you should disable sleep mode in your computer. See the computer's documentation for instructions.

Your modem may not be configured to automatically answer incoming calls. Select **auto-answer** in your software. If your software does not have an auto-answer option, you can set auto-answer in terminal mode. Change to terminal mode, type **AT S0=*n*** and press the **Enter** key, where *n* is the number of rings that you want to occur before the modem auto-answers calls.

If your modem goes off-hook and seizes the telephone line when the phone rings...

The modem is configured for auto-answer. Turn off (cancel) the auto-answer option in your software. If you are using terminal mode, type **AT S0=0** and press the **Enter** key to turn off auto-answering.

If you encounter other communications problems with your modem...

Check that your communications software has been set up properly. Recheck the initialization string and dial string specified in your software manual. Remember that commands in the initialization string are sent to the modem each time you start your software and override the settings stored in the modem's non-volatile memory.

If you are uncertain about the Data Terminal Ready (DTR) and Data Carrier Detect (DCD) settings referred to in your software manual...

If your software requires that your modem ignore DTR (this is not common) and you are using the **&D2** command in the modem's initialization string or have stored it in non-volatile memory, your modem will not work properly. If this is the case, store the **&D0** command in non-volatile memory: Type

AT &D0 &W0 &Y0

and press the **Enter** key.

Also make sure that your modem initialization string does *not* contain **&D2**.

If your software requires that your modem *follow* DTR (which is common in software), the above considerations apply in reverse. If you are having problems, include **&D2** in the modem initialization string.

If your software requires that DCD always be forced **ON** (this is not common), and you are using the **&C1** command in the modem initialization string or have stored it in non-volatile memory, your modem will not work properly. If this is the case, store the **&C0** command in nonvolatile memory: Type

AT &C0 &W0 &Y0

and press the **Enter** key.

Also make sure that the modem initialization string does *not* include **&C1**.

If your software requires that Data Carrier Detect *follow* carrier (which is common in software), the above considerations apply in reverse. If you are having problems, include **&C1** in the modem initialization string.

If you type a command line in terminal mode and press the Enter key, but your modem fails to execute the command line...

Be sure you type **AT** at the beginning of the command line.

Your modem may have been in data mode (online) when you typed the command. The modem does not respond to AT commands while in data mode. To switch to command mode while still online, type **+++** and pause for a second. To return to data mode, type **ATO** and press the **Enter** key.

Make sure the communications software is configured for the same COM port as your modem. If the modem is configured for **COM2**, the software should be configured for **COM2**.

If no response appears after executing an AT command...

If you typed a command but did not receive an **OK** response from your modem:

The **E0** and **Q1** commands may be in effect, disabling echo and responses. To verify this in terminal mode, type **AT &V** and press the **Enter** Key. To enable echo and responses in terminal mode, type **AT E1 Q0** and press the **Enter** key.

Your modem may have been in data mode (online) when you typed the command. The modem does not respond to AT commands while in data mode. To switch to command mode while still online, type **+++** and pause for a second. To return to data mode, type **AT O** and press the **Enter** key.

Make sure the communications software and modem are configured for the same COM port.

If you receive an ERROR response when trying to execute an AT command in terminal mode...

Make sure the command you typed is correct.

Be sure your command line contains fewer than 40 characters.

If the speaker volume is too low or too high...

The PC Card modem does not have a built-in speaker; it uses the laptop's built-in speaker instead. You can use the speaker control settings in your software to turn the computer's speaker on or off, or to increase or reduce the speaker volume. If your software does not handle speaker settings you can add one of each of the following commands: **AT Mn** and **AT Ln** (where *n* is the variable) to the modem initialization string in the software. See the following chart:

Speaker Control

- M0** Turns off the speaker
- M1** Turns on the speaker until the modem detects carrier (factory setting)
- M2** Speaker always on

M3 Speaker on after dialing until carrier detected

Speaker Volume

L0 Lowest volume

L1 **Low volume (factory setting)**

L2 Medium volume

L3 High volume

Note that the PC Card standard digital signaling from the modem to the computer speaker produces inherently low fidelity sound. You may not notice a difference in volume between medium (**L2**) and high (**L3**).

Echo troubleshooting

If each character you type appears twice on the screen...

Your communications software has its echo feature turned on and the modem's echo feature is also turned on.

If the remote system echoes your typed characters, change to terminal mode and type **AT E1** and press the **Enter** key. Then turn off your communication software's local echo. Your modem will echo commands during command mode and the remote system will echo your typing during data mode.

If the remote system does not echo your typed characters, change to terminal mode and type **AT E0** and press the **Enter** key. Then turn on your communication software's local echo. Your software will echo commands during terminal mode and any typing performed during data mode.

If no data characters appear on screen during data mode...

When you make a connection with a remote system and exchange data, the data will appear on your screen if you are in full-duplex operation. If you do not see the data, be sure the computer you are communicating with is operating full-duplex.

Another cause may be that the remote system is waiting to receive your data before echoing it back to your system.

If neither of these is the cause, other software on your computer may be affecting communications.

If no data characters appear on screen during terminal mode...

If you can't see the characters you are typing, change to terminal mode type **ATE1** and press the **Enter** key.

Dial troubleshooting

If the modem does not automatically dial a call when you send a Dial command line...

Make sure that you are dialing a valid phone number, including any required dial prefixes.

If you are using touch-tone dialing on a line that requires pulse dialing, the line may not be able to accept touch-tone-dialed calls. Change the software dialing prefix to **ATDP** to specify pulse dialing.

If the modem does not respond to Dial commands from your software...

Make sure software dialing prefix is **ATDT**, if tone dialing is provided by the telephone service.

Make sure your communications software, card management software, and modem are configured for the same COM port.

Your modem may have been in data mode (online) when you typed the command. The modem does not respond to AT commands while in data mode. To switch to command mode while still online, type **+++** and pause for a second. To return to data mode, type **AT O** and press the **Enter** key.

Online troubleshooting

If your online service or Internet connection seems slow, Web pages appear slowly, and file downloads seem to take too long...

Check your connection speed. Each time you dial in, your call may be routed over different lines. Logging off and redialing can sometimes give you a better connection. With V.90 or K56flex sites you should be able to obtain speeds between 42,000 and 52,000 bps.

Try different Web pages. Some very popular pages have a lot of traffic and may be slow, especially in the evening.

If you cannot hear the connection through the speaker...

Make sure the speaker is enabled in your software. If your software has no means for selecting the speaker, add **M1 L3** to the modem initialization string.

If your modem disconnects while communicating with a remote system...

The remote system has hung up. Try the call again.

The telephone service disrupted or disconnected your call.

Your computer or terminal has turned off the Data Terminal Ready (DTR) signal to your modem. Try the call again. If the problem persists, replace **&D2** in the modem initialization string with **&D0**. Exit and restart your software so that the modem receives the new initialization string. Try the call again.

If your modem does not make a data connection...

If your modem places calls but never makes a connection and if you don't hear the high-pitched tone when the remote side answers, there may be a problem at the remote location. If possible, make a voice call to the other party and discuss the problem.

Appendix: Power Management in Windows 95 and 98

In later versions of Windows 95 (known as OSR-2) and in Windows 98, there is an option to power down your PC Card fax modem when it is not in use. This is separate from the “sleep” mode built into the modem itself.

Follow these steps to enable or disable Windows power management for your PC Card fax modem:

- 1** From your desktop click **Start** and point to **Settings**. Click on **Control Panel**. When the Control panel displays, double-click on **Power**.
- 2** When the **Power Properties** dialog box displays, click on the **PC-Card Modems** tab. Click the checkbox labeled **Turn off PC-Card modems when not in use** to enable or disable power management. Then click **OK**.

Note: The Windows power-saving feature can cause problems with some communications software. When the modem receives information after being idle, Windows does not power up fast enough, and the software returns an error message reporting that it cannot find the modem. In such cases, we advise that you turn off the power-saving feature before using your fax modem.

If you have disabled power management but want to be sure that your PC Card fax modem is not using any battery power when it is not in use, you can return to the **Power Properties** dialog box and reactivate the power-saving feature. Alternatively, you can simply remove the fax modem from its slot when it is not in use. See **Removing the PC Card Fax Modem** on page 16.

Customer Service

If you are experiencing a problem with your modem, try resolving it with the troubleshooting suggestions preceding this section. If necessary, you can contact Customer Service.

Note: Before returning any product, please call for a Return Authorization Number (RA#).

Also, remember the following before calling:

- Use a phone located near the computer to which your modem is attached.
- Identify which Hayes modem you have and the communications software you are using.
- Identify your computer or its operating system.
- Write down all factors specific to your problem.

We recommend that you take a few moments to fill in the following information, which you will need in the event you need to call Customer Service.

Fax Modem Part Number

(located on the barcode on the box)

Serial Number

(located on the bottom of the case)

COM Port

Date of Purchase

Regulatory & Warranty Information

FCC Part 15 Emissions Statement

This modem has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications.

However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

FCC Part 68 Telecommunications Statement

The Federal Communications Commission (FCC) has established rules which permit this device to be directly connected to the telephone network. This device is registered with the Federal Communications Commission (FCC) for direct connection to the telephone line using a standardized RJ-11C telephone jack. This device complies with the Part 15, Subpart B, and Part 68 requirements of the FCC rules.

The telephone company may make changes in its technical operations and procedures; if such changes affect the compatibility or use of the device, the telephone company is required to give adequate notice of the changes.

If the telephone company requests information on what equipment is connected to the line, inform them of:

1. The telephone number that this unit is connected to
2. The ringer equivalence number
3. The USOC jack required [RJ-11C]
4. The FCC Registration Number.

Items (2) and (4) are indicated on the label on the bottom case of the modem. The ringer equivalence number is used to determine how many devices can be connected to your telephone line. In

most cases, the sum of the RENs of all devices on any one line should not exceed five (5.0). If too many devices are attached, they may not ring properly.

If this device should malfunction, it may also cause harm to the telephone network; should this occur, this device should be disconnected from the network until the source of the problem can be determined and repair has been made. If a device which harms the network is not removed, the telephone company may temporarily disconnect service.

In the event of equipment malfunction, all repairs should be performed at an authorized repair facility. It is the responsibility of users requiring service to report the need for service to such a facility. Service facilities are listed on the product's warranty flyer.

The Telephone Consumer Protection Act of 1991 makes it unlawful for any person to use a computer or other electronic device to send any message via telephone fax machine unless such message clearly contains in a margin at the top or bottom of each transmitted page, or on the first page of the transmission, the date and time sent, the identification of the business, entity, or individual sending the message, and the telephone number of the sending machine. In order to program this information into your fax machine, refer to your fax modem software documentation for information on enabling fax branding.

Industry Canada Emissions Statement

This Class B digital apparatus meets all requirements of the Canadian Interference-Causing Equipment Regulations.

Cet appareil numérique de la classe B respecte toutes les exigences du Règlement sur le matériel brouilleur du Canada.

European Regulations

External Modems & Internal Modem Cards

WARNING: Users should be aware that, if their software automatically generates repeat call attempts, they must ensure that no more than 15 repeated call attempts are made to the same number and that there is at least 5 seconds between each attempt. Failure to observe this requirement would be in contravention of the approval for connection to the PSTN.

Line and Phone Ports

The circuits on the port on the rear of the modem marked LINE and PHONE are TNV circuits. Compliance with EN41003 is only maintained if they are connected to ports on other equipment which contain only TNV circuits as defined in EN41003 clause 4.2.

Speaker & Microphone Port (FDSP modems)

The circuits on the port on the rear of the modem marked SPK and MIC are SELV circuits. Compliance with EN60950 is only maintained if it is connected to ports on other equipment which only contain SELV circuits as defined in EN60950 clause 2.3.

Disconnect Devices

Before opening the case for servicing the modem should be disconnected from the mains supply and the telephone network. To this end, the mains and telephone socket outlets should be installed near the modem and should be easily accessible.

External Modems

Power Module Requirements

This modem is intended to be used with the power supply module provided with this unit. Use of any other power supply module will invalidate any approval given to this modem if as a result it ceases to comply with EN60950. Please contact the manufacturer for details of approved power supply modules.

DTE Port

The circuits on the port on the rear of the modem marked DTE are SELV circuits. Compliance with EN60950 is only maintained if it is connected to ports on other equipment which only contain SELV circuits as defined in EN60950 clause 2.3.

Internal Modem Cards

This modem requires power supply voltages of -5V DC, +5V DC and +12V DC. The modem is intended for use with a computer expansion connector supplying -5V @ 20mA, +5V @ 300mA and +12V @ 35mA.

WARNING: The user must make sure that their host equipment is capable of supplying the additional power required by this card and any other cards that may be connected at the same time. It is the users' responsibility to further ensure that the power supply in their host equipment meets the requirements for SELV equipment.

WARNING: The modem card must be installed in the host in such a manner that with the exception of the connections to the host, the clearances and creepages specified in the table below are maintained between the modem card and any other assembly or option cards. The distances in parentheses apply where the local environment within the host is subject to either conductive pollution or dry non-conductive pollution that may become conductive when wet due to condensation.

Clearance (mm)	Creepage (mm)	Voltage used or generated by host or other cards.
2.0	2.4 (3.4)	Up to 50 Vrms or DC
2.6	3.0 (4.8)	Up to 125 Vrms or DC
4.0	6.4 (10.0)	Up to 300 Vrms or DC
Advice from a competent telecommunications engineer MUST be obtained before installing the modem card near to (or installing) an option card that uses or generates voltages in this range.		Above 300 Vrms or DC

Failure to maintain these distances will invalidate the approval. If in doubt, seek advice from a competent telecommunications engineer before installing the modem or other option cards. ALWAYS switch off the power to the host and disconnect it from the mains supply before attempting to install or remove a modem card.

WARNING: This modem card must only be used in a host that has a screw down lid or cover. This modem has an analogue telecommunications interface that is intended to be connected to telecommunication network voltage (TNV) circuits which may carry dangerous voltages. All telephone cords must remain disconnected from the modem until it has been installed within a host which provides the necessary protection of the user. ALWAYS disconnect telephone cords from the modem prior to any subsequent opening of the host.

Sweden

External Modems & Internal Modem Cards

Users in Sweden should be aware that Loop Disconnect (Pulse) Dialling as implemented on these products must NOT be used in Sweden.

Australia

External Modems & Internal Modem Cards

Modems connected to the Australian telecommunications network must have a valid AUSTEL permit. This modem has been specifically configured to ensure compliance with AUSTEL Standards.

Modem Commands:

Command	Default	Permissible Range
ATB	B0	Do not set for Bell mode
AT&G	&G2	&G0
AT&P	&P1	&P1 only
S Register	Default	Permissible Range
S0	0	0, 2 to 255
S6	2	2 - 5
S11	95	70 - 255
S45	10	10 - 15

AUSTEL Technical Standard 002 Sections 5.3.6.4/5 prescribes how outgoing calls must be made to avoid contravention of the Telecommunications Act of 1991. Users should be aware that if their software automatically generates repeat call attempts, they must ensure that no more than 3 repeated call attempts are made to the same number and that there is at least 2 seconds between each call attempt. If the call sequence is unsuccessful, there shall be a delay of at least 30 minutes before attempting to call that number again. Failure to observe this requirement would be in contravention of the approval for connection to the PSTN.

NOTE - This modem has been set up with a factory default of ATX4. This setting enables the detection of service tones (such as "busy").

Failure to set the modem or any application software used with the modem to the values shown above will result in the modem being operated in a non-compliant manner. Consequently, there would be no permit in force for this modem and the Telecommunications Act of 1991 prescribes a penalty of \$12,000 for the connection of non permitted equipment.

Internal Modem Cards

This modem requires power supply voltages of -5V DC, +5V DC and +12V DC. The modem is intended for use with a computer expansion connector supplying -5V @ 20mA, +5V @ 300mA and +12V @ 35mA.

WARNING: The user must make sure that their host equipment is capable of supplying the additional power required by this card and any other cards that may be connected at the same time.

The modem card must only be used in a data terminal equipment (DTE) e.g., computer, that has a screw down cover/lid. As unsafe voltages (TNV) exist on the modem card, disconnect the modem card from the telephone line while the cover (lid) of the DTE (computer) is removed.

Installation of the modem card into a DTE (computer) which does not require a tool to open the cover (lid) will render the permit void.

Ensure that the modem card is installed in the host in such a manner that with the exception of the connections to the host there is a minimum of 2mm air gap between the modem card and other components in the DTE.

New Zealand

External Modems & Internal Modem Cards

The grant of a Telepermit for a device in no way indicates Telecom acceptance of responsibility for the correct operation of that device under all operating conditions. This equipment shall not be used in any manner which could constitute a nuisance to other Telecom customers.

Some parameters required for compliance with Telecom's PTC specifications are dependent upon the equipment within which this modem is installed. The equipment shall be set to operate within the following limits for compliance with Telecom specifications.

When the user manually initiates a call via equipment to which the modem card is installed, the equipment shall operate as follows:

Not more than five call attempts shall be made to the same number within a one hour period.

There shall be at least 60 seconds between call attempts.

Not more than a total of ten call attempts shall be made to the same number for any single manual call initiation.

Automatic calls to different numbers shall not be less than five seconds apart.

The user must immediately disconnect this modem should it become physically damaged and arrange for either its disposal or repair.

Only Telepermitted equipment may be connected to the telephone port.

The correct setting for use with this modem in New Zealand are:

ATB0 (CCITT operation)

AT&G2 (1800Hz guard tone)
AT&P1 (Pulse dialling make/break ratio of 33:67)
ATS0=0 (Auto-answer is disabled)
ATS11=65 (DTMF on/off duration = 65ms)
ATX2 (Dialtone detect but not USA call progress detect)

When used in auto-answer mode, the S0 register must be set to a value between 2 and 5. This ensures that a calling party to your modem will hear at least one burst of ringing before the modem answers, This

1. Confirms that the call has been correctly switched through the network.
2. Allows time for Caller Display information to be transmitted.

This device is NOT intended for connection in parallel with any other devices. The operation of this equipment on the same line as telephones or equipment with audible warning devices or automatic ring detectors may give rise to bell tinkle or other noises which may cause false tripping of the modems ring detection circuit. The use should NOT report such occurrences as faults.

WARNING: New Zealand "Reverse dialling" standard is NOT implemented on this modem. The preferred method of dialling is to use DTMF tones - call initiation is faster and more reliable than pulse dialling. If for some reason you must use pulse dialling, your communications program must be set up to record numbers using the following translation table:

Number to be dialled: 0 1 2 3 4 5 6 7 8 9

Number to program into computer: 0 9 8 7 6 5 4 3 2 1

NOTE: - DTMF digits are entered and dialled in the normal manner.

This modem does not fully meet Telecom's impedance requirements. Performance limitations may occur when used in conjunction with some parts of the network. Telecom will accept no responsibility for any difficulties that may arise from such situations.

The transmit level from this modem is set at a fixed level. Because of this, there may be circumstances where the performance of this modem will be less than optimal. Before reporting such occurrences as faults, check the line with a standard Telepermitted telephone and do NOT report it immediately as a fault.

WARNING: It is recommended that this modem be disconnected from the telephone line during electrical storms.

When disconnecting this equipment, always disconnect the Telecom line before removing the power. When reconnecting, connect the power first, then the Telecom line.

NOTE: Failure to meet any of the above requirements may negate the users rights under the Telecom terms of service.

Limited Warranty—North America

(This Limited Warranty applies to Products sold within the borders of the United States of America and Canada.)

Who is Covered by This Warranty? This limited warranty (“Warranty”) is extended by Zoom Telephonics, Inc. (“Zoom”) only to the original end user purchaser of the accompanying HAYES HARDWARE PRODUCT (“Hardware”) and/or HAYES SOFTWARE PRODUCT (“Program”) (separately and together, “Product”).

What Does This Warranty NOT Cover? Zoom does not warrant or guarantee you uninterrupted service, the correction of any error or elimination of any “bug”. You are solely responsible for any failure of the Product which results from accident, abuse, misapplication, alteration of the Product, or use of the Product outside of the borders of the country or countries shown on the Product package. Zoom assumes no liability for any events arising out of the use of any technical information accompanying the Product. THIS WARRANTY APPLIES TO THE PRODUCT ONLY AND DOES NOT COVER ANY OTHER SOFTWARE OR HARDWARE WHICH MAY BE INCLUDED WITH YOUR PURCHASE OF THE PRODUCT. WITHOUT LIMITING THE GENERALITY OF THE FOREGOING, ANY SOFTWARE OTHER THAN THE PROGRAM IS PROVIDED “AS IS” AND WITHOUT WARRANTY OF ANY KIND. INCIDENTAL AND CONSEQUENTIAL DAMAGES CAUSED BY MALFUNCTION, DEFAULT, OR OTHERWISE WITH RESPECT TO BREACH OF THIS WARRANTY OR ANY OTHER EXPRESS OR IMPLIED WARRANTY ARE NOT THE RESPONSIBILITY OF ZOOM AND ARE HEREBY EXCLUDED BOTH FOR PROPERTY AND, TO THE EXTENT NOT UNCONSCIONABLE, FOR PERSONAL INJURY DAMAGE. Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above exclusion or limitation may not apply to you. This Warranty gives you specific legal rights and you may also have other legal rights which vary from state to state.

What is the Period of Coverage? The period of coverage for the enclosed Hardware and/or Program is set forth in the Warranty Period section of this Guide. If this section indicates that Zoom offers an Extended Protection Plan (“Plan”) for the enclosed Hardware and/or Program and you select the Plan, the period of coverage for the Hardware and/or Program would be the total of the original Warranty Period and the Plan period. ANY AND ALL IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE SHALL TERMINATE AUTOMATICALLY UPON THE EXPIRATION OF THE PERIOD OF COVERAGE. Some states do not allow limitations on how long the implied warranty lasts, so the above limitation may not apply to you.

What Will Zoom Do to Correct Problems? In the event of a malfunction attributable directly to Defects, Zoom will, at its option, repair the Product, to whatever extent Zoom deems necessary to restore the Product to proper working condition, or replace the Product with a new or functionally equivalent product of equal value, or refund an amount equal to the lesser of (1) the purchase price paid for the Product or (2) the then effective Zoom Estimated Retail Price for the Product. THE REMEDY DESCRIBED ABOVE IS THE EXCLUSIVE REMEDY EXTENDED TO YOU BY ZOOM FOR ANY DEFAULT, MALFUNCTION, OR FAILURE OF THE PRODUCT TO CONFORM WITH THIS WARRANTY OR OTHERWISE FOR BREACH OF THIS WARRANTY OR ANY OTHER WARRANTY, WHETHER EXPRESSED OR IMPLIED.

How Do You Obtain Warranty Service? To obtain warranty service, you must either call the appropriate Customer Service number or write to Customer Service at the appropriate address. You

must return the Product, along with the return authorization number given to you by Customer Service and proof of date of purchase, or after expiration of the Warranty period, Zoom will, at its option, repair the Product and charge you for parts and labor or replace the Product and charge you the then effective Estimated Retail Price for the Product, unless Zoom has discontinued the manufacture or distribution of such products because of technical obsolescence.

North America Limited Warranty Period

Your modem includes a two (2) year limited warranty. Free extension to the limited performance warranty is available for a total of 5 years with product registration within 90 days of purchase.

Hayes software includes a ninety (90) day limited warranty.

Limited Guarantee—English/International

(This Guarantee applies to Products sold outside of the borders of North America.)

Who is Covered by this Guarantee? This limited guarantee ("Guarantee") is extended by Zoom Telephonics, Inc. ("Zoom") only to the original end user purchaser of the accompanying HAYES HARDWARE PRODUCT ("Hardware") and/or HAYES SOFTWARE PRODUCT ("Program") (separately and together, "Product") who purchased the Product from an authorized Zoom reseller.

What Does this Guarantee NOT Cover? Zoom does not warrant or guarantee you uninterrupted service, the correction of any error, or elimination of any "bug". You are solely responsible for any failure of the Product which results from accident, abuse, misapplication, or alteration of the Product, or, if the Product is designated for use only in a specified country or countries, use of the Product outside of the borders of the country or countries shown on the Product package. Zoom assumes no liability for any events arising out of the use of any technical information accompanying the Product. THIS GUARANTEE APPLIES TO THE PRODUCT ONLY AND DOES NOT COVER ANY OTHER SOFTWARE OR HARDWARE WHICH MAY BE INCLUDED WITH YOUR PURCHASE OF THE PRODUCT. WITHOUT LIMITING THE GENERALITY OF THE FOREGOING, ANY SOFTWARE OTHER THAN THE PROGRAM IS PROVIDED "AS IS" AND WITHOUT GUARANTEE OR CONDITION OF ANY KIND. Apart from the obligations, guarantees, limitations and commitments of Zoom specifically set forth in this Guarantee, Zoom expressly excludes and disclaims all other obligations, guarantees, liabilities, commitments, and similar undertakings expressed or implied, statutory or otherwise, as to the condition, quality, durability performance, merchantability and fitness for a particular use or purpose of the Product. TO THE EXTENT PERMITTED BY LAW, INCIDENTAL AND CONSEQUENTIAL DAMAGES CAUSED BY MALFUNCTION, DEFAULT OR OTHERWISE WITH RESPECT TO BREACH OF THIS GUARANTEE OR ANY OTHER EXPRESS OR IMPLIED GUARANTEE, WARRANTY OR CONDITION ARE NOT THE RESPONSIBILITY OF ZOOM AND ARE HEREBY EXCLUDED BOTH FOR PROPERTY DAMAGES AND FOR PERSONAL INJURY DAMAGES, EXCEPT AS CAUSED BY THE GROSS NEGLIGENCE OR FRAUD OF ZOOM.

What is the Period of Coverage? The period of coverage for the enclosed Hardware and/or Program is set forth in the Guarantee Period section of this Guide. If this section indicates that Zoom offers an Extended Protection Plan ("Plan") for the enclosed Hardware and/or Program and you select the Plan, the period of coverage for the Hardware and/or Program would be the total of the original Guarantee Period and the Plan period. There shall be no Guarantee after the expiration of the period of coverage.

What Will Zoom Do to Correct Problems? In the event of a malfunction attributable directly to Defects, Zoom will, at its option, repair the Product to whatever extent Zoom deems necessary to restore the Product to proper operating condition, or replace the Product with a new or functionally equivalent product of equal value, or refund an amount equal to the lesser of (1) the purchase price paid for the Product, or (2) the then effective Zoom Estimated Retail Price for the Product. THE REMEDY DESCRIBED ABOVE IS THE EXCLUSIVE REMEDY EXTENDED TO YOU BY ZOOM FOR ANY DEFAULT, MALFUNCTION, OR FAILURE OF THE PRODUCT TO CONFORM WITH THIS GUARANTEE, OR OTHERWISE FOR THE BREACH OF THIS GUARANTEE OR ANY OTHER GUARANTEE, WARRANTY OR CONDITION, WHETHER EXPRESSED OR IMPLIED.

How Do You Obtain Guarantee Service? To obtain Guarantee service, you must either call the appropriate Customer Service number or write to Customer Service at the appropriate address listed at the end of this section. You must return the Product, along with the return authorization number given to you by Customer Service and proof of date of purchase, or after expiration of the Guarantee period, Zoom will, at its option, repair the Product and charge you for parts and labor or replace the Product and charge you the then effective Estimated Retail Price for the Product, unless Zoom has discontinued the manufacture or distribution of such products because of technical obsolescence.

To the extent that any of the terms and condition of the English version of this Guarantee conflict with any of the terms and conditions of any translation thereof, the terms and conditions of the English version will prevail.

Guarantee Period

Hayes products sold outside of the borders of the United States of America or Canada include a two (2) year limited guarantee. An optional extended protection plan is also available in some countries, consisting of a free extension to the limited performance guarantee for a total of 5 years with product registration within 90 days of purchase.

Hayes software includes a ninety (90) day limited guarantee.

Customer Support and Warranty/Guarantee Service Information

To obtain Warranty/Guarantee Service, call or write to the appropriate Zoom Customer Service location for a return authorization number, and then return the product to that location along with (a) the return authorization number, (b) proof of date of purchase, and (c) your mailing address and telephone number, postage prepaid. Please note that if the product is returned without proof of purchase or after the expiration of the warranty/guarantee coverage period, Zoom will, at its option, repair or replace the product and charge you the then effective Zoom price for out of warranty/guarantee service of the product, unless Zoom has discontinued manufacture or distribution because of technical obsolescence.

Información sobre el Servicio de Garantía

Para obtener el Servicio de Garantía, llame o escriba a la sucursal de Servicio al Usuario en Zoom para que le devuelvan un número de autorización y después devuelva el producto al mismo punto junto con (a) la devolución del número de autorización, (b) el comprobante de la fecha de compra y (c) el número de teléfono y la dirección a la que debe remitirse, porte pagado. Tenga en cuenta que si se devuelve el producto sin el comprobante de compra o una vez haya expirado el período cubierto por la garantía, Zoom podrá reparar o cambiar el producto y cobrarle el precio regular para el servicio fuera de garantía del producto, a menos que Zoom no haya suspendido la fabricación o distribución del producto debido a la caída en desuso del mismo.

Informations service garantie

Pour obtenir un service de garantie, appelez ou écrivez au Point de service client Zoom approprié pour recevoir un numéro d'autorisation de renvoi, puis renvoyez le produit à ce même endroit avec a) le numéro d'autorisation de renvoi, b) une preuve de la date d'achat et c) votre adresse postale et votre numéro de téléphone, par lettre affranchie. Veuillez noter que si le produit nous est renvoyé sans preuve d'achat ou après la date d'expiration de la période de garantie, Zoom pourra à sa discrétion réparer ou remplacer le produit puis vous facturer le prix alors en vigueur chez Zoom pour l'entretien du produit hors-garantie, à moins que Zoom n'ait cessé la fabrication ou la distribution du produit en raison de son obsolescence technique.

Hinweis zum Garantieservice

Bevor das Garantieservice in Anspruch genommen werden kann, muß zuerst telefonisch oder schriftlich eine Berechtigungsnummer von der unten genannten Zoom-Kundendienststelle angefordert werden. Das fehlerhafte Produkt ist dann samt (a) Berechtigungsnummer, (b) datiertem Kaufnachweis und (c) Ihrer Postanschrift, einschließlich Telefonnummer, sowie Rückporto an die untenstehende Adresse einzusenden. Bei Einsendung ohne Beleg des Kaufdatums oder Ablauf der Garantiezeit wird Zoom das Produkt nach eigenem Ermessen entweder reparieren oder ersetzen und die üblichen Kosten für nicht unter die Garantie fallende Serviceleistungen in Rechnung stellen, sofern Fertigung oder Vertrieb des Produkts wegen technischer Überalterung nicht eingestellt wurde.

Informazioni per l'Assistenza in Garanzia

Per ottenere l'Assistenza in Garanzia, chiamate o scrivete all'appropriata sede di Assistenza Clienti Zoom che fornirà un numero di autorizzazione alla restituzione, e successivamente spedite il prodotto alla suddetta sede indicando: (a) numero di autorizzazione alla restituzione, (b) prova della data di acquisto e (c) il vostro indirizzo postale e numero di telefono, tramite posta prepagata. Si noti che se il prodotto viene restituito senza prova di acquisto o dopo la scadenza del periodo di copertura dalla garanzia, Zoom, a propria scelta, riparerà o sostituirà il prodotto e vi addebiterà il prezzo effettivo per la manutenzione fuori garanzia del prodotto, a meno che la fabbricazione o la distribuzione del prodotto stesso non sia stata cessata da Zoom a causa di obsolescenza tecnica.

Statement of Copyright Restriction

The program that you have purchased is copyrighted and your rights of ownership and use are subject to the limitations and restrictions imposed by the copyright laws and international treaty provisions outlined below.

It is against the law to copy, reproduce or transmit (including without limitation, electronic transmission over any network) any part of the program except as provided by the Copyright Act of the United States (Title 17, United States Code) (the "Laws"). However, you are permitted by Zoom to write the contents of the program into the machine memory of your computer so that the program may be executed by a single user. You are also permitted by Zoom to make a back-up copy of the program subject to the following restrictions:

- (1) Each back-up copy must be treated in the same way as the original copy purchased from Zoom;
- (2) If you ever sell or give away the original copy of the program, all back-up copies must also be sold or given to the same person, or destroyed; and
- (3) No copy (original or back-up) may be used while any other copy (original or back-up) is in use.

If you make a back-up copy of the program, you should place the copyright notice that is on the original copy of the program on every back-up copy of the program. If you ever make any modification to the program, no copy of the modified version of the program may be transferred under any circumstances without the written permission of Zoom (See Section 117 of the Copyright Act).

The above is not an inclusive statement of the restrictions imposed on you under the Laws. For a complete statement of the restrictions imposed on you under the Laws, see Title 17, United States Code. If you are in any doubt as to whether your proposed use of the program is prohibited, you should seek appropriate professional advice.

Certain programs sold by Zoom are copy-protected (in addition to copyright protected) - that is, the diskette on which the program is recorded is physically designed so that the program cannot be copied or reproduced. If the program you have purchased is copy protected and a back-up copy of the program has been provided to you by Zoom, your rights in the back-up copy are also subject to the restrictions under the Laws referred to above.