



56K Modem Internet Kit

Modem Installation Guide

OPTIONS

by IBM

Note *Before using this information and the product it supports, be sure to read the general information in Product Warranty and Notices.*

Second Edition (December 1998)

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Part 1 : Safety

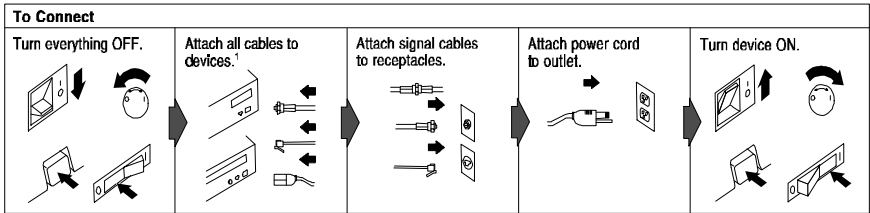
This modem card is for use only in Personal Computers that have installation instructions detailing user installation of adapter cards.

Safety Information

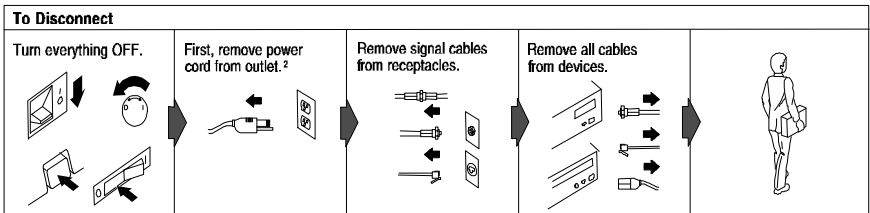


DANGER:

Electrical current from power, telephone, and communication cables is hazardous. To avoid shock hazard, connect and disconnect cables as shown below when installing, moving or opening the covers of this product or attached devices. The power cord must be used with a properly grounded outlet.



¹ In the U.K., by law, the telephone cable must be connected after the power cord.



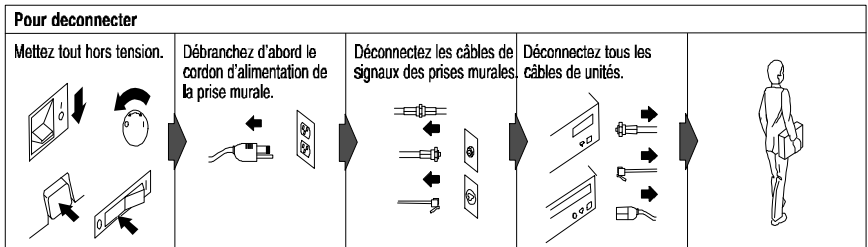
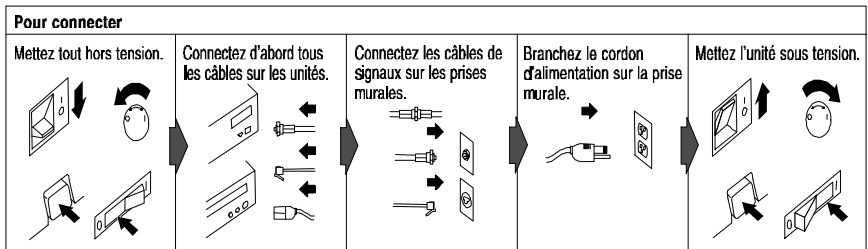
² In the U.K., by law, the power cord must be disconnected after the telephone line cable.

Safety Information



DANGER:

Le courant électrique provenant des câbles d'alimentation, téléphoniques et de transmission peut présenter un danger. Pour éviter tout risque de choc électrique, connectez et déconnectez ces câbles comme indiqué ci-dessous lorsque vous installez ou déplacez ce matériel ou les unités connectées, ou que vous soulevez un carter.*

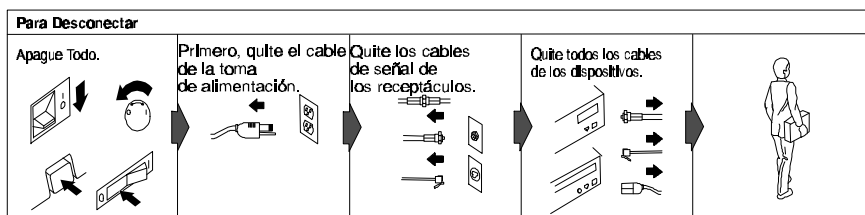
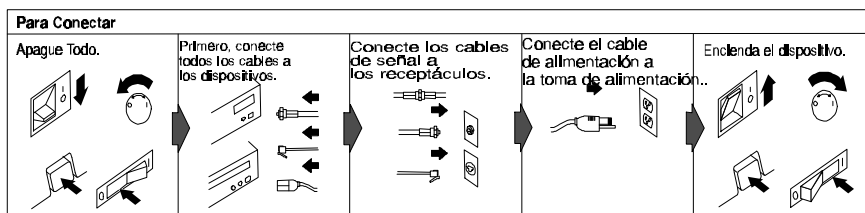


*Le cordon d'alimentation doit être branché sur un socle de prise de courant correctement mis à la terre.



PELIGRO:

La corriente eléctrica de la alimentación, teléfono y cables de comunicación es peligrosa. Para evitar peligro de descargas cuando instale, mueva o abra las cubiertas de este producto o de un disp. conectado, conecte y desconecte los cables tal como se muestra a continuación.



Safety Information



DANGER:

To avoid a shock hazard, do not connect or disconnect any cables or perform installation, maintenance, or reconfiguration of this product during an electrical storm.

To avoid shock hazard:

- The power cord must be connected to a properly wired and earthed receptacle.
- Any equipment to which this product will be attached must also be connected to properly wired receptacles.



DANGER:

Pour éviter tout risque de choc électrique, ne manipulez aucun câble et n'effectuez aucune opération d'installation, d'entretien ou de reconfiguration de ce produit au cours d'un orage.

Pour éviter tout risque de choc électrique :

- Le cordon d'alimentation doit être branché sur une prise d'alimentation correctement câblée et mise à la terre.
- D'autre part, tout le matériel connecté à ce produit doit également être branché sur des prises d'alimentation correctement câblées et mises à la terre.



PELIGRO

Para evitar peligro de descargas, no contacte o desconecte ningún cable, ni realice ninguna instalación, mantenimiento o reconfiguración de este producto durante una tormenta eléctrica.

Para evitar peligro de descargas:

- El cable de alimentación debe estar conectado a una toma de alimentación adecuadamente cableada y con toma de tierra.
- Cualquier equipo al cual se conecte este producto debe estar también conectado a tomas de alimentación adecuadamente cableadas.

Cuando sea posible, utilice una mano para conectar o desconectar los cables de señal para impedir que se produzcan posibles descargas eléctricas al tocar dos superficies con potencial eléctrico distinto.



When using your telephone equipment basic safety precautions should always be followed to reduce the risk of fire, electrical shock, and injury to persons, including the following:

- Never install telephone jacks in wet locations unless the jack is specifically designed for wet locations.
- Never touch uninsulated telephone wires or terminals unless the telephone line has been disconnected at the network interface.
- Use caution when installing or modifying telephone lines.
- Avoid using a telephone (other than a cordless type) during an electrical storm. There may be a remote risk of electrical shock from lightning.
- Do not use the telephone to report a gas leak in the vicinity of the leak.

Thank you for purchasing an IBM 56K Modem Internet Kit.

Note:

Do NOT connect your modem to a digital PBX (switchboard) system, because you may damage the modem. Modems are designed to function with analog telephone lines, such as most residential lines.

Do NOT connect your modem to an ISDN line. In some areas, ISDN (digital) lines are being provided for residences and businesses. These lines may damage the modem.

Please note that this modem is fully compatible with analog telephone lines that are connected to a Digital Exchange. The Digital Exchange supplies analog lines to homes and businesses.

Part 2 : Introduction

Important!

This modem will **not** function in DOS Real Mode, OS/2, or Windows NT. This modem will only work with a Windows 3.1x or Windows 95 or 98 operating systems.

Package contents

Before getting started, make sure that you have the following items that were included with your package.

- An internal IBM 56K Modem
- Communications Software on CD-ROM disc
- RJ11 Phone Cord
- Support diskette containing drivers
- A microphone.
- Program License Agreement

Important!

Refer to the readme file that is included with your software drivers diskette. This file contains additional information that is not in the modem installation guide. You can also visit the IBM website for the latest information:
<http://www.pc.ibm.com/options/modems/56kmodem.html>

As you examine these items, look for any physical damage. Retain the shipping container in the event that you need to ship your IBM 56K Modem Internet Kit.

Important: Be sure to retain your proof of purchase because it might be required to receive warranty service. You can find information on how to get help, technical support, and warranty service in *Help and Service Information*.

About V.90 56Kbps Connections

Initially when 56K technology was introduced, there was no industry standard. Lucent Technologies, Rockwell International, and U.S. Robotics each proposed their own protocols. Then, Rockwell and Lucent joined forces to promote their K56Flex protocol, and U.S. Robotics released its own protocol known as x2. In February 1998, the International Telecommunications Union (ITU) released V.90 as a draft standard, with approval expected in Fall 1998. The IBM 56K Modem supports both the x2 protocol and the draft V.90 standard.

56K modems take advantage of the fact that Internet Service Providers (ISPs) and corporate networks typically connect digitally to the public telephone system, enabling higher download speeds. Years ago, downloaded data was converted from analog form to digital form then back to analog form again. Today, it is now typically converted only once. That is, it travels digitally from ISP to the telephone company, digitally between two phone company offices, and finally analog to your modem. 56Kbps/V.90 modems use this fact to treat the downstream communication path as entirely digital, allowing faster download speeds. But that ability is only realized if your modem and phone connection meet all the requirements as described in the following paragraphs, and it only improves the downstream path. Data uploads to your ISP will be 33.6bps or less.

There are several variables that will effect your Internet connection and your ability to benefit from 56K technology. First your local phone system must not make more than one analog to digital transition. Also modem speeds will be affected by line noise, or interference, which is dependent on the quality of a particular phone line. The maximum data rate available over regular phone lines under the United States Federal Communications Commission's voltage regulations for central office telephone equipment is 53Kbps. While 56K protocol modems are capable of reaching download speeds near 56Kbps under ideal conditions, speeds typically range from 40 to 50Kbps.

This modem includes both V.90 and x2 56K technology. To make 56K connections, the modem requires that you connect to a V.90 or x2 compatible Internet Service Provider. The modem will first attempt to make a V.90 connection. If this connection attempt fails, the modem will attempt to make an x2 connection. If this attempt fails, the modem will attempt to make a V.34 connection at the highest speed possible (up to 33.6Kbps speed).

Part 3 : Installation

Overview

The installation has three elements:

- Installing the modem card (hardware installation).
- Installing the modem drivers. The instructions vary by operating system.
- Installing application software, such as fax or internet dialers. This process is not discussed in this manual.

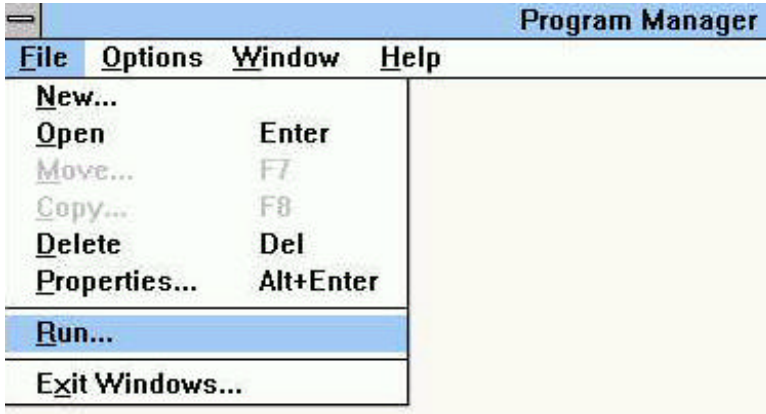
Installing the Modem

1. Turn off and unplug your computer and any peripheral devices, such as a printer.
2. Remove the computer's cover. Refer to the computer manual, if necessary, to see which rear panel screws to remove before sliding the cover off.
3. Unscrew and remove the solid bracket at the back of any available ISA expansion slot.
4. Insert the modem board into the slot you have chosen, with the gold leads on the modem's edge firmly in the slot's groove.
5. Once the modem is in place, screw the bracket at the back of the modem firmly to the computer's rear panel. This ensures that the modem board is firmly in place.
6. Replace the computer cover and all its screws. Reattach all cables and power cords.
7. If you currently have a phone plugged into the wall jack, disconnect it. Plug one end of the phone cable that came with the modem into the TELCO jack at the rear of the modem. Plug the other end of the cable into the wall jack.
8. This completes the modem hardware installation.

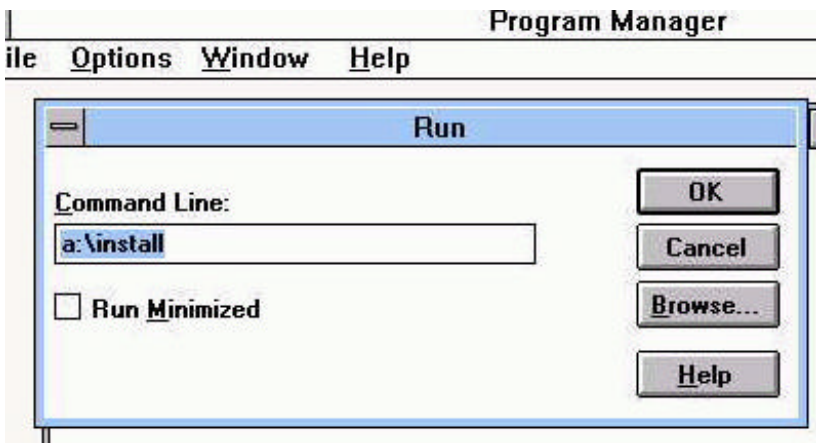
Installing Drivers for Windows 3.1/3.11

The following steps should be performed in order to install the driver software for the modem:

1. Insert the installation diskette.
2. Select the **File** pulldown menu located at the top of the **Program Manager**.
3. Select **Run...**



4. Type `a:\install` (if a: is your 3.5" diskette drive). Click **OK**



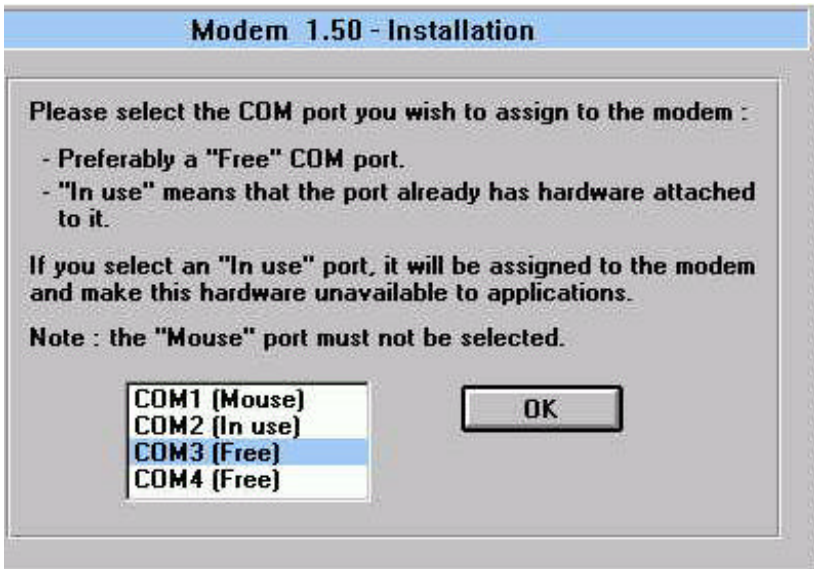
5. Follow the prompts from the installation program.



Click YES to create a new directory if needed.

6. One of the prompts will ask you to select an available COM port. Select one that is free (Available COM port will be highlighted) and press **OK**.





Restart Windows if directed at the end of the installation.

7. At the conclusion of the installation, you will find an ISA Modem for Windows group in the Windows Program Manager window.



Important!

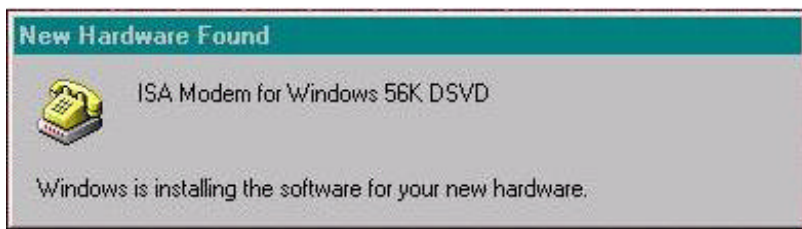
If you decide to upgrade to or install Windows 95 or 98, you must first uninstall your Windows 3.1 drivers and remove the modem from your PC. If you do not uninstall these drivers, your modem will not be recognized and will not configure for use in Windows 95/98. Windows 3.1 drivers are not compatible with Windows 95/98. Do not attempt to install these drivers in place of the Windows 95/98 drivers. Refer to uninstall instructions that are provided on page 3-8.

Installing Drivers for Windows 95

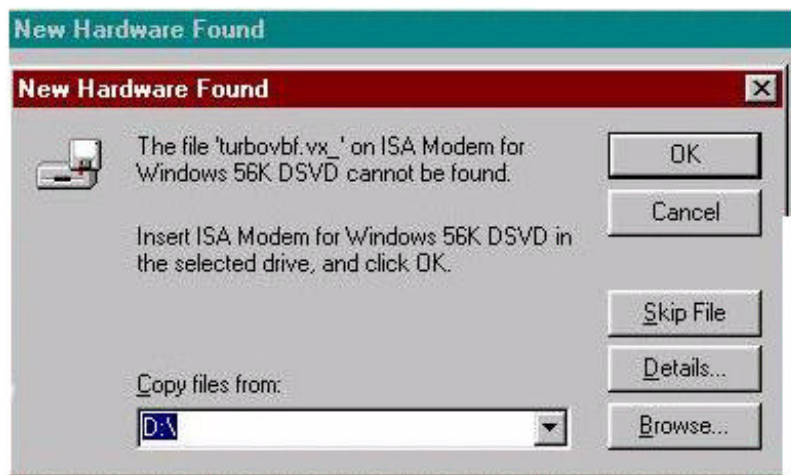
There are two major versions of Windows 95. The following steps describe the OEM (B) version most widely used. Installation steps for the retail version of Windows 95 are included at the end of this section as well.

Once the system is turned on, the following steps should be performed to install the driver software for the modem:

1. Once the modem has been physically installed in the system, Windows 95 should come up with the **New Hardware Found** screen. Otherwise refer to the Troubleshooting section.



2. Select the *Driver from disk provided by hardware manufacturer* if prompted and direct the *Copy files from:* box to the location of the drivers (A: if the installation diskette is in your A-drive).



3. Insert the ISA Modem for Windows diskette into your diskette drive and click the **OK** button.



NOTE:

- a. It will be necessary to change to **A:** drive before continuing installation of the modem driver. Type **A:** and click **OK**.
 - b. If installing drivers from another directory or drive source, use the **Browse** button to select the source. Click **OK**.
4. The next screen will confirm that you are installing initialization software for the ISA Modem for Windows. Click **OK**.

5. An installation screen will appear telling you that the system is installing drivers for the ISA Modem for Windows.



6. Wait for the installation of the driver software to complete. Windows will continue loading after completing installation of the modem drivers.

Important!

When performing a completely new installation of Windows 95 it will be necessary to **physically** remove the 56K DSVD Modem. Windows 95 will not recognize the modem during installation of the operating system. After completing installation of Windows 95, install the modem as outlined in instructions given above. Remember to follow all **cautions** or **warnings** given for installing this modem.

Note:

This message does not apply to Windows 95 upgrades to Windows 98. The modem drivers will be carried over to Windows 98.

Windows 95 retail version which also shipped on earlier IBM PCs installs differently:

1. After you power up your computer, a window will appear that says “New Hardware Found”. Select the option “Driver from disk provided by Hardware Manufacturer”, and then click the **OK** button.
2. Insert the *ISA Modem for Windows* diskette into your diskette drive and click the **OK** button.
3. The next screen will confirm that you are installing initialization software for the ISA Modem for Windows. Click the **OK** button.
4. An installation screen will pop up telling you that the system is installing drivers for the ISA Modem for Windows.
5. Wait for the installation of the driver software to complete. Restart the computer if prompted to.

Installing Drivers for Windows 98

Once the system is turned on, the following steps should be performed to install the driver software for the modem:

1. Once the modem has been physically installed in the system, Windows 98 should come up with the **Add New Hardware Wizard** screen. Otherwise refer to the Troubleshooting section.



Click the **Next>** button to continue.

2. You will be asked how you want the Wizard to search for the drivers. Leave the default choice unchanged, *Search for best driver for your device*. Insert the modem drivers diskette in the floppy drive slot and click the **Next>** button.



3. You will be asked where you want the Wizard to search for the drivers. Leave the default choice unchanged, *Floppy disk drives*, and *Specify a location* (where **A:** is the floppy drive in your system), and click the **Next>** button.



- When Windows 98 finds the driver file, the **Add New Hardware Wizard** screen will appear. Click **Next>**. If the driver is not found, make sure that the correct diskette is in the floppy drive, and click the Back button and retry. If this does not work, refer to the Troubleshooting section.



5. After the installation has completed, the following screen will inform you that the driver installation is done. Click the **Finish** button to exit the screen. If you do not see this screen or have any error messages, refer to the Troubleshooting section.



Depending on your system, you may be prompted to repeat the previous steps one more time to install the modem **Wave Device** driver for the voice functions. The screens and steps will be the same.

You may also be asked restart your computer at the completion of installation. This is not necessary but if prompted, you should go ahead and select Yes to restart the computer.

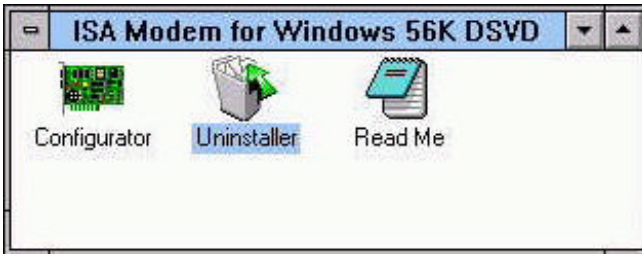
Uninstalling Drivers for Windows 3.1/3.11

The following steps should be performed in order to uninstall the driver software for the modem:

1. Select the ISA Modem for Windows 56K DSVD **Program Group**.



2. Select **Uninstaller** icon and follow prompts. Select **Yes** to remove the modem drivers from your system.



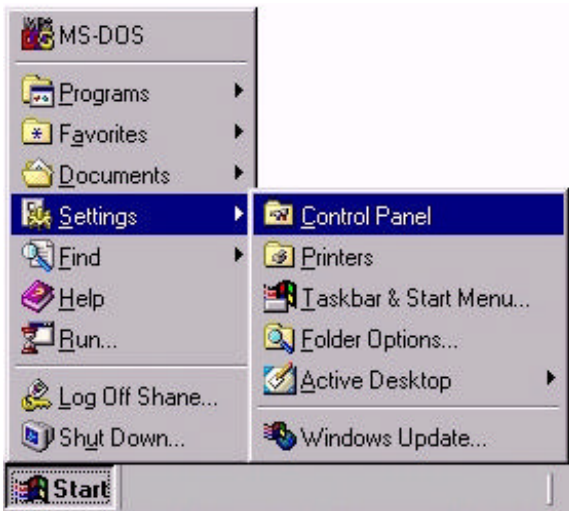
3. Modem driver will be uninstalled. Click **Yes** to restart computer.



Uninstalling Drivers for Windows 95/98

The following steps should be performed to uninstall the driver software for the modem:

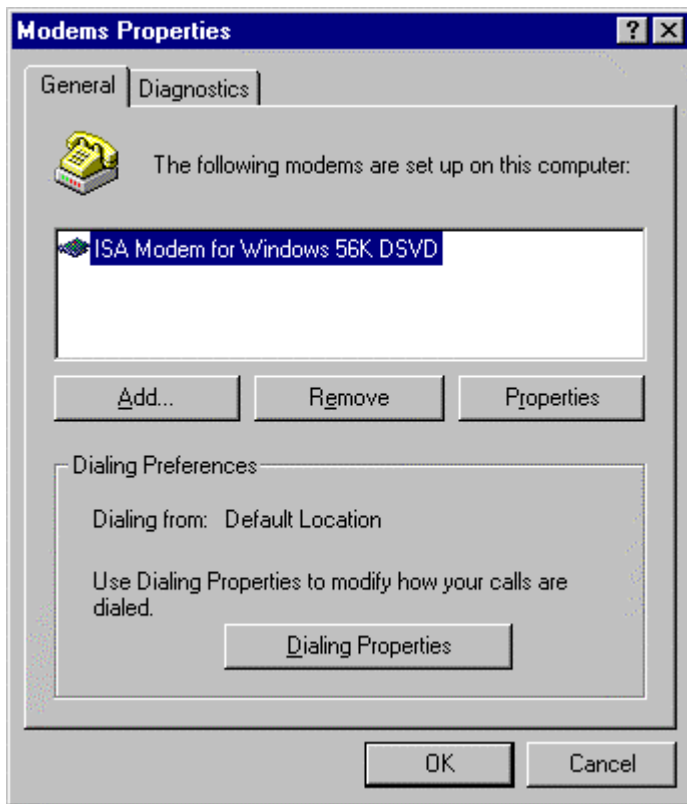
1. Click on Start button located at the bottom left corner of the **Tool Bar**, scroll to settings, select control panel.



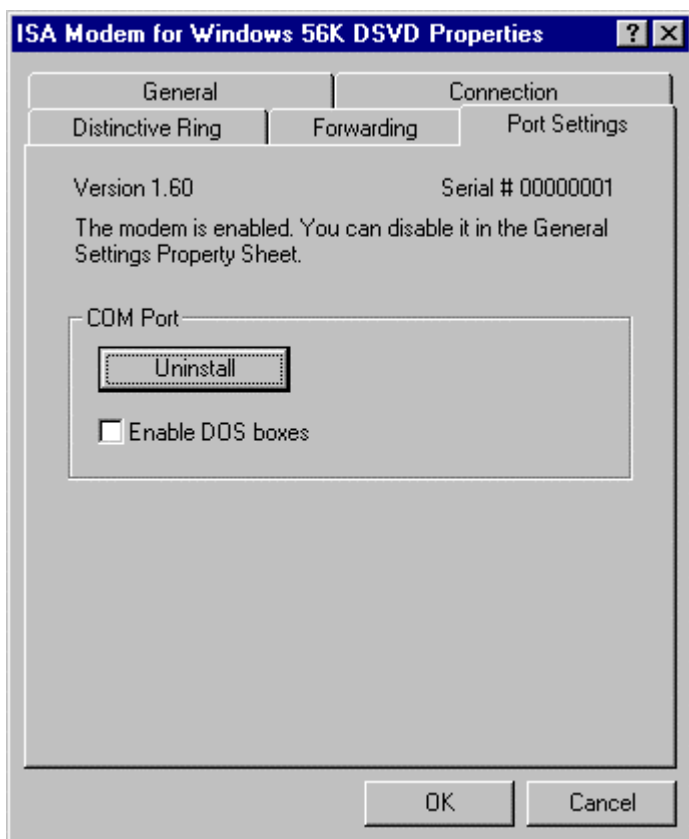
- Click on the **Modems** icon.



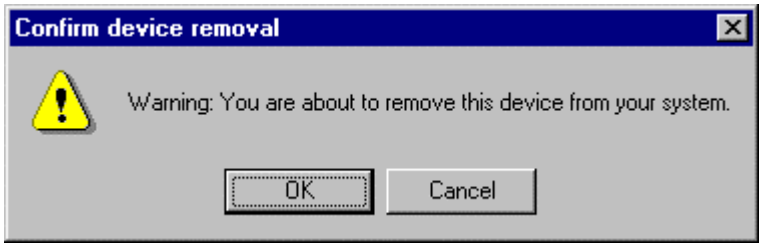
3. Highlight **ISA Modem for Windows 56K DSVD**. Click on **Properties**.



4. Select the **Port Settings** tab, then click on the **Uninstall** button.



5. Device removal confirmation will appear. Click on **OK** to finish.



6. Uninstall will be completed and a confirmation window will appear. Click on **OK** to finish. It is recommended that you power down your computer and physically remove the modem after the uninstall has completed. You will not be prompted to restart your computer after uninstall is finished.

Installation du modem

1. Mettez hors tension et débranchez l'ordinateur et les périphériques, notamment l'imprimante.
2. Enlevez le couvercle de l'ordinateur. Au besoin, reportez-vous au manuel de l'ordinateur pour savoir quelles vis du panneau arrière doivent être enlevées avant de retirer le couvercle.
3. Dévissez et enlevez les supports à l'arrière d'un connecteur d'extension ISA disponible.
4. Introduisez la carte modem dans le connecteur choisi et assurez-vous que les contacts dorés de la carte modem sont bien insérés dans la rainure du connecteur.
5. Lorsque le modem est bien en place, vissez solidement le support à l'arrière du modem au panneau arrière de l'ordinateur pour assurer que le modem est fermement en place.
6. Remettez le couvercle de l'ordinateur et revissez les vis. Rebranchez tous les câbles et les cordons d'alimentation.
7. Si un téléphone est présentement branché à la prise murale, débranchez-le. Branchez une des extrémités du câble téléphonique fourni dans la prise TELCO à l'arrière du modem. Branchez l'autre extrémité du câble dans la prise murale.
8. L'installation de l'équipement est maintenant terminée.

Installation du pilote sous Windows 3.1/3.11

Pour installer le pilote du modem sous Windows 3.1/3.11, suivez les étapes suivantes:

1. Introduisez la disquette d'installation.
2. Dans le **Gestionnaire de programmes**, déroulez le menu **Fichier**.
3. Choisissez **Exécuter...**
4. Tapez **a:\install** (si **a:** est votre lecteur de disquette 3.5 po).
5. Répondez aux diverses invites du programme d'installation.
6. L'une de ces invites vous demande de choisir un port série COM. Choisissez un port qui est libre et appuyez sur **OK**.
7. À la fin de l'installation, un groupe Modem ISA pour Windows apparaît dans la fenêtre du Gestionnaire de programmes.

Installation du pilote sous Windows 95/98

Pour installer le pilote du modem sous Windows 95/98, suivez les étapes suivantes:

1. Lorsque le modem est physiquement installé dans le système, Windows 95/98 affiche **Nouveau matériel** à l'écran.
2. Choisissez *Pilote sur disque fourni par le constructeur* (Driver from disk provided by hardware manufacturer).
3. Introduisez la disquette Modem ISA pour Windows dans le lecteur et cliquez sur **OK**.
4. L'écran suivant confirme que vous installez le logiciel d'initialisation pour le modem ISA pour Windows. Cliquez sur **OK**.
5. Un écran s'affiche et vous informe que le système installe les pilotes pour le modem ISA pour Windows.
6. Attendez que l'installation soit terminée.

Entretien et Garantie

Pour obtenir une assistance technique ou pour connaître les heures d'assistance ainsi que les conditions et la période de la garantie, reportez-vous aux documents qui sont inclus ou contactez votre revendeur IBM ou le représentant en marketing IBM.

Cómo Instalar el Módem

1. Apague y desenchufe el ordenador y demás elementos periféricos, como la impresora.
2. Retire la cubierta del ordenador. Remítase al manual, si es necesario, para saber qué tornillos del panel trasero debe quitar antes de deslizar la cubierta.
3. Desatornille y desmonte el soporte sólido de la parte posterior de una ranura de expansión ISA que esté disponible.
4. Introduzca la tarjeta del módem en la ranura que haya elegido, con las guías doradas situadas en el borde de la tarjeta correctamente ajustadas en el hucco de la ranura.
5. Una vez colocado el módem, atornille el soporte de la parte posterior al panel trasero del ordenador. Así se garantiza que el tablero del módem se haya introducido correctamente.
6. Vuelva a colocar la cubierta del ordenador y los tornillos. Reconecte todos los cables incluyendo el de conexión.
7. Si tiene un teléfono conectado en el punto de conexión de la pared, desconéctelo. Enchufe un extremo del cable del teléfono suministrado con el módem en el punto de conexión TELCO en la parte posterior del módem. Enchufe el otro extremo del cable en el punto de conexión de la pared.
8. Así queda concluida la instalación del hardware.

Cómo Instalar los *Drivers* en Windows 3.1/3.11

Se deben ejecutar las siguientes operaciones para instalar el software del *driver* para el módem:

1. Insertar el disquete de instalación.
2. Seleccionar **Archivo** del menú situado en la parte superior izquierda del **Administrador de Programas**.
3. Seleccionar **Ejectar...**
4. Introducir **a:\instalar** (si su disquete es **a: 3.5"**).
5. Siga las instrucciones del programa de instalación.
6. Una de las instrucciones le pedirá que seleccione un puerto **COM** disponible. Seleccionar uno que esté libre e introduzca **OK**.
7. Al finalizar la instalación, encontrará un Módem ISA para un grupo Windows en la ventana del Administrador de Programas Windows.

Cómo Instalar los *Drivers* para windows 95/98

Se deben ejecutar las siguientes operaciones para instalar el software del *driver* para el módem:

1. Una vez que el módem haya sido físicamente instalado, aparecerá la pantalla **Localizado Nuevo Hardware** en Windows 95/98.
2. En esta pantalla seleccione *Driver del disco suministrado por el fabricante del hardware*.
3. Insertar el disquete Windows para el Módem ISA en el drive de su disquete y haga clic en **OK**.
4. La siguiente pantalla confirmará que está instalando la inicialización del software para el Módem ISA para Windows. Haga clic en **OK**.
5. Aparece una pantalla de Instalación para informarle que el sistema está instalando los *drivers* para el Módem ISA de Windows.
6. Esperar a que finalice la instalación del software del *driver*.

Servicio Post-Venta y Garantía

Para el servicio técnico, horas de servicio y términos y condiciones de la garantía, consulte la información adjunta, o bien póngase en contacto con su suministrador IBM o el representante de marketing IBM.

Part 4 : Testing Your Modem

Refer to the Application Software's installation instructions to load the communications software you will be using.

Windows 3.1/3.11

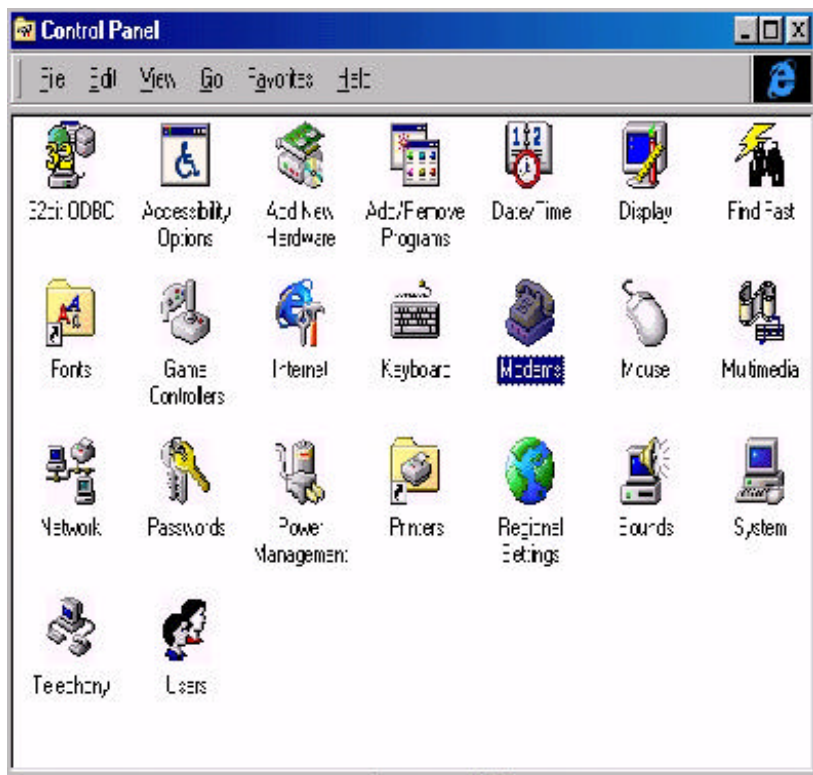
1. Turn on your computer.
2. Start your communication software and be sure it is in the command mode. This is also known as terminal mode.
3. Setup your communication software to the communication port your modem is using.
4. If the port opened properly, go to the next step. Otherwise, check if you have any other communication software trying to use the same port. If so, close that software. If not, switch to a different COM port.
5. Type **AT&F** and press **enter**, you should see an **OK** response. If nothing happened at this point, this indicates that the modem is not getting the proper IRQ.
6. Type **ATE1** and press **enter**
7. Type **ATS18=30** and press **enter**
8. Type **AT&T1** press **enter**
9. You can type any character on your keyboard and see them displayed on your screen.
10. Type **ATZ** and press enter to stop the test, you should see **OK** displayed on your screen.
11. Type **AT&F** and press **enter**, you should see an **OK** response on your screen.

Windows 95/98

1. Click on the **Start** button located at the bottom left corner of the **Tool Bar**, scroll to settings, select **Control Panel**.



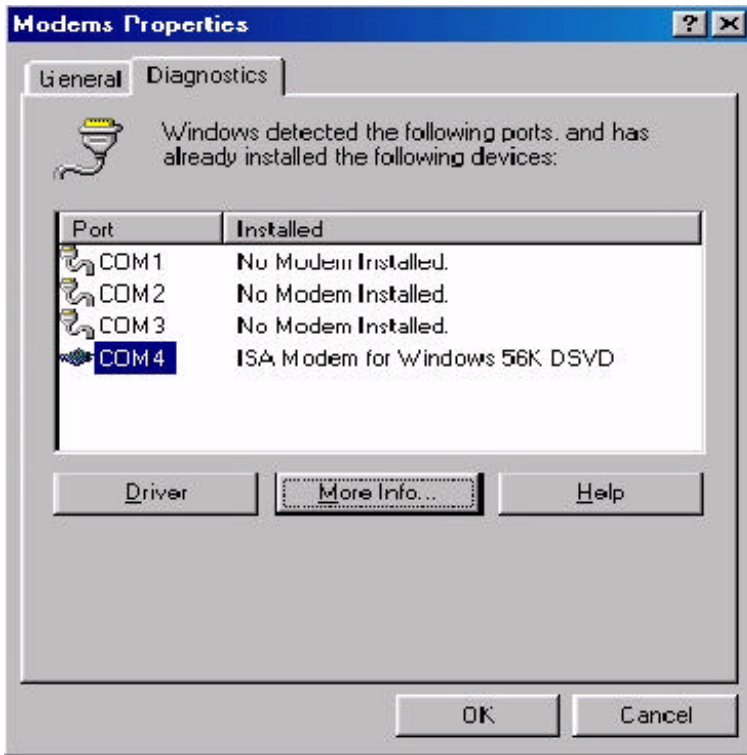
2. Click on the **Modem** icon.



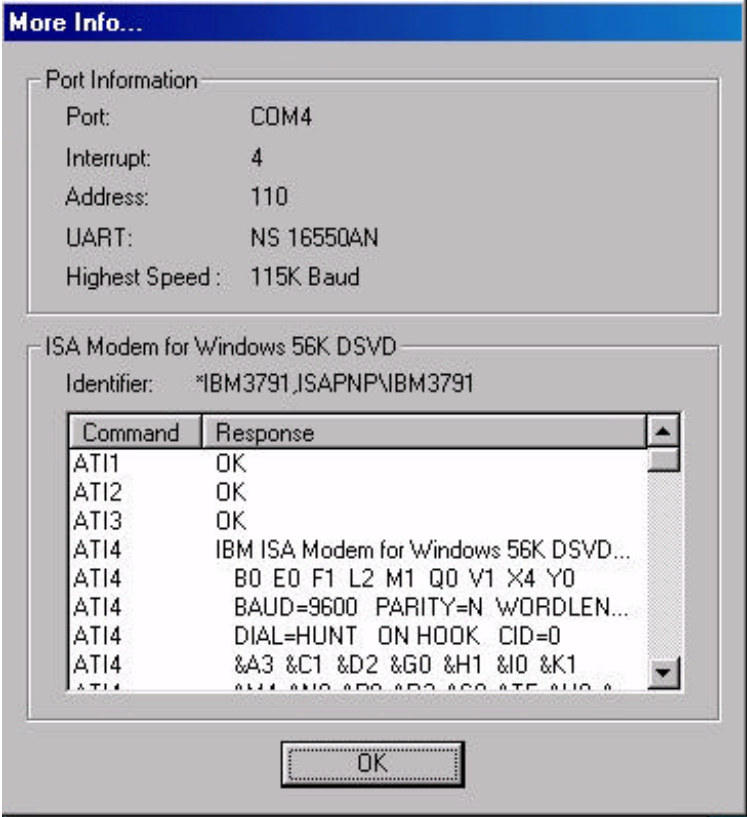
3. Highlight the **ISA Modem for Windows 56K DSV2** modem heading. Click on the **Diagnostics** tab.



4. Highlight COM port labeled **ISA Modem for Windows 56K DSVD**. Click on **More Info**.



- 5. Windows 95/98 will begin performing a series of test on your modem. If the tests are successful, your modem port information will be given. If your modem isn't functioning properly a warning prompt will be given explaining what type of problem occurred. Refer to the troubleshooting portion of this manual for further assistance.



Part 5 : Typical Applications

Internet Access

One of the most popular applications for modems is accessing the Internet, or World Wide Web. The basic steps for accessing the Internet follow.

1. Physical Connection – You need a modem correctly installing in your computer and connected by a standard RJ-11 cable to an active analog phone line. This kit includes both the modem and RJ-11 cable.
2. Software Tools – You need software to provide the phone-dialing function, and an Internet browser application to display the graphical web pages. This kit provides both these elements in the IBM Internet Connection software with Netscape Communicator on the CD-ROM disk.
3. Internet Service Provider (ISP) Account – This provides the host-side physical connection to the Internet. The ISP will provide you with an e-mail address and with local phone numbers for your modem to call. This kit includes an offer for 60-days free use of IBM's Internet Service, IBM Internet Connection. Just load the IBM Internet Connection software from the CD-ROM disk and follow the steps for setting up a new account.

Speakerphone / Phone Answering Functions

Speakerphone functions generally refer to using your computer and modem together as a telephone in a hands-free speakerphone mode. Phone answering allows the computer and modem to perform as a stand-alone automatic phone answering machine. These functions are often referred to as Telephonic functions. The basic steps in making use of these functions follow.

1. Physical Connection – There are several physical elements that must be connected:
 - a) You need a modem correctly installing in your computer and connected by a standard RJ-11 cable to an active analog phone line. This kit includes both the modem and RJ-11 cable.
 - b) A microphone needs to be connected to the microphone input of the modem back plate or to the microphone input of your sound card. This kit includes a microphone.
 - c) You will also need speakers connected to the speaker output connector of your modem back plate or from the speaker output of your sound card. This kit does not include speakers or a sound card.

Note: The choice of whether to connect the microphone and speakers to your modem or sound card will depend on what software you use to

enable the speakerphone functions. Generally, connection to the modem is recommended.

2. Software Tools – Application software that provides Telephony functions. This kit provides this function with the Smith Micro Quick Link software included on the CD-ROM disk. If you have trouble getting the telephony functions to work, refer to the Quick Link help screens, and check the settings in the setup menu. Also remember that the computer must be powered on for the modem and computer to answer the phone or to perform as a telephone.

Faxing

The fax capability of this modem kit allows you to exchange information with other fax modems or with facsimile machines. The basics of what you need to do this:

1. Physical Connection – You need a modem correctly installing in your computer and connected by a standard RJ-11 cable to an active analog phone line. This kit includes both the modem and RJ-11 cable
- Software Tools – The modem also requires application software that supports fax functionality. This kit includes this functionality in the Smith Micro Quick Link software on the CD-ROM disk. Once installed and set up, it can automatically detect and answer incoming faxes, or be set up to send outgoing faxes. The modem and software sends “softcopy” versions of documents such as files. If you have physical items (paper) you need to fax, they must be scanned into the computer (a scanner is not included in this kit).

Part 6 : Troubleshooting

Read this section first before calling IBM!

Problem:

Windows 95/98 Plug and Play (PNP) does not detect your modem. You have installed the modem and Windows has restarted, but you see only your normal desktop. You do not see any screens indicating new hardware has been detected.

Possible Solution

Modem may not be physically plugged in. Shut down computer Re-seat modem solidly and turn computer back on.

Possible Solution

Have up just upgraded from Windows 3.1x or have you just reinstalled Windows 95?

Some users have experienced problems with getting the 56K Internet Modem recognized after reinstalling Windows 95 with the 56K modem physically in the system. When Windows 95 searches for installed devices, after a new install it skips the 56K modem. The correct thing to do is to make sure the modem is removed prior to installing Windows 95. However, if the modem was left in the during the Windows 95 installation, you should first try uninstalling the modem and rebooting the system. Follow the instructions starting on page 3-9 to uninstall the modem. Then when the modem is added back to the system, Windows 95 will detect the modem correctly. If that does not work, the only solution is to remove the modem and reinstall Windows 95 again with the modem physically removed from the system. Then add the modem back and let Windows 95 detect it.

There is a situation where the modem may not be detected. If the modem install process did not complete, or an uninstall was done without using the modem uninstall process, the modem will not be detected when the system is restarted. The solution for this situation is to remove all references to the modem from Windows 95. Follow Windows 95 instructions for removing modem devices from one to three areas, under the modem Icon in the control panel, device manager and or the Windows 95 registry.

Possible Solution

The Plug and Play installation was not successful. Try the following:

1. Click **Start** and click **Shut Down**.
2. When asked if you wish to shut down your computer, click **Yes**.
3. When Windows indicates that it is safe to turn off your computer, turn it off.
4. Wait 15 seconds before turning the computer back on.
5. Windows may detect your modem upon this restart, even if it did not detect the modem during the initial installation.
 - If you do not see the new hardware screens, continue with step 6.
6. Click Windows **Start**
7. Point to **Settings**
8. Click **Control Panel**.
9. Double-click the **System** icon.
10. Click the **Device Manager** tab on the “System Properties” screen.
11. Look for “Other Devices” or “Unknown Devices” in the list that appears.
 - If you do not see either of these options in the list, contact your computer manufacturer for technical assistance.
 - If you do see one of these options, double-click the option and continue with step 12.
12. If the description that appears matches the modem you are trying to install, click **Remove**. If it does not, contact your computer manufacturer for technical assistance.
13. Click **OK** when Windows asks if you wish to remove the device.
14. Restart the computer.
 - If you see screens indicating that new hardware has been detected by Windows, follow the instructions to install the modem as described in the earlier sections of this manual.

- If the computer does not detect the modem after this second restart, contact your computer manufacturer for technical assistance.

Problem

Software is not able to communicate with the modem after installation in Windows95/98

Possible Solution

You may have a COM port/IRQ conflict

1. Right-click the **My Computer** icon on your desktop.
2. Click **Properties**.
3. Click the **Device Manager** tab.
 - If you see a yellow exclamation point over your modem, you have a resource conflict, probably an IRQ conflict. Continue with step 4.
 - If you did not see a yellow exclamation point, you may still have an IRQ conflict. Continue with next "Possible Solution" below. If these possible solutions do not solve your problem, continue with step 4.
4. Follow the steps starting on page 3-9 to uninstall the modem drivers.
5. Unplug the computer from its electrical outlet.
6. Remove the cover of the computer, physically remove the modem from its expansion slot, and replace the cover.
7. Plug the computer back into the electrical outlet, and turn it on.
8. When Windows restarts, once again right-click **My Computer** on your desktop and click **Properties**. Click the **Device Manager** tab. Double-click **Computer**. Make sure the **Interrupt request (IRQ)** radio button is checked. You can determine which IRQ settings are free on your system by looking for numbers that are not listed in the Setting column. One of the following IRQs needs to be free: 3, 4, 5, or 7.

9. After you know what IRQ settings are available. Reinstall your modem following the directions in the Installing drivers for Windows 95/98 chapter. Once your modem is properly installed, make sure you have the correct COM port and IRQ settings in your software and/or in the Windows Device Manager.

Possible Solution

You may not be using Windows-based communications software. The modem requires Windows based software. Some Windows-based communications and Internet software use a DOS-based dialer. Check with the software company. You may want to *Testing Your Modem* section to verify that the modem is operating correctly independently of the communications software.

Problem

The modem will not go off hook to dial (no dial tone), or does not answer the phone

Possible Solution

You may have plugged your modem's phone cord into the wrong jack on the modem. Make sure the phone cord is plugged into a jack labeled with the picture:



Possible Solution

You might have a bad phone cord connection to your modem. The phone cord should be plugged correctly into the jack on the modem (as described in the previous paragraph) and the wall phone jack. Use the phone cord included with your modem if possible. Ensure both ends of your phone cord are solidly inserted.

Possible Solution

Your phone jack may have been wired incorrectly in the wall. Plug in an analog phone into the wall jack. If you don't get a dial tone contact your telephone company. Ask them to make sure the tip and ring are on the inside pair of wires.

Possible Solution

You may have devices between the modem and the phone jack. There should be no line splitters, fax machines, or other devices between the modem and the wall jack.

Possible Solution

You may have a poor line connection. Place the call again. Calls are routed differently each time.

Possible Solution

If you have voice mail service provided by your phone company, your dial tone may be altered because messages are waiting. Retrieve your voice mail messages to restore your normal dial tone. Also you can use AT commands to force modem operation without waiting for a dialtone (see the AT command reference in the readme file on the installation diskette, and reference Xn and S6 commands).

Possible Solution

If your modem does not answer the phone, your software may not have auto answer enabled. Find the auto answer setting in your communications software. Or if your software uses AT commands, the command is ATSO=L.

Possible Solution

You may have plugged your modem's phone cord into a digital line. Plugging your modem's phone cord into a digital phone line can damage the modem. Call your phone company if you are unsure whether or not your phone line is digital.

Problem

Modems sound like they are exchanging carrier signals, but fail to establish a connection, or fails to maintain a connection.

Possible Solution

You may have a poor line connection. Place the call again. Calls are routed differently each time.

Possible Solution

Check the number you are dialing. Call your ISP to confirm the phone number and supported protocols.

Possible Solution

Do you have call waiting on your phone system? If so, check with your carrier for the phone keystrokes that will disable it in your area. For some areas, this is *70.

Problem

Your 56K modem cannot achieve a 56K connection

Possible Solution

This modem is capable of 56Kbps downloads. However, due to FCC rules which restrict power output of the service providers' modems, current downloads are limited to a maximum possible speed of 53Kbps. Actual speeds may vary depending on line conditions and

other factors. Uploads from users to server equipment travel at speeds up to 33Kbps. An analog phone line compatible with the V.90 technology, and an Internet provider host site compatible with the V.90 standard technology are necessary for these high-speed downloads. Refer to Chapter 2 of the users manual for more detailed information about 56K modem technology. Call your ISP to verify they support V.90 or X2 protocols.

Possible Solution

You may have devices between the modem and the phone jack. There should be no line splitters, fax machines, or other devices between the modem and the wall jack.

Possible Solution

Check the IBM web site for the most current version of drivers available:

<http://www.pc.ibm.com/options/modems/56kmodem.html>

Problem

Errors are constantly occurring in your v.17 fax transmissions

Possible Solution

There may be a Terminate and Stay Resident (TSR) program (such as a screen saver or virus scanner) running in the background, disrupting data communications. Disable any Terminate and Stay Resident (TSR) programs running in the background. If you have software running as a TSR, check the software's manual for information about disabling its ability to operate as a TSR.

Possible Solution

Your baud rate may be set too high. In your communications software, lower the baud rate to 9600, 7200, or 4800.

Possible Solution

You may be trying to fax a compressed file. Decompress the file using the application with which it was compressed. Then open it in the application with which it was created. Select your fax software as the printer and then print the file.

Possible Solution

Your modem initialization string may be insufficient for fax transmissions. In terminal mode, type the following initialization string: AT&H3&I2&R2S7=90S36=0 then press ENTER. The standard string for faxing is AT&F1S36=0.

Problem

Your communications software fails to initialize the modem

Possible Solution

Your software's port settings may be incorrect. Make sure the software's port settings match those for your modem.

Additional Information about IRQ and COM port conflicts

Each serial device attached to your computer needs its own unique communication port (COM Port) and interrupt request line (IRQ). Your modem is configured through software during installation. If any other device is using the same COM Port or IRQ as your modem, it will cause a conflict. This can result in system lock-ups or loss of data.

Common Sources of COM Port and IRQ Conflicts:

Serial interface cards or external COM Ports are the most common sources of COM Port or IRQ conflicts. There are many other devices in your system that can cause conflicts as well. Sound cards frequently cause conflicts since they may use up to three IRQs, depending on the card. Other devices can conflict with your modem, such as SCSI cards, pre-installed modems, or other peripherals in your system.

External COM Ports:

Most computers come with two external COM Ports (COM1 and COM2). If you have an external COM2 connector (look on the back of your computer), you will have a conflict if you install an internal modem using COM2. Even if nothing is connected to the external port, the COM Port is still reserved for that Port, unless you disable it in the system BIOS (see below). The reason this happens is that the external connector uses a serial interface card, which reserves COM2 and IRQ3 for the external connector.

Disabling the External COM2 Connector:

If you do not plan to use the external COM2 connector, most computers will let you disable it (consult your computer's user guide or its manufacturer's technical support). Your internal modem may then be installed using COM2 and IRQ3, if you choose. Modems are not required to be on COM2 and IRQ3, but we are using this as an example.

Serial Interface/Expansion Cards:

Sound cards, network cards, SCSI/IDE, and other serial interface cards use COM Ports and IRQs. You may have installed such a card in your computer's

expansion slot to run an external hard drive, or CD-ROM, or perhaps to connect to your network. Some video cards also use an IRQ. The main issue to watch for with video cards is that a lot of them share COM4's memory address space. This can conflict if you try putting a modem on COM4. Please contact your graphic card company for support on this issue.

You need to determine which COM Port and IRQ each serial interface card in your system is using. One way to find this out is to open up your computer, take out the expansion card or cards, and examine their jumper settings (be sure the computer is turned off before removing an expansion card). Another simpler way is to use Microsoft's Diagnostics program.

Using Microsoft Diagnostics for Windows 3.1x users:

Microsoft Diagnostics is a program included with most versions of MS-DOS. This program tells you what is installed on each COM Port and IRQ. Simply type MSD at the DOS prompt. If you are in Windows 3.1 or Windows for Workgroups, exit Windows completely, then run MSD. Look under IRQ Status and COM Ports. If COM3 or COM4 is available, it will be labeled N/A. We do not recommend COM4, due to the potential graphics card conflict mentioned above. MSD is not part of Windows 95 or 98.

IRQ Shuffling:

Sometimes it is necessary to change the IRQ setting on an expansion card to free an IRQ for the modem. For example, if your sound card is using IRQ5, you can reinstall it using IRQ11. This would then free IRQ5 for use by your modem.

Determining a COM Port and IRQ to use for your Modem:

The IRQs available for your modem to use depend on your computer setup. Each IRQ on your computer is assigned a peripheral device or other function (you can consult your computer documentation to see what these default settings are, or use MSD, as explained above). The typical assignment for the first eleven IRQs are listed below:

<u>IRQ</u>	<u>Assignment</u>
0	System Timer
1	Keyboard
2	Cascade input (mandatory function)
3	COM2
4	COM1
5	Parallel Port 2 (LPT2)
6	Disk Controller (All internal floppy drives)
7	Parallel Port 1 (LPT1)
8	Real-time clock interrupt

- 9 Reserved
- 10 Reserved
- 11 Reserved

As you can see above, there are no default assignments for COM3 and COM4. In order to use COM3 or COM4, you must assign it to an IRQ. This means sharing that IRQ with it's default assignment. This is possible, ONLY if the default assignment is NOT in use. For example, you can assign COM3 to IRQ5, if you are not using LPT2 for a second printer, or other external parallel device. You CAN NOT assign COM4 to IRQ2 because IRQ 2 is being used by the computer for a mandatory function. If you have a mouse attached to COM1, IRQ4 is in use by COM1 and can not be used for COM3. If you plan to use COM3 or COM4, you must assign these COM Ports to an IRQ through Windows. Before running your software, you must first re-install your modem with the right IRQ and COM Port settings.

AT Commands

The full list of AT commands is provided in the readme file located on the 56K Modem installation diskette. AT commands can be issued to the modem in a terminal mode from programs such as Hyperterminal in Windows 95/98 or Terminal in Windows 3.1. Or they can be set up in communication software such as Internet dialer programs as initialization strings. Refer to your communication software documentation if this is required. The most commonly used AT command is to reset the modem to it's factory settings (ATZ3) or to set it to it's factory settings without resetting it (AT&F0). When putting AT commands in communication software initialization strings, the "AT" prefix may not be required (Z3 instead of ATZ3, for example).

Part 7 : Help and Service Information

Step 1: Try to solve the problem.

Refer to the readme file that is included with you software drivers diskette. This file contains additional information that is not in the modem installation guide. You can also visit the IBM website for the latest information:

<http://www.pc.ibm.com/options/modems/56kmodem.html>

The modem was completely tested for proper operation at the factory before packaging for shipment. If the modem does not respond to the commands described in *Testing your modem*, please try the following:

- Ensure that the modem is properly seated in your computer by removing and re-inserting the modem.
- Verify that the COM port specified in your communications software is the same as the COM port to which your modem is set.
- Ensure that the communications software is installed properly. Follow the installation instructions for the communications application carefully, and check the documentation for any additional information pertaining to your system.
- Check with your system's manufacturer to determine if system BIOS supports this feature or if updates are required.
- Refer to the troubleshooting section in this manual.

Step 2: Preparing for the Call

To assist the technical support representative, have available as much of the following information as possible:

- Computer manufacturer and computer model.
- Option number.
- Option name.
- Serial number (if available).
- Proof of purchase (including date and place).
- Exact wording of the error message (if any)

- Description of the problem
- Hardware and software configuration information for your system

If possible, be at your computer. Your technical support representative might want to walk you through the problem during the call.

Step 3: Placing the Call to IBM

Technical support is available during the warranty period to answer any questions about your new IBM option. Support response time will vary depending on the number and nature of calls received.

Marketing, installation, and configuration support will be withdrawn from the PC Company HelpCenter 90 days after the option has been withdrawn from marketing.

If you call 90 days after the date of withdrawal or after your warranty has expired, you might be charged a fee. Additional support is available through the IBM PC Company automated Fax system, the PC Company Web Page, the PC Company Electronic Bulletin Board System and HelpWare offerings.

- The IBM web site at “<http://www.pc.ibm.com>”
- The IBM Fax system at (800) 426-3395 or (919) 517-0011
- The IBM BBS system at (919) 517-0001

For the support telephone and support hours by country, refer to the following table or to an optional enclosed technical support insert. If the number is not provided in the table or insert, contact your IBM reseller or IBM marketing representative.

Support 24 hours a day, 7 days a week	
Canada	1-800-565-3344
United States / Puerto Rico	1-800-772-2227

Part 8 : Product Warranty

The following warranty information applies to products purchased in the United States, Canada, and Puerto Rico. For warranty terms and conditions for products purchased in other countries, see the enclosed Warranty insert, or contact your IBM reseller or IBM marketing representative.

International Business Machines Corporation Armonk, New York, 10504

Statement of Limited Warranty

The warranties provided by IBM in this Statement of Limited Warranty apply only to Machines you originally purchase for your use, and not for resale, from IBM or your reseller. The term "Machine" means an IBM machine, its features, conversions, upgrades, elements, or accessories, or any combination of them.

Unless IBM specifies otherwise, the following warranties apply only in the country where you acquire the Machine. If you have any questions, contact IBM or your reseller.

Machine: IBM 56K Modem Internet Kit

Warranty Period*: One (1) year

**Contact your place of purchase for warranty service information..*

Production Status

Each Machine is manufactured from new parts, or new and used parts. In some cases, the Machine may not be new and may have been previously installed. Regardless of the Machine's production status, IBM's warranty terms apply.

The IBM Warranty for Machines

IBM warrants that each Machine 1) is free from defects in materials and workmanship and 2) conforms to IBM's Official Published Specifications. The warranty period for a Machine is a specified, fixed period commencing on its Date of Installation. The date on your receipt is the Date of Installation, unless IBM or your reseller informs you otherwise.

During the warranty period IBM or your reseller, if authorized by IBM, will provide warranty service under the type of service designated for the Machine and will manage and install engineering changes that apply to the Machine.

For IBM or your reseller to provide warranty service for a feature, conversion, or upgrade, IBM or your reseller may require that the Machine on which it is installed be 1) for certain Machines, the designated, serial-numbered Machine and 2) at an engineering-change level compatible with the feature, conversion, or upgrade.

Many of these transactions involve the removal of parts and their return to IBM.

You represent that all removed parts are genuine and unaltered. A part that replaces a removed part will assume the warranty service status of the replaced part.

If a Machine does not function as warranted during the warranty period, IBM or your reseller will repair it or replace it with one that is at least functionally equivalent, without charge. The replacement may not be new, but will be in good working order. If IBM or your reseller is unable to repair or replace the Machine, you may return it to your place of purchase and your money will be refunded.

If you transfer a Machine to another user, warranty service is available to that user for the remainder of the warranty period. You should give your proof of purchase and this Statement to that user. However, for Machines which have a life-time warranty, this warranty is not transferable.

Warranty Service

To obtain warranty service for the Machine, you should contact your reseller or call IBM.

In the United States, call IBM at **1-800-772-2227**.

In Canada, call IBM at **1-800-565-3344**.

You may be required to present proof of purchase.

IBM or your reseller will provide certain types of repair and exchange service, either at your location or at IBM's or your reseller's service center, to restore a Machine to good working order.

When a type of service involves the exchange of a Machine or part, the item IBM or your reseller replaces becomes its property and the replacement becomes yours.

You represent that all removed items are genuine and unaltered. The replacement may not be new, but will be in good working order and at least functionally equivalent to the item replaced. The replacement assumes the warranty service status of the replaced item. Before IBM or your reseller exchanges a Machine or part, you agree to remove all features, parts, options, alterations, and attachments not under warranty service. You also agree to ensure that the Machine is free of any legal obligations or restrictions that prevent its exchange.

You agree to:

1. obtain authorization from the owner to have IBM or your reseller service a Machine that you do not own; and
2. where applicable, before service is provided --
 - a) follow the problem determination, problem analysis, and service request procedures that IBM or your reseller provide,
 - b) secure all programs, data, and funds contained in a Machine, and
 - c) inform IBM or your reseller of changes in a Machine's location.

IBM is responsible for loss of, or damage to, your Machine while it is 1) in IBM's possession or 2) in transit in those cases where IBM is responsible for the transportation charges.

Extent of Warranty

IBM does not warrant uninterrupted or error-free operation of a Machine.

The warranties may be voided by misuse, accident, modification, unsuitable physical or operating environment, improper maintenance by you, removal or alteration of Machine or parts identification labels, or failure caused by a product for which IBM is not responsible.

THESE WARRANTIES REPLACE ALL OTHER WARRANTIES OR CONDITIONS, EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OR CONDITIONS OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THESE WARRANTIES GIVE YOU SPECIFIC LEGAL RIGHTS AND YOU MAY ALSO HAVE OTHER RIGHTS WHICH VARY FROM JURISDICTION TO JURISDICTION. SOME JURISDICTIONS DO NOT ALLOW THE EXCLUSION OR LIMITATION OF EXPRESS OR IMPLIED WARRANTIES, SO THE ABOVE EXCLUSION OR LIMITATION MAY NOT APPLY TO YOU. IN THAT EVENT SUCH WARRANTIES ARE LIMITED IN DURATION TO THE WARRANTY PERIOD. NO WARRANTIES APPLY AFTER THAT PERIOD.

Limitation of Liability

Circumstances may arise where, because of a default on IBM's part or other liability you are entitled to recover damages from IBM. In each such instance, regardless of the basis on which you are entitled to claim damages from IBM (including fundamental breach, negligence, misrepresentation, or other contract or tort claim), IBM is liable only for:

1. damages for bodily injury (including death) and damage to real property and tangible personal property; and
2. the amount of any other actual direct damages or loss, up to the greater of U.S. \$100,000 or the charges (if recurring, 12 months' charges apply) for the Machine that is the subject of the claim.

UNDER NO CIRCUMSTANCES IS IBM LIABLE FOR ANY OF THE FOLLOWING: 1) THIRD-PARTY CLAIMS AGAINST YOU FOR LOSSES OR DAMAGES (OTHER THAN THOSE UNDER THE FIRST ITEM LISTED ABOVE); 2) LOSS OF, OR DAMAGE TO, YOUR RECORDS OR DATA; OR 3) SPECIAL, INCIDENTAL, OR INDIRECT DAMAGES OR FOR ANY ECONOMIC CONSEQUENTIAL DAMAGES (INCLUDING LOST PROFITS OR SAVINGS), EVEN IF IBM OR YOUR RESELLER IS INFORMED OF THEIR POSSIBILITY. SOME JURISDICTIONS DO NOT ALLOW THE EXCLUSION OR LIMITATION OF INCIDENTAL OR CONSEQUENTIAL DAMAGES, SO THE ABOVE EXCLUSION OR LIMITATION MAY NOT APPLY TO YOU.

Part 9 : Notices

Electronic Emission Notices

Federal Communications Commission (FCC) Statement

Note: This equipment 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 energy 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 an IBM authorized dealer or service representative for help.

IBM is not responsible for any radio or television interference caused by using other than recommended cables and connectors or by unauthorized changes or modifications to this equipment. Unauthorized changes or modifications could void the user's authority to operate the equipment.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

1. This device may not cause harmful interference, and
2. This device must accept any interference received, including interference that may cause undesired operation.

Industry Canada Class B Emission Compliance Statement

This Class B digital apparatus complies with Canadian ICES-003.

Avis de conformité à la réglementation d'Industrie Canada

Cet appareil numérique de la classe B est conforme à la norme NMB-003 de l'Industrie Canada.

Telecommunication Notices

Federal Communications Commission (FCC) and Telephone Company Requirements

1. This adapter complies with Part 68 of the FCC rules. A label is affixed to the adapter that contains, among other things, the FCC registration number, USOC, and Ringer Equivalency Number (REN) for this equipment. If these numbers are requested, provide this information to your telephone company.
2. The REN is useful to determine the quantity of devices you may connect to your telephone line and still have those devices ring when your number is called. In most, but not all areas, the sum of the RENs of all devices should not exceed five (5.0). To be certain of the number of devices you may connect to your line, as determined by the REN, you should call your local telephone company to determine the maximum REN for your calling area.
3. If the adapter causes harm to the telephone network, the telephone company may discontinue your service temporarily. If possible, they will notify you in advance; if advance notice is not practical, you will be notified as soon as possible. You will be advised of your right to file a complaint with the FCC.
4. Your telephone company may make changes in its facilities, equipment, operations, or procedures that could affect the proper operation of your equipment. If they do, you will be given advance notice to give you an opportunity to maintain uninterrupted service.
5. If you experience trouble with this product, contact your Authorized Reseller, or call IBM. In the United States, call IBM at **1-800-772-2227**. In Canada, call IBM at **1-800-565-3344**. You may be required to present proof of purchase. The telephone company may ask you to disconnect the adapter from the network until the problem has been corrected, or until you are sure the adapter is not malfunctioning.
6. No customer repairs are possible to the adapter. If you experience trouble with the adapter, contact your Authorized Reseller or see Help and Service section of this manual for information.
7. This adapter may not be used on coin service provided by the telephone company. Connection to party lines is subject to state tariffs. Contact your state public utility commission or corporation commission for information.
8. When ordering network interface (NI) service from the local Exchange Carrier, specify service arrangement USOC RJ11C.

Canadian Department of Communications Certification Label

NOTICE: The Canadian Department of Communications label identifies certified equipment. This certification means that the equipment meets certain telecommunications network protective, operational, and safety requirements. The Department does not guarantee the equipment will operate to the user's satisfaction.

Before installing this equipment, users should ensure that it is permissible to be connected to the facilities of the local telecommunications company. The equipment must also be installed using an acceptable method of connection. In some cases, the company's inside wiring associated with a single line individual service may be extended by means of a certified connector assembly (telephone extension cord). The customer should be aware that compliance with the above conditions may not prevent degradation of service in some situations.

Repairs to certified equipment should be made by an authorized Canadian maintenance facility designated by the supplier. Any repairs or alterations made by the user to this equipment, or equipment malfunctions, may give the telecommunications company cause to request the user to disconnect the equipment.

Users should ensure for their own protection that the electrical ground connections of the power utility, telephone lines, and internal metallic water pipe system, if present, are connected together. This precaution may be particularly important in rural areas.

CAUTION: Users should not attempt to make such connections themselves, but should contact the appropriate electric inspection authority, or electrician, as appropriate.

NOTICE: The LOAD NUMBER (LN) assigned to each terminal device denotes the percentage of the total load to be connected to a telephone loop which is used by the device, to prevent overloading. The termination on a loop may consist of any combination of devices subject only to the requirement that the sum of the LOAD NUMBERS of all the devices does not exceed 100.

Étiquette d'homologation du ministère des Communications du Canada

AVIS : L'étiquette du ministère des Communications du Canada identifie le matériel homologué. Cette étiquette certifie que le matériel est conforme à certaines normes de protection, d'exploitation et de sécurité des réseaux de télécommunications. Le ministère n'assure toutefois pas que le matériel fonctionnera à la satisfaction de l'utilisateur.

Avant d'installer ce matériel, l'utilisateur doit s'assurer qu'il est permis de le raccorder aux installations de l'entreprise locale de télécommunications. Le matériel doit également être installé en suivant une méthode acceptée de raccordement. L'abonné ne doit pas oublier qu'il est possible que la conformité aux conditions énoncées ci-dessus n'empêchent pas la dégradation du service dans certaines situations.

Les réparations de matériel homologué doivent être effectuées par un centre d'entretien canadien autorisé désigné par le fournisseur. La compagnie de télécommunications peut demander à l'utilisateur de débrancher un appareil à la suite de réparations ou de modifications effectuées par l'utilisateur ou à cause d'un mauvais fonctionnement.

Pour sa propre protection, l'utilisateur doit s'assurer que tous les fils de mise à la terre de la source d'énergie électrique, des lignes téléphoniques et des canalisations d'eau métalliques, s'il y en a, sont raccordés ensemble. Cette précaution est particulièrement importante dans les régions rurales.

Avertissement: l'utilisateur ne doit pas tenter de faire ces raccordements lui-même, il doit avoir recours à un service d'inspection des installations électriques ou à un électricien, selon le cas.

AVIS: L'INDICE DE CHARGE (IC) assigné à chaque dispositif terminal indique, pour éviter toute surcharge, le pourcentage de la charge totale qui peut être raccordé à un circuit téléphonique bouclé utilisé par ce dispositif. L'extrémité du circuit bouclé peut consister en n'importe quelle combinaison de dispositifs pourvu que la somme des INDICES DE CHARGE de l'ensemble des dispositifs ne dépasse pas 100.

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