



# ISA V.34 Host Processor Controlled Data/FAX Modem

*Installation Guide*

OPTIONS  
*by IBM*

## **First Edition (October 1996)**

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## **Safety Information**

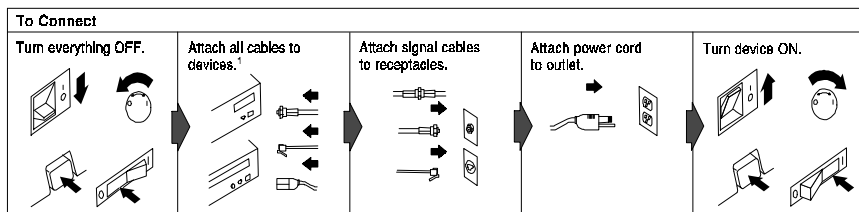
**This modem card is for use only in Listed Personal Computers that have installation instructions detailing user installation of card cage accessories.**

## Safety Information

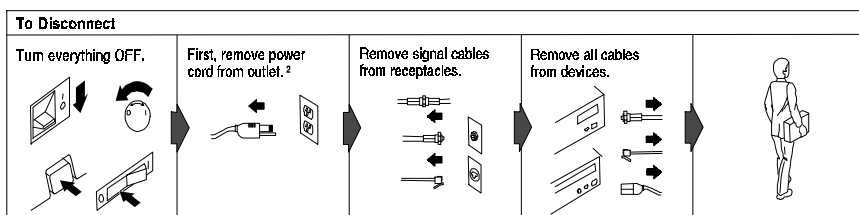


### DANGER:

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.



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



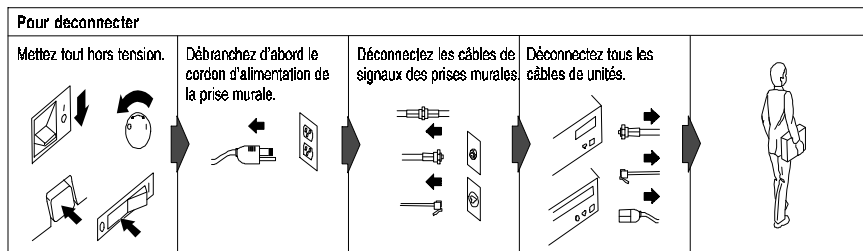
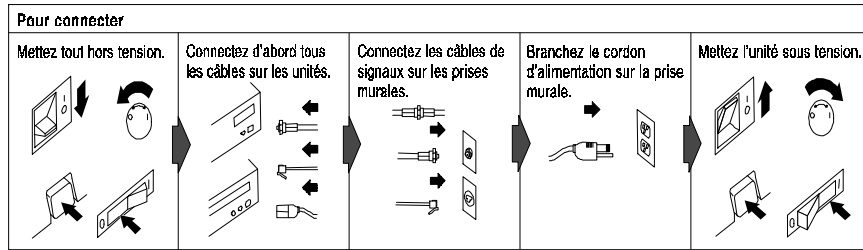
<sup>2</sup> In the U.K., by law, the power cord must be disconnected after the telephone line cable.

## 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.\*

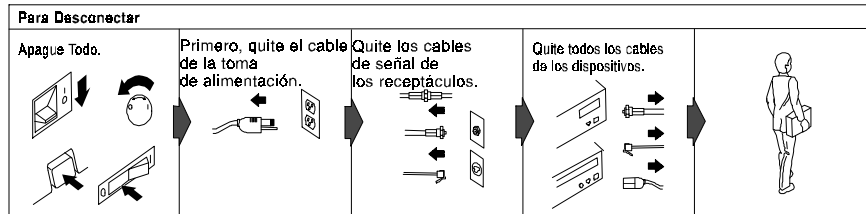
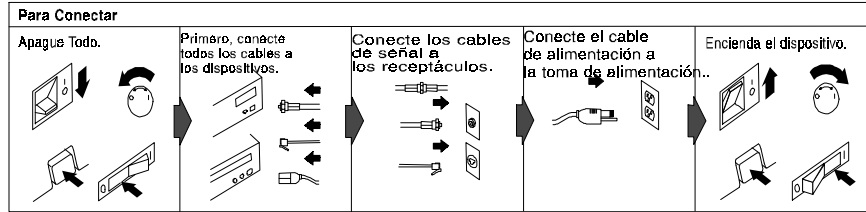


\*Le cordon d'alimentation doit être branché sur un socle de prise de courant correctement mis à la terre.



**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.





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## 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 conecte 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.

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## Information

### **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. When in a hotel or office building, please request an analog or fax line from the concierge or facilities personnel.

Do NOT connect your modem to an ISDN line. In some countries, 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.

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## Introduction

Thank you for purchasing an IBM ISA V.34 Host Processor Controlled (HPC) Data/FAX modem.

This Installation Guide has information to assist you in installing your IBM ISA HPC Data/Fax modem.

### System Requirements

- Intel\*\* Pentium\*\* based (90 MHz & above) Personal Computer with an ISA bus expansion slot
- DOS 6.0 or higher and Windows\*\* 3.1X or Windows95\*\*

**Note: Set your data and fax software to hardware flow control**

### Package Contents

Along with this Installation Guide, the following items are included in this package:

- IBM ISA V.34 HPC Data/FAX Modem (IBM FRU P/N 72H4191)
- RJ-11 to RJ-11 (telephone) Cable
- Software Program License ( in last section of this manual)
- Diskettes for the following operating systems:
  - Windows\*\* 3.1
  - Windows95\*\*

As you examine these items, look for any physical damage.

Retain the shipping container in the event that you need to ship your IBM ISA V.34 HPC Data/FAX modem.

|  |
|--|
| <p><b>Important:</b> 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 <i>Appendix B: Help and Service Information</i>.</p> |
|--|

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## Installing your modem

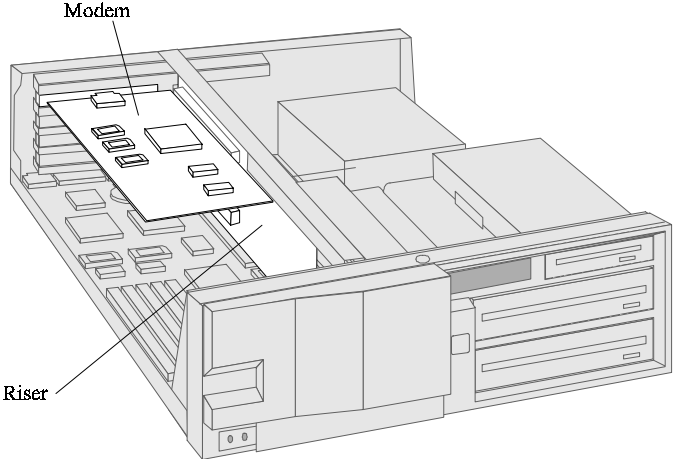
Following are instructions for installing the IBM ISA V.34 HPC Data/FAX modem. Please also refer to the documentation that came with your computer to install the modem.

**Note :** The illustration shows the modem installed horizontally in the slot. In some computers, the modem may be inserted vertically in a slot.

Except for a screwdriver, everything you need to install your new modem is included in this package. However, you may need additional information about the current settings on other adapter cards that are installed in your computer. Make sure you have the documentation that came with your computer ready for reference purposes.

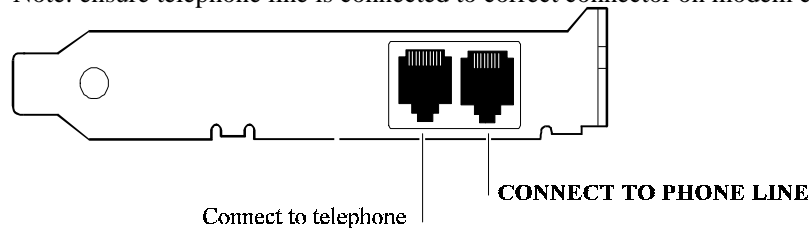
**Important:** The illustrations in this publication might be slightly different from your hardware.

## Installing the Modem Card



1. Turn off the computer system and remove any power connections.
  2. Remove the computer cover as described in the computer's operation manual.
  3. Using a small flatblade screwdriver, remove the slot cover from an empty expansion slot. Retain the screw and store the slot cover for future use.
  4. To avoid static electricity (which can damage hardware), touch the metal frame of the computer system for at least 2 seconds before handling or installing peripheral cards.
  5. Touch the anti-static bag containing the IBM ISA HPC Modem to the metal frame of the system, then carefully remove the card from its bag.
  6. Hold the IBM ISA HPC Modem card on the top edge and align the edge connector over the chosen expansion slot.
  7. Push the card straight into a slot until firmly seated. Do not wiggle the card from side to side or force the card into the slot. Remove the card and try again if necessary.
  8. Secure the metal bracket in place with the screw from the removed slot cover.
  9. **Note:** Not all computers have the Wake Up On Ring feature, see your computer's reference manual for information about your computer's features. If you have Wake Up On ring and want to install the Wake up on Ring cable, go to Wake Up On Ring Connection on next page.
  10. Replace the computer cover.
- Do not turn on the computer with the cover off.**
11. Reconnect the power and any other cables that were removed.

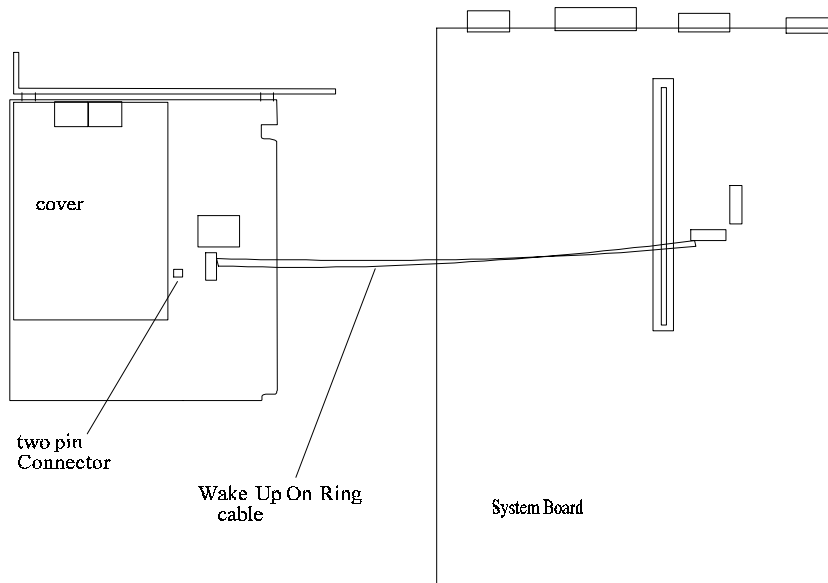
Note: ensure telephone line is connected to correct connector on modem card.



Hardware installation is now complete.

## Wake-Up on Ring Connection

If your system is capable of performing the Wake-Up on Ring feature and you want to use it, install the Wake-Up on Ring cable as follows.



1. Locate the JP24 connector on the ISA HPC Modem card. JP24 is located close to center of the card.
2. Connect the two-pin connector end of the Wake-Up on Ring cable contained in your ISA HPC Modem package to connector JP24. The Wake-Up on Ring cable is “keyed” to ensure proper connection.
3. Connect the cable’s four-pin flat connector to the Modem Ring Detect connector on the system board. For further information about the location of the Modem Ring Detect connector and how to use the Wake Up On Ring feature, refer to the documentation that came with your computer.
4. Replace the computer cover.

**Do not turn on the computer with the cover off.**

5. Reconnect the power and any other cables that were removed.

Note: ensure telephone line is connected to correct connector on modem card.

Hardware installation is now complete.



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## Installing your Modem Software

This section provides instructions for installing the IBM ISA V.34 HPC Data/FAX modem software. Please install the software for the operating system you use.

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### Windows 3.1 Installation

The IBM ISA V.34 HPC Data/FAX modem software is designed to operate under Windows 3.1x enhanced mode. After installing the software, you can obtain additional information from the AT CMD and README files supplied in the IBM HPC program group.

The installation procedures are:

1. If off, power on your computer, start Windows, if not already started.
2. Insert the IBM ISA HPC modem Windows 3.1 Installation diskette into diskette drive **A:**
3. From the Program Manager, select the **File** pull down menu located at top left of Program Manager.
4. Select **Run...**
5. Type **A:\Setup** and select **OK**.

Note: upper or lower case will work

Follow the instructions for the setup process.

#### **Note: Set your data and fax software to hardware flow control**

If you want to test your modem, refer to “**Testing Your Modem**” section of this Installation Guide.

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## Windows95 Installation

The IBM ISA HPC diskette for Windows95 contains two additional files you may find useful. One is a summary of the supported AT commands (ATCMD5.DOC) and one is a README.TXT file with any last minute information.

To setup the IBM ISA V.34 HPC Data/FAX modem for Windows95, you must complete the following installation procedures.

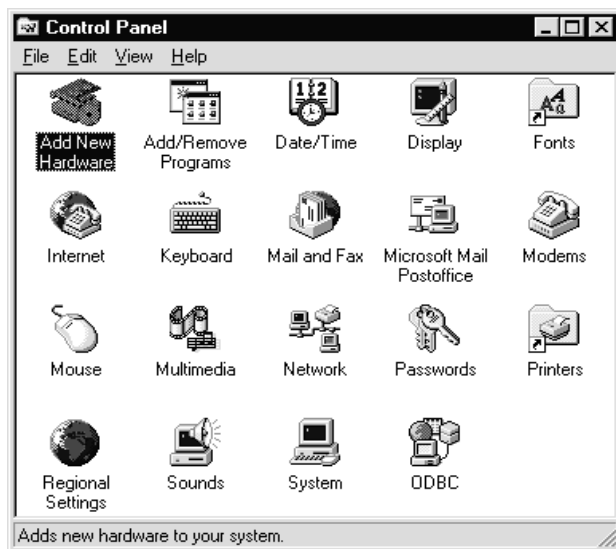
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**Register HPC modem onto the Windows95 modem registry database.**

**Setup COM port for IBM ISA HPC V.34 Data/FAX modem:**

1. If off, power on your computer, start Windows95.
2. Insert IBM ISA HPC modem Windows95 Installation diskette into diskette drive **A:**
3. Click the **Start** button.
4. Highlight the **Settings** item.
5. Click the **Control Panel** item to open the Control Panel folder.

Double click **Add New Hardware** icon on the Control Panel.



**Add New Hardware Wizard** panel will appear

## 6. Do not let Window95 search your Hardware!!



To begin installing the HPC modem click on **next>**

7. In the **Hardware Type** menu select **ports** and click **NEXT>**.



8. Click on **Have Disk**
9. In the **Copy manufacturer's files from:** box type **a:\** and click **OK**



10. **IBM HPC Modem Communication Port** will be in the **Models** box. Click on **NEXT>** to proceed with the installation.
11. Windows95 will assign the IO and IRQ resource setting for the IBM ISA HPC Modem
12. Click **Next>** to allow the installer to copy the port driver files.
13. Click **Finish** to end the Port installation.
14. **NOTE:** (Do not shut down the computer yet. Perform the following steps to install HPC modem before you reboot the system)

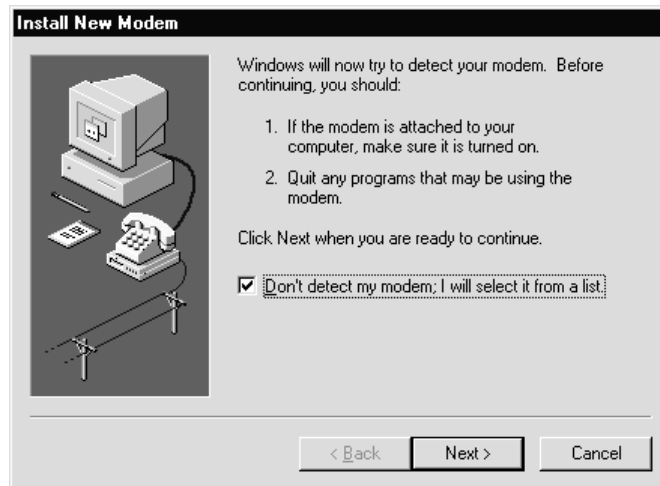
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## Setup modem registry key for IBM ISA HPC Modem

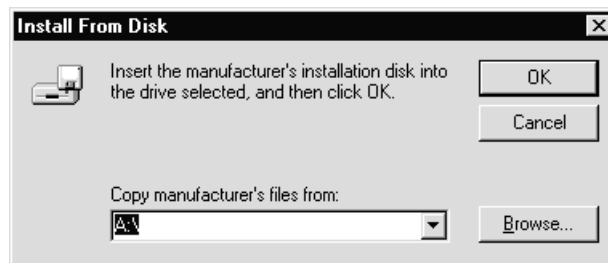
1. Ensure the IBM HPC modem Windows95 Installation diskette is in diskette drive **A:**
2. From Windows95 Control Panel double click the **Modem** icon.
3. If **modem properties** is displayed, then click **add** , otherwise proceed to next step.



4. Check the **Don't detect my modem, I will select it from a list** then click **NEXT>** .



5. Click **Have Disk**
6. Type **a:\** then click **OK**



7. Windows95 system will show the modem models. Select **IBM ISA HPC modem** .
8. Click **NEXT>** to confirm the choice.
9. From the **PORT MENU** select **IBM HPC Communication Port** to use with the modem.
10. Click **NEXT>** to confirm the choice. Files will be copied to your system.
11. **Location Information** is displayed, fill in the information and click **next**.
12. Click **Finish** to complete the modem installation.
13. You have completed the drivers and HPC modem registry key installation. Windows must restart to activate the modem.
14. **Note:** After you restart windows, you can use the modem manager in the Windows 95 control panel to verify the HPC modem is working. From the modem **diagnostic** folder, select and run **more info** to see if HPC modem is responding.

If you want to test your modem, refer to **Testing Your Modem** section of this Installation Guide.

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## Testing Your Modem

Refer to the Application Software's Installation Manual to load the communications software you will be using.

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 19200 and 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 **AT\N1** and press **enter**
7. Type **ATE1** and press **enter**
8. Type **ATS18=n** and press **enter**  
NOTE: n is the number of seconds (30-255) you want the test to last.
9. Type **AT&T1** press **enter**. You should see **CONNECT nnnnn** (n is the connect speed you selected) displayed on your screen. After the **CONNECT** message, the modem is in the data mode. You can type any character on your keyboard and see them displayed on your screen.
10. When the time you specified in register S18 expires, you see **No Carrier** displayed on your screen.
11. Type **AT&F** and press **enter**, you should see an **OK** response.



## Appendix A. Technical Specifications

| Operational Specifications                             |   |
|--|---|
| Supported Data Speeds                                  | 33,600, 31,200, 28,800, 26,400, 24,000, 21,600, 19,200, 16,800, 14,400, 12,000, 9,600, 7,200, 4,800, 2,400, 1,200, 300                |
| Supported Data Protocols                               | ITU-T V.34<br>ITU-T V.32bis<br>ITU-T V.32<br>ITU-T V.22 <i>bis</i><br>ITU-T V.22<br>ITU-T V.23<br>ITU-T V.21<br>Bell 212A<br>Bell 103 |
| Fax Modes - Class 1, Group 3 (Half-duplex synchronous) | ITU-T V.17<br>ITU-T V.29<br>ITU-T V.27 <i>ter</i><br>ITU-T V.21   |
| Command Set  | Uses Hayes** AT Command Set   |
| Protocols  | Data Compression: MNP 5, V.42 <i>bis</i><br>Error Correction:<br>V.42 LAPM, MNP 2,3,4   |
| I/O Connection   | RJ-11 cable (telephone cable)   |
| Electrical Power (5V ± 5%) (+12V± 5%) (-12V±5%)        |   |
| Environmental  | Office / Home   |
| Operating Temp.  | 0° to 45° C   |
| Humidity   | 0 to 90% (non condensing)   |

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## Appendix B. Help and Service Information

Before calling, please prepare for your call by following these steps.

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### Step 1: Troubleshooting

The modem was completely tested for proper operation at the factory before packaging for shipment. If the modem does not respond to the **AT** commands described in *Testing the 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 in the communications application manual carefully, and check the documentation for any additional information pertaining to your system.

---

**Step 2: Preparing for the Call**

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

- Option name, description and serial number (if any)
- Order and or Field Replaceable Unit (FRU) part numbers
- Proof of purchase
- Computer manufacturer, model, serial number (if IBM) and manual
- 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.

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 |
| Puerto Rico   | 1-800-772-2227 |
| United States | 1-800-772-2227 |

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## Appendix C. 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 ISA V.34 Host Processor Controlled Data/FAX Modem**

**Warranty Period\*: Three (3) years**

*\*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 **1-800-426-7299** .

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.

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## Appendix D. Notices

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### 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 Compliance Statement

This digital apparatus does not exceed the Class B limits for radio noise emissions from digital apparatus as set out in the interference-causing equipment standard entitled: *Digital Apparatus*, ICES-003 of Industry Canada.

#### Avis de conformité aux normes d'Industrie Canada

Cet appareil numérique respecte les limites de bruits radioélectriques applicables aux appareils numériques de Classe B prescrites dans la norme sur le matériel brouiller: *Appareils numériques*, NMB-003 édictée par Industrie Canada.



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## 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 **1-800-426-7299**. 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 *Appendix B* 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.

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## 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 centr 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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## Appendix E. System Programs License Agreement

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