



TR-7 磁带机

用户指南

注：在使用本信息及其支持的产品之前，请阅读附录中的信息。

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安全

Before installing this product, read the Safety Information.

مع، يجب قراءة دات السلامة

Antes de instalar este produto, leia as Informações de Segurança.

在安装本产品之前，请仔细阅读 **Safety Information**
(安全信息)。

Prije instalacije ovog produkta obavezno pročitajte Sigurnosne Upute.

Před instalací tohoto produktu si přečtěte příručku bezpečnostních instrukcí.

Læs sikkerhedsforskrifterne, før du installerer dette produkt.

Ennen kuin asennat tämän tuotteen, lue turvaohjeet kohdasta Safety Information.

Avant d'installer ce produit, lisez les consignes de sécurité.

Vor der Installation dieses Produkts die Sicherheitshinweise lesen.

Πριν εγκαταστήσετε το προϊόν αυτό, διαβάστε τις πληροφορίες ασφάλειας
(safety information).

לפני שתתקינו מוצר זה, קראו את הוראות הבטיחות.

A termék telepítése előtt olvassa el a Biztonsági előírásokat!

Prima di installare questo prodotto, leggere le Informazioni sulla Sicurezza.

製品の設置の前に、安全情報をお読みください。

본 제품을 설치하기 전에 안전 정보를 읽으십시오.

Пред да се инсталира овој продукт, прочитајте информацијата за безбедност.

Lees voordat u dit product installeert eerst de veiligheidsvoorschriften.

Les sikkerhetsinformasjonen (Safety Information) før du installerer dette produktet.

Przed zainstalowaniem tego produktu, należy zapoznać się
z książką "Informacje dotyczące bezpieczeństwa" (Safety Information).

Antes de instalar este produto, leia as Informações sobre Segurança.

Перед установкой продукта прочтите инструкции по технике безопасности.

Pred inštaláciou tohto zariadenia si pečítajte Bezpečnostné predpisy.

Pred namestitvijo tega proizvoda preberite Varnostne informacije.

Antes de instalar este producto lea la información de seguridad.

Läs säkerhetsinformationen innan du installerar den här produkten.

安裝本產品之前，請先閱讀「安全資訊」。

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关于本书

本手册包含安装 IBM[®] TR-7 磁带机的指示信息。本手册分成以下部分：

安装与用户指南

该 CD 包含以下语言的产品描述和安装指示信息：

- 英语
- 法语
- 韩国语
- 意大利语
- 德语
- 西班牙语
- 简体中文
- 繁体中文
- 日语

附录

附录包含设备驱动程序的特殊配置设置以及帮助和服务信息，还包含产品保证和声明。

注：本手册中的插图可能与您的硬件稍有不同。

开始之前

在安装之前，请阅读所有指示信息。

除了这张文档 CD 之外，本选件包还包括：

- 快速安装指南
- 磁带机的内部模型
- 5.25 英寸安装工具包
- 一个 Imation 或 IBM TR-7 的已格式化盒式数据带
- 一个 Imation 或 IBM TR-7 的清洗带
- 试用软件 CD
- 安装螺钉

如果有任何物品缺少或损坏，请与经销商联系。务必保留购货证明；可能要凭它来接收保修服务。

所需工具

要在计算机中安装 TR-7 磁带机，您需要一把平头螺丝刀和一把十字螺丝刀。

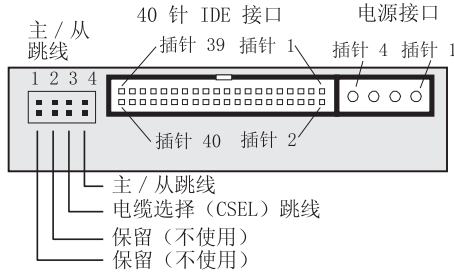
安装 TR-7 磁带机

请按照下列指示信息来安装 TR-7 磁带机：

1. 关闭计算机并断开计算机及所有连接设备的所有电源线和外部电缆的连接。
2. 在安装 TR-7 磁带机时，请务必按照标准的 ESD 保护过程来进行操作。要获得最佳性能，请使用“ESD 吊带”。
3. 打开计算机。

4. 如图 1-1 所示，对 TR-7 磁带机进行配置。

图 1-1.



Travan 40 磁带机的跳线设置

	磁带机设置为“从”设备
	磁带机设置为“主”设备
	“电缆选择”的磁带机设置 (磁带机是主设备还是从设备取决于它在接口电缆上的位置)

5. TR-7 磁带机布线。

如果您的计算机有两个 IDE 端口：

- 大多数现代计算机带有两个 IDE 端口，其中每一个可以支持一个硬盘驱动器上有一个或两个设备，如第 1-3 页的图 1-2 所示。在设置了主从跳线后，您可以把磁带机作为主设备连接到辅助 IDE 端口。

注：如果还没有设备或电缆连接到辅助 IDE 端口，则需要再获取一根用于磁带机的 IDE 电缆。

如果 CD-ROM 驱动器连接在辅助 IDE 端口的某根电缆上（如第 1-3 页的图 1-3 所示），则可以把磁带机安装在与 CD-ROM 驱动器所用电缆相同的电缆上。但是，首先必须把主从跳线设置为从配置。

图 1-2.

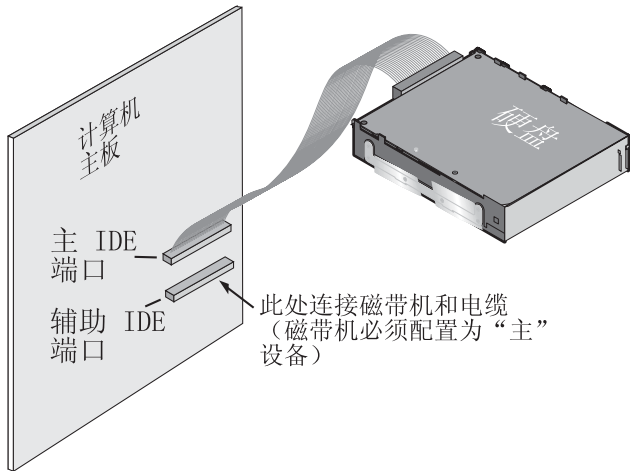
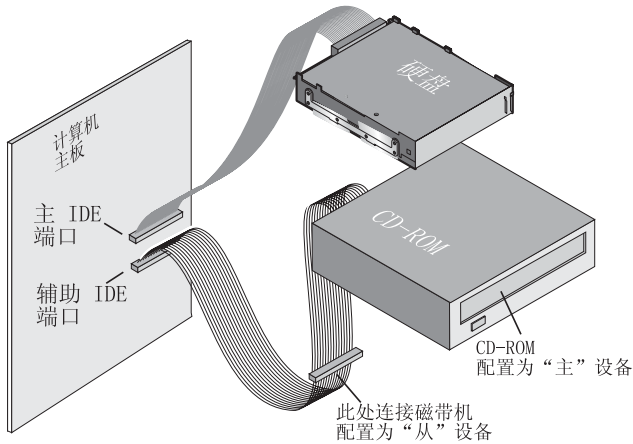


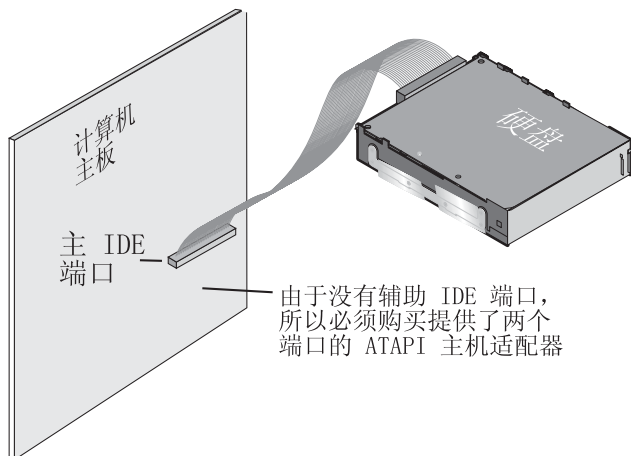
图 1-3.



- 如果您的计算机只有一个 IDE 端口（如第 1-4 页的图 1-4 所示），则很可能硬盘驱动器正在使用它。请不要把磁带机连接到硬盘驱动器或声卡正在使用的 IDE 端口上。

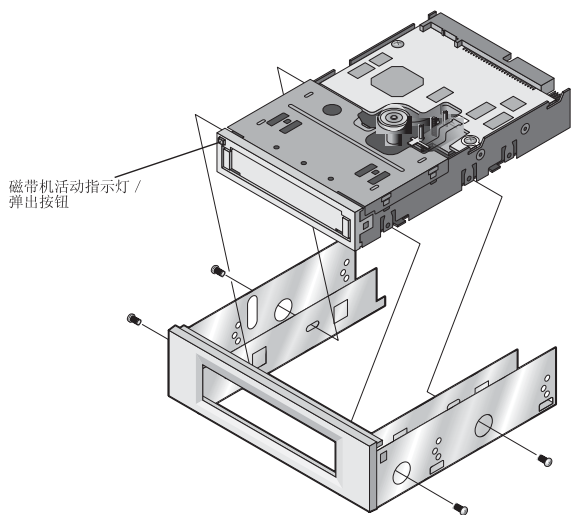
在这种情况下，您必须购买一个提供了第二个 IDE 端口的 ATAPI 主机适配器。您还将需要另一根用于磁带机的 IDE 电缆。在安装该主机适配器后，请对主 / 从跳线进行相应的设置。

图 1-4.



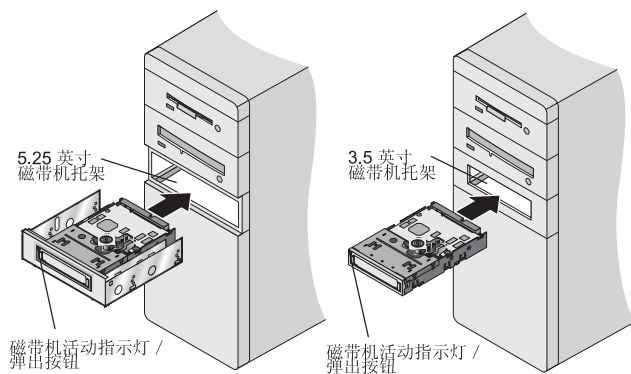
6. 在计算机中找到可用的托架或空间来安装磁带机。该磁带机可以水平安装或垂直安装。它适合装在 3.5 英寸（1 英寸高）标准托架中。也可以使用附带的 5.25 英寸安装工具包把该磁带机安装在 5.25 英寸（1.6 英寸高）托架中，如图 1-5 所示。

图 1-5.



7. 如果有必要，请卸下托架外盖。如图 1-6 所示，把磁带机滑入托架，然后用选件包中提供的安装螺钉将其固定。不要使用任何其它的螺钉来固定磁带机。使用过长的螺钉可能会损坏磁带机。

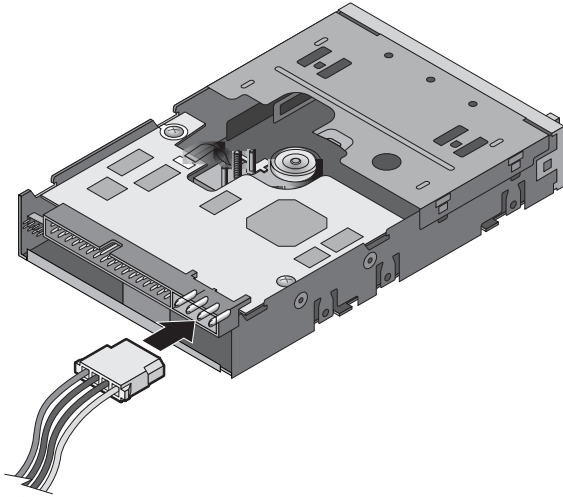
图 1-6.



8. 在计算机内找到 IDE 总线电缆（通常是一根 50 针的带状电缆），然后把电缆上的一个接口连接到磁带机。请确保该电缆的插针 1（通常具有颜色编码）与磁带上 IDE 接口的插针 1 对齐。

9. 在计算机内找到可用的电源电缆，然后把它连接到磁带机上的 4 针电源接口上，如图 1-7 所示。

图 1-7.



10. 重新装好计算机外盖。
11. 将信号电缆和交流电源线以及任何其它信号电缆重新连接到计算机外部，然后把电源线插入可用的电源插座中。打开所有连接的设备；然后打开计算机。

安装本地的 Windows 备份小应用程序

在 Windows NT 4.0 上安装

要在 Microsoft® Windows NT® 中安装备份与恢复软件，请进行下列操作：

1. 从 Windows NT Server 桌面选择开始 -> 设置 -> 控制面板。
2. 打开磁带机小应用程序。
3. 选择驱动器选项卡。
4. 单击添加。
5. 插入 IBM “用户指南 CD”。
6. 选择从磁盘安装。
7. 输入路径 = $x:\text{Device Driver}\backslash\text{TR7}\backslash\text{NT4}$ ，其中 x 是 IBM “用户指南 CD” 所在的驱动器盘符。
8. 选择确定。

在 Windows 2000 上安装

要在 Microsoft Windows® 2000 Professional 中安装备份与恢复软件，请进行下列操作：

1. 从 Windows 2000 Professional 桌面选择开始 -> 设置 -> 控制面板 -> 系统 -> **Seagate ST3401A**。
2. 右键单击属性。
3. 从“驱动程序”选项卡中选择更新驱动程序。
4. 插入 IBM “用户指南 CD”。
5. 单击下一步。
6. 选择搜索适于我的设备的驱动程序。
7. 单击下一步。
8. 选择指定一个位置。
9. 输入路径 = x:\Device Driver\TR7\Win2K), 其中 x 是 IBM “用户指南 CD” 所在的驱动器盘符。
10. 选择完成。

安装服务器试用软件

在您插入试用软件包中的任何一张 CD 后，您可以按照显示的启动菜单中给出的指示信息来安装试用软件 CD 中的任何应用程序。

可以使用该试用软件 30 天以确定符合您特定要求的最佳应用程序。在 30 天试用期结束后，将必须购买解锁密钥才能永久使用该应用程序。要购买解锁密钥，请访问该磁带机的 Web 站点 <http://www.pc.ibm.com/ww/eserver/xseries/tape>，并按照软件链接进行访问。

注：试用软件 CD 中包含有用于其它产品的备份应用程序，但是这些程序不适用于本磁带机。所支持配置的完整列表可在兼容性 Web 站点 <http://serverproven.raleigh.ibm.com/compat/storage/tmatrix.html> 上获得。

操作和维护磁带机

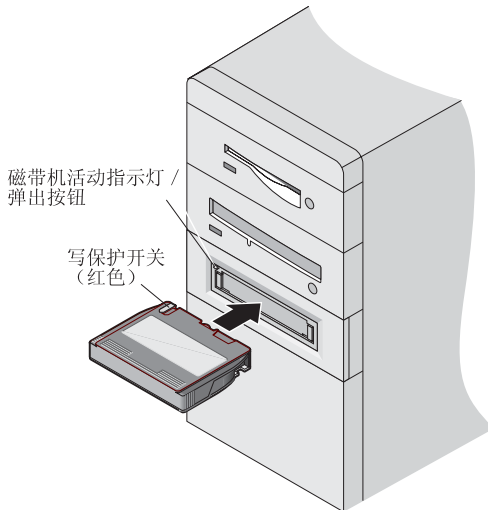
本节描述了操作和维护 TR-7 磁带机所包含的常规活动。有关使用备份软件的指示信息，请参阅随该软件一起提供的联机手册。

装入和卸装盒式磁带

在磁带机的前部有一个开口是用来插入 Travan 盒式磁带的。开口上覆盖有一个防护门。该防护门的左上方是磁带机活动指示灯，它也能当作盒式磁带“弹出”按钮使用。

要装入盒式磁带：如图 2-1 所示，把盒式磁带插入磁带机，其金属底板朝下，红色写保护片在左边。盒式磁带只能单向插入。把盒式磁带轻轻推入磁带机直到磁带机的机械装置夹住它并将其拉入磁带机中。

图 2-1.



要卸装盒式磁带：请等到“弹出”按钮 / 磁带机活动指示灯熄灭。然后按“弹出”按钮。当磁带机弹出盒式磁带后，请抓住盒式磁带外露的一面，然后把它彻底拉出。如果磁带机活动指示灯已熄灭，但您认为备份或恢复操作没有完成，则请重复备份或恢复操作。

警告：不要在磁带机活动指示灯亮着时卸下盒式磁带。

操作 Travan 盒式磁带

虽然 Travan 盒式磁带构造十分坚固，但是必须小心地操作它们。请遵守下列预防措施：

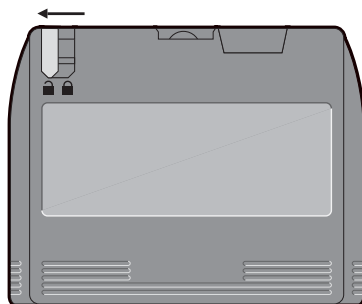
- 不用时，请把盒式磁带存放在其防护箱中。
- 防止盒式磁带沾上灰尘和污垢，且不要弄湿。
- 不要让盒式磁带直接对着阳光和热源，比如散热器或暖气管。
- 不要把盒式磁带暴露在极限温度或温度变化很快的环境中。
- 使盒式磁带远离电磁场源，比如电话、计算机监视器、打印机、听写设备、机械或打印计算器以及电动机或整体消磁器。
- 不要打开盒式磁带的磁带门或触摸磁带本身。一个指纹就能使磁带机无法读取磁带上的信息。

设置写保护开关

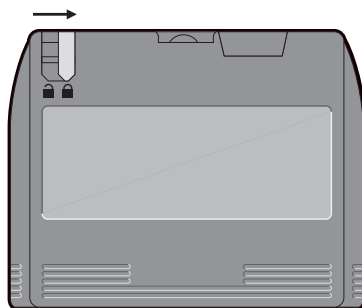
如第 2-3 页的图 2-2 所示，Travan 盒式磁带在其左上角附近有一个独特的写保护或“锁定”开关。当该写保护开关处于“解锁”位置时，盒式磁带能进行正常的读写操作。当该写保护开关处于“锁定”位置时，磁带机可从该盒式磁带中读取数据，但是无法向盒式磁带写入数据。盒式磁带在出厂装运时，写保护开关设置在“解锁”位置。

图 2-2.

解锁



锁定



重新拉紧磁带

必须经常重新拉紧 Travan 磁带以确保数据完整性并优化磁带机性能。如果在读取磁带时曾经遇到问题，则重新拉紧可能会解决该问题。某些备份软件能在备份或恢复之前自动重新拉紧 Travan 介质。有关重新拉紧磁带的指示信息，请参阅您的软件手册。

为获得最佳性能，请在下列情况下重新拉紧磁带：

- 首次使用盒式磁带
- 超过一个月没有使用盒式磁带
- 盒式磁带曾经跌落过
- 盒式磁带从一个地方装运到另一个地方
- 盒式磁带曾经暴露在有显著温度变化的环境中

如果备份软件不能自动重新拉紧盒式磁带，为了获得最佳性能，应在每次使用之前重新拉紧它们。有关附加的盒式磁带操作指示信息，请参阅随该盒式磁带一起提供的文档。

清洗磁带机的机械装置

在常规条件下，磁头在每使用 24 小时后应进行清洗。但是，在恶劣条件下或是当出错率升高时，磁带机的机械记录装置在每使用 8 小时后就应进行清洗。

只能使用干处理清洗法来清洗盒式磁带。当您把清洗带插入磁带机后，磁带机识别出清洗带并自动启动清洗过程。大约 10 秒钟后，清洗过程完成，磁带机的 LED 停止闪烁，然后清洗带弹出。要订购 Travan 清洗带，请致电 1-888-IBM-Media。

附录 A. 产品规格

TR-7 1/4 英寸盒式磁带技术在小型的、易于卸下的硬壳包装中提供了快速、有效、高容量的存储。这种海量存储技术由原来的卷到卷 1/2 英寸磁带存储介质发展而来。使用软件数据压缩时，通过磁带选件盒式数据带，可实现其存储容量从 9 个磁道上 60 MB¹（QIC-24，1982）增加到 40 GB²的容量。

本附录包括以下规格和要求³：

- 物理规格
- 磁带机性能
- 环境要求

物理规格

下表列出了磁带机的物理规格。

表 A-1. 产品规格

磁带机类型	3.5 英寸载片装置	5.25 英寸载片装置
高度	25 毫米 (1.0 英寸)	42 毫米 (1.6 英寸)
宽度	102 毫米 (4.0 英寸)	147 毫米 (5.8 英寸)
长度	163 毫米 (6.4 英寸)	163 毫米 (6.4 英寸)
重量	0.5 千克 (1.0 磅)	0.7 千克 (1.5 磅)

1. 1 MB 约为 1 000 000 字节数据。

2. GB 约为 1 000 000 000 字节数据

3. 产品描述数据代表 IBM 的设计目标，并且是为进行比较而提供的；实际结果可能会根据各种因素而变化。本产品数据不提供担保。数据更改，恕不通知。

环境要求

下表列出了磁带机的环境规格。

表 A-2.

规格	运行中	非运行中
温度	+41° 至 +113°F (+5 至 +45°C)	-40° 至 +149°F (-40° 至 +65°C)
温度梯度	每分钟 1°C (无冷凝)	每小时 20°C
相对湿度	20% 至 80% 无冷凝	5% 至 95% 无冷凝
最大湿球温度	78.8°F (26°C)	无冷凝
海拔高度	-1000 至 +15 000 英尺	-1000 至 +50 000 英尺
峰峰值振动 位移	最大为 0.005 英寸 (5 至 44.3 Hz)	最大为 0.1 英寸 (5 至 17 Hz)
峰值 加速度	最大为 0.50 g (44.3 至 500 Hz)	最大为 1.5 g (17 至 500 Hz)

附录 B. 故障诊断

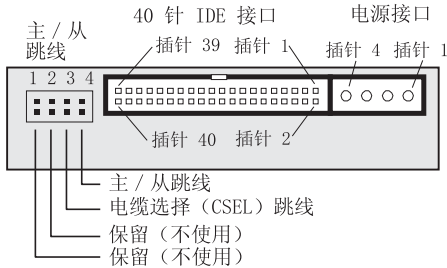
如果安装或操作磁带机时有问题，请读完本节并尝试使用推荐的解决方案。

安装故障诊断

安装了 ATAPI 磁带机后，如果计算机不识别磁带机或 CD-ROM 驱动器：

- 请确保所有电缆连接牢固。
- 向 ATAPI 控制器芯片组制造商核实，以确保您具有最新的操作系统驱动程序。过时或不正确的设备驱动程序只提供有限的硬件支持，并且会导致 Windows 无法检测磁带机。
- 可能需要用主/从跳线将磁带机重新配置为“主”或“从”设备。如图 A-1 所示，主/从跳线位于磁带机底部的接口旁边。

图 B-1.



Travan 40 磁带机的跳线设置

	磁带机设置为“从”设备
	磁带机设置为“主”设备
	“电缆选择”的磁带机设置 (磁带机是主设备还是从设备取决于它在接口电缆上的位置)

- 如果磁带机是 IDE 电缆上唯一的设备，请设置跳线，以将磁带机配置为“主”设备。
- 如果一根单独的电缆上有两个 ATAPI 设备，请确保将磁带机配置为“从”设备。将另一个设备设置为“主”设备。

磁带运行故障诊断

在成功运行一段时期后，如果磁带机在备份或恢复过程中出现故障，则

- 检查以确保所有电缆连接牢固并且跳线设置适当。
- 按照备份软件手册中的描述重新拉紧磁带。

- 关闭计算机。等待计算机断电，然后重新启动系统。确保未在运行其它程序（例如病毒扫描程序），重新运行备份软件。
- 卸下盒式磁带，然后将其重新插入磁带机中。
- 尝试使用不同的盒式磁带 — 最好是没用过的盒式磁带。
- 确保正在使用正确类型的盒式磁带。TR-1、TR-2、TR-3、TR-4 或 QIC-80 磁带不能用于本磁带机。请如第 2-3 页的『清洗磁带机的机械装置』中所述来清洗卷带机构。

附录 C. Product warranty and support information

Warranty period

Contact your place of purchase for warranty service information. Some IBM Machines are eligible for on-site warranty service depending on the country or region where service is performed.

Machine - TR-7 Tape Drive

Warranty period - Three Years

Service and support

The following information describes the technical support that is available for your product, during the warranty period or throughout the life of the product. Refer to your IBM Statement of Limited Warranty for a full explanation of IBM warranty terms.

Warranty information on the World Wide Web

The IBM Machine Warranties Web site at http://www.ibm.com/servers/support/machine_warranties/ contains a worldwide overview of the IBM Limited Warranty for IBM Machines, a glossary of terms used in the Statement of Limited Warranty, Frequently Asked Questions (FAQ), and links to Product Support Web pages. The IBM Statement of Limited Warranty is available from this Web site in 29 languages in Portable Document Format (PDF).

Online technical support

Online technical support is available during the life of your product. Online assistance can be obtained through the Personal Computing Support Web site.

Online technical support	
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IBM Personal Computing Support Web site	http://www.ibm.com/pc/support/
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During the warranty period, assistance for replacement or exchange of defective components is available. In addition, if your IBM option is installed in an IBM computer, you might be entitled to service at your location. Your technical support representative can help you determine the best alternative.

Telephone technical support

Installation and configuration support through the IBM HelpCenter[®] will be withdrawn or made available for a fee, at IBM's discretion, 90 days after the option has been

withdrawn from marketing. Additional support offerings, including step-by-step installation assistance, are available for a nominal fee.

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

- Option name
- Option number
- 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.

For the support telephone number and support hours by country, refer to the following table. If the number for your country or region is not listed, contact your IBM reseller or IBM marketing representative. Response time may vary depending on the number and nature of the calls received.

Support 24 hours a day, 7 days a week	
Canada (Toronto only)	416-383-3344
Canada (all other)	1-800-565-3344
U.S.A. and Puerto Rico	1-800-772-2227
All other countries and regions	Go to http://www.ibm.com/pc/support/ , and click Support Phone List .

IBM Statement of Limited Warranty Z125-4753-06 8/2000

This warranty statement consists of two parts: Part 1 and Part 2. Be sure to read Part 1 and the country-unique terms in Part 2 that apply to your country or region.

Part 1 - General Terms

This Statement of Limited Warranty includes Part 1 - General Terms and Part 2 - Country-unique Terms. The terms of Part 2 replace or modify those of Part 1. The warranties provided by IBM in this Statement of Limited Warranty apply only to Machines you 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. The term 『Machine』 does not include any software programs, whether pre-loaded with the Machine, installed subsequently or otherwise. Unless IBM specifies otherwise, the following warranties apply only in the country where you acquire the Machine. Nothing in this Statement of Limited Warranty affects any statutory rights of consumers that cannot be waived or limited by contract. If you have any questions, contact IBM or your reseller.

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 (『Specifications』). The warranty period for a Machine is a specified, fixed period commencing on its Date of Installation. The date on your sales receipt is the Date of Installation unless IBM or your reseller informs you otherwise.

If a Machine does not function as warranted during the warranty period, and IBM or your reseller are unable to either 1) make it do so or 2) replace it with one that is at least functionally equivalent, you may return it to your place of purchase and your money will be refunded.

Extent of Warranty

The warranty does not cover the repair or exchange of a Machine resulting from misuse, accident, modification, unsuitable physical or operating environment, improper maintenance by you, or failure caused by a product for which IBM is not responsible. The warranty is voided by removal or alteration of Machine or parts identification labels.

THESE WARRANTIES ARE YOUR EXCLUSIVE WARRANTIES AND 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.

Items Not Covered by Warranty

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

Any technical or other support provided for a Machine under warranty, such as assistance via telephone with 『how-to』 questions and those regarding Machine set-up and installation, will be provided **WITHOUT WARRANTIES OF ANY KIND.**

Warranty Service

To obtain warranty service for a Machine, contact IBM or your reseller. If you do not register your Machine with IBM, you may be required to present proof of purchase.

During the warranty period, IBM or your reseller, if approved by IBM to provide warranty service, provides without charge certain types of repair and exchange service to keep Machines in, or restore them to, conformance with their Specifications. IBM or your reseller will inform you of the available types of service for a Machine based on its country of installation. At its discretion, IBM or your reseller will 1) either repair or exchange the failing Machine and 2) provide the service either at your location or a service center. IBM or your reseller will also manage and install selected engineering changes that apply to the Machine.

Some parts of IBM Machines are designated as Customer Replaceable Units (called 『CRUs』), e.g., keyboards, memory, or hard disk drives. IBM ships CRUs to you for replacement by you. You must return all defective CRUs to IBM within 30 days of your receipt of the replacement CRU. You are responsible for downloading designated Machine Code and Licensed Internal Code updates from an IBM Internet Web site or from other electronic media, and following the instructions that IBM provides.

When warranty 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. Many features, conversions, or upgrades involve the removal of parts and their return to IBM. A part that replaces a removed part will assume the warranty service status of the removed part.

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

1. ensure that the Machine is free of any legal obligations or restrictions that prevent its exchange;
2. obtain authorization from the owner to have IBM or your reseller service a Machine that you do not own; and
3. where applicable, before service is provided:
 - a. follow the problem determination, problem analysis, and service request procedures that IBM or your reseller provides;
 - b. secure all programs, data, and funds contained in a Machine;
 - c. provide IBM or your reseller with sufficient, free, and safe access to your facilities to permit them to fulfill their obligations; and
 - d. 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.

Neither IBM nor your reseller is responsible for any of your confidential, proprietary or personal information contained in a Machine which you return to IBM or your reseller for any reason. You should remove all such information from the Machine prior to its return.

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), except for any liability that cannot be waived or limited by applicable laws, IBM is liable for no more than

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, up to the charges (if recurring, 12 months' charges apply) for the Machine that is subject of the claim. For purposes of this item, the term "Machine" includes Machine Code and Licensed Internal Code.

This limit also applies to IBM's suppliers and your reseller. It is the maximum for which IBM, its suppliers, and your reseller are collectively responsible.

UNDER NO CIRCUMSTANCES IS IBM LIABLE FOR ANY OF THE FOLLOWING: 1) THIRD-PARTY CLAIMS AGAINST YOU FOR 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, LOST PROFITS OR LOST SAVINGS, EVEN IF IBM, ITS SUPPLIERS 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 LIMITATION OR EXCLUSION MAY NOT APPLY TO YOU.

Governing Law

Both you and IBM consent to the application of the laws of the country in which you acquired the Machine to govern, interpret, and enforce all of your and IBM's rights, duties, and obligations arising from, or relating in any manner to, the subject matter of this Agreement, without regard to conflict of law principles.

Part 2 - Country-unique Terms

AMERICAS

BRAZIL

Governing Law: *The following is added after the first sentence:* Any litigation arising from this Agreement will be settled exclusively by the court of Rio de Janeiro.

NORTH AMERICA

Warranty Service: *The following is added to this Section:* To obtain warranty service from IBM in Canada or the United States, call 1-800-IBM-SERV (426-7378).

CANADA

Governing Law: *The following replaces ¶ laws of the country in which you acquired the Machine ¶ in the first sentence:* laws in the Province of Ontario.

UNITED STATES

Governing Law: *The following replaces ¶ laws of the country in which you acquired the Machine ¶ in the first sentence:* laws of the State of New York.

ASIA PACIFIC

AUSTRALIA

The IBM Warranty for Machines: *The following paragraph is added to this Section:* The warranties specified in this Section are in addition to any rights you may have under the Trade Practices Act 1974 or other similar legislation and are only limited to the extent permitted by the applicable legislation.

Limitation of Liability: *The following is added to this Section:* Where IBM is in breach of a condition or warranty implied by the Trade Practices Act 1974 or other

similar legislation, IBM's liability is limited to the repair or replacement of the goods or the supply of equivalent goods. Where that condition or warranty relates to right to sell, quiet possession or clear title, or the goods are of a kind ordinarily acquired for personal, domestic or household use or consumption, then none of the limitations in this paragraph apply.

Governing Law: *The following replaces ¶ laws of the country in which you acquired the Machine ¶ in the first sentence: laws of the State or Territory.*

CAMBODIA, LAOS, AND VIETNAM

Governing Law: *The following replaces ¶ laws of the country in which you acquired the Machine ¶ in the first sentence: laws of the State of New York.*

The following is added to this Section: Disputes and differences arising out of or in connection with this Agreement shall be finally settled by arbitration which shall be held in Singapore in accordance with the rules of the International Chamber of Commerce (ICC). The arbitrator or arbitrators designated in conformity with those rules shall have the power to rule on their own competence and on the validity of the Agreement to submit to arbitration. The arbitration award shall be final and binding for the parties without appeal and the arbitral award shall be in writing and set forth the findings of fact and the conclusions of law.

All proceedings shall be conducted, including all documents presented in such proceedings, in the English language. The number of arbitrators shall be three, with each side to the dispute being entitled to appoint one arbitrator.

The two arbitrators appointed by the parties shall appoint a third arbitrator before proceeding upon the reference. The third arbitrator shall act as chairman of the proceedings. Vacancies in the post of chairman shall be filled by the president of the ICC. Other vacancies shall be filled by the respective nominating party. Proceedings shall continue from the stage they were at when the vacancy occurred.

If one of the parties refuses or otherwise fails to appoint an arbitrator within 30 days of the date the other party appoints its, the first appointed arbitrator shall be the sole arbitrator, provided that the arbitrator was validly and properly appointed.

The English language version of this Agreement prevails over any other language version.

HONG KONG AND MACAU

Governing Law: *The following replaces ¶ laws of the country in which you acquired the Machine ¶ in the first sentence: laws of Hong Kong Special Administrative Region.*

INDIA

Limitation of Liability: *The following replaces items 1 and 2 of this Section:*

1. liability for bodily injury (including death) or damage to real property and tangible personal property will be limited to that caused by IBM's negligence;
2. as to any other actual damage arising in any situation involving nonperformance by IBM pursuant to, or in any way related to the subject of this Statement of Limited Warranty, IBM's liability will be limited to the charge paid by you for the individual Machine that is the subject of the claim.

JAPAN

Governing Law: *The following sentence is added to this Section:* Any doubts concerning this Agreement will be initially resolved between us in good faith and in accordance with the principle of mutual trust.

NEW ZEALAND

The IBM Warranty for Machines: *The following paragraph is added to this Section:* The warranties specified in this Section are in addition to any rights you may have under the Consumer Guarantees Act 1993 or other legislation which cannot be excluded or limited. The Consumer Guarantees Act 1993 will not apply in respect of any goods which IBM provides, if you require the goods for the purposes of a business as defined in that Act.

Limitation of Liability: *The following is added to this Section:* Where Machines are not acquired for the purposes of a business as defined in the Consumer Guarantees Act 1993, the limitations in this Section are subject to the limitations in that Act.

PEOPLE'S REPUBLIC OF CHINA (PRC)

Governing Law: *The following replaces this Section:* Both you and IBM consent to the application of the laws of the State of New York (except when local law requires otherwise) to govern, interpret, and enforce all your and IBM's rights, duties, and obligations arising from, or relating in any manner to, the subject matter of this Agreement, without regard to conflict of law principles.

Any disputes arising from or in connection with this Agreement will first be resolved by friendly negotiations, failing which either of us has the right to submit the dispute to the China International Economic and Trade Arbitration Commission in Beijing, the PRC, for arbitration in accordance with its arbitration rules in force at the time. The arbitration tribunal will consist of three arbitrators. The language to be used therein will be English and Chinese. An arbitral award will be final and binding on all the parties, and will be enforceable under the Convention on the Recognition and Enforcement of Foreign Arbitral Awards (1958).

The arbitration fee will be borne by the losing party unless otherwise determined by the arbitral award.

During the course of arbitration, this Agreement will continue to be performed except for the part which the parties are disputing and which is undergoing arbitration.

EUROPE, MIDDLE EAST, AFRICA (EMEA)

THE FOLLOWING TERMS APPLY TO ALL EMEA COUNTRIES: The terms of this Statement of Limited Warranty apply to Machines purchased from IBM or an IBM reseller.

Warranty Service:

If you purchase an IBM Machine in Austria, Belgium, Denmark, Estonia, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland or United Kingdom, you may obtain warranty service for that Machine in any of those countries from either (1) an IBM reseller approved to perform warranty service or (2) from IBM. If you purchase an IBM Personal Computer Machine in Albania, Armenia, Belarus, Bosnia and Herzegovina, Bulgaria, Croatia, Czech Republic, Georgia, Hungary, Kazakhstan, Kirghizia, Federal Republic of Yugoslavia, Former Yugoslav Republic of Macedonia (FYROM), Moldova, Poland, Romania, Russia, Slovak Republic, Slovenia, or Ukraine, you may obtain warranty service for that Machine in any of those countries from either (1) an IBM reseller approved to perform warranty service or (2) from IBM.

If you purchase an IBM Machine in a Middle Eastern or African country, you may obtain warranty service for that Machine from the IBM entity within the country of purchase, if that IBM entity provides warranty service in that country, or from an IBM reseller, approved by IBM to perform warranty service on that Machine in that country. Warranty service in Africa is available within 50 kilometers of an IBM authorized service provider. You are responsible for transportation costs for Machines located outside 50 kilometers of an IBM authorized service provider.

Governing Law:

The applicable laws that govern, interpret and enforce rights, duties, and obligations of each of us arising from, or relating in any manner to, the subject matter of this Statement, without regard to conflict of laws principles, as well as Country-unique terms and competent court for this Statement are those of the country in which the warranty service is being provided, except that in 1) Albania, Bosnia-Herzegovina, Bulgaria, Croatia, Hungary, Former Yugoslav Republic of Macedonia, Romania, Slovakia, Slovenia, Armenia, Azerbaijan, Belarus, Georgia, Kazakhstan, Kyrgyzstan, Moldova, Russia, Tajikistan, Turkmenistan, Ukraine, and Uzbekistan, the laws of Austria apply; 2) Estonia, Latvia, and Lithuania, the laws of Finland apply; 3) Algeria, Benin, Burkina Faso, Cameroon, Cape Verde, Central African Republic, Chad, Congo, Djibouti, Democratic Republic of Congo, Equatorial Guinea, France, Gabon, Gambia, Guinea, Guinea-Bissau, Ivory Coast, Lebanon, Mali, Mauritania, Morocco, Niger, Senegal, Togo, and Tunisia, this Agreement will be construed and the legal relations between the

parties will be determined in accordance with the French laws and all disputes arising out of this Agreement or related to its violation or execution, including summary proceedings, will be settled exclusively by the Commercial Court of Paris; 4) Angola, Bahrain, Botswana, Burundi, Egypt, Eritrea, Ethiopia, Ghana, Jordan, Kenya, Kuwait, Liberia, Malawi, Malta, Mozambique, Nigeria, Oman, Pakistan, Qatar, Rwanda, Sao Tome, Saudi Arabia, Sierra Leone, Somalia, Tanzania, Uganda, United Arab Emirates, United Kingdom, West Bank/Gaza, Yemen, Zambia, and Zimbabwe, this Agreement will be governed by English Law and disputes relating to it will be submitted to the exclusive jurisdiction of the English courts; and 5) in Greece, Israel, Italy, Portugal, and Spain any legal claim arising out of this Statement will be brought before, and finally settled by, the competent court of Athens, Tel Aviv, Milan, Lisbon, and Madrid, respectively.

THE FOLLOWING TERMS APPLY TO THE COUNTRY SPECIFIED:

AUSTRIA AND GERMANY

The IBM Warranty for Machines: *The following replaces the first sentence of the first paragraph of this Section:* The warranty for an IBM Machine covers the functionality of the Machine for its normal use and the Machine's conformity to its Specifications.

The following paragraphs are added to this Section:

The minimum warranty period for Machines is six months. In case IBM or your reseller is unable to repair an IBM Machine, you can alternatively ask for a partial refund as far as justified by the reduced value of the unrepaired Machine or ask for a cancellation of the respective agreement for such Machine and get your money refunded.

Extent of Warranty: *The second paragraph does not apply.*

Warranty Service: *The following is added to this Section:* During the warranty period, transportation for delivery of the failing Machine to IBM will be at IBM's expense.

Limitation of Liability: *The following paragraph is added to this Section:* The limitations and exclusions specified in the Statement of Limited Warranty will not apply to damages caused by IBM with fraud or gross negligence and for express warranty.

The following sentence is added to the end of item 2: IBM's liability under this item is limited to the violation of essential contractual terms in cases of ordinary negligence.

EGYPT

Limitation of Liability: *The following replaces item 2 in this Section:* as to any other actual direct damages, IBM's liability will be limited to the total amount you

paid for the Machine that is the subject of the claim. For purposes of this item, the term 『Machine』 includes Machine Code and Licensed Internal Code.

Applicability of suppliers and resellers (unchanged).

FRANCE

Limitation of Liability: *The following replaces the second sentence of the first paragraph of this Section:*In such instances, regardless of the basis on which you are entitled to claim damages from IBM, IBM is liable for no more than: (items 1 and 2 unchanged).

IRELAND

Extent of Warranty: *The following is added to this Section:* Except as expressly provided in these terms and conditions, all statutory conditions, including all warranties implied, but without prejudice to the generality of the foregoing all warranties implied by the Sale of Goods Act 1893 or the Sale of Goods and Supply of Services Act 1980 are hereby excluded.

Limitation of Liability: *The following replaces items one and two of the first paragraph of this Section:*1. death or personal injury or physical damage to your real property solely caused by IBM's negligence; and 2. the amount of any other actual direct damages, up to 125 percent of the charges (if recurring, the 12 months' charges apply) for the Machine that is the subject of the claim or which otherwise gives rise to the claim.

Applicability of suppliers and resellers (unchanged).

The following paragraph is added at the end of this Section: IBM's entire liability and your sole remedy, whether in contract or in tort, in respect of any default shall be limited to damages.

ITALY

Limitation of Liability: *The following replaces the second sentence in the first paragraph:*In each such instance unless otherwise provided by mandatory law, IBM is liable for no more than: 1. (unchanged) 2. as to any other actual damage arising in all situations involving nonperformance by IBM pursuant to, or in any way related to the subject matter of this Statement of Warranty, IBM's liability, will be limited to the total amount you paid for the Machine that is the subject of the claim.
Applicability of suppliers and resellers (unchanged).

The following replaces the third paragraph of this Section: Unless otherwise provided by mandatory law, IBM and your reseller are not liable for any of the following: (items 1 and 2 unchanged) 3) indirect damages, even if IBM or your reseller is informed of their possibility.

SOUTH AFRICA, NAMIBIA, BOTSWANA, LESOTHO AND SWAZILAND

Limitation of Liability: *The following is added to this Section:* IBM's entire liability to you for actual damages arising in all situations involving nonperformance by IBM in respect of the subject matter of this Statement of Warranty will be limited to the charge paid by you for the individual Machine that is the subject of your claim from IBM.

UNITED KINGDOM

Limitation of Liability: *The following replaces items 1 and 2 of the first paragraph of this Section:*

1. death or personal injury or physical damage to your real property solely caused by IBM's negligence;
2. the amount of any other actual direct damages or loss, up to 125 percent of the charges (if recurring, the 12 months' charges apply) for the Machine that is the subject of the claim or which otherwise gives rise to the claim;

The following item is added to this paragraph: 3. breach of IBM's obligations implied by Section 12 of the Sale of Goods Act 1979 or Section 2 of the Supply of Goods and Services Act 1982.

Applicability of suppliers and resellers (unchanged).

The following is added to the end of this Section: IBM's entire liability and your sole remedy, whether in contract or in tort, in respect of any default shall be limited to damages.

附录 D. Notices

IBM may not offer the products, services, or features discussed in this document in all countries. Consult your local IBM representative for information on the products and services currently available in your area. Any reference to an IBM product, program, or service is not intended to state or imply that only that IBM product, program, or service may be used. Any functionally equivalent product, program, or service that does not infringe any IBM intellectual property right may be used instead. However, it is the user's responsibility to evaluate and verify the operation of any non-IBM product, program, or service.

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*IBM Director of Licensing
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Armonk, NY 10504-1785
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证与一般可用系统上进行的测量结果相同。此外，有些测量是通过推算而估计的，实际结果可能会有差异。本文档的用户应当验证其特定环境的适用数据。

Trademarks

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IBM
HelpCenter

Microsoft, Windows, and Windows NT are trademarks of Microsoft Corporation in the United States, other countries, or both.

Other company, product, or service names may be the trademarks or service marks of others.

Electronic emission notices

Federal Communications Commission (FCC) statement

TR-7 Tape Drive

Note: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at his own expense.

Properly shielded and grounded cables and connectors must be used in order to meet FCC emission limits. 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 A emission compliance statement

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

Avis de conformite a la reglementation d'Industrie Canada

Cet appareil numérique de la classe A est conform à la norme NMB-003 du Canada.

Deutsche EMV-Direktive (electromagnetische Verträglichkeit)

Dieses Gerät ist berechtigt in Übereinstimmung mit dem deutschen EMVG vom 9.Nov.92 das EG-Konformitätszeichen zu führen.

Der Aussteller der Konformitätserklärung ist die IBM UK, Greenock.

Dieses Gerät erfüllt die Bedingungen der EN 55022 Klasse A. Für diese Klasse von Geräten gilt folgende Bestimmung nach dem EMVG:

Geräte dürfen an Orten, für die sie nicht ausreichend entstört sind, nur mit besonderer Genehmigung des Bundesministers für Post und Telekommunikation oder des Bundesamtes für Post und Telekommunikation betrieben werden. Die Genehmigung wird erteilt, wenn keine elektromagnetischen Störungen zu erwarten sind.

(Auszug aus dem EMVG vom 9.Nov.92, Para.3. Abs.4)

Hinweis: Dieses Genehmigungsverfahren ist von der Deutschen Bundespost noch nicht veröffentlicht worden.

European Union - EMC directive

This product is in conformity with the protection requirements of EU Council Directive 89/336/ECC on the approximation of the laws of the Member States relating to electromagnetic compatibility.

IBM cannot accept responsibility for any failure to satisfy the protection requirements resulting from a non-recommended modification of the product, including the fitting of non-IBM option cards.

This product has been tested and found to comply with the limits for Class A Information Technology Equipment according to CISPR 22/European Standard EN 55022. The limits for Class A equipment were derived for commercial and industrial environments to provide reasonable protection against interference with licensed communication equipment.

Warning: This is a Class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

Union Européenne - Directive Conformité électromagnétique

Ce produit est conforme aux exigences de protection de la Directive 89/336/EEC du Conseil de l'UE sur le rapprochement des lois des États membres en matière de compatibilité électromagnétique.

IBM ne peut accepter aucune responsabilité pour le manquement aux exigences de protection résultant d'une modification non recommandée du produit, y compris l'installation de cartes autres que les cartes IBM.

Ce produit a été testé et il satisfait les conditions de l'équipement informatique de Classe A en vertu de CISPR22/Standard européen EN 55022. Les conditions pour l'équipement de Classe A ont été définies en fonction d'un contexte d'utilisation commercial et industriel afin de fournir une protection raisonnable contre l'interférence d'appareils de communication autorisés.

Avvertimento : Ceci est un produit de Classe A. Dans un contexte résidentiel, ce produit peut causer une interférence radio exigeant que l'utilisateur prenne des mesures adéquates.

Union Europea - Normativa EMC

Questo prodotto è conforme alle normative di protezione ai sensi della Direttiva del Consiglio dell'Unione Europea 89/336/CEE sull'armonizzazione legislativa degli stati membri in materia di compatibilità elettromagnetica.

IBM non accetta responsabilità alcuna per la mancata conformità alle normative di protezione dovuta a modifiche non consigliate al prodotto, compresa l'installazione di schede e componenti di marca diversa da IBM.

Le prove effettuate sul presente prodotto hanno accertato che esso rientra nei limiti stabiliti per le apparecchiature di informatica Classe A ai sensi del CISPR 22/Norma Europea EN 55022. I limiti delle apparecchiature della Classe A sono stati stabiliti al fine di fornire ragionevole protezione da interferenze mediante dispositivi di comunicazione in concessione in ambienti commerciali ed industriali.

Avvertimento: Questo è un prodotto appartenente alla Classe A. In ambiente domestico, tale prodotto può essere causa di interferenze radio, nel qual caso l'utente deve prendere misure adeguate.

Unione Europea - Directiva EMC (Conformidad electromagnética)

Este producto satisface los requisitos de protección del Consejo de la UE, Directiva 89/336/CEE en lo que a la legislación de los Estados Miembros sobre compatibilidad electromagnética se refiere.

IBM no puede aceptar responsabilidad alguna si este producto deja de satisfacer dichos requisitos de protección como resultado de una modificación no recomendada del producto, incluyendo el ajuste de tarjetas de opción que no sean IBM.

Este producto ha sido probado y satisface los límites para Equipos Informáticos Clase A de conformidad con el Estándar CISPR22 y el Estándar Europeo EN 55022. Los límites para los equipos de Clase A se han establecido para entornos comerciales e industriales a fin de proporcionar una protección razonable contra las interferencias con dispositivos de comunicación licenciados.

Advertencia: Este es un producto de Clase A. En un entorno doméstico este producto podría causar radiointerferencias en cuyo caso el usuario deberá tomar las medidas adecuadas.

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