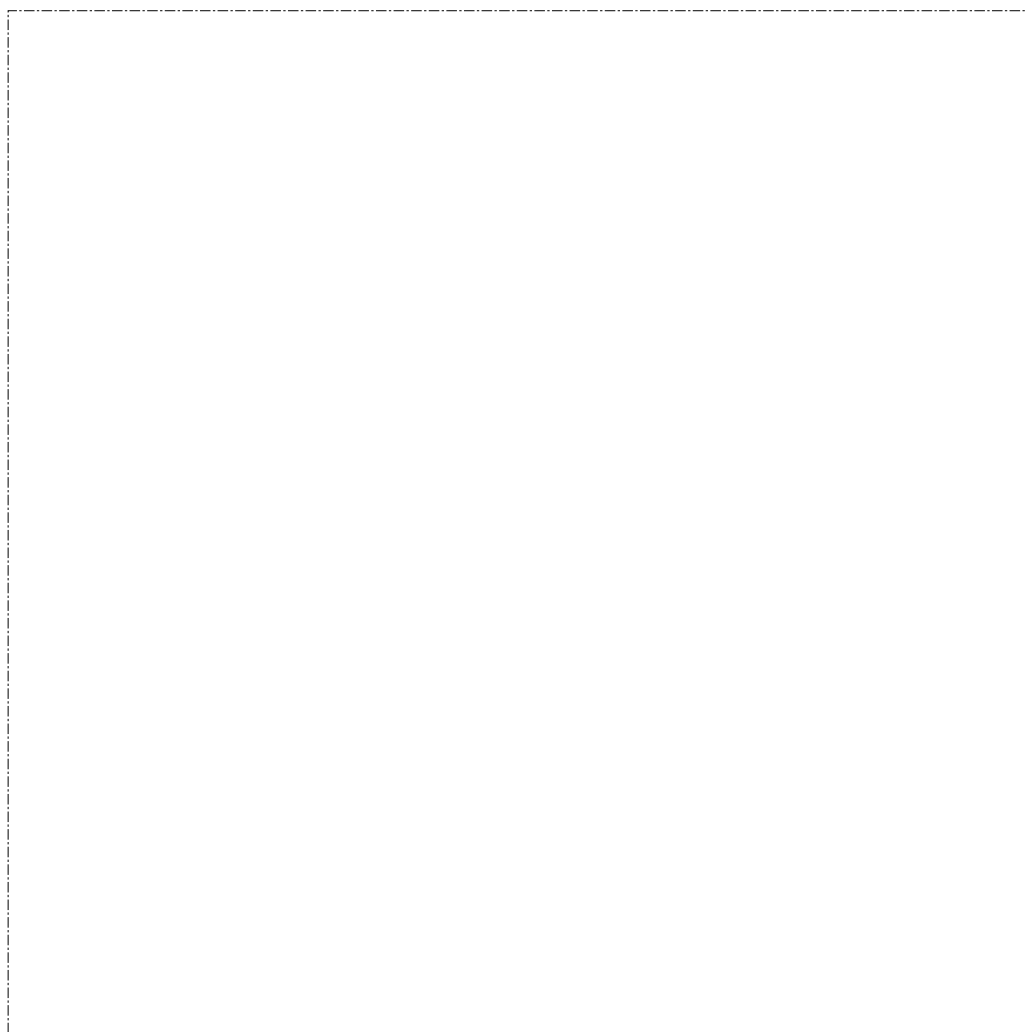


Hardware Installation Guide





2216 Nways Multiaccess Connector

GA27-4106-00

Hardware Installation Guide

Note

Before using this information and the product it supports, be sure to read the general information under Appendix A, "Notices" on page 11.

First Edition (March 1997)

This edition applies to the IBM 2216 Nways Multiaccess Connector Model 400.

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About This Guide

This guide explains how to set up the IBM 2216, and how to identify and correct some problems that occur during setup.

Who Should Use This Guide

This guide is intended for the person responsible for installing the IBM 2216. This person should be familiar with installation and cabling charts.

About the Illustrations

The illustrations in this guide represent one possible configuration for the IBM 2216. The illustrations assume that the redundant power supply is installed and almost all of the slots are filled.

Setting Up the IBM 2216

These instructions explain how to rack-mount and surface-mount the IBM 2216.

1 Unpack and Verify

Unpack the IBM 2216 and verify that, along with this guide, the following items were included:

Documentation

- *Caution: Safety Information—Read This First*, SD21-0030
- *IBM 2216 Planning Guide*, GA27-4105
- *IBM 2216 Maintenance Guide*, SY27-0350
- *Hardware Configuration Quick Reference Card*, GX27-3988

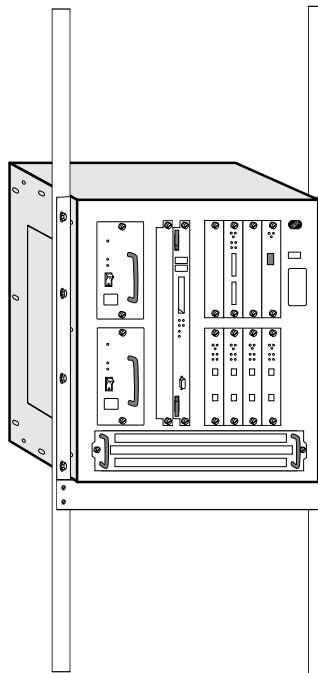
Hardware

- Any cables ordered
- Rack Mount Installation aid
- Power cord for each power supply
- PCMCIA Modem (except in countries where the PCMCIA modem is not available)

Rack-mounting- proceed with step 2a.

Surfacing-mounting - proceed with step 2b on page 2.

2a Rack-Mounting the Model 200



You need the following items:

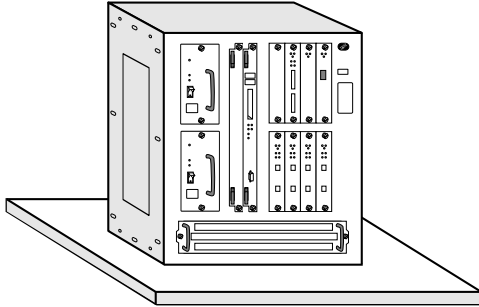
- Cables, as required
- Eight rack-mounting screws
- Screwdriver

Notes:

1. You will need a second person to help hold the IBM 2216 while it is being mounted.
2. If you have a shelf for the rack, install it before continuing.
3. Do not use the installation aid if you have a shelf installed.

Continue with step 3 on page 2.

2b Surface-Mounting the Model 200

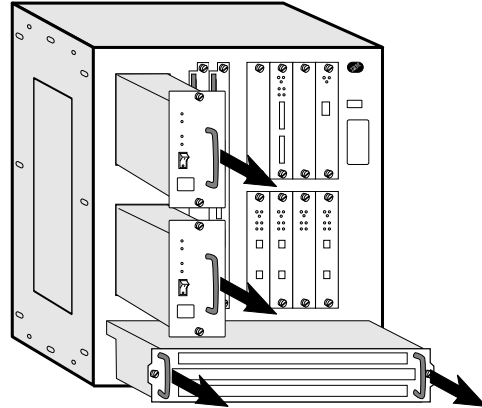


You need the following items:

- Cables, as required

Continue with step 9 on page 4.

3 (Rack-Mounting)

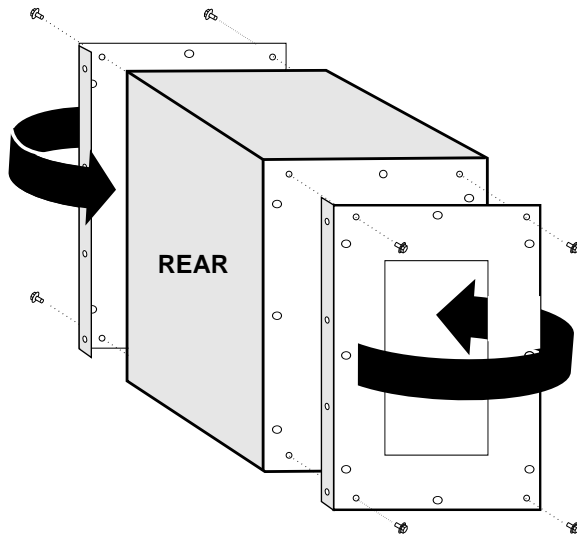


To make the IBM 2216 easier to lift, remove:

1. The Fan tray
2. Each power supply.

To remove them, loosen the screws on each component and pull the handles.

4 (Rack-Mounting)

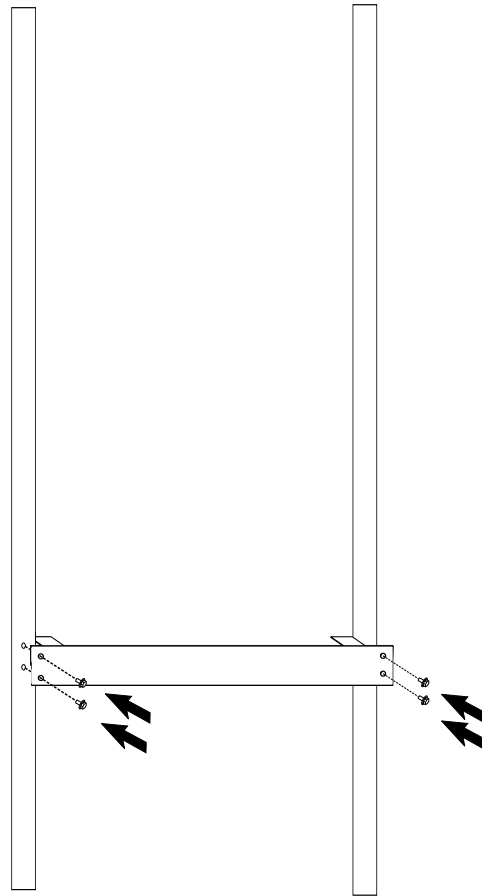


The mounting brackets are shipped with the flanges facing the rear:

1. Remove the two screws at the top and bottom of each bracket
2. Reverse each bracket so that the IBM 2216 can be rack-mounted
3. Reinstall the four screws.

When the brackets are fitted correctly, the letter embossed on each bracket is in the top-rear corner; an A on the right side and a B on the left side.

5 (Rack-Mounting)



The installation aid is a metal bar that supports the IBM 2216 as you install it in the rack. The installation aid ensures that the IBM 2216 and rack are lined up correctly.

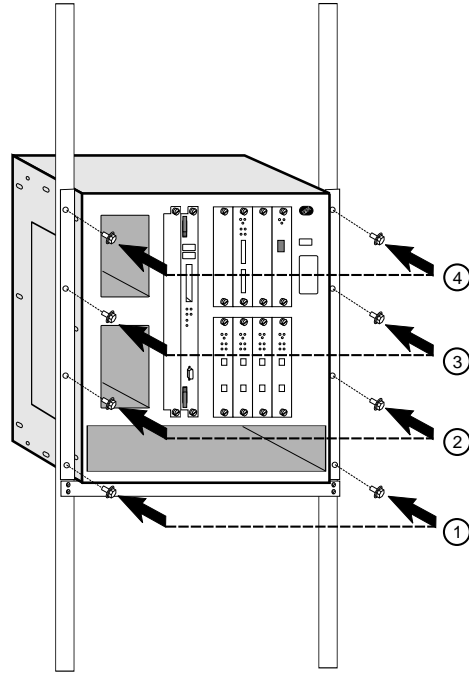
Line up the holes in the installation aid with the rack and install all screws.

6 (Rack-Mounting)

With the second person's help, set the IBM 2216 on the IBM 2216 installation aid or on the shelf. The mounting brackets keep the IBM 2216 from falling into the rack during installation.

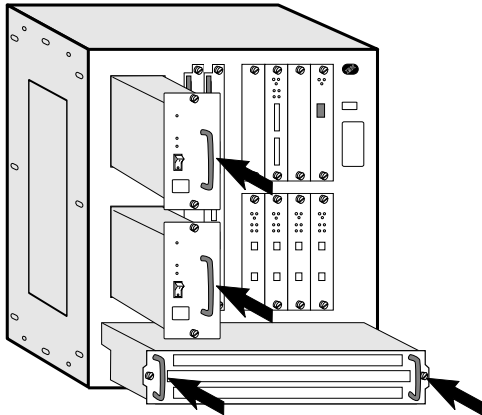
With the installation aid installed, one person can steady the IBM 2216 while completing the next step.

7 (Rack-Mounting)



Install the pairs of screws in the order shown.

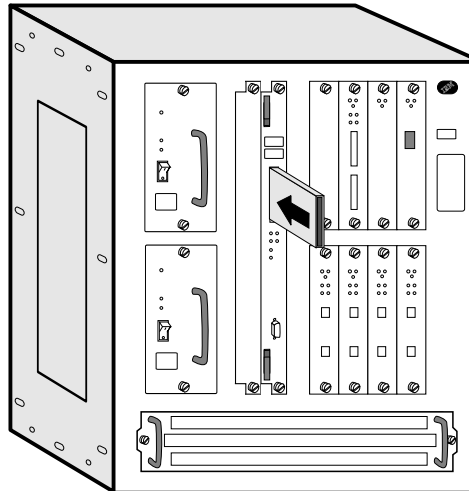
8 (Rack-Mounting)



Reinstall the fan tray and each power supply, making sure the screws are secured.

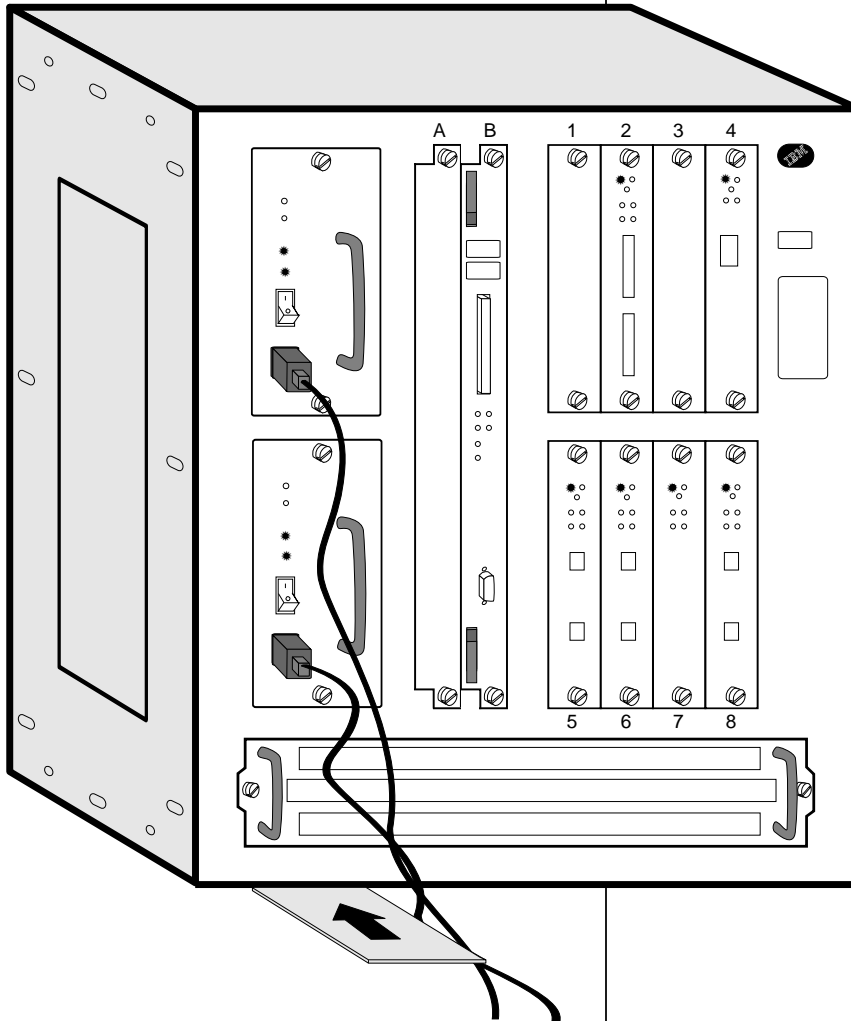
If the power supply resists, shift it to the left. If the fan tray resists, gently rock it.

9 (Rack- or Surface-Mounting)



If you are installing a PCMCIA modem, slide it into the port of the system card. Attach the telephone cable to the modem (a triangle identifies the top of the cable).

10 (Rack- or Surface-Mounting)



11 Complete the Setup (Rack or Surface)

1. Connect the power cords to the IBM 2216 and the power outlets. Switch on each power supply. After 5 minutes, verify that the correct LEDs are on. (See "LED Status" on page 9.)
2. Ensure that the *Hardware Configuration Quick Reference* card is completed and placed in the area provided under the IBM 2216 on the left.

1. Connect the cables.
2. Label the IBM 2216 with its unique unit number or name on the top right of the front panel.
3. Report the phone number of the modem to the network administrator and return all the charts. The IBM 2216 is ready to be configured.

Problem Solving

To identify and correct any problems that occur during setup, answer the questions (Qs) and take the appropriate actions, as indicated:

Q: On the power supply, is the AC OK LED off?

Yes: There is no AC source voltage.

1. Switch each power supply off.
2. Check the power source.
3. Ensure that the power cord is attached correctly.
4. Switch each power supply on.

If the problem is not corrected, contact your service representative.

No: Go to the next question.

Q: On the power supply, is the DC OK LED off?

Yes: There is no +5V, +12V, or -48V dc output voltage.

1. Switch each power supply off.
2. Reseat the power supply, ensuring that the power cord is attached correctly, and switch each power supply on.

If the problem is not corrected, contact your service representative.

No: Go to the next question.

Q: On the power supply, is the Overcurrent LED on?

Yes: There is an overcurrent condition in an adapter or in the fan tray.

1. Remove the adapter that has its top yellow LED on. If none is on, remove the fan tray.
2. Press the Overcurrent Reset button.

If the problem is not corrected, contact your service representative.

No: Go to the next question.

Q: On the system card, is the top yellow LED on?

Yes: There is a fault in the card.

1. Switch off each power supply.
2. Reseat the card.
3. Switch on each power supply.

If the problem is not corrected, contact your service representative.

No: Go to the next question.

Q: On the system card, is the top green LED off?

Yes: The green LED is switched on by the operational code.

If the green LED fails to come on, contact your service representative.

No: Go to the next question.

Q: On the system card, is the PCMCIA port LED on?

Yes: Either the PCMCIA card slot is empty or the card failed the power-on self-test. Reseat the card.

If the problem is not corrected, contact your service representative.

No: Go to the next question.

Q: On any card (slots 1 through 8), is the top yellow LED on?

Yes: There is a fault in the card. Reseat the adapter.

If the problem is not corrected, contact your service representative.

No: Go to the next question.

Q: On any card (slots 1 through 8), is the wrong slot LED on?

Yes: The adapter is in the wrong slot.

1. Find the correct slot.
2. Move the adapter to the correct slot.

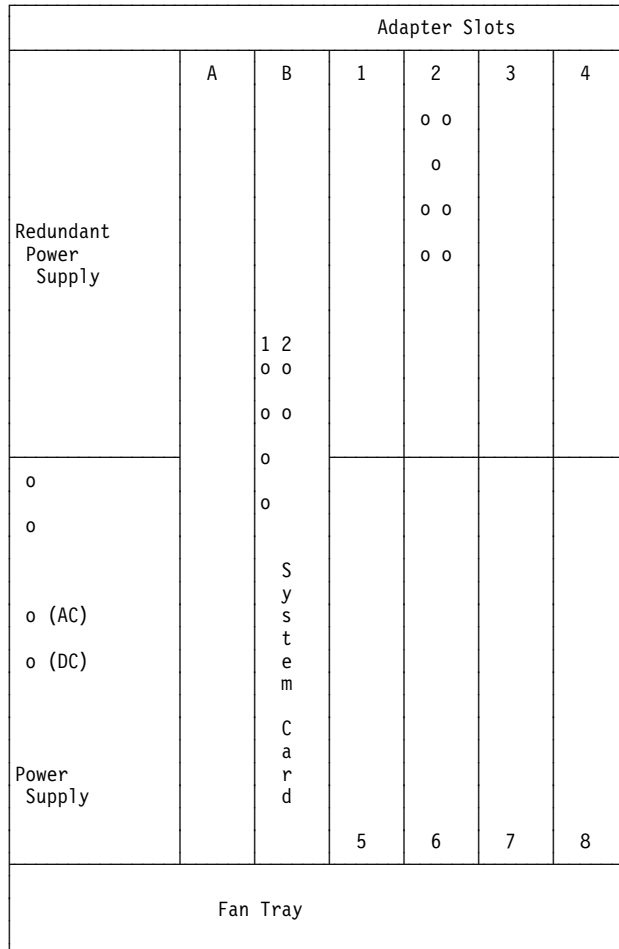
If the problem is not corrected, contact your service representative.

No: If none of the questions was answered yes, contact your service representative.

See the *IBM 2216 Planning Guide* for a list of restrictions regarding adapters and IBM 2216 slots.

Adapter Placement

Write in the feature codes of each of your adapters on the diagram below.



Power Supply Status

LEDs	Meaning
Yellow On (Overcurrent)	There is an overcurrent condition caused by an adapter or fan assembly.
Green DC On	+5 V, +12 V, and -48 V are OK.
Green AC On	AC voltage is present.

LED Status

System Card LEDs	Meaning
PCMCIA 1 or PCMCIA 2 (Yellow) On	PCMCIA device has a fault, is not installed, or is not seated correctly.
OK (Green) On	Card hardware is operating normally.
FAULT (Yellow) On	Card hardware has a fault.
Hard Drive (Yellow) On	Hard drive has failed.
Adapter LEDs	Meaning
OK (Green) On	Adapter is operating normally.
FAULT (Yellow) On	Adapter has a fault.
Wrong slot (Yellow)	Adapter is in the wrong slot.
Green port When on When off	Port is operating normally. Port is not configured or is disabled.
Yellow port When on	One or more ports has a hardware fault.
When flashing	One or more ports has a port I/O or network failure (use external wrap plug to isolate).

Important Names and Numbers

Contact Name	Telephone Number
System Administrator	
Service Representative	

Appendix A. Notices

References in this publication to IBM products, programs, or services do not imply that IBM intends to make these available in all countries in which IBM operates. Any reference to an IBM product, program, or service is not intended to state or imply that only IBM's product, program, or service may be used. Subject to IBM's valid intellectual property, or other legally protectable rights, any functionally equivalent product, program, or service that does not infringe any of IBM's intellectual property rights may be used instead of the IBM product, program, or service. The evaluation and verification of operation in conjunction with other products, except those expressly designated by IBM, are the user's responsibility.

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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 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.

FCC Part 68 Compliance Information:

Features and optional adapters for the IBM 2216 comply with Part 68 of the FCC rules. The label included on the adapter tray contains, among other information, the FCC registration number and Ringer Equivalence Number (REN), if applicable for this equipment. If requested, provide this information to your telephone company.

The features and adapters included are:

Feature Code	Part Name
2283	1-Port ISDN PRI (T1/J1) Adapter LIC 283 with interface code 04DU9-1SN, service code 6.0N and jack type RJ48C.

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.

If the IBM 2216 causes harm to the telephone network, the Telephone Company may discontinue your service temporarily. If possible, they will notify you in advance. But if advance notice isn't practical, you will be notified as soon as possible. You will be advised of your right to file a complaint with the FCC.

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 so as to give you an opportunity to maintain uninterrupted service.

If trouble is experienced with this equipment, for repair or warranty information, in the United States, call IBM at **1-800-IBM-SERV**. In Canada, call IBM at **1-800-465-6600**.

No repairs can be performed by the customer.

Industry Canada Compliance Statement

This digital apparatus does not exceed the Class A 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 A prescrites dans la norme sur le matériel brouiller: *Appareils numériques*, NMB-003 édictée par Industrie Canada.

Industry Canada Information:

NOTICE: The Industry Canada label identifies certified equipment. This certification means that the equipment meets certain telecommunications network protective,

operational and safety requirements. Industry Canada 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 electrical inspection authority, or electrician, as appropriate.

AVIS : L'étiquette d'Industrie Canada permet d'identifier un équipement homologué. Cette homologation signifie que cet équipement satisfait certaines exigences en matière de protection, d'exploitation et de sécurité du réseau de télécommunications. Industrie Canada n'offre aucune garantie que le fonctionnement de cet équipement soit à la satisfaction de l'utilisateur.

Avant d'installer cet équipement, l'utilisateur doit s'assurer qu'il a la permission de le raccorder aux installations de l'entreprise de télécommunications. L'installation de cet équipement doit aussi se faire selon un mode de raccordement acceptable. Dans certains cas, le câblage interne de l'entreprise associé au service individuel offert par une ligne d'abonné peut être prolongé au moyen d'un connecteur homologué (prolongateur de téléphone). Le client devrait être informé que la conformité de son équipement aux conditions susmentionnées n'est pas une prévention contre la dégradation du service dans certaines situations.

Toute réparation d'un équipement homologué devrait être effectuée par un service de maintenance canadien autorisé qui a été désigné par le fournisseur. Toute réparation ou modification d'équipement faite par l'utilisateur, ou tout mauvais fonctionnement, pourrait entraîner la déconnexion de cet équipement par l'utilisateur à la demande de l'entreprise de télécommunications.

Pour sa protection personnelle, l'utilisateur devrait s'assurer que les mises à la terre des services publics électriques, des lignes téléphoniques et du système interne des canalisations d'eau à tuyaux métalliques, advenant leur présence, sont interconnectées. Dans les zones rurales, il s'agit-là d'une précaution particulièrement importante à prendre.

ATTENTION : Toute tentative de connexion par l'utilisateur est à déconseiller. Il est préférable de communiquer avec le responsable de l'inspection en électricité ou un électricien, selon le cas.

European Community (EC) Mark of Conformity Statement

This product is in conformity with the protection requirements of EC Council Directive 89/336/EEC 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.

A typical host which conforms to the protection requirements of EC Council Directive 89/336/EEC on the approximation of the law of the Member States relating to electromagnetic compatibility will continue to conform when this product is installed and operated in it.

Operation of this product in a domestic/residential environment may cause radio interference, which the user may be required to take measures to suppress.

A Declaration of Conformity with the requirements of the Directive has been signed by IBM Spain, Division of Fabricacion, 46185 La Pobla de Vallbona, Valencia, Spain.

The product bears the Telecom CE mark (CE 168 X) for ISDN Basic Rate complying with I-CTR3 (Bridging measures) as per the European directive 91/263/EEC (TTE directive). The product bears the Telecom CE mark (CE 168 X) for: V.24/V.28,V36 and X.21 electrical interfaces complying with NET 1 and with NET 2 physical level. ISDN Basic Rate complying with I-CTR3 (Bridging measures) as per the European directive 91/263/EEC (TTE directive).

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

Dieses Gerät ist berechtigt in Übereinstimmung mit dem deutschen EMVG vom 9.Nov.92 das EG-Konformitätszeichen zu führen. Der Außsteller der Konformitätserklärung ist die IBM Spain, Division of Fabricacion, 46185 La Pobla de Vallbona, Valencia, Spain.

Dieses Gerät erfüllt die Bedingungen der EN 55022 Klasse B.

Japanese Voluntary Control Council for Interference (VCCI) Statement

This equipment is Class 1 Equipment (information equipment to be used in commercial and industrial districts) which is in conformance with the standard set by the Voluntary Control for Interference Council by Data Processing Equipment and Electronic Office Machines (VCCI) with an aim to prevent radio interference in commercial and industrial districts. This equipment could cause interference to radio and television receivers when used in and around residential districts. Please handle the equipment properly according to the instruction manual.

情報処理装置等電波障害自主規制協議会 (VCCI) 表示

この装置は、第一種情報装置(商工業地域において使用されるべき情報装置)で商工業地域での電波障害防止を目的とした情報処理装置等電波障害自主規制協議会(VCCI)基準に適合しております。

従って、住宅地域またはその隣接した地域で使用すると、ラジオ、テレビジョン受信機等に受信障害を与えることがあります。

取扱説明書に従って正しい取り扱いをして下さい。

Korean Communications Statement

Please note that this device has been approved for business purpose with regard to electromagnetic interference. If you find this is not suitable for your use, you may exchange it for a non-business purpose one.

대한민국 통신문

이 기기는 업무용으로 전자파해협정을 받은 기기이오니 구매자 또는 사용자는 이 점을 주의하시며, 만약 잘못 구입하였을 때에는 구입한 곳에서 비업무용으로 교환하시기를 바랍니다.

U.K. Safety Approval

The 2200 Nways BroadBand Switch Model 200 is manufactured to the International Safety Standard EN 60950 and as such is approved in the U.K. under the General Approval number NS/G/1234/J/100003 for indirect connection to the public telecommunication network.

Safety Information



Danger: Before you begin to install this product, read the safety information in *Caution: Safety Information—Read This First*, SD21-0030. This booklet describes safe procedures for cabling and plugging in electrical equipment.




Varning — livsfara: Innan du börjar installera den här produkten bör du läsa säkerhetsinformationen i dokumentet *Varning: Säkerhetsföreskrifter— Läs detta först*, SD21-0030. Där beskrivs hur du på ett säkert sätt ansluter elektrisk utrustning.





Fare: Før du begynner å installere dette produktet, må du lese sikkerhetsinformasjonen i *Advarsel: Sikkerhetsinformasjon — Les dette først*, SD21-0030 som beskriver sikkerhetsrutinene for kabling og tilkobling av elektrisk utstyr.



Fare! Før du installerer dette produkt, skal du læse sikkerhedsforskrifterne i *NB: Sikkerhedsforskrifter—Læs dette først* SD21-0030. Vejledningen beskriver den fremgangsmåde, du skal bruge ved tilslutning af kabler og udstyr.

 **Gevaar:** Voordat u begint met de installatie van dit produkt, moet u eerst de veiligheidsinstructies lezen in de brochure *PAS OP! Veiligheidsinstructies—Lees dit eerst*, SD21-0030. Hierin wordt beschreven hoe u elektrische apparatuur op een veilige manier moet bekabelen en aansluiten.


 **Gevaar** Voordat u begint met het installeren van dit produkt, dient u eerst de veiligheidsrichtlijnen te lezen die zijn vermeld in de publikatie *Caution: Safety Information - Read This First*, SD21-0030. In dit boekje vindt u veilige procedures voor het aansluiten van elektrische apparatuur.


 **Vorsicht:** Bevor mit der Installation des Produktes begonnen wird, die Sicherheitshinweise in *Achtung: Sicherheitsinformationen—Bitte zuerst lesen*, IBM Form SD21-0030. Diese Veröffentlichung beschreibt die Sicherheitsvorkehrungen für das Verkabeln und Anschließen elektrischer Geräte.





危険： 導入作業を開始する前に、安全に関する小冊子SD21-0030 の「最初にお読みください」(Read This First)の項をお読みください。この小冊子は、電気機器の安全な配線と接続の手順について説明しています。

 **Danger :** Avant d'installer le présent produit, consultez le livret *Attention: Informations pour la sécurité — Lisez-moi d'abord*, SD21-0030, qui décrit les procédures à respecter pour effectuer les opérations de câblage et brancher les équipements électriques en toute sécurité.

 **Danger:** Avant de procéder à l'installation de ce produit, lisez d'abord les consignes de sécurité dans la brochure *ATTENTION: Consignes de sécurité—A lire au préalable*, SD21-0030. Cette brochure décrit les procédures pour câbler et connecter les appareils électriques en toute sécurité.

 **Pericolo:** prima di iniziare l'installazione di questo prodotto, leggere le informazioni relative alla sicurezza riportate nell'opuscolo *Attenzione: Informazioni di sicurezza — Prime informazioni da leggere* in cui sono descritte le procedure per il cablaggio ed il collegamento di apparecchiature elettriche.

 **Perigo:** Antes de iniciar a instalação deste produto, leia as informações de segurança *Cuidado: Informações de Segurança — Leia Primeiro*, SD21-0030. Este documento descreve como efectuar, de um modo seguro, as ligações eléctricas dos equipamentos.

 **Peligro:** Antes de empezar a instalar este producto, lea la información de seguridad en *Atención: Información de Seguridad — Lea Esto Primero*, SD21-0030.

Este documento describe los procedimientos de seguridad para cablear y enchufar equipos eléctricos.



Perigo: Antes de começar a instalar este produto, leia as informações de segurança contidas em *Cuidado: Informações Sobre Segurança—Leia Isto Primeiro*, SD21-0030. Esse folheto descreve procedimentos de segurança para a instalação de cabos e conexões em equipamentos elétricos.



VAARA: Ennen kuin aloitat tämän tuotteen asennuksen, lue julkaisussa *Varoitus: Turvaohjeet—Lue tämä ensin*, SD21-0030, olevat turvaohjeet. Tässä kirjasessa on ohjeet siitä, miten sähkölaitteet kaapeloidaan ja kytketään turvallisesti.



위험: 이 제품을 설치하기 전에 반드시 "주의: 안전 정보-시작하기 전에" (SD21-0030) 에 있는 안전 정보를 읽으십시오.



危險：安裝本產品之前，請先閱讀 "Caution: Safety Information--Read This First" SD21-0030 手冊中所提供的安全注意事項。這本手冊將會說明使用電器設備的纜線及電源的安全程序。



Uwaga:
Przed rozpoczęciem instalacji produktu należy zapoznać się z instrukcją: "Caution: Safety Information - Read This First", SD21-0030.
Zawiera ona warunki bezpieczeństwa przy podłączeniu do sieci elektrycznej i eksploatacji.



Upozornění: než zahájíte instalaci tohoto produktu, přečtěte si nejprve bezpečnostní informace v pokynech „Bezpečnostní informace“ č. 21-0030. Tato brožurka popisuje bezpečnostní opatření pro kabeláž a zapojení elektrického zařízení.



Vigyázat: Mielőtt megkezdi a berendezés üzembe helyezését, olvassa el a *Caution: Safety Information— Read This First*, SD21-0030 könyvecskében leírt biztonsági információkat. Ez a könyv leírja, milyen biztonsági intézkedéseket kell megtenni az elektromos berendezés huzalozásakor illetve csatlakoztatásakor.



Pozor: Preden začnete z instalacijo tega produkta preberite poglavje: "Opozorilo: Informacije o varnem rokovanju-preberi pred uporabo," SD21-0030. To poglavje opisuje pravilne postopke za kabliranje,

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