

**Planning
and Site
Preparation
Guide**

GA33-0061-3

**3720
3721**

Communication Controllers

IBM

IBM 3720 Models 1, 2, 11, and 12
IBM 3721 Models 1 and 2
Communication Controllers

Planning and Site
Preparation Guide

System/370, 30xx, 4300,
and 9370 Processors

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This major revision obsoletes and replaces GA33-0061-2 and Technical Newsletters GN33-7150 and GN33-7154. Extensive changes have been made throughout this edition, and the manual should be reviewed in its entirety.

Information has been added describing:

- Additional requirements for local console operation and maintenance
- Safety for grounding and lightning protection
- New length for the IBM token-ring attachment cable available by part number
- IBM PC adapter cable
- New cable group and part number for channel cables.

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In addition to the above FCC statement, the user should be aware that:

- The statement applies only to IBM 3720 and 3721 Communication Controllers used in the United States and having a label on the back that indicates compliance.
- The phrase *instruction manual* means:
 - For installation information:
 - Planning and Site Preparation Guide, GA33-0061
 - Configuration Guide, GA33-0063
 - Feature Addition Instructions, GA33-0110 and GA33-0111
 - Setup Instructions, GA33-0112, GA33-0113, and GA33-0114
 - System Integration, GA33-0067
 - For user's information:
 - Operators' Guide, GA33-0065
 - Problem Determination Guide, GA33-0086
 - Extended Services, GA33-0066.

For full titles, see Appendix D.

DANGER

For US and Canada Only.

This product is equipped with an Underwriters Laboratory (UL) and Canadian Standards Association (CSA) required and approved plug for the user's safety. It is to be used in conjunction with a properly grounded receptacle.

Preface

This manual is designed to help you, together with your installation coordinator, plan and prepare a site for the installation of the IBM 3720 Communication Controller base units and the IBM 3721 Communication Controller expansion units. Its purpose is to guide you while defining the:

- General Planning Schedule for installation
- Physical space requirements
- Environmental requirements
- System layout
- Power requirements
- Cable requirements
- Customized software.

This manual has eight chapters and four appendixes:

- Chapter 1 contains a general description of the IBM 3720 and 3721.
- Chapter 2 lists the planning activities.
- Chapter 3 describes your general planning responsibilities and those of IBM.
- Chapter 4 provides site planning information, such as the physical dimensions, location, and operating environment of the IBM 3720 and 3721.
- Chapter 5 describes the power system, the power cables, plugs, sockets, and other electrical installation requirements.
- Chapter 6 provides lists of standard and custom-length cables and describes how to order them.
- Chapter 7 describes how to identify your cables when they arrive and how to label them.
- Chapter 8 contains relocation information.
- Appendix A is a cabling schematic showing connector identifications.
- Appendix B lists transmission cable termination requirements.
- Appendix C contains copies of the planning schedule and the cable order worksheets, so that you can make copies if necessary.

- Appendix D contains a task-oriented Bibliography.

In addition, you will find the cable labels in the binder for this manual.

Prerequisites

You should read the following related publications, before using this *Planning and Site Preparation Guide*:

- *IBM 3720 and 3721 Communication Controller Introduction*, GA33-0060
- *IBM 3720 and 3721 Communication Controller Configuration Guide*, GA33-0063
- *IBM General Information Manual, Installation Manual-Physical Planning*, GC22-7072

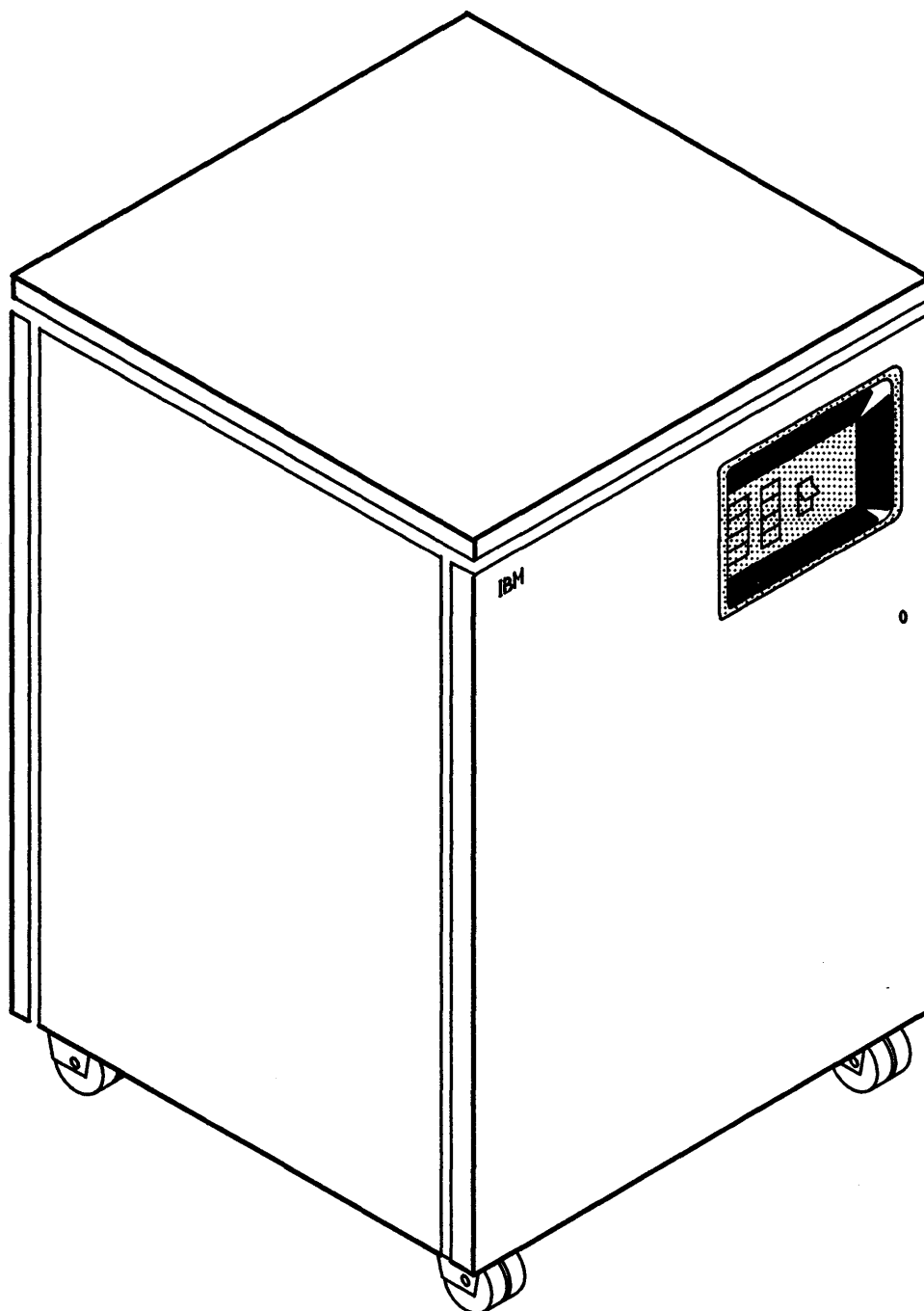
Related Publications

For a complete list of related publications, refer to the *IBM 3720 and 3721 Communication Controller Introduction*, GA33-0060, Bibliography.

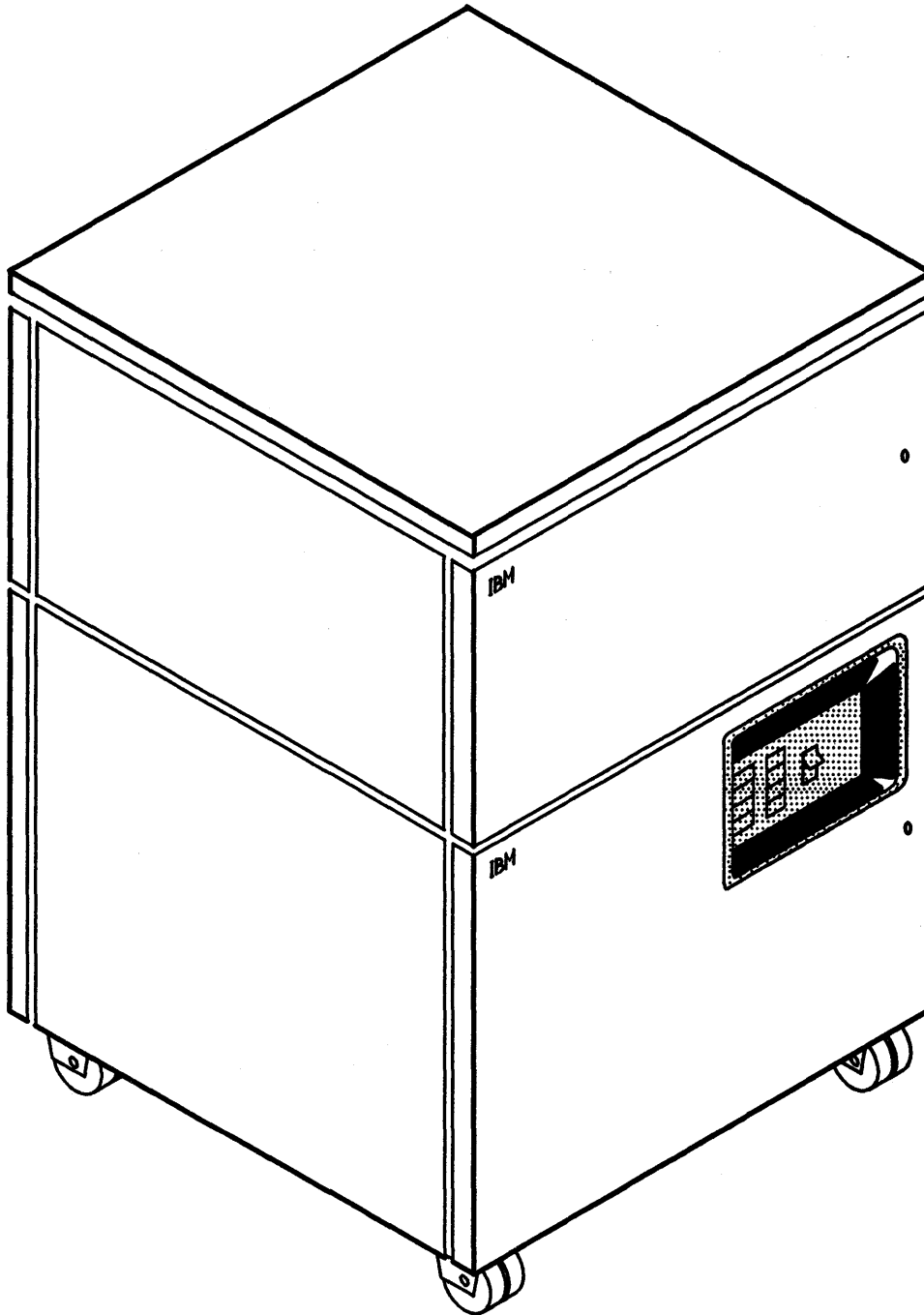
See Appendix D for a task-oriented Bibliography.

Note:

When you have finished all the planning for the present installation of your 3720 and 3721, keep this *IBM 3720/21 Communication Controller Planning and Site Preparation Guide* and the *IBM 3720/21 Communication Controller Configuration Guide*. Do not throw these manuals away. If sometime in the future you plan a reconfiguration or a relocation of your 3720 and 3721, they will be required.



Frontispiece 1. IBM 3720 Model 1 Communication Controller



Frontispiece 2. IBM 3720 Model 2 Communication Controller with an IBM 3721 Communication Controller Expansion Unit

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Chapter 1. Introduction

3720 and 3721 Communication Controller

The 3720 and 3721 Communication Controller base and expansion units are designed to control the data flow between terminals and host processors in data communication networks. They can communicate with one or more host processors over a channel, or with another communication controller over a telecommunication link.

A wide range of data terminal equipment using different line speeds, protocols and interfaces can be connected and operated simultaneously.

Communication software and microcode facilitate problem determination and simplify network expansion and modification.

The IBM 3720 Communication Controller is the base unit to which an optional 3721 expansion unit can be attached. The 3720 Models 1 and 11 are channel-attached and the 3720 Models 2 and 12 are link-attached.

Attachment of up to two IBM Token-Ring Networks and up to 16 communication lines is possible using 3720 Models 11 and 12. The addition of a 3721 expansion unit to a 3720 Model 11 or 12, expands communication lines to 48 lines, either duplex or half-duplex. The 3721 does not provide attachments to the IBM Token-Ring Network.

3720 Models 1 and 11 are installed by IBM.

3720 Models 2 and 12 and the 3721 Models 1 and 2 are to be set up by the customer; unpacking instructions and setup instructions are shipped with each of these units explaining how to unpack, set up, and check out the model without the use of tools.

The following schedule is designed to help you and your appointed installation coordinator plan for the installation of an 3720 and 3721 Communication Controller. The schedule provides an overview of the actions required to plan and prepare for the 3720 and 3721. As the schedule contains terms you may not be familiar with, be sure to read the whole manual before you fill in any dates.

The installation of your 3720 and 3721 may not require all the steps indicated, or it may require additional steps. Adapt the schedule to meet your requirements,

allowing enough time to complete all the steps before the arrival of your 3720 and 3721. By planning ahead, you can ensure that the site is ready for the 3720 and 3721 when it arrives and for the successful integration of a 3720 and 3721 communication controller into your communication network.

For additional planning information, refer to the *IBM General Information Manual, Installation Manual-Physical Planning*, GC22-7072.

Chapter 2. Planning Schedule

Six Months Before Delivery

Six months before delivery of your 3720/21 is an appropriate start point. Planning time could actually be longer or shorter than six months.

Action You Do	IBM Assists	Schedule Date
Appoint an installation coordinator.		
Review this planning schedule with the installation coordinator.		
Determine the schedule dates with your installation coordinator. Fill in the agreed dates on this schedule and give him a copy.		
Obtain prerequisite and related manuals. See Appendix D for a task-oriented Bibliography.	X	
The <i>IBM 3720/21 System Integration</i> , GA33-0067 is delivered with the 3720. However, if you plan to perform system integration from a remote console, order an additional <i>System Integration</i> , GA33-0067 for the remote site.	X	
Determine your 3720/21 configuration(s). See Appendix D for a task-oriented Bibliography.		
Check the software compatibility levels needed.		
Plan where each 3720/21 is to be physically located, and make arrangements for site preparation.		
Complete a site planning worksheet.		
Complete the Plugging sheets, from the <i>IBM 3720/21 Configuration Guide</i> , GA33-0063, with cable information.		
Order the 3720/21, cables, and features.	X	
Select and order an appropriate operator console, and/or remote console modem and complete the console sheet in the <i>IBM 3720/21 Configuration Guide</i> .		

Action You Do	IBM Assists	Schedule Date
Plan necessary changes to the host hardware and complete the channel adapter sheet in the <i>IBM 3720/21 Configuration Guide</i> .		
Arrange for the installation of power receptacles and branch circuits.		
Arrange for the installation of telecommunication lines.		
Arrange for the installation of switched lines for the remote console and/or RSF, if required.		
Order modems for the remote console and/or RSF.		
Plan the required environment of the selected site.		

Three Months Before Delivery

Action You Do	IBM Assists	Schedule Date
Start site preparation.		
Start the installation of power receptacles and branch circuits.		
Start the installation of telecommunication lines and telephone for communication to a remote console and/or RSF.		
Prepare for the installation of any new software and program generation.		
Select the persons who will set up and operate the 3720/21 and integrate it into the network.		
Prepare a training program for the operation of the 3720/21.		
Select the necessary person to perform the system integration as defined in the <i>IBM 3720/21 System Integration</i> manual, GA33-0067.		

Two Months Before Delivery

Action You Do	IBM Assists	Schedule Date
Complete the installation of the power receptacles and branch circuits.		
Complete the installation of the telecommunication lines and telephone for communication to a remote console and/or RSF.		
Complete the installation of any other equipment such as ventilation and heating.		
Review your installation plan to resolve any delays in the schedule.	X	

One Month Before Delivery

Action You Do	IBM Assists	Schedule Date
Start any training you have planned.		
Complete the site preparation.		
Obtain the serial numbers for the 3720/21 from your IBM representative.	X	
Select the people who will unpack and install the 3720/21, under the direction of the installation coordinator. Professional movers are required for the 3721.		
Fill out the cable labels and attach them to the cables. Then you can start the cable installation.		
Make sure that the Setup Sheet from the <i>IBM 3720/21 Configuration Guide</i> is current and conforms to your latest 3720/21 order.		
Make sure that the console sheets and channel adapter sheets are current.		
Install any new software. Generate the control program.		
Plan for the system integration, which should immediately follow setup completion, before the units are set into operation.		

Delivery

Action You Do	IBM Assists	Schedule Date
Ensure that the people who will unpack and set up the 3720/21 are ready to accept delivery.		
Ensure that the machine and parts that were ordered have arrived, including all cables that were listed on the Setup Sheet(s).		
Ensure that there are no damaged parts, including diskettes.		
Check to see that the serial number on the shipping carton matches the serial number on the front door of the machine and on the Setup Sheet.		
A copy of the machine history, plant order, and board plugging chart are received in a plastic bag taped to the outside of the shipgroup. File these in front of the YZ pages, Volume 5.		
Ensure that the CE who sets up the 3720-1 has and uses the channel adapter sheet.		
Keep the pallet and ramp, and the <i>Unpacking/Packing Instructions</i> for future relocations.		

Setup

Action You Do	IBM Assists	Schedule Date
Ensure that the 3720/21 has been unpacked according to the appropriate <i>Unpacking/Packing Instructions</i> and placed on the site prepared accordingly.		
Ensure that the people who will set up the 3720/21 have and use the Setup Sheet(s).		
Check to see that LIC/TIC cables have been labeled at both ends and that they have been uncoiled and placed, if necessary under a raised floor.		
Contact the person responsible for system integration upon completion of setup and before the units are set into operation.		
Receive and check spare parts after setup and keep them in a safe place.		

New Communication Features

Action You Do	IBM Assists	Schedule Date
Ensure that the required cassettes and cables have arrived.		
Ensure that there is a new Setup Sheet for each unit to which new features are to be added.		
Label any new cables.		
Call the host operator and ask him to deactivate the 3720, if powered on.		
Ensure that a new control program has been generated to support these new features.		
Contact the person responsible for system integration upon completion of the addition of the new features and before the units are set into operation.		
Receive removed or unused parts after completion and keep them in a safe place.		

Relocation

When relocating , it is necessary to review all actions starting from "Six Months Before Delivery" as many of these will apply when preparing the new site. However, the time indicated may vary.

Action You Do	IBM Assists	Schedule Date
Prepare the new site; label the cables and install them.		
Call the host operator and ask him to deactivate the 3720, if powered on.		
Ensure that the network operator has performed the saving of the disk data content on the two 3720 Primary and Secondary Normal and Back Up diskettes.		
Plan the move of the 3720/21 to the new site and arrange for professional movers.		
Ensure that you have the required parts for starting relocation.		
Contact the person responsible for system integration upon completion of relocation and before the units are set into operation.		

Chapter 3. General Responsibilities

Customer Responsibilities

The configuration and the planning of the 3720 and 3721 are closely related. Use the *Configuration Guide*, to:

- Define the Model(s) needed
- Order the 3720 and 3721, consoles, and accessories.

Then fill in:

- A Requirements Sheet for each model
- A Traffic Loading Sheet
- The Channel Adapter Sheet
- The Plugging Sheet
- The Console Sheet
- The Order Sheets
- The Setup Sheets.

When using this *Planning and Site Preparation Guide* during the planning stage, for either an initial installation or a relocation, you should:

- Complete a site planning worksheet.
- Complete the Plugging Sheets from the *Configuration Guide* by recording cable information
- Fill in the Cable Order Worksheets
- Order the cables
- Make sure that the Setup Sheets are current

- Check that the machine order has been placed.

You are responsible for appointing an installation coordinator to interface with the IBM marketing representative and to:

- Ensure that the site preparation is on schedule.
- Plan floor and space requirements.
- Arrange for the installation of any communication facilities (common carrier, Postal Telephone and Telegraph, or private) and attach IBM cables to these facilities.
- Order the operator console(s).
- Order the modems for Maintenance and Operator Subsystem (MOSS).
- Appoint someone to perform the setup and checkout of the 3720 Models 2 and 12 and the 3721 Models 1 and 2.
- Arrange for the customization of any necessary network software.
- Provide power receptacles to plug in each local and remote console.
- Provide power receptacles for each modem.

Setup

3720 Models 2 and 12 and 3721 Models 1 and 2 are to be set up by the customer. *Unpacking/Packing Instructions* are shipped with all units.

Before the 3720 and 3721 arrives and setup begins, the installation coordinator should ensure that those involved understand the tasks they have to carry out during the unpacking and the placement of the machines and parts on the installation site.

For the setup you need the completed Setup sheet(s) from the *IBM 3720 and 3721 Configuration Guide*, GA33-0063 and the IBM CE needs the channel adapter sheet.

One Setup sheet is required for each unit and when there is a change in the configuration of a unit due to the addition of new features and/or a relocation of the unit. The installation coordinator should ensure that the people carrying out the task have the Setup sheet(s) which correspond to the configuration(s) confirmed by IBM.

The serial number related to each machine order number is not known during the machine configuration. However, it is available, shortly before delivery, from IBM, upon request. The serial number of each unit also exists in the Machine Level Control (MLC) history that is found inside the packaging after the unpacking has begun. Before delivery, the installation coordinator should make sure that the serial number has been filled in at the top of each sheet in the related worksheet set.

When the machine is delivered, the serial number on the shipping label which is glued to the outside of the cardboard shipping carton should be checked against the serial number on the front door of the machine and on the Setup sheet.

If a problem occurs during setup, the person setting up should report the problems to the installation coordinator, who must review and help solve them. The installation coordinator may contact the IBM Marketing representative when necessary.

System Integration

System Integration is the interconnection of the 3720 into the network.

System Integration is required before the 3720 and 3721 is operational.

The installation coordinator is responsible for passing the System Integration Worksheets from the *Configuration Guide* to the person responsible for system integration.

Installation Coordinator Responsibilities

The installation coordinator is the person responsible for planning and coordinating the site preparation and assisting during setup. The installation coordinator's main site planning responsibilities are listed in the *Planning Schedule* in Chapter 2. The following is a list of tasks he is responsible for during setup:

- Should be able to communicate with the person responsible for configuring the units.
- Should check that the prerequisites of the setup and relocation have been met.

For example he should check that:

- The 3720 and 3721 has been unpacked according to the appropriate *Unpacking/Packing Instructions* and placed on the site prepared accordingly.
- The grounded electrical outlets for the 3720 and for the local and remote consoles have been installed properly.
- There is a completed Setup Sheet for each unit to be set up.
- All the cables listed on the Setup Sheet have arrived.
- LIC cables have been labeled at both ends and that they have been uncoiled and placed, if necessary under a raised floor.
- There are no missing or damaged parts, including diskettes.

- The machine history and other documents found in the shipping group are filed in the YZ binder.
- For relocation if necessary, appropriate packing materials have been ordered from the IBM representative.
- If the LICs of a new unit are to be rearranged, that the setup and system integration must be performed in a different sequence from usual.
- Must be able to answer any questions during the setup as mentioned by the STOP symbols in the *Setup Instructions*.
- Should know how to find the correct contact point in case of a hardware or software problem.
- Should receive and check the spare parts after setup and keep them in a safe place.
- Should be able to communicate with the network operator when necessary.
- For periodic hard disk backup, obtain blank diskettes (2HC part number 6109660 or equivalent).
- Should be able to contact the person responsible for System Integration to assist during the 3720 Integration Procedures.

IBM Installation Planning Representative

- Assists with installation planning.
- Assists with the machine and cable ordering procedure.

IBM Marketing Representative Responsibility

Your IBM marketing representative:

- Provides overall planning advice
- Assists with the machine and cabling ordering procedure
- Outlines your training requirements
- Confirms the arrival date of the 3720/21
- Supplies you with the related publications
- Assists you on request.

IBM Customer Engineer Responsibilities

The IBM customer engineer:

- Installs the 3720 Models 1 and 11 base units. (Whereafter an expansion unit can be installed by you when required, even during the initial installation of a Model 1 or 11.)
- Connects the telephone cable to the communication facilities, in some countries, when the customer is not authorized to do so.

Chapter 4. Site Planning

Site Planning Worksheet

It is recommended that you (or your installation coordinator) prepare a site planning worksheet to help determine the location for the:

- Units
- Cable routing
- Power outlets
- Local operator console, when required
- Modems for the telecommunication lines
- Modems for the remote console and Remote Support Facility (RSF), when required.

Use the worksheet to indicate any additional information, such as the location of peripheral equipment, walls, cables, and communication facilities, which helps in planning the installation.

When the site planning worksheet is complete, the installation coordinator uses it to ensure the correct installation of the units.

Planning the Location of Your 3720 and 3721

When planning the site for your 3720/21 units there are several aspects to be considered. For example, if there are more than two host connections, you must install the 3720 models 1 and 11 on a raised floor. Also consider the advantages of using standard length cables. The following sections describe in more detail these aspects.

Physical Dimensions

Physical dimensions of 3720 Models 1, 11, 2, and 12 and 3721 Models 1 and 2 are:

	Dimensions		
	Front	Side	Height
3720-1/-11	650 mm (26 in.)	650 mm (26 in.)	1000 mm (39 in.)
3720-2/-12	650 mm (26 in.)	650 mm (26 in.)	620 mm (24.5 in.)
3721-1	650 mm (26 in.)	650 mm (26 in.)	380 mm (15 in.)
3721-2	650 mm (26 in.)	650 mm (26 in.)	380 mm (15 in.)

Weight

When your 3720 and 3721 arrives, plan to have sufficient staff available to position the units. The 3720 is on wheels and can be rolled into position.

CAUTION

Three or four people are required to lift and place a 3721 on top of a 3720. The service of professional movers is required.

The maximum weights of the 3720 and 3721 without packing material are:

Unit Model	Weight
3720-1/-11	155 kg (342 lb)
3720-2/-12	106 kg (234 lb)
3721-1/-2	60 kg (132 lb)

Service Clearances

The service clearances for all units are:

	Clearance
Front	1200 mm (47 in.)
Rear	1000 mm (39 in.)

No service clearance is required at the two sides of the 3720/21, so units can be positioned side by side, except for the first and last unit in a row, which should be clear of the wall and other equipment by at least 850 mm (33 in.).

Cable Entry/Exit

The hole in a raised floor for cable entry and exit should be: 285 by 285 millimeters (11.2 by 11.2 inches).

Storage Space

It is recommended that you provide a desk for service manuals, a local console, and a telephone near to your 3720. Also plan storage space for IBM test equipment, and spare parts near to your IBM 3720.

Planning for Multiple 3720 and 3721 Units

Base Units

Multiple 3720 base units can be positioned side by side. Doors on the front and the rear of a 3720 give access to the unit. When planning multiple base unit and/or expansion unit configurations, be sure to consider the combined weights and heat outputs of the units. An access path should be provided at both ends of your configuration to allow personnel access to the rear covers.

Expansion Units

3721 expansion units are placed on top of 3720 base units. The top cover of a 3720 Model 1, 2, 11, or 12 is removed, when installing a 3721 expansion unit, and placed on top of the 3721.

CAUTION

Three or four people are required to lift and place a 3721 on top of a 3720. The service of professional movers is required.

Plan View

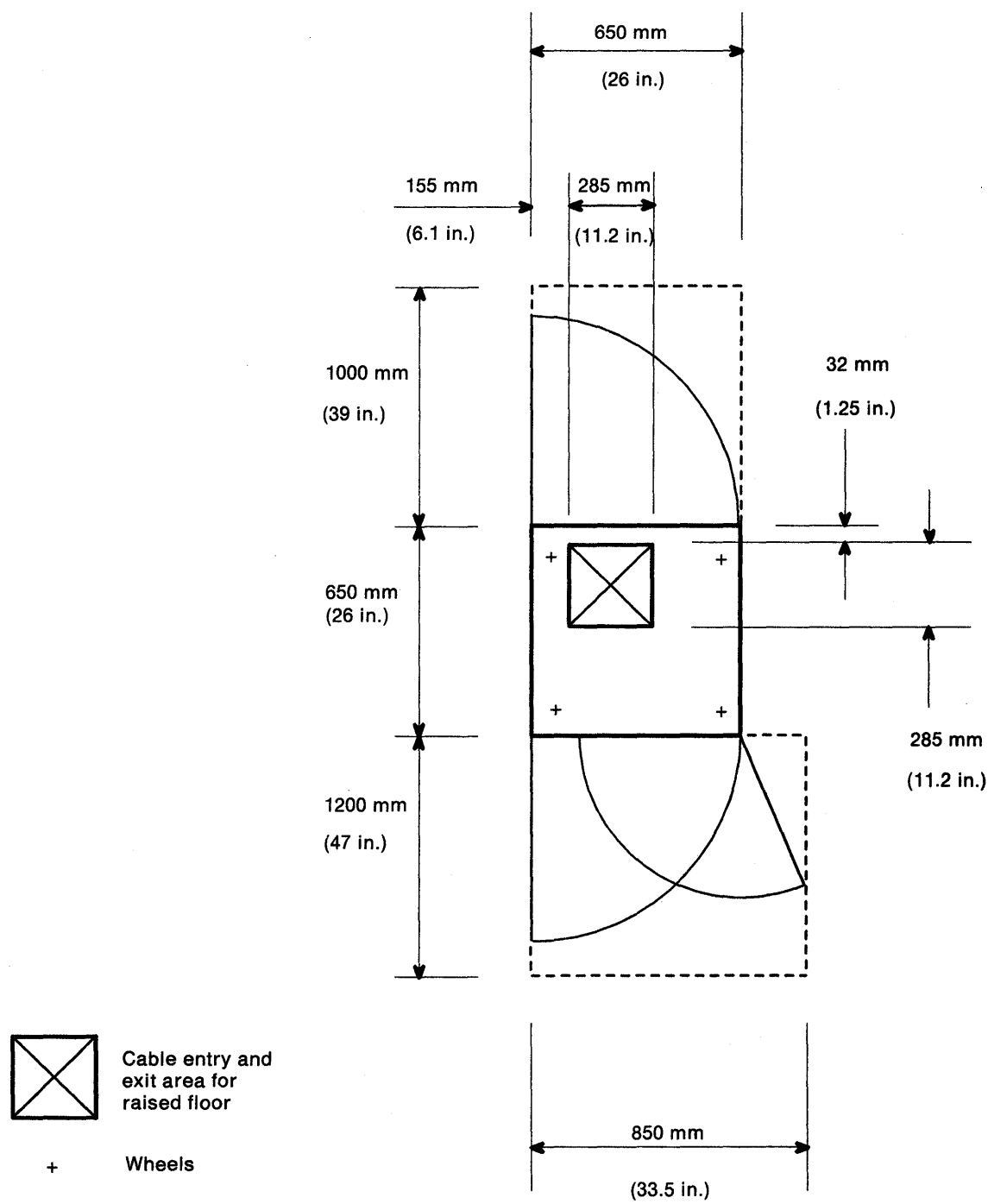


Figure 4-1. Plan View of the 3720 and 3721

Operating Environment

Environmental requirements for all models are:

Environment	Temperature Range	Relative Humidity	Maximum Wet Bulb
Operating	15.6° to 37.8°C (60° to 100°F)	8 to 80%	22.8°C (73°F)
Non-operating	10° to 43°C (50° to 110°F)	8 to 80%	26.7°C (80°F)

Check regularly to see that you maintain the operating environment within the given ranges.

Heat Output

When the 3720 and 3721 units are powered on, the maximum heat produced by each unit is:

Unit	50/60 Hz
3720-1/11	513 W (1754 BTU/h)
3720-2/12	420 W (1436 BTU/h)
3721-1	247 W (845 BTU/h)
3721-2	305 W (1043 BTU/h)

Heating and ventilation should be designed to keep the operating environment within the operating temperature range.

Airflow

A ventilation system is installed inside the 3720. When a 3721 expansion unit is installed on top of a base unit, the ventilation system for the base unit cools the expansion unit as well.

The airflow from top to bottom is 8.65 m³/min (300 cu.ft./min) at 50 Hz and 9.50 m³/min (330 cu.ft./min) at 60 Hz. See Figure 4-2 and Figure 4-3.

Warning: Do not remove the wheels from the 3720; otherwise the airflow will be blocked.

If LIC cassettes are removed, because of reconfiguration or downgrading, empty cassettes must be installed instead. To ensure correct cooling, no slot must be left empty.

A spare empty cassette is shipped with the machine. However, it is recommended to order extra empty cassettes if you plan to remove cassettes after the initial order. This ensures that, if you do remove LIC cassettes, you are immediately able to fill the empty slots with the empty cassettes.

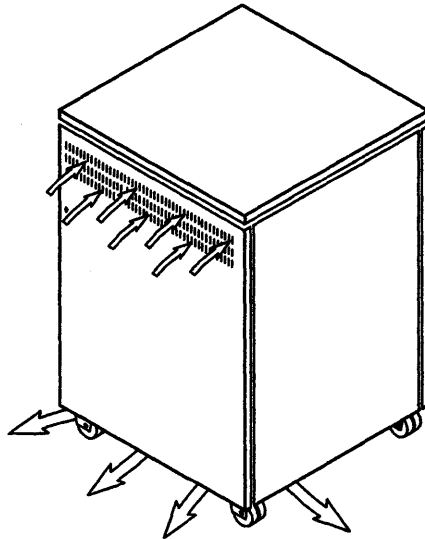


Figure 4-2. Direction of Airflow through a 3720

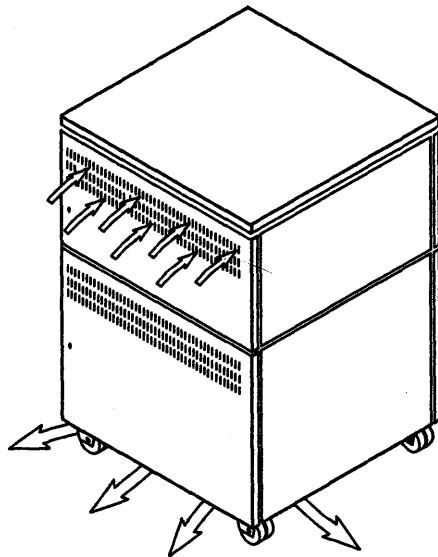


Figure 4-3. Direction of Airflow through a 3720 with a 3721

Acoustical Data

When the 3720/21 is in operation it emits noise. The following tables give noise emission levels for each model:

Declaration of IBM Product Noise Emission Values									
Type	Description	L_{WAd}		L_{pAm}		$<L_{pA}>_m$		I	T
		Operating (bels)	Idling (bels)	Operating (dB)	Idling (dB)	Operating (dB)	Id		
3720-1/-11		7.1	7.1	N/A	N/A	54.0	54.0	No	No
3720-2/-12		7.2	7.2	N/A	N/A	55.0	55.0	No	No
3720-1	with 3721	6.6	6.6	N/A	N/A	49.0	49.0	No	No
3720-2	with 3721	6.8	6.8	N/A	N/A	51.0	51.0	No	No
<p>Notes:</p> <p>L_{WAd} is the declared sound power emission level for a production series of machines.</p> <p>L_{pAm} is the mean value of the sound pressure emission levels at the operator position (if any) for a production series of machines.</p> <p>$<L_{pA}>_m$ is the mean value of the space-averaged sound pressure emission levels at the one-meter positions for a production series of machines.</p> <p>I Impulsive Noise. Entry is either Yes or No.</p> <p>T Prominent Discrete Tones. Entry is either Yes or No.</p> <p>N/A Not Applicable (No operator position)</p> <p>All measurements made in accordance with ISO DIS 7779, and reported in conformance with ISO DIS 7574/4.</p>									

Figure 4-4. Noise Declarations for a 3720/21 Operating at 120 Volts or 208 Volts, 60 Hertz

Declaration of IBM Product Noise Emission Values									
Type	Description	L_{WAd}		L_{pAm}		$<L_{pA}>_m$		I	T
		Operating (bels)	Idling (bels)	Operating (dB)	Idling (dB)	Operating (dB)	Idling (dB)		
3720-1/-11		6.2	6.2	N/A	N/A	44.0	44.0	No	No
3720-2/-12		6.6	6.6	N/A	N/A	51.4	51.4	No	No
3720-1	with 3721	6.1	6.1	N/A	N/A	48.0	48.0	No	No
3720-2	with 3721	6.2	6.2	N/A	N/A	48.5	48.5	No	No
<p>Notes:</p> <p>L_{WAd} is the declared sound power emission level for a production series of machines.</p> <p>L_{pAm} is the mean value of the sound pressure emission levels at the operator position (if any) for a production series of machines.</p> <p>$<L_{pA}>_m$ is the mean value of the space-averaged sound pressure emission levels at the one-meter positions for a production series of machines.</p> <p>I Impulsive Noise. Entry is either Yes or No.</p> <p>T Prominent Discrete Tones. Entry is either Yes or No.</p> <p>N/A Not Applicable (No operator position)</p> <p>All measurements made in accordance with ISO DIS 7779, and reported in conformance with ISO DIS 7574/4.</p>									

Figure 4-5. Noise Declarations for a 3720/21 Operating at 220 Volts, 50 Hertz

Electromagnetic Compatibility

In some instances, the site chosen for installing a 3720/21 may be near high electromagnetic fields. These fields can result from nearby radio-frequency sources, such as transmitting antennas (AM, FM, television, and two-way radios), radar installations, industrial equipment (radio-frequency induction heaters, arc welders, and insulation testers).

Other magnetic sources include transformers (including those installed with other units), distribution panels, rotating machinery, and electrical floor heating. To identify such magnetic sources, check with your site engineer before locating the units. It may be necessary to measure the site environment to determine whether any special installation or product requirements are needed for normal system operation.

Electrostatic Discharge

Electrostatic discharges can be built up on personnel and furniture.

Discharge of these static charges to the metal covers, switches, latches of the unit may cause interference with the operation of the unit and discomfort to personnel.

Security

The 3720 is delivered with a password. You must change it as soon as possible. See the *IBM 3720/21 Extended Services* manual, GA33-0066 and the *IBM 3720/21 System Integration* manual, GA33-0067 for password management.

A key is provided to open the front and rear doors of 3720/21 units by authorized customer setup and customer engineering personnel only. The key prevents unauthorized personnel from accessing the 3720/21 and should be kept in a secure place by a responsible person.

3720 and 3721 Cables

LIC Cable Layout

In planning the site for the 3720 and 3721 consider the advantages of using standard cable lengths. See Figure 6-1 on page 6-3 and Figure 6-2 on page 6-5 for lists of standard cables. LIC cables must be able to reach the modems or units that are directly attached to the 3720/21.

In determining the length of the cables required, consider the following:

- The lengths of standard or less-than-standard cables
- The lengths of longer-than-standard cables
- The length of cables passing under a raised floor.

How to Measure Cable Lengths

To find out which length of cable you need to order, measure using steps 2 and 3. If the sum of these two lengths is greater than the standard lengths shown in Figure 6-1 on page 6-3 and Figure 6-2 on page 6-5, add to this the length obtained using step 1 and order cables by cable part number.

1. Add 1500 mm (60 inches) for the length of the cable from the connectors on the 3720/21 to the bottom of the unit when ordering cables by part number.

2. The length of the cable from the bottom of the unit across the floor to the bottom of the attached device, considering cable routing and bends.

Note: If you have a raised floor, you must add (twice the height of the raised floor) to this length.

3. The length of cable from the floor at the bottom of the attached device to the connector in the attached device.

Note: If you use cables longer than 122 meters (403 ft.), you could experience lightning problems if located in certain parts of the country.

3720 Console Attachments

The 3720 Models 1, 2, 11, and 12 can operate in three console-attachment modes under Maintenance and Operator Subsystem (MOSS) control. These modes are:

1. Local console attachment
2. Remote console attachment
3. Remote support facility (RSF) attachment.

The 3720 can only operate in one console mode at a time, however the three different console cables can be plugged at the same time.

A local console is required for operation and maintenance, if there is no remote support facility (RSF), or if the 3720 is running EP only, or if the 3720 is under control of TCAM.

If you plan to perform system integration from a remote console, order an additional *System Integration*, GA33-0067 for the remote site. The *System Integration* manual that is delivered with the machine will be used at the local site.

Remember to order a cable for each console that you install. See the "Chapter 6 Cable Ordering," and order the appropriate console cables.

In Brazil, a special direct-attached operator console is required, which can be installed by the IBM Customer Engineer upon request. See "Chapter 6. Cable Ordering," and order the appropriate Brazilian console cable.

You also need to provide a power receptacle for each console, because there is none on the 3720.

Chapter 5. Electrical Installation

Power Requirements

When planning for the 3720/21, include power installations, dedicated branch circuits, grounding, power plugs, and receptacles.

Power Supply

The 3720 power system has an external power cable which is internally connected to an attached 3721 expansion unit.

It is recommended that you use a single branch circuit reserved for each 3720, thereby avoiding any unexpected disconnection of power due to faults in other machines or appliances.

Voltage Tolerances

The following voltage tolerances are allowed:

Unit	Hz	kVA ¹ w/o ²	kVA ¹ w ³	Phases	Nominal Voltage Tolerances
3720-1/-11	47 - 63	0.80	1.20	1	100 - 127 or 200 - 240
3720-2/-12	47 - 63	0.60	1.00	1	100 - 127 or 200 - 240

Notes:

- ¹ The given kVA values are the maximum possible. Whatever the machine configuration, or the machine voltage, the primary current will never exceed 12 amperes.
- ² Without 3721 expansion unit.
- ³ With 3721 expansion unit.

Voltage Options

United States and Canada

You can order a 3720 in two different voltages. When you order, you must specify a code according to the following table:

Unit Model	120 V 60 Hz	208/240 V 60 Hz
3720-1/-11	2822	(Note 1)
3720-2/-12	(Note 1)	2793
3721-1/-2 (Note 2)	2822	2793

Notes:

1. The default option, if no code is specified.
2. The 3721 expansion unit must have the same voltage options as the 3720 to which it is attached.

All Other Countries

You can order a 3720 in three different voltages. When you order, you must specify a code according to the following table:

Unit Model	200-240 V 50 Hz	200-240 V 60 Hz	100-127 V 50/60 Hz
3720-1/-11	(Note 1)	2793	2822
3720-2/-12	(Note 1)	2793	2822
3721-1/-2 (Note 2)	(Note 1)	(Note 1)	2822

Notes:

1. The default option, if no code is specified.
2. The 3721 expansion unit must have the same voltage options as the 3720 to which it is attached.

Grounding

For safety and proper machine operation, the 3720s must be grounded. The power cable of each 3720 is equipped with a green/yellow grounding conductor. This conductor must be connected to earth or to another suitable ground. A dedicated, insulated wire conductor is recommended for this purpose. In addition, equipment to which the 3720 will be connected must be properly grounded.

IMPORTANT

Qualified electrical personnel must check for the existence of potential hazardous voltages on the ground shield of cables due to:

- Improper wiring of a voltage receptacle/plug.
- Improper bonding of the grounding electrodes when a single building is served by two power service entrances or has secondary building transformers.
- Improper bonding of the grounding electrodes when cabling is run between buildings.
- A fault occurring in the bonding of the grounding electrodes (multiple systems in a single building or between buildings).
- A breakdown of insulation between a hazardous voltage source and the local network cable.
- High-voltage power circuits running parallel to the network cables.
- Nearby lightning strikes.

Lightning Protection

IMPORTANT

Avoid installation or reconfiguration work during lightning activity.

You must install lightning protection on your (secondary) side of the power source if:

- The utility company installs lightning protectors on the primary power source.
- The area is subject to electrical storms or equivalent power surges.

Enquire from your electrician whether lightning protection is needed for your power distribution system.

Power Cable

A power cable is provided with each 3720.

The power cable shipped with each 3720 is 4.3 meters (14 feet) long. If you need a 1.8 meter (6 foot) power cable, specify code 9986.

Power Plugs

The following table is a list of worldwide power plugs supplied on the 3720 power cord for the most common frequency and voltage.

For power plugs for the US, Canada, see “Power Plugs for US and Canada Only (Part 1)” on page 5-12. For power plugs for Japan, see “Power Plugs for Japan Only” on page 5-13.

Countries not listed in Figure 5-1 receive a power cable without a plug, see Figure 5-3.

For a power cord without a plug specify code 2710.

If a particular plug is available for your country, the number alongside your country name in Figure 5-1 indicates your country’s plug in Figure 5-2 on page 5-10.

Country	Frequency	Low Voltage	High Voltage
Afghanistan	50		18
Algeria	50		18
Andorra	50		18
Angola	50		18
Argentina	50		6
Australia	50		6
Austria	50		18
Bahamas	60	4	5
Bahrain	50		23
Bangladesh	50		22
Barbados	50	4	
Belgium	50		18
Benin	50		18
Bermuda	60	4	
Bolivia	50	4	
Brazil	60	4	
Brunei	50		23
Bulgaria	50		18
Burma	50		22
Cameroon	50		18
Cayman Islands	60	4	
Gen. African Rep.	50		18
Chad	50		18

Figure 5-1 (Part 1 of 5). Country Power Plugs

Country	Frequency	Low Voltage	High Voltage
Channel Islands	50		23
Chile	50		25
Colombia	60	4	
Congo Brazaville	50		18
Costa Rica	60	4	5
Cyprus	50		23
Czechoslovakia	50		18
Denmark	50		19
Dominican Republic	60	4	5
Egypt	50		18
El Salvador	60	4	5
Ecuador	60	4	5
Ethiopia	50		25
Finland	50		18
FR of Germany	50		18
France	50		18
German DR	50		18
Ghana	50		23
Greece	50		18
Guatemala	60	4	5
Guinea	50		18
Guyana	50/60	4	
Haiti	60	4	5
Honduras	60	4	5
Hong Kong	50		23
Hungary	50		18
Iceland	50		18
India	50		23
Indonesia	50		18
Iran	50		18
Iraq	50		23
Ireland	50		23
Israel	50		32
Italy	50		25
Ivory Coast	50		18

Figure 5-1 (Part 2 of 5). Country Power Plugs

Country	Frequency	Low Voltage	High Voltage
Jamaica	50	4	
Jordan	50		23
Kenya	50		23
Korea S.	60	4	
Kuwait	50		23
Lebanon	50		18
Liberia	60	4	
Libya	50		25
Liechtenstein	50		24
Luxembourg	50		18
Malagasy	50		18
Malawi	50		23
Malaysia	50		23
Mali	50		18
Malta	50		23
Martinique	50		18
Mauritania	50		18
Mauritius	50		18
Mexico	60	4	
Monaco	50		18
Morocco	50		18
Mozambique	50		18
Nepal	50		23
Netherlands	50		18
Netherlands Antilles	60	4	5
New Caledonia	50		18
New Zealand	50		6
Nicaragua	60	4	
Niger	50		18
Nigeria	50		23
Norway	50		18
Oman	50		23
Pakistan	50		22
Panama	60	4	5
Papua New Guinea	50		6
Paraguay	50		2

Figure 5-1 (Part 3 of 5). Country Power Plugs

Country	Frequency	Low Voltage	High Voltage
Peru	60	4	5
Philippines	60	4	5
Poland	50		18
Portugal	50		18
Qatar	50		23
Romania	50		18
Saudi Arabia	60	4	
Senegal	50		18
Sierra Leone	50		23
Singapore	50		23
Somalia	50		23
South Africa	50		22
Spain	50		18
Sri Lanka	50		22
Sudan	50		18
Sweden	50		18
Switzerland	50		24
Syria	50		18
Taiwan	60	4	5
Tanzania	50		23
Togo	50		18
Trinidad Tobago	60	4	5
Tunisia	50		18
Turkey	50		18
Uganda	50		23
Uruguay	50		2
United Arab Emirates	50		23
United Kingdom	50		23
Upper Volta	50		18
USSR	50		18
Venezuela	60	4	5
Western Samoa	50		6
Yemen	50		23
Yugoslavia	50		18
Zaire	50		18

Figure 5-1 (Part 4 of 5). Country Power Plugs

Country	Frequency	Low Voltage	High Voltage
Zambia	50		23
Zimbabwe	50		18

Figure 5-1 (Part 5 of 5). Country Power Plugs

Note: For other frequency, a cord without a plug will be shipped.

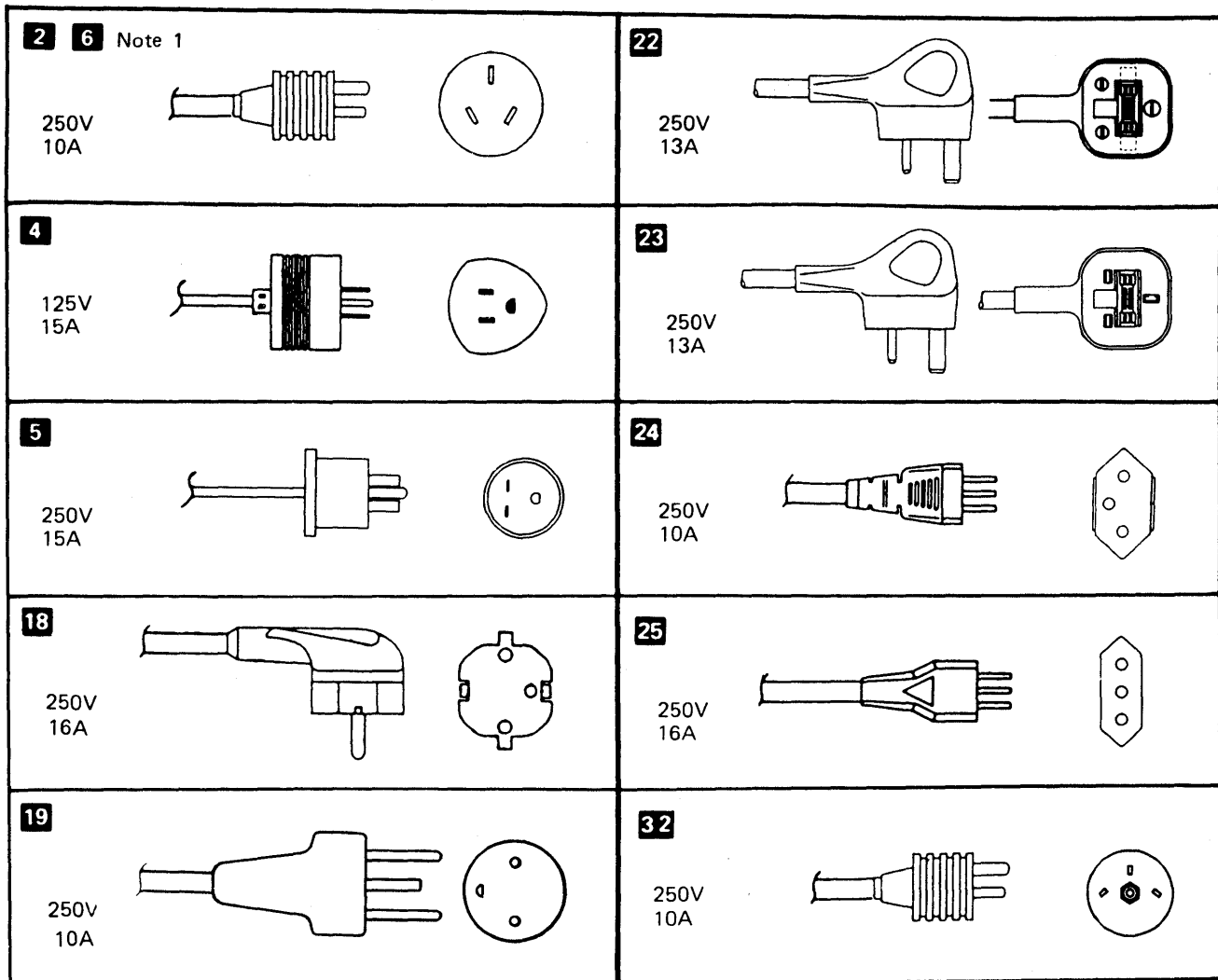


Figure 5-2. Power Plug Identification

Notes:

1. Only the pin thickness is different between plugs 2 and 6.
2. The figure shows the side and bottom views for each plug.
3. The form of the plug moulding depends on the manufacturer.

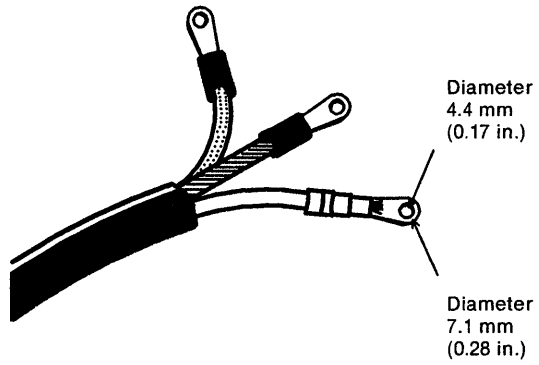


Figure 5-3. Power Cable Shipped without Plug

Ask your electrician to attach the approved plug for your type of installation. The green/yellow grounding wire of the power cable must be attached to the ground lug of the power plug.

If you have to obtain your own power plug, the general cable characteristics are:

Country	Voltage	Cable Diameter mm in.	Number of Conductors	Conductor Size
All Countries	200-240	7.6 0.3	3	1.3 mm ² (16 AWG)
Japan Only	100-127	14.2 0.6	3	2 mm ² (14 AWG)
All Countries (except Japan)	100-127	8.9 0.4	3	2 mm ² (14 AWG)

Power Plugs for US and Canada Only (Part 1)

For the US and Canada, standard non-locking power plugs are shipped with the machine.

Use Figure 5-4 or Figure 5-5 on page 5-13 to select the feature code for the type of power plug required.

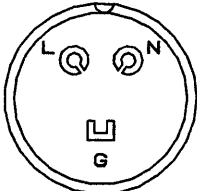
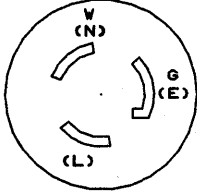
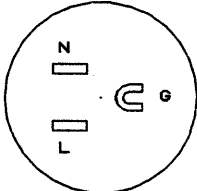
120 V 3720	Plug Type	Plug	Feature Code	Receptacle
Raised Floor	Waterproof	Russel Stoll ¹ 3720U-1 	9020	Russel Stoll 3913U-1 (inline) or 3743U-1 (box type)
	Locking	NEMA L5-15P 	9890	NEMA L5-15R
Non-raised Floor	Non-locking	NEMA 5-15P 	Note	NEMA 5-15R

Figure 5-4. Power Plug Identification for the US and Canada (120 V)

Note: This standard non-locking power plug is shipped with the machine, if no feature code is specified.

¹ Russell Stoll is a trademark of the Midland-Ross Corporation.

Power Plugs for US and Canada Only (Part 2)

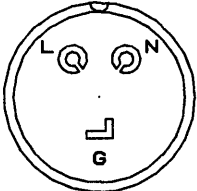

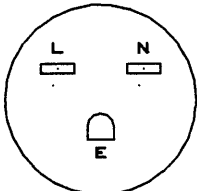
220 V 3720	Plug Type	Plug	Feature Code	Receptacle
Raised Floor	Waterproof	Russel Stoll 3720U-2 	9020	Russel Stoll 3913U-2 (inline) or 3743U-2 (box type)
	Locking	NEMA L6-15P 	9890	NEMA L6-15R
	Non-locking	NEMA 6-15P 	Note	NEMA 6-15R

Figure 5-5. Power Plug Identification for the US and Canada (220 V)

Note: This standard non-locking power plug is shipped with the machine, if no feature code is specified.

Power Plugs for Japan Only

Specify code 9890 for a locking plug or 9891 for a non-locking plug.

If one of these codes is not specified, the power cable is shipped without a plug.

Chapter 6. Cable Ordering

How to Order IBM Channel, Console, and LIC Cables

To order LIC cables you need the information on the plugging sheet(s), which are filled out by the person configuring the 3720/21. Get the plugging sheet(s) from this person.

To order console cables you will need the information on the console sheets from the *Configuration Guide*.

You will also need to measure cable lengths.

How to Measure Cable Lengths

To find out which length of cable you need to order, measure using steps 2 and 3. If the sum of these two lengths is greater than the standard lengths shown in Figure 6-1 on page 6-3 and Figure 6-2 on page 6-5, add to this the length obtained using step 1 and order cables by cable part number.

1. Add 1500 mm (60 inches) for the length of the cable from the connectors on the 3720/21 to the bottom of the unit when ordering cables by part number.
2. The length of the cable from the bottom of the unit across the floor to the bottom of the attached device, considering cable routing and bends.

Note: If you have a raised floor, you must add (twice the height of the raised floor) to this length.

3. The length of cable from the floor at the bottom of the attached device to the connector in the attached device.

Note: If you use cables longer than 122 meters (403 ft.), you could experience lightning problems if located in certain parts of the country.

How to Order Cables

1. Read the paragraph on this page which pertains to your country group. Follow the instructions given and consult the appropriate cable tables on the following pages.
2. For LIC cables refer to Appendix B for cable termination requirements.
3. When you have decided which cables you need, go to the next section "Cable Order Worksheets." Follow the instructions given and fill in the cable order worksheets.
4. After the worksheets are filled in, use them to place your final order assisted by your IBM marketing representative or your IBM installation planning representative.

Note: When you order cables by cable group, IBM automatically adds 1.64 m (5 ft.) to the ordered cable length. However, when you order cables by part number, you will receive the exact cable lengths that you ordered.

European, Middle Eastern, and African Countries

See Figure 6-1 for a list of standard length cables, which if specified, will be supplied with the units. If the standard length cables do not meet your requirements, see the custom-length cable tables, Figure 6-3 on page 6-7 and Figure 6-4 on page 6-9 and order the cables specifying the length.

Your IBM marketing representative or your IBM installation planning representative will assist you with the cable ordering.

All Other Countries

See Figure 6-2 on page 6-5 for a list of standard length cables that you can order by a cable group number. If the standard length cables do not meet your requirements, order shorter or longer cables from the custom-length cable tables, Figure 6-3 on page 6-7 and Figure 6-4 on page 6-9.

Your IBM marketing representative or your IBM installation planning representative will assist you with the cable ordering.

Note: If you want your cables to arrive earlier than the unit, specify the required date.

Standard Cables for European, Middle Eastern, and African Countries

Figure 6-1 is a list of standard cable lengths for European, Middle Eastern, and African Countries.

The following cables are automatically supplied, in standard lengths, when ordered. Specify code 2999 on the order sheet from the *IBM 3720/21 Configuration Guide*.

If the types and/or lengths of the standard cables do not meet your requirements, see the custom-length cable tables Figure 6-3 on page 6-7 and Figure 6-4 on page 6-9 and fill out a separate cable order worksheet.

Your IBM marketing representative or your IBM installation planning representative will assist you with the cable ordering.

Feature Description	LIC Type	Conn ID	Cable Group	Standard Length m (ft.)	Notes
Local operator console (non IBM PC)		19	1631	13.5 (45)	1
IBM PC as local operator console (also order adapter P/N 7837400)		19	1631	13.5 (45)	1,3
Remote attachment console		17	1632	13.5 (45)	1
RSF console		21	1632	13.5 (45)	1
First channel		1	0185	7.5 (25)	2
Power control, first channel		9	1178	18 (60)	2
First two-processor switch		5	0185	12 (40)	2
Power control first TPS		13	1178	18 (60)	2
Second channel		3	0185	7.5 (25)	2
Power control second channel		11	1178	18 (60)	2
Second two-processor switch		7	0185	12 (40)	2
Power control second TPS		15	1178	18 (60)	2
V.24/RS232C DCE all countries (except Belgium)	1		1604	13.5 (45)	4
V.24 DCE, Belgium	1		1620	13.5 (45)	4
Wideband DCE	2		1614	13.5 (45)	4
V.35 DCE (except French PTT modems)	3		1613	13.5 (45)	4
V.35 DCE, French PTT	3		1619	13.5 (45)	4
X.21 DCE	4A		1606	13.5 (45)	4
X.21 DCE, French Transmic	4B		1609	13.5 (45)	4
X.21 DCE (except France)	4B		1606	13.5 (45)	4
IBM Token-ring attachment	TIC1		1666	9 (30)	

Figure 6-1. Standard Cables for European, Middle Eastern, and African Countries

Note: See the *Notes* on the following page.

Notes:

1. *3720 Models 1 , 2, 11, and 12 only.*
2. *3720 Models 1 and 11 only.*
3. *The short adapter cable, part number 7837400, furnishes the appropriate male and female connectors to connect the cable to the IBM PC.*
4. *See Appendix A for a cabling schematic showing connector identifications.*

Standard Cables for All Other Countries

Figure 6-2 is a list of standard cable lengths for all other countries.

Order standard length cables by cable group number. You **can** order **channel cables** longer than the standard length by using the cable groups indicated below and by specifying the length.

If the standard length cables are not suitable, order cables from the custom-length cable tables, Figure 6-3 on page 6-7 and Figure 6-4 on page 6-9.

Your IBM marketing representative or your IBM installation planning representative will assist you with the cable ordering.

Feature Description	LIC Type	Conn ID	Feature Code	Cable Group	Standard Length m (ft.)	Notes
Local operator console (non IBM PC)		19		1631	13.5 (45)	1
IBM PC as local operator console (also order adapter P/N 7837400)		19		1631	13.5 (45)	1,3
Remote attachment console		17		1632	13.5 (45)	1
RSF console		21		1632	13.5 (45)	1
Brazilian console		19		5825	13.5 (45)	1
First channel		1	Basic	0185	7.5 (25)	2
Power control, first channel		9	Basic	1178	18 (60)	2
First two-processor switch		5	FC8320	0185	12 (40)	2
Power control first TPS		13	FC8320	1178	18 (60)	2
Second channel		3	FC1561	0185	7.5 (25)	2
Power control second channel		11	FC1561	1178	18 (60)	2
Second two-processor switch		7	FC8320	0185	12 (40)	2
Power control second TPS		15	FC8320	1178	18 (60)	2
V.24/RS232C DCE all countries	1		FC4911	1604	13.5 (45)	4
V.24/RS232C direct attachment asynchronous	1		FC4911	1607	13.5 (45)	4
V.24/RS232C direct attachment synchronous	1		FC4911	1611	13.5 (45)	4
V.25/RS366 autocall unit, all countries	1		FC4911	1616	13.5 (45)	4
Wideband DCE	2		FC4921	1614	13.5 (45)	4,5
V.35 DCE	3		FC4931	1613	13.5 (45)	4
V.35 direct attachment	3		FC4931	1605	13.5 (45)	4
X.21 DCE	4A		FC4941	1606	13.5 (45)	4
X.21 direct attachment	4A		FC4941	1608	30 (100)	4

Figure 6-2 (Part 1 of 2). Standard Cables for All Other Countries

Feature Description	LIC Type	Conn ID	Feature Code	Cable Group	Standard Length m (ft.)	Notes
X.21 DCE	4B		FC4942	1606	13.5 (45)	4
X.21 direct attachment	4B		FC4942	1608	30 (100)	4
IBM Token-ring attachment	TIC1		FC4991	1666	21.5 (70)	

Figure 6-2 (Part 2 of 2). Standard Cables for All Other Countries

Notes:

1. 3720 Models 1, 2, 11, and 12 only.
2. 3720 Models 1 and 11 only
3. The short adapter cable, part number 7837400, furnishes the appropriate male and female connectors to connect the cable to the IBM PC.
4. See Appendix A for a cabling schematic showing connector identifications.
5. Wideband DCE is not available in lengths longer than standard.

Custom-Length Cables Shorter than the Standard Length For All Countries

Figure 6-3 is a list of custom-length cables that are shorter than the standard length.

The standard length is indicated in the table column. Cables can be ordered below the standard length by selecting the corresponding cable group and indicating the length.

Your IBM marketing representative or your IBM installation planning representative will assist you with the cable ordering.

Feature Description	LIC Type	Conn ID	Feature Code	Cable Group	Standard Length m (ft.)	Notes
Local operator console (non IBM PC)		19		1626	13.5 (45)	1
IBM PC as local operator console		19		1633	13.5 (45)	1,3
Remote attachment console		17		1629	13.5 (45)	1
RSF console		21		1629	13.5 (45)	1
Brazilian console		19		5824	13.5 (45)	1
First channel		1	Basic	0185	7.5 (25)	2
Power control first channel		9	Basic	1178	18 (60)	2
First two-processor switch		5	FC8320	0185	12 (40)	2
Power control first TPS		13	FC8320	1178	18 (60)	2
Second channel		3	FC1561	0185	7.5 (25)	2
Power control second channel		11	FC1561	1178	18 (60)	2
Second two-processor switch		7	FC8320	0185	12 (40)	2
Power control second TPS		15	FC8320	1178	18 (60)	2
V.24/RS232C DCE all countries (except Japan, Belgium)	1		FC4911	1628	13.5 (45)	4
V.24 DCE, Japan	1		FC4911	1621	13.5 (45)	4
V.24 DCE, Belgium	1		FC4911	1620	13.5 (45)	4
V.24/RS232C direct attachment asynchronous	1		FC4911	1612	13.5 (45)	4
V.24/RS232C direct attachment synchronous	1		FC4911	1627	13.5 (45)	4
V.25/RS366 autocal unit, all countries (except French Caducee, Japan, UK)	1		FC4911	1610	13.5 (45)	4
V.25 autocal unit, French Caducee	1		FC4911	1622	13.5 (45)	4
V.25 NTT autocal unit, Japan	1		FC4911	1634	13.5 (45)	4
V.25 autocal unit, UK	1		FC4911	1635	13.5 (45)	4
Wideband DCE	2		FC4921	1615	13.5 (45)	4

Figure 6-3 (Part 1 of 2). Custom-Length Cables Shorter than Standard Length

Feature Description	LIC Type	Conn ID	Feature Code	Cable Group	Standard Length m (ft.)	Notes
V.35 DCE (except French PTT modems)	3		FC4931	1618	13.5 (45)	4
V.35 DCE, French PTT	3		FC4931	1619	13.5 (45)	4
V.35 direct attachment	3		FC4931	1623	13.5 (45)	4
V.35 direct attachment France	3		FC4931	1623F	13.5 (45)	4
X.21 DCE	4A		FC4941	1624	13.5 (45)	4
X.21 direct attachment	4A		FC4941	1625	30 (100)	4
X.21 DCE (except French Transmic)	4B		FC4942	1624	13.5 (45)	4
X.21 DCE, French Transmic	4B		FC4942	1609	13.5 (45)	4
X.21 direct attachment	4B		FC4942	1625	30 (100)	4
IBM Token-ring attachment	TIC1		FC4991	1667	21.5 (70)	

Figure 6-3 (Part 2 of 2). Custom-Length Cables Shorter than Standard Length

Notes:

1. 3720 Models 1, 2, 11, and 12 only.
2. 3720 Models 1 and 11 only.
3. If you do not initially use an IBM Personal Computer as your local operator console, but wish to replace your initial local operator console with an IBM PC, you must order only the short adapter cable which furnishes the appropriate male and female connections for the IBM PC and your existing local operator console cable. The part number for this adapter cable is 7837400.
4. See Appendix A for a cabling schematic showing connector identifications.

Custom-Length Cables Longer than the Standard Length For All Countries

Figure 6-4 is a list of the maximum cable lengths that can be ordered.

If you need cables that are longer than the standard length, order by a cable part number and indicate the required length.

Your IBM marketing representative or your IBM installation planning representative will assist you with the cable ordering.

Note: If you use cables longer than 122 meters (403 ft.), you could experience lightning problems if located in certain parts of the country.

Feature Description	LIC Type	Feature Code	Length Up To m (ft.)	Part Number	Notes
Local operator console (non IBM PC)			150 (492)	6398736	2
IBM PC as local operator console			150 (492)	6398859	2,8
Remote attachment console			35 (115)	7837399	2
RSF console			35 (115)	7837399	2
Brazilian console			150 (492)	6124914	2
First channel		Basic	61 (200)	6460185	1
Power control first channel		Basic	45 (150)	5351178	1
First two-processor switch		FC8320	61 (200)	6460185	1
Power control first TPS		FC8320	45 (150)	5351178	1
Second channel		FC1561	61 (200)	6460185	1
Power control second channel		FC1561	45 (150)	5351178	1
Second two-processor switch		FC8320	61 (200)	6460185	1
Power control second TPS		FC8320	45 (150)	5351178	1
V.24/RS232C DCE, all countries (except Japan, Belgium)	1	FC4911	100 (328)	6398785	6
V.24 DCE, Japan	1	FC4911	100 (328)	6398782	6
V.24 DCE, Belgium	1	FC4911	100 (328)	6398780	6
V.24/RS232C direct attachment asynchronous	1	FC4911	150 (492)	7837398	
V.24/RS232C direct attachment synchronous	1	FC4911	150 (492)	7837396	3
V.25/RS366 autocall unit, all countries (except French Caducee, Japan, UK)	1	FC4911	35 (115)	6398788	
V.25 autocall unit, French Caducee	1	FC4911	35 (115)	6398783	
V.25 NTT autocall unit, Japan	1	FC4911	35 (115)	6398786	
V.25 autocall unit, UK	1	FC4911	35 (115)	6398787	
V.35 DCE (except French PTT modems)	3	FC4931	100 (328)	6398665	9

Figure 6-4 (Part 1 of 2). Custom-Length Cables Longer than the Standard Length

Feature Description	LIC Type	Feature Code	Length Up To m (ft.)	Part Number	Notes
V.35 DCE, French PTT modems	3	FC4931	35 (115)	6398789	
V.35 direct attachment	3	FC4931	150 (492)	6398657	7
V.35 direct attachment France	3	FC4931	150 (492)	65X9900	7
X.21 DCE	4A	FC4941	150 (492)	6398658	
X.21 direct attachment	4A	FC4941	600 (1969)	6398660	5
X.21 DCE (except French Transmic)	4B	FC4942	150 (492)	6398658	4
X.21 DCE, French Transmic	4B	FC4942	150 (492)	6398661	4
X.21 direct attachment	4B	FC4942	600 (1969)	6398660	5
IBM Token-ring attachment	TIC1	FC4991	44.2 (145)	61X3229	

Figure 6-4 (Part 2 of 2). Custom-Length Cables Longer than the Standard Length

Notes:

1. 3720 Models 1 and 11 only.
2. 3720 Models 1, 2, 11, and 12 only.
3. A maximum distance of 35 m (115 ft.) meets the CCITT specifications. However, if the terminal is a 3720 or a 3725, it can operate up to 150 m (492 ft.) for this application only.
4. Maximum length:
 - Up to 56 000 bps 150 m (492 ft.)
 - Up to 128 000 bps 60 m (197 ft.)
 - Above 128 000 bps 30 m (98 ft.)
5. The maximum distance to meet the CCITT specifications is:
 - Up to 56 000 bps 150 m (492 ft.)
 - Above 56 000 bps 60 m (197 ft.)

However, if the terminal is a 3720 or a 3725, it can operate:

 - Up to 19 200 bps 600 m (1 969 ft.)
 - Above 19 200 bps 300 m (984 ft.)
6. A maximum distance of 35 m (115 ft.) meets the CCITT specifications. However, the IBM 3833, 3834, 3868, 5811, 5812, 5865, 5866, and 5868 modems can operate with cables up to 100 meters (328 ft.) long, if one of the following conditions is fulfilled:
 - a. The suffix level (two alphabetic characters on the date tag) is FG or later for North America, South America, and the Far East; or KF or later for Europe, the Middle East, and Africa.
 - b. If the suffix level is earlier and the data multiplexer feature 3260 is not installed, the modem must have EC 344120 installed.

- c. *If the suffix level is earlier and the data multiplexer feature 3260 is installed, the modem must have EC 323406 installed.*

Verify the EC level of the modem adapter card with the IBM representative. Contact the IBM representative if you cannot find the modem suffix level.

When the DCE is an IBM 3863, 3864, or 3865 Modem, the maximum length is 100 meters (328 ft.).

- 7. *A maximum distance of 35 m (115 ft.) meets the CCITT specifications. However, if the terminal is a 3720 or a 3725, it can operate:*

*Up to 55 885 bps 150 m (492 ft.)
At 245 760 bps 100 m (328 ft.)*

- 8. *If you do not initially use an IBM Personal Computer as your local operator console, but wish to replace your initial local operator console with an IBM PC, you must order only the short adapter cable which furnishes the appropriate male and female connections for the IBM PC and your existing local operator console cable. The part number for this adapter cable is 7837400.*
- 9. *A maximum distance of 35 m (115 ft.) meets the CCITT specifications. However, the IBM 5821 DSU/CSU can operate with a cable up to 100 m (328 ft.) long.*

Cable Order Worksheets

The following *Cable Order Worksheets* are to help you prepare your cable order. Copies are in Appendix C. These worksheets can help you organize your cable order. The final cable order is made with the help of your IBM marketing representative.

When making your final order together with your IBM marketing representative, include the following information:

- Feature Description
- Connection ID (if appropriate)
- Cable Group or Part Number
- Length
- Quantity.

Filling in the Cable Order Worksheets

For **non-standard** cables for European, Middle Eastern, and African countries use either *Cable Order Worksheet No. 2* or *3*. Indicate the cable length and the number of cables you need for each cable group.

For **standard** channel, console, and LIC cables for all other countries use *Cable Order Worksheet No. 1* and indicate the number of cables you need for each cable group in the *Quantity* column.

For any **custom-length** channel, console, and LIC cables which are **shorter** than the standard cable length, use *Cable Order Worksheet No. 2*. Indicate the cable length and the number of cables you need for each cable group.

For any **custom-length** console and LIC cables which are **longer** than the standard length, use *Cable Order Worksheet No.3*. Indicate the cable length and the number of cables you need for each part number.

Cable Order Worksheet No. 1

Standard Cables for All Other Countries

Feature Description	Cable Group	Standard Length m (ft.)	Quantity
Local operator console (non IBM PC)	1631	13.5 (45)	
IBM PC as local operator console (also order adapter P/N 7837400)	1631	13.5 (45)	
Remote attachment console	1632	13.5 (45)	
RSF console	1632	13.5 (45)	
Brazilian console	5825	13.5 (45)	
First channel	0185	7.5 (25)	
Power control first channel	1178	18 (60)	
First two-processor switch	0185	12 (40)	
Power control first TPS	1178	18 (60)	
Second channel	0185	7.5 (25)	
Power control second channel	1178	18 (60)	
Second two-processor switch	0185	12 (40)	
Power control second TPS	1178	18 (60)	
V.24/RS232C DCE all countries	1604	13.5 (45)	
V.24/RS232C direct attachment asynchronous	1607	13.5 (45)	
V.24/RS232C direct attachment synchronous	1611	13.5 (45)	
V.25/RS366 autocal unit, all countries	1616	13.5 (45)	
Wideband DCE	1614	13.5 (45)	
V.35 DCE	1613	13.5 (45)	
V.35 direct attachment	1605	13.5 (45)	
X.21 DCE (LIC 4A or 4B)	1606	13.5 (45)	
X.21 direct attachment (LIC 4A or 4B)	1608	30 (100)	
IBM Token-ring attachment	1666	21.5 (70)	

Figure 6-5. Cable Order Worksheet No. 1

Cable Order Worksheet No. 2

Custom-Length Cables Shorter than the Standard Length All Countries

Feature Description	Conn ID	Cable Group	Length	Quantity
Local operator console (non IBM PC)	19	1626		
IBM PC as local operator console	19	1633		
Remote attachment console	17	1629		
RSF console	21	1629		
Brazilian console	19	5824		
First channel	1	0185		
Power control first channel	9	1178		
First two-processor switch	5	0185		
Power control first TPS	13	1178		
Second channel	3	0185		
Power control second channel	11	1178		
Second two-processor switch	7	0185		
Power control second TPS	15	1178		
V.24/RS232C DCE all countries (except Japan, Belgium)		1628		
V.24 DCE, Japan		1621		
V.24 DCE, Belgium		1620		
V.24/RS232C direct attachment asynchronous		1612		
V.24/RS232C direct attachment synchronous		1627		
V.25/RS366 autocal unit, all countries (except French Caducee, Japan, UK)		1610		
V.25 autocal unit, French Caducee		1622		
V.25 NTT autocal unit, Japan		1634		
V.25 autocal unit, UK		1635		
Wideband DCE		1615		
V.35 DCE (except French PTT modems)		1618		
V.35 DCE, French PTT		1619		
V.35 direct attachment		1623		
V.35 direct attachment France		1623F		
X.21 DCE (except French Transmic) (LIC 4A or 4B)		1624		
X.21 direct attachment (LIC 4A or 4B)		1625		

Figure 6-6 (Part 1 of 2). Cable Order Worksheet No. 2

Feature Description	Conn ID	Cable Group	Length	Quantity
X.21 DCE, French Transmic		1609		
IBM Token-ring attachment		1667		

Figure 6-6 (Part 2 of 2). Cable Order Worksheet No. 2

Cable Order Worksheet No. 3

Custom Length Cables Longer than the Standard Length All Countries

Feature Description	Part Number (Up to Max. Length of)	Length	Quantity
Local operator console (non IBM PC)	6398736 (150m 492ft.)		
IBM PC as local operator console	6398859 (150m 492ft.)		
Remote attachment console	7837399 (35m 115ft.)		
RSF console	7837399 (35m 115ft.)		
Brazilian console	6124914 (150m 492ft.)		
First channel	6460185 (61m 200ft.)		
Power control first channel	5351178 (45m 150ft.)		
First two-processor switch	6460185 (61m 200ft.)		
Power control first TPS	5351178 (45m 150ft.)		
Second channel	6460185 (61m 200ft.)		
Power control second channel	5351178 (45m 150ft.)		
Second two-processor switch	6460185 (61m 200ft.)		
Power control second TPS	5351178 (45m 150ft.)		
V.24/RS232C DCE, all countries (except Japan, Belgium)	6398785 (100m 328ft.)		
V.24 DCE, Japan	6398782 (100m 328ft.)		
V.24 DCE, Belgium	6398780 (100m 328ft.)		
V.24/RS232C direct attachment asynchronous	7837398 (150m 492ft.)		
V.24/RS232C direct attachment synchronous	7837396 (150m 492ft.)		
V.25/RS366 autocall unit, all countries (except French Caducee, Japan, UK)	6398788 (35m 115ft.)		
V.25 autocall unit, French Caducee	6398783 (35m 115ft.)		
V.25 NTT autocall unit, Japan	6398786 (35m 115ft.)		
V.25 autocall unit, UK	6398787 (35m 115ft.)		
V.35 DCE (except French PTT modems)	6398665 (100m 328ft.)		
V.35 DCE, French PTT	6398789 (35m 115ft.)		
V.35 direct attachment	6398657 (150m 492ft.)		
V.35 direct attachment France	65X9900 (150m 492ft.)		
X.21 DCE (LIC 4A or 4B)	6398658 (150m 492ft.)		
X.21 direct attachment (LIC 4A or 4B)	6398660 (600m 1969ft.)		

Figure 6-7 (Part 1 of 2). Cable Order Worksheet No. 3

Feature Description	Part Number (Up to Max. Length of)	Length	Quantity
X.21 DCE, French Transmic	6398661 (150m 492ft.)		
IBM Token-ring attachment	61X3229 (44.2m 145ft.)		

Figure 6-7 (Part 2 of 2). Cable Order Worksheet No. 3

Plugging Sheet

Once you have selected and ordered the necessary cables from the tables in this chapter, get the Plugging Sheet(s) from the *Configuration Guide* for the associated unit. Fill in the last columns of the plugging worksheet with the cable groups or part numbers and cable lengths from the final cable order.

When you have completed the plugging sheet(s) return them to the person configuring the 3720 and 3721 so they can use the completed plugging sheets to fill in the Setup Sheet(s).

Chapter 7. Cable Identification

How to Identify Your Cables on Arrival

It is necessary to identify your cables when they arrive so that they can be properly labeled prior to setup.

Your external cables are supplied with four labels; two labels at each end of the cable.

Identifying Cables that are Ordered by Cable Group Number

To identify your cables on arrival, use your Cable Order Worksheets No. 1 and 2.

When cables are ordered by cable group number, the labels on the cable are as shown in Figure 7-1 on page 7-2.

To identify the cable, compare the second label with the cable group (key) and the length ("x") on your cable order worksheet.

IBM TYPE A		
PN 5353920	EC 0223135	
T 0024.37M	0080FT	00IN
ID: 000EM85340		
PN 5353920	EC 0223135	
T 0024.37M	0080FT	00IN
ID: 000EM85340		
PN 5353920	EC 0223135	
T 0024.37M	0080FT	00IN
ID: 000EM85340		
PN 5353920	EC 0223135	
T 0024.37M	0080FT	00IN
ID: 000EM85340		

SEQ	KEY	3920-B
'X'	75FT	22M
8888	24939	
THIS END:		
UNIT 2914 NO		
CONN I.D. 00000		
OTHER END:		
UNIT 4245 NO		
PLUG LOC 01E-A3		
CONN I.D. 00001		

Figure 7-1. Labels Used on Cables Ordered by Cable Group Number

Identifying Cables that are Ordered by Part Number

To identify these cables, you need the Cable Order Worksheets No. 3.

When cables are ordered by part number, the labels on the cable are as shown in Figure 7-2.

To identify the cable, compare the first label with the part number (PN) and the length (T) on your cable order worksheet.

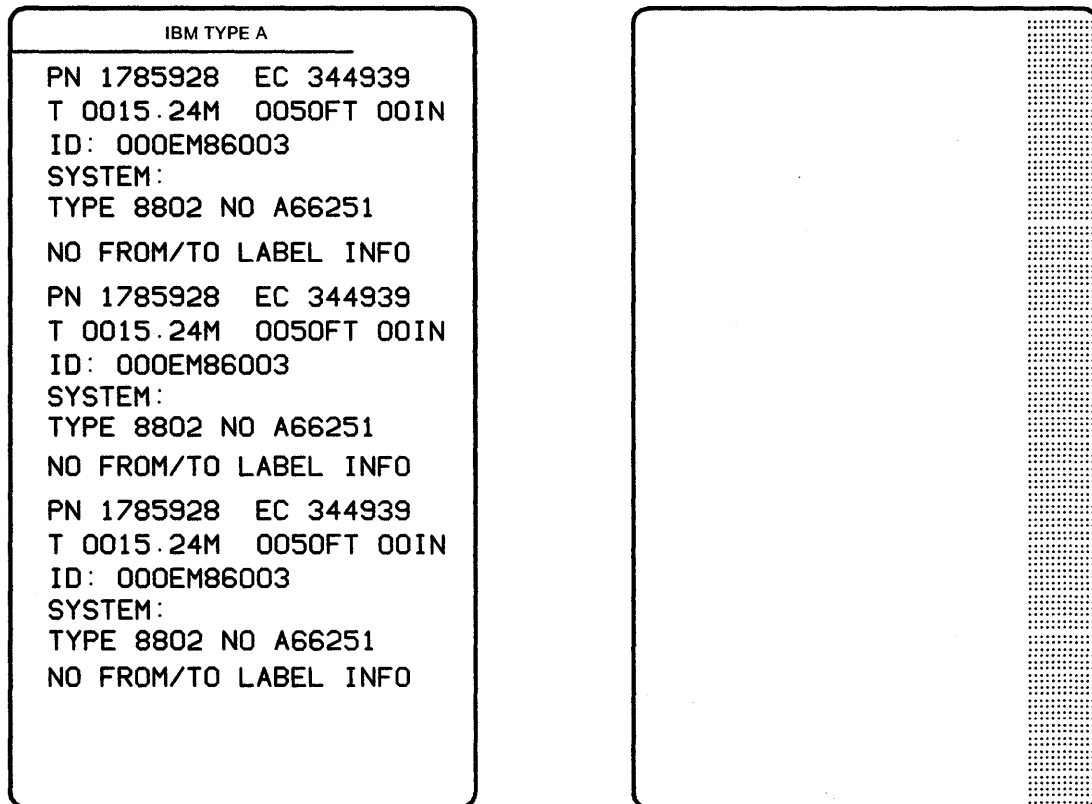


Figure 7-2. Labels Used on Cables Ordered by Part Number

How to Label Your Cables

Before starting 3720 and 3721 setup, you should label all LIC and console cables for easy identification when connecting or reconnecting cables.

A set of self-adhesive cable labels are located in the binder with this manual. See Figure 7-3 for an example of a cable label.



	Cable Group or P/N	_____
	Length	_____
	Destination	_____
	CC Model	_____
	LIC Type	
	Port Number	

Figure 7-3. An Example of a LIC Cable Label

On the LIC cable label, fill in the:

- Cable Group or Part Number (P/N)
- Cable Length
- Destination
- Communication Controller (CC) Model
- LIC Type
- Port Number.

Labeling LIC Cables

In order to label the LIC cables you need:

- The final Plugging Sheet(s)
- LIC and console cables
- The cable labels (from the binder)

Each LIC cable requires two identical labels, one at each end. Fill in the information required on the cable label, using the Plugging Sheet. Make sure that the two labels are identical. Then, for each pair of identical labels, find the corresponding cable, peel off the label from the label sheet and attach one label at each end of the cable, underneath the label that comes on the cable, as shown in Figure 7-4.

If you have to reconfigure, the cables must be re-labeled according to the new Setup Sheet(s) thus indicating the new positions.

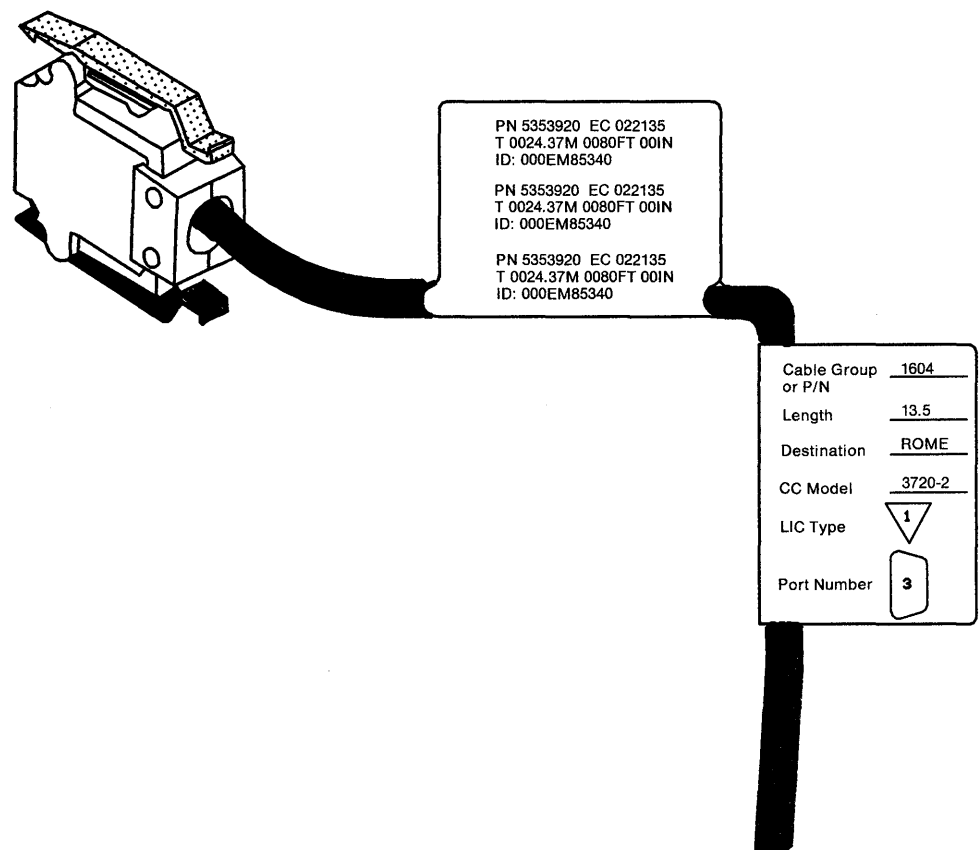


Figure 7-4. Label to be Attached to a LIC Cable

Labeling Console Cables

To label your console cables, use the same labels that are provided for the LIC cables. Get the console sheet and label your console cables by writing in either local, remote, or RFS console at the top of the label above the *Cable Group*. Complete the label with the exception of LIC Type and Port Number.

Complete two identical labels for each console cable. Then, for each pair of identical labels, find the corresponding cable, peel off the label from the label sheet and attach one label near each end of the cable underneath the label that comes on the cable, as shown in Figure 7-4 on page 7-5 for the LIC cable label.



	Cable Group or P/N	_____
	Length	_____
	Destination	_____
	CC Model	_____
	LIC Type	
	Port Number	

Figure 7-5. An Example of a Console Cable Label

On the cable label fill in the following information for the console:

- Cable Group or Part Number (P/N)
- Cable Length
- Destination
- Communication Controller (CC) Model

Also write the type of console (local, remote, or RSF) at the top of the label.

Chapter 8. Relocation

How to Plan for a Relocation

If you wish to relocate your 3720 and 3721 you will need the latest version of the *Planning and Site Preparation Guide* and the *Configuration Guide*. Check with your IBM Marketing Representative that you have the latest versions.

In addition to keeping the 3720 and 3721 planning manuals, you should keep the pallets and the ramp on which the 3720 and 3721 is delivered; you will need them to relocate the 3720 and 3721. If you have not retained the packing materials the kit can be ordered through your IBM representative.

Additional cable labels can be ordered from your IBM Marketing Representative.

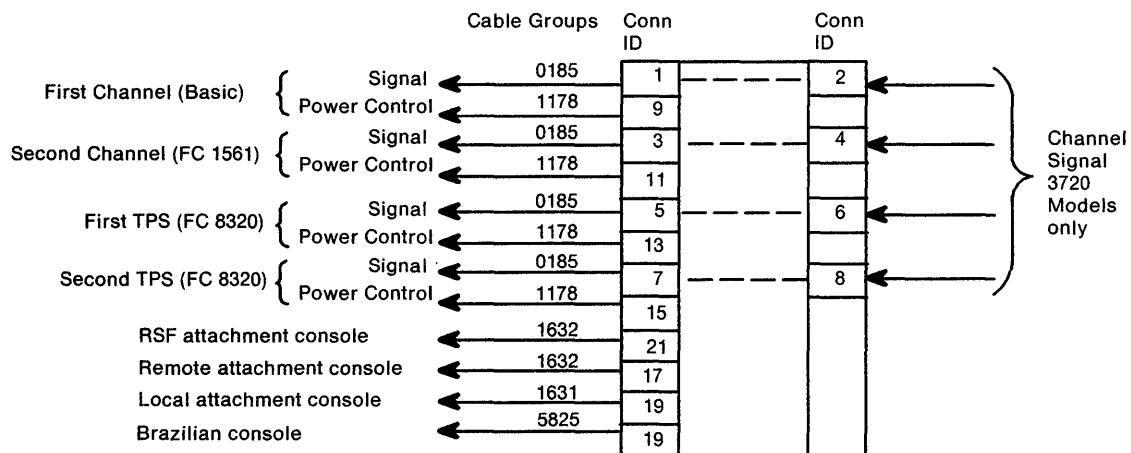
When planning a relocation of a 3720-2 and 3720-12 with or without an expansion unit schedule a relocation. The units can be rolled on to the new site with the help of at least two persons, if the machine does not have to be lifted or tilted. If the machine has to be lifted or tilted, the service of professional movers is required. Refer to the relevant *IBM 3720/21 Communication Controller Setup Instructions* and follow all the necessary relocation instructions.

When measuring new cable lengths, compare the new lengths with your previous order sheets to see if you can reuse any existing cables.

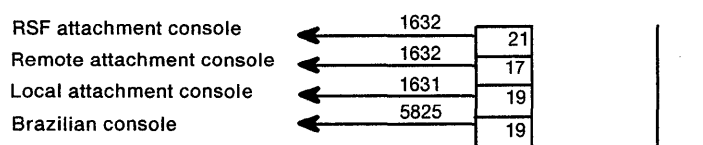
Before a relocation starts the network operator has certain procedures to follow. Refer to the Extended Services, GA33-0066.

Appendix A. Cabling Schematic

3720 Models 1 and 11



3720 Models 2 and 12



Appendix B. Country Transmission Cable Termination Requirements

The following table lists the type of connectors on the modem side of the IBM 3720/21 cables.

Connector				
	Cable	Male	No.	
Interface	Group	Female	Pins	Type
V.24/RS232C DCE all countries (except Japan, Belgium)	1604	Male	25	ISO 2110
V.24 DCE, Japan	1610	Male	25	NTT with test/operate switch
V.24 DCE, Belgium	1620	Male	25	ISO 2110
V.24/RS232C direct attachment (asynchronous)	1607	Female	25	ISO 2110
V.24/RS232C direct attachment (synchronous)	1611	Female	25	ISO 2110
V.25/RS366 autocal unit, all countries (except French Caducee, Japan, UK)	1616	Male	25	ISO 2110
V.25 autocal unit, French Caducee	1615	Female	25	ISO 2110
V.25 NTT autocal unit, Japan	1612	Male	25	NTT with test/operate switch
V.25 autocal unit, UK	1618	Male	25	ISO 2110
Wide-band DCE	1614	Male	12	MD 12 MPX
V.35 DCE all countries (except French PTT modems)	1613	Male	34	ISO/DIS 2593
V.35 DCE, French PTT modems	1619	Male	34	ISO/DIS 2593
V.35 direct attachment	1605	Female	34	ISO/DIS 2593
X.21 DCE	1606	Male	15	ISO 4903
X.21 Direct Attachment	1608	Female	15	ISO 4903
French Transmic	1609	Male	15	ISO 4903

Note: Cable groups 1617, 1618, 1619 and 1620 include the cable and the cable adapter.

Appendix C. Forms

You may make copies of all forms in this appendix.

Planning Schedule

Six Months Before Delivery

Six months before delivery of your 3720/21 is an appropriate start point. Planning time could actually be longer or shorter than six months.

Action You Do	IBM Assists	Schedule Date
Appoint an installation coordinator.		
Review this planning schedule with the installation coordinator.		
Determine the schedule dates with your installation coordinator. Fill in the agreed dates on this schedule and give him a copy.		
Obtain prerequisite and related manuals. See Appendix D for a task-oriented Bibliography.	X	
The <i>IBM 3720/21 System Integration</i> , GA33-0067 is delivered with the 3720. However, if you plan to perform system integration from a remote console, order an additional <i>System Integration</i> , GA33-0067 for the remote site.	X	
Determine your 3720/21 configuration(s). See Appendix D for a task-oriented Bibliography.		
Check the software compatibility levels needed.		
Plan where each 3720/21 is to be physically located, and make arrangements for site preparation.		
Complete a site planning worksheet.		
Complete the Plugging sheets, from the <i>IBM 3720/21 Configuration Guide</i> , GA33-0063, with cable information.		

Action You Do	IBM Assists	Schedule Date
Order the 3720/21, cables, and features.	X	
Select and order an appropriate operator console, and/or remote console modem and complete the console sheet in the <i>IBM 3720/21 Configuration Guide</i> .		
Plan necessary changes to the host hardware and complete the channel adapter sheet in the <i>IBM 3720/21 Configuration Guide</i> .		
Arrange for the installation of power receptacles and branch circuits.		
Arrange for the installation of telecommunication lines.		
Arrange for the installation of switched lines for the remote console and/or RSF, if required.		
Order modems for the remote console and/or RSF.		
Plan the required environment of the selected site.		

Three Months Before Delivery

Action You Do	IBM Assists	Schedule Date
Start site preparation.		
Start the installation of power receptacles and branch circuits.		
Start the installation of telecommunication lines and telephone for communication to a remote console and/or RSF.		
Prepare for the installation of any new software and program generation.		
Select the persons who will set up and operate the 3720/21 and integrate it into the network.		
Prepare a training program for the operation of the 3720/21.		
Select the necessary person to perform the system integration as defined in the <i>IBM 3720/21 System Integration</i> manual, GA33-0067.		

Two Months Before Delivery

Action You Do	IBM Assists	Schedule Date
Complete the installation of the power receptacles and branch circuits.		
Complete the installation of the telecommunication lines and telephone for communication to a remote console and/or RSF.		
Complete the installation of any other equipment such as ventilation and heating.		
Review your installation plan to resolve any delays in the schedule.	X	

One Month Before Delivery

Action You Do	IBM Assists	Schedule Date
Start any training you have planned.		
Complete the site preparation.		
Obtain the serial numbers for the 3720/21 from your IBM representative.	X	
Select the people who will unpack and install the 3720/21, under the direction of the installation coordinator. Professional movers are required for the 3721.		
Fill out the cable labels and attach them to the cables. Then you can start the cable installation.		
Make sure that the Setup Sheet from the <i>IBM 3720/21 Configuration Guide</i> is current and conforms to your latest 3720/21 order.		
Make sure that the console sheets and channel adapter sheets are current.		
Install any new software. Generate the control program.		
Plan for the system integration, which should immediately follow setup completion, before the units are set into operation.		

Delivery

Action You Do	IBM Assists	Schedule Date
Ensure that the people who will unpack and set up the 3720/21 are ready to accept delivery.		
Ensure that the machine and parts that were ordered have arrived, including all cables that were listed on the Setup Sheet(s).		
Ensure that there are no damaged parts, including diskettes.		
Check to see that the serial number on the shipping carton matches the serial number on the front door of the machine and on the Setup Sheet.		
A copy of the machine history, plant order, and board plugging chart are received in a plastic bag taped to the outside of the shipgroup. File these in front of the YZ pages, Volume 5.		

Action You Do	IBM Assists	Schedule Date
Ensure that the CE who sets up the 3720-1 has and uses the channel adapter sheet.		
Keep the pallet and ramp, and the <i>Unpacking/Packing Instructions</i> for future relocations.		

Setup

Action You Do	IBM Assists	Schedule Date
Ensure that the 3720/21 has been unpacked according to the appropriate <i>Unpacking/Packing Instructions</i> and placed on the site prepared accordingly.		
Ensure that the people who will set up the 3720/21 have and use the Setup Sheet(s).		
Check to see that LIC/TIC cables have been labeled at both ends and that they have been uncoiled and placed, if necessary under a raised floor.		
Contact the person responsible for system integration upon completion of setup and before the units are set into operation.		
Receive and check spare parts after setup and keep them in a safe place.		

New Communication Features

Action You Do	IBM Assists	Schedule Date
Ensure that the required cassettes and cables have arrived.		
Ensure that there is a new Setup Sheet for each unit to which new features are to be added.		
Label any new cables.		
Call the host operator and ask him to deactivate the 3720, if powered on.		
Ensure that a new control program has been generated to support these new features.		
Contact the person responsible for system integration upon completion of the addition of the new features and before the units are set into operation.		

Action You Do	IBM Assists	Schedule Date
Receive removed or unused parts after completion and keep them in a safe place.		

Relocation

When relocating , it is necessary to review all actions starting from “Six Months Before Delivery” as many of these will apply when preparing the new site. However, the time indicated may vary.

Action You Do	IBM Assists	Schedule Date
Prepare the new site; label the cables and install them.		
Call the host operator and ask him to deactivate the 3720, if powered on.		
Ensure that the network operator has performed the saving of the disk data content on the two 3720 Primary and Secondary Normal and Back Up diskettes.		
Plan the move of the 3720/21 to the new site and arrange for professional movers.		
Ensure that you have the required parts for starting relocation.		
Contact the person responsible for system integration upon completion of relocation and before the units are set into operation.		

Cable Order Worksheet No. 1

Standard Cables for All Other Countries

Feature Description	Cable Group	Standard Length m (ft.)	Quantity
Local operator console (non IBM PC)	1631	13.5 (45)	
IBM PC as local operator console (also order adapter P/N 7837400)	1631	13.5 (45)	
Remote attachment console	1632	13.5 (45)	
RSF console	1632	13.5 (45)	
Brazilian console	5825	13.5 (45)	
First channel	0185	7.5 (25)	
Power control first channel	1178	18 (60)	
First two-processor switch	0185	12 (40)	
Power control first TPS	1178	18 (60)	
Second channel	0185	7.5 (25)	
Power control second channel	1178	18 (60)	
Second two-processor switch	0185	12 (40)	
Power control second TPS	1178	18 (60)	
V.24/RS232C DCE all countries	1604	13.5 (45)	
V.24/RS232C direct attachment asynchronous	1607	13.5 (45)	
V.24/RS232C direct attachment synchronous	1611	13.5 (45)	
V.25/RS366 autocall unit, all countries	1616	13.5 (45)	
Wideband DCE	1614	13.5 (45)	
V.35 DCE	1613	13.5 (45)	
V.35 direct attachment	1605	13.5 (45)	
X.21 DCE (LIC 4A or 4B)	1606	13.5 (45)	
X.21 direct attachment (LIC 4A or 4B)	1608	30 (100)	
IBM Token-ring attachment	1666	21.5 (70)	

Figure C-1. Cable Order Worksheet No. 1

Cable Order Worksheet No. 2

Custom-Length Cables Shorter than the Standard Length All Countries

Feature Description	Conn ID	Cable Group	Length	Quantity
Local operator console (non IBM PC)	19	1626		
IBM PC as local operator console	19	1633		
Remote attachment console	17	1629		
RSF console	21	1629		
Brazilian console	19	5824		
First channel	1	0185		
Power control first channel	9	1178		
First two-processor switch	5	0185		
Power control first TPS	13	1178		
Second channel	3	0185		
Power control second channel	11	1178		
Second two-processor switch	7	0185		
Power control second TPS	15	1178		
V.24/RS232C DCE all countries (except Japan, Belgium)		1628		
V.24 DCE, Japan		1621		
V.24 DCE, Belgium		1620		
V.24/RS232C direct attachment asynchronous		1612		
V.24/RS232C direct attachment synchronous		1627		
V.25/RS366 autocal unit, all countries (except French Caducee, Japan, UK)		1610		
V.25 autocal unit, French Caducee		1622		
V.25 NTT autocal unit, Japan		1634		
V.25 autocal unit, UK		1635		
Wideband DCE		1615		
V.35 DCE (except French PTT modems)		1618		
V.35 DCE, French PTT		1619		
V.35 direct attachment		1623		
V.35 direct attachment France		1623F		
X.21 DCE (except French Transmic) (LIC 4A or 4B)		1624		

Figure C-2 (Part 1 of 2). Cable Order Worksheet No. 2

Feature Description	Conn ID	Cable Group	Length	Quantity
X.21 direct attachment (LIC 4A or 4B)		1625		
X.21 DCE, French Transmic		1609		
IBM Token-ring attachment		1667		

Figure C-2 (Part 2 of 2). Cable Order Worksheet No. 2

Cable Order Worksheet No. 3

Custom Length Cables Longer than the Standard Length All Countries

Feature Description	Part Number (Up to Max. Length of)	Length	Quantity
Local operator console (non IBM PC)	6398736 (150m 492ft.)		
IBM PC as local operator console	6398859 (150m 492ft.)		
Remote attachment console	7837399 (35m 115ft.)		
RSF console	7837399 (35m 115ft.)		
Brazilian console	6124914 (150m 492ft.)		
First channel	6460185 (61m 200ft.)		
Power control first channel	5351178 (45m 150ft.)		
First two-processor switch	6460185 (61m 200ft.)		
Power control first TPS	5351178 (45m 150ft.)		
Second channel	6460185 (61m 200ft.)		
Power control second channel	5351178 (45m 150ft.)		
Second two-processor switch	6460185 (61m 200ft.)		
Power control second TPS	5351178 (45m 150ft.)		
V.24/RS232C DCE, all countries (except Japan, Belgium)	6398785 (100m 328ft.)		
V.24 DCE, Japan	6398782 (100m 328ft.)		
V.24 DCE, Belgium	6398780 (100m 328ft.)		
V.24/RS232C direct attachment asynchronous	7837398 (150m 492ft.)		
V.24/RS232C direct attachment synchronous	7837396 (150m 492ft.)		
V.25/RS366 autocal unit, all countries (except French Caducee, Japan, UK)	6398788 (35m 115ft.)		
V.25 autocal unit, French Caducee	6398783 (35m 115ft.)		
V.25 NTT autocal unit, Japan	6398786 (35m 115ft.)		
V.25 autocal unit, UK	6398787 (35m 115ft.)		
V.35 DCE (except French PTT modems)	6398665 (100m 328ft.)		
V.35 DCE, French PTT	6398789 (35m 115ft.)		
V.35 direct attachment	6398657 (150m 492ft.)		
V.35 direct attachment France	65X9900 (150m 492ft.)		
X.21 DCE (LIC 4A or 4B)	6398658 (150m 492ft.)		
X.21 direct attachment (LIC 4A or 4B)	6398660 (600m 1969ft.)		

Figure C-3 (Part 1 of 2). Cable Order Worksheet No. 3

Feature Description	Part Number (Up to Max. Length of)	Length	Quantity
X.21 DCE, French Transmic	6398661 (150m 492ft.)		
IBM Token-ring attachment	61X3229 (44.2m 145ft.)		

Figure C-3 (Part 2 of 2). Cable Order Worksheet No. 3

Appendix D. Task-Oriented Bibliography

Changes to the text have not been indicated below. For changes, refer to a particular publication.

Tasks to Be Performed: Before Installation

<p>Network Definition</p> <p>Define the place of a 3720/3721 in the network.</p> <hr/>	<p><i>3720/3721 Communication Controllers, Introduction, GA33-0060</i></p>
<p>Software Environment Definition</p> <p>Define needs for IBM host-resident and controller-resident programs.</p>	
<p>Configuration</p> <p>Prepare the order for one or more 3720/3721s with their configurable features, with respect to the traffic load involved. The configuration task is based on filling in sets of worksheets. The Setup Sheet is used at installation or customer setup time to plug in the cables, and remains with the controller. Other worksheets are used for system integration.</p>	<p><i>3720/3721 Communication Controllers, Configuration Guide, GA33-0063</i></p>
<p>Planning and Site Preparation</p> <p>Prepare for physical installation by planning the site environment, including power requirements.</p> <p>Prepare for physical installation of telephone, modem, and cables for remote console and remote support facility (RSF).</p> <p>Order cables and prepare cable identification labels for setup.</p>	<p><i>3720/3721 Communication Controllers, Planning and Site Preparation Guide, GA33-0061</i></p> <p><i>IBM Token-Ring Network Introduction and Planning Guide, GA27-3677</i></p>

<p>Connection of non-IBM Equipment</p> <p>Evaluate IBM interfaces for connection of non-IBM equipment.</p>	<p><i>3720/3721 Communication Controllers, Original Equipment Manufacturer's Information, GA33-0068</i></p>
<p>Program Customization</p> <p>Prepare user's application programs. Adapt existing programs.</p>	<p><i>3725 and 3720/3721 Communication Controllers, Principles of Operation, GA33-0013</i></p>

Tasks to Be Performed: During Installation

<p>3720 Models 2 or 12, 3721 Models 1 or 2 Setup Instructions*</p> <p>Set up a 3720 Model 2 or 12 and/or a 3721 Model 1 or 2 and the cables.</p> <p>Perform the checkout (including power on, program loading, diagnostics).</p> <p>Requires Setup Sheets prepared with the <i>3720/3721 Configuration Guide</i> and cables pre-identified with labels prepared with the <i>3720/3721 Planning and Site Preparation Guide</i>.</p> <hr/> <p>3720/3721 Modification</p> <p>Remove and/or install communication features.</p> <hr/> <p>3720/3721 Relocation</p> <p>Relocation of 3720 Model 2 or 12 and 3721 Model 1 or 2</p>	<p><i>3720/3721 Communication Controllers, 3720 Model 1 Feature Addition Instructions, GA33-0110 (can also be ordered as GK2T-0280)**.</i></p> <p><i>3720/3721 Communication Controllers, 3720 Model 11 Feature Addition Instructions, GA33-0111 (can also be ordered as GK2T-0281)**.</i></p> <p><i>3720/3721 Communication Controllers, 3720 Model 2 Setup Instructions, GA33-0112 (can also be ordered as GK2T-0282)**.</i></p> <p><i>3720/3721 Communication Controllers, 3720 Model 12 Setup Instructions, GA33-0113 (can also be ordered as GK2T-0283)**.</i></p> <p><i>3720/3721 Communication Controllers, 3721 Models 1 and 2 Setup Instructions, GA33-0114</i></p>
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* The 3720 Models 1 and 11 will be installed by IBM personnel.

** Kit also includes GA33-0067.

Tasks to Be Performed: At Integration into the Network

<p>Connect Attached Equipment</p> <p>Connect operator console(s) and RSF IBM terminals</p> <p>Requires Console Sheet prepared with the <i>3720/3721 Configuration Guide</i></p> <hr/>	
<p>3720/3721 Customization</p> <p>Update files, such as:</p> <ul style="list-style-type: none">PasswordsLine speedsLink IPL portLIC weights <p>Save disk contents on backup diskettes. Requires Link IPL, Requirements, and Plugging Sheets prepared with the <i>3720/3721 Configuration Guide</i>.</p> <hr/>	<p><i>3720/3721 Communication Controllers, System Integration, GA33-0067*</i></p> <p>(A copy of this manual should be available at each console)</p>
<p>Initialization</p> <p>Initialize 3720/3721.</p>	

* Is also included in the following kits:

GK2T-0280
GK2T-0281
GK2T-0282
GK2T-0283

Tasks to Be Performed: During Operation

<p>Daily Operation</p> <p>Run everyday applications.</p>	<p>3720/3721 <i>Communication Controllers, Operator's Guide</i> GA33-0065 (can be ordered as SK2T-0277)*</p>
<p>Problem Determination</p> <p>Use:</p> <ul style="list-style-type: none"> ● Procedures ● Panel hexadecimal codes ● Alarms, alerts, and NetView messages 	<p>3720/3721 <i>Communication Controllers, Problem Determination Guide</i> GA33-0086 (can be ordered as SK2T-0277)*</p> <p><i>IBM Token-Ring Network Problem Determination Guide,</i> SY27-0280 (can be ordered as SX27-3710)*.</p> <p>(A copy of each of these manuals should be available at each console)</p>
<p>Function Management</p> <p>Manage MOSS functions</p>	<p>3720/3721 <i>Communication Controllers, Extended Services</i> GA33-0066 (must be ordered as SK2T-0278)**</p> <p>(A copy of this manual should be available at each console)</p>

* SK2T-0277 includes GA33-0065 and GA33-0086 in a common binder.

** SK2T-0278 includes GA33-0066 and binder.

Tasks to Be Performed: IBM Maintenance

IBM Maintenance Maintenance performed by IBM service personnel.	<i>3720/3721 Communication Controllers:</i> <i>3720 Models 1 and 2/3721 Maintenance Information Procedures (MIP), SY33-2050 (can also be ordered as SK2T-0271)</i> <i>Maintenance Information Reference, SY33-2040 (must be ordered as SK2T-0272)</i> <i>Quick Reference Summary, SY33-2058 (must be ordered as SK2T-0272)</i> <i>Service Guide, SY33-2039 (must be ordered as SK2T-0273)</i> <i>Diagnostic Descriptions, SY33-2042</i> <i>Parts Catalog, S135-2009 (can also be ordered as SK2T-0275)</i> <i>Parts Catalog, S135-2009 plus 3720 Models 1 and 11 Installation Manual, SY33-2053 (can also be ordered as SK2T-0274).</i> <i>Machine Diagrams (YZ pages), part numbered</i>
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List of Abbreviations

AWG	American Wire Gauge	LIC	Line Interface Coupler
CA	Channel Adapter	MLC	Machine Level Control
CCITT	Consultant Committee of International Telephone & Telegraph	MOSS	Maintenance and Operator Subsystem
CCU	Central Control Unit	N/A	not applicable
conn	connector	NTT	Nippon Telephone and Telegraph
CP	Communication Processor	PC	IBM Personal Computer 5150, 5160, or 5550
CSA	Canadian Standards Association	PTT	Postal Telephone and Telegraph
DCE	Data Circuit-Terminating Equipment (modem, for example)	RSF	Remote Support Facility
DTE	Data Terminal Equipment	TPS	two-processor switch
FCC	Federal Communications Commission	UL	Underwriters Laboratory
ID	identification	X.21	CCITT recommendation on transmission interface
ISO	International Organization for Standards	X.25	CCITT recommendation on transmission interface
I/O	input/output		

Glossary

This glossary includes terms and definitions from the *IBM Vocabulary for Data Processing, Telecommunications, and Office Systems* manual, GC20-1699.

asynchronous transmission. Transmission in which each character is individually synchronized, usually by the use of start and stop elements. The start-stop link protocol, for example, uses asynchronous transmission. (Contrast with "synchronous transmission").

channel. A device that connects the processing unit and main storage with the I/O control units.

channel adapter (CA). A communication controller hardware unit used to attach the controller to a Host System channel.

communication common carrier. In the USA, a government regulated private company that furnishes the general public with telecommunication service facilities; for example, a telephone or telegraph company.

communication controller (CC). A type of communication control unit whose operations are controlled by a program stored and executed in the unit. Examples are the IBM 370X and the 3720/21.

data circuit-terminating equipment (DCE). The functional unit of a data station that establishes, maintains, and releases a connection and provides those functions necessary for any code or signal conversion between the data terminal equipment and the data transmission line.

data terminal equipment (DTE). A functional unit that serves as a data source or a data sink and provides for the communication control in accordance with a link protocol. The DTE may include a data circuit-terminating equipment.

duplex. In data communication, pertaining to a simultaneous two-way independent transmission in both directions. (Contrast with "half-duplex"; synonymous with "full-duplex").

Federal Communication Commission (FCC). A board of seven commissioners appointed by the President under the Communications Act of 1934, having the power to regulate all interstate and foreign electrical communication systems originating in the United States.

full duplex. (See "Duplex").

half duplex. In data communication, pertaining to an alternate, one way at a time, independent transmission.

host system. A data processing system connected to and communicating with a data communication network through the controller.

interface. A shared boundary. An interface might be a hardware component to link two devices or it might be a portion of storage or registers accessed by two or more computer programs. See in the IBM data processing glossary, data transmission interface.

line interface coupler (LIC). In the 3720/21, a circuit that attaches up to four communication interface cables to the controller. The line interface coupler achieves the DTE function.

local operator console. Operator console attached to the 3720 with a cable of up to 150 meters (492 feet) long.

modem. Contraction of modulator-demodulator. A device that modulates and demodulates signals transmitted over data communication facilities.

network. Is used in at least two ways: 1. A public network is established and operated by carriers for the specific purpose of providing circuit switched, packed switched and leased circuit services to the public. 2. A user application (data processing) network is a configuration of data processing products, such as processors, controllers and terminals, for the purpose of data processing and information exchange which may use services (circuit switched, packed switched, and leased circuit) provided by carriers. This type of network is often called a private network or private user network.

operator console. The IBM 3161 model 11 or 12 running in 3101 mode, the IBM Personal Computer 5150, 5160, or

5550 running the IBM 3101 Emulation Program 6024-042, and the IBM 3163 model 11 or 12 running in 3101 mode. The operator console may be local or distant.

personal computer. The IBM Personal Computer 5150, 5160, or 5550 running the IBM 3101 Emulation Program 6024-042 and used as an operator console.

remote terminal. A terminal attached to a system through a data link. 2. In telephony, a terminal attached through a trunk or tie line.

service clearance. Minimum space required to allow working room for the machine operator and/or the customer engineer for servicing the unit.

terminal. Any device capable of sending and/or receiving information over a communication channel.

token-ring network. The IBM Token-Ring Network is a high-speed communication network for interconnecting processing equipment at a local site. Network attaching devices are cabled one to another through a network access unit to form a logical ring configuration. Access to the shared ring is controlled by a token (a special signal circulating on the ring). Each attaching device regenerates the signal as information is passed around the ring.

transmission. The electrical transfer of a signal, message, or other form of intelligence from one location to another.

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