AS/400™

GA21-9913-0

Planning Guide — 9406

Overview of AS/400[1] Planning and Installation Guides

The manuals you need to help plan for and install your AS/400 system are listed below. The manuals are listed in the column on the left. In the right column you will find some of the tasks contained in each manual to assist you in choosing the planning and installation guides that best meet your needs.

Introduction	**General Information** Licensed Programs Devices Migration Aids
Migrating from System/36 Planning Guide **or** **Migrating from System/38 Planning Guide**	**Migration Planning** Application Programs User Files
Planning Guide - 9404 **or** You are here ⟶ **Planning Guide - 9406**	**AS/400 Pre-Installation Planning** Local Devices 5294, 5394 and 5251-12 Remote Controllers Electronic Customer Support
Data Communications Planning Guide	**Communications Planning** SDLC, Asynchronous Communications, BSC X.25 Network Token-Ring Networks Finance Remote Controllers 3174 and 3274 Remote Controllers Communications Controllers
Installation Guide - 9404 **or** **Installation Guide - 9406**	**Hardware Installation** Your service representative installs system hardware.
Licensed Programs Installation Guide	**System Installation** Operating System Licensed Programs Add Secondary Language Change Primary Language
Attaching Work Station and Communications Cables	**Attaching Cables** IBM 9404 and IBM 9406 Twinaxial and ASCII IBM Cabling System Telephone Twisted-Pair Communications Token-Ring Networks
Device Configuration Guide	**Device Configuration** Automatic Configuration Local Devices 5294, 5394, and 5251-12 Remote Controllers Electronic Customer Support
Communications: User's Guide	**Communications Configuration** SDLC, Asynchronous Communications, BSC X.25 Network Twinaxial Data Link Control Token-Ring Networks Finance Remote Controllers 3174 and 3274 Remote Controllers Communications Controllers

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Changes are periodically made to the information herein; any such changes will be included in new editions of this publication.

This publication is for planning purposes only. The information herein is subject to change before the products described become available.

This publication contains examples of data and reports used in daily business operations. To illustrate them as completely as possible, the examples include the names of individuals, companies, brands, and products. All of these names are fictitious and any similarity to the names and addresses used by an actual business enterprise is entirely coincidental.

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Federal Communications Commission (FCC) Statement

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

Compliance with the limits for a Class A computing device pursuant to Subpart J of Part 15 of FCC rules is ensured only when this device is installed in an IBM 9309 Rack Enclosure or equivalent.

Japanese Voluntary Control Council for Interference (VCCI) Statement

This equipment is Class 1 Equipment (information equipment to be used in commercial and industrial districts) which is in conformance with the standard set by Voluntary Control for Interference by Data Processing Equipment and Electronic Office Machines (VCCI) with an aim to prevent radio interference in commercial and industrial districts.

This equipment could cause interference to radio and television receivers when used in and around residential districts.

Please handle the equipment properly according to the instruction manual.

DANGER

An electrical outlet that is not correctly wired could place hazardous voltage on metal parts of the system or the products that attach to the system. It is the customer's responsibility to ensure that the outlet is correctly wired and grounded to prevent an electrical shock.

1. **When installing the system, before installing signal cables, ensure that the power cords for all devices are unplugged.**
2. **When adding any additional devices to the system, ensure that the power cords for those devices are unplugged before the signal cables are connected. If possible, disconnect all power cords from the existing system before you add a device.**

DANGER

During an electrical storm, do not connect cables or station protectors for communications lines, display stations, printers, or telephones.

DANGER

Use one hand, when possible, to connect or disconnect signal cables to prevent a possible shock from touching two surfaces with different electrical grounds.

List of Contacts

This is a list of contacts that you will need, or may need, to work with as you plan for your system. Work with your marketing representative to list this information and keep it current.

Contact	Name	Phone Number or Electronic Support
Marketing representative		
Systems Engineer *or* technical support contact		
Marketing Assistance Program		
IBM National Service Division (for equipment service)		toll-free
(for programs service)		toll-free
IBM DIRECT (United States only) (for supplies, class enrollment, and educational information)		toll-free
IBM Marketing Support Center (free for a period of time after installation of new systems shipped from IBM) *or* National Marketing Technical Support Center		electronic support (in some countries)
Customer Center (for local seminar/training information)		
Guided Learning Center (for local seminar/training information)		
Common Carrier (if you have data communications, this is usually a telephone company)		

Contact	Name	Phone Number or Electronic Support
Electrician		
Cable Manufacturer		
Personal Computer contacts		
Applications Assistance		

Where to Start

After you order your system, you will need some or all of the following manuals to plan to install your system. Read down the list. If the information in a sentence applies to you, you need the information that follows the sentence. Your marketing representative should give you the manuals you need depending on your specific situation.

You will always need the following manual:

System Planning Guide

Includes information on:
- Local devices
- 5251-12, 5294, and 5394 remote controllers
- Electronic customer support

RSLC181-9

If you are migrating from System/36 or System/38, use one of the following manuals:

Migrating from System/36 Planning Guide

OR

Migrating from System/38 Planning Guide

RSLC184-5

If you are using data communications in addition to local and/or remote work stations or in addition to electronic customer support which IBM provides with your system, use the following manual:

Data Communications Planning Guide

Includes information on:
- SDLC, Asynchronous, BSC
- X.25 network
- Token-Ring network
- Finance remote controllers
- 3174 and 3274 remote controllers
- Communications controllers

RSLC182-7

If you are upgrading your system, use the following manual:

System Upgrade Planning Guide

RSLC190-2

About This Guide

Who Should Use This Guide

This planning guide is for the system manager or for the person responsible for planning to install the AS/400 system, work stations, and other devices that attach to the system.

What You Should Know

You should use the forms in Appendix F as you use this manual.

Read and understand all the instructions for a task before you begin. Although some of the tasks are informational, others expect you to accomplish something specific, such as draw a floor plan.

If you are planning for a new system without migrating from a System/36 or System/38, planning for a system with electronic customer support, or planning to use 5251-12, 5294, or 5394 remote controllers, this is the only planning manual you will need to plan for having your system installed.

If you are migrating from a System/36 or System/38, the *Migrating from System/36 Planning Guide*, GC21-9623, or the *Migrating from System/38 Planning Guide*, GC21-9624, directs you into this manual when necessary. Use the appropriate migrating manual for your situation.

To plan for a communications line attached to another system, to a Finance controller, or to a 3174 or 3274 Controller, refer to the *Data Communications Planning Guide*, GA21-9902 (after you have read Chapter 5 and Chapter 6 in this manual).

This manual may refer to products that are announced, but are not yet available. Such information is for planning purposes only and is subject to change before general availability.

How This Guide Is Organized

The information in this guide is task-oriented. Refer to "Task 1.3 Reviewing the System Planning Checklist" on page 1-4 to preview and track the tasks you need to do.

This manual discusses the following:

- Chapter 1: General planning activities and how to use the planning information.
- Chapter 2: Considerations when planning a place for your system.
- Chapter 3: Cabling considerations for installing your system.
- Chapter 4: Considerations for electronic customer support which IBM provides with your system.
- Chapter 5: Planning information for installing licensed programs.

- Chapter 6: Considerations for device configuration which include local and remote work station controllers (5294-1, K01, S01; 5394-1, 2; and 5251-12), devices, modems, and SDLC or X.25 communications lines attached to the remote work station controllers.
- Chapter 7: Final planning considerations.

Refer to the glossary to find the meaning of unfamiliar words and terms.

Related Printed Information

You may want to read or have access to the following manuals before using this guide, although it is not necessary to read these manuals to complete the planning tasks. You can order these manuals through your marketing representative. (Some manuals are free while others can be purchased.)

- For information about all the manuals in the AS/400 library, refer to the *Information Directory*, GC21-9678, which identifies the publications shipped with the product and the publications that can be ordered.
- For information about planning for local work stations, refer to the following:
  - *IBM 5250 Information Display System Planning and Site Preparation Guide* GA21-9337.
  - *IBM 5208 ASCII-5250 Link Protocol Converter User's Guide*, SA21-9870.
  - *IBM 5209 3270-5250 Link Protocol Converter User's Guide*, SA21-9869.
  - *IBM 5299 Terminal Multiconnector Model 3 Planning, Setup, and Maintenance Guide*, GA27-3749.
- For information about planning for remote work stations, refer to the following:
  - *IBM 5250 Information Display System Planning and Site Preparation Guide* GA21-9337.
  - *IBM 3270 IDS Installation Manual—Physical Planning*, GA27-2787.
  - *IBM 5208 ASCII-5250 Link Protocol Converter User's Guide*, SA21-9870.
  - *IBM 5209 3270-5250 Link Protocol Converter User's Guide*, SA21-9869.
  - *IBM 5299 Terminal Multiconnector Model 3 Planning, Installation, and Problem Analysis Guide*, GA27-3749.
  - *IBM 5394-1, 2 Introduction and Installation Planning Guide*, GA27-3804.
- For information about personal computer system units, display stations, and printers, refer to *A Guide to the IBM Personal Computer*, GC20-8210.
- For information about education available for the AS/400 system, order the *AS/400 Education Curriculum Planning Guide*, GR20-5047, from your IBM representative.
- If you have special forms requirements for your printer, order *Form Design Reference Guide for Printers*, GA24-3488.
- For information on selecting and installing an uninterruptible power supply for your system, refer to *Uninterruptible Power Supply Planning Manual*, GA34-0316.
- For information about the IBM Cabling System, refer to *IBM Cabling System Planning and Installation Guide*, GA27-3361, to *IBM Cabling System Catalog*, G570-2040, or to *Using the IBM Cabling System with Communications Products*, GA27-3620.

- For information about the IBM 5299 Terminal Multiconnector Model 3, refer to the *IBM 5299 Terminal Multiconnector Model 3 Planning, Setup, and Maintenance Guide*, GA27-3749.
- For more information about twinaxial cabling, refer to *IBM 5250 Information Display System Planning and Site Preparation Guide*, GA21-9337.
- For information about communications line requirements and planning information for modems, refer to the following:
  - *IBM 3863, 3864, and 3865 Introduction and Site Preparation Guide*, GA27-3200.
  - *IBM 3833 and 3834 Modems, Planning, and Site Preparation Guide*, GA33-0030.
  - *IBM 5810 Enclosure, 5811-10 and 5811-18 Modems, Planning, and Site Preparation Guide*, GA33-0033.
  - *IBM 5811/5812 Modems Description and Planning Guide*, GA33-0081.
  - *IBM 5841 Guide to Operations*, GA27-3649.
  - *IBM 5842 Guide to Operations*, GA27-3738/PN6164836.
  - *IBM 5853 Guide to Operations*, GA27-3799/PN6164937.
  - *IBM 5865 and 5866 Modems, Planning, and Site Preparation Guide*, GA33-0037.
  - *IBM 5868 Modem Models 51 and 61 Maintenance Information and Parts Catalog*, SY33-2033.
- For CBX device specifications, refer to *CBX 8000 Installation Manual*, 30041.
- For information about maximum power requirements for the 9309 Rack, refer to the *IBM System/38 Installation Manual—Physical Planning*, GA21-9293.

You may want to read or have access to the following manuals after your system arrives, although it is not necessary to read these manuals to complete the planning tasks.

- If you want to assign a security level to information stored on your system or plan for data security, refer to *Programming: Security Concepts and Planning*, SC21-8083.
- For information on locking the control panel of your system unit with a keylock, refer to the *System Operations: Operator's Guide*, SC21-8082.
- If you want to change your system, refer to the *System Upgrade Planning Guide – 9406*, GA21-9897.
- To better understand the communications support offered with the AS/400 system, refer to the *Communications: User's Guide*, SC21-9601.
- To understand the communications support involving a local area network (for example, an IBM Token-Ring Network), refer to one or more of the following manuals:
  - *IBM Token-Ring Network Introduction and Planning Guide*, GA27-3677.
  - *IBM Token-Ring Network Installation Guide*, GA27-3678.
  - *IBM Token-Ring Network Administrator's Guide*, GA27-3748.
  - *IBM Token-Ring Network Problem Determination Guide and Planning Documents*, SY27-0280.
  - *IBM Token-Ring Network Guide to Small Networks*, SK2T-0300.
  - *IBM Token-Ring Network Telephone Twisted-Pair Media Guide*, GA27-3714.
- Information about labeling communications cables is in the manual *Attaching Work Station and Communications Cables*, SA21-9957.

Contents

Chapter 1. General Planning Tasks

The AS/400[1] system is a data processing system and word processing system that can be installed as soon as it arrives. With this system, you can quickly respond to changes in your business by adding, removing, or relocating system devices to match your business needs. Before your system arrives, you need to do some planning tasks.

You will need the System Information Form, Form A1, to do the tasks in this chapter. Form A1 is found in Appendix F.

The following task overview shows the planning tasks in this chapter. Tasks in **bold** print **should** be completed; the other tasks are optional. Check off the boxes in "Task 1.3 Reviewing the System Planning Checklist" on page 1-4 as you complete each task.

TASK OVERVIEW

Task 1.1 Understanding the Purpose of System Planning

What Is System Planning?

System planning is a decision-making process on how to plan for installing your new system. You will make decisions about where to put your devices, who will operate the system, and so on.

Why is system planning important? A good plan ensures that equipment and materials are on hand and ready to use the minute the system arrives. You avoid confusion and last minute surprises if you decide to follow a plan soon after you order your system. The time required for planning depends on many things, such as the size of the system and the number of work stations.

The key to planning is to track every aspect of installing your system. There are several forms in Appendix E that you will be filling out to keep track of information required to install your system.

[1] AS/400 is a trademark of the International Business Machines Corporation.

If You Need Help

You can always contact your marketing or service representative for help with planning. In the United States and Canada, you can also consult a customer center. Customer centers are located throughout the United States and Canada and offer a wide range of services to help you:

- Understand what you can expect from equipment suppliers
- Plan your education
- Plan to install your system
- Make good use of your system
- Increase your data processing productivity

In the United States and Canada, IBM systems are available at IBM Customer Centers for you to use when writing and testing your own application programs. Call your marketing representative for information on education, newsletters, and the cost of available IBM support services.

Start Here

STEP 1: Refer to "List of Contacts" on page v. This will be a very handy reference for you; keep it by your telephone or in a place that is easy to look at. Work with your marketing representative to list this information. You may need to update it periodically.

STEP 2: Refer to "Where to Start" on page vii for an overview of the planning manuals. This will help you decide which manuals you need to do your planning.

STEP 3: Refer to "Overview of AS/400 Planning and Installation Guides" at the front of this manual for an overview of the planning and installation manuals and some general information about each manual. This will help you decide which manuals you should refer to after you finish planning for your system.

Task 1.2 Planning a Schedule

You should plan a schedule so each task is done correctly, in the right order, and on time. Because several tasks may need to be done at the same time, possibly by different groups of people, a planning task may be overlooked. To help prevent this, there is a checklist for you to follow in Task 1.3.

A good schedule ensures that the necessary materials are on hand at each stage of planning and that all affected employees are ready to use the new equipment when it arrives. A good schedule is easily understood and should be kept up-to-date throughout the planning cycle.

To help you get started on your planning activities, you may want to track the following information:

- Planning tasks (see Task 1.3 for a list of tasks)
- Responsible person (the name or initials of the person responsible for each task)
- Estimated time (how long you think it will take the responsible person to complete each task)
- Planned and actual completion dates (when you want to complete the task and when the task was actually completed)
- Schedule
- Delivery date

The time it takes to complete each task will vary depending on your situation.

Task 1.3 Reviewing the System Planning Checklist

Tear out this checklist and use it as you complete each task. We recommend that you do the following specific tasks as soon as possible after you order your system because of critical timing considerations:

1. Tasks 1.5, 2.1, 3.1, 3.2, and 3.3

   Make sure the system will fit in your current office space. Also make sure your cabling scheme will support your system and office space.

2. Tasks 2.3 and 2.6

   Know what electrical outlets your system and devices require. Make sure your office space has the needed wiring for the outlets. Add up the British thermal unit (Btu) output of your system and check if your office space can accommodate the total heat output.

3. Tasks 4.2 and 6.6 (and tasks in the *Data Communications Planning Guide* if needed)

   Order your communications line and any other needed communications equipment from a common carrier. It takes time to receive the equipment.

System Planning Checklist

This planning checklist provides a convenient way for you to review the tasks you need to complete before your system can be installed and the programs loaded. To avoid any last minute surprises when your system arrives, review this checklist.

You may want to store it in Appendix F with your forms after you have completed it. Tasks that should be completed before you can have your system installed are in **bold** print.

Check off tasks as you complete them.

- ☐ "Task 1.1 Understanding the Purpose of System Planning" on page 1-1.
- ☐ "Task 1.2 Planning a Schedule" on page 1-3.
- ☐ "Task 1.3 Reviewing the System Planning Checklist" on page 1-4.
- ☐ **"Task 1.4 Developing an Education Plan" on page 1-6 .**
- ☐ **"Task 1.5 Completing the System Information Form" on page 1-8 .**
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- ☐ **"Task 2.2 Considering System and Device Specifications" on page 2-4 .**
- ☐ **"Task 2.3 Reviewing Rack and Device Plan Views" on page 2-5 .**
- ☐ **"Task 2.4 Considering Temperature and Humidity Limits" on page 2-12 .**
- ☐ **"Task 2.5 Considering Product Noise Levels" on page 2-12 .**

- ☐ **"Task 2.6 Reviewing Power, Plug, Receptacle, and Power Cord Specifications" on page 2-12 .**
- ☐ **"Task 2.7 Planning for Electrical Power" on page 2-13 .**
- ☐ "Task 2.8 Planning Security" on page 2-15.
- ☐ **"Task 3.1 Drawing Your Local Floor Plan" on page 3-1 .**
- ☐ **"Task 3.2 Adding the Plan Views" on page 3-2 .**
- ☐ **"Task 3.3 Planning the Cable Requirements" on page 3-5 .**
- ☐ **"Task 3.4 Determining Work Station Addresses" on page 3-14 .**
- ☐ **"Task 3.5 Completing the Local Work Station Diagrams" on page 3-17 .**
- ☐ **"Task 3.6 Completing the Local Twinaxial Work Station Controller Index" on page 3-23 .**
- ☐ "Task 3.7 Drawing Your Remote Floor Plan" on page 3-24.
- ☐ "Task 3.8 Adding the Plan Views" on page 3-24.
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- ☐ **"Task 5.1 Recording Optional Items" on page 5-2 .**
- ☐ **"Task 5.2 Recording Licensed Programs Ordered" on page 5-4 .**
- ☐ **"Task 5.3 Determining the Disk Space Available" on page 5-7 .**
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- ☐ **"Task 6.1 Learning about Local Device Configuration" on page 6-3 .**
- ☐ **"Task 6.2 Learning about Automatic Configuration" on page 6-4 .**
- ☐ **"Task 6.3 Gathering the Local Configuration Information" on page 6-5 .**
- ☐ **"Task 6.4 Completing the Diskette Unit and Tape Unit Diagram" on page 6-12 .**
- ☐ "Task 6.5 Learning about Remote Device Configuration" on page 6-14.
- ☐ "Task 6.6 Preparing for Your Communications Line" on page 6-15.
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- ☐ **"Task 7.1 Preparing the Work Station Cable Labels" on page 7-1 .**
- ☐ **"Task 7.2 Reviewing Considerations for Installing Cables" on page 7-5 .**
- ☐ **"Task 7.3 Labeling the Cables" on page 7-6 .**
- ☐ "Task 7.4 Arranging for System Delivery and Setup" on page 7-8.
- ☐ "Task 7.5 Reviewing Considerations for Moving Your System" on page 7-9.

☐ "Task 7.6 Reviewing Unpacking Considerations" on page 7-9.

One mistake on a planning form can create problems later when the system is installed. Verify that all the planning forms are complete and correct. In the United States and Canada, consider asking someone at a customer center to review your forms.

If you have completed all of the required planning tasks and the system has arrived, you are ready for the service representative to install your new AS/400 system.

Task 1.4 Developing an Education Plan

An education plan is recommended after the system is ordered and people are selected for both system planning and operation. IBM offers a variety of classes to meet the requirements needed for customers to understand and operate the system. Class offerings include training the people who will plan for the system as well as for those who will write programs or operate the system. With an education plan, employees can gain practical skills and the knowledge they need to understand and operate the new system.

Your representative or the customer center personnel can help you plan an education program for your people that will bring added value to your data processing operation. Your marketing representative or customer center personnel can provide you with the current price for charge classes.

Ordering the Education Curriculum Planning Guide

You can get an *AS/400 Education Curriculum Planning Guide* (available in the United States only) or equivalent from your marketing or service representative. It describes the education available for the AS/400 system. The classes are grouped into the following categories: executive, management, operations, and programming.

A detailed description is included for each class. The description includes duration, fees, recommended background, and a summary of the prerequisites for that class.

Education Overview

Classes are available in each of the following areas:

- Executive
  - Teach the capabilities of the system as they relate to business use.
  - Explain how to achieve top performance from your new system, with the emphasis on the responsibilities of each individual: from the chief executive officer, to the system manager, to the person who operates the display station.
- Management
  - Teach the fundamentals of the system and data processing to the system manager.
- Operations
  - Help in some of the system planning activities, such as converting existing jobs and procedures.
  - Teach how to operate the system and coordinate work among the operators.
- Programming

- Educate personnel for businesses that need to have at least one person gain an in-depth technical knowledge of the system and act as the focal point for programming activities in the organization.

Additional classes and seminars related to a specific industry, application programs, or products are also available. Your marketing or service representative can provide you with information, if you request it, about these classes and seminars.

Knowing When to Complete Your Education

There are three basic types of education from a system planning perspective: pre-installing, installing, and post-installing.

Pre-installing: To plan for your system, you should have education that will help you become familiar with the system and help you make the process of installing your system as efficient and easy as possible.

Installing: Before your system arrives, you should have education that will help you prepare for installing your system, performing configuration, and installing security.

Post-installing: Once your system is installed, you need education that will help you better manage your system and prevent work station and system operator problems.

Arranging to Take System Classes

Contact your marketing representative or customer center (in the United States and Canada only) for information about enrollment, specific class dates, and education center locations.

IBM education provides the following types of instruction:

- Classroom/workshop offerings include both no-charge and charge classes and are normally offered at an IBM branch location. Usually a workshop provides specialized product or application training which improves the education provided in a self-study or classroom course.
- Guided Learning Center is an organized educational setting in which students proceed at their own speed through interactive class materials, under the guidance of a full-time education administrator. Class offerings include both no-charge and charge classes.
- Online education is an advanced approach to education. It is designed to help you and others in your company achieve higher productivity and consistent quality in education. Online education classes bring education to your work place, thereby reducing the customer cost for education. Each class takes 30 to 45 minutes to complete.

Task 1.5 Completing the System Information Form

The System Information Form, Form A1 in Appendix F, contains blank spaces for you to record all the items ordered for your system. The completed form can help answer questions you might have such as which model tape drive, printers, and licensed programs were ordered.

You *should* complete this form because you will refer to it when you create your floor plan, work station diagrams, communications planning forms, licensed programs planning forms, and device configuration planning forms. These forms are intended to help you record sufficient information to reduce the amount of time needed to make your system operational once you have received your equipment. The forms will also help you determine what communications functions are to be performed on each communications line. You can get the information you need to complete this form and a copy of your order form from your marketing representative. Most of this information should be in the order form or acknowledgment letter that the administrative office should have given you after you ordered your system. Be sure to record all equipment you ordered, especially if you ordered equipment from more than one company or for multiple locations.

You may not be able to complete parts of this form (the rack letter, the device serial number, or the cable part number, for example) until you receive the devices. **Update this form whenever you add or remove equipment or licensed programs from your system.**

Use the following information and examples as a guide.

STEP 1: Complete Part 1 of Form A1.

Note: Do not use the master Form A1 in Appendix F. Instead, copy the form (several copies may be needed for larger systems) and return the master to the appendix for future planning requirements.

To complete Part 1 of the form you should:

1. Record the Rack Power Specify Code. (Only racks have specify codes.) Refer to Appendix C for the plug type that matches the specify code.
2. Record information (rack description, device type, model number, serial number, and location) about the devices that are in your rack(s). If you have more than one rack, each rack will be named with a different letter.
3. Record the amount of main storage and disk storage, and the number of work stations (local and remote) attached to your system.
4. Record the names of your licensed programs.
5. Record the quantity of each cabling device, if you have any, and record any notes, such as location.

Use the following example of Form A1 (Part 1) to help you complete this form. Keep the completed form with your other forms for later reference.

A1 **System Information Form (Part 1)**

Rack Power Specify Code ____

Rack	Description	Device Type	Model Number	Serial Number	Location
A	1.6 meter rack	9309	2	XXXXXXXXXXXX	Accounting
A	System unit	9406	B40	XXXXXXXXXXXX	—
A	Tape unit controller	9346	001	XXXXXXXXXXXX	—
A	Diskette unit	9331	001	XXXXXXXXXXXX	—
A	Disk unit	9332	400	XXXXXXXXXXXX	—
A	Disk unit	9332	400	XXXXXXXXXXXX	—
A	Disk unit	9332	400	XXXXXXXXXXXX	—
A	Disk unit	9332	400	XXXXXXXXXXXX	—
B	1.6 meter rack	9309	2	XXXXXXXXXXXX	Accounting
B	Disk unit	9332	400	XXXXXXXXXXXX	—
B	Disk unit	9332	400	XXXXXXXXXXXX	—
B	Disk unit	9332	400	XXXXXXXXXXXX	—
B	I/O card unit	5010/5030	—	XXXXXXXXXXXX	—

Example

Main storage size (4–96MB) 16 MB

Disk storage size (400MB–27.36GB) 1.7 GB

Total number of work stations supported 40

Licensed programs

- Operating System/400 (5728-SS1)
- Communications Utilities (5728-CM1)
- Office (5728-WP1)
- Query (5728-QU1)
- RPG/400 (5728-RG1)

Cabling Devices	Quantity	Notes
5208 Link Protocol Converter	____	
5209 Link Protocol Converter	____	
ROLMbridge 5250 Link Protocol Converter	____	
5299-3 Terminal Multiconnector	____	

Note: You may copy as necessary.

RSLC154-16

STEP 2: Complete Part 2 of Form A1.

Notes:

1. Do not use the master Form A1 in Appendix F. Instead, copy the form (several copies may be needed for larger systems) and return the master to the appendix for future planning requirements.
2. If you are attaching work stations locally on a token-ring network, refer to Form F9 in the *Data Communications Planning Guide* after you complete the tasks in this manual.

To complete Part 2 of the form you should:

1. For each local display station or printer, complete all known information about that device, including the cabling type.
2. Leave the cable length blank for now. You will determine cable length in Chapter 3.
3. Record the device input voltage, either 100 – 120 volts, 200 – 240 volts, or 380 – 415 volts. Refer to Appendix C for the plug type that is used in your country for these voltages. For the United States plugs only, also refer to "Power Considerations of the AS/400 System and Attachable Devices" on page D-1.

Use the following example of Form A1 (Part 2) to help you complete this form. Keep the completed form with your other forms for later reference.

A1 **System Information Form (Part 2)**
LOCAL Work Stations

Display Station (✓)	Printer (✓)	Machine Number	Model Number	Serial Number	Location	(✓) No Cable-Through Capability	Cabling Type	Cable Length	Input Voltage
☑	☐	3180	2		Accounting		Twinaxial	30 feet	XXX X
☑	☐	3197	C		Sales		Twinaxial	8 feet	XXX X
☐	☑	5262	1		Sales		Twinaxial	10 feet	XXX X
☑	☐	3180	2		Front desk		Twinaxial	10 feet	XXX X
☑	☐	3197	D		Back office		Twinaxial	8 feet	XXX X
☐	☑	4224	2		Back office		Twinaxial	7 feet	XXX X
☐	☑	4245	T20		Accounting		Twinaxial	12 feet	XXX X
☐	☐								
☐	☐								
☐	☐								
☐	☐								
☐	☐								
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Example

Note: You may copy as necessary.

RSLC155-6

STEP 3: Complete Part 3 of Form A1.

Skip this step if you do not have any remote work stations (display stations or printers attached to a controller and communications line). Go to Step 5 on page 1-17.

Note: Do not use the master Form A1 in Appendix F. Instead, copy the form (several copies may be needed for larger systems) and return the master to the appendix for future planning requirements.

To complete Part 3 of the form you should:

1. For each remote display station or printer, complete all known information about that device, including the cabling type.
2. Leave the cable length blank for now. You will determine cable length in Chapter 3.
3. Record the device input voltage, either 100 − 120 volts, 200 − 240 volts, or 380 − 415 volts. Refer to Appendix C for the plug type that is used in your country for these voltages. For the United States plugs only, also refer to "Power Considerations of the AS/400 System and Attachable Devices" on page D-1.

Use the following example of Form A1 (Part 3) to help you complete this form. Keep the completed form with your other forms for later reference.

A1 **System Information Form (Part 3)**
REMOTE Work Stations

(✓) Display Station	(✓) Printer	Machine Number	Model Number	Serial Number	Location	(✓) No Cable-Through Capability	Cabling Type	Cable Length	Input Voltage
☑	☐	3180	2		Warehouse		Twinaxial	30 feet	XXX X
☑	☐	3197	C		Warehouse		Twinaxial	8 feet	XXX X
☐	☑	5262	1		Warehouse		Twinaxial	10 feet	XXX X
☑	☐	3180	2		Warehouse		Twinaxial	10 feet	XXX X

Example

Note: You may copy as necessary.

RSLC198-1

STEP 4: Complete the top half of Part 4 of Form A1.

Do this step if you have SDLC or X.25 and want to attach a 5251-12; a 5294-1, K01, S01; or a 5394-1, 2 Remote Work Station Controllers; or a personal computer emulating one of these controllers.

Skip this step and go to Step 5 if:

- You want to configure a communications line that does not have any 5251-12; 5294-1, K01, S01; or a 5394-1, 2 Remote Work Station Controller attached.
- You want to configure a token-ring network.

Note: Do not complete the master Form A1 in Appendix F. Instead, copy the form (several copies may be needed for larger systems) and return the master to the appendix for future planning requirements.

You can attach one or more of the following controllers to a single SDLC or X.25 communications line. (A personal computer can emulate one of these controllers):

- 5251-12
- 5294-1, K01, S01
- 5394-1, 2

Use the following example of the top part of Form A1 (Part 4), the Communications and the 5251-12; 5294-1, K01, S01; and 5394-1, 2 Remote Work Station Controllers section, to help you complete this section of the form.

A1 **System Information Form (Part 4)**

Communications and the 5251-12; 5294-1, K01, S01; and 5394-1, 2 Remote Work Station Controllers

Line Type	Connection Type	Controller Type	Quantity	Modem	Physical Interface	Line Speed
SDLC	Switched	5294	4	5841	EIA-232/V.24	1200
SDLC	Nonswitched MP	5294	4	5865	EIA-232/V.24	9600
		5294	3	5865	EIA-232/V.24	9600

RSLC204-2

Starting with the top of the form, list information for Communications and the 5251-12; 5294-1, K01, S01; and 5394-1, 2 Remote Work Station Controllers. Work with your marketing representative to complete this section of the form.

1. Record your choice of communications line type, SDLC or X.25.
2. Determine which connection type you will use for each communications line. Record the connection type in the space provided on Form A1 (Part 4). The following chart shows which connection types can be used with each line type.

Line Type	Connection Type	Controller Type	Device Type	
SDLC	Switched Nonswitched PP Nonswitched MP	Remote work station controller 5251-12[1]	Display Stations	5251-11; 5291-1,2; 5292-1,2
			Printers	4214; 4245-T12,T20; 5219; 5224; 5225; 5256
		Remote work station controller 5294-1, K01, S01	Display Stations	3179; 3180; 3196; 3197; 5251-11; 5291-1,2; 5292-1,2
			Printers	3812, 4214, 4224, 4234, 5219, 5224, 5225, 5256, 5262 IDPS
		Remote work station controller 5394-1, 2	Display Stations	3179; 3180; 3196; 3197; 5251-11; 5291-1,2; 5292-1,2; 5295-1,2,C2
			Printers	3812, 4210, 4214, 4224, 4245, 5219, 5224, 5225, 5227, 5256, 5262, 5317, 5883, IPDS
X.25	Not Applicable	Remote work station controller 5251-12[1]	Display Stations	5251-11; 5291-1,2; 5292-1,2
			Printers	4214; 4245-T12,T20; 5219; 5224; 5225; 5256
		Remote work station controller 5294-1, K01, S01	Display Stations	3179; 3180; 3196; 3197; 5251-11; 5291-1,2; 5292-1,2
			Printers	3812, 4214, 4224, 4234, 5219, 5224, 5225, 5256, 5262 IPDS
		Remote work station controller 5394-1, 2	Display Stations	3179; 3180; 3196; 3197; 5251-11; 5291-1,2; 5292-1,2; 5295-1,2,C2
			Printers	3812, 4210, 4214, 4224, 4245, 5219, 5224, 5225, 5227, 5256, 5262, 5317, 5883, IPDS

[1] The 5251-12 may have a Single or Dual Cluster feature.

RSLC339-0

Legend

Line Type:

SDLC	Synchronous data link control
X.25	Packet switching interface specification

Connection Type:

Switched	Requiring a dial of a telephone number from either the local system or remote equipment before data transfer. The connection is maintained until the dial connection is ended.
Nonswitched PP	Service provided by the common carrier through a permanent point-to-point connection between the AS/400 system and a single controller.
Nonswitched MP	Service provided by the common carrier through a permanent connection between a controlling system and one or more tributary stations. The AS/400 system may be a tributary station when the remote controller type is APPC or Host. The AS/400 system may be a controlling station when the remote controller type is a remote work station controller or Finance.

Controller Type:

Remote work station controller
The AS/400 connection to remote work station controllers.

3. Record which remote work station controller you will attach to the system. For the 5251-12 Remote Work Station Controller, indicate if you have a cluster feature or dual cluster feature.

   Note: A personal computer may emulate one of these remote work station controllers. If you have personal computers emulating remote work station controllers, record PC on the form with the number of the controller it is emulating.

   If you have more than one remote work station controller attached to the same line, such as with multipoint, list each one on a separate line following the original line type and connection type. This will help remind you of the additional controller configuration steps you will do in Chapter 6. Look at the following diagram to see how you might record information on the planning form if you are planning for such a communications line.

A1 **System Information Form (Part 4)**

Communications and the 5251–12; 5294–1, K01, S01; and 5394–1, 2 Remote Work Station Controllers

Line Type	Connection Type	Controller Type	Quantity	Modem	Physical Interface	Line Speed
SDLC	Switched	5294	4	5841	EIA-232/V.24	1200
SDLC	Nonswitched MP	5294	4	5865	EIA-232/V.24	9600
(1)		5294	3	5865	EIA-232/V.24	9600

Other Data Communications

Line Type	Connection Type	Controller Type	Device Type or Quantity	Modem	Physical Interface	Line Speed
SDLC	Switched	APPC	APPC	5853	EIA-232/V.24	9600
(1) (see above ___)		3174	4	5865	EIA-232/V.24	9600

Note: You may copy as necessary.

RSLC199-3

4. For the quantity, record the number of work stations you are planning to attach to each controller. (You recorded the remote work stations you ordered on Part 3 of Form A1.)
5. Determine which modems you are using for this communications line and record the type and model number for each modem on Form A1.

   Note: If you do not know which modems you will be using with this line, contact your marketing representative.
6. Specify the physical interface for this line.

   Note: If you do not know the physical interface for this line, contact your marketing representative.

7. Specify the line speed for this line.

   Note: If you do not know the line speed for this line, contact your marketing representative.

8. Keep the completed form with your other forms for later reference.
9. If you need to plan for another communications line using a 5251, 5294, or 5394 Remote Work Station Controller, repeat Step 4; otherwise, go to Step 5.

STEP 5: Complete the bottom half of Part 4 of Form A1.

Do this step if you plan to connect this communication line to Finance controllers, 3174 or 3274 Remote Work Station Controllers, another system, or to a network.

Work with your marketing representative to complete this part of the form. The information you record in this section of Part 4 is used to complete the data communications planning requirements, as explained in the *Data Communications Planning Guide*.

Note: Nonswitched multipoint communications lines that you indicated above may have additional and different types of controllers and devices attached as shown in the following chart. If this is your case, continue with the instructions in this Step 5 by showing the additional and different controllers and devices. Do not fill in the blanks for the line type and connection type. Instead, write in *see above* with a number marked next to it (for example, 1). Record that same number in the line type column in the top section of this form. This will help remind you later that only one line need be configured for controllers and devices from both the top and bottom sections of this planning form.

Use the following example of the bottom part of Form A1 (Part 4), the Other Data Communications section, to help you complete this form.

Other Data Communications

Line Type	Connection Type	Controller Type	Device Type or Quantity	Modem	Physical Interface	Line Speed
SDLC	Switched	APPC	APPC	5853	EIA-232/V.24	2400
(1) (see above ___)		3174	4	5865	EIA-232/V.24	9600

Note: You may copy as necessary.

RSLC205-2

1. Record your choice of communications line type (SDLC, BSC, Asynchronous, X.25, or Token-Ring network).
2. Determine which connection type you will use for each communications line. Record the connection type in the space provided on Form A1 (Part 4). The following chart shows which connection types can be used with each line type.

Line Type	Connection Type	Controller Type	Device Type
SDLC	Switched Nonswitched PP Nonswitched MP	APPC	APPC
		Finance (4701)	3277, 3278, 3279, 3287, 3624, 4704
		Finance (3694)	3694
		Host	Host system, SNUF, DHCF (3277), APPC
		Remote work station controller (3174/3274)	Display stations (3277, 3278, 3279) Printers (3287)
BSC	Switched Nonswitched PP Nonswitched MP	BSC	BSC
Asynch-ronous	Switched Nonswitched PP	Asynchronous	Asynchronous
X.25	Not Applicable	Asynchronous	Asynchronous
		APPC	APPC
		Finance (4701)	3277, 3278, 3279, 3287, 3624, 4704
		Finance (3694)	3694
		Host	Host system, SNUF, DHCF (3277), APPC
		Remote work station controller (3174/3274)	Display stations (3277, 3278, 3279, 3179) Printers (3287)
TRLAN	Not Applicable	APPC	APPC
		Host	Host system, SNUF, DHCF (3277), APPC
		Remote work station controller (3174)	Display stations (3277, 3278, 3279) Printers (3287)

RSLC338-0

Legend	
Line Type:	
SDLC	Synchronous data link control
BSC	Binary synchronous communications
Asynchronous	Asynchronous transmission
X.25	Packet switching interface specification
Token-Ring network	Networking which runs on the IBM Cabling System
Connection Type:	
Switched	Requiring a dial of a telephone number from either the local system or remote equipment before data transfer. The connection is maintained until the dial connection is ended.
Nonswitched PP	Service provided by the common carrier through a permanent point-to-point connection between the AS/400 system and a single controller.
Nonswitched MP	Service provided by the common carrier through a permanent connection between a controlling system and one or more tributary stations. The AS/400 system may be a tributary station when the remote controller type is APPC or Host. The AS/400 system may be a controlling station when the remote controller type is a remote work station or Finance.

Legend	
Controller Type and Device Type:	
APPC	Advanced program-to-program communications support that allows programs to communicate with each other when appropriately programmed, regardless of system types at each end of the communications line. APPC is also used for personal computer and system-to-system token-ring networks.
Finance	The AS/400 Finance application to connecting Finance devices.
SNUF	The AS/400 system communicating with a System/370 using CICS/VS or IMS/VS, in either interactive or batch mode.
Host	The AS/400 system communicating to a System/370 through a set of products such as 3270 device emulation, remote job entry, distributed systems node executive (DSNX), distributed host command facility (DHCF), SNA upline facility (SNUF), and advanced program-to-program communication (APPC) -based support.
Remote work station controller	The AS/400 connection to remote work station controllers.
BSC	Connection between the AS/400 system and other remote systems or devices supporting the binary synchronous communications protocol. Functions included are user-written programs to remote systems or devices through a BSC protocol, and remote job entry and 3270 device emulation to a System/370 host system.
Asynchronous	The AS/400 user-written programs to communicate with devices or remote systems using the asynchronous protocols or an AS/400 work station user to operate as an asynchronous display device through the interactive terminal facility (ITF).

3. In the controller type column, record the controller type you have selected. If you have additional controllers on this same communications line, list them also. This will remind you of the additional controller configuration steps you will do later.
4. In the device type or quantity column, record the device type you selected. If you are planning for remote work station controllers, write the quantity of devices that will be attached in this column. This quantity will remind you of the additional devices you will configure later. (You should have listed these devices on Form A1, Part 3.)
5. Determine which modems you are using for this communications line and record the type and model number for each modem on Form A1.

   Note: If you do not know which modems you will be using with this line, contact your marketing representative.
6. Specify the physical interface for this line. Write any additional notes you may have about the equipment.

   Note: If you do not know the physical interface for this line, contact your marketing representative.
7. Specify the line speed for this line. Write any additional notes you may have about the equipment.

   Note: If you do not know the line speed for this line, contact your marketing representative.
8. Keep the completed form with your other forms for later reference.
9. If you are planning for another communications line, repeat Step 5; otherwise, go to Step 6.

STEP 6: Keep Form A1 (Parts 1, 2, 3, and 4) with your other forms in a place that is easy to access.

Task 1.6 Deciding What Supplies to Order

Some supplies, such as tape cartridges, are required while other supplies are optional. If you have not ordered the supplies you need, you should order them and have them in stock by the time your system arrives.

If you order a Total System Package, you will automatically receive a box of printer paper and enough blank tapes to make a backup tape of your system.

Ordering Your Supplies and Accessories Catalog

IBM offers a variety of supplies and accessories for your system. You can order most of the following data processing supplies by telephone from distribution centers:

- Magnetic tape cartridges or reels and tape accessories
- Diskettes and diskette accessories
- Office supplies
- Printer paper and ribbons
- Printer cartridges
- Binders

Supplies and limited accessories can be ordered through the IBM DIRECT catalog. If you cannot wait for the catalog and need to order your basic supplies and accessories now, call IBM DIRECT (United States only) and explain your situation. Refer to the "List of Contacts" on page v for the phone number that you filled in.

Ordering Magnetic Tape or Tape Cartridges

Magnetic tapes or tape cartridges are generally ordered more than once during the planning cycle, first, to provide an initial supply, and then later when you have determined how many tapes will be used on a regular basis. These tapes are reusable. You may want to order additional tapes for copying files from disk and other system functions such as permanently storing data and for transferring data from one system to another. The number of tapes needed to make backup tapes of your system depends on:

- Size of the system (megabytes of disk storage)
- Save and restore strategy you have decided on; how often you want to make a backup tape
- Number of levels of backup tape you keep in storage

You should order additional blank tape cartridges so that you will have them on hand when your system arrives. (One tape will be shipped with your system for diagnostic purposes.) Order the type that is correct for the tape unit that you ordered for your system. (We recommend ordering the 3M[2] Model DC 600 XTD tape cartridge or equivalent.)

Consider trying different brands of magnetic tape before purchasing a large quantity. This may reduce the chance of magnetic tape problems.

You may want to clean your tape drive on a regular basis using a tape drive cleaning kit. You may want to have a cleaning kit on hand when your system arrives. (We

[2] Registered trademark of Minnesota Mining and Manufacturing Company.

recommend ordering the Tandberg Data "TDC Cleaning Cartridge Kit" or equivalent.)

Ordering Diskettes

Your system may have a diskette drive that uses 3-1/2 inch, 5-1/4 inch, or 8-inch diskettes. Diskettes, if needed, are generally ordered more than once during the planning cycle, first, to provide an initial supply, and then later when you know how many diskettes will be used on a regular basis. Order additional diskettes as you need them. If you are going to use a brand of diskette other than IBM, consider trying different brands before purchasing a large quantity. This may reduce the chance of diskette problems.

If you plan to exchange data with systems or data entry services that use 8-inch diskettes, you should order 8-inch diskettes for your 9331 Model 001 Diskette Drive. If you plan to exchange data with a system that uses 5-1/4 inch diskettes, you should order 5-1/4 inch diskettes for your 9331 Model 002 Diskette Drive.

In addition to your regular diskette supply, IBM offers diskette accessories to safeguard your data and help you keep it organized.

Printer Supplies

Your printer requires ribbons, ribbon cartridges, paper, belts, print wheels, print heads, or any combination of these items depending on the type of printer. Your marketing representative will recommend how often and the quantity of printer supplies to order. Since IBM ribbons can be stored for up to 36 months, you can safely order extra ribbons.

IBM printer paper is made from high-quality 100% register bond designed to take a sharp, legible image. When ordering paper for printing, consider the following:

- Paper size: Pay particular attention to the minimum print width of the paper.
- Use standard sizes: Standard sizes reduce the time to change printer paper.
- Single-part paper: Order single-part printer paper to start with.

Special Forms

Special forms are used in your business for such applications as billing, invoice, and payroll and may need to be redesigned for your new printer.

Special forms may require several weeks for printing. Therefore, this is an activity that you should begin well in advance of installation time. If you have special forms requirements for your printer, order *Form Design Reference Guide for Printers* from IBM.

Task 1.7 Ordering Publications

To fully use your system, applications, and licensed programs, you should have a complete library of publications.

Refer to the *Information Directory* to know which manuals are available as part of a licensed program order. Those manuals are shipped with your program at no additional charge. Additional manuals can be ordered separately.

The System Library Subscription Service (SLSS) gives you the opportunity to order multiple copies of any manual or optional manuals at the normal subscription price.

Refer to "Related Printed Information" on page x for additional manuals you may want to buy or order through SLSS.

Task 1.8 Planning a System Maintenance Program

When you buy a new system it comes with a warranty. IBM provides warranty service during the warranty period as specified in the Agreement for Purchase of IBM Machines. Contact your marketing representative or service branch for a definition of a warranty coverage and the benefits of an early purchase of maintenance agreements.

When you have an IBM maintenance agreement, IBM service representatives provide fast, efficient service for your equipment to maximize the amount of time your system is running.

For more information about an IBM maintenance agreement, call your IBM marketing representative or your IBM service representative.

Task 1.9 Developing a Recovery and Availability Plan

Data processing systems are often crucial to a business. For this reason, it is a good idea to develop a recovery and availability plan in case of such things as:

- Disaster occurs (such as an office fire or a building destroyed)
- Your system stops working (usually due to an equipment failure, program problems, or a power outage)
- An operational error occurs (your system operates but you are having problems; information was deleted by accident)

First, consider your business needs. Can you afford to have your system not operating for a day? For three hours? For 15 minutes? Then plan a recovery strategy to fit those business needs.

If there is an equipment failure, program failure, or disaster, and your system stops working, you may need to restore some or all of your data and programs. You must be prepared for this situation. You need to keep a copy of all of your data files, programs, and other objects in a place that is safe from damage or loss. An important part of your data processing operation should be to save your data files and other objects on magnetic tape or diskettes at regular intervals. You should keep a minimum of three sets of these saved tapes or diskettes. In this way, one set of your saved files will always be in safe storage. You can decide how often you need to do a save operation by asking yourself how many days of data you can afford to lose, or how many days of data entry work you can afford to do over again. You can also use system functions like journaling to minimize entering lost data.

Save/restore procedures are used to copy and restore large volumes of data and programs on diskettes or magnetic tape. For instance, it is extremely important that you save all data and other objects used by your system at regular intervals. The saved diskettes or tapes are usually stored in a location away from the system and protected from damage or loss. Consider storing one copy off site. You must have these saved diskettes or tapes to restore your system if the original files and other objects are lost or damaged.

The save and restore capability can also transfer large amounts of information between systems and store infrequently used objects on diskette or tape. More information about the save and restore capability is in the *Backup and Recovery Guide.*

Increasing Availability

If utility power outages are frequent at your site, consider using an uninterruptible power supply, which you need to plan for and purchase when you are planning for your system. An uninterruptible power supply makes your system more reliable by reducing the effect of electrical disturbances and outages of commercial AC power lines. Once you select the type of uninterruptible power supply you want, you can plan for it to be installed. For more information on selecting and installing an uninterruptible power supply for your system, refer to Appendix E. If you still need more information, refer to the *Uninterruptible Power Supply Planning Manual,* (this manual does not have specifications; use it as a guide since some sections refer to other systems), or to the *Backup and Recovery Guide*, or contact your marketing representative.

Emergency Power-Off Switch

As a safety precaution, you should provide some method for simultaneously disconnecting power to all data processing equipment in the room. The means of disconnecting power should be controlled from locations readily accessible to the operator and at designated exits from the data processing area or room. This could be done by installing one or several emergency power-off switches.

Chapter 2. Planning a Place for Your System

This chapter provides information about such things as space (product size and service clearances), air quality and temperature, humidity, site safety, and site security.

You will need the following forms (found in Appendix F) to do the tasks in this chapter:

- System Information Form (Form A1)
- Sample Plan View Forms (Forms B1 through B5, depending on what devices you ordered)

The following task overview shows the planning tasks in this chapter. Tasks in **bold** print **should** be completed; the other tasks are optional. Check off the boxes in "Task 1.3 Reviewing the System Planning Checklist" on page 1-4 as you complete each task.

TASK OVERVIEW

"Task 2.1 Selecting Where to Place Your System."
"Task 2.2 Considering System and Device Specifications."
"Task 2.3 Reviewing Rack and Device Plan Views."
"Task 2.4 Considering Temperature and Humidity Limits."
"Task 2.5 Considering Product Noise Levels."
"Task 2.6 Reviewing Power, Plug, Receptacle, and Power Cord Specifications."
"Task 2.7 Planning for Electrical Power."
"Task 2.8 Planning Security."

Task 2.1 Selecting Where to Place Your System

The purpose of this task is to help you select a place for your system. Some important things for you to consider:

- Space for your system
- Air quality and temperature
- Static electricity
- Lighting considerations
- Noise considerations
- Weight limitations
- Physical security

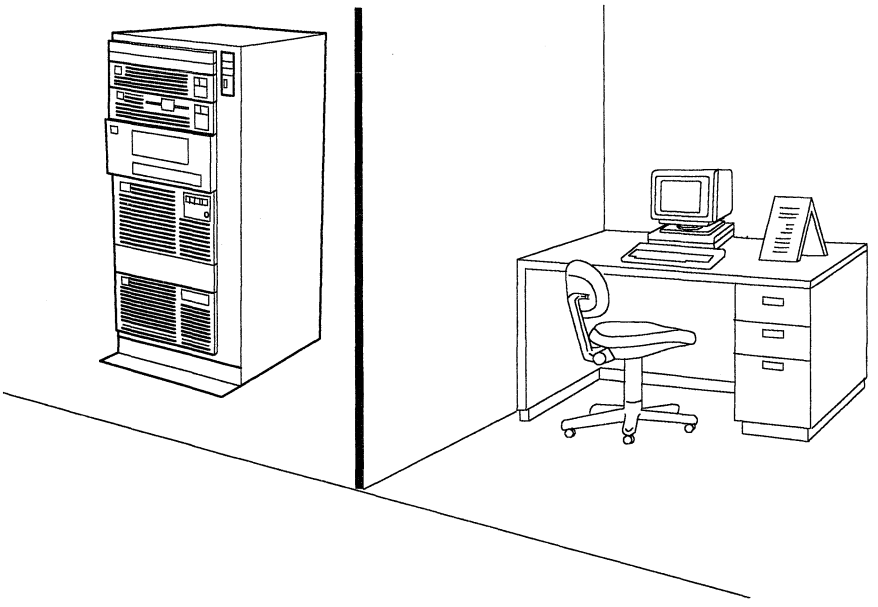
Planning Space for Your System

To ensure the space is large enough for the system and all attached devices (this can be more than one room or building), consider the following when deciding where to place your system:

- Space for people to work efficiently, comfortably, and safely.
- Space for the rack(s), display stations, printers, modems, cable wiring closets, cabling devices, desks, files, and other office equipment.

- Space for a display station, capable of serving as a console, must be 20 feet (6.1 meters) or less from the rack and visible from the control panel. The console should be placed in the same room as the rack for operator efficiency and prompt servicing.
- Space (possibly in a wiring closet) for a 5299 Model 3 Terminal Multiconnector (available only in the United States and Canada), if you have one or more of these devices.
- Space for an uninterruptible power supply, if you plan to have one.
- Place the system close to wiring closets if you are planning to use telephone twisted-pair cabling for local area networking or work station cabling.
- Space for one or more twinaxial work station attachments, that is attached to a local work station controller, and cabling.

  Note: For every twinaxial work station controller, you must provide space for at least one twinaxial work station attachment.
- Possible display screen interference caused by power supplies in printers and other data processing equipment. To avoid this, maintain a minimum of 1 meter (3.3 feet) between display stations and printers or other data processing equipment.
- Space for servicing the equipment (service clearances shown in Task 2.2 and listed in the table "Service Clearances of the AS/400 System and Attachable Devices" on page D-10 are minimum clearances needed by the service representative) and for floor loading limits.
- Storage space for supplies and manuals.
- Aisle space.
- Space to add devices to your system sometime in the future.
- Electrical requirements, including service outlets, modems, IBM Cabling System equipment, and communications facilities (telephone lines).
- Space for the telephones.
- Space to allow adequate ventilation in and around the system.
- Space for or location of a link protocol converter or terminal multiconnector, if you have these devices.



RSLC104-3

Reviewing Additional Considerations

Air Quality and Temperature

If you are installing your system in a typical business office or clean industrial location, you probably do not have to worry about the quality and cleanliness of the surrounding air, however, you should ensure that you keep the air temperature cool enough to handle the additional people in the office, and the additional BTU output of the system and associated equipment.

Poor quality air, especially in the chemical process industries, can corrode electrical parts in the system. Extensive corrosion in any system can produce electrical problems. These conditions can in turn cause system problems and data processing errors. If you are in doubt about the air quality where you plan to put your system, ask your service or marketing representative about environmental testing. In addition, you can call your local air conditioning professionals.

Static Electricity

When the humidity is low, people, carts, furniture, and paper can cause static electricity. Static electricity creates an annoying static shock when discharged to or near another person or object. If discharged to or near data processing equipment, these charges can cause damage to the system or device. To avoid this problem, use an antistatic carpet or floor covering, or an antistatic spray on your floor covering.

Another way to avoid this problem is to raise the humidity in the room. A proven method for controlling static buildup is to maintain a 40% to 50% relative humidity level at your site.

Lighting Considerations

Consider the following lighting factors:

- Paint offices in light colors with white ceilings to enable reflection (rather than absorption) of light.
- To lessen glare, ensure that windows or direct sunlight are not in the operator's field of vision or directly facing the display station.
- It is best to have a low level of general lighting (300 to 500 lux), with adjustable local lighting at each display station.
- To avoid eye fatigue, ensure that sources of light are compatible. White and warm white fluorescent lamps are compatible with both incandescent lamps and daylight.
- Place the display stations between fluorescent ceiling lights.

Noise Considerations

The type of ceiling you have can reduce noise. A dropped, porous ceiling works best. If there are overhead ducts, preventing these ducts from transmitting sound from another area into your data processing area will also help decrease noise.

In rooms, you can reduce noise by applying acoustical material to the floor and walls. If carpeting is used as a floor covering in the data processing area, it should be an antistatic type or should be treated to prevent or minimize static buildup.

Weight Limitations

You need to consider two weight limitations:

1. The weight of a non-IBM device in the rack.
2. The total weight of the rack (containing all the devices) on the floor.

Rack Device Weight Restrictions: If you have an IBM rack and only IBM devices in your rack, you do not need to consider weight limitations of devices that go in the rack. IBM devices are built so they do not exceed the weight distribution limitation of 10 kilograms (22 pounds) per Electronic Industries Association (EIA) unit. Non-IBM devices should not exceed this weight distribution limit either.

9309-2 Rack Weight Restrictions: The maximum weight of the 9309-2 rack with installed IBM devices is 492 kilograms (1,085 pounds). To determine your total rack weight, add the weight of the rack and the weights of all the devices in the rack. Refer to Appendix D for weights of IBM devices.

It is important to follow these weight restrictions for floor loading limits. The heavier your system, the larger the area of floor is required to support the equipment.

It is the responsibility of the customer or the device manufacturer to assure the rack and its devices meet these requirements so your office is safe.

Task 2.2 Considering System and Device Specifications

The purpose of this task is to identify the physical size of the devices and related specifications such as weight, size, operating environment, electrical power, and heat output. This information is particularly important the smaller your office is and the more electrical power your devices require.

Read system specifications located in Appendix D, "Specifications for the AS/400 System and Attachable Devices" on page D-1. These will be useful to you and the people who are helping you prepare the site for your new system. Review the rack and device plan views in the next task to help you envision how large the devices are.

Task 2.3 Reviewing Rack and Device Plan Views

You should review rack and device plan views so you understand how much space your equipment requires and which plan views you will need to cut out of Appendix F, depending on what you ordered. Once you decide what plan views you need, you can prepare your floor plan.

The plan views shown on the following pages are drawn to scale (1 mm on the plan view equals 5 cm; 1/4-inch on the plan view equals 1 foot) so you can see how much office space your devices and rack(s) will require.

The plan views are drawn to the following scale:

1 mm = 5 cm
1/4 in = 1 ft
} Plan view sizes are shown in millimeters and inches (inches are in parentheses).

Standard symbols used in the plan views include:

ooooo Port location; where cables attach to the device

———— Service area and weight restrictions boundary (service clearances are measured from machine with covers closed)

------- Optional equipment rolls out for servicing

Standard equipment outline (shows machine with covers closed)

+ Casters

Hinged cover


Cable entry/exit area in machine base

RSLC149-4

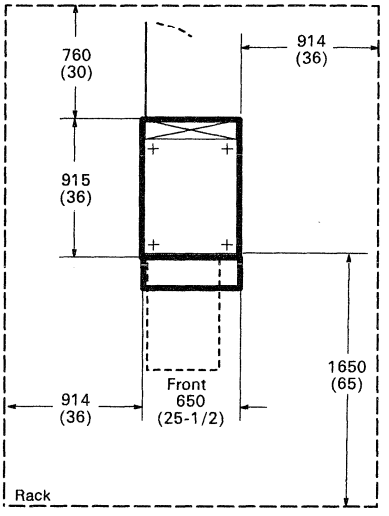
If you have one rack, read the following section. If you have more than one rack, skip the next section and go to "Plan Views for More Than One Rack" on page 2-6.

Plan View for One Rack

You need to leave space around a rack for servicing and for floor loading restrictions.

The space needed for one rack is shown in the following diagram (also Form B1 in Appendix F). This information is also available in a table in "Service Clearances of the AS/400 System and Attachable Devices" on page D-10.

Single Rack



Later, in "Task 3.2 Adding the Plan Views" on page 3-2, you will use the single rack plan view (shown here and also on Form B1 in Appendix F) to create your floor plan. Now, skip the next section and go to "Sample Plan Views of System Devices" on page 2-9.

Plan Views for More Than One Rack

You need to determine how much space to leave around your racks, depending on the floor rating for your office, the number of adjacent racks, and rack cabling requirements.

There are two types of space requirements to consider when you have more than one rack: how close together they can be and how far apart they can be.

The floor load rating for your office determines how many racks you can put next to each other and how close together they can be. The maximum number of adjacent racks for a floor rated for 345 kg/m^2 (70 lb/ft^2) is six racks side-by-side. The maximum number of adjacent racks for a floor rated for 244 kg/m^2 (50 lb/ft^2) is two racks side-by-side.

The length of the cables that come with your system and the cabling requirements determine how far apart the racks can be. The cable lengths allow some flexibility but have been predetermined for each rack. The sequence of the racks for the system you ordered has also been determined; that is, the racks will need to be cabled together in a specific order. The cables that are sent with the racks allow you to place the system on a floor rated for either 345 kg/m^2 (70 lb/ft^2) or 244 kg/m^2 (50 lb/ft^2).

To determine service clearances (including floor loading restrictions) for more than one rack, use the following step-by-step instructions. (You can refer to the "Service Clearances of the AS/400 System and Attachable Devices" on page D-10 for specific rack service clearance figures, although these are included in the following plan view.)

If you want to put your racks next to each other, start with **STEP 1**. If you want to understand how far apart you can put the racks, refer to Appendix G for some general rules.

STEP 1: Use one of the following tables, depending on the floor rating of your office floor, to determine how much floor space you need to leave on each end of a group of racks (Distance X) and the entire width of the service clearance area (Distance Y). Look at the plan view example on the next page, then continue.

Floor Rated for 345 kg/m² (70 lb/ft²)

If you are going to put your racks on a floor that is rated for 345 kg/m² (70 lb/ft²), use the following table along with the plan view for more than one rack in this task to determine the required service clearance and floor loading area.

Number of Adjacent Racks	X	Y
1	915 mm (36 in.)	2477 mm (97-1/2 in.)
2	915 mm (36 in.)	3125 mm (123 in.)
3	915 mm (36 in.)	3772 mm (148-1/2 in.)
4	1220 mm (48 in.)	5030 mm (198 in.)
5	1520 mm (60 in.)	6287 mm (247-1/2 in.)
6	1520 mm (60 in.)	6935 mm (273 in.)

Figure 2-1.

For example, if you have four adjacent racks, you must leave 1220 mm (48 in.) to the side of each outside rack (Distance X). The total distance from the left to the right (Distance Y) of the entire service clearance area should equal 5030 mm (198 in.).

Floor Rated for 244 kg/m² (50 lb/ft²)

If you are going to put your racks on a floor that is rated for 244 kg/m² (50 lb/ft²), use the following table along with the plan view for more than one rack in this task to determine the required service clearance and floor loading area.

Number of Adjacent Racks	X	Y
1	915 mm (36 in.)	2477 mm (97-1/2 in.)
2	1520 mm (60 in.)	4344 mm (171 in.)

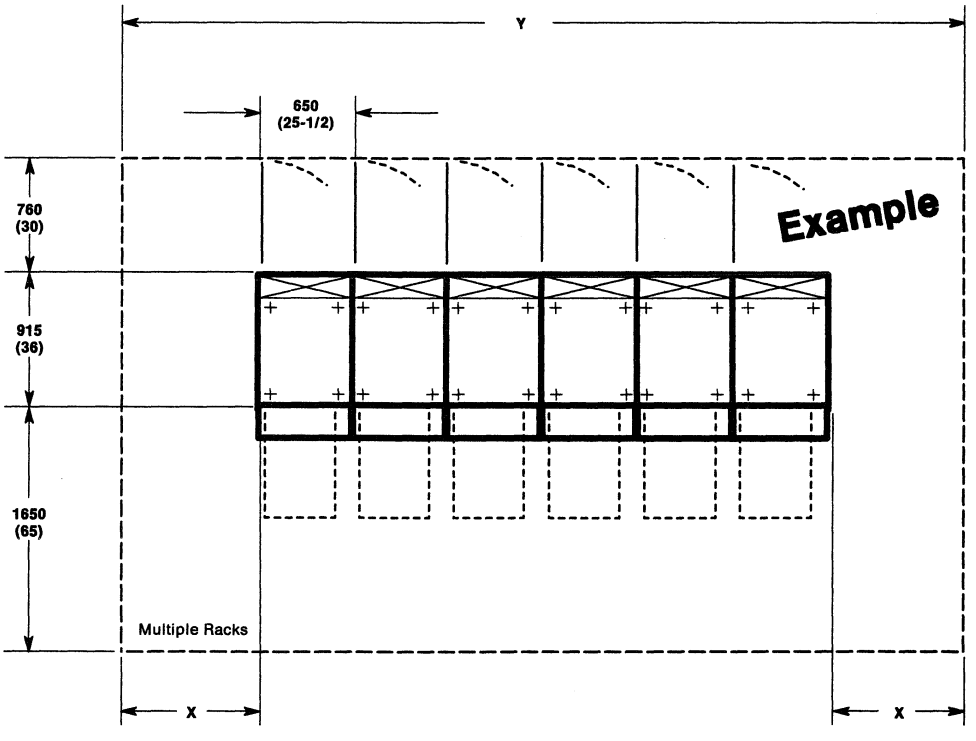
Figure 2-2.

For example, if you have two adjacent racks, you must leave 1520 mm (60 in.) to the side of each rack (Distance X). The total distance from the left to the right (Distance Y) of the entire service clearance area should equal 4344 mm (171 in.).

STEP 2: Adapt the plan view of more than one rack (use Form B1 in Appendix F) to show the number of adjacent racks and how much floor space is required around those racks.

1. Make a copy of Form B1 (found in Appendix F).
2. Cut out a plan view for more than one rack (cut around the dotted lines that represents the weight distribution and service clearance area).
3. Using the information from Figure 2-1 or Figure 2-2, cut, mark, or fold the multiple rack plan view so it shows the correct number of racks and the needed weight distribution and service clearance area.
4. Ask your marketing representative to look at your multiple rack plan view and to verify your calculations. You will use this plan view later when you make your floor plan.

More than One Rack



STEP 3: Read the following additional information then review "Sample Plan Views of System Devices":

- "Task 3.2 Adding the Plan Views" on page 3-2.
- Appendix G, "Floor Plan Examples for More Than One Rack" on page G-1 for floor plan examples and cabling requirements.

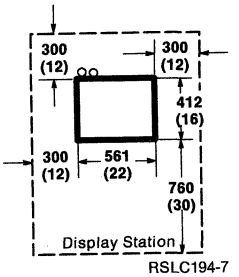
Sample Plan Views of System Devices

These plan views show the maximum space that any device in that particular category (for example, display stations, printers, or controllers) requires. Minimum service clearance and floor loading measurements are also given.

Display Stations and Personal Computers

Smaller Display Stations

3101-23
3151
3161
3162
3163
3164
3179-2 (with 102-Key Enhanced keyboard)
3196-A20, B20 (with 102-Key Enhanced keyboard)
5291-2
5295-001, 002, 0C2, LK1



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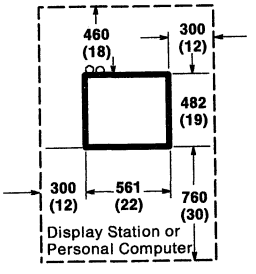
Larger Display Stations

3179-2 (with larger keyboard)
3180-2
3196- A10, B10 (with 122-Key keyboard)
3197-C, D, W (with 122-Key keyboard)
5251-11
5291-1
5292-1, 2
Personal Computers
Personal System/2 - 30, 50, 60, 80[1]
Personal System/55-55XX[1]



RSLC108-19

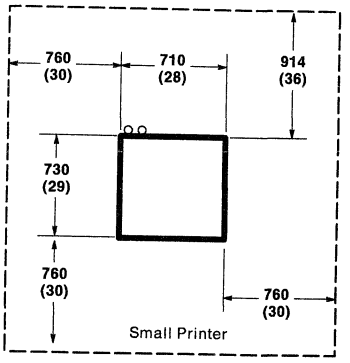
[1] Trademark of IBM.

Note: This information applies to personal computers without printers. You must consider additional space for a printer.

Printers

Small Table-Top

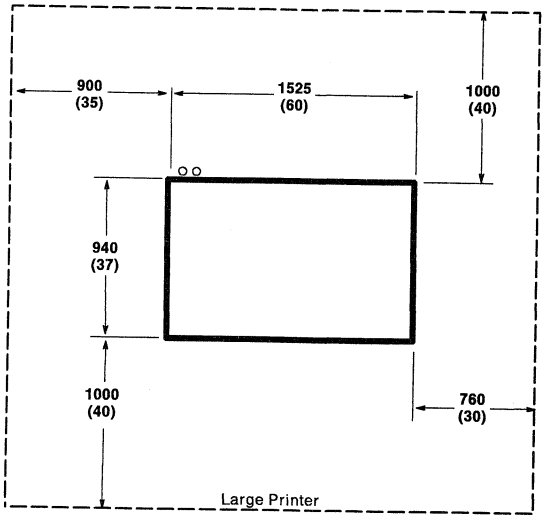
3812-1, 2
4201-2
4202-1
4207
4208
4210-1
4214-2
4224-101, 102, 1C2, 1E2
5219-D01, D02
5223
5224-1, 2
5256-1, 2, 3
5317-001
5553-B01, B02
5557-B01
5563-B02, H02
5572-B01
5575-B01, B02, F01, F02
5577-B01, F01, F02, G01



RSLC110-15

Large Floor-Standing

4234-2
4245-T12, T20
5201-2
5202
5225-1, 2, 3, 4
5227-001, 002, 003, 005
5262-1
5337-001
5583-200
6262-T12

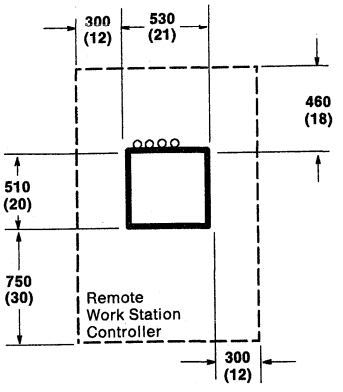


RSLC109-14

Note: This information does not include sheet feeds, power stackers, or form tractors.

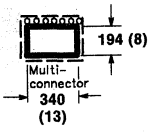
Remote Work Station Controllers

5251-012
5294-001, K01, S01
5394-1, 2



RSLC111-10

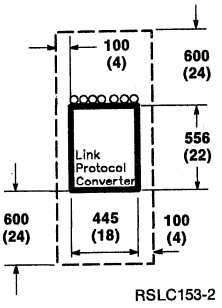
5299 Model 3 Terminal Multiconnector (available only in the United States and Canada)



RSLC129-5

Link Protocol Converters

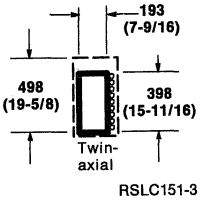
5208
5209



RSLC153-2

Note: The ROLMbridge 5250 Link Protocol Converter is contained in a CBX 8000 or CBX 9000. Refer to the *CBXII 8000 Installation Manual* for CBX device specifications.

Twinaxial Work Station Attachment



RSLC151-3

Task 2.4 Considering Temperature and Humidity Limits

IBM devices are designed to operate in a controlled temperature and relative humidity range. If you operate a device outside the specified limits, permanent damage can result. Be sure to consider temperature and humidity information when planning to install your system. See specific product information for temperature and humidity limits. Temperature and humidity limits for rack items and for devices that do not fit into the ranges listed are in Appendix A, "Temperature and Humidity Limits" on page A-1.

Task 2.5 Considering Product Noise Levels

The AS/400 system and all its attaching devices create a level of noise while operating. This noise level should be taken into consideration when deciding where to place devices. The devices were acoustically designed to be used in a general business area or a quiet office area, or both. All display stations, the 3812 Printer, the 5201 Printer, the 5202 Printer, the 5530 System Unit, and the 5541 System Unit are designed for the quiet office area. All other devices, including those in the 9309-2 Rack, were designed for the general business area. The definitions for these two areas are as follows:

General Business Area: Several work stations may be installed in a general business area. Medium-size data processing equipment may also be installed in the area, but not usually in the immediate vicinity of the work stations. Examples of general business areas are administrative or bookkeeping offices, word processing and typing centers, and customer service work stations (for example, bank teller stations or motel lobbies).

Quiet Office Area: A quiet office area is where a high degree of mental concentration is required. Examples of quiet office areas are private offices, libraries, classrooms, conference and meeting rooms, medical treatment rooms, and private residences.

Devices acoustically designed for the general business area should not be installed in a quiet office area. Keep this in mind when planning where to place your devices.

For devices in the rack, the loudest sound comes from the front of the devices. Remember this when placing the racks in your floor plan.

Product noise emission values for each device and the values for typical rack configurations are in Appendix B, "Product Noise Levels" on page B-1.

Task 2.6 Reviewing Power, Plug, Receptacle, and Power Cord Specifications

Be sure to consider power, plug, receptacle, and power cord information when planning to install your system. Refer to Appendix C, "Power, Plug, Receptacle, and Power Cord Specifications" on page C-1 for the plug type that is used in your country for the voltage that you specified on Form A1. If you are in the United States, you can also refer to "Power Considerations of the AS/400 System and Attachable Devices" on page D-1 for specific plug information.

Task 2.7 Planning for Electrical Power

The information you need to plan the power requirements of the system is in this chapter, in Chapter 3 (Task 3.1, specifically your floor plan), and in the table "Power Considerations of the AS/400 System and Attachable Devices" on page D-1.

Determining your power requirements is important. You should consider having an electrician plan your power requirements.

STEP 1: The person who is determining your power requirements should read the following information to ensure that your office meets or can be changed to meet the electrical requirements for your new system:

- System Information Form, Form A1 (which lists the equipment you ordered)
- Your floor plan (you will create this using the information in Chapter 3), to determine where additional outlets and lights might be installed
- "Power Considerations of the AS/400 System and Attachable Devices" on page D-1 table (which lists power considerations for the rack and for devices that are supported by the AS/400 system)

STEP 2: After the person has given you the proposed electrical plan, review it to ensure that there are no misunderstandings with regard to the placement of the equipment, rooms selected for the equipment, and so on.

Reviewing the Electrical Requirements

Although the system operates satisfactorily using the normal power supplied by most power companies, many outside sources of electrical noise can affect system operations, such as air conditioning devices, electric welders or furnaces, elevators, electrostatic copying machines, or large brush-type motors.

Avoid putting your system in areas of high magnetic interference. Such areas may exist within 500 meters (1650 feet) of a radio frequency source, such as radio-transmitting antennas (AM, FM, TV, and two-way radio), radar (FAA and military), and within 50 meters (165 feet) of certain industrial machines (RF induction heaters, RF arc welders, and insulation testers), certain electrical heating systems, and high-energy power lines. Under these conditions, consider if any special installation or product considerations are needed to ensure normal system operation and maintenance. Contact your service representative if you need assistance in determining if you have a potential problem.

The maximum power varies from country to country. See Appendix C for details so a power phase imbalance does not occur.

Power Supplies

Appendix C shows power, plug, receptacle, and power cord specifications. Appendix D includes primary power information for all devices that attach to the system, either directly or through a cabling device. Consider the following when planning power supplies:

- All the system devices use single-phase power in the United States except for the 4245 Models T12 and T20 Printers which use three-phase power.
- Some countries in Europe, the Middle East, and Asia require two-phase power for the 9309 Rack. Appendix C shows the different versions and the countries to which they apply.

- Voltage must be maintained within the stated range of the device voltage (measured at the receptacle) when the system is operating. A transient-voltage condition must not exceed +15% or -18% of nominal and must return to the normal range of the voltage within one-half second.
- Line frequency must be maintained within ±1/2 hertz (cycles per second).
- The maximum harmonic content of the power system voltage waveforms on the equipment feeder must not exceed ±5% when the equipment is not operating.

9406 System Power Requirements Chart

Nominal Voltage	60 Hertz Minimum	60 Hertz Maximum	50 Hertz Minimum	50 Hertz Maximum
100	90	110	90	110
110	96.5	119	99	119
120 (115)	104	127	—	—
127 (123.5)	111	137	111	136
200, 208	180	220	180	220
220	198	238	198	238
230	—	—	202	249
235	—	—	212	258
240	208	254	210	259
380	333	410	333	410
400, 415	–	–	363	448

Power Distribution

The system requires no special power distribution; it can operate on the feeder that supplies other loads if there are no unusual loads, as discussed in the preceding text.

Branch circuits should be protected by circuit breakers or fuses suitable for motor-load application. The circuit breakers or fuses should be placed in an unobstructed and well-lit area in the data processing room.

Grounding

Power cords have a green-with-yellow-trace grounding conductor for equipment ground. The recommended branch-circuit receptacles have a mating equipment ground. The customer-supplied branch circuits must have an insulated wire conductor, at least equal to the size of the phase conductor, for the purpose of grounding the equipment. The branch circuit grounding wire must be tied to a common ground point at the distribution panel, and a single grounding wire must run from the distribution panel ground point to service ground or suitable building ground. This is a dedicated ground, not a neutral. Conduit must not be used as the only grounding means.

Lightning Protection

You should install lightning protection on your secondary power source, if any of the following conditions apply:

- The utility company installs lightning protectors on the primary power source.
- An overhead power service supplies power to the building.
- The area is subject to electrical storms or equivalent power surges.
- Signal cables extend between buildings or between different power sources.

Uninterruptible Power Supply

You might want to install an uninterruptible power supply on your system. For more information on selecting and installing an uninterruptible power supply for your system, refer to Appendix E. If you still need more information, refer to the *Uninterruptible Power Supply Planning Manual*, (this manual does not have specifications; use it as a guide since some sections refer to other systems), or to the *Backup and Recovery Guide*, or contact your marketing representative.

Task 2.8 Planning Security

System security allows you to control who can use your devices, data, and programs. You may want to assign someone to be a security officer depending on how critical your business information is and how elaborate a security system you want to have.

You should plan for two types of security, physical and resource security.

Planning Physical Security

Physical security is protecting your devices against damage and protecting the system from being used by people who do not have the correct authority. Consider the following when planning physical security:

- Providing a locked room or a room with a badge reader for your system
- Storing your tapes or diskettes in a safe place (for example, a fireproof safe)
- Keeping a backup copy of your system off your site, at another location
- Locking the control panel of your system unit with a keylock

Planning Resource Security

Resource security, also called data security, helps you prevent unauthorized people from gaining access to information stored on the system. Resource security is restricting access to files, libraries, devices, or any other objects or system resources. Consider security tasks when planning data security:

- Creating user profiles
- Authorizing users to sign on the system
- Specifying library security
- Specifying menu security
- Creating authorization lists
- Authorizing users to specific system resources

Also consider planning for the following types of system authority:

- Special authority defines which types of actions a user or group of users can perform on system resources. This is given when you create or change the user profile.
- Object authority defines how a user can use a system resource. This is given when you define a user to an object.

Planning for Security before Your System Arrives

You should determine the following before you receive your system:

- Who will use the system.
- Who will be your security officer.
- If you want to plan for more than: 1) providing a locked room for your system, 2) storing your tapes or diskettes in a safe place, and 3) locking the control panel of your system unit with a keylock (you will need to wait until after your system arrives), you should refer to the *Security Concepts and Planning* manual.
- What level of resource (data) security do you want on your system.
  - Level 10: system is not secured; a user ID is required for the user to sign on; no password is required for the user to sign on; the user can access all system resources.
  - Level 20: a user ID and password are required for the user to sign on; the user can access all system resources.
  - Level 30: a user ID and password are required for the user to sign on; users can access system resources to which they are authorized.

The AS/400 system is shipped to you without security (level 10). At the time the system is installed, you can change to security level 20 or 30 when the configuration menu appears.

The *Security Concepts and Planning* manual has additional resource security precautions. If you have advanced program-to-program communications (APPC), you should refer to the *APPC and APPN User's Guide* for security information.

Security Reminders

When you select where to put your system, be sure to follow any guidelines your company may have for protecting equipment and information. Talk to the people who will be using the system to see if there are any special security requirements and consider the following:

- Use solid walls in place of windows.
- Store computer records in secure and fire-proof storage areas.
- Review any possibility of security risks if you have dropped ceilings; these could provide a potential crawl space for unwanted visitors.

Chapter 3. Planning to Install Your System

You will need the following forms (found in Appendix F) to do the tasks in this chapter:

- System Information Form (Form A1)
- Sample Plan View Forms (Forms B1, B2, B3, B4, and B5)
- Local Work Station Diagrams (Forms C1, C2, and C3)
- Local Twinaxial Work Station Controller Index (Form D1)
- Remote Work Station Diagrams (Part 1 of Forms C4, C5, and C6)

The following task overview shows the planning tasks in this chapter. Tasks in **bold** print **should** be completed; the other tasks are optional. Check off the boxes in "Task 1.3 Reviewing the System Planning Checklist" on page 1-4 as you complete each task.

TASK OVERVIEW

"Task 3.1 Drawing Your Local Floor Plan."
"Task 3.2 Adding the Plan Views."
"Task 3.3 Planning the Cable Requirements."
"Task 3.4 Determining Work Station Addresses."
"Task 3.5 Completing the Local Work Station Diagrams."
"Task 3.6 Completing the Local Twinaxial Work Station Controller Index."
"Task 3.7 Drawing Your Remote Floor Plan."
"Task 3.8 Adding the Plan Views."
"Task 3.9 Planning the Remote Cabling Requirements."
"Task 3.10 Determining Remote Work Station Addresses."
"Task 3.11 Completing the Remote Work Station Diagrams."

Task 3.1 Drawing Your Local Floor Plan

Your floor plan must be accurate and drawn to scale (1 mm equals 5 cm; 1/4-inch equals 1 foot on the plan views in Chapter 2) so you can determine such things as cable length and cable paths. It will also be used by the person who plans for electrical power ("Task 2.7 Planning for Electrical Power" on page 2-13), by the service representative who installs your system, and by you when you set up your work stations.

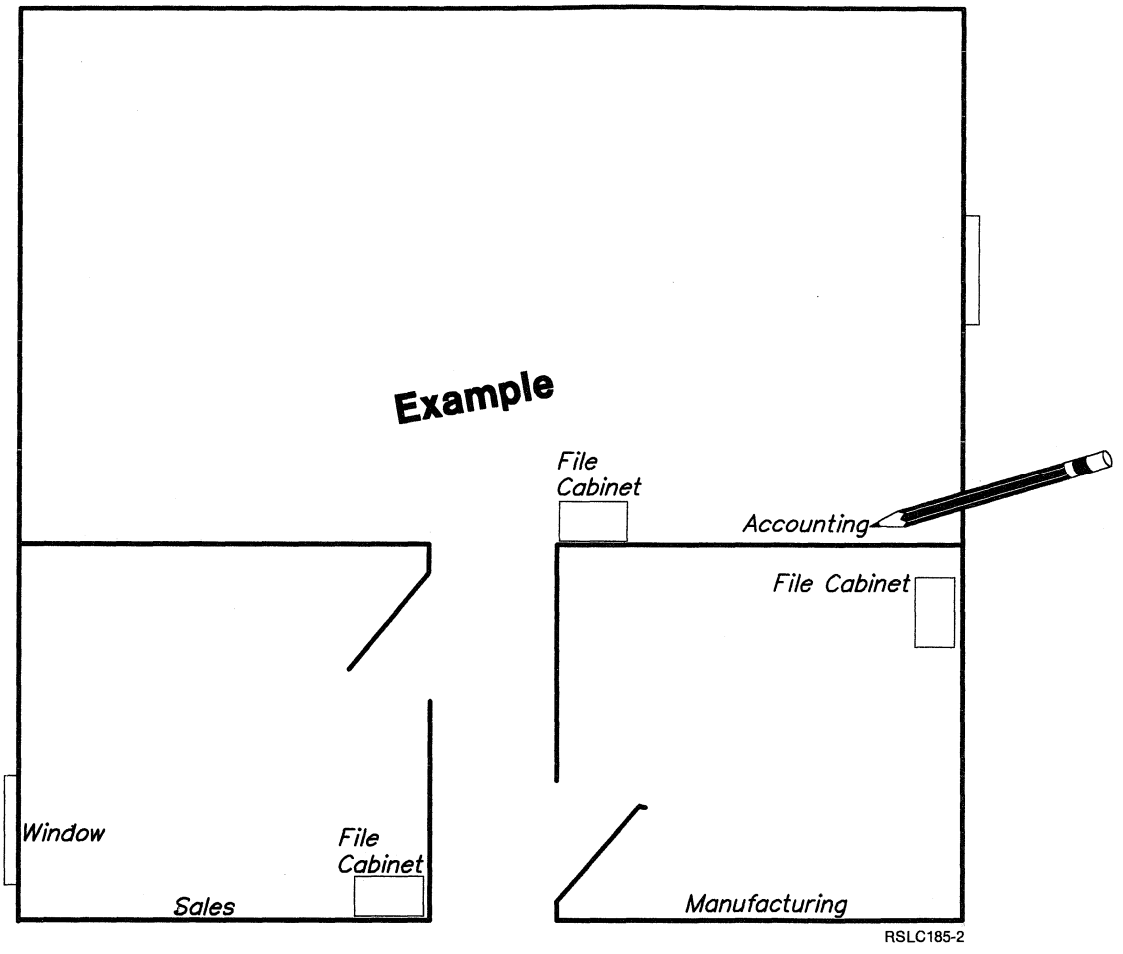
STEP 1: Find any existing floor plans you may have; otherwise, get some chart paper or plain paper to draw on. (Chart paper would be most helpful because the plan views that you will put on the floor plan are drawn to a scale where 1 mm equals 5 cm or 1/4-inch equals 1 foot.)

STEP 2: Draw the layout of your office or offices from an aerial view, as if you were looking down from above your office ceiling. First draw the walls, doors, and windows. Then include the location of the following items on your floor plan:

- All emergency exits, and columns or pillars
- Air conditioning equipment and controls
- File cabinets, desks, and other office equipment
- Power receptacles

- Room emergency controls to shut off the system

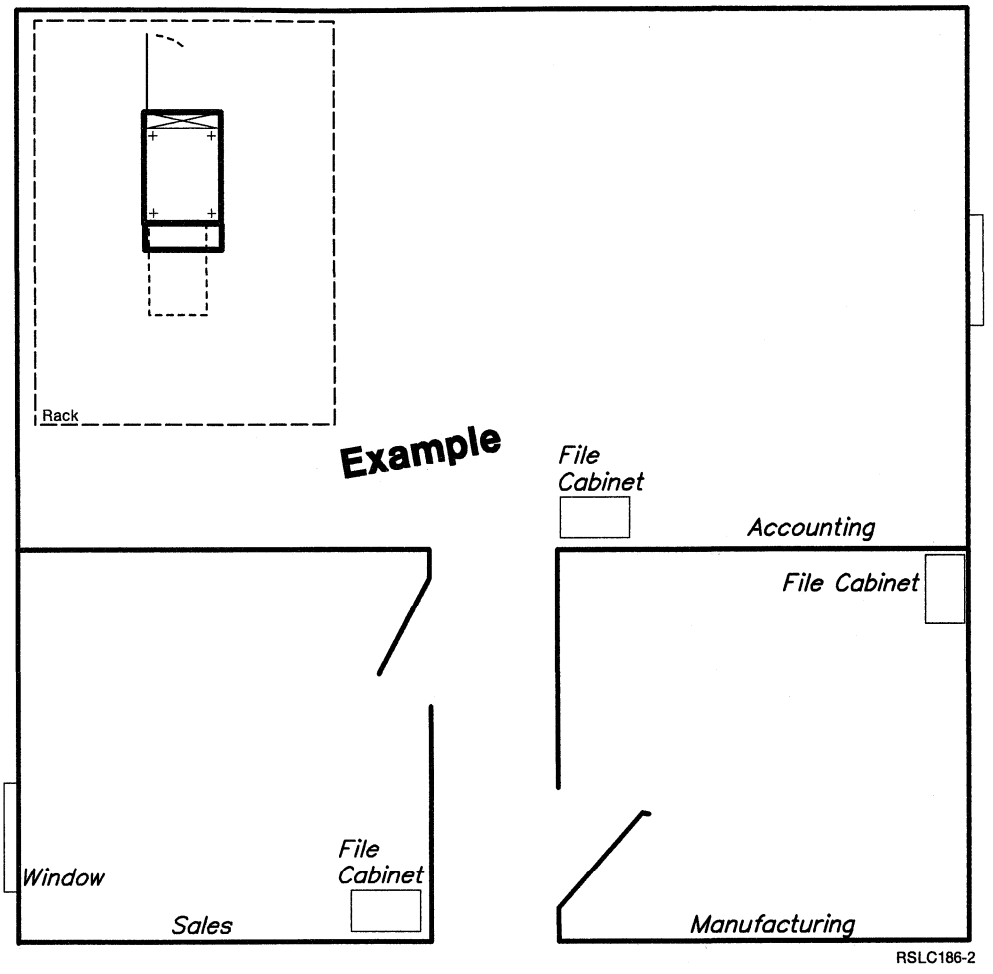
Identify each room with a name or number, such as accounting or manufacturing, as shown in the following example.



Task 3.2 Adding the Plan Views

STEP 1: Once you have drawn your floor plan, get Form A1 to determine what devices you need to include in your completed floor plan.

STEP 2: Make a copy of Form B1 (found in Appendix F) which contains the plan views for a rack or for more than one rack, cut out the needed plan views (around the dotted lines representing the service clearances), and place them on your floor plan. (As an alternative, you can trace the plan view or draw its approximate size on your floor plan.) If you have more than one rack, you should have already done this in "Task 2.3 Reviewing Rack and Device Plan Views."



Considerations for More Than One Rack

If you have more than one rack or if you plan to expand your system, allow enough clearance to the right or left of the rack for another rack. The maximum number of adjacent racks for a floor-load rating of 345 kg/m^2 (70 lb/ft^2) is six racks side-by-side. The maximum number of adjacent racks for a floor-load rating of 244 kg/m^2 (50 lb/ft^2) is two racks side-by-side.

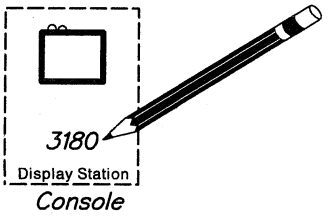
You should have identified the required weight distribution and service clearances required for the floor-load rating of your location (345 kg/m^2 (70 lb/ft^2) or 244 kg/m^2 (50 lb/ft^2)) in "Task 2.3 Reviewing Rack and Device Plan Views." The weight distribution clearance assumes each rack has a maximum weight of 492 kg (1085 lb).

If you change the weight distribution and service clearances, you should obtain the services of a qualified consultant or structural engineer to determine floor loading. As a minimum, the weight distribution and service clearances shown in the sample plan views and listed in Appendix D and Appendix G are required for the 9309 Rack.

Also, you need an independent power receptacle for each rack. Remember to put these on your floor plan.

STEP 3: Make a copy of the sample plan views (Forms B2 through B5 in Appendix F) for all other devices that you ordered, cut them out, and place them on your floor plan. (As an alternative, you can trace the sample plan views or draw them on your floor plan.)

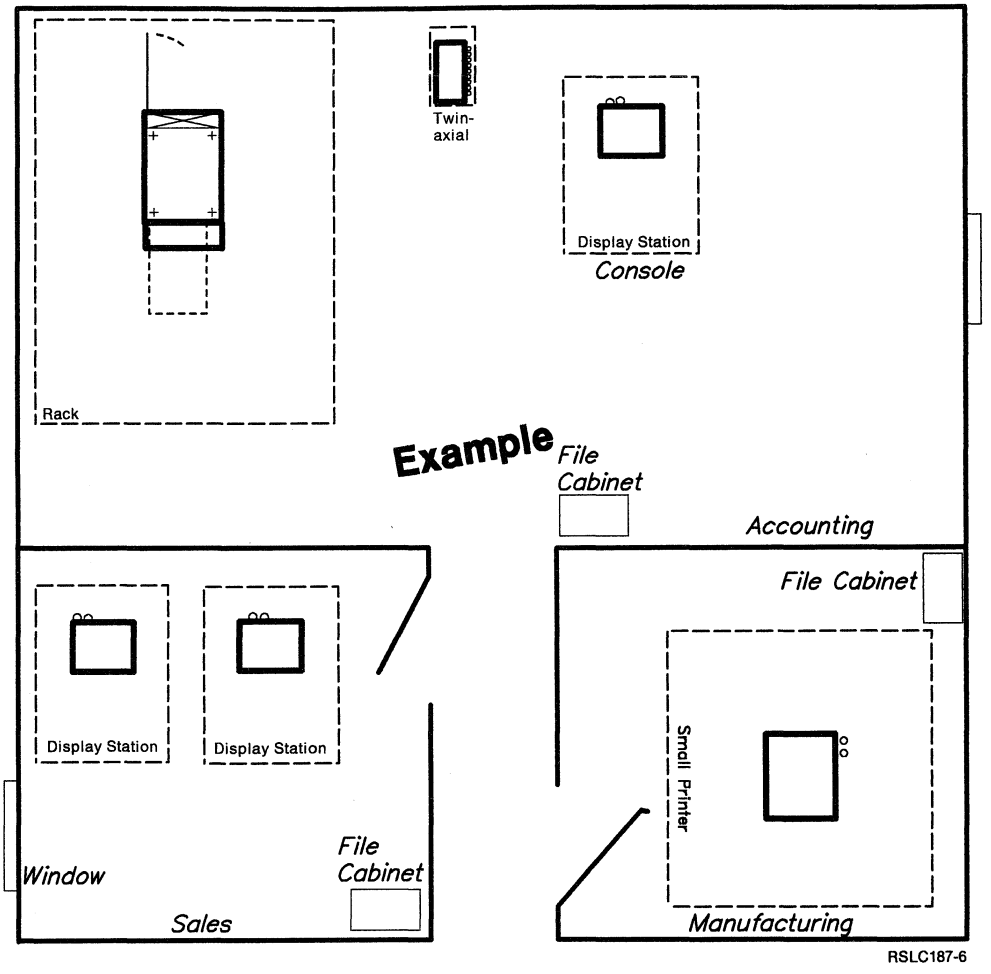
STEP 4: You may want to record the device type on the plan view to help you remember, as shown in the following example.



RSLC183-1

STEP 5: Write *console* next to the display station on the floor plan to indicate it is the one for the service representative to install. The console may be any supported display station or any personal computer (that has a 5250 emulation card) attached to a twinaxial work station controller.

This display station must be 6.1 meters (20 feet) or less from the rack. The console must be in the same room as the rack. This arrangement also ensures operator efficiency and prompt servicing.



Task 3.3 Planning the Cable Requirements

You must plan cable requirements: the type of cable, cable path considerations, the cable path, and the cable length. Consider not only your current needs but also your anticipated growth and relocation of personnel. If you ordered a Total System Package system with work stations, 6-meter (20-foot) cables will automatically be included in the shipment.

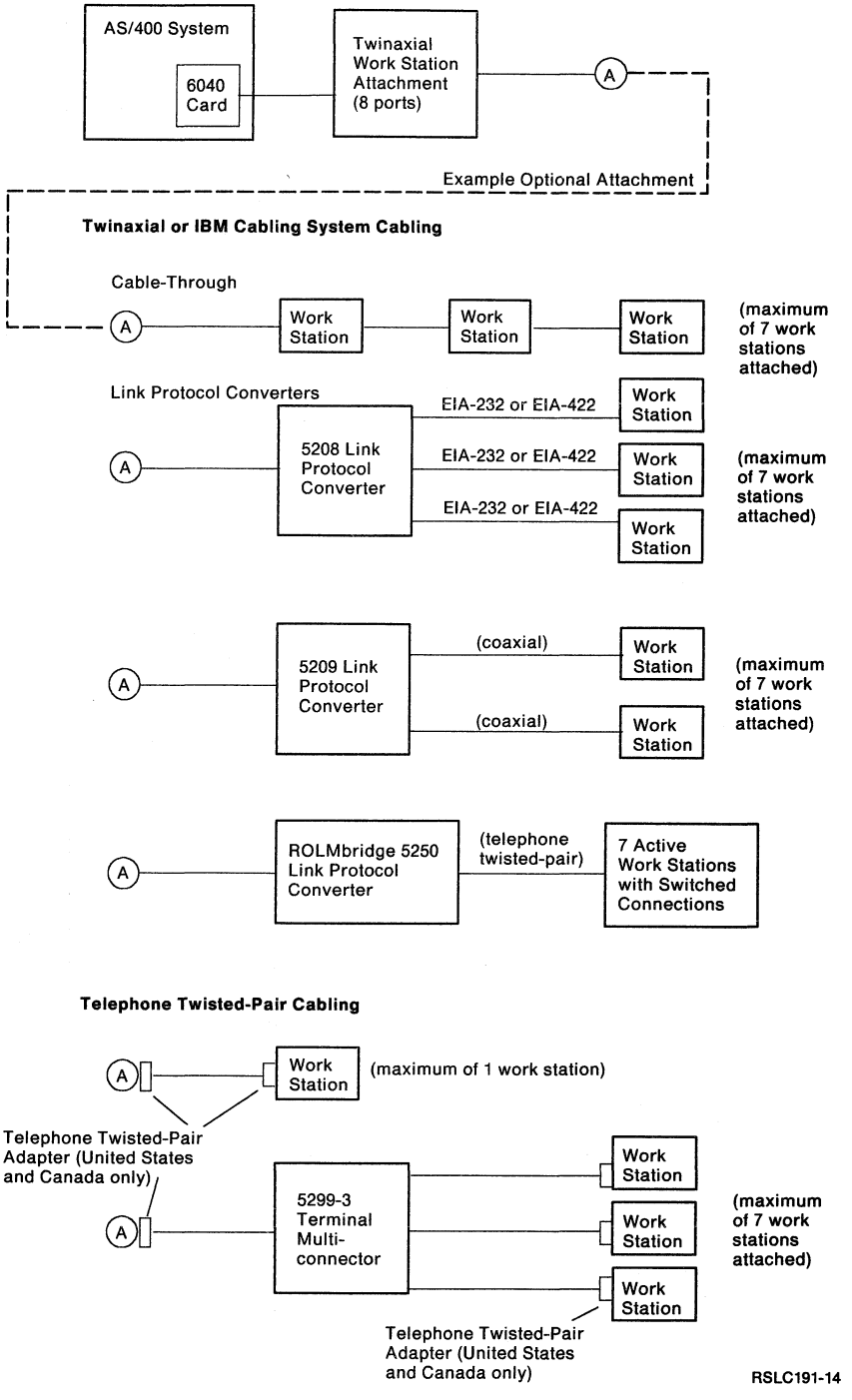
You are responsible for planning for the installation of the interconnecting cables for the system and should contact the appropriate architect, engineer, consultant, or contractor for guidance and assistance when required.

You should ensure that your cabling installation complies with the building and electrical codes for your locality.

Determining the Cable Type

There are several cabling systems available to you: telephone-twisted pair cabling, IBM Cabling System, and twinaxial cabling. You may have one or more of these cabling systems. Look on Form A1 (Part 2) to determine what type(s) of cabling you ordered or plan to order. Before you draw your cable paths, read the following information about the type(s) of cabling system you have or plan to have.

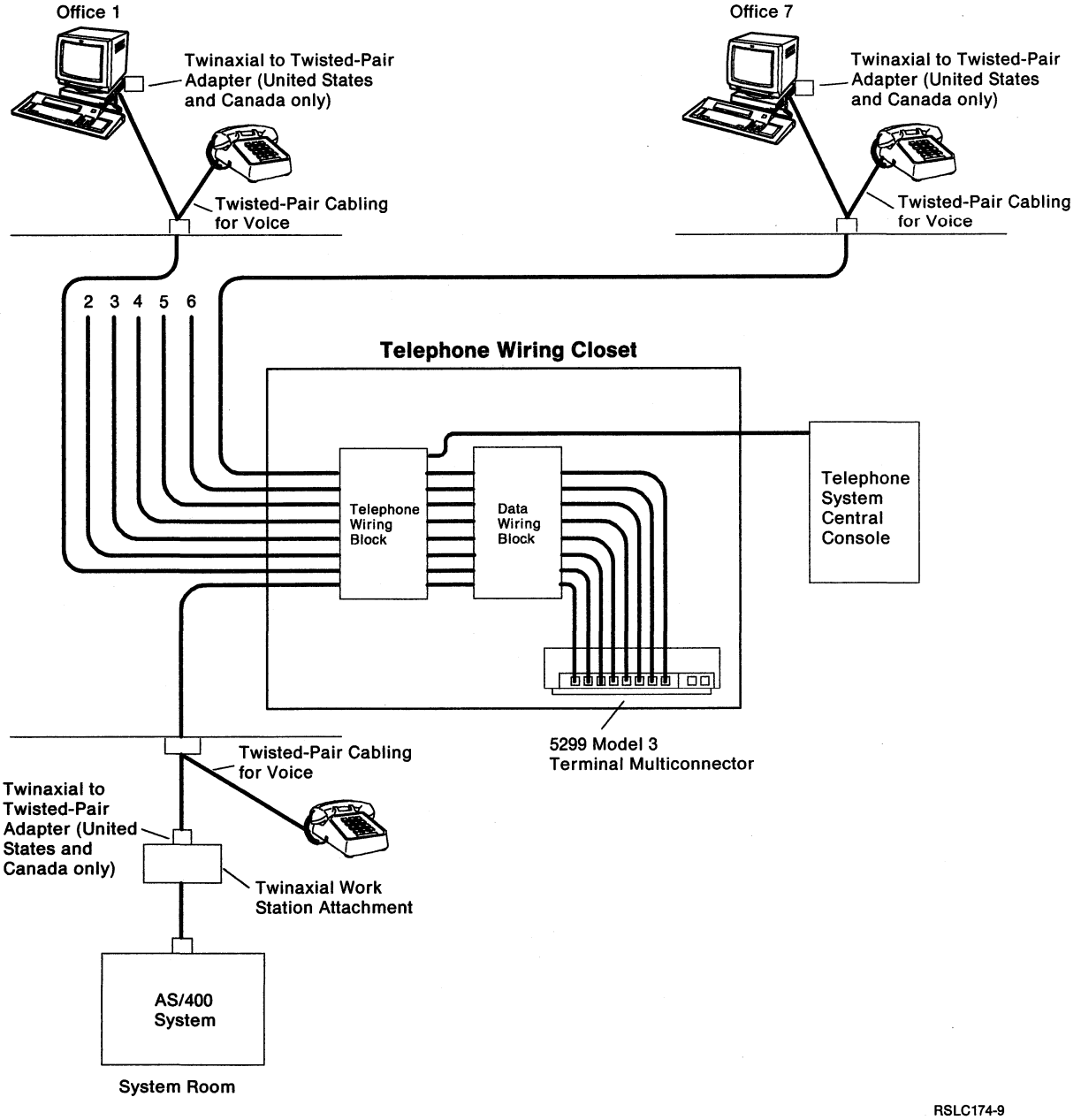
The following summarizes the types of cabling that can be used with the system. It also shows some of the ways devices can be attached to the system, with respect to the cabling type. The *A* represents where the options can be connected to the twinaxial work station attachment. Review this again later when you are ready to draw the cable paths.



Telephone Twisted-Pair Cabling

Consider this cabling system for new systems or if you are setting up your system in a new location. Telephone twisted-pair cabling allows you to attach display stations and printers to a twinaxial work station controller by using the 5299 Model 3 Terminal Multiconnector. It allows you to attach these work stations using the same telephone wiring cable that is typically already installed for the voice networks (the telephone).

The following graphic shows how telephone twisted-pair cabling can be used to attach devices to a system.



This cabling system allows you to move various devices without rewiring for each device that is moved.

The wiring design for this cabling system uses wiring closet distribution. Most of the wiring is placed in small rooms or closets. Work areas (such as offices and factory locations) are wired to one or more wiring closets. After the cabling system is installed, it can be changed in the work areas and wiring closets to meet your needs without costly rewiring of the building.

Some of the advantages to using telephone twisted-pair cabling for your system are as follows:

- It is less expensive than twinaxial cable.
- In a new office, you probably do not need to install separate wiring for your new telephone system and to work stations that connect to AS/400 (through a cabling device such as a 5299 Model 3 Terminal Multiconnector).
- In an existing office, you may be able to use your existing telephone wiring.
- It provides flexibility in configuring your data network.

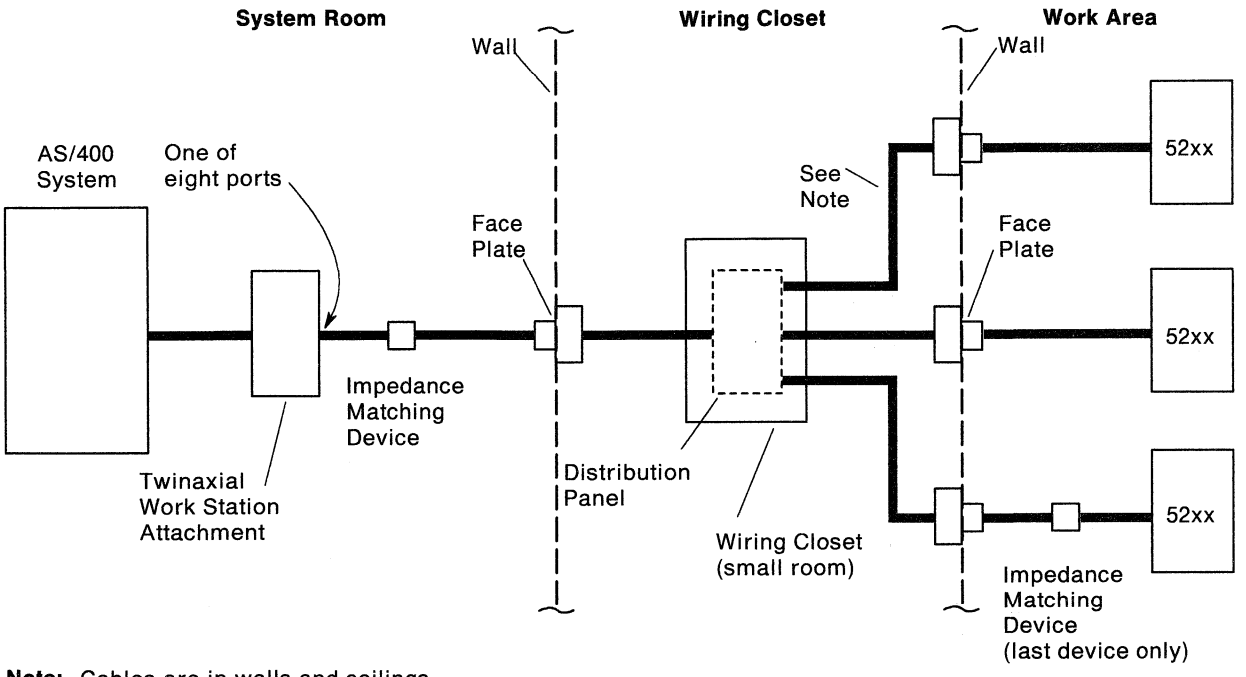
For more information about installing and maintaining the telephone twisted-pair cabling system, see the *IBM 5299 Terminal Multiconnector Model 3 Planning, Setup, and Maintenance Guide.*

IBM Cabling System

The IBM Cabling System lets you attach display stations and printers to a work station controller, to your system by using a cabling device such as a link protocol converter, or to each other. The IBM Cabling System uses the same wiring in a building, thereby allowing you to move various devices without rewiring for each device moved.

The wiring design for this cabling system uses wiring closet distribution. Most of the wiring is placed in small rooms or closets. Work areas (such as offices and factory locations) are wired to one or more wiring closets. After the cabling system is installed, it can be changed in the work areas and wiring closets to meet your needs without costly rewiring of the building.

The IBM Cabling System supports cable-through capability, which gives you the economy and convenience of connecting more than one device to a single cable. In the following example, only one system work station port is shown; however, multiple ports can be connected in a similar manner. Actual wiring will vary from one building to another.



Note: Cables are in walls and ceilings.

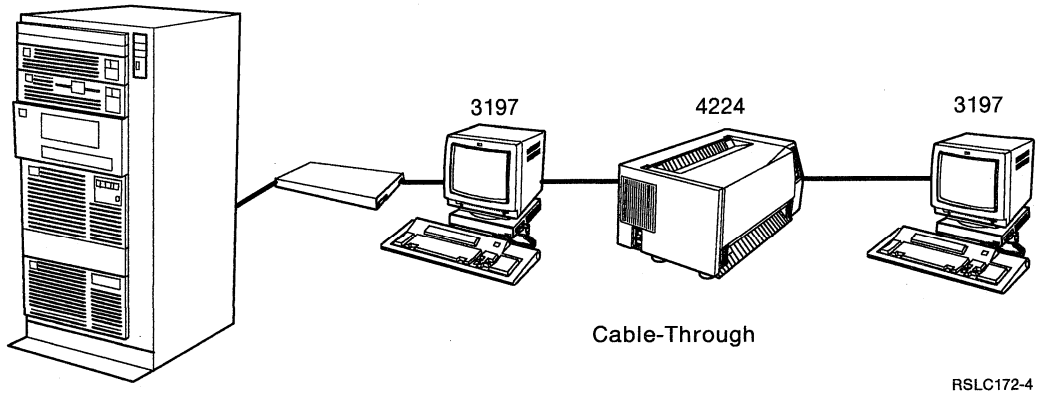
RSLC170-7

For information about installing and maintaining the cabling system, see the *IBM Cabling System Planning and Installation Guide* and the *Using IBM Cabling System with Communications Products* manual.

Twinaxial

Twinaxial cable may be used to attach display stations and printers to a work station controller or to each other. Twinaxial cables have either a vinyl or Teflon[1] covering.

A twinaxial cabling system supports cable-through capability, which gives you the economy and convenience of connecting more than one device to a single twinaxial cable.



RSLC172-4

Refer to the *IBM 5250 Information Display System Planning and Site Preparation Guide* for additional information.

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[1] Trademark of E. I. du Pont de Nemours and Company, Inc.

Reviewing Cable Path Considerations

Most of the following items have to do with twinaxial cabling, although some of them apply to the other types of cabling. Consider the following before drawing your cable paths:

- For each of the eight ports on a twinaxial work station attachment, you can attach up to seven work stations (a total of 56). Each twinaxial work station controller supports up to 40 active work stations at one time.
- The console may be attached to a twinaxial work station controller.
- The total number of cable junctions on a twinaxial cable line must not be greater than 11. (A cable junction exists whenever a cable on a line is cut to attach a work station, station protector, or an adapter that joins two cables. Each pair of connections to a device is considered one junction.)
- A work station has either one or two sockets for attaching cables. Work stations with two sockets have cable-through capability. Refer to the *Attaching Cables* manual to determine how to attach cables.
- Before drawing a cable path between work stations, make sure that the work station the cable is coming from has cable-through capability.
- If you are using twinaxial cabling or the IBM Cabling System, the last work station on a cable-through line cannot be more than 1525 meters (5000 feet) in cable distance from the system.
- For twinaxial cable paths, for cables going both horizontal and vertical, the cable must be supported every 3 meters (10 feet) if not laying on the floor.
- Cables should not dangle from the ceiling in the work area; cables should be attached to a wall or building column.
- Twinaxial cables can be run in the same conduit as telephone lines, provided adequate openings are made for cable connectors.
- A cable connected to any one of the eight ports on the twinaxial work station attachment must always go to the input socket on the work station. Refer to the work station installation manual for your specific device if you need more information.
- A cable connected to the output socket on a work station must always go to the input socket on the next work station.
- When drawing the cable paths, consider how the cables will be routed in the building. Cables should be laid out to avoid:
  - Creating a safety hazard, such as running a cable in front of a door or in an aisle or traffic area
  - Exposing the cable to possible damage
  - Routing the cable into a physical barrier, such as a block wall
  - Sources of electrical interference such as power lines transmitting or electrical equipment using more than 440 volts
- Include additional cable length, if required, due to an indirect cable route.
- You may need cable guards or ramps to ensure safety of equipment and personnel.

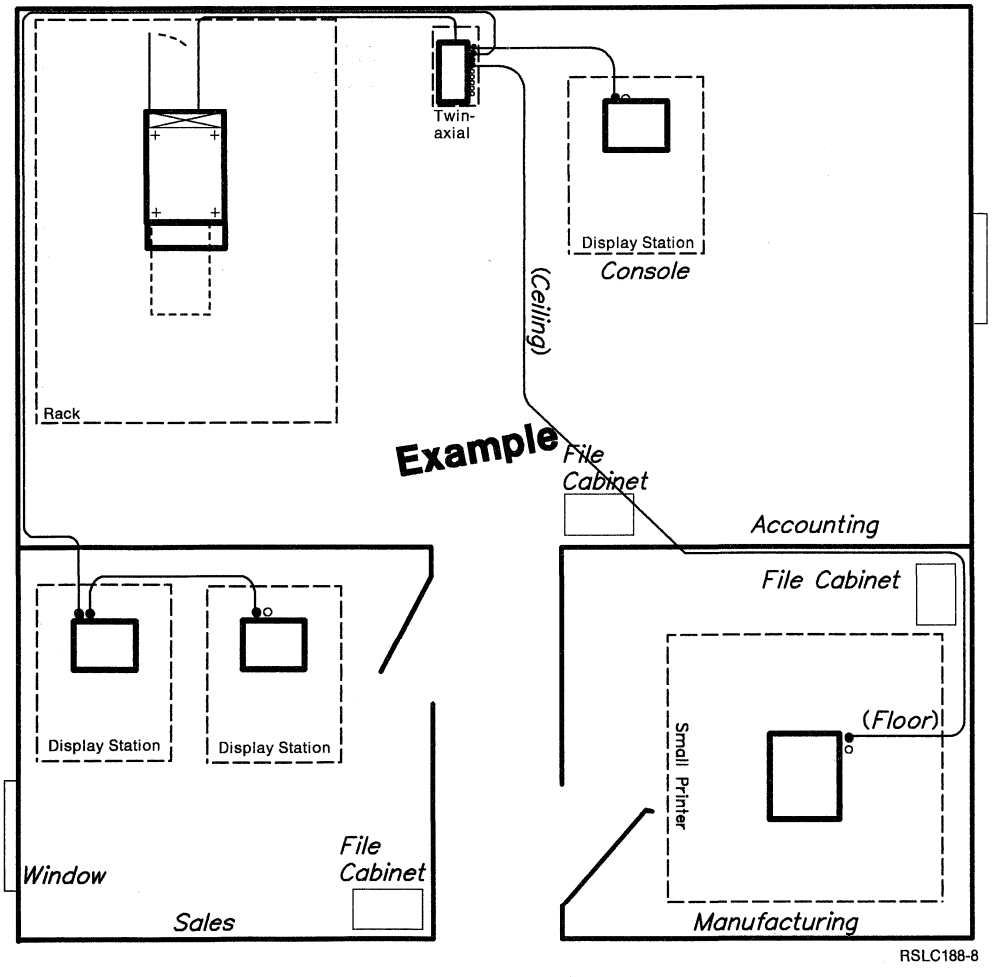
Drawing the Cable Path

STEP 1: Keeping the cable path considerations in mind, draw the cable paths from the twinaxial work station attachment to devices that attach directly to it.

STEP 2: Draw the cable paths from the devices that attach directly to the twinaxial work station attachment (for example, terminal multiconnectors, link protocol converters, display stations, or printers) to devices that attach indirectly (usually display stations and printers).

Note: If you have link protocol converters or terminal multiconnectors, additional cabling rules should be followed. Refer to those device manuals for specific information.

STEP 3: Continue drawing cable paths out to any remaining devices. Your floor plan should look something like the following example.



Determining the Cable Length

Before you can order work station cables, you must know the required length of each cable.

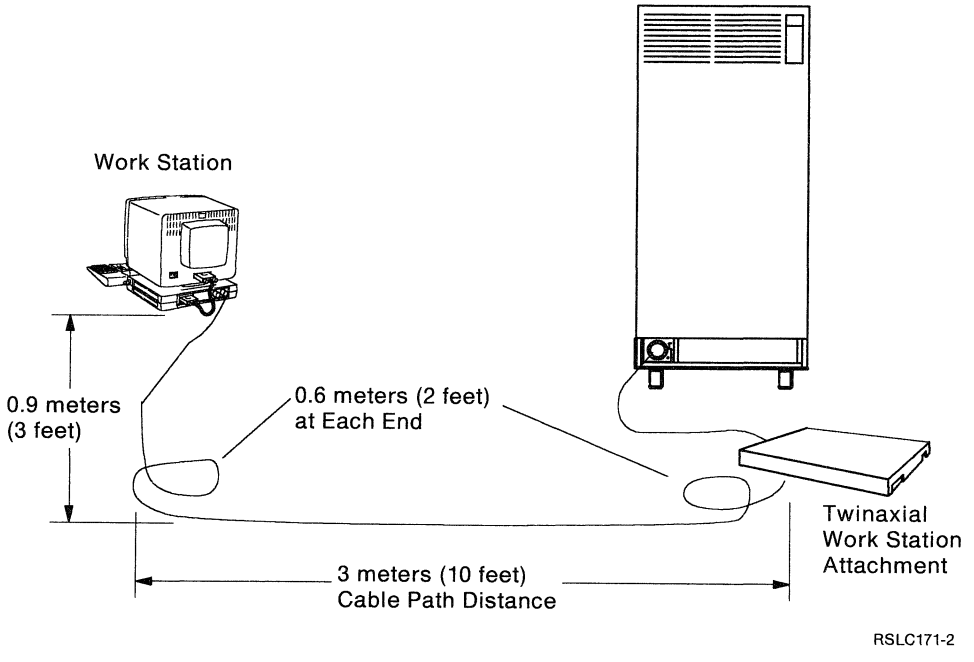
STEP 1: Get your floor plan to determine the cable path distances. (If you have drawn your floor plan to scale, this will be easier to do.)

STEP 2: Measure work station cables from the connector on the work station to the connector on the twinaxial work station attachment; be sure to consider the intended cable route, including diagonal and vertical cable runs. Do this for each twinaxial work station attachment.

STEP 3: If you have a raised floor, allow a minimum of 0.6 meter (2 feet) at both ends of a connection for slack in the cable.

STEP 4: Add 0.9 meter (3 feet) for the connection to a display station or printer.

The following illustration shows the cable path distance between the twinaxial work station attachment port and the work station socket. For this example, the cable that needs to be ordered or assembled is 5.1 meters (17 feet) long. This is 1.2 meters (4 feet) longer than the cable path distance.



STEP 5: Allow enough cable to move the machines for servicing.

STEP 6: After you determine the length of each cable, record the length of each cable on the floor plan. Read the following considerations:

- A 5251 Model 11 Display Station requires an additional 0.6 meter (2 feet) of cable for routing. Ensure that the additional 0.6 meter (2 feet) is included in your cable length estimate.
- If cables will be installed in the ceiling or floor, consider the distance from the ceiling down to each unit or from the floor up.
- The sockets on the display stations and printers that sit on tables are about 0.75 meter (2.5 feet) above the floor.

- The sockets on printers that are separate units, such as the 5262 and 4245 Printers, are about 0.15 mm (6 inches) above the floor.
- Allow an extra 0.41 mm (16 inches) of cable for cables connected to a twinaxial work station attachment.
- If you have existing blueprints of your location, refer to these to draw your cable path. Keep in mind that the scale of the floor plans might be different.
- Be sure to measure from room to room and from building to building, if required.

STEP 7: Review the final layout to make sure that cable lengths do not go over limitations, that all devices have correct clearances, and that all cable path considerations have been reviewed.

STEP 8: After you record the cable lengths on the floor plan, record the lengths on Form A1 (Part 2).

Separating Work Station Signal Cables from Power Lines

This section contains information for twinaxial cabling. For telephone twisted-pair cabling refer to the *IBM 5299 Terminal Multiconnector Model 3 Planning, Setup, and Maintenance Guide*. For IBM Cabling System cabling refer to the *IBM Cabling System Planning and Installation Guide*.

The following distances are a guide for voltages up to 440 volts. Work station signal cables should not be installed near any power lines transmitting or electrical equipment using more than 440 volts.

- The recommended minimum distance between a work station cable and fluorescent, neon, or incandescent lighting fixtures is 127 millimeters (5 inches).
- The recommended minimum distance between a work station cable and unshielded power lines or electrical equipment depends on the power consumption of the equipment:
  - 2 kVA or below: 127 millimeters (5 inches)
  - 2 through 5 kVA: 305 millimeters (12 inches)
  - Over 5 kVA: 610 millimeters (24 inches)
- The recommended minimum distance between a work station cable and unshielded power lines or electrical equipment with the work station cable in a grounded metallic conduit is:
  - 2 kVA or below: 63.5 millimeters (2.5 inches)
  - 2 through 5 kVA: 152 millimeters (6 inches)
  - Over 5 kVA: 305 millimeters (12 inches)
- The recommended minimum distance between a work station cable and power lines in a grounded metallic conduit is:
  - 2 kVA or below: 63.5 millimeters (2.5 inches)
  - 2 through 5 kVA: 152 millimeters (6 inches)
  - Over 5 kVA: 305 millimeters (12 inches)
- The recommended minimum distance between a work station cable enclosed in a grounded metallic conduit and power lines in a grounded metallic conduit is:
  - 2 kVA or below: 30.5 millimeters (1.2 inches)
  - 2 through 5 kVA: 76 millimeters (3 inches)
  - Over 5 kVA: 152 millimeters (6 inches)

Ordering the Cables

You are responsible for ordering, installing, maintaining, and testing all cabling between work stations and the system. Work station cables are available from IBM, either assembled or unassembled. Install your work station cables, then test them before your system arrives. Appendix A of the *IBM 5250 Information Display System Planning and Site Preparation Guide* contains information on testing cables.

Cables are supplied with a Total System Package order if work stations were ordered. These cables are 6.1 meters (20 feet) long.

For cable specifications and ordering information, refer to the specification pages of the appropriate installing and physical planning manual for the attached device.

These manuals contain more information about installing cables: *Coaxial to Twisted-Pair Guide*, and/or *IBM 5299 Terminal Multiconnector Model 3 Planning, Setup, and Maintenance Guide* for telephone twisted-pair cable; *IBM Cabling System Planning and Installation Guide* for the IBM Cabling System; *IBM 5250 Information Display System Planning and Site Preparation Guide* for twinaxial cable.

Task 3.4 Determining Work Station Addresses

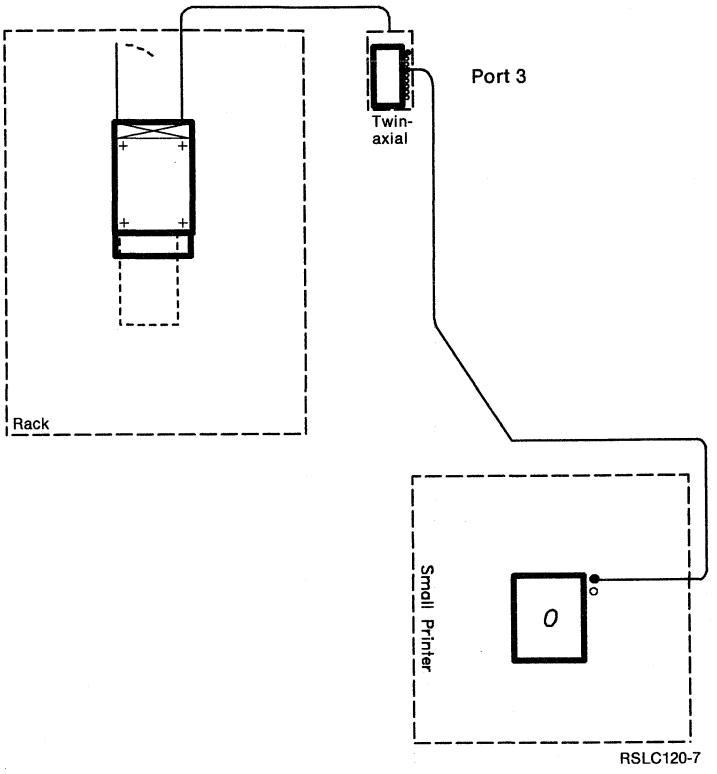
Now that you have decided what cabling to use and have drawn your cabling path, you must determine and record the addresses for each work station on the floor plan. The addresses are used by the system to identify each work station that shares the same port on the twinaxial work station attachment. Determine the address by doing the following steps.

Note: The work station address is the same as the switch setting of the display station or printer. (Some display station addresses are set by using the keyboard.)

STEP 1: Read and consider these rules for addressing work stations.

- The address of the display station designated as the console is set by the service representative as 0 on port 0 of the twinaxial work station attachment on the first work station controller.
- The console must be within 6.1 meters (20 feet) of the system for setup and problem analysis.
- If the console is not working, display stations must be set up for use to service your system.
  - Place a display station at address 0 and port 1 of the first twinaxial work station controller.
  - Place a display station at address 0 and port 0 of the second twinaxial work station controller (if installed).
- A work station with cable-through capability can have any address 0 through 6.
- A work station without cable-through capability always has an address of 0.
- Each work station must have a unique address.

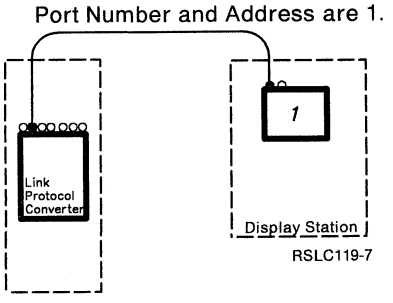
See the following for an example of cabling.



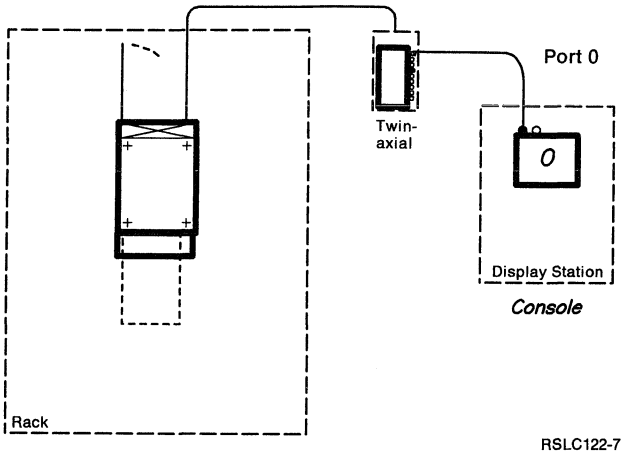
- There should be only 7 work stations per port on the twinaxial work station attachment.

STEP 2: Read and consider the following recommendations for addressing work stations.

- For each of the eight ports on a twinaxial work station attachment, you can attach up to seven work stations (a total of 56). Each twinaxial work station controller supports up to 40 active work stations at one time.
- The link protocol converters and terminal multiconnector can attach to any port on the twinaxial work station attachment. If you are going to have any of these, the address of the work station attached to the link protocol converter is the same as the port on the link protocol converters. See the following example.



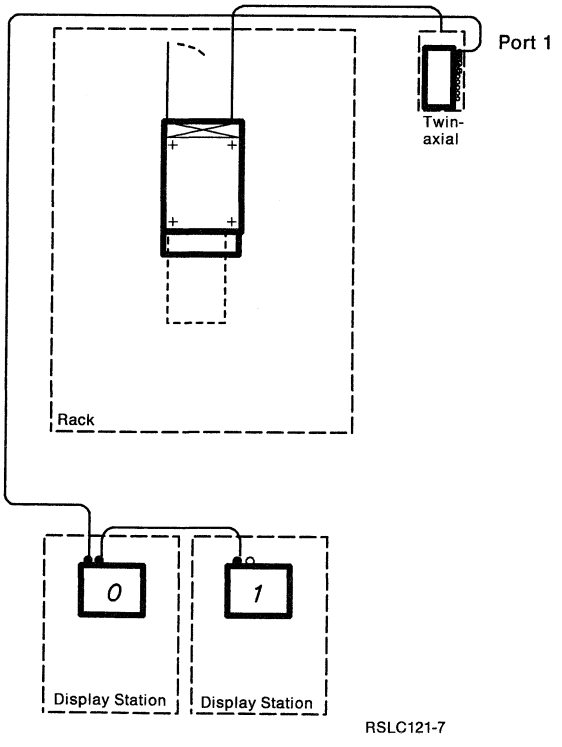
STEP 3: Record a 0 on the floor diagram for the display station which is designated as your console.



STEP 4: Record a 0 for the first work station on the cable; enter a 1 for the second work station (with the cable-through capability) on that same cable, and so on.

Notes:

1. Addresses 0 through 6 are valid for every port on the twinaxial work station attachment.
2. If you have a work station without the cable-through capability, it must have an address of 0. Start with the address 1 for that port and make the work station without the cable-through capability last with an address of 0.



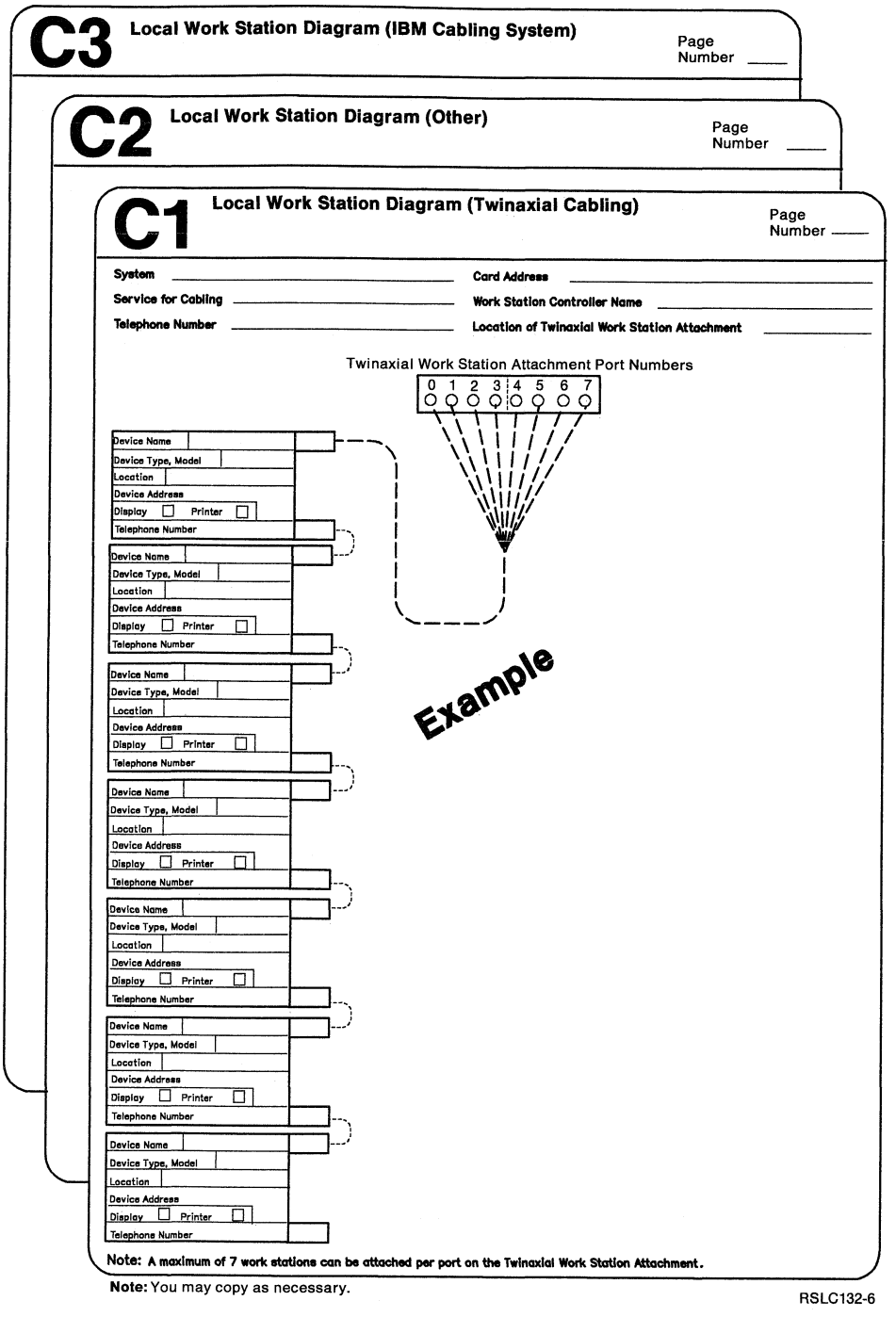
STEP 5: Read and consider the following information for link protocol converters.

- If you have chosen a link protocol converter, the address of the work station corresponds to the number of the port on the link protocol converters.
- For every work station attached before the link protocol converters, fewer devices may be attached to the link protocol converter.

STEP 6: Continue recording the addresses for the work stations attached to all the ports used on the twinaxial work station attachment on the floor plan. You will need this information to complete your work station diagrams.

Task 3.5 Completing the Local Work Station Diagrams

The Local Work Station Diagrams help you understand how the work stations are connected to each other and to the system. Completing this diagram accurately is important because it is used when you set up your work stations and when you define the work stations to the system (configuration time, if you do not use automatic configuration). It will also be used if problem analysis is done for local work station problems. You will need the Local Work Station Diagrams (Forms C1, C2, and C3). These forms are located in Appendix F of this manual. You need one of these diagrams for each port of the twinaxial work station attachments you are using.


C3
Local Work Station Diagram (IBM Cabling System)
Page Number
C2
Local Work Station Diagram (Other)
Page Number
C1
Local Work Station Diagram (Twinaxial Cabling)
Page Number
System
Service for Cabling
Telephone Number
Card Address
Work Station Controller Name
Location of Twinaxial Work Station Attachment
Twinaxial Work Station Attachment Port Numbers
0 1 2 3 4 5 6 7
Device Name
Device Type, Model
Location
Device Address
Display
Printer
Telephone Number
Example
Note: A maximum of 7 work stations can be attached per port on the Twinaxial Work Station Attachment.
Note: You may copy as necessary.
RSLC132-6

STEP 1: Read the following information to help you decide which Local Work Station Diagram to copy and use.

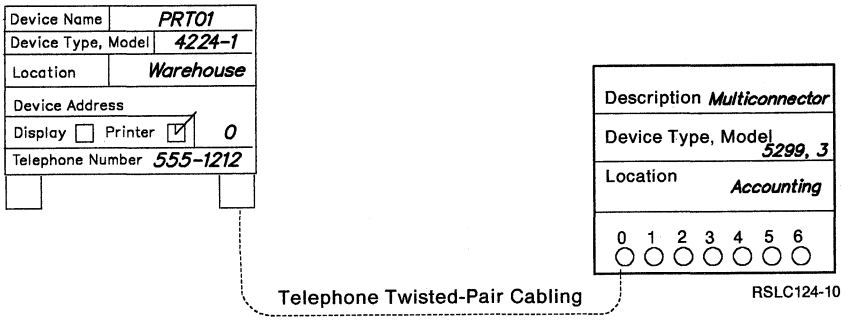
- Twinaxial Cabling

  Use the Local Work Station Diagram (Twinaxial Cabling), Form C1, if you are using twinaxial cabling. All information for twinaxial cabling should be in this manual.

- Telephone Twisted-Pair Cabling and Terminal Multiconnector

  Use the Local Work Station Diagram (Other), Form C2, if you are using telephone twisted-pair cabling with a 5299 Model 3 Terminal Multiconnector attached. Record the port number of the multiconnector on the diagram. The *IBM 5299 Terminal Multiconnector Model 3 Planning and Site Preparation Guide* contains more information.

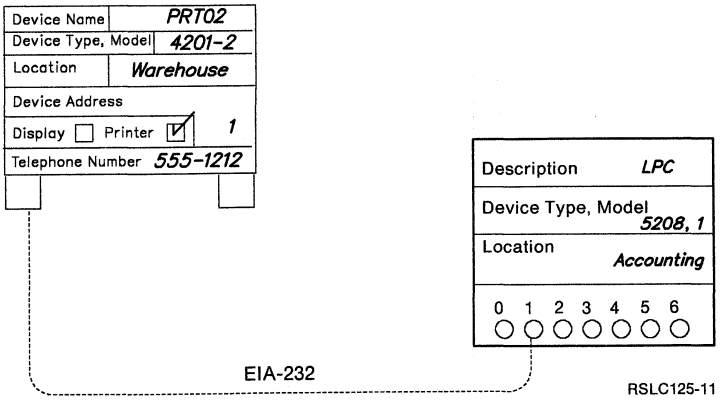
  Note: If you have telephone twisted-pair cabling, you can attach 1 work station without a terminal multiconnector.



- Link Protocol Converters

  Use the Local Work Station Diagram (Other), Form C2, if you are attaching a 5208 or 5209 Link Protocol Converter. Record the port number for the link protocol converters on the diagram as the device address.

  The 5208 Link Protocol Converter has an additional port. Only one of the number 6 ports can be used. The *IBM 5208 ASCII-5250 Link Protocol Converter User's Guide* contains more information.



  The 5209 Link Protocol Converter attaches different devices than the 5208 Link Protocol Converter. The *IBM 5209 3270-5250 Link Protocol Converter User's Guide* contains more information.

- ROLMbridge 5250 Link Protocol Converter

  Use the Local Work Station Diagram (Other), Form C2, if you are attaching a ROLMbridge 5250 Link Protocol Converter. Record the port number for the link protocol converter on this diagram as the device address. The *CBXII 8000 Installation Manual*, 300413, contains more information.

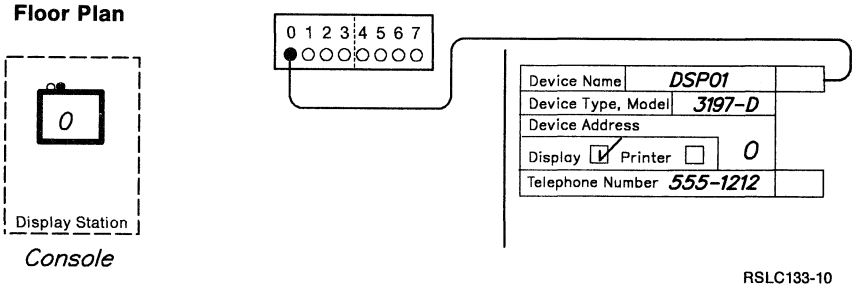
- IBM Cabling System

  Use the Local Work Station Diagram (IBM Cabling System), Form C3, if you used the IBM Cabling System. You may need help from an experienced cabling person. The manual, *Using IBM Cabling with Communication Products*, provides you with the information about completing this form.

STEP 2: Refer to the appropriate manuals to understand your attachment and cabling requirements.

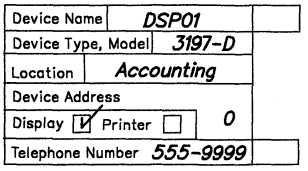
STEP 3: On the C form, fill in the circle representing port 0 of the twinaxial work station attachment on the local work station diagram.

STEP 4: Draw a line from port 0 of the twinaxial work station attachment to the first work station on the diagram. This is a display station designated as the console on the first twinaxial work station attachment. Otherwise, it can be a display station or printer.



STEP 5: Record the correct information to identify each work station on the diagram.

Refer to the following example.



RSLC126-7

- Name of the device

  Record the name you would like assigned to this device. This name should be no longer than 10 characters. Use an alphabetic character (A through Z, dollar sign $, pound symbol #, at symbol @) followed by no more than 9 alphameric characters (A through Z, 0 through 9, dollar sign $, at symbol @, period ., pound symbol #, or underline _).

  Lowercase characters and many other characters can be used for the device name if the characters are enclosed in double quotation marks (" "). Lowercase letters are allowed only for *NORMAL AS/400 names. The double quotation marks count as characters of the device name. Thus, only 8 additional characters are allowed between the beginning and ending double quotation marks.

  Note: If you choose the automatic configuration option, the devices are named by the system for you. Refer to "Task 6.2 Learning about Automatic Configuration" on page 6-4 for a discussion of automatic configuration. You could leave the device name blank at this time and fill it in later. For example, if you are using *NORMAL AS/400 names, your first display station is named DSP01 and your next display station is named DSP02, and so on. The system creates the device name for the console display station as DSP01.

- Device type and model number (if it has one)

  Use Form A1 (Part 2) to determine the device type and model you want used as your first display station. You have listed on Form A1 all device types and model numbers for the display station you ordered. For example, enter 3197 for device type and D for the model number.

- Where the device is located

  From your floor plan, record the location in your business that this device is located. For example, record the office located in accounting.

- Address of the device

  Record the address number of the device you have already placed on the floor plan. Any number 0 through 6 is valid. You set the address on the device to this address when it is installed.

- If it is a display station or printer

  Check the box indicating either a display station or printer. The plan views you used for your floor plan have printer or display station printed on them.

- Telephone number nearest to the device

  Record the telephone number of the person who is to use this device.

STEP 6: Look at the floor plan and find the next work station(s) that attaches to port 0 on the twinaxial work station attachment.

STEP 7: Transfer the information from the local floor plan to the Local Work Station Diagram, as you did before. (Refer to Step 5.)

STEP 8: Draw the line (cable) that leads from the first display station to the next display station or printer on the same port. The dashed lines on the diagrams show the possible cabling paths.

Note: If you are planning for a 5299 Model 3 Terminal Multiconnector, 5208, 5209, or 5250 ROLMbridge Link Protocol Converter, you must draw in the cable from the port on the 5299 Model 3, 5208, 5209, or 5250 ROLMbridge link protocol converter to the next display station or printer.

STEP 9: Repeat steps 6 through 9 for all the devices that attach to this port.

STEP 10: Use a pencil to cross off any unused devices on the diagrams; you might want to add display stations or printers in the future.

STEP 11: Continue recording the information on the Local Work Station Diagrams until all the information for the devices on all ports (depending on the number of ports you are using) have been recorded.

STEP 12: Record the location of the twinaxial work station attachment on the top of the form. To indicate if you are going to use a stand to hold the twinaxial work station attachment, record *stand* here.

STEP 13: Record the work station controller name. Use the following rules to determine the name.

This name should be no longer than 10 characters. Use an alphabetic character (A through Z, dollar sign $, pound symbol #, at symbol @) followed by no more than 9 alphameric characters (A through Z, 0 through 9, dollar sign $, at symbol @, period ., pound symbol #, or underline _).

Lowercase characters and many other characters can be used for the controller name if the characters are enclosed in double quotation marks (" "). Lowercase letters are allowed only for *NORMAL AS/400 names. The double quotation marks count as characters of the controller name. Thus, only 8 additional characters are allowed between the beginning and ending double quotation marks.

Note: If you choose the automatic configuration option, the controller is named for you by the system. Refer to "Task 6.2 Learning about Automatic Configuration" on page 6-4 for a discussion of automatic configuration. For example, if you are using the *NORMAL AS/400 names, your first work station controller is named CTL01, your second controller is named CTL02, and so on. The system creates the name of the first controller as CTL01.

STEP 14: Record the system name. This should be the same name you used on any of your other forms.

STEP 15: Record the name of the company or person and telephone number who does the cabling for you.

STEP 16: Leave the card address blank for now. You will be using the *Rack Configuration List* after your system arrives, as explained in the *Device Configuration Guide*, to find out the card address for the work station controller.

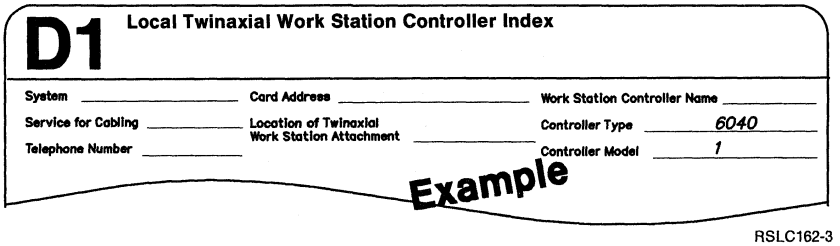
STEP 17: Begin numbering your page with 1 and record that number on the form as the page number in the top right corner.

Note: You need one of these diagrams for each port of the twinaxial work station attachment you are using.

STEP 18: Repeat these steps to complete work station diagrams for all the work station controllers you have.

Task 3.6 Completing the Local Twinaxial Work Station Controller Index

To summarize the types of cabling and attachments you have chosen for your system, the Local Twinaxial Work Station Controller Index, Form D1, is provided. You should complete one of these forms for each local work station controller you have ordered. This form is found in Appendix F of this manual. Use the following example to help you complete Form D1.



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STEP 1: Make a copy of Form D1 for each twinaxial work station controller you ordered.

STEP 2: The possible choices of cabling and attaching your work stations to your system are listed on Form D. Record the cabling method you are using under the *Type of Cabling/Attachment* column.

STEP 3: Record the page number of your C forms under *Your Form C Page Number* column.

STEP 4: Record the system name that you used on all the other forms.

STEP 5: Record the name and telephone number of the company who does the cabling for you.

STEP 6: Leave the card address blank for now. You will use the *Rack Configuration List* after your system arrives as explained in the *Device Configuration Guide*, to find out the card address for the work station controller.

STEP 7: Record the work station controller name, controller model, and the controller type. The work station controller name should match the work station controller name you recorded on the Local Work Station Diagram. The controller type is 6040 and controller model is 1.

STEP 8: Make a copy of all the forms completed in this task and keep them with your other planning forms.

Task 3.7 Drawing Your Remote Floor Plan

The floor plan of your remote site, as the local floor plan, must be accurate and drawn to scale (1 mm on the plan view equals 50 mm, 1/4-inch on the plan view equals 1 foot, see Chapter 2) so you can determine such things as cable length and cable paths. It will also be used by the person who plans for electrical power (Task 2.7 in Chapter 2), by the service representative who installs your system, and by you when you set up your work stations.

STEP 1: Find any existing floor plans you may have; otherwise, get some chart paper or plain paper to draw on. (Chart paper would be most helpful because the plan views that you will put on the floor plan are drawn to a scale where 1 mm equals 5 cm or 1/4-inch equals 1 foot.)

Note: Make sure any existing floor plans are drawn to the same scale as the plan views where 1 mm equals 5 cm or 1/4-inch equals 1 foot.

STEP 2: Draw the layout of your office or offices from an aerial view, as if you were looking down from above your office ceiling. First draw the walls, doors, and windows. Then include the location of the following items on your floor plan:

- All emergency exits, and columns or pillars
- Air conditioning equipment and controls
- File cabinets, desks, and other office equipment
- Power receptacles
- Room emergency controls to shut off the system

Identify each room with a name or number, such as accounting or manufacturing.

Task 3.8 Adding the Plan Views

STEP 1: Once you have drawn your remote floor plan, get Form A1 (Parts 3 and 4) to determine what devices you need to include in your completed floor plan.

STEP 2: Make a copy of Form B2 (in Appendix F) which contains the plan views for a remote work station controllers, and cut them out (around the dotted lines representing the service clearances), and place them on your floor plan. (As an alternative, you can trace the plan view or draw its approximate size on your floor plan.)

STEP 3: Make a copy of the sample plan views (Forms B3 through B5 in Appendix F) for all other devices that you have ordered, cut them out, and place them on your floor plan. (As an alternative, you can trace the sample plan views or draw them on your floor plan.)

Task 3.9 Planning the Remote Cabling Requirements

You must plan cable requirements: the type of cable, cable path considerations, the cable path, and the cable length. Consider not only your current needs but also your anticipated growth and relocation of personnel.

Determining the Cable Type

There are several 5250 cabling systems available to you: telephone twisted-pair cabling, IBM Cabling System, and twinaxial cabling. You may have one or more of these cabling systems. Look on Form A1 (Part 3) to determine what type(s) of cabling you ordered or plan to order. Before you draw your cable paths, refer to "Task 3.3 Planning the Cable Requirements" on page 3-5 for more information on the type(s) of cabling systems you have or plan to have.

Note: The display stations and printers attach to the remote work station controllers instead of the twinaxial work station attachment.

Reviewing Cable Path Considerations

Most of the following items have to do with twinaxial cabling, although some of them apply to the other types of cabling. Consider the following before drawing your cable paths:

- The total number of cable junctions on a twinaxial cable line must not be greater than 11. (A cable junction exists whenever a cable on a line is cut to attach a work station, station protector, or an adapter that joins two cables. Each pair of connections to a device is considered one junction.)
- A work station has either one or two sockets for attaching cables. Work stations with two sockets have cable-through capability. New devices with one twinaxial port also have cable-through capability. Refer to the *Work Station Installation Manual* to determine how to attach cables.
- Before drawing a cable path between work stations, make sure that the work station the cable is coming from has cable-through capability.
- The last work station on a Cable-Through line cannot be more than 1525 meters (5000 feet) in cable distance from the system.
- For twinaxial cable paths, cables going both horizontal and vertical, the cable must be supported every 3 meters (10 feet) if not laying on the floor.
- Twinaxial cables can be run in the same conduit as telephone lines, provided adequate openings are made for cable connectors.
- A cable connected to the output socket on a work station must always go to the input socket on the next work station.
- When drawing the cable paths, consider how the cables will be routed in the building. Cables should be laid out to avoid:
  - Creating a safety hazard, such as running a cable in front of a door or in an aisle or traffic area
  - Exposing the cable to possible damage
  - Routing the cable into a physical barrier, such as a block wall
  - Sources of electrical interference such as power lines transmitting or electrical equipment using more than 440 volts.
- Include additional cable length, if required, due to an indirect cable route.
- You may need cable guards or ramps to ensure safety of equipment and personnel.
- Cables should not dangle from the ceiling in the work area. Cables should be attached to a wall or to building columns.

If you are planning for the 5294 Remote Work Station Controller:

- You must have a display station at port 0, address 0.
- You can use twinaxial cabling, telephone twisted-pair cabling, or the IBM Cabling System and can attach the 5208 and 5209 Link Protocol Converters, and the 5299 Model 3 Terminal Multiconnector.
- If you have the Standard Cluster Feature (port 0 and 1), up to four display stations and printers can be attached to either port.
- If you have the Extended Cluster Feature (ports 0, 1, 2, or 3), up to four more display stations and printers can be attached to these ports. However, if you are using X.25 for your communications line protocol, only six work stations can be attached to each port.

If you are planning for the 5394-1, 2 Remote Work Station Controller:

- You must have a display station at port 0, address 0.
- You can use twinaxial cabling, telephone twisted-pair cabling, or the IBM Cabling System and can attach the 5208 and 5209 Link Protocol Converters, and the 5299 Model 3 Terminal Multiconnector.
- Sixteen work stations can be attached. Up to seven work stations can be attached to each port.

If you are planning for the 5251 Model 12 Remote Work Station Controller:

- You can use twinaxial cabling only.
- If you have the Single Cluster Feature (CF1), up to four display stations and printers can be attached to each controller.
- If you have the Dual Cluster Feature (CF2), four more display stations and printers can be attached to each controller.

Drawing the Cable Path

STEP 1: Keeping the cable path considerations in mind, draw the cable paths from the remote work station controller to devices that attach directly to it.

STEP 2: Draw the cable paths from the devices that attach directly to the remote work station controller (for example, terminal multiconnectors, link protocol converters, display stations, or printers) to devices that attach indirectly (usually display stations and printers).

Note: If you have link protocol converters or terminal multiconnectors, additional cabling rules should be followed. Refer to the device manuals for more information.

STEP 3: Continue drawing cable paths out to any remaining devices. Your floor plan will be complete when you have added all of your remote devices.

Determining the Cable Length

Before you can order work station cables, you must know the required length of each cable.

STEP 1: Get your floor plan to determine the cable path distances. (If you have drawn your floor plan to scale, this will be easier to do.)

STEP 2: Measure work station cables from the connector on the work station to the connector on the remote work station controllers; be sure to consider the intended cable route, including diagonal and vertical cable runs.

STEP 3: For a raised floor, allow a minimum of 0.6 meter (2 feet) at both ends of a connection for slack in the cable.

STEP 4: Add 0.9 meter (3 feet) for the connection to a display station or printer on a desk or table.

STEP 5: Allow enough cable to move the machines for servicing. Read the following considerations:

- A 5251 Model 11 Display Station requires an additional 0.6 meter (2 feet) of cable for routing. Ensure that the additional 0.6 meter (2 feet) is included in your cable length estimate.
- If cables will be installed in the ceiling or floor, consider the distance from the ceiling down to each unit or from the floor up.
- The sockets on the display stations and printers that sit on tables are about 0.75 meter (2.5 feet) above the floor.
- The sockets on printers that are separate units, such as the 5262 and 4245 printers, are about 0.15 mm (6 inches) above the floor.
- If you have existing blueprints of your office or building, refer to these to draw your cable path. Keep in mind that the scale of the floor plans might be different.
- Be sure to measure from room to room and from building to building, if required.

STEP 6: After you determine the length of each cable, record the length of each cable on the floor plan.

STEP 7: Review the final layout to make sure that cable lengths do not go over limitations, that all devices have correct clearances, and that all cable path considerations have been reviewed.

STEP 8: After you record the cable lengths on the floor plan, record the lengths on Form A1 (Part 3).

For more information about twinaxial cabling, refer to "Separating Work Station Signal Cables from Power Lines" on page 3-13. For telephone twisted-pair cabling, refer to the *IBM 5299 Terminal Multiconnector Model 3 Planning, Setup, and Maintenance Guide*. For IBM Cabling System cabling, refer to the *IBM Cabling System Planning and Installation Guide*.

Task 3.10 Determining Remote Work Station Addresses

Now that you have decided what cabling to use and have drawn your cabling path, you must determine and record the addresses for each work station on the floor plan. The addresses are used by the system to identify each work station that shares the same port on the remote work station controller. Determine the address by doing the following steps.

Note: The work station address is the same as the switch setting of the display station or printer. (Some display station addresses are set by using the keyboard.)

STEP 1: Read and consider these rules for addressing work stations.

- A work station with the cable-through capability can have any address 0 through 6.
- A work station without the cable-through capability always has an address of 0.

STEP 2: Record a 0 for the first work station on the cable; enter a 1 for the second work station (able to cable-through) on that same cable, and so on.

Notes:

1. Addresses 0 through 6 are valid for every port on the remote work station controllers.
2. If you have a work station without the cable-through capability, it must have an address of 0. Start with address 1 for that port, and make the work station without the cable-through capability last with an address of 0.

STEP 3: Read and consider the following information for link protocol converters and terminal multiconnectors.

- If you have chosen a link protocol converter, the address of the work station corresponds to the number of the port on the link protocol converter.
- For every work station attached before the link protocol converters, fewer devices may be attached to the link protocol converter.

STEP 4: Continue recording the addresses for the work stations attached to all the ports used on the remote work station controllers on the floor plan. You will need this information to complete your work station diagrams.

Task 3.11 Completing the Remote Work Station Diagrams

If you have remote display stations and printers, you or someone in the remote office should have planned for installing the work stations and completed a floor plan for the remote site. Part 1 of the Remote Work Station Diagrams, Forms C4, C5, and C6, are needed to complete this task. Part 2 of Forms C4, C5, and C6 will be completed in Chapter 6, "Planning for Device Configuration" on page 6-1.

If you have the 5294 Remote Work Station Controller or the 5251 Model 12 Remote Work Station Controller, you must follow the procedures in the *IBM 5250 Information Display System Planning and Site Preparation Guide*. If you have the 5394-1, 2, you must follow the procedures in the *IBM 5394-1, 2 Introduction and Installation Planning Guide*, including completion of the Communications Network Setup Form.

The Remote Work Station Diagrams (shown below) contain information about how remote work stations attach to the controller. You must include on the diagrams the specified information for each display station and printer attached to the controller.

C6 **Remote Work Station Diagram for 5251 Model 12 (Part 1)**

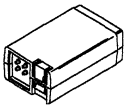
C5 **Remote Work Station Diagram for 5394 (Part 1)**

C4 **Remote Work Station Diagram for 5294 (Part 1)**

System _____

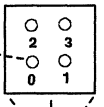
Service for Cabling _____

Telephone Number _____



Example

Ports



Device Name
Device Type, Model
Location
Device Address
Display ☐ Printer ☐
Telephone Number

Description
Device Type, Model
Location
0 1 2 3 4 5 6

Use this box to indicate if you have a 5208 or 5209 Link Protocol Converter or 5299-3 Terminal Multiconnector attached to the controller. If you have a 5208, an additional port lets you attach parallel printers.

Note: A maximum of 4 work stations can be attached in a cluster.

Note: You may copy as necessary.

RSLC137-8

STEP 1: Find the Communications Network Setup Form (in the remote work station controller manual) that was completed for any of the remote work station controllers and their attached display stations and printers. If this form is completed, you do not need to complete Part 1 of the Remote Work Station Diagrams, Forms C4, C5, or C6.

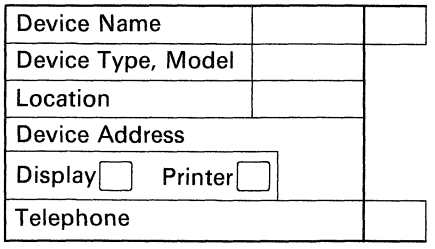
STEP 2: If the form is completed, go to Chapter 4, "Planning to Use Electronic Customer Support" on page 4-1.

STEP 3: If you did not complete the Communications Network Setup Form, continue to Step 4 to complete the remote work station diagram.

STEP 4: Darken in the circle representing the first port of the remote work station controller on the remote work station diagram.

STEP 5: Draw a line from the first port to the first device on the diagram.

STEP 6: Record the correct information to identify each display station and printer. Refer to the following example. (More examples are on pages 3-32, 3-33, and 3-34.)



The diagram provides blank spaces that allow you to identify:

- Name of the device

  Record the device name you would like assigned to this device. This name should be no longer than 10 characters. Use an alphabetic character (A through Z, dollar sign $, pound symbol #, or at symbol @) followed by no more than 9 alphameric characters (A through Z, 0 through 9, dollar sign $, at symbol @, period ., pound symbol #, or underline _).

  Lowercase characters (a through z) and many other characters are allowed if they are enclosed in double quotation marks (" "). The double quotation marks count as characters of the device name. Thus only 8 additional characters are allowed between the beginning and ending double quotation marks. This naming convention is allowed only for *NORMAL AS/400 names.

- Device type and model number (if it has one)

  You should have listed all the device types and model numbers you ordered on Form A1. Record the one to be used as your first remote display station.

- Where the device is located

  From your floor plan, record the area of your business this device is located. For example, record office location in the warehouse.

- Address of the device

Record the address of the device. Valid addresses are 0 through 6. Each device must have a different address on the same port. You set the address of the printer to this address when the device is installed.

- Display station or printer

  Check if this device is a display station or printer. The device plan views, Form B2, you used on the floor plan have display station or printer printed on them.

- Telephone number nearest to the device

  Record the telephone number of the person who is to use this device.

STEP 7: Draw a line to indicate the cable that connects the first device to the next device on the same port. The dashed lines on the diagrams show the possible cabling path.

Note: If you are using a link protocol converter or terminal multiconnector, you must draw in the cabling path.

STEP 8: Draw the line (cable) that leads from the first work station to the next work station on the same port. The dashed lines on the diagrams show the possible cabling paths.

STEP 9: Repeat steps 5 through 7 for all work stations attached to this port.

STEP 10: Use a pencil to cross off any unused work stations on the diagrams; you might want to add work stations in the future.

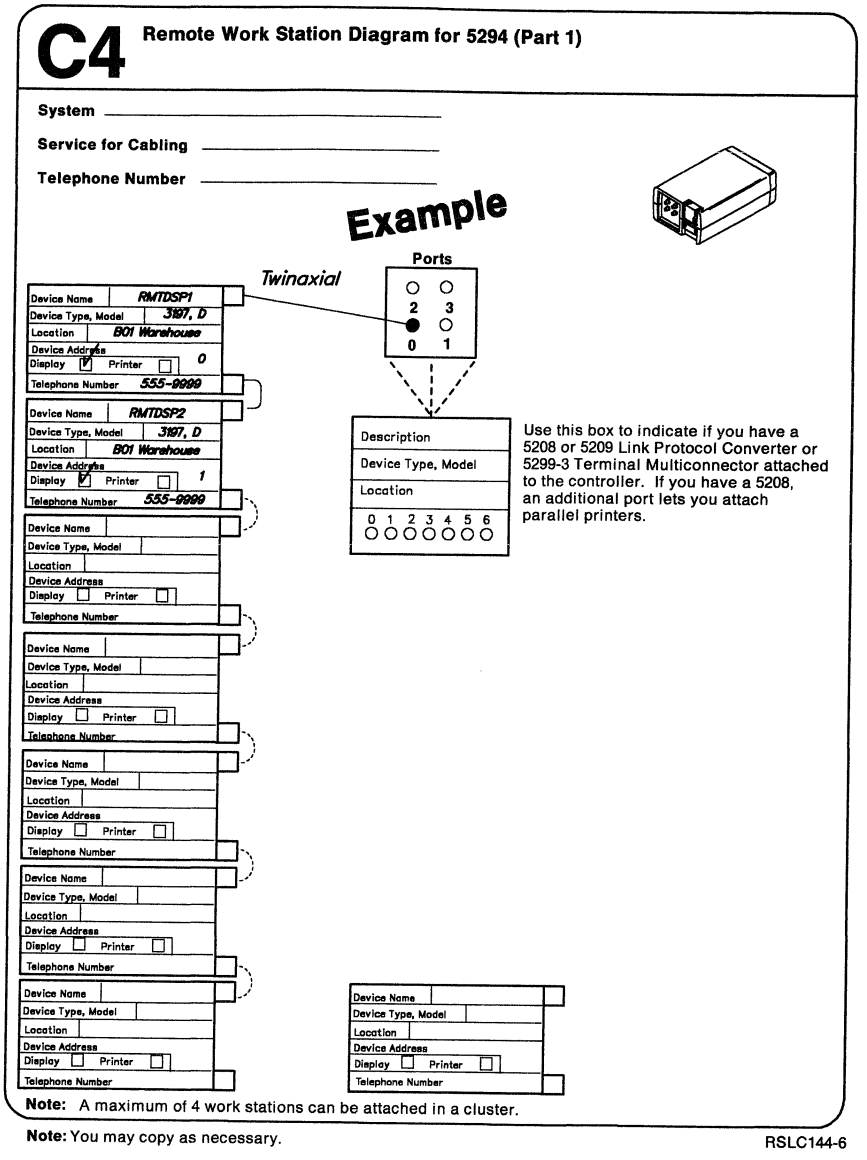
STEP 11: Label the type of cabling you are using on the line that leads from the work station to the port on the remote work station controller.

STEP 12: Look at the floor plan and find the devices that attach to the next port on the remote work station controller.

STEP 13: Continue recording the information on the remote work station diagram until all the information for the devices on all ports have been recorded.

STEP 14: Part 2 of the form is completed for remote line configuration planning. Do not complete Part 2 now. You will complete that form during configuration planning in Chapter 6, "Planning for Device Configuration" on page 6-1.

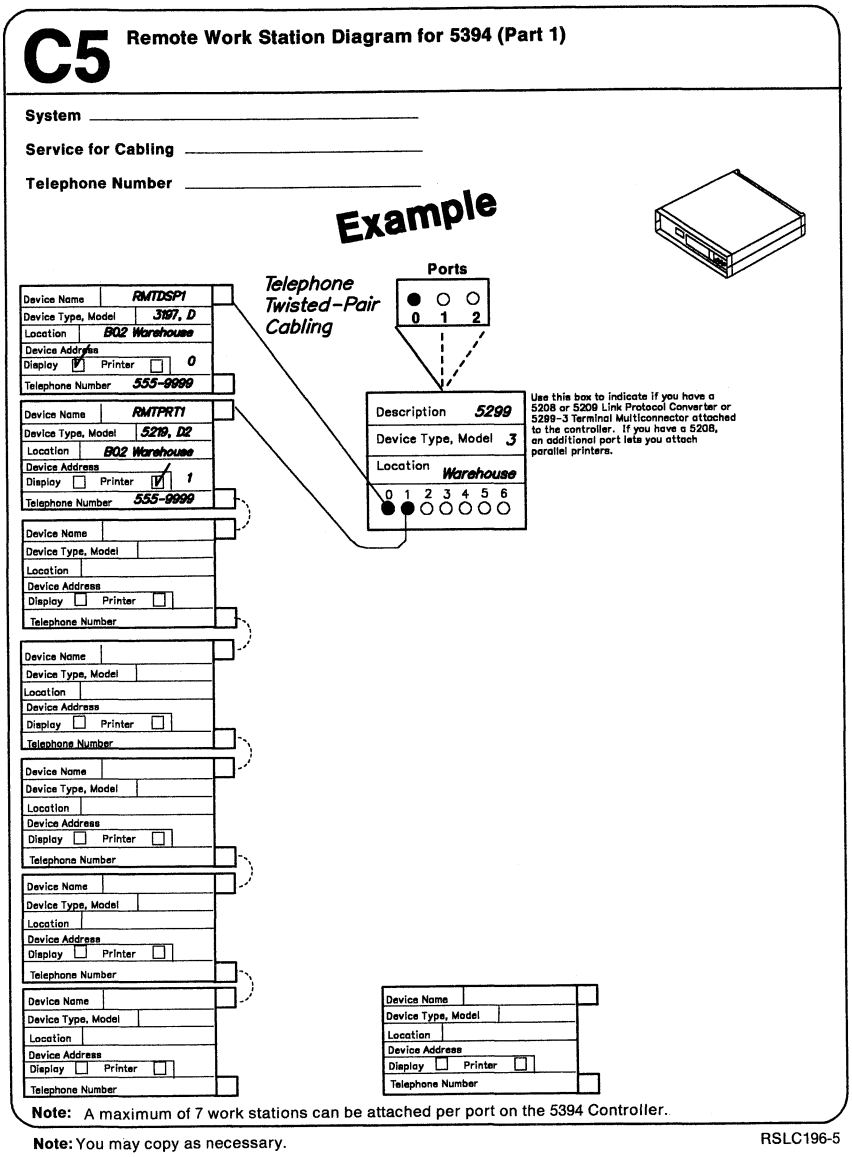
The following example shows a completed Part 1 of Form C4.



Note: You may copy as necessary.

RSLC144-6

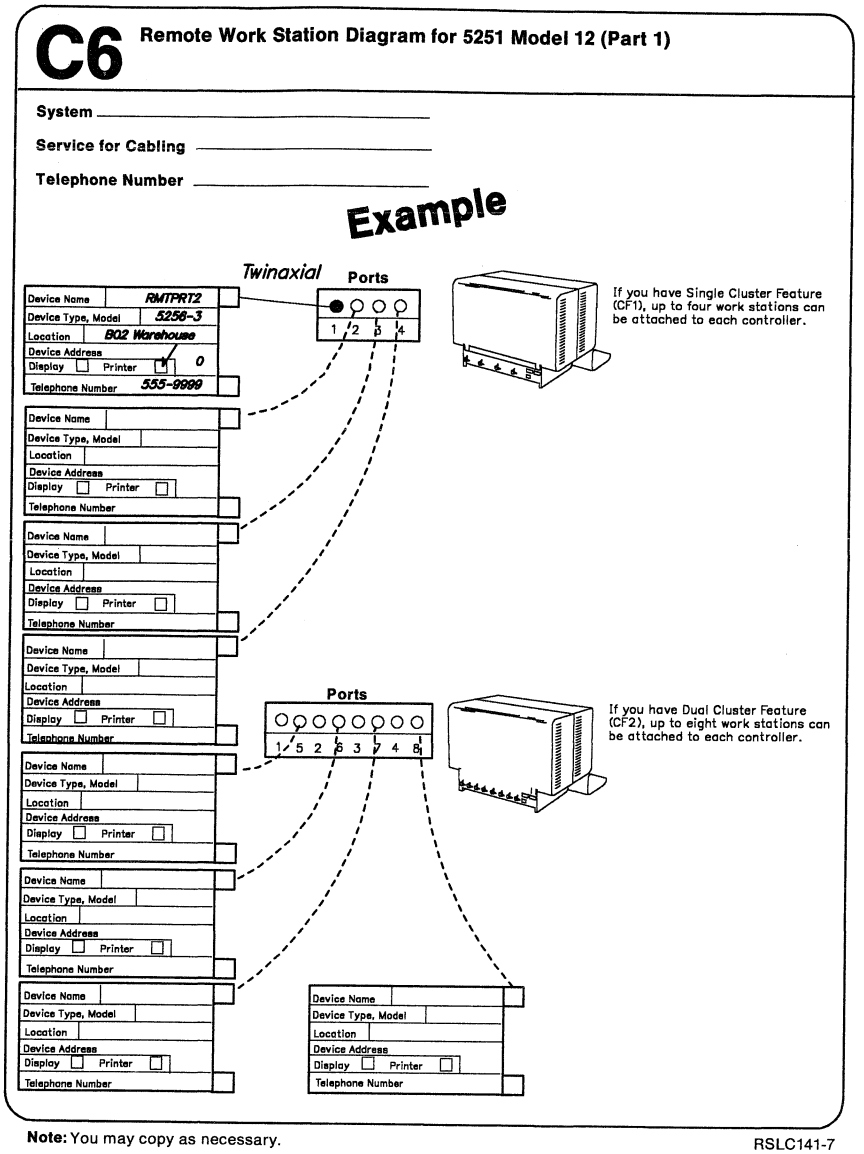
The following example shows a completed Part 1 of Form C5.



Note: You may copy as necessary.

RSLC196-5

The following example shows a completed Part 1 of Form C6.



Note: You may copy as necessary.

RSLC141-7

Do you have another remote controller to plan for?

If yes, return to page 3-30 and complete that form for the next remote controller.

If no, you have completed Task 3.11.

Keep the forms with all of the other planning forms. They will be used later for setting up your work stations or performing device configuration.

Chapter 4. Planning to Use Electronic Customer Support

If your marketing representative has told you that electronic customer support is not available, you can ignore this chapter and go to Chapter 5, "Planning for Licensed Programs and Applications" on page 5-1.

This chapter describes the necessary planning for electronic customer support, which is provided with the system.

If you ordered any additional communications line capability, refer to the following information for additional planning and ordering information *after* you have completed the tasks in this chapter:

- To plan for a communications line attached to remote work station controllers (such as the 5294; 5394-1, 2; or 5251-12 Remote Work Station Controllers) and work stations, read Chapter 6 (after you read Chapter 5).
- To plan for a communications line attached to another system, to a Finance controller, or to a 3174 or 3274 Controller, read the *Data Communications Planning Guide* (after you read Chapter 5 and Chapter 6 in this manual).

You will need the Electronic Customer Support planning form, Form F11, to do the tasks in this chapter. Form F11 is in Appendix F.

The following task overview shows the planning tasks in this chapter. Tasks in **bold** print **should** be completed; the other tasks are optional. Check off the boxes in "Task 1.3 Reviewing the System Planning Checklist" on page 1-4 as you complete each task.

TASK OVERVIEW

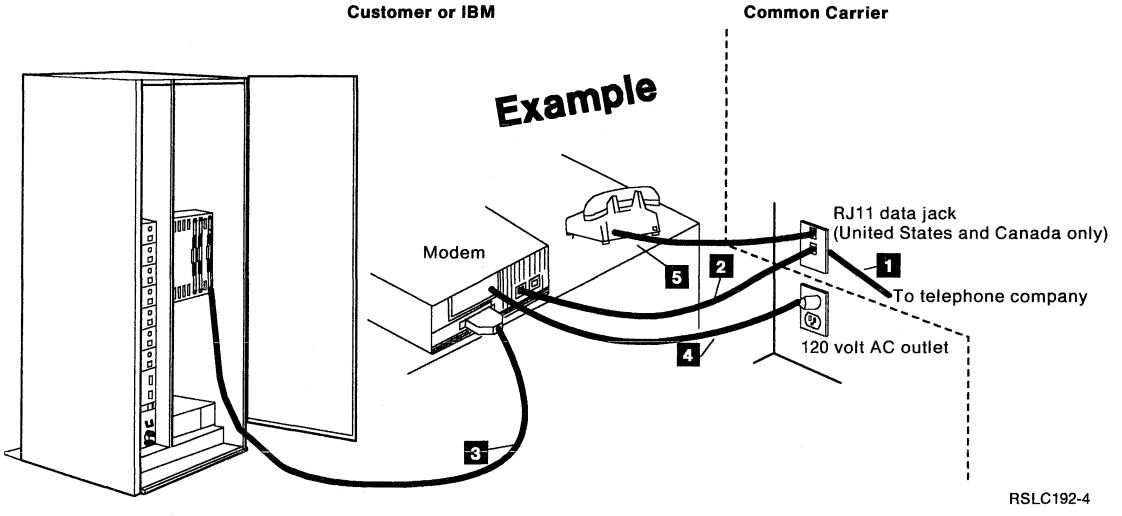
"Task 4.1 Planning for Electronic Customer Support."
"Task 4.2 Completing the Electronic Customer Support Planning Form."
"Task 4.3 Planning for Additional Data Communications Support."

Task 4.1 Planning for Electronic Customer Support

This chapter helps you complete the necessary planning for electronic customer support which is provided with the system. You will eventually receive more information about service and marketing communications support and education. Your system has the necessary equipment for a communications line to be installed. You need to complete an Electronic Customer Support planning form, Form F11, for the communications line attached to your system.

Overview of the AS/400 System and Modem Connections

The following overview shows how your system, modem, telephone (optional), and cabling can work together to support the communications line.



1. This cable must be a normal voice-grade analog line; a digital line will not work. This cable can be connected through a Private Branch Exchange (PBX) or Computerized Branch Exchange (CBX) if this is a normal voice-grade analog line.
2. This cable is provided with the modem by the modem manufacturer and is normally about 4.6 meters (15 feet) long.
3. This cable is provided with the system and is 6.1 meters (20 feet) long. This cable comes with your system.
4. This power cord will connect the modem to a 120-volt AC outlet and is provided with the modem.
5. This cable connects the modem to a voice telephone for manually dialing the switched line in countries where V.25 bis autodial is not allowed. When using the autodial capability, you need a telephone to communicate with someone while using the modem. Your service representative will connect this cable for you. This cable is provided by the common carrier.

Task 4.2 Completing the Electronic Customer Support Planning Form

When you ordered your system, IBM offered to supply you with a modem. If you chose not to purchase this modem, you should order a modem now from a modem supplier (IBM or another company). If you ordered a Total System Package, you will receive a modem and, therefore, do not need to order one.

Get the Electronic Customer Support planning form, Form F11, from Appendix F. This communications planning form contains:

- Common carrier (usually a telephone company) ordering information
- Modem supplier ordering information

This form contains the information you need to order your communications line from a common carrier (the top part of the form). You will receive a modem as part of your system, unless you deleted it from your order. If you deleted it, this form contains the information you need to order a modem from another vendor or supplier.

Refer to the following for an example of Form F11.

F11 **Electronic Customer Support**

Common Carrier Ordering Information

Line Type: *Normal voice-grade analog switched line*

Line Interface: *EIA-232/V.24 with remote loopback*

Line Speed: *2400 bps*

Line Termination Requirements:

Telephone Set Options: *Tone dial*

Example

Modem Supplier Ordering Information

Modem Type and Model Number: *5853*

Modem Characteristics: *Supports analog switched lines*

Telephone line interface supported is CCITT V.22 bis

Line speed supported is 2400 or 1200 bps duplex

NRZI is supported

System interface supported is EIA-232/V.24

Automatic answer is supported

Automatic dial is supported with bit synchronous V.25 bis

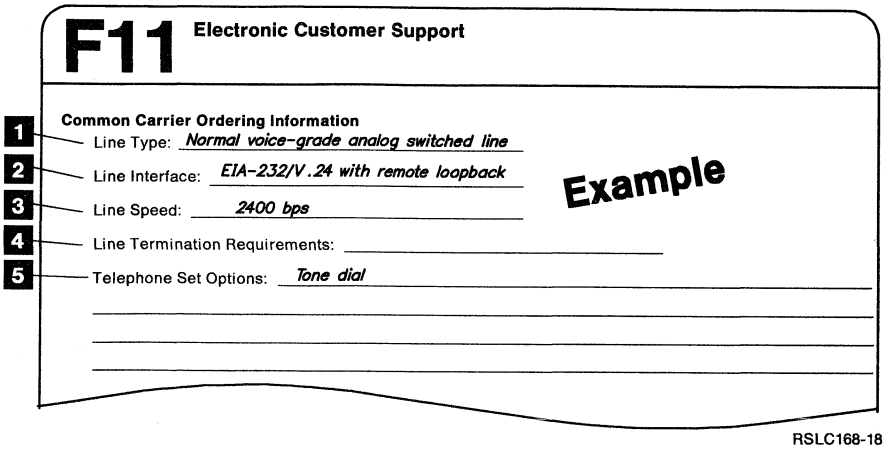
CCITT V.54 loop back capability

Note: You may copy as necessary.

RSLC167-20

Common Carrier Ordering Information

The top of Form F11 is completed for you, except for the line termination requirements. The numbers shown to the left of the following example relate to the following numbered list which explains each of these items.

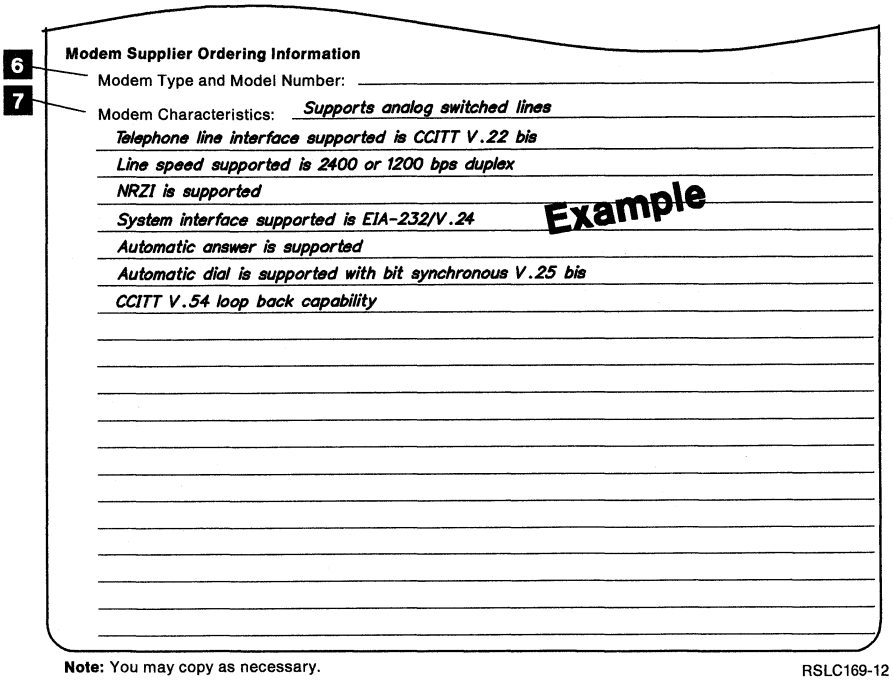


1. **Line Type:** Normal voice-grade analog switched line. This is the line type required for the communications line.
2. **Line Interface:** EIA-232/V.24 with remote loop back.
3. **Line Speed:** 2400 bps. Line speed indicates how fast data is transmitted across the communications line in bits per second.
4. **Line Termination Requirements:** This is the jack you want on the end of this line. In the United States and Canada, you should use an RJ11 data jack. Record the type of jack you are using on Form F11.
5. **Telephone Set Options:** A telephone set (which is optional) that the telephone service in your area provides could have one of the following:
   - Tone dial (Bell 2500 series or equivalent)
   - Pulse dial (Bell 500 series or equivalent)

Modem Supplier Ordering Information

The modem ordering information section is completed for you; you only need to write the modem type and model number. In the United States and Canada, the IBM modem that comes with the system is the 5853 Modem. In other countries, a different IBM modem will be supplied.

The numbers shown to the left of the example relate to the following numbered list which explains each of these items.



Note: You may copy as necessary. RSLC169-12

6 **Modem Type and Model Number:** You probably received a 5853 Modem with your system. This IBM modem (available in some countries) has several characteristics which have been recorded for you on Form F11.

If you chose to order a different modem, that modem must have all the characteristics of its equivalent IBM modem. Record the type and model number of that non-IBM modem on Form F11.

7 **Modem Characteristics:**

Required Characteristics	Recommended Characteristics
• Supports analog switched lines • (In most countries) Telephone line interface supported is CCITT V.22 bis • Line speed supported is 2400 or 1200 bps duplex • Non-return-to-zero (NRZI) is supported • System interface supported is EIA-232/V.24	• Automatic answer is supported • Automatic dial is supported with bit synchronous V.25 bis • CCITT V.54 loop back capability

If the modem you get does not have these characteristics, certain capabilities will not be supported or the modem will not communicate.

What to Do with Your Completed Form

Once you have completed your form, contact the various suppliers of the services needed. If you have other data communications lines to plan for, plan for those first, then call a common carrier and modem manufacturer (if applicable). Examples of these suppliers or services are as follows:

- Common carrier (usually a telephone company) to supply the communications line.
- Modem manufacturer to supply the correct number and type of modems, if you chose not to use the IBM modem that comes with the system.

Ordering from Your Common Carrier

Contact the common carrier (usually a telephone company) that you choose to provide a telephone line for each data communications line on your system. The information on the planning form will help the telephone company install the correct telephone line in your place of business.

Ordering Modems

You can contact your IBM marketing representative to order modems through IBM. If you choose a non-IBM supplier, make sure that the modem(s) meet all the requirements listed on the planning form. Write the type of modem on Form A1 (Part 4).

Task 4.3 Planning for Additional Data Communications Support

Once again, if you ordered any additional communications lines, you will read information about the the following at a later time, as specified:

- Information on how to plan for a communications line attached to the remote work station controllers (such as the 5294-1, K01, S01; 5394-1, 2; or 5251-12 Remote Work Station Controllers) and work stations is in Chapter 6. (Read Chapter 6 after you read Chapter 5.)
- Information on how to plan for a communications line attached to another system, to a Finance controller, or to a 3174 or 3274 Controller, is in the *Data Communications Planning Guide*. (Read that manual after you read Chapter 5 and Chapter 6 in this manual.)

Chapter 5. Planning for Licensed Programs and Applications

This chapter is designed to help you verify the disk space you ordered for your licensed programs and applications on your system in any national language.

The licensed programs are packaged in two parts: the program information needed to make the programs work, and the language information needed to communicate with the system using a display station and keyboard in the National Language Version (NLV) you ordered.

You need the following forms (found in Appendix F) to do the tasks in this chapter:

- System Information Form, Form A1
- Installing Licensed Programs, Form M1
- System Options, Form M2

The following task overview shows the planning tasks in this chapter. Tasks in **bold** print **should** be completed; the other tasks are optional. Check off the boxes in "Task 1.3 Reviewing the System Planning Checklist" on page 1-4 as you complete each task.

TASK OVERVIEW

"Task 5.1 Recording Optional Items."
"Task 5.2 Recording Licensed Programs Ordered."
"Task 5.3 Determining the Disk Space Available."
"Task 5.4 Recording the Applications."
"Task 5.5 Deciding to Change the IPL Options."

Secondary National Languages (In Countries Where Available)

The national language you ordered your licensed programs language information in, is called the primary national language, referred to throughout this chapter as primary language. Any other languages you ordered are called secondary national languages, referred to throughout this chapter as secondary language.

The tape (or set of tapes) you receive from the distribution centers contains all the program information for the Operating System/400 and the other licensed programs and all language information in the primary national language version (NLV). If you ordered secondary national language versions, a second distribution tape (or set of tapes) is needed. The tape (or set of tapes) contains the language information in the secondary NLV, but does not contain the program information for the programs.

Task 5.1 Recording Optional Items

The System Information Form, Form A1, gives you some of the information to review your disk space requirements on the system for all licensed programs in any national language and helps you complete the Installing Licensed Programs planning form, Form M2.

The following example shows a sample Form A1 already completed. Note where you have already recorded the Operating System/400 on the form under the Licensed Programs heading.

A1 **System Information Form (Part 1)**

Rack Power Specify Code _____

Rack	Description	Device Type	Model Number	Serial Number	Location
A	1.6 meter rack	9309	2	XXXXXXXXXXXX	Accounting
A	System unit	9406	B40	XXXXXXXXXXXX	——
A	Tape unit controller	9346	001	XXXXXXXXXXXX	——
A	Diskette unit	9331	001	XXXXXXXXXXXX	——
A	Disk unit	9332	400	XXXXXXXXXXXX	——
A	Disk unit	9332	400	XXXXXXXXXXXX	——
A	Disk unit	9332	400	XXXXXXXXXXXX	——
A	Disk unit	9332	400	XXXXXXXXXXXX	——
B	1.6 meter rack	9309	2	XXXXXXXXXXXX	Accounting
B	Disk unit	9332	400	XXXXXXXXXXXX	——
B	Disk unit	9332	400	XXXXXXXXXXXX	——
B	Disk unit	9332	400	XXXXXXXXXXXX	——
B	I/O card unit	5010/5030	——	XXXXXXXXXXXX	——

Example

Main storage size (4–96MB) 16 MB

Disk storage size (400MB–27.36GB) 1.7 GB

Total number of work stations supported 40

Licensed programs

- Operating System/400 (5728-SS1)
- Communications Utilities (5728-CM1)
- Office (5728-WP1)
- Query (5728-QU1)
- RPG/400 (5728-RG1)

Cabling Devices	Quantity	Notes
5208 Link Protocol Converter	____	
5209 Link Protocol Converter	____	
ROLMbridge 5250 Link Protocol Converter	____	
5299-3 Terminal Multiconnector	____	

Note: You may copy as necessary.

RSLC154-16

The optional items of Operating System/400 are: online information, the System/36 Environment, Online Education, System/36 and System/38 Migration, and the System/38 Environment. Figure 5-1 shows you how much disk space is required for the coding and for the National Language Version (NLV) for each optional item of the Operating System/400.

National languages can be divided in two main groups: single-byte character set (SBCS) and double-byte character set (DBCS). DBCS languages use two bytes to internally represent a graphic symbol. Japanese, Korean, and Chinese are DBCS national languages.

Note: When any DBCS language is used, the operating system requires an additional 5 megabytes of storage.

Make more than one copy of Form M1 if you are adding more than one secondary language.

Program Name	Program Size[1]	National Language Version Size[3]
Operating System/400	204.0 megabytes[2] (includes micro-code)	13.4 megabytes
Optional Items		
Online Information	8.0 megabytes	10.0 megabytes
Online Education	2.6 megabytes	4.0 megabytes
System/36 and System/38 Migration	7.5 megabytes	0.3 megabyte
System/36 Environment	12.0 megabytes	0.38 megabyte
System/38 Environment	1.9 megabytes	0.05 megabyte

[1] Megabytes equals millions of bytes.

[2] This assumes that you have a system with a minimum main storage configuration (4 megabytes of main storage). If you increase the main storage size, the disk space size needs to increase by the same amount.

[3] These numbers are based on preliminary information. Contact your marketing representative for final program sizes.

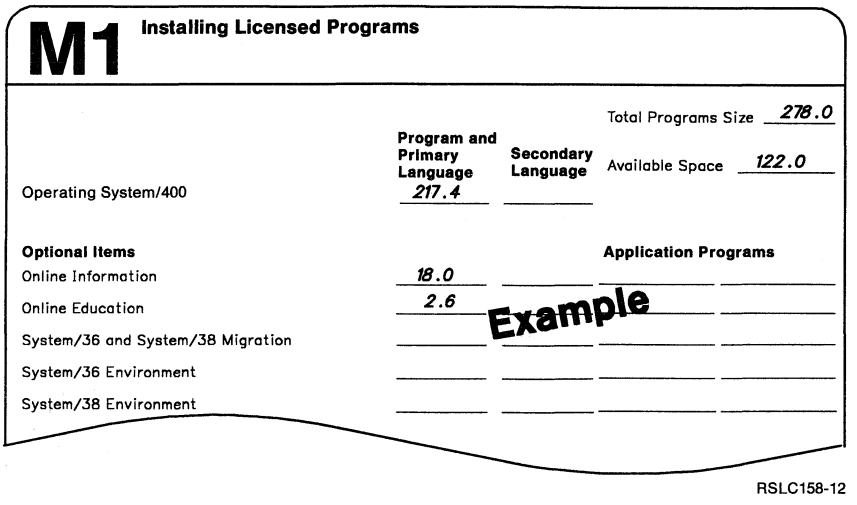
Figure 5-1. Approximate Space Requirements for Optional Items

STEP 1: Add together the Program Size for the Operating System/400 (204.0 megabytes) and the National Language Version (13.4 megabytes) (NLV) for a language to get the total size of the operating system. For example, 217.4 megabytes for a SBCS language or 222.4 megabytes for a DBCS language.

STEP 2: Record the total from Step 1 on Form M1. Two blank lines beside each program are available for the total disk space requirements for the primary language and one secondary language.

STEP 3: Add together the Program Size and National Language Version Size for the optional items you want to install on the system to get the total size of the optional items of the operating system. For example, online information is 18 megabytes for a DBCS language or an SBCS language.

STEP 4: Record the totals on the blank lines next to these items on Form M1. Use the following example of the top of Form M1 already completed.



You also need to record the space requirements for the other licensed programs you have ordered.

Task 5.2 Recording Licensed Programs Ordered

You have already recorded the licensed programs and disk storage you ordered on the System Information Form, Form A1. Use Form A1 and the following chart to help you complete the second half of Form M1.

The following chart shows you AS/400 licensed programs, other than the Operating System/400, and the disk space required for the National Language Version (NLV) Size and Program Size. Two blank lines next to each program on Form M1 are for you to record the total space requirements for your primary language and one secondary language version.

AS/400 Licensed Programs	Program Number	Program Size	SBCS or DBCS National Language Version Size[2]
AS/400 Advanced DBCS Printer Support	5728-AP1	3.2 megabytes	1.0 megabytes
AS/400 Application Development Tools	5728-PW1	8.0 megabytes	4.0 megabyte
AS/400 BASIC	5728-BA1	2.5 megabytes	0.8 megabyte
AS/400 Communications Utilities	5728-CM1	3.6 megabytes	0.4 megabyte
AS/400 Cryptographic Support	5728-CR1	0.25 megabytes	0.16 megabyte
AS/400 System/38 Utilities	5728-DB1	5.5 megabytes	1.2 megabytes
AS/400 Business Graphics Utility (BGU)	5728-DS1	1.7 megabytes	0.5 megabyte
AS/400 Language Dictionaries	5728-DCT	5.7 megabytes[1]	None
AS/400 Office	5728-WP1	8.0 megabytes	1.0 megabyte
AS/400 Pascal	5728-PS1	4.7 megabytes	0.1 megabyte
AS/400 PC Support	5728-PC1		
SBCS support for personal computers		6.2 megabytes	0.85 megabytes
DBCS support for personal computers		10.7 megabytes	0.5 megabytes
AS/400 Performance Tools	5728-PT1	7.0 megabytes	0.8 megabyte
AS/400 PL/I	5728-PL1	2.1 megabytes	0.3 megabyte
AS/400 Query	5728-QU1	2.6 megabytes	1.5 megabytes
COBOL/400	5728-CB1		
COBOL/400		2.1 megabytes	0.3 megabytes
System/36 – Compatible COBOL		2.2 megabytes	0.3 megabytes
System/38 – Compatible COBOL		2.1 megabytes	0.3 megabytes
RPG/400	5728-RG1		
RPG/400		2.0 megabytes	0.7 megabyte
System/36 – Compatible RPG II		2.1 megabytes	0.7 megabyte
Structured Query Language/400	5728-ST1	0.9 megabyte	0.36 megabyte

[1] This number is based on preliminary information. Contact your marketing representative for final program sizes. All dictionaries are loaded during installation. Those that are not needed may be deleted.

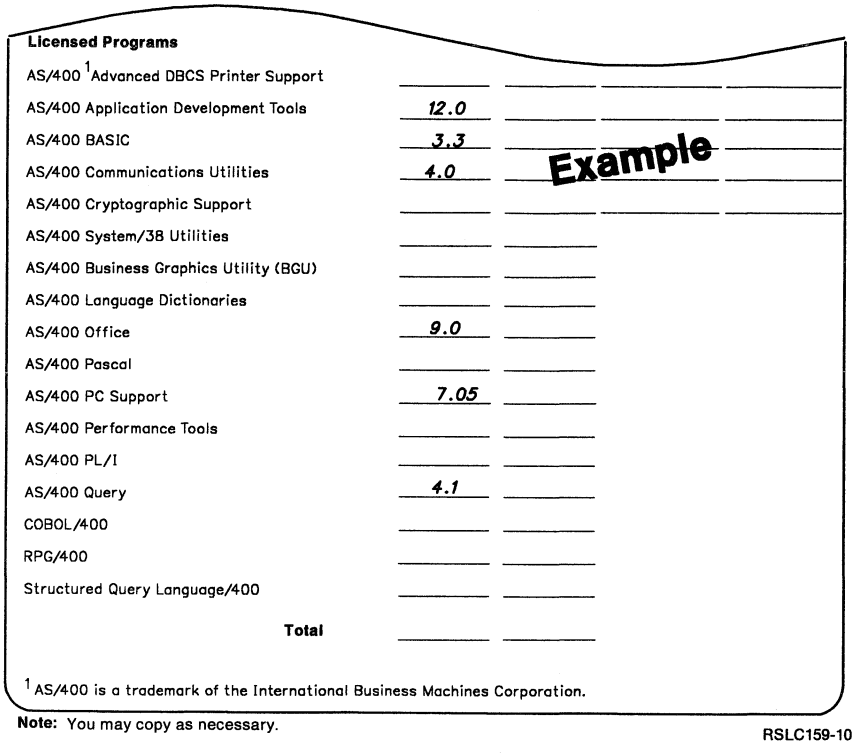
[2] These numbers are based on preliminary information. Contact your marketing representative for final program sizes.

Figure 5-2. Approximate Licensed Programs Space Requirements

STEP 1: Add together the Program Size for the licensed programs and the National Language Version. Round the number to the nearest whole number.

STEP 2: Record the total of the Program Size and the National Language Version on Form M1. Two blank lines beside each program are available to record the total disk space requirements for the primary language and one secondary language.

Use the following example of the bottom of Form M1 already completed for a single-byte character set language as the primary language.



Licensed Programs		
AS/400 [1] Advanced DBCS Printer Support		
AS/400 Application Development Tools	12.0	
AS/400 BASIC	3.3	
AS/400 Communications Utilities	4.0	
AS/400 Cryptographic Support		
AS/400 System/38 Utilities		
AS/400 Business Graphics Utility (BGU)		
AS/400 Language Dictionaries		
AS/400 Office	9.0	
AS/400 Pascal		
AS/400 PC Support	7.05	
AS/400 Performance Tools		
AS/400 PL/I		
AS/400 Query	4.1	
COBOL/400		
RPG/400		
Structured Query Language/400		
Total		

Example

[1] AS/400 is a trademark of the International Business Machines Corporation.

Note: You may copy as necessary.

RSLC159-10

Now you are ready to determine the disk space available.

Task 5.3 Determining the Disk Space Available

Follow these steps to complete Form M1 and review your disk space requirements.

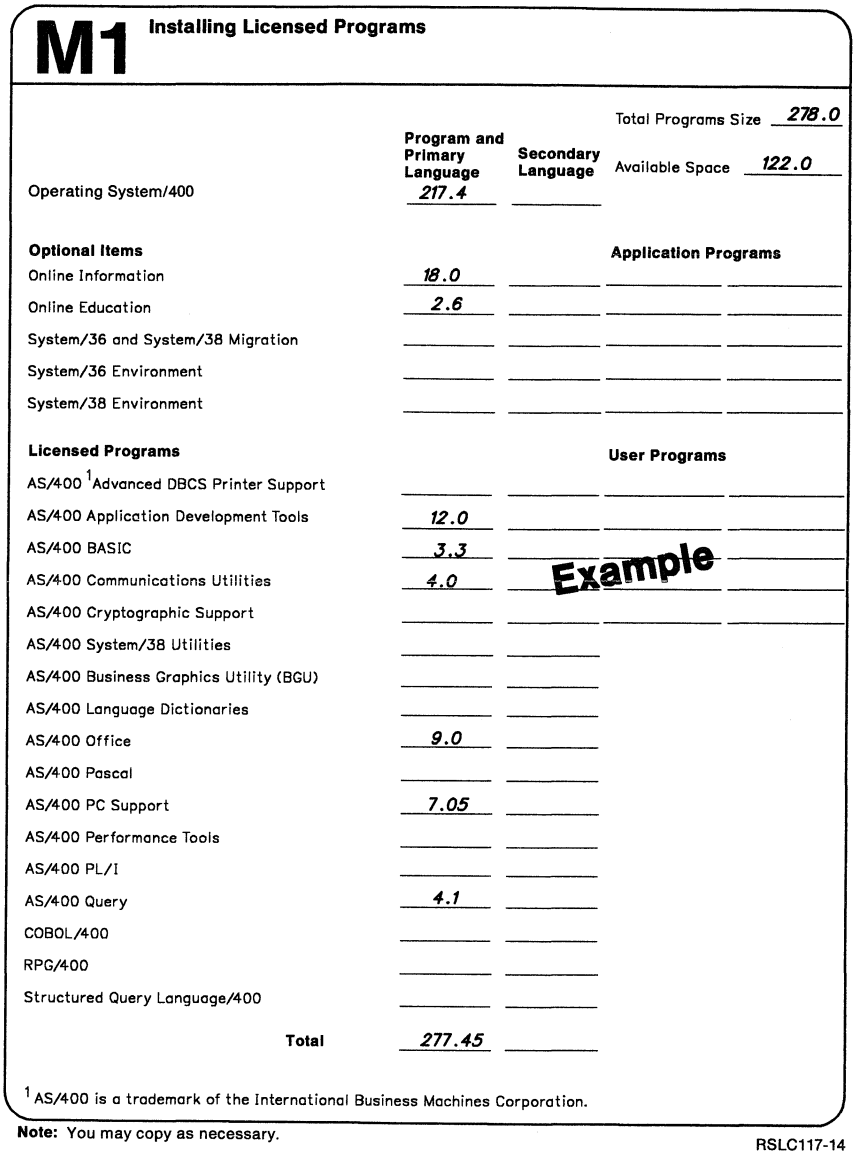
STEP 1: Add the disk space required for the optional items and the licensed programs together to get the Total Program Size.

If you have a secondary language, add the total of that column with the total from the primary language column to get the Total Program Size.

STEP 2: Record the Total Program Size on the blank lines in the top right corner of Form M1.

STEP 3: Subtract the Total Program Size from the Total Disk Size to get your available disk space. You can get the Total Disk Size from Form A1 (Part 2).

STEP 4: Record the difference. The disk space that remains is the approximate amount you have available for your application and user programs (such as MAPICS), files, libraries, and other objects.



M1 **Installing Licensed Programs**

Total Programs Size 278.0

Available Space 122.0

	Program and Primary Language	Secondary Language
Operating System/400	217.4	
Optional Items		
Online Information	18.0	
Online Education	2.6	
System/36 and System/38 Migration		
System/36 Environment		
System/38 Environment		
Licensed Programs		
AS/400 [1]Advanced DBCS Printer Support		
AS/400 Application Development Tools	12.0	
AS/400 BASIC	3.3	
AS/400 Communications Utilities	4.0	
AS/400 Cryptographic Support		
AS/400 System/38 Utilities		
AS/400 Business Graphics Utility (BGU)		
AS/400 Language Dictionaries		
AS/400 Office	9.0	
AS/400 Pascal		
AS/400 PC Support	7.05	
AS/400 Performance Tools		
AS/400 PL/I		
AS/400 Query	4.1	
COBOL/400		
RPG/400		
Structured Query Language/400		
Total	277.45	

Application Programs | **User Programs**

Example

[1] AS/400 is a trademark of the International Business Machines Corporation.

Note: You may copy as necessary.

RSLC117-14

STEP 5: Contact your marketing representative if you want to order more disk space, programs, or a secondary language.

Task 5.4 Recording the Applications

If you know the space requirements for any of the user applications you ordered or are using, you can record those on Form M1 also.

STEP 1: Record any application programs under the heading Application Programs.

STEP 2: Record any user programs under the heading User Programs.

STEP 3: Add the space requirements for the programs together.

STEP 4: Subtract this total from your Available Space.

You can now decide to buy additional programs and additional disk space.

Task 5.5 Deciding to Change the IPL Options

Once you have recorded all your programs and their space requirements, you can start planning for installing them.

If you do not want to use the default, you can change the system values for the initial program load (IPL) options. The default values are loaded on the tape or disk. For example, the system value for automatic configuration is set to yes. The System Options planning form, Form M2, is needed for this task.

STEP 1: Look at the following example of Form M2.

M2 **System Options**

IPL Options

System date	_____	MM DD YY or DD MM YY
System time	_____	HH MM SS
Clear job queues	_____	Y=Yes **N=No**
Clear output queues	_____	Y=Yes **N=No**
Clear Incomplete job logs	_____	**Y=Yes** N=No
Start print writers	_____	**Y=Yes** N=No
Start this device only	_____	Y=Yes **N=No**
Set major system options	*Y*	Y=Yes **N=No**
Define or change the system at IPL	_____	Y=Yes **N=No**

Example

Major System Options

Enable automatic configuration	_____	**Y=Yes** N=No
Device configuration naming	**NORMAL*	***NORMAL** *S36
Default special environment	**NONE*	***NONE** *S36

Notes:
1. The default system values are shown in bold print.
2. Use this form only if you change the defaults.

Note: You may copy as necessary.

RSLC116-6

These options are the same as the displays you see during the IPL from tape or disk. The choice (Y=Yes, N=No) in bold print is the system default. The top part of the form shows the IPL Options menu.

When you change the IPL options, you are changing your system to suit your needs. The *Set major system options* prompt has a default of N for no. You do not always see the Major System Options menu. If you change this value to Y for yes, the Major System Options menu is shown.

The bottom part of Form M2 shows the Major System Options display.

Refer to "Task 6.2 Learning about Automatic Configuration" on page 6-4 for information on automatic configuration and device names.

- The default for the *Allow automatic configuration* prompt is Y for yes. The system automatically configures your local devices and local controllers. If you change this value to N for no, you must configure your local devices and local controllers manually.
- The *Device configuration naming* prompt is set to *NORMAL. If you change this to *S36, you want your devices named like devices on the System/36.
- If the *Default special environment* prompt is set to *NONE, you want an AS/400 operating environment. If you change this to *S36, you want a System/36 operating environment.

STEP 2: Record any changes for the major system options on Form M2.

The *Operator's Guide* and the *Device Configuration Guide* contain more information on all of the IPL options.

Chapter 6. Planning for Device Configuration

This chapter is designed to help you prepare for device configuration. During device configuration, you create configuration descriptions to define local and remote devices on the system. Configuration descriptions are the basic building blocks used to configure a system:

- For local devices, you create descriptions for controllers, printers, display stations, tape units, and diskette units.
- For remote devices, you create descriptions for lines, controllers, printers, and display stations.

If you ordered a Total System Package (TSP) system, all local devices included with the TSP shipment are configured for you. If you have ordered remote devices or devices that are not part of the TSP system, you should read and understand this chapter. Please contact your marketing representative if you need additional information about configuration.

You need the following forms (found in Appendix F) to do the tasks in this chapter:

- Local Work Station Diagrams (Forms C1, C2, and C3)
- Remote Work Station Diagrams (Forms C4, C5, and C6; Parts 1 and 2)
- Local Twinaxial Work Station Controller Index (Form D1)
- Tape Unit and Diskette Unit Diagram (Form E1)
- Line planning forms (Forms F1, F2, and F3)

The following task overview shows the planning tasks in this chapter. Tasks in **bold** print **should** be completed; the other tasks are optional. Check off the boxes on "Task 1.3 Reviewing the System Planning Checklist" on page 1-4 as you complete each task.

TASK OVERVIEW

Configuration Overview

Three types of configuration descriptions are discussed in this chapter.

- **Line** descriptions include the synchronous data link control (SDLC) and X.25 communications capability
- **Controller** descriptions include local and remote work station controllers (like the 5294 and the 5251 Model 12)
- **Device** descriptions include display stations, printers, tape units, and diskette units

The information in the remainder of this chapter helps you complete the forms for configuration planning. The forms help you create the configuration description you need to configure your system.

Configuration Definitions

Here are some explanations for the configuration terms used throughout this chapter.

- A **communications line** is the link that connects remote controllers to the system. Some examples of controllers are the 5294 Remote Work Station Controller, the 5251 Model 12, or the Finance controllers. A communications line should not be confused with the cable that physically attaches work stations together because not all cables can be used for communications.
- A **controller** is the circuitry, device, or function that coordinates and controls the operating of one or more input/output devices.

  Local work station controllers are located in the system itself and control all the local work stations. Remote work station controllers are connected to the system by a communications line. These controllers control remote display stations and printers or other devices.
- A **device** is a display station, printer, tape unit, or diskette unit.

  Tape and diskette units are removable media devices and are used for applications such as saving and restoring your system and distributing licensed programs.

  A local display station or printer is attached to a local work station controller and a remote display station or printer is attached to a remote work station controller.

Task 6.1 Learning about Local Device Configuration

Local device configuration is configuring local work station controllers and devices (display stations, printers, tape units, and diskette units).

The Work Station Diagrams, Forms C1, C2, and C3; the Local Twinaxial Work Station Controller Index, Form D1; and the Diskette Unit and Tape Unit Diagram, Form E1, help you to plan for local device configuration before the system arrives. These forms help to plan for the names and addresses of these devices before they are installed.

You need a local floor plan and the local work station diagrams to complete the tasks for local device configuration.

Local Work Station Controllers

You can define local work station controllers with their twinaxial work station attachments. The device type is 6040 and the model number is 1.

The twinaxial work station attachments are used to attach display stations and printers to the system.

IBM link protocol converters can be attached to the twinaxial work station attachment to allow 3270 work stations, American National Standard Code for Information Interchange (ASCII) work stations, and personal computers to attach to the system. Refer to Chapter 3 for more information about the link protocol converters.

A terminal multiconnector can be attached to the twinaxial work station attachment. This allows the use of telephone twisted-pair cabling. Refer to Chapter 3 for more information about the terminal multiconnector.

Local Devices

Local devices are display stations, printers, tape units, and diskette units:

- Display stations and printers are attached to the local work station controller and its twinaxial work station attachment.
- The 9347, IBM 2440, and 9346 tape units have storage controllers on the system. The first tape unit address is set to 7, as the alternative initial program load (IPL) device.
- The 9331 diskette unit has a storage controller on the system. The two models of the diskette unit are: 8-inch and 5-1/4 inch.

Note: The disk unit is a locally attached device. It is the primary IPL device and its address is set to 0. If you have more than one disk unit, each unit must have a different address.

Each display station and printer device description must include the local work station controller to which it is attached specified in its device description.

Task 6.2 Learning about Automatic Configuration

Automatic configuration defines the local devices to the system for you. The actual configuration takes place when the system and the devices are plugged in, turned on, and you do the IPL of the system and specify yes to the *Enable automatic configuration* prompt on the Set Major System Options menu. Yes is the system default for this option. Refer to "Task 5.5 Deciding to Change the IPL Options" on page 5-10 for more information.

Automatic configuration can name the devices in one of two ways depending on how you respond to the *Device configuration naming* prompt on the Set Major System Options menu:

Device	*NORMAL	*S/36
Work station controller	CTL01, CTL02, ...	CTL01, CTL02, ...
Display stations	DSP01, DSP02, ...	W1, W2, ...
Printers	PRT01, PRT02, ...	P1, P2, ...
Diskette unit	DKT01, DKT02, ...	I1
Tape unit	TAP01, TAP02, ...	T1

Once you have signed on to your system you can use the Work with Configuration Status (WRKCFGSTS) or Work with Device Descriptions (WRKDEVD) commands to verify the names and locations of your devices. The *Device Configuration Guide* has more information for device descriptions.

Automatic configuration also gives the ability to add local twinaxial display stations and printers without doing an IPL. Once the work station is turned on, the system senses a new device and creates a description for the device and names it using the naming convention chosen on the Set Major System Options menu. You can then complete your local work station diagrams with the names that are shown when you use the WRKCFGSTS command.

Notes:

1. If you do not use automatic configuration, you cannot take advantage of the automatic addition of a display station, printer, tape unit, diskette unit, or local work station controllers.
2. If you do use automatic configuration, you have to follow the naming conventions given by the system and not your own.

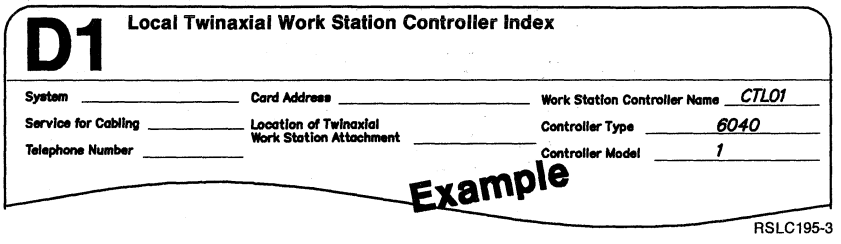
You can use automatic configuration only for local devices, but you must do manual configuration for your remote devices, or you can do manual configuration for both. If you choose to use automatic configuration for your local devices, go to "Task 6.5 Learning about Remote Device Configuration" on page 6-14; if not, continue with the next task.

Task 6.3 Gathering the Local Configuration Information

If you have local display stations and printers and chose *not* to use automatic configuration, you must gather information about the work station controller, the display stations, and the printers now. You need the Local Work Station Diagrams, Forms C1, C2, and C3 and the Local Twinaxial Work Station Controller Index, Form D1, to complete the tasks in this section. If you have completed these diagrams, most of your work is done; if you have not filled these out, you should do it now for local configuration planning. These forms are located in Appendix F of this manual.

Work Station Controller Information

You need to give the controller a name. The name should describe the controller's position. For example, you can use CTL01 for the first local work station controller and twinaxial work station attachment. Look at the following example of Form D1:



Use the following descriptions and the previous example to record the work station controller information on Form D1.

STEP 1: Make sure you have given the work station controller a name. If not, record the work station controller name you would like assigned to this controller. The name must be no longer than 10 characters. Use an alphabetic character (A through Z, dollar sign $, pound symbol #, or at symbol @) followed by no more than 9 alphameric characters (A through Z, 0 through 9, dollar sign $, at symbol @, period ., pound symbol #, or underline _).

Lowercase characters (a through z) and many other characters are allowed if they are enclosed in double quotation marks (" "). The double quotation marks count as a character of the name. Thus, only 8 additional characters are allowed between the beginning and ending double quotation marks. This is only allowed for the *NORMAL AS/400 names. For example, CTL01, is used for the name of your first controller, CTL02 for your second controller, and so on.

STEP 2: Make sure you have recorded the controller type. If not, record 6040 for the controller type.

STEP 3: Make sure you have recorded the controller model. If not, record 1 for the controller model.

STEP 4: Complete one form for each local work station controller you have. Keep these forms with the rest of your planning forms. They will be used later for setting up the work stations or performing device configuration.

Display Station Information

You need to gather configuration information about the display stations that attach to the work station controller. The information needed for the display stations is recorded on your local work station diagrams that you completed in Chapter 3.

Follow these steps to record the display station information on Forms C1, C2, or C3.

STEP 1: Make sure a device name has been recorded. If not, record the device description name for this display station. This name must be no longer than 10 characters. Use an alphabetic character (A through Z, dollar sign $, pound symbol #, or at symbol @) followed by no more than 9 alphameric characters (A through Z, 0 through 9, dollar sign $, at symbol @, period ., pound symbol #, or underline _).

Lowercase characters (a through z) and many other characters are allowed if they are enclosed in double quotation marks (" "). The double quotation marks count as a character of the name. Thus only 8 additional characters are allowed between the beginning and ending double quotation marks. This naming convention is allowed only for *NORMAL AS/400 names. For example, if this is your first display, name it DSP01.

STEP 2: Record the device type that this display station will be configured as if it is different than recorded on the work station diagrams in Chapter 3. There are four types of display stations that can be attached and configured on the system. They are ASCII, twinaxial, and twinaxial double-byte character set (DBCS) capable, and 3270. The ASCII display stations are attached to the 5208 or ROLMbridge 5250 link protocol converters. Use the following charts to help you record the correct device type. For 3270 display stations, use the *IBM 5209 3270-5250 Link Protocol User's Guide*. For information about configuring and attaching printers to the 3197 Display Station, refer to the 3197 Display Station manuals.

ASCII

Actual Device Type	Actual Model Number	Configured as Device Type	Configured as Model Number
3101	23	5291	2
3151		5291	2
3161		5291	2
3162		3180	2
3163		5291	2
3164		5292	1
Personal computer running 3101 emulation		5291	2

Twinaxial

Actual Device Type	Actual Model Number	Configured as Device Type	Configured as Model Number
3179	2 (Color)	Same	Same
3180	2	Same	Same
3196	A1, A2, B1, B2	Same	Same
3197	C1 (Color), C2 (Color), D1, D2, D4, W1, W2	Same	Same
5251	11	Same	Same
5291	1, 2	Same	Same
5292	1 (Color)	Same	Same
5292	2 (Graphics)	Same	Same
Personal computer running 5250 Emulation Program Version 2.10, 2.1, or 2.12	5150, 5160, 5170	5291 5292	2 2
Personal computer running AS/400 PC Support	5150, 5160, 5170	5150	1
Personal System/2 running 5250 Emulation Program Version 2.12	8530	5291 5292	2 2
Personal System/2 running Work Station Emulation Program Version 1	8550, 8560, 8580	3196 5292	A2 2
Personal System/2 running AS/400 PC Support	8530	5150	1
Personal System/2 running AS/400 PC Support	8550, 8560, 8580	5150	2

Twinaxial Double-Byte Character Set (DBCS) Capable

Actual Device Type	Actual Model Number	Configured as Device Type	Configured as Model Number
Personal System/55 running 5250PC program	5530, 5540, 5550, 5560, 5570	5555	B01
Personal System/55 running 5250PC/2 program	5540, 5550, 5560, 5570	5555	E01
5295	001, 002, 0C2, LK1	5555	B01

All of the devices must be configured as a twinaxial device and you need to specify the twinaxial device type for configuration. Record the configured device type beside what is already written down.

STEP 3: Record the model number of this display station if it is different than recorded on the work station diagrams in Chapter 3. The preceding chart contains the model numbers of the display station and also the configured model number. Use the preceding charts to help you record the correct model number.

This model number could be different than the one recorded on the local work station diagrams. The system needs the model number for the twinaxial device that the display station is configured as. Record the configured model number next to the configured device type.

STEP 4: Make sure the circle for the port number of the twinaxial work station attachment that this display station attaches to is darkened on the form. If not, do it now. Draw a line from the port to the display station on the form.

STEP 5: Make sure the device address is recorded on the diagram. Any address 0 through 6 is valid as long as you follow the rules and recommendations outlined in Chapter 3. You set the address of the display station to this number.

STEP 6: Make sure the work station controller name that all of the display stations attach to is recorded. The controller name must match the name specified in the controller description name that this display station will attach to. Use the same name you just recorded for the controller description name on Form D1.

STEP 7: Gather this information for all local work station controllers with display stations attached.

Printer Information

Gather configuration information about the printers that attach to the work station controller. Record this configuration information about the printers on your local work station diagrams (that you completed in Chapter 3). Display stations and printers can attach to the same ports on the twinaxial work station attachment.

Use the following descriptions to help complete the printer information of Forms C1, C2, and C3. If you have completed the diagram, make sure you have all information recorded by following these steps.

STEP 1: Make sure the device name has been recorded. If not, record the device name for this printer. This name must be no longer than 10 characters. Use an alphabetic character (A through Z, dollar sign $, pound symbol #, or at symbol @) followed by no more than 9 alphameric characters (A through Z, 0 through 9, dollar sign $, at symbol @, period ., pound symbol #, or underline _).

Lowercase characters (a through z) and many other characters are allowed if they are enclosed in double quotation marks (" "). The double quotation marks count as characters of the device name. Thus, only 8 additional characters are allowed between the beginning and ending double quotation marks. This naming convention is allowed only for *NORMAL AS/400 names. For example, if this is your first printer, you could name it, PRT01.

STEP 2: Record the device type that this printer will be configured as if different than recorded on the work station diagrams in Chapter 3. Each printer must be configured on the system as a twinaxial printer. There are five types of printers: ASCII, twinaxial, twinaxial double-byte character set (DBCS) capable, Personal System/55 and 5295 attached, and 3270. The ASCII printers are attached to the 5208 and the ROLMbridge 5250 link protocol converter. Use the following charts to help record the device type. For 3270 printers, use the 5209 manual.

ASCII

Actual Device Type	Actual Model Number	Configured as Device Type	Configured as Model Number
4201	1, 2	5219	D2
4202	1	5219	D2
4207		5219	D2
4208		5219	D2
5201	2	5219	D2
5202	2	5219	D2
5216	2	5219	D2
5223		5219	D2

Twinaxial

Actual Device Type	Actual Model Number	Configured as Device Type	Configured as Model Number
3812	1	Same	Same
3812	2	Same	Same
3812	2	IPDS	0
4210	1	4214	2
4214	2	Same	Same
4224	101, 102, 1E2, 1C2	IPDS	0
4234	2	Same	Same
4245	T12, T20	Same	Same
5219	D01, D02	Same	D1, D2
5224	1, 2	Same	Same
5225	1, 2, 3, 4	Same	Same
5256	1, 2, 3	Same	Same
5262	1	Same	Same
6262	T12	4245	0

Twinaxial Double-Byte Character Set (DBCS) Capable

Actual Device Type	Actual Model Number	Configured as Device Type	Configured as Model Number
5227	001, 002, 003, or 005	5553	B01
5317	001	5553	B01
5327	001	5553	B01
5337	001	5553	B01
5583	200	Same	Same

Personal System/55 and 5295 Attached

Actual Device Type	Actual Model Number	Configured as Device Type	Configured as Model Number
5553	B01, B02	Same	B01
5557	B01	5553	B01
5563	B02, H02	5553	B01
5572	B01	5553	B01
5575	B01, B02, F01, F02	5553	B01
5577	B01, F01, F02, G01	5553	B01

This device type could be different than the one recorded on the local work station diagrams. Record the device type that the device is configured as.

STEP 3: Record the model number of this printer if it is different than the model number recorded on the work station diagrams in Chapter 3. Use the preceding charts to help you record the correct model number.

This model number could be different than the one recorded on the local work station diagrams. Record the model number that the device is configured as next to the device type that the device is configured as if it is different than in the Configured as Model Number column.

STEP 4: Make sure the circle for the port number of the twinaxial work station attachment that this printer attaches to is darkened on the form. If not, do it now. Draw a line from the port to the printer on the form.

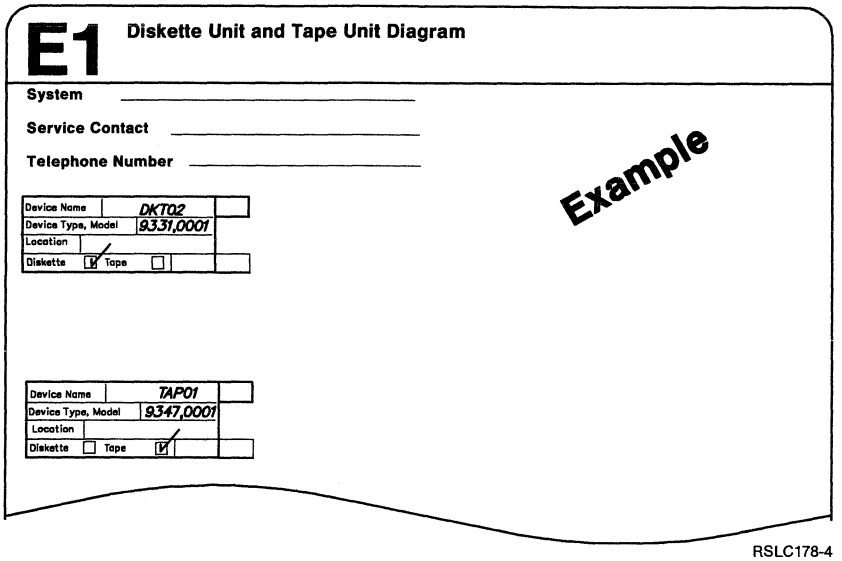
STEP 5: Make sure the device address for the printer is recorded. You set the switches of the printer to this. Any address 0 through 6 is valid as long as you have followed the rules and recommendations outlined in Chapter 3.

STEP 6: Make sure the work station controller name this printer attaches to is recorded. If your display stations and printers are attaching to the same twinaxial work station attachment, you have this name already recorded on Form D1.

STEP 7: Gather this information for all local work station controllers with printers attached.

Task 6.4 Completing the Diskette Unit and Tape Unit Diagram

If you have a diskette unit or tape unit, you must complete the Diskette Unit and Tape Unit Diagram, Form E1. Form E1 is located in Appendix F of this manual. There are enough spaces on this form for seven tape units and diskette units. This information is needed for creating the configuration descriptions on the system.



Diskette Unit Information

The following steps help you complete Form E1 for a diskette unit.

STEP 1: Record the device description name you would like assigned to this diskette unit. This name should be no longer than 10 characters. Use an alphabetic character (A through Z, dollar sign $, pound symbol #, or at symbol @) followed by no more than 9 alphameric characters (A through Z, 0 through 9, dollar sign $, at symbol @, period ., pound symbol #, or underline _). Refer to the above example.

Lowercase characters (a through z) are allowed if they are enclosed in double quotation marks (" "). The double quotation marks count as a character of the device name. Thus, only 8 additional characters are allowed in between the beginning and ending double quotation marks. This is allowed only for *NORMAL AS/400 names.

STEP 2: Record the device type of the 9331 diskette unit. The diskette unit type and model number can be found on the System Information Form, Form A1.

STEP 3: Record the model number of your 9331 diskette unit. Use either a 0001, for the 8-inch drive, or a 0002, for the 5-1/4 inch drive.

Tape Unit Information

The following steps help to complete Form E1 for a tape unit.

STEP 1: Record the device description name you would like assigned to this tape unit. This name should be no longer than 10 characters. Use an alphabetic character (A through Z, dollar sign $, pound symbol #, or at symbol @) followed by no more than 9 alphameric characters (A through Z, 0 through 9, dollar sign $, at symbol @, period ., pound symbol #, or underline _). Refer to the example on the previous page.

Lowercase characters (a through z) are allowed if they are enclosed in double quotation marks (" "). The double quotation marks count as a character of the device name. Thus only 8 additional characters are allowed between the beginning and ending double quotation marks. This is allowed only for *NORMAL AS/400 names.

STEP 2: Record the type of tape unit; use the following list:

9347
9346
2440

The tape unit type and model number can be found on the System Information Form.

STEP 3: Record the model number of this tape unit; use the following list:

Type	Model
9347	0001
9346	0001
2440	A12

Task 6.5 Learning about Remote Device Configuration

Remote device configuration refers to communications lines, remote work station controllers, and remote devices attached to the remote controllers. If you need to plan for remote devices, continue with the task. If you are not going to have remote devices, continue to Chapter 7.

You have already planned for electronic customer support in Chapter 4. You need similar modem and configuration information for the communications lines in this chapter. Under "Task 6.7 Gathering Remote Configuration Information" on page 6-22, you record line configuration information for remote device configuration.

Note: If you are using communications support for more than the 5294 Remote Work Station Controller, the 5251 Model 12 Remote Work Station Controller, and the 5394 Remote Work Station Controller, go to the *Data Communications Planning Guide* for more configuration information after completing the tasks in this chapter. Do not call your common carrier until you have the information for all your communications lines.

You will need Part 2 of the Remote Work Station Diagrams, Forms C4, C5, and C6; the Synchronous Data Link Control Communications (SDLC) Line, Forms F1, F2, and F3 planning forms to complete the tasks in this section. These forms are located in Appendix F of this manual.

Remote Work Station Controllers

The remote work station controllers that can attach to the system include: the 5251 Model 12 Remote Work Station Controller, the 5294 Remote Work Station Controller, and the 5394 Remote Work Station Controller.

- The 5251 Model 12, the 5294 and the 5394 remote work station controllers are used to attach twinaxial devices to the system.
- Link protocol converters can be used at remote sites to attach other devices. They attach to the 5294 or the 5394 remote work station controllers.

Remote Devices

Remote devices are display stations and printers that are attached to remote controllers. The link protocol converters can also attach to the remote work station controller. In preparation for remote device configuration, you already filled out part 1 of the remote work station diagrams for these devices.

Task 6.6 Preparing for Your Communications Line

You have already determined work station addresses and completed the remote work station diagrams in Chapter 3. The next thing to do in planning for remote devices is to order the common carrier and the modem for the communications line.

Find Part 4 of the System Information Form, Form A1, (which you completed in Chapter 1) and find the Communications and the 5251-12; 5294-1, K01, S01; and 5394-1, 2 Remote Work Station Controllers section. Use the following example to help you locate the correct area.

A1 **System Information Form (Part 4)**

Communications and the 5251-12; 5294-1, K01, S01; and 5394-1, 2 Remote Work Station Controllers

Line Type	Connection Type	Controller Type	Quantity	Modem	Physical Interface	Line Speed
SDLC	Switched	5294	4	5841	EIA-232/V.24	1200

RSLC200-3

The first column of this section should tell you the line type (SDLC) of the communications line.

If SDLC is recorded under line type, continue to "Synchronous Data Link Control (SDLC) Communications Line" on page 6-15. If X.25 is recorded under line type, go to "X.25 Communications Network Line" on page 6-21.

Synchronous Data Link Control (SDLC) Communications Line

The second column of this section should tell you the connection type (Switched) of this communication line. With this in mind, select the correct planning form to do this task.

There are three different planning forms you could use for the SDLC communications line:

- Synchronous Data Link Control Switched Line Communications, Form F1
- Synchronous Data Link Control Nonswitched Point-to-Point Line Communications, Form F2
- Synchronous Data Link Control Nonswitched Multipoint Line Communications, Form F3

Make a copy of the form and use the copy to do your actual planning work.

These forms are divided into two areas. Those areas are:

- Modem Supplier Information
- Common Carrier Information

You need this information for the modem supplier and the common carrier.

Identifying the Modem

The SDLC planning form lists all the IBM modems that you can use with this line.

F1 **Synchronous Data Link Control Switched Line Communications**

To Modem Supplier							To Common Carrier				
Modem	Line Speed	Interface [1]	Duplex	Diagnostic Support	NRZI Support	Autocall Support	FCC Registration	Ringer Equivalence	Line Connection End (Jack) [2]	Type of Service	Telephone Handset (Optional)
5841	1200	EIA-232/V.24	Full	Local and Remote Loopback	Yes	N/A	EQW5YF-15245-DM-E	0.9B	RJ11	See Note	Standard Phone
5842	2400	EIA-232/V.24	Full	Local and Remote Loopback	Yes	N/A	EQW5YF-15245-DM-E	0.9B	RJ11	See Note	Standard Phone
5853	2400	EIA-232/V.24	Full	Local and Remote Loopback	Yes	Yes Via [3] V.25 bis			RJ11	See Note	Standard Phone
3863 Model 2	2400	EIA-232/V.24	Half	LPDA-1, Local Loopback	Yes	N/A	AN09SA-67992-DP-N	0.8B	RJ41 or RJ45	See Note	Exclusion Key set with RJ36
3864 Model 2	4800	EIA-232/V.24	Half	LPDA-1, Local Loopback	Yes	N/A	AN09SA-67992-DP-N	0.8B	RJ41 or RJ45	See Note	Exclusion Key set with RJ36
Non-IBM Modem											

Note: Contact your telephone company and order a normal voice grade (analog) switched line for the switched modems you selected.

Example

[1] For additional interface support on the system, see Appendix B in the *Data Communications Planning Guide*.

[2] For countries other than United States and Canada, modems are shipped with the plug specified or required by that country. Otherwise, the modem is shipped with a cable with 4-spade lugs at the line connection end.

[3] Provides the autodial feature using the same port used for normal connection to modem.

Note: You may copy as necessary.

RSLC136-7

Look on the System Information Form, Form A1, for the Communications and the 5251-12; 5294-1, K01, S01; and 5394-1, 2 Remote Work Station Controllers section to determine which modem you ordered for this communications line.

A1 **System Information Form (Part 4)**

Communications and the 5251-12; 5294-1, K01, S01; and 5394-1, 2 Remote Work Station Controllers

Line Type	Connection Type	Controller Type	Quantity	Modem	Physical Interface	Line Speed
SDLC	*Switched*	*5294*	*4*	*5841*	*EIA-232/V.24*	*1200*

RSLC200-3

If there is a modem listed, continue with this section. If there is not a modem listed, go to "Ordering a Modem" on page 6-18 or "Ordering a Modem (Other Than IBM)" on page 6-19.

On the SDLC planning form, find the modem that matches the one listed on the System Information Form. On the SDLC planning form, circle the entire line as shown in the example below.

F1 **Synchronous Data Link Control Switched Line Communications**

To Modem Supplier							To Common Carrier				
Modem	Line Speed	Interface [1]	Duplex	Diagnostic Support	NRZI Support	Autocall Support	FCC Registration	Ringer Equivalence	Line Connection End (Jack) [2]	Type of Service	Telephone Handset (Optional)
5841	1200	EIA-232/V.24	Full	Local and Remote Loopback	Yes	N/A	EQW5YF-15245-DM-E	0.9B	RJ11	See Note	Standard Phone
5842	2400	EIA-232/V.24	Full	Local and Remote Loopback	Yes	N/A	EQW5YF-15245-DM-E	0.9B	RJ11	See Note	Standard Phone
5853	2400	EIA-232/V.24	Full	Local and Remote Loopback	Yes	Yes Via [3] V.25 bis			RJ11	See Note	Standard Phone
3863 Model 2	2400	EIA-232/V.24	Half	LPDA-1, Local Loopback	Yes	N/A	AN09SA-67992-DP-N	0.8B	RJ41 or RJ45	See Note	Exclusion Key set with RJ36
3864 Model 2	4800	EIA-232/V.24	Half	LPDA-1, Local Loopback	Yes	N/A	AN09SA-67992-DP-N	0.8B	RJ41 or RJ45	See Note	Exclusion Key set with RJ36
Non-IBM Modem											

Note: Contact your telephone company and order a normal voice grade (analog) switched line for the switched modems you selected.

Example

[1] For additional interface support on the system, see Appendix B in the *Data Communications Planning Guide*.

[2] For countries other than United States and Canada, modems are shipped with the plug specified or required by that country. Otherwise, the modem is shipped with a cable with 4-spade lugs at the line connection end.

[3] Provides the autodial feature using the same port used for normal connection to modem.

Note: You may copy as necessary.

RSLC203-3

Go to "Ordering a Communications Line from a Common Carrier" on page 6-20.

Ordering a Modem

If you are going to order your modem from IBM, continue with this section. If you are going to use a modem supplier other than IBM, go to "Ordering a Modem (Other Than IBM)" on page 6-19. Make sure you have the right interface for the modem you order.

The System Information Form, Form A1, did not list a modem; you need to order one. Look at the Synchronous Data Link Control Switched Line Communications form (Form F1) and locate the area labeled *To Modem Supplier*.

F1 **Synchronous Data Link Control Switched Line Communications**

To Modem Supplier							To Common Carrier				
Modem	Line Speed	Interface[1]	Duplex	Diagnostic Support	NRZI Support	Autocall Support	FCC Registration	Ringer Equivalence	Line Connection End (Jack) [2]	Type of Service	Telephone Handset (Optional)
5841	1200	EIA-232/V.24	Full	Local and Remote Loopback	Yes	N/A	EQW5YF-15245-DM-E	0.9B	RJ11	See Note	Standard Phone
5842	2400	EIA-232/V.24	Full	Local and Remote Loopback	Yes	N/A	EQW5YF-15245-DM-E	0.9B	RJ11	See Note	Standard Phone
5853	2400	EIA-232/V.24	Full	Local and Remote Loopback	Yes	Yes Via [3] V.25 bis			RJ11	See Note	Standard Phone
3863 Model 2	2400	EIA-232/V.24	Half	LPDA-1, Local Loopback	Yes	N/A	AN09SA-67992-DP-N	0.8B	RJ41 or RJ45	See Note	Exclusion Key set with RJ36
3864 Model 2	4800	EIA-232/V.24	Half	LPDA-1, Local Loopback	Yes	N/A	AN09SA-67992-DP-N	0.8B	RJ41 or RJ45	See Note	Exclusion Key set with RJ36
Non-IBM Modem											

Note: Contact your telephone company and order a normal voice grade (analog) switched line for the switched modems you selected.

Example

[1] For additional interface support on the system, see Appendix B in the *Data Communications Planning Guide*.

[2] For countries other than United States and Canada, modems are shipped with the plug specified or required by that country. Otherwise, the modem is shipped with a cable with 4-spade lugs at the line connection end.

[3] Provides the autodial feature using the same port used for normal connection to modem.

Note: You may copy as necessary. RSLC130-7

STEP 1: Circle the entire line for the modem type and model number (if it has one), on the form to show what modem you want to order.

Note: Remember, you need a modem and a communications line type for each end of your communications line. Keep this in mind when you order.

STEP 2: Contact your marketing representative and order the modem type you circled.

STEP 3: Go to "Ordering a Communications Line from a Common Carrier" on page 6-20.

Ordering a Modem (Other Than IBM)

The System Information Form, Form A1, did not list a modem; you need to order one.

F 1 **Synchronous Data Link Control Switched Line Communications**

To Modem Supplier							To Common Carrier				
Modem	Line Speed	Interface[1]	Duplex	Diagnostic Support	NRZI Support	Autocall Support	FCC Registration	Ringer Equivalence	Line Connection End (Jack) [2]	Type of Service	Telephone Handset (Optional)
5841	1200	EIA-232/V.24	Full	Local and Remote Loopback	Yes	N/A	EQW5YF-15245-DM-E	0.9B	RJ11	See Note	Standard Phone
5842	2400	EIA-232/V.24	Full	Local and Remote Loopback	Yes	N/A	EQW5YF-15245-DM-E	0.9B	RJ11	See Note	Standard Phone
5853	2400	EIA-232/V.24	Full	Local and Remote Loopback	Yes	Yes Via [3] V.25 bis			RJ11	See Note	Standard Phone
3863 Model 2	2400	EIA-232/V.24	Half	LPDA-1, Local Loopback	Yes	N/A	AN09SA-67992-DP-N	0.8B	RJ41 or RJ45	See Note	Exclusion Key set with RJ36
3864 Model 2	4800	EIA-232/V.24	Half	LPDA-1, Local Loopback	Yes	N/A	AN09SA-67992-DP-N	0.8B	RJ41 or RJ45	See Note	Exclusion Key set with RJ36
Non-IBM Modem											

Note: Contact your telephone company and order a normal voice grade (analog) switched line for the switched modems you selected.

Example

[1] For additional interface support on the system, see Appendix B in the *Data Communications Planning Guide*.

[2] For countries other than United States and Canada, modems are shipped with the plug specified or required by that country. Otherwise, the modem is shipped with a cable with 4-spade lugs at the line connection end.

[3] Provides the autodial feature using the same port used for normal connection to modem.

Note: You may copy as necessary. RSLC131-7

STEP 1: Record the type, model number, and the characteristics of modem other than an IBM one on the space provided on the Synchronous Data Link Control Switched Line Communications form.

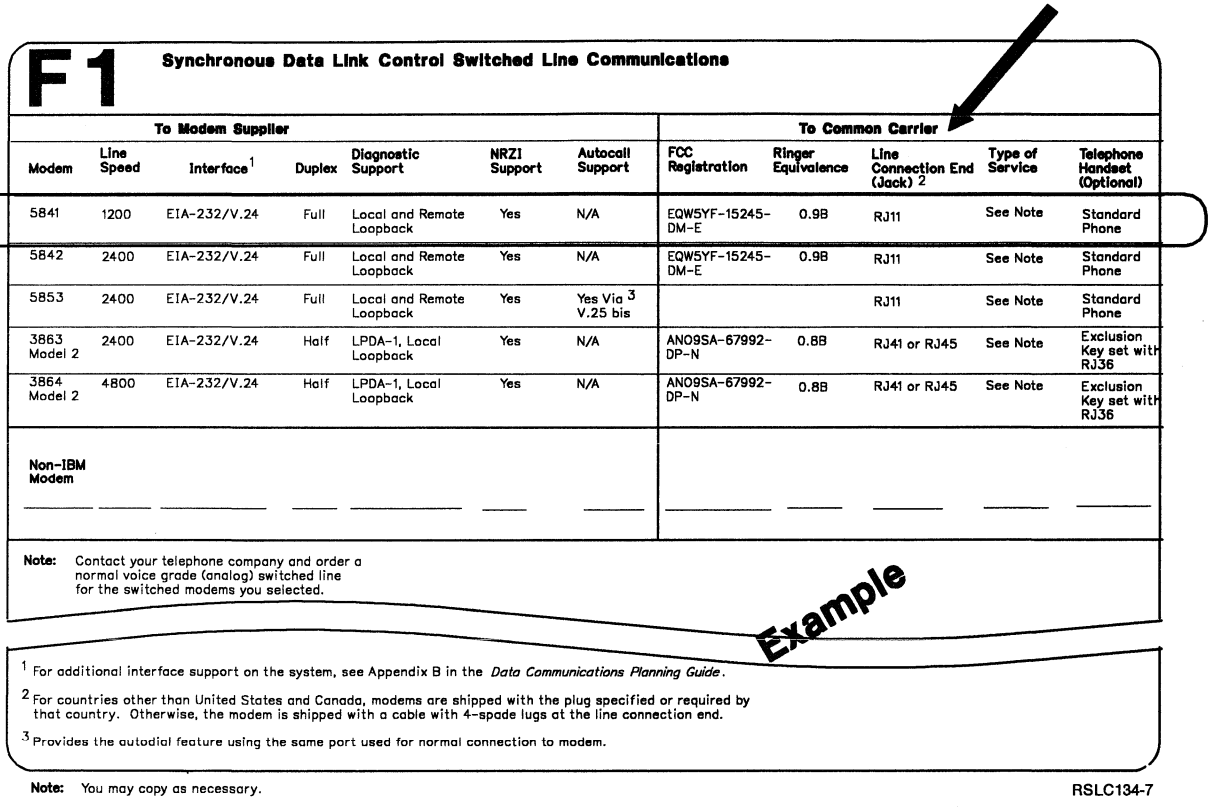
STEP 2: Contact the vendor of your modem and give them this information.

STEP 3: Go to "Ordering a Communications Line from a Common Carrier" on page 6-20.

Ordering a Communications Line from a Common Carrier

Your modem characteristics determine the common carrier information.

STEP 1: Locate the area labeled *To Common Carrier* on the SDLC planning form.



F1 **Synchronous Data Link Control Switched Line Communications**

To Modem Supplier							To Common Carrier				
Modem	Line Speed	Interface[1]	Duplex	Diagnostic Support	NRZI Support	Autocall Support	FCC Registration	Ringer Equivalence	Line Connection End (Jack) [2]	Type of Service	Telephone Handset (Optional)
5841	1200	EIA-232/V.24	Full	Local and Remote Loopback	Yes	N/A	EQW5YF-15245-DM-E	0.9B	RJ11	See Note	Standard Phone
5842	2400	EIA-232/V.24	Full	Local and Remote Loopback	Yes	N/A	EQW5YF-15245-DM-E	0.9B	RJ11	See Note	Standard Phone
5853	2400	EIA-232/V.24	Full	Local and Remote Loopback	Yes	Yes Via [3] V.25 bis			RJ11	See Note	Standard Phone
3863 Model 2	2400	EIA-232/V.24	Half	LPDA-1, Local Loopback	Yes	N/A	AN09SA-67992-DP-N	0.8B	RJ41 or RJ45	See Note	Exclusion Key set with RJ36
3864 Model 2	4800	EIA-232/V.24	Half	LPDA-1, Local Loopback	Yes	N/A	AN09SA-67992-DP-N	0.8B	RJ41 or RJ45	See Note	Exclusion Key set with RJ36
Non-IBM Modem											

Note: Contact your telephone company and order a normal voice grade (analog) switched line for the switched modems you selected.

Example

[1] For additional interface support on the system, see Appendix B in the *Data Communications Planning Guide*.

[2] For countries other than United States and Canada, modems are shipped with the plug specified or required by that country. Otherwise, the modem is shipped with a cable with 4-spade lugs at the line connection end.

[3] Provides the autodial feature using the same port used for normal connection to modem.

Note: You may copy as necessary. RSLC134-7

This area has several pieces of information the common carrier needs to know. They should be included in the circle you drew around the modem type you selected earlier.

STEP 2: In addition to the other information on the form, you need to tell the common carrier if you are:

- Switched (dial-up)
- Nonswitched point-to-point
- Nonswitched with multipoint control

The name of the form you are using has this information.

STEP 3: The following contain complete descriptions of communications line requirements and other planning information for the modem you selected:

- *Data Communications Planning Guide*
- *IBM 3863, 3864, and 3865 Introduction and Site Preparation Guide*
- *IBM 5841 Guide to Operations*
- *IBM 5842 Guide to Operations*
- *IBM 3833 and 3834 Modems, Planning, and Site Preparation Guide*
- *IBM 5810 Enclosure, 5811-10 and 5811-18 Modems, Planning, and Site Preparation Guide*
- *IBM 5811/5812 Modems Description and Planning Guide*
- *IBM 5853 Modem Guide to Operations*

- *IBM 5865 and 5866 Modems, Planning, and Site Preparation Guide*
- *IBM 5868 Modem Models 51 and 61 Maintenance Information and Parts Catalog*
- Information provided with your modem (other than IBM)

STEP 4: Continue with "Task 6.7 Gathering Remote Configuration Information" on page 6-22.

X.25 Communications Network Line

There is no F planning form to fill out for an X.25 communications network.

X.25 Network Provider

When you ordered your AS/400 system, you decided that you would require the use of an X.25 communications network. Several companies or government-run common carriers provide an X.25 packet-switching data network (PSDN). Work with your marketing representative to determine an X.25 network provider.

Your network provider should make sure that you have the necessary modem, network line, line connection end (jacks), and other physical equipment required by the packet-switching data network (PSDN).

Continue with "Task 6.7 Gathering Remote Configuration Information" on page 6-22.

Task 6.7 Gathering Remote Configuration Information

The Remote Work Station Diagrams help you gather some of the information you need for remote device configuration. You need the Remote Work Station Diagram for 5294 (Part 2), Form C4; the Remote Work Station Diagram for 5394 (Part 2), Form C5; or the Remote Work Station Diagram for 5251 Model 12 (Part 2), Form C6, to complete this task. These forms are located in Appendix F of this manual.

By gathering configuration information before your system arrives, the actual process of configuring your communications lines or networks will be easier and less time-consuming.

The remote configuration planning process looks at these types of information:

- Line information
- Controller information
- Device information

Note: The controller and device areas of the planning form contain several choices for you to choose from. If you cannot recall which controller and which device type you want to configure for this line, see the System Information Form, Form A1.

You will have to exchange or get configuration information with the remote site (other end of the communications line) or a network provider. Only information that you can:

get

give

or coordinate

with the remote site or network provider is presented on the planning form.

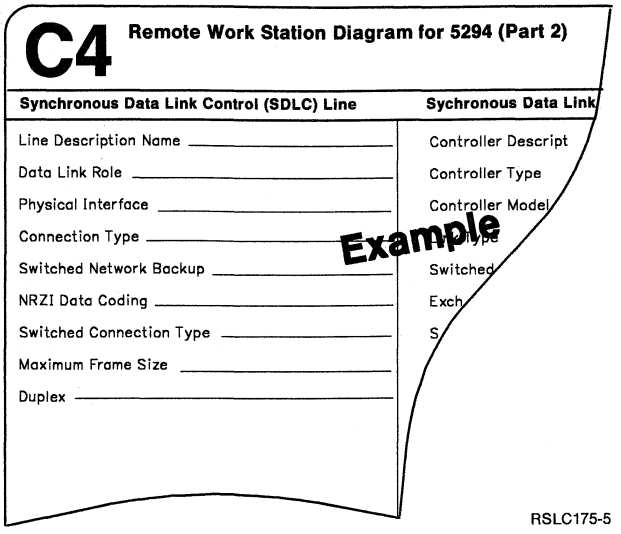
The configuration process requires specific information about the communications line, controller, and device. The configuration planning form is a place you can record that information. In most cases, you will need to contact someone at the remote site or the network provider to have that exchange of information take place.

If you have no experience with configuring remote devices or communication, you should work with your marketing representative to complete this task.

Note: The remote configuration information on part 2 of the planning form is not a complete list of all of the configuration prompts that will be needed when the actual configuration is performed. A complete list of all the configuration prompts and their descriptions is in the manual *Device Configuration Guide*.

Line Configuration Information

Part 2 of all the Remote Work Station Diagrams has special areas to record this configuration information for either an SDLC line or an X.25 communications line. You must record this information on the forms. The following example shows the area to record configuration information for the SDLC communications line.



Synchronous Data Link Control Line Information

For a synchronous data link control (SDLC) communications line, follow these steps. The modem you ordered determines some of this information. Some of the information needed has a default on the system; the default is printed in bold.

STEP 1: Record the line description name you would like assigned to this communications line. The name must be no longer than 10 characters. Use an alphabetic character (A through Z, $, #, or @) followed by no more than 9 alphameric characters (A through Z, 0 through 9, dollar sign $, at symbol @, period ., pound symbol #, or underline _).

Lowercase characters (a through z) and many other characters are allowed if they are enclosed in double quotation marks (" "). The double quotation marks count as a character of the name. Thus, only 8 additional characters are allowed between the beginning and ending double quotation marks. This is only valid for *NORMAL AS/400 names. For example, LINE1 can be used for the name of your first line description name, LINE2 for your second line, and so on.

STEP 2: Record the data link role for this system. The AS/400 system is always the primary station when communicating with a remote work station controller on SDLC or X.25 communications lines. Specify *PRI.

Data link role specifies if the system is to be the primary (controlling) station, or the secondary (responding) station, or if the system dynamically negotiates the primary and secondary roles.

STEP 3: Record the type of physical interface on the input/output adapter (IOA) communications port.

***RS232V24** RS-232/V.24 physical interface. This physical interface uses the EIA-232/V.24 communications cable.

*V35 V.35 physical interface. This physical interface uses the V.35 communications cable.

*X21 X.21 physical interface. This physical interface uses the X.21 communications cable.

*X21BISV24 X.21 bis/V.24 physical interface. This physical interface uses the EIA-232/V.24 communications cable. For X.21 networks only.

*X21BISV35 X.21 bis/V.35 physical interface. This physical interface uses the V.35 communications cable. For X.21 networks only.

Check the F planning form to verify which interface you should choose.

Note: The 5394 Remote Work Station Controller cannot use the V35 interface.

STEP 4: Record the type of line connection. Possible choices are:

***NONSWTPP** Select this value to indicate that the line is a nonswitched point-to-point line.

*SWTPP Select this value to indicate that the line is a switched point-to-point line.

*MP Select this value to indicate that the line is a nonswitched multipoint line.

Check the F planning form to verify which connection type you should choose.

STEP 5: Record whether the switched network backup (SNBU) feature is available on the modem. This is an optional feature of nonswitched modems. The backup feature is used to bypass a broken nonswitched (leased line) connection by dialing a telephone number to establish a switched connection. Possible choices are:

***NO** Selection of this value indicates that your modem does not have the SNBU feature.

*YES Selection of this value indicates that your modem has the SNBU feature.

Note: SNBU must be supported by the remote site if you select *YES.

STEP 6: Record if non-return-to-zero inverted recording (NRZI) data coding is used for the equipment on the line. Possible choices are:

***YES** NRZI data coding is used.

*NO NRZI data coding is not used.

Note: Regardless of selecting *YES or *NO, the AS/400 system and the remote device must be configured the same.

Check the F planning form and coordinate with the remote site.

STEP 7: Record the switched connection type to be used for incoming calls, outgoing calls, or both. This prompt is valid only if the *Connection Type* prompt is switched (SWTPP). Coordinate with the remote site.

The possible responses are:

***BOTH** Used for both incoming and outgoing calls.

*ANS Only answer incoming calls.

*DIAL Only dial out.

STEP 8: Record the maximum frame size, in bytes that is sent and received on the line. The possible choices are:

521
265
1033
2057

Note: For the 5294 and 5251 Model 12 remote work station controllers in point-to-point applications, 265 is the correct value.

STEP 9: Record the duplex on the form. Duplex specifies whether request-to-send (RTS) should be permanently set on (for duplex modems) or only turned on when transmission is required (for half-duplex modem).

***HALF** RTS will only be turned on when transmission is required.

*FULL RTS will be permanently set on.

You have completed the information for an SDLC line. You also need to gather information about the work station controller that uses this line. Depending on the communications line type you have chosen, you will record different configuration information for the work station controller, go to "Work Station Controller Information" on page 6-28.

X.25 Communications Network Line

The network provider determines some of the information. Some of the information needed has a default on the system; the default is printed in bold.

STEP 1: Record the line description name you would like assigned to this communications line. The name must be no longer than 10 characters. Use an alphabetic character (A through Z, $, #, or @) followed by no more than 9 alphameric characters (A through Z, 0 through 9, dollar sign $, at symbol @, period ., pound symbol #, or underline _).

Lowercase characters (a through z) and many other characters are allowed if they are enclosed in double quotation marks (" "). The double quotation marks count as a character of the name. Thus only 8 additional characters are allowed between the beginning and ending double quotation marks. This is only valid for *NORMAL AS/400 names. For example, LINE1 can be used for the name of your first line description name, LINE2 for your second line, and so on.

STEP 2: X.25 logical channel entries describe the logical channel subscribed from the network provider to the AS/400 system. For each logical channel entry you must specify the logical channel number and the logical channel type. This information is part of your network subscription:

- The logical channel identifier is 3 hexadecimal digits assigned by the network. It is a combination of the group number specified as 1 hexadecimal digit and the channel number specified in 2 hexadecimal digits.
- The logical channel type values can be:

  *PVC Permanent virtual circuit

  *SVCIN Switched virtual circuit, incoming calls allowed

  *SVCOUT Switched virtual circuit, outgoing calls allowed

  *SVCBOTH Switched virtual circuit, both incoming and outgoing calls allowed

On Part 2 of the Remote Work Station Diagrams under X.25 Line Information, record the logical channel type for each channel you have with your X.25 network.

STEP 3: Record the local network address for this system. The local network address can be up to 15 digits. From the X.25 network supplier, obtain the local network address and record it on the form.

STEP 4: Record who activates the X.25 data link level connection. From your X.25 network supplier, find out how the X.25 network handles starting the connection. There are several ways the network handles starting the connection.

The possible responses are:

*LOCAL Local system starts the connection.

*REMOTE Remote system starts the connection.

*WAIT Local system waits, then starts the connection.

STEP 5: Record the type of physical interface on the input/output adapter (IOA) communications port.

*X21 X.21 physical interface. This physical interface uses the X.21 communications cable.

***X21BISV24** X.21 bis/V.24 physical interface. This physical interface uses the EIA-232/V.24 communications cable.

*X21BISV35 X.21 bis/V.35 physical interface. This physical interface uses the V.35 communications cable.

STEP 6: Record the X.25 default packet size, in bytes, to be used on this network, as supported by the network supplier. Get this from your network provider.

The possible responses are:

128
64
256
512
1024

STEP 7: Record the maximum packet size to be used by any controller associated with this line. Get this from your network provider.

The possible responses are:

***DFTPKTSIZE** (This value is the same as specified for the default packet size.)
64
128
256
512
1024

Note: This response must be greater than or equal to the value specified on the default packet size prompt.

STEP 8: Record the packet-level modulus for your network. The X.25 network supplier tells you if you use modulus 8 or modulus 128. Get this from your network provider.

The possible responses are:

8
128

STEP 9: Record X.25 default window size used for the X.25 network, as required by the network supplier. Get this from your network provider.

If you specified modulus 8, values are 1 through 7.
If you specified modulus 128, values of 1 through 15.

STEP 10: Record if the system is to insert the local network address in CALL REQUEST or CALL ACCEPTED packets.

The possible values are:

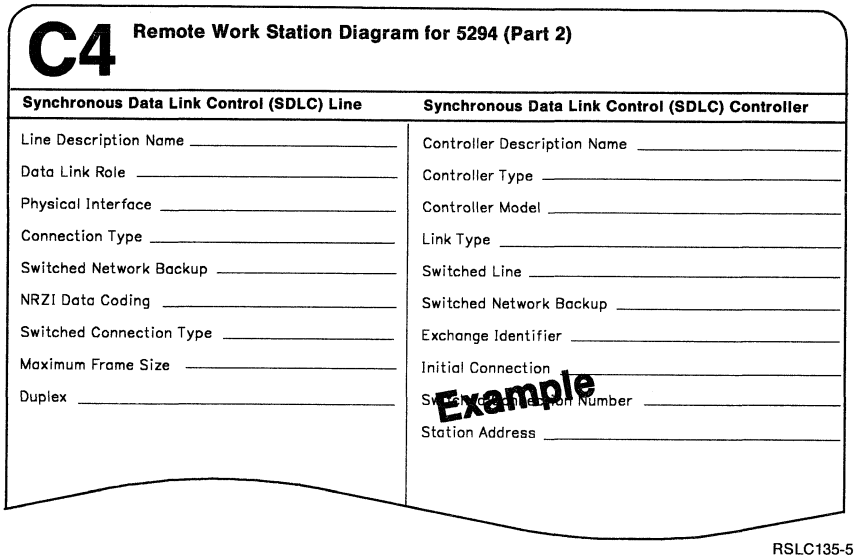
***YES** Address will be inserted.

*NO Address will not be inserted.

You have completed the information for an X.25 line. You also need to gather configuration information about the work station controller that uses this line. Depending on the line type you have chosen, you will record different configuration information for the work station controllers. Continue to "Work Station Controller Information" on page 6-28.

Work Station Controller Information

In addition to the line configuration information, you need controller configuration information. There is a place on the form to record the controller information for SDLC and X.25 also. Use the following example and steps to help you gather the controller configuration information.



RSLC135-5

If you have an SDLC line, you need to gather SDLC controller information. Go to "Synchronous Data Link Control Controller Information" on page 6-29.

If you have an X.25 line, you need to gather X.25 controller information. Go to "X.25 Controller Information" on page 6-31.

Synchronous Data Link Control Controller Information

For remote work station controllers connected to a synchronous data link control (SDLC) communications line, do the following steps to gather the configuration information.

STEP 1: Record the controller description name for this controller. This name should be no longer than 10 characters. Use the alphabetic character (A through Z, dollar sign $, pound symbol #, or at symbol @) followed by no more than 9 alphameric characters (A through Z, 0 through 9, dollar sign $, at symbol @, period ., pound symbol #, or underline _).

Lowercase characters (a through z) and many other characters are allowed if they are enclosed in double quotation marks (" "). The double quotation marks count as characters of the controller name. Thus only 8 additional characters are allowed between the beginning and ending double quotation marks. This is allowed only for *NORMAL AS/400 names. For example, you could use RMTCTL1 for the first remote controller, RMTCTL2 for the second, and so on.

STEP 2: Record the type of twinaxial remote work station controller on this line. The possible choices are:

5251 Controller
5294 Controller
5394 Controller

STEP 3: Record the model number of this controller. Following is a list of the model numbers for each type of controller.

Actual Device Type	Actual Model Number	Configured as Device Type	Configured as Model Number
5251	12	Same	Same
5294	1	Same	Same
5294	K01 (DBCS controller for Japanese)	Same	Same
5294	S01 (DBCS controller for Korean and Chinese)	Same	K01
5394	1	Same	Same
5394	2	Same	Same

STEP 4: Record the type of line (link type) this controller will be attached to. Record *SDLC because this controller attaches to an SDLC communications line.

STEP 5: Record a *YES or *NO if this controller attaches to a switched line. This prompt is only valid if the *Connection Type* prompt is switched point-to-point (SWTPP).

***YES** This controller attaches to a switched line.

*NO This controller attaches to a nonswitched line.

Get this from the F planning form.

STEP 6: Record if the switched network backup (SNBU) feature is available on the modem. This is an optional feature of nonswitched modems. The backup feature is used to bypass a broken nonswitched (leased line) connection by dialing a telephone number to establish a switched connection. Contact the remote site to determine if their modem has SNBU.

The possible responses are:

***NO** The remote system modem does not have the SNBU feature.

*YES The remote system modem has the SNBU feature.

STEP 7: Record the exchange identifier for the controller. An exchange identifier is required for a controller attached to an SDLC switched line. It is optional otherwise.

The exchange identifier is used by the AS/400 system to identify the remote controller. This is an 8-digit hexadecimal identifier containing 3 digits for the block number and 5 digits for the identifier of the work station controller. Use the table below to determine the identifier. The *xx* is the station address configured for the controller.

- Leave this entry blank if the controller does not require an exchange identifier.
- If the controller does require an exchange identifier, enter the hexadecimal value, 8 digits long (using the hexadecimal digits 0 through F) that identifies this controller.

Type	Block Number	Identifier
5251 (Model 12)	020	000xx
5294	045	000xx
5394	05F	000xx

Use your remote controller manual to help you with the information.

STEP 8: Record the initial connection. This specifies the expected call direction. Coordinate this with the remote site.

The possible responses are:

***DIAL** The system only dials outgoing calls.

*ANS The system only answers incoming calls.

Note: If you specified *BOTH for the *Switched Connection Type* prompt on the SDLC line information, either *DIAL or *ANS will work for this controller.

STEP 9: Record the switched connection number used to dial the remote system. This can be a telephone number, or an X.21 connection depending on the type of line. Get this information from the remote site.

The possible responses are:

***DC**	Direct connection. The connection number has already been established in the network.
Connection number	Specify the telephone number or the X.21 connection number.

Note: If you have an X.21 circuit switched connection, record *DC.

STEP 10: Record the station address for this controller. Use a value from 01 through FE. If you have more than one controller connected to this line, the station addresses must be different. This prompt is only valid if the *Connection Type* prompt is nonswitched point-to-point (NSWTPP). Coordinate this with the remote site.

You have completed the information for an SDLC controller. If you have an X.25 network communications controller, you need to gather more configuration information, go to "X.25 Controller Information" on page 6-31. If you have another SDLC controller, go back to Step 1. If not, you can gather information for the devices (display station and printers) now.

X.25 Controller Information

STEP 1: Record the controller description name for this controller. This name should be no longer than 10 characters. Use an alphabetic character (A through Z, dollar sign $, pound symbol #, or at symbol @) followed by no more than 9 alphameric characters (A through Z, 0 through 9, dollar sign $, at symbol @, period ., pound symbol #, or underline _).

Lowercase characters (a through z) and many other characters are allowed if they are enclosed in double quotation marks (" "). The double quotation marks count as characters of the controller name. Thus, only 8 additional characters are allowed between the beginning and ending double quotation marks. This is allowed only for *NORMAL AS/400 names. For example, you could use RMTCTL1 for the first remote controller, RMTCTL2 for the second, and so on.

STEP 2: Record the type of remote work station controller. The possible choices are:

5251 Controller
5294 Controller
5394 Controller

STEP 3: Record the model number of this controller. Following is a list of the model numbers and configured as model numbers for each type of controller.

Actual Device Type	Actual Model Number	Configured as Device Type	Configured as Model Number
5251	12	Same	Same
5294	1	Same	Same
5294	K01 (DBCS controller for Japanese)	Same	Same
5294	S01 (DBCS controller for Korean and Chinese)	Same	K01
5394	1	Same	Same
5394	2	Same	Same

STEP 4: Record the type of line (link type) this controller will be attached to. Use *X25 because this controller attaches to an X.25 communications network line.

STEP 5: Record a *YES or *NO if this controller attaches to a switched line.

*YES This controller attaches to a switched virtual circuit (SVC).

*NO This controller attaches to a permanent virtual circuit (PVC).

STEP 6: Record the initial connection. This specifies the expected call direction. This must be coordinated with the remote site.

The possible responses are:

***DIAL** The AS/400 system only dials outgoing calls.

*ANS The AS/400 system only answers incoming calls.

STEP 7: Record the switched connection number used for this controller. This is the X.25 address and is only for switched virtual circuits (SVC). Get this from the network provider and coordinate with the remote site.

STEP 8: Record the X.25 network level that is used for this controller. The level is specified by giving the year of the standard used by the X.25 network provider. Possible choices are:

1980 Standard
1984 Standard

STEP 9: Record the X.25 link level protocol for the remote controller you are to communicate with. Your link level protocol and the remote link level protocol must match. Coordinate with the remote site.

The possible responses are:

***QLLC** Qualified logical link control.

*ELLC Enhanced logical link control.

STEP 10: Record the X.25 logical channel ID. If this controller is to use the X.25 PVC (permanent virtual circuit), specify the logical channel ID to be used. This logical channel ID is defined in the line description.

Note: If this controller is to use an switched virtual circuit (SVC) this value must not be specified.

Get this from the *X.25 logical channel entries* prompt on the X.25 line information.

STEP 11: Record the X.25 connection password. If this controller is to use a switched virtual circuit (SVC), specify a password. This password must match the password of the remote controller with which this controller will communicate. The password can be up to 8 characters in length.

Notes:

1. This prompt is optional.
2. This password, along with the switched connection number, must form a unique identifier. There can be only one controller on this system with this combination of password and connection number.

Coordinate this with the remote site.

STEP 12: Record the X.25 default packet size, in bytes, to be used for this controller (only if different from the line information), as supported by the network supplier. The packet size specified for the line information is the default.

Get this from your network provider.

STEP 13: Record X.25 default window size to be used for this controller (only if different from the line information) as required by the network supplier. Values of 1 through 7 are valid if you specified modulus 8, and values of 2 through 15 are valid if you specified modulus 128 are valid. The window size specified for the line information is the default.

Get this from your network provider.

STEP 14: Record the X.25 user group ID, if known. The user group ID allows you to belong to a closed user group. To access a closed user group, you need to contact that user group and obtain their user group ID.

Note: This parameter is valid only if the controller is being used on a switched virtual circuit (SVC).

Coordinate this with your network provider.

STEP 15: Record X.25 reverse charging if you can accept and/or request reverse charging.

Coordinate this with your network provider and the remote site.

The possible responses are:

***NONE** No reverse charging is allowed.

*REQUEST Reverse charging is requested for SVC-out connections.

*ACCEPT Reverse charging is accepted for SVC-in connections.

*BOTH If you call out on this SVC channel, you are requesting reverse charging. If you receive an incoming call, you are asked to accept reverse charging.

If you have another controller on the X.25 line, go back to Step 1. If not, you can gather information for the devices (display stations and printers) now.

Display Station Information

If you did not complete Part 1 of the Remote Work Station Diagrams, C4, C5, or C6 for determining the addresses of the display stations and printers that attach to the remote work station controller in Chapter 3, follow these steps now.

If you are planning to have communications other than with the 5294, 5251 Model 12, or the 5394 remote work station controllers, such as, asynchronous communications, system-to-system communications, or a token-ring network, refer to the *Data Communications Planning Guide* after you have completed all the tasks in this manual. Do not call your common carrier until you have the information for all your communications lines.

You need Part 1 of either Form C4, C5, or C6 to gather display station and configuration information for this task.

Note: Not all display stations can attach to each remote controller. Please refer to the remote controller manual for the list of display stations.

STEP 1: Make sure the device name has been recorded. If not, record the device name you would like for this display station. This name must be no longer than 10 characters. Use an alphabetic character (A through Z, dollar sign $, pound symbol #, or at sign @) followed by no more than 9 alphameric characters (A through Z, 0 through 9, dollar sign $, at symbol @, period ., pound symbol #, or underline _).

Lowercase characters (a through z) and many other characters are allowed if they are enclosed in double quotation marks (" "). The double quotation marks count as characters in the device name. This is only allowed for *NORMAL AS/400 names.

STEP 2: Record the device type this display station will be configured as if it is different than recorded on the remote work station diagrams. There are four types of display stations on the system: ASCII, twinaxial, twinaxial double-byte character set (DBCS) capable, and 3270. ASCII display stations are attached to a 5208 link protocol converter. Use the following charts to record the correct device types. For 3270 display stations, refer to the *IBM 5209 3270-5250 Link Protocol Converter's Users Guide*. For information about configuring and attaching printers to the 3197 Display Station, refer to the 3197 Display Station manual.

ASCII

Actual Device Type	Actual Model Number	Configured as Device Type	Configured as Model Number
3101	23	5291	2
3151		5291	2
3161		5291	2
3162		3180	2
3163		5291	2
3164		5292	1
Personal computer running 3101 emulation		5291	2

Twinaxial

Actual Device Type	Actual Model Number	Configured as Device Type	Configured as Model Number
3179	2 (Color)	Same	Same
3180	2	Same	Same
3196	A1, A2, B1, B2	Same	Same
3197	C1 (Color), C2 (Color), D1, D2, D4, W1, W2	Same	Same
5251	11	Same	Same
5291	1, 2	Same	Same
5292	1 (Color)	Same	Same
5292	2 (Graphics)	Same	Same
Personal computer running 5250 Emulation Program Version 2.10, 2.1, or 2.12	5150, 5160, 5170	5291 5292	2 2
Personal System/2 running 5250 Emulation Program Version 2.12	8530	5291 5292	2 2
Personal System/2 running Work Station Emulation Program Version 1	8550, 8560, 8580	3196 5292	A2 2

Twinaxial Double-Byte Character Set (DBCS) Capable

Actual Device Type	Actual Model Number	Configured as Device Type	Configured as Model Number
Personal System/55 running 5250PC program	5530, 5540, 5550, 5560, 5570	5555	B01
Personal System/55 running 5250PC/2 program	5540, 5550, 5560, 5570	5555	E01
5295	001, 002, 0C2, LK1	5555	B01

The devices must be configured on the system as a twinaxial device. Write the configured as device type next to the one you have already placed on the diagram.

STEP 3: Record the model number of this display station if it is different than recorded on the remote work station diagram in Chapter 3. Use the preceding charts to help you record the model number the display station is configured as.

The model number that the device is configured as may be different than the model number you have already recorded. Record the model number that the display station is configured as on the form.

STEP 4: Make sure the circle for the port number that this display station attaches to the remote controller has been darkened on the form. If not, do that now.

STEP 5: Make sure you have given a name to the controller that this display station will be attached to. If not, go back to the section on controllers. The controller name must match the name specified under the controller description name for the controller information.

Printer Information

Gather information about the printers that attach to your 5250 remote work station controller if you did not complete part 1 of the remote work station diagrams in Chapter 3. Display stations and printers can attach to the same port on the remote work station controller.

Note: Not all printers can attach to each remote controller. Please refer to the remote controller manual for a list of printers.

STEP 1: Make sure the device name has been recorded. If not, record the device description name you would like assigned to this printer. This name should be no longer than 10 characters. Use an alphabetic character (A through Z, dollar sign $, pound symbol #, or at symbol @) followed by no more than 9 alphameric characters (A through Z, 0 through 9, dollar sign $, at symbol @, period ., pound symbol #, or underline _).

Lowercase characters (a through z) and many other characters are allowed if they are enclosed in double quotation marks (" "). This is allowed only for *NORMAL AS/400 names. For example, if this is the first printer, you could name it RMTPRT1.

STEP 2: Record the device type this printer will be configured as. There are five types of printers that are configured on the system: ASCII, twinaxial, twinaxial double-byte character set (DBCS) capable, Personal System/55 and 5295 attached, and 3270. The ASCII printers are attached to the 5208 link protocol converter. The following charts contain the actual device type of the printers and also the configured as device types. For 3270 printers, see the 5209 manual.

ASCII

Actual Device Type	Actual Model Number	Configured as Device Type	Configured as Model Number
4201	1, 2	5219	D2
4202	1	5219	D2
4207		5219	D2
4208		5219	D2
5201	2	5219	D2
5202	2	5219	D2
5216	2	5219	D2
5223		5219	D2

Twinaxial

Actual Device Type	Actual Model Number	Configured as Device Type	Configured as Model Number
3812	1	Same	Same
3812	2	IPDS	0
4210	1	4214	2
4214	2	Same	Same
4224	101, 102, 1E2, 1C2	IPDS	0
4234	2	Same	Same
5219	D01, D02	Same	D1, D2
5224	1, 2	Same	Same
5225	1, 2, 3, 4	Same	Same
5256	1, 2, 3	Same	Same
5262	1	Same	Same

Twinaxial Double-Byte Character Set (DBCS) Capable

Actual Device Type	Actual Model Number	Configured as Device Type	Configured as Model Number
5227	001, 002, 003, or 005	5553	B01
5317	001	5553	B01
5327	001	5553	B01
5337	001	5553	B01
5583	200	Same	Same

Personal System/55 and 5295 Attached

Actual Device Type	Actual Model Number	Configured as Device Type	Configured as Model Number
5553	B01, B02	Same	B01
5557	B01	5553	B01
5563	B02, H02	5553	B01
5572	B01	5553	B01
5575	B01, B02, F01, F02	5553	B01
5577	B01, F01, F02, G01	5553	B01

The device type that the printer is configured as may be different than the device type you have already recorded. Record the device type that the printer is configured as on the form.

STEP 3: Record the model number of the printer if it is different than the model number recorded in the remote work station diagram. Use the preceding table to help you record the correct model number.

The model number that the printer is configured as could be different than the model number you have already recorded. Record the model number that the printer is configured as on the form, if it is different under the Configured as Model Number column.

STEP 4: Make sure the circle for the port number this printer attaches to the remote controller is darkened on the form. If not, do that now.

STEP 5: Check to make sure you have given a name to the controller that this printer will be attached to. If not, go back to the section on controllers. The controller name must match the name specified under the controller description name for the controller information.

STEP 6: When you have completed all the forms with the configuration information, keep them with all the other planning forms. They will be used for setting up your remote work stations and configuring your remote devices.

If you are planning to have communications other than with the 5294, 5251 Model 12, or the 5394 remote work station controllers, such as, asynchronous communications, system-to-system communications, or a token-ring network, refer to the *Data Communications Planning Guide* **after you have completed all the tasks in this manual. Do not call your common carrier until you have the information for all your communications lines.**

Chapter 7. Planning for the Arrival of Your System

This chapter presents the last planning tasks that you must complete before you can set up your system.

You will need the following forms (in Appendix F) to do the tasks in this chapter:

- Number Labels for Work Station Signal Cables (Form S1)
- ID Labels for Work Station Signal Cables (Form S2)

The following task overview shows the planning tasks in this chapter. Tasks in **bold** print **should** be completed; the other tasks are optional. Check off the boxes on "Task 1.3 Reviewing the System Planning Checklist" on page 1-4 as you complete each task.

TASK OVERVIEW

"Task 7.1 Preparing the Work Station Cable Labels."
"Task 7.2 Reviewing Considerations for Installing Cables."
"Task 7.3 Labeling the Cables."
"Task 7.4 Arranging for System Delivery and Setup."
"Task 7.5 Reviewing Considerations for Moving Your System."
"Task 7.6 Reviewing Unpacking Considerations."

Task 7.1 Preparing the Work Station Cable Labels

After you decide the physical arrangement of your system, where the cables will go, and the cable length, you can mark the labels. You can mark the labels either before or after your system arrives. If you mark them before, you will be more organized, and your system will be installed faster, especially if you have a large system or a complex network of work stations. Therefore, this chapter tells you how to label your cables and then how to put them on.

We have provided you with two types of labels: a smaller routing label called a number label (located on Form S1 in Appendix F) and a larger identification (ID) label (located on Form S2 in Appendix F).

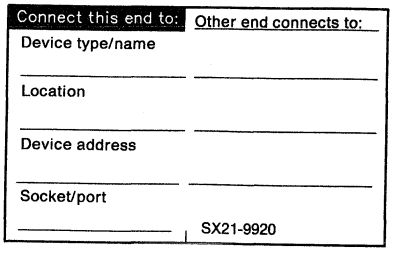
You will need both types of labels if your cables go through walls, ceilings, or floors. If the cables do not go through walls, ceilings, or floors, you will not need the number labels. The number labels are used temporarily in place of the larger ID labels because if you were to pull the cable through the wall, ceiling, or floor with the larger ID label on, the label might get damaged. Either way, begin with step 1 in the following section.

You only need to plan for labeling work station cables in this manual. Information on labeling communications cables to the AS/400 system is in *Attaching Cables.*

Before the Cables Arrive

STEP 1: Find the ID Labels for Work Station Signal Cables, Form S2, in Appendix F. If you have remote work stations, complete two labels for each cable at the remote site. If you do not have enough labels, you can order some through your marketing representative or copy Form S2.

ID Label
(Form S2)



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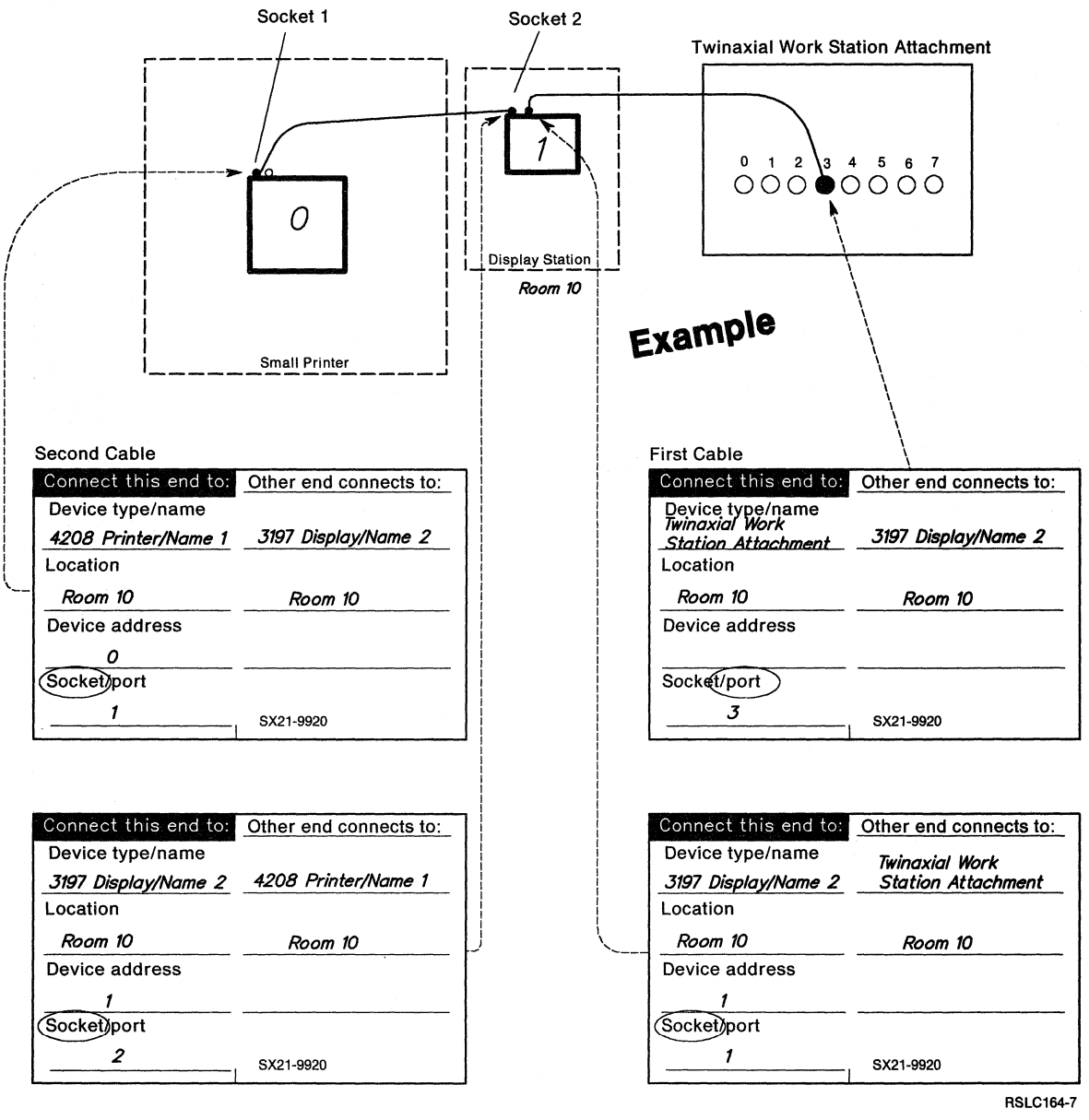
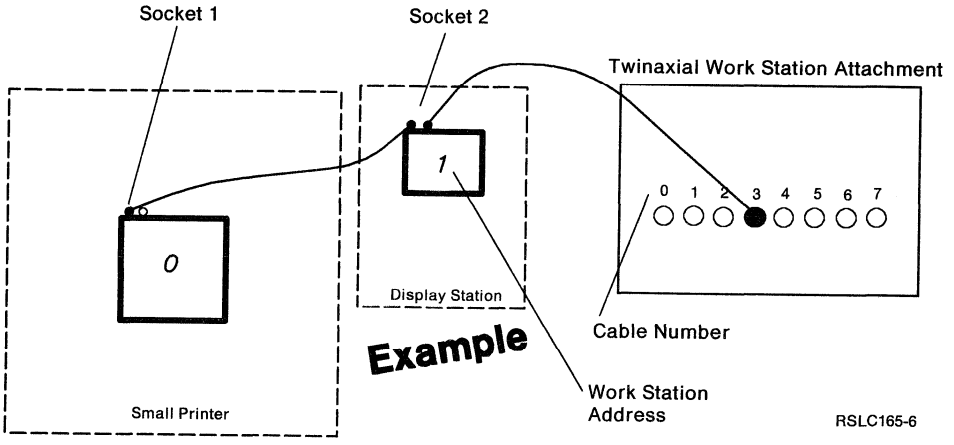
STEP 2: Complete the labels using the following examples; use your completed work station diagram(s) (the C Forms), and your floor plan as a guide. Complete two labels for each cable connected to a work station, controller, or cabling device (such as a 5299 Model 3 Terminal Multiconnector). Then attach one label to each end of the cable. These labels are used to assist the people who set up your work stations and other devices, and for problem analysis.

Your labels should correspond to each other, to your floor plan, and to your work station diagrams (the C forms), as shown in the following example.

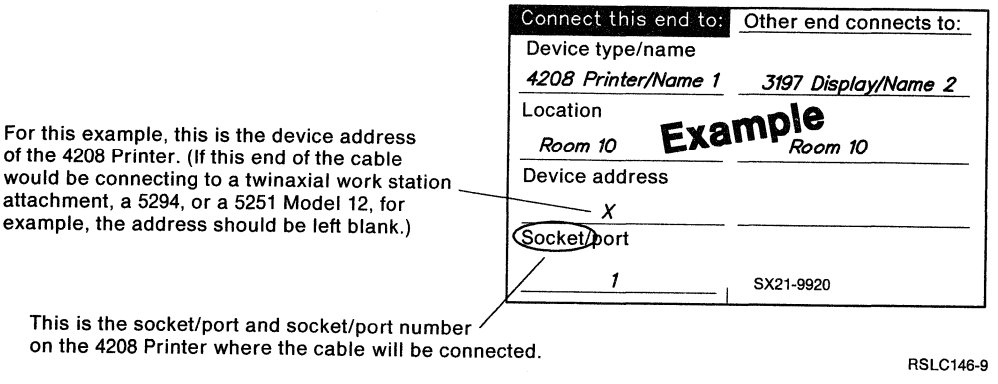


Complete each label as follows:

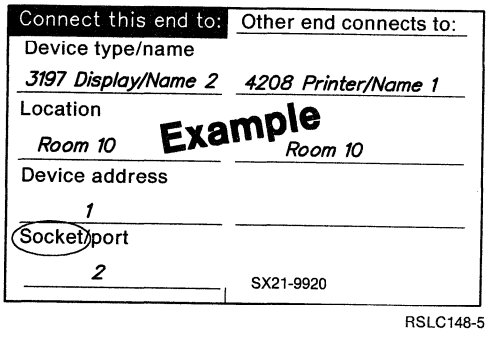
1. Get your floor plan and the completed work station diagram(s).
2. Use your floor plan to determine which work station cable will go between each device and what route it should take.



3. Copy the information from the forms (the appropriate C forms) and floor plan to the label. If you have more than one controller or twinaxial work station attachment, distinguish them on your labels by putting an additional identifier with the device type/name (for example, the 5294-1, K01, or S01 Controller) as you had entered on your work station diagram. Remember, you need to complete two labels for each cable, one for each end.



4. Not all devices have socket/port numbers. Refer to the setup manual for your device for specific socket/port information.
5. Copy this same information to a second label only reverse the information, as shown in the following example. (The device address and socket/port information will be different.)



After the Cables Arrive

Once you have the cables, you can review the considerations for installing cables, *attach* the labels to the cables, and prepare the cables for attaching to your work stations as explained in the following tasks.

DANGER

> **During an electrical storm, do not connect cables or station protectors for communications lines, display stations, printers, or telephones.**

Task 7.2 Reviewing Considerations for Installing Cables

Remember or review the following before installing your cables:

- "Reviewing Cable Path Considerations" on page 3-10.
- If cables go outdoors between buildings, the heading, "Outdoor Cable Installation" in the *IBM 5250 Information Display System Planning and Site Preparation Guide*, has information for twinaxial cable; Chapter 6 in the *IBM 3270 IDS Installation Manual—Physical Planning* has information for coaxial cable, and Chapter 7 in the *IBM Cabling System Planning and Installation Guide* has information for the IBM Cabling System.
- If you want to assemble your own cables instead of buying them, refer to the manuals for each of the cabling types.

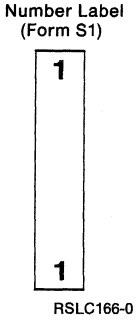
The *IBM 5250 Information Display System Planning and Site Preparation Guide* contains additional twinaxial cable considerations, the *IBM Cabling System Planning and Installation Guide* contains information about installing the IBM Cabling System, and the *IBM 5299 Terminal Multiconnector Model 3 Planning, Setup, and Maintenance Guide* contains information about installing telephone twisted-pair cabling.

Task 7.3 Labeling the Cables

If you have cables installed through walls, ceilings, or floors, start with **STEP 1** and read this entire task. If you do not have cables installed in walls or ceilings, go to **STEP 2**.

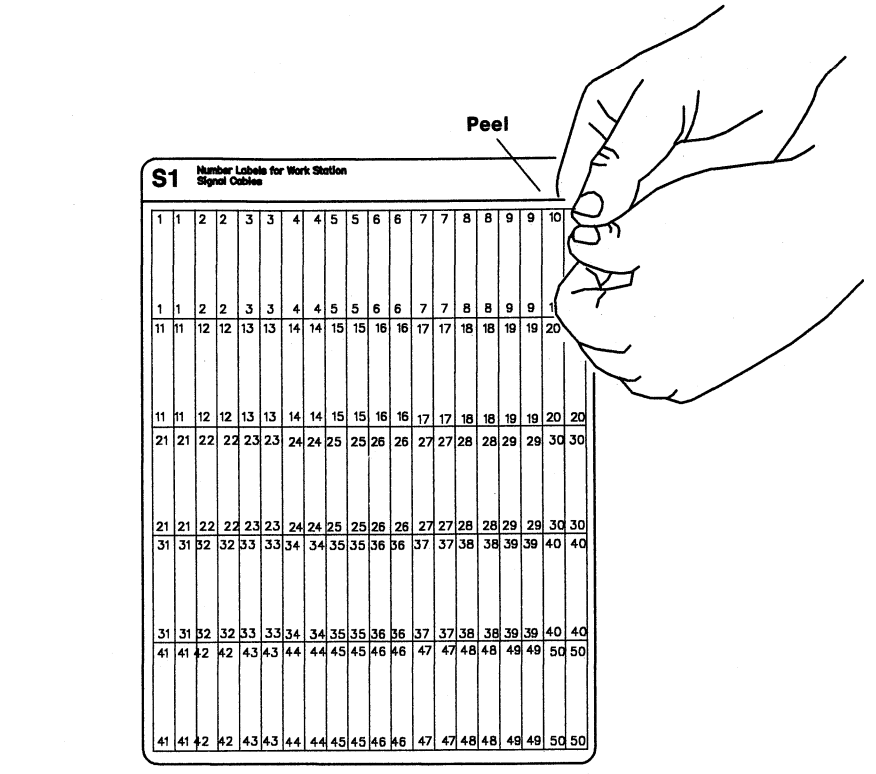
STEP 1: Cables that are installed through the walls, ceilings, or floors should be labeled at each end both before and after they are installed. You will need four labels for each work station cable; two number labels (with the same number) and two ID labels. The number label can help you keep track of which cable you are holding until you can attach the larger ID Label.

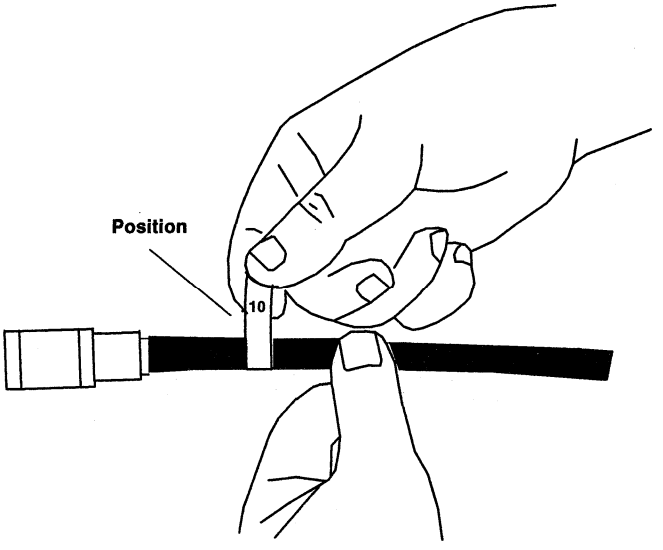
Find the Number Labels for Work Station Signal Cables, Form S1 in Appendix F. If you think you may need more than the labels provided, make a copy of the form before cutting out the labels. If you have remote work stations, you will need two labels for each cable at the remote site. If you do not have enough labels, you can order some through your marketing representative or copy Form S1.



STEP 2:

1. Get your floor plan, completed work station diagram(s), and the actual cables.
2. While looking at the actual cables, use your floor plan to determine which work station cable will go between each device and what route it should take. Do this by measuring the cable length and comparing it to the cable length on the floor plan.
3. (Do this step only if you are using number labels from Form S1.) Remove two number labels of the same number and wrap these sticky-backed labels around each end of the cable, as shown in the following example.





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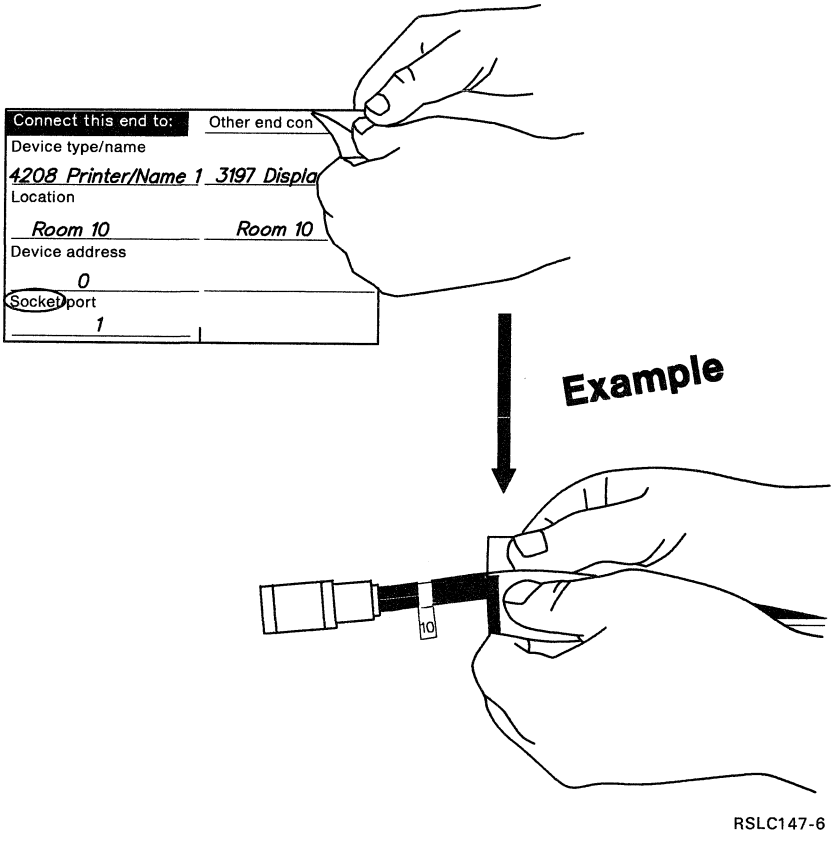
4. (Do this step only if you are using number labels from Form S1.) Run one end of the cable through the wall, ceiling, or floor until it is out the other end, and sufficient cable is present as shown on the floor plan. The number label should be showing. Keep doing this until all cables that go through walls, ceilings, or floors are in place.

STEP 3:

1. Remove two corresponding ID labels, Form S2 (these should have been completed in Task 7.1), and wrap these sticky-backed labels around the ends of the cable, as shown in the following example.



2. Record the cable number for each cable on the floor plan.

STEP 4: After you attach all labels to your cables, place the cables near the areas where the work stations or controllers will be located.

After your system arrives, you may want to replace the device name on the ID label with the resource name.

Task 7.4 Arranging for System Delivery and Setup

When the system and work stations arrive, have them delivered, still crated or boxed, to the room or rooms you have prepared.

Because of the height of the shipping carton, it is recommended that the AS/400 system be unpacked in the receiving area for countries other than the United States and Canada.

Use the floor plan and the information on the boxes to identify and place the system and work stations where they will be unpacked and set up.

Consider the following as you arrange for delivery and setup:

- The front of the carton contains the unpack instructions. The system must be removed from the front of the pallet (it takes 3 meters (10 feet) to roll the system off the pallet).
- Some devices might be shipped in containers that are banded with straps. You need to cut these steel straps before unpacking the system unit. Make sure you have the proper tools and eye protection.
- If you have more than one rack, you might need to rearrange the racks according to the floor plan. Make sure you have enough help available to move the racks.

CAUTION:

Your IBM equipment is heavy. NEVER ATTEMPT TO LIFT OR MOVE any system equipment by yourself.

Task 7.5 Reviewing Considerations for Moving Your System

If you are moving new equipment into your office or changing the location of your equipment, consider the following:

- The size of halls and doorways through which the equipment must be moved.
- Elevator capacity and loading facilities that will be used while moving the system to the prepared data processing site.
- Someone responsible for directing the movement and placement of the equipment.
- Someone responsible for moving existing furniture, if required.
- Special equipment for moving the system and devices, such as a dolly or cart.
- Notify the people in the work areas near the system that their work may be interrupted.

Notify your service representative.

Task 7.6 Reviewing Unpacking Considerations

If you have a Total System Package, follow the instructions in the *TSP Installation Guide – 9406*.

Setting up your new system will be easier once you have a general idea of what you are going to do. Once your system arrives and is delivered to the data processing center, you are ready to unpack it. You will:

STEP 1: Unpack the system (display stations, printer, and so on).

DANGER

> **Some devices might be shipped in containers that are banded with straps. Safety glasses should be worn when removing the straps from the shipping container.**

Unpacking the system is a simple process of removing packing material. The unpacking instructions are printed on the outside of the box for some devices and are in a plastic envelope for other devices. When you are done unpacking, keep the

instructions for unpacking and packing each device in an envelope or binder near the *Planning Guide*.

Store the maintenance library somewhere near the system. If your system needs service, the service representative will need the service manuals.

STEP 2: Before calling IBM, set up the display station you assigned as the console. (IBM will install this display station.) Other display stations and printers can be set up at your convenience. Make sure the IBM service representative or the person who installs the system has a copy of your floor plan and work station diagram(s).

The system manager or person who completed planning for installing the system, if not doing the previous steps, should be available to answer questions during this time.

Appendix A. Temperature and Humidity Limits

Type of Device	Temperature, Dry Bulb		Relative Humidity	Maximum Temperature, Wet Bulb	
	Operating	Nonoperating		Operating	Nonoperating
Rack and rack-mounted devices (except 1/2-inch tape units)	10° to 38° C (50° to 100° F)	10° to 52° C (50° to 125° F)	8%[2] to 80%	23° C (73° F)	27° C (80° F)
1/2-inch tape units	16° to 33° C (60° to 90° F)	10° to 43° C (50° to 110 ° F)	20% to 80%	23° C (73° F)	27° C (80° F)
5219 Printer, 4245[1]-T12, T20 Printer, 2440-A12 Tape Unit, and 9347 Tape Unit	16° to 32° C (60° to 90° F)	10° to 43° C (50° to 110° F)	20% to 80%	23° C (73° F)	27° C (80° F)
5262 Printer	16° to 29° C (60° to 85° F)	10° to 51° C (50° to 125° F)	20% to 52%	22° C (72° F)	27° C (80° F)
3812 Printer[3]	16° to 32° C (60° to 90° F)	0.6° to 60° C (33° to 140°F)	8% to 80%	29° C (85° F)	29° C (85° F)
4224[4]-101, 102, 1E2, 1C2 Printer	16° to 29° C (60° to 85° F)	10° to 52° C (50° to 125° F)	20% to 80%	23° C (73° F)	27° C (80° F)
Personal computers, Personal System/2, Personal System/55XX	16° to 32° C (60° to 90° F)	10° to 43° C (50° to 110° F)	8% to 80%	23° C (73° F)	27° C (80° F)

[1] Printer is in a normal printing application.
[2] The 9346 Tape Unit has a relative humidity range of 20% to 80%.
[3] The maximum temperature, dry bulb, for the toner is 40° C (104° F).
[4] Printer has the Document Insertion Device attached.

Appendix B. Product Noise Levels

Declaration of IBM Product Noise Emission Values										
		LwAd		LpAm		< LpA > m			
Type No.	Description	Operating (bels)	Idling (bels)	Operating (dB)	Idling (dB)	Operating (dB)	Idling (dB)	I	T
AS/400-B30, B40[1]	System Unit/9332 Rack[5]	6.7	6.7	–	–	53	53	No	No
AS/400-B30, B40, B50, B60[1]	System Unit Rack[6]	6.9	6.9	–	–	53	53	No	–
AS/400-B30, B40, B50, B60[1]	9332 Expansion Rack[7]	6.8	6.8	–	–	54	54	No	–
AS/400-B30, B40, B50, B60[1]	9335 Expansion Rack[8]	7.2	7.2	–	–	56	56	No	–
AS/400-B30, B40, B50, B60[1]	I/O Expansion Rack[9]	7.0	7.0	–	–	54	54	No	–
9309-2	Rack	Note	Note	Note	Note	Note	Note	Note	Note
9406[1, 3]	Processor	6.3	6.3	–	–	46	46	No	No
5010/5030, 5021[1,3,4]	I/O Card Unit	6.3	6.3	–	–	46	46	No	No
9332-200, 400[1,3]	Disk Unit (in rack)	5.8	5.8	–	–	43	43	No	Yes
9335-A02[1,3]	Device Function Controller	5.9	5.9	–	–	44	44	No	No
9335-B01[1,3]	Direct Access Storage Device	6.5	6.5	–	–	50	50	No	No
2440[1]	Tape Unit	6.7	6.4	–	–	51	49	No	–
9346[1,3]	Tape Unit	6.0	5.7	–	–	44	41	No	No
9347[1,3]	Tape Unit	5.9	5.9	–	–	41	41	No	No
9331-001, 002[1,3]	Diskette Unit	5.7	5.7	–	–	41	41	No	Yes
Personal Computers	System Unit and Display Station	–[2]	–[2]	–[2]	–[2]	–[2]	–[2]	–[2]	–[2]
Personal System/2	System Unit and Display Station	–[2]	–[2]	–[2]	–[2]	–[2]	–[2]	–[2]	–[2]
Personal System/55XX	System Unit and Display Station	–[2]	–[2]	–[2]	–[2]	–[2]	–[2]	–[2]	–[2]
3101-23	Display Station	–	–	–	–	29.3	29.3	No	Yes
3151	Display Station	4.0	4.0	24	24	21	21	No	No
3161	Display Station	4.5	4.5	22	23	22	22	No	No
3162	Display Station	4.0	4.0	24	24	24	24	No	No
3163	Display Station	4.5	4.5	22	23	22	22	No	No
3164-11, 12	Color Display Station	4.5	4.5	22	23	22	22	No	No
3179-2	Color Display Station	Note	Note	Note	Note	Note	Note	No	No
3180-2	Display Station	Note	Note	Note	Note	Note	Note	No	No
3196-A10, B10, A20, B20	Display Station	Note	Note	Note	Note	Note	Note	No	No
3197-C, D	Display Station	4.5	4.5	46	35	41	30	No	No
3197-W[1]	Display Station	4.5	4.6	22	23	22	22	No	No
5251-11	Display Station	4.9	4.9	41	41	37	37	No	No
5251-12[1]	Display Station/Controller	5.3	5.3	43	43	41	41	No	No
5291-1, 2	Display Station	Note	Note	Note	Note	Note	Note	No	No
5292-1, 2	Color Display Station	5.1	5.1	40	40	36	36	No	No
5295-001, 002, 0C2, LK1	DBCS Display Station	–[2]	–[2]	–[2]	–[2]	–[2]	–[2]	–[2]	–[2]
3174-1L, 1R, 2R	Controller	–[2]	–[2]	–[2]	–[2]	–[2]	–[2]	–[2]	–[2]
3174-51R, 52R	Controller	–[2]	–[2]	–[2]	–[2]	–[2]	–[2]	–[2]	–[2]
3274[1] (except 51C and 61C)	Controller	–[2]	–[2]	–[2]	–[2]	–[2]	–[2]	–[2]	–[2]
3274-51C, 61C[1]	Controller	–[2]	–[2]	–[2]	–[2]	–[2]	–[2]	–[2]	–[2]
5294-001, K01, S01	Controller	5.4	5.4	–	–	39	39	No	No
5394-1, 2	Controller	–[2]	–[2]	–[2]	–[2]	–[2]	–[2]	–[2]	–[2]
5208[1]	Link Protocol Converter	Note	Note	–	–	Note	Note	No	No
5209[1]	Link Protocol Converter	Note	Note	–	–	Note	Note	No	No
5250[1]	ROLMbridge LPC	Note	Note	Note	Note	Note	Note	Note	Note
5299-3[1]	Terminal Multiconnector	Note	Note	Note	Note	Note	Note	Note	Note
3812-1, 2	Printer	6.4	5.0	–	–	52	39	No	No
4201-1, 2	Proprinter	7.4	Note	67	Note	60	Note	No	No
4202-1	Proprinter XL	7.4	Note	67	Note	60	Note	No	No
4207	Printer	7.4	Note	66	Note	60	Note	No	No
4208	Printer	7.4	Note	66	Note	60	Note	No	No
4210-1[1]	Printer	7.4	–	67	–	60	–	Yes	No
4214-2	Printer	–	–	–	–	60	43	No	No
4224-101, 102, 1E2, 1C2[1]	Printer	7.3	5.4	–	–	57	40	No	No
4234-2	Printer	–	–	–	–	57	44	No	No
4245-T12, T20	Printer	8.2	7.1	–	–	64	54	No	No
5201-2	Quietwriter	–	Note	–	Note	47	Note	No	Yes
5202	Quietwriter® III Printer	–	Note	–	Note	45	Note	No	No
5216-2	Wheelprinter	7.0	5.3	–	–	58	40	No	No
5219-D01, D02	Printer	6.7	–	–	–	61	–	No	No
5223	Wheelprinter E	–	–	–	–	63	Note	No	No
5224-1, 2	Printer	–	–	–	–	61	44	No	No
5225-1, 2, 3, 4	Printer	–	–	–	–	60	51	No	No
5227-001, 002, 003, 005	DBCS Printer	–[2]	–[2]	–[2]	–[2]	–[2]	–[2]	–[2]	–[2]
5256-1, 2, 3	Printer	7.2	–	–	–	59	46	No	No
5262-1	Printer	7.7	6.4	–	–	58	45	No	No
5317-001	Printer	–[2]	–[2]	–[2]	–[2]	–[2]	–[2]	–[2]	–[2]
5530-G01, G08, H02, H08[1]	DBCS System Unit	5.3	4.7	46	–	39	39	No	No
5541-M02, M08, P02, P08[1]	DBCS System Unit	5.3	4.7	46	–	39	39	No	No
5551-M02, M08, P02, P08[1]	DBCS System Unit	5.9	5.6	50	45	42	38	No	No
5553-B01, B02[1]	DBCS Printer	–[2]	–[2]	64	–[2]	59	40	No	No
5557-B01[1]	DBCS Printer	–[2]	–[2]	64	–[2]	59	40	No	No
5561-M09, M0A, P09, P0A[1]	DBCS System Unit	5.6	5.6	55	47	45	39	No	No
5563-B02, H02[1]	DBCS Printer	–[2]	–[2]	64	–[2]	50	40	No	No
5571-S0A	DBCS Printer	–[2]	–[2]	–[2]	–[2]	–[2]	–[2]	–[2]	–[2]
5572-B01[1]	DBCS Printer	–[2]	–[2]	61	–[2]	57	35	No	No

Declaration of IBM Product Noise Emission Values									
Type No.	Description	LwAd		LpAm		< LpA > m		I	T
		Operating (bels)	Idling (bels)	Operating (dB)	Idling (dB)	Operating (dB)	Idling (dB)		
5575-B01, B02, F01, F02[1]	DBCS Printer	7.3	5.4	61	44	57	36	No	No
5577-B01, F01, F02, G01[1]	DBCS Printer	–[2]	–[2]	59	44	57	44	No	No
5583-200	DBCS Printer	–[2]	–[2]	–[2]	–[2]	–[2]	–[2]	–[2]	–[2]
6262-T12[1]	Printer	7.2	6.8	–	–	55	50	No	No

Legend

LwAd	Is the declared sound power emission level.
LpAm	Is the mean value of the sound pressure for emission levels at the operator position (if any).
< LpA > m	Is the mean value of the spaced-average sound pressure for emission levels at the one-meter positions.
I	Impulsive noise.
T	Prominent discrete tones.
–	Not applicable (no operator position) or no data available.

Note There is no audible noise emitted in the frequency range below 10,000 Hertz.

All measurements made in accordance with ISO DIS 7779, and reported in conformance with ISO DIS 7574/4. The LwAd levels are based on a reference standard deviation of 2 dB.

[1]This is preliminary data.
[2]Refer to device manual(s) for product noise emission values.
[3]Data applies to a device installed in a 9309 Model 2 Rack.
[4]This is a feature code, not a type number.
[5]This configuration includes: 9347 Tape Unit, 9406 Processor, and six 9332 Disk Units.
[6]This configuration includes: 9346 Tape Unit, 9331 Diskette Unit, 9347 Tape Unit, 9406 Processor, and a 5021 I/O Card Unit.
[7]This configuration includes: eight 9332 Disk Units and a 5030 I/O Card Unit.
[8]This configuration includes: two 9335-A02 Device Function Controllers and four 9335-B01 Direct Access Storage Devices.
[9]This configuration includes: four 5030 I/O Card Units.

Appendix C. Power, Plug, Receptacle, and Power Cord Specifications

Power Outlet Considerations

There are five versions of power. Each version is designed for a specific input power and is shown by a specify code.

The following table shows the power associated with each version. You will receive the default version that is listed for your country under the Country or Area column. You may have used a different specify code to override this default. See the table on page C-5 for more information.

Specify Code	Maximum kVA	Phase	Main Line Circuit Breaker	Country or Area
9114	4.4	2	10 amps	Switzerland[1]
9113	5	2	15 amps	Europe/Middle East/Africa[1]
9080/9081	5	1	25 amps	Western Hemisphere (includes United States)/Asia/Australia/ Japan/Phillipines
9111	5	1	25 amps	Europe/Middle East/Africa

[1] Input power is 3-phase but only 2-phases are used.

Figure C-1. Versions of the Maximum Power Requirements for the 9309 Rack

Plug and Receptacle Specifications

Western Hemisphere, Asia, Japan, Australia, and the Phillipines

The plug and receptacle numbers shown are National Electrical Manufacturers' Association (NEMA) configuration numbers and Russel and Stoll (R and S) numbers.

Plug Type	Voltage Rating	Amp Rating	Receptacle Configuration	Receptacle Number
4 Nonlocking	120 V	15 A		NEMA 5-15R
5 Nonlocking	208/ 240 V	15 A		NEMA 6-15R
7 Locking	125 V	15 A		NEMA L5-15R
10 Locking	250 V	15 A		NEMA L6-15R
12 Locking	250 V	30 A		NEMA L6-30R
36 Waterproof locking	250 V	30 A		R and S 3754
40 Waterproof Locking	250 V	30 A		R and S 3753

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Europe, Middle East, and Africa

Use the chart below to find the voltage rating (250 V or 380 V) and plug type number for your country. For example, if you ordered specify code 9111, the plug type will be 46 with an amp rating of 25 amps.

Plug Type	Voltage Rating	Amp Rating	Plug Configuration	Specify Code
4	125 V	15 A		—
5	250 V	15 A		—
6	250 V	10 A		—
11	250 V	20 A		—
18	250 V	16 A		—
19	250 V	10 A		—
22	250 V	16 A		—
23	250 V	13 A		—
24	250 V	10 A		—
25	250 V	16 A		—
32	250 V	16 A		—
46[1]	220 V/ 380 V	16 A and 32 A		9113 or 9114
46[1]	220 V/ 380 V	25 A		9111

[1] There are two styles of plug type 46.

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Power Cord Information for Countries Outside the United States and Canada

The following table is for machines shipped without plugs.

Power Cord Style	Cable Outside Diameter (Nominal)	Number of Shields	Quantity of Conductors	Conductors Outside Diameter (Nominal)	American Wire Gauge Number
A1	13.2 mm (0.52 inch)	1	3	1.6 mm (0.06 inch)	14
A8	8.9 mm (0.35 inch)	0	3	1.6 mm (0.06 inch)	14
A9	9.9 mm (0.39 inch)	0	3	1.0 mm (0.04 inch)	18
B	10.2 mm (0.40 inch)	0	3	1.3 mm (0.051 inch)	16
B3	11.0 mm (0.43 inch)	0	5	1.4 mm (0.054 inch)	16
B4	15.4 mm (0.60 inch)	0	4	1.6 mm (0.064 inch)	14
E	13.0 mm (0.51 inch)	1	3	1.6 mm (0.06 inch)	14

Power Plug Considerations

If you have ordered a power cord without a plug, consider the following:

- The shield (if any) of the power cord must always have a good electrical connection to the ground pin of the plug.
- Neither the grounding wire nor the shield can touch the other (hot) wires.
- The power cord must be fastened well to the plug to prevent strain on the plug or wire contacts.
- The grounding wire (green or green and yellow in color) must be correctly attached to the grounding terminal in the plug.

  Note: The grounding wire is intended to be longer than the others; do not shorten it.

Power Phase Imbalance

If you have a 9309 Rack that uses 2-phase power, you should consult an electrician to correctly balance the incoming 3-phase power.

If you have a 9309 Rack that uses 2-phase power, you will have to supply 3-phase power. The 2-phase rack only uses phases 1 and 2 and the neutral of incoming 3-phase power. This may result in a power imbalance for the 3-phase power system. This imbalance of power increases as the number of installed racks in your system increases.

9309 Power Versions for Europe/Middle East/Africa

This shows the European/Middle Eastern/African country or area to which each version applies. The X indicates the power version which is the default, O indicates a version that is optional.

Country or Area	1-Phase; 5 kVA (Specify Code 9111)	3-Phase; 5 kVA (Specify Code 9113)	3-Phase; 4.4 kVA (Specify Code 9114)
Africa		X	
Austria		X	
Belgium	X	O	
Central and East Europe		X	
Denmark		X	
Finland	O	X	
France	X	O	
Germany	X	O	
Iran	X		
Iraq	X		
Ireland	X	O	
Israel		X	
Italy	X	O	
Kuwait	X		
Netherlands		X	
Norway	X		
Oman	X		
Pakistan		X	
Portugal		X	
Qatar	X		
Saudi Arabia	X		
South Africa		X	
Spain	X	O	
Sweden		X	
Switzerland		O	X
Turkey		X	
United Arab Emirates	X		
United Kingdom	X	O	

Appendix D. Specifications for the AS/400 System and Attachable Devices

Some of the boxes in the following three charts may contain a dash (—). The dash means that either information is not available or does not apply to that product.

Power Considerations of the AS/400 System and Attachable Devices

The person responsible for planning your electrical power should refer to the following information. Refer to Appendix C for plug, receptacle, and power cord specifications and illustrations.

Device	Heat Output	Airflow	Voltage Range	kVA	Phase	Plug (United States Only)	Power Cord
9309-2 Rack[10]	57 watts (194 BTU/hr)	Each system unit has its own fan	200-240 (1-phase); 380-415 (3-phase)	0.093	1,3	40 or 12	4.3 m (14 ft)*; 1.8 m (6 ft) United States only
9406 Processor[10]	588 watts (2000 BTU/hr)	Each system unit has its own fan	180-259	1.6	1	Powered from 9309 Rack	—[8]
5010/5030, 5021 I/O Card Unit	211 watts (720 BTU/hr)	Each system unit has its own fan	180-259	1.2	1	Powered from 9309 Rack	—[8]
9332-200, 400 Disk Unit	262 watts (895 BTU/hr)	Each system unit has its own fan	180-259	0.62	1	Powered from 9309 Rack	—[8]
9335-A01/A02 Device Function Controller	175 watts (597 BTU/hr)	Each system unit has its own fan	180-259	0.24	1	Powered from 9309 Rack	—[8]
9335-B01 Direct Access Storage Device	430 watts (1467 BTU/hr)	Each system unit has its own fan	180-259	0.72	1	Powered from 9309 Rack	—[8]
2440-A12 Tape Unit	686 watts (2344 BTU/hr)	8.5 m^3/min (300 cfm)	200-240	1.135	1	40 or 12	2.8 m (9 ft); 1.8 m (6 ft) United States only
9346-001 Tape Unit[10]	80 watts (270 BTU/hr)	Each system unit has its own fan	180-259	0.16	1	Powered from 9309 Rack	—[8]
9347 Tape Unit[10]	270 watts (925 BTU/hr)	Each system unit has its own fan	180-259	0. 3	1	Powered from 9309 Rack	—[12]
9331-001, 002 Diskette Unit[10]	80 watts (270 BTU/hr)	Each system unit has its own fan	180-259	0.14 (100v) .16 (200v)	1	Powered from 9309 Rack	—[12]
3151 Display Station[10]	26 watts (88 BTU/hr)	Convection cooled	100-127; 200-240[1]	0.09	1	4	2.8 m (9 ft); 1.8 m (6 ft) United States only
3161 Display Station	60 watts (205 BTU/hr)	Convection cooled	100-127; 200-240[1]	0.10 maximum	1	4	1.8 m (6 ft); 2.8 m (9.2 ft)

Device	Heat Output	Airflow	Voltage Range	kVA	Phase	Plug (United States Only)	Power Cord
3162 Display Station[10]	60 watts (205 BTU/hr)	Convection cooled	100-127; 200-240[1]	0.14 maximum	1	4	1.8 m (6 ft); 2.8 m (9.2 ft)
3163 Display Station	60 watts (341 BTU/hr)	Convection cooled	100-127; 200-240[1]	0.10 maximum	1	4	1.8 m (6 ft); 2.8 m (9.2 ft)
3164 Display Station	100 watts (340 BTU/hr)	Convection cooled	100-127; 200-240[1]	0.28	1	4	2.8 m (9.2 ft); 1.8 m (6 ft)
3179-2, 20K, 21K Display Station	115 watts (390 BTU/hr)	Convection cooled	100-127; 200-240[1]	0.11	1	4	1.8 m (6 ft) United States only; 3 m (10 ft)*
3180-2, 20K, 21K Display Station	126 watts (430 BTU/hr) max	Convection cooled	100-127; 200-240[1]	0.2	1	4	3 m (10 ft)*; 2.4 m (8 ft)
3196-A10, A20, B10, B20 Display Station	110 watts (374 BTU/hr)	Convection cooled	100-127; 200-240[1]	0.15	1	4	2.7 m (9 ft)
3197-C Display Station	80 watts (273 BTU/hr)	Convection cooled	100-127; 200-240[1]	0.1	1	4	2.4 m (8 ft)
3197-D, W Display Station	60 watts (187 BTU/hr)	Convection cooled	100-127; 200-240[1]	0.28	1	4	2.4 m (8 ft)
5251-11 Display Station	125 watts (425 BTU/hr)	3 m3/min (100 cfm)	100-127; 200-240[1]	0.2	1	4 or 7	2.4 m (8 ft)[2,9]
5251-12 Display Station/Controller	136 watts (465 BTU/hr)	3 m3/min (100 cfm)	100-127; 200-240[1]	0.2	1	4 or 7	2.4 m (8 ft)
5291-1 Display Station	85 watts (300 BTU/hr)	Convection cooled	100-127; 200-240[1]	0.2	1	4	2.4 m (8 ft)[5]
5291-2 Display Station	50 watts (170 BTU/hr)	Convection cooled	100-127; 200-240[1]	0.1	1	4	1.8 m (6 ft)[6]
5292-1, 2 Display Station	180 watts (620 BTU/hr)	1.5 m3/min (50 ft3/min)	100-127; 200-240[1]	0.25	1	4	2.4 m (8 ft)[6]
5295-1 Display Station[10]	80 watts (270 BTU/hr)	Convection cooled	100-127; 200-240[1]	0.3	1	4	2.4 m (8 ft)[6]
5295-2, 0C2 Display Station[10]	150 watts (510 BTU/hr)	Convection cooled	100-127; 200-240[1]	0.12	1	4	2.4 m (8 ft.)[6]
5295-LK1 Display Station[10]	86 Kcal/hour	Fan	110 maximum	0.22	1	4	2.4 m (8 ft)
Personal Computers and Personal System/2-30, 50[10]	145 watts (494 BTU/hr) maximum	Each system unit has its own fan	100-127; 200-240[1]	—[12]	1	4	1.8 m (6 ft)
Personal System/2-60, 80 [10]	363 watts (1240 BTU/hr)	Each system unit has its own fan	100-127; 200-240[1]	—[12]	1	4	1.8 m (6 ft)
Personal System/55-5530 G02, G08, H02, H08	64 watts (56 Kcal/hr)[11]	Each system unit has its own fan	90-127	0.11	1	4	2.4 m (8 ft)
Personal System/55-5541 M02, M08, P02, P08	160 watts (154 Kcal/hr)	Each system unit has its own fan	90-127	0.22	1	4	2.4 m (8 ft)
Personal System/55-5551	215 watts (154 Kcal/hr)	Each system unit has its own fan	90-127	0.32	1	4	2.4 m (8 ft)

Device	Heat Output	Airflow	Voltage Range	kVA	Phase	Plug (United States Only)	Power Cord
Personal System/55-5561	250 watts (200 Kcal/hr)	Each system unit has its own fan	90-127	0.47	1	4	2.4 m (8 ft)
Personal System/55-5571 S0A	—12	Each system unit has its own fan	90-127	0.55	1	4	2.4 m (8 ft)
5294-1, K01, S01 Controller	70 watts (240 BTU/hr)	—	100-127; 200-2401	0.2	1	4	2.4 m (8 ft)
5394-1, 2 Controller	78 watts (256 BTU/hr)	0.14 m3/min (5 cfm)	100-127 (50/60 hz); 200-2401 (50/60 hz)	0.14 (50 hz); 0.12 (60 hz)	1	detachable, 3 conductor	4.3 m (14 ft)
5299-3 Terminal Multiconnector10	—	—	—	—	—	—	—
5208 Link Protocol Converter	100 watts (340 BTU/hr)	Convection cooled	100-127; 200-2401	0.1	1	4	1.8 m (6 ft)
5209 Link Protocol Converter	120 watts (410 BTU/hr)	Convection cooled	100-127; 200-2401	0.12	1	4	1.8 m (6 ft)
ROLMbridge 5250 Link Protocol Converter 7	—	—	100-127; 200-2401	—	—	—	—
3812-1, 2 Pageprinter	570 watts (1950 BTU/hr) operating; 242 watts (826 BTU/hr) standby	3 m3/min (100 cfm)	100-127; 200-2401	1.3	1	4	3 m (10 ft)
4201-1, 2 Proprinter	44 watts (150 BTU/hr)	Convection cooled	100-127; 200-240	—12	1	4	2.7 m (9 ft); United States and Canada
4202 Proprinter XL	—12	Convection cooled	100-127; 200-240	—12	1	4	1.8 m (6 ft)
4207 Printer	20 watts idle (70 BTU/hr); 44 watts operating (150 BTU/hr)	Convection cooled	100-127; 200-2401	0.06 standby; 0.12 printing	1	4	2.7 m (9 ft); 1.8 m (6 ft) United States only
4208 Printer	20 watts idle (70 BTU/hr); 44 watts operating (150 BTU/hr)	Convection cooled	100-127; 200-2401	0.06 standby; 0.12 printing	1	4	2.7 m (9 ft); 1.8 m (6 ft) United States only
4210-1 Printer	44 watts (150 BTU/hr)	Convection cooled	100-127; 200-2401	—12	1	4	2.7 m (9 ft); 1.8 m (6 ft) Canada only
4214-2 Printer	440 watts (1500 BTU/hr)	2 m3/min (66 cfm)	100-127; 200-2401	0.5	1 (50 hertz); 1 (60 hertz)	4 or 7	1.8 m (6 ft)

Device	Heat Output	Airflow	Voltage Range	kVA	Phase	Plug (United States Only)	Power Cord
4224-101, 102, 1E2, 1C2 Printer	90 watts (307 BTU/hr)	—	100-127; 200-240[1]	0.6	1	4	1.8 m (6 ft) United States; 2.4 m (8 ft) non-United States
4234-2 Printer[10]	600 watts (2050 BTU/hr)	front 2 m^3/min (66 cfm); rear 3 m^3/min (100 cfm)	100-127; 200-240[1]	0.6	1	4	4.3 m (14 ft)
4245-T12 Printer	2000 watts (6825 BTU/hr)	17 m^3/min (600 cfm)	200, 220, 380, 400, or 415 (50 hertz)[1]; 200, 208, 220, 240, or 380 (60 hertz)	2.6	3	36	4.3 m (14 ft)
4245-T20 Printer	2500 watts (8530 BTU/hr)	17 m^3/min (600 cfm)	200, 220, 380, 400, or 415 (50 hertz)[1]; 200, 208, 220, 240, or 380 (60 hertz)	3.1	3	36	4.3 m (14 ft)
5201-2 Quietwriter	—[12]	Convection cooled	100-127; 200-240	—[12]	1	4	1.8 m (6 ft.)
5202 Quietwriter® III Printer	80 watts maximum (270 BTU/hr)	Convection cooled	100-127; 200-240	—[12]	1	4	—[12]
5216-2 Wheelprinter	—[12]	Convection cooled	100-127; 200-240	—[12]	1	4	1.8 m (6 ft.)
5219-D1, D2 Printer	265 watts (900 BTU/hr)	1.5 m^3/min (50 cfm)	100-127; 200-240[1]	0.6	1	4	3 m (9.8 ft)
5223 Wheelprinter E	—[12]	Convection cooled	100-127; 200-240	—[12]	1	4	1.8 m (6 ft.)
5224-1, 2 Printer	470 watts (1600 BTU/hr)	4.5 m^3/min (150 cfm)	100-127; 200-240[1]	0.6	1	4	2.4 m (8 ft)
5225-1 Printer	550 watts (1900 BTU/hr)	4.5 m^3/min (150 cfm)	100-127; 200-240[1]	0.6	1	4, 7, 5, or 10	2.4 m (8 ft)
5225-2 Printer	700 watts (2400 BTU/hr)	4.5 m^3/min (150 cfm)	100-127; 200-240[1]	0.72	1	4, 7, 5, or 10	2.4 m (8 ft)
5225-3 Printer	700 watts (2400 BTU/hr)	4.5 m^3/min (150 cfm)	100-127; 200-240[1]	0.75	1	4, 7, 5, or 10	2.4 m (8 ft)
5225-4 Printer	850 watts (2900 BTU/hr)	4.5 m^3/min (150 cfm)	100-127; 200-240[1]	0.90	1	4, 7, 5, or 10	2.4 m (8 ft)
5227-001, 002, 003, 005 Printer[10]	835 watts (2850 BTU/hr)	3 m^3/min (100 cfm)	100-127; 200-240[1]	1.3	1	4	2.4 m (8 ft)
5256 Printer	125 watts (427 BTU/hr)	Convection cooled	100-127; 200-240[1]	0.2	1	4 or 7	2.7 m (9 ft); 1.8 m (6 ft)

Device	Heat Output	Airflow	Voltage Range	kVA	Phase	Plug (United States Only)	Power Cord
5262-1 Printer[4]	1100 watts (3750 BTU/hr)	10 m3/min (350 cfm)	100-127; 200-240[1]	1.4 (50 hertz); 1.2 (60 hertz)	1	4 or 7	4.3 m (14 ft)
5317-001 Printer[10]	180 watts (615 BTU/hr)	1 m3/min (33 cfm)	100-127; 200-240[1]	0.21	1	4	2.4 m (8 ft)
5337-001 Printer	—[12]	—[12]	—[12]	—[12]	—[12]	—[12]	—[12]
5553-B01, B02 Printer	120 watts (100 Kcal/hr)	Each system unit has its own fan	90-110	0.15	1	4	2.4 m (8 ft)
5557-B01 Printer	240 watts (220 Kcal/hr)	Each system unit has its own fan	90-110	0.30	1	4	2.4 m (8 ft)
5563-B02, H02 Printer	65 watts (45 Kcal/hr)	Each system unit has its own fan	90-110	0.04	1	4	1.8 m (6 ft)
5572-B01 Printer	45 watts (40 Kcal/hr)	Each system unit has its own fan	90-110	0.07	1	4	1.8 m (6 ft)
5575-B01, B02, F01, F02 Printer	140 watts (120 Kcal/hr)	Each system unit has its own fan	90-127	0.12	1	4	2.4 m (8 ft)
5577-B01, F01, F02, G01 Printer	150 watts (140 Kcal/hr)	Each system unit has its own fan	90-127	0.17	1	4	2.4 m (8 ft)
5583-200 Printer[10]	360 watts (1230 BTU/hr)	5 m3/min /165 cfm	100-127; 200-240[1]	0.7	1	4	2.4 (8 ft)
6262-T12 Printer[10]	1300 watts (4450 BTU/hr)	4.9 m3/min (170 cfm)	100-127; 200-240[1]	1.4, 1.5	1	4 or 5	4.3 m (14 ft); 1.8 m (6 ft) optional

1 Countries other than the United States and Canada.

2 The length of the keyboard cable permits the keyboard to be moved up to 330 millimeters (13 inches) away from the display screen.

3 Stands for cubic meter.

4 Branch circuit requires a delayed-action fuse or circuit breaker with a high-surge tolerance for transformer (high-magnetic) applications.

5 The length of the keyboard cable permits the keyboard to be moved up to 610 millimeters (24 inches) away from the display screen.

6 The length of the keyboard cable permits the keyboard to be moved up to 500 millimeters (20 inches) away from the display screen.

7 The ROLMbridge 5250 Link Protocol Converter is contained in a CBX 8000 or CBX 9000. Refer to the *CBXII 8000 Installation Manual* for CBX device specifications.

8 Appliance is plugged internal to the rack.

9 The cable for the Magnetic Stripe Reader feature is 1 meter (4 feet) long.

10 This device has not been inspected against "British standards – electrical safety requirements," and therefore, cannot be used in United Kingdom countries.

11 The heat output of model B02 is 45 watts, G08 is 57 watts, and H02 is 52 watts.

12 Refer to device manual(s) for specific information.

* Standard cable.

Sizes and Weight of the AS/400 System and Attachable Devices

You will use this information to plan your office space and floor plan. Add the device sizes to make sure that your system will fit in your office space.

Device	Width	Depth	Height	Weight
9309-2 Rack	650 mm (25.6 in.)	921 mm (36 in.)	1578 mm (62 in.)[1]	139 kg (306 lb)[12]
9406 Processor	483 mm (19 in.)	655 mm (25.8 in.)	351 mm (14 in.)	67 kg (148 lb)
5010/5030, 5021 I/O Card Unit	483 mm (19 in.)	655 mm (25.8 in.)	351 mm (14 in.)	67 kg (148 lb)
9332-200 Disk Unit	483 mm (19 in.)	560 mm (22 in.)	129 mm (5.3 in.)	27.3 kg (60 lb)
9332-400 Disk Unit	483 mm (19 in.)	560 mm (22 in.)	129 mm (5.3 in.)	29.5 kg (65 lb)
9335-A01/A02 Device Function Controller	483 mm (19 in.)	597 mm (23.5 in.)	133 mm (5.3 in.)	17.2 kg (38 lb)
9335-B01 Direct Access Storage Device	483 mm (19 in.)	724 mm (28.5 in.)	267 mm (10.5 in.)	59.9 kg (132 lb)
2440-A12 Tape Unit	650 mm (25.6 in.)	921 mm (36.3 in.)	1.6 m (62.1 in.)	249 kg (548 lb)
9346-001 Tape Unit	483 mm (19 in.)	560 mm (22 in.)	129 mm (5 in.)	22 kg (48 lb)
9347 Tape Unit	483 mm (19 in.)	559 mm (22 in.)	222 mm (8.8 in.)	37.2 kg (82 lb)
9331-001 Diskette Unit	483 mm (19 in.)	560 mm (22 in.)	129 mm (5 in.)	23 kg (50 lb)
9331-002 Diskette Drive	483 mm (19 in.)	560 mm (22 in.)	129 mm (5 in.)	22 kg (48 lb)
3101-23 Display Station	490 mm (19 in.)[2]	355 mm (14 in.)	386 mm (15 in.)	17 kg (38 lb)
3151 Display Station	408/492 mm (16/19 in.)[3]	325 mm (13 in.)	328 mm (13 in.)	10/11 kg (23/24 lb)
3161 Display Station	492 mm (19 in.)[2]	307 mm (12 in.)	330 mm (13 in.)	15.7 kg (35 lb)
3162 Display Station	408/492 mm (16/19 in.)[3]	314 mm (12 in.)	324 mm (13 in.)	15 kg (34 lb)
3163 Display Station	492 mm (19 in.)[2]	307 mm (21 in.)	330 mm (13 in.) with stand	16 kg (35 lb)
3164 Display Station	492 mm (19 in.)[2]	405 mm (16 in.)	390 mm (15 in.)	18.7 kg (41 lb)
3179-2, 20K, 21K Display Station[5]	429/561 mm (17/22 in.)[3]	412 mm (16 in.)[4]	462 mm (18 in.)[4]	20/21 kg (43/47 lb)
3180-2, 20K, 21K Display Station[6]	560 mm (22 in.)[2]	360 mm (14 in.)[2]	370 mm (15 in.) unelevated; 520 mm (21 in.) elevated 2	22 kg (49 lb)
3196-A1, B1 Display Station[5]	429/561 mm (17/22 in.)[3]	307 mm (12 in.)	359 mm (14 in.)	Models A1 and B1, 13 kg (30 lb); Models A2 and B2, 12 kg (27 lb) including keyboard
3197-C Display Station	383 mm (15 in.)	405 mm (16 in.)	415 mm (16 in.)	14.5 kg (32 lb)
3197-D, W Display Station	361 mm (14 in.)	337 mm (13 in.)	382 mm (15 in.)	9.4 kg (21 lb)
5251-11 Display Station	530 mm (21 in.)[2]	400 mm (16 in.)	400 mm (16 in.)	40 kg (88 lb)
5251-12 Display Station/Controller	530 mm (21 in.)[2]	470 mm (19 in.)	400 mm (16 in.)	51 kg (112 lb)
5291-1 Display Station	540 mm (21 in.)	350 mm (14 in.)	460 mm (18 in.)	23 kg (51 lb)
5291-2 Display Station	520 mm (21 in.)[2]	400 mm (16 in.) display tilted up	432 mm (17 in.) display tilted up	15.2 kg (34 lb)

Device	Width	Depth	Height	Weight
5292-1, 2 Display Station	520 mm (21 in.)[2]	520 mm (21 in.)	430 mm (17 in.)	29.7 kg (65 lb)
5295-001 Display Station	480 mm (19 in.)	330 mm (13 in.)	90 mm (4 in.)	5 kg (11 lb)
5295-002, 0C2 Display Station	360 mm (14 in.)	335 mm (13 in.)	81 mm (3 in.)	7 kg (14 lb)
5295-LK1 Display Station	430 mm (18 in.)	405 mm (17 in.)	121.5 mm (5 in.)	9.5 kg (21 lb)
Personal Computers and Personal System/2-30, 50	540 mm (21 in.) maximum	439 mm (17 in.) maximum	454 mm (18 in.) maximum[18]	34 kg (74 lb) maximum
Personal System/2-60, 80	318 mm (13 in.) with feet extended	482 mm (19 in.)	597 mm (24 in.)	23.6 kg (52 lb)
Personal System/55-5530 G02, G08, H02, H08	370 mm (15 in.)	359 mm (15 in.)	84 mm (3 in.)	8.4 kg (19 lb) maximum
Personal System/55-5541 M02, M08, P02, P08	430 mm (18 in.)	405 mm (17 in.)	122 mm (5 in.)	8 kg (19 lb) maximum
Personal System/55-5551 M02, M08, P02, P08	430 mm (18 in.)	405 mm (17 in.)	122 mm (5 in.)	13.1 kg (29 lb) maximum
Personal System/55-5561 M09, M0A, P09, P0A	261 mm (10 in.)	410 mm (16 in.)	305 mm (12 in.)	15.0 kg (34 lb) maximum
Personal System/55-5571 S0A	165 mm (7 in.)	483 mm (19 in.)	597 mm (24 in.)	23.6 kg (52 lb)
Personal System/55-5571 S0A	165 mm (7 in.)	483 mm (19 in.)	597 mm (24 in.)	23.6 kg (52 lb)
5294-1, K01, S01 Controller	318 mm (12 in.)	510 mm (20 in.)	200 mm (8 in.)	10 kg (22 lb)
3174-1L, 1R, 2R Controller	700 mm (28 in.)	460 mm (18 in.)	635 mm (25 in.)	50 kg (110 lb)
3174-51R, 52R Controller	445 mm (18 in.)	508 mm (20 in.)	200 mm (8 in.)	22.7 kg (50 lb)
3274 Controller	762 mm (30 in.)	508 mm (20 in.)	740 mm (29 in.)	75 kg (165 lb)
3274-51C, 61C Controller	535 mm (21 in.)	460 mm (18 in.)	335 mm (13 in.)	29.6-41 kg (65-90 lb)[19]
5394-1, 2 Controller	400 mm (16 in.)	419 mm (17 in.)	119 mm (5 in.)	8 kg (17 lb)
5299-3 Terminal Multiconnector	340 mm (13 in.)	194 mm (8 in.)	79 mm (3 in.)	1 kg (3 lb)
5208 Link Protocol Converter	423 mm (17 in.)	353 mm (14 in.)	112 mm (4 in.)	6 kg (13 lb)
5209 Link Protocol Converter	445 mm (18 in.)	556 mm (22 in.)	134 mm (5 in.)	10 kg (22 lb)
ROLMbridge 5250 Link Protocol Converter[15]	—	—	—	—
Twinaxial work station attachment[14]	193 mm (8 in.)	398 mm (16 in.)[13]	57 mm (2 in.)	2 kg (5 lb)

Device	Width	Depth	Height	Weight
3812-1, 2 Pageprinter	675 mm (27 in.)[7,8]	526 mm (21 in.)[7,9]	371 mm (15 in.)[7]	56 kg (124 lb)
4201-1, 2 Proprinter	421 mm (17 in.)	343 mm (14 in.)[16]	133 mm (55 in.)	8-9 kg (17-20 lb)
4202 Proprinter XL	574 mm (23 in.)	368 mm (15 in.)[16]	140 mm (6 in.)	11 kg (24 lb) maximum
4207 Printer	559 mm (22 in.)	342 mm (14 in.)	122 mm (5 in.)	12 kg (27 lb)
4208 Printer	464 mm (16 in.)	342 mm (14 in.)	122 mm (5 in.)	8 kg (17 lb)
4210-1 Printer	574 mm (23 in.)	363 mm (14 in.)	133 mm (5 in.)	11 kg (25 lb)
4214-2 Printer	600 mm (24 in.)[7]	540 mm (21 in.)[7]	240 mm (10 in.)[7,10]	25 kg (55 lb)[11] printer only
4224-101, 102, 1E2, 1C2 Printer	654 mm (26 in.)[7]	368 mm (15 in.)[7]	290 mm (12 in.)[7]	21 kg (45 lb)
4234-2 Printer	660 mm (26 in.)	875 mm (35 in.)	958 mm (38 in.); 1265 mm (50 in.) with cover raised	48 kg (105 lb) printer; 9 kg (20 lb) stand
4245-T12, T20 Printer	1525 mm (60 in.)	710 mm (28 in.) without power stacker; 940 mm (37 in.) with stacker	1175 mm (46 in.) with power stacker	410 kg (910 lb)
5201-2 Quietwriter	541 mm (21 in.)	367 mm (14 in.)	216 mm (9 in.)	10 kg (22 lb)
5202 Quietwriter ® III Printer	551 mm (22 in.)	380 mm (15 in.)	180 mm (7 in.)	11 kg (24 lb)
5216-2 Wheelprinter [17]	582 mm (23 in.)	409 mm (16 in.)	223 mm (9 in.)	16 kg (35 lb)
5219-D01, D02 Printer	660 mm (26 in.)	580 mm (23 in.); 730 mm (29 in.) with sheet feed; 730 mm (29 in.) with form tractor	200 mm (8 in.); 480 mm (19 in.) with sheet feed; 320 mm (13 in.) with form tractor	31 kg (68 lb); 43 kg (95 lb) with sheet feed; 35 kg (77 lb) with form tractor
5223 Wheelprinter E	541 mm (21 in.)	366 mm (14 in.)	216 mm (9 in.)	13 kg (29 lb)
5224-1, 2 Printer	710 mm (28 in.)	580 mm (23 in.)	280 mm (11 in.)	68 kg (149 lb)
5225-1, 2, 3, 4 Printer	1110 mm (44 in.)	760 mm (30 in.)	1000 mm (40 in.)	250 kg (550 lb)
5227-001, 002, 003, 005 Printer	760 mm (30 in.)	690 mm (27 in.)	1000 mm (40 in.)	110 kg (242 lb)
5256 Printer	640 mm (25.2 in.)	570 mm (22.4 in.)	368 mm (14.5 in.)	35.4 kg (78 lb)
5262-1 Printer	965 mm (38 in.)	760 mm (30 in.)	1050 mm (41 in.); 1715 mm (68 in.) with cover raised	245 kg (540 lb)
5317-001 Printer	640 mm (25 in.)	280 mm (11 in.)	271 mm (11 in.)	22 kg (49 lb)
5337-001 Printer	1425 mm (56 in.)	790 mm (31 in.)	1215 mm (48 in.)	360 kg (793 lb)
5553-B01, B02 Printer	590 mm (23 in.)	398 mm (16 in.)	192 mm (8 in.)	18 kg (40 lb)
5557-B01 Printer	675 mm (27 in.)	580 mm (23 in.)	370 mm (15 in.)	43 kg (95 lb)
5563-B02, H02 Printer	547 mm (22 in.)	298 mm (12 in.)	120 mm (5 in.)	9 kg (20 lb)
5572-B01 Printer	406 mm (16 in.)	343 mm (14 in.)	127 mm (5 in.)	9 kg (20 lb)
5575-B01, B02, F01, F02 Printer	548 mm (22 in.)	351 mm (14 in.)	166 mm (7 in.)	13 kg (29 lb)
5577-B01, F01, F02, G01 Printer	640 mm (25 in.)	280 mm (11 in.)	271 mm (11 in.)	21 kg (46 lb)
5583-200 Printer	650 mm (26 in.)/340 mm (13 in.)	480 mm (19 in.)/480 mm (19 in.)	320 mm (13 in.)/320 mm (13 in.)	78 kg (172 lb)/23 kg (50 lb)

Device	Width	Depth	Height	Weight
6262-T12 Printer	1000 mm (40 in.)	850 mm (34 in.)	1360 mm (54 in.)	295 kg (650 lb)

1 Height is measured from the floor. Floor clearance is 75 mm (3 inches).

2 These are the maximum sizes for this device, including the keyboard. For more information, refer to the product manual for this device.

3 These are the maximum sizes for this device, including the keyboard. There are two versions of the keyboard. For more information, refer to the product manual for this device.

4 This measurement is with the display station tilted up.

5 The length of the keyboard cable permits the keyboard to be moved up to 1500 millimeters (59 inches) away from the display screen.

6 The length of the keyboard cable permits the keyboard to be moved up to 1220 millimeters (48 inches) away from the display screen.

7 The Forms Stand feature (Feature 4550) is 435 millimeters (18 inches) wide by 460 millimeters (19 inches) deep.

8 The width, including the paper cassettes and the exit tray, is 1220 millimeters (49 inches).

9 The depth of the control panel is 35 millimeters (2 inches).

10 Height is 760 millimeters (30 inches), which is the minimum height clearance required to install the drawers when they contain the maximum allowable length of paper.

11 With all three drawers installed and filled with paper, the automatic sheet feed weighs approximately 11 kilograms (22 pounds). Without the drawers installed, the automatic sheet feed weighs 5 kilograms (11 pounds).

12 Rack is empty.

13 Allow enough space at the back for cables.

14 This group of sizes applies to a twinaxial work station attachment that is sitting on a surface (not hanging on a wall).

15 The ROLMbridge 5250 Link Protocol Converter is in a CBX 8000 or CBX 9000. Refer to the *CBXII 8000 Installation Manual* for CBX device specifications.

16 Depth includes the operator panel.

17 Not including input paper tray.

18 Height includes display station on top of system unit.

19 Depends upon internal storage.

Service Clearances of the AS/400 System and Attachable Devices

You will use this information to plan your office space and floor plan. These service clearances include floor loading restrictions.

Device	Front	Back	Right	Left	Top
9309-2 Rack[3]	1650 mm (65 in.)	760 mm (30 in.)	914 mm (36 in.)	914 mm (36 in.)	—
3101-23 Display Station	760 mm (30 in.)	100 mm (4 in.)	100 mm (4 in.)	100 mm (4 in.)	100 mm (4 in.)
3151 Display Station	760 mm (30 in.)	100 mm (4 in.)	280 mm (11 in.)	280 mm (11 in.)	100 mm (4 in.)
3161 Display Station	760 mm (30 in.)	100 mm (4 in.)	280 mm (11 in.)	280 mm (11 in.)	100 mm (4 in.)
3162 Display Station	760 mm (30 in.)	100 mm (4 in.)	100 mm (4 in.)	100 mm (4 in.)	100 mm (4 in.)
3163 Display Station	760 mm (30 in.)	100 mm (4 in.)	280 mm (11 in.)	280 mm (11 in.)	100 mm (4 in.)
3164 Display Station	760 mm (30 in.)	100 mm (4 in.)	280 mm (11 in.)	280 mm (11 in.)	100 mm (4 in.)
3179-2 Display Station	760 mm (30 in.)	300 mm (12 in.)	150 mm (6 in.)	300 mm (12 in.)	100 mm (4 in.)
3180-2 Display Station	—[4]	300 mm (12 in.)	150 mm (6 in.)	300 mm (12 in.)	—
3196-A10, A20, B10, B20 Display Station	—[4]	100 mm (4 in.)	280 mm (11 in.)	280 mm (11 in.)	100 mm (4 in.)
3197-C, D, W Display Station	760 mm (30 in.)	100 mm (4 in.)	280 mm (11 in.)	280 mm (11 in.)	100 mm (4 in.)
5251-11 Display Station	—[4]	460 mm (18 in.)	300 mm (12 in.)	300 mm (12 in.)	100 mm (4 in.)
5251-12 Display Station/Controller	—[4]	460 mm (18 in.)	300 mm (12 in.)	300 mm (12 in.)	300 mm (12 in.)
5291-1 Display Station	50 mm (2 in.)[4]	300 mm (12 in.)	150 mm (6 in.)	300 mm (12 in.)	—
5291-2 Display Station	50 mm (2 in.)[4]	150 mm (6 in.)	300 mm (12 in.)	300 mm (12 in.)	100 mm (4 in.)
5292-1, 2 Display Station	—[4]	300 mm (12 in.)	300 mm (12 in.)	300 mm (12 in.)	—
5295-1, 2, LK1, 0C2 Display Station	—	—	—	—	—
Personal Computers and Personal System/2-30, 50, 60, 80	760 mm (30 in.)[4]	460 mm (18 in.)	300 mm (12 in.)	300 mm (12 in.)	—
Personal System/55-5530 G02, G08, H02, H08	760 mm (30 in.)[4]	460 mm (18 in.)	300 mm (12 in.)	300 mm (12 in.)	—
Personal System/55-5541 M02, M08, P02, P08	760 mm (30 in.)	460 mm (18 in.)	300 mm (12 in.)	300 mm (12 in.)	—
Personal System/55-5551	760 mm (30 in.)	460 mm (18 in.)	300 mm (12 in.)	300 mm (12 in.)	—
Personal System/55-5561	760 mm (30 in.)	460 mm (18 in.)	300 mm (12 in.)	300 mm (12 in.)	—
Personal System/55-5571 S0A	760 mm (30 in.)	460 mm (18 in.)	300 mm (12 in.)	300 mm (12 in.)	—
5294-1, K01, S01 Controller	150 mm (6 in.)	150 mm (6 in.)	100 mm (4 in.)	100 mm (4 in.)	—
5394-1, 2 Controller	750 mm (30 in.)	152 mm (6 in.)	76 mm (3 in.)	76 mm (3 in.)	30 mm (1 in.)
5299-3 Terminal Multiconnector	—	—	—	—	—
5208 Link Protocol Converter	600 mm (24 in.)	600 mm (24 in.)	50 mm (2 in.)	50 mm (2 in.)	13 mm (1 in.)
5209 Link Protocol Converter	100 mm (4 in.)	100 mm (4 in.)	100 mm (4 in.)	100 mm (4 in.)	100 mm (4 in.)
ROLMbridge 5250 Link Protocol Converter [6]	—	—	—	—	—
Twinaxial work station attachment[5]	—	—	—	—	—

Device	Front	Back	Right	Left	Top
3812-1, 2 Pageprinter	760 mm (30 in.)	914 mm (36 in.)	760 mm (30 in.)	760 mm (30 in.)	—
4201-1, 2 Proprinter	—	—	—	—	—
4202 Proprinter XL	—	—	—	—	—
4207 Printer	—	51 mm (2 in.)	51 mm (2 in.)	51 mm (2 in.)	51 mm (2 in.)
4208 Printer	—	51 mm (2 in.)	51 mm (2 in.)	51 mm (2 in.)	51 mm (2 in.)
4210-1 Printer	50 mm (2 in.)	150 mm (6 in.)	50 mm (2 in.)	50 mm (2 in.)	50 mm (2 in.)
4214-2 Printer	50 mm (2 in.)	300 mm (12 in.)	150 mm (6 in.)	300 mm (12 in.)	1000 mm (40 in.)
4224-101, 102, 1E2, 1C2 Printer	460 mm (18 in.)	150 mm (6 in.) or 682 mm (27 in.) with the Forms Stand Feature	150 mm (6 in.)	150 mm (6 in.)	—
4234-2 Printer[1]	500 mm (20 in.)	540 mm (21 in.)	645 mm (25 in.)	635 mm (25 in.)	—
4245-T12, T20 Printer	760 mm (30 in.)	970 mm (38 in.)	610 mm (24 in.)	610 mm (24 in.)	—
5201-2 Quietwriter	—	—	—	—	—
5202 Quietwriter ® III Printer	—	—	—	—	—
5216-2 Wheelprinter	—7	—7	—7	—7	—7
5219-D1, D2 Printer	760 mm (30 in.)	150 mm (6 in.); 300 mm (12 in.) with sheet form; 410 mm (16 in.) with form tractor	300 mm (12 in.); 760 mm (30 in.) with sheet feed; 300 mm (12 in.) with form tractor	300 mm (12 in.)	—
5223 Wheelprinter E	—	—	—	—	—
5224-1, 2 Printer	—2	760 mm (30 in.)	300 mm (12 in.)	300 mm (12 in.)	300 mm (12 in.)
5225-1, 2, 3, 4 Printer	1000 mm (40 in.)	1000 mm (40 in.)	—	900 mm (35 in.)	—
5227-001, 002, 003, 005 Printer	760 mm (30 in.)	760 mm (30 in.)	760 mm (30 in.)	760 mm (30 in.)	1000 mm (39 in.)
5256-1, 2, 3 Printer	—	760 mm (30 in.)	300 mm (12 in.)	300 mm (12 in.)	300 mm (12 in.)
5256 Printer	305 mm (12 in.)	457 mm (18 in.)	305 mm (12 in.)	305 mm (12 in.)	—
5262-1 Printer	760 mm (30 in.)	760 mm (30 in.)	760 mm (30 in.)	760 mm (30 in.)	—
5317-001 Printer	500 mm (20 in.)	500 mm (20 in.)	200 mm (8 in.)	200 mm (8 in.)	500 mm (20 in.)
5337-001 Printer	760 mm (30 in.)	760 mm (30 in.)	760 mm (30 in.)	760 mm (30 in.)	—
5553-B01, B02 Printer	760 mm (30 in.)	760 mm (30 in.)	760 mm (30 in.)	760 mm (30 in.)	—
5557-B01 Printer	760 mm (30 in.)	760 mm (30 in.)	760 mm (30 in.)	760 mm (30 in.)	—
5563-B02, H02 Printer	760 mm (30 in.)	760 mm (30 in.)	760 mm (30 in.)	760 mm (30 in.)	—
5572-B01 Printer	760 mm (30 in.)	760 mm (30 in.)	760 mm (30 in.)	760 mm (30 in.)	—
5575-B01, B02, F01, F02 Printer	760 mm (30 in.)	760 mm (30 in.)	760 mm (30 in.)	760 mm (30 in.)	—
5577-B01, F01, F02, G01 Printer	760 mm (30 in.)	760 mm (30 in.)	760 mm (30 in.)	760 mm (30 in.)	—
5583-200 Printer	760 mm (30 in.)	760 mm (30 in.)	760 mm (30 in.)	760 mm (30 in.)	330 mm (13 in.)

Device	Front	Back	Right	Left	Top
6262-T12 Printer	700 mm (28 in.)	750 mm (30 in.)	750 mm (30 in.)	625 mm (25 in.)	—

1 The front door is optional. However, the service clearances shown are still necessary for access to all sides of the printer.

2 A 180 millimeter (7 inch) clearance for loading paper must be provided under the front of the printer.

3 This information includes considerations for weight distribution when the rack is full of devices.

4 The keyboard may be moved to service the display station or personal computer. See the plan view for display stations and personal computers.

5 This group of sizes applies to a twinaxial work station attachment that is sitting on a surface (not hanging on a wall).

6 The ROLMbridge 5250 Link Protocol Converter is contained in a CBX 8000 or CBX 9000. Refer to the *CBXII 8000 Installation Manual* for CBX device specifications.

7 Refer to device manual(s) for specific information.

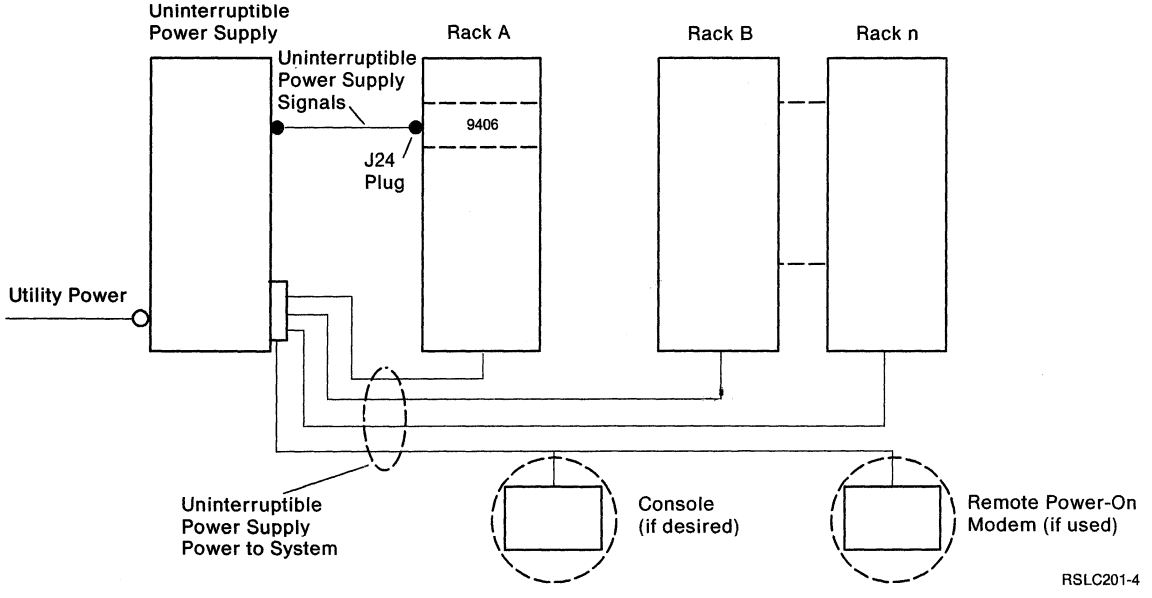
Appendix E. Uninterruptible Power Supply for the AS/400 System

When you have selected the appropriate uninterruptible power supply for the AS/400 system, have an electrician plan for power and signal cable connections between the uninterruptible power supply and the system, and install the uninterruptible power supply. To plan for the uninterruptible power supply, the electrician will need this appendix and the uninterruptible power supply information that comes with the uninterruptible power supply unit. The electrician will also need to refer to the uninterruptible power supply chapter in the *Backup and Recovery Guide* for software considerations.

The following graphic shows the cabling required to connect the uninterruptible power supply to the AS/400 system. The electrician will need to insure that:

- The utility power circuit can supply correct and adequate power for the uninterruptible power supply and the AS/400 system.
- The uninterruptible power supply power plug matches the utility power receptacle.
- The AS/400 system power plugs match the power receptacles on the uninterruptible power supply.
- If you want the uninterruptible power supply to supply power to the display station used as the system console, the work station power plug must match the uninterruptible power supply power receptacle.
- Multiconductor cable is available for the signal cable.
- The correct plug to connect the signal cable to the 9406 Processor is ordered and attached to the signal cable.
- The signal cable wires are connected to the correct contacts in the uninterruptible power supply.

Uninterruptible Power Supply Connections to the AS/400 System



Power and Plug Requirements

The electrician should use the following information to prepare your site for an uninterruptible power supply.

Voltage required for the uninterruptible power supply:

200 to 240 volts AC

1-phase (same as for AS/400)

Refer to Task 2.7 for more detailed information.

Uninterruptible power supply kVA output:

The power that the uninterruptible power supply is required to furnish is determined by the devices installed in your rack(s). Add the kVA requirements of all devices in all racks to obtain the total kVA output that the uninterruptible power supply must supply to operate the system. You should also include the display station used as the console. See Appendix D for kVA information.

Power plugs and receptacles:

The uninterruptible power supply unit power cord plugs into the utility power line.

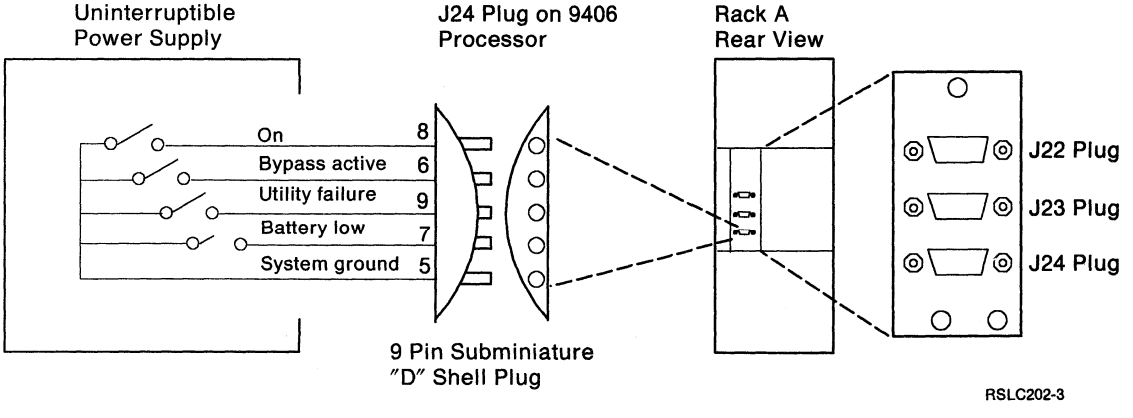
All AS/400 power cords plug into the uninterruptible power supply unit.

Refer to Appendix C for more detailed information.

Connecting the Uninterruptible Power Supply Signal Lines

All uninterruptible power supply signal lines used by the system are brought to a 9-pin *D* connector located on the 9406 Processor in the first rack. To connect the signal lines from the uninterruptible power supply unit, you need Amphenol plug 205204 (IBM part 6849485).

The electrician should use the following graphic and chart to know how to create the cable and plug that will connect the signal lines between the uninterruptible power supply and the system. The cable must have at least five wires and be able to maintain the signal levels that are listed after the connector chart.



Connector Pin	Line Name	Signal Definition
J24-5	System ground	0 volt return for all lines.
J24-6	-Uninterruptible power supply bypass active	The uninterruptible power supply has a failure or is being serviced and power is being provided to the system from the utility power line. If a utility power failure occurs, the system will lose power.
J24-7	-Uninterruptible power supply battery low	The battery source for the uninterruptible power supply is below the predetermined energy level. If the battery source energy level continues to decrease, the uninterruptible power supply may not be able to supply power to the system.
J24-8	-Uninterruptible power supply on	The uninterruptible power supply is powered on and is capable of providing power to the system (whether utility power is available or not).
J24-9	-Utility failure	A failure has occurred in the utility power to the uninterruptible power supply. The uninterruptible power supply is providing power to the system.

The AS/400 system requires an interface of normally open contacts for the signal lines. The interface (cable and uninterruptible power supply contacts) must be able to maintain the following signal levels.

- Active signal level: 0 volts, +0.15 volt, -0 volts
- Active signal output current: 0 amps at 0 volts, 1 milliampere at 0.15 volt
- Inactive signal level: open circuit
- Minimum active or inactive time duration: 8.3 milliseconds

Appendix F. Forms for Planning

One copy of each form is included in this appendix. You may want to copy some of these forms before you fill them in. Each form has a letter and a number in the top left corner; this information will help you retrieve the forms easily. By looking at the top left corner, you can tell what form you have.

Store these forms together in a safe place to be referred to later.

A1 System Information Form (Part 1)

Rack Power Specify Code ______

Rack	Description	Device Type	Model Number	Serial Number	Location

Main storage size (4-96MB) ______

Disk storage size (400MB-27.36GB) ______

Total number of work stations supported ______

Licensed programs

Cabling Devices	Quantity	Notes
5208 Link Protocol Converter		
5209 Link Protocol Converter		
ROLMbridge 5250 Link Protocol Converter		
5299-3 Terminal Multiconnector		

RSLX027-14

Note: You may copy as necessary.

A1 System Information Form (Part 2)
LOCAL Work Stations

(✓) Display Station	(✓) Printer	Machine Number	Model Number	Serial Number	Location	(✓) No Cable-Through Capability	Cabling Type	Cable Length	Input Voltage
☐	☐								
☐	☐								
☐	☐								
☐	☐								
☐	☐								
☐	☐								
☐	☐								
☐	☐								
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☐	☐								

Note: You may copy as necessary.

RSLX028-8

A1 System Information Form (Part 3)
REMOTE Work Stations

(✓) Display Station	(✓) Printer	Machine Number	Model Number	Serial Number	Location	(✓) No Cable-Through Capability	Cabling Type	Cable Length	Input Voltage
☐	☐								
☐	☐								
☐	☐								
☐	☐								
☐	☐								
☐	☐								
☐	☐								
☐	☐								
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☐	☐								

Note: You may copy as necessary.

RSLX065-1

A1 System Information Form (Part 4)

Communications and the 5251–12; 5294–1, K01, S01; and 5394–1, 2 Remote Work Station Controllers

Line Type	Connection Type	Controller Type	Quantity	Modem	Physical Interface	Line Speed

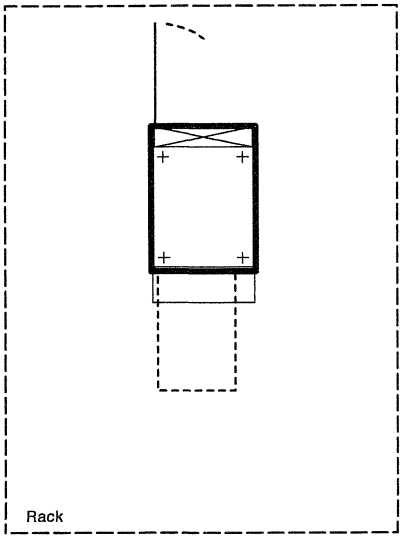
Other Data Communications

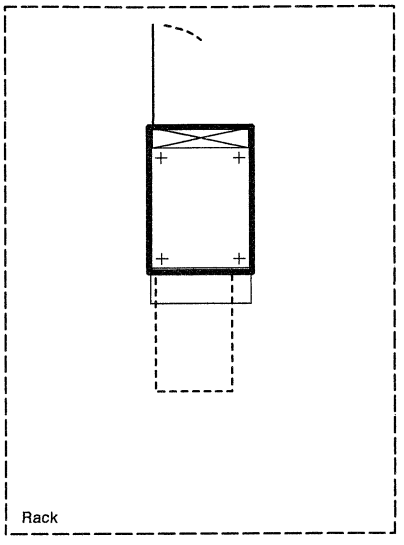
Line Type	Connection Type	Controller Type	Device Type or Quantity	Modem	Physical Interface	Line Speed

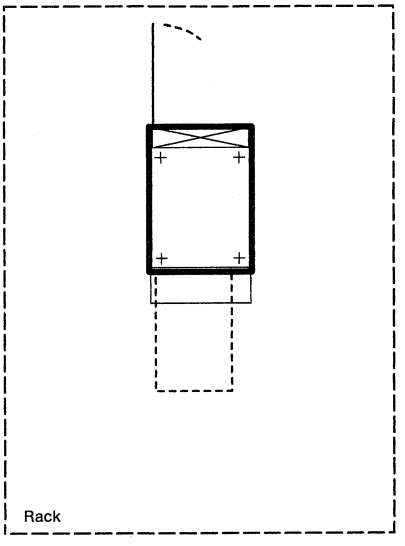
Note: You may copy as necessary.

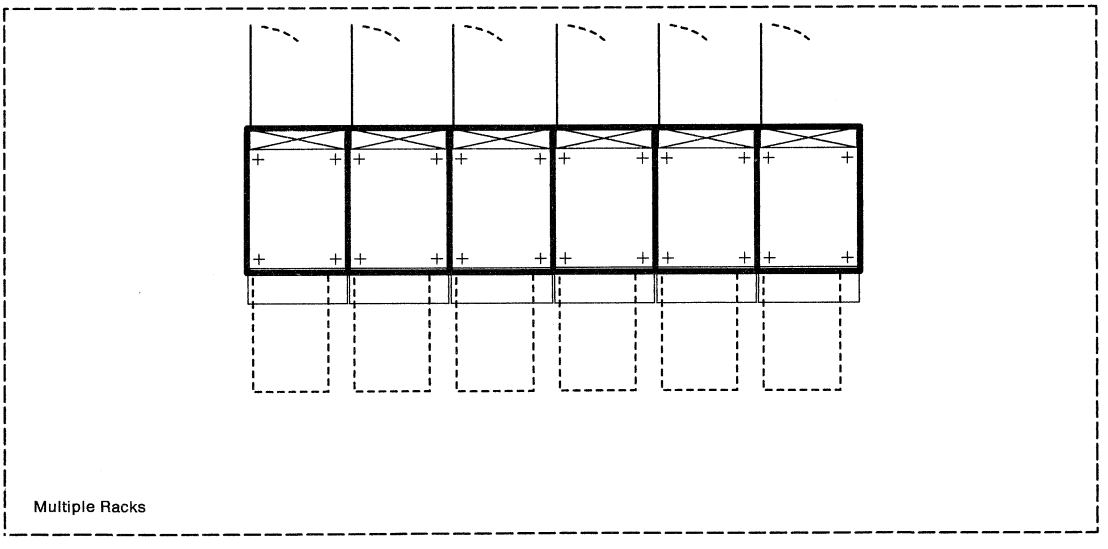
RSLX067-2

B1 Racks





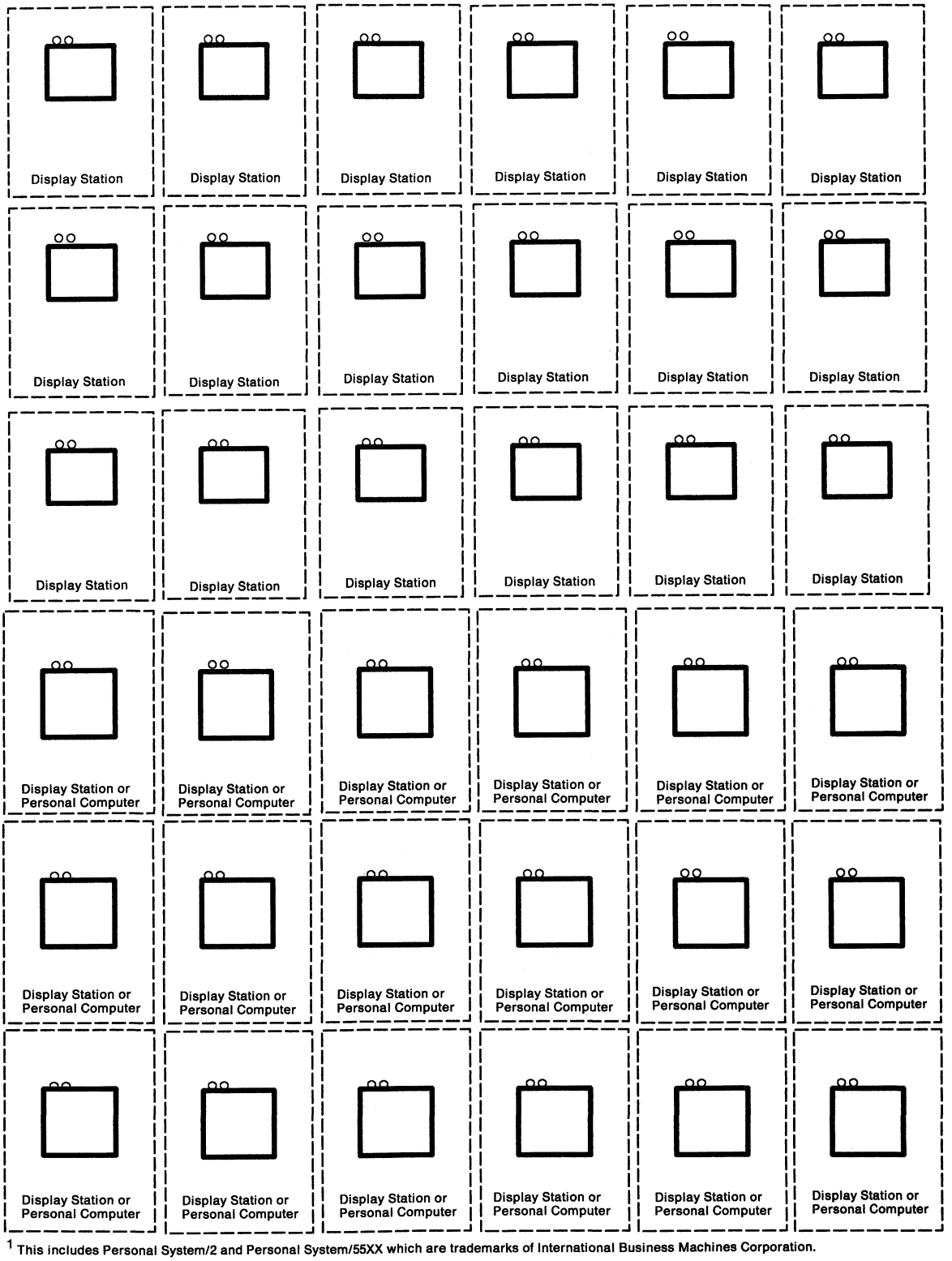




Note: You may copy as necessary.

RSLX000-4

B2 Display Stations and Personal Computers [1]

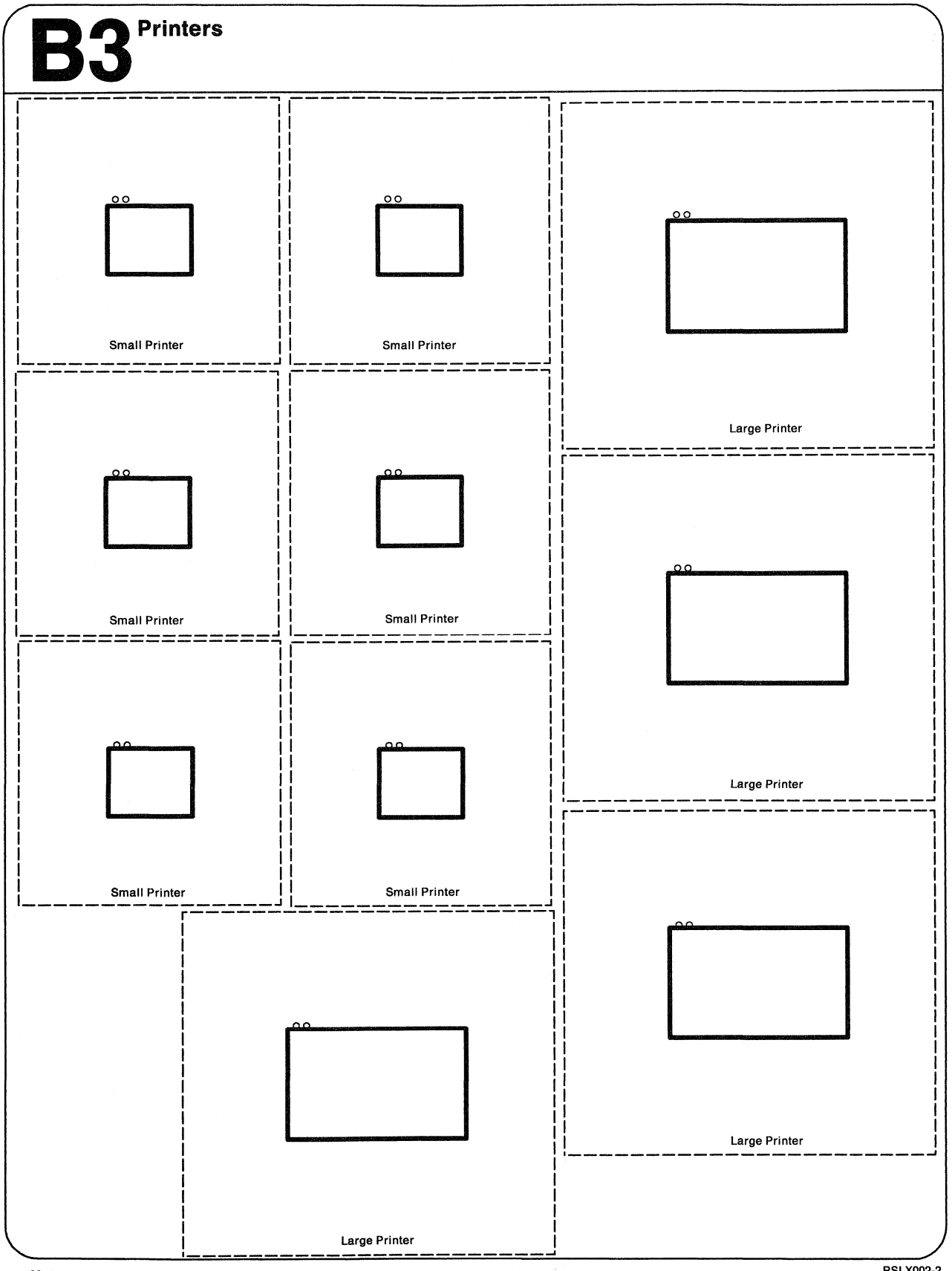


[1] This includes Personal System/2 and Personal System/55XX which are trademarks of International Business Machines Corporation.

Note: You may copy as necessary.

RSLX001-6

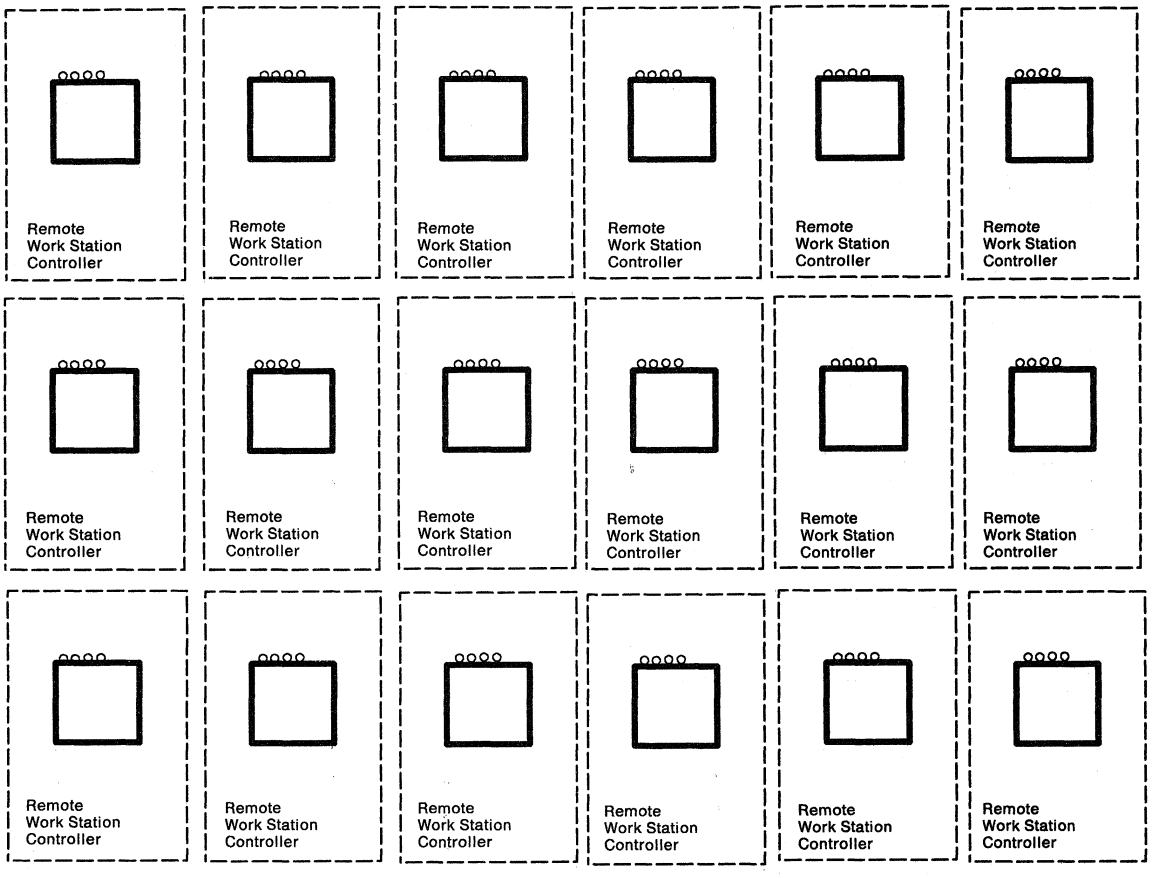
B3 Printers



Note: You may copy as necessary.

RSLX002-2

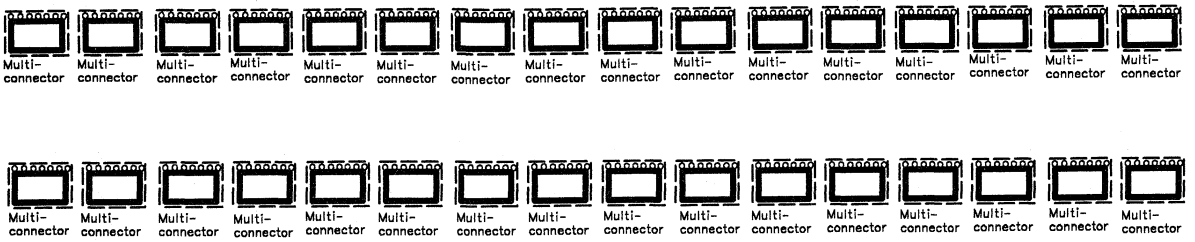
B4 Remote Work Station Controllers and Twinaxial Work Station Attachments

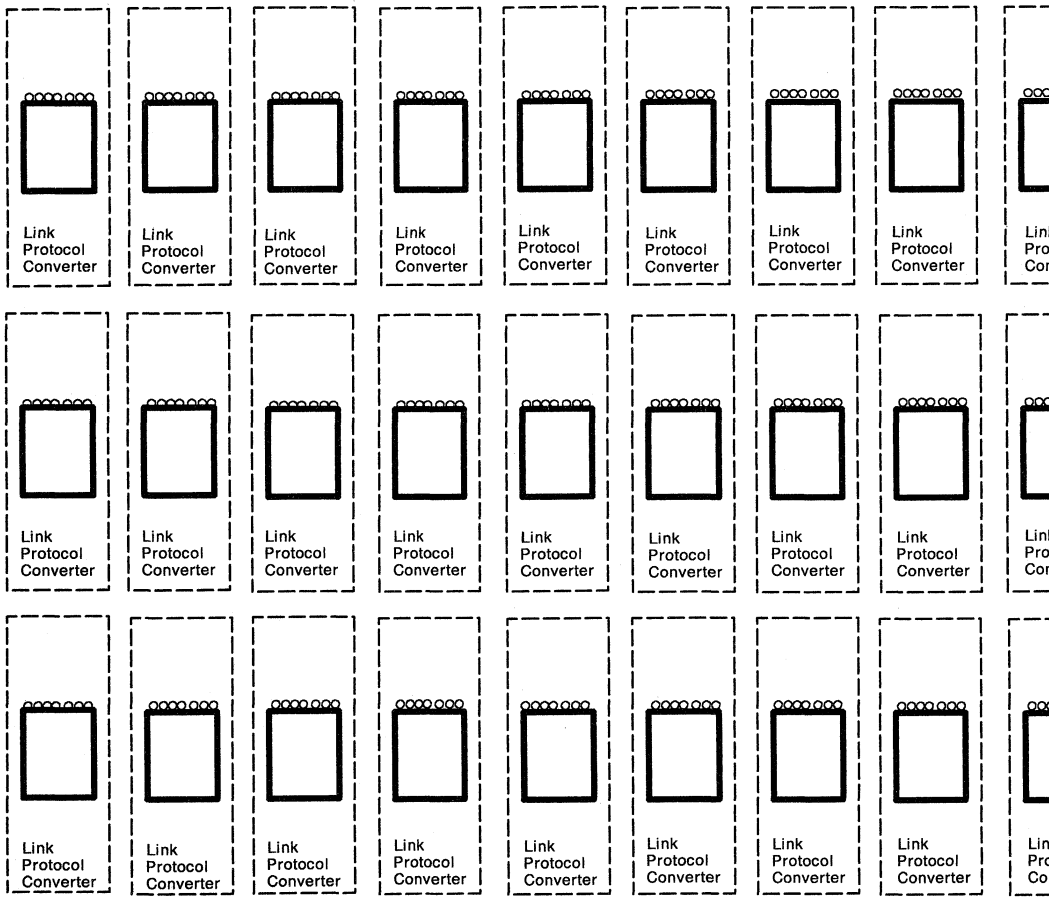


Note: You may copy as necessary.

RSLX003-2

B5 Terminal Multiconnectors and Link Protocol Converters





Note: You may copy as necessary.

RSLX015-2

C1 Local Work Station Diagram (Twinaxial Cabling)

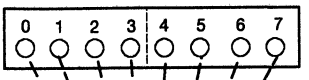
Page Number _____

System _____ **Card Address** _____

Service for Cabling _____ **Work Station Controller Name** _____

Telephone Number _____ **Location of Twinaxial Work Station Attachment** _____

Twinaxial Work Station Attachment Port Numbers



Device Name
Device Type, Model
Location
Device Address
Display ☐ Printer ☐
Telephone Number

Device Name
Device Type, Model
Location
Device Address
Display ☐ Printer ☐
Telephone Number

Device Name
Device Type, Model
Location
Device Address
Display ☐ Printer ☐
Telephone Number

Device Name
Device Type, Model
Location
Device Address
Display ☐ Printer ☐
Telephone Number

Device Name
Device Type, Model
Location
Device Address
Display ☐ Printer ☐
Telephone Number

Device Name
Device Type, Model
Location
Device Address
Display ☐ Printer ☐
Telephone Number

Device Name
Device Type, Model
Location
Device Address
Display ☐ Printer ☐
Telephone Number

Note: A maximum of 7 work stations can be attached per port on the Twinaxial Work Station Attachment.

Note: You may copy as necessary.

RSLX033-10

C2 Local Work Station Diagram (Other)

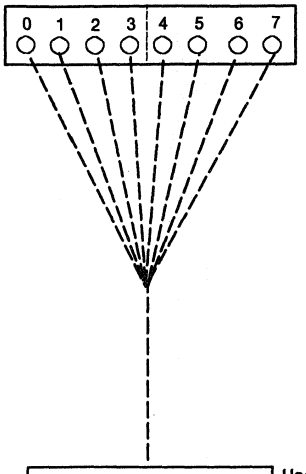
Page Number _____

System _____ **Card Address** _____

Service for Cabling _____ **Work Station Controller Name** _____

Telephone Number _____ **Location of Twinaxial Work Station Attachment** _____

Twinaxial Work Station Attachment Port Numbers



Device Name
Device Type, Model
Location
Device Address
Display ☐ Printer ☐
Telephone Number

Device Name
Device Type, Model
Location
Device Address
Display ☐ Printer ☐
Telephone Number

Device Name
Device Type, Model
Location
Device Address
Display ☐ Printer ☐
Telephone Number

Description
Device Type, Model
Location
0 1 2 3 4 5 6

Use this box to indicate if you have a 5208 or 5209, or ROLMbridge 5250 Link Protocol Converter, or 5299-3 Terninal Multiconnector attached to the controller. If you have a 5208, an additional port lets you attach parallel printers.

Device Name
Device Type, Model
Location
Device Address
Display ☐ Printer ☐
Telephone Number

Device Name
Device Type, Model
Location
Device Address
Display ☐ Printer ☐
Telephone Number

Device Name
Device Type, Model
Location
Device Address
Display ☐ Printer ☐
Telephone Number

Device Name
Device Type, Model
Location
Device Address
Display ☐ Printer ☐
Telephone Number

Note: A maximum of 7 work stations can be attached per port on the Twinaxial Work Station Attachment.

Note: You may copy as necessary.

RSLX016-9

C3 Local Work Station Diagram (IBM Cabling System)

Page Number _____

System _____ **Card Address** _____

Service for the IBM Cabling System _____ **Work Station Controller Name** _____

Telephone Number _____ **Location of Twinaxial Work Station Attachment** _____

Twinaxial Work Station Attachment Port Numbers

0 1 2 3 4 5 6 7

○ ○ ○ ○ ○ ○ ○ ○

Accessories in Work Area	Cable Runs from (wall)	Cable & Cable Length	Cable Runs to (panel)	Accessories on Equipment Rack

Device Name
Device Type, Model
Location
Device Address
Display ☐ Printer ☐
Telephone Number

Device Name
Device Type, Model
Location
Device Address
Display ☐ Printer ☐
Telephone Number

Device Name
Device Type, Model
Location
Device Address
Display ☐ Printer ☐
Telephone Number

Device Name
Device Type, Model
Location
Device Address
Display ☐ Printer ☐
Telephone Number

Device Name
Device Type, Model
Location
Device Address
Display ☐ Printer ☐
Telephone Number

Device Name
Device Type, Model
Location
Device Address
Display ☐ Printer ☐
Telephone Number

Device Name
Device Type, Model
Location
Device Address
Display ☐ Printer ☐
Telephone Number

Note: A maximum of 7 work stations can be attached per port on the Twinaxial Work Station Attachment.

Note: You may copy as necessary.

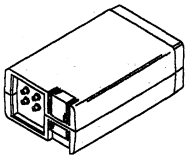
RSLX020-7

C4 Remote Work Station Diagram for 5294 (Part 1)

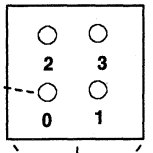
System _____

Service for Cabling _____

Telephone Number _____



Ports



Device Name
Device Type, Model
Location
Device Address
Display ☐ Printer ☐
Telephone Number

Description
Device Type, Model
Location
0 1 2 3 4 5 6

Use this box to indicate if you have a 5208 or 5209 Link Protocol Converter or 5299-3 Terminal Multiconnector attached to the controller. If you have a 5208, an additional port lets you attach parallel printers.

Note: A maximum of 4 work stations can be attached in a cluster.

Note: You may copy as necessary.

RSLX026-9

C4 Remote Work Station Diagram for 5294 (Part 2)

Synchronous Data Link Control (SDLC) Line	Synchronous Data Link Control (SDLC) Controller
Line Description Name _____	Controller Description Name _____
Data Link Role _____	Controller Type _____
Physical Interface _____	Controller Model _____
Connection Type _____	Link Type _____
Switched Network Backup _____	Switched Line _____
NRZI Data Coding _____	Switched Network Backup _____
Switched Connection Type _____	Exchange Identifier _____
Maximum Frame Size _____	Initial Connection _____
Duplex _____	Switched Connection Number _____
	Station Address _____

X.25 Line	X.25 Controller
Line Description Name _____	Controller Description Name _____
X.25 Logical Channel Entries _____	Controller Type _____
Logical Channel ID	Controller Model _____
_____	Link Type _____
_____	Switched Line _____
Logical Channel Type	Initial Connection _____
_____	Switched Connection Number _____
_____	X.25 Network Level _____
Local Network Address _____	X.25 Link Level Protocol _____
Connection Initiation _____	X.25 Logical Channel ID _____
Physical Interface _____	X.25 Connection Password _____
X.25 Default Packet size _____	X.25 Default Packet Size _____
Maximum Packet Size _____	X.25 Default Window Size _____
Modulus _____	X.25 User Group ID _____
X.25 Default Window Size _____	X.25 Reverse Charging _____
Insert Network Address in Packets _____	

Note: You may copy as necessary.

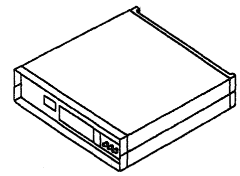
RSLX061-2

C5 Remote Work Station Diagram for 5394 (Part 1)

System ______________________

Service for Cabling ______________________

Telephone Number ______________________



Ports

0 1 2

Device Name
Device Type, Model
Location
Device Address
Display ☐ Printer ☐
Telephone Number

Device Name
Device Type, Model
Location
Device Address
Display ☐ Printer ☐
Telephone Number

Device Name
Device Type, Model
Location
Device Address
Display ☐ Printer ☐
Telephone Number

Device Name
Device Type, Model
Location
Device Address
Display ☐ Printer ☐
Telephone Number

Device Name
Device Type, Model
Location
Device Address
Display ☐ Printer ☐
Telephone Number

Device Name
Device Type, Model
Location
Device Address
Display ☐ Printer ☐
Telephone Number

Device Name
Device Type, Model
Location
Device Address
Display ☐ Printer ☐
Telephone Number

Description
Device Type, Model
Location
0 1 2 3 4 5 6

Use this box to indicate if you have a 5208 or 5209 Link Protocol Converter or 5299-3 Terminal Multiconnector attached to the controller. If you have a 5208, an additional port lets you attach parallel printers.

Device Name
Device Type, Model
Location
Device Address
Display ☐ Printer ☐
Telephone Number

Note: A maximum of 7 work stations can be attached per port on the 5394 controller.

Note: You may copy as necessary.

RSLX025-9

C5 Remote Work Station Diagram for 5394 (Part 2)

Synchronous Data Link Control (SDLC) Line	Synchronous Data Link Control (SDLC) Controller
Line Description Name _____	Controller Description Name _____
Data Link Role _____	Controller Type _____
Physical Interface _____	Controller Model _____
Connection Type _____	Link Type _____
Switched Network Backup _____	Switched Line _____
NRZI Data Coding _____	Switched Network Backup _____
Switched Connection Type _____	Exchange Identifier _____
Maximum Frame Size _____	Initial Connection _____
Duplex _____	Switched Connection Number _____
	Station Address _____

X.25 Line	X.25 Controller
Line Description Name _____	Controller Description Name _____
X.25 Logical Channel Entries _____	Controller Type _____
Logical Channel ID	Controller Model _____
_____	Link Type _____
_____	Switched Line _____
Logical Channel Type	Initial Connection _____
_____	Switched Connection Number _____
_____	X.25 Network Level _____
Local Network Address _____	X.25 Link Level Protocol _____
Connection Initiation _____	X.25 Logical Channel ID _____
Physical Interface _____	X.25 Connection Password _____
X.25 Default Packet size _____	X.25 Default Packet Size _____
Maximum Packet Size _____	X.25 Default Window Size _____
Modulus _____	X.25 User Group ID _____
X.25 Default Window Size _____	X.25 Reverse Charging _____
Insert Network Address in Packets _____	

Note: You may copy as necessary.

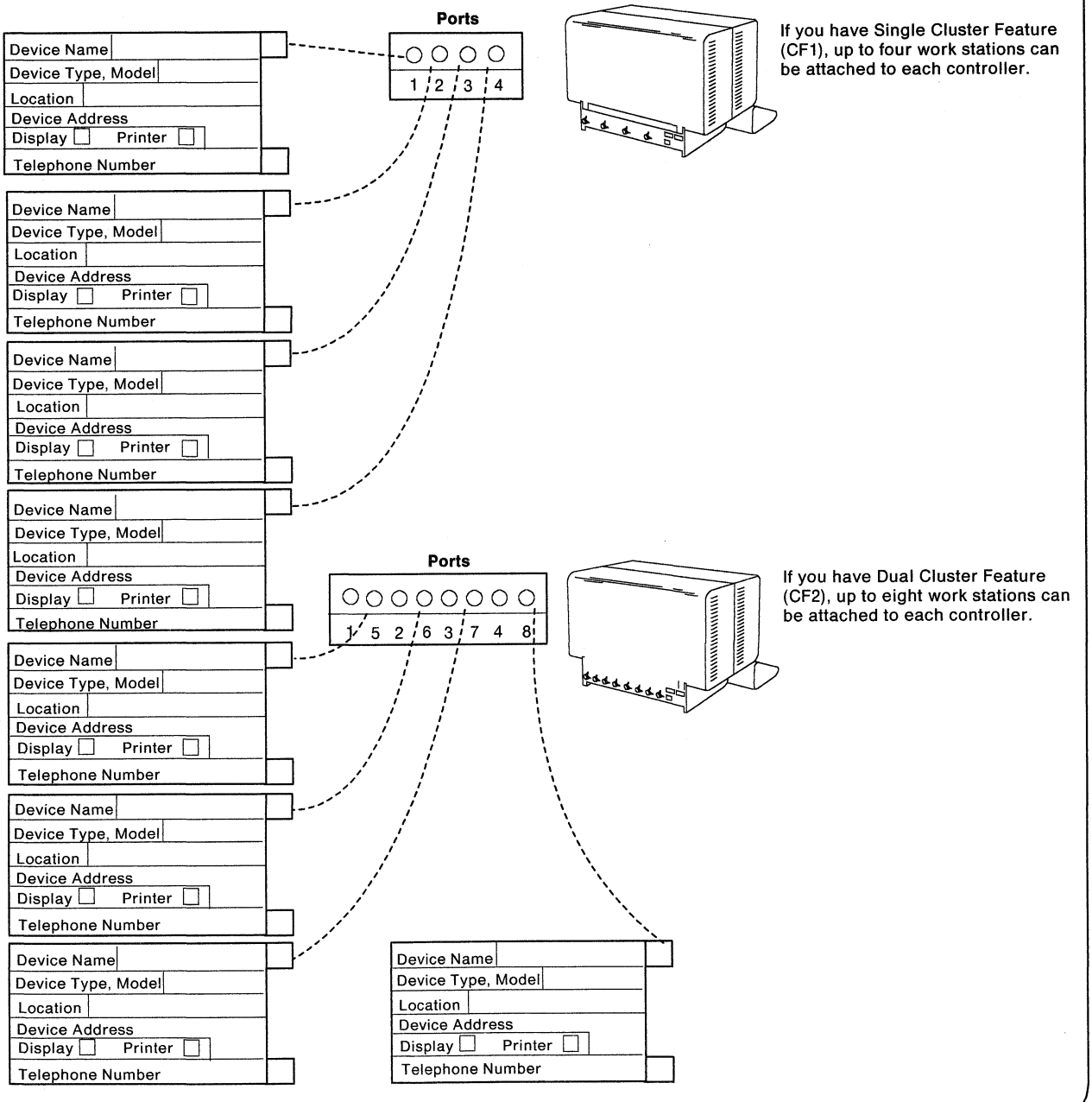
RSLX062-3

C6 Remote Work Station Diagram for 5251 Model 12 (Part 1)

System _____

Service for Cabling _____

Telephone Number _____



Note: You may copy as necessary.

RSLX034-7

C6 Remote Work Station Diagram for 5251 Model 12 (Part 2)

Synchronous Data Link Control (SDLC) Line	Synchronous Data Link Control (SDLC) Controller
Line Description Name _____	Controller Description Name _____
Data Link Role _____	Controller Type _____
Physical Interface _____	Controller Model _____
Connection Type _____	Link Type _____
Switched Network Backup _____	Switched Line _____
NRZI Data Coding _____	Switched Network Backup _____
Switched Connection Type _____	Exchange Identifier _____
Maximum Frame Size _____	Initial Connection _____
Duplex _____	Switched Connection Number _____
	Station Address _____

X.25 Line	X.25 Controller
Line Description Name _____	Controller Description Name _____
X.25 Logical Channel Entries _____	Controller Type _____
Logical Channel ID	Controller Model _____
_____	Link Type _____
_____	Switched Line _____
Logical Channel Type	Initial Connection _____
_____	Switched Connection Number _____
_____	X.25 Network Level _____
Local Network Address _____	X.25 Link Level Protocol _____
Connection Initiation _____	X.25 Logical Channel ID _____
Physical Interface _____	X.25 Connection Password _____
X.25 Default Packet size _____	X.25 Default Packet Size _____
Maximum Packet Size _____	X.25 Default Window Size _____
Modulus _____	X.25 User Group ID _____
X.25 Default Window Size _____	X.25 Reverse Charging _____
Insert Network Address in Packets _____	

Note: You may copy as necessary.

RSLX063-2

D1 Local Twinaxial Work Station Controller Index

System _____ **Card Address** _____ **Work Station Controller Name** _____

Service for Cabling _____ **Location of Twinaxial Work Station Attachment** _____ **Controller Type** _____

Telephone Number _____ **Controller Model** _____

Choices:
Twinaxial Cabling (C1)

Telephone Twisted-Pair Cabling (C1)

Telephone Twisted-Pair Cabling with 5299-3 Terminal Multiconnector (C2)

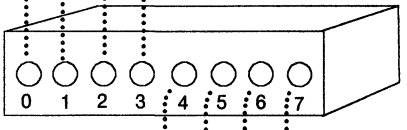
ROLMbridge 5250 Link Protocol Converter (C2)

5208 Link Protocol Converter (C2)

5209 Link Protocol Converter (C2)

IBM Cabling System (C3)

	Type of Cabling/ Attachment	Your Form C Page Number
Port 0		
Port 1		
Port 2		
Port 3		
Port 4		
Port 5		
Port 6		
Port 7		



Note: Only 40 work stations can be active at one time.

Note: You may copy as necessary.

RSLX035-7

E1 Diskette Unit and Tape Unit Diagram

System ____________________

Service Contact ____________________

Telephone Number ____________________

Device Name	
Device Type, Model	
Location	
Diskette ☐ Tape ☐	

Device Name	
Device Type, Model	
Location	
Diskette ☐ Tape ☐	

Device Name	
Device Type, Model	
Location	
Diskette ☐ Tape ☐	

Device Name	
Device Type, Model	
Location	
Diskette ☐ Tape ☐	

Device Name	
Device Type, Model	
Location	
Diskette ☐ Tape ☐	

Device Name	
Device Type, Model	
Location	
Diskette ☐ Tape ☐	

Device Name	
Device Type, Model	
Location	
Diskette ☐ Tape ☐	

Note: You may copy as necessary.

RSLX021-10

F1 Synchronous Data Link Control Switched Line Communications

To Modem Supplier							To Common Carrier				
Modem	Line Speed	Interface[1]	Duplex	Diagnostic Support	NRZI Support	Autocall Support	FCC Registration	Ringer Equivalence	Line Connection End (Jack) [2]	Type of Service	Telephone Handset (Optional)
5841	1200	EIA-232/V.24	Full	Local and Remote Loopback	Yes	N/A	EQW5YF-15245-DM-E	0.9B	RJ11	See Note	Standard Phone
5842	2400	EIA-232/V.24	Full	Local and Remote Loopback	Yes	N/A	EQW5YF-15245-DM-E	0.9B	RJ11	See Note	Standard Phone
5853	2400	EIA-232/V.24	Full	Local and Remote Loopback	Yes	Yes Via [3] V.25 bis			RJ11	See Note	Standard Phone
3863 Model 2	2400	EIA-232/V.24	Half	LPDA-1, Local Loopback	Yes	N/A	ANO9SA-67992-DP-N	0.8B	RJ41 or RJ45	See Note	Exclusion Key set with RJ36
3864 Model 2	4800	EIA-232/V.24	Half	LPDA-1, Local Loopback	Yes	N/A	ANO9SA-67992-DP-N	0.8B	RJ41 or RJ45	See Note	Exclusion Key set with RJ36
Non-IBM Modem											

Note: Contact your telephone company and order a normal voice grade (analog) switched line for the switched modems you selected.

[1] For additional interface support on the system, see Appendix B in the *Data Communications Planning Guide*.

[2] For countries other than United States and Canada, modems are shipped with the plug specified or required by that country. Otherwise, the modem is shipped with a cable with 4-spade lugs at the line connection end.

[3] Provides the autodial feature using the same port used for normal connection to modem.

Note: You may copy as necessary.

RSLX058-7

F2 Synchronous Data Link Control Nonswitched Point-to-Point Communications

To Modem Supplier						To Common Carrier	
Modem	Line Speed	Interface [1]	Duplex	Diagnostic Support	NRZI Support	Line Connection End (Jack) [2]	Type of Service
3833	2400	EIA-232/V.24	Half	LPDA-1, Local Loopback	Yes	WE404B	See Note
3863 Model 1	2400	EIA-232/V.24	Half	LPDA-1, Local Loopback	Yes	WE404B	See Note
3868 Model 1	2400	EIA-232/V.24	Half	LPDA-1, Local Loopback	Yes	WE404B	See Note
3834	4800	EIA-232/V.24	Half	LPDA-1, Local Loopback	Yes	WE404B	See Note
3864 Model 1	4800	EIA-232/V.24	Half	LPDA-1, Local Loopback	Yes	WE404B	See Note
3868 Model 2	4800	EIA-232/V.24	Half	LPDA-1, Local Loopback	Yes	WE404B	See Note
3865 Model 1	9600	EIA-232/V.24	Half	LPDA-1	Yes	WE404B	See Note
3868 Model 3	9600	EIA-232/V.24	Half	LPDA-1	Yes	WE404B	See Note
5865 Model 1	9600	EIA-232/V.24	Half	LPDA-1,2 [3]	Yes	WE404B	See Note
5868 Model 51	9600	EIA-232/V.24	Half	LPDA-1,2 [3]	Yes	WE404B	See Note
5866 Model 1	14,400	EIA-232/V.24	Half	LPDA-1,2 [3]	Yes	WE404B	See Note
5868 Model 61	14,400	EIA-232/V.24	Half	LPDA-1,2 [3]	Yes	WE404B	See Note
5821 DSU/CSU	2400-9600 56,000	EIA-232/V.24	Half	Local and Remote Loopback	No	WE404B	See Note
Non-IBM Modem							
_____	_____	_____	_____	_____	_____	_____	_____

Note: Contact your telephone company and order a leased line for the point-to-point nonswitched modems selected. For United States and Canada, use AT&T Type 3002 basic channel or equivalent. For international use, four-wire quality line. If your modem has a SNBU (switched network backup) feature, additional switched lines must be ordered. See your modem information or sales representative for additional details.

[1] For additional interface support on the system, see Appendix B in the *Data Communications Planning Guide*.

[2] For countries other than the United States and Canada, modems are shipped with the plug specified or required by that country. Otherwise, the modem is shipped with a cable with 4-spade lugs at the line connection end.

[3] LPDA-2 is supported on the 5865 and 5866 Models 2 and 3 and on the 5868 Models 52 and 62 only.

Note: You may copy as necessary.

RSLX059-7

F3 Synchronous Data Link Nonswitched Multipoint Communications

To Modem Supplier						To Common Carrier		
Modem	Line Speed	Interface[1]	Duplex	Diagnostic Support	NRZI Support	Line Connection End (Jack)[2]	Type of Service	Control or Tributary
3833	2400	EIA-232/V.24	Half	LPDA-1, Local Loopback	Yes	WE404B	See Note	Location Dependent
3863 Model 1	2400	EIA-232/V.24	Half	LPDA-1, Local Loopback	Yes	WE404B	See Note	Location Dependent
3868 Model 1	2400	EIA-232/V.24	Half	LPDA-1, Local Loopback	Yes	WE404B	See Note	Location Dependent
3834	4800	EIA-232/V.24	Half	LPDA-1, Local Loopback	Yes	WE404B	See Note	Location Dependent
3864 Model 1	4800	EIA-232/V.24	Half	LPDA-1, Local Loopback	Yes	WE404B	See Note	Location Dependent
3868 Model 2	4800	EIA-232/V.24	Half	LPDA-1, Local Loopback	Yes	WE404B	See Note	Location Dependent
3865 Model 2	9600	EIA-232/V.24	Half	LPDA-1, Local Loopback	Yes	WE404B	See Note	Location Dependent
3868 Model 4	9600	EIA-232/V.24	Half	LPDA-1, Local Loopback	Yes	WE404B	See Note	Location Dependent
5865 Model 1	9600	EIA-232/V.24	Half	LPDA-1,2[3]	Yes	WE404B	See Note	Location Dependent
5868 Model 51	9600	EIA-232/V.24	Half	LPDA-1,2[3]	Yes	WE404B	See Note	Location Dependent
5866 Model 1	14,400	EIA-232/V.24	Half	LPDA-1,2[3]	Yes	WE404B	See Note	Location Dependent
5868 Model 61	14,400	EIA-232/V.24	Half	LPDA-1,2[3]	Yes	WE404B	See Note	Location Dependent
Non-IBM Modem								
_____	_____	_____	_____	_____	_____	_____	_____	_____

Note: Contact your telephone company and order a leased line for the multipoint nonswitched modems selected. For United States and Canada, use AT&T Type 3002 basic channel or equivalent. For international use, four-wire normal quality line.

[1] For additional interface support on the system, see Appendix B in the *Data Communications Planning Guide*.

[2] For countries other than United States and Canada, modems are shipped with the plug specified or required by that country. Otherwise, the modem is shipped with a cable with 4-spade lugs at the line connection end.

[3] LPDA-2 is supported on the 5865 and 5866 Models 2 and 3, and on 5868 Models 52 and 62 only.

Note: You may copy as necessary.

RSLX060-6

F11 Electronic Customer Support

Common Carrier Ordering Information

Line Type: *Normal voice-grade analog switched line*

Line Interface: *EIA-232/V.24 with remote loopback*

Line Speed: *2400 bps*

Line Termination Requirements:

Telephone Set Options: *Tone dial*

Modem Supplier Ordering Information

Modem Type and Model Number:

Modem Characteristics: *Supports analog switched lines*

Telephone line interface supported is CCITT V.22 bis

Line speed supported is 2400 or 1200 bps duplex

NRZI is supported

System interface supported is EIA-232/V.24

Automatic answer is supported

Automatic dial is supported with bit synchronous V.25 bis

CCITT V.54 loop back capability

Note: You may copy as necessary.

RSLX036-18

M1 Installing Licensed Programs

Total Programs Size _____

Available Space _____

	Program and Primary Language	Secondary Language
Operating System/400		
Optional Items		
Online Information		
Online Education		
System/36 and System/38 Migration		
System/36 Environment		
System/38 Environment		
Licensed Programs		
AS/400 [1]Advanced DBCS Printer Support		
AS/400 Application Development Tools		
AS/400 BASIC		
AS/400 Communications Utilities		
AS/400 Cryptographic Support		
AS/400 System/38 Utilities		
AS/400 Business Graphics Utility (BGU)		
AS/400 Language Dictionaries		
AS/400 Office		
AS/400 Pascal		
AS/400 PC Support		
AS/400 Performance Tools		
AS/400 PL/I		
AS/400 Query		
COBOL/400		
RPG/400		
Structured Query Language/400		
Total		

Application Programs	
User Programs	

[1] AS/400 is a trademark of the International Business Machines Corporation.

Note: You may copy as necessary.

RSLX030-16

M2 System Options

IPL Options

System date	_____	MM DD YY or DD MM YY
System time	_____	HH MM SS
Clear job queues	_____	Y=Yes **N=No**
Clear output queues	_____	Y=Yes **N=No**
Clear Incomplete job logs	_____	**Y=Yes** N=No
Start print writers	_____	**Y=Yes** N=No
Start this device only	_____	Y=Yes **N=No**
Set major system options	_____	Y=Yes **N=No**
Define or change the system at IPL	_____	Y=Yes **N=No**

Major System Options

Enable automatic configuration	_____	**Y=Yes** N=No
Device configuration naming	_____	***NORMAL** *S36
Default special environment	_____	***NONE** *S36

Notes:
1. The default system values are shown in bold print.
2. Use this form only if you change the defaults.

Note: You may copy as necessary.

RSLX031-11

S1 Number Labels for Work Station Signal Cables

Note: Adhesive forms found inside back cover.

1	1	2	2	3	3	4	4	5	5	6	6	7	7	8	8	9	9	10	10
1	1	2	2	3	3	4	4	5	5	6	6	7	7	8	8	9	9	10	10
11	11	12	12	13	13	14	14	15	15	16	16	17	17	18	18	19	19	20	20
11	11	12	12	13	13	14	14	15	15	16	16	17	17	18	18	19	19	20	20
21	21	22	22	23	23	24	24	25	25	26	26	27	27	28	28	29	29	30	30
21	21	22	22	23	23	24	24	25	25	26	26	27	27	28	28	29	29	30	30
31	31	32	32	33	33	34	34	35	35	36	36	37	37	38	38	39	39	40	40
31	31	32	32	33	33	34	34	35	35	36	36	37	37	38	38	39	39	40	40
41	41	42	42	43	43	44	44	45	45	46	46	47	47	48	48	49	49	50	50
41	41	42	42	43	43	44	44	45	45	46	46	47	47	48	48	49	49	50	50

Note: You may copy as necessary.

RSLX076-0

S2 ID Labels for Work Station Signal Cables

Note: Adhesive forms found inside back cover.

Connect this end to:	Other end connects to:
Device type/name	
Location	
Device address	
Socket/port	
	SX21-9920

Connect this end to:	Other end connects to:
Device type/name	
Location	
Device address	
Socket/port	
	SX21-9920

Connect this end to:	Other end connects to:
Device type/name	
Location	
Device address	
Socket/port	
	SX21-9920

Connect this end to:	Other end connects to:
Device type/name	
Location	
Device address	
Socket/port	
	SX21-9920

Connect this end to:	Other end connects to:
Device type/name	
Location	
Device address	
Socket/port	
	SX21-9920

Connect this end to:	Other end connects to:
Device type/name	
Location	
Device address	
Socket/port	
	SX21-9920

Connect this end to:	Other end connects to:
Device type/name	
Location	
Device address	
Socket/port	
	SX21-9920

Connect this end to:	Other end connects to:
Device type/name	
Location	
Device address	
Socket/port	
	SX21-9920

Connect this end to:	Other end connects to:
Device type/name	
Location	
Device address	
Socket/port	
	SX21-9920

Connect this end to:	Other end connects to:
Device type/name	
Location	
Device address	
Socket/port	
	SX21-9920

Connect this end to:	Other end connects to:
Device type/name	
Location	
Device address	
Socket/port	
	SX21-9920

Connect this end to:	Other end connects to:
Device type/name	
Location	
Device address	
Socket/port	
	SX21-9920

Connect this end to:	Other end connects to:
Device type/name	
Location	
Device address	
Socket/port	
	SX21-9920

Connect this end to:	Other end connects to:
Device type/name	
Location	
Device address	
Socket/port	
	SX21-9920

Connect this end to:	Other end connects to:
Device type/name	
Location	
Device address	
Socket/port	
	SX21-9920

Note: You may copy as necessary.

RSLX077-0

Appendix G. Floor Plan Examples for More Than One Rack

The following floor plan examples can help you decide how to draw your floor plan if you have more than one rack. These example floor plans ensure the racks are arranged to use the cable lengths available.

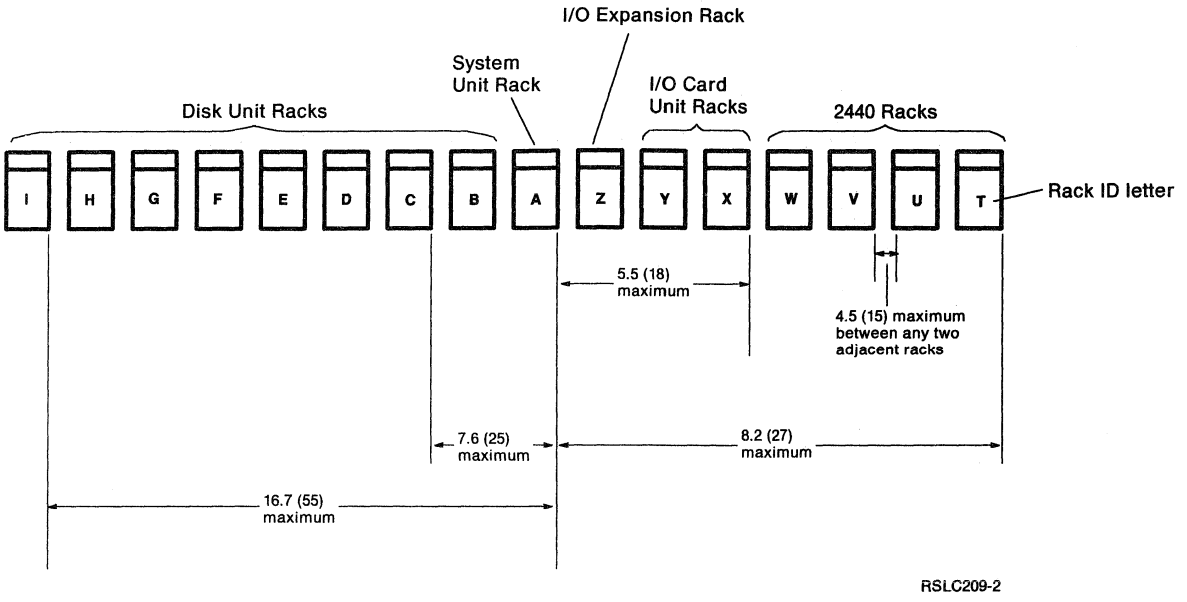
The first example shows the cabling restrictions for the system. The second example shows the recommended layout if you are putting your racks on a floor that is rated for 345 kg/m^2 (70 lb/ft^2). The third example shows the recommended layout if your racks are in an office environment on a floor that is rated for 244 kg/m^2 (50 lb/ft^2). The fourth example shows an alternative layout for a floor rated for 345 kg/m^2 (70 lb/ft^2).

Note: These are examples, not required floor plans. You have some options regarding how to arrange your racks.

Cable Length Restrictions for More Than One Rack

The following rules and diagram tell the maximum amount of space you can have between racks to use the cables available.

- Maximum of 4.5 meters (15 feet) is allowed between two adjacent racks.
- Maximum of 5.5 meters (18 feet) is allowed between the system unit rack (rack A) and the farthest I/O card unit rack (rack X).
- Maximum of 8.2 meters (27 feet) is allowed between the system unit rack (rack A) and the farthest 2440 tape unit racks (rack T). This applies to IBM 2440 tape unit racks B, C, D, and E.
- Maximum of 7.6 meters (25 feet) is allowed between the system unit rack (rack A) and the second disk unit rack (rack C).
- Maximum of 16.7 meters (55 feet) is allowed between the system unit rack (rack A) and the farthest disk unit racks (rack I). This applies to disk unit racks D, E, F, G, H, and I.



Recommended Floor Plans

Refer to **STEP 1** if you have a floor rated for 345 kg/m^2 (70 lb/ft^2). Refer to **STEP 2** if you have a floor rated for 244 kg/m^2 (50 lb/ft^2).

STEP 1: If you have a floor rated for 345 kg/m^2 (70 lb/ft^2), the first six racks should be next to each other, similar to the order shown in Area 1 on the following diagram.

Read the following items that apply to your situation.

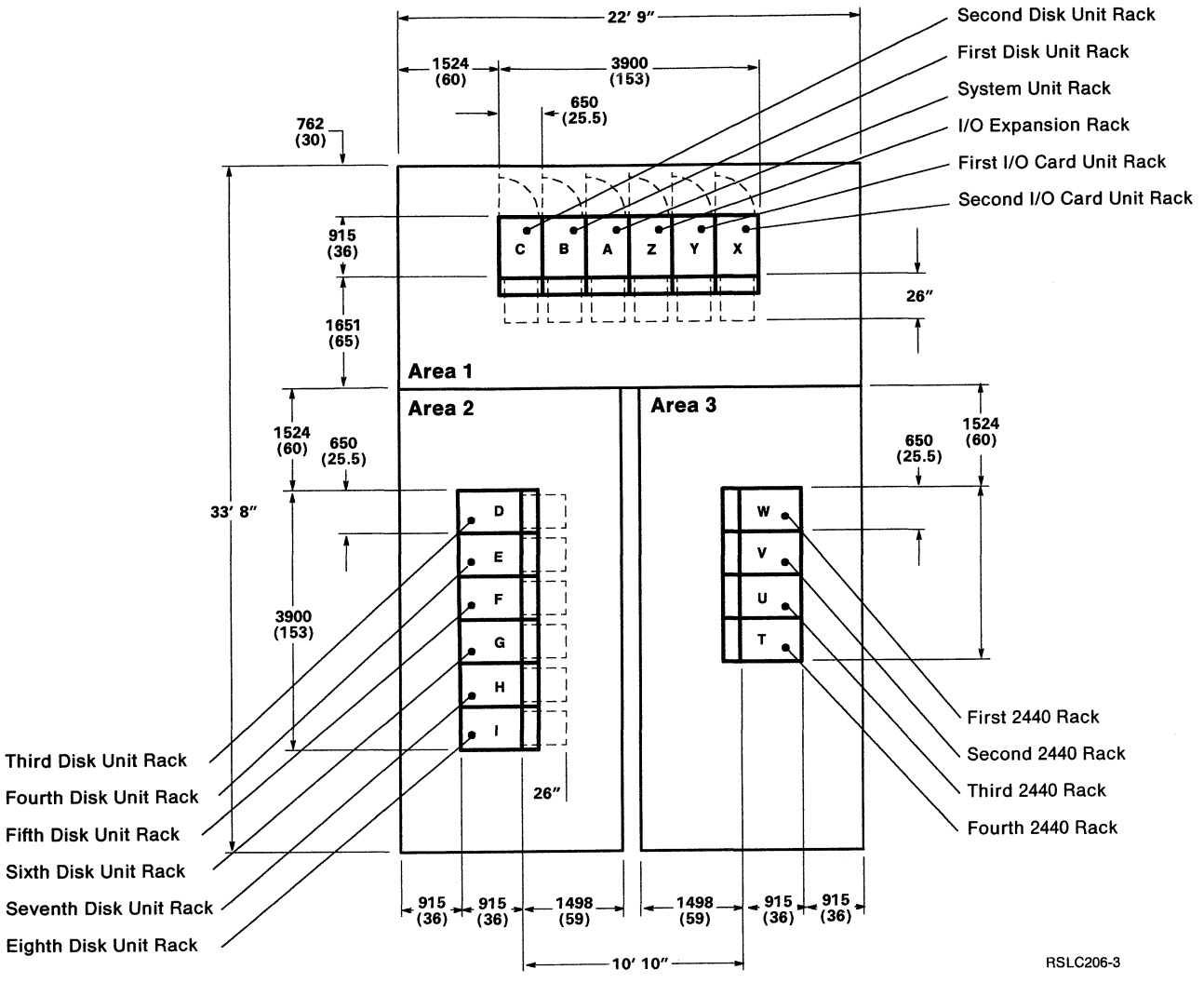
If you have an I/O expansion rack, this rack will be next to the system unit rack; the disk unit and I/O card unit racks should be on either side of these, as shown in the following diagram.

If you have I/O card unit racks, the first I/O card unit rack should be in Area 1 next to either the I/O expansion rack or the system unit rack. The second I/O card unit rack should be next to the first I/O card unit rack. In the following example, the racks are to the right of the I/O expansion unit rack.

If you do not have I/O card unit racks, you have some options regarding how to arrange the racks. For example, you could put two additional disk unit racks in Area 1.

If you have disk unit racks, the first disk unit rack should be in Area 1 next to the I/O expansion rack or the system unit. The second disk unit rack should be next to the first disk unit rack. In the following example, these racks are to the left of the system unit rack. The third disk unit rack, should be in Area 2, closest to the second disk unit rack in Area 1. The fourth disk unit rack should be next to the third disk unit rack, as so on.

If you have 2440 Tape Unit racks, the first tape drive rack should be in Area 3, closest to the second I/O card unit in Area 1. The second tape drive rack should be next to the first tape drive rack, and so on.



Note: Plan view sizes are shown in millimeters and inches (inches are in parentheses).

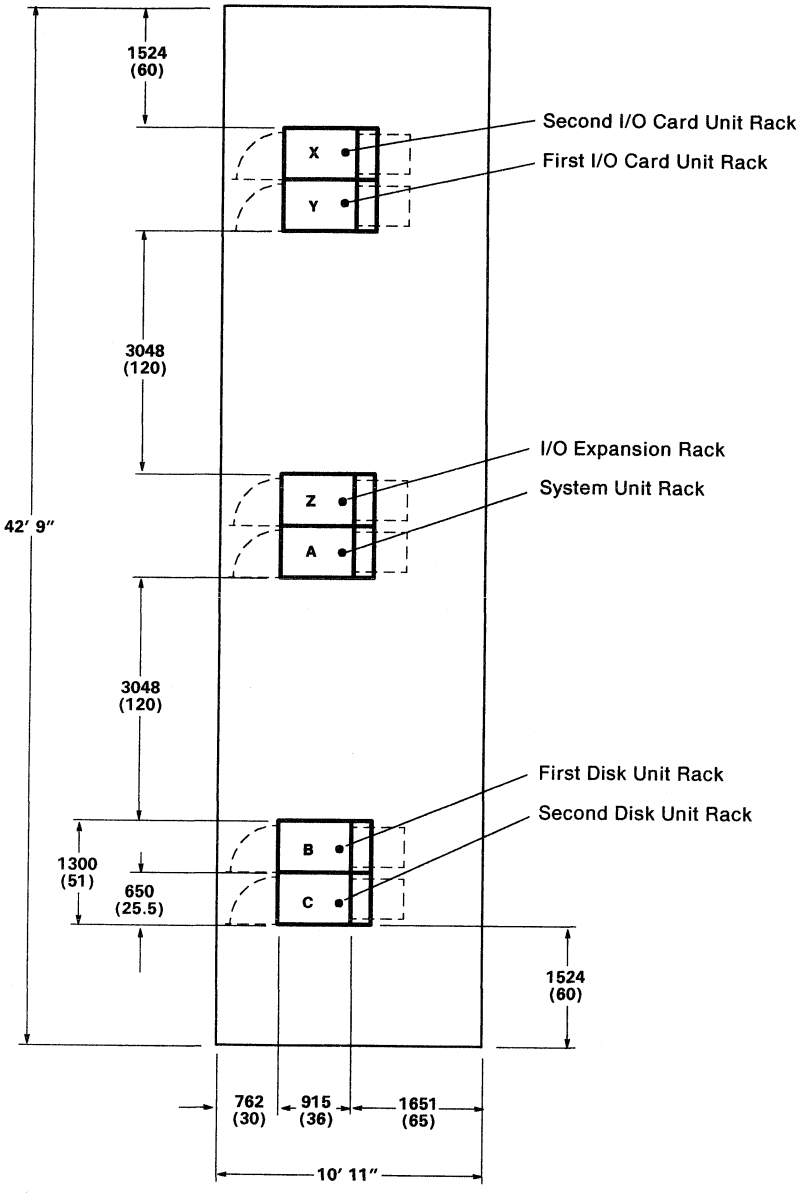
STEP 2: If you have a floor rated for 244 kg/m^2 (50 lb/ft^2) in an office environment, the racks should be next to each other, similar to the order shown.

Read the following items that apply to your situation.

If you have an I/O expansion rack, it will be next to the system unit rack; the disk unit and I/O card unit racks should be to either side of these, as shown in the following diagram.

If you have I/O card unit racks, the first I/O card unit rack should be next to either the I/O expansion rack or the system unit rack. The second I/O card unit rack should be next to the first I/O card unit rack. In the following example, the racks are to the right of the I/O expansion unit rack.

If you have disk unit racks, the first disk unit rack should be next to the I/O expansion rack or the system unit. The second disk unit rack should be next to the first disk unit rack. In the following example, these racks are to the left of the system unit rack.

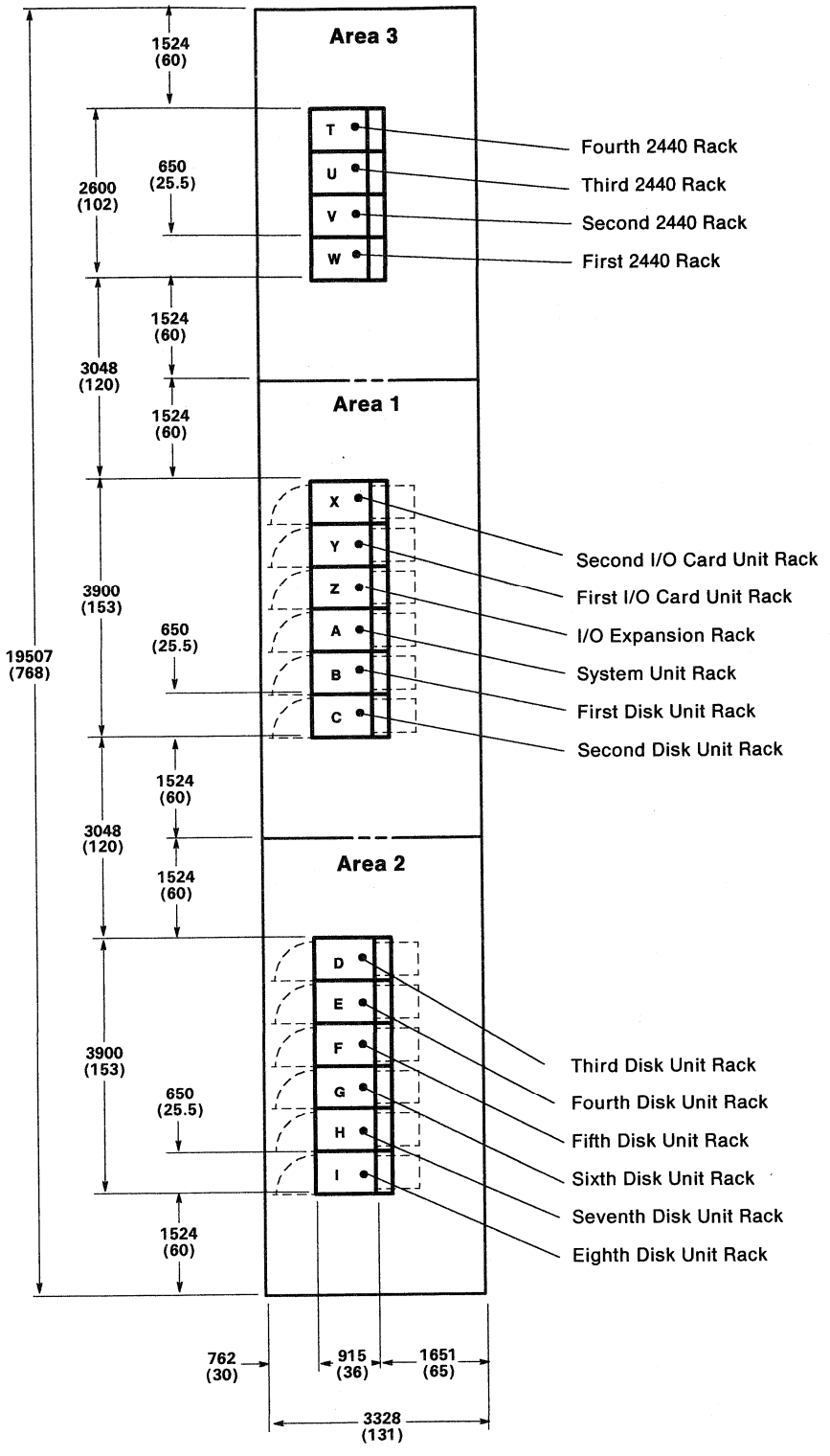


Note: Plan view sizes are shown in millimeters and inches (inches are in parentheses).

RSLC208-4

Optional Floor Plan

If you have a floor rated for 345 kg/m^2 (70 lb/ft^2), the first six racks should be next to each other similar to the order shown in Area 1 in the following diagram. The items listed in Step 1 for the recommended floor plan also apply here, but Areas 1, 2, and 3 have been rearranged. The areas are no longer clumped together in a square; they are side-by-side.



Note: Plan view sizes are shown in millimeters and inches (inches are in parentheses). RSLC207-4

Glossary

address. (1) The location in the storage of a computer where particular data is stored. Also, the numbers that identify such a location. (2) In data communications, the unique code assigned to the location of each device or system connected in a network. (3) The second part of a two-part user identification used to send distributions. See also *user ID/address.*

address switches. Switches on a device that the user sets to represent the address of that device. If possible include an illustration to show how it looks, where it's located, and how to operate it.

allocate. To reserve (lock) a resource for use in performing a specific task. Contrast with *deallocate.*

alphabetic character. Any one of the letters A through Z (uppercase and lowercase) or one of the characters #, $, or @.

alphameric. Pertaining to the letters, A-Z; numbers, 0-9; and special symbols, $, #, @, ., or _. Synonymous with *alphanumeric.*

alphanumeric. Pertaining to the letters, A-Z; numbers, 0-9; and special symbols, $, #, @, ., or _. Synonymous with *alphameric.*

alternative console. A display device assigned by the operating system to function as the console if the console is not working.

alternative line. A second switched line to which a remote controller can be attached if the first communications line is not available.

American National Standard Code for Information Interchange (ASCII). The code developed by American National Standards Institute for information exchange among data processing systems, data communications systems, and associated equipment. The ASCII character set consists of 7-bit control characters and symbolic characters, plus one parity-check bit.

American National Standards Institute (ANSI). An organization sponsored by the Computer and Business Equipment Manufacturers Association for establishing voluntary industry standards.

ANSI. See *American National Standards Institute (ANSI).*

application program. A program used to perform a particular data processing task such as inventory control or payroll.

AS/400 Business Graphics Utility (BGU). The IBM licensed program that can be used to design, plot, display, and print graphics.

AS/400 Office. The IBM licensed program for sending and receiving mail, scheduling appointments on calendars, maintaining directories of names and addresses, working on behalf of groups of users, and getting documents.

AS/400 PC Support. The IBM licensed program that provides system functions to an attached personal computer.

AS/400 Query. The IBM licensed program used to select, format, and analyze information from data files to produce reports and other files.

ASCII. See *American National Standard Code for Information Interchange (ASCII).*

ASP. See *auxiliary storage pool.*

assumed value. A value supplied by the system when no value is specified by the user.

asynchronous. Not occurring in a regular or predictable pattern.

asynchronous processing. A series of operations that are done separately from the job in which they were requested; for example, submitting a batch job from an interactive job at a work station. Contrast with *synchronous processing.*

attribute. A characteristic or property of one or more objects.

aural. Relating to the ear or to the sense of hearing.

authorize. Permit or give authority to.

automatic answer. In data communications, a line type that does not require operator action to receive a call over a switched line. Contrast with *manual answer.*

automatic call. A feature that permits a station to connect with another station over a switched line without operator action. Contrast with *manual call.*

automatic call unit. A common carrier device that allows the AS/400 system to automatically dial a remote location.

automatic configuration. The process of letting the system provide the name and configure the local devices and controllers.

automatic dial. A function of the system that allows a system to automatically dial a remote station over a switched line without operator action.

auxiliary storage pool. A group of disk units defined from the auxiliary storage devices. Abbreviated ASP. See also *system ASP* and *user ASP*.

binary synchronous communications (BSC). A data communications line protocol that uses a standard set of transmission control characters and control character sequences to send binary-coded data over a communications line. Contrast with *synchronous data link control (SDLC)*.

bpi. Bits per inch.

bps. Bits per second.

byte. A group of eight adjacent bits. In the EBCDIC coding system, one byte can represent a character. In the double-byte coding system, two bytes represent a character.

cable-through. A function or feature of a display station that allows multiple work stations to be attached to one cable path.

character. Any letter, number, or other symbol in the data character set that is part of the organization, control, or representation of data.

CL. See *control language (CL)*.

closed user group. One of the packet-switching data network optional user facilities. Users of data terminal equipment that are connected in a group can send and receive information only within that group. Any data terminal equipment can be connected to more than one group. See also *optional user facilities*.

Cluster feature. A feature that provides four cable connections and allows up to four work stations to be attached to a 5251 Model 12 Display Station. See also *Dual Cluster feature*.

CMS. See *conversational monitor system (CMS)*.

COBOL (common business-oriented language). A high-level programming language, based on English, that is used primarily for commercial data processing.

command. A statement used to request a function of the system. A command consists of the command name, which identifies the requested function, and parameters.

common carrier. In data communications, any government-regulated company that provides communications services to the general public. Examples are: the government-regulated telephone and telegraph companies in the United States, the General Post Office in the United Kingdom, the Bundespost in Germany, and Nippon Telephone and Telegraph Public Corporation (NTT) in Japan.

communications line. The physical link (such as a wire or a telephone circuit) that connects one or more work stations to a communications control unit, or connects one control unit to another. Contrast with *data link*.

compiler. A program that translates programming language into machine language for use by the computer.

configuration. The arrangement of devices and programs that make up a data processing system. See also *system configuration*.

configure. To describe the interconnected arrangement of the devices, programs, communications, and optional features installed on a system.

console. A display station from which an operator can control and observe the system operation.

control language (CL). The set of all commands with which a user requests system functions.

control language program. A program that is created from source statements consisting entirely of control language commands.

controller description. An object that contains a description of the characteristics of a controller that is either directly attached to the system or attached to a communications line. The system-recognized identifier for the object type is *CTLD.

conversational monitor system (CMS). An operating system that provides general interactive time sharing, problem solving, and program development capabilities, and operates only under the control of the VM/370 control program.

CTLD. See *controller description*.

data circuit-terminating equipment (DCE). The equipment installed at the user's premises that provides all the functions required to establish, maintain, and end a connection, and the signal conversion and coding between the data terminal equipment and the line. See also *data terminal equipment (DTE)*.

data link. The physical connection (communications lines, modems, controllers, work stations, and other communications equipment), and the rules (protocols) for sending and receiving data between two or more locations in a data network. Contrast with *communications line*.

data stream compatibility (DSC). An LU2 and LU3 data stream composed of EBCDIC controls, optionally intermixed with end-user data, which is carried within a request/response unit.

data terminal equipment (DTE). That part of a data link that sends data, receives data, and provides the data communications control function according to protocols.

DBCS. See *double-byte character set (DBCS)*.

DCE. See *data circuit-terminating equipment (DCE)*.

deallocate. To release a resource that is assigned to a specific task. Contrast with *allocate*.

dedicated service tools (DST). The part of the service function used to service the system when the operating system is not working.

default value. A value supplied by the system that is used when no value is specified by the user, or the value specified by the user with the DFT keyword in DDS. See also *assumed value*.

destination service access point (DSAP). A logical address that allows a system to route data from a remote device to the appropriate communications support.

destination system. A system that can receive messages, documents or objects.

DEVD. See *device description*.

device class. The generic name for a group of device types. For example, all display stations belong to the same device class. Contrast with *device type*.

device description. Information describing a particular device that is attached to the system. The system-recognized identifier for the object type is *DEVD.

device emulation. The programming that allows one device to appear to the user or to a system as another device. See also *5250 emulation* and *3270 device emulation*.

device name. The symbolic name of an individual device.

device type. The generic name for a group of devices. For example, 5219 for IBM 5219 Printers. Contrast with *device class*.

disk. (1) A storage media made of one or more flat, circular sheets with magnetic surfaces on which information can be stored. (2) A direct-access storage medium with magnetically recorded data.

disk drive. A device for moving and controlling the disk.

diskette drive. The device used to rotate the diskette in the jacket, and to read or write the data.

display station. A device that includes a keyboard from which an operator can send information to the system and a display screen on which an operator can see the information sent to or the information received from the system.

display station pass-through. A communications function that allows a user to sign on to one system (either an AS/400 system, System/38, or System/36) from another system (either an AS/400 system, System/38, or System/36) and use that system's programs and data. Sometimes called pass-through.

double-byte character set (DBCS). A set of characters in which each character is represented by 2 bytes. Languages such as Japanese, Chinese, and Korean, which contain more symbols than can be represented by 256 code points, require double-byte character sets. Because each character requires 2 bytes, typing, displaying, and printing DBCS characters requires hardware and supporting programs that are DBCS-capable.

double-byte character set system. A system capable of processing and displaying both single-byte and double-byte characters.

DSC. See *data stream compatibility (DSC)*.

DST. See *dedicated service tools (DST)*.

DTE. See *data terminal equipment (DTE)*.

Dual Cluster feature. A feature that provides eight cable connections and allows the attachment of up to eight work stations to a 5251 Model 12 Display Station. See *Cluster feature*.

duplex. Pertains to communications in which data can be sent and received at the same time. Contrast with *half-duplex*.

enhanced logical link control (ELLC). A communications protocol that allows the transfer of data link control information between two adjacent SNA nodes that are connected through an X.25-based packet-switching data network. This protocol enhances error detection and recovery. Contrast with *physical services header* and *qualified logical link control (QLLC)*.

Enhanced 5250 Emulation. A feature that allows a personal computer and a printer to be attached to an AS/400 system and perform the functions of one or two 5250 work stations on one twinaxial cable. The work station(s) can be one display, two displays, or one display and one printer.

field. A group of related characters (such as name or amount) that are treated as a unit on a record.

file. A generic term for the object type that refers to a data base file, a device file, or a set of related records

treated as a unit. The system-recognized identifier for the object type is *FILE.

function. A procedure that has a RETURNS option in the PROCEDURE statement. A function ends by running a RETURNS (expression) statement and returning a scalar value to the point of call. Contrast with *subroutine*.

function subprogram. A user-written subprogram defined by FORTRAN statements, the first of which is a FUNCTION statement. See also *statement function* and *subroutine*.

generic. Relating to, or characteristic of, a whole group or class.

half-duplex. Pertaining to data communications that can be sent in only one direction at a time. Contrast with *duplex*.

hexadecimal. Pertaining to a numbering system with a base of 16.

IGS. See *interchange group separator (IGS)*.

index. A structure that contains the key value and location of each record in an indexed file.

initial program load (IPL). The process that loads the system programs from the system auxiliary storage, checks the system hardware, and prepares the system for user operations.

intelligent printer data stream (IPDS). An all-points-addressable data stream that allows users to position text, images, and graphics at any defined point on a printed page.

interchange group separator (IGS). A character used to indicate that blanks were removed from a string of data and are to be reinserted.

interface. A shared boundary. An interface might be the hardware to connect two devices or it might be a part of main storage, or registers used by two or more computer programs.

IPDS. See *intelligent printer data stream (IPDS)*.

IPL. See *initial program load (IPL)*.

keyword. A name that identifies a parameter. Keywords are used for parameter names in some CL commands.

keyword functions. The result of processing DDS keywords in a record format specified on an operation. See also *operation*.

licensed program. An IBM-written program that performs functions related to processing user data.

line. The physical path in data transmission.

line command. A function requested for a specific line or lines from the command field area of the line or lines affected. For example, C for Copy or M for Move.

line description. The description of a communications line to the system. The system-recognized identifier is *LIND.

link protocol. The rules for sending and receiving data at the link level.

link protocol converter. A device that changes one type of link-level protocol information to another type of link-level protocol information for processing.

load. (1) To move data or programs into storage. (2) To place a diskette into a diskette unit.

local. Pertaining to a device, system, or file that is connected directly or read directly from your system, without the use of a communications line. Contrast with *remote*.

local address. An address used in a peripheral node in place of a network address and transformed to or from a network address by the boundary function in a subarea node.

local location name. The name by which your system is known to other systems in an SNA network. Equivalent to an SNA local logical unit name. Contrast with *remote location name*.

local work station. A work station that is connected directly to system without need for data transmission facilities. Contrast with *remote work station*.

machine storage pool. A storage pool used by the machine and certain highly shared programs, whose size is specified in the system value QMCHPOOL.

main storage pool. A division of main storage, which allows the user to reserve main storage for processing a job or group of jobs, or to use the pools defined by the system. Contrast with *auxiliary storage pool*.

manual answer. In data communications, a line type that requires operator actions to receive a call over a switched line. Contrast with *automatic answer*.

manual call. In data communications, a line type requiring operator actions to place a call over a switched line. Contrast with *automatic call*.

megabyte. A unit of measure for storage capacity; 1 megabyte = 1 048 576 bytes.

microcode. An instruction or group of instructions located in storage or device controllers that controls the operation of a device or controller. Microcode cannot

be called by the control program or an application program.

modem. A device (modulator-demodulator) that converts data from the computer to a signal that can be sent over a communications line, and converts the communications signal to data for the computer.

modulus. A number, such as a positive integer, in a relationship that divides the difference between two related numbers without leaving a remainder. For example, 9 and 4 have a modulus of 5 (9 - 4 = 5, 4 - 9 = -5, and 5 divides both 5 and -5 without leaving a remainder).

multipoint. In data communications, pertains to a network that allows two or more stations to communicate with a single system on one line.

multipoint line. A line or circuit connecting several stations. Contrast with *point-to-point line.*

nonswitched line. A connection between computers or devices that does not have to be made by dialing. Contrast with *switched line.*

offline. Pertaining to the operation of a functional unit that is not under the continual control of the system. Contrast with *online.*

online. Pertaining to the operation of a functional unit that is under the continual control of the system. Contrast with *offline.*

online information. Information, read on the display screen, that explains displays, messages, and programs.

operating system. A collection of system programs that control the overall operation of a computer system.

operation. The result of processing statements in a high-level language. See also *keyword functions.*

optional user facilities. Facilities defined within the CCITT Recommendation X.25 that a user of a packet-switching data network can request when establishing a virtual circuit. See also *closed user group, reverse charging, throughput class negotiation.*

packet. A data transmission information unit. A group of data and control characters, transferred as a unit, determined by the process of transmission. Commonly used data field lengths in packets are 128 or 256 bytes.

packet-switching data network (PSDN). A communications network that uses packets to send data.

parameter. A value supplied to a command or program that either is used as input or controls the actions of the command or program.

permanent virtual circuit (PVC). The permanent virtual circuit establishes the identity of the called party within the network services contract. There is no need to identify who is being called when.

physical services header. One of three X.25 protocols used by IBM systems network architecture (SNA) data terminal equipment (DTE). Physical services header provides address services for physically connected systems or devices. Contrast with *enhanced logical link control* and *qualified logical link control (QLLC).*

point-to-point [adj]. Pertaining to data transmission between two locations without use of any intermediate terminal or computer.

point-to-point line. A communications line that connects a single remote station to a computer. Contrast with *multipoint line.*

port. (1) System hardware where the I/O devices are attached. (2) An access point (for example, a logical unit) for data entry or exit. (3) A functional unit of a node through which data can enter or leave a data network. (4) In data communication, that part of a data processor that is dedicated to a single data channel for the purpose of receiving data from or transmitting data to one or more external, remote devices.

primary language. The language installed on the system as the default language used to display and print information.

processing. The action of performing operations and calculations on data.

processing unit. The part of the system that performs instructions and contains main storage.

program temporary fix (PTF). A temporary solution to, or bypass of, a defect in a current release of a licensed program.

protocol. A set of rules controlling the communication and transfer of data between two or more devices in a communications system.

PTF. See *program temporary fix.*

PVC. See *permanent virtual circuit (PVC).*

QLLC. See *qualified logical link control (QLLC).*

qualified logical link control (QLLC). A logical link control protocol that allows the transfer of data link control information between two adjacent SNA nodes that are connected through an X.25-based packet-switching data network. Contrast with *enhanced logical link control.*

Query. The shortened name for the IBM AS/400 Query licensed program.

queue. A list of messages, jobs, or files waiting to be read, processed, printed, or distributed in the order they appear in the list.

rack [n]. A free-standing framework that holds the devices and card enclosure.

Recommendation X.25. A document, CCITT Recommendation X.25, that outlines standards for the connection of processing equipment to a packet-switching data network.

record. A collection of related data or words, treated as a unit; such as one name, address, and telephone number.

remote. Pertaining to a device, system, or file that is connected to another device, system, or file through a communications line. Contrast with *local.*

remote device. A device whose controller is connected to an AS/400 system by a communications line.

remote equipment. The modem and controller that provides the communications connection between a communications line and a remote device or system. This remote equipment is at the other end of a data link from the host system.

remote location name. Any other system with which your system can communicate in an SNA network. This corresponds to the remote location name specified in the communications configuration. Contrast with *local location name.*

remote system. Any other system in the network with which your system can communicate.

remote work station. A work station that is connected to the system by data communications. Contrast with *local work station.*

restore. To copy data from tape, diskette, or a save file to auxiliary storage. Contrast with *save.*

reverse charging. A packet-switching data network optional facility, which allows the data terminal equipment (DTE) to request that the cost of a communications session be charged to the DTE that is called. See also *optional user facilities.*

RPG. Report Program Generator. A programming language designed for writing application programs for business data processing requirements.

save. To copy specific objects or libraries by transferring them from main or auxiliary storage to magnetic media such as tape, diskettes, or a save file. Contrast with *restore.*

SDLC. See *synchronous data link control (SDLC).*

secondary language. An additional language that can be installed and used on the system to display and print information.

SNBU. See *Switched Network Backup.*

SQL/400. See *Structured Query Language/400 (SQL/400).*

SSCP ID. A number uniquely identifying a system services control point. The SSCP ID is used in requests sent to physical units and to other system services control points.

statement function. A user-written function that is defined and referred to within the same program. The user-written function is defined in a statement function definition statement. See also *function subprogram* and *subroutine.*

Structured Query Language/400 (SQL/400). An IBM licensed program supporting the relational data base. Used to put information into a data base and to get and organize selected information from a data base.

subroutine. (1) A group of instructions within another group of instructions that can be called by another program or another subroutine. (2) In data communications, a group of statements in a program that can be run several times in that program.

SVC. See *switched virtual circuit (SVC).*

switched line. In data communications, a connection between computers or devices that is established by dialing. Contrast with *nonswitched line.*

Switched Network Backup. A feature of the modem that allows a nonswitched line to be used alternatively as a switched line or allows a switched line to be used as a nonswitched line depending on the characteristics of the modem. Abbreviated SNBU.

switched virtual circuit (SVC). A circuit established to the called party when the calling party requests a connection. Contrast with *permanent virtual circuit (PVC).*

synchronous data link control (SDLC). A form of communications line control that uses commands to control the transfer of data over a communications line.

synchronous processing. A series of operations that are done as part of the job in which they were requested; for example, calling a program in an interactive job at a work station. Contrast with *asynchronous processing.*

system ASP. The auxiliary storage pool where system programs and data reside. It is the storage pool used if a storage pool is not defined by the user. See also *auxiliary storage pool* and *user ASP.*

system configuration. A process that specifies the machines, devices, and programs that form a particular data processing system.

system name. An IBM-supplied name that uniquely identifies the system. It is used as a network attribute for certain communications applications, such as, APPC.

system services control point (SSCP). A focal point within an SNA network for managing the other systems and devices, coordinating network operator requests and problem analysis requests, and providing directory routing and other session services for network users.

system services control point identifier. See *SSCP ID.*

system value. Control information for the operation of certain parts of the system. A user can change the system value to define his working environment. System date and library list are examples of system values.

System/36 environment. A function of the operating system that processes most of the System/36 operator control language (OCL) statements and procedure statements to run System/36 application programs and allows the user to process the control language (CL) commands. Contrast with *System/38 environment.*

System/38 environment. A function of the operating system that processes most of the System/38 control language (CL) statements and programs to run System/38 application programs. Contrast with *System/36 environment.*

tape cartridge. A case containing a reel of magnetic tape that can be put into a tape unit without stringing the tape between reels.

tape drive. A device used to move the tape and read and write information on magnetic tapes.

tape file. A device file created by the user to support a tape device.

tape reel. A round device on which magnetic tape is wound.

tape volume. A single reel of magnetic tape.

throughput class negotiation. A packet-switching data network optional facility. Allows the data terminating equipment to negotiate the speed at which its packets travel through the packet-switching data network. See also *optional user facilities.*

token-ring network. A local area network that sends data in one direction throughout a specified number of locations by using the symbol of authority for control of the transmission line, called a token, to allow any sending station in the network (ring) to send data when the token arrives at that location.

twinaxial cable. A cable made of two twisted wires inside a shield.

unit reference code. A group of numbers displayed on the console or control panel that identifies a failing part.

user ASP. One or more auxiliary storage pools used to isolate journals, journal receivers, and save files from the other system objects stored in the system ASP. See also *auxiliary storage pool* and *system ASP.*

user ID. See *user identification (user ID).*

user ID/address. The two-part network name used in the system distribution directory and in the office applications to uniquely identify a user and send electronic mail.

user identification (user ID). The name used to associate the user profile with a user when a user signs on the system. See also *user profile name.*

user password. A unique string of characters that a system user must enter to identify himself to the system, if the system resources are secured.

user profile. An object with a unique name that contains the user's password, the list of special authorities assigned to a user, and the objects the user owns. It is used by the system to verify the user's authorization to read or use objects, such as files or devices, to run the jobs on the system.

user profile name. The name or code that the system associates with a user when he or she signs on the system. Also known as user ID.

virtual circuits. A logical, rather than a physical connection that is established and controlled by a managing network in a packet-switching communications environment. See also *permanent virtual circuit (PVC)* and *switched virtual circuit (SVC).*

virtual device. A device description that does not have hardware associated with it. It is used to form a connection between a user and a physical work station attached to a remote system. A virtual device can be a virtual display station or a virtual printer. See also *virtual work station controller.*

virtual work station controller. A work station controller description that has the characteristics of a locally attached work station controller but does not exist as hardware. See also *virtual device.*

volume. A storage medium that is put on or taken off the system as a unit, for example, magnetic tape or diskette.

work space. The area that a BASIC program or BASIC procedure occupies when it is loaded.

work station. A device used to transmit information to or receive information from a computer; for example, a display station or printer.

work station address. (1) A number used in a configuration file to identify a work station attached to a computer port. (2) The address to which the switches on a work station are set, or the internal address assumed by the system, if no address is specified.

work station controller. An I/O controller card in the card enclosure that provides the direct connection of local work stations to the system.

writer. The part of the operating system spooling support that writes spooled output to an output device independently of the program that produced the output.

writing [n]. The action of making a permanent or temporary recording of data in a storage device or on a data medium.

X.21. In data communications, a specification of the CCITT that defines the connection of data terminal equipment to an X.21 (public data) network.

X.25. In data communications, a specification of the CCITT that defines the interface to an X.25 (packet-switching) network.

256-byte format. A format for diskette 2D diskettes with 256 bytes per sector and 26 sectors per track.

3180 display station. Display station that uses the 5250 data stream.

3270 device emulation. The operating system support that allows an AS/400 system to appear as a 3274 Control Unit in a BSC multipoint network or SNA/SDLC network. See also *3270 display emulation* and *3270 printer emulation.*

3270 display emulation. The function of the operating system 3270 device emulation that converts 3270 DSC data streams intended for a 3278 display station into data streams that can be recognized by a display station attached to the AS/400 system.

3270 display station. Any display station from the IBM 3270 Information Display System.

3270 printer emulation. The part of 3270 device emulation that converts 3270, DSC, and SCS data streams intended for a 328X printer into data streams that can be recognized by a printer attached to the AS/400 system.

5250 display station. Any display station from the IBM 5250 Information Display System or the 5290 Display System; or the 3180 display station. A 3270 display station is not a 5250 display station.

5250 emulation. Any one of many licensed programs that allows a personal computer to perform like a 5250 display station, and use the functions of an AS/400 system.

5290 display station. Any display station from the 5290 Display System.

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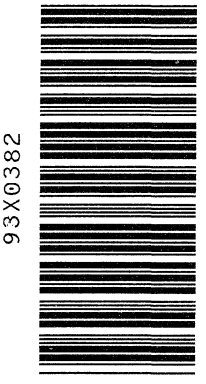

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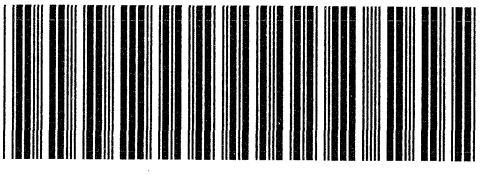

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