Publication Number
GC31-2524-2

IBM Cabling System Installation Planning

Introduction for 4700 and 3600 Systems

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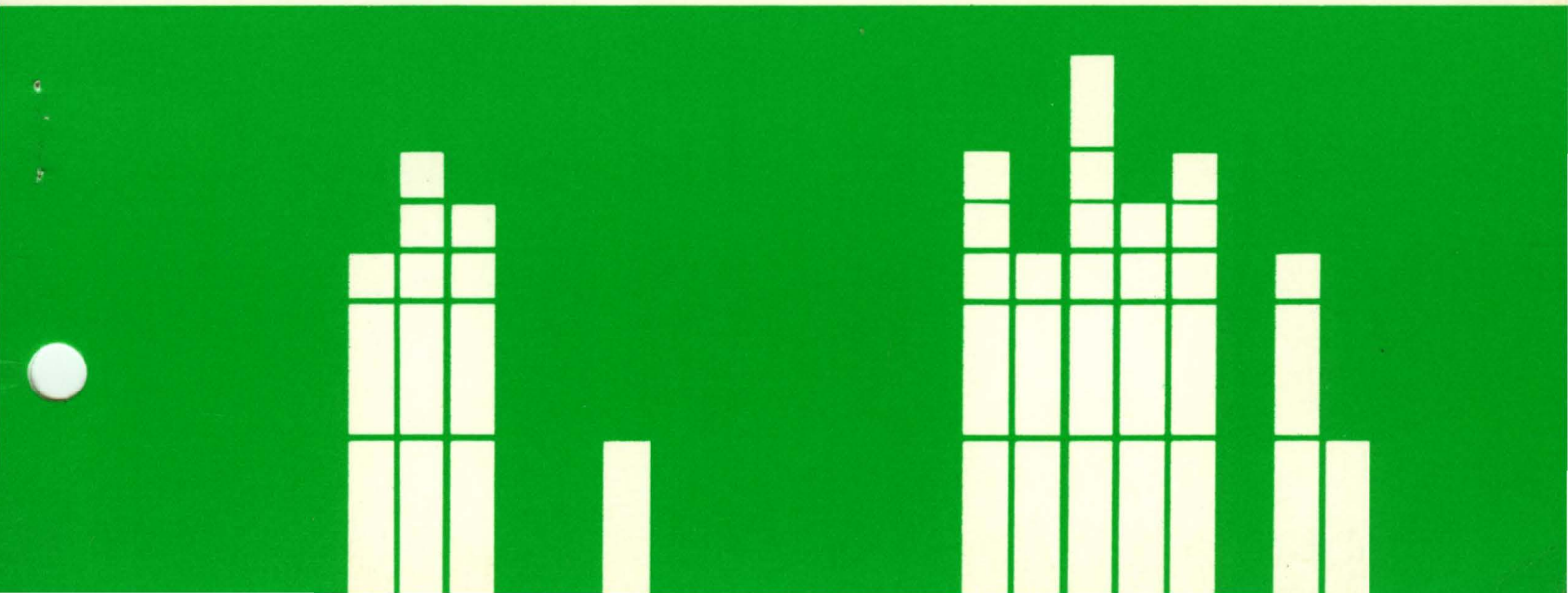

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This FCC statement applies to all of the devices in the 4700 and 3600 systems used in the United States.

Third Edition (June 1984)

This edition is for planning purposes only.

Specifications contained in this publication are subject to changes, which will be reported in subsequent revisions or Technical Newsletters. Before using this publication in connection with the operation of IBM systems, consult *IBM System/370 Bibliography of Industry Systems and Application Programs,* GC20-0370, for the editions that are applicable and current.

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Preface

Publication Purpose

This publication has information to help you understand the attachment of 4700 and 3600 devices to the receptacles of the IBM Cabling System. This information is for executives and/or staffs of financial institutions who:

- Have an IBM 4700 or 3600 Finance Communication System and are considering the installation of a cabling system
- Are familiar with the IBM 4700 or 3600 system and the cabling system, and interested in additional information on how the two interact.

This publication provides references and:

- The necessary concepts to understand how your 4700 or 3600 system interacts with the cabling system
- The necessary detail to attach your 4700 or 3600 system to the cabling system
- The necessary information and references to determine and order the cabling system accessories that you need for your 4700 or 3600 attachment.

To use this manual you should understand the uses, purposes, and concepts of the 4700 or 3600 Finance Communication System as described in the prerequisite publications listed in this preface. You should also be familiar with the *IBM Cabling System Planning and Installation Guide - Cables and Accessories*, GA27-3361.

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1 The IBM Cabling System is a common wiring/cabling structure used as a communication network.

Publication Prerequisites

To effectively use and understand this publication, you must be familiar with the appropriate manuals listed here:

- *IBM 4700 Finance Communication System: System Summary,* GC31-2016. This publication also has a list of other publications that you may eventually need.
- *IBM 3600 Finance Communication System: System Summary,* GC27-0001. This publication also has a list of other publications that you may eventually need.
- *IBM 4700 Finance Communication System: Installation Planning,* GC31-2018.
- *IBM 3600 Finance Communication System: Installation Planning,* GA27-2766.
- *IBM Cabling System Planning and Installation Guide - Cables and Accessories*, GA27-3361.

You should also be familiar with:

- *Building Planning Guide For Communication Wiring,* G320-8059.

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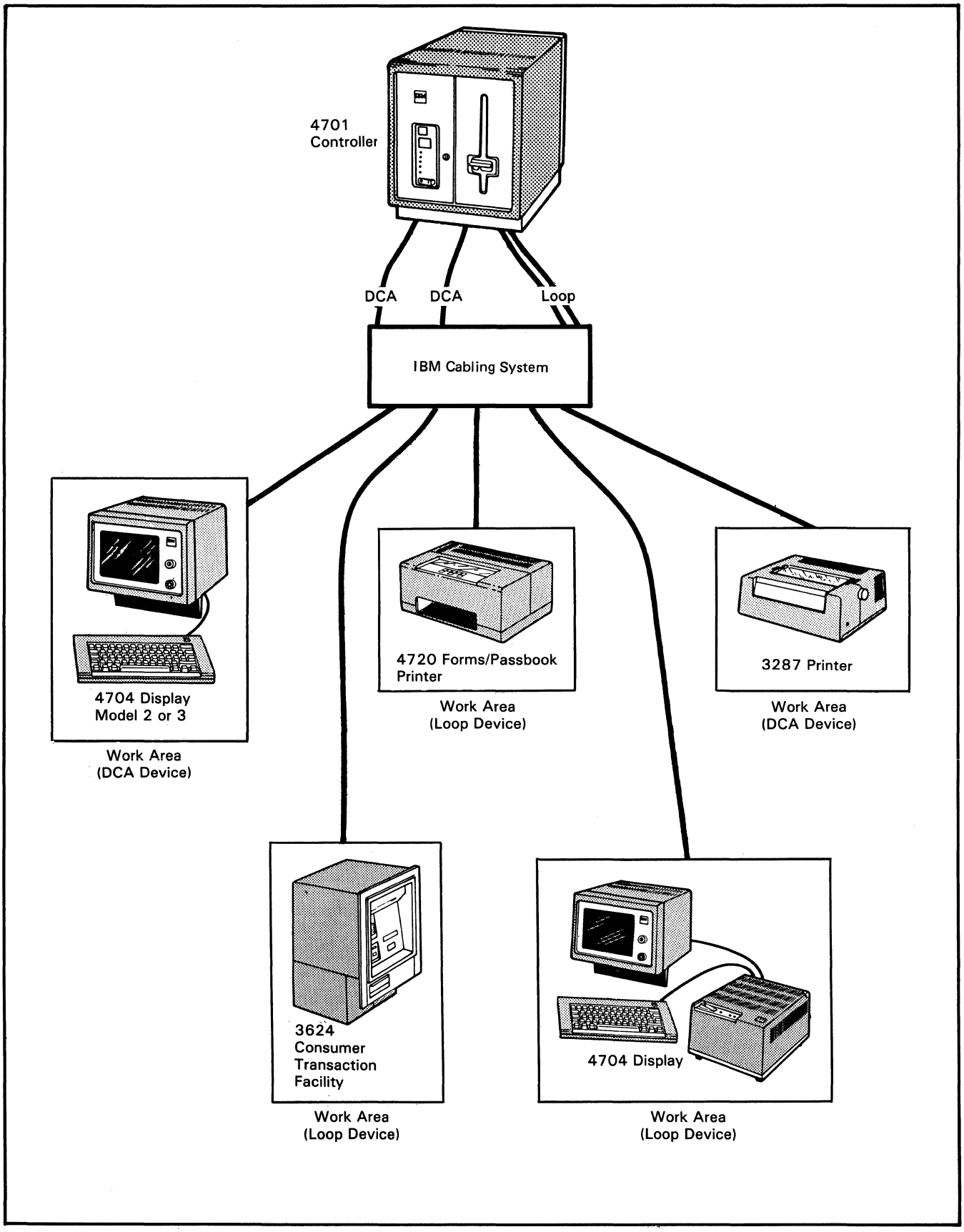

Figure 1-1. A 4700 or 3600 System Configuration with the Cabling System

Chapter 1. The 4700 or 3600 System and the Cabling System

The IBM Cabling System consists of cables, receptacles, accessories, and a distribution panel for interconnecting various IBM products. The *IBM Cabling System Planning and Installation Guide,* GA31-3361, describes the IBM Cabling System in detail and lists the various IBM products that can be attached to it. The IBM Cabling System includes accessories you need to connect finance communication loop[1] and DCA devices to the IBM Cabling System.

This chapter contains:

- A general description of the cabling system accessories used with your 4700 or 3600 systems
- Some general planning information
- Pointers to the *IBM Cabling System Planning and Installation Guide* where you need additional information.

The remaining chapters help you when using the *IBM Cabling System Planning and Installation Guide* for loop and DCA device attachment.

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1 The term *loop*, when used in this publication, refers to the finance communication loop used by the 4700 and 3600 systems.

A Summary of Cabling System Accessories

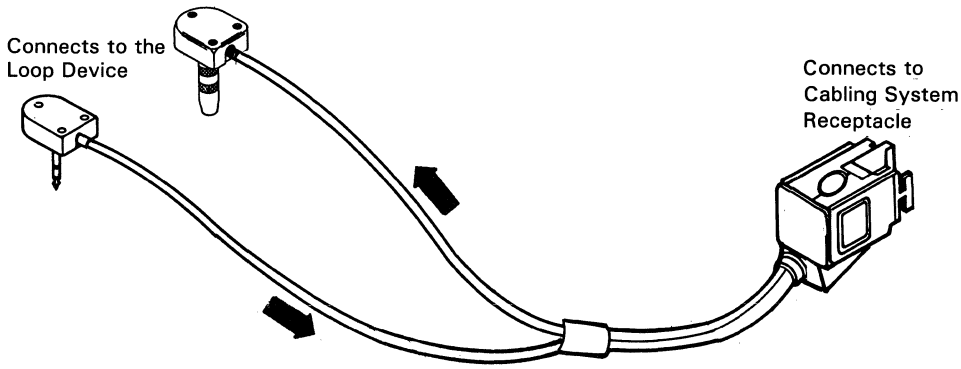
The cabling system accessories used with your 4700 or 3600 systems are:

- Plug and Jack "Y" assembly
- Cabling system "Y" assembly
- Red Balun Assembly
- Patch cable.

This section describes the accessories listed above and their general use. The following chapters describe application-related information for these accessories.

Plug and Jack "Y" Assembly

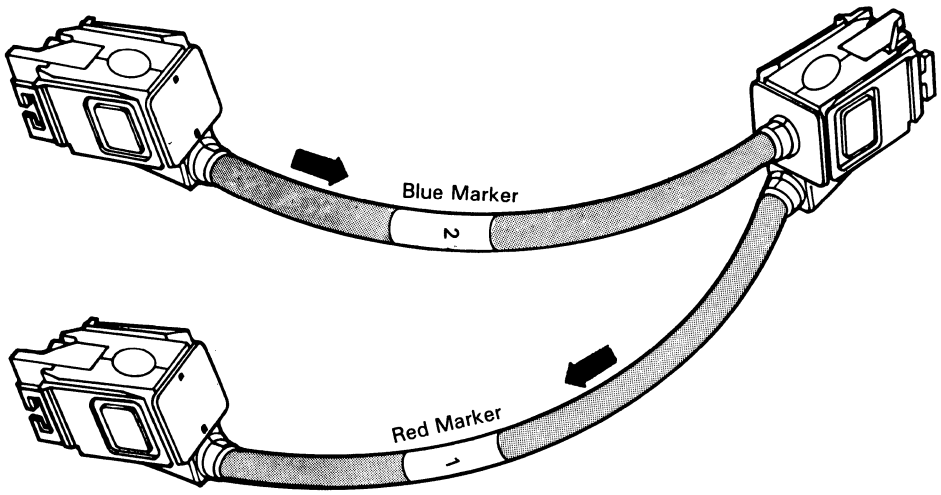
Part Number 8310552



This assembly connects loop devices to the cabling system receptacle. This assembly has the same plug and jack receptacles as the loop terminal ports described in your 4700 or 3600 installation planning manual.

Cabling System "Y" Assembly

Part Number 8642549

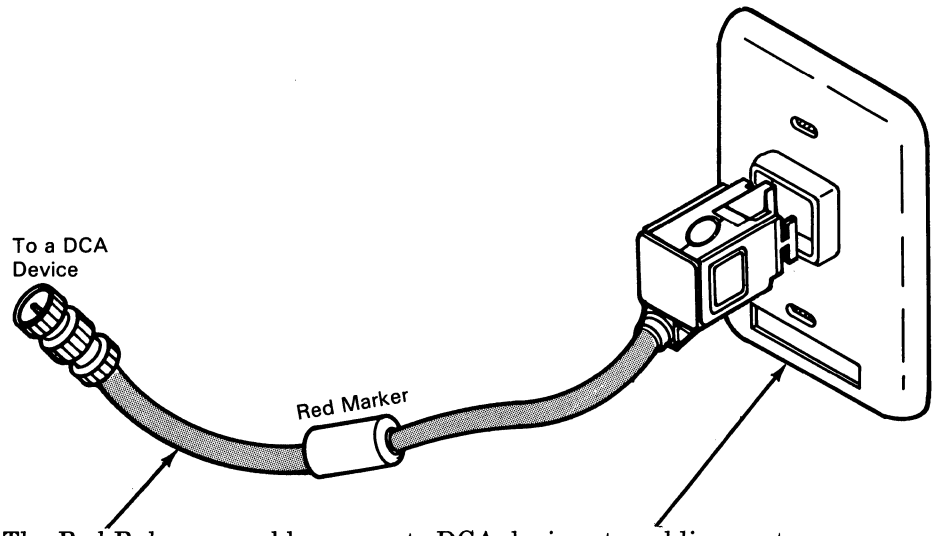


This assembly (when used on the distribution panel) completes the loop.

This assembly is color-coded to help you connect it in a specific arrangement on the distribution panel. The *IBM Cabling System Planning and Installation Guide* contains details for using this assembly.

Red Balun Assembly

Part Number 8642546

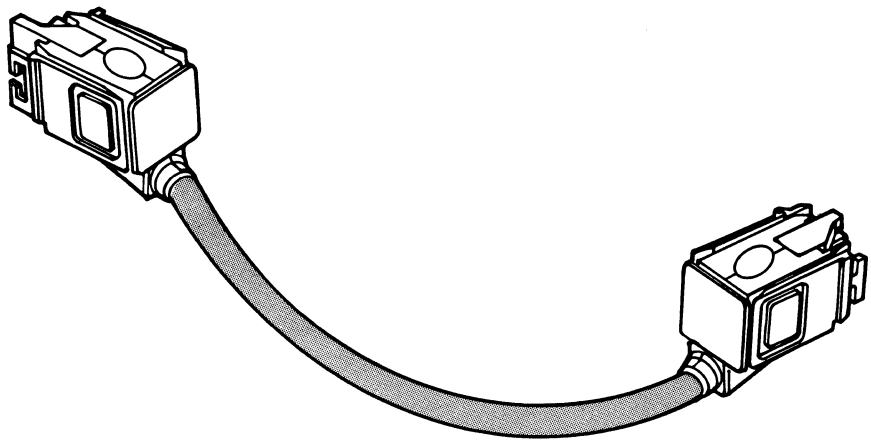


The Red Balun assembly connects DCA devices to cabling system receptacles.

The balun assemblies also connect points on your distribution panel to points on your coaxial patch panel. Details for using the balun assemblies at the distribution and coaxial patch panels are in your *IBM Cabling System Planning and Installation Guide.*

Patch Cable

Part Number 8642551



This patch cable has several uses:

- You can use it like an extension cord to connect cabling system receptacles to cabling system accessories.
- You can use it to connect points on the distribution panel.

For using it on the distribution panel, see your *IBM Cabling System Planning and Installation Guide* for correct length, other uses, and details.

General Planning

You should work on cabling system needs for one site at a time.

Note: Ensure that you have one cabling system receptacle in the area of your controller for attaching each loop and DCA adapter port.

To properly document your cabling system cable drops and connections for a site, you should use the cable record-keeping system outlined in your *IBM Cabling System Planning and Installation Guide.* These records, particularly the Cable Location Chart and System Configuration Chart, become very helpful when you attach devices to the controller.

Two forms that help you to order the cabling system accessories are the:

- Attaching Products Worksheet
- Order Summary Worksheet.

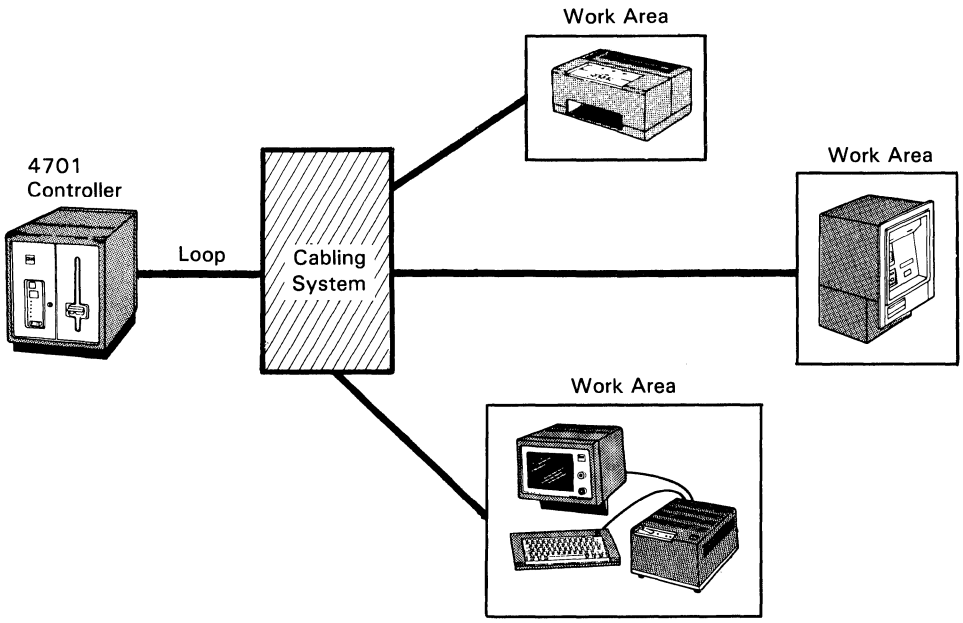
For ordering details, see your *IBM Cabling System Planning and Installation Guide.*

Chapter 2. Using the Cabling System for Loop Applications

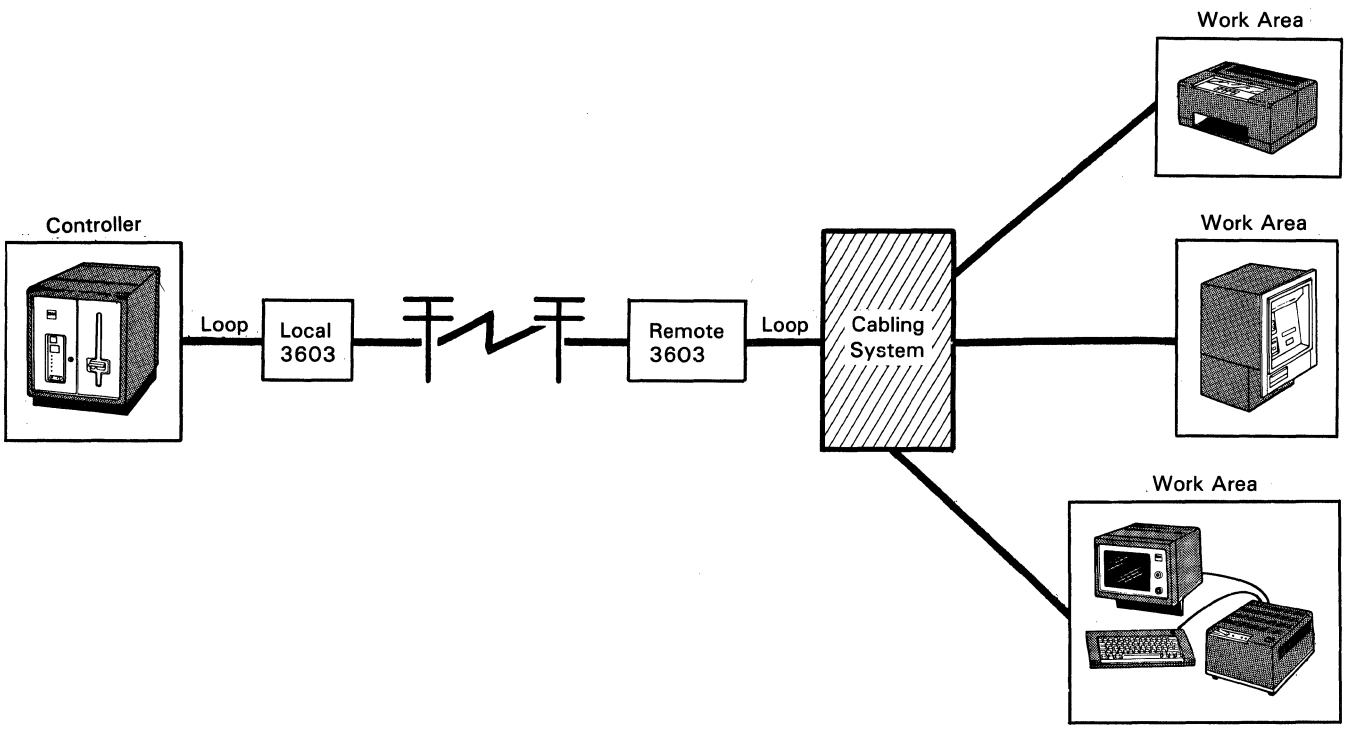
This chapter helps you understand how to use the cabling system for loop applications on finance communication systems. It illustrates how to attach individual devices and devices arranged in a small loop to cabling system receptacles. Some of the diagrams in this chapter contain cable keys and symbols (defined in the legend) to help illustrate and describe loop attachment to the cabling system receptacles.

The two types of loops are: (1) local loops and (2) remote loops.

- Local loops start and finish at the local site, attaching directly to the controller (using the appropriate cabling system accessories). The following diagram illustrates the attachment of a local loop to the cabling system.

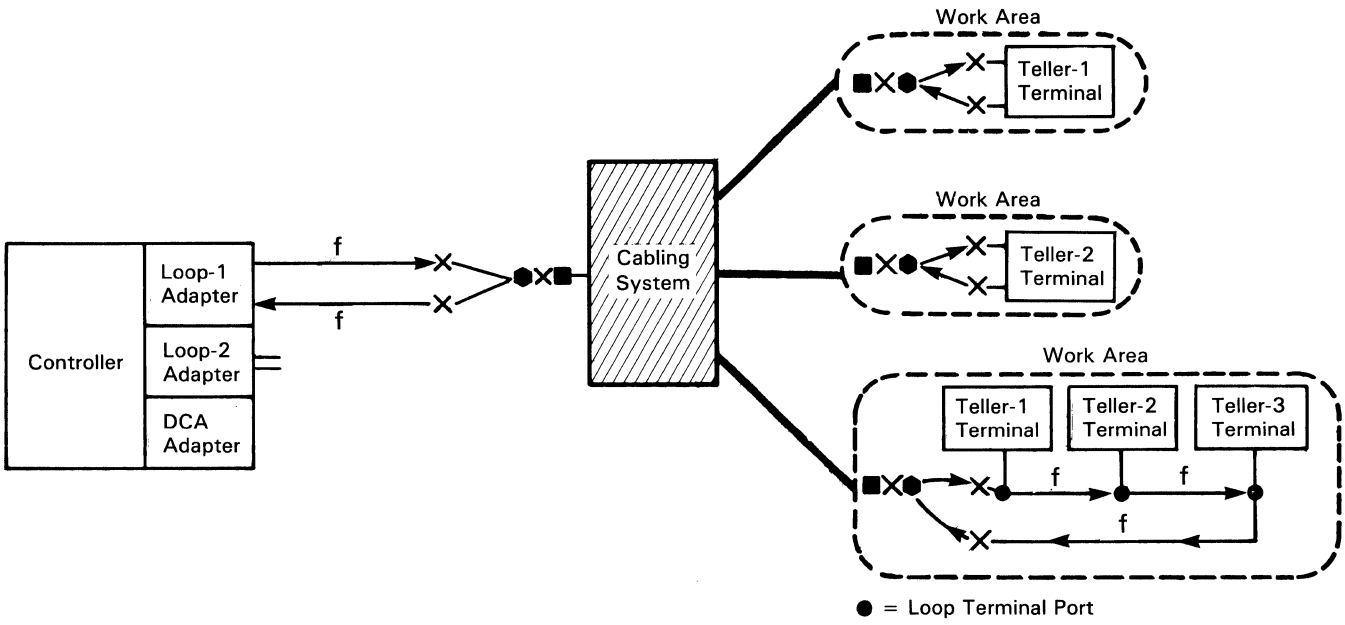


- Remote loops connect to the controller using a common carrier line and two 3603 Terminal Attachment Units (one is local and the other is at another site). The following diagram illustrates the attachment of a remote loop to the cabling system.



Local Loop Attachment

This section helps you to understand how to attach the controller loop-adapter ports, individual devices, and small loops to the cabling system receptacles as illustrated in Figure 2-1.



Legend:

f	= Two-conductor loop cable
■	= Cabling system receptacle
⬢	= Plug and Jack "Y" Assembly (Part Number 8310552)
X	= Connection Point

Figure 2-1. Attaching a Local Loop to the Cabling System

Attaching Individual Loop Devices to a Cabling System Receptacle

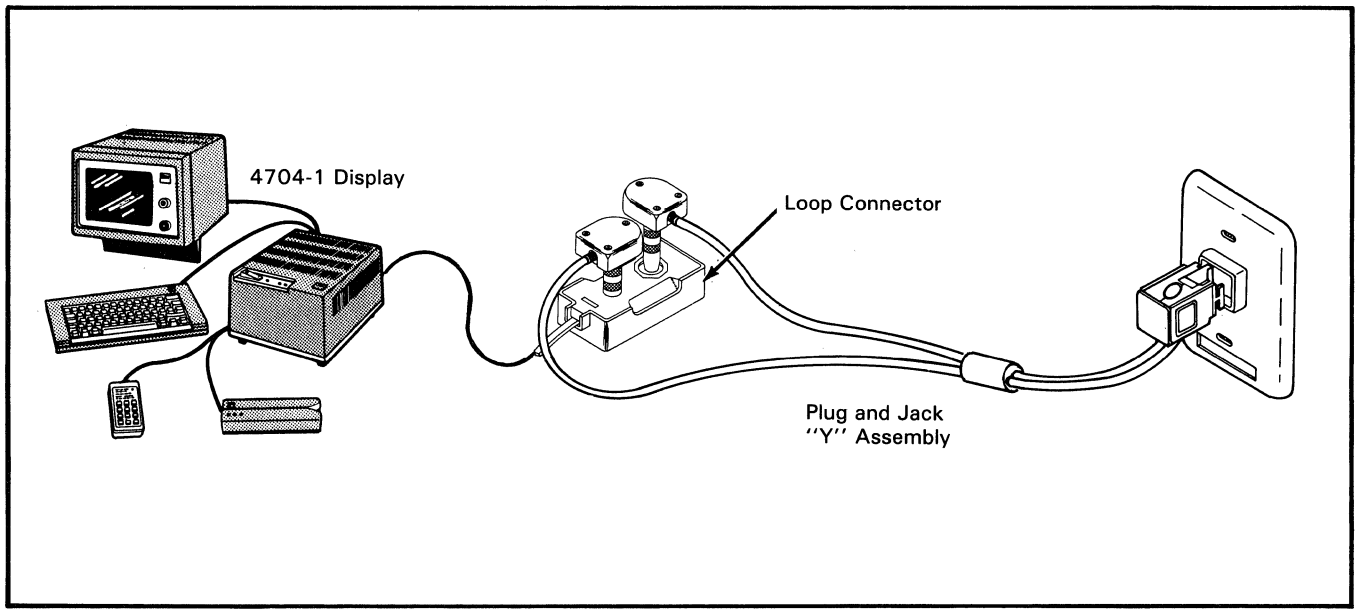


Figure 2-2. Example of Attaching a Device to a Cabling System Receptacle

1. You need one Plug and Jack "Y" assembly.
2. Connect the Plug and Jack "Y" assembly to the loop connector.
3. Connect the other end of the Plug and Jack "Y" assembly to the cabling system receptacle.

   Note: You can use a patch cable (shown in Chapter 1) as an extension between the cabling system receptacle and the Plug and Jack "Y" assembly.

Attaching Small Loops to a Cabling System Receptacle

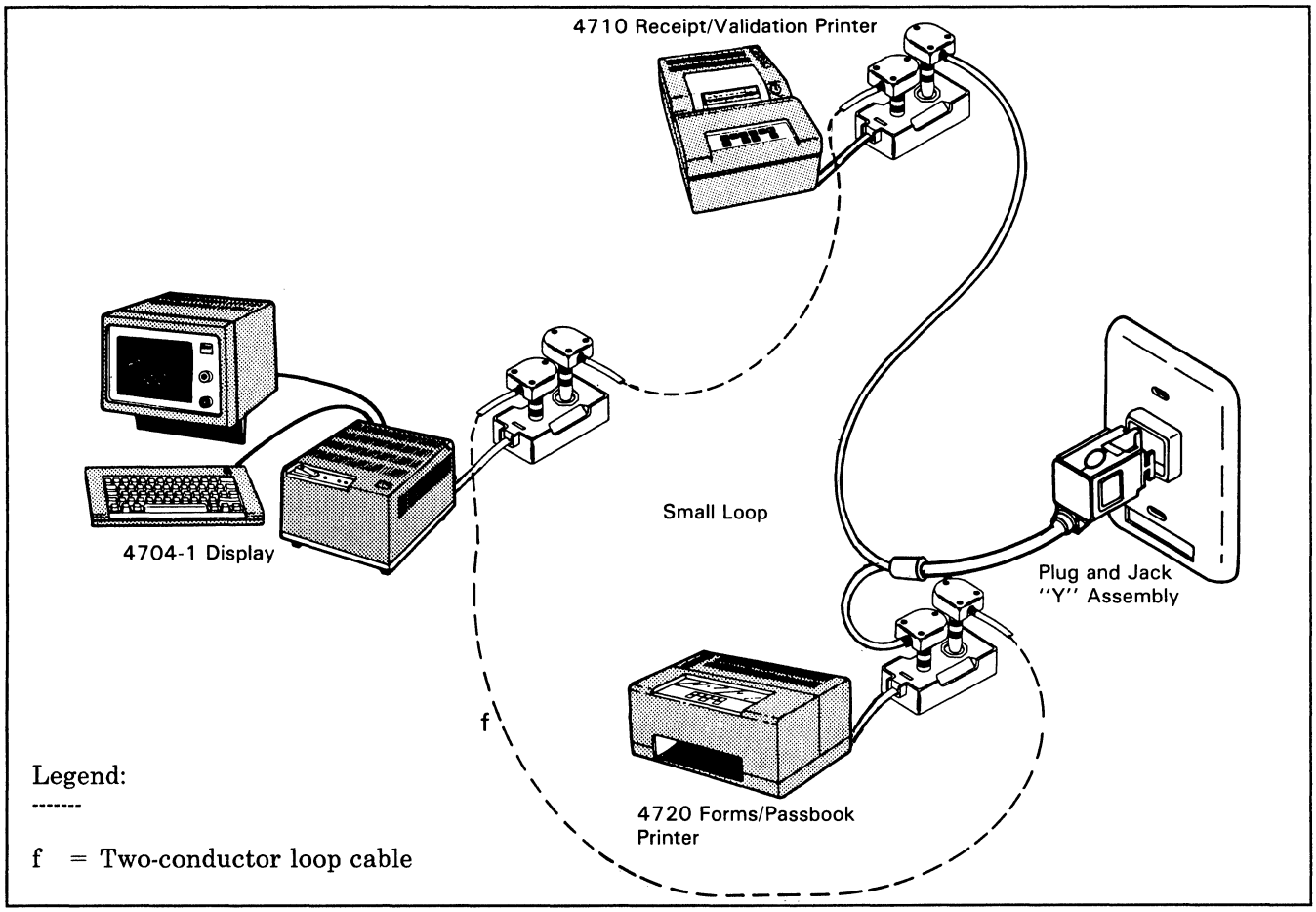


Figure 2-3. Example of Attaching a Small Loop to a Cabling System Receptacle

1. Obtain loop cable (with plugs and jacks attached).
2. Use the loop cable to connect your devices as shown in Figure 2-3.
3. Attach the small loop to the cabling system receptacle using a Plug and Jack "Y" assembly.

   Note: You can use a patch cable (shown in Chapter 1) as an extension between the cabling system receptacle and the Plug and Jack "Y" assembly.

Detailed information for building loops is in your 4700 or 3600 installation planning manual. Figure 2-3 shows only one method of building a small loop.

Considerations Before and During Attachment

1. You must identify the route for each loop. To do this, you need the work-area and distribution-panel location numbers for each cabling system receptacle to which you will connect a device, small loop, or controller.

   - The location numbers (indicated above) are on your Cable Schedule and Cable Location Chart.

   - Compare your local-loop configuration plan with the local loop shown in Figure 2-1 on page 2-3. This figure shows examples of attaching individual devices and small loops to the cabling system.

2. You must ensure that the total cable length for each loop does not exceed 610 m (2000 ft) unless you use a loop repeater (your 4700 and 3600 installation planning manuals describe the loop repeater). Apply the following formula:

Total Cable Length	=	Cable length of all cabling system accessories used	+	Loop cable lengths (If any)	+	Cabling system cable length (between receptacles and distribution panel(s))

Note: When calculating the cable lengths associated with the cabling system accessories and cable, multiply your lengths by two. Each cable has four conductors; one set to send the signal, the other set to receive the signal.

3. You need one cabling system Plug and Jack "Y" assembly for each cabling system receptacle.

   You need one cabling system "Y" assembly for each cabling system receptacle. Use the cabling system "Y" assembly at the distribution panel to connect the devices and/or small loops to the controller. Details for using this "Y" assembly on the distribution panel are in your *IBM Cabling System Planning and Installation Guide.*

Indicate the number of accessories you need for each site on the Attaching Products Worksheet. For details about ordering cabling system accessories, see your *IBM Cabling System Planning and Installation Guide.* To document and order other loop-cable needs (cables identified by cable keys "i" or "f"), use the procedures outlined in your 4700 or 3600 installation planning manuals.

Remote Loop Attachment

This section helps you to understand how to attach a remote loop to the cabling system receptacles as symbolically illustrated in Figure 2-4.

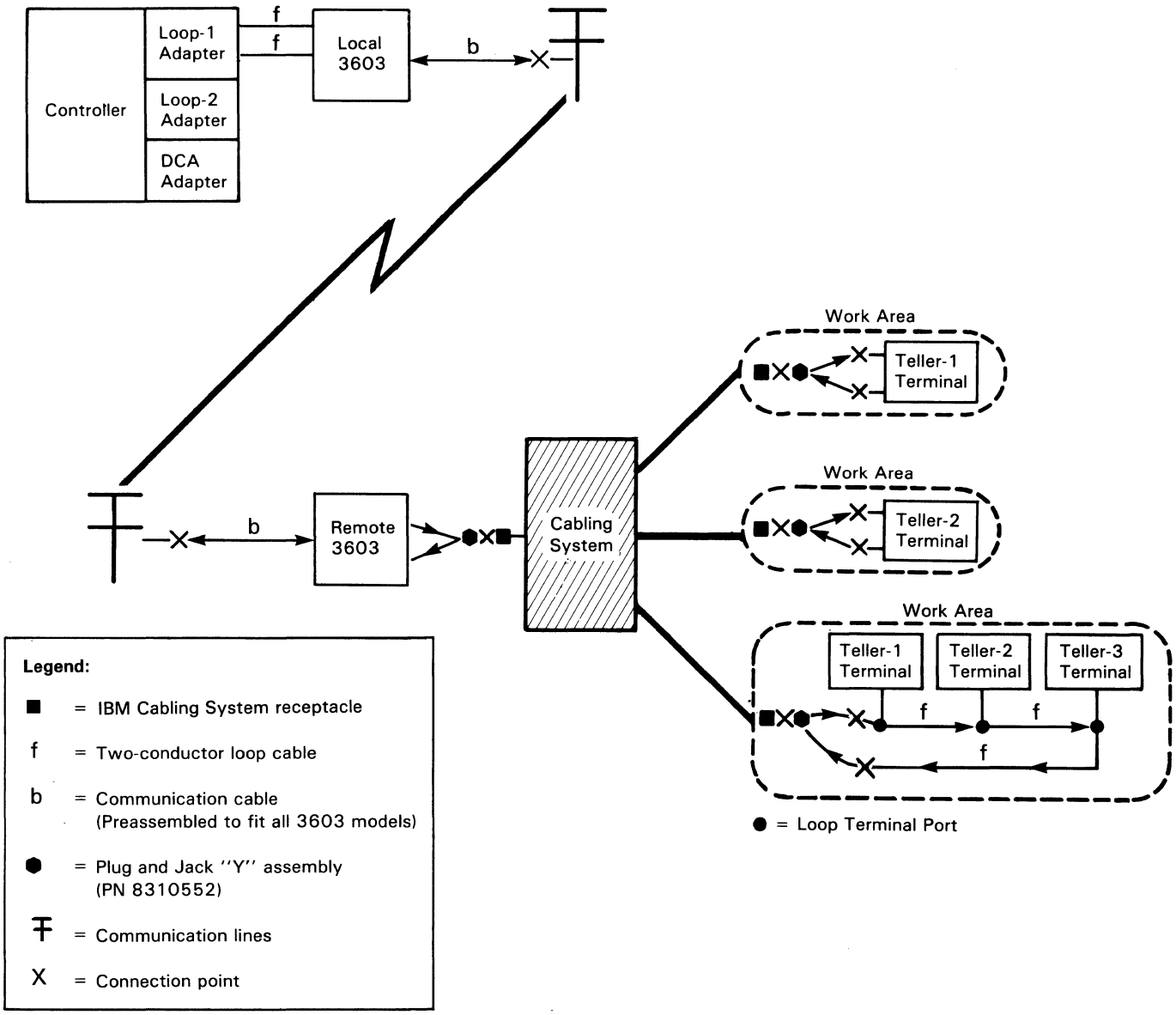


Figure 2-4. Attaching a Remote Loop to the Cabling System

Attaching a 3603 to a Cabling System Receptacle

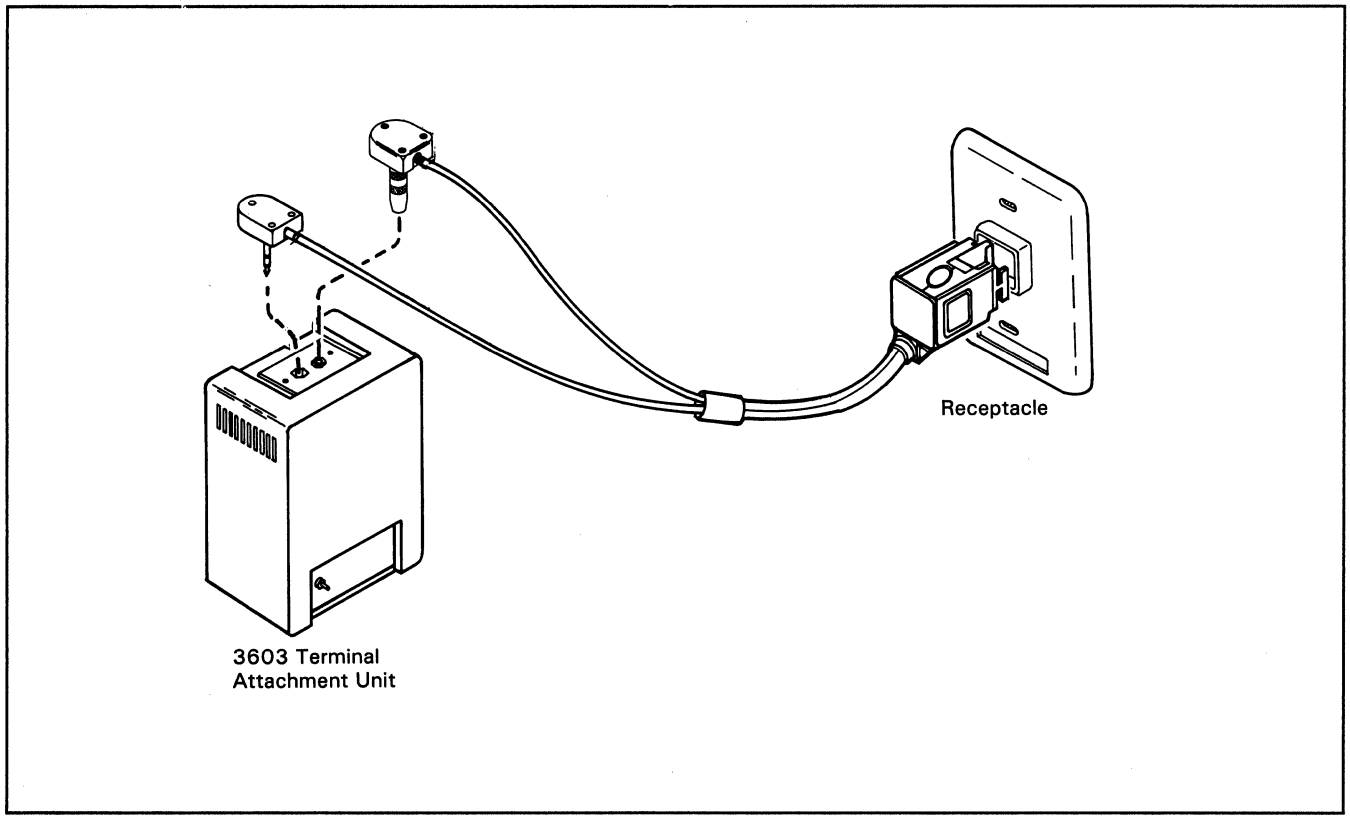


Figure 2-5. Example of Attaching a 3603 to a Cabling System Receptacle

1. You need one Plug and Jack "Y" assembly.
2. Connect the Plug and Jack "Y" assembly to the 3603.
3. Connect the other end of the Plug and Jack "Y" assembly to the cabling system receptacle.

   Note: You can use a patch cable (shown in Chapter 1) as an extension between the cabling system receptacle and the Plug and Jack "Y" assembly.

4. Connect the 3603 to a communication line.

Note: For small loop and individual device attachment to the cabling system, see the descriptions under "Local Loop Attachment" on page 2-3.

Considerations Before and During Attachment

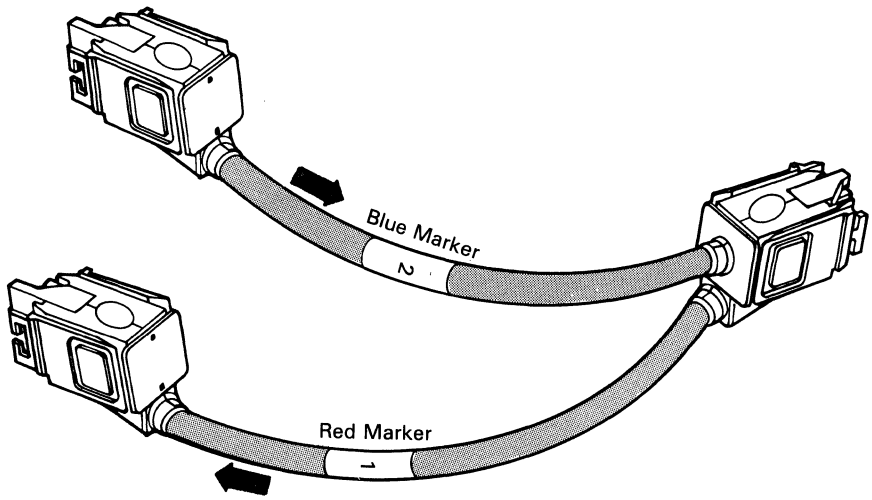
1. "Considerations Before and During Attachment" on page 2-6 also applies to remote loops.

2. You attach remote-loop devices in the same way that you attach local-loop devices. The only difference is the 3603 Terminal Attachment Unit. The remote-loop devices communicate with the controller through the local and remote 3603s.

3. For details on attaching the 3603s (local and remote) to the common carrier line, see your 4700 or 3600 installation planning manual.

Using the Distribution Panel to Complete a Loop

- Use the distribution panel and the cabling system "Y" assembly to tie together your controller, 3603s (if any), devices, and small loops.



Note: Remember, the cabling system "Y" assembly is color-coded. Pay close attention to how you connect these assemblies.

- Identify the distribution-panel positions of the cabling system receptacles that you use. Your Cable Location Chart contains this information.

- Your *IBM Cabling System Planning and Installation Guide* has the detail for using the distribution panel. For loop information, look for "Finance Communication System Loop Applications."

Chapter 3. Using the Cabling System for Device Cluster Adapter Applications

This chapter helps you to understand how to use the cabling system for Device Cluster Adapter (DCA) applications. This chapter provides two methods for attaching DCA devices to the controller and cabling system receptacles. Your *IBM Cabling System Planning and Installation Guide* describes additional methods and other attachment details. To use this information you should have at least a basic understanding of the cabling system and coaxial cable uses.

Note: Because of important cable-length restrictions, you must pay close attention to the cable lengths for DCA applications. Details for cabling system and the cabling system/coaxial cable-combination limitations are in the *IBM Cabling System Planning and Installation Guide.*

Connecting DCA Devices to the Cabling System (Method 1)

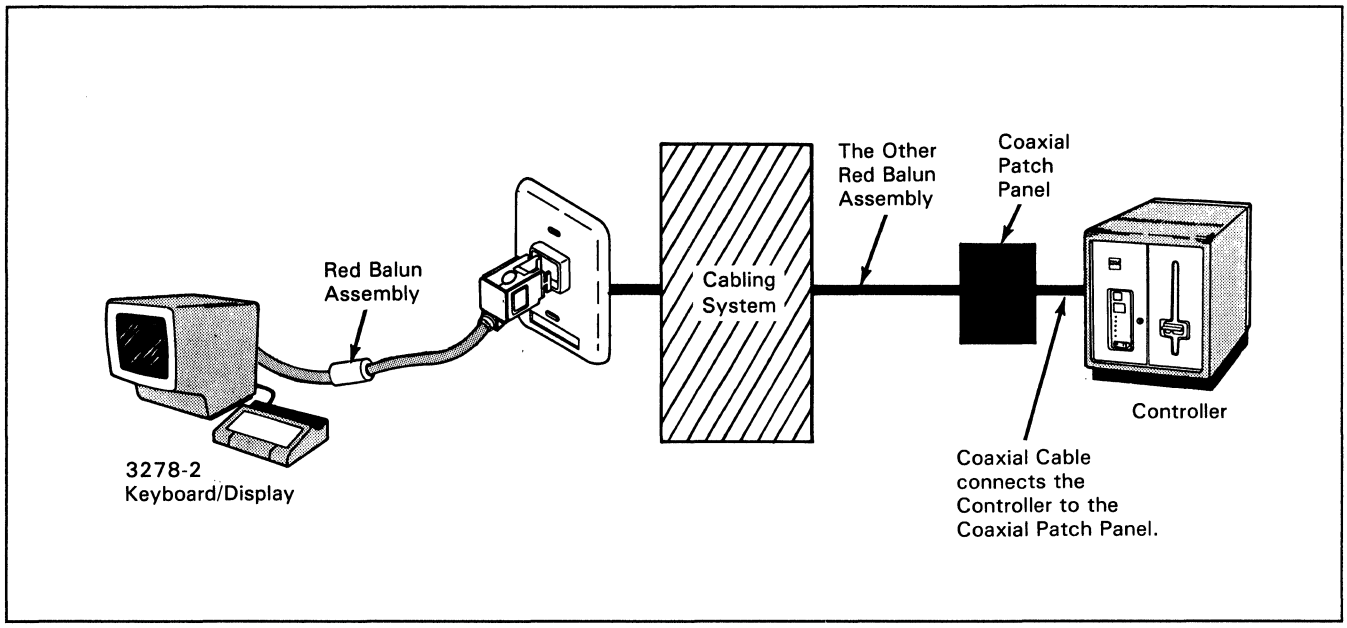
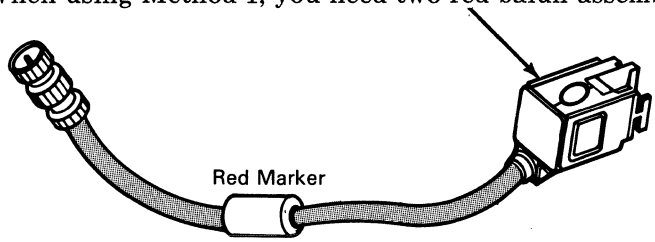


Figure 3-1. Connecting a DCA Device Using Cabling System (Method 1)

When using Method 1, you need two red balun assemblies (per DCA device).



- Use one balun assembly to connect your device to a cabling system receptacle.
- Use the other balun assembly to connect between the distribution panel and the coaxial patch panel. For details about this connection, see your *IBM Cabling System Planning and Installation Guide.*

Connecting DCA Devices to the Cabling System (Method 2)

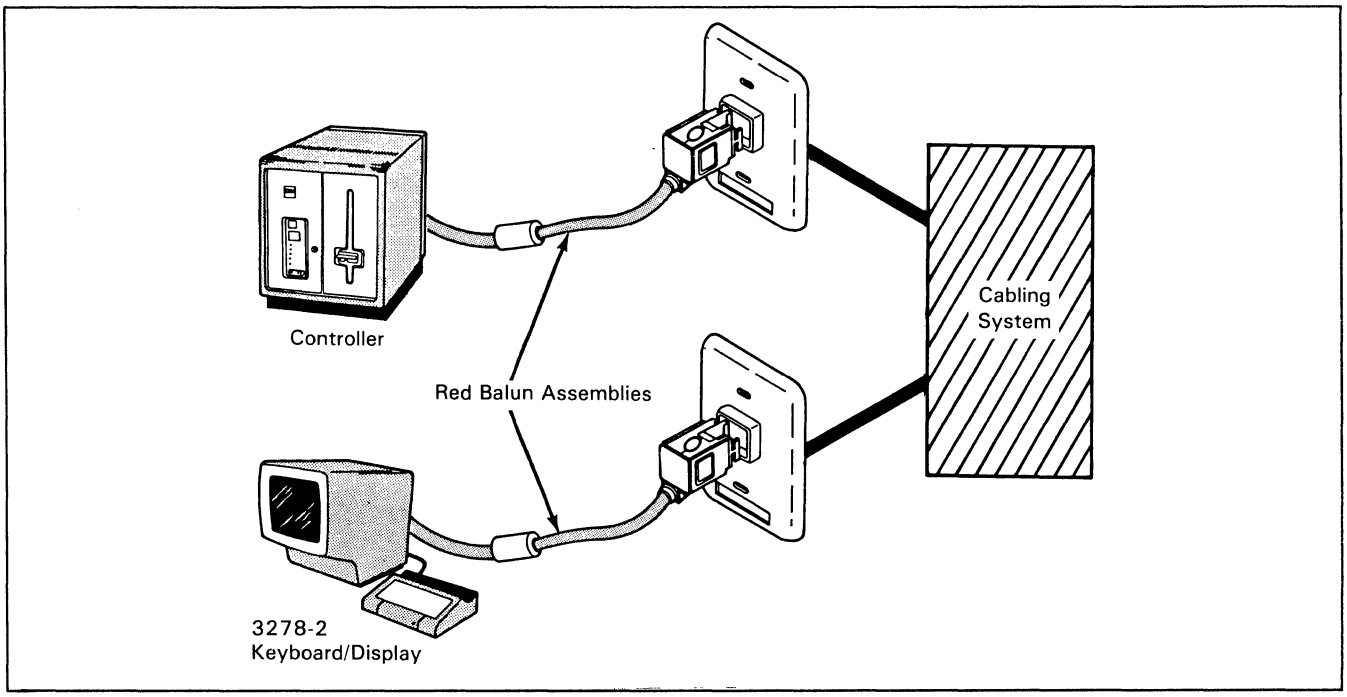
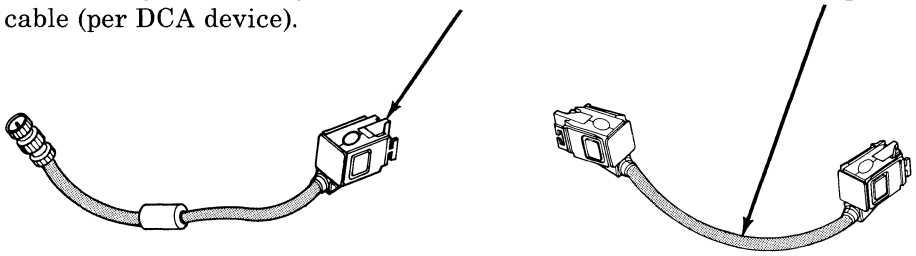


Figure 3-2. Connecting DCA Using Cabling System (Method 2)

When using Method 2, you need two red balun assemblies and one patch cable (per DCA device).



- Use one balun assembly to connect your device to the cabling system receptacle.
- Use the other balun assembly to connect your controller DCA port to the cabling system receptacle.
- Use the patch cable at the distribution panel to connect the two cabling system receptacles (to which the controller and the DCA device are attached). For details about this connection, see your *IBM Cabling System Planning and Installation Guide.*

Using the Distribution Panel for DCA Applications

Use the distribution panel and the specified patch cable and/or balun assembly to connect your devices to the controller. Both attachment methods outlined for DCA device attachment have unique considerations. Your *IBM Cabling System Planning and Installation Guide* has the details for using the distribution panel and coaxial patch panel. For DCA information, look for "Coaxial Cable Applications."

You will also find additional information about attaching DCA devices in your *IBM Cabling System Planning and Installation Guide.*

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