GORDON KAPES | INC.

System 920i
PFT for ISDN PRI

Master Reference Guide

Covering Installation, Configuration,
and Operation Topics

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Foreword
A Welcome from Gordon Kapes

I'm proud to welcome you to the latest product from Gordon Kapes, Inc. The System 920i is the culmination of everything I've learned about power failure transfer over the past 15 or so years. I'm confident that as you become accustomed to the System 920i, you'll share my enthusiasm for the power and versatility that it contains. I take a personal interest in every product we make, and I feel that this one is truly outstanding.

I give much credit to those people who contributed to making the System 920i a reality. The software was written by Larry Leviton. Circuit boards were designed by Al Lux. Mechanical design was by Fred Roeck. Testing was handled by Joe Urbanczyk. The documentation was written by Bill Beaman. Tim Sammons provided additional documentation and graphics. Hardware was designed by Tom Dawson and Mitch Budniak. Engineering support and personal publishing were performed by Carrie Loving. I did the overall product design and kept adding features until my presence was definitely not welcome!

Field performance is the only accurate measurement of just how good a product really is. To that end I welcome your comments, suggestions, or questions. Please call me at 847|676-1750, send a fax to 847|982-0747, or E-mail gkapes@gkinc.com.

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Chapter One
Understanding the System 920i

Addressing the need for increased communications flexibility and bandwidth, Integrated Services Digital Network, Primary Rate Interface (ISDN PRI) transmission technology is now used by business and industry on a widespread scale. Capable of handling a variety of channel configurations including the transmission of 23 voice conversations over two twisted pairs of telephone cable, ISDN PRI helps companies enhance communication efficiency, improve reliability, and lower costs.

As organizations become more and more dependent upon ISDN PRI-based equipment, the need to implement a flexible, robust, and cost-effective backup system becomes more and more important. Gordon Kapes, Inc. believes the System 920i PFT for ISDN PRI is such a system.

The System 920i PFT for ISDN PRI

The System 920i, a completely self-contained backup phone system, extends the concept of power-failure transfer (PFT) to ISDN PRI circuits. The System 920i goes to work automatically when normal operation of ISDN-terminated customer-premise equipment is inhibited due to a power failure, software problem, or hardware malfunction.

When such a failure occurs, the System 920i immediately takes control of the PRI circuit. Personnel at the site are then able to receive inbound calls and place outbound calls without interruption.

A single-cabinet, wall-mounted unit, the System 920i is connected between the customer-premise equipment (CPE DS1) and the DS1 network. It combines the capabilities of a channel bank with integrated channel service unit (CSU), an automatic call distributor (ACD), a 2-channel recorder/announcer, and a 24-port “micro” PBX.

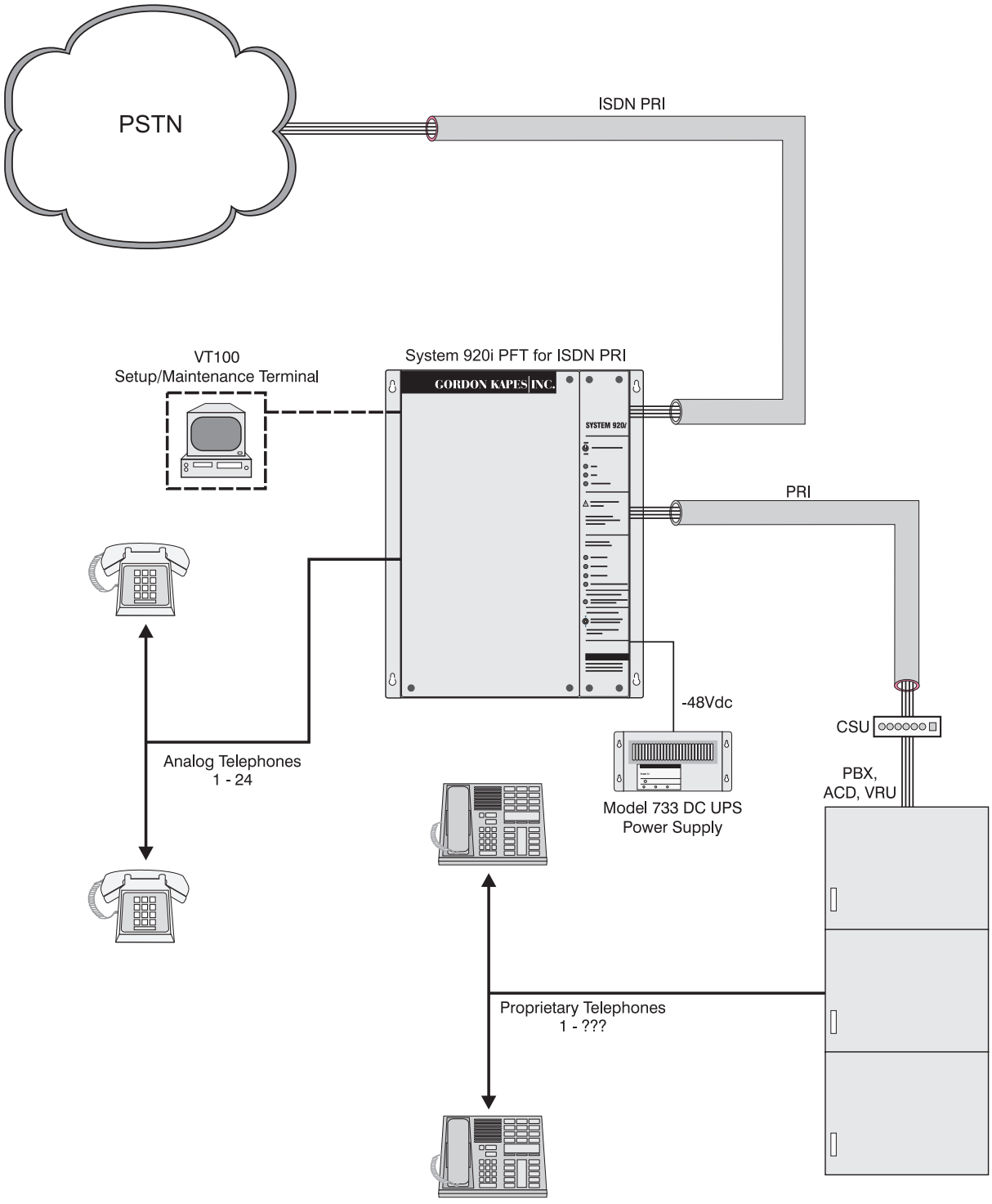


Figure 1-1. System 920i Installed in a Typical PBX-System Site

Call Configurations

The System 920i provides communication for all 23 bearer channels supplied by a DS1 network circuit. Dynamically assigned and automatically configured for signaling emulation based upon the requirements of each call, these channels support any combination of inbound and outbound calls.

When the System 920i seizes the DS1 network, it employs a match-number table to direct each incoming call to:

- One of 24 possible ACD functions, where the call can be routed to either a traditional group of ACD analog telephones or to an individual analog telephone.
- One of 24 possible outside telephone numbers, with or without an intermediate voice message, which directs the call to an alternate site
- One of two possible voice messages, which provides the calling party with prerecorded information
- A standard reorder progress tone, which indicates to the calling party that equipment normally used at the site is down

On-site personnel can use the analog telephones, which meet the technical specifications for off-premise-station (OPS) extensions, to make outgoing calls when the System 920i has seized the DS1 network. You can authorize each OPS extension for outbound access. From an authorized extension, a caller can access a DS1 network channel by dialing either of two possible outbound-access numbers.

You can configure the OPS extensions to be fully functional at all times. This enables you to use them as a backup or supplementary internal phone system on a day-to-day basis—whether the DS1 network has been seized or not.

System 920i Resources and Hardware

The list of telephone backup resources provided by the System 920i is comprehensive. The following summarizes these resources.

OPS Cards Enable Voice Communications

The OPS cards enable on-premise or remotely-located analog touch-tone telephones to serve as System 920i extensions. These extensions facilitate voice communications through the DS1 network after the System 920i has seized it, and they can permit internal communications on an everyday basis. As shown in Figure 1-2, the System 920i uses as many as three OPS cards, with each card containing eight OPS ports. This means you can install and use as many as 24 OPS extensions with a single System 920i.

ACD Functions Enable Automatic Call Distribution

Twenty-four ACD functions are provided by the System 920i. To organize and expedite incoming calls during a backup period, you can route specific inbound calls to any ACD function. Calls routed to an ACD function connect only with those OPS extensions assigned to the function.

If a ringing OPS extension is unattended, another member of the ACD group can answer the call by dialing the ACD call pickup digit.

If all extensions assigned to the ACD function are busy, incoming calls are placed in queue where callers either hear a recorded message or an audible-ring progress tone until an extension becomes free. If the queue is full, callers hear either a recorded message or a busy progress tone.

Number Matching Enables Dialed Number Identification

You can configure as many as 48 specific numbers or number ranges designed to identify the telephone number the outside caller dialed. When the called number makes a match, the System 920i routes the call, as configured, to an ACD function, a redirect function, a message, or a reorder tone.

OPS Extensions Provide Switch-Hook Flash & Other Features

The System 920i enables you to use switch-hook flash capabilities with OPS extensions. This provides a call-transfer feature that enhances these extensions for everyday use, if desired, and extends the usefulness of the ACD functions.

Standard progress tones are used with OPS extensions, and an alert tone is used to warn calling parties when the system is about to reconnect CPE DS1 with the DS1 network. You can configure a 3-, 4-, or 5-digit dialing plan for OPS extensions.

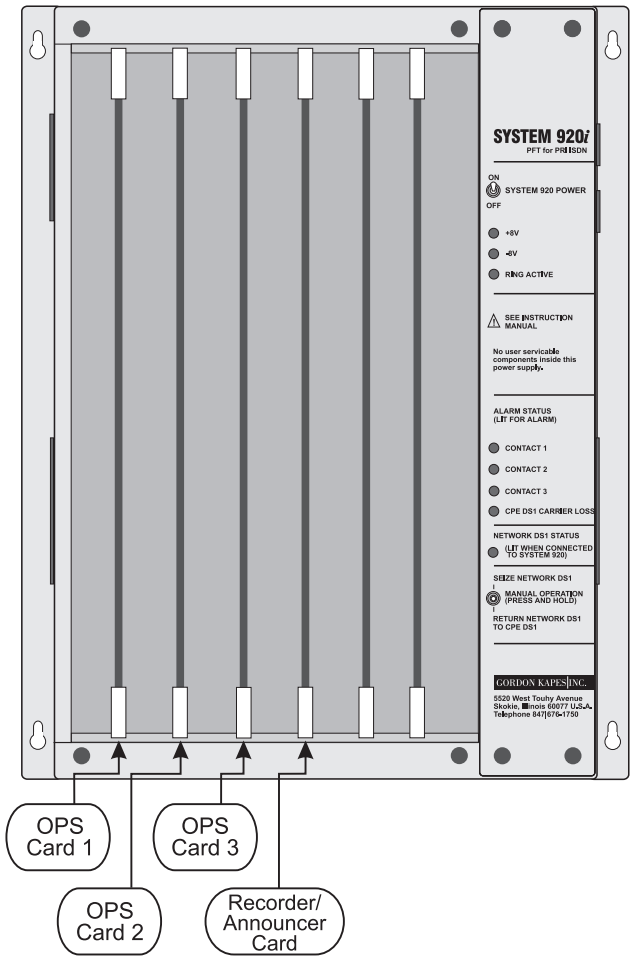


Figure 1-2. System 920i Showing OPS Card 1, OPS Card 2, OPS Card 3, and Recorder/Announcer Card

Redirect Functions Enable Off-SiteTransfer

If you want to redirect incoming calls to an off-site location during a backup period, you can do so. Simply use match numbers to route the desired calls to any of 24 possible redirect functions. Each redirect function contains the telephone number for an off-site location. An incoming call whose number is matched is automatically transferred to the new telephone number. If you wish, you can configure the System 920i to play one of the recorded messages before transferring the call.

Recorder/Announcer Card Stores Recorded Messages

The Recorder/Announcer card, shown in Figure 1-2, enables you to record two separate voice messages. Each message, which you record using one of the OPS extensions, can be as long as twenty seconds. You can route incoming calls to either message, or you can set either message to be played before a call is redirected to another site. Messages can also be played when a call is placed in an ACD queue or overflow. Messages are played twice at a minimum.

Relay Contact Outputs Signal External Devices

Two relay contacts are provided by the System 920i. These change state whenever the System 920i seizes the DS1 network. One relay, which is normally open, closes when the network is seized; the other, normally closed, opens. Once the System 920i reconnects CPE DS1 to the DS1 network, the relay contacts return to their normal states. You can use these relay contacts to signal an external monitoring device when the network has been seized. For example, you can use the relay contacts to signal the Model 125 Site Monitor from Gordon Kapes, Inc.

Additional Cards Supply Operating Capabilities

Shown in Figure 1-3, the DS1 Interface card interfaces the DS1 circuit from the network with the System 920i. No external CSU is needed when the System 920i seizes the DS1 network since this card contains one built-in. (This CSU serves only the System 920i and is not provided for use by the CPE-DS1 site.)

The CPU card contains a powerful 32-bit microprocessor and logic circuitry used for operating the System 920i. Also on this card is ROM memory used for storing program code, and battery-backed RAM memory for storing configuration parameters set using the menu system (described later in this chapter).

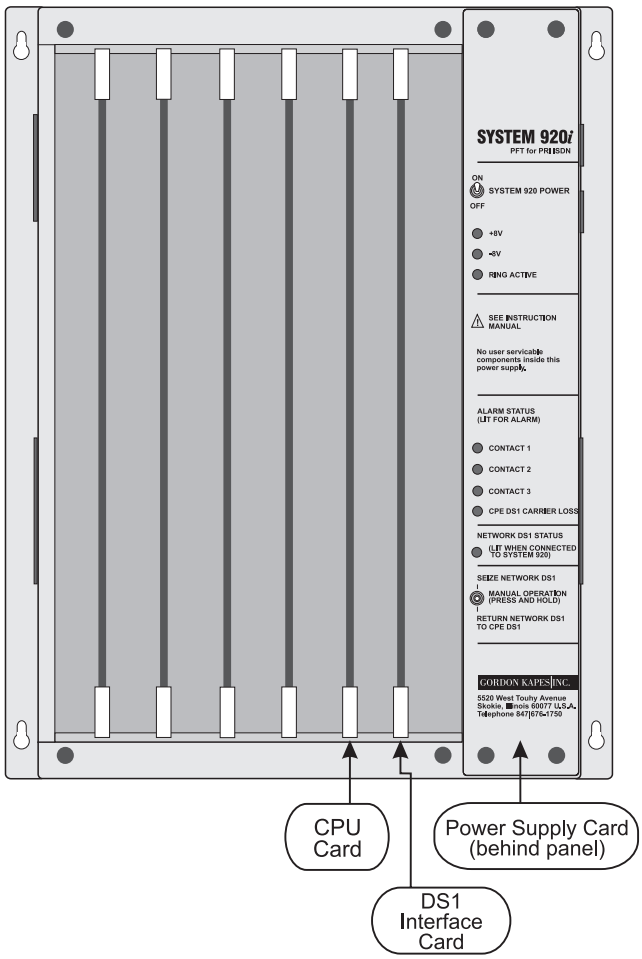
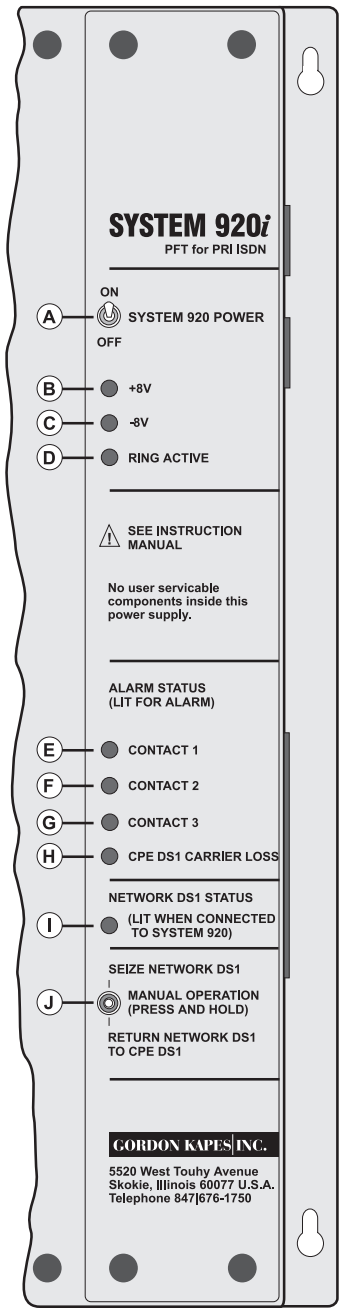


Figure 1-3. System 920i Showing CPU Card, DS1 Interface Card, and Power Supply Card

Finally, the Power Supply card generates operating voltages and provides the user controls and status LEDs. These include the Manual Operation toggle switch, which enables you to manually seize the DS1 network. (Refer to Figure 1-4 for more details about the status LED panel.)



A System 920i Power switch

Controls entry of –48V to the system. Move switch to the On or Off position. Since the system cannot function without power, the switch should be left in the On position during normal operating conditions.

B +8V

When lit, indicates +8V is being generated by the Power Supply card and sent to other System 920i cards. This LED should always be lit when power to the System 920i is applied and the power switch is in the On position.

C –8V

When lit, indicates –8V is being generated by the Power Supply card and sent to other System 920i cards. This LED should always be lit when power to the System 920i is applied and the power switch is in the ON position.

D Ring Active

Flutters when active. This indicates ringing current is being generated by the Power Supply card upon request of one of the OPS cards. LED should flutter only when ringing current is being generated. Continuous fluttering indicates a problem such as an OPS extension accidently left off-hook and ringing another extension.

E Contact 1

When lit, indicates contact-input-monitoring 1 function is enabled and in the alarm state.

F Contact 2

When lit, indicates contact-input-monitoring 2 function is enabled and in the alarm state.

G Contact 3

When lit, indicates contact-input-monitoring 3 function is enabled and in the alarm state.

H CPE DS1 Carrier Loss

When lit, indicates CPE-DS1 monitoring function is enabled and in the alarm state.

I DS1 Network Status

When lit, is either lit steadily or flashes on and off. When lit steadily, indicates System 920i has seized the DS1 network and is synchronized with it. When flashing on and off, indicates System 920i has seized the DS1 network but is *not* synchronized with it.

When not lit, indicates the System 920i has not seized the DS1 network.

J Manual Operation switch

Press and hold up to seize the DS1 network. Press and hold down to reconnect DS1 network to CPE DS1.

Figure 1-4. System 920i Status LED Panel

System 920i Connections

P1 and P2 are illustrated in Figure 1-5. These plugs, located on the left and right panels of the System 920i enclosure, enable you to connect the OPS extensions, the three contact inputs, and a –48Vdc uninterruptible power source to the System 920i. They also enable you to connect the two relay contacts to external devices.

J1, located on the left panel of the System 920i, enables you to connect a terminal or personal computer to the System 920i for the purpose of configuring, testing, and maintaining the unit. The terminal or personal computer, which does not have to be permanently installed, must be VT100 compatible.

J2 enables you to connect the DS1 network circuit to the System 920i. J3 enables you to connect CPE-DS1 equipment to the System 920i.

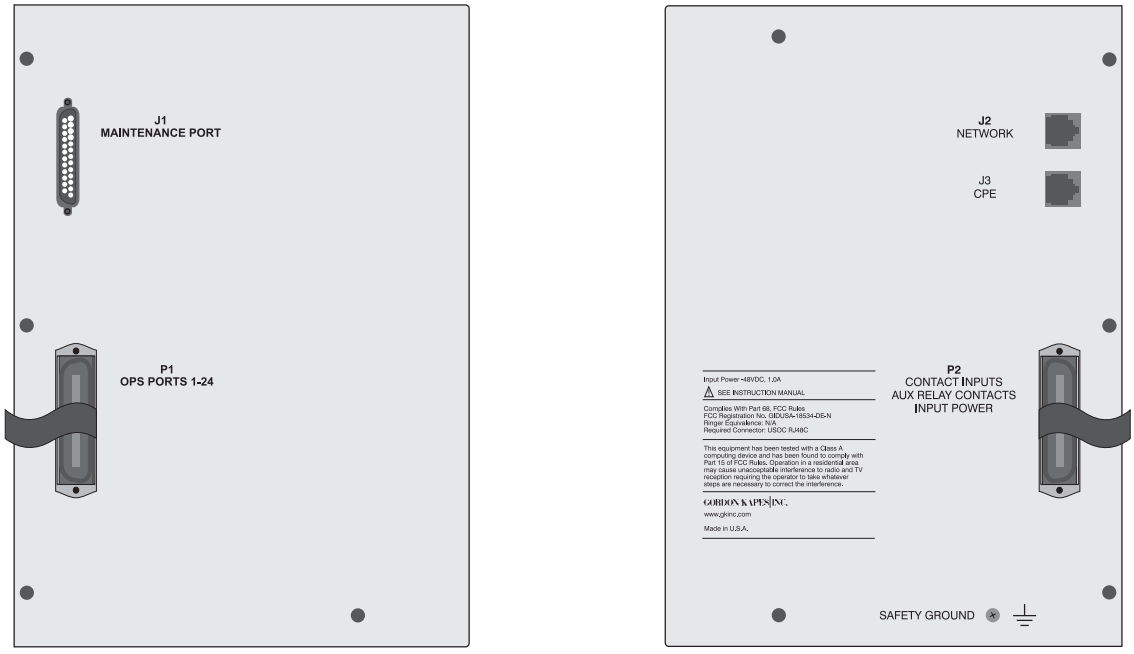


Figure 1-5. Left and Right Panels of System 920i Showing Connection Points

System 920i Monitoring Functions

Four monitoring functions are built into the System 920i. These are the CPE-DS1-carrier-monitoring function and the three contact-input-monitoring functions. These functions, which are implemented and configured by the site administrator, activate alarms that trigger the System 920i to seize the DS1 network.

CPE-DS1 Carrier Monitoring

A circuit in the System 920i monitors the carrier signal coming from the CPE-DS1 equipment. When the circuit detects total loss of carrier for more than one second, an alarm is activated, and the System 920i seizes the DS1 network. Once the carrier signal has been reestablished for longer than one second, the alarm state returns to normal and the System 920i can reconnect CPE DS1 to the DS1 network. (A system configuration parameter enables you to delay reconnection for 5, 10, or 15 minutes, or until all calls have been completed. Refer to “Configuring Transfer Parameters,” later in this chapter.)

Contact-Input Monitoring

The System 920i also provides three contact-input-monitoring functions. These can be connected to the alarm contacts provided by CPE-DS1 equipment such as a PBX or an ACD system. You set the normal state of each contact input (open or closed). When the opposite state occurs for longer than one second, an alarm condition is activated and the System 920i seizes the DS1 network. After the contact has returned to normal for longer than three seconds, the system can reconnect CPE DS1 and the DS1 network.

You can also seize the DS1 network manually by using the Manual Operation toggle switch located on the status LED panel on the front of the unit (shown in Figure 1-4). This enables you to use the System 920i at any time. You might want to use the Manual Operation toggle switch for a number of different reasons. You may want to use it when there is an equipment problem or because you want to test the system. Or you may want to use it when administering system training or for providing communications while CPE-DS1 equipment is undergoing routine maintenance.

Configuring Software Ensures Flexibility

To meet the differing specifications required by various sites, the System 920i provides a wide range of configuration possibilities. By using the System 920i's menu-system software, you can quickly and easily configure the following:

- General DS1 and PRI parameters
- DS1 channel parameters
- OPS extension numbering-plan and caller-number parameters
- OPS card parameters
- Recorder/announcer parameters
- Inbound-call parameters
- Dialing parameters
- Outbound-call parameters
- ACD function parameters
- Redirect function parameters
- Transfer parameters

Configuring General DS1 and PRI Parameters

Configuring DS1 and PRI parameters consists of making settings that enable the System 920i to interface correctly with the DS1 network. The DS1 parameters you must set are framing type, line-build-out signal level, and synchronization source. PRI parameters are switch emulation type and network specific source.

Configuring DS1 Channel Parameters

You enable or disable each of the 23 DS1 bearer channels by setting the operation mode parameter. The three choices, which are two-way, disabled, and maintenance, set each channel as either available or unavailable for inbound and outbound calls, or as unavailable for calls while in maintenance mode.

Configuring OPS Extension Numbering-Plan & Caller-Number Parameters

You specify a length and base number that the System 920i uses to automatically assign 24 OPS extension numbers. These are the numbers that you dial at one OPS extension to reach another OPS extension.

You also indicate the number sent to the DS1 network when someone makes an outbound call from one of the OPS extensions, and whether the called party can view this number using a caller identification service.

Configuring OPS Card Parameters

You can also individually configure each OPS port on each of the three possible OPS cards. Using the OPS extension digit length number as a starting point, the system automatically assigns a specific extension number to each port. You can change any of these extension numbers. You complete the configuration by assigning an ACD function to each extension, and by authorizing outbound access for each extension, if desired.

Configuring Recorder/Announcer Parameters

The System 920i enables you to identify a specific OPS extension (or all OPS extensions) from which you can access the Recorder/Announcer card to record or maintain messages. You can also specify the numeric password permitting access to the card.

Configuring Inbound-Call Parameters

To configure inbound-call parameters, you specify match numbers or ranges and direct a match to an ACD function, message, redirect function or reorder progress tone. The System 920i identifies the telephone number being called by an outside party. When the called number matches either an individual number or falls within a range, the call is routed to the function you configure.

Refer to Appendix G for a detailed flowchart on match number table routing options.

Configuring Dialing Parameters

Dialing parameters consist of two categories of information. The first consists of identifying how you want to use the extensions connected to your System 920i. You specify if you want the extensions to be used for internal communication, what function is to be connected when you dial zero from an extension, and the number to be used as the ACD call pickup digit.

The second category consists of information helping you customize the way the System 920i makes outbound calls. You can enter access numbers to connect to two different outside lines or services. You can also enter insert numbers and information identifying when a complete number has been dialed.

Configuring Outbound-Call Parameters

Configuring outbound-call parameters consists of making entries to speed up sending the dialed telephone numbers you authorize to the DS1 network, and to prevent sending those numbers you consider unauthorized. You make these entries on the Outbound Call Configuration screen, which the factory ships preconfigured to facilitate generally accepted parameters of business telephone use in the United States.

Configuring ACD Function Parameters

ACD-function configuration consists of assigning a queue depth, queue action, and overflow action for each of the 24 ACD functions you want to use.

Normally, an inbound call routed to a specific ACD function is connected to a free (on-hook) extension assigned to that ACD function. If all assigned extensions are busy, however, the call is placed in queue. This means that it is waiting to be connected to a free extension. You can specify that calls in queue be connected to an audible ring or to one of the two voice messages.[1]

Once queue depth has been exceeded, incoming calls routed to the ACD function are placed in overflow. You can connect these calls to a busy tone or one of the two voice messages.[1]

Configuring Redirect Function Parameters

Inbound calls routed to one of the 24 redirect functions are forwarded to telephone numbers that you specify. You can also configure each function to connect to one of the voice messages before a call is redirected.[1]

[1]You must have an installed 915 Recorder/Announcer card.

Configuring Transfer Parameters

Setting transfer parameters consists of enabling or disabling contact and CPE-DS1-carrier monitoring functions. You also specify the conditions under which you want to reconnect CPE DS1 to the DS1 network after an alarm condition has been restored to normal.

People at the site may be making calls through a DS1 network channel when the System 920i is ready to reconnect CPE DS1 to the DS1 network. Since the system would suddenly end these conversations if it reconnected immediately, you can specify how reconnection is to be delayed while the conversations are being completed. You can choose to have the system reconnect after all calls have been completed, or after a 5-, 10-, or 15-minute delay. You can also choose to have the system reconnect immediately without waiting for calls to be completed.

Viewing Status Enables Operating Diagnosis

As described in Part 4 of this guide, you use the menu system to review the operating status of the System 920i. A variety of status displays enable you to analyze and diagnose System 920i operating conditions in the following areas:

- DS1 channel status
- OPS card status
- Recorder/Announcer status
- ACD function status
- Redirect function status
- Transfer status
- Call status
- DS1 System status

DS1 Channel Status

DS1 channel status indicates if the DS1 Interface card is installed, synchronized, and currently active on a channel by channel basis.

OPS Card Status

Status displays for the OPS card enable you to view current connect status, hold status, and state of each OPS port. Connect status indicates the end point for the current line connection between each OPS extension and another OPS extension or DS1 network channel. Hold status indicates if the OPS extension has currently placed another line on hold, and, if so, the element to which the line is connected. State indicates the activity currently taking place on the line. You can also confirm that if each OPS card is installed and what the version of the OPS software is.

Recorder/Announcer Status

You can determine if the Recorder/Announcer card is installed, and view whether either message is currently being played or recorded.

ACD Function Status

ACD function status displays enable you to identify those match-number entries for inbound calls (from the Inbound Call Configuration screen) currently routed to each ACD function, those OPS extensions currently assigned to each ACD function, and the number of inbound calls currently in queue and in overflow for each ACD function.

Redirect Function Status

Redirect-function status displays identify those inbound-call match-number entries (from the Inbound Call Configuration screen) currently routed to each redirect function, and the number of inbound calls currently being redirected to these functions.

Transfer Status

Viewing transfer status enables you to determine the current status of each contact-input monitoring function, the current status of the CPE-DS1-carrier-monitoring function, the reason why the System 920i cannot return the DS1 network back to CPE DS1 when no alarm conditions exist, whether and under what circumstances the System 920i has seized the DS1 network, and the status of the Manual Operation toggle switch.

Call Status

The 920i Call Status screen enables you to examine the real-time activity occurring for current inbound and outbound calls being conducted between the System 920i and the DS1 network. You can also view the state and direction of each call, as well as the telephone number of the caller and telephone number being called, if this information is available.

DS1 System 920i Status

In addition, the DS1 Status screen displays detailed DS1 System 920i status information, which is described in detail in Chapter 24.

Configurable Security

Finally, the System 920i enables you to modify three security functions. First, you can enter a new login password, which is recommended. Second, you can enable or disable the VT100 compatibility test, which prevents those using an incorrect terminal or emulator from accessing the menu system. Third, you can modify the maintenance port inactivity timer. The inactivity timer automatically disconnects the maintenance terminal from the maintenance port after the configured period of inactivity expires. This limits the chances that an unauthorized person might try to use the system.

Chapter Two
Planning for the System 920i

Overview

This chapter provides information to help you make several necessary decisions and do some simple planning before you actually begin installing your System 920i. If you read this chapter with care and follow its suggestions, you will undoubtedly make installation a much quicker and more efficient process.

The System 920i enclosure, circuit cards, and reference manual may be shipped in separate cartons. Upon receiving your System 920i, you should inspect it for damage immediately. Should damage be found, file a claim with the shipper. Save the original cartons and packing materials for later inspection.

Make sure the carton containing the System 920i enclosure includes an installation kit. The kit should contain four #8 pan-head screws (¾-inch long), two 8-position modular jacks, and two 8-position modular data cables.

Once you have inspected the System 920i and related components, continue the planning process by reading the remainder of this chapter. Then read Chapter 3, “Installing the System 920i,” as you actually perform the installation.

Selecting Mounting Location

Since the System 920i is intended for wall mounting only, you must find a suitable position on the equipment room wall. Choose a spot where you can easily view the diagnostic LEDs located on the front of the System 920i enclosure. Also make sure you locate the System 920i close enough to the telephone circuits that need to be connected. Seven-foot modular data cables are included in the installation kit for this purpose.

Selecting –48Vdc Power Source

The System 920i requires an external source of –48Vdc, 1A maximum, for operation. This power source must be uninterruptible. In other words, it must be present at all times, even in the event of a commercial power outage. If a –48Vdc uninterruptible power source (UPS) is available at the site, you can use it to power the System 920i.

If an AC UPS system providing an uninterruptible source of 120Vac is available at the site, you can use it to power a –48Vdc power supply, such as the Model 723 from Gordon Kapes, Inc. The Model 723 provides –48Vdc, 2A maximum output using input power of 120Vac. A single Model 723 can power one or two System 920i units.

If an AC UPS is not present at the site, or if it is desirable for the System 920i to operate independently of other equipment, you can use the Model 733 DC UPS from Gordon Kapes, Inc. The Model 733 is a self-contained, wall-mounted unit that provides an uninterruptible source of –48Vdc using input power of 120Vac. The Model 733 provides 2A maximum output, and can sustain 2A for a minimum of 2 hours.

When connected to a System 920i, the Model 733 provides worst-case minimum operating time of 4 hours. Under more routine circumstances—where all System 920i resources, such as the OPS extensions, are used less than 100% of the time—8 to 10 hours of operation is possible. The Model 733 was expressly designed for use with the System 920i; and is suitable for a wide range of other telecommunications applications as well. Contact Gordon Kapes, Inc. for details.

Obtaining Analog Telephone Sets

If you plan to install and use OPS extensions with the System 920i, you must obtain the needed number of single-line, analog telephone sets (as many as 24) supporting touch-tone dialing. (Pulse dialing is not supported.) Gordon Kapes, Inc. highly recommends you supply the type of telephone set with a separate flash button. (For more information refer to Chapter 25 later in this guide.) Ensure you have one 914 OPS card for each set of eight telephones you intend to use.

Obtaining 25-Pair Cables and Interconnecting Assemblies

During installation, you use 25-pair plug P1 to make connections to the analog telephone sets previously described. In addition, you make ground, DC-power, contact input, and relay-contact connections using 25-pair plug P2. These plugs are standard to the telephone industry. You must provide two 25-pair cables with female connectors attached, to mate with plugs P1 and P2. Refer to Figures 3-6 and 3-8 in Chapter 3 for details about the connections to be made.

You must also obtain the interconnecting assemblies of your choice, such as 66-type blocks, for terminating the various functions to the 25-pair cables.

Selecting Contacts to Monitor

The System 920i has three contact inputs for monitoring various functions. These can be connected to the alarm contacts provided by CPE-DS1 equipment such as a PBX or ACD system. Exactly how you choose to use the contact inputs depends upon the needs of the site and your own imagination.

If the uninterruptible power supply, which ultimately supplies –48Vdc, provides a contact indicating an AC failure, consider connecting it to one of the contact inputs. The Gordon Kapes, Inc. Model 733 DC UPS provides this type of contact.

When selecting monitoring applications, keep these guidelines in mind: Signals compatible with the System 920i's contact inputs can be either normally open (not shorted) or closed (shorted). The signals must be in the form of isolated contacts or contacts that close (short) in reference to earth ground.

When a contact changes from the normal state for longer than one second, an alarm condition is activated. After the contact returns to the normal state for longer than three seconds, the alarm condition returns to normal. These time periods enable the System 920i's operating system to correctly detect changes.

CPE-DS1 Carrier Monitoring

A circuit on the System 920i DS1 Interface card monitors the electrical signal coming from the CPE-DS1 equipment. If generation of this signal ceases for longer than one second, an alarm state occurs and the System 920i seizes the DS1 network The presence of carrier for greater than one second will return the system back to the normal mode.

Planning for Relay Contacts

The System 920i provides two general-purpose relay contacts. These contacts consist of a normally open (not shorted) and a normally closed (shorted) contact. Each contact changes state in response to the System 920i seizing the DS1 network circuit.

You might use each contact to signal an external monitoring device, for example, that the DS1 network has been seized. As with the contact inputs, exactly how you choose to use these relay contacts depends upon the needs of the site and your own imagination.

Preparing DS1 Network and CPE-DS1 Terminating Jacks

ISDN PRI service is carried over DS1 telecommunications facilities. The System 920i is physically connected to an associated DS1 circuit. Sometimes people refer to PRI as being carried over a “T1 circuit,” but that’s not exactly accurate. The network PRI must be terminated on a jack wired as a USOC RJ48C. This is an 8-position, unkeyed, modular jack with four wires terminated: two for customer interface (CI) receive and two for customer interface (CI) transmit. The system 920i connects to the RJ48C using an 8-position modular data cable.

The CPE-DS1 circuit must be terminated on an 8-position modular jack wired so as to mate with an RJ48C using a modular data cable.

Two 8-position modular data cables, which use a straight-through connection arrangement, and two 8-position modular jacks are supplied with the System 920i. These are for your use if you need to prepare terminating jacks, and for making the necessary DS1 network and CPE-DS1 connections.

Figures 3-9 and 3-10 in Chapter 3 show the wiring for both the DS1 network and CPE-DS1 terminating jacks. To test the wiring, you can connect DS1 network directly to CPE DS1 using the straight-through connection provided by either of the supplied 8-position modular data cables.

Obtaining or Preparing a Cable for the Maintenance Port

The System 920i contains a serial communications port for use with a terminal or personal computer to access the System 920i's menu system. The terminal or personal computer must use VT100 emulation.

The maintenance port is implemented as data communications equipment (DCE) under the RS-232-C standard. You access the port by way of its 25-pin D-subminiature female connector. You must obtain or prepare the proper cable for this port. The cable is a typical 25-pin D-subminiature male-to-male (straight through) cable used to connect DCE equipment to DTE equipment. This type of cable is commonly available at any retail computer store. (For detailed information, refer to Appendix F. The technical specifications for the port, along with specific cabling examples are provided in this appendix.)

Note: Use a "null modem cable" if you are connecting a standard modem to the maintenance port. You may need to disable DTR monitoring on the modem. This enables the modem and maintenance port, which are both configured as DCE, to be connected.

Obtaining a VT100 Terminal

Locate either a VT100 terminal, or a personal computer with software capable of emulating VT100. Either device must support the function keys F1 through F4, Backspace or Delete.

If you are using a personal computer, you may need to acquire terminal emulator software. The communications program PROCOMM PLUS by DATASTORM TECHNOLOGIES, INC. provides excellent VT100 emulation. The terminal emulator available with Microsoft Windows also works very well. Appendix E contains more detailed information about terminal emulation requirements.

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Chapter Three
Installing the System 920i

Overview

This chapter explains how to install the System 920i.

Efficient installation requires some planning. Consequently, it is strongly recommended you read and follow the guidelines presented in Chapter 2, “Planning for the System 920i,” before beginning installation as described in this chapter.

Words of Caution

As with any product, installing the System 920i requires a safety first approach. Please read and comply with the following warning before you begin the installation:

Never install telephone wiring during a lightning storm. Never install a telephone jack in a wet location unless the jack is specifically designed for wet locations. Never touch non-insulated telephone wires or terminals unless the telephone line has been disconnected at the network interface. Use caution when installing or modifying telephone lines.

Step One: Open Carton, Check for Damage, and Locate Installation Kit

- ❑ If you have not done so, open the shipping carton and remove the System 920i enclosure from its packing material. As you unpack the unit, inspect it for damage. If you find damage, file a claim with the shipper. For later inspection, store the damaged unit in the original carton and packing material. If necessary, order a replacement from Gordon Kapes, Inc.
- ❑ Remove the front cover (shown in Figure 3-1) from the System 920i. This panel is held in place by four Phillips-head machine screws. Remove the foam packing material and warning card placed between the cover and the System 920i's enclosure. Retain these items along with the other packing material and shipping carton to use if you ever need to return the unit to the factory.

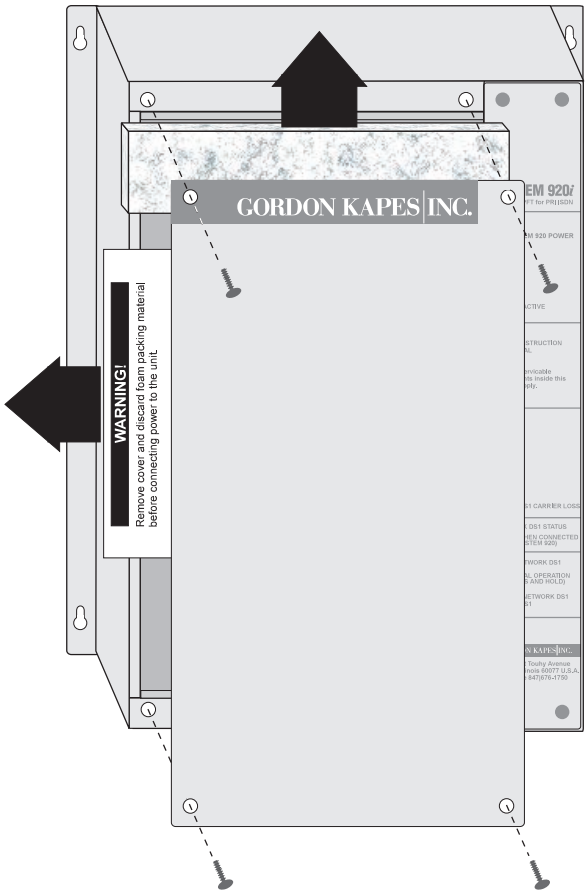

Figure 3-1. Remove Foam Packing Material and Warning Card from Unit

- ❑ Open any additional shipping cartons and verify that you have everything required for the installation. If not, contact the factory for assistance.
- ❑ Observing Figure 3.2, install all cards into the System 920i enclosure. Press the plastic handles at the top and bottom of each card to verify the card is fully inserted. To ensure cards cannot be inappropriately interchanged, the height of the mating connectors for each type of card is staggered. This enables you to interchange OPS cards, but not any of the other cards.

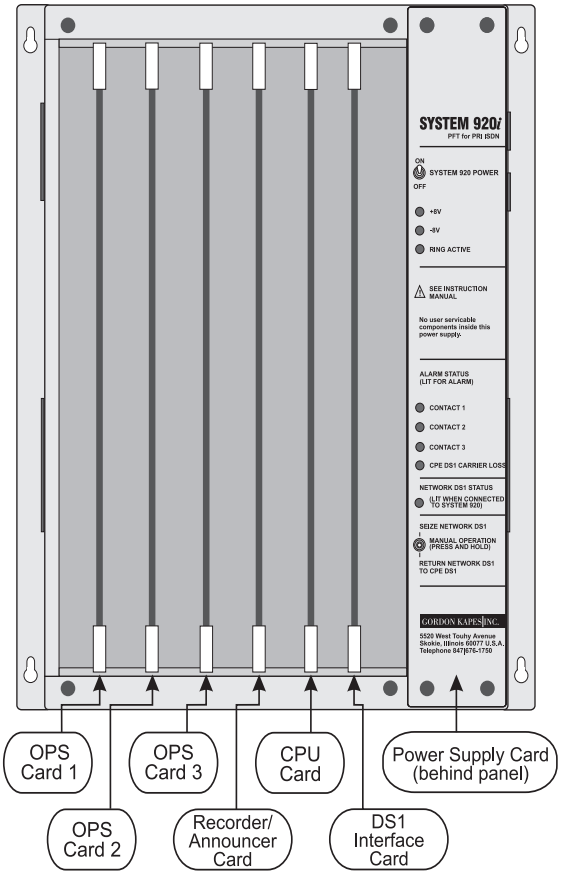

Figure 3-2. System 920i with All Cards Installed

- ❑ Since there are no switches to set on the circuit cards, you can now replace the cover.

Step Two: Mount the System 920i

Mount the System 920i on the equipment room wall.

Preparing

- ❑ Before mounting the System 920i, ensure you have selected the desired mounting location. (Refer to “Selecting Mounting Location,” in Chapter 2.)

Installing

- ❑ Mount the System 920i using the four screws (#8 pan head, ¾-inch long) included in the installation kit. These screws are for use with a wooden-backboard surface (minimum thickness ¾ inch). The System 920i’s enclosure is outfitted with four keyhole screw slots. Use one screw per slot and securely fasten the unit to the backboard.

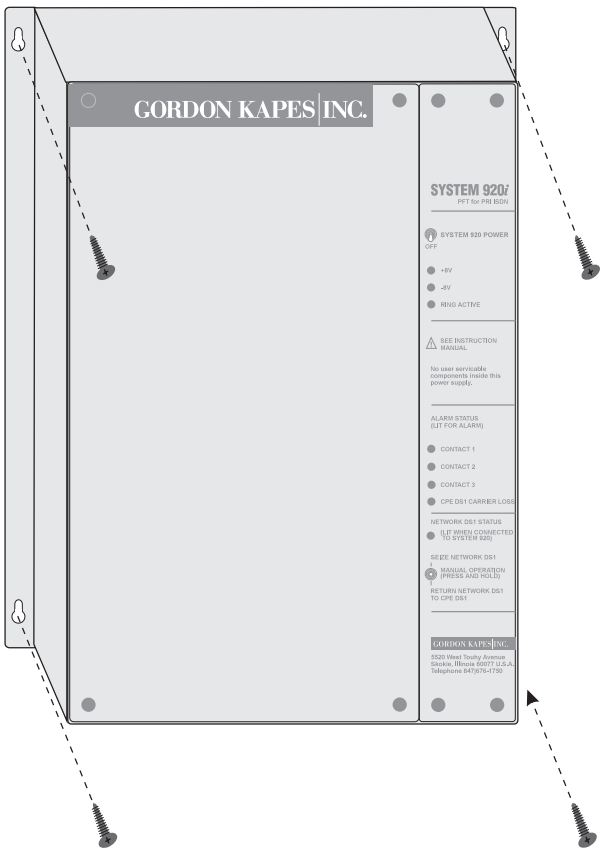

Figure 3-3. Mount the System 920i

Step Three: Make Plug P2 Connections

Use plug P2 to connect ground and power, as many as three contact inputs, and either or both of the relay contacts.

Preparing

- ❑ Locate the 25-pair cable with mounted female connector, and the interconnecting assembly you obtained for use with Plug P2. (Refer to "Obtaining 25-Pair Cables and Interconnecting Assemblies," in Chapter 2.)
- ❑ Select the –48Vdc power source to be used with the System 920i. As discussed in Chapter 2, the System 920i requires an external source of –48Vdc, 1A maximum, for operation. This power source must be uninterruptible. In other words, it must be present at all times, even in the event of a commercial power outage. If a –48Vdc uninterruptible power source (UPS) is available at the site, you can use it to power the System 920i.

  If an AC UPS system providing an uninterruptible source of 120Vac is available at the site, you can use it to power a –48Vdc power supply, such as the Model 723 from Gordon Kapes, Inc. The Model 723 provides –48Vdc, 2A maximum output using input power of 120Vac. A single Model 723 can power one or two System 920i units.

  If an AC UPS is not present at the site, or if it is desirable for the System 920i to operate independently of other equipment, you can use the Model 733 DC UPS from Gordon Kapes, Inc. The Model 733 is a self-contained, wall-mounted unit that provides an uninterruptible source of –48Vdc using input power of 120Vac. The Model 733 provides 2A maximum output, and can sustain 2A for a minimum of 2 hours.

  The common, or positive lead of the power source must be connected to earth ground. This creates what is called a positive-ground power source, which is common in the telecommunications industry.
- ❑ Ensure the contacts for the functions you want to monitor are ready to be connected to the System 920i. (For more information, refer to "Selecting Contacts to Monitor," in Chapter 2.) If the power source provides a contact indicating AC failure, consider connecting it. (The Gordon Kapes, Inc. Model 733 DC UPS provides this type of contact.)

- ❑ As discussed in “Planning for Relay Contacts” in Chapter 2, the System 920i provides two general-purpose relay contacts: a normally open (not shorted) and a normally closed (shorted) contact. The relay contacts change state when the System 920i seizes the DS1-network circuit. If you intend to connect these contacts to other devices, ensure leads to the devices are ready.

Installing the 25-Pair Cable

- ❑ Ensure the power switch on the System 920i (shown in Figure 3-4) is in the Off (down) position.

  Leave the power switch in the Off position until you are instructed to turn it on later in this chapter. (Leave the switch off even after you have connected the power leads.)

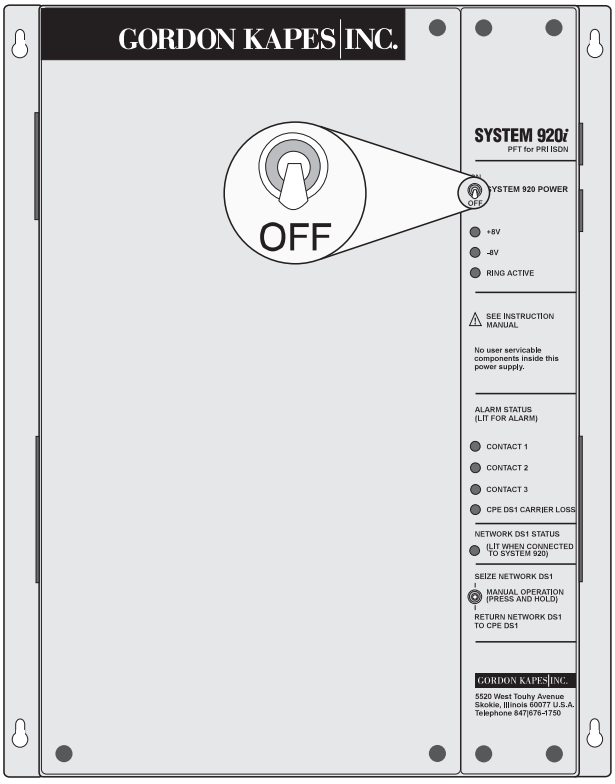

Figure 3-4. Ensure Power Switch is in Off Position

- ❑ Insert the female connector of the 25-pair cable into plug P2. Secure the connector using the fastener strap attached to the plug.
- ❑ Plug P2 is located on the right panel of the System 920i as shown in Figure 3-5.
- ❑ Terminate the 25-pair cable in the interconnection assembly you prepared for this purpose.

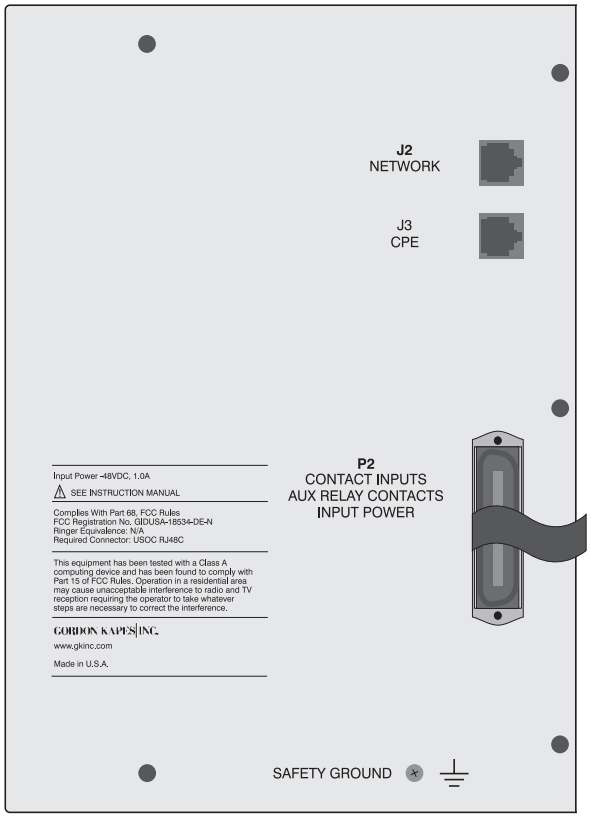

Figure 3-5. System 920i Right Panel

Connecting Ground & Power Leads

The –48Vdc power connected to the System 920i must come from a fuse-protected or current-limited source. Do not connect wires directly across a battery or battery stack. A 2-ampere fuse in series with the –48Vdc source is appropriate to protect equipment and personnel from short circuits and other wiring errors.

- ❑ Confirm that the power source has its positive or common lead connected to earth ground. This creates a –48Vdc source that is negative with respect to earth ground. If the power source is not configured in this manner, it must be changed. Perform this connection only if you are qualified to do so. If you are unfamiliar with the procedure, consider consulting with a technician qualified in DC power systems. Obtain assistance prior to making any changes that could involve a safety hazard. If you are using a Gordon Kapes, Inc. Model 733 DC UPS Power Supply, refer to Appendix B for details.
- ❑ Connect safety ground to green cabinet screw.
- ❑ Connect the violet-brown and violet-slate leads (pins 49 and 50) on the interconnection assembly to earth ground. Since this connection acts as both a safety ground and a –48Vdc ground, a minimum wire gauge of 22 AWG should be used.
- ❑ Connect the brown-violet and slate-violet leads (pins 24 and 25) on the interconnection assembly to the –48Vdc lead of the power source.

Connecting Contact Inputs

- ❑ Using the pin connections shown in Figure 3-6, connect as many as three contact inputs to the interconnection assembly.

  If your signal provides an isolated contact, connect its leads to the pair associated with the desired contact input. If your signal is referenced to earth ground, connect the contact to the positive (+) connection, and earth ground to the ground connection of the desired contact input.

Connecting Relay Contacts

- ❑ Using the pin connections shown in Figure 3-6, connect either or both of the relay contacts to the interconnection assembly.

  The relay contacts are designed only to control low-voltage, low-current electrical signals. Do not use the contacts to switch AC-line (120Vac) voltage.

Plug P2 Pin Connection Chart

Pin Number	Wire Color	Description	
26	WHT-BLU	+	Contact Input 1
1	BLU-WHT	Ground	
27	WHT-ORN	+	Contact Input 2
2	ORN-WHT	Ground	
28	WHT-GRN	+	Contact Input 3
3	GRN-WHT	Ground	
29	WHT-BRN		
4	BRN-WHT		
30	WHT-SLT	NO	Relay Contact 1
5	SLT-WHT	NO	
31	RED-BLU	NC	Relay Contact 2
6	BLU-RED	NC	
32	RED-ORN		
7	ORN-RED		
33	RED-GRN		
8	GRN-RED		
34	RED-BRN		
9	BRN-RED		
35	RED-SLT		
10	SLT-RED		
36	BLK-BLU		
11	BLU-BLK		
37	BLK-ORN		
12	ORN-BLK		
38	BLK-GRN		
13	GRN-BLK		
39	BLK-BRN		
14	BRN-BLK		
40	BLK-SLT		
15	SLT-BLK		
41	YEL-BLU		
16	BLU-YEL		
42	YEL-ORN		
17	ORN-YEL		
43	YEL-GRN		
18	GRN-YEL		
44	YEL-BRN		
19	BRN-YEL		
45	YEL-SLT		
20	SLT-YEL		
46	VIO-BLU		
21	BLU-VIO		
47	VIO-ORN		
22	ORN-VIO		
48	VIO-GRN		
23	GRN-VIO		
49	VIO-BRN	+48Vdc	
24	BRN-VIO	–48Vdc	
50	VIO-SLT	+48Vdc	
25	SLT-VIO	–48Vdc	

Note 1: The ground connection associated with the contact inputs is essentially at earth-ground potential.

Note 2: A filtered and regulated source of uninterruptible –48Vdc, 1A maximum, must be connected to the brown/violet and slate/violet leads.

Figure 3-6. Plug P2 Pin Connections

Step Four: Make Plug P1 Connections

Use plug P1 to connect OPS telephone extensions. Each OPS card in the System 920i provides eight OPS telephone circuits.

Preparing

- ❑ Locate the 25-pair cable with mounted female connector and the interconnecting assembly you obtained for use with Plug P1. (Refer to "Obtaining 25-Pair Cables and Interconnecting Assemblies," in Chapter 2.)
- ❑ Prepare the leads from the single-line analog telephones you have obtained for use as OPS extensions. As described in Chapter 2, you can use as many as 24 single-line, analog telephones supporting touch-tone dialing. You must have one 914 OPS card installed in the System 920i for each set of eight telephones you use.

Installing

- ❑ Insert the female connector of the 25-pair cable into plug P1. Secure the connector using the fastener strap attached to the plug.

  Plug P1 is located on the left panel of the System 920i as shown in Figure 3-7.
- ❑ Terminate the 25-pair cable in the interconnection assembly you prepared for this purpose.
- ❑ Using the pin connections shown in Figure 3-8, connect as many as 24 OPS telephones to the interconnection assembly. A single tip-and-ring connection is required for each telephone. Figure 3-8 indicates the OPS-card port associated with each connection.

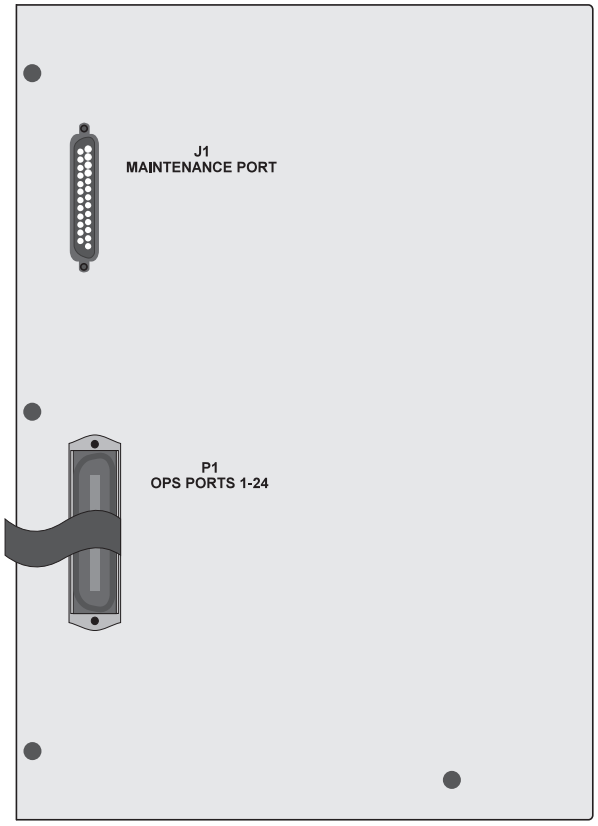

Figure 3-7. System 920i Left Panel

Plug P1 Pin Connection Chart

Pin Number	Wire Color	Description		
26	WHT-BLU	T	OPS Port 1	OPS Card 1 (Installed in slot 1)
1	BLU-WHT	R		
27	WHT-ORN	T	OPS Port 2	
2	ORN-WHT	R		
28	WHT-GRN	T	OPS Port 3	
3	GRN-WHT	R		
29	WHT-BRN	T	OPS Port 4	
4	BRN-WHT	R		
30	WHT-SLT	T	OPS Port 5	
5	SLT-WHT	R		
31	RED-BLU	T	OPS Port 6	
6	BLU-RED	R		
32	RED-ORN	T	OPS Port 7	
7	ORN-RED	R		
33	RED-GRN	T	OPS Port 8	
8	GRN-RED	R		
34	RED-BRN	T	OPS Port 9	OPS Card 2 (Installed in slot 2)
9	BRN-RED	R		
35	RED-SLT	T	OPS Port 10	
10	SLT-RED	R		
36	BLK-BLU	T	OPS Port 11	
11	BLU-BLK	R		
37	BLK-ORN	T	OPS Port 12	
12	ORN-BLK	R		
38	BLK-GRN	T	OPS Port 13	
13	GRN-BLK	R		
39	BLK-BRN	T	OPS Port 14	
14	BRN-BLK	R		
40	BLK-SLT	T	OPS Port 15	
15	SLT-BLK	R		
41	YEL-BLU	T	OPS Port 16	
16	BLU-YEL	R		
42	YEL-ORN	T	OPS Port 17	OPS Card 3 (Installed in slot 3)
17	ORN-YEL	R		
43	YEL-GRN	T	OPS Port 18	
18	GRN-YEL	R		
44	YEL-BRN	T	OPS Port 19	
19	BRN-YEL	R		
45	YEL-SLT	T	OPS Port 20	
20	SLT-YEL	R		
46	VIO-BLU	T	OPS Port 21	
21	BLU-VIO	R		
47	VIO-ORN	T	OPS Port 22	
22	ORN-VIO	R		
48	VIO-GRN	T	OPS Port 23	
23	GRN-VIO	R		
49	VIO-BRN	T	OPS Port 24	
24	BRN-VIO	R		
50	VIO-SLT	No Connect		
25	SLT-VIO	No Connect		

Figure 3-8. Plug P1 Pin Connections

Step Five: Connect to the DS1 Network and CPE-DS1 Circuits

Preparing

- ❑ As mentioned in Chapter 2, ISDN PRI uses DS1 facilities to send and receive the actual data. Ensure the DS1 network is terminated on an 8-position modular jack wired as USOC RJ48C. Ensure CPE DS1 is terminated on an 8-position modular jack wired to mate with an RJ48C using a modular data cable. Figures 3-9 and 3-10 show the wiring for the DS1 network and CPE-DS1 jacks. For further details, refer to "Preparing DS1 Network and CPE-DS1 Terminating Jacks," in Chapter 2. Two 8-position modular jacks are included in the installation kit.

  It is important to ensure that the DS1 network jack is connected directly to the DS1 circuit with no intervening CPE-DS1 equipment. This ensures that failure of any CPE-DS1 equipment does not affect operation of the System 920i. (The System 920i contains its own channel-service-unit circuitry. Consequently you do not need to use an external CSU when the System 920i seizes the DS1 network. However, you still must supply an independent CSU for use with CPE-DS1 equipment.)

- ❑ Locate the two 8-position modular data cables included in the installation kit. (To test the wiring of the network and CPE-DS1 terminating jacks, you can connect DS1 network to CPE DS1 by connecting the associated jacks together using one of the 8-position data cables.)

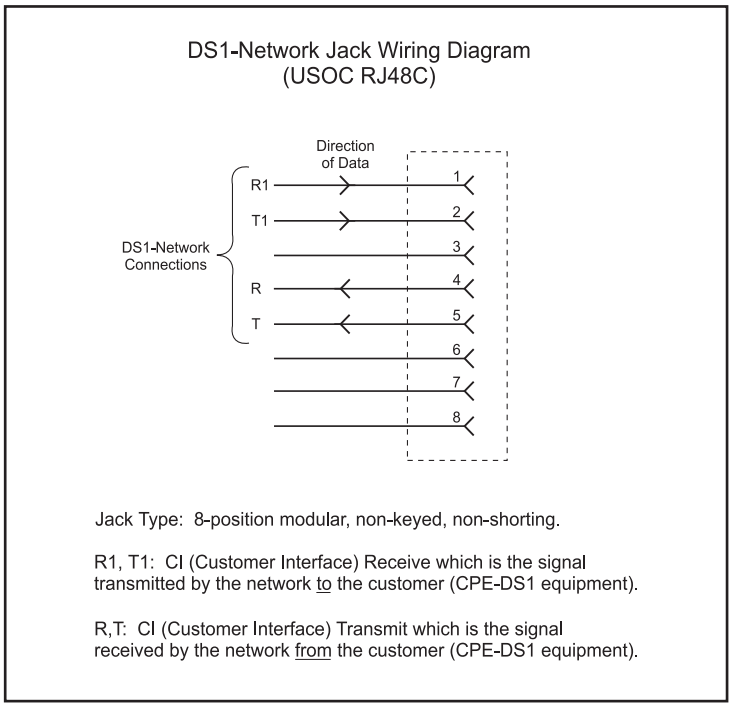

Figure 3-9. DS1 Network Jack Wiring (USOC RJ48C)

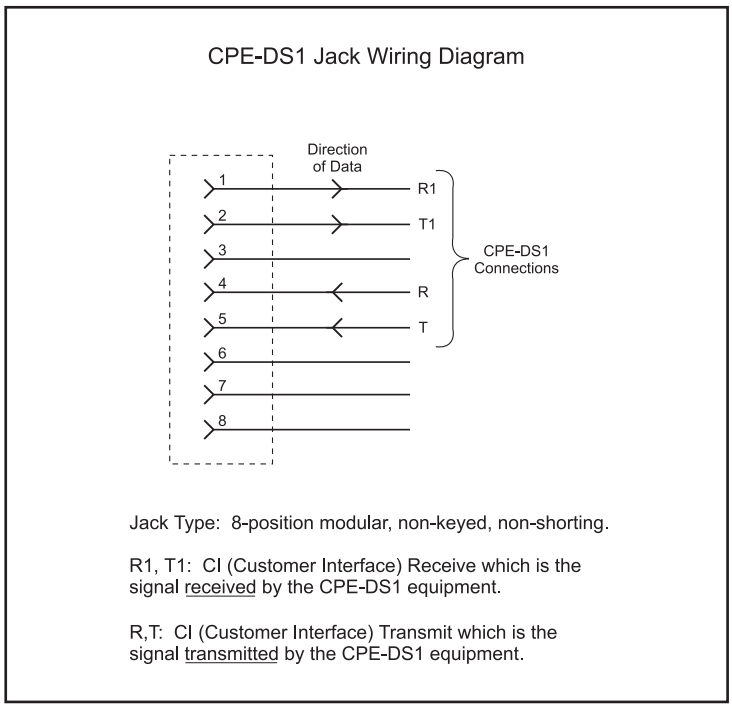

Figure 3-10. CPE-DS1 Jack Wiring

Installing

- ❑ Using one of the modular data cables from the installation kit, connect the DS1 network to jack J2 on the right panel of the System 920i enclosure. Jack J2 is shown in Figure 3-11.
- ❑ Using the other modular data cable from the installation kit, connect CPE DS1 to jack J3 on the right panel of the System 920i enclosure. Jack J3 is shown in Figure 3-11.

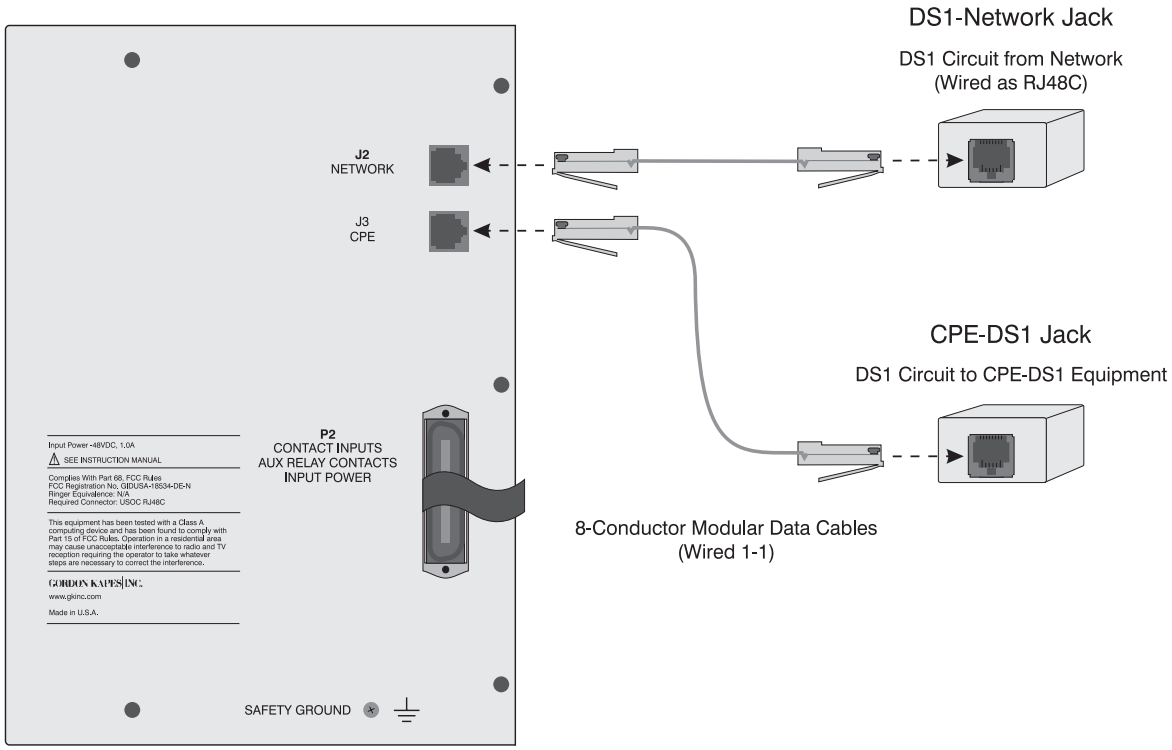

Figure 3-11. DS1 Network and CPE-DS1 Connections

Step Six: Connect to the Maintenance Port

To access the System 920i's menu system, connect a VT100 terminal or personal computer capable of VT100 emulation, to the maintenance port on the left panel of the System 920i. The menu system enables you to configure the system and review system status.

In general, you only need to connect to the maintenance port when configuring the system after initial installation, when changing the configuration, or when testing and troubleshooting the system. You will probably not need to connect permanent wiring to the maintenance port. A technician can simply plug a standard serial communications cable into the port.

Preparing

- ❑ Locate the serial communications cable you obtained or prepared for connecting to the maintenance port. The port is implemented as data communications equipment (DCE) under the RS-232-C standard. It uses an individual 25-pin D-subminiature female connector. The cable is a typical 25-pin D-subminiature male-to-male cable (straight through) used to connect DCE equipment to DTE equipment. This type of cable is commonly available at any retail computer store. (For detailed information, refer to Appendix F. The technical specifications for the port, along with specific cabling examples are provided in this appendix.)

  Note: If you are connecting a modem to the port, use a null modem cable since the modem's port is also implemented as DCE. For correct operation, you may need to disable DTR monitoring on the modem.

- ❑ You must also have a terminal or personal computer capable of VT100 emulation.

Installing

- ❑ Connect the serial communications cable to the maintenance port on the System 920i. The maintenance port is shown in Figure 3-12.
- ❑ Use the screws on the mating plug to ensure the cable is secured to the System 920i's connector.

- ❑ Connect the other end of the cable to a serial port on the designated terminal or personal computer.
- ❑ Set communications settings in the terminal to the following:

  Baud rate: 9600
  Data bits: 8
  Parity: None
  Stop bits: 1
  Flow control: XON/XOFF

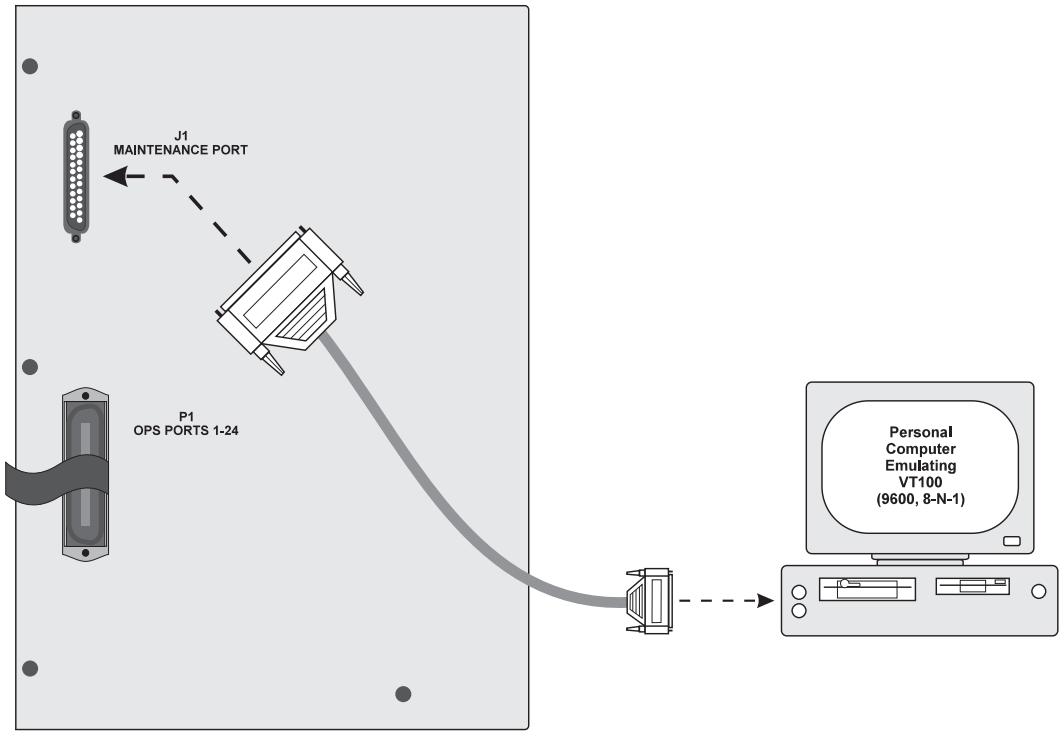

Figure 3-12. Connect Serial Communications Cable to Maintenance Port

Step Seven: Review the Installation

- ❑ Review and ensure you have taken all previous installation steps. For example, verify you have installed and correctly seated the required cards in the System 920i enclosure, and make sure all required connections have been made. Replace the cover if you have not already done so.
- ❑ Apply power to the unit at this time by placing the system power switch in the On (up) position.

  The +8 and –8 Volt status LEDs should light. Other LEDs may also light. These may or may not indicate an installation problem.

  If a contact LED is lit, it indicates that the contact is in the shorted (closed) state. Remove the short and the LED will stop lighting.
- ❑ Test the OPS telephone extensions by taking each off-hook. Make a call to and receive a call from each telephone. The default numbering plan, beginning with the telephone connected to OPS port 1, is extension 1001 through 1024.

You are now ready to begin configuring the system. Proceed to Chapter 4, “Getting Started with the Menu System.”

Chapter Four
Getting Started with the Menu System

Overview

The System 920i contains menu-driven software called the menu system. The *menu system* enables you to configure, test, and examine the operating status of the System 920i.

The menu system and other software components of the System 920i are loaded into permanent memory at the factory.

This chapter provides basic information you need before using the menu system. It explains the following:

- How to access the menu system
- How to exit the menu system and disconnect from the System 920i
- How to select menu options and enter or select information
- How to use online help

The menu system is extremely easy to use and quite similar to other menu-driven software widely used with IBM-compatible personal computers.

Conventions

This guide provides a detailed procedure for each task you can accomplish with the menu system. To help you read and understand these procedures easily and quickly, this guide uses several special terms, symbols, and type faces. The following explains these conventions:

Term	Meaning
menu	A numbered list of options displayed on a screen. To accomplish a task, you display the needed menu and then select the option corresponding with the task.
cursor	A highlighted box or small line which may or may not blink depending upon the terminal or personal computer you are using and how it is set up. The cursor marks the location on the screen where the information you type or select is displayed. As you move from field to field by pressing keys, the cursor moves along with you to show you where you are.
field	An area on the screen where you enter or select information or where information is displayed. In general, each field has a title displayed next to it for easy identification.

Type style	Purpose
bold	Used to indicate words you must type exactly as they appear, and to indicate the names of keys you must press.
italic	Used to highlight a key term defined in this guide. Also used for emphasis and to indicate variable information. For example, ACD *n* stands for ACD 1, ACD 2, or any of the other 22 ACD functions.
Condensed	Used to indicate information exactly as it is displayed on a screen.
Condensed Bold	Used to indicate field titles.

Symbol	Purpose
↵	Used to indicate the Enter key on the keyboard. Press ↵ after entering information.
↓	Used to indicate the down-arrow key. Press ↓ to move down from field to field on a screen.
↑	Used to indicate the up-arrow key. Press ↑ to move up from field to field on a screen.
←	Used to indicate the left-arrow key. Press ← to move to the left among fields in columns.
→	Used to indicate the right-arrow key. Press → to move to the right among fields in columns.

The menu system consistently uses specific keys to perform the following operations:

Key	Purpose
F1	Press to display Online Help available on a separate screen.
F2	Press to exit a screen and return to the previous menu.
F3	Press to display the previous page of a multi-page screen.
F4	Press to display the next page of a multi-page screen.
Backspace or Delete	Press to edit a field.
X	Press to exit the menu system.

Accessing the Menu System

To access the menu system, take the following steps:

1. Connect a VT100 terminal to the maintenance port (J1) located on the left panel of the System 920i enclosure. Figure 4-1 illustrates the location of the maintenance port. (For more information about maintenance port connection and cabling refer to Appendix F, “Maintenance Port Connections.”)
2. Ensure power is turned on to both the terminal and the System 920i.
3. Press ↵ to display the Login screen.

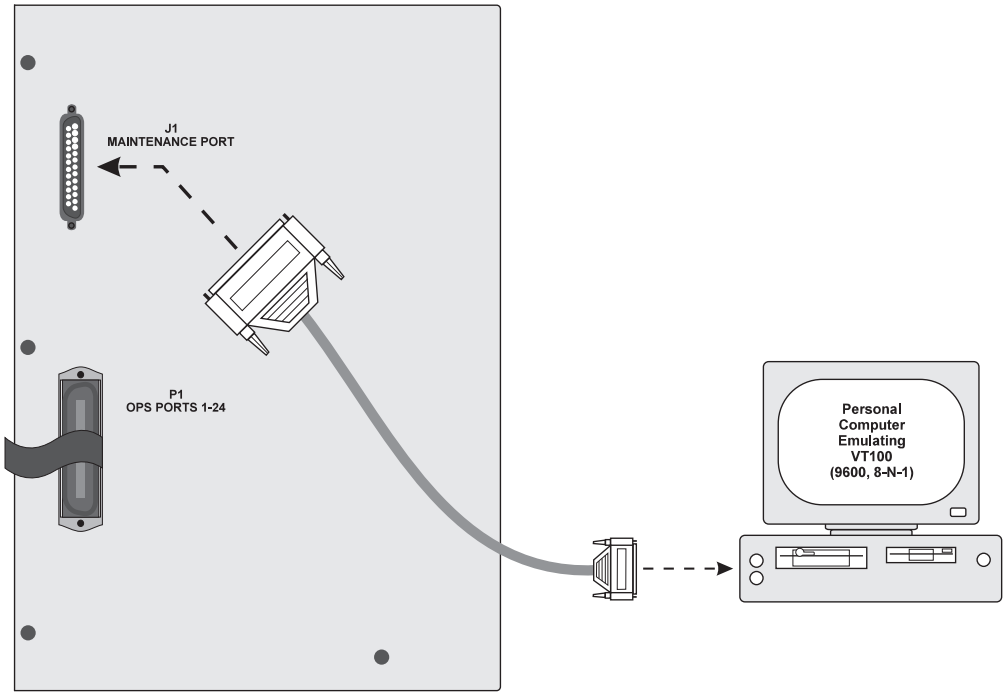

Figure 4-1. VT100 Terminal Connected to Maintenance Port J1

Choose a terminal or software that is capable of VT100 emulation supporting the function keys F1 through F4, Backspace or Delete. If you are using a personal computer, you may need to acquire terminal emulator software capable of emulating VT100. The communications program PROCOMM PLUS by DATASTORM TECHNOLOGIES, INC. provides excellent VT100 emulation. The terminal emulator available with Microsoft Windows also works very well. Appendix E contains more detailed information about terminal emulation requirements.

Set communications settings in the terminal to the following:

Baud rate:	9600
Data bits:	8
Parity:	None
Stop bits:	1
Flow control:	XON/XOFF

If You Have Problems with Garbage on the Screen

Should you access the Password screen or the Main Menu using inappropriate terminal emulation or baud rate, the screen may appear filled with “garbage.” Ensure the baud rate is set to 9600 and that your terminal emulator is set to VT100. Then press ↵ or **F2** to refresh the screen.

The VT100 compatibility test enables you to verify VT100 emulation prior to using the menu system. The test requires you to press F1, F2, F3, F4, and Backspace after entering a valid password. If the terminal emulator does not support these keys, you are prevented from proceeding with the menu system. The test is enabled by default.

Exiting the Menu System and Disconnecting

To exit the menu system and disconnect from the System 920i, press **X** at the Main Menu.

To exit and disconnect, take the following steps:

1. At any screen in the menu system, press **F2** until the system displays the Main Menu.

2. At the Main Menu, press **X**.

   The System 920i clears the screen.

Selecting Menu Options

To select an option from a menu, either press the key with the number of the option or press ↓ or ↑ to highlight the option, then press ↵.

Entering and Selecting Information

When configuring the System 920i, you must make an entry or select a value in specific fields displayed on a configuration screen.

To make an entry, move to the field by pressing ↑, ↓, ←, or →. Type the entry, then press ↵. To delete an entry, press **Backspace** or **Delete**.

To select a value in a field, move to the field by pressing ↑, ↓, ←, or →. Press the spacebar to scroll forward through a list of possible values. Press **Backspace** or **Delete** to scroll backward through the list. Display the value you want to select. This value is saved and activated. (Some fields require that you press ↵ after making a selection. This is indicated at the bottom of each screen displaying these fields.)

Using Online Help

The menu system displays brief operating instructions at the bottom of each screen. These instructions, which can change as you move from field to field, tell you how to make an entry or select a value in the highlighted field.

Many screens in the menu system provide additional online help using separate screens, which supplement the information available in this guide. Press <F1> help displayed at the bottom of a screen indicates additional help is available. Press **F1** to display the online help screen.

Chapter Five

Configuring General DS1 and PRI Parameters

Overview

The DS1 Interface card is an essential component of the System 920i. This card provides the interface between the DS1 network and the System 920i. You must configure three DS1 parameters, two ISDN PRI parameters, and 23 channel parameters on this card.

This chapter explains configuring the DS1 and ISDN PRI parameters. (Chapter 6 explains configuring the DS1 channel parameters.)

Setting DS1 and ISDN PRI Parameters

You must set the following DS1 parameters:

- Framing type
- Line coding method
- Line-build-out signal level
- Synchronization source

You must also set the following PRI parameters:

- Switch emulation type
- Network-specific service

Although you must set only five parameters, it is essential that you set each one correctly. Otherwise, the System 920i may completely fail to operate.

For each parameter, you must make the setting required by the DS1 network. If you do not know the requirements of the DS1 network, match the appropriate settings used by the CPE-DS1 equipment or by the external channel service unit (CSU) serving the DS1 network in your situation.

The System 920i provides selectable choices for each of the five parameters. Once you have correctly set the parameters, you will probably not need to change them.

Begin with Your Worksheet

Use a working copy of the DS1 and PRI Configuration worksheet found in Appendix A to specify and record parameters for this System 920i card. Refer to Table 5-1 for a description of each parameter. (The **DS1 Card Present** and **DS1 Synchronized** fields described in the table are screen displays only. Values marked with an asterisk are the defaults.) Enter data from the worksheet using the System 920i software as described in the procedures following the table.

Table 5-1. General DS1 and PRI Parameters

Field	Description
DS1 Card Present	Indicates whether the DS1 Interface card is currently installed in the System 920i enclosure. YES indicates the card is installed. NO indicates the card is not installed. **Comments** You can configure the card whether it is currently installed or not. If the card is not currently installed, the parameter settings you make take effect as soon as the card is installed.
DS1 Synchronized	Indicates whether the DS1 Interface card is currently synchronized with the incoming ESF or D4 frame. YES indicates the card is synchronized. NO indicates the card is not synchronized. **Comments** One second after the System 920i has seized the DS1 network, the DS1 card synchronizes with it.
Framing	Select the framing used by the DS1 network. Choices are: ESF (EXTENDED SUPERFRAME)* D4 (SUPERFRAME) **Comments** Match the setting that the CPE-DS1 equipment or the external CSU uses. This matches the requirement of the DS1 network. ESF (EXTENDED SUPERFRAME)* is the default choice since it is used at many installations. D4 is also known as superframe or SF framing. ESF is also known as extended superframe.
Line Coding Method	Select the line coding method required by the DS1 network. Choices are: B8ZS (BIPOLAR ZERO SUPPRESSION)* AMI (NO ZERO SUPPRESSION) ZCS (JAMMED BIT ZERO SUPPRESSION **Comments** B8ZS is the preferred method.

continued

Table 5-1. General DS1 and PRI Parameters (cont.)

Field	Description
Line Build Out	Select the line-build-out signal level required by the DS1 network. Choices are: 0dB* –7.5dB –15dB **Comments** Match the setting that the CPE-DS1 equipment or the external CSU uses. This matches the requirement of the DS1 network. In most cases the default setting of 0dB is appropriate. Line build out indicates the strength of the outgoing signal. 0dB provides the strongest signal. You should use 0dB for distances exceeding one kilometer. –7.5dB provides average signal strength. –15dB provides the weakest signal. You should use –15dB only for distances of a few meters where overloading might cause crosstalk.
Synchronization Source	Select the source of synchronization for the DS1 interface. Choices are: NETWORK* INTERNAL **Comments** Synchronization source indicates whether system timing synchronizes with the incoming ESF or D4 frame or to an internal crystal. In most installations, the incoming frame serves as the source of synchronization. Use NETWORK, which is the default choice, when this is the case. In some cases, however, the CPE-DS1 equipment is the source of synchronization for the DS1 network. This might be the case in a private network where the CPE-DS1 equipment at a specific location happens to be the source of synchronization. When CPE-DS1 equipment is the source of synchronization, select INTERNAL. This means the System 920i provides synchronization when it seizes the DS1 network.

continued

Table 5-1. General DS1 and PRI Parameters (cont.)

Field	Description
Switch Emulation	Select the switch emulation matching the ISDN PRI service provided by the DS1 network. Choices are: NATIONAL ISDN-2* 4ESS (NI-2) 5ESS (NI-2) 5ESS (NI-1) DMS100 (NI-2) DMS100 (NI-1) GTD5 (NI-2) **Comments** You can only make switch emulation changes when the System 920i is not synchronized with the DS1 network. (Synchronization must have been lost for more than five seconds.) NATIONAL ISDN-2 is the default value. 4ESS (NI-2), 5ESS (NI-2), 5ESS (NI-1), DMS100 (NI-2), and DMS100 (NI-1) emulation types refer to specific switch emulation types prior to NATIONAL ISDN-2. 5ESS switches do not accept ISDN messages with either a caller number type of unknown or a caller number plan of unknown or private. The DMS100 switches do not accept ISDN messages with the caller number type abbreviated or the caller number plan telephony.
Location	Indicates that the system can only emulate the customer premise PBX side. The displayed USER SIDE is factory preset. **Comments** This information is sent in the Progress Indicator IE and Cause IE of ISDN messages.
Network Specific Service	Select the long-distance service code if one is required by the DS1 network switch. Choices are: NO SPECIFIC SERVICE CODE 0-CODE 31

continued

Table 5-1. General DS1 and PRI Parameters (cont.)

Field	Description
Network Specific Service (cont.)	**Comments** The long-distance service code identifies a specific long-distance service used by the network. If the network is not required to use a specific long-distance service, select NO SPECIFIC SERVICE, which is the default. Otherwise, select the required long-distance service code. Service codes include the following: CODE 1 = SDN (including GSDN) CODE 2 = MEGACOM 800 (inbound only) CODE 3 = MEGACOM (outbound only) CODE 4 = INWATS (inbound voice only) CODE 5 = OUTWATS (outbound voice only) CODE 6 = ACCUNET (data only) CODE 7 = AT&T LDS (long-distance service) CODE 8 = I800 (international 800 inbound only) CODE 16 = MULTIQUEST 900 (inbound only) ***Note:*** If the network switch is rejecting ISDN setup messages with cause 96 (60 hex), Mandatory Information Element Is Missing, you might need to include the network-specific facility information element (IE) in the ISDN setup message. Do this by selecting one of the long-distance service codes.

Procedure

To configure DS1 Interface card parameters, you must access the DS1 and PRI Configuration screen. Select option 1, DS1 and PRI Configuration, from the Main Menu.

Take the following detailed steps:

1. If you have not done so, press ↵ to display the Password screen.
2. Access the Main Menu by typing the password at the Password screen. Press ↵. Complete the VT100 compatibility test if this function is enabled.
3. Press **1** to select DS1 and PRI Configuration. Press ↵.

   The system displays the DS1 and PRI Configuration screen, shown in Figure 5-1. The cursor is initially in the **Framing** field.

```
Gordon Kapes, Inc.              System 920i                    Menu 1

                        DS1 AND PRI CONFIGURATION

DS1 Card Present: YES
DS1 Synchronized: YES

Framing:                          ESF (EXTENDED SUPERFRAME)*
Line Coding Method:               B8ZS (BIPOLAR ZERO SUPPRESSION)*
Line Build Out:                   0dB*
Synchronization Source:           NETWORK*
Switch Emulation:                 NATIONAL ISDN-2*
Location:                         USER SIDE
Network Specific Service:         NO SPECIFIC SERVICE*




* Indicates factory default.


                Press Space Bar or Backspace to select
                Press Arrow Keys, <F1> help, <F2> exit
```

Figure 5-1. DS1 and PRI Configuration Screen

4. Select a value in each field. To make selections, use the following table.

To	Take this Action
Select a value	Press spacebar to scroll forward through displayed list. Press **Back-space** to scroll backward through list. Displayed value is saved and activated.
Move from field to field	Press ↑ or ↓.
Display Online Help	Press **F1**.
Exit Online Help	Press **F2**.

5. To return to the Main Menu, press **F2**.

Chapter Six
Configuring DS1 Channel Parameters

Overview

This chapter explains configuring DS1 channels on the DS1 Interface card.

Configuring Channels

By configuring a single channel parameter called operation mode, you can establish access for each of the 23 DS1 bearer channels. You can configure each channel as either available or unavailable for inbound and outbound calls. A third choice configures a channel as unavailable for calls while sending an ISDN service message to inform the DS1 network that the channel is in maintenance mode.

The system provides selectable choices for the operation mode. You cannot change the operation mode unless all channels are inactive.

The DS1 Channel Configuration screen displays the configured operation mode as well as the real-time state for each bearer channel. If the preferred channel is not available for an inbound call, the system assigns the call to another channel.

You can configure the DS1 Interface card whether it is currently installed or not. You must install the card, however, to enable the system to seize and communicate with the DS1 network.

Begin with Your Worksheet

Use a working copy of the DS1 Channel Configuration worksheet found in Appendix A to specify and record parameters for this System 920i card. Refer to Table 6-1 for a description of each channel parameter. (Refer to Chapter 5 for a description of each DS1 and PRI parameter.) (The **DS1 Card Present** and **DS1 Synchronized** fields described in the table are screen displays only. Values marked with an asterisk are the defaults.) Enter data from the worksheet using the System 920i software as described in the procedures following Table 6-1.

Table 6-1. DS1 Channel Parameters

Field	Description
DS1 Card Present	Indicates whether the DS1 Interface card is currently installed in the System 920i enclosure. YES indicates the card is installed. NO indicates the card is not installed. **Comments** You can configure the card whether it is currently installed or not. If the card is not currently installed, the parameter settings you make take effect as soon as the card is installed.
DS1 Synchronized	Indicates whether the DS1 Interface card is currently synchronized with the incoming ESF or D4 frame. YES indicates the card is synchronized. NO indicates the card is not synchronized. **Comments** One second after the System 920i has seized the DS1 network, the DS1 card synchronizes with it.
Ch	The system displays the number of each ISDN bearer channel on the card. **Comments** Channel configurations are not always identical. Therefore, you must configure each channel individually.
Operation	Select the operation mode of the channel. Choices are: TWO WAY* DISABLED MAINTENANCE **Comments** Choices have the following meanings: *Two Way** — You can use this channel both for making calls to or receiving calls from the DS1 network. Match the setting that the CPE-DS1 equipment or the external CSU uses for the channel. This matches the requirements of the DS1 network. Two way is the default setting.

continued

Table 6-1. DS1 Channel Parameters (cont.)

Field	Description	
Operation (cont.)	*Disabled*	The channel is not available for communication. You can neither make nor receive calls through this channel.
	Maintenance	The channel is not available for communication. You can neither make nor receive calls through this channel. An ISDN service message is sent to inform the DS1 network that the channel is in maintenance mode.
	Comments	
	Typically you use Disabled or Maintenance to disable channels not supported by your CPE-DS1 equipment or channels greater than 64K in band width. These are not supported by the System 920i.	
State	Indicates the current state, or active condition, of this channel.	
	Displays have the following meanings:	
	Active	The channel is in use.
	- -	The channel is not in use.

Procedure

To configure DS1 Interface card channel parameters, you must access the DS1 Channel Configuration screen. Select option 2, DS1 Channel Configuration, from the Main Menu.

Take the following detailed steps:

1. If you have not done so, press ↵ to display the Password screen.
2. Access the Main Menu by typing the password at the Password screen. Press ↵. Complete the VT100 compatibility test if this function is enabled.
3. Press **2** to select DS1 Channel Configuration. Press ↵.

   The system displays the DS1 Channel Configuration screen, shown in Figure 6-1. The cursor is initially in the **Operation** field.

```
Gordon Kapes, Inc.              System 920i                        Menu 2

                        DS1 CHANNEL CONFIGURATION

DS1 Card Present: YES
DS1 Synchronized: YES

Ch  Operation     State        Ch  Operation     State
 1  TWO WAY*      --           13  TWO WAY*      --
 2  TWO WAY*      --           14  TWO WAY*      --
 3  TWO WAY*      --           15  TWO WAY*      --
 4  TWO WAY*      --           16  TWO WAY*      --
 5  TWO WAY*      --           17  TWO WAY*      --
 6  TWO WAY*      --           18  TWO WAY*      --
 7  TWO WAY*      --           19  TWO WAY*      --
 8  TWO WAY*      --           20  TWO WAY*      --
 9  TWO WAY*      --           21  TWO WAY*      --
10  TWO WAY*      --           22  TWO WAY*      --
11  TWO WAY*      --           23  TWO WAY*      --
12  TWO WAY*      --

* Indicates factory default.
                Press Space Bar or Backspace to select
                Press Arrow Keys, <F1> help, <F2> exit
```

Figure 6-1. DS1 Channel Configuration Screen

4. Select a value in the **Operation** field. To make selections, use the following table.

To	Take this Action
Select a value	Press spacebar to scroll forward through displayed list. Press **Backspace** to scroll backward through list. Displayed value is saved and activated.
Move from field to field	Press ↑ or ↓.
Display Online Help	Press **F1**.
Exit Online Help	Press **F2**.

5. To return to the Main Menu, press **F2**.

Chapter Seven

Configuring the OPS Extension Numbering-Plan and Caller-Number Parameters

Overview

This chapter explains how to configure the OPS extension numbering plan and several parameters describing the caller number.

Configuring OPS Extension Numbering Plan

An *OPS extension number* is the number you must dial at one OPS extension to reach another OPS extension.

You configure the OPS extension numbering plan by entering a base extension number of a specified length. The base extension number is the first number in a numerical series of as many as 24 numbers assigned by the system. The system assigns the base extension number to the first OPS port on the first OPS card in the System 920i. The system then assigns the remaining extension numbers to the remaining OPS ports in sequence.

If desired, you can replace any extension number assigned by the system. (Refer to Chapter 8, “Configuring OPS Card Parameters.”)

Configuring Caller-Number Parameters

The *caller number* is the telephone number sent to the DS1 network when you make an outbound call using one of the OPS extensions. You can determine the exact number sent for each extension and whether the called party can view this number using a caller identification service.

Begin with Your Worksheet

Use a working copy of the Numbering-Plan Configuration worksheet found in Appendix A to specify and record parameters for the System 920i numbering plan. Refer to Table 7-1 for a description of each parameter. (Values marked with an asterisk are the defaults.) Enter data from the worksheet using the System 920i software as described in the procedures following the table.

Table 7-1. Numbering-Plan Parameters

Field	Description
OPS Extension Digit Length	Select a number representing the number of digits for an OPS extension. Choices are: 3 4* 5 **Comments** Ensure you press ↵ after selecting the number. If you intend to use 3-digit numbers such as 101 or 214 as OPS extensions, select 3. To use 4-digit numbers, select 4. To use 5-digit numbers, select 5. When you set the digit length to 3, the system changes the base extension number to 101. When you set the length to 4, the system changes the base extension number to 1001. When you set the length to five, the system changes to base extension number to 10001. After you change the number of digits, the system renumbers all OPS extensions sequentially starting with the base extension number. You can change the base extension number set by the system in the **OPS Base Extension Number** field. Once you have set the base extension, the system renumbers all OPS extensions.
OPS Base Extension Number	Enter the OPS base extension you want to use to establish the OPS numbering plan for the System 920i. The number you enter must be the length entered in the **OPS Extension Digit Length** field. Use a number within the range 100-99999. **Comments** Ensure you press ↵ after entering the number. The system renumbers all OPS extensions after you press ↵. The OPS base extension establishes the numbering plan for the 24 OPS ports in the System 920i. The number you choose for the OPS base extension represents the first number in a numerical series of 24 numbers assigned as OPS extensions.

continued

Table 7-1. Numbering-Plan Parameters (cont.)

Field	Description
OPS Base Extension Number (cont.)	For example, you select the extension length 3 and the number 600 as the base extension. The system assigns the extension number 600 to the first OPS port on the first OPS card. The system then assigns the next 23 numbers in the range (numbers 601-623) to the next 23 ports (or to as many ports as are available if you are using fewer than three OPS cards). You can use virtually any number in the range 100-99999 as the base extension. However, do not use an initial digit identical to that used for the ACD call pickup digit, or as the initial outbound access digit for either group 1 or group 2, since these numbers must not conflict. The system prevents you from entering digits that would cause a conflict and provides you with a nonconflicting alternative. For example, the system prevents you from entering 600 as the base extension after you have entered 6 as the ACD call pickup digit. After you type 600 and press ↵, the system displays 700 (assuming that you have not entered 7 as the initial outbound access digit for either group 1 or group 2). (Refer to Chapter 11, "Configuring Dialing Parameters," for more information about ACD call pickup and outbound access digits.) If your customer premise equipment uses a sequential dialing plan, consider coordinating with it when determining the OPS base extension number. For example, your organization might use a CPE-DS1 dialing plan consisting of numbers from 312-555-6600 through 312-555-6699. You can coordinate with the first 24 numbers in this plan by using 4 as the OPS extension digit length and 6600 as the OPS base extension number. The system then assigns the extensions 6600 through 6623 to the OPS ports.
Caller Number	Enter the telephone number you want sent to the DS1 network when you make an outbound call using one of the OPS extensions. **Comments** The exact number sent depends upon the value you select for the **Caller Number Sent** field. (Refer to the description of this field later in this table.) Ensure the format and length of the number you enter conforms with the requirements of the type of number you specify in the **Caller Type of Number** field. (Refer to the description of this field later in this table.)

continued

Table 7-1. Numbering-Plan Parameters (cont.)

Field	Description
Caller Number (cont.)	For example, if you are entering a national number, ensure you enter ten digits representing area code, exchange number, and line number. You might enter 8475556600 as the caller number.
Caller Number Sent	Select the choice indicating how the value entered in the **Caller Number** field is to be sent to the DS1 network. Choices are: NOT SENT* SEND CALLER NUMBER SEND CALLER NUMBER WITH OPS EXTENSION OVERLAY **Comments** Choices have the following meanings: *Not Sent** — The system does not send a number to the DS1 network. (The network may provide the caller number in this case.) It does not matter whether a number has been entered in the **Caller Number** field or not. *Send Caller Number* — The system sends the number entered in the **Caller Number** field exactly as entered. *Send Caller Number with OPS Extension Overlay* — The system sends the number entered in the **Caller Number** field modified as follows: The system replaces the final digits of the entered caller number with the number used by the OPS extension making the call. For example, the entered caller number is 8475556600. The number for the extension making the call is 6601. The system sends the number 8475556601 to the DS1 network. The system sends the caller number in the calling party number information element (IE) of the ISDN setup message.

continued

Table 7-1. Numbering-Plan Parameters (cont.)

Field	Description
Caller Presentation	Select the choice indicating whether the number entered in the **Caller Number** field can be displayed for the called party to view. Choices are: ALLOWED* BLOCKED **Comments** Choices have the following meanings: *Allowed* — The caller number can be viewed by a called party using a caller identification service. *Blocked* — The caller number cannot be viewed by a called party, but is still available to authorized personnel such as the police. The system sends the caller presentation value in the calling party number information element (IE) of the ISDN setup message.
Caller Type of Number	Select the caller number type. Number types imply certain specifications regarding number format and length. Choices are: NATIONAL NUMBER* SUBSCRIBER NUMBER ABBREVIATED NUMBER UNKNOWN NUMBER INTERNATIONAL NUMBER **Comments** A national number is 3, 7, or 11 digits long. A subscriber number is 7 digits long. An abbreviated number is 3 to 5 digits long and is used on a private network. Do not select ABBREVIATED if switch emulation is DMS100 (NI-1). An unknown number is one fitting none of the other classifications. Do not select UNKNOWN if switch emulation is 5ESS (NI-1) or 5ESS (NI-2). In North America, an international number can consist of 11 digits beginning with the number 1. An international number can also start with 011.

continued

Table 7-1. Numbering-Plan Parameters (cont.)

Field	Description
Caller Type of Number (cont.)	(To verify the current switch emulation, view the DS1 and PRI Configuration screen as described in Chapter 5.) The system sends the caller type of number in the calling party number information element (IE) of the ISDN setup message.
Caller Number Plan	Select the choice identifying the number plan used to identify the caller. Choices are: ISDN NUMBERING PLAN* TELEPHONY NUMBERING PLAN PRIVATE NUMBERING PLAN UNKNOWN NUMBERING PLAN **Comments** If your telephone system is connected to the public switched telephone network, select ISDN NUMBERING PLAN. Do not select TELEPHONY if switch emulation is DMS100. Do not select PRIVATE or UNKNOWN if switch emulation is 5ESS. (To verify the current switch emulation, view the DS1 and PRI Configuration screen as described in Chapter 5.) The system sends the caller number plan value in the calling party number information element (IE) of the ISDN setup message.
Called Number Plan	Select the choice indicating the number plan used to dial the called party. Choices are: ISDN NUMBERING PLAN* TELEPHONY NUMBERING PLAN PRIVATE NUMBERING PLAN UNKNOWN NUMBERING PLAN **Comments** If your telephone system is connected to the public switched telephone network, select ISDN NUMBERING PLAN. Do not select TELEPHONY if switch emulation is DMS100 (NI-1).

continued

Table 7-1. Numbering-Plan Parameters (cont.)

Field	Description
Called Number Plan (cont.)	Do not select PRIVATE or UNKNOWN if switch emulation is 5ESS (NI-1) or 5ESS (NI-2). (To verify the current switch emulation, view the DS1 and PRI Configuration screen as described in Chapter 5.) The system sends the called number plan value in the calling party number information element (IE) of the ISDN setup message.

Procedure

To configure OPS extension numbering-plan and caller-number parameters, you must access the Numbering Plan Configuration screen. Select option 3, Numbering Plan Configuration, from the Main Menu.

Take the following detailed steps:

1. If you have not done so, press ↵ to display the Password screen.
2. Access the Main Menu by typing the password at the Password screen. Press ↵. Complete the VT100 compatibility test if this function is enabled.
3. Press **3** to select Numbering Plan Configuration. Press ↵.

   The system displays the Numbering Plan Configuration screen, shown in Figure 7-1. The cursor is initially in the **OPS Extension Digit Length** field.

```
Gordon Kapes, Inc.              System 920i                    Menu 3

                     NUMBERING PLAN CONFIGURATION

OPS Extension Digit Length:  4*
OPS Base Extension Number:   1001
Caller Number:               --
Caller Number Sent:          NOT SENT*
Caller Presentation:         ALLOWED*
Caller Type of Number:       NATIONAL NUMBER*
Caller Number Plan:          ISDN NUMBERING PLAN*
Called Number Plan:          ISDN NUMBERING PLAN*









* Indicates factory default.


              Press Space Bar or Backspace then <ENTER>
               Press Arrow Keys, <F1> help, <F2> exit
```

Figure 7-1. Numbering-Plan Configuration Screen

4. Enter a number in the **OPS Base Extension Number** field. Press ↵. To enter a number in the **OPS Base Extension Number** field, delete the default value. Then enter the number and press ↵. Select a value in all other fields. (Press ↵ after you select a value in the **OPS Extension Digit Length** field.) To make selections and entries, use the following table.

To	Take this Action
Select a value	Press spacebar to scroll forward through displayed list. Press **Backspace** to scroll backward through list. Except for digit length, displayed value is saved and activated.
Enter characters	Type characters. Press ↵ to save and activate.
Delete characters	Press **Backspace**.
Move from field to field	Press ↑ or ↓.
Display Online Help	Press **F1**.
Exit Online Help	Press **F2**.

5. To return to the Main Menu, press **F2**.

Chapter Eight
Configuring OPS Card Parameters

Overview

An *off-premise-station (OPS) card* is a card enabling you to connect 2500-type analog telephones for use with the System 920i. Each OPS card contains eight ports used to establish eight OPS circuits. Each circuit can be accessed using the telephone extension number you assign.

You can install as many as three OPS cards in a System 920i enclosure. Since each card provides eight OPS ports, using all three cards gives you a maximum of 24 ports to which you can connect analog telephones.

This chapter explains how to configure the eight OPS ports on each OPS card you intend to use. You complete the configuration tasks described using the System 920i menu system. Consequently, it is not necessary that the card be physically present in the System 920i when you enter the information. (The card must be installed, of course, before you can operate any equipment assigned to one of its ports.)

You configure each OPS card individually, although the cards you purchase and install are physically identical.

Identifying OPS Cards

Figure 8-1 shows where the OPS cards are installed in the System 920i. You identify each card by the number of the slot in which the card is installed. The card installed in OPS slot 1 is known as card 1, the card in slot 2 as card 2, and the card in slot 3 as card 3.

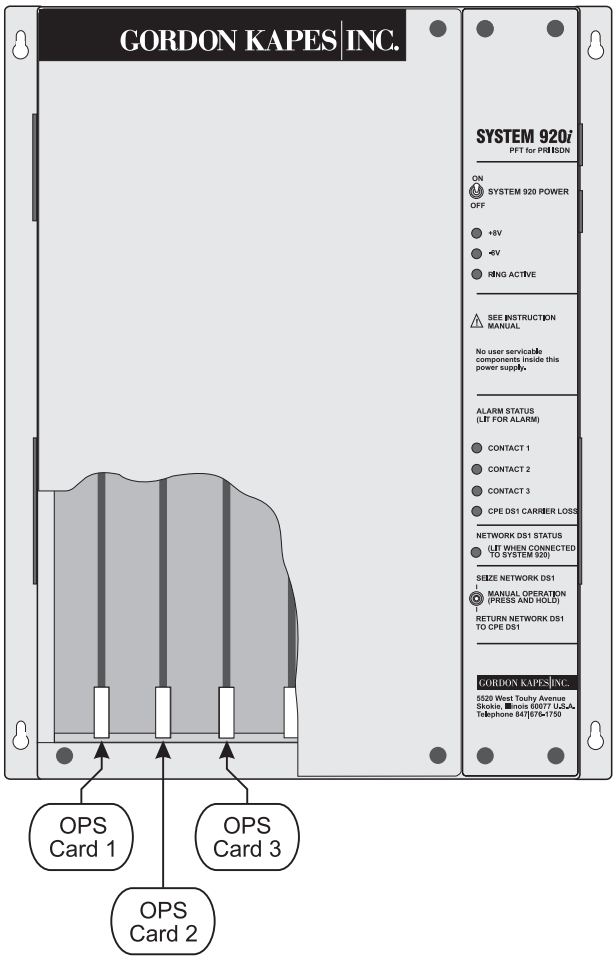

Figure 8-1. OPS Card Slots 1, 2, and 3

Since OPS cards are physically identical, they are interchangeable. You can use a specific card in any slot desired. You can also configure OPS cards in any order desired. Before you operate the System 920i, however, ensure an OPS card is installed in each slot for which you have completed a needed configuration. For example, if you have completed a needed configuration for OPS Card 1, you must ensure a card is installed in slot 1.

Configuring a Port

Configuring a port is a matter of either assigning the port's extension to one of 24 automatic-call-distribution (ACD) functions or of assigning it to none. You can also disable the port for outbound access, if that is desired.

Assigning 920i ACD Functions

The System 920i enables you to define 24 ACD functions for use when incoming calls arrive from the DS1 network. You can configure the System 920i to route incoming calls to any of these ACD functions. When you assign an ACD function to an extension, you make that extension available to answer a call routed through the ACD function.

(To route an incoming call to an ACD function, refer to Chapter 10, "Configuring Inbound-Call Parameters." The instructions in this chapter explain how to assign an ACD function to a match number or range. Chapter 13 explains how to configure the general parameters for ACD functions 1 through 24.)

Authorizing Outbound Access

If you want to allow calls to be placed through the DS1 network from an OPS extension, you can authorize that capability. To make an outbound call, the caller dials the outbound access digit or digits configured for the System 920i, then the telephone number. (Refer to Chapter 11, "Configuring Dialing Parameters" for further information about outbound access digits.)

Assigning Extensions to Ports

Extension numbers are automatically assigned to OPS card ports when you enter an OPS extension digit length and base extension number on the Numbering Plan Configuration screen. You can change any automatically assigned extension number, however, as long as the new number is the configured length and within the range 100-99999, and does not conflict with the ACD call pickup digit or the initial outbound access digit for either group 1 or group 2.

Begin with Your Worksheet

Use a working copy of the OPS Card Configuration worksheet found in Appendix A to specify and record parameters for each of the three possible OPS cards in the System 920i. Refer to Table 8-1 for a description of each parameter. Enter data from the worksheet using the System 920i software as described in the procedure following Table 8-1. (The first and last three parameters in the table explain information displayed on each of the three OPS Card Configuration screens. These do not apply to the worksheet. Values marked with an asterisk are the defaults.)

Table 8-1. OPS Card Configuration Parameters

Field	Description
Card Present	Indicates whether the OPS card is currently installed in the System 920i enclosure. YES indicates the card is installed. NO indicates the card is not installed. **Comments** You can configure the card whether it is currently installed or not. If the card is not currently installed, the parameter settings you make take effect as soon as the card is installed.
OPS Software Version	The system displays the version number of the software on the OPS card if the card is installed. **Comments** The version number is a code stored in a microcomputer chip on the OPS card. This code is used by Gordon Kapes, Inc. to identify the version of the OPS software.
Port	The system displays the number of the OPS port with which an extension, an ACD function, and an outbound access parameter are associated. **Comments** Each OPS Card Configuration screen displays parameter information for each set of eight ports installed on OPS cards 1, 2, and 3.
Ext	The system displays either the extension number automatically assigned by the System 920i or an extension previously entered at this screen. If desired, enter a new number as appropriate. **Comments** If you enter a new extension number, it must be within the range 100-99999 and the number of digits selected for OPS extension digit length on the Numbering Plan Configuration screen. However, do not use an initial digit identical to that used for the ACD call pickup digit, or as the initial outbound access digit for either group 1 or group 2, since these numbers must not conflict. You cannot duplicate an extension number already listed.

continued

Table 8-1. OPS Card Configuration Parameters (cont.)

Field	Description
Ext (cont.)	When you change the OPS extension digit length on the Numbering Plan Configuration screen, this number is replaced by an automatically assigned number.
ACD	Select the ACD function you want to assign to the extension. Choices are: ACD1*-ACD24 NONE **Comments** When you assign an ACD function to an extension, you make the extension available for receiving incoming calls routed by way of the ACD function. If you select NONE, no ACD function is assigned to the extension and the port cannot receive inbound calls. (It can make outbound calls, however, if you enable outbound access.) (For further information about configuring ACD functions, refer to Chapter 13.)
Outbound	Select the outbound-access value for the port. Choices are: ENABLED* DISABLED Select ENABLED if you want to authorize the extension outbound access through the DS1 network. Select DISABLED if you do not want to authorize the extension to access the DS1 network. **Comments** If you select ENABLED, the extension can access an outside line when you dial the DS1 outbound-access digit. (Refer to Chapter 11 for more information.) In addition, the System 920i must have seized the DS1 network and the DS1 network must physically support outbound access. If you select DISABLED, a caller receives a vacant progress tone when the outbound-access digit is dialed.

continued

Table 8-1. OPS Card Configuration Parameters (cont.)

Field	Description	
Connect	Indicates the end point for the current line connection between this OPS extension and another OPS extension or DS1 network channel.	
	Displays have the following meanings:	
	- -	This OPS extension is not connected to a line.
	OPS-*number*	This OPS extension is connected to another OPS extension, where number is the number assigned to the other extension. For example, if this extension is connected to OPS extension 602, the display is OPS-602.
	CALL-*number*	This OPS extension is connected to a call being conducted through the DS1 network (either inbound or outbound), where number (1-23) is the item number assigned the call as displayed on the 920i Call Status screen. (Refer to Chapter 23 for more information.)
	MSG-*number*	This OPS extension is connected to a Recorder/Announcer card message, where number is the message number. For example, if the extension is connected to Message 1, the display is MSG-1.
Hold	Indicates this OPS extension has currently placed another line on hold.	
	Displays have the following meanings:	
	- -	This OPS extension does not have another line placed on hold.
	OPS-*number*	This OPS extension has placed another OPS extension on hold, where number is the number assigned to the other extension. For example, if this extension has placed OPS extension 602 on hold, the display is OPS-602.

continued

Table 8-1. OPS Card Configuration Parameters (cont.)

Field	Description	
Hold (cont.)	CALL-*number*	This OPS extension has placed a call being conducted through the DS1 network (either inbound or outbound), where number (1-23) is the item number assigned the call as displayed on the 920i Call Status screen. (Refer to Chapter 23 for more information.)
State	Indicates the current state, or active condition, of this OPS extension.	
	Displays have the following meanings:	
	Audible Ring	An audible-ring progress tone is connected to this extension. This extension is being used to make a call. An audible-ring progress tone tells the caller that ringing current is being sent to the device being called.
	Busy Tone	A slow-busy progress tone is connected to this extension. This extension is being used to call and connect with another line. The connection cannot be made, however, because the device being called is busy or off-hook.
	Connect	A connection between the calling device and the device being called has been established through this extension.
	Dialing	A number is being dialed through this extension. For example, if the device connected to this extension is a telephone, a person is actually dialing a number when DIALING is displayed.
	Dial Tone	A dial tone progress tone is connected to this extension. This indicates the system is ready for dialing.
	On Hold	A hold progress tone is connected to this extension. The device connected to this extension has placed a call on hold. The System 920i is sending the hold progress tone to the caller placed on hold.

continued

Table 8-1. OPS Card Configuration Parameters (cont.)

Field	Description	
State (cont.)	*Howler Tone*	A howler progress tone is connected to this extension. A howler tone indicates that the device connected to this extension is off-hook and should be put back on-hook.
	On-Hook	The device connected to this extension is on-hook and is not receiving an audible ring progress tone.
	MSG Dialing, MSG Program, MSG Playback, MSG Record	MSG dialing states apply when the OPS extension is accessing the Recorder/Announcer card.
	Progress Tone	The extension is receiving a progress tone of either audible ring or busy from the DS1 network.
	Reorder Tone	A reorder progress tone is connected to this extension. A call has been placed using the device connected to the extension but cannot be completed because all the equipment is busy.
	Ringing	Ringing current is being sent from this port (extension) to the connected device. A caller is attempting to call this extension and the device connected to this extension is receiving ringing current.
	Silence	The condition of the extension after howler tone completes its cycle.
	Stutter Tone	A stutter progress tone is being connected to this extension. A person using the telephone connected to this extension has executed a flash. The system 920i connects the stutter tone to confirm that the flash has been successfully executed.
	Vacant Tone	A vacant progress tone is connected to this extension. This indicates the number dialed from this extension is not valid.
	Wait DS1 Conn	This extension is being used to make an outbound call through the DS1 network. The caller hears an audible-ring progress tone.

Procedure

To configure OPS card parameters, you must access the configuration screen for the OPS card you want to configure. Select option 4, OPS Card Configuration, from the Main Menu. Press **F4** until the page for the desired OPS card is displayed.

Take the following detailed steps:

1. If you have not done so, press ↵ to display the Password screen.
2. Access the Main Menu by typing the password at the Password screen. Press ↵. Complete the VT100 compatibility test if this function is enabled.
3. Press **4** to select OPS Card Configuration. Press ↵.

   The system displays the OPS Card 1 Configuration screen, shown in Figure 8-2. The cursor is initially in the **Ext** field for the first port.

```
Gordon Kapes, Inc.              System 920i                    Menu 4-1

                        OPS CARD 1 CONFIGURATION

Card 1 Present:      YES
OPS Software Version: 1.02

Port   Ext     ACD     Outbound    Connect  Hold     State
 1     1001    ACD 1*  ENABLED*     --       --      OO-ON HOOK
 2     1002    ACD 1*  ENABLED*     --       --      OO-ON HOOK
 3     1003    ACD 1*  ENABLED*     --       --      OO-ON HOOK
 4     1004    ACD 1*  ENABLED*     --       --      OO-ON HOOK
 5     1005    ACD 1*  ENABLED*     --       --      OO-ON HOOK
 6     1006    ACD 1*  ENABLED*     --       --      OO-ON HOOK
 7     1007    ACD 1*  ENABLED*     --       --      OO-ON HOOK
 8     1008    ACD 1*  ENABLED*     --       --      OO-ON HOOK



* Indicates factory default.


           Enter extension (1000-9999). Backspace to edit.
          Press Arrow Keys, <F1> help, <F2> exit, <F4> next
```

Figure 8-2. OPS Card 1 Configuration Screen

4. For each port, select a value in the **ACD** and **Outbound** fields. If desired enter a value in the **Ext** field. Delete the displayed number. Then enter the new number and press ↵. To make selections and entries, use the following table.

To	Take this Action
Delete numbers	Press **Backspace**.
Enter numbers	Type numbers. Press ↵ to save and activate.
Select a value	Press spacebar to scroll forward through displayed list. Press **Backspace** to scroll backward through list. Displayed value is saved and activated.
Move from field to field	Press ↑ or ↓.
Display the next page	Press **F4**.
Display the previous page	Press **F3**.
Display Online Help	Press **F1**.
Exit Online Help	Press **F2**.

5. To return to the Main Menu, press **F2**.

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Chapter Nine
Configuring Recorder/Announcer Parameters

Overview

This chapter explains how to configure parameters associated with the optional 915 Recorder/Announcer card. These consist of the following:

- Entering the number for the OPS port from which to access the card
- Entering the numeric password required for accessing the card

Designating Recorder/Announcer Access Port

The Recorder/Announcer card enables you to record two voice messages for use in system-configured functions. These messages can vary in length with a maximum of 20 seconds per message. To record these messages, or to listen to them for the purpose of maintenance, you must use a telephone connected to the OPS access port on the System 920i that you designate.

To designate the Recorder/Announcer OPS access port, you select the number of the OPS port you want to use for this purpose; or, if you want to access the Recorder/Announcer from *all* your OPS phones, you can select ALL. You must choose either a single OPS port number or all OPS port numbers. You cannot enter a selected group of numbers.

Recorder/Announcer Numeric Password

When you dial the Recorder/Announcer from an authorized extension, it "answers" by sending a new dial tone after pausing momentarily. You must then enter a 7-digit access password through the telephone keypad. This 7-digit number enables authorized personnel to access the Recorder/Announcer.

The default password is 1234567. If you desire to change the default, compose a new 7-digit number for use at the site.

Begin with Your Worksheet

Use a working copy of the Recorder/Announcer Configuration worksheet found in Appendix A to specify and record Recorder/Announcer parameters. Refer to Table 9-1 for a description of each parameter. (The last three fields described in the table are screen displays only. Values marked with an asterisk are the defaults.) Enter data from the worksheet using the System 920i software as described in the procedure following Table 9-1.

Table 9-1. Recorder/Announcer Configuration Parameters

Field	Description
Recorder/Announcer OPS Access Port	Select the number of the OPS port through which you want to be able to access the Recorder/Announcer for maintenance. If you want to be able to access the Recorder/Announcer from all of the OPS ports, select ALL. Choices are: ALL* 1-24 **Comments** To record a message use the telephone extension assigned the selected OPS access port. (Refer to Chapter 8, "Configuring OPS Card Parameters.")
Recorder/Announcer Numeric Password	Enter the 7-digit number you want to use as a password to access the Recorder/Announcer for maintenance. **Comments** Use numbers only. Do not use * or # or any other symbol found on a telephone keypad. After you dial *99 from the authorized extension, you must enter this numeric password at the telephone keypad to access the Recorder/Announcer.
Do you wish to erase all voice messages?	To erase messages previously recorded on the card, select YES and press ↵. Choices are: NO* YES **Comments** This function enables factory personnel to quickly erase test messages when preparing your System 920i for shipment. (To record messages, refer to Chapter 26, "Playing and Recording Recorder/Announcer Messages." Since recording a new message automatically erases the old message, you probably do not need to use the erase function.) Once you select YES and press ↵, the system erases both messages and then displays NO.

continued

Table 9-1. Recorder/Announcer Configuration Parameters (cont.)

Field	Description
Resource Available	Indicates whether the 915 card is currently installed in the System 920i enclosure. YES (915 CARD PRESENT) indicates the card is installed and available. NO indicates the card is not installed. ***Note:*** You can only record or play a message when the resource is available. (If you are using the 916 DTMF Receiver and Recorder/Announcer card, which is sold with the System 920, the display indicates the 916 card is available.)
Message 1 Status Message 2 Status	Indicates whether each message is currently being played by the System 920i. Displays have the following meanings: *Idle* — The message is not currently being played. *Play* — The message is currently being played. *Pause* — The message has finished playing and is being reset to the beginning. *Record* — A message is being recorded.

Procedure

To configure recorder/announcer parameters, you must access the Recorder/Announcer Configuration screen. Select option 5, Recorder/ Announcer Configuration, from the Main Menu.

Take the following detailed steps:

1. If you have not done so, press ↵ to display the Password screen.
2. Access the Main Menu by typing the password at the Password screen. Press ↵. Complete the VT100 compatibility test if this function is enabled.
3. Press **5** to select Recorder/Announcer Configuration. Press ↵.

   The system displays the Recorder/Announcer Configuration screen, shown in Figure 9-1. The cursor is initially in the **Recorder/Announcer OPS Access Port** field.

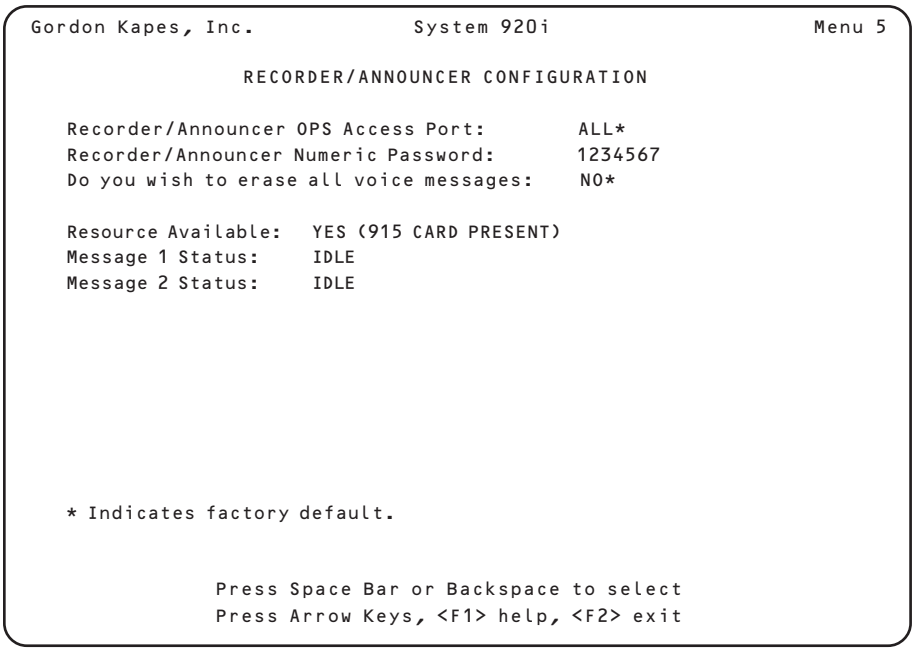

Figure 9-1. Recorder/Announcer Configuration Screen

4. To enter a number in the **Recorder/Announcer Numeric Password** field, delete the default value. Then enter the number and press ↵. Select a value in all other fields. To make selections and entries, use the following table.

To	Take this Action
Select a value	Press spacebar to scroll forward through displayed list. Press **Backspace** to scroll backward through list. Displayed value is saved and activated.
Enter numbers	Type numbers. Press ↵ to save and activate.
Delete numbers	Press **Backspace**.
Move from field to field	Press ↑ or ↓.
Display Online Help	Press **F1**.
Exit Online Help	Press **F2**.

5. To return to the Main Menu, press **F2**.

Chapter Ten
Configuring Inbound-Call Parameters

Overview

The System 920i identifies the telephone number being called by an outside party. When the called number matches either an individual number, or falls within a range of numbers you have specified, the incoming call is routed to the function you have configured.

You can specify as many as 48 specific numbers or number ranges to be compared with an inbound address-signaling number (the telephone number being called). These are called match numbers and match ranges. When an inbound address-signaling number matches a match number (or falls within a match range), the call is routed as configured. You can route a call with a matched number to an ACD function, a redirect function, a message, or, if desired, a reorder progress tone.

When searching for a match, the system scans the list of match numbers and ranges from top to bottom. It routes the inbound call according to the first successful match.

If the inbound number does not match a specified match number or fall within a specified range, the system routes it to a reorder progress tone. The reorder tone is issued for 30 seconds, and then the call is disconnected.

This chapter explains how to configure match numbers and ranges, as well as the function to which a matched inbound call is routed. Refer to Appendix G for a detailed flowchart on match number table routing options.

Begin with Your Worksheet

Use a working copy of the Inbound Call Configuration worksheet found in Appendix A to specify and record parameters for inbound-call numbers and routing. Refer to Table 10-1 for a description of each parameter. (Values marked with an asterisk are the defaults.) Enter data from the worksheet using the System 920i software as described in the procedure following Table 10-1.

Table 10-1. Inbound-Call Configuration Parameters

Field	Description
Match Number	Enter either a single string of individual address-signaling digits (such as a telephone number) or a range of address-signaling digits. **Comments** Use as many as 17 digits in each string. You can use the following: 0-9, *, #, and A-D. To enter a range of digits, enter the lower number followed by a hyphen (-) and then the higher number. Use the same number of digits for both the lower number and the higher number. Make as many as 48 entries. **Example** You enter 10-digit address-signaling strings. You enter both a single match number and a match range: 1. 8475556000 2. 8475556001-8475556025 The System 920i checks the inbound address-signaling digits to see if they match the specific match number 8475556000, or if they fall within the range 8475556001 through 8475556025. If either event occurs, a match is made and the system routes the call as configured for the match.
Route if Match	Select the connection the system makes when a match is made for this match number or range. Choices are: ACD 1*-ACD 24 MESSAGE 1 PLAY TWICE MESSAGE 2 PLAY TWICE REDIRECT 1-24 REORDER Choices have the following meanings: *ACD 1-ACD 24* — The system routes the call to the specified ACD function. (For information about configuring ACD functions, refer to Chapter 13.)

continued

Table 10-1. Inbound-Call Configuration Parameters (cont.)

Field	Description	
Route if Match (cont.)	*MESSAGE 1 PLAY TWICE, MESSAGE 2 PLAY TWICE*	The system routes the call to the specified voice message. The system plays the message twice and then disconnects the call. (For information about recording messages, refer to Chapter 26.)
	REDIRECT 1-24	The system routes the call to the specified redirect function. (For information about configuring redirect functions, refer to Chapter 14.)
	REORDER	The system connects the call to a reorder progress tone. The reorder tone is issued for 30 seconds, and then the call is disconnected.

Procedure

To configure inbound-call parameters, you must access the Inbound Call Configuration screen. Select option 6, Inbound Call Configuration, from the Main Menu.

Take the following detailed steps:

1. If you have not done so, press ↵ to display the Password screen.
2. Access the Main Menu by typing the password at the Password screen. Press ↵. Complete the VT100 compatibility test if this function is enabled.
3. Press **6** to select Inbound Call Configuration. Press ↵.

   The system displays the Inbound Call Configuration screen, shown in Figure 10-1. The cursor is initially in the first **Match Number** field.

```
Gordon Kapes, Inc.            System 920i                    Menu 6-1

              INBOUND CALL CONFIGURATION - MATCH 1-12

No.  Match Number                          Route if Match
 1.  --                                    ACD 1*
 2.  --                                    ACD 1*
 3.  --                                    ACD 1*
 4.  --                                    ACD 1*
 5.  --                                    ACD 1*
 6.  --                                    ACD 1*
 7.  --                                    ACD 1*
 8.  --                                    ACD 1*
 9.  --                                    ACD 1*
10.  --                                    ACD 1*
11.  --                                    ACD 1*
12.  0-99999999999999999                   ACD 1*


* Indicates factory default.


    Enter match number (0-17 digits) or match range. Backspace to edit.
          Press Arrow Keys, <F1> help, <F2> exit, <F4> next
```

Figure 10-1. Inbound-Call Configuration Screen

4. The screen consists of four pages enabling you to list as many as 48 match numbers (or ranges) paired with their corresponding match routes. Enter a number in the **Match Number** field. Select a corresponding route in the **Route if Match** field. To make entries and selections, use the following table.

To	Take this Action
Enter numbers	Type the numbers.
Delete numbers	Press **Backspace**.
Select a value	Press spacebar to scroll forward through displayed list. Press **Backspace** to scroll backward through list. Displayed value is saved and activated.
Move from field to field	Press ↑ or ↓.
Display the next page	Press **F4**.
Display the previous page	Press **F3**.
Display Online Help	Press **F1**.
Exit Online Help	Press **F2**.

5. To return to the Main Menu, press **F2**.

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Chapter Eleven
Configuring OPS Dialing Parameters

Overview

This chapter identifies and explains how to enter parameter information required by the OPS Dialing Configuration screen. You enter two categories of information on this screen.

Configuring Extension Parameters

This first category consists of information identifying how you want to use the extensions connected to your System 920i. You specify how you want to use the extensions for internal communication, what is to be connected when you dial zero from an extension, and the number to be used as the ACD call pickup digit.

Configuring Outside Call Parameters

The second category consists of information helping you customize the way the System 920i makes outbound calls. You enter the digits to be dialed to access an outside line and also information identifying when a complete number has been dialed.

With the System 920i you can define two different outbound access numbers. These are the numbers you dial to access an outside line. Each outbound access number can consist of either one or two digits. You can use each outbound access number to access a different outside line or service.

You can configure different parameters for both of these outside services. For the first outside service you choose, you configure Group 1 parameters; and for the second service, if you choose to use it, you configure Group 2 parameters.

At the OPS Dialing Configuration screen you can configure outbound access digits and insert numbers for both groups. (An *insert number* is a number you want the System 920i to insert before the dialed number when you are placing a call.)

The Outbound Call Configuration screen, which is described in the next chapter, enables you to provide separate outbound call authorization entries for each group as well, if you decide to modify the preconfigured information already entered for this screen.

Begin with Your Worksheet

Use a working copy of the OPS Dialing Configuration worksheet found in Appendix A to specify and record dialing parameters. Refer to Table 11-1 for a description of each parameter. (Values marked with an asterisk are the defaults.) Enter data from the worksheet using the System 920i software as described in the procedure following Table 11-1.

Table 11-1. OPS Dialing Parameters

Field	Description
Intercom Operation	Select the intercom operating status for all OPS extensions. Choices are: TRANSFER MODE ONLY* ALWAYS **Comments** To enable OPS extensions to provide internal communications *only* after the System 920i has seized the DS1 network, select TRANSFER MODE ONLY. To enable OPS extensions to provide internal communications under normal conditions as well as after the System 920i has seized the DS1 network, select ALWAYS.
Intercom Dial 0	Select the connection you want the System 920i to make when a person dials 0 at an OPS extension whose intercom operation is activated. Choices are: VACANT* ACD 1-ACD 24 MESSAGE 1 MESSAGE 2 Choices have the following meanings: *VACANT* — Connects the caller to a vacant tone. *ACD 1-ACD 24* — Connects the caller to the specified ACD function. *MESSAGE 1, MESSAGE 2* — Connects the caller to the specified voice message. The system plays the message continuously until the caller disconnects the call.
ACD Call Pickup Digit	Select the digit to dial when answering an incoming call ringing at another station within the same ACD group. Choices are: 2-7 3* NONE **Comments** Choosing NONE disables the call-pickup function.

continued

Table 11-1. OPS Dialing Parameters (cont.)

Field	Description
ACD Call Pickup Digit (cont.)	Remember, you cannot assign the same digit as an outbound access digit or the first digit of any OPS extension. (Refer to Chapters 7 and 8 for more information about configuring OPS extensions.)
Outbound Dial #	Select the action to be taken when a person dials # from an extension. Choices are: SPECIAL* PASS THROUGH Select SPECIAL to require the system to ignore the maximum length needed to match the dialed number. (Refer to Chapter 12 for more information about maximum length.) This speeds up processing the outbound call. The # is stripped from the dialed number. Remember, to activate this function you must dial # at an extension after dialing the outbound number. Select PASS THROUGH to include # in the dialed number. The system uses the normal time to process the outbound call.
Outbound 1st Digit Timeout	Select the maximum number of seconds you want the System 920i to wait to detect the first address-signaling digit in the outbound number. Choices are: 1-10* SECONDS **Comments** The caller dials the first digit of the outbound number after dialing the outbound access digit. If the caller does not dial the first digit within the number of seconds you configure, the system connects the call to a reorder tone.
Outbound Interdigit Timeout	Select the maximum number of seconds you want the System 920i to wait between interdigit address-signaling digits in the outbound number. Choices are: 1-10* SECONDS

continued

Table 11-1. OPS Dialing Parameters (cont.)

Field	Description
Outbound Interdigit Timeout (cont.)	**Comments** An interdigit is any address-signaling digit in the outbound number except for the first digit. If the caller does not dial *any* interdigit within the number of seconds you configure, the system sends the number as dialed if a match has been made with a send entry (configured as send out or send out with insert) on the Outbound Call Configuration screen. (Refer to Chapter 12.) After you dial the final digit of the outbound number, the system sends the number when the following occurs: The system matches the number with a send entry on the Outbound Call Configuration screen, or when you dial # with the outbound dial # parameter set to special.
Outbound Access 1st Digit Group 1	For group 1, select the initial digit of the number you want to use to access an outside line (through the DS1 network) from a System 920i extension. Choices are: 3-9* **Comments** You must enter a number. If you choose to use a single digit as the outbound access number for group 1, you enter that number here. If you choose to use a 2-digit outbound access number for group 1, you enter the first of the two digits here. If you are configuring only one group of dialing parameters, you must configure the group as group 1. Remember, you cannot assign the same digit as an outbound access digit, an ACD call pickup digit, or the first digit of any OPS extension. (Refer to Chapters 7 and 8 for more information about configuring OPS extensions.)
Outbound Access 2nd Digit Group 1	If you are configuring a 2-digit outbound access number for group 1, select the second digit. Otherwise, select NONE. Choices are: 0-9 NONE*

continued

Table 11-1. OPS Dialing Parameters (cont.)

Field	Description
Outbound Access Insert Group 1	If you are using an outbound access insert number for group 1, enter the number. Enter as many as 17 digits. The System 920i inserts the number you enter before the dialed number if you have selected SEND WITH INSERT as the route-if-match parameter for any match on the Outbound Call Configuration Group 1 screen. (Refer to Chapter 12.) **Comments** An example of an insert number is a single- or multiple-digit code number used to access a specific commercial long-distance service.
Outbound Access 1st Digit Group 2	For group 2, select the initial digit of the number you want to use to access an outside line (through the DS1 network) from a System 920i extension. If you are not configuring group 2 parameters, select NONE. Choices are: 3-9* NONE **Comments** If you choose to use a single digit as the outbound access number for group 2, you enter that number here. If you choose to use a 2-digit outbound access number for group 2, you enter the first of the two digits here. Remember, you cannot assign the same digit as an outbound access digit, an ACD call pickup digit, or the first digit of any OPS extension. (Refer to Chapters 7 and 8 for more information about configuring OPS extensions.)
Outbound Access 2nd Digit Group 2	If you are configuring a 2-digit outbound access number for group 2, select the second digit. Otherwise, select NONE. Choices are: 0-9 NONE*

continued

Table 11-1. OPS Dialing Parameters (cont.)

Field	Description
Outbound Access Insert Group 2	If you are using an outbound access insert number for group 2, enter the number. Enter as many as 17 digits. The System 920i inserts the number you enter before the dialed number if you have selected SEND WITH INSERT as the route if match parameter for any match on the Outbound Call Configuration Group 2 screen. (Refer to Chapter 12.) **Comments** An example of an insert number is a single- or multiple-digit code number used to access a specific commercial long-distance service.

Procedure

To configure OPS dialing configuration parameters, you must access the OPS Dialing Configuration screen. Select option 7, OPS Dialing Configuration, from the Main Menu.

Take the following detailed steps:

1. If you have not done so, press ↵ to display the Password screen.
2. Access the Main Menu by typing the password at the Password screen. Press ↵. Complete the VT100 compatibility test if this function is enabled.
3. Press **7** to select OPS Dialing Configuration. Press ↵.

   The system displays the OPS Dialing Configuration screen, shown in Figure 11-1. The cursor is initially in the first **Intercom Operation** field.

```
Gordon Kapes, Inc.            System 920i                    Menu 7

                      OPS DIALING CONFIGURATION

Intercom Operation:                TRANSFER MODE ONLY*
Intercom Dial 0:                    VACANT*
ACD Call Pickup Digit:               3*
Outbound Dial #:                    SPECIAL*
Outbound 1st Digit Timeout:          10* SECONDS
Outbound Interdigit Timeout:         10* SECONDS
Outbound Access 1st Digit Group 1:   9*
Outbound Access 2nd Digit Group 1:   NONE*
Outbound Access Insert Group 1:      --
Outbound Access 1st Digit Group 2:   NONE*
Outbound Access 2nd Digit Group 2:   --
Outbound Access Insert Group 2:      --



* Indicates factory default.


              Press Space Bar or Backspace to select
              Press Arrow Keys, <F1> help, <F2> exit
```

Figure 11-1. OPS Dialing Configuration Screen

4. Enter a number in the **Outbound Access Insert** fields. Select a value in all other fields. To make entries and selections, use the following table.

To	Take this Action
Enter numbers	Type the numbers.
Delete numbers	Press **Backspace**.
Select a value	Press spacebar to scroll forward through displayed list. Press **Backspace** to scroll backward through list. Displayed value is saved and activated.
Move from field to field	Press ↑ or ↓.
Display the next page	Press **F4**.
Display the previous page	Press **F3**.
Display Online Help	Press **F1**.
Exit Online Help	Press **F2**.

5. To return to the Main Menu, press **F2**.

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Chapter Twelve
Configuring Outbound-Call Parameters

Overview

The entries you make on the Outbound Call Configuration screen are used by the System 920i to speed up sending the telephone numbers you authorize to the DS1 network, and to prevent sending those numbers you consider unauthorized.

The Outbound Call Configuration screen consists of two identical sets of screens: One set is for group 1 calls and the other set is for group 2 calls. Each set consists of four pages and enables you to enter as many as 48 outbound call matching entries. (For more information about groups 1 and 2, refer to Chapter 11.)

Each outbound call entry consists of a prefix number, a maximum length, a strip length, a number type, and call disposition (Route if Match column).

After a dialed number makes a match with a prefix number, the System 920i uses the maximum number and strip number entries to determine when the caller has finished dialing. This enables the System 920i to immediately send out an authorized number without waiting for the interdigit timeout period to elapse. The System 920i terminates the processing of unauthorized numbers as soon as a prefix match has been made and the maximum number of digits is reached or the interdigit timeout occurs.

In general, the System 920i collects digits as they are dialed to find a matching prefix in the list of entries. When a match is found, the System 920i counts the number of digits dialed (after the outbound access digit or digits) until the it reaches the maximum number of digits entered in the Max column on the screen (plus the number of strip digits, if these have been entered). The System 920i sends the digits (after striping out any strip digits) along with the number type corresponding with the matched prefix on the screen.

When a match is made but the interdigit timeout occurs before the maximum number of digits has been dialed, the System 920i processes the call as configured using the dialed digits. Similarly, when the calling party dials # to terminate the dialed number (with the dial # parameter configured as special on the Dialing Configuration screen, as described in Chapter 11) and a match has been made, the System 920i processes the call as configured using the dialed digits.

You can configure the System 920i to either send the number by itself or with the insert number (which you enter on the Dialing Configuration screen).

You can use a third setting to connect the call to a reorder tone. This setting enables you to prevent personnel from making calls using numbers you do not want to authorize, such as numbers beginning with 1-900, for example.

Using Factory Defaults

The factory ships the Outbound Call Configuration screen preconfigured to facilitate generally-accepted parameters of business telephone use in the United States of America.

Specifically, the factory settings enable an outbound caller to call any local number and any long-distance number including an international number. In addition, the caller can call 411 for information, 611 for repair service, and 911 for emergency.

The factory settings also prevent numbers beginning with 1-900 and 976 from being placed. These are sponsor-provided service numbers for which a charge is automatically billed.

Finally, the factory settings include a list of entries for other numbers you may want to disable. As provided by the factory, the System 920i sends out each number listed when it is dialed. You can disable any of these by selecting REORDER in the Route if Match column for the entry on the screen. Use the following list to identify each entry:

Prefix	Provides a Match For:
1242	Calls to the Bahamas
1246	Calls to Barbados
1264	Calls to Caribbean Islands
1268	Calls to Antigua
1284	Unidentified
1345	Calls to the Cayman Islands
1441	Calls to Bermuda
1473	Unidentified
1664	Calls to Montserrat
1758	Calls to St. Lucia
1767	Calls to Dominica
1784	Unidentified
1787	Calls to Puerto Rico
1809	Calls to Trinidad, Virgin Islands, Dominican Republic, and other Caribbean countries
1868	Calls to Trinidad, Tobago
1869	Calls to St. Kitts, Nevis
1876	Unidentified

You may wish to add to or modify other settings on the Outbound Call Configuration screen. To facilitate adding entries on the screen, several entry lines have been left blank among prefix number groups. You can also delete any entry as needed. Before attempting to add or modify entries, review the number processing rules, which are discussed later in this chapter.

If you want to reset the screen to the factory-provided settings at any time, type the word **DEFAULT** at any online help screen. (Press **F1** to display online help.) The System 920i replaces all previous entries with the factory-provided settings for both calling groups; and displays the most-recently accessed page of the Outbound Configuration screen.

Using Number Processing Rules

When making entries on the Outbound Call Configuration screen, you must abide by the following rules for processing:

- You must provide a prefix to match each dialed number you want the System 920i to process. You can design a prefix to match a large group of numbers, a small group, or even an individual telephone number.

- You must list prefix numbers in descending order by number of digits. This is because the System 920i scans the list of entries from line 1 through line 48.
- You must use each entry to either enable or disable calling for a specific number or group of numbers

This chapter provides a detailed discussion of each rule. If you intend to add, change, or delete entries, you should read these discussions carefully since the entries you make must conform with the rules they explain. Otherwise the System 920i may not work properly with some outbound calls.

Rule One

Rule 1 states: You must provide a prefix to match each dialed number you want the System 920i to process.

In order to process a dialed outbound call, the System 920i *must* match the dialed number with a prefix listed on the Outbound Call Configuration screen. A match occurs when each digit of a dialed number is identical to each digit of a prefix in corresponding order from left to right. When every digit in the prefix is matched, a match is declared, and the System 920i processes the entry as configured.

Since the minimum number of digits required for a prefix is one, you can enter a single-digit prefix that matches a very large group of dialed numbers. For example, if you entered the single digit 1 as a prefix, the entry would match all dialed long-distance numbers in the United States of America. This is because all dialed long-distance numbers in this country begin with the number 1.

And as a consequence, you could enter the prefix 1 to send all long-distance calls placed by a caller. The default settings provided by the factory include an entry using the prefix 1 and the route-if-match of send out. This entry enables all long-distance calls in the United States of America.

Since you can use as many as 17 digits in a prefix, you can design prefixes to enable or prevent calling more specific groups of telephone numbers; or you can even enable or prevent calling a specific telephone number.

For example, you could enter the prefix 1242 to either enable or prevent all calls placed to the Bahamas. Since all calls from the United States to the Bahamas must begin with the numbers 1242, all such calls match with the entered prefix 1242. These would then be processed as configured.

An even more specific prefix might consist of an entire telephone number. For example you could design an entry using the prefix 12425551234. Here a match is made only when the entire phone number is dialed. You might use such a prefix to allow calling only one number in an area while preventing all other calls to the same area from being made.

As you can see, you can design a match using a very general prefix or a very specific prefix. This provides you a great deal of flexibility.

Nevertheless, a match of some type must be made for the System 920i to process the dialed number. If a match is not made, the call is connected to a vacant tone. For example, the preconfigured entry for line 44 on the Outbound Call Configuration screen (for both calling groups) uses the prefix 5. This entry makes a match with all dialed numbers beginning with 5, and since the route-if-match processing is configured as send out, it enables them to be sent to the DS1 network. Were you to remove this entry by itself, you would be connected to a vacant tone each time you dialed any number beginning with 5 since there would no longer be a match.

Rule Two

Rule 2 states: You must list prefix numbers in descending order by number of digits (from most to least). You must follow this rule because the System 920i scans the list of entries from line 1 through line 48 until it finds a match. As soon as the System 920i finds a match, it processes the dialed number.

For example, you want to allow personnel to call only one telephone number with the area code 250. This telephone number is 1(250) 555-1234. As a result, you make an entry listing the entire number as the prefix with the route-if-match parameter set to Send. Then, *after* this entry, you list the prefix 1250 and set the route-if-match parameter to reorder. The two completed entries look like the following:

Prefix	Max	Strip	Type	Route if Match
12505551234	11	0	N	Send
.				
.				
.				
1250	11	0	N	Reorder

Now assume that someone dials the number 1 (250) 555-1234. The System 920i scans the list of entries until it finds a prefix with a matching first digit. In this case, the first prefix with a matching first digit is 12505551234. The System 920i then compares the second digit which also matches. It then compares the third digit, and the fourth, and so on. As it happens in this case, each digit in the dialed number matches each digit in the listed prefix. This means there is a match and the System 920i sends out the dialed number as configured. Thus far the configuration works as intended.

Now assume that a person dials a different number using area code 250. For example, the person dials 1 (250) 555-4444. The System 920i goes down the list looking for a match. Again it encounters 12505551234. And again the first digit is a match. This is also true of the second digit, and on through the seventh digit. But the eighth digit of the dialed number, 4, does not match the corresponding digit of the prefix, which is 1. Consequently, the System 920i declares a mismatch because the dialed number does not match each digit in the prefix in order. The entry is ignored and the System 920i continues down the list, again looking for a match.

Once the System 920i arrives at the entry 1250, digits begin to match again. The first four digits match perfectly. At this point there are no remaining digits in the prefix to compare. Consequently, a match is declared, since each digit in the prefix has been matched in the correct order. The System 920i does not send the dialed number since that is the configuration for the matched entry.

But now assume these entries appear on the screen listed in reverse order. A person dials 1 (250) 555-1234. The System 920i looks for the first match. It first encounters the prefix 1250. The first four digits in the dialed number match the four digits in the prefix in the correct order. Since there are no remaining digits in the prefix, a match is declared after all eleven digits are dialed. The System 920i processes the call as configured and connects the call to a reorder tone. Notice that it was the intent of the configuration to *send* the number 1 (250) 555-1234. But because the entries were listed in the wrong order, that intent was not realized.

Rule Three

Rule 3 states: You must use each entry to either enable or disable calling for a specific number or a group of numbers. If you have read the discussions of the first two rules, the meaning of the third rule is obvious: You design prefixes to match various groups of numbers whose size and type vary. By enabling or disabling the processing of specific groups, whose entries are placed in the correct order in the list, you can authorize specific groups of numbers or restrict specific groups.

Begin with Your Worksheet

Use a working copy of the Outbound Call Configuration worksheet found in Appendix A to specify and record outbound-call parameters for both dialing groups. Refer to Table 12-1 for a description of each parameter. Enter data from the worksheet using the System 920i software as described in the procedure following Table 12-1.

Table 12-1. Outbound-Call Parameters

Field	Description
Prefix	Enter the digits to be compared with the leading digits of a dialed number to determine a match. **Comments** Use as many as 17 digits. You can use the following: 0-9, *, #, and A-D. Do not include the outbound access digit for the group.
Max	Select the number of digits the caller must dial before a match can be made with the prefix for this entry. Choices are: 1-17 **Comments** If the dialed number is to be sent when matched, enter the number of digits that must be dialed before a match is processed. This is the number of digits composing the dialed number. Do not include any insert digits or strip digits. For example, the prefix is 1847 and you are designing the entry to match with any national number of eleven digits, such as 1 (847) 555-1234. You enter eleven. If the dialed number is to be connected to a reorder tone when matched, enter the number of digits used in the prefix. For example, if the prefix is 1847, enter 4. The System 920i ignores the max number when an interdigit timeout occurs or when the caller dials # with the dial # parameter configured to special on the Dialing Configuration screen.
Strip	Select the number of digits you want the System 920i to remove from the beginning of the dialed number (after the outbound access digit or digits) to isolate the dialed number. Choices are: 0-17 **Comments** A carrier access number is an example of a strip number.

continued

Table 12-1. Outbound-Call Parameters (cont.)

Field	Description
Type	Select the type of number used to make the outbound call. Choices are: I, N, S, A, U Choices have the following meanings: *I* — International number. In North America an international number starts with 011, even when preceded by the carrier designation (10XXX). *N* — National number. A national number is 3, 7, or 11 digits long. (Examples are 411, any local number such as 555-1234, and any long distance number, such as 1 (847) 555-1234 respectively. *S* — Subscriber number. A subscriber number is 7 digits long. These are used only on ETN networks. *A* — Abbreviated number. An abbreviated number is 3 to 5 digits long and is used on private networks. Do not use abbreviated if switch emulation is DMS100. (Refer to Chapter 5.) *U* — Unknown number. Unknown means the called number is not identified by type. Do not use unknown if the switch emulation is 5ESS. (Refer to Chapter 5.)
Route if Match	Select the action the system takes if a number match is made. Choices are: REORDER SEND OUT SEND OUT WITH INSERT Choices have the following meanings: *Reorder* — The system connects the call to a reorder progress tone (fast busy). *Send Out* — The system sends the dialed number to the DS1 network. *Send Out with Insert* — The system sends the insert number followed by the dialed number to the DS1 network.

Procedure

To configure outbound call configuration parameters, you must access the Outbound Call Configuration screen. Select option 8, Outbound Call Configuration, from the Main Menu.

Take the following detailed steps:

1. If you have not done so, press ↵ to display the Password screen.
2. Access the Main Menu by typing the password at the Password screen. Press ↵. Complete the VT100 compatibility test if this function is enabled.
3. Press **8** to select Outbound Call Configuration. Press ↵.

   The system displays the first page of Outbound Call Configuration screen (for calling group 1). This is shown in Figure 12-1. The cursor is initially in the first **Prefix** field.

```
Gordon Kapes, Inc.              System 920i                    Menu 8-1

          OUTBOUND CALL CONFIGURATION GROUP 1 - PREFIX 1-12

No.  Prefix              Max    Strip  Type     Route if Match
 1.  --                  --     --     -        --
 2.  --                  --     --     -        --
 3.  --                  --     --     -        --
 4.  --                  --     --     -        --
 5.  --                  --     --     -        --
 6.  1242                11     0      N        SEND OUT
 7.  1246                11     0      N        SEND OUT
 8.  1264                11     0      N        SEND OUT
 9.  1268                11     0      N        SEND OUT
10.  1284                11     0      N        SEND OUT
11.  1345                11     0      N        SEND OUT
12.  1441                11     0      N        SEND OUT




        Enter number (0-17 digits). Backspace to edit.
    Press Arrow Keys, <F1> help, <F2> exit, <F3> previous, <F4> next
```

Figure 12-1. Outbound Call Configuration Screen

4. To add an entry, position the cursor in the **Prefix** field of an unused entry line. Enter or select each parameter.

   To delete an entry, position the cursor in the **Prefix** field of the entry. Delete the prefix, then press any arrow key.

   To make individual entries and selections, use the following table.

To	Take this Action
Enter numbers	Type the numbers.
Delete numbers	Press **Backspace**.
Select a value	Press spacebar to scroll forward through displayed list. Press **Backspace** to scroll backward through list. Displayed value is saved and activated.
Move from field to field	Press ↑ or ↓.
Display the next page	Press **F4**. Use F4 to page forward through all pages of both dialing groups.
Display the previous page	Press **F3**. Use F3 to page backward through all pages of both dialing groups.
Display Online Help	Press **F1**.
Exit Online Help	Press **F2**.

5. To return to the Main Menu, press **F2**.

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Chapter Thirteen
Configuring ACD Function Parameters

Overview

You can define as many as 24 automatic-call-distributor (ACD) functions for use after the System 920i has seized the DS1 network. Each ACD function distributes the inbound calls that have been routed to it. Each ACD function distributes inbound calls to assigned OPS ports. You must assign an ACD function to an OPS port. Otherwise, each inbound call you have assigned to the ACD function is connected to a reorder progress tone.

Chapter 10 of this manual explains how to route one or more inbound calls directly to one of the 24 ACD functions. Chapter 8 explains how to assign both an OPS port and its assigned extension to any ACD function. This chapter explains how to configure general operating parameters for the 24 ACD functions.

Configuring an ACD function for the System 920i entails determining and specifying three parameters for each function. These are:

- Queue depth
- Queue action
- Overflow action

Queue depth means the maximum number of calls to be kept waiting for a connection when all assigned extensions are busy. A call placed in queue stays in queue until either the caller hangs up or until the call is connected to an available extension. Calls are connected to available extensions on a first-in-first-out basis.

Queue action refers to the action taken by the System 920i while a call is in queue—that is, awaiting connection to an extension. By setting queue action you enable the system to do one of the following while a call is in queue:

- Connect to an audible ring
- Play Message 1 or Message 2 twice
- Play Message 1 or Message 2 continuously

Overflow action refers to the action taken by the System 920 when a call is placed in overflow. A call is placed in overflow after the queue is full—that is, the number of calls awaiting connection equals the queue depth. For example, if the queue depth is four and four calls are in queue, the next incoming call is placed in overflow. You set the overflow action to enable the system to do one of the following while a call is in overflow:

- Connect to a busy tone
- Play Message 1 twice, and then disconnect
- Play Message 2 twice, and then disconnect

A call placed in overflow is never transferred to the queue.

Begin with Your Worksheet

Use a working copy of the ACD Configuration worksheet found in Appendix A to specify and record parameters for as many of the 24 ACD functions as you intend to use. Refer to Table 13-1 for a description of each parameter. (Values marked with an asterisk are the defaults. The last four fields described in the table are screen displays only.) Enter data from the worksheet using the System 920i software as described in the procedure following Table 13-1.

Table 13-1. ACD Configuration Parameters

Field	Description
Queue Depth	Select the number of calls to be held while waiting to be connected to an available extension. Choices are 0*-24 **Comments** Calls placed in the queue are handled on a first-in-first-out basis.
Queue Action	Select the action taken by the System 920i when a call is put in queue. Choices are: AUDIBLE RING* MESSAGE 1 PLAY TWICE MESSAGE 2 PLAY TWICE MESSAGE 1 CONTINUOUS MESSAGE 2 CONTINUOUS **Comments** Choices have the following meanings: *Audible Ring* The calling party hears an audible ring progress tone until an ACD extension becomes free and answers the call. *Message 1 Play Twice* After at least one cycle of audible ring progress tone, the calling party hears message 1 as previously recorded on the Recorder/Announcer card. The message plays no more than twice. If an ACD extension has not become free by the end of the second playing, a hold tone is issued every five seconds. This indicates the connection is still active. The hold tone is issued until an ACD extension becomes free and answers the call.[1]

[1]You must have installed a 915 Recorder/Announcer card and recorded the message for this option to work. (Refer to Chapter 26, “Playing and Recording Recorder/Announcer Messages,” for more information.)

continued

Table 13-1. ACD Configuration Parameters (cont.)

Field	Description
Queue Action (cont.)	*Message 2 Play Twice* After at least one cycle of audible ring progress tone, the calling party hears message 2 as previously recorded on the Recorder/Announcer card. The message plays no more than twice. If an ACD extension has not become free by the end of the second playing, a hold tone is issued every five seconds. This indicates the connection is still active. The hold tone is issued until an ACD extension becomes free and answers the call.[1] *Message 1 Continuous* After at least one cycle of audible ring progress tone, the calling party hears message 1 as previously recorded on the Recorder/Announcer card. The message plays over and over until an ACD extension becomes free and answers the call.[1] *Message 2 Continuous* After at least one cycle of audible ring progress tone, the calling party hears message 2 as previously recorded on the Recorder/Announcer card. The message plays over and over until an ACD extension becomes free and answers the call.[1]
Overflow Action	Select the action taken by the System 920i when a call is put in overflow. Choices are: BUSY TONE* MESSAGE 1 PLAY TWICE MESSAGE 2 PLAY TWICE

[1]You must have installed a 915 Recorder/Announcer card and recorded the message for this option to work. (Refer to Chapter 26, “Playing and Recording Recorder/Announcer Messages,” for more information.)

continued

Table 13-1. ACD Configuration Parameters (cont.)

Field	Description
Overflow Action (cont.)	**Comments** Choices have the following meanings: *Busy Tone* — An incoming call is directed to a busy progress tone. *Message 1 Play Twice* — After at least one cycle of audible ring progress tone, the calling party hears message 1 as previously recorded on the Recorder/Announcer card. The message plays no more than twice. If the caller has not hung up by the end of the second playing, the call is disconnected.[1] *Message 2 Play Twice* — After at least one cycle of audible ring progress tone, the calling party hears message 2 as previously recorded on the Recorder/Announcer card. The message plays no more than twice. If the caller has not hung up by the end of the second playing, the call is disconnected.[1]
Inbound Matches Routed to ACD *n*	The system displays the numbers of those inbound-call match entries (on the Inbound Call Configuration screen) assigned to the ACD function (where n is the number of the function). (Refer to Chapter 10 for more information about inbound-call configuration.)
OPS Ports Assigned to ACD *n*	The system displays the numbers of those OPS ports assigned to the ACD function (where n is the number of the function). (Refer to Chapter 8 for more information about OPS port configuration.)
Number of Queued Inbound Calls	The system displays the number of calls currently in queue for this ACD function.

[1]You must have installed a 915 Recorder/Announcer card and recorded the message for this option to work. (Refer to Chapter 26, “Playing and Recording Recorder/Announcer Messages,” for more information.)

continued

Table 13-1. ACD Configuration Parameters (cont.)

Field	Description
Number of Message Overflow Calls	The system displays the number of inbound calls currently directed to queue overflow for this ACD function when the queue is either full or queue depth is set to 0. When overflow action is set to busy tone, the system always displays NONE in this field.

Procedure

To configure ACD function parameters, you must access the configuration screen for the ACD function you want to configure. Select option 9, ACD Configuration, from the Main Menu. Press **F4** until the screen for the desired ACD function is displayed.

Take the following detailed steps:

1. If you have not done so, press ↵ to display the Password screen.
2. Access the Main Menu by typing the password at the Password screen. Press ↵. Complete the VT100 compatibility test if this function is enabled.
3. Press **9** to select ACD Configuration. Press ↵.

   The system displays the ACD Configuration screen, shown in Figure 13-1. The cursor is initially in the **Queue Depth** field for ACD 1.

```
Gordon Kapes, Inc.              System 920i                    Menu 9-1

                          ACD 1 CONFIGURATION

Queue Depth:      0*
Queue Action:     AUDIBLE RING*
Overflow Action: BUSY TONE*

Inbound Matches Routed to ACD 1:   MATCH-12



OPS Ports Assigned to ACD 1:       OPS-1,2,3,4,5,6,7,8



Number of Queued Inbound Calls:    NONE
Number of Message Overflow Calls:  NONE

* Indicates factory default.


               Press Space Bar or Backspace to select
    Press Arrow Keys, <F1> help, <F2> exit, <F3> previous, <F4> next
```

Figure 13-1. ACD Configuration Screen

4. For each ACD function you intend to use, select a value in the **Queue Depth**, **Queue Action**, and **Overflow Action** fields. To make selections, use the following table.

To	Take this Action
Select a value	Press spacebar to scroll forward through displayed list. Press **Back-space** to scroll backward through list. Displayed value is saved and activated.
Move from field to field	Press ↑ or ↓.
Display the next page	Press **F4**.
Display the previous page	Press **F3**.
Display Online Help	Press **F1**.
Exit Online Help	Press **F2**.

5. To return to the Main Menu, press **F2**.

Chapter Fourteen
Configuring Redirect Function Parameters

Overview

When you configure inbound-call parameters, you are given the option of routing an inbound call to any of 24 redirect telephone functions. (Refer to Chapter 10, “Configuring Inbound-Call Parameters.”) This chapter explains how to configure each redirect function you choose to use.

After you route an inbound call to a redirect function, the System 920i redirects the inbound call as an outbound call that is calling the specified redirect telephone number. This enables you to divert calls away from the site during a power failure, system malfunction, or maintenance interval, and route them to an alternate location.

For the redirect functions to work efficiently, you must have a sufficient number of DS1 network channels configured as two-way. (Refer to Chapter 6 for more information.)

To configure each function you must enter a redirect telephone number and select its type. In addition, you can specify that either message 1 or message 2 be played to the caller before the call is redirected. You can use these messages to tell the caller why the call is being redirected. If you do not enter a redirect number for a redirect function, a call you have routed to that redirect function is connected to a reorder tone.

Begin with Your Worksheet

Use a working copy of the Redirect Configuration worksheet found in Appendix A to specify redirect function parameters. Refer to Table 14-1 for a description of each parameter. (Values marked with an asterisk are the defaults. The last two fields described in the table are screen displays only.) Enter data from the worksheet using the System 920i software as described in the procedure following Table 14-1.

Table 14-1. Redirect Function Configuration Parameters

Field	Description
Redirect Number	Enter the telephone number to which you want the call redirected. Use a maximum of 17 digits. **Comments** You can use the digits 0-9. Make sure you include all the digits you would dial if you picked up an extension to call the destination manually over the DS1 network. No other digits are appended to this number, nor are any stripped from it. You cannot use the redirect function to direct an incoming call to a System 920i OPS extension. If you want to direct a call to an OPS extension, route the inbound call to an ACD function to which you have assigned the extension.
Type of Number	Select the redirect number type. Number types imply certain specifications regarding number format and length. Choices are: NATIONAL NUMBER* SUBSCRIBER NUMBER ABBREVIATED NUMBER UNKNOWN NUMBER INTERNATIONAL NUMBER **Comments** A national number is 3, 7, or 11 digits long. A subscriber number is 7 digits long. An abbreviated number is 3 to 5 digits long and is used on a private network. Do not select ABBREVIATED if switch emulation is DMS100 (NI-1). An unknown number is one fitting none of the other classifications. Do not select UNKNOWN if switch emulation is 5ESS (NI-1) or 5ESS (NI-2). In North America, an international number can consist of 11 digits beginning with the number 1. An international number can also start with 011. (To verify the current switch emulation, view the DS1 and PRI Configuration screen as described in Chapter 5.) The system sends the number type in the calling party number information element (IE) of the ISDN setup message.

continued

Table 14-1. Redirect Function Configuration Parameters (cont.)

Field	Description
Action	Select the choice indicating the message to be played, if desired, before the call is diverted. Choices are: IMMEDIATE* MESSAGE 1 PLAY ONCE MESSAGE 2 PLAY ONCE **Comments** Choices have the following meanings: *Immediate* — Redirect the call immediately. Do not play a message before redirecting the call. *Message 1 Play Once* — Play message 1 before redirecting the call.[1] *Message 2 Play Once* — Play message 2 before redirecting the call.[1] The system plays the specified message one time when a caller calls on the redirected channel. The call is then redirected to the specified redirect number.
Inbound Matches Routed to Redirect *n*	The System 920i displays those match numbers or ranges routed to the redirect function (where n is the number of the redirect function). (Refer to Chapter 10 for more information about match numbers.)
Number of Redirected Inbound Calls	The System 920i displays the number of inbound calls currently being redirected to the redirect function.

[1]You must have installed a 915 Recorder/Announcer card and recorded the message for this option to work. (Refer to Chapter 26, “Playing and Recording Recorder/Announcer Messages,” for more information.)

Procedure

To configure redirect dialing parameters, you must access the configuration screen for the redirect function you want to configure. Select option 10, Redirect Configuration, from the Main Menu. Press **F4** until the screen for the desired redirect function is displayed.

Take the following detailed steps:

1. If you have not done so, press ↵ to display the Password screen.
2. Access the Main Menu by typing the password at the Password screen. Press ↵. Complete the VT100 compatibility test if this function is enabled.
3. Press **10** to select Redirect Configuration. Press ↵.

   The system displays the Redirect Configuration screen, shown in Figure 14-1. The cursor is initially in the **Redirect Number** field for Redirect 1.

```
Gordon Kapes, Inc.            System 920i                  Menu 10-1

                      REDIRECT 1 CONFIGURATION

Redirect Number:     --
Type of Number:      NATIONAL NUMBER*
Action:              IMMEDIATE*

Inbound Matches Routed to Redirect 1:  ---


Number of Redirected Inbound Calls:    NONE









* Indicates factory default.


          Enter number (0-17 digits). Backspace to edit.
    Press Arrow Keys, <F1> help, <F2> exit, <F3> previous, <F4> next
```

Figure 14-1. Redirect Configuration Screen

4. For each Redirect function you intend to use, enter a value in the **Redirect Number** field. Select a value in the **Type of Number** and **Action** fields. To make entries and selections, use the following table.

To	Take this Action
Enter numbers	Type the numbers.
Delete numbers	Press **Backspace**.
Select a value	Press spacebar to scroll forward through displayed list. Press **Backspace** to scroll backward through list. Displayed value is saved and activated.
Move from field to field	Press ↑ or ↓.
Display the next page	Press **F4**.
Display the previous page	Press **F3**.
Display Online Help	Press **F1**.
Exit Online Help	Press **F2**.

5. To return to the Main Menu, press **F2**.

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Chapter Fifteen
Configuring Transfer Parameters

Overview

This chapter describes how to set the transfer parameters used to configure System 920i monitoring functions.

Setting Contact and CPE-DS1-Carrier Monitoring Functions

The System 920i provides you with four monitoring functions that direct the system to seize the DS1 network when an alarm condition is detected.

Three of these are contact-input functions. You set the normal, or non-alarm, state of each contact (either open or closed). When a contact input changes from normal, it is in an alarm state and the System 920i seizes the DS1 network. You can connect contact inputs to a variety of devices including manual switches, CPE-DS1 equipment, remote control systems, and DC UPS power supplies. Your System 920i may be powered by the Model 733 DC UPS by Gordon Kapes, Inc. The Model 733 has a contact closure signaling battery operation that you may want to monitor.

The fourth function is CPE-DS1-carrier monitoring. A circuit on the System 920i DS1 Interface card monitors the electrical signal coming from the CPE-DS1 equipment. If generation of this signal ceases, an alarm state occurs and the System 920i seizes the DS1 network.

You enable or disable these functions when setting transfer parameters.

Setting DS1 Network and CPE-DS1 Reconnection Options

You also specify the conditions under which you want to reconnect the DS1 network to CPE DS1 after an alarm condition has been restored to normal. You can select reconnection after a maximum delay of 5, 10, or 15 minutes; or you can select reconnection after all calls over the DS1 network have been completed. You can also select immediate reconnection.

Begin with Your Worksheet

Use a working copy of the Transfer Configuration worksheet found in Appendix A to specify transfer parameters. Refer to Table 15-1 for a description of each parameter. (Values marked with an asterisk are the defaults. The last seven fields described in the table are screen displays only.) Enter data from the worksheet using the System 920i software as described in the procedure following Table 15-1.

Table 15-1. Transfer Configuration Parameters

Field	Description
Contact 1 Operation Contact 2 Operation Contact 3 Operation	Select the operating status of each contact-input-monitoring function. Choices are: DISABLED* NORMALLY-OPEN NORMALLY-CLOSED **Purpose** Each monitoring function causes the System 920i to seize the DS1 network when an alarm state is activated. **Comments** You select the normal state for each contact. The alarm state is the opposite of the normal state. Choices have the following meanings: *Normally-Open* — Open (not shorted) is the normal state of the contact. An alarm state occurs when the contact is continuously closed (shorted) in excess of one second. An alarm state does not return to normal until an open condition has been reestablished for longer than three seconds. *Normally-Closed* — Closed (shorted) is the normal state of the contact. An alarm state occurs when the contact is continuously open (not shorted) in excess of one second. An alarm state does not return to normal until a closed condition has been reestablished for longer than three seconds. *Disabled** — The contact is not being used.
CPE DS1 Carrier Loss Operation	Select the operating status of the CPE-DS1-carrier-monitoring function. Choices are: DISABLED* ENABLED

continued

Table 15-1. Transfer Configuration Parameters (cont.)

Field	Description
CPE DS1 Carrier Loss Operation (cont.)	**Purpose** A circuit on the System 920i DS1 Interface card monitors the carrier signal coming from the CPE-DS1 equipment. The CPE-DS1-carrier-monitoring function causes the System 920i to seize the DS1 network when it detects the absence of this signal for longer than one second. **Comments** The CPE-DS1-carrier-monitoring function reacts solely to the presence or absence of the carrier signal in determining its normal and alarm states. The monitoring function performs no other type of diagnosis. The monitoring function is in its normal state when detecting the presence of the carrier signal from your CPE-DS1 equipment. An “alarm” state is activated when the signal is continuously absent for longer than one second. An alarm state does not return to normal until the carrier signal has been reestablished and has remained continuously present for longer than one second.
CPE DS1 Reconnect Operation	Select the reconnect option appropriate to your needs. Choices are: RECONNECT AFTER 5 MINUTE DELAY* RECONNECT AFTER ALL CALLS COMPLETED RECONNECT IMMEDIATE - NO DELAY RECONNECT AFTER 15 MINUTE DELAY RECONNECT AFTER 10 MINUTE DELAY **Comments** The DS1 network can be seized by the System 920i because an alarm state has occurred for any one of the three contact-input-monitoring functions or for the CPE-DS1-carrier monitoring function, or because the Manual Operation switch on the front of the unit has been thrown. Use this parameter to specify *when* the System 920i reconnects the DS1 network to CPE DS1 after a normal condition has been reestablished.

continued

Table 15-1. Transfer Configuration Parameters (cont.)

Field	Description
CPE DS1 Reconnect Operation (cont.)	Choices have the following meanings: *Reconnect After 5 Minute Delay* The reconnection is made either after all calls through the DS1 network have been completed, or after a maximum of five minutes has expired. After a normal condition has signaled the System 920i to reconnect the DS1 network to CPE DS1, the System 920i connects a triple alert tone every thirty seconds. This alerts all callers to complete their calls so reconnection can be established. Those who fail to do so within five minutes are disconnected. *Reconnect After All Calls Completed* The reconnection is made after all calls through the DS1 network have been completed. After a normal condition has signaled the System 920i to reconnect the DS1 network to CPE DS1, the System 920i connects a triple alert tone every thirty seconds. This alerts all callers to complete their calls so reconnection can take place. As each call through the DS1 network is completed, its communication channel is idled. All channels not in use are also idled to prevent new calls from being placed. The reconnection does not take place until the last call has been completed, no matter how long this call may last. ***Note:*** Using this option enables a single caller to “lock” the system, preventing the reconnection.

continued

Table 15-1. Transfer Configuration Parameters (cont.)

Field	Description	
CPE DS1 Reconnect Operation (cont.)	*Reconnect Immediate - No Delay*	
		The reconnection is immediate. The reconnection is made even though one or more calls may be in progress through the DS1 network. The System 920i disconnects these calls without warning.
	Reconnect After 15 Minute Delay	
		The System 920i acts the same as with the reconnect-after-5-minute-delay option, except that callers must complete their calls within 15 minutes.
	Reconnect After 10 Minute Delay	
		The System 920i acts the same as with the reconnect-after-5-minute-delay option, except that callers must complete their calls within ten minutes.
Contact 1 Status Contact 2 Status Contact 3 Status	Indicates the current status of each contact-input-monitoring function.	
	Displays have the following meanings:	
	Normal	The monitoring function is enabled and the contact is in a normal state. This status does not cause the System 920i to seize the DS1 network.
	Alarm	The monitoring function is enabled and the contact is in an alarm state. This status causes the System 920i to seize the DS1 network. (For normally open, a contact must remain closed for more than one second to activate an alarm state; it must remain open for more than three seconds to return to the normal state. For normally closed, a contact must remain open for more than one second to activate an alarm state; it must remain closed for more than three seconds to return to the normal state.)
	Disabled	The monitoring function is not active and has no effect upon the system.

continued

Table 15-1. Transfer Configuration Parameters (cont.)

Field	Description
CPE DS1 Carrier Loss Status	Indicates the current status of the CPE-DS1-carrier-monitoring function. Displays have the following meanings: *Normal (Carrier Detected)* The monitoring function is enabled and detecting a carrier signal from CPE DS1. This status does not cause the System 920i to seize the DS1 network. *Alarm (No Carrier Detected)* The monitoring function is enabled but does not detect a carrier signal from CPE DS1. This status causes the System 920i to seize the DS1 network. (The CPE-DS1 carrier must be absent for more than one second to activate an alarm state.) *Unsuccessful (Carrier Detected)* Test mode. Used by factory only. *Disabled* The monitoring function is not active and has no effect upon the system.
CPE DS1 Reconnect Status	When no alarm conditions (due to a contact input, CPE-DS1 monitoring alarm, or Manual-Operation-switch transfer) exist, indicates the reason why the System 920i cannot currently return the DS1 network back to CPE DS1. Displays have the following meanings: - - - If the System 920i has not seized the DS1 network, or if the System 920i is seizing the DS1 network due to an alarm condition, this field does not apply and is filled with dashes.

continued

Table 15-1. Transfer Configuration Parameters (cont.)

Field	Description
CPE DS1 Reconnect Status (cont.)	*Awaiting Call Completion* Calls are being made from System 920i OPS extensions through the DS1 network. The System 920i sends a triple alert tone every 30 seconds to encourage callers to complete calls as soon as possible. All calls must be completed before the System 920i can transfer the DS1 network back to CPE DS1. *Awaiting 5 Minute Delay* Calls are being made from System 920i OPS extensions through the DS1 network. The System 920i sends a triple alert tone every 30 seconds to encourage callers to complete calls as soon as possible. All calls must be completed within five minutes or the System 920i terminates them and transfers the DS1 network back to CPE DS1. *Awaiting 10 Minute Delay* Calls are being made from System 920i OPS extensions through the DS1 network. The System 920i sends a triple alert tone every 30 seconds to encourage callers to complete calls as soon as possible. All calls must be completed within ten minutes or the System 920i terminates them and transfers the DS1 network back to CPE DS1. *Awaiting 15 Minute Delay* Calls are being made from System 920i OPS extensions through the DS1 network. The System 920i sends a triple alert tone every 30 seconds to encourage callers to complete calls as soon as possible. All calls must be completed within 15 minutes or the System 920i terminates them and transfers the DS1 network back to CPE DS1.

continued

Table 15-1. Transfer Configuration Parameters (cont.)

Field	Description
Network DS1 Status	Indicates whether the System 920i has seized the DS1 network. Displays have the following meanings: *Normal (Bypass to CPE DS1)* The System 920i has not seized the DS1 network. The DS1 network remains connected to CPE DS1. This status indicates that neither a contact nor carrier-loss alarm is in effect. In addition, this status has not been forced by the test-mode Force Off (Bypass to CPE DS1) setting on the DS1 and PRI Test Functions screen.[1] *Transfer (Network DS1 Seized)* The System 920i has seized the DS1 network. The transfer has been made because either a contact or carrier-loss alarm is in effect, or because you have thrown the manual operation switch. This status has not been forced by the test-mode Force Off (Bypass to CPE DS1) setting on the DS1 and PRI Test Functions screen.[1] *Force Off (Bypass to CPE DS1)* The System 920i has not seized the DS1 network. The DS1 network remains connected to CPE DS1. This status has been forced by the test-mode Force Off (Bypass to CPE DS1) setting on the DS1 and PRI Test Functions screen.[1] *Force On (Network DS1 Seized)* The System 920i has seized the DS1 network. This status has been forced by the test-mode Force On (Network DS1 Seized) setting on the DS1 and PRI Test Functions screen.[1]

[1]You can display the DS1 and PRI Test Functions screen by selecting option 19 on the Advanced Menu. At the Main Menu press **F1**, then type **advanced**. Press **F4** to display additional Advanced Menu options.

continued

Table 15-1. Transfer Configuration Parameters (cont.)

Field	Description	
Manual Operation Switch Status	Indicates the status of the Manual Operation toggle switch. Use the Manual Operation toggle switch to seize the DS1 network or return the DS1 network to CPE DS1. (Refer to Figure 1-4 for more information about the Manual Operation toggle switch.)	
	Displays have the following meanings:	
	Normal	The DS1 network is connected to CPE DS1. This is the normal state of the System 920i.
	Transfer (Awaiting Manual Return)	
		The Manual Operation toggle switch has been used to seize the DS1 network. (You must push the toggle switch down and hold it for one second to return the DS1 network to CPE DS1.)
	Manual Return	The Manual Operation toggle switch is returning the DS1 network to CPE DS1. MANUAL RETURN is displayed only while you are holding the Manual Operation toggle switch down.

Procedure

To configure transfer parameters, you must access the Transfer Configuration screen. Select option 11, Transfer Configuration, from the Main Menu.

Take the following detailed steps:

1. If you have not done so, press ↵ to display the Password screen.
2. Access the Main Menu by typing the password at the Password screen. Press ↵. Complete the VT100 compatibility test if this function is enabled.
3. Press **11** to select Transfer Configuration. Press ↵.

   The system displays the Transfer Configuration screen, shown in Figure 15-1. The cursor is initially in the **Contact 1 Operation** field.

```
Gordon Kapes, Inc.              System 920i                    Menu 11

                        TRANSFER CONFIGURATION

       Contact 1 Operation:              DISABLED*
       Contact 2 Operation:              DISABLED*
       Contact 3 Operation:              DISABLED*
       CPE DS1 Carrier Loss Operation:   DISABLED*
       CPE DS1 Reconnect Operation:      RECONNECT AFTER 5 MINUTE DELAY*

       Contact 1 Status:                 DISABLED
       Contact 2 Status:                 DISABLED
       Contact 3 Status:                 DISABLED
       CPE DS1 Carrier Loss Status:      DISABLED
       CPE DS1 Reconnect Status:         ---
       Network DS1 Status:               TRANSFER (NETWORK DS1 SEIZED)
       Manual Operation Switch Status:   TRANSFER (AWAITING MANUAL RETURN)


       * Indicates factory default.


              Press Space Bar or Backspace then <ENTER>
               Press Arrow Keys, <F1> help, <F2> exit
```

Figure 15-1. Transfer Configuration Screen

4. Select a value in each field. To make selections, use the following table.

To	Take this Action
Select a value	Press spacebar to scroll forward through displayed list. Press **Backspace** to scroll backward through list. Displayed value is saved and activated.
Move from field to field	Press ↑ or ↓.
Display Online Help	Press **F1**.
Exit Online Help	Press **F2**.

5. To return to the Main Menu, press **F2**.

Chapter Sixteen
Configuring System-Security Parameters

Overview

This chapter explains how to configure parameters associated with the system security functions provided by the System 920i. These consist of activating the VT100 compatibility test, setting the maintenance port inactivity timer, and identifying the login password.

Activating VT100 Compatibility Test

The VT100 compatibility test verifies the terminal you are using is fully VT100 compatible. To successfully use the menu system, you must use a terminal that supports certain keys. By requiring you to press F1, F2, F3, F4, and Backspace after entering a valid login password, the test demonstrates this capability immediately. If the terminal or terminal emulator does not support these keys, you cannot proceed (unless you use the appropriate escape-key sequences explained in Appendix E).

By default the test is enabled. However, if you are certain the terminal to be used with the System 920i is always VT100 compatible, you may choose to disable the test.

Setting Maintenance Port Inactivity Timer

The System 920i contains an inactivity timer that automatically disconnects the maintenance terminal from the maintenance port after the menu system has been idle for a certain period of time. This helps ensure security of the menu system when it is left unattended. Enter the period of inactivity that must expire before the System 920i disconnects the maintenance terminal.

Configuring the Password

Configuring the login password consists of composing and entering the password. The password can be from 1 through 10 characters in length.

When the default password is set, the system displays the prompt Default password is SYS920 on the Password screen. Unless your System 920i is in a very secure location, it is recommended you change the password. Once you have done so, the system no longer displays the password prompt on the Password screen. (Should you change the password back to the default, the password prompt reappears on the Password screen.)

Begin with Your Worksheet

Use a working copy of the Security Configuration worksheet found in Appendix A to specify and record parameters. Refer to Table 16-1 for a description of each parameter. (Values marked with an asterisk are the defaults.) Enter data from the worksheet using the System 920i software as described in the procedure following Table 16-1.

Table 16-1. Security Configuration Parameters

Field	Description
Perform VT100 Compatibility Test Upon Login	Select YES* to enable the VT100 compatibility test. Select NO to disable the test. **Comments** When the test is enabled, you must press F1 though F4 and Backspace after logging in to the System 920i. If you use different terminals to access the System 920i, you should enable the test. The test takes five keystrokes to complete. Failure to pass the test immediately alerts personnel that a terminal compatibility problem exists.
Maintenance Port Inactivity Time	Enter the length of time, in minutes, that the system monitors inactivity from the maintenance port before disconnecting. Enter a number from 1 through 999. ***Note:*** The maintenance port inactivity time takes effect once you display the Main Menu. The System 920i automatically disconnects after three minutes of inactivity during login.
Password	Enter the password you want to use to allow access to the Main Menu. Use from 1 through 10 characters. **Comments** You can include special characters (punctuation marks) and numbers in the password if you wish. You *cannot* include spaces in the password. The password you enter here is *not* case sensitive. You can enter the word in either uppercase or lowercase letters. (The screen always displays the word in uppercase letters.) Similarly, a user entering the password may do so using either uppercase or lowercase letters. The first time you enter a password it replaces the default operator password, which is SYS920. After you have entered the new password, the default password is no longer displayed on the Password screen.

Procedure

To configure security parameters, you must access the Security Configuration screen. Select option 12, Security Configuration, from the Main Menu.

Take the following detailed steps:

1. If you have not done so, press ↵ to display the Password screen.
2. Access the Main Menu by typing the password at the Password screen. Press ↵. Complete the VT100 compatibility test if this function is enabled.
3. Press **12** to select Security Configuration. Press ↵.

   The system displays the Security Configuration screen, shown in Figure 16-1. The cursor is initially in the **Perform VT100 Compatibility Test Upon Login** field.

```
Gordon Kapes, Inc.              System 920i                    Menu 12

                        SECURITY CONFIGURATION

          Perform VT100 Compatibility Test Upon Login:  YES*
          Maintenance Port Inactivity Time:             60  MINUTES
          Password:                                     SYS920









         * Indicates factory default.


               Press Space Bar or Backspace to select
               Press Arrow Keys, <F1> help, <F2> exit
```

Figure 16-1. Security Configuration Screen

4. Select a value from the displayed choices in the **Perform VT100 Compatibility Test Upon Login** field. Enter text in all other fields. To make selections and entries, use the following table.

To	Take this Action
Select a value	Press spacebar to scroll forward through displayed list. Press **Backspace** to scroll backward through list. Displayed value is saved and activated.
Delete characters	Press **Backspace**.
Enter characters	Type characters.
Move from field to field	Press ↑ or ↓.
Display Online Help	Press **F1**.
Exit Online Help	Press **F2**.

5. To return to the Main Menu, press **F2**.

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Chapter Seventeen
Viewing DS1 Channel Status

Using Chapters 17 through 25

Chapters 17 through 25 describe how to view operating status and statistical totals for various System 920i functions. (For an explanation of each configured parameter, refer to the appropriate chapter in Part 3, “Configuring the System 920i.”) Each chapter explains how to display and interpret status fields on System 920i screens. These screens, in the order described, are the following:

- DS1 Channel Configuration screen
- OPS Card Configuration screen
- Recorder/Announcer Configuration screen
- ACD Configuration screen
- Redirect Configuration screen
- Transfer Configuration screen
- 920i Call Status screen
- DS1 Status screen

If you need help accessing the menu system, review Chapter 4. Then, sit at the terminal connected to the System 920i as you read each chapter. Follow the procedure for displaying each screen, then review the table included in the chapter to confirm your understanding of each field.

Viewing DS1 Channel Status

This chapter explains the three status fields displayed on the DS1 Channel Configuration screen. Use these fields to determine if the DS1 card is currently installed, synchronized, and active.

Procedure

To view the DS1 channel status fields, you must access the DS1 Channel Configuration screen. Select option 2, DS1 Channel Configuration, from the Main Menu.

Take the following detailed steps:

1. If you have not done so, press ↵ to display the Password screen.
2. Access the Main Menu by typing the password at the Password screen. Press ↵. Complete the VT100 compatibility test if this function is enabled.
3. Press **2** to select DS1 Channel Configuration. Press ↵.

   The system displays the DS1 Channel Configuration screen, shown in Figure 17-1.

```
Gordon Kapes, Inc.              System 920i                        Menu 2

                        DS1 CHANNEL CONFIGURATION

DS1 Card Present: YES
DS1 Synchronized: YES

Ch  Operation     State        Ch  Operation     State
 1  TWO WAY*      --           13  TWO WAY*      --
 2  TWO WAY*      --           14  TWO WAY*      --
 3  TWO WAY*      --           15  TWO WAY*      --
 4  TWO WAY*      --           16  TWO WAY*      --
 5  TWO WAY*      --           17  TWO WAY*      --
 6  TWO WAY*      --           18  TWO WAY*      --
 7  TWO WAY*      --           19  TWO WAY*      --
 8  TWO WAY*      --           20  TWO WAY*      --
 9  TWO WAY*      --           21  TWO WAY*      --
10  TWO WAY*      --           22  TWO WAY*      --
11  TWO WAY*      --           23  TWO WAY*      --
12  TWO WAY*      --

* Indicates factory default.
                Press Space Bar or Backspace to select
                Press Arrow Keys, <F1> help, <F2> exit
```

Figure 17-1. DS1 Channel Configuration Screen

4. Use the following keys while viewing the DS1 Channel Configuration screen. Table 17-1 describes the status fields on this screen.

To	Take this Action
Display Online Help	Press **F1**.
Exit Online Help	Press **F2**.

5. To return to the Main Menu, press **F2**.

Table 17-1. DS1 Channel Status Fields

Field	Description
DS1 Card Present	Indicates whether the DS1 Interface card is currently installed in the System 920i enclosure. YES indicates the card is installed. NO indicates the card is not installed.
DS1 Synchronized	Indicates whether the DS1 interface card is currently synchronized with the incoming ESF or D4 frame. YES indicates the card is synchronized. NO indicates the card is not synchronized.
State	Indicates the current state, or active condition, of this channel. Displays have the following meanings: *Active* — The channel is in use. - - — The channel is not in use.

Chapter Eighteen
Viewing OPS Card Status

Overview

This chapter explains the status fields displayed on the OPS Card Configuration screen. These fields indicate the end point, hold status, and active condition of each connected OPS port. Two additional fields indicate the software version and installation status of each OPS card. (For an explanation of each configured parameter, refer to the appropriate chapter in Part 3, “Configuring the System 920i.”)

Follow the procedure to display each page of this three-page screen. Use Table 18-1 to interpret field values.

Procedure

To view the OPS card status fields, you must access the OPS Card Configuration screen. Select option 4, OPS Card Configuration, from the Main Menu. Press **F4** until the page for the desired OPS card is displayed.

Take the following detailed steps:

1. If you have not done so, press ↵ to display the Password screen.
2. Access the Main Menu by typing the password at the Password screen. Press ↵. Complete the VT100 compatibility test if this function is enabled.
3. Press **4** to select OPS Card Configuration. Press ↵.

   The system displays the OPS Card Configuration screen, shown in Figure 18-1.

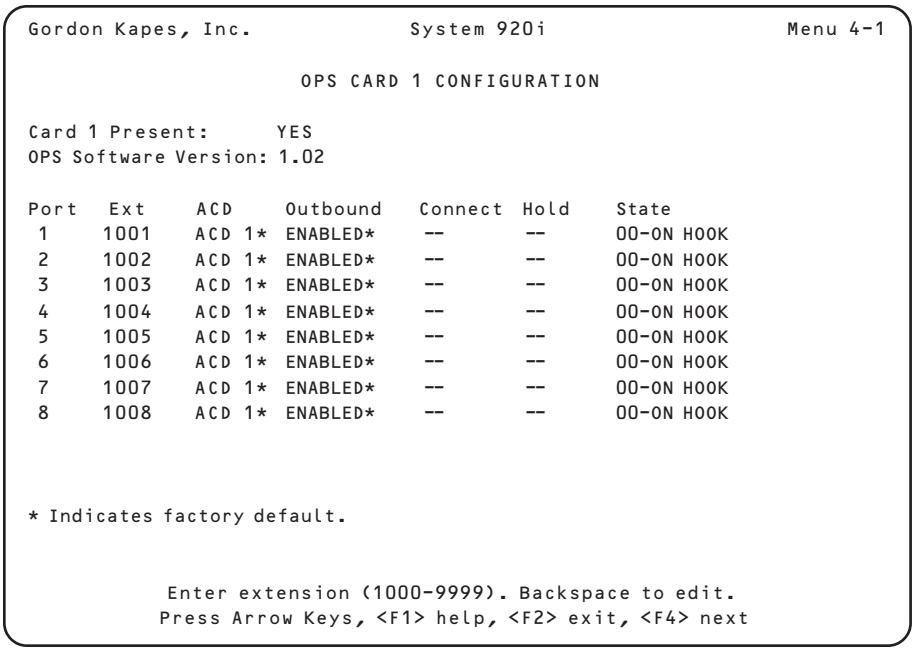

Figure 18-1. OPS Card 1 Configuration Screen

4. Use the following keys while viewing the OPS Card Configuration screen. Table 18-1 describes the status fields on this screen.

To	Take this Action
Display the next page	Press **F4**.
Display the previous page	Press **F3**.
Display Online Help	Press **F1**.
Exit Online Help	Press **F2**.

5. To return to the Main Menu, press **F2**.

Table 18-1. OPS Card Status Fields

Field	Description
Card Present	Indicates whether the OPS card is currently installed in the System 920i enclosure. YES indicates the card is installed. NO indicates the card is not installed.
OPS Software Version	The system displays the version number of the software on the OPS card if the card is installed. **Comments** The version number is a code stored in a microcomputer chip on the OPS card. This code is used by Gordon Kapes, Inc. to identify the version of the OPS software.
Connect	Indicates the end point for the current line connection between this OPS extension and another OPS extension or DS1 network channel. Displays have the following meanings: - - This OPS extension is not connected to a line. *OPS*-number This OPS extension is connected to another OPS extension, where number is the number assigned to the other extension. For example, if this extension is connected to OPS extension 1001, the display is OPS-1001. *CALL*-number This OPS extension is connected to a call being conducted through the DS1 network (either inbound or outbound), where number (1-23) is the item number assigned the call as displayed on the 920i Call Status screen. (Refer to Chapter 23 for more information.) *MSG*-number This OPS extension is connected to a Recorder/Announcer card message, where number is the message number. For example, if the extension is connected to Message 1, the display is MSG-1.

continued

Table 18-1. OPS Card Status Fields (cont.)

Field	Description	
Hold	Indicates this OPS extension has currently placed another line on hold.	
	Displays have the following meanings:	
	- -	This OPS extension does not have another line placed on hold.
	OPS-number	This OPS extension has placed another OPS extension on hold, where number is the number assigned to the other extension. For example, if this extension has placed OPS extension 1001 on hold, the display is OPS-1001.
	CALL-number	This OPS extension has placed a call being conducted through the DS1 network (either inbound or outbound) on hold, where number (1-23) is the item number assigned the call as displayed on the 920i Call Status screen. (Refer to Chapter 23 for more information.)
State	Indicates the current state, or active condition, of this OPS extension.	
	Displays have the following meanings:	
	Audible Ring	An audible-ring progress tone is connected to this extension. This extension is being used to make a call. An audible-ring progress tone tells the caller that ringing current is being sent to the device being called.
	Busy Tone	A slow-busy progress tone is connected to this extension. This extension is being used to call and connect with another line. The connection cannot be made, however, because the device being called is busy or off-hook.
	Connect	A connection between the calling device and the device being called has been established through this extension.
	Dialing	A number is being dialed through this extension. For example, if the device connected to this extension is a telephone, a person is actually dialing a number when DIALING is displayed.

continued

Table 18-1. OPS Card Status Fields (cont.)

Field	Description	
State (cont.)	*Dial Tone*	A dial-tone progress tone is connected to this extension. This indicates the system is ready for dialing.
	On Hold	A hold progress tone is connected to this extension. The device connected to this extension has placed a call on hold. The System 920i is sending the hold progress tone to the caller placed on hold.
	Howler Tone	A howler progress tone is connected to this extension. A howler tone indicates that the device connected to this extension is off-hook and should be put back on-hook.
	On-hook	The device connected to this extension is on-hook and is not receiving an audible ring progress tone.
	MSG Dialing, MSG Program, MSG Playback, MSG Record	MSG dialing states apply when the OPS extension is accessing the Recorder/Announcer card.
	Progress Tone	The extension is receiving a progress tone of either audible ring or busy from the DS1 network.
	Reorder Tone	A reorder progress tone is connected to this extension. A call has been placed using the device connected to the extension but cannot be completed because all the equipment is busy.
	Ringing	Ringing current is being sent from this port (extension) to the connected device. A caller is attempting to call this extension and the device connected to this extension is receiving ringing current.
	Silence	The condition after howler tone completes its cycle.

continued

Table 18-1. OPS Card Status Fields (cont.)

Field	Description	
State (cont.)	*Stutter Tone*	A stutter progress tone is being connected to this extension. A person using the telephone connected to this extension has executed a flash. The system 920i connects the stutter tone to confirm that the flash has been successfully executed.
	Vacant Tone	A vacant progress tone is connected to this extension. This indicates the number dialed from this extension is not valid.
	Wait DS1 Conn	This extension is being used to make an outbound call through the DS1 network. The caller hears an audible-ring progress tone.

Chapter Nineteen
Viewing Recorder/Announcer Status

Overview

This chapter explains the Recorder/Announcer Configuration screen status fields. Use these fields to determine if the optional 915 Recorder/Announcer card is currently installed and playing either message 1 or message 2.

Follow the procedure to display the screen. Use Table 19-1 to interpret field values.

Procedure

To view the recorder/announcer status fields, you must access the Recorder/Announcer Configuration screen. Select option 5, Recorder/Announcer Configuration, from the Main Menu.

Take the following detailed steps:

1. If you have not done so, press ↵ to display the Password screen.
2. Access the Main Menu by typing the password at the Password screen. Press ↵. Complete the VT100 compatibility test if this function is enabled.
3. Press **5** to select Recorder/Announcer Configuration. Press ↵.

   The system displays the Recorder/Announcer Configuration screen, shown in Figure 19-1.

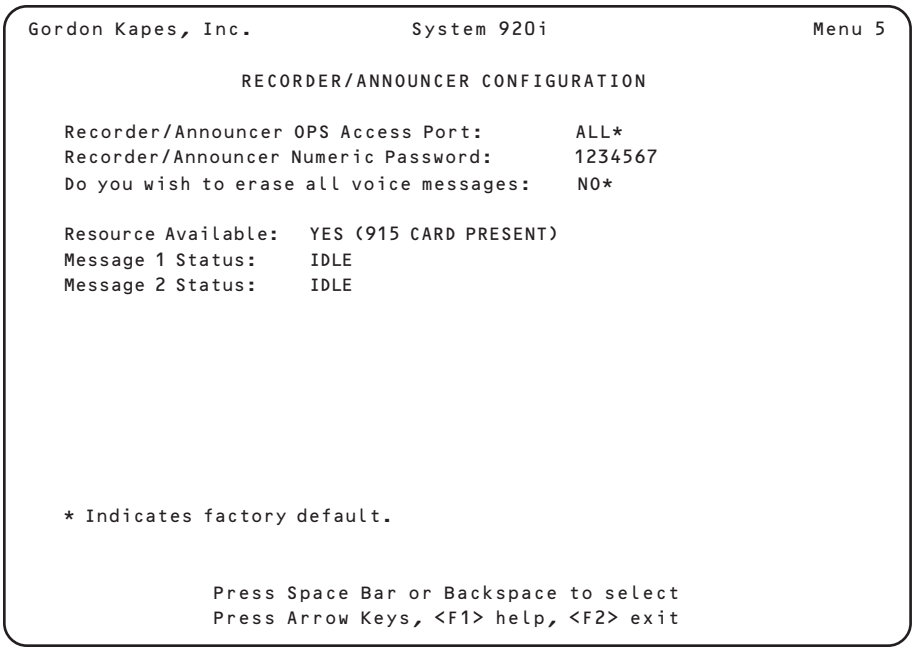

Figure 19-1. Recorder/Announcer Configuration Screen

4. Use the following keys while viewing the Recorder/Announcer Configuration screen. Table 19-1 describes the status fields on this screen.

To	Take this Action
Display Online Help	Press **F1**.
Exit Online Help	Press **F2**.

5. To return to the Main Menu, press **F2**.

Table 19-1. Recorder/Announcer Card Status Fields

Field	Description
Resource Available	Indicates whether the 915 card is currently installed in the System 920i enclosure. YES (915 CARD PRESENT) indicates the card is installed and available. NO indicates the card is not installed. (If you are using the 916 DTMF Receiver and Recorder/Announcer card, which is sold with the System 920, the display indicates the 916 card is available.)
Message 1 Status Message 2 Status	Indicates whether each message is currently being played by the System 920i. Displays have the following meanings: *Idle* — The message is not currently being played. *Play* — The message is currently being played. *Pause* — The message has finished playing and is being reset to the beginning. *Record* — A message is being recorded.

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Chapter Twenty
Viewing ACD Function Status

Overview

This chapter explains the ACD Configuration screen status fields. Use these fields to determine the following items for each ACD function:

- Assigned inbound-call match entries
- Assigned OPS ports
- Number of inbound calls currently in queue
- Number of inbound calls currently directed to queue overflow

Follow the procedure to display the screen. Use Table 20-1 to interpret field values.

Procedure

To view the ACD function status fields, you must access the ACD Configuration screen. Select option 9, ACD Configuration, from the Main Menu.

Take the following detailed steps:

1. If you have not done so, press ↵ to display the Password screen.
2. Access the Main Menu by typing the password at the Password screen. Press ↵. Complete the VT100 compatibility test if this function is enabled.
3. Press **9** to select ACD Configuration. Press ↵.

   The system displays the ACD Configuration screen, shown in Figure 20-1.

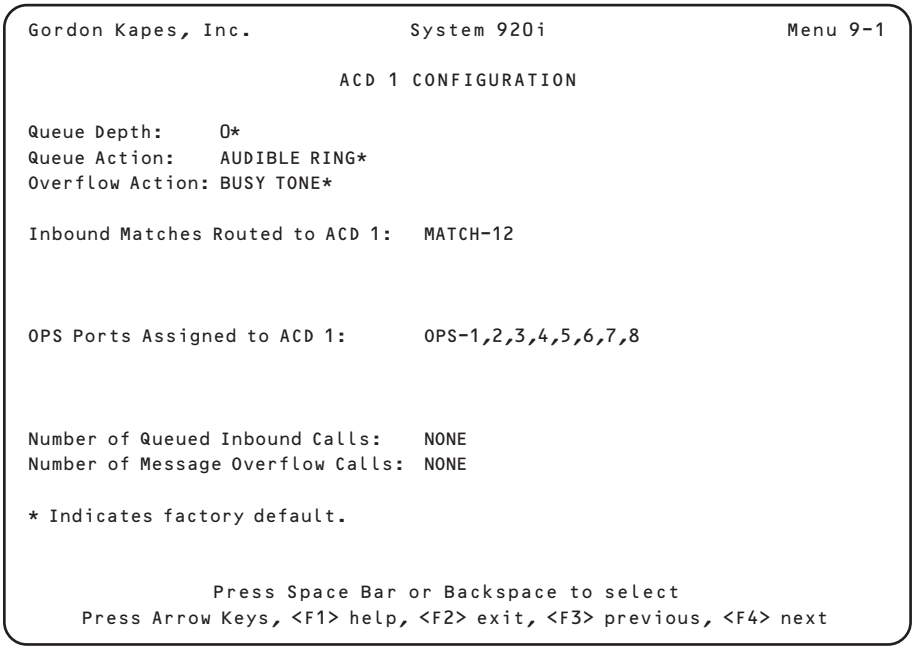

Figure 20-1. ACD Configuration Screen

4. Use the following keys while viewing the ACD Configuration screen. Table 20-1 describes the status fields on this screen.

To	Take this Action
Display the next page	Press **F4**.
Display the previous page	Press **F3**.
Display Online Help	Press **F1**.
Exit Online Help	Press **F2**.

5. To return to the Main Menu, press **F2**.

Table 20-1. ACD Status Fields

Field	Description
Inbound Matches Routed to ACD *n*	The system displays the numbers of those inbound-call match entries (on the Inbound Call Configuration screen) assigned to the ACD function (where n is the number of the function). (Refer to Chapter 10 for more information about inbound-call configuration.)
OPS Ports Assigned to ACD *n*	The system displays the numbers of those OPS ports assigned to the ACD function (where n is the number of the function). (Refer to Chapter 8 for more information about OPS port configuration.)
Number of Queued Inbound Calls	The system displays the number of calls currently in queue for this ACD function.
Number of Message Overflow Calls	The system displays the number of inbound calls currently directed to queue overflow for this ACD function when the queue is either full or queue depth is set to 0. When overflow action is set to busy tone, the system always displays NONE in this field.

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Chapter Twenty-One
Viewing Redirect Function Status

Overview

This chapter explains the status fields displayed on each page of the Redirect Configuration screen. These fields indicate the match numbers or ranges routed to each redirect function and the number of inbound calls currently being redirected to each redirect function. (For an explanation of each configured parameter, refer to the appropriate chapter in Part 3, "Configuring the System 920i.")

Follow the procedure to display each page of this 24-page screen. Use Table 21-1 to interpret field values.

Procedure

To view the redirect-function status fields, you must access the Redirect Configuration screen. Select option 10, Redirect Configuration, from the Main Menu. Press **F4** until the page for the desired redirect function is displayed.

Take the following detailed steps:

1. If you have not done so, press ↵ to display the Password screen.
2. Access the Main Menu by typing the password at the Password screen. Press ↵. Complete the VT100 compatibility test if this function is enabled.
3. Press **10** to select Redirect Configuration. Press ↵.

   The system displays the Redirect Configuration screen, shown in Figure 21-1.

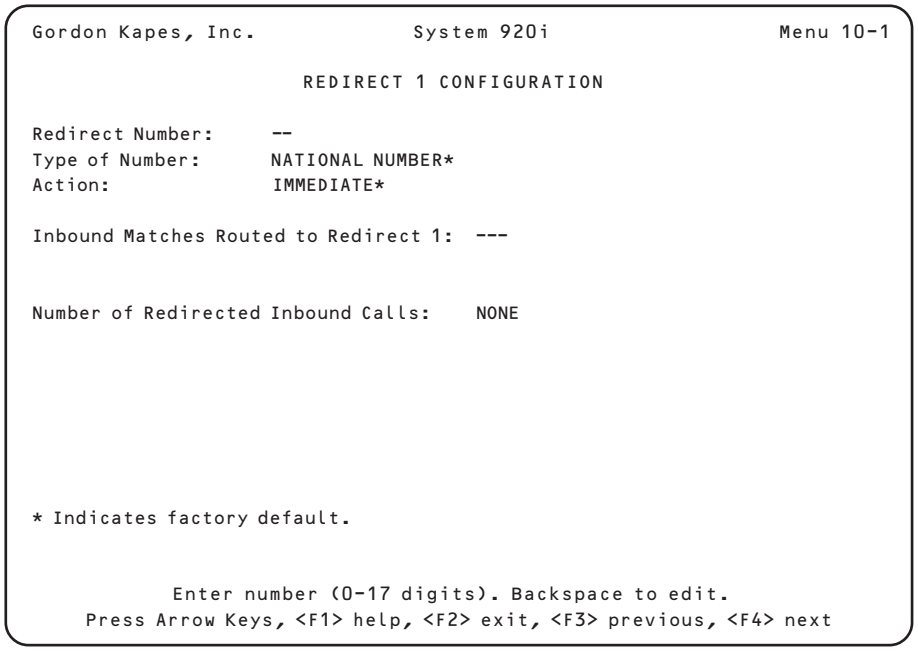

Figure 21-1. Redirect Configuration Screen

4. Use the following keys while viewing the Redirect Configuration screen. Table 21-1 describes the status fields on this screen.

To	Take this Action
Display the next page	Press **F4**.
Display the previous page	Press **F3**.
Display Online Help	Press **F1**.
Exit Online Help	Press **F2**.

5. To return to the Main Menu, press **F2**.

Table 21-1. Redirect Function Status Fields

Field	Description
Inbound Matches Routed to Redirect *n*	Displays those match numbers or ranges routed to the redirect function (where n is the number of the redirect function). (Refer to Chapter 10 for more information about match numbers.)
Number of Redirected Inbound Calls	Displays the number of inbound calls currently being redirected by the redirect *n* function.

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Chapter Twenty-Two
Viewing Transfer Status

Overview

This chapter explains the Transfer Configuration screen status fields. Use these fields to identify the current status of each contact-input monitoring function, the current status of the CPE-DS1-carrier-monitoring function, the reason why the System 920i cannot return the DS1 network back to CPE DS1 when no alarm conditions exist, whether and under what circumstances the System 920i has seized the DS1 network, and the status of the Manual Operation toggle switch.

Follow the procedure to display the screen. Use Table 22-1 to interpret field values.

Procedure

To view the transfer status fields, you must access the Transfer Configuration screen. Select option 11, Transfer Configuration, from the Main Menu.

Take the following detailed steps:

1. If you have not done so, press ↵ to display the Password screen.
2. Access the Main Menu by typing the password at the Password screen. Press ↵. Complete the VT100 compatibility test if this function is enabled.
3. Press **11** to select Transfer Configuration. Press ↵.

   The system displays the Transfer Configuration screen, shown in Figure 22-1.

```
Gordon Kapes, Inc.            System 920i                    Menu 11

                      TRANSFER CONFIGURATION

       Contact 1 Operation:              DISABLED*
       Contact 2 Operation:              DISABLED*
       Contact 3 Operation:              DISABLED*
       CPE DS1 Carrier Loss Operation:   DISABLED*
       CPE DS1 Reconnect Operation:      RECONNECT AFTER 5 MINUTE DELAY*

       Contact 1 Status:                 DISABLED
       Contact 2 Status:                 DISABLED
       Contact 3 Status:                 DISABLED
       CPE DS1 Carrier Loss Status:      DISABLED
       CPE DS1 Reconnect Status:         ---
       Network DS1 Status:               TRANSFER (NETWORK DS1 SEIZED)
       Manual Operation Switch Status:   TRANSFER (AWAITING MANUAL RETURN)


       * Indicates factory default.


             Press Space Bar or Backspace then <ENTER>
              Press Arrow Keys, <F1> help, <F2> exit
```

Figure 22-1. Transfer Configuration Screen

4. Use the following keys while viewing the Transfer Configuration screen. Table 22-1 describes the status fields on this screen.

To	Take this Action
Display Online Help	Press **F1**.
Exit Online Help	Press **F2**.

5. To return to the Main Menu, press **F2**.

Table 22-1. Transfer Status Fields

Field	Description	
Contact 1 Status Contact 2 Status Contact 3 Status	Indicates the current status of each contact-input-monitoring function.	
	Displays have the following meanings:	
	Normal	The monitoring function is enabled and the contact is in a normal state. This status does not cause the System 920i to seize the DS1 network.
	Alarm	The monitoring function is enabled and the contact is in an alarm state. This status causes the System 920i to seize the DS1 network. (For normally open, a contact must remain closed for more than one second to activate an alarm state; it must remain open for more than three seconds to return to the normal state. For normally closed, a contact must remain open for more than one second to activate an alarm state; it must remain closed for more than three seconds to return to the normal state.)
	Disabled	The monitoring function is not active and has no effect upon the system.
CPE DS1 Carrier Loss Status	Indicates the current status of the CPE-DS1-carrier-monitoring function.	
	Displays have the following meanings:	
	Normal (Carrier Detected)	The monitoring function is enabled and detecting a carrier signal from CPE DS1. This status does not cause the System 920i to seize the DS1 network.
	Alarm (No Carrier Detected)	The monitoring function is enabled but does not detect a carrier signal from CPE DS1. This status causes the System 920i to seize the DS1 network. (The CPE-DS1 carrier must be absent for more than one second to activate an alarm state.)
	Unsuccessful (Carrier Detected)	Test mode. Used by factory only.

continued

Table 22-1. Transfer Status Fields (cont.)

Field	Description	
CPE DS1 Carrier Loss Status (cont.)	*Disabled*	The monitoring function is not active and has no effect upon the system.
CPE DS1 Reconnect Status	When no alarm conditions (due to a contact input or CPE-DS1 monitoring alarm, or Manual-Operation-switch transfer) exist, indicates the reason why the System 920i cannot currently return the DS1 network back to CPE DS1. Displays have the following meanings:	
	- - -	If the System 920i has not seized the DS1 network, or if the System 920i is seizing the DS1 network due to an alarm condition, this field does not apply and is filled with dashes.
	Awaiting Call Completion	Calls are being made from System 920i OPS extensions through the DS1 network. The System 920i sends a triple alert tone every 30 seconds to encourage callers to complete calls as soon as possible. All calls must be completed before the System 920i can transfer the DS1 network back to CPE DS1.
	Awaiting 5 Minute Delay	Calls are being made from System 920i OPS extensions through the DS1 network. The System 920i sends a triple alert tone every 30 seconds to encourage callers to complete calls as soon as possible. All calls must be completed within five minutes or the System 920i terminates them and transfers the DS1 network back to CPE DS1.

continued

Table 22-1. Transfer Status Fields (cont.)

Field	Description
CPE DS1 Reconnect Status (cont.)	*Awaiting 10 Minute Delay* Calls are being made from System 920i OPS extensions through the DS1 network. The System 920i sends a triple alert tone every 30 seconds to encourage callers to complete calls as soon as possible. All calls must be completed within ten minutes or the System 920i terminates them and transfers the DS1 network back to CPE DS1. *Awaiting 15 Minute Delay* Calls are being made from System 920i OPS extensions through the network DS1. The System 920i sends a triple alert tone every 30 seconds to encourage callers to complete calls as soon as possible. All calls must be completed within 15 minutes or the System 920i terminates them and transfers the DS1 network back to CPE DS1.
Network DS1 Status	Indicates whether the System 920i has seized the DS1 network. Displays have the following meanings: *Normal (Bypass to CPE DS1)* The System 920i has not seized the DS1 network. The DS1 network remains connected to CPE DS1. This status indicates that neither a contact nor carrier-loss alarm is in effect. In addition, this status has not been forced by the test-mode Force Off (Bypass to CPE DS1) setting on the DS1 and PRI Test Functions screen.[1]

[1]You can display the DS1 and PRI Test Functions screen by selecting option 19 on the Advanced Menu. At the Main Menu press **F1**, then type **advanced**. Press **F4** to display additional Advanced Menu options.

continued

Table 22-1. Transfer Status Fields (cont.)

Field	Description
Network DS1 Status (cont.)	*Transfer (Network DS1 Seized)* The System 920i has seized the DS1 network. The transfer has been made because either a contact or carrier-loss alarm is in effect, or because you have thrown the manual operation switch. This status has not been forced by the test-mode Force Off (Bypass to CPE DS1) setting on the DS1 and PRI Test Functions screen.[1] *Force Off (Bypass to CPE DS1)* The System 920i has not seized the DS1 network. The DS1 network remains connected to CPE DS1. This status has been forced by the test-mode Force Off (Bypass to CPE DS1) setting on the DS1 and PRI Test Functions screen.[1] *Force On (Network DS1 Seized)* The System 920i has seized the DS1 network. This status has been forced by the test-mode Force On (Network DS1 Seized) setting on the DS1 and PRI Test Functions screen.[1]
Manual Operation Switch Status	Indicates the status of the Manual Operation toggle switch. Use the Manual Operation toggle switch to seize the DS1 network or return the DS1 network to CPE DS1. (Refer to Figure 1-4 for more information about the Manual Operation toggle switch.) Displays have the following meanings: *Normal* — The DS1 network is connected to CPE DS1. This is the normal state of the System 920i. *Transfer (Awaiting Manual Return)* The Manual Operation toggle switch has been used to seize the DS1 network. (You must push the toggle switch down and hold it for one second to return the DS1 network to CPE DS1.)

[1]You can display the DS1 and PRI Test Functions screen by selecting option 19 on the Advanced Menu. At the Main Menu press **F1**, then type **advanced**. Press **F4** to display additional Advanced Menu options.

continued

Table 22-1. Transfer Status Fields (cont.)

Field	Description	
Manual Operation Switch Status (cont.)	*Manual Return*	The Manual Operation toggle switch is returning the DS1 network to CPE DS1. **MANUAL RETURN** is displayed only while you are holding the Manual Operation toggle switch down.

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Chapter Twenty-Three
Viewing System 920i Call Status

Overview

Viewing System 920i call status consists of examining the real-time activity occurring for current inbound and outbound calls being conducted between the System 920i and the DS1 network. You can display the 920i Call Status screen to view the state and direction of each call, as well as the telephone number of the caller and telephone number being called, if this information is available.

Follow the procedure to display each page of this two-page screen. Use Table 23-1 to interpret field values.

Procedure

To view call status, you must access the 920i Call Status screen. Select option 13, 920i Call Status, from the Main Menu. Press **F4** to display the second page of the screen.

Take the following detailed steps:

1. If you have not done so, press ↵ to display the Password screen.
2. Access the Main Menu by typing the password at the Password screen. Press ↵. Complete the VT100 compatibility test if this function is enabled.
3. Press **13** to select 920i Call Status. Press ↵.

   The system displays the 920i Call Status screen, shown in Figure 23-1.

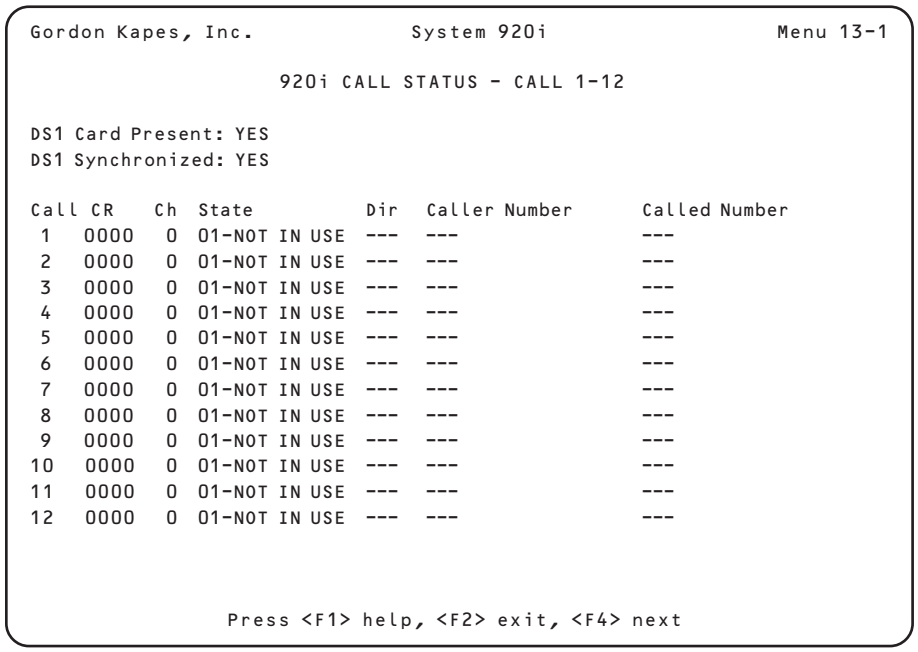

Figure 23-1. 920i Call Status Screen

4. Use the following keys while viewing the 920i Call Status screen. Table 23-1 describes the status fields on this screen.

To	Take this Action
Display the next page	Press **F4**.
Display the previous page	Press **F3**.
Display Online Help	Press **F1**.
Exit Online Help	Press **F2**.

5. To return to the Main Menu, press **F2**.

Table 23-1. 920i Call Status Fields

Field	Description
DS1 Card Present	Indicates whether the DS1 Interface card is currently installed in the System 920i enclosure. YES indicates the card is installed. NO indicates the card is not installed.
DS1 Synchronized	Indicates whether the DS1 Interface card is currently synchronized with the incoming ESF or D4 frame. YES indicates the card is synchronized. NO indicates the card is not synchronized.
Call	Indicates the item number (1-23) assigned the call by the System 920i. The System 920i displays this number as CALL-*number* in the **Connect** and **Hold** fields on the OPS Card Configuration screen. (Refer to Chapter 18 for more information about viewing OPS card status.)
CR	Indicates the call reference number the System 920i uses to identify each call on both sides of the network. Calls are assigned hexadecimal numbers from 0000 through 7FFF.
Ch	Indicates the number of the DS1 bearer channel assigned the call.
State	Indicates the current state, or active condition, of the call. Displays have the following meanings: *Alerting* — Ringing state is being issued from the DS1 network to signal a call. *Connect* — A call connection has been made between the System 920i and the DS1 network. *Disconnect* — A call made between the System 920i and the DS1 network is being disconnected. *Incoming* — An incoming call has been received but not yet acknowledged with a proceeding state. *Not in use* — A call is not active for this item.

continued

Table 23-1. 920i Call Status Fields (cont.)

Field	Description	
State (cont.)	*Proceeding*	The System 920i has acknowledged the setup state.
	Progress	This call is receiving or sending a progress tone from either the DS1 network or the System 920i.
	Setup	A call is starting.
	Transition	This state requires a valid idle state to occur before signalling can be processed. This allows for proper synchronization with the network.
Dir	Indicates direction of the call.	
	Displays have the following meanings:	
	In	The call is inbound from the DS1 network.
	Out	The call is outbound to the DS1 network.
Caller Number	If presentation of the caller number is allowed, indicates the first 17 digits of the number for the telephone or other device originating the call through the System 920i.	
	Other displays have the following meanings:	
	---	Indicates the number is not available.
	Blocked	Indicates presentation is not allowed.
Called Number	Indicates the first 17 digits of the telephone number being called. This is either an outbound number or an inbound number.	

Chapter Twenty-Four
Viewing DS1 System Status

Overview

Follow the procedure in this chapter to display or reset detailed DS1 system status information. Use Table 24-1 to interpret field values.

Procedure

To view DS1 system status, you must access the DS1 Status screen. Select option 14, DS1 Status, from the Main Menu.

Take the following detailed steps:

1. If you have not done so, press ↵ to display the Password screen.
2. Access the Main Menu by typing the password at the Password screen. Press ↵. Complete the VT100 compatibility test if this function is enabled.
3. Press **14** to select DS1 Status. Press ↵.

   The system displays the DS1 Status screen, shown in Figure 24-1.

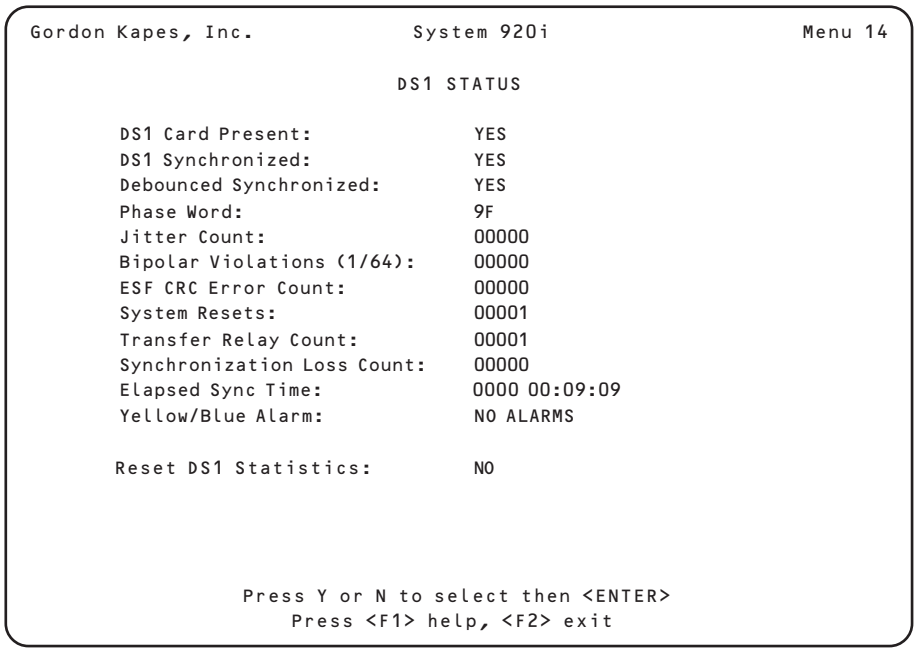

Figure 24-1. DS1 Status Screen

4. Use the following keys while viewing the DS1 Status screen. Table 24-1 describes the status fields on this screen.

To	Take this Action
Display Online Help	Press **F1**.
Exit Online Help	Press **F2**.

5. To return to the Main Menu, press **F2**.

Table 24-1. DS1 Status Fields

Field	Description
DS1 Card Present	Indicates whether the DS1 Interface card is currently installed in the System 920i enclosure. YES indicates the card is installed. NO indicates the card is not installed.
DS1 Synchronized	Indicates whether the DS1 Interface card is currently synchronized with the incoming ESF or D4 frame. YES indicates the card is synchronized. NO indicates the card is not synchronized.
Debounced Synchronized	Indicates debounced synchronization status of the DS1 card. YES indicates the card synchronized after a 1-second delay. NO indicates the card lost synchronization for a period greater than five seconds.
Phase Word	Indicates the phase difference between incoming DS1 frame and internal ST-BUS. This is a hexadecimal number. When the System 920i displays the same number continuously, perfect synchronization has been achieved.
Slip Count	Shows number of times the System 920i needed to repeat or drop the incoming frame to maintain frame synchronization. The system contains an elastic buffer to adjust for frequency differences between the internal telecom bus and the received frame. The number is updated when the Debounced Synchronized Field is yes.
Bipolar Violations (1/64)	Indicates the number of times the DS1 bipolar clock failed to detect an alternate pulse during debounced synchronization. The number is divided by 64.
ESF CRC Error Count	Indicates number of ESF checksum errors during debounced synchronization. - - indicates D4 framing.
System Resets	Indicates number of times system has rebooted due to power cycling.

continued

Table 24-1. DS1 Status Fields (cont.)

Field	Description
Transfer Relay Count	Indicates number of times the transfer relay seized the DS1 network.
Synchronization Loss Count	Indicates number of times the System 920i lost synchronization.
Receive Level Indication	Indicates strength of the incoming DS1 signal. Shows +2dB to –7.5dB (strongest), –7.5dB to –15dB, –15dB to –22.5dB, less than –22.5dB (weakest). Hyphens indicate the information not available on currently installed DS1 network card.
Elapsed Sync Time	Indicates days, hours, minutes, and seconds since the start of the last DS1 debounced synchronization.
Yellow/Blue Alarm	Indicates alarm status. Displays have the following meanings: *No alarms* — Indicates the incoming DS1 frame does not contain a blue or yellow alarm. *Blue alarm* — Indicates the incoming DS1 frame contains a 1 in each bit position including the framing bit. This condition causes loss of synchronization and loss of DS1 data. *ESF yellow alarm* — Indicates the incoming ESF frame contains eight 0s and eight 1s in the facilities data link portion of the framing bit. This condition does not cause loss of synchronization or loss of DS1 data. *D4 yellow alarm* — Indicates the incoming D4 frame contains 0s in bit position 2 on all DS1 channels. This condition causes loss of DS1 data, but does not cause loss of synchronization.
Reset DS1 Statistics	Enter **Y** and press ↵ to reset all values displayed on the screen to zero. You may wish to reset when diagnosing a problem over long periods of time.

Chapter Twenty-Five
Understanding and Using OPS Extensions

Required Equipment

As described in Chapter 3, the three OPS cards available for the System 920i enable the installation of as many as 24 analog telephones. These must be analog telephones, such as 2500-type, that support touch-tone dialing. The System 920i does not support pulse dialing.

It is strongly recommended that each telephone used be equipped with a flash (or transfer) button. This simplifies use of the switch-hook flash capabilities supported by the System 920i. (For more details refer to "Switch-Hook Flash Capabilities," later in this chapter.)

Purpose and Use of OPS Extensions

The primary purpose of the OPS extensions is to enable personnel at a site to communicate when customer-premise equipment (CPE DS1) is unavailable due to power loss, equipment malfunction, or maintenance downtime.

Since the System 920i always receives power, the OPS extensions can always be active. This means that *all extensions*, when configured, can be used for internal communications *at all times*—not just when the DS1 network has been seized. (Refer to Chapter 11, "Configuring Dialing Parameters," for more information.) Consequently, the system administrator at your site can implement OPS extensions as an auxiliary intercom system intended for everyday use as well as a phone system backup.

Depending upon configuration, an OPS extension can be used to receive calls from, or make calls to the DS1 network, or both; or an OPS extension can be configured for internal-use only.

By assigning certain OPS extensions to any of the 24 ACD functions provided by the System 920i, your system administrator may have made it possible for you, or an intermediate phone attendant, to receive selected calls from the DS1 network during a phone system shutdown or other alarm condition.

Accessing the Recorder/Announcer Card

Personnel at the site must use an authorized OPS extension for the purpose of recording or verifying the messages stored in the Recorder/Announcer card. (Either a single OPS extension or all OPS extensions can be configured to access the card. Refer to Chapter 9 for more details.)

OPS Extension Numbering

System 920i extension numbers are automatically assigned as 101 through 124 when you configure a 3-digit dialing plan (OPS extension digit length), or as 1001 through 1024 when you configure a 4-digit plan, or as 10001 through 10024 when you configure a 5-digit plan. (Refer to Chapter 7, “Configuring the OPS Extension Numbering Plan and Caller-Number Parameters.”) This covers all 24 OPS extensions if they are present. You can change automatically-assigned extension numbers to a number from 100 through 99999. If your site uses more than one System 920i, it is probably a good idea to use a different dialing plan for each unit since this may help to prevent confusion—even though OPS extensions installed for one System 920i cannot be used to call extensions installed for another System 920i.

Note: When speed dialing a telephone number from an OPS extension, a pause may be required after the outbound-access digit is dialed. This provides the time required to furnish dial tone.

Call Progress Tones and the Alert Tone

In general, the System 920i supports the OPS extensions with standard progress tones. For example, the System 920i uses a standard dial tone when an extension is ready to be dialed; and it uses a standard busy tone if the number called is busy. Consequently, using an OPS extension may be very similar to using your primary phone.

If you dial the outbound-access digit to call an outside number using an OPS extension configured for outbound dialing, the system connects a dial tone provided by either the DS1 network or the System 920i. If you dial the outbound-access digit using a configured OPS extension but the DS1 network has not been seized or no outbound channel is available, the system connects a standard reorder tone. If you dial the outbound-access digit using an OPS extension *not configured* for outbound dialing, the system connects a standard vacant tone.

If you leave an extension off-hook, the system leaves a dial tone connected for approximately twenty seconds, replaces it with a reorder tone until a minute has expired, and then replaces the reorder tone with a howler tone for 30 seconds, then silence.

An *alert tone* is a series of three 440Hz tones produced in the sequence 0.5 second on, 0.5 second off. If you hear an alert tone while you are in progress with a call through the DS1 network, the System 920i is signaling you to terminate the call so it can reconnect the DS1 network to CPE DS1. You should end your call as soon as possible and, if need be, call the other party back using the reconnected CPE-DS1 equipment by way of your primary phone or phone system.

Switch-Hook Flash Capabilities

The System 920i supports traditional switch-hook flash capabilities. These can be used with all calls among OPS extensions.

Switch-hook flash is a signaling technique enabling you to use an OPS extension to transfer a call originating either from the DS1 network or from another OPS extension. By using switch-hook flash you can transfer the call to another OPS extension. This facilitates the routing and distribution of calls when the System 920i has seized the DS1 network and is receiving inbound calls, and also provides flexibility when OPS extensions are used on an everyday basis.

After using your phone to connect with another party, you can signal a switch-hook flash by momentarily depressing the switch hook. On the modern telephone, the switch hook is usually the little plunger at the top of the phone that is pushed down when the handset is resting on its cradle. (To flash, you must depress the switch hook within the range 0.3 to 1.0 seconds. To receive a new dial tone, you must depress the switch hook for 1.5 seconds or more.)

It is recommended that you use telephones with a separate button that you press to generate a flash. This type of telephone eliminates the need to depress the switch hook for a specific period of time.

When you generate a flash, the system provides a short stutter tone telling you the flash is successful, and then a new dial tone. Dial the OPS extension of the party to whom you are transferring the call. When this party answers, you can announce the transfer and hang up. Or, if the party does not answer or does not want to take the call, you can flash again to reconnect to the original caller.

Another alternative is to flash, dial the party, and then hang up before anyone answers. This also transfers the call. The transferred party hears an audible-ring tone until the dialed extension is answered.

A step-by-step procedure for transferring a call follows.

Transferring a Call

When you are using an OPS extension to talk with someone and want to transfer the call to another OPS extension:

1. Flash your extension by pressing the flash button or switch hook.

   The system connects a momentary stutter tone to signal the flash is successful, and then a dial tone.

2. Dial the 3-, 4-, or 5-digit number of the extension to which you are transferring the call.

   The system connects an audible-ring progress tone indicating that the new extension is ringing.

3. Do one of the following:

To	Take This Action
Transfer the call directly (without announcing it)	Wait until you hear the audible-ring tone, then hang up. The system connects an audible-ring tone to the calling extension, and connects the new extension when the new extension is answered.
Announce the transfer	Wait for the called party to answer. Announce the call and hang up. The system connects the caller to the new extension. If the called party does not answer, flash your extension again to reconnect with the caller.

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Chapter Twenty-Six
Playing and Recording Recorder/Announcer Messages

Overview

When installed in the System 920i, the 915 Recorder/Announcer card can store two separate voice messages in solid-state nonvolatile memory. As described in Part III of this guide, each message can be used with:

- An incoming call
- An ACD function
- A redirect function
- An OPS extension

Both playing and recording messages are easy tasks. No special equipment is required. You simply access the Recorder/Announcer function using the analog telephone connected to an authorized OPS extension. (When the System 920i is configured, either all extensions or a specific extension can be authorized to access the Recorder/Announcer function.)

Using a touch-tone keypad, dial the number *99. Then enter the 7-digit numeric password providing security for the function, and select the desired option as shown in Table 26-1. Play or record one or both of the messages. When finished with the session, hang up.

Table 26-1. Recorder/Announcer Menu

To:	Press Touch Tone:
Play message 1	1
Play message 2	2
Record message 1	3
Record message 2	4
End each task	Hang up

The use of Recorder/Announcer messages, which can vary greatly from site to site, depends upon available hardware and the needed configuration. Consequently, you may want to consult with your system designer before composing the required message or messages.

The 915 card may be shipped with test messages recorded at the factory. You should replace these immediately with those appropriate to your site.

Recording a Message

Use the following instructions to record either message.

Before You Begin

Use an OPS extension authorized to access the Recorder/Announcer function. You must also have the 7-digit numeric password needed to access the function. If you do not know the password or which extension to use, consult with the system administrator, or other party responsible for configuring the System 920i, at your site.

Procedure

The following describes how to record a message. Use the touch-tone keypad on the extension to make all entries.

1. Lift the handset on the telephone to take it off-hook.

   You hear a dial tone.

2. Dial *99 to access the Recorder/Announcer function.

   After a half second of silence, you hear the dial tone once again. (If you are using an unauthorized extension, you hear a reorder tone.)

3. Enter the 7-digit numeric password needed to access the Recorder/Announcer function.

   You hear a repeated beep tone. This signals that you are in the Recorder/Announcer Menu. (If you hear a reorder tone, you are not using the correct password.)

4. Use the following touch-tone keys to record a message.

To	Take this Action
Record message 1	Press **3**.
Record message 2	Press **4**.

   The repeated beep tone stops. The recording begins as soon as you release the touch-tone key. The previous message is deleted.

5. Record the new message by speaking into the telephone transmitter. Hang up to end the recording. (If you do not hang up, the system automatically ends the recording after 20 seconds.)

   After recording ends, the new message is automatically played once. Then you hear the repeated beep tone indicating you are back in the menu.

6. Do one of the following:

To	Take this Action
Record another message	Return to step 4.
Play a message	Go to step 4 in “Playing a Message,” which follows.
Exit the Recorder/Announcer Menu	Hang up the telephone.

Playing a Message

Use the following procedure to play the existing messages. Use the touch-tone keypad to make all entries.

Before You Begin

Use an OPS extension authorized to access the Recorder/Announcer function. You must have the 7-digit numeric password needed to access the function. If you do not know the password or which extension to use, consult with the system administrator, or other party responsible for configuring the System 920i, at your site.

Procedure

The following describes how to play a message. Use the touch-tone keypad to make all entries.

1. Lift the handset on the telephone to take it off-hook.

   You hear a dial tone.

2. Enter *99 to access the Recorder/Announcer function.

   After a half second of silence, you hear the dial tone once again. (If you are using an unauthorized extension, you hear a reorder tone.)

3. Enter the 7-digit numeric password needed to access the Recorder/Announcer function.

   You hear a repeated beep tone. This signals that you are in the Recorder/Announcer Menu. (If you hear a reorder tone, you are not using the correct password.)

4. Use the following touch-tone keys to play messages.

To	Take this Action
Play message 1	Press **1**.
Play message 2	Press **2**.

After the message has been played, you hear the repeated beep tone indicating you are back in the menu.

5. Do one of the following:

To	Take this Action
Play another message	Return to step 4.
Record a message	Go to step 4 in “Recording a Message,” which precedes this section.
Exit the Recorder/Announcer Menu	Hang up the telephone.

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Chapter Twenty-Seven
Accessing Advanced Functions

Overview

The System 920i provides you with several advanced functions for use with troubleshooting during installation and testing. You access these by selecting options on the second page of the Advanced Menu. (Options on the first page of the Advanced Menu are identical to those on the Main Menu.)

Frequently used options allow you to do the following:

- View DS1 ST-Bus status
- Connect tones to digital bus
- Configure and view the ISDN protocol analyzer
- Reset system defaults

Accessing Advanced Functions

To access an advanced function, display the Advanced Menu by typing **advanced** at the Main Menu Online help screen. Press **F4**. Select the desired option. Use Online Help (F1) for more information about the selected options.

Take the following detailed steps:

1. If you have not done so, press ↵ to display the Password screen.
2. Access the Main Menu by typing the password at the Password screen. Press ↵. Complete the VT100 compatibility test if this function is enabled.
3. Press **F1** to display Online Help.
4. Type **advanced**.

   The system displays options 1 through 14 on the Advanced Menu. These options are identical to those on the Main Menu.

5. Press **F4**.

   The system displays the second page of the Advanced Menu. The items on this page are displayed on the Advanced Menu only.

6. Press the menu option number to access the desired function. Press ↵.

   The system displays the screen corresponding with the selected function.

7. For more information about the selected function, press **F1**. The system displays Online Help.

Chapter Twenty-Eight
Maintaining the System 920i and Associated Site

Overview

The System 920i requires no traditional maintenance such as the periodic cleaning of tape heads or making sure air vents remain unobstructed. As long as you routinely operate the System 920i with its cover in place, the enclosed cards and other hardware components should remain dust free and in good operating order.

Successful operation of the System 920i *does* depend upon the proper connection of equipment and other factors external to the System 920i. Over time, inexperienced or forgetful personnel can allow the most carefully installed and configured system to deteriorate.

Needed hardware connections, for example, may not be replaced when external equipment is changed or upgraded. Outside telephone numbers may be changed but software reconfiguration neglected, and so forth. Changes such as these can go unheeded until the System 920i is actually needed for backup—and then nonworking functions are liable to be sorely missed!

This chapter reviews nine monitoring tasks you should periodically perform to ensure your System 920i is always ready as a backup or disaster-recovery resource. These tasks are the following:

- Check power switch and status LEDs
- Check OPS extensions
- Check contact connections
- Check synchronization with DS1 network
- Verify UPS power supply
- Review system configuration
- Ensure documentation is available
- Review disaster-recovery training plan
- Call factory for updates

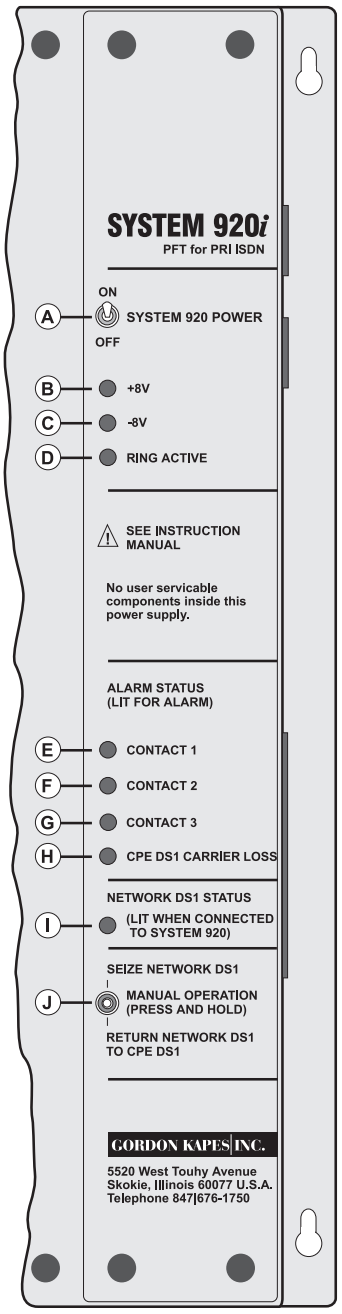
Keep a written maintenance record near the System 920i. As you perform each task, note it on the record, along with the date and results.

Check Power Switch and Status LEDs

Power should always be supplied to the System 920i. On a frequent and routine basis, review the status LED panel on the front of the System 920i enclosure (shown in Figure 28-1).

The +8V and –8V LEDs should always be lit. These indicate power is on and is being correctly fed to the cards in the System 920i. (If power is not being supplied to the System 920i, ensure the System 920i Power switch is in the On position and that the System 920i is connected to a UPS power supply.)

The Ring Active LED may also be fluttering. This indicates an OPS card is requesting ringing current from the Power Supply card. In other words, an OPS extension is being called. This usually indicates a normal situation. However, if the Ring Active LED flutters for an inordinate period of time—more than 30 seconds, perhaps—it may indicate an OPS extension calling another OPS extension that is unattended. While this is not a harmful situation, it should be investigated.



A System 920i Power switch

Controls entry of –48V to the system. Move switch to the On or Off position. Since the system cannot function without power, the switch should be left in the On position during normal operating conditions.

B +8V

When lit, indicates +8V is being generated by the Power Supply card and sent to other System 920i cards. This LED should always be lit when power to the System 920i is applied and the power switch is in the On position.

C –8V

When lit, indicates –8V is being generated by the Power Supply card and sent to other System 920i cards. This LED should always be lit when power to the System 920i is applied and the power switch is in the ON position.

D Ring Active

Flutters when active. This indicates ringing current is being generated by the Power Supply card upon request of one of the OPS cards. LED should flutter only when ringing current is being generated. Continuous fluttering indicates a problem such as an OPS extension accidently left off-hook and ringing another extension.

E Contact 1

When lit, indicates contact-input-monitoring 1 function is enabled and in the alarm state.

F Contact 2

When lit, indicates contact-input-monitoring 2 function is enabled and in the alarm state.

G Contact 3

When lit, indicates contact-input-monitoring 3 function is enabled and in the alarm state.

H CPE DS1 Carrier Loss

When lit, indicates CPE-DS1 monitoring function is enabled and in the alarm state.

I DS1 Network Status

When lit, is either lit steadily or flashes on and off. When lit steadily, indicates System 920i has seized the DS1 network and is synchronized with it. When flashing on and off, indicates System 920i has seized the DS1 network but is *not* synchronized with it.

When not lit, indicates the System 920i has not seized the DS1 network.

J Manual Operation switch

Press and hold up to seize the DS1 network. Press and hold down to reconnect DS1 network to CPE DS1.

Figure 28-1. System 920i Status LED Panel

The remaining LEDs on the panel are activated only when alarm conditions occur or when the System 920i seizes the DS1 network. Consequently these LEDs should not be lit under normal circumstances. A Contact LED is lit only when its contact input indicates an activated alarm condition. The CPE-DS1-Carrier-Loss LED is lit only when CPE-DS1-carrier monitoring activates an alarm. Once an alarm is activated, the System 920i seizes the DS1 network.

The Network-DS1-Status LED is lit only when the System 920i has seized the DS1 network—either because of an activated alarm condition or because the Manual Operation toggle switch has been used. If this LED flashes when lit, the System 920i has seized the DS1 network but is not synchronized. This can indicate an error in the way general parameters have been configured for the DS1 Interface card (described in Chapter 6, Configuring DS1 Channel Parameters).

Check OPS Extensions

Every three to six months, check each OPS extension. Check dial tone and ringing by making a call to and receiving a call from each extension.

If the Recorder/Announcer card is used at the site, access the card from an authorized OPS extension. Listen to each recorded message. Confirm that each message plays correctly and that the content is correct.

Check Contact Connections

On a quarterly basis, ensure the contact inputs are physically connected to the devices intended and can activate an alarm condition.

Check Synchronization with DS1 Network

Every 3 to 12 months, make the needed arrangements at the site, and then verify that the System 920i seizes and can synchronize with the DS1 network. Use the Manual Operation toggle switch to seize the DS1 network; or, if configured, use one or all of the contact inputs to simulate an alarm condition.

Verify the System 920i synchronizes correctly with the DS1 network by checking the Network-DS1-Status LED on the front panel. The LED should light when the DS1 network is seized, and should remain steady when synchronized. If this LED flashes on and off, the System 920i is not synchronizing with the DS1 network.

Ensure calls coming in from the DS1 network can be received, and that outbound calls, if configured, can be made. Test redirected incoming calls to make sure that these are actually redirected to valid telephone numbers.

Verifying UPS Power Supply

Ensure that the –48V power supply connected to the System 920i is an uninterruptible power supply (UPS). If CPE-DS1 capability is lost at the site due to a commercial power failure, the System 920i is also rendered useless unless it is connected to a UPS. A UPS was probably installed with the System 920i originally—nevertheless, technicians have been known to exchange cables and other pieces of equipment without realizing the consequences of doing so.

Review System Configuration

Once or twice a year, review the software configuration of the system. You must connect a terminal or personal computer with VT100 emulation to serial port J1 located on the left panel of the System 920i. If need be, refer to Chapters 4 through 16, along with the configuration worksheets completed for the site, while reviewing the various configuration screens.

It is a good idea to review the configured software settings even though they do not change once they have been made. This is because the original settings may no longer be appropriate for the current site environment.

Ensure Documentation is Available

While you are checking physical connections and other aspects of the System 920i, do not forget to verify that this guide is close at hand and available to personnel who may need it when configuring, maintaining, or repairing the system.

Review Disaster-Recovery Training Plan

Finally, review the disaster-recovery training program designed for the site. Ensure training in the use of the System 920i is included in this plan, and that the training is actually implemented. A properly configured and installed system is less efficient when no one knows how to use it when needed.

If the System 920i uses redirected calls, contact personnel at the site or sites to which calls are redirected. Review their training plan to ensure these offsite personnel know how to handle calls redirected from the System 920i.

Call Factory for Updates

Once a year, call Gordon Kapes, Inc. with the serial number for the System 920i used at your site. (The serial number is found on the right panel of the system enclosure.) Technical support personnel at the factory are glad to advise you of any upgrades recommended for your system.

Appendix A
Configuration Worksheets

Overview

This appendix contains a set of master worksheets designed to aid you with the configuration process.

The worksheets are as follows:

- DS1 and PRI Configuration
- DS1 Channel Configuration
- Numbering Plan Configuration
- OPS Card Configuration
- Recorder/Announcer Configuration
- Inbound Call Configuration
- OPS Dialing Configuration
- Outbound Call Configuration
- ACD Configuration
- Redirect Configuration
- Transfer Configuration
- Security Configuration

Please photocopy the master worksheets and use the copies as you plan and gather needed data for your system configuration.

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DS1 and PRI Configuration Worksheet

Use this worksheet in conjunction with the instructions in Chapter 5.
(* Indicates factory default.)

Framing:	☐ ESF (EXTENDED SUPERFRAME)* ☐ D4 (SUPERFRAME)
Line Coding Method:	☐ B8ZS (BIPOLAR ZERO SUPPRESSION)* ☐AMI (NO ZERO SUPPRESSION) ☐ ZCS (JAMMED BIT ZERO SUPPRESSION)
Line Build Out:	☐ 0dB* ☐ –7.5dB ☐ –15dB
Synchronization Source:	☐ NETWORK* ☐ INTERNAL
Switch Emulation:	☐ NATIONAL ISDN-2* ☐ 4ESS (NI-2) ☐ 5ESS (NI-2) ☐ 5ESS (NI-1) ☐ DMS100 (NI-2) ☐ DMS100 (NI-1) ☐ GTD5 (NI-2)
Location:	■ USER SIDE

Network Specific Service:

☐ NO SPECIFIC SERVICE*	☐ CODE 16 (MULTIQUEST 900)
☐ CODE 0	☐ CODE 17
☐ CODE 1 (SDN)	☐ CODE 18
☐ CODE 2 (MEGACOM 800)	☐ CODE 19
☐ CODE 3 (MEGACOM)	☐ CODE 20
☐ CODE 4 (INWATS)	☐ CODE 21
☐ CODE 5 (OUTWATS)	☐ CODE 22
☐ CODE 6 (ACCUNET)	☐ CODE 23
☐ CODE 7 (AT&T LDS)	☐ CODE 24
☐ CODE 8 (I800)	☐ CODE 25
☐ CODE 9	☐ CODE 26
☐ CODE 10	☐ CODE 27
☐ CODE 11	☐ CODE 28
☐ CODE 12	☐ CODE 29
☐ CODE 13	☐ CODE 30
☐ CODE 14	☐ CODE 31
☐ CODE 15	

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DS1 Channel Configuration Worksheet

Use this worksheet in conjunction with the instructions in Chapter 6. In the blanks provided, write the values required for each channel. Possible choices are listed below. (* Indicates factory default.)

Ch	Operation	Ch	Operation
1	_____	13	_____
2	_____	14	_____
3	_____	15	_____
4	_____	16	_____
5	_____	17	_____
6	_____	18	_____
7	_____	19	_____
8	_____	20	_____
9	_____	21	_____
10	_____	22	_____
11	_____	23	_____
12	_____		

Choices are:

Operation
TWO WAY*
DISABLED
MAINTENANCE

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Numbering Plan Configuration Worksheet

Use this worksheet in conjunction with the instructions in Chapter 7.
(* Indicates factory default.)

OPS Extension Digit Length:	☐ 3 ☐ 4* ☐ 5
OPS Base Extension Number:	_____ (100-999 if OPS extension digit length is 3, 1000-9999 if length is 4, 10000-99999 if length is 5.)
Caller Number:	_____ (0-14 digits)
Caller Number Sent:	☐ NOT SENT* ☐ SEND CALLER NUMBER ☐ SEND CALLER NUMBER WITH OPS EXTENSION OVERLAY
Caller Presentation:	☐ ALLOWED* ☐ BLOCKED
Caller Type of Number:	☐ NATIONAL NUMBER* ☐ SUBSCRIBER NUMBER ☐ ABBREVIATED NUMBER ☐ UNKNOWN NUMBER ☐ INTERNATIONAL NUMBER
Caller Number Plan:	☐ ISDN NUMBERING PLAN* ☐ TELEPHONY NUMBERING PLAN ☐ PRIVATE NUMBERING PLAN ☐ UNKNOWN NUMBERING PLAN
Called Number Plan:	☐ ISDN NUMBERING PLAN* ☐ TELEPHONY NUMBERING PLAN ☐ PRIVATE NUMBERING PLAN ☐ UNKNOWN NUMBERING PLAN

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OPS Card Configuration Worksheet

Use this worksheet in conjunction with the instructions in Chapter 8. In the blanks provided, write the values required for each port. Possible choices are listed below. (* Indicates factory default.)

OPS Card 1

Port	Ext	ACD	Outbound
1	_____	_____	_____
2	_____	_____	_____
3	_____	_____	_____
4	_____	_____	_____
5	_____	_____	_____
6	_____	_____	_____
7	_____	_____	_____
8	_____	_____	_____

Choices are:

Ext	ACD		Outbound
Enter the extension displayed on the OPS Card Configuration Screen.	ACD 1*	ACD 13	ENABLED*
	ACD 2	ACD 14	DISABLED
	ACD 3	ACD 15	
	ACD 4	ACD 16	
	ACD 5	ACD 17	
Or	ACD 6	ACD 18	
	ACD 7	ACD 19	
Extension numbers can also be changed to a number from 100-999 if OPS extension digit length is 3, 1000-9999 if length is 4, or 10000-99999 if length is 5.	ACD 8	ACD 20	
	ACD 9	ACD 21	
	ACD 10	ACD 22	
	ACD 11	ACD 23	
	ACD 12	ACD 24	
		NONE	

In the blanks provided, write the values required for each port. Possible choices are listed below. (* Indicates factory default.)

OPS Card 2

Port	Ext	ACD	Outbound
9	_____	_____	_____
10	_____	_____	_____
11	_____	_____	_____
12	_____	_____	_____
13	_____	_____	_____
14	_____	_____	_____
15	_____	_____	_____
16	_____	_____	_____

Choices are:

Ext	ACD		Outbound
Enter the extension displayed on the OPS Card Configuration Screen.	ACD 1*	ACD 13	ENABLED*
	ACD 2	ACD 14	DISABLED
	ACD 3	ACD 15	
	ACD 4	ACD 16	
	ACD 5	ACD 17	
Or	ACD 6	ACD 18	
	ACD 7	ACD 19	
Extension numbers can also be changed to a number from 100-999 if OPS extension digit length is 3, 1000-9999 if length is 4, or 10000-99999 if length is 5.	ACD 8	ACD 20	
	ACD 9	ACD 21	
	ACD 10	ACD 22	
	ACD 11	ACD 23	
	ACD 12	ACD 24	
		NONE	

In the blanks provided, write the values required for each port. Possible choices are listed below. (* Indicates factory default.)

OPS Card 3

Port	Ext	ACD	Outbound
17	_____	_____	_____
18	_____	_____	_____
19	_____	_____	_____
20	_____	_____	_____
21	_____	_____	_____
22	_____	_____	_____
23	_____	_____	_____
24	_____	_____	_____

Choices are:

Ext	ACD		Outbound
Enter the extension displayed on the OPS Card Configuration Screen.	ACD 1*	ACD 13	ENABLED*
	ACD 2	ACD 14	DISABLED
	ACD 3	ACD 15	
	ACD 4	ACD 16	
	ACD 5	ACD 17	
Or	ACD 6	ACD 18	
	ACD 7	ACD 19	
Extension numbers can also be changed to a number from 100-999 if OPS extension digit length is 3, 1000-9999 if length is 4, or 10000-99999 if length is 5.	ACD 8	ACD 20	
	ACD 9	ACD 21	
	ACD 10	ACD 22	
	ACD 11	ACD 23	
	ACD 12	ACD 24	
		NONE	

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Recorder/Announcer Configuration Worksheet

Use this worksheet in conjunction with the instructions in Chapter 9.
(* Indicates factory default.)

Recorder/Announcer OPS Access Port:

☐ ALL*	☐ 8	☐ 16
☐ 1	☐ 9	☐ 17
☐ 2	☐ 10	☐ 18
☐ 3	☐ 11	☐ 19
☐ 4	☐ 12	☐ 20
☐ 5	☐ 13	☐ 21
☐ 6	☐ 14	☐ 22
☐ 7	☐ 15	☐ 23
		☐ 24

Recorder/Announcer Numeric Password: _____
(7 digits. Factory-supplied sample: *1234567*)

Do you wish to erase all voice messages: ☐ NO*
☐ YES

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Inbound Call Configuration Worksheet

Use this worksheet in conjunction with the instructions in Chapter 10. In the blanks provided, write the values required for each match. Possible choices are listed below. (* Indicates factory default.)

Match 1-12

No.	Match Number	Route if Match
1.	_____	_____
2.	_____	_____
3.	_____	_____
4.	_____	_____
5.	_____	_____
6.	_____	_____
7.	_____	_____
8.	_____	_____
9.	_____	_____
10.	_____	_____
11.	_____	_____
12.	_____	_____

Choices are:

Match Number
0-17 digits

Route if Match

- ☐ ACD 1*
- ☐ ACD 2
- ☐ ACD 3
- ☐ ACD 4
- ☐ ACD 5
- ☐ ACD 6
- ☐ ACD 7
- ☐ ACD 8
- ☐ ACD 9
- ☐ ACD 10
- ☐ ACD 11
- ☐ ACD 12
- ☐ ACD 13
- ☐ ACD 14
- ☐ ACD 15
- ☐ ACD 16
- ☐ ACD 17
- ☐ ACD 18
- ☐ ACD 19
- ☐ ACD 20
- ☐ ACD 21
- ☐ ACD 22
- ☐ ACD 23
- ☐ ACD 24
- ☐ REDIRECT 1
- ☐ REDIRECT 2
- ☐ REDIRECT 3
- ☐ REDIRECT 4
- ☐ REDIRECT 5
- ☐ REDIRECT 6
- ☐ REDIRECT 7
- ☐ REDIRECT 8
- ☐ REDIRECT 9
- ☐ REDIRECT 10
- ☐ REDIRECT 11
- ☐ REDIRECT 12
- ☐ REDIRECT 13
- ☐ REDIRECT 14
- ☐ REDIRECT 15
- ☐ REDIRECT 16
- ☐ REDIRECT 17
- ☐ REDIRECT 18
- ☐ REDIRECT 19
- ☐ REDIRECT 20
- ☐ REDIRECT 21
- ☐ REDIRECT 22
- ☐ REDIRECT 23
- ☐ REDIRECT 24
- ☐ REORDER
- ☐ MESSAGE 1 PLAY TWICE
- ☐ MESSAGE 2 PLAY TWICE

In the blanks provided, write the values required for each match. Possible choices are listed below. (* Indicates factory default.)

Match 13-24

No.	Match Number	Route if Match
13.	_____	_____
14.	_____	_____
15.	_____	_____
16.	_____	_____
17.	_____	_____
18.	_____	_____
19.	_____	_____
20.	_____	_____
21.	_____	_____
22.	_____	_____
23.	_____	_____
24.	_____	_____

Choices are:

Match Number
0-17 digits

Route if Match

- ☐ ACD 1*
- ☐ ACD 2
- ☐ ACD 3
- ☐ ACD 4
- ☐ ACD 5
- ☐ ACD 6
- ☐ ACD 7
- ☐ ACD 8
- ☐ ACD 9
- ☐ ACD 10
- ☐ ACD 11
- ☐ ACD 12
- ☐ ACD 13
- ☐ ACD 14
- ☐ ACD 15
- ☐ ACD 16
- ☐ ACD 17
- ☐ ACD 18
- ☐ ACD 19
- ☐ ACD 20
- ☐ ACD 21
- ☐ ACD 22
- ☐ ACD 23
- ☐ ACD 24
- ☐ REDIRECT 1
- ☐ REDIRECT 2
- ☐ REDIRECT 3
- ☐ REDIRECT 4
- ☐ REDIRECT 5
- ☐ REDIRECT 6
- ☐ REDIRECT 7
- ☐ REDIRECT 8
- ☐ REDIRECT 9
- ☐ REDIRECT 10
- ☐ REDIRECT 11
- ☐ REDIRECT 12
- ☐ REDIRECT 13
- ☐ REDIRECT 14
- ☐ REDIRECT 15
- ☐ REDIRECT 16
- ☐ REDIRECT 17
- ☐ REDIRECT 18
- ☐ REDIRECT 19
- ☐ REDIRECT 20
- ☐ REDIRECT 21
- ☐ REDIRECT 22
- ☐ REDIRECT 23
- ☐ REDIRECT 24
- ☐ REORDER
- ☐ MESSAGE 1 PLAY TWICE
- ☐ MESSAGE 2 PLAY TWICE

In the blanks provided, write the values required for each match. Possible choices are listed below. (* Indicates factory default.)

Match 25-36

No.	Match Number	Route if Match
25.	_____	_____
26.	_____	_____
27.	_____	_____
28.	_____	_____
29.	_____	_____
30.	_____	_____
31.	_____	_____
32.	_____	_____
33.	_____	_____
34.	_____	_____
35.	_____	_____
36.	_____	_____

Choices are:

Match Number
0-17 digits

Route if Match

- ☐ ACD 1*
- ☐ ACD 2
- ☐ ACD 3
- ☐ ACD 4
- ☐ ACD 5
- ☐ ACD 6
- ☐ ACD 7
- ☐ ACD 8
- ☐ ACD 9
- ☐ ACD 10
- ☐ ACD 11
- ☐ ACD 12
- ☐ ACD 13
- ☐ ACD 14
- ☐ ACD 15
- ☐ ACD 16
- ☐ ACD 17
- ☐ ACD 18
- ☐ ACD 19
- ☐ ACD 20
- ☐ ACD 21
- ☐ ACD 22
- ☐ ACD 23
- ☐ ACD 24
- ☐ REDIRECT 1
- ☐ REDIRECT 2
- ☐ REDIRECT 3
- ☐ REDIRECT 4
- ☐ REDIRECT 5
- ☐ REDIRECT 6
- ☐ REDIRECT 7
- ☐ REDIRECT 8
- ☐ REDIRECT 9
- ☐ REDIRECT 10
- ☐ REDIRECT 11
- ☐ REDIRECT 12
- ☐ REDIRECT 13
- ☐ REDIRECT 14
- ☐ REDIRECT 15
- ☐ REDIRECT 16
- ☐ REDIRECT 17
- ☐ REDIRECT 18
- ☐ REDIRECT 19
- ☐ REDIRECT 20
- ☐ REDIRECT 21
- ☐ REDIRECT 22
- ☐ REDIRECT 23
- ☐ REDIRECT 24
- ☐ REORDER
- ☐ MESSAGE 1 PLAY TWICE
- ☐ MESSAGE 2 PLAY TWICE

In the blanks provided, write the values required for each match. Possible choices are listed below. (* Indicates factory default.)

Match 37-48

No.	Match Number	Route if Match
37.	_____	_____
38.	_____	_____
39.	_____	_____
40.	_____	_____
41.	_____	_____
42.	_____	_____
43.	_____	_____
44.	_____	_____
45.	_____	_____
46.	_____	_____
47.	_____	_____
48.	_____	_____

Choices are:

Match Number
0-17 digits

Route if Match

- ☐ ACD 1*
- ☐ ACD 2
- ☐ ACD 3
- ☐ ACD 4
- ☐ ACD 5
- ☐ ACD 6
- ☐ ACD 7
- ☐ ACD 8
- ☐ ACD 9
- ☐ ACD 10
- ☐ ACD 11
- ☐ ACD 12
- ☐ ACD 13
- ☐ ACD 14
- ☐ ACD 15
- ☐ ACD 16
- ☐ ACD 17
- ☐ ACD 18
- ☐ ACD 19
- ☐ ACD 20
- ☐ ACD 21
- ☐ ACD 22
- ☐ ACD 23
- ☐ ACD 24
- ☐ REDIRECT 1
- ☐ REDIRECT 2
- ☐ REDIRECT 3
- ☐ REDIRECT 4
- ☐ REDIRECT 5
- ☐ REDIRECT 6
- ☐ REDIRECT 7
- ☐ REDIRECT 8
- ☐ REDIRECT 9
- ☐ REDIRECT 10
- ☐ REDIRECT 11
- ☐ REDIRECT 12
- ☐ REDIRECT 13
- ☐ REDIRECT 14
- ☐ REDIRECT 15
- ☐ REDIRECT 16
- ☐ REDIRECT 17
- ☐ REDIRECT 18
- ☐ REDIRECT 19
- ☐ REDIRECT 20
- ☐ REDIRECT 21
- ☐ REDIRECT 22
- ☐ REDIRECT 23
- ☐ REDIRECT 24
- ☐ REORDER
- ☐ MESSAGE 1 PLAY TWICE
- ☐ MESSAGE 2 PLAY TWICE

OPS Dialing Configuration Worksheet

Use this worksheet in conjunction with the instructions in Chapter 11.
(* Indicates factory default.)

Intercom Operation:

- ☐ TRANSFER MODE ONLY*
- ☐ ALWAYS

Intercom Dial 0:

- ☐ VACANT*
- ☐ ACD 1
- ☐ ACD 2
- ☐ ACD 3
- ☐ ACD 4
- ☐ ACD 5
- ☐ ACD 6
- ☐ ACD 7
- ☐ ACD 8
- ☐ ACD 9
- ☐ ACD 10
- ☐ ACD 11
- ☐ ACD 12
- ☐ ACD 13
- ☐ ACD 14
- ☐ ACD 15
- ☐ ACD 16
- ☐ ACD 17
- ☐ ACD 18
- ☐ ACD 19
- ☐ ACD 20
- ☐ ACD 21
- ☐ ACD 22
- ☐ ACD 23
- ☐ ACD 24
- ☐ MESSAGE 1
- ☐ MESSAGE 2

ACD Call Pickup Digit:

- ☐ 2
- ☐ 3*
- ☐ 4
- ☐ 5
- ☐ 6
- ☐ 7
- ☐ NONE

Outbound Dial #:

- ☐ SPECIAL*
- ☐ PASS THROUGH

Outbound 1st Digit Timeout:

- ☐ 1 SECONDS
- ☐ 2
- ☐ 3
- ☐ 4
- ☐ 5
- ☐ 6
- ☐ 7
- ☐ 8
- ☐ 9
- ☐ 10*

Outbound Interdigit Timeout:

- ☐ 1 SECONDS
- ☐ 2
- ☐ 3
- ☐ 4
- ☐ 5
- ☐ 6
- ☐ 7
- ☐ 8
- ☐ 9
- ☐ 10*

Outbound Access 1st Digit Group 1:

- ☐ 4
- ☐ 5
- ☐ 6
- ☐ 7
- ☐ 8
- ☐ 9*

OPS Dialing Configuration Worksheet (cont.)

Outbound Access 2nd Digit Group 1:

☐ NONE* ☐ 4
☐ 0 ☐ 5
☐ 1 ☐ 6
☐ 2 ☐ 7
☐ 3 ☐ 8
☐ 9

Outbound Access Insert Group 1: _____
(0-17 digits.)

Outbound Access 1st Digit Group 2:

☐ NONE* ☐ 6
☐ 4 ☐ 7
☐ 5 ☐ 8

Outbound Access 2nd Digit Group 2:

☐ NONE* ☐ 4
☐ 0 ☐ 5
☐ 1 ☐ 6
☐ 2 ☐ 7
☐ 3 ☐ 8
☐ 9

Outbound Access Insert Group 2: _____
(0-17 digits.)

(* Indicates factory default.)

Outbound Call Configuration Worksheet

Use this worksheet in conjunction with the instructions in Chapter 12. In the blanks provided, write the values required for each match. Possible choices are listed below. (* Indicates factory default.)

Outbound Call Group 1—Prefix 1-12

No.	Prefix	Max	Strip	Type	Route if Match
1.	_____	_____	_____	_____	_____
2.	_____	_____	_____	_____	_____
3.	_____	_____	_____	_____	_____
4.	_____	_____	_____	_____	_____
5.	_____	_____	_____	_____	_____
6.	_____	_____	_____	_____	_____
7.	_____	_____	_____	_____	_____
8.	_____	_____	_____	_____	_____
9.	_____	_____	_____	_____	_____
10.	_____	_____	_____	_____	_____
11.	_____	_____	_____	_____	_____
12.	_____	_____	_____	_____	_____

Choices are:

Prefix
0-17 digits

Max
- ☐ 1
- ☐ 2
- ☐ 3
- ☐ 4
- ☐ 5
- ☐ 6
- ☐ 7
- ☐ 8
- ☐ 9
- ☐ 10
- ☐ 11
- ☐ 12
- ☐ 13
- ☐ 14
- ☐ 15
- ☐ 16
- ☐ 17

Strip
- ☐ 0
- ☐ 1
- ☐ 2
- ☐ 3
- ☐ 4
- ☐ 5
- ☐ 6
- ☐ 7
- ☐ 8
- ☐ 9
- ☐ 10
- ☐ 11
- ☐ 12
- ☐ 13
- ☐ 14
- ☐ 15
- ☐ 16
- ☐ 17

Type
- ☐ I
- ☐ N
- ☐ S
- ☐ A
- ☐ U

Route if Match
- ☐ SEND OUT
- ☐ SEND OUT WITH INSERT
- ☐ REORDER

In the blanks provided, write the values required for each match. Possible choices are listed below. (* Indicates factory default.)

Outbound Call Group 1—Prefix 13-24

No.	Prefix	Max	Strip	Type	Route if Match
13.	_____	_____	_____	_____	_____
14.	_____	_____	_____	_____	_____
15.	_____	_____	_____	_____	_____
16.	_____	_____	_____	_____	_____
17.	_____	_____	_____	_____	_____
18.	_____	_____	_____	_____	_____
19.	_____	_____	_____	_____	_____
20.	_____	_____	_____	_____	_____
21.	_____	_____	_____	_____	_____
22.	_____	_____	_____	_____	_____
23.	_____	_____	_____	_____	_____
24.	_____	_____	_____	_____	_____

Choices are:

Prefix
0-17 digits

Max
- ☐ 1
- ☐ 2
- ☐ 3
- ☐ 4
- ☐ 5
- ☐ 6
- ☐ 7
- ☐ 8
- ☐ 9
- ☐ 10
- ☐ 11
- ☐ 12
- ☐ 13
- ☐ 14
- ☐ 15
- ☐ 16
- ☐ 17
- ☐ 5

Strip
- ☐ 0
- ☐ 1
- ☐ 2
- ☐ 3
- ☐ 4
- ☐ 5
- ☐ 6
- ☐ 7
- ☐ 8
- ☐ 9
- ☐ 10
- ☐ 11
- ☐ 12
- ☐ 13
- ☐ 14
- ☐ 15
- ☐ 16
- ☐ 17

Type
- ☐ I
- ☐ N
- ☐ S
- ☐ A
- ☐ U

Route if Match
- ☐ SEND OUT
- ☐ SEND OUT WITH INSERT
- ☐ REORDER

In the blanks provided, write the values required for each match. Possible choices are listed below. (* Indicates factory default.)

Outbound Call Group 1—Prefix 25-36

No.	Prefix	Max	Strip	Type	Route if Match
25.	_____	_____	_____	_____	_____
26.	_____	_____	_____	_____	_____
27.	_____	_____	_____	_____	_____
28.	_____	_____	_____	_____	_____
29.	_____	_____	_____	_____	_____
30.	_____	_____	_____	_____	_____
31.	_____	_____	_____	_____	_____
32.	_____	_____	_____	_____	_____
33.	_____	_____	_____	_____	_____
34.	_____	_____	_____	_____	_____
35.	_____	_____	_____	_____	_____
36.	_____	_____	_____	_____	_____

Choices are:

Prefix
0-17 digits

Max
- ☐ 1
- ☐ 2
- ☐ 3
- ☐ 4
- ☐ 5
- ☐ 6
- ☐ 7
- ☐ 8
- ☐ 9
- ☐ 10
- ☐ 11
- ☐ 12
- ☐ 13
- ☐ 14
- ☐ 15
- ☐ 16
- ☐ 17

Strip
- ☐ 0
- ☐ 1
- ☐ 2
- ☐ 3
- ☐ 4
- ☐ 5
- ☐ 6
- ☐ 7
- ☐ 8
- ☐ 9
- ☐ 10
- ☐ 11
- ☐ 12
- ☐ 13
- ☐ 14
- ☐ 15
- ☐ 16
- ☐ 17

Type
- ☐ I
- ☐ N
- ☐ S
- ☐ A
- ☐ U

Route if Match
- ☐ SEND OUT
- ☐ SEND OUT WITH INSERT
- ☐ REORDER

In the blanks provided, write the values required for each match. Possible choices are listed below. (* Indicates factory default.)

Outbound Call Group 1—Prefix 37-48

No.	Prefix	Max	Strip	Type	Route if Match
37.	_____	_____	_____	_____	_____
38.	_____	_____	_____	_____	_____
39.	_____	_____	_____	_____	_____
40.	_____	_____	_____	_____	_____
41.	_____	_____	_____	_____	_____
42.	_____	_____	_____	_____	_____
43.	_____	_____	_____	_____	_____
44.	_____	_____	_____	_____	_____
45.	_____	_____	_____	_____	_____
46.	_____	_____	_____	_____	_____
47.	_____	_____	_____	_____	_____
48.	_____	_____	_____	_____	_____

Choices are:

Prefix
0-17 digits

Max
- ☐ 1
- ☐ 2
- ☐ 3
- ☐ 4
- ☐ 5
- ☐ 6
- ☐ 7
- ☐ 8
- ☐ 9
- ☐ 10
- ☐ 11
- ☐ 12
- ☐ 13
- ☐ 14
- ☐ 15
- ☐ 16
- ☐ 17
- ☐ 5

Strip
- ☐ 0
- ☐ 1
- ☐ 2
- ☐ 3
- ☐ 4
- ☐ 5
- ☐ 6
- ☐ 7
- ☐ 8
- ☐ 9
- ☐ 10
- ☐ 11
- ☐ 12
- ☐ 13
- ☐ 14
- ☐ 15
- ☐ 16
- ☐ 17

Type
- ☐ I
- ☐ N
- ☐ S
- ☐ A
- ☐ U

Route if Match
- ☐ SEND OUT
- ☐ SEND OUT WITH INSERT
- ☐ REORDER

In the blanks provided, write the values required for each match. Possible choices are listed below. (* Indicates factory default.)

Outbound Call Group 2—Prefix 1-12

No.	Prefix	Max	Strip	Type	Route if Match
1.	_____	_____	_____	_____	_____
2.	_____	_____	_____	_____	_____
3.	_____	_____	_____	_____	_____
4.	_____	_____	_____	_____	_____
5.	_____	_____	_____	_____	_____
6.	_____	_____	_____	_____	_____
7.	_____	_____	_____	_____	_____
8.	_____	_____	_____	_____	_____
9.	_____	_____	_____	_____	_____
10.	_____	_____	_____	_____	_____
11.	_____	_____	_____	_____	_____
12.	_____	_____	_____	_____	_____

Choices are:

Prefix
0-17 digits

Max
- ☐ 1
- ☐ 2
- ☐ 3
- ☐ 4
- ☐ 5
- ☐ 6
- ☐ 7
- ☐ 8
- ☐ 9
- ☐ 10
- ☐ 11
- ☐ 12
- ☐ 13
- ☐ 14
- ☐ 15
- ☐ 16
- ☐ 17
- ☐ 5

Strip
- ☐ 0
- ☐ 1
- ☐ 2
- ☐ 3
- ☐ 4
- ☐ 5
- ☐ 6
- ☐ 7
- ☐ 8
- ☐ 9
- ☐ 10
- ☐ 11
- ☐ 12
- ☐ 13
- ☐ 14
- ☐ 15
- ☐ 16
- ☐ 17

Type
- ☐ I
- ☐ N
- ☐ S
- ☐ A
- ☐ U

Route if Match
- ☐ SEND OUT
- ☐ SEND OUT WITH INSERT
- ☐ REORDER

In the blanks provided, write the values required for each match. Possible choices are listed below. (* Indicates factory default.)

Outbound Call Group 2—Prefix 13-24

No.	Prefix	Max	Strip	Type	Route if Match
13.	_____	_____	_____	_____	_____
14.	_____	_____	_____	_____	_____
15.	_____	_____	_____	_____	_____
16.	_____	_____	_____	_____	_____
17.	_____	_____	_____	_____	_____
18.	_____	_____	_____	_____	_____
19.	_____	_____	_____	_____	_____
20.	_____	_____	_____	_____	_____
21.	_____	_____	_____	_____	_____
22.	_____	_____	_____	_____	_____
23.	_____	_____	_____	_____	_____
24.	_____	_____	_____	_____	_____

Choices are:

Prefix
0-17 digits

Max
- ☐ 1
- ☐ 2
- ☐ 3
- ☐ 4
- ☐ 5
- ☐ 6
- ☐ 7
- ☐ 8
- ☐ 9
- ☐ 10
- ☐ 11
- ☐ 12
- ☐ 13
- ☐ 14
- ☐ 15
- ☐ 16
- ☐ 17
- ☐ 5

Strip
- ☐ 0
- ☐ 1
- ☐ 2
- ☐ 3
- ☐ 4
- ☐ 5
- ☐ 6
- ☐ 7
- ☐ 8
- ☐ 9
- ☐ 10
- ☐ 11
- ☐ 12
- ☐ 13
- ☐ 14
- ☐ 15
- ☐ 16
- ☐ 17

Type
- ☐ I
- ☐ N
- ☐ S
- ☐ A
- ☐ U

Route if Match
- ☐ SEND OUT
- ☐ SEND OUT WITH INSERT
- ☐ REORDER

In the blanks provided, write the values required for each match. Possible choices are listed below. (* Indicates factory default.)

Outbound Call Group 2—Prefix 25-36

No.	Prefix	Max	Strip	Type	Route if Match
25.	_____	_____	_____	_____	_____
26.	_____	_____	_____	_____	_____
27.	_____	_____	_____	_____	_____
28.	_____	_____	_____	_____	_____
29.	_____	_____	_____	_____	_____
30.	_____	_____	_____	_____	_____
31.	_____	_____	_____	_____	_____
32.	_____	_____	_____	_____	_____
33.	_____	_____	_____	_____	_____
34.	_____	_____	_____	_____	_____
35.	_____	_____	_____	_____	_____
36.	_____	_____	_____	_____	_____

Choices are:

Prefix
0-17 digits

Max
- ☐ 1
- ☐ 2
- ☐ 3
- ☐ 4
- ☐ 5
- ☐ 6
- ☐ 7
- ☐ 8
- ☐ 9
- ☐ 10
- ☐ 11
- ☐ 12
- ☐ 13
- ☐ 14
- ☐ 15
- ☐ 16
- ☐ 17
- ☐ 5

Strip
- ☐ 0
- ☐ 1
- ☐ 2
- ☐ 3
- ☐ 4
- ☐ 5
- ☐ 6
- ☐ 7
- ☐ 8
- ☐ 9
- ☐ 10
- ☐ 11
- ☐ 12
- ☐ 13
- ☐ 14
- ☐ 15
- ☐ 16
- ☐ 17

Type
- ☐ I
- ☐ N
- ☐ S
- ☐ A
- ☐ U

Route if Match
- ☐ SEND OUT
- ☐ SEND OUT WITH INSERT
- ☐ REORDER

In the blanks provided, write the values required for each match. Possible choices are listed below. (* Indicates factory default.)

Outbound Call Group 2—Prefix 37-48

No.	Prefix	Max	Strip	Type	Route if Match
37.	_____	_____	_____	_____	_____
38.	_____	_____	_____	_____	_____
39.	_____	_____	_____	_____	_____
40.	_____	_____	_____	_____	_____
41.	_____	_____	_____	_____	_____
42.	_____	_____	_____	_____	_____
43.	_____	_____	_____	_____	_____
44.	_____	_____	_____	_____	_____
45.	_____	_____	_____	_____	_____
46.	_____	_____	_____	_____	_____
47.	_____	_____	_____	_____	_____
48.	_____	_____	_____	_____	_____

Choices are:

Prefix
0-17 digits

Max
- ☐ 1
- ☐ 2
- ☐ 3
- ☐ 4
- ☐ 5
- ☐ 6
- ☐ 7
- ☐ 8
- ☐ 9
- ☐ 10
- ☐ 11
- ☐ 12
- ☐ 13
- ☐ 14
- ☐ 15
- ☐ 16
- ☐ 17
- ☐ 5

Strip
- ☐ 0
- ☐ 1
- ☐ 2
- ☐ 3
- ☐ 4
- ☐ 5
- ☐ 6
- ☐ 7
- ☐ 8
- ☐ 9
- ☐ 10
- ☐ 11
- ☐ 12
- ☐ 13
- ☐ 14
- ☐ 15
- ☐ 16
- ☐ 17

Type
- ☐ I
- ☐ N
- ☐ S
- ☐ A
- ☐ U

Route if Match
- ☐ SEND OUT
- ☐ SEND OUT WITH INSERT
- ☐ REORDER

ACD Configuration Worksheet

Use this worksheet in conjunction with the instructions in Chapter 13.
(* Indicates factory default.)

ACD 1

Queue Depth:

☐ 0*	☐ 6	☐ 12	☐ 18
☐ 1	☐ 7	☐ 13	☐ 19
☐ 2	☐ 8	☐ 14	☐ 20
☐ 3	☐ 9	☐ 15	☐ 21
☐ 4	☐ 10	☐ 16	☐ 22
☐ 5	☐ 11	☐ 17	☐ 23
			☐ 24

Queue Action:

- ☐ AUDIBLE RING*
- ☐ MESSAGE 1 PLAY TWICE
- ☐ MESSAGE 2 PLAY TWICE
- ☐ MESSAGE 1 CONTINUOUS
- ☐ MESSAGE 2 CONTINUOUS

Overflow Action:

- ☐ BUSY TONE*
- ☐ MESSAGE 1 PLAY TWICE
- ☐ MESSAGE 2 PLAY TWICE

ACD 2

Queue Depth:

☐ 0*	☐ 6	☐ 12	☐ 18
☐ 1	☐ 7	☐ 13	☐ 19
☐ 2	☐ 8	☐ 14	☐ 20
☐ 3	☐ 9	☐ 15	☐ 21
☐ 4	☐ 10	☐ 16	☐ 22
☐ 5	☐ 11	☐ 17	☐ 23
			☐ 24

Queue Action:

- ☐ AUDIBLE RING*
- ☐ MESSAGE 1 PLAY TWICE
- ☐ MESSAGE 2 PLAY TWICE
- ☐ MESSAGE 1 CONTINUOUS
- ☐ MESSAGE 2 CONTINUOUS

Overflow Action:

- ☐ BUSY TONE*
- ☐ MESSAGE 1 PLAY TWICE
- ☐ MESSAGE 2 PLAY TWICE

ACD 3

Queue Depth:

☐ 0*	☐ 6	☐ 12	☐ 18
☐ 1	☐ 7	☐ 13	☐ 19
☐ 2	☐ 8	☐ 14	☐ 20
☐ 3	☐ 9	☐ 15	☐ 21
☐ 4	☐ 10	☐ 16	☐ 22
☐ 5	☐ 11	☐ 17	☐ 23
			☐ 24

Queue Action:

- ☐ AUDIBLE RING*
- ☐ MESSAGE 1 PLAY TWICE
- ☐ MESSAGE 2 PLAY TWICE
- ☐ MESSAGE 1 CONTINUOUS
- ☐ MESSAGE 2 CONTINUOUS

Overflow Action:

- ☐ BUSY TONE*
- ☐ MESSAGE 1 PLAY TWICE
- ☐ MESSAGE 2 PLAY TWICE

ACD 4

Queue Depth:

☐ 0*	☐ 6	☐ 12	☐ 18
☐ 1	☐ 7	☐ 13	☐ 19
☐ 2	☐ 8	☐ 14	☐ 20
☐ 3	☐ 9	☐ 15	☐ 21
☐ 4	☐ 10	☐ 16	☐ 22
☐ 5	☐ 11	☐ 17	☐ 23
			☐ 24

Queue Action:

- ☐ AUDIBLE RING*
- ☐ MESSAGE 1 PLAY TWICE
- ☐ MESSAGE 2 PLAY TWICE
- ☐ MESSAGE 1 CONTINUOUS
- ☐ MESSAGE 2 CONTINUOUS

Overflow Action:

- ☐ BUSY TONE*
- ☐ MESSAGE 1 PLAY TWICE
- ☐ MESSAGE 2 PLAY TWICE

(* Indicates factory default.)

ACD 5

Queue Depth:

☐ 0*	☐ 6	☐ 12	☐ 18
☐ 1	☐ 7	☐ 13	☐ 19
☐ 2	☐ 8	☐ 14	☐ 20
☐ 3	☐ 9	☐ 15	☐ 21
☐ 4	☐ 10	☐ 16	☐ 22
☐ 5	☐ 11	☐ 17	☐ 23
			☐ 24

Queue Action:

- ☐ AUDIBLE RING*
- ☐ MESSAGE 1 PLAY TWICE
- ☐ MESSAGE 2 PLAY TWICE
- ☐ MESSAGE 1 CONTINUOUS
- ☐ MESSAGE 2 CONTINUOUS

Overflow Action:

- ☐ BUSY TONE*
- ☐ MESSAGE 1 PLAY TWICE
- ☐ MESSAGE 2 PLAY TWICE

ACD 6

Queue Depth:

☐ 0*	☐ 6	☐ 12	☐ 18
☐ 1	☐ 7	☐ 13	☐ 19
☐ 2	☐ 8	☐ 14	☐ 20
☐ 3	☐ 9	☐ 15	☐ 21
☐ 4	☐ 10	☐ 16	☐ 22
☐ 5	☐ 11	☐ 17	☐ 23
			☐ 24

Queue Action:

- ☐ AUDIBLE RING*
- ☐ MESSAGE 1 PLAY TWICE
- ☐ MESSAGE 2 PLAY TWICE
- ☐ MESSAGE 1 CONTINUOUS
- ☐ MESSAGE 2 CONTINUOUS

Overflow Action:

- ☐ BUSY TONE*
- ☐ MESSAGE 1 PLAY TWICE
- ☐ MESSAGE 2 PLAY TWICE

(* Indicates factory default.)

ACD 7

Queue Depth:

☐ 0*	☐ 6	☐ 12	☐ 18
☐ 1	☐ 7	☐ 13	☐ 19
☐ 2	☐ 8	☐ 14	☐ 20
☐ 3	☐ 9	☐ 15	☐ 21
☐ 4	☐ 10	☐ 16	☐ 22
☐ 5	☐ 11	☐ 17	☐ 23
			☐ 24

Queue Action:

- ☐ AUDIBLE RING*
- ☐ MESSAGE 1 PLAY TWICE
- ☐ MESSAGE 2 PLAY TWICE
- ☐ MESSAGE 1 CONTINUOUS
- ☐ MESSAGE 2 CONTINUOUS

Overflow Action:

- ☐ BUSY TONE*
- ☐ MESSAGE 1 PLAY TWICE
- ☐ MESSAGE 2 PLAY TWICE

ACD 8

Queue Depth:

☐ 0*	☐ 6	☐ 12	☐ 18
☐ 1	☐ 7	☐ 13	☐ 19
☐ 2	☐ 8	☐ 14	☐ 20
☐ 3	☐ 9	☐ 15	☐ 21
☐ 4	☐ 10	☐ 16	☐ 22
☐ 5	☐ 11	☐ 17	☐ 23
			☐ 24

Queue Action:

- ☐ AUDIBLE RING*
- ☐ MESSAGE 1 PLAY TWICE
- ☐ MESSAGE 2 PLAY TWICE
- ☐ MESSAGE 1 CONTINUOUS
- ☐ MESSAGE 2 CONTINUOUS

Overflow Action:

- ☐ BUSY TONE*
- ☐ MESSAGE 1 PLAY TWICE
- ☐ MESSAGE 2 PLAY TWICE

(* Indicates factory default.)

ACD 9

Queue Depth:

☐ 0*	☐ 6	☐ 12	☐ 18
☐ 1	☐ 7	☐ 13	☐ 19
☐ 2	☐ 8	☐ 14	☐ 20
☐ 3	☐ 9	☐ 15	☐ 21
☐ 4	☐ 10	☐ 16	☐ 22
☐ 5	☐ 11	☐ 17	☐ 23
			☐ 24

Queue Action:

- ☐ AUDIBLE RING*
- ☐ MESSAGE 1 PLAY TWICE
- ☐ MESSAGE 2 PLAY TWICE
- ☐ MESSAGE 1 CONTINUOUS
- ☐ MESSAGE 2 CONTINUOUS

Overflow Action:

- ☐ BUSY TONE*
- ☐ MESSAGE 1 PLAY TWICE
- ☐ MESSAGE 2 PLAY TWICE

ACD 10

Queue Depth:

☐ 0*	☐ 6	☐ 12	☐ 18
☐ 1	☐ 7	☐ 13	☐ 19
☐ 2	☐ 8	☐ 14	☐ 20
☐ 3	☐ 9	☐ 15	☐ 21
☐ 4	☐ 10	☐ 16	☐ 22
☐ 5	☐ 11	☐ 17	☐ 23
			☐ 24

Queue Action:

- ☐ AUDIBLE RING*
- ☐ MESSAGE 1 PLAY TWICE
- ☐ MESSAGE 2 PLAY TWICE
- ☐ MESSAGE 1 CONTINUOUS
- ☐ MESSAGE 2 CONTINUOUS

Overflow Action:

- ☐ BUSY TONE*
- ☐ MESSAGE 1 PLAY TWICE
- ☐ MESSAGE 2 PLAY TWICE

(* Indicates factory default.)

ACD 11

Queue Depth:

☐ 0*	☐ 6	☐ 12	☐ 18
☐ 1	☐ 7	☐ 13	☐ 19
☐ 2	☐ 8	☐ 14	☐ 20
☐ 3	☐ 9	☐ 15	☐ 21
☐ 4	☐ 10	☐ 16	☐ 22
☐ 5	☐ 11	☐ 17	☐ 23
			☐ 24

Queue Action:

- ☐ AUDIBLE RING*
- ☐ MESSAGE 1 PLAY TWICE
- ☐ MESSAGE 2 PLAY TWICE
- ☐ MESSAGE 1 CONTINUOUS
- ☐ MESSAGE 2 CONTINUOUS

Overflow Action:

- ☐ BUSY TONE*
- ☐ MESSAGE 1 PLAY TWICE
- ☐ MESSAGE 2 PLAY TWICE

ACD 12

Queue Depth:

☐ 0*	☐ 6	☐ 12	☐ 18
☐ 1	☐ 7	☐ 13	☐ 19
☐ 2	☐ 8	☐ 14	☐ 20
☐ 3	☐ 9	☐ 15	☐ 21
☐ 4	☐ 10	☐ 16	☐ 22
☐ 5	☐ 11	☐ 17	☐ 23
			☐ 24

Queue Action:

- ☐ AUDIBLE RING*
- ☐ MESSAGE 1 PLAY TWICE
- ☐ MESSAGE 2 PLAY TWICE
- ☐ MESSAGE 1 CONTINUOUS
- ☐ MESSAGE 2 CONTINUOUS

Overflow Action:

- ☐ BUSY TONE*
- ☐ MESSAGE 1 PLAY TWICE
- ☐ MESSAGE 2 PLAY TWICE

(* Indicates factory default.)

ACD 13

Queue Depth:

☐ 0*	☐ 6	☐ 12	☐ 18
☐ 1	☐ 7	☐ 13	☐ 19
☐ 2	☐ 8	☐ 14	☐ 20
☐ 3	☐ 9	☐ 15	☐ 21
☐ 4	☐ 10	☐ 16	☐ 22
☐ 5	☐ 11	☐ 17	☐ 23
			☐ 24

Queue Action:

- ☐ AUDIBLE RING*
- ☐ MESSAGE 1 PLAY TWICE
- ☐ MESSAGE 2 PLAY TWICE
- ☐ MESSAGE 1 CONTINUOUS
- ☐ MESSAGE 2 CONTINUOUS

Overflow Action:

- ☐ BUSY TONE*
- ☐ MESSAGE 1 PLAY TWICE
- ☐ MESSAGE 2 PLAY TWICE

ACD 14

Queue Depth:

☐ 0*	☐ 6	☐ 12	☐ 18
☐ 1	☐ 7	☐ 13	☐ 19
☐ 2	☐ 8	☐ 14	☐ 20
☐ 3	☐ 9	☐ 15	☐ 21
☐ 4	☐ 10	☐ 16	☐ 22
☐ 5	☐ 11	☐ 17	☐ 23
			☐ 24

Queue Action:

- ☐ AUDIBLE RING*
- ☐ MESSAGE 1 PLAY TWICE
- ☐ MESSAGE 2 PLAY TWICE
- ☐ MESSAGE 1 CONTINUOUS
- ☐ MESSAGE 2 CONTINUOUS

Overflow Action:

- ☐ BUSY TONE*
- ☐ MESSAGE 1 PLAY TWICE
- ☐ MESSAGE 2 PLAY TWICE

(* Indicates factory default.)

ACD 15

Queue Depth:

☐ 0*	☐ 6	☐ 12	☐ 18
☐ 1	☐ 7	☐ 13	☐ 19
☐ 2	☐ 8	☐ 14	☐ 20
☐ 3	☐ 9	☐ 15	☐ 21
☐ 4	☐ 10	☐ 16	☐ 22
☐ 5	☐ 11	☐ 17	☐ 23
			☐ 24

Queue Action:

- ☐ AUDIBLE RING*
- ☐ MESSAGE 1 PLAY TWICE
- ☐ MESSAGE 2 PLAY TWICE
- ☐ MESSAGE 1 CONTINUOUS
- ☐ MESSAGE 2 CONTINUOUS

Overflow Action:

- ☐ BUSY TONE*
- ☐ MESSAGE 1 PLAY TWICE
- ☐ MESSAGE 2 PLAY TWICE

ACD 16

Queue Depth:

☐ 0*	☐ 6	☐ 12	☐ 18
☐ 1	☐ 7	☐ 13	☐ 19
☐ 2	☐ 8	☐ 14	☐ 20
☐ 3	☐ 9	☐ 15	☐ 21
☐ 4	☐ 10	☐ 16	☐ 22
☐ 5	☐ 11	☐ 17	☐ 23
			☐ 24

Queue Action:

- ☐ AUDIBLE RING*
- ☐ MESSAGE 1 PLAY TWICE
- ☐ MESSAGE 2 PLAY TWICE
- ☐ MESSAGE 1 CONTINUOUS
- ☐ MESSAGE 2 CONTINUOUS

Overflow Action:

- ☐ BUSY TONE*
- ☐ MESSAGE 1 PLAY TWICE
- ☐ MESSAGE 2 PLAY TWICE

(* Indicates factory default.)

ACD 17

Queue Depth:

☐ 0*	☐ 6	☐ 12	☐ 18
☐ 1	☐ 7	☐ 13	☐ 19
☐ 2	☐ 8	☐ 14	☐ 20
☐ 3	☐ 9	☐ 15	☐ 21
☐ 4	☐ 10	☐ 16	☐ 22
☐ 5	☐ 11	☐ 17	☐ 23
			☐ 24

Queue Action:

- ☐ AUDIBLE RING*
- ☐ MESSAGE 1 PLAY TWICE
- ☐ MESSAGE 2 PLAY TWICE
- ☐ MESSAGE 1 CONTINUOUS
- ☐ MESSAGE 2 CONTINUOUS

Overflow Action:

- ☐ BUSY TONE*
- ☐ MESSAGE 1 PLAY TWICE
- ☐ MESSAGE 2 PLAY TWICE

ACD 18

Queue Depth:

☐ 0*	☐ 6	☐ 12	☐ 18
☐ 1	☐ 7	☐ 13	☐ 19
☐ 2	☐ 8	☐ 14	☐ 20
☐ 3	☐ 9	☐ 15	☐ 21
☐ 4	☐ 10	☐ 16	☐ 22
☐ 5	☐ 11	☐ 17	☐ 23
			☐ 24

Queue Action:

- ☐ AUDIBLE RING*
- ☐ MESSAGE 1 PLAY TWICE
- ☐ MESSAGE 2 PLAY TWICE
- ☐ MESSAGE 1 CONTINUOUS
- ☐ MESSAGE 2 CONTINUOUS

Overflow Action:

- ☐ BUSY TONE*
- ☐ MESSAGE 1 PLAY TWICE
- ☐ MESSAGE 2 PLAY TWICE

(* Indicates factory default.)

ACD 19

Queue Depth:

☐ 0*	☐ 6	☐ 12	☐ 18
☐ 1	☐ 7	☐ 13	☐ 19
☐ 2	☐ 8	☐ 14	☐ 20
☐ 3	☐ 9	☐ 15	☐ 21
☐ 4	☐ 10	☐ 16	☐ 22
☐ 5	☐ 11	☐ 17	☐ 23
			☐ 24

Queue Action:

- ☐ AUDIBLE RING*
- ☐ MESSAGE 1 PLAY TWICE
- ☐ MESSAGE 2 PLAY TWICE
- ☐ MESSAGE 1 CONTINUOUS
- ☐ MESSAGE 2 CONTINUOUS

Overflow Action:

- ☐ BUSY TONE*
- ☐ MESSAGE 1 PLAY TWICE
- ☐ MESSAGE 2 PLAY TWICE

ACD 20

Queue Depth:

☐ 0*	☐ 6	☐ 12	☐ 18
☐ 1	☐ 7	☐ 13	☐ 19
☐ 2	☐ 8	☐ 14	☐ 20
☐ 3	☐ 9	☐ 15	☐ 21
☐ 4	☐ 10	☐ 16	☐ 22
☐ 5	☐ 11	☐ 17	☐ 23
			☐ 24

Queue Action:

- ☐ AUDIBLE RING*
- ☐ MESSAGE 1 PLAY TWICE
- ☐ MESSAGE 2 PLAY TWICE
- ☐ MESSAGE 1 CONTINUOUS
- ☐ MESSAGE 2 CONTINUOUS

Overflow Action:

- ☐ BUSY TONE*
- ☐ MESSAGE 1 PLAY TWICE
- ☐ MESSAGE 2 PLAY TWICE

(* Indicates factory default.)

ACD 21

Queue Depth:

☐ 0*	☐ 6	☐ 12	☐ 18
☐ 1	☐ 7	☐ 13	☐ 19
☐ 2	☐ 8	☐ 14	☐ 20
☐ 3	☐ 9	☐ 15	☐ 21
☐ 4	☐ 10	☐ 16	☐ 22
☐ 5	☐ 11	☐ 17	☐ 23
			☐ 24

Queue Action:

- ☐ AUDIBLE RING*
- ☐ MESSAGE 1 PLAY TWICE
- ☐ MESSAGE 2 PLAY TWICE
- ☐ MESSAGE 1 CONTINUOUS
- ☐ MESSAGE 2 CONTINUOUS

Overflow Action:

- ☐ BUSY TONE*
- ☐ MESSAGE 1 PLAY TWICE
- ☐ MESSAGE 2 PLAY TWICE

ACD 22

Queue Depth:

☐ 0*	☐ 6	☐ 12	☐ 18
☐ 1	☐ 7	☐ 13	☐ 19
☐ 2	☐ 8	☐ 14	☐ 20
☐ 3	☐ 9	☐ 15	☐ 21
☐ 4	☐ 10	☐ 16	☐ 22
☐ 5	☐ 11	☐ 17	☐ 23
			☐ 24

Queue Action:

- ☐ AUDIBLE RING*
- ☐ MESSAGE 1 PLAY TWICE
- ☐ MESSAGE 2 PLAY TWICE
- ☐ MESSAGE 1 CONTINUOUS
- ☐ MESSAGE 2 CONTINUOUS

Overflow Action:

- ☐ BUSY TONE*
- ☐ MESSAGE 1 PLAY TWICE
- ☐ MESSAGE 2 PLAY TWICE

(* Indicates factory default.)

ACD 23

Queue Depth:

☐ 0*	☐ 6	☐ 12	☐ 18
☐ 1	☐ 7	☐ 13	☐ 19
☐ 2	☐ 8	☐ 14	☐ 20
☐ 3	☐ 9	☐ 15	☐ 21
☐ 4	☐ 10	☐ 16	☐ 22
☐ 5	☐ 11	☐ 17	☐ 23
			☐ 24

Queue Action:

- ☐ AUDIBLE RING*
- ☐ MESSAGE 1 PLAY TWICE
- ☐ MESSAGE 2 PLAY TWICE
- ☐ MESSAGE 1 CONTINUOUS
- ☐ MESSAGE 2 CONTINUOUS

Overflow Action:

- ☐ BUSY TONE*
- ☐ MESSAGE 1 PLAY TWICE
- ☐ MESSAGE 2 PLAY TWICE

ACD 24

Queue Depth:

☐ 0*	☐ 6	☐ 12	☐ 18
☐ 1	☐ 7	☐ 13	☐ 19
☐ 2	☐ 8	☐ 14	☐ 20
☐ 3	☐ 9	☐ 15	☐ 21
☐ 4	☐ 10	☐ 16	☐ 22
☐ 5	☐ 11	☐ 17	☐ 23
			☐ 24

Queue Action:

- ☐ AUDIBLE RING*
- ☐ MESSAGE 1 PLAY TWICE
- ☐ MESSAGE 2 PLAY TWICE
- ☐ MESSAGE 1 CONTINUOUS
- ☐ MESSAGE 2 CONTINUOUS

Overflow Action:

- ☐ BUSY TONE*
- ☐ MESSAGE 1 PLAY TWICE
- ☐ MESSAGE 2 PLAY TWICE

(* Indicates factory default.)

Redirect Configuration Worksheet

Use this worksheet in conjunction with the instructions in Chapter 14.
(* Indicates factory default.)

Redirect 1

Redirect Number: _____
(0-17 digits.)

Type of Number:
- ☐ NATIONAL NUMBER*
- ☐ SUBSCRIBER NUMBER
- ☐ ABBREVIATED NUMBER
- ☐ UNKNOWN NUMBER
- ☐ INTERNATIONAL NUMBER

Action:
- ☐ IMMEDIATE*
- ☐ MESSAGE 1 PLAY ONCE
- ☐ MESSAGE 2 PLAY ONCE

Redirect 2

Redirect Number: _____
(0-17 digits.)

Type of Number:
- ☐ NATIONAL NUMBER*
- ☐ SUBSCRIBER NUMBER
- ☐ ABBREVIATED NUMBER
- ☐ UNKNOWN NUMBER
- ☐ INTERNATIONAL NUMBER

Action:
- ☐ IMMEDIATE*
- ☐ MESSAGE 1 PLAY ONCE
- ☐ MESSAGE 2 PLAY ONCE

Redirect 3

Redirect Number: _____
(0-17 digits.)

Type of Number:
- ☐ NATIONAL NUMBER*
- ☐ SUBSCRIBER NUMBER
- ☐ ABBREVIATED NUMBER
- ☐ UNKNOWN NUMBER
- ☐ INTERNATIONAL NUMBER

Action:
- ☐ IMMEDIATE*
- ☐ MESSAGE 1 PLAY ONCE
- ☐ MESSAGE 2 PLAY ONCE

Redirect 4

Redirect Number: _____
(0-17 digits.)

Type of Number:
- ☐ NATIONAL NUMBER*
- ☐ SUBSCRIBER NUMBER
- ☐ ABBREVIATED NUMBER
- ☐ UNKNOWN NUMBER
- ☐ INTERNATIONAL NUMBER

Action:
- ☐ IMMEDIATE*
- ☐ MESSAGE 1 PLAY ONCE
- ☐ MESSAGE 2 PLAY ONCE

(* Indicates factory default.)

Redirect 5

Redirect Number: _____
(0-17 digits.)

Type of Number:
- ☐ NATIONAL NUMBER*
- ☐ SUBSCRIBER NUMBER
- ☐ ABBREVIATED NUMBER
- ☐ UNKNOWN NUMBER
- ☐ INTERNATIONAL NUMBER

Action:
- ☐ IMMEDIATE*
- ☐ MESSAGE 1 PLAY ONCE
- ☐ MESSAGE 2 PLAY ONCE

Redirect 6

Redirect Number: _____
(0-17 digits.)

Type of Number:
- ☐ NATIONAL NUMBER*
- ☐ SUBSCRIBER NUMBER
- ☐ ABBREVIATED NUMBER
- ☐ UNKNOWN NUMBER
- ☐ INTERNATIONAL NUMBER

Action:
- ☐ IMMEDIATE*
- ☐ MESSAGE 1 PLAY ONCE
- ☐ MESSAGE 2 PLAY ONCE

(* Indicates factory default.)

Redirect 7

Redirect Number: _____
(0-17 digits.)

Type of Number:
- ☐ NATIONAL NUMBER*
- ☐ SUBSCRIBER NUMBER
- ☐ ABBREVIATED NUMBER
- ☐ UNKNOWN NUMBER
- ☐ INTERNATIONAL NUMBER

Action:
- ☐ IMMEDIATE*
- ☐ MESSAGE 1 PLAY ONCE
- ☐ MESSAGE 2 PLAY ONCE

Redirect 8

Redirect Number: _____
(0-17 digits.)

Type of Number:
- ☐ NATIONAL NUMBER*
- ☐ SUBSCRIBER NUMBER
- ☐ ABBREVIATED NUMBER
- ☐ UNKNOWN NUMBER
- ☐ INTERNATIONAL NUMBER

Action:
- ☐ IMMEDIATE*
- ☐ MESSAGE 1 PLAY ONCE
- ☐ MESSAGE 2 PLAY ONCE

(* Indicates factory default.)

Redirect 9

Redirect Number: _____
(0-17 digits.)

Type of Number:
- ☐ NATIONAL NUMBER*
- ☐ SUBSCRIBER NUMBER
- ☐ ABBREVIATED NUMBER
- ☐ UNKNOWN NUMBER
- ☐ INTERNATIONAL NUMBER

Action:
- ☐ IMMEDIATE*
- ☐ MESSAGE 1 PLAY ONCE
- ☐ MESSAGE 2 PLAY ONCE

Redirect 10

Redirect Number: _____
(0-17 digits.)

Type of Number:
- ☐ NATIONAL NUMBER*
- ☐ SUBSCRIBER NUMBER
- ☐ ABBREVIATED NUMBER
- ☐ UNKNOWN NUMBER
- ☐ INTERNATIONAL NUMBER

Action:
- ☐ IMMEDIATE*
- ☐ MESSAGE 1 PLAY ONCE
- ☐ MESSAGE 2 PLAY ONCE

(* Indicates factory default.)

Redirect 11

Redirect Number: _____
(0-17 digits.)

Type of Number:
- ☐ NATIONAL NUMBER*
- ☐ SUBSCRIBER NUMBER
- ☐ ABBREVIATED NUMBER
- ☐ UNKNOWN NUMBER
- ☐ INTERNATIONAL NUMBER

Action:
- ☐ IMMEDIATE*
- ☐ MESSAGE 1 PLAY ONCE
- ☐ MESSAGE 2 PLAY ONCE

Redirect 12

Redirect Number: _____
(0-17 digits.)

Type of Number:
- ☐ NATIONAL NUMBER*
- ☐ SUBSCRIBER NUMBER
- ☐ ABBREVIATED NUMBER
- ☐ UNKNOWN NUMBER
- ☐ INTERNATIONAL NUMBER

Action:
- ☐ IMMEDIATE*
- ☐ MESSAGE 1 PLAY ONCE
- ☐ MESSAGE 2 PLAY ONCE

(* Indicates factory default.)

Redirect 13

Redirect Number: _____
(0-17 digits.)

Type of Number:
- ☐ NATIONAL NUMBER*
- ☐ SUBSCRIBER NUMBER
- ☐ ABBREVIATED NUMBER
- ☐ UNKNOWN NUMBER
- ☐ INTERNATIONAL NUMBER

Action:
- ☐ IMMEDIATE*
- ☐ MESSAGE 1 PLAY ONCE
- ☐ MESSAGE 2 PLAY ONCE

Redirect 14

Redirect Number: _____
(0-17 digits.)

Type of Number:
- ☐ NATIONAL NUMBER*
- ☐ SUBSCRIBER NUMBER
- ☐ ABBREVIATED NUMBER
- ☐ UNKNOWN NUMBER
- ☐ INTERNATIONAL NUMBER

Action:
- ☐ IMMEDIATE*
- ☐ MESSAGE 1 PLAY ONCE
- ☐ MESSAGE 2 PLAY ONCE

(* Indicates factory default.)

Redirect 15

Redirect Number: _____
(0-17 digits.)

Type of Number:
- ☐ NATIONAL NUMBER*
- ☐ SUBSCRIBER NUMBER
- ☐ ABBREVIATED NUMBER
- ☐ UNKNOWN NUMBER
- ☐ INTERNATIONAL NUMBER

Action:
- ☐ IMMEDIATE*
- ☐ MESSAGE 1 PLAY ONCE
- ☐ MESSAGE 2 PLAY ONCE

Redirect 16

Redirect Number: _____
(0-17 digits.)

Type of Number:
- ☐ NATIONAL NUMBER*
- ☐ SUBSCRIBER NUMBER
- ☐ ABBREVIATED NUMBER
- ☐ UNKNOWN NUMBER
- ☐ INTERNATIONAL NUMBER

Action:
- ☐ IMMEDIATE*
- ☐ MESSAGE 1 PLAY ONCE
- ☐ MESSAGE 2 PLAY ONCE

(* Indicates factory default.)

Redirect 17

Redirect Number: _____
(0-17 digits.)

Type of Number:
- ☐ NATIONAL NUMBER*
- ☐ SUBSCRIBER NUMBER
- ☐ ABBREVIATED NUMBER
- ☐ UNKNOWN NUMBER
- ☐ INTERNATIONAL NUMBER

Action:
- ☐ IMMEDIATE*
- ☐ MESSAGE 1 PLAY ONCE
- ☐ MESSAGE 2 PLAY ONCE

Redirect 18

Redirect Number: _____
(0-17 digits.)

Type of Number:
- ☐ NATIONAL NUMBER*
- ☐ SUBSCRIBER NUMBER
- ☐ ABBREVIATED NUMBER
- ☐ UNKNOWN NUMBER
- ☐ INTERNATIONAL NUMBER

Action:
- ☐ IMMEDIATE*
- ☐ MESSAGE 1 PLAY ONCE
- ☐ MESSAGE 2 PLAY ONCE

(* Indicates factory default.)

Redirect 19

Redirect Number: _____
(0-17 digits.)

Type of Number:
- ☐ NATIONAL NUMBER*
- ☐ SUBSCRIBER NUMBER
- ☐ ABBREVIATED NUMBER
- ☐ UNKNOWN NUMBER
- ☐ INTERNATIONAL NUMBER

Action:
- ☐ IMMEDIATE*
- ☐ MESSAGE 1 PLAY ONCE
- ☐ MESSAGE 2 PLAY ONCE

Redirect 20

Redirect Number: _____
(0-17 digits.)

Type of Number:
- ☐ NATIONAL NUMBER*
- ☐ SUBSCRIBER NUMBER
- ☐ ABBREVIATED NUMBER
- ☐ UNKNOWN NUMBER
- ☐ INTERNATIONAL NUMBER

Action:
- ☐ IMMEDIATE*
- ☐ MESSAGE 1 PLAY ONCE
- ☐ MESSAGE 2 PLAY ONCE

(* Indicates factory default.)

Redirect 21

Redirect Number: _____
(0-17 digits.)

Type of Number:
- ☐ NATIONAL NUMBER*
- ☐ SUBSCRIBER NUMBER
- ☐ ABBREVIATED NUMBER
- ☐ UNKNOWN NUMBER
- ☐ INTERNATIONAL NUMBER

Action:
- ☐ IMMEDIATE*
- ☐ MESSAGE 1 PLAY ONCE
- ☐ MESSAGE 2 PLAY ONCE

Redirect 22

Redirect Number: _____
(0-17 digits.)

Type of Number:
- ☐ NATIONAL NUMBER*
- ☐ SUBSCRIBER NUMBER
- ☐ ABBREVIATED NUMBER
- ☐ UNKNOWN NUMBER
- ☐ INTERNATIONAL NUMBER

Action:
- ☐ IMMEDIATE*
- ☐ MESSAGE 1 PLAY ONCE
- ☐ MESSAGE 2 PLAY ONCE

(* Indicates factory default.)

Redirect 23

Redirect Number: _____
(0-17 digits.)

Type of Number:
- ☐ NATIONAL NUMBER*
- ☐ SUBSCRIBER NUMBER
- ☐ ABBREVIATED NUMBER
- ☐ UNKNOWN NUMBER
- ☐ INTERNATIONAL NUMBER

Action:
- ☐ IMMEDIATE*
- ☐ MESSAGE 1 PLAY ONCE
- ☐ MESSAGE 2 PLAY ONCE

Redirect 24

Redirect Number: _____
(0-17 digits.)

Type of Number:
- ☐ NATIONAL NUMBER*
- ☐ SUBSCRIBER NUMBER
- ☐ ABBREVIATED NUMBER
- ☐ UNKNOWN NUMBER
- ☐ INTERNATIONAL NUMBER

Action:
- ☐ IMMEDIATE*
- ☐ MESSAGE 1 PLAY ONCE
- ☐ MESSAGE 2 PLAY ONCE

(* Indicates factory default.)

Transfer Configuration Worksheet

Use this worksheet in conjunction with the instructions in Chapter 15.
(* Indicates factory default.)

Contact 1 Operation:	☐ DISABLED* ☐ NORMALLY-OPEN ☐ NORMALLY-CLOSED
Contact 2 Operation:	☐ DISABLED* ☐ NORMALLY-OPEN ☐ NORMALLY-CLOSED
Contact 3 Operation:	☐ DISABLED* ☐ NORMALLY-OPEN ☐ NORMALLY-CLOSED
CPE DS1 Carrier Loss Operation:	☐ DISABLED* ☐ ENABLED
CPE DS1 Reconnect Operation:	☐ RECONNECT AFTER 5 MINUTE DELAY* ☐ RECONNECT AFTER ALL CALLS COMPLETED ☐ RECONNECT IMMEDIATE - NO DELAY ☐ RECONNECT AFTER 15 MINUTE DELAY ☐ RECONNECT AFTER 10 MINUTE DELAY

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Security Configuration Worksheet

Use this worksheet in conjunction with the instructions in Chapter 16.
(* Indicates factory default.)

Perform VT100 Compatibility Test Upon Login:	☐ YES* ☐ NO
Maintenance Port Inactivity Time:	_____ (60*) MINUTES (1-999)
Password:	_____ (Max. 10 characters. Factory-supplied sample: *SYS920*)

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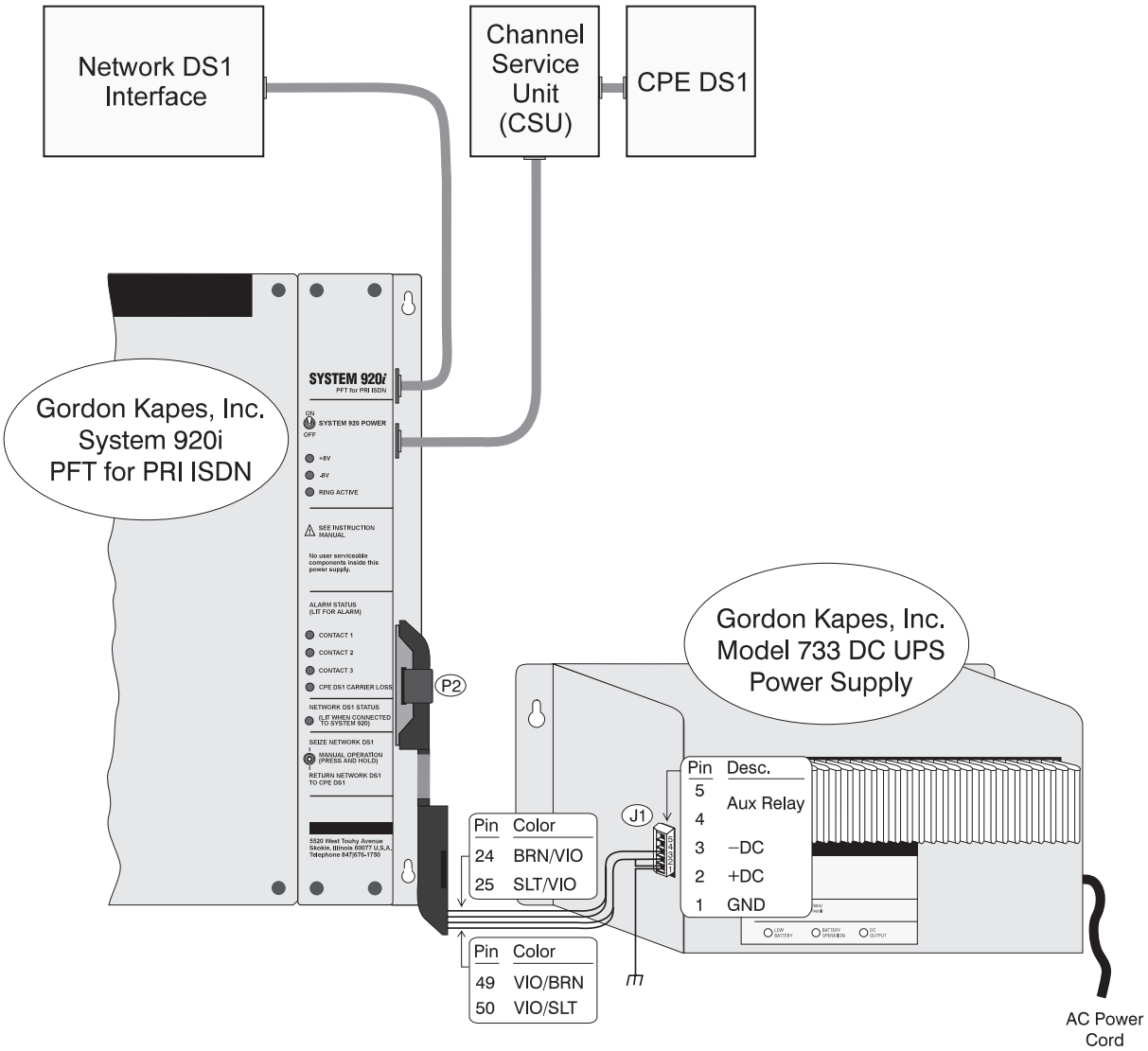
Appendix B
Powering the System 920i with a Model 733 DC UPS



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Appendix C
System 920i Specifications

This appendix contains technical specifications for the System 920i. The specifications are subject to change without notice.

General

Dimensions (Overall)

13.9 inches high (35.3cm)
11.5 inches wide (29.2cm)
10.2 inches deep (25.9cm)

Weight (all cards installed)

23.5 pounds (10.7kg)
Shipping Weight: 27.0 pounds (12.3kg)

Mounting

Wall mounted to minimum ¾-inch thick plywood backboard

Environment

0 to 50 degrees C, humidity to 95% (no condensation)

Connectors

Two 25-pair plugs (male), one 25-pin D-subminiature connector (female), two 8-position non-keyed modular jacks

Power Requirements

Voltage: –42.5 to –56Vdc, filtered and regulated

Current: 1.0 amp maximum

Type: uninterruptible, even in the event of a commercial power failure

Connections: two pairs on 25-pair plug P2

Maintenance Port

Type: RS-232-C Data Communications Equipment (DCE)

Data Format: 8 data bits, no parity, 1 stop bit (8-N-1)

Data Rate: 9600 baud

Flow Control: XON/XOFF

Connector: 25-pin D-Subminiature, female

LED Indicators

Qty: 7

Indication: +8V, –8V, ring active, contact inputs 1-3, and DS1 network status

Program Data Storage

Type: 128K bytes (16 bits/byte) ROM

Configuration Data Storage

Type: 128K bytes (16 bits/byte), super low power static RAM

Backup Power: 3V, 150mAh lithium battery, field replaceable

Memory Retention with No DC Power Present: 6 years cumulative, minimum

Contact Inputs

Qty: 3

Signal Compatibility: normally open (not shorted) or normally closed (shorted)

Signal Requirements: signals connected to the contact inputs must be capable of handling 5mA at 10Vdc

Connections: 3 pairs on 25-pair plug P2

Relay Contacts

Qty: 2, one normally open (not shorted), one normally closed (shorted)

Rating: 0.5A maximum at 60Vdc or 60Vac (resistive)

Connections: two pairs on 25-pair plug P2

DS1-Network Connection

Directly connects to RJ48C using an 8-position modular data cable (cable and 8-position modular jack included with System 920i)

CPE-DS1 Connection

Connects to CPE-DS1 equipment using 8-position modular data cable to mate with 8-position modular jack (cable and jack included with System 920i)

DS1-Network to CPE-DS1 Transfer Method

Metallic switching using sealed, bifurcated relay contacts

Regulatory Compliance

Complies with Part 68, FCC Rules

FCC Registration Number: GIDUSA-18534-DE-N

Ringer Equivalence: not applicable

Required Connector: USOC RJ48C

Service Code: 6.0N

Facility Interface Code: 04DU9-B (D4 Framing), 04DU9-C (ESF Framing)

Radiated Noise Compliance

Complies with the requirements in Part 15 of FCC Rules for a Class A computing device. Operation of this equipment in a residential area may cause unacceptable interference to radio and TV reception requiring the operator to take whatever steps are necessary to correct the interference.

913 DS1 Interface Card

Installation

For use in System 920i enclosure only, one card maximum

DS1 Circuit Compatibility

Designed for direct connection to DS1 circuit without requiring the use of an external channel service unit (CSU). CSU circuitry is contained on the 913 Card and is intended only for System 920i use. CSU functionality is not provided to connected CPE-DS1 equipment.

Framing: D4 (Superframe), ESF

Zero Suppression: B8ZS

Loopback

Manual: accessed using maintenance port menu system

Automatic: in-band for D4 (Superframe), FDL message for ESF

Dial Tone Source for Outbound Dialing: local (internally generated) or network

Transmitter

Line Rate: 1.544 Mbps ±50bps (local source)

Synchronization Source: local (internally generated) or network (external)

Zero Suppression: B8ZS

Line Impedance: 100 ohms, resistive

Line Build Out: 0, –7.5, and –15dB

Transmit Pulse Characteristics: meets the requirements of AT&T Communications Document TR 62411 (December 1990), ANSI T1.403-1989

Network Layer Support: National ISDN-2, including AT&T 4ESS PRI (per TR41449, TR41459), AT&T 5ESS (5E6 and 5E7) PRI, Northern Telecom DMS100 and DMS250; 4ESS (NI-2); 5ESS (NI-2); 5ESS (NI-1); DMS100 (NI-2); DMS100 (NI-1)

Layer 2 Protocol: per CCITT Q.921; LAP-D

Layer 3 Protocol: per CCITT Q.931

Receiver

Line Rate: 1.544Mbps ±200bps

Zero Suppression: B8ZS

Line Impedance: 100 ohms, resistive

Sensitivity: 0 to –30dBSX

Maximum Cable Length for Correct Performance: 6000 feet

Jitter Tolerance and Jitter Attenuation: meets the requirements of AT&T Communications Document TR 62411 (December 1990), ANSI T1.403-1989

CPE-DS1 Carrier Loss Monitoring

Circuitry watches for the presence of digital information with a center frequency of 772kHz

914 OPS Card

Installation

For use in System 920i enclosure only, three cards maximum

OPS Ports

Qty: 8

Type: meets the requirements for FCC Part 68 Class A PBX OPS Circuit

Port Connections

8 pairs on 25-pair plug P1 (per card)

Port Parameters

Impedance: 600 ohms

Loop Supply Voltage: –48Vdc

Loop Supply Current: 22mA with 300 ohm loop, 18mA with 1300 ohm loop, 16mA with 1800 ohms loop, 24mA with shorted tip and ring

Ring Voltage: 87Vac, 20Hz, sine wave

Ring Cadence: 0.95 seconds on/3.050 seconds off

Ringer Load: maximum REN of two or less

On-Hook to Off-Hook Detection: 0.2 seconds

Switch Hook Flash Timing: 0.3 to 1.0 seconds

Off-Hook to On-Hook Timing: 1.5 seconds for new dial tone

Disconnection Supervision: 1.0 second break in loop current

Dialing: DTMF only, pulse dialing not supported

Progress Tones (Internal)

Dial tone (350Hz+440Hz)

Reorder tone (480Hz+62Hz)

Busy tone (480Hz+620Hz)

Audible ring tone (440Hz+480Hz)

Vacant tone (620Hz/440Hz)

Howler tone (1000Hz)

915 Recorder/Announcer Card

Installation

For use in System 920i enclosure only, one card maximum

Recorder/Announcer Channels

Qty: 2

Duration: 20 seconds, maximum, per channel

Recording Audio Source: System 920i OPS telephone only

Specifications subject to change without notice.

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Appendix D
Terminal Emulator Requirements

Overview

The System 920i's menu system is designed to communicate with terminals and personal computers that emulate the keyboard and screen position commands of a DEC VT100 terminal.

Keyboard Commands

For operation, the maintenance port requires the use of several VT100 cursor-position and function keys. The selected terminal or terminal-emulator software must support the following keys and respective key sequences:

Table D-1. Keyboard Commands

Key Name Values	Characters Sent
Backspace	Ctrl-H or DEL
Up Arrow	Esc [A
Down Arrow	Esc [B
Left Arrow	Esc [D
Right Arrow	Esc [C
F1	Esc O P
F2	Esc O Q
F3	Esc O R
F4	Esc O S

Please note that many of the terminal emulator software packages do a very poor job of emulation. We were shocked to find they didn't even support the function keys F1-F4. So before you try to connect with the System 920i, do a careful review of your terminal emulator character set.

We are very fond of DATASTORM TECHNOLOGIES' PROCOMM PLUS software package. Its VT100 terminal emulator implementation is excellent–we highly recommend it. (They refer to it as VT100/102 emulation.) Whatever software you choose, be certain to confirm that the required keys are implemented.

Appendix E
Maintenance Port Connections

This appendix is provided as a reference when you are preparing an interconnecting cable for use between the System 920i's maintenance port and a serial port on a related device. Table E-1 provides detailed connection information for the port. Subsequent paragraphs describe how the port functions. The examples at the end of this appendix provide details for actual cable implementations.

Table E-1. Serial Port Connections

Pin	Direction	Description
2	To System 920i	Transmitted Data (TD)
3	From System 920i	Received Data (RD)
5	From System 920i	Clear to Send (CTS)
6	From System 920i	Data Set Ready (DSR)
7	To/From System 920i	Signal Ground (SG)
8	From System 920i	Data Carrier Detect (DCD)

Notes:

1. The port uses a 25-pin D-Subminiature female connector.
2. The port is configured as RS-232-C Data Communications Equipment (DCE).
3. Pin 1, shield, is not connected on DCE equipment. Cable shield wire will pick up shield at DTE equipment.
4. Pin 5, CTS, and Pin 6, DSR, are connected together and held high (+8Vdc through a 3300 ohm resistor) and do not change state.
5. Pin 8, DCD, is held high (+8Vdc through a 3300 ohm resistor) and does not change state.

Understanding the Serial Ports

Correct maintenance port operation depends on the careful preparation of a cable linking the System 920i maintenance port to the related equipment. Before you prepare a cable, it is important that you understand how the System 920i's port is implemented. The port consists of two parts: data transmission to and from the connected equipment, and general purpose pull-up signals.

Data transmission takes place using two pins: one pin for data sent by the System 920i, and one pin for data received by the System 920i. In some applications, these pins, along with signal ground, may be the only connections required to fully interface the System 920i with another device.

The System 920i holds the Clear to Send (CTS), Data Set Ready (DSR), and Data Carrier Detect (DCD) pins in the high state. These are provided for general purpose use, enabling one or more pins on the related equipment to be pulled to the high state.

Hardware Handshaking

The System 920i's maintenance port does not implement hardware data-flow control. The superior XON/XOFF software data-flow control is implemented.

Preparing the Serial Cable

Preparing serial cables requires a clear understanding of three topics: System 920i serial port, the serial port on the related equipment, and the goals of the installation. The previous paragraphs provided an overview of how the System 920i's serial port is implemented.

Determine what hardware connections are required so that the serial port on the related equipment functions correctly. Some pins may need to be pulled to the high state to enable data flow.

Nuts and Bolts

You should use shielded cable and connector housings to minimize interference to and from the System 920i. Be certain to use a connector that contains locking screws. These screws enable the connector to be secured to the threaded fasteners contained on the System 920i's maintenance port connector.

Sample Cable Implementations

The following examples provide details for several common cable implementations. These are provided for reference only and may not be correct for your application.

System 920i Maintenance Port		PC-Type Serial Port
2 (RD)	←	2 (TD)
3 (TD)	→	3 (RD)
5 (CTS)	→	5 (CTS) See Note 4
7 (SG)	↔	7 (SG)
8 (DCD)	→	8 (DCD) See Note 5
1 (No Connection)	↔	1 (FG)

Notes:

1. Required connectors:
   System 920i end: 25-pin D-subminiature male.
   PC-type end: 25-pin D-subminiature female.
2. Use shielded cable and connector housings.
3. System 920i port-configuration parameters: 9600 baud, 8-NONE-1, XON/XOFF.
4. CTS connection required if hardware flow control is enabled.
5. DCD connection required for PROCOMM PLUS to display online status.

Example E-1. Interconnection between System 920i Maintenance Port and PC-Type Serial Port.

System 920i Maintenance Port		AT-Type Serial Port
2 (RD)	←	3 (TD)
3 (TD)	→	2 (RD)
5 (CTS)	→	8 (CTS) See Note 4
7 (SG)	↔	5 (SG)
8 (DCD)	→	1 (DCD) See Note 5
1 (No Connection)	↔	Connector Shell

Notes:

1. Required connectors:
   System 920i end: 25-pin D-subminiature male.
   AT-type end: 9-pin D-subminiature female.
2. Use shielded cable and connector housings.
3. System 920i port-configuration parameters: 9600 baud, 8-NONE-1, XON/XOFF.
4. CTS connection required if hardware flow control is enabled.
5. DCD connection required for PROCOMM PLUS to display online status.

Example E-2. Interconnection between System 920i Maintenance Port and AT-Type Serial Port.

System 920i Maintenance Port		Modem Serial Port
2 (RD)	←	3 (TD)
3 (TD)	→	2 (RD)
7 (SG)	↔	7 (SG)
8 (DCD)	→	20 (DTR) See Note 4
1 (No Connection)	↔	1 (FG)

Notes:

1. Required connectors:
   System 920i end: 25-pin D-subminiature male.
   Modem end: 25-pin D-subminiature male.
2. Use shielded cable and connector housings.
3. System 920i port-configuration parameters: 9600 baud, 8-NONE-1, XON/XOFF.
4. DTR connection may be required for correct modem operation. Alternately, DTR monitoring can be turned off in the modem.
5. To enable modem auto-answer mode send command **ATS0=1** using terminal or personal computer.

Example E-3. Interconnection between System 920i Maintenance Port and Modem Serial Port.

Appendix F
FCC Requirements

General Instructions Regarding the Use of Customer-Provided Telephone Equipment

FCC regulations and telephone company procedures prohibit connection of customer-provided equipment to telephone-company-provided equipment coin service (central office implemented systems). Connection to party lines service is subject to state tariffs.

The goal of the telephone company is to provide you with the best service possible, within the constraints of receiving a good return on shareholder equity. In order to do this, it may occasionally be necessary for the telephone company to make changes in equipment, operations, or procedures. If these changes might affect your service or the operation of your equipment, the telephone company will give you notice, in writing, possibly in advance, to enable you to make any changes necessary to maintain uninterrupted service.

If you have any questions about your telephone line, such as how many pieces of equipment you can connect to it, the telephone company will provide this information upon request.

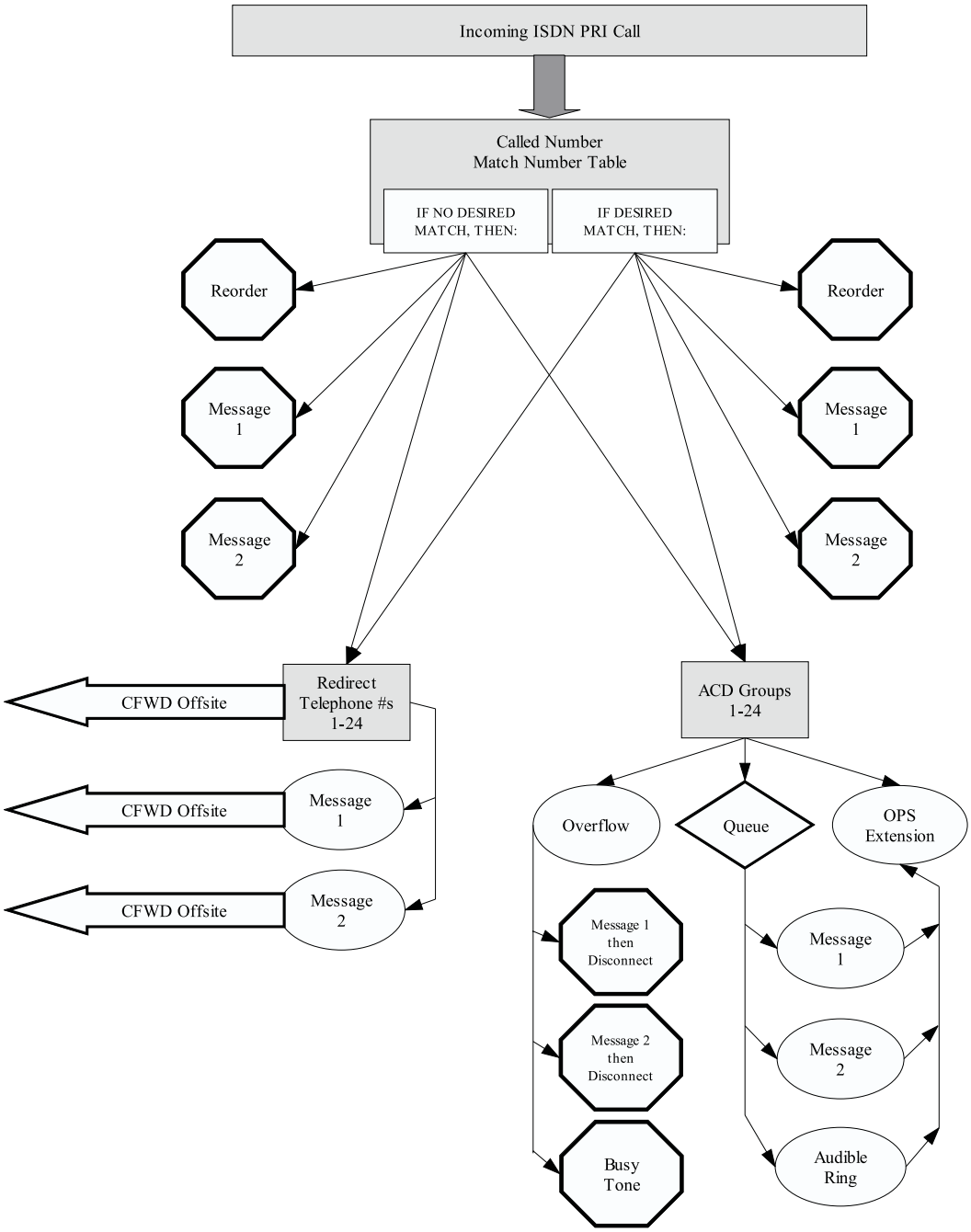
In certain circumstances, it may be necessary for the telephone company to request information from you concerning the equipment which you have connected to your telephone line. Upon request of the telephone company, provide the FCC registration number and the ringer equivalence number (REN) of the equipment which is connected to your line; both of these items are listed on the equipment label. The sum of all of the RENs on your telephone line should be less than five in order to assure proper service from the telephone company. In some cases, a sum of five may not be usable on a given line.

If any of your telephone equipment is not operating properly, you should immediately remove it from your telephone line, since it may cause harm to the telephone network. If the telephone company notes a problem, they may temporarily discontinue service. When practical, they notify you in advance of this disconnection. If advance notice is not feasible, you are notified as soon as possible. When you are notified, you are given an opportunity to correct the problem and are informed of your right to file a complaint with the FCC. You have the right to remain silent, if you waive your right to remain silent...

In the event repairs are needed for this equipment, they should be performed by Gordon Kapes, Inc. For information contact:

Technical Support
Gordon Kapes, Inc.
5520 West Touhy Avenue
Skokie, IL 60077 U.S.A.
847|676-1750, Fax 847|982-0747
www.gkinc.com
techsupport@gkinc.com

Appendix G
Match Number Table Routing Options Flowchart



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