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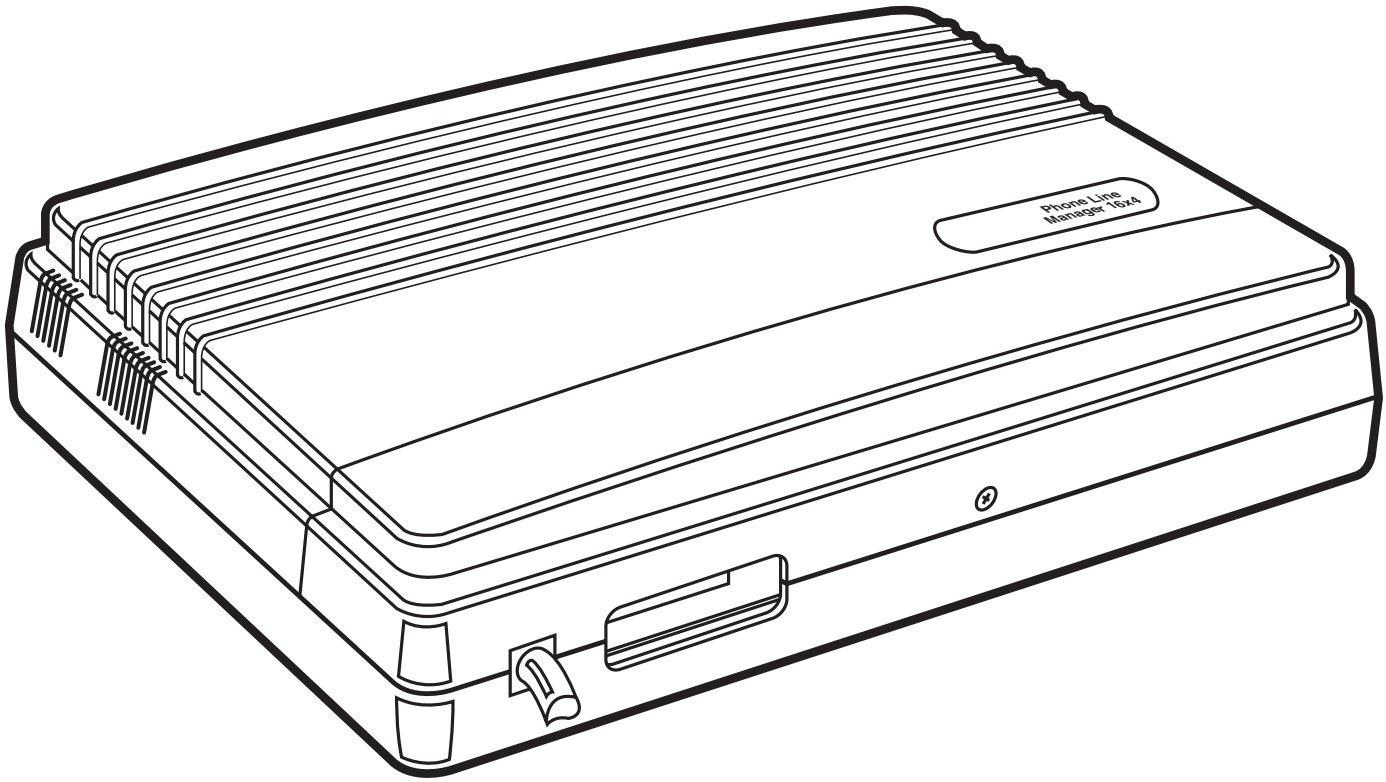
NETWORK SERVICES

JULY 1999
FX160A

Phone Line Manager 16 x 4



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FEDERAL COMMUNICATIONS COMMISSION
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RADIO FREQUENCY INTERFERENCE STATEMENTS

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

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This digital apparatus does not exceed the Class A limits for radio noise emission from digital apparatus set out in the Radio Interference Regulation of Industry Canada.

Le présent appareil numérique n'émet pas de bruits radioélectriques dépassant les limites applicables aux appareils numériques de classe A prescrites dans le Règlement sur le brouillage radioélectrique publié par Industrie Canada.

INSTRUCCIONES DE SEGURIDAD (Normas Oficiales Mexicanas Electrical Safety Statement)

1. Todas las instrucciones de seguridad y operación deberán ser leídas antes de que el aparato eléctrico sea operado.
2. Las instrucciones de seguridad y operación deberán ser guardadas para referencia futura.
3. Todas las advertencias en el aparato eléctrico y en sus instrucciones de operación deben ser respetadas.
4. Todas las instrucciones de operación y uso deben ser seguidas.
5. El aparato eléctrico no deberá ser usado cerca del agua—por ejemplo, cerca de la tina de baño, lavabo, sótano mojado o cerca de una alberca, etc..
6. El aparato eléctrico debe ser usado únicamente con carritos o pedestales que sean recomendados por el fabricante.
7. El aparato eléctrico debe ser montado a la pared o al techo sólo como sea recomendado por el fabricante.
8. Servicio—El usuario no debe intentar dar servicio al equipo eléctrico más allá a lo descrito en las instrucciones de operación. Todo otro servicio deberá ser referido a personal de servicio calificado.
9. El aparato eléctrico debe ser situado de tal manera que su posición no interfiera su uso. La colocación del aparato eléctrico sobre una cama, sofá, alfombra o superficie similar puede bloquea la ventilación, no se debe colocar en libreros o gabinetes que impidan el flujo de aire por los orificios de ventilación.
10. El equipo eléctrico deber ser situado fuera del alcance de fuentes de calor como radiadores, registros de calor, estufas u otros aparatos (incluyendo amplificadores) que producen calor.
11. El aparato eléctrico deberá ser connectado a una fuente de poder sólo del tipo descrito en el instructivo de operación, o como se indique en el aparato.
12. Precaución debe ser tomada de tal manera que la tierra fisica y la polarización del equipo no sea eliminada.
13. Los cables de la fuente de poder deben ser guiados de tal manera que no sean pisados ni pellizcados por objetos colocados sobre o contra ellos, poniendo particular atención a los contactos y receptáculos donde salen del aparato.
14. El equipo eléctrico debe ser limpiado únicamente de acuerdo a las recomendaciones del fabricante.
15. En caso de existir, una antena externa deberá ser localizada lejos de las lineas de energia.
16. El cable de corriente deberá ser desconectado del cuando el equipo no sea usado por un largo periodo de tiempo.
17. Cuidado debe ser tomado de tal manera que objectos liquidos no sean derramados sobre la cubierta u orificios de ventilación.
18. Servicio por personal calificado deberá ser provisto cuando:
    - A: El cable de poder o el contacto ha sido dañado; u
    - B: Objectos han caído o líquido ha sido derramado dentro del aparato; o
    - C: El aparato ha sido expuesto a la lluvia; o
    - D: El aparato parece no operar normalmente o muestra un cambio en su desempeño; o
    - E: El aparato ha sido tirado o su cubierta ha sido dañada.

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1. Specifications

Connectors — (20) RJ-11: (4) incoming ports, (16) extension ports

Power — 120 VAC, 60 Hz

Size — 2.5"H x 13.5"W x 9.5"D (6.4 x 34.3 x 24.1 cm)

Weight — 3.2 lb. (1.5 kg)

2. Introduction

You'll find that the user-friendly design of this Phone Line Manager 16 x 4 (Integrated Phone Solutions) system and the clear, step-by-step instructions in this manual will make it a pleasure to set up the system's features so that they best serve your office.

This guide describes enhancements made to the Phone Line Manager 16 x 4 telephone system as of the Version 140 release of the software.

If you have a personal computer with Microsoft® Windows® installed, you will want to use our configuration program (see **Section 18.2**).

Plenty of flexible-phone features are built into the system, and you can pick and choose the ones that suit your home or office. As a first step, browse through this manual to get acquainted with the various features available.

When your new unit arrives, all of the features are already programmed with default settings. In some cases, these settings will be fine just as they are. With others, you will want to change the settings. The instructions in this manual lead you through the simple step-by-step process of setting each feature as desired.

In **Section 3.4** you'll find a list of pre-programmed default settings. Refer to this list as you set up your system. It lets you see at a glance which features you will need to set. If you need to, you can easily return the whole system to all of its default settings at any time.

3. Preparing to Program

Before entering the system program features, take some time to look over the different options for setting up an extension as the System Manager.

3.1 Designate an Extension for System Manager

All programming functions in this manual must be performed from the programming extension. Initial programming of the Phone Line Manager 16 x 4 system must be done from extension #15. This extension should be assigned to the person who will program the system and serve as System Manager for the office.

The default programming extension is preset as extension #15. You have the option of changing it to extension #00. This would be handy, for example, if the Operator is at extension #00 and you want the Operator to also serve as the System Manager.

To change the programming extension to #00:

1. At the System Manager's extension, lift the handset and enter **7832**. Pause for confirmation tone. Hang up or continue programming.

To set the programming extension to #15:

1. At the System Manager's extension, lift the handset and enter **7833**. Pause for confirmation tone. Hang up or continue programming.

3.2 Choosing the Programming Mode—Automatic or Password

With the default settings, the System Manager is required to enter a 6-digit password from their extension to place the Phone Line Manager 16 x 4 in the Programming Mode. The password is entered by dialing the code **761**, followed by a 6-digit password. (The default value of password is **123456**.) In this mode, the System Manager can enter any programming codes. The password requirement prohibits unauthorized persons from changing the programming. It can also reduce the likelihood of accidental changes in the configuration.

If you want to, you can remove the password entry requirement. This is useful for installations where security is not an issue. It is, however, strongly suggested that the password be used so that an accidental dialing sequence does not alter the system programming. For instance, if the System Manager forgets to dial **9** (or **0**) to make an outgoing call and then dials a number sequence beginning with a **7**, they could be accidentally entering a programming command.

To allow programming without the entry of a password:

1. At the System Manager's extension, lift the handset and enter **7849**. Pause for confirmation tone.

To require the entry of a password to enter Programming Mode:

At the System Manager's extension, lift the handset and enter **7848**. Pause for confirmation tone.

3.3 Programming Tips

- All programming described in this manual must be performed in the programming mode (see **Section 3.5**) and performed from the programming extension (see **Section 3.1**).
- We recommend that the programming extension be assigned to the person who will act as System Manager for the office.
- If a desired feature is preset in the "enabled" mode, no programming is needed unless you want to disable the feature.
- If the final step in an operation reads "hang up," you must do so for the programming to register.
- If the final step reads "hang up or continue with programming" you can stay in the programming mode and proceed directly to programming another feature.
- You probably will want to program a number of features in one sitting. However, please be aware that you will be automatically "bumped" from the programming mode if you hang up for more than two seconds.

3.4 Factory-Default Settings

Password Entry for Programming Mode . . . . . Required

System Mode Password 123456

Programming Extension . . . . . #15

Basic Features

RS232C Mode . . . . . System Mode

Call Follow Me . . . . . Enabled

Require "Star" key before user programming. . . . . Disabled

Operator Extension . . . . . Extension #00

Advanced System Features

Direct Access to Extensions (DISA or Auto-Attendant) . . . . . Disabled

Direct Outward Station Access (DOSA) . . . . . Disabled

Automatic Day/Night Switching . . . . . Disabled

Voice Announcement Message. . . . . Not Recorded

Call History Memory . . . . . Cleared

Call Records Format . . . . . Short Format

Toll Restriction (Call Barring) . . . . . Disabled

Hunt Groups . . . . . Disabled

Key Phone Clock Display Mode 24-Hour

Outside Line Features

To Access Outside Lines . . . . . .Dial **9**

Incoming Call Mode . . . . . .All Standard Incoming Lines

Incoming Call List . . . . . Extension **00** to **15**, in that order

Outgoing Call Group List . . . . . .Outside Line **1** to **4**, in that order

Tone (DTMF) Dialing . . . . . Enabled

Incoming Call Ring Over Paging System . . . . . Disabled

Recognition of Incoming Fax Tones . . . . . Disabled

Switchhook to Outside Line . . . . . Allowed

Clear Forward and Polarity Reversal Detection . . . . . Disabled

Metering Pulse Detection . . . . . Disabled

Rollover of Unattached Calls . . . . . to Operator

Caller ID Detection . . . . . Disabled

All Timing Parameters . . . . . Default Values

Extension Features (for all extensions)

Phone Type . . . . . .All ordinary phones,
no key or door phones

Automatically access outside line . . . . . Disabled

Call Transfer/Hold . . . . . Allow

Call Hold Retrieval . . . . . Allow

Call Break-in . . . . . Disallow

Rollover Extension Assignments . . . . . None Set

Emergency Alarm . . . . . Disallow

Paging Groups . . . . . None Assigned

Caller ID display on AVT-16L Key Phone . . . . . .Enabled

Extension Numbering . . . . . Assigned Number is
Physical Extension Number

When You Reset the System to Default Values:

All features are reset to the factory-default settings. These will be the same as the values on your new system. In addition:

- All call forwarding is cleared.
- All alarms are cleared.
- Call history memory is erased.
- Extensions assigned to call barring (toll restriction) tables are cleared, but contents of the call barring tables are not affected.
- Speed dial numbers are not affected.
- Your voice announcement message is not affected.

3.5 Entering the Programming-Mode Password

If you are required to enter a password to access the programming mode, the following password command will be used.

1. At the System Manager's extension, lift the handset and enter **761**.
2. Enter the 6-digit password (Default = **123456**). Pause for confirmation tone.

3.6 Changing the Programming-Mode Password

If you are requiring the System Manager to enter a password to access the programming mode, you may change the password if, for security reasons, you do not want unauthorized people changing system settings. The default value of the password is **123456**. To change the value:

1. At the System Manager's extension, lift the handset and enter **761**, followed by the current 6-digit password (Default = **123456**). Pause for confirmation tone.
2. Enter **762**.
3. Enter the new 6-digit password. Then enter the new 6-digit password again.
4. Pause for confirmation tone. Hang up or continue programming.

3.7 Resetting the System to Default Values

This command will reset all features on the system to default values. See the default settings list in **Section 3.4**. This list shows what the settings will be for all features after you perform this command.

Resetting the system to default values allows you to start from a "clean slate" when reprogramming the system after values have been changed.

To reset the system to default values:

1. In the programming mode, enter **7873**. Pause for the confirmation tone.
2. Hang up or continue programming.

4. Configuring the Extensions

4.1 Choices When Programming the Extensions

Each extension must be individually defined in the way that best suits your needs. The options to be decided upon are described below. These choices are programmed for the extension using the commands given on the following pages.

1. What type of phone will be connected to the extension?

An extension can be connected to an ordinary phone, a key phone, a fax machine, or a door phone. (A door phone is an intercom at the outside door of your office, which visitors use to reach an operator. See **Section 4.3** for additional information.) The system needs to know the phone type to communicate properly.

2. Which special features do you want to allow the extension?

- Call Hold/Transfer: Allows the extension to put an outside call on hold or transfer an outside call to other extensions. This capability may not be withheld from key phones.
- Call Hold Retrieval: Allows retrieving a call placed on hold at another extension. This capability may not be withheld from key phones.
- Rollover Extension: Typically a voice mail or answering machine. (See **Chapter 13**).
- Exclusive Answering Machine Privilege: Allows this extension to have a dedicated answering machine on the next numerical extension. (See **Chapter 13**).
- Call Break-in: Allows "breaking in" or interrupting another extension's phone call.
- Emergency Alarm: Allows an extension to generate an emergency alarm signal to other extensions.
- Paging Groups: Allows a key phone or a door phone at the extension to be part of a paging group.
- Caller ID Display: Allows an AVT-16 series key phone to display the incoming Caller ID information.
- Automatic Outside Line Seize: Allows an extension to automatically connect to an outside line when they lift their handset without dialing **9** (or **0**). If the person at that extension wants to make an intercom call or use other Phone Line Manager 16 x 4 functions, they can simply switchhook before dialing any digits to drop the outside line and connect to the Phone Line Manager 16 x 4 dial tone.

3. Do you want to give new numbers to the extensions?

Each extension is automatically given a number by the system. This is the number on the jack at the unit into which the extension line is plugged. The numbers are **00** to **15** for the Phone Line Manager 16 x 4. However, it may be more logical to give your lines different numbers (for example, ones that correspond to office or room numbers).

Please note that even after you assign new numbers, the extension numbers on the jacks (**00** to **15**) still need to be used for all system programming where a 2-digit extension number is required. The new extension numbers you assign are used when:

- making intercom calls,
- transferring outside calls to another extension,
- entering an extension number in the Auto-Attendant (or DISA) mode,

- forwarding calls to another extension,
- and turning on or off the message lamp of another extension.

If Hunt Groups are used (see **Chapter 10**), the extension numbers **122**, **133**, **144**, and **155** are reserved. You may not assign an extension to use one of these numbers.

4.2 Programming the Extensions

The configuration settings for each extension must be programmed separately. The programming procedure is simple if you take it step-by-step. First, decide on the codes you want to enter for each extension. Write down the code for each of your choices. Then program one extension at a time. You must complete all steps for each extension before starting on the next one. The "*" mark indicates the default value of each setting.

1. In the programming mode, enter **75**.
2. Enter the 2-digit extension number (**00** to **15**).
3. Enter the code for the phone type and features:

   0 ordinary phone (with no special features)

   * **1** ordinary phone + enable call hold retrieval

   2 key phone

   3 key phone + enable call hold retrieval

   4 ordinary phone + rollover extension

   5 ordinary phone + rollover extension + enable call hold retrieval

   6 key phone + rollover extension

   7 key phone + rollover extension + enable call hold retrieval

4. Enter the code for other features:

   0 no additional features

   * **1** enable call transfer/hold

   2 enable call break-in

   3 enable call transfer/hold + call break-in

   4 enable emergency alarm

   5 enable call transfer/hold + emergency alarm

   6 enable call break-in + emergency alarm

   7 enable call transfer/hold + call break-in + emergency alarm

5. Enter the code for paging and door phone assignment.

Door Phone	Member of Paging Group	
*0	No	-
1	Yes	-
2	No	1
3	Yes	1
4	No	2
5	Yes	2
6	No	1 and 2
7	Yes	1 and 2

6. Enter the code for automatic connection to an outside line, exclusive answering machine privilege, and Caller ID Enabling.

		Automatic Outside Line Connection	Exclusive Answering Machine Privilege	Display of Caller ID Privilege
*	0	No	No	Yes
	1	Yes	No	Yes
	2	No	Yes	Yes
	3	Yes	Yes	Yes
	4	No	No	No
	5	Yes	No	No
	6	No	Yes	No
	7	Yes	Yes	No

7. Enter the new two-digit number you want for the extension (or hang up or re-enter the existing extension number). Pause for confirmation tone. Hang up or continue programming.

EXTENSION PROGRAMMING SUMMARY*

To program the extensions, enter the following:

Enter "75"	Extn. Number	Step 3 Code	Step 4 Code	Step 5 Code	Step 6 Code	Step 7 New Number
75	00					
75	01					
75	02					
75	03					
75	04					
75	05					
75	06					
75	07					
75	08					
75	09					
75	10					
75	11					
75	12					
75	13					
75	14					
75	15					

4.3 Door-Phone-Operation Details

Any extension, with the exception of Extension #00 and the System Manager's extension, may be configured to be a door phone. The Door Phone may be placed at any location requiring a hands-free intercom station. In addition, any ordinary phone can be used as a door phone. When a person at the door phone goes offhook (or presses the button on the Door Phone), an alert ring is heard on the first four available extensions in the Standard Incoming List. This is similar to an incoming call where the first four available extensions in the Standard Incoming List are rung.

Any of the ringing phones may go offhook within the next 12 seconds to make a connection with the Door-Phone extension. More than one phone may connect to the Door-Phone extension.

Also, any extension can make an intercom call to a Door Phone and they will be immediately connected with the Door Phone operating in a hands-free mode. An intercom call to an ordinary phone connected to an extension programmed to be a door phone will ring normally.

4.4 Call Forwarding/Call Follow Me

Occasionally you may be required to work in an associate's office and will want to have your phone forwarded to the other person's office. This feature is called "Call Forwarding" when you enter the forwarding command from your extension. The feature is called "Call Follow Me" when you issue the command from the extension to which you want the calls forwarded.

The Call Follow Me feature allows you to forward your calls to the new office without having to go back to your office. In some installations, it may not be desirable to allow any user the ability to have calls transferred to it by invoking the Call Follow Me command. For instance, a person at an extension in a hotel could accidentally have calls meant for the Operator sent to him.

To disable the Call Follow Me function:

1. In the programming mode, lift the handset and enter **7822**. Pause for the confirmation tone. Hang up or continue programming.

To enable the Call Follow Me function:

1. In the programming mode, lift the handset and enter **7823**. Pause for the confirmation tone. Hang up or continue programming.

A special exception to Call Forwarding is made to facilitate operation between a manager and his secretary. If the manager has his calls forwarded to the secretary's extension, the secretary (but no one else) is able to make an intercom call to the manager's extension or transfer an outside call to the manager. Any other extension attempting such a call would have the call forwarded to the secretary's extension.

4.5 Require Star Key Before User Programming

All of the user-programming commands begin with a **4** or **5**. In some installations, you may want to require that the user enter a * from the keypad of the phone before entering one of these commands. This will prevent unintentional programming if a person dials a phone number beginning with a **4** or a **5** but forgets to dial **9** (or **0**) to connect to an outside line. For instance, an extension could be accidentally placed in the Do Not Disturb mode, or the Day/Night setting could be changed. When this new parameter is set, dialing a **4** or a **5** without first dialing a * will give an error tone.

Note that telephone sets with rotary dials cannot dial a *. Thus, this setting should not be enabled if there are pulse-dialing telephones connected to the system.

To require a * to be entered before a 4 or a 5:

1. At the System Manager's extension, lift the handset and enter **7838**. Pause for confirmation tone.

To not require a * digit to be entered before a 4 or a 5:

1. At the System Manager's extension, lift the handset and enter **7839**. Pause for confirmation tone.

5. Central Office Lines: Incoming Calls

5.1 Introduction

This chapter, which describes how incoming calls are handled in the Phone Line Manager 16 x 4, begins the discussion of how to configure the outside lines. The next chapters describe the main configuration commands, followed by a discussion of Auto-Attendant or DISA (Direct Inward Station Access), then a description of Outgoing Call Groups, and finally a discussion of DOSA (Direct Outward Station Access). Later in this manual is a discussion of advanced topics concerning the setup of outside lines.

5.2 Choices in Handling Incoming Calls

Your flexible system offers many options for handling incoming calls. The choices are:

5.2.1 Standard Incoming Line or Private Incoming Line

The first choice to be made for each outside line is whether you want the Phone Line Manager 16 x 4 to handle incoming calls in a "standard" fashion or whether you want a particular line to be a "private incoming line" and ring at an extension other than the Operator. Outside line #1 is always a Standard Incoming Line while each of the others may be optionally configured to be Private Incoming Lines.

5.2.2 Auto-Attendant or Direct Inward Station Access (DISA)

Next, you can decide if you want the Phone Line Manager 16 x 4 to automatically connect incoming calls to a recorded voice announcement which leads the caller through options for reaching individual extensions. In this mode, the Phone Line Manager 16 x 4 can also be programmed to listen for an incoming fax tone and route the call directly to the extension where the fax machine is located. This type of operation is called Auto-Attendant or DISA (Direct Inward Station Access).

The alternative to DISA is that the Phone Line Manager 16 x 4 will sense an incoming call and cause one or more extensions to ring. In this case, a connection to the outside line will not be made until one of the ringing extensions goes offhook.

5.2.3 Day-Time and Night-Time Handling of Incoming Calls

The Phone Line Manager 16 x 4 can operate in the Day Mode or the Night Mode and each outside line can be set to operate differently when in the two modes. For instance, an outside line can operate as a Standard Incoming Line during the day and as a Private Incoming Line during the night. You can have an incoming call ring at one group of extensions during the day and a different group of extensions at night. You can also choose to have the Auto-Attendant (or DISA) mode operate during the day, night, or both.

5.2.4 Incoming-Call Alert Tone to the Paging System

Calls can be setup to ring over a paging system in addition to ringing at individual extensions. Anyone can answer the call from any extension by dialing **3**. This is recommended for businesses where employees are not seated at desks with phones, or where there is no receptionist/operator.

5.2.5 Incoming Calls to an Auto-Attendant System

If you are using an Auto-Attendant/Voice Mail system, you can choose to have incoming calls ring at the Auto-Attendant or at an operator's extension. Simply enter the Standard Incoming Line list to reflect the extensions to which you would like to direct the incoming calls.

5.2.6 Defining the Standard Incoming Line

In most installations, all outside lines would be configured as a Standard Incoming Line. You will first define a list of extensions which will ring when an incoming call is detected. You might also choose to define a second list of extensions which will ring when an incoming call is detected in the Night Mode.

The operation of an outside line configured to be a Standard Incoming Line is as follows. When an incoming call is detected, the Phone Line Manager 16 x 4 checks the extensions starting at the top of the appropriate (day or night) list to find the first available extension. This extension will start ringing. Zero to nine rings later (see **Section 19.15**), the Phone Line Manager 16 x 4 will find the next three available extensions in the list and start ringing them. After 5 to 60 seconds have passed (see **Section 19.11**), the Phone Line Manager 16 x 4 will ring an available Rollover Extension (usually a Voice Mail unit or answering machine).

Additionally, all key phones with the "RP'" (Ring Position) indicator set will also ring when incoming calls are detected on outside lines configured as Standard Incoming Lines.

5.2.7 The Operator Extension

One extension is designated to be the Operator. The Operator extension is used by the Phone Line Manager 16 x 4 in the following ways:

Any extension may dial **0** (or **9**) to place an intercom call to the Operator or to transfer an outside call to the Operator.

Only the Day mode Operator may issue a **56** command or a **57** command to manually switch the Phone Line Manager 16 x 4 into the Night mode or the Day mode.

An incoming call to an extension on a Private Incoming Line that goes unanswered will ring the Operator's extension if the Operator is not busy.

A call left on hold too long will ring at the extension which placed it on hold. If that extension does not answer or is busy, the call will ring at the Operator's extension if it is not busy.

A call parked at an extension will ring the Operator (or a Rollover Extension, as programmed by the System Manager) if the extension at which the call is parked does not become available or if the extension becomes available but does not answer when the phone rings.

A blind transfer of an outside call to an extension which does not answer will ring the Operator (or a Rollover Extension, as programmed by the System Manager) if the extension to which the call is being transferred does not answer.

If an incoming caller to an outside line operating in the Auto-Attendant (or DISA) mode specifies an extension which does not answer, the call will transfer to the Operator.

If no input (either DTMF digits or a fax Calling Tone) is detected during a DISA call, the call will ring at either the Operator's or the fax's extension, as programmed by the System Manager.

5.2.8 The Standard Incoming List—Which Extension is the Operator

The first (non-Rollover) extension in the Standard Incoming List is defined to be the Operator. This means that if your Standard Incoming Line List directs incoming calls to an Auto-Attendant/Voice Mail, the Operator will be defined as the next extension in the list after the Voice Mail extensions (because your Voice Mail extensions would be defined as Rollover Extensions). Since there is a separate list for Day and Night operation, a different Operator extension can be defined for each mode.

5.2.9 Entering the Standard Incoming List

1. In the programming mode, enter **730** for the Day Mode list or enter **790** for the Night-Mode list.
2. Enter the two-digit extension numbers (**00** to **15**) assigned to the Standard Incoming List.

   Enter all of the extension numbers in succession. You can assign up to 16 extensions. Be sure to enter the extensions in the order you want them to be searched.
3. Hang up. Hanging up is necessary for the assignments to register.

Keep a record of your Standard Incoming List Assignments. Write the 2-digit extension numbers in the following table.

	Extension Numbers in the Standard Incoming List, Day Mode	**Extension Numbers in the Standard Incoming List, Night Mode**
Enter	730	790
1st	(Operator):	
2nd		
3rd		
4th		
5th		
6th		
7th		
8th		
9th		
10th		
11th		
12th		
13th		
14th		
15th		
16th		

5.2.10 Private Incoming Lines

You may want to configure one or more of the outside lines to operate as a Private Incoming Line. This would allow an incoming call to ring at an extension other than the Operator. Outside lines 2, 3, and 4 may be defined as Private Incoming Lines. As such, you can define the list of extensions which the Phone Line Manager 16 x 4 will search when an incoming call is detected on that line. Only one extension will ring. This is different from outside lines defined as Standard Incoming Lines where more than one extension can ring at the same time.

5.2.11 Entering the Private Incoming List(s)

1. In the programming mode, enter the code for the desired Private Incoming List.

731	Outside Line 2, Day-Mode List
732	Outside Line 3, Day-Mode List
733	Outside Line 4, Day-Mode List
791	Outside Line 2, Night-Mode List
792	Outside Line 3, Night-Mode List
793	Outside Line 4, Night-Mode List

2. Enter two-digit extension numbers (**00** to **15**) assigned to the Private Incoming List.

Enter all of the extension numbers in succession. You can assign up to 16 extensions. Be sure to enter the extensions in the order you want them to be searched.

3. Hang up. Hanging up is necessary for the assignments to register.

For non-DISA calls to a Private Incoming Line, the Phone Line Manager 16 x 4 will ring the first available extension in the appropriate (day or night) list. If the extension does not answer within the "Rollover After Call to Extension" time, the call will start ringing at the next available extension in the Private Incoming List, not including the extension that is currently ringing. This process will repeat until the incoming caller hangs up and the ringer signal is no longer present.

One typical configuration would be to put the Operator as the second extension in a Private Incoming List. If the Operator does not answer, the call will start ringing at an available Rollover Extension. Another typical configuration would be to put an answering machine or voice-mail-unit extensions in the list. Since the Phone Line Manager 16 x 4 allows both Day Mode and Night-Mode lists, you will want to make sure that an answering machine or voice mail is the first or second extension in the night list so that calls received after hours will never go unanswered.

In any case, it is best that the Private Incoming List be filled with enough entries so that the call always has a place to ring. If there is no available extension in the Private Incoming List, the call will park at the first extension in the list and give a beep signal every few seconds to inform the caller that a call is waiting.

Keep a record of the Private Incoming Line Lists. Enter the extension numbers for each outside line configured as a Private Incoming Line:

	Outside Line 2		Outside Line 3		Outside Line 4	
	Day	Night	Day	Night	Day	Night
Enter	731	791	732	792	733	793
1st						
2nd						
3rd						
4th						
5th						
6th						
7th						
8th						
9th						
10th						
11th						
12th						
13th						
14th						
15th						
16th						

5.2.12 Setting Incoming Calls to Ring over Paging System

This option allows incoming calls to ring over a paging system in addition to the operator. Anyone can pick up an extension and press "3" to answer the call. This is useful in businesses where employees are not seated at desks with phones, or where there is no dedicated receptionist/operator. Outside lines must have the Auto-Attendant (or DISA) mode disabled for this feature to work. Also, your paging system must be plugged into paging system jack of the unit.

To enable a ringback tone over the paging system:

1. In the programming mode, lift the handset, enter **7810**. Pause for confirmation tone.

To disable a ringback tone over the paging system:

1. In the programming mode, lift the handset, enter **7811**. Pause for confirmation tone.

6. Central Office Lines: Programming

6.1 Choices in Configuring Central Office (CO) Lines

Each CO line should be configured so that it best suits your needs. The options that must be decided upon are described below.

1. Are you using this CO line?

If you do not use all of the CO line ports of the system, then the vacant ports need to be programmed as "Disable." This will make sure the Phone Line Manager 16 x 4 does not allow any extension to connect to this line.

2. How should an incoming call be answered?

You may select DISA (Direct Inward Station Access) for answering incoming calls. This feature is also called Auto-Attendant mode. In this mode, the Phone Line Manager 16 x 4 will answer (Day or Night) and prompt the incoming caller to enter the digits or code of the desired extension or department that they wish to speak with. Read more about DISA before selecting this feature so as to better understand its function.

If you choose to use the line so that the call must be answered by an extension before the outside line is seized, then you will need to enter the code for "No DISA."

3. Does your CO line accept tone (DTMF) or pulse (rotary) dialing?

Some older Central Office switches can interpret only pulse or rotary dialing. Most newer Central Office lines can accept tone or DTMF (Dual-Tone Multi-Frequency) dialing. The Phone Line Manager 16 x 4 will need to know how it should dial digits when it is dialing a speed-dial number or redialing the last number dialed. See **Section 12.1** for a complete discussion of the dialing mode.

4. Do you want to be able to send a "switchhook" to the CO line?

Some Central Office features, such as Call Waiting, are enabled by sending a "Switchhook" or "Flash" to the Central Office. Some Central Office switches will reset the CO line and give a new dial tone in response to a Flash signal. If a new dial tone is given, the caller could bypass the Call Barring (Toll Restriction) protection as the system would not know that a new dial tone was received. If this is a consideration, you may wish to disable the sending of the "switchhook" signal to the CO line.

The system Flash signal is set at a default value of 480 ms. This default value should work with most signaling requirements. If not, the timing duration of this signal may be changed to work with the requirements suggested by the Central Office for the features that they may provide in your area (see **Section 19.5**).

5. How do you want the incoming lines to ring?

All incoming CO lines will ring into the system. This step is used to select the manner in which you wish for them to ring according to the use of the desired CO line. For each line, you can choose to configure it to handle incoming calls according the Standard Incoming Line configuration, or you can configure it to be a Private Incoming Line.

6. Do you want the unit to automatically detect incoming faxes?

Each CO line can have an assigned fax extension to allow the system to automatically direct an incoming fax (when the fax tone is detected) to an extension where a fax machine is connected. The CO line must be in the DISA mode to allow automatic fax detection.

7. Do you want to dial 9 or 0 to access an outside line ?

You can choose either **9** or **0** as the code for the user to dial when requesting an outside line.

6.2 Dialing "9" to Access Outside Lines

The system is preset so that users dial **9** to access an outside line and **0** to make an intercom call to the Operator. You may want to change the **9** to a **0** if this is the standard in your area.

To access an outside line by dialing **0**:

1. In the programming mode, lift the handset and enter **7801**. Pause for confirmation tone. Hang up or continue programming.

T**o access an outside line by dialing 9:**

1. In the programming mode, lift the handset, enter **7800**. Pause for confirmation tone. Hang up or continue programming.

NOTE

If you configure the system so that "0" accesses an outside line, "9" will then directly dial the operator. If "9" is the number for outside line access, then "0" will dial the operator.

6.3 Programming Outside Lines

Each outside line must be programmed separately. The programming procedure is simple if you take it step-by-step. First, decide on the codes you want to enter for each line. Write the code for each of your choices in the table provided on the next page. Then program one line at a time. The default settings are marked with an asterisk (*).

1. In the programming mode, lift the handset and dial **739**.
2. Enter the line number (**1** to **4**).
3. Enter the code for enabling the CO line and for Auto-Attendant (or DISA) operation.

*0	No DISA
1	DISA in Day-mode only
2	DISA in Night-mode only
3	DISA always
4	Disable this CO line

4. Enter the code for the desired dialing mode and switchhook (flashing) capability.

0	Pulse dialing, switchhook not allowed.
2	Tone (DTMF) dialing, switchhook not allowed.
4	Pulse dialing, switchhook allowed.
*6	Tone (DTMF) dialing, switchhook allowed.

Enter the code for the desired incoming ringing mode.

0 Private Incoming Line always.

1 Standard Incoming Line in daytime. Private Incoming Line at night.

2 Standard Incoming Line at night. Private Incoming Line in daytime.

*3 Standard Incoming Line always.

6. Enter the two-digit fax extension (00 to 15) used for automatic fax detection.

(If automatic fax detection is not used on this line, hang up.)

7. Pause for confirmation tone. Hang up or continue programming.

To Keep a Record of the Programming of the Outside Lines, Enter the Following:

Enter 739	Enter Line #	Step 3 Code	Step 4 Code	Step 5 Code	Fax Extn.	Pause
739	1					Pause
739	2					Pause
739	3					Pause
739	4					Pause

7. Auto-Attendant (DISA)

7.1 About DISA and Direct Caller Access to Extensions

Enabling the Auto-Attendant or DISA (Direct Inward Station Access) feature for outside lines allows incoming callers to connect themselves directly to an extension. The optional Voice Announcement module can be enabled to lead the caller through options for reaching individual extensions. The Phone Line Manager 16 x 4 can also be programmed to listen for an incoming fax tone and route the call directly to the extension where the fax machine is located.

Setting DISA as enabled or disabled is done as part of setting the command sequence for "Programming Outside Lines" (see **Section 6.3**). This is done separately for each line. You have the option of enabling DISA at all times, during regular business hours (Day Mode), or after regular business hours (Night Mode).

In the Phone Line Manager 16 x 4 there is only one Voice Announcement module and one circuit to collect the digits coming from the outside caller when the call is answered in the DISA mode. If two incoming calls are received at the same time and both outside lines operate in the DISA mode, the second incoming call will continue to ring and will not be answered until after the caller on the first line has made their DISA selection.

After the Phone Line Manager 16 x 4 answers the incoming call and the optional voice announcement module is playing the recorded message, the incoming caller can dial:

0	To call the Operator
1xx	To ring extension **1xx** where **xx** is the extension number (**00** to **99**) assigned using the Configure Extension command
2, **3**, **4**, or **5**	To ring the first available extension in Hunt Group 2, 3, 4, or 5
6 or **7**	To invoke the DISA feature

7.2 Recording a Voice Announcement

This command allows you to record an announcement to greet callers. The recording can be made only from Extension #15. (See **Section 3.1** if you need to change the programming extension to 15).

Time the length of your spoken announcement before recording it. If you want to record a very short announcement, you can enter **0** at the end of your message, which will cause the Phone Line Manager 16 x 4 to ring the Operator.

1. In the programming mode, enter **728**. Pause for the confirmation tone.
2. Record your announcement by speaking into the handset. When you have finished speaking, keep the phone off the hook until you hear a confirmation tone. This marks the end of the 20 seconds available. (If the tone cuts you off, re-enter **728** and record a shorter announcement.)
3. Hang up or continue with programming.

Sample Announcement

"Hello, you have reached XYZ Corporation. To send a fax, press the start button on your fax machine at any time. If you are calling from a touchtone phone, you may enter the extension number of your party at any time. Press '2' to place an order. Press '3' for Customer Service. Press '0' to reach the Operator. Press '106' for accounting. Thank you."

7.3 Enabling the Voice Announcement

For an outside line operating in the DISA mode, the voice announcement module may be enabled or disabled. Some hardware models do not have the voice announcement module. This parameter must be enabled to allow the Phone Line Manager 16 x 4 to play the voice announcement. If the voice announcement module is not enabled, the incoming caller will hear silence after the Phone Line Manager 16 x 4 answers the call in the DISA mode.

To enable the Voice Announcement Module:

1. In the programming mode, lift the handset, enter **7806**. Pause for confirmation tone.

To disable the Voice Announcement Module:

1. In the programming mode, lift the handset, enter **7807**. Pause for confirmation tone.

7.4 Setting the Length of the DISA Input Time

The length of the Voice Announcement recording is fixed at 20 seconds. The length of time that the system waits for the incoming caller to make a choice can be set at 25 seconds or 75 seconds if the Voice Announcement module is enabled or it can be set at 6 seconds or 12 seconds if the voice announcement module is not enabled.

To set the DISA Input Time at 75 seconds or 12 seconds:

1. In the programming mode, lift the handset, enter **7812**. Pause for confirmation tone.

To set the DISA Input Time at 25 seconds or 6 seconds:

1. In the programming mode, lift the handset, enter **7813**. Pause for confirmation tone.

7.5 What Happens after the DISA Entry

After the incoming caller has entered his selection on an incoming line operating in the Auto-Attendant (or DISA) mode, the Phone Line Manager 16 x 4 will start ringing at an extension. While the extension is ringing, the caller will either hear a ringback tone or the Music on Hold input.

To enable the Music on Hold input after DISA input:

1. In the programming mode, lift the handset, enter **7808**. Pause for confirmation tone.

To enable the ringback tone after DISA input:

1. In the programming mode, lift the handset, enter **7809**. Pause for confirmation tone.

If the caller specifies an extension which is not available, they will hear a short busy signal. Then the call will ring at the first available extension in the appropriate incoming call group if the outside line is configured to be a Private Incoming Line or it will ring as a Standard Incoming Line if it is so configured.

If the DISA call is directed to an extension which does not answer after 5 to 50 seconds, the call will transfer to the Operator (see **Section 19.12**). If the Operator does not answer after 5 to 60 seconds, the call will transfer to an available Rollover Extension (see **Section 19.11**).

Any external music source can be used to connect Music on Hold to the Phone Line Manager 16 x 4 system. You will need to plug your music source unit into the RCA® jack labeled "External Music" on the Phone Line Manager 16 x 4. The Phone Line Manager 16 x 4 system has an internal computer-generated music melody source which is disabled when the RCA mini plug is inserted into the "External Music" jack. This music signal is heard by the incoming caller when they are placed on hold.

7.6 What Happens If There is No DISA Entry

If an outside line answers in the Auto-Attendant (or DISA) mode and the caller does not enter any DTMF digits and no fax tone is detected, the Phone Line Manager 16 x 4 can transfer the call to either the Operator or to the designated fax machine. You should choose for these calls to go to the fax extension if this outside line is used mostly for receiving faxes. This is helpful since some fax machines do not send the calling tone until after the called fax machine answers and thus the Phone Line Manager 16 x 4 cannot detect the incoming fax tone.

You should choose for these calls to go to the Operator if the outside line is use mostly for voice callers. A caller using a pulse dial telephone would not be able to enter any DTMF digits and you would want this call to be directed to the Operator. (If the outside line is set to ring according to the Standard Incoming Line definition, the "Operator" setting here will cause these calls to ring extension(s) according to that definition. If the outside line is configured as a Private Incoming Line, the "Operator" setting will cause these calls to ring at the first available extension in the private incoming call list for that outside line.)

To ring the Operator if there is No DISA entry:

1. In the programming mode, lift the handset, enter **7856**. Pause for confirmation tone.

To ring the fax extension if there is No DISA entry:

1. In the programming mode, lift the handset, enter **7857**. Pause for confirmation tone.

One option for a line which is to be used mostly for fax reception might be to program the outside line to operate in the DISA mode during the day time with this parameter set to send calls with no DTMF or fax input to the Operator. During the day time, the Operator would hear either silence or a fax tone and manually transfer the call to the fax extension. In the night mode, the outside line could be configured to be a Private Incoming Line, ringing only at the fax extension.

7.7 Multiple Fax Extensions

If a fax tone is detected on an incoming DISA call, the Phone Line Manager 16 x 4 would normally try to transfer the call only to the fax station associated with that outside line. In installations where you have more than one extension with a fax machine, this parameter allows the call to be transferred to the fax extension assigned to any of the CO lines. This reduces the likelihood that an incoming fax call will not have an available fax extension to which it can be transferred.

To allow a fax detected on an outside line to ring at a fax extension assigned to a different outside line:

1. In the programming mode, lift the handset, enter **7858**. Pause for confirmation tone.

To allow a fax detected on an outside line to only ring at the fax extension assigned to that outside line.

1. In the programming mode, lift the handset, enter **7859**. Pause for confirmation tone.

If an incoming fax is detected but there is not an available fax extension, the call will ring at the Operator.

8. Central Office Lines: Outgoing Calls

8.1 About Outgoing Call Groups

The purpose of the Outgoing Call Groups is to provide the optimal management of outgoing calls, giving maximum outside line access to the users and extensions that need them most. The system has the capability to define up to four Outgoing Call Groups. Each group is a list of outside lines and every extension is assigned to one of these four groups. When the extension dials **9** (or **0**) to make an outside call, the system uses the list to find the first available CO line.

For example, an office with four outside phone lines, a fax machine, 10 employees in two departments, and one top executive might create the following trunk groups:

Fax Group—You may prefer that the fax extension use only a certain outgoing line. You could create an Outgoing Call Group which contains the preferred outside line first with other lines also available.

If you have an outside line dedicated solely for the use of the fax machine and you do not want anyone to make voice calls on this line, you may want to connect the fax machine directly to the outside line, bypassing the system.

Sales Group—All extensions assigned to the sales staff might have access to all of the lines. This provides them with maximum access to lines on which to make sales calls.

Tech Group—If this group needs to make fewer calls, they might be linked with only one or two outside lines, keeping the rest free for sales calls.

Executive—Optionally, the executive may want a dedicated phone line for their extension, so that they always have a line available and can have a private number. The disadvantage would be that other extensions are left with one less line for outgoing calls.

8.2 Defining Outgoing Call Groups

You can define up to four Outgoing Call Groups. Each group can include from 0 to 4 outside lines. Each outside line can be included in more than one trunk group. The order in which the line numbers are entered (in Step 3) will determine the order in which the system searches them for availability when an extension dials **9** (or **0**) to connect to an outside line. If you want a certain line to be tied up the least (for example, the fax line) but still available for outside calls, enter it last.

1. In the programming mode, enter **73**.
2. Enter the code for the Outgoing Call Group being created:

4	Outgoing Call Group #1
5	Outgoing Call Group #2
6	Outgoing Call Group #3
7	Outgoing Call Group #4

If you do not want any outside lines in this Outgoing Call Group, hang up.

3. Enter the line numbers of the outside phone line(s) that are part of this Outgoing Call Group. Enter one to four entries.

   1 Outside Line #1

   2 Outside Line #2

   3 Outside Line #3

   4 Outside Line #4

Hang up. Hanging up is necessary if fewer than four outside lines were entered.

8.3 Assigning Extensions to an Outgoing Call Group

This feature links each extension to a specific Outgoing Call Group. It thereby defines which outside phone line(s) the extension can use. Any number of extensions can be assigned to a given group. This command must be repeated separately for each extension.

You could assign an extension to an Outgoing Call Group containing no outside lines which would prohibit the extension from placing any outgoing calls.

1. In the programming mode, enter **738**.

2. Enter the two-digit extension number (**00** to **15**).

3. Enter the number of the Outgoing Call Group (**1** to **4**) to which this extension is assigned.

4. Pause for confirmation tone. Hang up or continue programming.

With default settings, Outgoing Call Groups #1 and #4 contain CO lines #1, #2, #3, and #4 in that order. Outgoing Call Groups #2 and #3 contain no CO lines All extensions are assigned to use Outgoing Call Group #1.

9. Direct Outward Station Access (DOSA)

Direct Outward Station Access (DOSA) allows an incoming caller to enter a password and be connected to a different outside line within the system and make an outgoing call. The original incoming call must be directed to a CO line which is programmed to operate in the DISA mode (see **Section 6.1**).

After the system answers the incoming call in the DISA mode, the caller should dial a **6** or a **7**, followed by the 6-digit DOSA password. If the password entered matches the password stored in memory, a connection will be made to the first available CO line listed in Outgoing Call Group #4 (see **Section 8.2**).

If the incoming caller entered a **6**, the system must detect a DTMF digit within 35 seconds in order to allow the connection to continue. If no digit is detected after 20 seconds, a beep tone will be heard. When a digit is entered, the beep tone will cease. Thereafter, the beep tone will be heard every 4 minutes and a DTMF digit must be entered within 15 seconds to continue the call. This will prevent the situation where the incoming caller hangs up and the system is connected to the CO line indefinitely. In all cases, the call will be terminated in 15 minutes or when a Clear Forwarding/Polarity Reversal signal is detected, if enabled.

If the incoming caller entered a **7** followed by the 6-digit password, the operation is exactly the same as for a **6** except there will be no prompts for DTMF digits. This can facilitate FAX and data transfers via DOSA since it would be impossible to enter a DTMF digit during data transmission. The **6** is still preferred for voice conversations so that the CO line can be released in a short time after the conversation has ended.

If the outgoing CO line (to which DOSA is connected) is configured for pulse dialing, any digits entered by the caller will also be output as pulses. This conversion of DTMF to pulses will continue until either a "*" or "#" is entered. Thus the "*" or "#" are the preferred entry when responding to the disconnect warning signal so that there will not be any pulses output on the CO line.

9.1 Enable Direct Outward Station Access (DOSA)

The DOSA function must be enabled by the System Manager to allow an incoming caller to enter a password and be connected to a different CO line to make an outgoing call.

To Enable DOSA:

1. In the programming mode, enter **7834**. Pause for confirmation tone.

To Disable DOSA:

1. In the programming mode, enter **7835**. Pause for confirmation tone.

9.2 Entering the DOSA Password

The DOSA password must be specified using this command.

Enter Password:

1. In the programming mode, enter **764**.
2. Enter a 6-digit password. Pause for confirmation tone.

10. Hunt Groups

Four separate Hunt Groups can be implemented, allowing a person to dial a number which will ring at the first available extension of that group. This can be used for intercom calls or for incoming DISA calls where the incoming caller can be prompted to "press 3 for sales, press 4 for technical support, etc." There are four groups named as Hunt Group #2, #3, #4, and #5 and each Hunt Group can contain four extensions. The Hunt Groups are accessed as follows:

To Call an extension in:	For Intercom calls or to transfer an outside line:	For an Incoming DISA caller:
Hunt Group #2	dial "122"	dial "2"
Hunt Group #3	dial "133"	dial "3"
Hunt Group #4	dial "144"	dial "4"
Hunt Group #5	dial "155"	dial "5"

If an extension in a Hunt Group desires not to receive calls temporarily, then they may forward their calls to another extension or to a different Hunt Group. If an extension in a Hunt Group does not want to receive calls for a period of time (for example, out of the office or on vacation), then that extension should enter the Do Not Disturb mode.

10.1 To Enable the Use of the Four Different Hunt Groups

Hunt Groups must be enabled so that the Hunt Group codes will be recognized by the unit.

To Enable Hunt Groups:

1. In the programming mode, enter **7854**. Pause for the confirmation tone.

To Disable Hunt Groups:

1. In the programming mode, enter **7855**. Pause for the confirmation tone.

10.2 Assigning Extensions to the Hunt Groups

This command allows you to specify the extensions in each of the Hunt Groups.

1. In the programming mode, enter **795**.
2. You must assign 4 extensions per Hunt Group. Enter the two-digit extension numbers (**00** to **15**) of the four extensions that will be in Hunt Group #2
3. Repeat Step 2 for extensions in Hunt Groups #3, #4, and #5. Pause for confirmation tone.

NOTE

If you wish to have fewer than 4 extensions in any group, the number of one of the extension members should be repeated more than once to fill all four places in the group list.

We recommend that all four of the Hunt Group Lists be filled. This would prevent an incoming caller from accessing a vacant group if they dialed the wrong Hunt Group number. If only using two groups, then it may be best that the other two group extensions be entered as **00** (Operator) or another extension that you wish to answer the calls.

The following table gives an example of how to use this command.

First dial **795**

then dial **01 03 04 11** Hunt Group #2: Extension #1, #3, #4, #11

then dial **05 06 06 06** Hunt Group #3: Extension #5, #6

then dial **12 13 14 14** Hunt Group #4: Extension #12, #13, #14

then dial **00 00 00 00** Hunt Group #5: Extension #0

then pause for the confirmation tone.

Keep a record of your Hunt Groups in the following table:

First dial **795**, then

Hunt Group #2:

Hunt Group #3:

Hunt Group #4:

Hunt Group #5:

11. Day and Night Modes

11.1 Automatic Day/Night Mode Switching

The Operator Extension can manually switch the system into Night Mode by dialing "56" or into the Day Mode by dialing **57**. This command is only valid if issued from the Day mode Operator extension (see **Section 5.2.8**). It is also possible for the system to automatically switch from one mode to another at certain times of the day.

To enable automatic switching between modes:

1. In the programming mode, enter **7826**. Pause for the confirmation tone.

To disable automatic switching between modes:

1. In the programming mode, enter **7827**. Pause for the confirmation tone.

If this automatic switching option is desired, the System Manager would need to inform the Daytime Operator of feature commands **56** and **57**, plus the feature functions.

The Phone Line Manager 16 x 4 can be programmed to refrain from automatically switching into the Day Mode on days defined as weekends (Friday, Saturday, and/or Sunday). There may be times you want to temporarily disable automatic switching into the Day Mode on other days due to holidays and long weekends. You can enter the manual switching commands (**56** and **57** from the Day Mode Operator's extension) which disables automatic switching. At a later time you can re-enable automatic switching to return to your normal schedule.

11.2 Automatic Day/Night Mode Switching Times

When the automatic Day/Night switching is enabled, the command to specify the switching times are as follows:

1. In the programming mode, enter **794**.
2. Enter the desired 4 digits to specify the hour (**00** to **23**) and the minute (**00** to **59**) at which the system switches into the Night Mode.
3. Enter the desired 4 digits to specify the hour (**00** to **23**) and the minute (**00** to **59**) at which the system switches into the Day Mode.

4. Enter the digit that specifies the weekend day/days during which automatic switching into the day mode is enabled or disabled.

0 Disable switching into Day mode on Friday, Saturday, and Sunday.

1 Enable Day mode on Sunday.

2 Enable Day mode on Saturday.

3 Enable Day mode on Sunday and Saturday.

* 4 Enable Day mode on Friday.

5 Enable Day mode on Friday and Sunday.

6 Enable Day mode on Friday and Saturday.

7 Enable Day mode on Friday, Saturday, and Sunday.

5. Pause for confirmation tone. Hang up or continue programming.

If Automatic Day/Night Switching is enabled, the Phone Line Manager 16 x 4 will automatically determine (upon power up or Switching time changes) whether it should be in the Day or Night mode. For proper operation, it is necessary that the time specified for switching into the Day mode must be earlier in the day than the time specified for switching into the Night mode. Otherwise, improper operation will result.

If the Operator enters the **56** or **57** command to manually change the operating mode, automatic switching will be disabled and must be re-enabled by the System Manager (if desired) by entering the **7826** command from the System Manager's extension.

12. Central Office Lines: Advanced Topics

12.1 Tone- or Pulse-Dialing Details

Each outside line can be set in the programming command to be a default tone (DTMF) or rotary (pulse) dialing type. During speed dialing or redialing, digits will be always be output in the tone mode if the outside line is set to tone. If the outside line is programmed to dial in the pulse mode, digits will be output as dial pulses until a star (*) or a pound (#) is encountered. Dialing will then switch to the tone mode. The initial * or # digit will not be sent to the outside line.

In a simple connection from an extension to an outside line, extensions with ordinary phones are treated differently than extensions with key phones. An ordinary phone can send either DTMF tones or pulses to the Phone Line Manager 16 x 4. If the outside line is configured for tone dialing, the DTMF digits from the phone simply pass through the Phone Line Manager 16 x 4 to the outside line. If the phone sends pulses, the Phone Line Manager 16 x 4 will receive the entire digit and then output digit pulses onto the outside line using the pulse mode timing programmed by the System Manager (see **Section 19.8**). Note that when an extension invokes the Last Number Redial command, the Phone Line Manager 16 x 4 will output DTMF tones since the outside line is configured for tone-mode dialing, even if extension originally dialed the number using pulse dialing.

If the outside line is configured for pulse dialing, the Phone Line Manager 16 x 4 can receive dial pulses from an ordinary phone and will receive each entire digit and then output digit pulses onto the outside line. If the phone is sending DTMF digits, the Phone Line Manager 16 x 4 will receive the DTMF digits and send dial pulses to the outside line. Note that the DTMF tones sent from the phone will be passed through to the outside line even though the Phone Line Manager 16 x 4 will also send dial pulses. The Phone Line Manager 16 x 4 will convert the DTMF tones into dial pulses until a * or a # is encountered which will disable pulses from being sent to the outside line for the duration of the call.

For extensions connected to key phones, each key phone has a TONE/PULSE key which causes a light on the phone to be lit if the phone is in the pulse mode. In the pulse mode, digits pressed are sent to the Phone Line Manager 16 x 4 in computer code and the Phone Line Manager 16 x 4 will send the equivalent dial pulses to the outside line. Thus, unlike with an ordinary phone, DTMF tones are not passed through to the outside line before the dial pulses are sent. In the tone mode, the phone sends the DTMF tones which are simply passed through the unit to the outside line. Note that the default dialing mode set for the outside line only affects speed dialing and redialing operations. If a key phone sends a DTMF tone to an outside line which is configured to operate in the pulse mode, the Phone Line Manager 16 x 4 will only pass the DTMF digit dialed and will not send dial pulses. The PAUSE key on the key phone can be pressed during dialing which will insert a 2-second pause during a subsequent Last Number Redial.

12.2 Disconnect Supervision: Polarity Reversal/Clear Forwarding

Some Central Office switches signal the unit when the remote party in an outside call has disconnected from the line. For example, if an outside call is placed on hold and during that time the outside party hangs up, the system will know to release the line. The Phone Line Manager 16 x 4 supports two types of signaling. With Clear Forward signaling, used mostly in the USA, the Central Office removes the battery feed from the Tip and Ring lines to signal that the remote party has disconnected. With Polarity Reversal signaling, the Central office reverses the polarity of the Tip and Ring signals to inform the unit when a connection has been completed and when it has been disconnected. If a disconnect signal is detected during an outside line conversation, the extension hears special tone (on for 1 second, then 2 brief beeps, then the system dial tone) to indicate that the call has been disconnected.

If you are being inappropriately disconnected from outside calls, disable both of these parameters.

To Enable Polarity Reversal Detection:

1. In programming mode, enter **7844**. Pause for confirmation tone. Hang up or continue with programming.

To Disable Polarity Reversal Detection:

1. In programming mode, enter **7845**. Pause for confirmation tone. Hang up or continue with programming.

When Polarity Reversal detection is enabled, the Phone Line Manager 16 x 4 software will only store the details of an outgoing call into Call History memory if the first polarity reversal is received, indicating that the connection to the called party is made. Thus if an outgoing call is made and the called phone rings for longer than 20 seconds but never answers, the call is not recorded.

To Enable Clear Forward Detection:

1. In programming mode, enter **7820**. Pause for confirmation tone. Hang up or continue with programming.

To Disable Clear Forward Detection:

1. In programming mode, enter **7821**. Pause for confirmation tone. Hang up or continue with programming.

There are 4 DIP switches on the Trunk Board of the Phone Line Manager 16 x 4 which must be set in the “Up” or “Off” position to allow Polarity Reversal to be detected or in the “Down” or “On” position to allow Clear Forwarding to be detected.

If the DIP switches on the Trunk Board are set differently from the system software setting, improper operation will result.

If the System Manager inadvertently configures the system to detect both the Polarity Reversal and the Clear Forwarding signals, the system software will look only for the Polarity Reversal signal.

12.3 Metering Pulse Detection

Some Central Office switches (mostly outside of the USA) send 12- or 16-KHz metering pulses to indicate to the system that a unit of connection time has been used. These pulses can be counted by the Phone Line Manager 16 x 4 and appear as part of the Call History record output. If your unit is equipped with the metering pulse-detection hardware, this command will enable the detection of the metering pulses.

To Enable metering:

1. In the programming mode, enter **7816**. Pause for confirmation tone. Hang up or continue with programming.

To Disable metering:

1. In the programming mode, enter **7817**. Pause for confirmation tone. Hang up or continue with programming.

12.4 Metering Pulse Frequency

If metering is enabled, you must select either 12- or 16-KHz as the frequency to be detected.

To select 16-KHz as the metering frequency:

1. In the programming mode, enter **7818**. Pause for confirmation tone. Hang up or continue with programming.

To select 12 KHz as the metering frequency:

1. In the programming mode, enter **7819**. Pause for confirmation tone. Hang up or continue with programming.

12.5 Caller ID

If your Phone Line Manager 16 x 4 is equipped with the optional Caller ID feature, this parameter should be enabled to allow the Phone Line Manager 16 x 4 to capture the Caller ID data sent by the Central Office switch between the first and second ring of an incoming call. This information will be output on the RS-232C port of the system to a computer equipped with appropriate translation and display software. The RS-232 port must be in the “Features Mode” to allow the information to be output normally or in the “System Mode” to allow the information to be transmitted via the CAT interface, if your Phone Line Manager 16 x 4 is equipped with the CAT version of the software.

To enable Caller ID detection:

1. In the programming mode, enter **7828**. Pause for confirmation tone. Hang up or continue with programming.

To disable Caller ID detection:

1. In the programming mode, enter **7829**. Pause for confirmation tone. Hang up or continue with programming.

It is also possible to display the Caller ID information on the LCD screen of the Key Phones. The BK-416 EX series of key phones can display the incoming call number while the AVT-16 series of key phones can display both name and number.

In some office situations, it may not be desirable to allow all key phones to display and keep a record of the Caller ID information describing the name and number of incoming callers. A new parameter has been added to instruct the AVT-16L key phone as to whether it will display the Caller ID information as it is sent from the Central Office and keep a Caller ID history in memory. See **Section 4.2**.

AVT-16 key phones which are not given this privilege will still be able to display the Caller ID information for any call which is transferred to the key phone while the call is in progress. After the key phone is no longer connected to the outside line, the Caller ID information is lost from that phone. Be aware that this parameter setting is sent to the key phone only when the key phone is first plugged in to the Phone Line Manager 16 x 4 system. Thus, the key phone should be unplugged from the system and then reconnected for a “Display Caller ID” programming change to take effect.

13. Rollover Extensions: Advanced Topics

Any number of extensions can be configured to be a Rollover Extension. These extensions have special properties. Generally, calls directed to extensions which are busy or do not answer will be directed to an available Rollover Extension. Typically, extensions connected to a Voice Mail unit or to an answering machine would be designated as Rollover Extensions though it is possible to configure any extension to be a Rollover Extension. It is also possible to assign an Exclusive Answering Machine to an extension. When the Phone Line Manager 16 x 4 wants to ring an available Rollover Extension (due to the conditions listed below), it will first check to see if there is an Exclusive Answering Machine available for the extension.

The Phone Line Manager 16 x 4 will ring an available Rollover Extension or Exclusive Answering Machine when:

- An incoming call has been ringing for greater than a specified amount of time (5 to 60 seconds). See **Section 19.11**.
- The MSG button on a key phone is pressed (if Voice Mail is enabled).
- An intercom call was attempted to an extension which is in the Do Not Disturb mode (if Rollover on Intercom Calls is set). See **Section 13.2**.
- An intercom call was attempted to an extension connected to an ordinary phone which is busy (if Rollover on Intercom Calls is set).
- An intercom call was attempted to an extension connected to a busy key phone or to any phone which does not answer within five rings (if Rollover on Intercom Calls is set).
- An outside line has been blind transferred to an extension which does not answer or parked at an extension which does not answer (provided the "Transfer to Operator/Rollover Extension" parameter specifies Rollover Extension).
- After the Operator is rung and does not answer after a call left on hold for too long rings at the Operator. See **Section 19.11**.

When the Phone Line Manager 16 x 4 is looking for a Rollover Extension, it checks the extensions in the order of physical extension #00 to extension #15 to find an extension which is both available and designated to be a Rollover Extension.

13.1 Exclusive Answering Machine Privilege

The Rollover Extensions feature allows you to specify which extension(s) will be rung when a call is directed to an extension which is busy or does not answer. More than one extension can be specified as a Rollover Extension so that a multi-channel Voice Mail unit can be attached to the Phone Line Manager 16 x 4.

In some installations, you may want to give separate answering machines to certain people to allow messages intended for them to be stored and retrieved independently. This may now be done as part of the "Programming the Extensions" command (see **Section 4.2**).

When an extension is enabled to have the Exclusive Answering Machine privilege, the next numerical extension will be used as the answering-machine extension. For example, if physical extension #05 is enabled for this feature, calls directed to extension #05 will ring at extension #06 if extension #05 is busy or does not answer. If extension #06 (the answering machine) also happened to be busy, the Phone Line Manager 16 x 4 would look for an available Rollover Extension. Please note that calls may not be forwarded from the answering-machine extension (in this case extension #06) to a different extension.

In order to use this feature, the System Manager must correctly assign the extensions such that a person's answering machine is assigned to be the extension immediately after that person's phone extension.

Some answering machines will not respond to an incoming ring if the length of the ringing signal is too short. Therefore, set the distinctive ringing feature for the answering-machine extension to have the Phone Line Manager 16 x 4 give the longest possible ringing signal. This can be done by attaching a single-line telephone to the answering-machine extension and dialing **4711** at the Phone Line Manager 16 x 4 dial tone.

13.2 Rollover of Intercom Calls

You can specify when and how the Rollover Extensions are to be used. In most installations, the Rollover Extensions are used to take outside calls which are not answered by the desired extension. If this parameter is set, the Phone Line Manager 16 x 4 will also cause unanswered Intercom calls to be directed to the Rollover Extensions. This will occur if an Intercom call is made to (1) an extension which is in the Do Not Disturb mode, (2) an extension connected to an ordinary phone which is busy, (3) an extension which does not answer after 20 seconds, or (4) an extension connected to a key phone which is busy and does not answer the intercom call with 20 seconds.

For unanswered Intercom calls to transfer to a Rollover Extension:

1. In the programming mode, lift the handset and enter **7803**. Pause for confirmation tone.

For unanswered Intercom calls to continue ringing at the dialed extension:

1. In the programming mode, lift the handset and enter **7802**. Pause for confirmation tone.

13.3 Rollover of Unattached Calls

Certain outside calls which are "forgotten" can be programmed to ring at either the Operator or an available Rollover Extension. The types of calls affected by this setting are:

- blind transfers to an extension which does not answer within 5 to 50 seconds (see **Section 19.12**),
- calls parked at a busy extension for too long (see **Section 19.6**),
- incoming DISA calls directed to a busy extension, and
- incoming DISA calls directed to an extension which does not answer.

To transfer unattached calls to an available Rollover Extension:

1. At the System Manager's extension, lift the handset and enter **7804**. Pause for confirmation tone.

To transfer unattached calls to the Operator:

1. At the System Manager's extension, lift the handset and enter **7805**. Pause for confirmation tone.

13.4 Voice-Mail Unit Interface

A Voice-Mail unit can be attached to the Rollover Extension(s) of your Phone Line Manager 16 x 4 system. It will have a voice announcement to enable callers to your business to access employees and/or their voice mailboxes. Enabling this parameter allows information to be sent from the Phone Line Manager 16 x 4 to the voice-mail unit to tell it the original extension dialed so that the voice-mail unit can play the appropriate outgoing message. Also, this parameter allows the MSG key from a key phone to be interpreted as a call to the voice-mail unit.

To enable operation with the Voice-Mail unit:

1. At the System Manager's extension, lift the handset and enter **7824**. Pause for confirmation tone.

T**o disable operation with the Voice-Mail unit:**

1. At the System Manager's extension, lift the handset and enter **7825**. Pause for confirmation tone.

13.5 Simplified Voice-Mail Interface

When the Voice-Mail Unit Interface is enabled, the Phone Line Manager 16 x 4 will send DTMF (touch tone) digits to the Rollover Extension to inform the voice-mail unit as to (1) the original extension dialed so that the voice-mail unit can play the appropriate outgoing message, or (2) the extension dialing directly into the voice-mail unit to retrieve their messages.

The Simplified Voice-Mail Interface setting has been implemented to allow the Phone Line Manager 16 x 4 to easily interface with simpler voice mail and message-storage devices. These devices typically accept only a single digit to direct the caller into one of the limited number of internal mailboxes. If "Voice Mail Unit Interface" is enabled and "Simplified Voice Mail Interface" is also enabled, the Phone Line Manager 16 x 4 will send only a single digit to the Rollover Extension. This digit will be the last digit in the extension's physical number. Thus, a call intended for extension **104** would cause a **4** digit to be sent to the Rollover Extension. A call intended for extension **100** would cause a **0** digit to be sent to the Rollover Extension. A call intended for extension **110** would also cause a **0** digit to be sent to the Rollover Extension.

REMEMBER: Voice Mail must be enabled (by typing **7824**) for this command to cause a single digit to be sent to the Rollover Extension.

To enable operation in the Simplified Voice-Mail mode:

1. At the System Manager's extension, lift the handset and enter **7862**. Pause for confirmation tone.

To enable operation in the Standard Voice-Mail mode:

1. At the System Manager's extension, lift the handset and enter **7863**. Pause for confirmation tone.

13.6 MSG Button on a Key Phone

If the System Manager has enabled the Voice-Mail setting, a person at a key phone can press the MSG key and make an intercom call directly into a Rollover Extension. If the key phone extension has Exclusive Answering-Machine privilege, pressing the MSG key causes an intercom call to be made to the answering-machine extension associated with the extension.

14. Call Barring (Toll Restriction)

14.1 About Call Barring

The Call Barring (or Toll Restriction) feature lets you bar specific extensions from calling certain types of phone numbers (or prefixes). This feature is most commonly used to bar toll calls, (long-distance, international, and/or 1-900 number calls). If this is not a concern in your office, there is no need to program this feature.

When Call Barring is operating, the system consults a Call Barring Disallow Table of phone numbers (or prefixes) each time a call is placed. It scans the table as each digit is entered. If a match with the Disallow Table is found, the call is denied. If no match is found, the call is permitted. Most commonly a Disallow Table will include the prefixes "1" (long-distance calls) and "011" (overseas calls).

Exceptions to the Disallow Table are needed to allow users to call "1-800" numbers when all other numbers beginning with "1" are barred. In this case, you will need to create an Allow Table and enter the "1-800" prefix. Similarly, you can enter any other "exceptions" to numbers barred such as out-of-town suppliers or clients. Because the system searches the Allow Table(s) first, the Disallow Table will not bar the call.

Creating toll restrictions requires two steps. First you will need to create one or more Disallow and Allow Tables. Then you will need to assign individual extensions to the appropriate table(s).

The system can store up to three call-barring Allow Tables and three Disallow Tables. For most offices, one Disallow Table, or one per call group, is sufficient. But if you want to have a wide variety of restriction options, you can use up to three Disallow Tables and three Allow Tables.

14.2 Call-Barring (Toll-Restriction) Details

As an extension dials each digit, the Phone Line Manager 16 x 4 scans the complete sequence of digits dialed to check if the extension is barred from dialing the sequence. If the extension is restricted from dialing the number, the outside line is immediately released and the person at the extension will hear the fast error tone.

A special case can arise if an outgoing call is made from an unrestricted extension and then transferred to a restricted extension. If the extension were to dial another digit, the unit would normally examine the complete sequence of digits dialed and determine that the extension is not allowed to make the call. The extension would be disconnected from the outside line. A special provision has been made to the operation of the Phone Line Manager 16 x 4 such that the it will not check the call barring restrictions on a transferred call unless and until the extension flashes in order to place the call on hold or transfer the call. This allows the caller to enter additional digits (perhaps to a remote voice-mail unit) without getting disconnected from the outside line.

A second special case can arise if the outside lines are configured to allow a switchhook (flash) to be sent to the outside line. A switchhook to an outside line may be needed to affect certain features like Call Waiting. However, some Central Office switches may give a new dial tone in response to the switchhook. In this case, the caller could possibly dial an allowed number, send the switchhook, and then dial a restricted number. The Phone Line Manager 16 x 4 is only able to examine the digits dialed starting at the beginning of the sequence and the call would not be barred. If this is a concern, you may want to prohibit the switchhook from being sent to an outside line (see **Section 6.3**).

14.3 Filling the Call-Barring Allow and Disallow Tables

The system can store up to three call-barring Allow Tables and three Disallow Tables. Each table has 10 slots (numbered 0 through 9). Each slot stores one phone number or prefix. (See the sample tables in **Sections 14.4** and **14.5**.

You must program all 10 slots for the table to work. If a slot is to be left empty, you must still program it as an "empty" slot by simply hanging up, as described below. You can clear all slots of all tables by following the instructions in **Section 15.1**.

To fill a Call-Barring Allow or Disallow Table:

1. In the programming mode, enter the code for the desired table:

720 Allow Table #1

721 Allow Table #2

722 Allow Table #3

723 Disallow Table #1

724 Disallow Table #2

725 Disallow Table #3

2. Enter the number (0 through 9) of the slot you want to program.

3. Enter the phone number or prefix you are putting in that slot (maximum of 12 digits).

   If the slot is to be left empty, hang up.

4. Hang up. You must hang up after each slot for the programming to register.

14.4 Sample Disallow Table

Slot	Prefix or Number to Disallow
0	1
1	011
2	empty
3	empty
4	empty
5	empty
6	empty
7	empty
8	empty
9	empty

14.5 Sample Allow Table

Slot	Prefix or Number to Allow
0	1800
1	empty
2	empty
3	empty
4	empty
5	empty
6	empty
7	empty
8	empty
9	empty

14.6 Assigning Extensions to Tables

Once you have generated your Call-Barring Table(s), you need to assign each extension to a table. This is the step that bars specific extensions from calling the numbers on the table(s). Any extension can be assigned to one or more tables. Extensions you do not wish to bar can be left unassigned.

1. In the programming mode, enter **726**. Enter the two-digit extension number (**00** through **15**).

2. Assign the Allow Table(s) to this extension. Enter the one-digit code from the table:

Code	Table Assigned
0	None
1	Table #1
2	Table #2
3	Tables #1 and #2
4	Table #3
5	Tables #1 and #3
6	Tables #2 and #3
7	All three tables

3. Assign the Disallow Table(s) to this extension. Enter the one-digit code from the table below.

Code	Table Assigned
0	None
1	Disallow Table #1
2	Disallow Table #2
3	Disallow Tables #1 and #2
4	Disallow Table #3
5	Disallow Tables #1 and #3
6	Disallow Tables #2 and #3
7	All three Disallow tables

4. Pause for the confirmation tone. Hang up or continue with programming.

14.7 Password to Override Call Barring

This feature gives you the flexibility to allow extensions to override call barring (toll restrictions) for a single phone call. To override Call Barring, the user must have a six-digit password. This feature would most likely be used if a manager will be needing to make restricted calls from any telephone in the system. It is also possible to restrict all extensions and require this password to be entered whenever a toll call is to be made.

To set the Override Call Barring Password:

1. In the programming mode, enter **763**.

2. Enter a six-digit password. Pause for confirmation tone.

3. Hang up or continue with programming.

To use this password, from any extension dial **40**, followed by the six-digit password entered in this command. A confirmation tone will be given if the password is entered correctly. The extension can continue making unrestricted calls until it goes on hook for at least 2 seconds.

14.8 Restrict Calls at Night

This setting will force all extensions to use Allow Table #3 and Disallow Table #3 when the Phone Line Manager 16 x 4 enters the Night mode. Table #3 would typically contain a very restrictive set of dialing sequences, perhaps allowing only local and emergency calls.

To force all extensions to use restrictive call barring at night:

1. In the programming mode, enter **7830**. Pause for the confirmation tone.

To allow all extensions to use their normal call barring at night:

1. In the programming mode, enter **7831**. Pause for the confirmation tone.

Once this parameter causes an extension to use the restricted call-barring tables, the Individual Extension password must be entered to remove the extension from the restricted mode. This password is entered by dialing **50**, followed by the six-digit password which they have previously set. (The Individual Extension password is programmed by dialing **255** followed by the six-digit password and can only be entered while the extension is NOT in the restricted mode. The default value is '111 111'.) When the Phone Line Manager 16 x 4 switches back into the Day Mode, the extensions are not automatically removed from the restricted calling mode.

Additionally, individual extensions can dial a code (**59**) which forces the extension to use the restrictive tables, perhaps when they leave the office for lunch or at the end of the day. At a later time, the person at the extension can dial **50**, followed by the six-digit password to allow the extension to use its normally assigned call barring tables.

15. Assigning Speed-Dial Numbers

This feature allows you to assign a two-digit speed-dial number for as many as 45 frequently called phone numbers. The assigned speed-dial numbers can be used by everyone office-wide. (The system also lets individual users program up to four speed-dial numbers for their extensions only.)

When a speed-dial number is used, the system automatically accesses an outside line. This saves the step of dialing **9**. The speed numbers are used by dialing **2**, followed by the two-digit speed-dial number. From a key phone, you can press the MEM button, followed by the two-digit speed-dial number.

Record your speed-dial number assignments on the following page. You may want to provide everyone in the office with a copy of this chart.

To enter a speed-dial number:

1. In the programming mode, lift the handset and enter **71**.
2. Enter a two-digit Speed-Dial number (**06** to **50**).
3. Enter the phone number (up to 20 digits) that you are assigning to the code.

To insert a two-second pause in the string of digits, switchhook (or press PAUSE from a key phone)

4. Hang up. You must hang up after each number in order for the system to store the number.

Speed-Dial #	Assignment	Speed-Dial #	Assignment
06		29	
07		30	
08		31	
09		32	
10		33	
11		34	
12		35	
13		36	
14		37	
15		38	
16		39	
17		40	
18		41	
19		42	
20		43	
21		44	
22		45	
23		46	
24		47	
25		48	
26		49	
27		50	
28			

15.1 Clear Speed-Dialing and Call-Barring Tables

This command will erase all of the values in the global Speed-Dialing table and all of the values in the Call-Barring (Toll-Restriction) tables. The speed-dialing numbers assigned to individual extensions are not affected. This command also resets the individual extension Call-Barring passwords to their default value ("111111"). (See the User's Guide for more information about individual call barring.)

1. In the programming mode, enter **7875**. Pause for the confirmation tone. Hang up or continue programming.

15.2 Dial-Tone Detection

Specially equipped versions of the Phone Line Manager 16 x 4 can be programmed to detect that a dial tone is present from the Central Office before a speed dial or redial operation will start sending the digits to the Central Office. When this command is disabled (default condition), the Phone Line Manager 16 x 4 will wait the amount of time set in the "Speed Dialing Delay Time" parameter before dialing the digits (see **Section 19.14)**.

Dial-Tone Detection will only operate on Phone Line Manager 16 x 4 units which contain the optional dial-tone detection hardware.

To enable Dial-Tone Detection for Speed Dialing and Redialing:

1. At the System Manager's extension, lift the handset and enter **7840.** Pause for confirmation tone.

To disable Dial-Tone Detection and use the Speed-Dial Delay Time:

1. At the System Manager's extension, lift the handset and enter **7841**. Pause for confirmation tone.

16. The System Clock: Date and Time

The Phone Line Manager 16 x 4 contains an on-board clock that contains the date and time. The system records into Call-History memory the details of an outgoing call which includes the date and time. The key phone is also able to show the date and time on its display.

16.1 Setting the System Clock

Setting the clock on your system allows it to correctly record the date and time when calls are made. This is necessary for accurate outgoing call records.

1. In the programming mode, lift the handset and enter **729**.
2. Enter two digits each for the following settings:

   Date: **01** to **31**.

   Month: **01** to **12**.

   Year: **00** to **99**.

   Hour: **00** to **23**.

   Minute: **00** to **59**.
3. Enter a digit for the day of week (**1**=Sunday, **2**=Monday, **3**=Tuesday, **4**=Wednesday, **5**=Thursday, **6**=Friday, **7**=Saturday).
4. Pause for confirmation tone. Hang up or continue with programming.

16.2 Key Phone Clock Display Format

The key phone is capable of displaying the current time in the 12-hour mode or the 24-hour mode. For example, 2:00 pm in the 12-hour mode would correspond to 14:00 in the 24-hour mode.

To display the time in the 12-hour mode:

1. In the programming mode, lift the handset and enter **7836**.

To display the time in the 24-hour mode:

1. In the programming mode, lift the handset and enter **7837**.

17. Outgoing-Call Records and Histories

17.1 About Outgoing-Call Records

Each time an outgoing call lasting longer than 25 seconds is made (or the first polarity reversal is detected when Polarity Reversal signaling is enabled), the system stores a record of the call. The outgoing call record is also called Station Message Detail Recording (SMDR). Keeping the history of outgoing calls is useful for tracking and billing long-distance calls. If this is not a concern in your office, there is no need to program this feature.

17.2 How to Output the Outgoing-Call Records

The Phone Line Manager 16 x 4 can connect to a computer or printer via the RS-232C port. The Outgoing-Call Records can be output to the RS-232C port in a variety of ways.

17.3 Output the Complete Contents of the Outgoing-Call Records

You can choose to output the calling history for all extensions. The history shows a record for all calls made since the last Clear Call-History command.

To output the complete contents of the Call-History Memory:

1. In the programming mode, lift the handset and enter **741**.
2. The Phone Line Manager 16 x 4 will send all records, followed by the confirmation tone. Hang up or continue with programming.

This procedure will tie up the programming extension until all data has been sent. No dial tone will be available on the System Manager's phone. A confirmation tone will be heard when the output is complete.

17.4 Output the Call History of a Single Extension

You can also choose to output the Call-History records of a single extension. This command will search the Call-History Memory to find only those calls made by the specified extension.

To output the Call History of one extension:

1. In the programming mode, lift the handset and enter **742**.
2. Enter the two-digit extension number (**00** to **15**).
3. The Phone Line Manager 16 x 4 will send all records, followed by the confirmation tone. Hang up or continue with programming.

17.5 Clearing the Call-History Memory

The Call-History Memory has room for about 120 records. Once the memory is full, no new records can be stored until the memory is cleared. It is recommended that you print out call records regularly (at the end of each day, week, or month), then clear the memory.

To clear the contents of Call-History Memory:

1. In the programming mode, lift the handset and enter **749**. Pause for the confirmation tone. Hang up or continue with programming.

17.6 Output the Call History After Each Outgoing Call

You can choose to have the Phone Line Manager 16 x 4 output the Call-History records at the end of each outgoing call lasting more than 25 seconds. The information will also be stored into Call-History Memory if space is available.

To output the Call-History record at the end of each call:

1. In the programming mode, lift the handset and enter **7842**.

To not output the Call-History record at the end of each call:

1. In the programming mode, lift the handset and enter **7843**.

17.7 Automatic Call-History Retrieval Program

The Phone Line Manager 16 x 4 allows an external computer program to retrieve the call records stored in Call-History memory by sending commands to the Phone Line Manager 16 x 4 via the RS-232C port. This feature must be enabled by the following command to allow the Phone Line Manager 16 x 4 to respond to these commands from the PC. Also, the RS-232C port must be in the "Features Mode" (see **Section 18.1**).

To enable the Automatic Call-History Retrieval program:

1. In the programming mode, lift the handset and enter **7852**.

To disable the Automatic Call-History Retrieval program:

1. In the programming mode, lift the handset and enter **7853**.

There are two commands which can be sent by the computer to the Phone Line Manager 16 x 4, each command consisting of two ASCII characters. The characters "%',"then "d" cause the Phone Line Manager 16 x 4 to output the complete contents of Call-History memory. The characters "%," then "E" cause the Phone Line Manager 16 x 4 to output the complete contents of Call History memory after which the Call-History memory is cleared. The second character (the "d" or the "E" must be sent within 120 milliseconds of the first character (%) for the command to be recognized.

17.8 Formats for the Call-History Records

Records of outgoing calls can be output in either a long format or a short format. The long format is an easy-to-read log. For each call, it shows in table format the line number, extension number, date and time, number dialed, duration of call, and the number of metering pulses. The short format organizes the same data in a comma delimited format, so that it can be read by call accounting software packages. The records will be output in short format unless you switch to the long format.

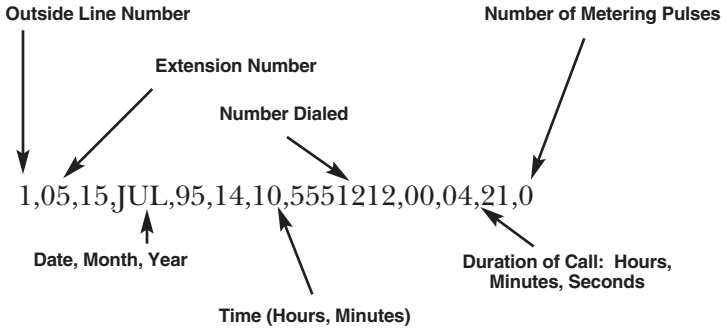
To enable the long format for Call-History record output:

1. In the programming mode, lift the handset and enter **7815**. Pause for the confirmation tone. Hang up or continue with programming.

To enable the short format for Call-History record output:

1. In the programming mode, lift the handset and enter **7814**. Pause for the confirmation tone. Hang up or continue with programming.

An example of one line of the short format is shown below. The long format contains the same information separated by spaces.



17.9 Connection to a Computer or a Printer

To print records, the system must be connected to either a printer or a computer. The device used must have an RS-232C port capable of receiving data at 9600 baud. The protocol is 8 bits, 1 stop bit, and no parity.

An IBM® compatible PC can be connected to the Phone Line Manager 16 x 4 using a straight (not a null modem) cable. You can use the following procedure to retrieve Call-History records to your computer.

1. In Windows, enter the Program Manager window, then the Accessories window. Select the Terminal icon.

2. Pull down the Settings menu and select "Communications." Verify that the communication settings are as follows. Change settings to match if necessary.

Baud Rate:	9600
Data Bits:	8
Parity:	None
Stop Bits:	1
Flow Control:	None
Connector:	Either COM1 or COM2, whichever corresponds to the RS-232 port being used

3. Pull down the Transfer menu. Select "Receive Text" file. Create a new text file named "CALLS.TXT."

4. Once these steps are successfully completed, you are ready to receive call-history data. Enter the Call-History output command. This writes the data to the text file. It then can be printed out directly in the long format. Or you can import it in the short format into an accounting or spreadsheet program.

18. Interfacing the Phone Line Manager 16 x 4 to a Computer

There are many instances where the Phone Line Manager 16 x 4 can be connected to a computer to enhance the overall operation of the system. These include:

- Phone Line Manager 16 x 4 Configuration Program: This program is designed to run under Microsoft Windows and can guide the System Manager through every detail concerning the setup of the Phone Line Manager 16 x 4. After the selections have been made in the program, the entire configuration program can be written into the Phone Line Manager 16 x 4 via the RS-232C port. There is no need to manually enter all of the commands detailed in this manual (see **Section 18.2**).
- Call-History Reporting: The details of outgoing calls can be sent from the Phone Line Manager 16 x 4 to the computer. An application on the computer can collect the information into a database and generate useful reports. (See **Section 17.9**.)
- Caller ID Processing: On Phone Line Manager 16 x 4 units equipped with the optional Caller ID detection capability, the unit will send the Caller ID information to the computer. An application on the computer can collect the information into a data base and generate useful reports (see **Section 12.5**).
- Computer Aided Telephony (CAT) Interface: On Phone Line Manager 16 x 4 units equipped with the optional Computer Aided Telephony (CAT) software, the system can operate in a computer environment where it can be controlled by an application running on the computer (see **Section 18.4**).

18.1 RS-232C Port—Choosing the Operating Mode

The RS-232C port on the Phone Line Manager 16 x 4 mode can operate in one of two modes.

- System Mode: The Phone Line Manager 16 x 4 must be in this mode in order to communicate with the Phone Line Manager 16 x 4 Configuration Program. It must also be in this mode to operate in the Computer Aided Telephony (CAT) environment (if your unit is equipped with the CAT version of the software).
- Features Mode: The Phone Line Manager 16 x 4 must be in this mode to allow it to (1) output the Call-History information, (2) output the Caller ID data at the beginning of incoming calls (except for CAT units), or (3) respond to the Automatic Call-History Retrieval program running on attached computer.

To enable the System Mode of the RS-232C Port:

1. In the programming mode, lift the handset and enter **7851**. Pause for the confirmation tone. Hang up or continue programming.

To enable the Features Mode of the RS-232C Port:

1. In the programming mode, lift the handset and enter **7850**. Pause for the confirmation tone. Hang up or continue programming.

18.2 Phone Line Manager 16 x 4 Configuration Program

This program is designed to run under Microsoft Windows and can minimize the need to manually enter all of the commands detailed in this manual. To use the program, simply insert the diskette into your computer and enter **A:\SETUP** or **B:\SETUP** from the **FILE,RUN** menu in Program Manager (or the START, RUN menu in Windows 95). There are still some instances where you will need to use the telephone at the System Manager's extension to set certain features or operating modes. These are:

- Set the mode of the RS-232C serial port. The "System Mode" must be set to allow the configuration program to communicate with the Phone Line Manager 16 x 4. This mode must also be set for the CAT version of the Phone Line Manager 16 x 4 software to function. The "Features Mode" is enabled to allow it to (1) output the Call-History information, (2) output the Caller ID data at the beginning of incoming calls (except for the CAT version of the software), or (3) respond to the Automatic Call-History Retrieval program running on attached computer.
- The message in the voice announcement module can only be recorded from extension #15 when that extension is designated as the System Manager. (See **Section 7.2**).
- If a person loses their Individual Call-Barring Password, enter the first part of the Configure Extension command. Enter *75 nn* then hang up. *nn* is the physical extension number **00** to **15** (see **Section 4.2**).
- Manually output the Call-History Buffer contents to the RS-232C port (See **Section 17.3**).
- Clear the contents of the Call History buffer (see **Section 17.5**).
- Reset the entire system to default values (see **Section 3.7**).
- Set the date, time, and the day of the week (see **Section 16.1**).

18.3 Phone Line Manager 16 x 4 Configuration Program—Remote Operation

It is possible for a computer running the Configuration Program in one location to communicate with an Phone Line Manager 16 x 4 unit at another site.

Remote configuration is enabled when the System Manager enters the **772** command. When this command is entered, the Phone Line Manager 16 x 4 will answer the next incoming Central Office call in the DISA mode. If the incoming caller enters an **8**, the unit will enter a mode allowing a remote program to configure the Phone Line Manager 16 x 4 via tones sent through the incoming line. An external modem is not required. A special translation unit is required at the host computer site in order to allow the standard PC-based Phone Line Manager 16 x 4 Configuration Program to connect to the remote Phone Line Manager 16 x 4.

In this configuration mode, the resources required for answering calls in the DISA mode will be in use. Therefore, all incoming calls will be answered in the non-DISA mode for as long as the configuration process is in progress.

NOTE

The ability to remotely program by using an external modem at the Phone Line Manager 16 x 4 unit site (using the 771 command) which was supported by earlier versions of the software is no longer supported.

18.4 Computer Aided Telephony (CAT) Software

The Computer Aided Telephony (CAT) version of the Phone Line Manager 16 x 4 software can operate in a computer environment where it can be controlled by an application running on the computer. All of the modes and commands discussed in this manual will operate as described. A person at any extension can use all of the features listed. However, there may be other commands and capabilities which can be accessed from the computer application controlling the Phone Line Manager 16 x 4.

18.5 Report DISA Digits to the CAT Application

The CAT software can be configured to send a message to the CAT application as each digit is entered by an incoming caller to an outside line configured to operate in the DISA mode. In this mode, the Phone Line Manager 16 x 4 will not try to interpret the digits entered. It will not cause the call to ring at any extension. The CAT application would typically process the digits entered and send a command to the Phone Line Manager 16 x 4 causing the incoming call to ring at a specified extension.

To report incoming DISA digits to the CAT Application:

1. In the programming mode, lift the handset and enter **7860**. Pause for the confirmation tone. Hang up or continue programming.

To enable the normal mode of DISA operation:

1. In the programming mode, lift the handset and enter **7861**. Pause for the confirmation tone. Hang up or continue programming.

19. System Timing Parameters

19.1 About System Timing Parameters

The default value for the system timing parameters should be suitable for most applications and will never need to be changed. There may be some changes you will want to make which will affect the operation of the system under certain conditions. Any changes made affect all outside lines and all extensions.

19.2 Changing System Timing Parameters

The command to change the system timing parameters requires that each setting be entered in the order shown. If you are modifying only a few of the settings in the list, you should enter the default value, shown with an "*" for other parameters which you do not intend to change.

1. In the programming mode, enter **727**.

19.3 Delay After Each RS-232C Character

This determines the amount of delay inserted after a character is sent across the RS-232C port to the printer or PC. This setting is important only if you directly connect a computer or dedicated printer to the RS-232C port.

2. Enter the two-digit code for the character delay

00 0 milliseconds

* 01 8 milliseconds

02 16 milliseconds

...

99 792 milliseconds

19.4 Delay After Each RS232C Line

This determines the amount of delay inserted after each line of Call-History information is sent across the RS-232C port to the printer or PC. This setting is important only if you directly connect a computer or dedicated printer to the RS-232C port.

3. Enter the two-digit code for the line delay:

00 0 milliseconds

01 16 milliseconds

...

* 04 64 milliseconds

...

99 1584 milliseconds

19.5 Switchhook (Flash) Timing

This is the minimum amount of time necessary to perform a switchhook. If the switchhook is pressed for less than this amount of time, the system recognizes it as a dial pulse and not as a switchhook (or flash). The "200 ms" and "300 ms" entries have been included because some phone instruments do not go onhook cleanly and this can cause an outside call to be inadvertently placed on hold when trying to hang up on the call. The longer switchhook times can help to compensate for these phones.

4. Enter the "switchhook time" code:

0 300 milliseconds

1 200 milliseconds

2 112 milliseconds

3 104 milliseconds

4 96 milliseconds

* 5 88 milliseconds

6 80 milliseconds

7 72 milliseconds

8 64 milliseconds

9 56 milliseconds

19.6 Reminder Feature Timing

When a call is put on hold, this setting determines the amount of time to wait to ring the person that placed the call on hold or to ring the Operator or a Rollover Extension if the extension which placed the call on hold is not available.

5. Enter the "Reminder Feature Timing" code. This parameter sets the time for calls placed on hold by an extension.

0 25 seconds

1 50 seconds

* 2 175 seconds

3 300 seconds

4 425 seconds

5 550 seconds

6 675 seconds

7 800 seconds

8 925 seconds

9 5 seconds

19.7 Outside Line Guard Time

Once an outside call is complete (that is, one of the parties hangs up), that particular outside line is inactive for a defined period of time. This gives the Central Office an on hook condition for this amount of time.

6. Enter the "outside line guard time" code:

0 0.75 seconds

1 1.5 seconds

* 2 2.25 seconds

3 3 seconds

4 3.75 seconds

5 4.5 seconds

6 5.25 seconds

7 6 seconds

8 6.75 seconds

9 7.5 seconds

19.8 Pulse-Dialing Timing

These settings relate to pulse-mode dialing only. Break time is the time for generating a single pulse; it is the amount of time the line goes on-hook to send a dial pulse. Make time is the off-hook time between dial pulses.

7. Enter the "pulse dialing break time" code:

0 48 milliseconds

1 56 milliseconds

* 2 64 milliseconds

3 72 milliseconds

4 80 milliseconds

5 88 milliseconds

6 96 milliseconds

7 104 milliseconds

8 112 milliseconds

9 120 milliseconds

8. Enter the “pulse dialing make time” code:

0 24 milliseconds

* 1 32 milliseconds

2 40 milliseconds

3 48 milliseconds

4 56 milliseconds

5 64 milliseconds

6 72 milliseconds

7 80 milliseconds

8 88 milliseconds

9 96 milliseconds

19.9 Tone (DTMF) Dialing Timing

These settings relate to tone (DTMF) mode dialing for speed dialing and redialing operations. The duration parameter specifies the length of each DTMF tone. The pause time specifies the time between each digit.

9. Enter the “tone (DTMF) dialing digit duration” code:

0 56 milliseconds

1 64 milliseconds

2 72 milliseconds

3 80 milliseconds

4 88 milliseconds

* 5 96 milliseconds

6 104 milliseconds

7 112 milliseconds

8 120 milliseconds

9 128 milliseconds

10. Enter the "tone (DTMF) dialing pause time between digits" code:

0 56 milliseconds

1 64 milliseconds

2 72 milliseconds

3 80 milliseconds

4 88 milliseconds

* 5 96 milliseconds

6 104 milliseconds

7 112 milliseconds

8 120 milliseconds

9 128 milliseconds

19.10 Switchhook Timing to Outside Line

This sets the time duration for making a switchhook on the outside line. This would be needed to activate features such as Call Waiting. The ability to send a switchhook to an outside line must be enabled for each outside line. (See **Section 6.3**)

11. Enter the "outside line switchhook time" code:

0 96 milliseconds

1 192 milliseconds

2 288 milliseconds

3 384 milliseconds

* 4 480 milliseconds

5 576 milliseconds

6 672 milliseconds

7 768 milliseconds

8 864 milliseconds

9 960 milliseconds

19.11 Rollover on Standard Incoming Calls Timing

For incoming calls to outside lines operating in the Standard Incoming Calls mode, this is the amount of time an incoming call will ring at the designated extension(s) before the it will start to ring a Rollover Extension (voice mail).

12. Enter the "Rollover on Standard Incoming Calls time" code:

0 5 seconds

1 10 seconds

2 15 seconds

3 20 seconds

4 25 seconds

5 30 seconds

6 35 seconds

7 40 seconds

8 50 seconds

* 9 60 seconds

19.12 Rollover After Call to Extension

This parameter sets the amount of time an extension will ring in certain situations before the call is transferred to the Operator or a Rollover Extension.

An extension specified by an incoming caller in the DISA mode will ring for this amount of time before being transferred to the Operator or a Rollover Extension.

If an extension places a call on hold for too long and then does not answer after the Phone Line Manager 16 x 4 calls back, the call will be transferred to the Operator or Rollover Extension after this amount of time.

If a call is transferred to an extension and the transferring extension hangs up (blind transfer), the call will ring for this amount of time before being transferred to the Operator or a Rollover Extension.

13. Enter the “rollover after call to Extension time” code:

0 5 seconds

1 10 seconds

2 15 seconds

* 3 20 seconds

4 25 seconds

5 30 seconds

6 35 seconds

7 40 seconds

8 50 seconds

19.13 On Hook Time

This defines how long the switchhook button must be pressed for the system to interpret the signal as a “hang up” instead of a switchhook.

14. Enter the “on hook time” code:

0 192 milliseconds

1 288 milliseconds

2 384 milliseconds

3 480 milliseconds

4 576 milliseconds

5 672 milliseconds

6 768 milliseconds

* 7 864 milliseconds

8 960 milliseconds

9 1056 milliseconds

19.14 Speed-Dialing Delay Time

The Phone Line Manager 16 x 4 will pause for this amount of time after connecting to an outside line to dial a speed-dial number or to redial the last number before the first digit is dialed.

15. Enter the speed-dialing and redialing-delay time code:

	0	0.75 seconds
	1	1.5 seconds
*	2	2.25 seconds
	3	3 seconds
	4	3.75 seconds
	5	4.5 seconds
	6	5.25 seconds
	7	6 seconds
	8	6.75 seconds
	9	7.5 seconds

19.15 Multiple Ringing Time

For incoming calls to outside lines operating in the Standard Incoming Calls mode, this is number of rings that the first available extension will ring before the Phone Line Manager 16 x 4 starts to ring up to three additional extensions.

16. Enter the “multiple ringing time” code. Enter a **0** to **9** to specify zero to nine rings. The default value is **4** rings.

19.16 Parked Calls Timing

When an outside call is parked at another extension, this setting determines the amount of time the Phone Line Manager 16 x 4 will wait for the parked extension to become available before the Phone Line Manager 16 x 4 attempts to ring the Operator or a Rollover Extension.

17. Enter the "Parked Calls Timing" code. This parameter sets the time for outside calls parked to an extension.

0 25 seconds

1 50 seconds

* 2 175 seconds

3 300 seconds

4 425 seconds

5 550 seconds

6 675 seconds

7 800 seconds

8 925 seconds

9 5 seconds

18. Pause for the confirmation tone. Hang up or continue programming.

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