Telecenter® System 21

Rauland-Borg Corporation

Table of Contents

1

General Information

Scope of this Manual

This manual explains the programmable functions of both individual lines and the Telecenter System 21 as a whole and tells how to use the TD21 programming and diagnostic software. This software allows the installer to make programming changes and do troubleshooting quickly and efficiently. The TD21 runs on a personal computer connected to the System Control Card (SCC). The program's grouping of similar functions and use of pull-down menus with mouse support provides a quick and easy way of configuring the system.

Some settings can be reviewed on a display telephone (*#99*). This function can also make a few programming changes, such as assigning individual lines a different Class of Service or different paging and time zones.

Refer to the appropriate system manuals for information (KI-1766 *Operations* and KI-1767 *Installation Drawings*).

Revision History

This manual has been reformatted; substantive changes are noted immediately below:

KI-1768E includes features in firmware 4.0. System software version 4.0 and greater also requires the TD21, minimum version 4.0. Updated examples of individual screens with actual data have been captured using TD21 version 4.0. The new feature settings include:

✓ **Adding the Premium Software Key (#98) to enable the premium secondary clock corrections, DSI and EECRS features, if used, in the system**

✓ **Vodavi Starplus Integration**

✓ **Voice Mail Integration**

✓ **EECRS – Enhanced Emergency Call Response System**

✓ **Set Time and Date**

✓ **Speaker Call Cancel**

✓ **10 digit dialing (adjacent areas)**

Programming Overview

There are, of course, equipment requirements for each function. For example, a display telephone requires a standard push-button phone, a Liquid Crystal Display (LCD) or Vacuum Fluorescent Display (VFD), and an administrative line. A trunk line needs an MSM port plus a TC4182 Trunk Card or TC4183 E&M Tie-Line Card. A dialing room telephone, in contrast, requires a line from a Station Line Card (SLC) and a specific dialing or non-dialing phone (e.g., the Rauland TC4301). Check the System Design Guide for detailed information of the equipment required for each application.

Given the proper equipment, the Telecenter System 21 can provide extensive functions, from talking to a classroom, to paging, to making outside calls, to serving as a master clock. Programming can also restrict the capabilities of any equipment, even to the point of making it non-functional. For example, it is possible to restrict outside calls to local area calls or not allow such calls at all. A display push-button phone programmed as a handset would not be able to perform any dialing functions but could be called; set as an Unprogrammed line, it would be dead.

Broadly speaking, there are three levels of programming: communications, clock, and system functions. Communications programming includes items that affect only an individual line and items that affect groups of lines. This section briefly describes all three types, while later sections provide more detailed information.

Communications: Individual Lines

Most of the programming is accomplished simply by assigning a Class of Service to each line. The only other programming performed line-by-line is assigning Architectural (dialing) Numbers, assigning Zones for speaker paging and tone signals, and excluding a room from paging and tone signals.

Defining Classes of Service

A Class of Service is a group of characteristics that can be shared by many individual lines. These settings include such characteristics as line type (e.g., administrative phone, dialing phone, non-dialing handset, Student Phone™ line), dialing authorizations (e.g., for paging or making outside calls), call-in priority levels, and the routing of call-ins from rooms. There can be up to 64 Classes of Service (1-64). Assigning a Class's number to a line gives that line all the characteristics defined for that Class type. Changing any characteristic of a Class of Service changes all the lines assigned that Class of Service number.

Master-Clock Time and Tones Programming

The system's correction of secondary clocks is largely taken care of by the wiring; the programming merely tells the system what kind of secondary clocks are in use, so it knows which correction signals to send. The main clock programming also affects Time Events. At programmed times, the system turns from one to eight of its relays on or off. These are primarily used for sending tone signals to room speakers. The system can also change schedules for holidays and change time of day to and from Daylight Savings Time.

System Block Programming

This type of programming allows for time-of-day/day-of-week control of different system features by reprogramming the Class of Service assignments for both Master Ports and Station Ports. It is also used to turn on/off the student phones and the 911 dial-out capability.

For example, the system may allow paging to outside speakers during the day while excluding them in the evening—to keep from disturbing residents in the neighborhood. Another example could be: call-ins during the daytime route to the phone(s) in the administrative office and after hour call-ins route to the maintenance office. The potential applications are only dependant on the features allowed/disallowed through the Class of Service assignments.

System-Wide Programming

This programming affects the system as a whole; such as configuring the system memory, selecting the time-out period for dial tone, and specifying which local exchanges restricted callers can dial through the central office. All these settings are maintained through several special screens in the programming software.

Changes Available from Administrative Phones

In the Telecenter System 21, a display phone can effect a few programming changes (*#99* see Appendix D).

Preparations for Programming

1. Obtain and complete the appropriate Cable Assignment Work Sheet (KM1109 or KM1114) from the Telecenter System 21 drawings manual (KI-1767).

2. Turn off all power to the system. Remove the dress panel in front of the System Control Card (SCC). (If the programming jumper is in the **EN**able [default] position, skip to Step 5.) Note the placement of the cables on the front edge of the card, then remove them. When removing the card, use static-handling precautions to protect the highly sensitive CMOS (complementary metal oxide silicone transistor) devices.

3. Find the two-pin jumper on the three-pin header at the upper-right section of the SCC. (As viewed from the component side of the board as it slides out the front of the system, the jumper is about a third of the way down from the top edge and a third of the way in from the front edge.) Set the jumper to the **EN**able position. Otherwise, the system will accept only a few temporary changes and will not store any changes in memory.

4. Reinstall the SCC board, replacing all the front-edge cables. Connect a cable between a serial port on the computer and the RS-232 header on the rear of the SCC.

5. Power up the Telecenter system.

6. Complete the programming by running the TD21 Programming and Diagnostic Disk. Check the system for proper operation.

7. Remove the cable from the SCC's serial port. If another device (e.g., a modem) was originally connected here, reconnect its cable.

Overview of the TD21 Program

The Telecenter System 21 Diagnostic Software (TD21) is a configuration and diagnostic program that runs on a personal computer and uses a mouse (if installed), pull-down menus, and extensive help screens. It communicates with the Telecenter System 21 through a serial connection. This connection can be either a cable which directly connects the PC to the system, or through a pair of modems.

The TD21 program enables a user to:

✓ **Edit configuration files that are then downloaded to the Telecenter System 21.**

✓ **Retrieve memory contents from the system for editing, diagnostics, and archiving.**

✓ **Monitor system activity and acquire statistics maintained by the system.**

✓ **Remotely analyze system performance.**

✓ **Access system features for activation changes and troubleshooting.**

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PC Requirements

The TD21 helps maintain Telecenter systems and the related configuration data. In providing this capability, the program requires a minimum of 620K of usable memory (RAM). Many of the data editors functions are extensive and take a certain amount of processor time. Naturally, the program may seem slow on some computers. The minimum recommended PC configuration that would be used extensively for TC2100 configuration and diagnostics is:

✓ **386SX desktop or laptop computer**

✓ **1–Megabyte memory (RAM)**

✓ **20–Megabyte hard disk**

✓ **3–1/2″ low-density diskette**

✓ **Standard COM port**

Although this is a minimum configuration for regular use, the TD21 will run on a slower computer (including an IBM® XT™–compatible) without a hard disk. For emergencies, the software can be copied to 5–1/4″ double density diskettes and used on computers with no 3–1/2″ diskette.

2

Getting Started

With the computer turned on and the TD21 software installed, prepare to program the system in one of the following ways:

✓ **Copy the TD21 software to the hard disk of the computer. This provides faster start-up during subsequent sessions and should be done if the computer continues to support the Telecenter system.**

✓ **Use the TD21 program from the diskette. This is applicable if the computer has no hard disk or the use of this computer is temporary.**

Backup Copy

Before using the TD21 program, copy it to another diskette for a backup. It is recommended that the files be copied to a blank diskette and the original diskette be stored in a cool, dry place, separate from the working copy.

To make a backup copy of the original program, use the DOS copy command. If the computer has two diskette drives:

1. Insert the purchased diskette into drive A:

2. Insert a blank, formatted diskette into drive B:

copy A:*.* B:

3. Use the DOS command **copy** to copy the files from drive A: to drive B:

4. Remove and store the diskette from drive A: in a safe place. Use the diskette in drive B: as a working copy of the TD21 program.

If the computer has only one drive or only one 3–1/2″ drive, refer to the DOS manual for the commands that are needed to copy the files from the purchased diskette to a blank diskette. If using the hard disk, follow the Hard Disk Installation instructions for your computer to copy the files from the hard disk to a blank diskette.

Hard Disk Installation

To copy the TD21 program to a hard disk:

1. Put the TD21 diskette into the diskette drive. (Drive A: will be used as an example.)

md C:\TD21

2. At a DOS prompt, use this command to create a directory called TD21 on

hard disk C: (Drive C: will be used as an example).

copy A:*.* C:\TD21

3. Copy the files from the diskette to the TD21 directory on the hard disk.

Path %Path%;C:\TD21

4. If you wish, add the TD21 directory to the DOS PATH. In the autoexec.bat file, add this line.

Older versions of DOS do not have this ability to add this command. Refer to the DOS manual for the syntax necessary to add the TD21 directory to the DOS Path.

Connecting to the Telecenter System

To connect to the Telecenter System 21, there must be a hardware connection between the PC's COM port and the TC2100 serial port. If the PC and the Telecenter system are in close proximity, you can use a direct connection. If the connection is remote, use a pair of modems. See Appendix A for cabling instructions and modem requirements.

3

Running the TD21 Program

To use the TD21 program from a diskette, log onto that diskette drive. To do this, type the drive letter and a colon at the DOS prompt, then press *Return*.

To use the TD21 program from the hard disk without the TD21 directory on the "Path," change the default directory to the TD21 directory by typing **cd \TD21**.

After changing the drive or the directory, enter **TD21**.

➢ The first screen of the TD21 appears (see below).

Notes on the TD21 Program

✓ **The program works with a mouse.**

✓ **The arrow keys can move through the menus and fields. The space bar will access submenus in fields that have them. Press *Enter* to accept the displayed choices.**

✓ **The TD21 gives feedback messages at the bottom of the screen. These messages include a description of the currently selected field, notification of an input error, configuration data, wait notices, and system status data.**

Important:

✓ Whenever possible, the screen illustrations show typical settings.

✓ You may select the *Help* command at any time for information on topics, commands, specific screens, and options available. Each of the individual screens (and fields within each) provides a summary of the feature settings. These summaries appear either within the selected field or on the perimeter of the individual screen.

Communications Configuration

```
┌──────────────── Communications Configuration ─────────────────┐
│ Connection Type: ▌Direct via Serial Port▐                      │
│                                                                │
│ Serial Port: COM1                                              │
│                                                                │
│ Port Speed: 9600 bps                                           │
│                                                                │
│ Send Breaks:                                                   │
│              〈  Ok  〉      〈 Cancel 〉    〈 Save 〉           │
│ Select type of connection to TC2100 System. Press Spacebar for popup menu. │
└────────────────────────────────────────────────────────────────┘
```

The opening screen of the program asks you to choose the type of connection to the Telecenter system:

Stand-Alone Mode: In this mode, you can load either factory-default user programming or a file captured from a Telecenter system earlier. When you have finished, you can download the user programming to a system or save it on a disk for future downloading. In this mode, some of the TD21 features will not be active (e.g., Port selection and speed, sending and receiving blocks from the system, and diagnostics).

Direct Via Serial Port: Select this when your computer is connected directly to the Telecenter system. All the functions and features of the TD21 are active in this mode. You will have to select the computer port and specify the baud rate for it.

Remote Via a Modem on the Serial Port: This mode allows you to program and diagnose the system from a remote site. It also allows full use of the TD21's functions. To begin, you need to set the port parameters and initialize the modem. You can then go to the phone directory (under the "Comm" menu). Once you have entered a number there, you can have the program place the call.

Send Breaks: This option is only available when the Connection Type is set to: "**Remote Via a Modem on the Serial Port."** Some modems can not be configured to reliably send a break signal to another modem unaltered (i.e. without changing the duration). Set this option to "No" if you are having difficulty making a remote connection.

When the desired settings are on the screen, you may save them so that the program will use them as defaults when loading the TD21 during your next session. To do this, click on *Save* or use the arrow keys to highlight this button. Press *Enter* to proceed.

➢ If you selected the Stand-Alone mode, the program will allow you to proceed immediately. If you selected the Remote Via Modem mode, the program will check the port settings and the connection to the modem. If you selected the Direct mode, the program will check the port settings and the communications path to the TC2100 system.

> A warning message will appear on your screen if configuration or personal-computer conflicts arise. If this occurs you may reconfigure the settings or exit the program.

If you have selected the Modem mode, proceed with the following subsection. Otherwise, skip to "Loading Existing or Default Programming."

Calling the Remote Modem

Once the communications path is established, choose "Comm" from the menu bar and select *Phone Directory*. There you may list multiple phone-number entries that include names, numbers, and modem-configuration settings. You may then assign an initializing string for each record. For more modem information, see Appendix A.
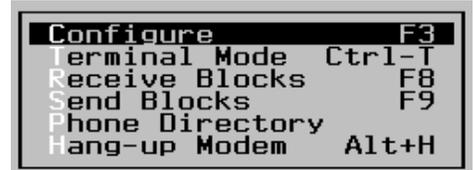
After you have finished making entries, save the information and choose an entry you would like the program to dial. Select *Dial Entry*. The system will provide status information as the program tries to establish a connection.

Alternatively, you may select *Terminal Mode* from the "Comm" menu and manually dial a number by using the Hayes modem commands. Refer to your modem reference manual and Appendix A for acceptable commands.

Loading Existing or Default Programming

Before beginning programming, load some form of existing user programming. You have three choices:

1. *Copy the system's current programming:* Your computer must be connected to a TC2100, directly or via a modem. The TD21 program can extract the pertinent system-configuration information as you move among the screens. Another way of getting this information is selecting *Receive Blocks* on the "Comm" menu or pressing *F8* on your keyboard. *Send Blocks* sends all modified programming information to the system.

2. *Load a File from a Disk:* Regardless of whether the TD21 program is operating in the stand-alone mode or is connected to the TC2100 system, directly or through modems, you can select the "File" menu (shown below) and "Open" an existing file of user programming. The TD21 will place the file's contents in the computer's RAM, allowing you to modify its contents.

3. *Load a File of the Factory Default Programming:* This works on the same principle as selecting the file of existing user programming, except that you select "New" from the "File" menu.

The File Menu

Here is a brief description of the "File" menu commands:

New imports a copy of the factory-default settings for all functions and feature settings of the TC2100.

Open imports an existing TD21 file into the computer's work space. The program will list all files
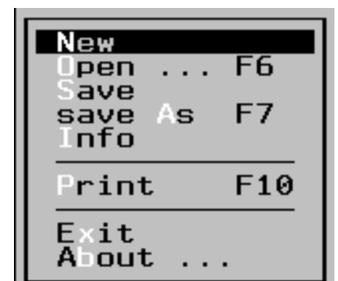
with a *.T21 extension from the current drive. You may also specify a different drive.

Save sends the work space or programming information into the currently open file.

Save As allows you to assign a different file name to the current work-space information. Selecting *Save* without an open file will have the same result.

Info allows the user to view annotation information in the TC2100 programming file. This information will also be printed as the title page for each printout. The TD21 version # and version firmware version is also saved in this programming file.

Print prints a hard copy of the file in your computer's work space.

Exit closes the TD21 program and returns the DOS prompt.

About reveals the software version and data information of the TD21 program.

!	**Important:** ✓ Most of the functions in the "New" file will either be disabled or not programmed. ✓ All current information in the work space will be lost when a file is opened.

4

Communications Programming

Most of these programming options affect individual lines

```
Select Active Config
 aster Ports           Ctrl+M
System  locks          Ctrl+B
 lass of Service        Ctrl+C
 ialing Intercepts      Ctrl+D
Time  vents            Crtl+E
Call  orwarding         Ctrl+F
Call Pickup  roups Ctrl+Shift+G
 oliday          Ctrl+Shift+H
 IN Codes               Ctrl+P
Toll  estrictions       Ctrl+R
 tation Ports           Ctrl+S
```

Class of Service

```
┌─── MAN.T21 -  Class of Service Programming: Config Block 1 ────┐
│                                                Call-In   Display│
│                   Mon Spkr │   General   │ Interconnect │Priority  Routing│
│Class Line Type Ext 1st │1 2 3 4 5 6 7 8│1 2 3 4 5 6 7 8│ -1-  -2-  -1- -2-│
│   1 Speaker Only       N N N N N N N N N N N N N N N N (1)  EMER  1   1│
│   2 Handset     N   Y  Y Y Y Y Y Y Y Y N N N N N N N N (1)  EMER  1   1│
│   3 Phone       N   N  Y N Y Y Y Y Y Y N N N N N N N N (1)  EMER  1   2│
│   4 Phone       N   Y  Y Y Y Y Y Y Y Y N N N N N N N N (1)  EMER  1   1│
│   5 Admin       N      Y N Y Y Y Y Y Y N N N N N N N N              1│
│   6 DIL                Y Y N N N N N N N N N N N N N N N N│
│   7 DISA               Y N N N Y N N N N N N N N N N N N N         0│
│   8 Student Phone      Y Y N N N N N N N N N N N N N N N│
│   9 Media              Y N N N N N N N N N N N N N N N N│
│  10 STAR               Y Y Y Y Y Y Y Y N N N N N N N Y N         2│
│ Line Type for this Class of Service. Press Spacebar for popup menu. │
│                                                                      │
│    <   Ok   >    < Cancel >    < Go To >    < Selection Filter: Disabled >│
└──────────────────────────────────────────────────────────────────────┘
```

A "Class of Service" is a group of functions that can be given to individual lines. It includes most of the programming for each line. Each field in the menu is described below. For more details, see Appendix B.

Class: Numbers the 64 possible classes. You use this number when assigning a Class of Service to a Master or Station Port.

Line Type: Reflects either the device that is connected or what the line can do. What you select here will determine the selections active in the rest of this menu. The twelve types are:

Unprogrammed: Assign this to unused lines or lines that you want to temporarily disable for diagnostic purposes.

Speaker Only: For a room with a speaker and optional call-in and/or *Music* switches.

Handset: A non-dialing phone that can receive calls and place call-ins to the office by going off-hook (or via associated call-in switches).

Phone: A dialing staff phone that can be allowed to make inside and outside calls, receive calls, and send pages and tones.

Administrative: A dialing phone that can also have a display, receive call-ins, and distribute audio programs.

DIL: A Direct Inward Line is connected to an outside line, usually a central-office or external-system line. Any incoming call is directed to a specified phone inside the system.

DISA: A Direct Inward System Access Line is connected to an outside line. The outside caller receives system dial tone. From then on, the caller's phone acts as an administrative phone. It can even have a display. Typically, this line would be attached, a key system, a PBX, or other external system.

Student: A Student Phone™ line receives only central-office service and is dedicated to making brief outside calls. Most of its settings are made under "System Options."

Media: A line connected to a Media Controller (MR100, MRC7611 or MRC7600) which is used to control a video program source (e.g., VCR, Laser Disk Player, or CDI Player).

DSI, STAR: A tie line to one of Rauland's recommended key systems. Use DSI for the Cortelco Millenium and STAR for the Vodavi STARPLUS 1428, 2856 or 4896.

EECRS: Enhanced Emergency Call Response System *(firmware version 4.0 and later.)*

VoiceMail: A line connected to an Auto-attendant or IVR system *(firmware version 4.0 and later).*

Monitored Ext.: Send busy/idle status information to the Vodavi STARPLUS Keysets with DSS/BLF buttons for Telecenter extensions. These buttons will light when the corresponding Telecenter extensions are busy or ringing. *(Firmware version 3.0 and later.)*

Speaker First: If the room also has a phone, this setting will determine whether a call will ring the phone or connect to the speaker.

General Attributes: Determine which potential functions of a line type are allowed to a Class of Service. Examples are making pages and outside calls. The meaning of the entries and the ones that you can select depend upon the line type. See Appendix B for the attributes applicable to each line type.

Interconnect Attributes: Determine how the system interacts with an external system. For example, the Telecenter system could be directed to wait for a disconnect pulse from the other system before breaking its connection. See Appendix B for details.

Call-in Priority: For rooms that can place a call-in (speaker-only, handset, and dialing staff phones). You can assign a number from **1** through **5** (the higher the

number, the higher the priority). A short, four-character prefix can be assigned to each priority level (see "Call-in Options" in the system-programming section).

Display: For lines that place call ins, this determines which group of displays will show its call-ins (each of its two priority levels can be assigned to a different display group). For administrative display phones, this setting assigns one display group, whose call-ins it will receive. (Note that, if the phone has a display, the latter's DIP switch must be set to the same display-group number.)

About This Example

Most line types are represented. Class 3 differs from Class 4 in that incoming calls ring the phone instead of connecting to the speaker, it can do zone paging, and its emergency call-ins go to Display 2.

Master Ports

```
─────────────────── MAN.T21 -  Master Ports: Config Block 1 ───────────────────
            Physical   Architectural   Class of    Associated     E911 Trunk
            Number        Number        Service       Speaker        Group
 ┌──────────────────────────────────────────────────────────────────────────┐ ▲
 │           M1           213             ▮5          S---             E1     │ ▓
 │           M2           215              6          S---             E1     │ ▓
 │           M3           413             33          S---             E1     │ ▓
 │           M4           ---             64          S---             E1     │ ▓
 │           M5           ---             64          S---             E1     │ ▓
 │           M6           ---             64          S---             E1     │ ▓
 │           M7           ---             64          S---             E1     │ ▓
 │           M8           ---             64          S---             E1     │ ▓
 │           M9           500             49          S---             E1     │ ▓
 │          M10           501             49          S---             E1     │ ▓
 └─ Enter  the  Class  of  Service  for  this  station  (1 - 64). ──────────┘ ▼
            Mon Spkr                                            Call-in  Display
Class Line Type Ext 1st │    General    │   Interconnect │    -1-  -2-   -1- -2-
  5 Admin       N        Y N Y Y Y Y Y  Y N  N N N N N N N        1
            <    Ok    >      < Cancel >      < Block Program >
```

Master-Port lines are the only ones that can be connected to outside lines. They can also be used for standard or feature phones configured as administrative telephones. The system comes with four Master Ports and can support up to 12. The fields are:

Physical Number: Lists the physical numbers, preceded by an "M" ("Master"). They cannot be changed.

Architectural Number: Enter here the number that will be used to dial this line. All Architectural Numbers must have the same number of digits (2, 3, or 4), according to the system setting in "Dialing Options."

Class of Service: Enter a number (**1** through **64**) to assign a Class of Service to each line.

Associated Speaker: A speaker assigned in this field provides two functions: (**1**) receives audio selections set by an administrative phone through *#80*, *#81*, and *#82* program-distribution functions, and (**2**) mutes pages when the associated phone is the originator.

The "S" in the field indicates that the speaker is wired to a Station Port. Type in the Physical Number to which the speaker is attached. If you want additional functions, such as zoning so the speaker receives pages and time tones, you will have to program the speaker under its own Physical Number and assign it its own

Architectural Number. For these other functions, the speaker will act as an independent line.

EECRS Trunk Group: Assigns the membership of this phone in a trunk group. (See "EECRS" in the System Options section.)

About This Example

In the above screen, only the first three ports have been assigned: M1 and M2 are two types of Administrative Phones, and M3 is a DISA line connected to an outside line or external system. At the bottom of the screen, immediately above the last line, is a summary of the Class-of-Service programming for the highlighted port, M1. Lines M9 and M10 are Voice Mail ports.

Station Ports

```
┌──────────── MAN.T21 -  Station Ports: Config Block 1 ────────────┐
│                                                                  │
│ Phys.   Arch.   Class of   Time & Page   Page Only  Page   Tone   E911 Trunk │
│ Num.    Num.    Service      Zones         Zones     Excl.  Excl.    Group    │
│                                                                  │
│  S1     212       22      [12345678]   [12345678]   Yes    Yes      E1    │
│  S2     213       22      [12345678]   [12345678]   No     No       E1    │
│  S3     214       22      [ 2  56  ]   [12345678]   No     Yes      E1    │
│  S4     215       22      [12345678]   [12345678]   No     No       E1    │
│  S5     216       22      [12345678]   [12345678]   No     No       E1    │
│  S6     217       22      [12345678]   [12345678]   No     No       E1    │
│  S7     218       22      [12345678]   [12345678]   No     No       E1    │
│  S8     219       22      [1       ]   [12345678]   No     No       E1    │
│  S9     220       22      [ 2      ]   [12345678]   No     No       E1    │
│ Use 1 - 8 to select the Time & Page Zones for this station.──────│
│                     Mon Spkr┌                          ┐  Call-in  Display │
│ Class Line Type Ext 1st │   General   │  Interconnect │  -1-  -2-  -1- -2- │
│  22 Phone        N   Y    Y N N N N Y Y Y N N N N N N N N  (1)  EMER  0   0 │
│ < Ok >  < Cancel >  < Block Program >  < Selection Filter:Disabled >  < Goto > │
└──────────────────────────────────────────────────────────────────┘
```

These lines can support any kind of inside station, including an administrative display phone; however, all outside lines (to a central office, a PBX, a key-phone system) require Master Ports. The system can have up to 256 Station Ports. The fields are:

Physical Number: Lists the wiring numbers, preceded by an "S" ("Station"). They cannot be changed.

Architectural Number: Enter here the number that will be used to dial this line. All Architectural Numbers must have the same number of digits (2, 3, or 4), according to the system setting in "Dialing Options."

Class of Service: Enter a number (**1** through **64**) to assign a Class of Service to each line.

Time and Page Zones: Groups rooms to receive the same pages and time tones. You can place each line in no zones, in any one zone, or in any combination of zones included on the screen. (Note that any zones used by the system for correcting secondary clocks cannot be used as time and/or page zones.)

These zones are available on all systems, whether they use two-digit or three-digit paging.

> **!**

> **Important:**
> Both combination zones and page-only zones require the proper assignment of audio channels, amplifiers, and tone types (see "Audio Resources" in the system-programming section).

Page-Only Zones: Groups rooms to receive the same pages. As with the combination zones described above, you can place each line in no zones, any one zone, or any combination of zones included on the screen.

These zones are only available on systems that use three-digit paging (#001—#008 and #011—#018).

Page Exclusion: Allows you to specify that an individual room not carry non-emergency pages or audio programs sent to all zones. However, the room will still receive zone pages and audio programs sent to zones or individual rooms. Note that some rooms with dialing phones may be able to override this setting with the *#84* function.

Tone Exclusion: Allows you to specify that an individual room not carry non-emergency tones (#11 — #15 and External Alarm Tones) sent to all zones. However, the room will still receive tones sent to zones. Note that some rooms with dialing phones may be able to override this setting with the *#84* function.

EECRS Trunk Group: Assigns the membership of this phone in a trunk group. (For further information, see "EECRS" in the System Options Section.)

About This Example

All these ports are "Phone," which means they have calling ability and can receive calls, pages, and tones via speakers. Station Port S8 has Architectural Number 219, Class of Service 22, will receive pages and tones sent to Time and Page Zone 1, and any pages sent to any Page Only Zones. It is not excluded from any pages or tones. At the bottom of the screen, immediately above the last line, is a summary of the programming for Class of Service 22.

PIN Codes

```
┌──── MAN.T21 -  Personal ID numbers: Config Block 1 ────┐
            Architectural          PIN
              Number               Code
  ┌─────────────────────────────────────────────────────┐
   1        213                    222
   2        215                    434
   3        220                    368



  └─ Enter the Architectural No. of line to be given a PIN code. ─┘
     Number of digits used for PIN codes 3
                   <  Ok  >    < Cancel >
└────────────────────────────────────────────────────────┘
```
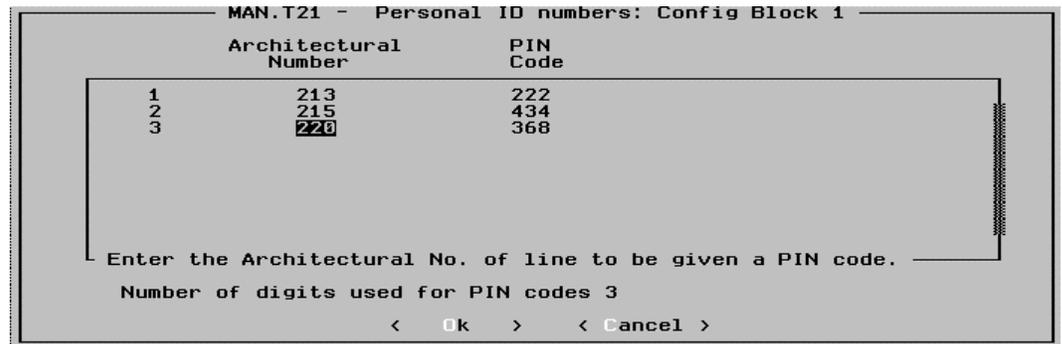
A Personal Identification Number can be assigned to any line with a dialing phone. Thereafter, entering this number at any other dialing phone in the system will temporarily give that phone the same access. For example, administrators could use a dialing staff phone with restricted functions to make an outside call, page, or perform any other function that their own phones can do. As soon as that call or function is ended, the staff phone will revert to its normal limitations.

Individual users can assign and change their own PINs (#50/51), and their settings will appear in this table. However, if they forget their numbers, this program is the only way to rediscover and change their PINs.

> ## Important:
> To enter a new PIN code, press **Insert**. To delete an entry, press **Delete**.

(Entry Number): The first column merely numbers the entries in the order they were made. The maximum number of entries (PIN codes) is 100 per system.

Architectural Number: This dialing number identifies the line to which a PIN belongs.

PIN Code: This entry must **(a)** have the number of digits specified in the next field and **(b)** be unique.

Number of Digits Used for PIN Codes: The number entered here determines how many digits PIN Codes require (3 or 4). Entering **0** disables all PIN Codes.

DISA Lines—Security: If a PIN is assigned to a DISA line, then no dial tone will be issued until the PIN code is entered.

About This Example

This example shows that three lines have PIN Codes. For example, the owner of the line with Architectural Number 220 can utilize the line's capabilities when calling from a restricted phone by dialing the PIN access code followed by 368. After completion of the call or function, the phone will be restricted again.

Dialing Intercepts

```
┌──────────── MAN.T21 -  Dialing Intercept: Config Block 1 ─────────────┐
│   COS      Digits      Phy#      Action     String        Hunt        │
│   2-5       0-0       M1-M1      NORM                     LINEAR      ▓│
│   2-5       8-8       M3-M5      ECHO      9,             LINEAR      ▓│
│   2-5       9-9       M3-M5      NORM                     LINEAR      ▓│
│   2-5      400-499    M7-M8      UDP       *@*            ROTARY      ▓│
│   2-5      220-399    M3-M5      UDP                      LINEAR       │
│  All-      700-700    #00-                                            │
│    -          -         -                                            │
│    -          -         -                                            │
│    -          -         -                                            │
│    -          -         -                                            │
│    -          -         -                                            │
│    -          -         -                                            │
│    -          -         -                                           ▼│
│                                                                       │
│                        ┌──────────┐                                   │
│                        ◄   Ok    ►    < Cancel >                      │
│ To insert a record press Insert, to delete a record press delete key.─┘
```

This function lets you establish special dialing codes, such as "9" for placing an outside call. You can also define different dialing codes for any or all of the *#XX* functions. A maximum of 36 entries are allowed per system.

> ⚠ **Important:**
>
> To enter a new Dialing Intercept, press **Insert**. To delete an entry, press **Delete**.

COS: Specifies a range of **C**lasses **o**f **S**ervice that can use the dialing code. Lines with other Classes of Service could be given a different function using the same dialing code; if none is specified for them, the system will treat the digit dialed by them as the first digit of an Architectural Number.

You can enter either a single Class of Service or a group of Classes (e.g., 1–8). If you want a second group to share this dialing code (e.g., 15–18), you will have to make a separate entry for it in this table.

> ⚠ **Important:**
>
> ✓ You cannot use the same dialing code with overlapping Classes of Service. For example, you cannot specify "9" as the outside-calling code for Service Classes 1–8, and "9" as a call to the Guard's office for Service Classes 7–10.
>
> ✓ Assigning a Dialing Intercept Code to a Class of Service will have no effect unless that Class is authorized to perform the function. For example, a Class of Service must be authorized to make outside calls in order to use a Dialing Code for an outside line, or be authorized to do paging in order to use a Dialing Code for a paging function.

Digits: You can enter either a single digit or a range of digits. For example, entering **500** to **699** would tell the system to treat these and all numbers between them as special codes. Such an entry could be used for a school that uses a Uniform

Dialing Plan. A Telecenter system user could simply dial the extension number of an outside phone, and the system would send the number on to the Centrex network or another outside system and oversee the connection. (These numbers cannot be used in the Architrtecture programming for both the MSM ports or SLC ports.)

Physical Number or #: Entering a Physical Number (preceded by "M" or "S") tells the system to connect the caller to this line. It could be an individual phone or an outside line. You can also specify a range of consecutive Physical Numbers (e.g., a group of trunks to handle outside calls).

Alternatively, you can enter a "#XX number, which would tell the system to carry out that function when it receives the specified dial code. For example, entering **#83** here and **8** in the "Digits" field would tell the system to activate the audio program retrieval function when a line with a specified Class of Service dialed "8."

Action: Tells the system what to do when it connects to the specified line. (This field has no application when a "#" function is specified.) The possible actions are:

Normal: Make a normal connection (e.g., ring the phone, connect to the speaker, ask the outside system for service). Use this action in conjunction with Inter-connect attributes to perform cut-through dialing.

Echo: The system will send the dialing string to the other system before sending on the phone number dialed by the caller. Typically, this is used to access an outside line via another system (e.g., a PBX or Centrex system). Refer to the "String" field definition.

Arch: Future use.

Phys: Future use.

UDP: Uniform Dialing Plan enables a user in the Telecenter system to call users in other (interconnected local) systems by simply dialing their extension numbers. Typically, these systems are KSU, PBX, or Centrex lines. Selecting the "Uniform Dialing" in this field tells the Telecenter system to seize an interconnected line and redial the extension number to the next system. For multiple system installations you can instruct Telecenter to insert other digits prior to redialing the captured digits. UDP will not work if the extensions on the interconnected system have a greater number of digits than the Telecenter extensions.

String: Tells the system what digits to insert to a trunk connection prior to passing along the dialed digits. This field is valid for the "Action" entries of Echo and UDP. The main application for this field is in multiple system environments. Up to ten digits may be entered in the dialing string. Use "," as a pause between the digits. The pause duration is determined by the "PBX Dial tone Delay" time programmed in the interconnect options. Digits 0–9, "*," "@,"and "#" are allowed as valid entries. (Use the "@" character to send the calling party's extension to a remote system.

Hunt Type: Applies only when you have specified a range of Physical Numbers. *Linear* hunt tells the system to always try the lowest Physical Number first. Only if that line is busy will the system try the next-highest number. *Rotary* hunt tells the system to distribute calls evenly. If it connected to the first line earlier, it will send the next call to the second-highest line, and so on.

About This Example

Any authorized phone that dials **700** will activate an All-Page. Only Classes of Services 2 through 5 can use the other Dialing Codes; if any other Class line dialed one of these other Codes, the system would treat the numbers as part of an Architectural Number.

The "0" Code rings the phone of Master Port 1.

The "8" Code orders a connection to the lowest-numbered line available among Master Ports 3 through 5. It will then send the "9" and a pause to the PBX or other system, directing it to access an outside line. Then the system will repeat the dialed telephone number to the outside line.

The "9" Code orders a connection to the lowest-numbered line available among Master Ports 3 through 5. It will then allow the user to dial in the other system.

Dialing any number from "400" to "499" orders the system to send the calling party's extension followed by number dialed to the next system that, in turn, will ring the dialed extension in the local system.

Dialing any number from "220" to "399" orders the system to send the number to the next system that, in turn, will ring the dialed extension in the local system.

Toll-Restrictions

```
┌──── MAN.T21 -  Toll Prefix Programming ────
             0   1   2   3   4   5   6   7   8   9

   200 - 209  ━━ 201 --- 203 --- 205 206 207 208 ---
   210 - 219  210 211 212 213 214 215 216 217 218 219
   220 - 229  220 --- 222 --- 224 225 --- 227 228 ---
   230 - 239  230 231 232 233 --- 235 236 237 --- 239
   240 - 249  --- 241 242 243 244 245 246 247 248 ---
   250 - 259  250 251 252 253 254 255 256 257 258 259
   260 - 269  --- 261 262 263 264 265 266 267 268 ---
   270 - 279  270 --- 272 273 274 275 276 277 278 279
   280 - 289  280 281 282 283 284 285 286 287 288 ---
   290 - 299  --- 291 292 293 294 295 296 297 298 299
   300 - 309  --- 301 302 303 304 305 306 307 308 309
   310 - 319  --- 311 312 313 314 315 316 --- --- ---
  └Spacebar toggles whether this prefix is allowed ('---' = restricted).─┘

      <  Ok  >    < Cancel >    < Allow All >    < Restrict All >
```

> ### Important:
> ! To speed up this programming, you can begin by clicking on Allow All (which will cause all the numbers in the table to appear) or Restrict All (which will replace all the numbers with dashed lines). You can then toggle off the few numbers you want to restrict or toggle on the few numbers you want to allow.

This function affects phones that can make local calls only; it does not affect phones that can make toll calls (to other Area Codes). The table here has a location for every number from 200 through 999. These represent Exchanges (the first three digits of a standard telephone number). Only an Exchange listed here can be called

by a Telecenter user restricted to the local Area Code. Clicking on a location will cause the number to alternately appear and be replaced by a dashed line.

Call-Forwarding

```
                    MAN.T21 - Call Forwarding Block Programming
    Physical      Arch      Line        Forward       Forward       Forward
    Number       Number     Type        If Busy       No Answer     Always

      M1           213    Admin           233           233           233
      M2           215    Phone           500           ---           ---
      M3           413    Phone           ---           500           ---
      M4           ---    UNPROGRAMMED    ---           ---           ---
      M5           ---    UNPROGRAMMED    ---           ---           ---
      M6           ---    UNPROGRAMMED    ---           ---           ---
      M7           ---    UNPROGRAMMED    ---           ---           ---
      M8           ---    UNPROGRAMMED    ---           ---           ---
      M9           500    Voice Mail      501           ---           ---
      M10          501    Voice Mail      ---           ---           ---

    Clear Forward Always each midnight:No
             Rings Before Forwarding:  5

            <   Ok   >       < Cancel >      < Block Program >     < Go To >
```

> **Important:**
>
> The Call-Forward setting is global: it controls this function no matter which Memory Block (set of programming) is active.

This function tells the system to send a call intended for one extension to a different extension. Users can establish their own Call-Forwarding from their phones, using the *#60–#63* functions.

Physical Number and Architectural Number: Lists every possible Master-Port and Station-Port line in the system plus each line's current Architectural Number. You cannot change these settings; you simply go to the ones for which you want to assign Call-Forward numbers.

Line Type: Line type of the current line, as programmed through the Class of Service assignment.

> In the following three fields, you select the function by entering the Architectural Number to which the system should send the call. If you enter an unused number, the system will change your entry to dashed lines.

Forward If Busy (#62): Tells the system to forward the call whenever this line is busy.

Forward No Answer (#61): Tells the system to forward the call whenever this line fails to answer after being rung the number of times specified in the "Rings Before Forwarding" field, below.

Forward Always (#63): Tells the system to send all calls to the line you enter. Note that this form of Call-Forwarding can be automatically canceled at Midnight (see the next field).

Clear Forward Always each Midnight: Toggling to *Yes* here tells the system to cancel all the "Call Forward Always" entries every day at Midnight. This will not affect the other two forms of Call-Forwarding.

Rings Before Forwarding: Tells the system how many times it should ring a line before forwarding a call. It affects only the "Forward If No Answer" field.

Go To: To quickly move to another point in the table, click on this button and enter any number from **M1** to **M12** or **S1** to **S256**. Then press *Enter* . Alternatively, you can use the scroll bar on the right side of the screen to move up and down the list (the Station Ports immediately follow the Master Ports on the list). The screen shot below shows the "Go to" function invoked.

About This Example

The system will automatically forward all calls for Master Port 1 (dialing number 213) to the line that has Architectural (dialing) Number 233. It will do so even if the "If Busy" and "No Answer" fields were blank or had different Architectural Numbers, because the "Always" field takes precedence over them.

If Master Port 2 is busy, the system will send calls to the line with Architectural Number 500. Otherwise, it will continue ringing M2 until that port answers or the caller hangs up.

If Master Port 3 has no answer, the system will forward the call to the line with Architectural Number 500. However, if M3 is busy, the system will give the caller a busy signal.

Call Pick-up Groups

```
┌─ MAN.T21 -  Call Pickup Groups: Config Block 1 ─┐
│                 1      2      3      4      5     │
│                                                   │
│   Group 1 │ 211    213    215    218    219 │     │
│                                                   │
│   Group 2 │ 413    415    450    468    418 │     │
│                                                   │
│   Group 3 │ ███    ---    ---    ---    --- │     │
│                                                   │
│                                                   │
│             ‹  Ok  ›     ‹ Cancel ›               │
└ Enter the Arch. No. of the line to be included in this call pickup group. ┘
```

Within a specified group of phones, if one phone is ringing, you can answer the call at any other phone in the group by dialing **#65**. There can be three such groups of two to five phones each. Note that a phone can only be in one group and can only pick up calls from phones in the same group.

For each group, enter from 2 to 5 Architectural Numbers. The program will prompt you if you enter an unused Architectural Number.

About This Example

Only two groups are assigned in this example. Any of the five "200" numbers in Group 1 can pick up a call from the other four, and any "400" number in Group 2 can pick up a call from the other four in that group.

<div style="text-align: right">**5**</div>

Master-Clock and Time and Tones Programming

The system can act as a master clock, correcting the time on Rauland secondary clocks and sending out time tones. The time events can be divided among four different schedules. You can run from one to four of these schedules on regular days, and specify an individual schedule for each holiday. You can also have the clock automatically switch to and from Daylight Savings Time. (The system will support a maximum of 256 events per system block and between 1 and 4 programmed schedules.)

> **!** **Important:**
> For Daylight Saving Time, see "Master Clock Options" (System Options). To select the tone used for time-signaling, see "Audio Resources" (System Options).

Time Events

```
┌──────────── Time Event Programming: Config Block 1 ────────────┐
│                              Days                              │
│  Event Time      Zones  │ Sun Mon Tue Wed Thu Fri Sat │ Schedule│
│ ┌─────────────────────────────────────────────────────────┐   │
│   1  07:25 AM [12   678]  No  Yes Yes Yes Yes Yes No      1  │█│
│   2  12:00 AM [12345678]  No  Yes Yes Yes Yes Yes No      1  │█│
│   3  08:00 AM [12345   ]  No  Yes Yes Yes Yes No  No      1  │█│
│                [        ]                                     │ │
│                [        ]                                     │ │
│                [        ]                                     │ │
│                [        ]                                     │ │
│                [        ]                                     │ │
│                [        ]                                     │ │
│                [        ]                                     │ │
│                [        ]                                     │█│
│ └ Enter the time for this event in 12-hour format ──────────┘ │
│ < Ok  > < Cancel > < Mode:12 hour > < Sort by Time > < Sort by Schedule > │
└───────────────────────────────────────────────────────────────┘
```

Time Events turns one or more of the system's eight output relays on and off and sends time tones through the system's zone speakers.

> **Important:**
> To enter a new Event, press **Insert**. To delete an Event, press **Delete**.

Event: Numbers the events in the order you enter them. You can later use the *Sort* function at the bottom of the screen to list the events by their time of day.

Time: Specifies in hours and minutes when an event should begin. The setting in the *Mode* function at the bottom of the screen determines whether you have to enter the time in the 12-hour (e.g., 1 PM) or 24-hour numbering (e.g., 13).

Zones: Specify where you want the tones to sound: from one to all of the zones. Note that zones when dedicated to secondary clock correction cannot be used for events.

Days: Select the days on which you want this event to occur.

Schedule: Select the schedule (**1-4**) in which you want this event included. To place an event in more than one schedule, enter it separately for each schedule.

Mode: Click on this button to toggle between showing the times in the 12-hour (e.g., 1 p.m.) and the 24-hour (e.g., 13) modes. Once the button is highlighted, you can also toggle the settings by pressing *Enter*.

Sort by Time: Clicking on this button directs the system to rearrange the listing of events into chronological order (earliest to latest times of day).

Sort by Schedule: Clicking on this button directs the system to rearrange the listing of events by schedule

About This Example

Events 1 and 2 will be executed at the times and in the zones indicated on Monday through Friday so long as Schedule 1 is active. Event 3 will be executed on Monday through Thursday whenever Schedule 1 is active.

Holidays

This screen specifies days when the system is to use different schedules for time events.

> **Important:**
> ✓ To enter a new Event, press **Insert**. To delete an Event, press **Delete**.
> ✓ A Holiday schedule can last up to 15 days.

Date: Enter the month and day on which the holiday schedule is to begin. Note that you can enter these in any order and later use the *Sort* button at the bottom of the screen to list the entries in chronological order, by month and day.

Schedule: List one of the four schedules that the system should follow for events on this holiday.

Duration: Specify the number of days (**1–15**) that the system should follow this holiday schedule.

Sort: Clicking on this button orders the system to rearrange the events in chronological order, from January through December.

About This Example
On Columbus Day (10/12), the system will switch to Schedule 3 for that day only. For Thanksgiving (11/24 through 11/26), the system will switch to Schedule 2 for three days. And for the winter break (12/18 through 1/1), the system will switch to Schedule 4 for two weeks.

6

System Blocks

The system can automatically reassign class of service attributes along with on/off times for the student phones and 911 dial-out capability are controlled through the system block programming feature. There can be up to four unique blocks of system programming.

Select Active Configuration

```
┌──────────────── Select Active Configuration ────────────────┐
│                                                              │
│       System block being edited: ▌                           │
│   System Block Currently Active: 1                           │
│                    Copy from block    to block               │
│                                                              │
│                         ⟨   Ok   ⟩    ⟨ Cancel ⟩             │
│                                                              │
└ Configuration Block to be edited (1-4).─────────────────────┘
```

Select Active Programming is used to see which system block is active in the system in addition to copying one system block to another.

Important:

All initial system programming should be done in system block 1. After you have confirmed that everything is programmed and operating correctly for the block 1 programming, then you can program the other system blocks. Since most configurations only require a few changes from one system block to another, it is often easier to copy all of the information from system block 1 to the other system blocks and then simply change the affected attributes.

This dialog displays the memory block currently active in the connect system and allows you to select one of the 4 blocks for viewing and editing.

The System Block Currently Active field is only displayed when connected to a Telecenter System 21. This is an information field only—and cannot be changed from.

The from block and to block fields allow you to copy one of the sets (i.e. "blocks") of user programming to another.

Clicking OK **either** COPIES ONE SYSTEM BLOCK TO ANOTHER **or** CHANGES THE SYSTEM BLOCK BEING EDITED (depending on which fields have been filled in). Clicking on *Cancel* aborts without making any changes.

System Block Event Programming

```
┌─ MAN.T21 -   System Block Event Programming: Global ─┐
│                        Days                            │
│        Time    │ Sun Mon Tue Wed Thu Fri Sat │    Event │
│  1   06:23 AM    No  Yes Yes Yes Yes Yes No        Block 1   │
│  2   08:00 AM    No  Yes Yes Yes Yes Yes No    Enable DSP 911 │
│  3   09:05 AM    No  Yes Yes Yes Yes Yes No        Block 4   │
│  4   12:05 PM    No  Yes Yes Yes Yes Yes No    Enable Student Phone │
│  5   01:05 PM    No  Yes Yes Yes Yes Yes No    Disable Student Phone │
│  6   03:00 PM    No  Yes Yes Yes Yes Yes No        Block 2   │
│  7   11:00 PM    No  Yes Yes Yes Yes Yes No    Disable DSP 911 │
│                                                        │
│                                                        │
│  └─ Enter the time for this event in 12-hour format ─┘ │
│      <   Ok   >      < Cancel >    < Mode:12 hour >    < Sort > │
└────────────────────────────────────────────────────────┘
```

The system can have up to four variations (e.g. blocks) of system programming. For example, a school might want outside calls channeled to the office during the day, but ring at different phones during the evening when only maintenance personnel are in the building. Again, the school might want room phones activated for outside calls before and after class hours. On weekends and holidays, it might want most or all bell tones silenced. In addition, the system block programming is used to enable/disable the student phone and DSP911.

Using more than one Memory Block requires two tasks. First, you have to program each Block, and, second, you have to program the times when you want the system to switch to another Block. Programming Blocks is covered earlier in this manual; this section deals with event programming for switching Memory Blocks and controlling Student Phone™ lines.

> **(!)** **Important:**
> To enter a new Event, press **Insert**. To delete an Event, press **Delete**.

Time: Enter the time when you want the system to begin using a different Memory Block or to turn all Student Phone lines on or off. You can make up to 32 entries. Use 12- or 24-hour notations depending upon what you have selected in the *Mode* option at the bottom of this screen.

Days: Select the days of the week on which you want this event to occur.

Event: After moving the cursor to this field, press the space bar to access the choices:

Blocks 1-4.

Student-Phone lines enable and disable.

DSP (Dialing Staff Phones) 911 dialing enable and disable.

The latter turns these special lines on or off. Note that, when turning off all Student Phone lines, the system allows any active lines to finish their current calls.

Mode: Toggle this setting to select the way in which you can enter the times for these events.

About This Example

On Monday through Friday, the system switches to Memory Block 1 at 6:23 a.m., to Block 4 at 9:05 a.m., and to Block 2 at 3:00 p.m. Block 2 remains in effect until the next morning until Block 1 takes effect again at 6:23 a.m. System Block 2 will also remain in effect from Friday at 3 PM until Monday at 6:23 AM.

Student Phone lines are turned on during lunch (12:05 to 1:05 p.m.) on week days. The DSP (Dialing Staff Phones) can access 911 from 8 AM till 11 PM, Monday through Friday.

7

System Options

The settings described in this chapter affect the entire system or at least more significant parts of it than the Communications and Clock functions described earlier. It may be necessary to make settings both here and in the previously described screens for functions to work properly.

```
Channel Assignments       Ctrl+Shift+A
Callin Options            Ctrl+Shift+C
Dialing Options           Ctrl+Shift+D
Interconnect Options      Ctrl+Shift+I
Logging Options           Ctrl+Shift+L
Master Clock              Ctrl+Shift+K
Audio Resources           Ctrl+Shift+R
Student Phone             Ctrl+Shift+S
Miscellaneous Options     Ctrl+Shift+N
911 Dial through                 ALT+9
Enhanced Emer Call Response System
Media Options             Ctrl+Shift+M
Starplus Integration      Ctrl+Shift+P
Areacodes                        ALT+A
Voice Mail Integration           ALT+V
```

Paging-Channel Assignments

```
┌─────── Channel Assignments: Config Block 1 ───────┐
│                                                   │
│    ┌───────┬─────────┬───────┬─────────┐          │
│    │ SLC # │ Channel │ SLC # │ Channel │          │
│    ├───────┼─────────┼───────┼─────────┤          │
│    │   1   │    1    │   9   │    1    │          │
│    │   2   │    █    │  10   │    1    │          │
│    │   3   │    1    │  11   │    1    │          │
│    │   4   │    1    │  12   │    1    │          │
│    │   5   │    1    │  13   │    1    │          │
│    │   6   │    1    │  14   │    1    │          │
│    │   7   │    1    │  15   │    1    │          │
│    │   8   │    1    │  16   │    1    │          │
│    └───────┴─────────┴───────┴─────────┘          │
│                                                   │
│          <  Ok  >      < Cancel >                 │
└─ Channel to use when all paging this SLC board.(1,1) ─┘
```

This menu assigns the audio channels used for all paging, #11 - #15 tones, and All-Zone audio-program distribution. There is no intercom setting because the system can connect any intercom amplifier to any speaker for an intercom call.

There are only two fields in the Channel-Assignment menu:

SLC: Refers to the order in which Station Line Cards are inserted in the system. These cards are always used for speakers.

Channel: Enter a number from **1** to **3**, to assign this SLC board to a particular amplifier channel.

> **Important:**
>
> ✓ Each SLC Board must have an RLC (TC2120) Relay Line Card to support Channels 2 and 3.
>
> ✓ Intercom Amplifiers cannot be used for paging functions if a TC2113 Station Line Card is used in the system.

Your channel assignments in this menu must be based upon the power requirements of the speakers wired to each Station Line Card (TC2113 or TC2114) and the audio power available on each channel. Each channel can have two possible sources of audio power:

Intercom Amplifiers: The TC2161 or TC4160RevA voice-controlled intercom amplifier has 12 watts of power. It is always used for intercom functions. If there is no paging amplifier, the system will use all the intercom amplifiers together for paging, tones, and audio programs. If only intercom amplifiers are available for the latter functions, the system will combine them into a single audio channel.

External Paging Amplifiers: You can add a power amplifier to each channel. With at least one such paging amplifier as a resource, the system will use it for all non-intercom audio functions. With two or three paging amplifiers, the system can provide independent, zone-based audio functions, such as paging to more than one zone at a time or the simultaneous distribution of more than one audio program.

> **Important:**
>
> You must tell the system how many intercom and paging amplifiers it has, so it knows what to use for non-intercom functions (see the following section, "Audio Resources"). That setting will also determine how many channels you can enter in this menu.

Audio Resources

```
┌──────────────── Audio Resouces : Config Block 1 ────────────────┐
│      Conductor                                                  │
│      Configuration:4 Cond              Westminster Volume: 5     │
│            Time Tone:Chime              Euro Siren Volume: 5     │
│            Fire Tone:Euro Siren         Mini Chime Volume: 5     │
│      Preannounce Tone:Steady            Steady Tone Volume: 5    │
│  Mic Preannounce Tone:Steady            Preannouce Volume: 5     │
│    External Time Tone:Westminster            Chime Volume: 5     │
│      External Tone 1:None      Number of Intercom Amplifiers: 2  │
│      External Tone 2:Westminster    Paging Amplifier Wiring: Channels 2-3 │
│      External Tone 3:Mini Chime  Number of Paging Amplifiers: 2  │
│      External Tone 4:Steady      Number of Program Sources: 1    │
│                                                                 │
│                  ⟨  Ok  ⟩    ⟨ Cancel ⟩                         │
│ Channel wiring of Paging Amps a in 2 Amps 1 IC amp system. ─────┘
```

This menu selects the tones used for various functions in the system, and configures the audio channels.

Conductor Configuration: Tells the system whether it has three-conductor (TC2113) or four-conductor (TC2114) Station Line Cards. This setting must be correct for the system to operate properly. Note that certain functions, such as *Always an Answer* and the simultaneous use of a room's speaker and telephone, operate only on four-conductor systems.

> ## Important:
> 3 wire (TC2113) and 4 wire (TC2114) Station Line Cards cannot be mixed within the same Telecenter System 21.

In the "Tone" selections that follow, there are six possible settings:

- ✓ **None**
- ✓ **Chime**
- ✓ **Westminster Chime**
- ✓ **European Siren**
- ✓ **Mini Chime**
- ✓ **Steady**

Time Tone: Sent by the system's built-in master clock and controlled by the Time-Event programming. The default setting is *Chime*.

Fire Tone: Originates from an optional fire alarm connected to the system's Fire-Alarm input. The default setting is *Euro Siren*.

Preannounce Tone: Sounds whenever a phone connects to a speaker for paging. The default setting is *Steady*.

Mic Preannounce Tone: Announces an All-Page from the priority microphone. The default setting is *Steady*.

External Time Tone: Controlled by an optional external master clock, whose zones can be connected to the system's eight "TZ" (time-zone) inputs. The default setting is *Chime*.

External Tones 1–4: These four settings control the tones that will be activated by equipment connected to Time Zone ("TZ") inputs 5 through 8. The equipment could be alarm devices. If these zones are connected to an external master clock, use *None* as the setting, so the system will use the *External Time Tone*. The default settings are *1 None, 2 Chime, 3 Euro Siren,* and *4 Mini Chime*.

Volume: You can set how loud each of the five tones will sound, from quietest (**1**) through loudest (**10**). With the exception of preannounce tones, the setting for each tone controls its volume wherever it is used. The Preannounce Volume setting overrides the regular settings when tones are used for announcing paging connections to speakers. It controls both the standard and the priority-microphone preannounce tones.

Number of Intercom Amplifiers: Tells the system how many TC2161 or TC4160RevA intercoms it has (**1–3**). It also controls the number of intercom channels the system will use (see the preceding section, "Paging-Channel Assignments"). The default setting is *1*.

Paging Amplifier Wiring: Tells the system the channel numbers where the paging amps are wired. This option is only available when the **Number of Paging Amplifiers** is **2**. Otherwise this option is grayed out. Configuring a system with 1 or 2 Intercom Amplifiers for *Channels 2-3* maximizes the number of channels that can be used simultaneously. In this configuration an intercom call can be made without disrupting zone pages or Zone Program Distributions. The default setting is *Channels 1-2. (This feature is available in firmware version 3.0 and later)*

Number of Paging Amplifiers: Tells the system the number of external power amplifiers it has (**0–3**). This determines whether the system uses external power amplifiers or its intercom amplifiers for paging, tones, and program distribution. Having two or three paging amplifiers makes it possible to have multi-channel paging and program distribution (see the preceding section, "Paging-Channel Assignments"). The default setting is *1*.

Number of Program Sources: Tells the system the number of program (e.g. Tape, Radio, CD, etc.) sources (0-4).

Dialing Options

```
┌───────────────── Dialing Options: Config Block 1 ─────────────┐
│             Number of Dial Digits: 3                          │
│             Number of Page Digits: 2                          │
│                Callback Busy Key: 0                           │
│              Always An Answer Key: 7                          │
│        Rings before Call Back Cancel: 5                       │
│               Dial Tone Time Limit: 10  sec.                  │
│                 Hangup Duration: 0.9 sec.                     │
│                                                               │
│              Speaker Call Cancel: Enable                      │
│             Repeat Callin Answer: Enable                      │
│        Repeat '*' Dialing Time Limit: 10  sec.               │
│                                                               │
│          '*' Answer Always to Speaker: Disable               │
│        Auto Answer Emergency Call-in: Disable                │
│                                                               │
│                   <  Ok  >    < Cancel >                      │
└─ Digits used in paging (2 or 3 for 8 and 16 paging zones respectively)─┘
```

This menu controls most dialing options for calls inside the system.

Number of Dial Digits: Determines whether Architectural Numbers have 2, 3, or 4 digits. It also sets the maximum length for Dialing Intercept codes, including Uniform Dialing Code. The default setting is **3**.

Number of Page Digits: Use two-digit paging when you want only eight zones. In this case, the user would dial **#00** for an All-Page and **#01** through **#08** for Zone Paging. This is the default setting.

> Use three-digit paging when you want to add eight page-only zones. In this case, the user would dial **#000** for an All-Page, and **#001** through **#008** or **#011** through **#018** for Zone Paging.

> In either case, the first eight zones are used for paging, time tones, and program distribution. The second eight zones are for paging only.

Call-back Busy Key: When receiving a system busy signal, callers may have the option of having the system call back when it can connect them to another extension or an outside line (Trunk Queue). This setting determines which digit the caller must dial to activate the call-back or trunk-queuing function. The default setting is *3*.

Always an Answer: Users who receive a busy signal while calling a room that has both a speaker and a telephone can order the system to ring the phone or connect them to the speaker, whichever is not in use. This setting determines which digit they must dial to use this function. The default setting is *7*.

Rings before Call-back Cancel: The Call-back Busy function instructs the system to call a user back when it can connect the user to an extension that has been busy or when an outside line is available. This setting determines how many times the system will ring the caller's extension before canceling this function. The default setting is *5*.

Dial-Tone Time Limit: Determines how long the system will supply dial tone to a phone that goes off-hook. The caller who fails to begin dialing within this time

must hang up and start over. This function prevents a valuable system resource from being indefinitely tied up. If all dial registers are tied up, no one else can place any calls or perform any other functions with a dialing phone. The possible settings are **1** to **60** seconds, or **0** for no time limit. The default setting is *10* seconds. (This duration effects "call-in options" "off-hook emergency call-in."

Hang-up Duration: Determines how long a phone must be hung up in order to break a connection. Depressing the hook switch for a shorter time will cause a hook-flash (used for transferring calls, etc.). Valid settings are **0.0** through **3** seconds; the default setting is *0.9.*

Speaker Call Cancel (SCC): When transferring to a speaker, allows the user of an administrative phone to end a speaker connection and immediately re-connect to the party on-hold by pressing the pound (**#**) key. If (**#**) is pressed during a conference, any speaker connection will be dropped. However, this feature ties up a dial register. (*See SCC /Repeat Call-in Answer Dialing Time Limit) this feature is available in firmware version 4.0 and later.*

Repeat Call-in Answer: Allows the user of an administrative phone to end a call-in conversation and immediately connect to the next call-in by pressing the asterisk (*****) key. However, this feature ties up a dial register.

SCC /Repeat Call-in Answer Dialing Time Limit: Valid settings are **1** second through **99** seconds, or **0** to disable this feature (the default setting). In the above example, 10 seconds are allowed between "*" entries. After that time, the system will release the dial register for other users.

'*' Answer Always to Speaker: Instructs the system to route "*" answering of all call-ins to the station's speaker. When set, the system overrides the class of services that do not have "Speaker First" selected. This is a system-wide setting that can be enabled or disabled.

Auto Answer Emergency Call-in: A system-wide feature that allows administrative lines to answer "EMER" or priority call-ins appearing on their display simply by lifting the telephone receiver.

Interconnect Options

```
┌─────────────── Interconnect Options: Config Block 1 ───────────────┐
│              Outside Line Disconnect Time: 2█  Sec                   │
│                   Keep Alive Warning Time: 20  Sec                   │
│                  Keep Alive Response Time: 5   Sec                   │
│                   Minimum Disconnect Pulse: 0.8 Sec                  │
│                          PBX Dialtone Delay: 0.5 Sec                 │
│                       Remote Hookflash Time: 0.0 Sec                 │
│           Allow Trunk To Trunk Connections: No                      │
│                            Overlap Dialing: Enable                   │
│                         Instant Trunk Hunt: Disable                  │
│               Add Trailing '*' For DSI Trunk: Disable               │
│        Num Of Non Overlap Dialing Register:  1                       │
│     Allow International Call As Toll Call: No                        │
│        Ignore C.O. SR for out-bound calls: No                       │
│                     PBX Outside Access Codes                         │
│                               1.  0                                  │
│                               2.  0                                  │
│                               3.  0                                  │
│                      〈  Ok  〉    〈 Cancel 〉                       │
└─ Duration that a CO line is kept inactive after a call is completed. (1-60)─┘
```

This menu controls many of the ways that the Telecenter system interacts with other systems. Note that the configuration of individual outside lines will also influence the interaction with other systems (see the Interconnect Attributes on the *Class of Service* menu, in the "Communications" section of this manual). For example, those settings might instruct the system to wait for a signal from the other system before breaking the connection.

Outside-Line Disconnect Time: Determines how long the Telecenter system will keep an outside line disconnected after the Telecenter party has hung up. This delay allows time for a proper disconnection with the outside PBX or central-office system. Valid settings are **1** through **60** seconds; the default setting is *2* seconds.

Keep-Alive Warning Time: When an outside caller is connected to a speaker line, the system will not be able to tell when the conversation has ended (unless the "Class of Service" Interconnect Attributes specify that the other system will signal when its phone hangs up). Rather than keep an outside line tied up indefinitely, the system will automatically break the connection after a programmed period of time. Before doing so, it sends a warning beep, giving the caller the chance to restart the countdown by dialing any digit from **1** through **9**. (If the caller dials **0**, the system will immediately break the connection.) This setting determines how long the system will maintain the connection before sending the warning. Valid settings are **1** second through **120** seconds. The default setting is *10*.

Keep-Alive Response Time: The preceding paragraph explains this function. This setting determines how long the system will wait to break the connection after sending a warning signal. Valid settings are **1** second through **120** seconds. The default setting is *2*.

Minimum Disconnect Pulse: Determines the minimum duration of a disconnect pulse from another system which the Telecenter system will recognize. The setting can range from **0.1** to **0.9** second; the default is *0.5* second.

PBX Dial-tone Delay: When a Telecenter user dials an outside number, the system seizes a trunk line and sends the number out to the other system. This setting

determines how long the Telecenter system will wait between seizing the line and re-dialing the number. The delay gives the other system a chance to ready itself to receive the number (e.g., by providing dial tone). Valid settings are **0.1** second (the default setting) through **5** seconds.

Remote Hook-flash Time: Determines the length of a hook-flash signal that the Telecenter system will send on to another system, such as a PBX. The range is **0.1** to **1** second. The default setting is *0.5* second.

Allow Trunk-to-Trunk Connections: A *Yes* permits an outside caller to be connected to another outside party via the Telecenter system. The connection could be made by a DISA line dialing the outside line or by an inside phone transferring an outside party to an outside line. A *No* (the default) setting causes the system to respond to a request for such a connection by disconnecting the first trunk.

Overlap Dialing: When this feature is enabled, the system will use overlap dialing to complete outside calls. Senderized dialing ("Echo" action or "Normal" action with interconnect attribute 3 set to *No*) must be specified in the dialing intercept to allow overlap dialing. The default setting is *Enable.*

> ### Important:
> Overlap dialing uses two DTMF registers to handle each call. If none is available, it drops back to the standard senderised dialing. Increasing the number of TC4190 DTMF modules is recommended to take advantage of this feature.

Immediate Busy: When this feature is enabled, the system will hunt all trunks within a specified range immediately after the trunk access digit is pressed. If all trunks are busy, the system will sound a busy signal. At this time the user has to hang up and try calling later. Trunk queuing cannot be activated when this feature is enabled. The default setting is *Disable*.

Add Trailing '*' for DSI Trunk: When this feature is enabled, the system adds a trailing '*' when the call is made through a DSI line type. The default setting is *Disable*. This setting should not be changed without consulting Rauland-Borg technical support.

Number of Non-Overlap Dialing Register: Reserves an amount of dial registers for non-overlap operations. If overlap is enabled, the system will automatically disable overlap if the number of available dial registers drops to this setting. The default setting is *1* and valid range is from **0** to **6**.

Allow International Call as Toll Call: When his feature is enabled lines with General Attribute 2 are allowed to make International calls. *011+<Country Code> The default setting is No. (This feature is available in firmware version 3.0 and later.)*

Ignore C.O. Service Request for out-bound calls: To reduce glare - the system checks the status of a C.O. line when seizing it for out-bound dialing. If the system does not receive a response from the Central Office within 4 seconds it gives reorder tone. If access to a C.O. lines is intermittent enable this feature to disable

checking for confirmation after seizing a C.O. with a TC4182 COA adapter. This setting should not be changed without consulting Rauland-Borg technical support. *The default setting is No. (This feature is available in firmware version 3.0 and later.)*

PBX Outside Access Codes: These codes order a PBX to provide an outside line. The settings here inform the Telecenter system of these codes so it can prevent any unauthorized phone from making outside calls via a PBX. You can enter three such codes (**1-99**). The default setting for each code is *0* (Disable).

Area Codes

```
┌───────── AreaCodes : Config Block 1 ─────────┐
│                                              │
│    Allowed Area Codes     Adjacent Area Codes│
│                                              │
│      1.  ▌0                 1.   0           │
│      2.   0                 2.   0           │
│      3.   0                 3.   0           │
│      4.   0                 4.   0           │
│      5.   0                 5.   0           │
│      6.   0                 6.   0           │
│      7.   0                 7.   0           │
│      8.   0                 8.   0           │
│      9.   0                 9.   0           │
│     10.   0                10.   0           │
│                                              │
│        <    Ok    >      < Cancel >          │
└── Enter a allowed area code (0 or 200-999) ──┘
```

This dialog tells the system which area codes phones without toll access (General Attribute 2) can dial.

Allowed Area Codes: These ten settings apply to phones that are otherwise restricted to dialing within the local Area Code. These phones can place toll calls to any Area Code listed here. Valid settings are **200-999**. The default *0* setting means no special Area Code is allowed by that field.

Adjacent Area Codes: These ten settings apply to 10 digit dialing. Some areas of the North America allow dialing an adjacent area code without a prefix of *1*. Valid settings are **200-999**. The default *0* setting means no special Area Code is allowed by that field. (*This feature is available in firmware version 3.0 and later.)*

> **!** **Important:**
> *TC2100 firmware version 2.4 and earlier only supports 5 area codes*

911 Dial-Through

```
┌──────────────────── 911 Dial Thru ────────────────────┐
│              911 Dial Thru: Disable                     │
│   Access string for outside trunk line:                │
│           Start of Trunk Range: M1                      │
│             End of Trunk Range: M1                      │
│                     Hunt Type: LINEAR                   │
│                    Trunk Seize: Disable                 │
│                  Trunk To Seize: M1                     │
│                                                          │
│              <   Ok   >    < Cancel >                   │
└ Enable/Disable the 911 feature. ───────────────────────┘
```
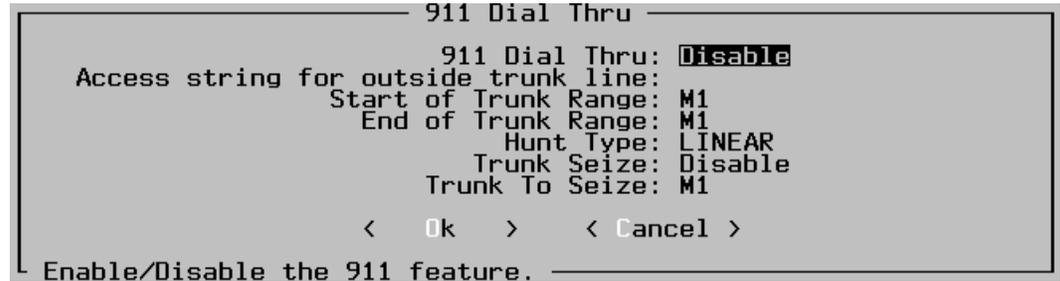
When this feature is activated, any dialing phone in the system can dial the regular "911" emergency number and have the call forwarded to a central-office line.

911 Dial-Through: Toggles between enabling and disabling this function.

Access String for Outside Trunk Line: The string of digits that is used by the system to request an outside line. Placing the digits here tells the system which request sequence to activate when the user dials **911**. The digits entered must be complete to allow routing through the entire system (to outside central-office lines with 911 service). Use "," for a pause between digits. It also removes (for 911 calls) any Class-of-Service restrictions imposed in the Dial Intercept settings. A maximum of 10 digits may be entered.

Start of Trunk Range: The lowest-numbered Master-Port line of the group that the system will attempt to use to send out the call. The default setting is *M1*.

End of Trunk Range: The highest-numbered Master-Port line of the group that the system will attempt to use to send out the call. The default setting is *M1*.

Hunt Type: Applies only when you have specified a range of Physical Numbers. *Linear* hunt tells the system to always try the lowest Physical Number first. Only if that party is busy or does not answer will the system try the next-highest number. *Rotary* hunt tells the system to distribute calls evenly over the specified lines. If it connected to the first line earlier, it will send the next call to the second-highest line, and so on.

Trunk Seize: Enabling this tells the system that, if all the trunks in the range specified above are busy, it should disconnect whoever is currently using the trunk specified in the next field and connect the 911 caller to that trunk.

Trunk to Seize: Tells the system which trunk to seize if the preceding field is enabled.

Student Phone™

```
┌──────────────────────── Student Phone ────────────────────────┐
│   Maximum length of student phone call: 60█ Seconds           │
│           Duration to prevent same number: 30  Minutes        │
│   Access string for outside trunk line:                       │
│                    Start of Trunk Range: M1                    │
│                      End of Trunk Range: M1                    │
│                        Action for Trunk: ECHO                  │
│                               Hunt Type: LINEAR               │
│                           911 dial thru: Enable               │
│                           Student Phone: Disable              │
│                                                               │
│                 ‹   Ok   ›     ‹ Cancel ›                     │
│ 30-180, 0 = no restriction ──────────────────────────────────┘
```

These settings control most of the functions of Student Phone™ lines. The Class-of-Service settings (in the "Communications" section) control access for local and toll calls.

Maximum Length of Student Phone Call: Ten seconds before this time has elapsed, the system will send the caller a warning beep. At the end of this period, the system will end the connection. The valid range is from **30** seconds (the default setting) to **180** seconds; a **0** setting means no time limit.

Duration to Prevent the Same Call: After any number has been called on any Student Phone line, no such line will be able to call that number until the time set here has elapsed. Valid settings are **1** minute to **60** minutes or **0** for no restriction. The default setting is *30*.

Access String for Outside Trunk Line: The string of digits that is used by the system to request an outside line. Placing a digit string here tells the system which request sequence to activate for calls from Student Phone lines. Use "," to specify a pause between digits. A maximum of 10 digits can be entered.

Start of Trunk Range: The lowest-numbered Master-Port line of the group that the system will attempt to use to send out the call. The default setting is *M1*.

End of Trunk Range: The highest-numbered Master-Port line of the group that the system will attempt to use to send out the call. The default setting is *M1*.

Action for Trunk: Tells the system whether or not to send a special access code before sending out the number.

Normal: The system does not send any access code, but simply sends on the dialed number.

Echo Digits: For accessing an outside line via another system (e.g., a PBX or Centrex system). The TC2100 will send the dialing string to the other system before sending on the phone number dialed by the caller.

Hunt Type: Applies only when you have specified a range of Physical Numbers. *Linear* hunt tells the system to always try the lowest Physical Number first. Only if that party is busy or does not answer will the system try the next-highest number. *Rotary* hunt tells the system to distribute calls evenly over the specified lines. If it

connected to the first line earlier, it will send the next call to the second-highest line, and so on.

Student Phone This setting appears only when your computer is connected to an active Telecenter system. It shows whether these lines are currently activated or disabled. The lines can be turned on and off by an administrative phone using the *#53* function, and by the *Student-Phone* and *Memory-Block Events* menu (see the "System Programming" Section).

911 Dial-Through: Determines whether or not a Student Phone line is allowed to call **911**. (Enabling this function allows dialing of 911 using Student Phone only when the Student Phone line is active.)

Call-in Options

```
┌──────────── Callin Options: Config Block 1 ────────────┐
│              Priority 1 Prefix: CALL                   │
│              Priority 2 Prefix: EMER                    │
│              Priority 3 Prefix:                         │
│              Priority 4 Prefix:                         │
│              Priority 5 Prefix:                         │
│                                                        │
│              Repeat Beep Time                          │
│                  Normal Callin: 10   sec.              │
│                 Priority Callin: 1    sec.             │
│          Off-hook Emergency Call-in: █Enable█          │
│                                                        │
│                  <  Ok   >    < Cancel >               │
│    Cause an Emergency Call-in if Dial tone times out.  │
└────────────────────────────────────────────────────────┘
```

This menu assigns call-in prefixes and sets the beep rate for call-ins from switches, non-dialing phones, and asterisk call-ins from Dialing Staff Phones. The priorities in this menu are assigned to rooms in the *Class-of-Service* programming.

Priority Prefixes: The higher the number, the higher the priority. Set a code here (up to four-characters long) that will appear on the recipient's display when a room sends a call-in with that priority. Examples of prefixes are *Norm, Gym,* and *Bus.* Only *Priority 2* has a default setting, *Emer.* In the above example, "Call" is assigned as the lowest-level call-in, "Priority 1."

Beep Rates: Determines the spacing between beeps for two levels of call-ins: the *Normal* setting controls Priority 1 call-ins, and the *Priority* setting controls the other four levels. Valid settings are **1** second through **99** seconds. The default settings are *10* seconds for Normal call-ins and *1* second for Priorities 2 through 5.

Off-hook Emergency Call-in: When enabled, any Dialing Staff Phone that remains off-hook until the system cuts off dial tone will automatically place an emergency call-in. This does not apply to a caller who dials at least one digit and then fails to complete the call, or where the system does not cut off dial tone (the *Dial-Tone Time Limit* is set to **0**). The default setting is *Disable*.

Master-Clock Options

```
┌──── MAN.T21 - Master Clock Options: Config Block 1 ────┐
│         Daylight Savings Time Enabled: Yes             │
│                                                        │
│                        Month Week  Day                 │
│                Start     4   First Sun Spring          │
│                  End    10   Last  Sun Fall            │
│         Zone Duration                                  │
│         Zone 1:   6 sec.        Active Schedule: [1  ] │
│         Zone 2:   6 sec.        Correction Code:  1    │
│         Zone 3:   6 sec.           Active Zones: [123456 ] │
│         Zone 4:   6 sec.                               │
│         Zone 5:   6 sec.         DSI Clock Sync:Disable│
│         Zone 6:   6 sec.            DSI Password:      │
│         Zone 7:   6 sec.                               │
│         Zone 8:   6 sec.                               │
│                                                        │
│                  < Ok   >     < Cancel >               │
└─ Enter the month that Daylight Savings Time starts. ───┘
```

This menu sets general parameters for clock operations. Activities are set in the *Memory-Block* and *Time-Event* menus.

Daylight Savings Time Enabled: A *Yes* tells the system to set the time ahead one hour in the Spring and back one hour in the Fall. The change will occur at 2 a.m. of the days set in the next two fields.

Start: The "Spring" setting, when the system will advance the time. Since Daylight Savings time could begin any month, the field will accept any number from **1** through **12**. The *Week* setting can be toggled between *First* and *Last*.

End: The "Fall" setting, when the system will turn back the time. The field will accept any number from **1** through **12**. The *Week* setting can be toggled between *First* and *Last*.

Zone Duration: Determines how long an "Event" will last in each zone. An Event controls a zone relay. Typically, each relay activates a bell tone, which can be set from **0** through **59** seconds. The default setting is *3*.

A relay can also be used to turn other equipment on and off (usually by controlling heavier-duty relays). In this case, you would set that zone to **0** to latch that zone's relay. With this setting, each programmed Event will toggle the relay on or off.

Active Schedule: In the *Time Event* menu, each Event is assigned to a Schedule. For an Event to be executed, its Schedule must be active (that is, listed here). From one to four Schedules may be listed. Note that an Administrative Display phone can change this setting at any time (*#95*).

Correction Code: Tells the system which correction code to use when resetting secondary clocks. The secondary clocks must all be the same type. The possible settings in this field are **0** for *None* or any number between **1** and **20**.

> **(!)** **Important:**
> If you enable Clock Corrections, Time Zones 7 and 8 are no longer available.

Active Zones: In the *Time Event* menu, each Event is assigned to at least one zone. An Event can only be executed in zones that are active (that is, listed here). From one to eight zones may be listed.

DSI Clock Sync: When enabled, the Telecenter System 21 synchronizes the time and date in the DSI system. This synchronization is attempted at every system reset, time and date change (using *#55*), 12:01 AM, or after automatic daylight savings time change. The system uses the DSI password programmed (see below) to access the DSI system through its second serial port. The default setting is *Disable*.

DSI Password: This setting tells the system what password to use to access the DSI system through the second serial port. This password can be up to 16–characters long and should match the password of the DSI system connected to the Telecenter System 21.

> ## ! Important:
> The correction of secondary clocks not made by Rauland requires an activation code that can be purchased from Rauland.

Logging Options

```
┌───────── Logging Options: Config Block 1 ─────────┐
│                             Log Callins [█]        │
│              Log Pages and Alarm Tones [√]         │
│                       Log Time Tones [√]           │
│              Log Program Set Switching [√]         │
│        Log Student Phone Enable/Disable [√]        │
│     Log DSP 911 Dialing Enable/Disable [√]         │
│                                                    │
│     Log Outbound DTMF activity [√]    Log Arch No [√] │
│      Log Inbound DTMF activity [√]    Time Stamp [ ] │
│              Log MSM Signaling [√]    VCS serial [ ] │
│             Log Channel Use [√]   Log LCD Display Msg [ ] │
│    Range of Lines for DTMF monitoring S1   to  M12 │
│                                                    │
│                              SMDR: Disable         │
│  Number of Lines between SMDR Headers: 60          │
│                                                    │
│            <    Ok   >    < Cancel >               │
└────────────────────────────────────────────────────┘
```

The system can send out records of its activities to a printer or computer connected to its first serial port. This menu selects which, if any, activities are to be logged. The serial port is configured for the attached printer or computer in the *Miscellaneous Options* menu, described in the following section.

The five listed activities can be toggled on (√) and off (blank). In each case, the default setting is *Off*.

Event Logging

Log Call-ins: Enabling this orders the system to record not only the call-ins themselves but also those canceled in the room (remote cancel), those upgraded to emergency call-ins, the answering of call-ins, and the canceling of all call-ins by an Administrative phone (*#21*).

Log Pages and Alarm Tones: Enabling this orders the system to record All-Page, Zone-Page, and Priority-Microphone announcements, plus any alarm tones (fire or any tones sent via the system's "Alarm" inputs).

Log Time Tones: Enabling this orders the system to log any time tones sent by either its own *Time-Event* programming or by an external master clock.

Log Program–Set Switching: Enabling this orders the system to log when it switched memory blocks, whether this was triggered by its *System Block Event* programming or by optional switches (see KM1122 in the drawings manual, KI-1767).

Log Student Phone Enable/Disable: Enabling this orders the system to record whenever the Student Phone lines are turned on or off, whether this was done by the *System Block Event* programming or by an Administrative phone (*#53*).

DTMF Logging

DTMF logging is available in TC2100 firmware version 3.0 and later.

Log outbound DTMF Activity: log DTMF, Call Progress and Alarm tones generated by the system. See Appendix E for the format of DTMF logging messages.

Log inbound DTMF Activity: log DTMF tones received by the system.

Log MSM signaling: Log when a phone goes on or off hook, when a wink or hook flash is detected. This setting, if enabled, also logs when disconnect or answer supervision winks are generated by the system and their duration.

Log Channel Use: Log when a channel is use for Intercom, Paging or Music distribution. This settings also logs when channels are pre-empted and restored

Log Arch No. This setting, if enabled, tells the system to also log the extensions (Architectural Numbers) involved. Otherwise the system only prints the physical number S1-S256 or M1-M12.

Time Stamp: This setting, if enabled, tells the system to precede each DTMF logging entry with the current time in hundredths of a second resolution.

Vodavi (VCS) Serial: This setting, if enabled, logs any messages sent to the Vodavi Starplus via the serial integration link.

Log LCD display Msg: Logs any display updates sent to the TC4221 and TC4222 displays.

Range of Lines for DTMF Monitoring: These fields allow you to filter the DTMF logging information by a range of lines. If logging both SLC and MSM

lines, the SLC lines must be listed first. (S256 < M1) For example you may log just MSM ports M1 through M4, or S1-S100.

Station Message Detail Recording

SMDR: This field enables or disables the SMDR function. When the logging function is enabled, its fields take precedence over the SMDR-Enabled features.

Number of Lines between SMDR Headers: The system prints out a heading that identifies the information in each column. This setting specifies how many rows of information the system will print before repeating the header. You can specify from **1** to **80** lines for printing, or **0** for no headers. The default setting is *60* lines.

Miscellaneous Options

```
┌──────── Miscellaneous Options: Config Block 1 ────────┐
│                                                        │
│            Serial Port A Speed:   9600 bps             │
│              Lock Port A Speed:   Disable              │
│            Serial Port B Speed:   1200 bps             │
│              Lock Port B Speed:   Disable              │
│                 LCD Port Speed:   9600 bps             │
│                                                        │
│                   Auto Exclude:   Enable               │
│                   Self Exclude:   Enable               │
│      Associated Speaker for PMIC: S---                 │
│                                                        │
│              SLC3 Page Priority:  Enable               │
│                                                        │
│                  ‹   Ok   ›     ‹ Cancel ›             │
│                                                        │
└ Select Default Port Speed. Press Spacebar for menu. ──┘
```
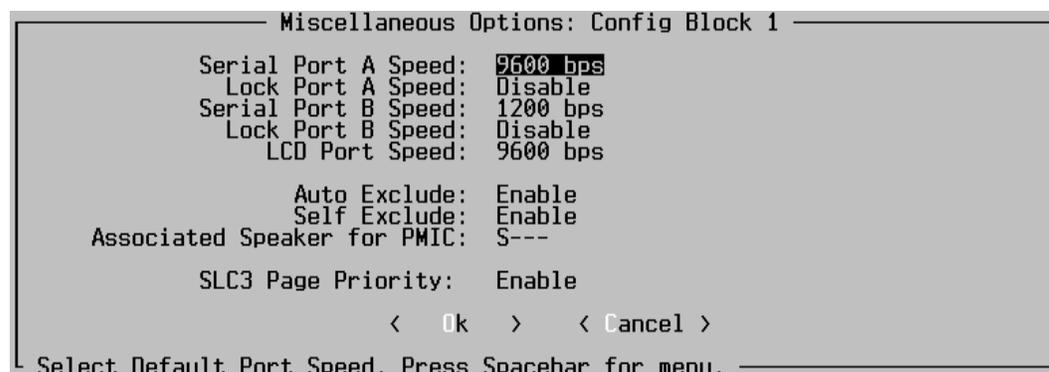
This menu controls the baud rates of the system ports and some speaker-exclude functions. Port A settings take effect on reset or power-up; Port B settings take effect immediately after program changes have been sent down via F9.

Serial Port A Speed: Controls the main system port, which is used for the TD21 programming and diagnostic computer and for logging. This sets is the initial baud rate upon power up or reset. The choices are **300**, **1200**, **2400**, **4800**, and **9600** (the default setting).

Lock Port A Speed: This setting when enabled tells the system to ignore any breaks received on this port and keep the baud rate at the current setting.*(This setting is avaiable in firmware verion 3.0 and later.)*

Serial Port B Speed: Used for clock synchronization when connected to a Telecenter DSI system. This port is also used for the serial Integration with the Vodavi STARPLUS. The choices are **300**, **1200**, **2400**, **4800** (the default setting), and **9600**.

> **!**
> **Important:**
> *When integrating with a Vodavi Starplus key system the port B must be set to 4800 baud.*

Lock Port B Speed: This setting when enabled, tells the system to ignore any breaks received on this port and keep the baud rate at the current setting. *.(This setting is avaiable in firmware verion 3.0 and later.)*

LCD Port Speed: This port is where the phone displays are connected. Note that both types of displays, the TC4221 Digital Display and the TC4222 Vacuum Fluorescent Display, must be set to the same baud rate via an internal DIP switch. The possible settings are **4800** and **9600** (the default setting).

Auto Exclude: Enabling this tells the system to automatically exclude the page from any speaker associated with the phone making the page. The default setting is *Disable*.

Self Exclude: Enabling this allows a room to exclude its speaker from zone pages, tone signals, and program distributions (*#84*).

Associated Speaker for PMIC: If the Priority Microphone is near a speaker, you can tell the system to exclude that speaker from pages originating at the microphone. To do so, enter the speaker's Station Port number. Leave the field blank to allow any such speaker to carry the paging.

SLC3 Page Priority: This feature is applicable only in 3 wire systems, when SLC3 (TC2113) station line cards are used in the system. When this feature is enabled, system will interrupt phone conversation in the classroom when a page is activated that includes that classroom.

> ⚠️ **Important:**
> The Class of Service programming may normally exclude certain rooms from these functions.

Media Options

```
┌──────────────────────── Media Options ─────────────────────┐
│    Media Center Line: M1                                    │
│                                                             │
│    Initializing Tones          Ending Tones                │
│                                                             │
│         1. 2                        1. 0                     │
│         2. *6_                       2.                      │
│         3.                           3.                      │
│                                                             │
│                    〈  Ok   〉    〈 Cancel 〉               │
│                                                             │
└Initializing Tones used when General Attributes:2=Y──────────┘
```

This menu allows the installer to program information required for control functions of media sources and assigns a Media Center Line. Enter the physical number of the line that the system shall ring when a phone provides a hook-flash while controlling a media device (an established connection to an MR100,

MRC7600 or MRC7611). The Media Center Line may be any valid master or station port. The default setting is *None* (– – –).

Initializing Tones: A set of DTMF tones which are sent to a media device upon the initial connection to an MR100. There can be up to three sets of DTMF tones (numbered 1, 2, or 3) each set continuing up to 4 tones. Only the MR100's that have Media Line type with general attributes 1, 2, or 3 will be sent the tones specified here. Typically, tones can command a laser disc player to enter the play mode and pause or perhaps have a VCR rewind and cue up to be played.

Ending Tones: These tones are similar to initializing tones except that they are sent to the appropriate media device just before the user ends their session (releases control) with the device. Typical use would be to stop and rewind a videotape. There are three sets of tones which correspond to the general attributes 1, 2, or 3 of a Media Line type.

> ⚠️ **Important:**
> Don't use initialization or ending tones for an MRC7600 or MRC7611 which are configured for Tip and Ring Interface to the Telecenter.

Voice Mail Integration

```
┌─────────────── Voice Mail Integration Options ───────────────┐
│              Remote Voice Mail Ext:▮▮▮                         │
│        Retrieve Message Digit String:                         │
│          Leave Message Digit String:                          │
│                  Prefix Digit String:                         │
│                                                               │
│                  ‹  Ok  ›    ‹ Cancel ›                        │
│                                                               │
└─ Extension of Voice Mail System connect to another PBX or EKSU. ─┘
```

This screen configures the various dialing strings sent to a voice mail system when a call is forwarded to or when the voice mail system is called directly. See Appendix F for details on how to integrate the Telecenter System 21 with a local (directly connected) or remotely (attached to another PBX or EKSU) voice mail system. .*(The Voice Mail Integration Feature is avaiable in firmware version 4.0 and later.)*

Remote Voice Mail Ext.: Extension of Voice Mail System connected to PBX or EKSU in front of Telecenter System 21. The extension that was forwarded is sent via the calling party field. (Note: this extension must also have a UDP entry in the Dialing Intercept List.) This field is intended for voice mail systems connected to a Vodavi Starplus or a Cortelco Millennium (DSI) which can properly handle the calling party information.

Retrieve Message Digit String: DTMF tones to send, after the user's extension when calling the Voice Mail system directly.

Leave Message Digit String: DTMF tones to send, after sending the extension of the forwarded phone when a call is forwarded to voice mail.

Prefix Digit String: DTMF tones to send, before sending the extension or mail box number. This may be necessary when an IVR system that only supports 4 digit mailbox numbers is connected to a Telecenter System 21 configured for 3 digit dialing

Vodavi Starplus Integration

```
┌───────────────────────── Starplus Integration ─────────────────────────┐
│         Enable Starplus Integration:Yes                                 │
│     Display Integration                        Signaling                │
│                                                                         │
│     Display Group:  0             Answer Supervision Time: 0.3 Sec       │
│     Display Callins: Enable              Hook Flash Time: 0.5 Sec        │
│   Busy Lamp Support: Enable               Busy Wink Time: 0.7 Sec        │
│       Leadin Digit: 1         C.O. Group for outside access: 3           │
│                             Clock Synchronization                       │
│                                                                         │
│             After time/date is set via #55: Enable                      │
│            When time/date is set from TD21: Enable                       │
│                    After a clock time sync: Enable                       │
│                                                                         │
│                   <  Ok  >    < Cancel >                                 │
└─ Enable/Disable Integration with Vodavi StarPlus ──────────────────────┘
```

The Vodavi Integration window is located under the System Options menu button. See KI-2000 TCKS1401 Telecenter® / STARPLUS® Integration for details on integrating the TC21 with the Vodavi STARPLUS. *(The Vodavi Starplus Integration feature is available in firmware version 3.0 and later.)*

Signaling Group

Answer Supervision Time: Recommended value: 0.3 Seconds. This determines the length of the answer supervision wink Telecenter 21 sends to the KSU.

Hookflash Duration: Recommended value: 0.5 Seconds. This determines the length of the wink Telecenter 21 sends to the STARPLUS system to indicate a hookflash.

Busy Wink Duration: Recommended value: 0.7 Seconds. This determines the length of the wink Telecenter 21 sends to the STARPLUS system when the target line is busy.

CO Group for Outside Access: Recommended value: 1. STARPLUS system CO trunk group number for outside dialing. This is necessary for trunk queuing. (This may be set to "0" to disable trunk queries when multiple C.O. groups are used on the STARPLUS.

Display Integration

Display Group: Call-in and display information from this Telecenter display group will be transmitted (and displayed) on STARPLUS system key phones.

Display Call-ins: Enable or disable the display of Call-in and Administrative functions on STARPLUS system display phones.

Busy Lamp Support: Enable or disable support for Telecenter BLF/DSS button appearances on STARPLUS system key phones.

Leading Digit: First digit of all STARPLUS system extensions and feature codes. This is needed for Telecenter to automatically dial certain STARPLUS system feature codes (such as 'Set Time and Date').

Clock Synchronization

The Telecenter will send clock synchronization signals to the STARPLUS system on any of the following events.

After Time/Date is Set using #55.

When Time/Date is set from TD21: Programmed under /Diagnostic/Set-Time-and-Date.

After an External Time Sync : When the Telecenter receives a external (or internal) time sync signal (this typically occurs every night at 12:01 AM).

E.E.C.R.S. (Enhanced Emergency Call Response System)

```
┌──── Enhanced Emergency Response Systems Options ────┐
│                                                      │
│                  Enable E911: Yes                    │
│                                                      │
│                       Timers                         │
│             Auto Reset Timer:   1 min.               │
│           Reset Inhibit Timer:   0 min.              │
│                                                      │
│                       Display                        │
│         Auxilliary Display Group:  15                │
│             Display Cycle Rate:    3                 │
│    Auxilliary Display Idle Message: School Name      │
│        Telecenter displays that  0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 │
│            receive 911 messages: √ √ √ √             │
│      Telecenter E911 Display String: 911 Called form │
│  Access string for outside trunk line: 9,            │
│         Route E911 calls Thru PBX/EKSU: Disable      │
│      Default PSAP Callback destination: Speaker      │
│                                                      │
│           ⟨   Ok   ⟩   ⟨ Cancel ⟩   ⟨ Trunk Assigments ⟩ │
└──────────────────────────────────────────────────────┘
```

This dialog is used to configure the EECRS feature. The Enhanced Emergency Call Response System allows school administrators and faculty to be immediately notified when a 911 call is placed from a classroom phone. The phones connected to the Telecenter will be grouped based on their location in the school. These groups are known as EECRS trunk groups. Each group will have a set of C.O lines and location description associated with it. As soon as 911 is dialed, the auxiliary (2x24 back light LCD) display and other Telecenter displays will show the room placing the call along with a 24 char "direction" string, providing directions to the specific area or wing. This display will help the Emergency Response Team find

the exact location of emergency. These and other Telecenter displays will also notify school personnel. The EECRS feature also supports callbacks from the PSAP (Public Safety Answering Point).

> **!** **Important:**
> *The EECRS feature requires an activation code which can be purchased from the Rauland Sales department.*

Enable EECRS: When enabled, the TC2100 displays the stations placing a 911 call on all programmed displays and allow a callback from the PSAP (Public Safety Answering Point) . If this setting is disabled the systems reverts back to 911 dial-through method handling of 911 calls.

Timers

Auto Reset Timer: Automatically cancel the display of E911 message after the programmed time period.

Reset Inhibit Timer: Restricts clearing E911 messages from the display for the programmed time period

Display

Display Cycle Rate: Cycles through multiple 911 calls. A setting of "0" displays only the first 911 call placed.

Auxiliary Display Idle Message: Message displayed on Rauland Model FAD3020 Auxiliary displays when no 911 call is active.

Telecenter Displays that receive E911 messages: These sidecar and wall displays will show which line placed a 911 call.

Telecenter E911 Display String: 11 Character text string to prepend to room number when displaying where a 911 call originated from.

> **!** **Important:**
> *911 dial through must be enabled, along with the various controls for dialing staff phone and student phones*:

Access string for outside trunk line: This is used to request an outside line when dialing through a PBX or Centrex lines in front of the Telecenter System 21.

Route 911 calls through PBX or EKSU: If this option is enabled, 911 calls will be placed via a range of tie lines to another system.

Default PSAP Callback destination: If callback from the PSAP (Public Safety Answering Point) occurs while a 911 call is active, route the call to the preferred device.

Clicking on the *Trunk Assignments* button will display one of two dialogs depending on the setting of the **Route 911 calls through PBX or EKSU** option

Trunk Assignments for directly connected EECRS trunks

```
┌──────────────── E911 Trunk Assignments ────────────────┐
│       Main  Alt   Idle                                  │
│       Trk   Trk   Route        Description              │
│    ┌─────────────────────────────────────────────────┐ │
│ E1 │ M5   ---   4401     East Wing Second Floor       │ │
│ E2 │ M6   ---   4402     East Wing First Floor        │ │
│ E3 │ ---   ---    0                                    │ │
│ E4 │ ---   ---    0                                    │ │
│    └─ Enter a 24 char description of this area / wing. ─┘ │
│                                                          │
│              ‹  Ok  ›     ‹ Cancel ›                     │
└──────────────────────────────────────────────────────────┘
```
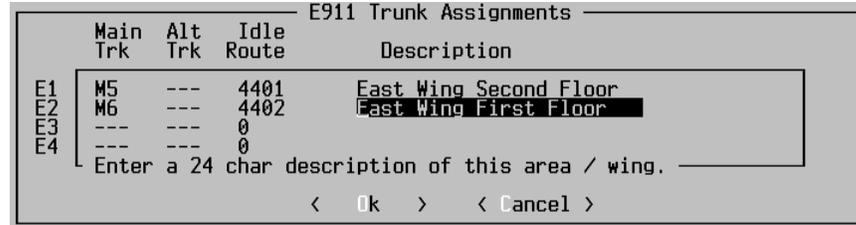
This dialog is displayed when the **Route 911 calls through PBX or EKSU** option is disabled.

Main Trunk: The primary C.O. line to use when a 911 call is placed. This line must be programmed as an EECRS trunk line type.

Alternate Trunk: The C.O. line to use if the Main EECRS trunk for this group is busy. This line must be programmed as an EECRS trunk line type.

Idle Route: The extension to ring when an inbound C.O call occurs on either the main or alternate trunk. This may be either a local Telecenter phone or a remote (UDP) extension. The idle route is used only when no 911 calls have been placed.

Description: This 24 character string is displayed when a 911 call occurs from any of the classroom phones assigned to this group. This string should give directions on how to reach the particular area or wing of the school.

Trunk Assignments for Tie Lines

```
┌──────────────── E911 Trunk Assignments ────────────────┐
│          Start of Tie Line Range: M1                    │
│            End of Tie Line Range: ---                    │
│                                                          │
│      Area/            Area                               │
│      Wing          Description                           │
│      ┌──────────────────────────────────────┐           │
│   E1 │ East Wing                             │           │
│   E2 │                                       │           │
│   E3 │                                       │           │
│   E4 │                                       │           │
│      └──────────────────────────────────────┘           │
│                                                          │
│          ‹   Ok   ›     ‹ Cancel ›                       │
└─ Start of a range of DSI tie lines to use for E911 calls. ─┘
```
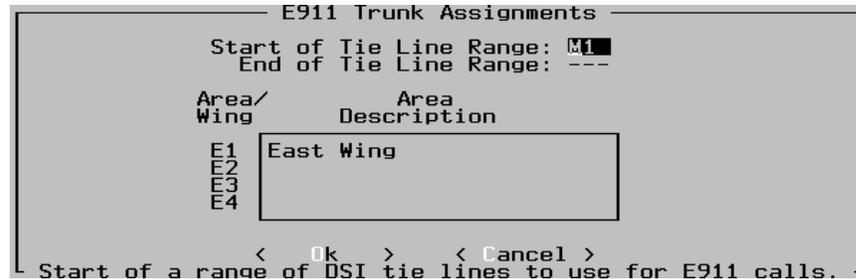
This dialog is displayed when the **Route 911 calls through PBX or EKSU** option is enabled.

Start of Tie Line Range: Enter the lowest-number Master-Port line that the system will attempt to use to send out the 911 call.

End of Tie Line Range: Enter the highest-number Master-Port line that the system will attempt to use to send out the 911 call.

Description: This 24 character string is displayed when a 911 call occurs from any of the classroom phones assigned to this group.This string should give directions on how to reach the particular area or wing of the school.

8

Diagnostics

The options within the Diagnostics Menu allow you to do the following:

Check the firmware version number.

Check the stored user programming against what you are working on (Block Status).

Modify the system's time and date and the format that they're displayed in.

Check vital statistics on the system's use.

View activity in the system.

Active-List Dump

```
                            Active List
        Source      Destination
    Line  Status  | Line  Status    Link  Proc            State Param Chan  Pin

    M5    OFF HOOK                     0   PND_PARSE          8   0001         0
    M1    OFF HOOK                     1   PAGE_SUPV         -1   0010    3    0
    S7    OFF HOOK S1                  2   SPK_SUPV          -1   0002    1    0
    S5    OFF HOOK S8     OFF HOOK     3   PHONE_SUPV        -1   0000         0
    S2    OFF HOOK M10    OFF HOOK     5   STUDENT_SUPV      -1   0128         0




    < Get New List >   < Save List >   < Continous:Disabled >   < Cancel >
```

This feature lists each line that was active when the dump was made (e.g., that S7 was connected to S1 via Link 2). As with the Statistics screen, the installer may set this screen in a continuous-update mode or click on *Get New* for spot updates.

To print a hard copy of this screen, choose *Save List* to save the data on your computer's hard drive or floppy disk. Once this information is in a file, you can use your computer's DOS or other utility program to print the file.

!

Important:

To generate a continuous listing of the active records in system first click on Continuos then choose **Save List.** *If Save List is selected while the Continuos update mode is disabled it only saves a snap shot the current system activity.* The TD21 reports activity on the system in the following format.

Source: Lists the originator's physical line (*M1-M12* or *S1-S256*) and status (off- or on-hook).

Destination: Defines the target's physical line and status (off- or on-hook).

Link: Lists the link allocated for this activity.

Proc: Defines the type of connection established:

Phone_Supv: An Administrative Phone, Dialing Staff Phone, or DISA Line is in use.

Student_Supv: A student phone is in use.

Phone_Parse: A phone is connected to a Dial Register.

Pnd_Parse: A phone is using a #XX function.

Ph_Ring: A phone (target) is ringing.

Spk_Supv: A phone is connected to a speaker.

Page_Supv: A phone is using a paging function: all page, zone page or alarm tones.

Time_Evnt: The system is sending out an internal generated time tone.

Ext_Time_Evnt: The system is sending out a time tone in response to an external time tone input.

Ext_Tone The system is sending out an alarm tone in response to an external alarm tone input.

Emer_Mic: The paging microphone is being used.

Idle_DSP: The system is waiting for a SLC phone to hang up

Disconnect: The system is sending a disconnect wink to a MSM phone or a trunk, or is waiting for a MSM port to go on hook

State: The current state of a process. This datum is used for troubleshooting.

Param: The parameter field contains data used by the control program. It is generally not relevant in troubleshooting.

Chan: Lists the intercom channel used for connecting a phone to a speaker.

Pin: Shows the PIN code used to originate a call or function from a normally unauthorized phone.

View Firmware Version

```
┌──────────── View Firmware Version ────────────┐
│                                                │
│  TC2100 system Firmware Version: 3.9B1         │
│        TC2100 Date of Manufacture: 4394        │
│             TC2100 Serial Number: 0097         │
│                   System Number: 0325          │
│                                                │
│                                                │
│              ‹      Ok      ›                  │
│                                                │
└────────────────────────────────────────────────┘
```

This dialog allows you to view the firmware revision number in the connected system, along with other information about the system. This information is used when generating the various software keys that enable premium features.

Set Time and Date

```
┌─────────── Set TC21 Time and Date ───────────┐
│                                               │
│  Current Computer Time:07:11 PM   03/19/98    │
│                                               │
│            TC21 Time:07:09 PM   03/19/98      │
│                                               │
│         Time Format:12 hour                   │
│         Date Format:MM/DD/YY                  │
│                                               │
│  ‹ Ok ›   ‹ Set to Computer Time ›   ‹ Cancel ›│
│                                               │
└───────────────────────────────────────────────┘
```

This dialog allows the user the view or set the current date and time, their formats on the connected TC2100 system.

> **(!)** | **Important:**
> *This feature requires TC2100 firmware version 3.0 or later.*

Current Computer Time: This field displays the PC's current time and date.

TC21 Time: This field displays the time and date from the connected TC2100 system, you can edit these fields to change the time in the connected TC2100 system.

Time Format: This setting determines the display format of the time on TC4221 sidecar and TC4222 wall mount displays. Available formats are 12 hour – AM/PM or 24 hour. The default setting is 12 hour.

Date Format: This setting determines the display format of the date on TC4221 sidecar and TC4222 wall mount displays. Available formats are MM/DD/YY, DD/MM/YY and YY/MM/DD. The default setting is MM/DD/YY

Clicking on the *Set to Computer Time* button copies the computers time and date to the TC21 Time field. Choose *Ok* to exit this screen and send the new settings to the TC2100. Choosing *Cancel* exits without making any changes.

Statistics

```
━━━━━━━━━━━━━━━━━━━ Statistics ━━━━━━━━━━━━━━━━━━━
                                        Resets       3
                  Number of times Dial Tone was given       5
                              Total Incoming Calls       0
                                   Outgoing Calls       0
          Maximum number of unanswered Call-ins at any time       1
                                 Total Call-ins       1
                        Current number of Call-ins       0
            Maximum number of links in use at any time       0
                    Number of links currently in use       0
               Number of times no links were available       0
      Maximum number of active list records in use at any time       1
            Number of active list records currently in use       0
            Number of times no DTMF register were available       0
               Number of times Paging Microphone was used       0
                    Number of times All Page was used       1

 System Reset Time 04/01 04:06AM Statistic Reset Time 03/30 03:28PM
   < Get Statistics >  < Reset >  <Continous:Disabled>   <   Ok   >
```

The *Statistics* dialog shows how heavily the system has been used. For example, it will list call-ins, incoming and outgoing calls, pages (both from telephones and from the Priority Microphone), and how many times all the DTMF registers were tied up. It also shows the time and date when the system was last reset and when the statistics file was reset. If system power is lost, both the system and the *Statistics* file will reset and the time and date will be recorded.

The Statistics screen can run in a continuous-update mode. Highlight the *Continuous* field and press *Enter* (or use your mouse to click on this option). The TD21 program will change modes from *Disable* to *Active*, and it will query the TC2100 for updated statistics every 10 seconds. While the *Continuous* function is disabled, you can click on *Get Statistics* to obtain updated information.

Reset

This option will reset all Statistics to zero and record the time and date of this reset. Choose *OK* to exit this screen when you have finished viewing the **statistics**.

Block Status

```
                    Mode: DIRECT
                    EE_BlockStatus[]
      0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
      0 1 2 3 4 5 6 7 8 9 A B C D E F 0 1 2 3 4 5 6 7 8 9 A B C D E F

  0   r r r r r r r r r r r I I I I I I I I I I I I I r r r r r I r I
  2   I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I
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  8   I I I r I I I I I I I I I I r I I r I I I I I I I I I I I I I I
  A   I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I
  C   I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I
         I = Invalid         r = matches remote
         d = matches disk    M = modified

                              ■Ok■
```

Select this file to see how the copy of the user programming that you are working on (the workspace copy) compares with an open file or the stored programming information from the TC2100 system.

The TD21 program will provide a table identifying each Block address. The table will show one of four variables depending on each block status.

I (Invalid block): Indicates that the program has not received the information stored in this block from the interconnected TD21 program. To retrieve all stored user programming, press *F8* or select *Receive Blocks* from the "Comm" menu.

r (Matches remote): Informs you that the information in the TC2100 matches the information of the block in your workspace.

d (Matches disk): Informs you that your work space information matches the information from an open file.

m (Modified): Indicates that this part (block) of your workspace copy has changed from the corresponding block in the open file or the programming stored in the system's EEPROM.

[All of the system's memory information matches with the current open file.]

A

Appendix A: Connecting a Modem

General Information

Two compatible modems are required to perform remote diagnostics with a Telecenter System 21: an internal or external modem for the PC, and an external modem for the system. The modem at the system should have auto-answer capability so that the entire communication process can be controlled from the remote PC

See Tech Bulletin E2062TB for an extensive discussion of modem usage.

You can use either a dedicated phone line or a trunk manually switched over as needed.

!	**Important:** You cannot establish a Modem connection through a repeater or line amplifier.

To use a modem with the Telecenter System 21:

✓ **Disable handshake signals.**

✓ **Enable auto answer.**

✓ **Disable character echo.**

✓ **Disable response messages such as "Ring." For a Hayes-compatible modem, the string** AT&D0S0Q1 **performs this function.**

✓ **Insure that the length of a received break it at least 200ms** ATS21=20.

Some modems have DIP switches for selecting these options. Other modems may require a temporary connection to a PC for programming the options into a non-volatile memory within the modem. Refer to the modem's operations manual for configuration instructions.

The Telecenter System 21 provides a full RS-232 Serial Port.

Avoid certain "line-powered" modems, for they cannot be enabled by jumpers or from their own DB25 connector.

The RS-232 standard uses the "DB25" adapter cable (25-pin "D" connectors), as well as several "DB9" adapter cables (9-pin "D" connectors). See KM-1127 in the drawing manual, KI-1767.

Voltage

The Telecenter System 21 Serial Port uses the RS-232 standard, which requires -5V and +5V input thresholds to indicate "1" and "0."

Cable requirements for either direct or modem communication to a Telecenter System 21 are:

✓ **One standard adapter cable between the PC and its external modem.**

✓ **One custom cable, similar to the above, between the Telecenter System 21 and its external modem (see KM1127 in KI-1767)—or you may use a Null-Modem cable in conjunction with a DB9 to DB25 converter.**

✓ **Each modem requires a modular telephone cable to its phone line.**

B
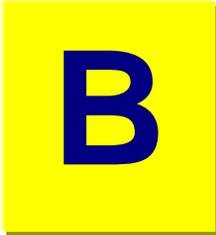
Appendix B: Class of Service Types and Attribute Settings

Unprogrammed

Summary: No service request can be sent from this setting. Assign it to unused lines. It can also be assigned to isolate a bad line circuit during troubleshooting.

Speaker Only

Summary: Gives intercom abilities: lets dialing phones call the speaker and carry on two-way communications with it, and allows call-ins from optional switches.

General Attributes

6: Change Priority: (the person at the station can place a priority call-in by pressing the regular *Call* switch three times).

8: Remote Cancel: (the person at the station can cancel a call-in by holding in the call switch for a least four seconds and then releasing it).

Call-in Attributes

This line type can be assigned a combination priority level and call-in prefix plus routing for two call-in switches. Note that the prefix associated with each priority level is a system option (see "Call-in Option").

Call-in Priorities
Source 1: For a regular, direct-short call-in switch.

Source 2: For a resistor call-in switch.

Display Routing
Display 1: Destination for a regular, direct-short call-in.

Display 2: Destination for a resistor call-in.

Handset

Summary: This non-dialing phone can be rung, and it can place a call-in to any of the system's displays by going off-hook or through an associated call-in switch. It can have an associated speaker.

Speaker First

A *Yes* here connects calls to the speaker. Otherwise, calls will ring the phone.

Monitor Extension

A *Yes* here sends busy/idle status information to the Vodavi Starplus Keysets with DSS/BLF buttons for Telecenter extnesion. These buttons will light when the corresponding Telecenter extension are busy or ringing. (TC21 firmware version 3.0 or later required.)

General Attributes

6: Change Priority: (the person at the station can place a priority call-in by pressing the regular *Call* switch three times).

8: Remote Cancel: (the person at the station can cancel a call-in by holding in the call switch for a least five seconds and then releasing it, or by holding the receiver off-hook for at least five seconds and then hanging up).

Call-in Attributes

This line type can be assigned a combination priority level and call-in prefix plus routing for two call-in sources:

Call-in Priorities

Source 1: For a regular, direct-short call-in switch or an off-hook call-in.

Source 2: For a resistor call-in switch.

Display Routing

Display 1: Destination for a regular, direct-short call-in or an off-hook call-in.

Display 2: Destination for a resistor call-in.

Phone

Summary: This phone can be allowed to make inside and outside calls, make pages, and distribute tones. It cannot have a display, receive call-ins, distribute audio programs, or use Always an Answer. It can have an associated call-in switch and speaker.

Speaker First

A *Yes* here connects calls to the speaker. Otherwise, calls will ring the phone.

Monitor Extension

A *Yes* here sends busy/idle status information to the Vodavi Starplus Keysets with DSS/BLF buttons for Telecenter extnesion. These buttons will light when the corresponding Telecenter extension are busy or ringing. (TC21 firmware version 3.0 or later required.)

General Attributes

1: Trunk Access: Allows access to Central-Office or external-system trunks (DIL, DISA, STAR and DSI).

2: Allows **toll calls** (General Attribute 1, access to trunks, is required).

3: Allows **Zone paging**.

4: Allows **All-Page** announcements.

5: Allows distribution of **Tones**.

6: Allows **call-in priority change** (pressing "******" or pressing an associated *Call* switch three times after a regular call-in has been placed will change that call-in to a higher priority). call-ins:priority change.

7: Allows **inside calls** to other room stations.

8: Allows **Remote Cancel** (the person at the station can cancel a call-in by holding in the optional call switch for a least five seconds and then releasing it, or by keeping the receiver off-hook for at least five seconds and then hanging up).

Interconnect Attributes

1: Allows access to **Media Control Lines**.

Call-in Attributes

This line type can be assigned a combination priority level and call-in prefix plus routing for two call-in sources:

Call-in Priorities

Source 1: For a regular, direct-short call-in switch or dialing "*****."

Source 2: For a resistor call-in switch or dialing "******."

Display Routing

Display 1: Destination for a regular, direct-short call-in.

Display 2: Destination for a resistor call-in.

Admin: Administrative Telephone

Summary: This dialing phone can have a display and an associate speaker, and can be given any function below.

Monitor Extension

A *Yes* here sends busy/idle status information to the Vodavi Starplus Keysets with DSS/BLF buttons for Telecenter extnesion. These buttons will light when the corresponding Telecenter extension are busy or ringing. (TC21 firmware version 3.0 or later required.)

General Attributes

1: Local Calls: Allows access to Central-Office or external-system trunks (DIL, DISA, STAR and DSI).

2: Allows **toll calls** (General Attribute 1, access to trunks, is required).

3: Allows **Zone paging**.

4: Allows **All-Page** announcements.

5: Allows distribution of **Tones**.

6: Allows **executive override** (pressing "*****" while receiving a busy signal will break into an ongoing conversation).

7: Allows distribution of **audio programs.**

8: Allows **Always an Answer** (upon receiving a busy signal from a room station, the caller can connect to the phone or speaker that is not involved without interrupting the ongoing conversation).

Interconnect Attributes

2: When this attribute is set, the system does not provide a disconnect pulse to this line when it is left alone on a link.

Display Attribute

Assigns a **Display Number** to an Administrative phone. All room call-ins sent to this display number will appear on the display, sound the display's beeper, and can be answered by pressing "✳."

DIL: Direct Inward Line Trunk

Summary: The system will direct incoming calls on this line's trunk to a specified "owner" extension. If General Attribute 3 is not set, any authorized dialing phone can use this line for outgoing calls.

> **Important:**
>
> To specify the owner extension, enter its Architectural Number as the DIL line's Architectural Number.

General Attributes

3: Private Use: Allows only the owner extension to make outgoing calls on this DIL line.

7: Caller Queuing: If the owner line is busy, a DIL caller will continue hearing ring-back from the system originating the call (central office, PBX, etc.). Setting this attribute directs the Telecenter system to put through the call as soon as the owner line goes on-hook. Otherwise, the Telecenter system will continue ignoring the call.

Interconnect Attributes

1: This instructs the Telecenter system to use **E&M signaling**. A disconnect pulse from the outside system will cause the Telecenter system to immediately disconnect any station remaining on the link (unless Interconnect Attribute 2 is selected or the link still has at least two connections, including one off-hook station). This Attribute should normally be *off* for operation with a TC4182 Trunk (COA) Module.

2: Ignore External Disconnect Pulses on this Line: When this is set, the Trunk Line will remain connected until all internal phones hang up. Use this only on lines that do not provide a reliable disconnect signal.

3: Set this Attribute for a line that is connected to a **PBX or Centrex system that has outside trunks**. The Telecenter system needs this information for completing calls to those trunks. If the Intercept action is Normal, then cut-through dialing will be performed.

8: Unsupervised Trunk-to Trunk Connection: Allows this trunk to be connected to another trunk without being conferenced to an off-hook phone inside the Telecenter system.

DISA: Direct Inward System-Access Trunk DSI: Digital Service Interface, STAR: Vodavi Starplus Tie Line

> **!** **Important:**
> DISA is recommended for lines to a PBX via TC4183 Tie-Trunk Modules.

Summary: The Direct Inward System-Access Line allows an external caller to receive Telecenter dial tone and perform most of the functions available on a non-display Administrative phone. The line can be made available for outgoing calls.

The Digital Service Interface Line is used for all lines connecting the Telecenter System 21 MSM ports to the Telecenter DSI Trunk ports.

General Attributes

1: Local Calls: Allows access to Central-Office or external-system trunks (DIL, DISA).

2: Allows **toll calls** (General Attribute 1, access to trunks, is required).

3: Allows **Zone paging**.

4: Allows **All-Page** announcements.

5: Allows distribution of **Tones**.

6: Allows **executive override** (pressing "*****" while receiving a busy signal will break into an ongoing conversation).

7: Allows distribution of **audio programs**.

8: Allows **Always an Answer** (upon receiving a busy signal from a room, the caller can connect to the phone or speaker that is not involved without interrupting the ongoing conversation).

Interconnect Attributes

1: This instructs the Telecenter system to use **E&M signaling**. A disconnect pulse from the outside system will cause the Telecenter system to immediately disconnect any station remaining on the link (unless Interconnect Attribute 2 is selected or the link still has at least two connections, including one off-hook

station). This Attribute should normally be *off* for operation with a TC4182 Trunk (COA) Module

2: Ignore External Disconnect Pulses on This Line: When this is set, the Trunk Line will remain connected until all internal phones hang up. Use this only on lines that do not provide a reliable disconnect signal.

3: Set this attribute for a line that is connected to a **PBX or Centrex system that has outside trunks**. The Telecenter system needs this information for completing calls to those trunks. When used in conjunction with the Normal Intercept action, the system performs cut-through dialing.

4: Acknowledge Speaker Connection: The Telecenter system will acknowledge, via the "M" lead, an incoming call to a speaker or a paging function, and then rely upon the outside system to provide a reliable disconnect signal. (When this attribute is not selected, the Telecenter system will not acknowledge an incoming call until it is answered by a phone or other device that can provide an off-hook signal.)

5: DSI Line: This attribute is set for a line that is connected to a Telecenter DSI system. This attribute cannot be edited. It is automatically set to (Y) when the DSI line type is selected. Also make sure that the Interconnect Attribute is clear (*N*) when this attribute is set.

7: STAR Line: This attribute is set for a line that is connected to a Vodavi STARPLUS KEY system. This attribute cannot be edited. It is automatically set to (Y) when the STAR line type is selected. Also make sure that the Interconnect Attribute is clear (*N*) when this attribute is set.

8: Unsupervised Trunk-to-Trunk Connection: Allows this trunk to be connected to another trunk without being conferenced to an off-hook phone inside the Telecenter system.

Display Attribute

Assigns a **Display Number** to the DISA phone. All room call-ins sent to this display number will appear on the display, sound the display's beeper, and can be answered by pressing "**∗**."

Student Phone™ Line

Summary: This line can be made available or active during timed periods of the day where students may make short outside calls in the local area. The Student Phone line operating parameters (e.g., Phone Call Duration, the Student Phone Repeat Call Time Limit, and the Student Phone Access Code), which are programmed in the Student Phone Editor, must be programmed for the Student Phone line type to operate correctly.

General Attributes

1: Local Calls: Allows access to Central-Office or external-system trunks (DIL, DISA).

2: Allows **toll calls** (General Attribute 1, access to trunks, is required).

Media: Media Control Line

Summary: This line type is used to connect an MRC7600, MRC7611 or MR100 Telemedia Controller to the Telecenter System 21. The MR100 may only be hooked up to a master (MSM) port and can control both laser disk players and VCRs. The MRC7600 and MRC7611 may be connected to either an SLC or an MSM port. Each media device can be sent any of three sets of initializing and ending tones, which are set in the "Media Option" screen and selected with the following attributes:

General Attributes

1: Selects set one of initializing and ending tones. (Only required for MR100.)

2: Selects set two of initializing and ending tones. (Only required for MR100.)

3: Selects set three of initializing and ending tones. (Only required for MR100.)

EECRS: Enhanced Emergency Call Response System Trunk Line

Summary: This line type is used by the EECRS feature to place 911 calls. The Enhanced Emergency Call Response system operating parameters (e.g., Area/Wing Description, Idle Route, Group Membership), which are programmed in the Enhanced Emergency Call Response System dialog under the System Options Menu, must be programmed for the **EECRS** line type to operate correctly. This line type may also be used for normal outbound C.O. calls.

Interconnect Attributes

2: Ignore External Disconnect Pulses on This Line: When this is set, the trunk line will remain connected until all internal phones hang up and the RESET CODE (#25) is dialed. Use this only on lines that do not provide a reliable disconnect signal.

Voice Mail

Summary: This line type is used to directly connect a Voice Mail or IVR system to the Telecenter. A voice mail system may only be hooked up to a master (MSM) port. Various parameters (Leave and Retrieve Message Strings) in the Voice Mail Integration Options dialog must be programmed for the Voice Mail line type to operate correctly.

General Attributes

1: Local Calls: Allows access to Central-Office or external-system trunks (DIL, DISA, DSI and STAR line types). This may be required for voice mail systems such as U.S. Telecom's Phonemaster 2000 to perform outdialing

2: Allows **toll calls** (General Attribute 1, access to trunks, is required).

6: Allows voice mail system to create **conferences**. If disabled, a broker's hold is performed. Every time the voice mail systems hook flashes it alternates between two connections. If a hook flash is performed while ringing an extension it drops the call and returns to the party on hold.

Interconnect Attributes

2: Disable Disconnect Pulse. If this option is set to yes, a disconnect wink will not be sent to the Voice Mail Port when the Telecenter Classroom phone hangs up.

C
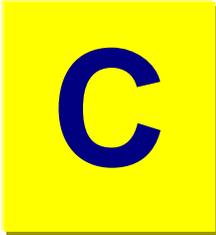
Appendix C: Technical Information

TD21 Command Line Arguments

TD21 /C<port>
/43 /50
<filename.t21>

Automatic selection of the COM port and filename and be specified with options on the command line. Refer to the example on the left:

/C<PORT>	specifies a COM port (1-4)
/43	Specifies 43 rows by 80 columns
/50	Specifies 50 rows by 80 columns
<filename.T21>	Automatically load/open a particular file

Windows 95 can be configured to automatically start the TD21 program when you double click on a file with the a **T21** extension.

1. Double click on the *My Computer* Icon.

2. Select *Options ...* from the view menu.

3. Click on the *File Types* tab.

4. Click on the *New Type...* button.

5. Enter "T21" in the associated extension field.

6. Enter "TC21"in the description field.

7. Click on the *New* button.

8. Enter "OPEN" in the action field.

9. Enter the path of the TD21 program in the Application used to perform action filed.

10. Click on *Ok.*

TD21 Monitor Commands

Below is a list of monitor commands recognized by the TC2100's CPU while in the Terminal Mode:

<CR>	Display address on the next line.
<SPACE>	Display byte and increment address.
XXXX:	Enter new segment.
XXXX=	Enter new offset.
XX.	Write byte at current address.

The following commands are valid when 8800:7F95 = 1

H	System halt (*for firmware version 2.4 the monitor address must be set to 3FFF:000A.*)
I	Read input port.
K	Print PCB (Kernel Process Control Blocks) (*for firmware version 2.4 the monitor address must be set to 3FFF:000B*).
M	Print Memory usage status (*version 3.0 and later)*
O	Write to port.
P	Poll music status (*for firmware version 2.4 the monitor address must be set to 3FFF:000C). from monitor address 3FFF:000C.*
Q	Print Kernel Process Queues
T	Print time log of all active processes (*for firmware version 2.4 the monitor address must be set to 3FFF:000D)*
X	Resume system from halt.
Z	View last four 911 calls made (*version 4.0 and later)*
CTRL A	Print MSM port status (*version 3.0 and later)*
CTRL C	View Call back busy/trunk queuing status (*version 3.0 and later)*
CTRL D	Display serial number if *CTRL_D* is pressed from monitor address = 8800:7F80.
CTRL E	Print a summary of the 8 most recent error conditions (*version 3.0 and later.)*
CTRL G	Force the TC2100 to reset if *CTRL_G* is pressed from monitor address = 1FFF:000.
CTRL L	Print LCD status (*version 3.0 and later.)*

CTRL V	Print Media Device (MR100,MRC7600 and MRC7611) status *(version 3.0 and latter)*

The TC2100 also responds to the following commands sent from the TD21. They should not be used in the Terminal Mode:

R	Receive block (press *F8* or select *Receive Block* from the "Comm" menu).
S	Send block (press *F9* or select *Send Block* from the "Comm" menu).
L	Active List Dump (select from the "Diagnostics" menu).
Y	Start or Stop the continuously active list dump (select from the "Diagnostics" menu).
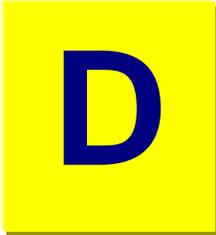
D

Appendix D: Technical Functions

The following functions would usually be carried out in consultation with service personnel. More detailed information is in the system programming manual.

> **(!)** **Important:**
> The first function can be done with any display phone. The other two require a display telephone connected to Master Port 1.

Looking Up a Physical Number (*#72*)

A technician might want to know where a line is wired (as opposed to the dialing number). To look it up:

1. Dial **#72**.

  ➤ The display will read "Arch?_."

2. Enter the desired Architectural (dialing) number.

  ➤ The display will show the number you dialed, followed by the Physical number (e.g., 101 = M1 M12 or S1 S256).

3. Press **#** to advance to the next consecutive Architectural number. To skip to a different number, hang up and start over. When you have finished, hang up.

Reviewing and Modifying the User Programming (*#99*)

This function lets you view the programming for each line in the system. It also lets you change any line's Class of Service and zoning. (A Class of Service is a set of functions that specify what a line can do—for example, whether a telephone can send pages and make outside calls. Zones group rooms for receiving pages and tones.)

1. Dial **#99**.

> ➤ The display will show the currently selected Memory Block and the number of blocks that are used [e.g., "Block 1 (1234)]."

2. If desired, dial the number of a different block. When the one you want appears first and underlined, press **#**.

> ➤ The display will read "1 Attrib 2 Class." The "Attribute" function allows you to view each line and make changes; the "Class of Service" function allows you to see what functions each Class of Service allows. The underline indicates the current selection.

3. To select the other function, dial its digit (**1** or **2**). Press **#** to enter your selection.

> ➤ If you selected "Attributes," the display will read "P:_ N:" ; if you selected "Class of Service," the display will read "COS:_ (1–64)."

4. Depending upon your selection, continue with the appropriate following subsection.

Reviewing and Changing Attributes

(This continues the *#99* function from the step immediately above.)

1. To check on a Master-Port line, dial **M** (*6* on the telephone keypad); to check on a Station-Port line, dial **S** (*7*). Then dial the Physical (wiring) Number of the line. Press **#** to enter your selection.

> ➤ The display will show the number you entered, followed by that line's Architectural (dialing) number (e.g., "P:M10 N:550" means the line on Master Port 10 can be reached by dialing *550*).

2. Press **#** to advance to the next screen.

> ➤ The display will show the line's current Class of Service (e.g., "M10 COS:12").

3. If desired, dial a different Class of Service (1–64). When the desired number is displayed, press **#**.

> ➤ **If you are reviewing a Master Port:** The display will read "P:M10 Spkr:10." In this example, the Master-Port line has an associated speaker on Station Port 10. **Skip to Step 9**.

> ➤ **If you are reviewing a Station Port:** The display will show the paging and time-tone zones selected for this line (e.g., "P:S15 Z:18"). Note that there may be fewer than eight zones, if some are used for correcting secondary clocks.

4. To change add or drop a zone, dial its number, which will toggle the number on and off the display. When you see the desired zones, press **#**. If you dial only two digits for paging, skip to second italicized paragraph; if you dial three digits, continue with the following italicized paragraph.

> ➤ The display will show the zones used only for paging (e.g., "P:S15 P:168").

5. As with the preceding zones, you can add or drop these zones by dialing their numbers. When you see the desired zones, press **#**.

> ➤ In this example, the display will read "P:S15 Pg Excl:" plus an underlined "Y" or "N" that indicates whether or not paging is excluded from the speaker on Physical line 15.

6. Press **#**.

➢ In this example, the display will read "P:S15 Tn Excl:" plus an underlined "<u>Y</u>" or "<u>N</u>" that indicates whether or not time tones are excluded from the speaker on Physical line 15.

7. Press **#**.

➢ If you made any changes, the display will read "Save? N (Y/N)." Otherwise, the display will read "<u>1</u>– Attribute 2– Class."

Skip to Step 10.

8. To select or change an associated speaker for a Master-Port line, dial the appropriate Physical Number. You do not need to dial "S" first, because all speakers are on Station Ports.

➢ If you made any changes, the display will read "Save? <u>N</u> (Y/N)." Otherwise, the display will read "<u>1</u>– Attribute 2– Class."

9. If you made any changes, you can save them by dialing **Y** (*9* key). To leave all the original settings unchanged, dial **N** (*6* key) or simply hang up.

➢ The display will read "<u>1</u>– Attribute 2– Class." This means you can re-enter Attribute reviewing and programming, enter Class-of-Service reviewing, or, to end the process, hang up.

Reviewing Classes of Service

(This continues the *#99* function from the step preceding the "Attributes" subsection.)

1. At the "COS" prompt, select the Class of Service you want to review by dialing the appropriate number (from **1** through **64**). Press **#** to enter your selection.

➢ The display will show the number you typed plus the Line Type (for example, "15 Type: Null"). The possible types are:

   ✓ Null (unprogrammed)
   ✓ Spkr. Only (speaker only)
   ✓ Handset (non-dialing phone)
   ✓ Phone (dialing phone)
   ✓ Admin. (Administrative phone)
   ✓ DIL (Direct Inward Line)
   ✓ DISA (Direct Inward System Access)
   ✓ Student (phone)
   ✓ Media (MR100 line)
   ✓ EECRS (Enhanced Emergency Call Response (E911) line
   ✓ Voice Mail (voice mail port)

2. You can now scroll through the settings for this Class of Service. Note that you will never see all of these for any single Class of Service, but only those applicable to each Class. Each entry begins with the number of the Class of Service you last entered, and is followed by "Y" or "N" to indicate whether or

not the attribute is active. Complete explanations of these entries are in the programming manual.

General Attributes

✓ Spk First (connect calls to speaker)

✓ Trk Access (can make local calls)

✓ Toll Calls (can make toll calls)

✓ ZnPage (can page zones)

✓ AllPage (can make All-Page)

✓ Private (personal outside line)

✓ Tones (can send tones)

✓ Override (can break in on conversations)

✓ Priorchg (press Call twice for emergency)

✓ Intcom (allow room-to-room calls)

✓ Music (can distribute audio programs)

✓ DILQueue (queue calls for DIL phone)

✓ RMTCancel (cancel call-in from room)

✓ Alwy-N-Ans. (call speaker if phone busy, & v.v.)

✓ Tone Select (starting and ending tones)

Interconnect Attributes

The following regulate how the Telecenter system connects to other systems.

✓ E&M (connected to E&M Line)

✓ Disconnect (wait for disconnect signal)

✓ PBX (connected to PBX line)

✓ Ack_Spk (signal when speaker is connected)

✓ Unsupv Trk (allow trunk-to-trunk calls)

✓ DSI Line (connected to a Telecenter DSI)

Displays

A display phone will have the following Attribute:

Display:_ (display this group's call-ins)

A line that calls in will have the following Attributes:

Prior1:____ (Call & * prefix)

Prior2:____ (Emergency & ** prefix)

Display1:____ (send Pior1 calls to this group)

Display2:____ (send Pior2 calls to this group)

When you have viewed all the applicable Attributes, pressing **#** will bring back the "1– Attribute 2– Class" prompt. This means you can enter Attribute reviewing and programming, re-enter Class-of-Service reviewing, or, to end the process, hang up.

Obtaining Technical Information about the Programming (*#70* and *#71*)

System Software Version and Checksum

The system programming tells the microprocessor how to carry out every function. It should never change (unless you buy a different version of it).

Should you call about a problem with the system, the technician may need to know which version of software you are using, since this can affect certain operations. You may also be asked for the system-programming "Checksum," a hexadecimal number representing all the elements in the programming. Should the programming have been altered in any way, this would change the checksum.

You can find both pieces of information by dialing **#70** at a test phone (a display phone connected to the first Master-Port line [M1] in the system).

➢ The display will show both numbers (e.g., VK.0 where the "V" identifies the version and the second number is the checksum). The normal display will return when you hang up.

User-Programming Checksum

In contrast, the user programming makes choices allowed by the system programming (for example, how long the system will give dial tone to an off-hook phone, which functions an individual telephone can perform). This can be changed, mainly by a computer attached to the system, but a display telephone can also make some changes. Therefore, this checksum will vary with the changes. Its main purpose is to indicate that something has been changed since the last time you checked.

You can find this number by dialing **#71** at a test phone (a display phone connected to the first Master-Port line [M1] in the system).

➢ The display will show the current number (e.g., EEPROM A6B0 where "EEPROM" identifies the type of computer chip used to store variable information (see the Glossary). The normal display will return when you hang up.

Enabling Premium Software Key (*#98*)

This function allows you to enable the premium secondary clock corrections and DSI features, if used, in the system.

Clock Correction Key

Enable this feature only if you are using clock correction codes **3** through **20**. Secondary clock correction codes **1**, **2**, and **DIG OUT** can be used with or without enabling the premium clock corrections. Refer to the Secondary Clock Correction table in KI-1767 (revision A or later) for the type of secondary clock this system can correct.

To enable clock correction, enter the 5-digit access code using *#98*. After purchase from Rauland, the activation code can be obtained from the factory by providing the date code and the serial number of the TC2100 used in the system.

DSI Key

When integrating a DSI system with a TC2100, the DSI key must be enabled using *#98*. Without the DSI key enabled, the system will not allow any inbound or outbound calls through the DSI line type. Inbound calls will not be answered and disallow tone will be given to the user when attempting to dial out through the DSI line in a system without the DSI key.

To enable DSI key, enter the 5-digit access code using *#98*. After purchase from Rauland, the activation code can be obtained from the factory by providing the date code and the serial number of the TC2100 used in the system.

EECRS Key

To provide internal notification of when a 911 call is placed the EECRS key must be enabled using #98. Without the EECRS key the system revert to 911 dial-through operation.

To enable EECRS, enter the 5-digit access code using *#98*. After purchase from Rauland, the activation code can be obtained from the factory by providing the date code and the serial number of the TC2100 used in the system.

Retrieving Date Code and Serial Number

1. To retrieve the date code and serial number from the system, enter **#98** from any administrative phone with associated display.

➢ The display will show "Date Code: dddd."

2. Note the 4-digit date displayed on the LCD display and enter **#**.

➢ The display will show "Serial #: sss."

3. Note the serial number and enter **#**.

➢ The display will show "CORR NOT EN[Y/#]

4. If you want to enable clock correction and have the access code, enter **Y** (key *9*) and proceed with the next section "*Entering the Clock Correction Key*." To skip Clock Correction, enter **#**: the display will show "*DSI NOT EN[Y/#])*." If you

have the access code, enter **Y** (key 9) and proceed with the section "Entering the DSI Key."

Entering the Clock Correction Key

1. To enter the access code for premium secondary clock correction, follow the above steps.

➢ The display will show "CORR KEY:_"

2. Enter the 5-digit password.

➢ If the access code is correct, the display will show "Corr Enabled (#)."

3. Press **#** to enter the DSI key or hang up the phone.

➢ If the correction is already enabled, the display will show "Corr Enabled [#]" without prompting for a key entry. If the entered access code is incorrect, the display will show "CORR KEY FAIL[#]." To re-enter the access code, press *#*.

Entering the DSI Key

1. To enter the access code for DSI Key, follow the above steps.

➢ The display will show "DSI KEY:_"

2. Enter the 5-digit password.

➢ If the access code is correct, the display will show "DSI Enabled [#]."

3. Press **#** and hang up the phone.

➢ If the DSI key is already enabled, the display will show "DSI Enabled [#]" without prompting for a key entry. To skip DSI, enter **#**: the display will show "*E911 NOT EN[Y/#])*." If the entered access code is incorrect, the display will show "DSI KEY FAIL[#]." To re-enter the access code, press *#*.

Entering the Enhanced Emergency Call Response System Key

1. To enter the access code for EECRS Key, follow the above steps.

➢ The display will show "E911 KEY:_"

2. Enter the 5-digit password.

➢ If the access code is correct, the display will show "E911 Enabled (#)."

3. Press **#** and hang up the phone.

➢ If the EECRS key is already enabled, the display will show "E911 Enabled [#]" without prompting for a key entry. If the entered access code is incorrect, the display will show "E911 KEY FAIL[#]." To re-enter the access code, press *#*.

E

Appendix E: DTMF Logging Codes

This section describes the logging out generated by the TC2100 when DTMF logging is enabled.

Sample Logging Output

```
    Time        Source    Dest.     link   event
    Stamp        line     Line
6:55:43.05 PM (4406)S6                     off-hook
6:55:43.08 PM (4406)S6              L0     Assign dtmf xcvr:A
6:55:43.10 PM (4406)S6              L0     A>DIALTONE
6:55:43.15 PM (4406)S6              L0     A<#
6:55:43.33 PM (4406)S6              L0     A<#
6:55:44.13 PM (4406)S6              L0     A<4
6:55:44.20 PM (4406)S6              L0     A<4
6:55:44.35 PM (4406)S6              L0     A<0
6:55:44.53 PM (4406)S6              L0     A<1
6:55:44.55 PM (4406)S6   (4401)S1   L0     ringing
6:55:44.57 PM                              <0              >'_~__~_'
6:55:44.60 PM                              <0              >'_~__~_'
6:55:44.05 PM (4406)S6   (4401)S1   L0     free dtmf xcvr:A
6:55:52.07 PM (4406)S6   (4401)S1   L0     Assign dtmf xcvr:A
6:55:52.15 PM (4406)S6   (4214)M2   L0     forward to VM (4214)
6:55:52.17 PM (4406)S6   (4214)M2   L0     ringing
6:55:52.31 PM (4406)S6              L0     on-hook
6:55:53.61 PM (4406)S6   (4214)M2   L0     free dtmf xcvr:A
6:55:54.38 PM (4214)M2                     off-hook
6:55:54.43 PM (4214)M2              L0     Assign dtmf xcvr:A
6:55:54.45 PM (4214)M2              L0     A>DIALTONE
6:55:56.03 PM (4214)M2              L0     A<0
6:55:57.27 PM (4406)S6                     off-hook
6:55:57.29 PM (4406)S6              L1     Assign dtmf xcvr:B
6:55:57.31 PM (4406)S6              L1     B>DIALTONE
6:55:58.03 PM (4406)S6              L1     B<4
6:55:58.19 PM (4406)S6              L1     B<4
6:55:58.29 PM (4406)S6              L1     B<0
6:55:58.44 PM (4406)S6              L1     B<2
6:55:58.46 PM (4406)S6              L1     B>REORDER SMDR_DENIED_INTERNAL
6:56:00.01 PM                              <0123456789ABCDEF>'_~___  6:56PM  3-16
```

CODE	EXPLAINATION
(y)Mx	MSM port x with extension or architectural number y
(y)Sx	SLC line x with extension y
Lx	Link number x
A<0	DTMX xcvr A receive DTMF digit '0'
B>DIALTONE	DTMF xcvr B generated dial tone
C>REORDER SMDR_DENIED_INTERNAL	DTMF xcvr C generated reorder tone and the reason that reorder was given.
<0123456789ABCDEF>'_~___ 6:56PM 3-16'	LCD display update sent to displays 0-9 and 10-15, where A=10.
X>tone	where X is the DTMF xcvr (A-F) A and B correspond to the first TC4190 card. tone is one of the following:

DTMF Tones	Call Progress Tones	MTG/Alarm Tones
0-9	DIALTONE	CHIME
#	BUSY	MINICHIME
*	REORDER	STEADY
		EURO SIREN
		WESTMINSTER

F
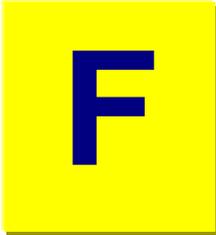
Appendix F: Integrating the Telecenter System 21 with a Voice Mail System

The TC2100 can be configured to interact with a voice mail system in one of two configurations: Directly connected via an MSM port or remotely connected through either a Cortelco Millennium or a Vodavi STARPLUS.

Remote voice mail system

To forward and retrieve message from a voice mail system that is connected to another PBX or EKSU perform the following steps.

1. **Configure the remote Voice Mail Extension**

   In the Voice Mail Integration Dialog, set the remote voice mail extension to the extension or dial access code used by the PBX or EKSU to call voice mail.

2. **Add a UDP entry for the remote Voice Mail Extension to the Intercept Table**

   Using the Dialing Intercept Editor insert a an entry for each target COS (those the COS of those lines being forward to remote voice mail).

3. **Forward Classroom Phones to Voice Mail**

   Using the Call Forwarding Editor, set the Classroom phones to forward on busy or no answer to the Remote Voice Mail Extension. Phones that aren't forwarded to voice mail can still call the voice mail system to retrieve messages

Directly Connected Voice Mail System

1. **Create Class of Service (COS) for Voice Mail Line Type**

   If not already configured, use the Class of Service Editor create a new COS for voice mail ports. COS 49 and 50 are recommended, as this is the default Classes of Service in TD21 version 4.0.

2. **Configure the Suffix and Prefix Strings**

   In the Voice Mail Integration Dialog setup the Leave Message and Retrieve Message dialing strings. It is also recommend to program a pause ',' in the prefix dialing string to avoid sending the mail box digits to the voice mail system before it is ready. If your TC2100 is configured for 3 digits extension's and the voice mail system only allows 4 digit voice mail boxes, program a leading digit in the pre-sequence string to convert the 3 digit extensions into 4 digit mail box numbers.

3. **Setup Voice Mail Ports**

   Using the Master port editor, set the COS of the MSM ports connected to voice mail system to the COS created in Step 1. The voice mail ports need not be contiguous. You can use any of the 12 MSM ports. Give each voice mail port a unique extension.

4. **Setup Voice Mail Hunt Group**

   Using the Call Forwarding Editor, set the forward on busy entry for each voice mail port to the next voice mail port. The forward on busy entry for the last voice mail should be left blank.

5. **Forward Classroom Phones to Voice Mail**

   Set the Classroom phones to forward on busy or no answer to the extension of the first voice mail port. Phones that aren't forwarded to voice mail can still call the voice mail system to retrieve messages.

6. **Auto Attendant Operation**

   To setup the Telecenter System with an Auto Attendant set the target of a DIL to the first voice mail port. No mail box number will be sent to voice mail system if called from a DIL trunk (leaving the caller at the top-most menu of the voice mail system.) Like wise if the voice mail system is called from a DISA line, the caller is left at the top level menu

G

Appendix G: Telecenter® System 21 Multi-Channel Audio Functions

This appendix describes how channels are assigned for various audio functions on the Telecenter® System 21.

Audio Function Priorities

Audio functions can pre-empt other audio functions of lower priority, as indicated below.

Priority	Audio Function	Description
Lowest	Program(Music) Distribution	#80-#82, and music call switch
⇓	Intercom	Communication with a single room speaker
⇓	Internal Tones	#11 through #15
⇓	External Tones	Time tones inputs TZ5-TZ8 (external tone type not set to NONE)
⇓	Zone Page	#0X,#01X and #00X depending on the number of page digits
⇓	All Page	#00
⇓	Internal Time Tones	Internal master clock
⇓	External Time Tones	Time Zone Inputs TZ1-TZ8
⇓	Emergency Page	Paging Microphone
Highest	Fire Alarm	Fire Alarm Input

Single and Multiple Channel Audio Functions

When a system has multiple paging amplifiers, channel assignments for audio operations are handled differently depending on whether the operation is classified as a single or multi-channel audio operation.

The following operations are single channel audio functions. If multiple amps are available, it is possible to have multiple simultaneous operations of this type.

✓ Music distribution - Single Station and Zone

✓ Intercom

✓ Zone Pages

✓ Internal Time Tones

✓ External Time Tones

The following operations are multi-channel audio functions. They use as many channels as there are paging amps programmed. Only one such function can be active in the system at any one time. Each SLC card must be assigned to a specific channel using the Channel Assignment dialog box under the System Options menu. These SLC channels assignments also apply to 4-wire systems with NO paging amps (see below).

✓ All Zone Program Distribution

✓ Internal MTG(Alarm) Tones

✓ External MTG(Alarm) Tones

✓ All Page

✓ Emergency Page (Paging Microphone)

✓ Fire Alarm.

In systems with no paging amps (i.e. intercom amps only), the system behaves differently, depending on the type of SLC cards used. For 3-wire systems, all paging and music distribution functions (except intercom) are disallowed entirely. For 4-wire system, all paging and music distribution function will use all intercom amps programmed. So, only one audio function can be active at any time in the system.

Channel Selection

Channels are allocated differently depending on the function. The intercom channels are allocated in ascending order (1,2,3). Channel one is allocated first. If that is busy, channel two will be allocated next (assuming there is two intercom amps available). When wiring your system, the intercom amps MUST be wired beginning with channel 1, and going up if there are multiple intercom amps.

Single channel audio functions are allocated in descending order (3,2,1). The highest free channel is allocated first. If that is busy, the next lower channel will be allocated (assuming there is two page amps available).

If no paging channels are free, then a channel is allocated based on the following best-matching criteria.

The system will try to find a channel using the exact same zone. If it has lower priority, then it will use that channel. If it is higher priority, it will give busy signal to the caller.

If it cannot find a channel using the exact same zone, it will choose the channel that causes the smallest possible disruption (i.e. affects the fewest other zones).

If no best matching channel can be found, it will search the channels in descending order for a channel with a lower priority function. If one is found, it will use that channel. Otherwise, it will give busy signal to the caller.

If an audio function is pre-empted by a higher priority function, the original function will be restored when the caller hangs up. The original caller must remain off hook for the function to be restored.

Systems with two paging amps and one or more intercom amps must be wired in a special manner to maximize channel usage. By wiring the paging amps to channels 2 & 3, it is possible to use all three channels in certain instances. For example, an intercom call and two non-overlapping zone pages, time tones or music distributions is possible.

You must specify the page amps channel connections in the Resources dialog box under the System Options menu. Select either channels 1 & 2, or channels 2 & 3. If the page amps are connected to channels 2 and 3, then three simultaneous paging and intercom functions are possible. The channel 1&2 selection is provided to support existing field applications. In all cases, the intercom amps must be connected beginning from channel 1.

Systems with three paging amps and one or more intercom amps can have three non-overlapping zone pages, time tones or music distributions functions. The intercom amps must be connected beginning with channel one, and going up if there are more intercom amps.