Programming KI-1692C

Telecenter® V Communications System Programming

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General Information

Description

This manual explains the programmable functions of both individual lines and the system as a whole. Some simple programming, such as selecting a Class of Service for the individual lines, can be set from a system test phone. All programming is accomplished with the TD5 diagnostic program, which allows the user to make changes quickly and efficiently. The TD5 runs on a personal computer connected to the system's CPU (see KI-1730).

Refer to the appropriate system manuals for information (KI-1693 for operation, KI-1695 for wiring diagrams and planning charts, etc.).

Revision History

This manual has been reformatted. No substantive changes were made during the reformatting process.

This manual includes feature changes to the Telecenter V software covered in Version 308 software release. Version 308 software requires the TD5 diagnostic disk, Version 10.0 or later. When updating the Telecenter software to Version 308, you will need to re-save your intercept table (refer to the TD5 manual, KI-1730).

Additional features in Version 308 include:

Multi-System Dialing: allows the Telecenter system to enforce dial restrictions when there is more than one external system (e.g., KSU, PBX, Centrex® Services) connected in front of the Telecenter V system. Refer to the Intercept Table

Programming (Alt-M) of the TD5 Diagnostic disk manual, KI-1730 for more information on the format of data to input.

Important:

When updating software from earlier versions than 308, you must re-save your intercept table.

External System Intercept Action CUT: set in the intercept table, this action allows the audio of the originating party to get to the external system line immediately after sending the presequence dialing string.

SMDR (Station Message Detail Recording): The Telecenter V system can output call records to its serial port, which can be printed to a screen or printer or gathered by a data collection device. The system does not provide buffering and the output may be used with a call-accounting software package. See Location Codes 538 and 540, in Appendix A, for more information on the SMDR output.

Loss of dial tone at DSP phone: This feature produces and routes a call-in when a Dialing Staff Phone is taken off-hook and the dial tone limit expires.

Internal Caller ID: the Telecenter V system can show the internal station number calling if the receiving phone has a display. The message will remain on the display while the phone is ringing, and off-hook during conversation until the display is updated with a higher priority message. See Location Codes 542-548, in Appendix A for setting information.

Telecenter IVR Line Group: when the Telecenter IVR is placed behind the Telecenter V system, these Location Codes (554-556) identify to the system the number of physical lines to be used for voice-mail type functions.

Call Pick-up Group: the Telecenter V system now has a pickup group that allows all members of the group to dial Code #33 and pickup each others ringing phone. See Location Codes 410-412 in Appendix A.

Location Code 532 has been changed.

Programming Overview

The Telecenter system is highly flexible, both in the equipment that can be used with it, and in the functions that can be selected for each application. Although some features require special hardware, all features for equipment and the user can be set through programming.

Broadly speaking, there are three levels of programming: items that affect only an individual line, items that affect groups of lines, and settings that affect the system as a whole. This section briefly describes all three types, while later sections provide more detailed information.

Individual Lines

Most of the programming is accomplished simply by designating a **Class of Service** to a line. The only other programming performed line-by-line is assigning Architectural (dialing) Numbers, a Hunt bit (route a call to the next line when this line is busy), and assigning Zones for speaker 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 staff phone, media control), dialing authorizations (e.g., for paging or making outside calls), call-in priority levels and routing. There can be up to 64 Classes of Service (0-63). Assigning a Class 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 its number.

The system comes with a set of factory-programmed Classes, which should meet the needs of most installations. “Setting Individual Lines” tells how to assign a Class to individual lines It is also possible to modify the factory settings of custom-program Classes to meet the needs of your application, as explained in “Defining Service Classes.”

System-Wide Programming

Programming that affects the system as a whole, such as configuring the system memory, selecting the time-out period for dial tone, and specifying which prefixes restricted callers can dial through the central office—these settings are maintained through Location Codes.

Because these settings will not be used often, and some require a deeper understanding of the system, they are described in full detail in "Appendix A."

Preparations for Programming

1. Obtain and complete the Cable Assignment Work Sheet (KM1O5O) from the Telecenter V Drawings manual (KI-1695).
2. Turn off all power to the system. Remove the TC4411 CPU board using static-handling precautions to protect the highly sensitive CMOS devices.
3. If you are using the TD5 diagnostic program, cable the computer to the CPU board. If you are programming from a telephone, find the two-pin jumper on a three-pin assembly to the rear of the Reset button. Set the jumper to the ENable position. If this is not done when making changes by a telephone, the system will respond normally to the programming commands but will not store changes in memory.
4. Reinstall the CPU board and restore power to the system.

5. Complete the programming by running the TD5 Diagnostic program or making changes using physical #3 test phone. Check the system for proper operation.
6. If you used the TD5 program, remove the cable from the TC4411 CPU's port. If you used a telephone, follow the procedure used in steps 1 through 3.

Changes Available from Phones

In the Telecenter V system, a limited amount of field configuration is available from the Administrative telephone with a display. All other system parameters are restricted to programming through a personal computer using the TD5 Diagnostic program. The following tables summarize the telephone programming through #XX codes for the system:

From any Administrative Phone with a Display:	
#Ox-# 1 x	Paging and Tones, restricted through attribute settings
#20	Initialize (reset) Displays
#21	Cancel All Call-ins
#22	Review Call-ins
#24	Media Assignments
#30	Night Answer (pick up calls)
#3 1	Night Answer Feature ON/OFF (toggle)
#33	Group Call Pick-up
#53	Manual Student Phone Control. ON/OFF (toggle)
#55	Set lime/Date
#56	Message Waiting Lamp Control: 0 = off, 1 = On, 2 = Flash
#97	Zone Change

From the Test Phone (Physical #3) Only:	
#70	Version Check sum
#71	EEPROM Check sum
#72	Physical Number look-up
#73	I/O Diagnostics
#74	RP2 Adjustment
#96	Prefix Restrictions
#99	Line Programming (only Zone selection and Class of Service assignment)

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Setting Individual Lines

Initial Choices

To begin programming, you must tell the system what you want to program (e.g., individual Attributes) and in which Memory Block the information is to be stored.

There can be from one to four complete sets of programming for both system settings and individual lines. Block 1 would normally store the regular programming; other blocks could store programming for night or holiday operation. Basic systems may only use Block 1. The Telecenter's Time-Based Memory Event Manager provides an automatic method of controlling the memory block switching on a daily (time) basis. See the Location Code Directory and the Telecenter Diagnostic Disk manual (KI-1730) for more information.

Individual Lines

In the TD5 program, the Class of Service editor provides a method to select line type and Attributes. Most line programming can be accomplished under the Attributes settings. Appendix B shows the complete Attributes that are available for each Class of Service type. Refer to this section when modifying or creating new Class of Service types.

Architectural Number

As explained in the Planning Manual, Physical Numbers represent the terminals where telephones, speakers, call-in switches, and other equipment can be wired to the system. These are internal numbers the system uses for its operations, such as connecting two lines to a link so they can communicate with each other. The Architectural Number (so-called because floor and room numbers are commonly chosen) is the number that users will dial to reach a particular line. When choosing an Architectural Number, observe these rules:

- ✓ Give all Architectural Numbers in the system the same number of digits (3 or 4, as set in Location 60).
- ✓ Do not use duplicate numbers.

Selection of a Class of Service

Appendix D provides a chart of the Classes of Service set by the factory. Entering the number of the desired Class of Service (0-63) will usually meet most programming needs.

Important:

several of the default Classes of Service have identical programming. This allows installers to set up several Classes of Service with minor differences, by simply modifying one or two settings.

Hunt Bit for Call-Handling

Setting the "Hunt" feature tells the system to route a call to the next-highest Physical Number when this line is busy. If the next line is busy, the system will continue hunting for a line that is not busy until it finds one that is available or it no longer finds an active hunt bit. On trunk lines (AAI, DIL, DISA), the Hunt feature applies only to outgoing calls; the central offices or other external systems hunt for incoming calls to the Telecenter system.

The Hunt feature affects only calls from dialing phones. Call-ins, made by call switches and non-dialing phones (when their receivers are lifted off-hook), are controlled by the "r" settings for the Class of Service.

The second Hunt setting is reserved for future use.

Zones

The Zones group stations with speakers so that the system can page or send tone signals to specified areas. Each station can be in any number and combination of zones, or in none.

Under the "Z:" heading, enter the number of each zone desired, to select them or make them all blank.

Programming Individual Lines	
Individual Attributes	**Class of Service(s) Attributes**
n: Architectural (dialing) Number	**A**: Line Type (administrative, staff, media, etc.)
s: Class of Service (enter the number from 0 to 63 to set the desired Class of Service)	**B**: Authorizations (outside calling, paging, etc.)
H: Hunt (sent call to next line when this is busy)	**C**: Interconnect Options
Z: Assign Speaker Zones	**r0-r3**: Routing Call-ins

For further details on Individual Attributes, see "Setting Individual Lines." For detailed Class of Service setting descriptions, see "Appendix B."

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Defining Classes of Service

This section contains information on modifying or establishing Classes of Service. Most installations only require small modifications to the factory programmed Classes. Accordingly, you can pick a duplicate or unprogrammed Class of Service from the chart of the factory-default settings in Appendix D, then consult the detailed listings of the individual Classes of Service in Appendix B to plan alternate settings.

Class Attributes

The four types (A:, B:, C:, and r:) are described in the following subsections.

A: Attributes (Line Type)

A:1-4 Determine the general type of service the system will supply the line (a dialing phone, media-control line, trunk that directs calls to an attendant, etc.).

A:7 Directs that any call to this line be immediately connected to its associated speaker. If there is also a telephone, the user there has the option of switching communications to the phone by picking up its handset. Dialing "##" prior to the desired number will toggle the system's setting for that particular call.

A:8 Set to signal the presence of a speaker available for use with this line.

B: Attributes (Line Authority)

These vary, depending upon the line type selected by A: 1-4. Most of them apply to dialing phones and interconnect lines. In most cases, each bit controls the access to an individual feature for that Class of Service. However, the Special Page line uses two groups of the B: attributes to address Locations (see the description of this Class in Appendix B).

Important:

when a Class of Service is restricted to local access only, the user may dial 7 digits (3 digit prefix and 4 digit address) or "1" plus 7 digits. Some regions are served only by one area code, "1" plus 7 digits is considered long distance. Hence, the installer must use the Toll Prefix Editor (Alt-T).

B:1 Local Access allows a dialing phone to call outside the system via a trunk line. Such calls can be restricted to specific exchanges within the local area. Any such restrictions can also apply to calls dialed after the user has accessed a PBX or other system from the Telecenter system.

B:2 Toll Access removes any restrictions imposed by the B:1 setting, allowing the user to call anywhere. However, the line must still have the B:1 setting, in order to access the outside lines.

B:3 lets the user page any individual zone.

B:4 lets the user page all zones simultaneously (all-call).

B:5 lets the user send a tone signal over all the speakers.

B:6 (**for Administrative phones and Console Operator lines**) allows executive override: after dialing a number inside the system and receiving a busy signal, the user can become connected to the ongoing conversation by pressing the asterisk (*) key prior to the rate change of the busy signal.

B:6 (**for DIL, AAI, and DISA trunk lines**) connected to an external (PBX or Centrex) system gives access to any dialing phone; however, the caller's B:1 and B:2 restrictions still apply.

B:7 (**for a Dialing Staff Phone**) gives direct access to media-control lines. Without it, the user would need to be transferred to a media line by an Administrative phone.B:7 **for DIL trunk** lines prevents calls on this line from being sent to the attendant or any other line when the owner is busy. An outside call not answered will continue to ring until the owner answers or the calling party hangs up.

C" Attributes (Interconnect)

These mainly set options for interconnect lines (AAI, DIL, DISA), except for an alternate version of C:2 for Administrative and Dialing Staff phones.

C:1 selects the type of interface used between the Telecenter system and an outside system. This choice, in turn, determines the way the systems will signal (connect and disconnect) each other.

Turning C:1 off (blank) selects the TC4182 Trunk (COA) Module, which is used with a typical central-office trunk (loop or ground-start). C:2 works in conjunction with this setting.

Turning C:1 on (1) selects the TC4183 Tie-Trunk Module, used with PBX and hybrid-key systems. This uses the E&M protocols, whereby each of the systems uses "E & M" terminals to send and receive service requests and acknowledgments to the other system. C:3 and C:4 work in conjunction with this setting.

C:2 for loop or ground-start interconnect trunks tells the Telecenter V system whether or not to depend upon the external system to provide a disconnect pulse. Turning C:2 off (blank) tells the system to expect a disconnect pulse. Upon

receiving this signal, the system immediately returns the trunk to the idle state and disconnects any station left alone on a link.

Turning C:2 on tells the system not to react to an outside disconnect pulse, but to first look for inside supervision. If a system phone is connected to the outside line, hanging up will signal the system to drop the external connection. If a speaker, a paging function. or a ringing phone is the only inside connection, the system will resort to its keep-alive process.

C:2 for Administrative and Dialing Staff lines affects these lines when they are alone on a link 2-4 seconds after losing dial tone or having the other parties hang up.

Turning C:2 off (blank) tells the system to send the line a disconnect pulse and remove it from the link *(A* disconnect pulse is used by some key systems to end a "hold" and by some answering machines to stop recording.)

Turning C:2 on (2) tells the system not to send a disconnect pulse and to leave the phone or device on a link until it hangs up.

C:4 for E&M interconnect lines affects the connection of the external system to a Telecenter speaker or paging function.

Turning this off (blank) tells the system not to acknowledge a connection unless its station goes off-hook. If the other system requires an acknowledgment before proceeding, this setting would prevent it from calling speakers or the paging function.

When set, the system acknowledges all connections, including those to speakers and paging functions. Only use this when the other system can provide a reliable disconnect signal; otherwise, speaker and paging connections could be left hanging indefinitely after the outside user hangs up.

C:8 for interconnect allows an outside trunk to supervise another trunk. Thus, an outside user could get another outside line via the Telecenter system. Although only a DISA caller can receive dial tone, the other trunk types could be transferred to an outside line by an authorized dialing phone.

r. Attributes (Call-in Handling)

There are four r: attributes that provide call-in handling for all types of stations within the system. r0-: and r1: handle call-ins from switches, while r2: and r3: route call-ins from dialing "*" and "**" from a dialing staff phone. r3: also assigns a display number to an administrative phone.

r0 and r1: the r0 attribute controls call-ins made by grounding the "T" terminal. The r1: attribute controls call-ins made by grounding the "T" terminal in series with a 1500-ohm resistor.

r2: and r3: the r2: and r:3 attributes route call-ins generated by dialing the "*" and "**" keys, respectfully, from a Dialing Staff phone. This feature can be used in conjunction with call switches to enhance call-in flexibility.

For Administrative Phones, the r3: attribute is used to assign a display number. Only call-ins addressed to this display number will appear on the administrative telephone's display.

Important:

the number assigned here must agree with the display address set on the DIP switch of the TC4221 Display Module or the TC4222 Vacuum Fluorescent Wall Display.

Format: r(n): d 1 p :123
The letters represent digits controlling these features:

d = The number of the display to which this type of call-in should go. There are 16 displays which are currently available (0-15). Display numbers 16-31 are reserved for future use. The default setting is 31 (no display).

L Priority level of the call-in. Choose one of the following:

0	=	Normal level, slow beep rate.
1	=	First priority level, faster beep rate, queues call-ins ahead of normal-level all-ins.
2	=	Second priority level, same beep rate as the first level, but queues ahead of the first and normal level call-ins.
3	=	Third priority level, faster beep rate, queues call-ins ahead of all other call-ins.

P Prefix, a short I.D. that can appear next to the number of the station when its call-in is shown on a display. This option modifies or adds any four characters using the TD5 Diagnostic program. The only factory-set prefix is 1 (Emer). See Location Codes 142 through 184 to disable the prefixes.

:123 Bit I enables remote cancel of call-ins. Bits 2 and 3, as well as the combinations of all the settings, are reserved for future use.

4

Location Codes

Location Codes are pointers to memory locations used by the system to access information concerning operational characteristics. When required, a formula is provided for determining the appropriate value to enter during programming or troubleshooting. Appendix A lists the Location Codes in numerical order and provides a full definition for each. Appendix C summarizes each Location Code with the Factory Default Settings and has additional space to record the Installed Settings.

System Settings

These are settings that affect the system (e.g., which line serves as the Attendant for outside calls, what digit to dial for an outside line). This also includes more technical settings, such as memory allocation.

Brief descriptions of the Location Codes follow. Most factory settings are suitable and do not need to be adjusted.

Memory Allocations

You can store up to four different sets of programming for the system. Each set requires its own section or "Block" of the memory. Allocating fewer than four Blocks increases memory space for storing more special functions, such as a Universal Dialing Table.

These functions are set using the feature editors in the TD5 Diagnostic program: Memory Blocks, Dialing Tables, VCM Assignment, C.O. Dialing Prefixes, Personal Identification Numbers, Memory Event Management, Call-Forwarding List, and Page Exclusion Table.

Important:

these settings should only be changed using their respective editors within the TD5 Diagnostic program.

5

Intercept Table

Overview

The Intercept Table is used to customize the dialing plan of each system. It will allow you to trap a digit sequence and then take action based on the line's class of service. The most common use of the intercept list is to add a "dial-9" feature that allows the caller to gain access to a outside trunk line. A unique feature of the Telecenter is that the same digit, in this case '9', may used by all lines to gain outside access, however the number and range of lines that each line may access can be assigned on a class by class basis.

Another capability of the Intercept table is that it may be used to map external extension numbers into the dialing plan of the Telecenter, This feature is called a uniform dialing plan, hereafter referred to as "UDP."

The Intercept Table also has that capability to insert a dialing sequence, transparent to the caller, that allows the Telecenter to access the resources of a remote PBX such as C.O lines as if they were directly connect to it. The Telecenter is still able to enforce the dialing restrictions assigned to the caller while accessing the remote resource.

Intercept Table Format

The new Intercept Table may only be entered by using the Telecenter Diagnostic program (TD5 *.EXE)* version 8.7 or later.

The format of the Intercept Table is a list of entries that take the form:

Class of Service	Digit Sequence	Target Lines	Intercept Action	Hunt	Pre-Sequence

Where:

- ✓ **Class of Service** refers to the number of the Class of Service which the intercept sequence will be active.
- ✓ **Digit Sequence** refers to the dialing digit sequence that is to be acted on (e.g. "9"). The Digit sequence may be specified as a range of sequences with the

same number of digits.(e.g. 101-150)

- ✓ **Target Lines** refers to the range of lines that will be targeted by this intercept entry.
- ✓ **Intercept Action** is any special operation that is associated with intercept entry (typically set to Norm. See the following section).
- ✓ **Hunt** refers to the type of search used to search the lines (either linear or rotary).
- ✓ **Pre-Sequence** refers to a dialing sequence, if any, used to access a remote PBX resource from the tie line (see the following section).

Intercept Actions

Norm (Normal Connection): Used when no special action is required prior to connection of the target line.

Echo (Echo Digit): Echoes the dialing intercept sequence to the remote system before connecting the target line and then enforces dialing restrictions.

Important:

Echo action is obsolete by the addition of Pre-sequence.

UDP (Uniform Dialing Plan): Echoes the dialing intercept sequence to the remote system before connecting the target line, then removes any further dialing restrictions.

Phys (Physical Number Echo): Echoes the physical number of the calling line to the remote system before connecting the target line, then removes any further dialing restrictions.

Arch (Architectural Number Echo): Echoes the architectural number of the calling line to the remote system before connecting the target line, then removes any further dialing restrictions.

Cut (Cut Through): Allows the Pre-Sequence information to be sent over a trunk line. It then directly connects the line to the remote system and monitors the dialing sequence to enforce dialing restrictions.

Important:

PBX bit must be set on the trunk line for Cut operation.

Pre-Sequence String

The Pre-Sequence string allows the Telecenter system to access resources on a remote system (KSU or PBX) as if the resource was directly connected to the Telecenter system. The sequence entered is determined by the dialing number used to access the resource from the tie line provided by the external system.

For example, say the Telecenter system is connected to a PBX, which is connected to a Centrex™ line. If the sequence used to access a Centrex line from the PBX is '227,' and the sequence to gain C.O. access from the Centrex is '9,' then the Pre-Sequence the Telecenter system would use to gain C.O. access is "227,9."

The valid characters in the Pre-Sequence are *0-9*, #, and *. A comma (,) may be used in the sequence to cause a delay equivalent to the time set by Location Code 72.

A

Appendix A: Location Codes

Code	Description
Location Code 0 through 30 are set by TD5 editors and should not be changed manually.	
0	The beginning location for programming system Memory Blocks.
2	The ending location for programming system Memory Blocks.
4	The beginning Location Code for the Dialing Intercept List.
6	The ending Location Code for the Intercept List.
8	The beginning VCM assignment table.
10	The ending VCM assignment table.
12	The start address of the Prefix restriction table.
14	The end address of the Prefix restriction table.
16	The start address of the Personal Identification Number (PIN) table.
18	The end address of the Personal Identification Number (PIN) table.
20	The start address of the Time Event table.
22	The end address of the Time Event table.
24	The start address of the Call Forward table.
26	The end address of the Call Forward table.
28	The start address of the Page Exclusion list.
30	The end address of the Page Exclusion list.
60	3 or 4 Digit Dialing: Set to 4 to enable four-digit architectural number dialing. Any other setting will result in three digit architectural numbers.
62	Dial Tone Time Limit: Enter the time limit in which an off-hook phone may hold the DTMF transceiver without dialing. At the end of the allotted time the system will force the disconnection of a line holding the receiver. This location code is set in 6Oths of a second. (0 to 1 00 = no time limit)
64	Hook-Flash Time Limit: Determines how long the hook-switch must be held down to disconnect the line. Holding the hook-switch down for less than this time will cause a hook-flash to occur. This location code is set in 60ths of a second. Setting this location to a value less than 24 will disable the hook-flash signal for

66	Attendant Hotline, or TC4400: Input the physical number of the line to ring for incoming AAI calls. Placing a 0 here directs the call to the TC4400 Call Control Console, if it is installed.
68	Attendant ring-back time: Enter the time period for an outside call transferred within the system to be accepted. Upon completion of this timed period. The call will be transferred back to the attendant. The setting of 0 equals infinity.
70	Physical Line that rings after DIL/AAI time out ringback: Enter the physical number of the line to ring when DIL and AAI transferred calls receive no answer after the time-out interval passes. Normally the physical number of the Attendant line.
72	PBX Dial Tone Wait Period: Instructs the system to wait XX sec. after seizing a trunk before forwarding the calling-party's dialed digits. This ensures that an external system is able to accept dialing information. Set in 60ths of a second.
74	PBX Digits for Outside Access: This location is used to specify a one or two separate digit PBX Access Codes. The Access Codes are used to restrict dialing when an outside line is obtained from a PBX system. PBX access is only allowed on DIL. DISA. or AAI trunks which have their B:6 attribute set. Default setting is 0. You may specify 1 or two codes as follows: Represent a "0" as the number 10. Represent any other digit at face value (i.e.: '.5" as 5). code = [digit 1] + (100 x [digit 2]) *Example:* To specify 9 as the single PBX Access Code, enter 9 (9 + 100 x [0]). To specify 9 and 8 as PBX Access Codes, enter 809 (9 + 1 CO x [8]). [dialing restrictions are suspended until the PBX's access code is dialed or the dial tone time-out is exceeded].
76	Outside Line Disconnect Time: The time period during which an outside line is kept inactive after a call is completed. This allows proper disconnect with a central-office or PBX. Set in 60ths of a second. Disallows trunk to trunk transfers when set to an odd number.
78	Remote Hook-flash Time: This sets the length of an on-hook signal (simulated hood-flash) sent to a remote system (i.e., PBX or other Telecenter System). Dialing a hook-flash plus a "*" tells your system that the hook-flash signal is intended for the other system. Set in 60ths of a second.
80	Keep-alive Warning: The delay time until two warning beeps are given DISA callers connected to speaker lines. This allows the TELECENTER to automatically disconnect the line unless a response is returned. The beeps warn the caller that disconnect is imminent unless a DTMF key (other than 0) is pressed within the response time established at location code 82. Set in 60ths of a second.
82	Keep-alive Response: Set the amount of time DISA callers have to press a DTMF key after receiving keep-alive time warning beeps (see 80 above). After time-out, the Telecenter system reverts to dial tone for the time set at 62 and then disconnects if no DTMF tones are received.
84	Rings Before Forwarding: When Call-forwarding-No Answer is in use. the system will wait the number of rings specified in this Location Code. Valid settings 1-1 0.
86	Clear Forwarding Always: Enables the clearing of all call-forwarding at midnight (1 2 AM). 0 disables the feature, 1 enables the feature (default setting).
96-102	Internal use only-do not change.
Location Codes 104 through 116 are for TC4400 Console Applications only and must be set to 0 when a TC4400 is not used. Factory default is 0 for each Code.	

104	TC4400. Physical Number of Audio Line: The Physical Number of the LLM line that carries the audio signals for the Call Control Console. C: 1 Attribute will cause the Console to repeatedly ring for incoming calls even when the operator is talking to another trunk or extension.
Note: the coding method used to program the groups specified at location codes 106-112 limits the range of available Physical Numbers to be within the range of 5 to 512 for each group. A zero at any of these locations means there are no lines in the group.	
106	TC4400 External Trunks: This location designates the group of trunks to be monitored and accessed by the Call Control Console. The value stored is in the form: value = [physical number of the first trunk] + (1000 x the amount of additional trunks in the group)
108	TC4400 Operator Lines: This location designates the physical numbers used by the Call Control Console for its operator lines. Actual TC4 1 55 LLM line hardware is unnecessary for these physical numbers. The value stored is in the form: value = [physical number of the first operator line] + (1000 x the amount of additional lines in the group).
110	TC4400 Console Monitored Extensions Group 1: This location designates a group of lines to be monitored and accessed by the Call Control Console. The value is of the form: value = [physical number of the first line in the group] + (1 000 x the amount of additional lines in the group).
112	TC4400 Console Monitored Extensions Group 2: This location designates a second group of lines to be monitored and accessed by the Call Control Console. The value is of the form: value = [physical number of the first line in the group] + (1 000 x the amount of additional extensions).
114	Console DTMF Feedback: This location controls DTMF tones to the console handset. 1 enables tones, 0 disables tones.
116	TC4400, HOLD Remind Interval: Provides a "beep" when a line has been placed on hold from the operator's console. Set in 60ths of a second. Default setting is 1 800 (30 sec.) and can only be lengthened, not disabled.
136	Priority Call-in Beep Rate: Sets the time period between beeps that announces a priority call-in. Set in 60ths of a second.
138	Normal Call-in Beep Rate: Sets the time period between the beep that announce a normal call-in. Set in 60ths of a second.
140	Display elapsed time with call-ins: Shows the time, in minutes, that a call-in has been waiting. as well as the number of call-ins waiting for a response. 1 enables the feature. The feature is disabled for all other settings.
Location Codes 142 through 184 are set only through programming with the TD5 Program. Do not alter the settings manually, except to remove (set to zero), 3 codes per prefix.	
142	**Call-in Prefix 0**: Default setting 0 (disabled).
148	**Call-in Prefix 1**: Default setting ÉMER”
154	**Call-in Prefix 2**: Default setting 0 (disabled).
160	**Call-in Prefix 3**: Default setting 0 (disabled).

166	**Call-in Prefix 4**: Default setting 0 (disabled).
172	**Call-in Prefix 5**: Default setting 0 (disabled).
178	**Call-in Prefix 6**: Default setting 0 (disabled).
184	**Call-in Prefix 7**: Default setting 0 (disabled).
202	Repeat "*" Dialing Time Limit: Enables the Administrative phones to answer multiple call-ins without hanging up and reconnecting to a dial register. While in use, this feature ties up a dial register. reducing system traffic capacity. 0 disables this feature. Values of 1-59 remove the limit on "*" answer repeats. Values 60-65535 select time-out interval in 60th of a second. Timeout period is restarted after the user presses "*".
204	Call-in Annunciate to CIO B pin 1: Enter a number with the format CLXX. Where: XX = display number of call-ins to annunciate L = lowest call-in priority level to annunciate C = CIO pin B 1 function selector (0-3) 0 = none 1 = call-in present 2 = console ring annunciate 3 = trunks busy (see 208)
206	Call-in Annunciate to CIO B pin 3: Same as 204 except this location controls CIO pin B3.
208	Telecenter Internal Code: Do not change.
210	Telecenter Internal Code: Do not change
Location Codes 228 through 232 are for three individual Area Codes which can be called by any phone limited to Local Access Only by it's Class of Service (i.e., Attribute B:1 set but not B:2. With both B:1 and B:2 set, the phone is not restricted to any Area Code. Default setting is 0 (no area code selected).	
228	Allowed area code 1.
230	Allowed area code 2.
232	Allowed area code 3.
262	Physical Number, Media Center Line: Enter the physical number of a line that a dialing phone may call using a flash hook, from an MR1OO connection.
Location Codes 264 through 284 are used in conjunction with Media Retrieval (MR1OO), to initialize and end control of Media Devices. Each set of codes follow B: attribute settings within its COS. The default setting for all codes is no tones (0). The sets consist of two codes, each containing two DTMF tones (maximum of 4 per set of initializing or ending tones). For each Location Code enter a number by using the following formula: Number = Tone 1 + (256 x Tone 2) Tone 1 and 2 represent DTMF keys. Enter 12, 11, and 10 to represent #, *1 and 0, respectfully. 0 disables the feature.	

264	MR1OO Set B:1 _ , initializing tones 1 & 2.
266	MR1OO Set B:1 _ , initializing tones 3 & 4.
268	MR1OO Set B:1_ , ending tones 1 & 2.
270	MR1OO Set B:1 _ , ending tones 3 & 4.
272	MR1OO Set B: _ 2, initializing tones 1 & 2.
274	MR1OO Set B: _ 2, initializing tones 3 & 4.
276	MR1OO Set B: _ 2, ending tones 1 & 2.
278	MR1OO Set B: _ 2, ending tones 3 & 4.
280	MR1OO Set B: 12, initializing tones 1 & 2.
282	MR1 00 Set B: 12, initializing tones 3 & 4.
284	MR1OO Set B: 12, ending tones 1 & 2.
286	MR1OO Set B: 12, ending tones 3 & 4.
288	Externally Activated Alarm Tones: CIO B Pin 38 grounded. Select 1-5 to set tones in response to B Pin38 grounded. See Location Code 310 for Tone Designations. Default setting is 0 (no tone).
290	**Externally Activated Alarm Tones: CIO B Pin 38 connected to B Pin 24. Select 1-5 to set tones in response to B Pin 38 to B Pin 24. Default setting is 0 (no tone).**
292	**Externally Activated Alarm Tones: CIO B Pin 38 connected to B Pin 24. Select 1-5 to set tones in response to B Pin 38 to B Pin 24. Default setting is 0 (no tone).**
Location Codes 294-304 control the volume of the (DSP generated) signal tones. Note: Version 6.0 DSP/DTMF software is required to use this feature.	
294	Chime Tone Signal Volume Control: Enter 1-10 to vary the volume in 2dB steps (loudest volume = 10). Entering C or any other number results in maximum level. Default setting is 0.
296	Westminster Chime Tone Signal Volume Control: Enter 1-10 to vary the volume in 2dB steps (loudest volume 10). Entering 0 or any other number results in maximum level. Default setting is 0.
298	Eurosiren Chime Tone Signal Volume Control: Enter 1-10 to vary the volume in 2dB steps (loudest volume = 10). Entering 0 or any other number results in maximum level. Default setting is 0.
300	Mini-Chime Tone Signal Volume Control: Enter 1-10 to vary the volume in 2dB steps (loudest volume = 10). Entering 0 or any other number results in maximum level. Default setting is 0
302	Steady Tone Signal Volume Control: Enter 1-10 to vary the volume in 2dB steps (loudest volume = 10). Entering 0 or any other number results in maximum level. Default setting is 0.
304	Pre-announce Tone Signal Volume Control: Enter 1-10 to vary the volume in 2dB steps (loudest volume = 10). Entering 0 or any other number results in maximum level. Default setting is 0.
308	Telecenter Internal Code - do not change.
310	Time Zone Tone Select: Input the number that specifies the tone to be sounded by the optional master clock. or programmer. They are: 1 Chime

	2 Westminster 3 European police car 4 Mini chime 5 Steady
312	Zone 1, Time Zone Tone Duration (60=1 sec.): This is the minimum duration (set in 60ths of a second) for a Time Zone tone signal sent to zone 1.
314	Zone 2, Time Zone Duration: Same as above.
316	Zone 3, Time Zone Duration.
318	Zone 4, Time Zone Duration.
320	Zone 5, Time Zone Duration.
322	Zone 6, Time Zone Duration.
324	Zone 7, Time Zone Duration.
326	Zone 8, Time Zone Duration.
Location Codes 344 through 370 are for Diagnostic test purposes by experienced technicians only. Do not alter settings.	
344	Telecenter Internal Codes used with Logging lead-in: Always 0 - do not change.
346	Telecenter Internal Codes used with Logging lead-in: Always 0 - do not change.
348	Logging: Used to log Information Call-in, Page. DTMF. and Display digits. Format is stored ABODE to control Logging information where: A represents DTMF digits B to log display data C for logging call-ins D represents paging E for system errors Store 0 to disable the logging function and 1 to enable the feature. *Example.* To turn on the DTMF Logging only. store 1 0000. For Display and Paging only, store 01010.
354	MON LOCK: Enter 0 to enable Monitor, to disable Monitor.
356	Link Blocking, links 0-15: For diagnostic test purposes. Use to block the designated links. CAUTION: Blocking access to the lower links will prevent the system from providing dial tone. RESET will not clear the condition. To enable all links, enter 0 (default setting). To block one link, enter the result of 2 raised to the power represented by the number of the link to block (e.g.: enter 16 to block link 4 (2 raised to the fourth). To block multiple links, enter the sum of the results obtained for each single link to block. (e.g.: enter 20 to block links 4 and 2 (16 + 4 = 20). The least significant bit, lsb, corresponds to link 0.

Note: DTMF receivers occupy the lowest links. 0 through 10. Depending on the number of DSP boards in the system. Blocking these links will prevent all phones from receiving dial tone.		
358	Link Blocking, links 16-31: See above description and example, lsb corresponds to link 16. Default setting is 0 (all links enabled).	
360	Telecenter Internal Code: Always 0 — do not change.	
362	Telecenter Internal Code: Always 0 — do not change.	
364	Baud Rate: Enter the following number for the Telecenter V system serial communication rate:	
	0-300 BAUD Rate	1-1200
	2-2400	3-4800
	4 - 9600	+10 to prevent CPU3 auto adjusting
366	Telecenter Internal Code: Always 0 — do not change.	
368	Telecenter Internal Code: Always 0 — do not change.	
370	Display module and VFD baud rate: Rate at which the Telecenter system updates the displayed data: 1 = 9600 Baud, 0 = 4800 Baud (default setting).	
390	Call Pick-up: Enter a range of Physical numbers authorized to pick up outside calls placed on hold by an attendant. To answer the call, dial #40 through #49, respective to the line on hold (0-9). The range is stored according to the following formula: Stored number = lowest physical # + (1000 x additional number of lines) Enter 1000 to disable the function. Enter 0 to authorize call pick-up by any line	
392	Night Answer: Internally set by TCV - do not change.	
394	Night Answer Chime Selection: Enter the number that specifies the tone to be sounded when the attendant phone receives a call while set in the night answer mode: 1 = Chime; 2 = Westminster; 3 = European Police Car; 4 = Mini Chime; 5 = Steady	
Location Codes 410 and 412 are for the Pickup Group function. Whenever a line in the pickup group dials #33, the system will remote answer the lowest physical numbered line within that group. The line will be answered whether the call is internal or external.		
410	Pickup Group Start: The lowest physical number in the pick up group.	
412	Pickup Group End: The highest physical number in the group.	
Location Codes 426 to 504 are used with applications requiring special page or VCM access. Refer to the Work Sheet in Appendix E, when using these codes.		
426	Special Page or VCM Access: Enter a value that represents the Physical Numbers of Administrative lines authorized to use the Special Page lines whose “B" attributes designate the corresponding locations. Store a number based on the formula below: value = [1000 x (number of lines - 1)] + Lowest physical number in the group N0(B:XXX_____) to	
488	N31 (B:XXX5 4321)	

490	Special Page or VCM Access: Enter the Physical Numbers of Administrative tines authorized to use the Special Page lines whose "B attributes designate the corresponding locations. value = lowest physical number + (1000 x additional) telephone during All Call. and Zone Paging. Setting to 1 enables feature, 0 disables feature.
508	Minimum Disconnect Pulse: For the shortest duration a disconnection pulse (signal) that will be recognized by the system. Set in 60ths of a second. 0 causes any break in loop current to be accepted as a disconnect pulse.
51 2	Administrative Transfer Tie Lines: Enter the range of Physical lines associated with the Tie Lines Number = physical + (1000 additional lines)
514	Tie Line Speaker Limit: Selects the time that a Tie Line may communicate to a speaker or circuit without supervision. Set in 60ths of a second.
516	Tie Line Speaker Phone Switch: When set to C. an administrative transfer line can toggle between a ringing phone and connection to its speaker (if available). With any other setting (or no speaker) the system will drop the connection and issue new dial tone when a hook-flash is attempted.
518	DC Voltage Break Time: Amount of time that the Transfer Tie Line will hold the DC path open upon disconnection of any TCV station. Set in 60ths of a second.
520	PIN length: Enter the number of digits for the Personal Identification Number. All PIN numbers must contain the same number of digits (either 3 or 4).
522	Student Phone Call Duration: The time limit that the system allows for each student call from a student phone. Programmable from 30 to 1 80 seconds. Caller warning given 10 seconds prior to disconnect.
524	Student Phone Repeat Call Time Unit: The time that a completed call's number stays active, in order to restrict its redial. Programmable from 1 to 60 minutes.
526	Telecenter Internal Code: Do not change.
528	Call Back Busy digit: The single digit dialed to enable a call back busy function. Valid digits are 1 to 9. Set C to disable.
530	Call Back Busy Cancel: The number of rings an extension will ring prior to attempting to connect to a previous busy extension. If the originating party does not answer within the specified number, the request will be canceled.
532	System Configuration Code: Activate special system operational modes by adding the appropriate number to this location code. Add: 1 for single amplifier configuration 10 for discriminating zone/all-page tone 100 for priority call-in always answered through speaker 1000 for disable dialing staff phones from hook-flashing 10000 for signal busy immediately after dialing '9' when all trunks are busy (store and forward dialing)

536	Staff phone dial tone time out causes call in: If a dialing staff phone goes off-hook (receives dial tone) and the handset is not replaced before the dial tone time limit expires a call-in will be placed from that line. This is determined by the R3 attribute associated with that line's class of service. A prefix may be associated with the R3 attribute which would indicate a trouble condition, such as "TRBL" or "EMER." exists in the room. Program the R3 attribute with a call-in priority level other than 0 so that these call-ins take precedence over normal call-ins. An Administrative line answers the call-in by pressing the "*" key or dialing the architectural number of the line. The administrative line is connected to the handset of the line placing the call-in. If the administrative line disconnects and the staff line remains off-hook, no further call-ins will be placed.
Location Codes 538 and 540 cover the Station Message Detail Recording function. The following are the location codes that control the output of the SMDR records. The call records will be output via the serial port at the currently set baud rate.	
538	SMDR mode number: This Location Code controls the output of the SMDR records. If this location code is zero, no records will be printed. If this Location Code is '1,' SMDR records will be output for internal (station to station), outside calls (station to C.O.), and incoming C.O. calls. If this Location Code is '7,' transfers and conference calls will be assigned unique condition codes, as well as the functions of Location Codes 1 and 3. If this Location Code is '1 5,' the trunk field of the record will always contain the physical number of the target extension even if it is not a trunk. Also, the functions of 1, 3. and 7 will occur. Note: Enabling SMDR logging does not automatically disable any other type of logging. If you are using an SMDR recording device you must first disable all other type of logging. Otherwise. diagnostic messages confuse the recording device, resulting in lost call records. Refer to Appendix F for more information on SMDR applications.
540	SMDR Header Print interval: This Location Code determines how many SMDR records will be printed between occurrences of the header. If this Location Code is zero then the header will not be printed.
Location Codes 542-548 refer to the Caller ID Function: The number of the line calling a line with the Caller ID function active will be displayed in the format "xxxx" calling." The information will remain on the display until either of the parties in the conversation hangs up or hook-flashes, or a call-in occurs. The hierarchy of what will currently be displayed will be: programming (i.e. pound functions) (highest] call-in information caller ID information time and date [lowest]	
Note: if multiple lines are assigned to one display then only the most recent call information will be displayed.	
542-548	Enable/Disable Caller ID Function: Caller ID will be considered active on a display if the corresponding digit is a '1' in the location code that controls caller ID activity for that display. Each location code will control four displays and each display will be represented by a power of ten within the location code. The least significant digit of each location code will represent the lowest numbered display in the group of four. A group of four location codes will be necessary to represent all 1 6 displays.
Note: the IVR line Group must be a contiguous range of administrative phone lines as being	

connected to the IVR system.	
554	IVR Line Group Start: The lowest physical number in the group of IVR extension lines.
556	IVR Line Group End: The highest physical number in the group of IVR extension lines.

B

Appendix B: Class of Service Types & Attribute Settings

Null Line

Summary: No service request can be sent from this sent. Can also be assigned to isolate a bad line circuit during troubleshooting. A speaker assigned this Class of Service may still receive Zone and All-Call Paging (not recommended, use Speaker-Only Line

Type A_____7_).

A:_____ Null Line

Administrative Telephone

Summary: Dialing phone that can have a display, a speaker, and be given any function below.

A:1_____ Administrative Line

A:7 Routes all incoming calls to an optional speaker instead of ringing the phone.

B:1 Allows access to C.O. or external system trunks (AAI, DIL, DISA).

B:2 Allows toll calls (B: 1 access to trunks is required).

B:3 Allows Zone paging.

B:4 Allows All-Page announcements.

B:5 Allows activation of Time Zone tones.

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

C:2 No disconnect pulse and dial tone when the station remains off-hook and alone on a link.

r3: Identifies a Display Number to an Administrative phone.

TC4400 Console Audio and Operator Lines

Summary: The Audio Line is the only line position the Console uses. However, each Direct Select Key that is used, as an Operator line, needs a Physical Number so it can be individually programmed.

A:1__4____ Console Audio and Console Operator Lines.

B:1 Allows access to C.O. or external system trunks (AAI, DIL, DISA).

B:2 Allows toll calls (B: 1 access to trunks is required).

B:3 Allows Zone paging.

B:4 Allows All-Page announcements.

B:5 Allows activation of Time Zone tones.

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

B:8 *On* establishes automatic prescreening. When the Console transfers a call it remains on line with the target extension until release is pressed to complete the transfer, or until the trunk key is pressed to return to the outside caller without performing the transfer.

Off disables automatic prescreening. The transfer is completed and the Console is disconnected as soon as the target extension is specified, but the call will come back to the Console if there is no answer within a specified time period.

C:1 For the Console Audio Line. When set, the console continues to ring for incoming calls even when the operator is talking to another trunk or extension.

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.

A: _____7_ Speaker-only Station

r0: Sets the priority level, target display, prefix for "ground-T"” call-ins, and allows remote cancel.

r1: Sets the priority level, target display, prefix for "resistor" call-ins, and allows remote cancel.

Non-Dialing Staff Phone

Summary: This non-dialing phone can be rung, use any of the system's 32 links, and can have an associated speaker and call-in switch.

A:_2_____ Non-Dialing Staff Phone

A:7 Routes incoming calls to an optional speaker instead of ringing the phone.

r0: Sets the priority level, target display, prefix for "ground-T" call-ins, and allows remote cancel.

r1: Sets the priority level, target display, prefix for "resistor" call-ins, and allows remote cancel.

DSP: Dialing Staff Phone

Summary: Dialing phone that can be allowed to make inside and outside calls, paging, and control media-retrieval devices. It cannot have a display, receive call-ins, or send emergency tones. It can have an associated speaker and a call switch.

A:_2_4____ Dialing Staff Phone

A:7 Routes all incoming calls to an optional speaker instead of ringing the phone.

B:1 Allows access to C.O. or external system trunks (AAI, DIL, DISA).

B:2 Allows toll calls (B:1 access to trunks is required).

B:3 Allows Zone paging.

B:4 Allows All-Page announcements.

B:7 Allows direct access to MR 100 media-control lines.

r0: Sets the priority level, target display, prefix for "ground-T' call-ins, and allows remote cancel.

r1: Sets the priority level, target display, prefix for "resistor" call-ins, and allows remote cancel.

r2: Sets the priority level, target display, and prefix for "ground-T' call-ins for dialing "*," and allows remote cancel.

r3: Sets the priority level, target display, and prefix for "resistor" call-ins for dialing "**,**" and allows remote cancel.

Student Phone

Summary: A line available or active during timed periods of the day where students may make short and "system" supervised calls.

Important:

the Student Phone Call Duration, the Student Phone Repeat Call Time Limit, and the Student Phone Access Code location codes must be programmed for the student phone line type to operate correctly. Also, the access code must be programmed into the intercept table for the student phone Class of Service to gain access to the outside trunk.

A:__34____ Student Phone

B:1 Allows access to C.O. or external System Trunks (AAI, DIL, DISA).

Important:

B:1 must be set for the Student Phone to function.

B:2 Allows toll calls (B: 1 access to trunks is required).

AAI: Attendant-Answered Interconnect Trunk

Summary: Routes calls to an attendant. Can also be used for outgoing calls.

Important:

AAI lines are normally used for Central-Office trunks, not for trunks to PBXs or other Telecenter system (see DISA lines).

A:__3_____ AAI Trunk

B:6 When this is connected to a Centrex system or a PBX trunk, any dialing phone may use it to access the other system. However, the phone's B:1 and B:2

access restrictions will apply to outside calls attempted via the other system's outside trunks.

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

C:2 When this is set, the trunk line will remain connected until all internal phones hang up. The system will not respond to the external disconnect pulse.

C:8 Allows trunk to trunk connection (that is, the outside caller can be transferred to another outside line through the system). The trunks, therefore, are self-supervising (should only be used with C:2 blank). Location Code #76 is set to an even number if internal lines are to set up conferences using outside trunks.

DIL: Direct Inward Line Trunk

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

Important:

to specify the owner extension, enter its Physical Number as the DIL line's Architectural Number.

A:123_____ Direct Inward Line

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

B:6 When this is connected to a Centrex system or a PBX trunk, any dialing phone may use it to access the other system. However, the phone's B: 1 and B:2 access restrictions will apply to outside calls attempted via the other system's outside trunks.

B:7 If the owner line is busy, an incoming call will be queued (an outside call hears ring-back) until the owner is available to take the call. Without B:7, the system will redirect the waiting calls to the attendant.

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

C:2 When this is set, the Trunk Line will remain connected until all internal phones hang up. The system will not respond to the external disconnect pulse.

C:8 Allows trunk to trunk connection (that is, the outside caller can be transferred to another outside line through the system). The trunks, therefore, are self-supervising (should only be used with C:2 blank). Location Code #76 is set to an even number if internal lines are to set up conferences using outside trunks, speakers or a paging function will remain connected until they time out.

DISA: Direct Inward System-Access Trunk

Summary: The Direct Inward System-Access Line allows an external caller to Telecenter dial tone and perform the same functions as a non-display.

Administrative phone. The line's associated trunk can be made available for outgoing calls.

Important:

IDSA lines are recommended for interfacing with a PBX via a TC4183 Tie-Trunk Module.

A:1_3_____ DISA Line Type

B:1 Allows access to C.O**.** or external system trunks (AAI, DIL, DISA).

B:2 Allows toll calls (B:1 access to trunks is required).

B:3 Allows Zone paging.

B:4 Allows All-Page announcements.

B:5 Allows activation of Time Zone tones.

B:6 When this is connected to a Centrex system or PBX trunk, any dialing phone may use it to access the other system. However, the phone's B:1 and B:2 access restrictions will apply to outside calls attempted via the other system's outside trunks.

C:1 This should normally be *on*, with a TC4183 Tie-Trunk (E&M) Module and a PBX. This type of DC signaling entails "handshaking" routines sent to each system via the "E & M" leads C:2 can be set only when C: 1 is not set.

C:2 When this is set, the Trunk Line will remain connected until all internal phones hang up. The system will not respond to the external disconnect pulse.

C:4 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 C:4 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.)

C:8 Allows trunk to trunk connection (that is, the outside caller can be transferred to another outside line through the system). The trunks, therefore, are self-supervising (should only be used with C:2 blank). Location Code #76 is set to an even number if internal lines are to set up conferences using outside trunks, speakers or a paging function will remain connected until they time out.

KSU: Key Service Unit Line

Summary: This line type is used when a KSU is connected behind a Telecenter system. Upon going off-hook, each key line immediately connects to a specific DIL owner trunk extension, should it be busy, the key phone will receive a busy signal from the system. The key line can be queued for the trunk line by remaining off-hook.

Important:

to specify the KSU as the owner extension, enter its Physical Number as the DIL line's Architectural Number.

A:12_4____ Trunk for Key Service Unit

B:1 Allows outgoing calls access to its DIL trunk. Without B:1, the KSU could be assigned to a Centrex or PBX trunk but could not access the other system's outside trunks.

B:2 Allows toll calls (B:1 access to trunks is required).

B:3 Allows Zone paging.

B:4 Allows All-Page announcements.

B:6 Allows executive override (pressing the asterisk key while receiving a busy signal will break into an ongoing conversation).

MR1OO Media Retrieval Line

Summary: A line connected to an MR1OO Telemedia Controller Module, used to control a video program source (e.g., a video cassette player, a laser disk player). The B: 12 attributes work together to select the control tones appropriate for the program source.

A:___4____ Media Retrieval Line

B:1 Selects the initiating and ending tones specified in Locations 264 through 270.

B:2 Selects the initiating and ending tones specified in Locations 272 through 278.

B:12 Selects the initiating and ending tones specified in Locations 280 through 286.

Special Page Line

Summary: This line type can control (allow or restrict) access to audio-only lines in the system. This includes paging amplifiers, a VCM (Voice-Controlled Module) used for the intercom function, or some other audio device external to the system. The line's B: 1-5 and B:6-8 attributes are used to refer to one or two Location Codes; each Location Code is used to specify a line range that would then be allowed to access the Special Page Line (see the Special-Page-Line Work Sheet in Appendix E). Only dialing phones (Admin or Dialing Staff line types) can possibly access a Special-Page line.

A:_23_____Special Page Line

B:1-5 Group N. Refers to a Location Code between 426 and 488 (inclusive).

B: 6-8 Group M. Refers to a Location Code between 490 and 504 (inclusive).

After reviewing the following examples, make a copy of the Special Page Line Programming Work Sheet in Appendix E and complete it to determine the B: attributes for each Special Page Line.

Example:

Only phones on Physical Lines 20 through 35 and 211 through 234 should be allowed access to the VCM on Physical Line No.2 for communicating via intercom. The line ranges for the phones will be specified in Location Code 428 (Group N: Lines 20 to 35) and Location Code 492 (Group M: Lines 211 to 234).

Step 1:compute and enter Location Code Values = [Physical Number of first line in group] + [1000 * Number of additional lines in group).

LC428 = 20 + (1000 x 15) = 15020. (Special Page Line needs attribute B:1)

LC492 = 211 + (1000 x 23) = 23211. (Special Page Line needs attribute B:6)

Important:

a Special Page Line with no B: attributes will allow all Administrative Phones (A:1 Line Type)—and only Administrative phones—to access the Special Page Line.

Step 2:program Physical Line No. 2w as a Special Page Line with A:23. B:16.

C

Appendix C: Location Code Work Sheet

Location Code	Default Setting	Installed Setting	Description/Notes
60	3		3 or 4 digit dialing
62	600		Dial lone time limit (600 = 1 0 sec; 0 = no time limit)
64	65		Hook-flash time limit (60 = 1 sec ; 0 = Hook-flash disabled)
66	4		Attendant, Hotline, or Console
68	1200		Attendant ringback time (600 = 10 sec)
70	4		Physical Number that rings after AAI/DIL time out (ringback)
72	15		PBX Dial lone Wait (15 = 0.25 sec)
74	0		PBX digits for outside access N1 or N1 + (100 x N2)
76	121		Outside line disconnect time (60 = 1 sec). An odd number disables trunk to trunk transfers
78	30		Remote hook-flash time (60 = 1 sec.)
80	1200		DISA - keep alive time (600 = 10 sec.)
82	300		DISA - keep alive response time (600 = 10 sec.)
84	4		Forward No Answer after this number of rings
86	1		Clear Call Forward at midnight
104	0		TC4400, physical number of audio line
106	0		TC4400, trunks (first physical number + [1000 x no. of additional lines])
108	0		TC4400. operator lines, no hardware required, (first physical number + [1000 x no. of additional lines])
110	0		TC4400DO monitored extension group one (first physical number + [1000 x no. of additional lines])
112	0		TC4400. monitored extension group two (first physical number + [1000 x no. of additional lines])
116	1800		TC4400Hold reminder ring interval (600 = 1 0 sec.)
136	60		Priority Call-in beep interval (60 = 1 sec.)
138	600		Normal Call-in beep interval (60 = 1 sec.)

140	0		Show elapsed time with call-ins (1 = feature enabled)
142	0		Call-in prefix 0
144	0		(Two words or locations per prefix)
148	19781		Call-in prefix 1 - EMER
150	21061		
154	0		Call-in prefix 2
156	0		
160	0		Call-in prefix 3
162	0		
166	0		Call-inprefix4
168	0		
172	0		Call-in prefix 5
174	0		
1 78	0		Call-in prefix 6
180	0		
184	0		Call-in prefix 7
186	0		
202	0		Repeat single button dialing time (0 = no repeat, 1 to 59 = unlimited repeat of '*', 60 to 65535 = time limit in 6Oths of a second, 600 = 10 sec receiver hold)
204	0		Indicate call-in present on CIO B pin 1 Call-ins directed to display. Entry follows format CLXX where C = the function associated with the pin. (0 = none, 1 = Call-in Present, 2 = Console ring, 3 = Trunks busy) L = lowest call-in priority level to annunciate XX = the display number of the call-ins to monitor.
206	0		Signal on CIO pin B:3, Entry follows format: CLXX where C = the function associated with the pin. (0 = none, 1 = Call-in Present. 2 = Console ring. 3 = Trunks busy) L = lowest call-in priority to be acted on. XX = the display number of the call-ins.
228	0		Allowed Area Code 1
230	0		Allowed Area Code 2
232	0		Allowed Area Code 3
262	0		Physical number of the Media Center Line
264	0		MR1OO set B:1 beginning tones
266	0		MR 100 set B:1 beginning tones
268	0		MR 100 set B:1 ending tones
270	0		MR1OO set B:1 ending tones
272	0		MR1OO set B:2 beginning tones
274	0		MR1OO set B:2 beginning tones
276	0		MR1OO set B:2 ending tones
278	0		MR 100 set B:2 ending tones
280	0		MR 100 set B: 1 2 beginning tones

282	0		MR 100 set B: 1 2 beginning tones
284	0		MR 100 set B: 1 2 ending tones
286	0		MR 100 set B: 1 2 ending tones
288	0		Externally activated alarm tones, CIO B pin 38 to GND (select 0-4)
290	0		Externally activated alarm tone, CIO B pin 38 to GND (select 0-4)
292	0		Externally activated alarm tone, CIO B pin 38 to GND (select 0-4)
294	0		Chime tone signal volume control, select 0-10
296	0		Westminster chime tone volume control, select 0-10
298	0		Eurosiren tone volume control, select 0-10
300	0		Minichime tone volume control, select 0-10
302	0		Steady tone volume control, select 0-10
304	0		Preannounce tone volume control, select 0-10
310	1		Time zone tone select (0 = none, 1 = chime, 2 = Westminster, 3 = Euro, 4 = mini, 5 = steady)
312	300		Zone 1 time zone signal duration (60 =1 sec)
3 14	300		Zone 2 time zone signal duration (60 =1 sec)
3 16	300		Zone 3 time zone signal duration (60 =1 sec)
318	300		Zone 4 time zone signal duration (60 =1 sec)
320	300		Zone 5 time zone signal duration (60 =1 sec)
322	300		Zone 6 time zone signal duration (60 =1 sec)
324	300		Zone 7 time zone signal duration (60 =1 sec)
326	300		Zone 8 time zone signal duration (60 =1 sec)
348	0		Logging control word: "ABCDE" A = DTMF, B = displays 0-15, C = call-in, D = paging, E = error. Set the appropriate digit to: 0 to disable logging function; 1 to enable logging function; 4 to enable function using lead in from location 244; 5 to enable function using lead in from location 246
354	0		Monitor lock (1 = locked, 0 = unlocked)
356	0		Link Blocking (links 0-15)
358	0		Link Blocking (links 16-31)
364	4		Initial Baud Rate (0=300, 1=1200, 2=2400, 3=4800, 4=9600, 5=19200) add 1 0 to selection to prevent CPU from auto-adjusting.
370	0		LCD & VFD display baud rate. (0 = 4800, 1 = 9600)
390	0		#4x authority (physical number + [1000 x additional lines]) 0 = allow all. 1000 = disable
394	4		Night Answer tone selection. (0 = none, 1 = chime, 2 = westminster, 3 = euro. 4 = mini. 5 = steady)

41 0	0		Pickup Group Start: the lowest physical number in the pick up group.
4 1 2	0		Pickup Group End: the highest physical number in the group
426	0		Start Special Page restriction table N
490	0		Start Special Page restriction table M
506	1		Automatic speaker exclusion (1 = enable, 0 = disable)
508	1 5		Minimum disconnect pulse. (60 = 1 sec)
512	0		Administrative tie lines (physical number + [1000 x additional lines])
514	0		Tie Line Speaker limit
51 6	0		Speaker switch limit
518	0		DC Voltage break time
520	4		PIN length = number of digits in PIN (3 or 4)
522	60		Student Phone call duration (set in seconds)
524	30		Student Phone repeat time limit (set in minutes)
528	3		Call Back busy digit used to activate call back feature (valid digits 0-9)
530	5		Call Back Busy Cancel: Number of rings before system automatically cancels call back
532	0		System Configuration Code: Activate special system operational modes by adding the appropriate number to this location code. Add: 1 single amplifier configuration 10 discriminating zone / all page tone 100 priority call-in always answered through speaker 1000 disable dialing staff phones from hook-flashing 10000 signal busy immediately after dialing '9' when all trunks are busy.
536	0		Staff phone dial tone time out causes call in (1 = Enable
538	0		SMDR mode number
540	0		SMDR Header Print interval
542-548	0		Enable/Disable Caller ID Function. Caller ID will be considered active on a display if the corresponding digit is a '1' in the location code that controls caller ID activity for that display. Each location code will control four displays and each display will be represented by a power of ten within the location code. The least significant digit of each location code will represent the lowest numbered display in the group of four. A group of four location codes will be necessary to represent all 16 displays.
554	0		IVR Line Group Start: The lowest physical number in the group of IVR extension lines.
556	0		IVR Line Group End: The highest physical number in the group of IVR extension lines

D

Appendix D: C.O.S. Default Programming

S	Line Type	A:	B:	C:	r0:	r1:	r2:	r3:	Description
0	Null								System default—VCM or no hardware connected
1	Admin	1_____	123456__		31 0 0:	31 0 0:	31 0 0:	00 0 0:	Full Telco Access; Full Capabilities: Answer Display "0"
2	Admin	1_____	1_3456__		31 0 0:	31 0 0:	31 0 0:	00 0 0:	Local Telco Access; Full Capabilities; Answer Display "0"
3	Admin	1_____	123456__		31 0 0:	31 0 0:	31 0 0:	01 0 0:	Full Telco Access; Full Capabilities: Answer Display "1"
4	Admin	1_____	1_3456__		31 0 0:	31 0 0:	31 0 0:	01 0 0:	Local Telco Access; Full Capabilities; Answer Display "1"
5	Admin	1_____	12_____		31 0 0:	31 0 0:	31 0 0:	00 0 0:	Local Telco Access; No Page; No Tones; Answer Display "0"
6	Admin	1_____	1_____		31 0 0:	31 0 0:	31 0 0:	00 0 0:	Local Telco Access; No Page; No Tones; Answer Display "0"
7	Admin	1_____	12_____		31 0 0:	31 0 0:	31 0 0:	01 0 0:	Local Telco Access; No Page; No Tones; Answer Display "1"
8	Admin	1_____	1_____		31 0 0:	31 0 0:	31 0 0:	01 0 0:	Local Telco Access; No

									Page; No Tones; Answer Display "1"
9	Admin	1_____	123456__		31 0 0:	31 0 0:	31 0 0:	02 0:	Local Telco Access; Full Capabilities; Answer Display "2"
10	Admin	1_____	123456__		31 0 0:	31 0 0:	31 0 0:	03 0:	Local Telco Access; Full Capabilities; Answer Display "3"
11	Cons Audio	1__4____	123456__		31 0 0:	31 0 0:	31 0 0:	00 0 0:	Full Telco Access; Full Capabilities; Answer Display "0"
12	Cons Oper	1__4____	123456__		31 0 0:	31 0 0:	31 0 0:	00 0 0:	Full Telco Access; Full Capabilities; Answer Display "0"
13	Cons Oper	1__4____	123456__		31 0 0:	31 0 0:	31 0 0:	00 0 0:	Local Telco Access; Full Capabilities; Answer Display "0"
14	Spkr Only	_____7_			00 0 0:1	00 1 1:1	31 0 0:	31 00:	CALL/EMER; Display "0"
15	Spkr Only	_____7_			01 0 0:1	01 1 1:1	31 0 0:	31 00:	CALL/EMER; Display "1"
16	Spkr Only	_____7_			02 0 0:1	02 1 1:1	31 0 0:	31 00:	CALL/EMER; Display "2"
17	Spkr Only	_____7_			03 0 0:1	03 1 1:1	31 0 0:	31 00:	CALL/EMER; Display "3"
18	Non-dial Staff	*2*___7_			00 0 0:1	00 1 1:1	31 0 0:	31 00:	Spkr 1st; CALL/EMER; Display "0"
19	Non-dial Staff	*2*___7_			01 0 0:1	01 1 1:1	31 0 0:	31 00:	Spkr 1st; CALL/EMER; Display "1"
20	Non-dial Staff	*2*___7_			02 0 0:1	02 1 1:1	31 0 0:	31 00:	Spkr 1st; CALL/EMER; Display "2"
21	Non-dial Staff	*2*___7_			03 0 0:1	03 1 1:1	31 0 0:	31 00:	Spkr 1st; CALL/EMER; Display "3"
22	DSP	_*2*_4__7_	1_____7_		00 0 0:1	00 1 1:1	00 0 0:1	00 1 1:1	Spkr 1st; Local Telco Access; No Page; MR 100 Access; Call-in to Display “0”
23	DSP	_*2*_4__7_	_____7_		00 0 0:1	00 1 1:1	00 0 0:1	00 1 1:1	Spkr 1st; Local Telco Access; No Page; MR

									100 Access; Call-in to Display “0”
24	DSP	_2_4__7_	1_____7_		01 0 0:1	01 1 1:1	01 0 0:1	01 1 1:1	Spkr 1st; Local Telco Access; No Page; MR 100 Access; Call-in to Display “1”
25	DSP	_2_4__7_	_____7_		01 0 0:1	01 1 1:1	01 0 0:1	01 1 1:1	Spkr 1st; Local Telco Access; No Page; MR 100 Access; Call-in to Display “1”
26	DSP	_2_4____	1_____7_		00 0 0:1	00 1 1:1	00 0 0:1	00 1 1:1	Phone 1st; Local Telco Access; No Page; MR 100 Access; Call-in to Display “0”
27	DSP	_2_4____	_____7_		00 0 0:1	00 1 1:1	00 0 0:1	00 1 1:1	Phone 1st; Local Telco Access; No Page; MR 100 Access; Call-in to Display “0”
28	DSP	_2_4____	1_____7_		00 0 0:1	00 1 1:1	00 0 0:1	00 1 1:1	Phone 1st; Local Telco Access; No Page; MR 100 Access; Call-in to Display “0”
29	DSP	_2_4____	1_____7_		00 0 0:1	00 1 1:1	00 0 0:1	00 1 1:1	Phone 1st; Local Telco Access; No Page; MR 100 Access; Call-in to Display “0”
30	DSP	_2_4___7_	1234__7_		00 0 0:1	00 1 1:1	00 0 0:1	00 1 1:1	Phone 1st; Full Telco Access; No Page; MR 100 Access; Call-in to Display “0”
31	DSP	_2_4_____	1234__7_		00 0 0:1	00 1 1:1	00 0 0:1	00 1 1:1	Phone 1st; Full Telco Access; No Page; MR 100 Access; Call-in to Display “0”
32	AAI	__3_____			31 00:	31 00:	31 00:	31 00:	AAI–direct to C.O.
33	AAI	__3_____	_____6__		31 00:	31 00:	31 00:	31 00:	AAI–PBX or Centrex
34	DIL	123____			31 00:	31 00:	31 00:	31 00:	DIL–direct to C.O.; Pooled Access
35	DIL	123____	_____6__		31 00:	31 00:	31 00:	31 00:	DIL–PBX or

									Centrex; Pooled Access
36	DIL	123____	__3_____		31 00:	31 00:	31 00:	31 00:	DIL–direct to C.O.; Private Access
37	DIL	123____	__3__6__		31 00:	31 00:	31 00:	31 00:	DIL–PBX or Centrex; Private Access
38	DISA	1_3_____	__345678		31 00:	31 00:	31 00:	31 00:	DISA–No Telco Access; Full Capabilities
39	DISA	1_3_____	_____6__		31 00:	31 00:	31 00:	31 00:	DISA–No Telco Access; No Page/ No Tones
40	DISA	1_3_____	__3456__		31 00:	31 00:	31 00:	31 00:	DISA–No Telco Access; Full Capabilities
41	DISA	1_3_____	__3456__		31 00:	31 00:	31 00:	31 00:	DISA–No Telco Access; Full Capabilities
42	KSU	12_4____	12_____		31 00:	31 00:	31 00:	31 00:	Full Telco Access
43	KSU	12_4____	1_____		31 00:	31 00:	31 00:	31 00:	Local Telco Access
44	Student Phone	__34____	1_____		31 00:	31 00:	31 00:	31 00:	Local Telco Access
45	Student Phone	__34____	12_____		31 00:	31 00:	31 00:	31 00:	Full Telco Access
46	spare				31 00:	31 00:	31 00:	31 00:	
47	spare				31 00:	31 00:	31 00:	31 00:	
48	spare				31 00:	31 00:	31 00:	31 00:	
49	spare				31 00:	31 00:	31 00:	31 00:	
50	spare				31 00:	31 00:	31 00:	31 00:	
51	spare				31 00:	31 00:	31 00:	31 00:	
52	spare				31 00:	31 00:	31 00:	31 00:	
53	spare				31 00:	31 00:	31 00:	31 00:	
54	spare				31 00:	31 00:	31 00:	31 00:	
55	spare				31 00:	31 00:	31 00:	31 00:	
56	spare				31 00:	31 00:	31 00:	31 00:	
57	spare				31 00:	31 00:	31 00:	31 00:	
58	spare				31 00:	31 00:	31 00:	31 00:	
59	spare				31 00:	31 00:	31 00:	31 00:	
60	Media	___4____			31 00:	31 00:	31 00:	31 00:	Media Line–No Tones
61	Media	___4____	1_____		31 00:	31 00:	31 00:	31 00:	Media Line–Tone Set #1
62	Media	___4____	_2_____		31 00:	31 00:	31 00:	31 00:	Media Line–Tone Set #2

63	Media	___4____	12_____		31 00:	31 00:	31 00:	31 00:	Media Line–Tone Set #3

E

Appendix E: Special Page Line Programming Work Sheet

Group N			Physical Numbers		
B: Attribute	**Location Code**	**Value**	**Authorized Private Lines**	**Special Page Line**	**Page Line Architectural Number**
B:	426				
B:1	428				
B:2	430				
B:12	432				
B: 3	434				
B:13	436				
B:23	438				
B:123	440				
B:4	442				
B:14	444				
B:24	446				
B:124	448				
B:34	450				
B:134	452				
B:234	454				
B:1234	456				
B:5	458				
8:15	460				
B:25	462				
B:125	464				

B:35	466				
B:135	468				

Group N (continued)			Physical Numbers(continued)		
B: Attribute	**Location Code**	**Value**	**Authorized Private Lines**	**Special Page Line**	**Page Line Architectural Number**
B:235	470				
B:1235	472				
B:45	474				
B:145	476				
B:245	478				
B:1245	480				
B:345	482				
B:1345	484				
B:2345	486				
B:12345	488				

Group M			Physical Numbers		
B: Attribute	**Location Code**	**Value**	**Authorized Private Lines**	**Special Page Line**	**Page Line Architectural Number**
B:	490				
B:6	492				
B:7	494				
B:67	496				
B:8	498				
B:68	500				
B:78	502				
B:678	504				

Note: Selecting neither an “N” or an “M" group (i.e.: B:_____) allows any display phone to use that special page line.

F

Appendix F: SMDR Format

The SMDR feature allows you to track internal station calling and classroom call-ins, as well as monitor outgoing traffic and paging access.

SMDR access is accomplished through the serial interface of the TCV CPU to a serial printer. It is important to note that the TCV CPU serial port does not support standard RS232 signals (see KI-1695 for serial-port cabling).

SMDR Output Header

Typical SMDR output records consist of eleven fields, most of which are used in the Telecenter's SMDR output. Fields not used are left blank. Some fields will be modified to contain information pertaining to the system. Telecenter's SMDR output call records consist of seven fields. The call record includes the following headers (a brief description accompanies each):

Time (includes date): Time that the call was terminated. The event is based on a 24-hour clock. When reporting a call-in, this field may be reported as **0:00:0.**

Duration: Duration of the call, reported in hours:minutes:tenths. For origination of a call-in this field is reported as **0:00:0.**

Condition Codes: This field prints out a letter to "log" the type of call activity.

- **(blank)** —Outgoing call
- **(A)** —Call that was Queued
- **(B)** —Internal station-to-station
- **(C)** —Call-in Logged
- **(D)** —Call Denied any reason
- **(E)** —Fire Alarm
- **(F)** —System Initialization. Reset. Power-up, or Enable SMDR
- **(I)** —Incoming Call
- **(P)** —Page
- **(Q)** —Tone
- **(R)** —Reset Call-ins (#21)
- **(S)** —Outgoing call from a Student Phone

(U) —Conference

Trunk: The Physical number of the Telecenter line used to complete the call for both inbound and outbound traffic.

Dialed Number: Digits dialed on an outside call. For an incoming call, this field may contain the DIL architectural number.

Caller ID: Contains the architectural number of the dialing station.

Auth Code: Contains the user's architectural number if a PIN code was used to place the call. When a PIN is used the Caller ID shows at the station from which the dialing took place.

Figure 1 on the following page shows the output format for the SMDR header and call record.

The output is 80 columns long. The number of lines between the repetition of the header is programmable to accommodate a VDT (approximately 24 lines) to a printer (55 to 60 lines). This is set through the Location Code 540. Figure 2 shows column identification and spacing for the header.

SMDR Output Format with Examples

```
Condition Code - (Blank) outgoing call
'    1    '    2    '    3    '    4    '    5    '    6    '    7    '    8
012345678901234567890123456789012345678901234567890123456789012345678901234567898
================================================================================
TIME  DURA  COND  TRUNK          DIALED      CALLER    AUTH
08-06 TION  CODE  PHYS#          NUMBER      ID        CODE
================================================================================
07:30  0:12.8        9       123456789012345   104     101


(B) Internal Station-to-Station using a PIN Code
================================================================================
TIME  DURA  COND  TRUNK          DIALED      CALLER    AUTH
08-06 TION  CODE  PHYS#          NUMBER      ID        CODE
================================================================================
12:30  0:05.5 B                  409           417     101


(C) Call-in Logged
================================================================================
TIME  DURA  COND  TRUNK          DIALED      CALLER    AUTH
08-06 TION  CODE  PHYS#          NUMBER      ID        CODE
================================================================================
10:00  0:00.0 C                                405


(D) Call Denied any reason - whenever system issues reorder tone
================================================================================
TIME  DURA  COND  TRUNK          DIALED      CALLER    AUTH
08-06 TION  CODE  PHYS#          NUMBER      ID        CODE
================================================================================
23:00  0:03.0 D      xx          xxxx          104     101


(I) Incoming Call
================================================================================
TIME  DURA  COND  TRUNK          DIALED      CALLER    AUTH
08-06 TION  CODE  PHYS#          NUMBER      ID        CODE
================================================================================
13:45  0:05.9 I      10          103            10          // DISA
13:50  0:03.0 I      11                        103          // DIL


(P) Paging and Tones
================================================================================
TIME  DURA  COND  TRUNK          DIALED      CALLER    AUTH
08-06 TION  CODE  PHYS#          NUMBER      ID        CODE
================================================================================
08:07  0:02.1 P                  #00           105          // all page
09:30  0:01.0 P                  #03           105          // zone page
09:40  0:05.0 Q                  #11           105          // chime tone

(R) CANCEL Call-in
================================================================================
TIME  DURA  COND  TRUNK          DIALED      CALLER    AUTH
08-06 TION  CODE  PHYS#          NUMBER      ID        CODE
================================================================================
08:03         R                                105
```

Figure 1

SMDR Column Identification and Header Spacing

Column	Line Number of Header				Column	Line Number of Header			
Number	Line 1	Line 2	Line 3	Line 4	Number	Line 1	Line 2	Line 3	Line 4
1	—	T	X*	—	43	—	<SP>	<SP>	—
2	—	I	X	—	44	—	<SP>	<SP>	—
3	—	M	—	—	45	—	<SP>	<SP>	—
4	—	E	Y*	—	46	—	<SP>	<SP>	—
5	—	<SP>	Y	—	47	—	<SP>	<SP>	—
6	—	<SP>	<SP>	—	48	—	C	I	—
7	—	D	T	—	49	—	A	D	—
8	—	U	I	—	50	—	L	<SP>	—
9	—	R	O	—	51	—	L	<SP>	—
10	—	A	N	—	52	—	E	<SP>	—
11	—	<SP>	<SP>	—	53	—	R	<SP>	—
12	—	<SP>	<SP>	—	54	—	<SP>	<SP>	—
13	—	C	C	—	55	—	<SP>	<SP>	—
14	—	O	O	—	56	—	<SP>	<SP>	—
15	—	N	D	—	57	—	<SP>	<SP>	—
16	—	D	E	—	58	—	<SP>	<SP>	—
17	—	<SP>	<SP>	—	59	—	<SP>	<SP>	—
18	—	<SP>	<SP>	—	60	—	<SP>	<SP>	—
19	—	T	P	—	61	—	P	C	—
20	—	R	H	—	62	—	I	O	—
21	—	U	Y	—	63	—	N	D	—
22	—	N	S	—	64	—	<SP>	E	—
23	—	K	#	—	65	—	<SP>	<SP>	—
24	—	<SP>	<SP>	—	66	—	<SP>	<SP>	—
25	—	<SP>	<SP>	—	67	—	<SP>	<SP>	—
26	—	<SP>	<SP>	—	68	—	<SP>	<SP>	—
27	—	<SP>	<SP>	—	69	—	<SP>	<SP>	—
28	—	<SP>	<SP>	—	70	—	<SP>	<SP>	—
29	—	<SP>	<SP>	—	71	—	<SP>	<SP>	—

30	—	<SP>	<SP>	—	72	—	<SP>	<SP>	—
31	—	<SP>	<SP>	—	73	—	<SP>	<SP>	—
32	—	<SP>	<SP>	—	74	—	<SP>	<SP>	—
33	—	<SP>	<SP>	—	75	—	<SP>	<SP>	—
34	—	<SP>	<SP>	—	76	—	<SP>	<SP>	—
35	—	D	N	—	77	—	<SP>	<SP>	—
36	—	I	U	—	78	—	<SP>	<SP>	—
37	—	A	M	—	79	—	<SP>	<SP>	—
38	—	L	B	—	80	<CR>	<CR>	<CR>	<CR>
39	—	E	E	—	81	<LF>	<LF>	<LF>	<LF>
40	—	D	R	—	—	—		—	—
41	—	<SP>	<SP>	—	—	—		—	—
42	—	<SP>	<SP>	—	—	—		—	—
			*XX=MONTH		YY=DATE				

Figure 2