


 The logo for Rauland, featuring the word "Rauland" in a stylized, cursive font inside a white oval, which is set against a black rectangular background.

Telecenter® IV Programming Procedures

 RAULAND-BORG CORPORATION • 3450 West Oakton Street, Skokie, Illinois 60076-2951 • (708) 679-0900

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For information on Software Revisions see KI - 1588A.

Introduction

This manual is for programming the Telecenter IV for use as an internal communication system and for interconnection with the public telephone network. Only the information required to plan and program the features and functions of individual lines and the system as a whole are covered in this manual. It does not describe the system, its operation or components. Nor does it provide information on system planning, installation, or troubleshooting. Refer to the appropriate system manual for this information, as required.

Programming Overview

Summary: The Telecenter IV is programmed through the use of Line Attributes which define individual line functions and Location Codes which define system characteristics. Programming can be accomplished with either an Administrative display phone, Control Console, or a computer. Programming with a computer requires the Telecenter IV Diagnostic Program and a serial interface with the CPU. Whatever the means of programming, the following steps must be accomplished to develop the program for loading into the system.

Read the following section on Telecenter IV Programming Fundamentals and then continue to the appropriate procedure. Programming instructions are covered in procedures entitled: **Attribute Programming** and **Location Code Programming**.

Telecenter IV Programming Fundamentals

Telecenter IV operation is based on the ability of the microprocessor to route traffic and control features. This is accomplished by programming the system to recognize lines being used and the type of each; how and when to contact each station; how lines should be treated under various circumstances; and, how the system should operate overall.

The system knows which lines are being used through the use of physical numbers. For most Telecenter IV features, physical numbers are the basis of system operation because they identify the physical connections and hardware required to link lines together. The ranges of physical numbers to use were determined during the system planning and installation and should be noted on the **System Planning Worksheet**.

The types of lines used must also be programmed into the system because the features and functions of the various line-types differ greatly. Line-types are programmed into the system through A attributes (A:1 through A:4).

A: attributes A:5 through A:8 and the eight B: attributes (B:1 through B:8) control various options for each physical number. Options vary from one line type to another and are described in an "**Attribute Selection Chart**" for each line type. They control access to paging functions and outside lines, and instruct the system how to process annunciator call-ins.

Z: attributes are for stations with speakers only and divide groups of speakers into zones for announcements and time signals. Z: attributes may be programmed by architectural rather than physical numbers. See the Operations Section, KI-1585, for zone programming instructions.

System parameters not covered by attributes are programmed through location codes. Each code is programmed with a number (0 to 65535) which provides information on how the system should operate. A location code directory is provided at the back of this section.

The optional Communications Diagnostic Program can be used to program the entire system and offers several important benefits over programming via a display phone. See the manual or "DOC" file supplied with the disk for additional information. Using the program will:

- Reduce programming time to one tenth that required with a display phone.
- Provide a hardcopy printout of the program.
- Provide disk files which can be copied and edited for rapid programming changes.
- Allow the CPU to be programmed prior to installation into the TCIV.

Pre-Programming Preparations

Summary: A large part of programming is preparation. This procedure provides a general overview of the steps that must be taken.

Step 1. While completing the following procedure, note that the following default settings were programmed into the system prior to shipment.

Each station is programmed for maximum authorizations and functions, as follows:

Administrative Lines	(A:1, B:12345678)
Multi-Link Staff Lines	
without speaker	(A:2, B:345678)
with speaker	(A:27, B:345678)
Single-Link Staff Lines	(A:12, B:345678)
Staff-Speaker Only Lines	(A:7, B:345678)
Interconnect (AAI)	(A:3, B:123456)

The first COA line is set for dial "9".

All interconnect lines are programmed as Attendant Answered Interconnect (AAI).

Architectural numbers are set to the lines physical number plus 100.

Step 2. Obtain and complete the **System Planning Worksheet** (Sections **KI-1581 Planning**) to ensure the following information is provided. This may require further interface with the customer and reference to the procedures in this manual. Be sure that:

- All Physical Numbers to be programmed are noted.
- An Architectural Number is associated with each physical number, as appropriate.
- The Remote Station Equipment for each physical/architectural number is listed.
- All attributes to be programmed for each line are noted.
- All Location Code programming requirements are noted.

Step 3. Turn off system power and remove the TC4410 CPU board using static handling precautions to protect the highly sensitive CMOS devices.

Step 4. Find the two-pin jumper located in a three pin assembly somewhat to the rear of the Trap button. Set the jumper to the ENable position. If this is not done the system will respond normally to programming commands but they will not be stored in memory.

Step 5. Refer to System Planning Worksheet, your completed worksheets, and the following procedures to program the system.

Step 6. If the TC4410 CPU has been modified to provide an external day/night switch, repeat the entire programming procedure for each switch position.

Step 7. Upon completion, set the CPU jumper to the DISable position.

Step 8. Check out the system and ensure the program is properly set up.

Basic Programming Procedures

Summary: Programming the Telecenter IV requires a display phone, normally connected to physical number 5. This procedure shows how to perform basic programming procedures: **#72 Physical Number Lookup**, **#99 Architectural Number Lookup**, **#99 Architectural Number Change**, and **#99 Line Programming**. The latter procedure shows how to change the entire identity of a particular physical number.

The following abbreviations and symbols will appear in the procedures below. They also will appear on the display while programming.

ARCH	Architectural Number.
PHYS	Physical number (changes the meaning of n - see below).
A:	A Attributes.
B:	B Attributes.
Z:	Z Attributes.

The following prompts will appear within parentheses () on the display.

A	Press "A" key (keypad button 2) to select attributes.
n	Enter Physical number if ARCH displayed, Architectural if PHYS displayed.
*	Copy the previous attribute or previous architectural number plus one.
#	Go to the next display field; leave the present field as shown.
Q	Changes will be effected if you hang-up when Q is displayed.

Note: The following convention will be used in examples demonstrating programming procedures. Input number which are not preceded by # (e.g.: **#72** or **#99**) are examples only.

Input [what you do]	Display [what the display shows]
----------------------------	---

#72 Physical Number Lookup: Architectural number must be known.

Input	Display
#72	ARCH? [Enter number.]
321	321=076 [ARCH # =PHYS #]
Hang-up	

#99 Architectural Number Lookup: Physical number must be known.

Input	Display
#99	PHYS (n,*,#,Q)
076	076=321 (n,*,#)
or,	if no architectural number assigned:
Hang-up	076=??? (n,*,#)

#99 Architectural Number Change: Physical number must be known.

Input	Display
#99	PHYS (n,*,#,Q)
076	076=321 (n,*,#)
or,	if no architectural number
571	[input architectural number]
#	[next display]
Hang-up	076=571 (A,*,#) PHYS (n,*,#,Q)

#99 Line Programming: Desired state of architectural number and attributes must be known for a given physical number.

Following are the present and desired architectural number and attributes for the station identified by physical number **076**. In the example, the architectural number will be changed from **123** to **321**, and the A:, B: and Z: attributes will be changed as well. Note that in addition to A:, B:, and Z: attribute identifiers, N: represents the architectural number and P: the physical number of the line being programmed.

PRESENT STATE

P:076	N:123	A:123__	B: __3456__	Z:12345__
-------	-------	---------	-------------	-----------

DESIRED STATE

P:076	N:321	A: _2__7_	B: _234__	Z:1_____
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Input		Display
#99		PHYS (n,*,#,Q)
076		076=123 (n,*,#)
321	[input new architectural number]	076=321 (A,*,#)
A	[Select present A: attribute display]	A:123__
1	[Toggles A:1 off]	A: _23__
3	[Toggles A:3 off]	A: _2____
7	[Toggles A:7 on]	A: _2__7_
#	[Go to present B: attribute display]	B: __3456__
2	[Toggle B:2 on]	B: _23456__
6	[Toggle B:6 off]	B: _2345__
5	[Toggle B:5 off]	B: _234____
#	[Go to present Z: attribute display]	Z:12345__
2345	[Toggle Z:2345 off]	Z:1_____

Note: In the above step, digits may be entered in any order without waiting for the display to update.

[Go to next display] 076=321 (A,*,#)

Note: Press A to review the attributes.

[Go to the next display] PHYS (n,*,#,Q)

Note: In this case,
 Q indicates change is completed.
 Hang-up or enter a new physical number (n)
 or press * (or #) to automatically select the next
 physical number (# functions like * in this case).

Entering a new physical number
 is the same as hanging-up.

Hang-up [Change is completed as specified]

#97 Zone Programming Refer to Operations Manual, KI-1585

#99 Stream Programming

Summary: Using the display phone, attributes can be programmed in streams when sequential physical numbers are to have the same attributes. In the example below there are three physical numbers whose present states are known and whose desired states are identical. (P is physical number; N is architectural number; and, A, B, and Z are attributes.

PRESENT STATE

P:006	N:106	A: 2	B: 5 7	Z: 2
P:007	N:107	A: 2	B: 5 7	Z: 2
P:008	N:108	A: 2	B: 5 7	Z: 2

DESIRED STATE

P:006	N:342	A:1	B:12	Z:
P:007	N:343	A:1	B:12	Z:
P:008	N:344	A:1	B:12	Z:

Input

Display

(DIAL TONE)

#99	enter #99 diagnostic	PHYS (n,*,#,Q)?
006	enter physical number	006=106 (n,*,#)
342	enter new architectural number	006=342 (A,*,#)
A	select A:attribute display	A: 2
2	turn off A:2	A:
1	turn on A:1	A:1
#	advance to B-attribute	B: 5 7
5	turn off B:5	B: 7
7	turn off B:7	B:
1	turn on B:1	B:1
2	turn on B:2	B:12
#	advance to Z-attribute	Z: 2
2	turn off Z:2	Z:
#	advance prompt	006=342 (A,*,#)
#	advance prompt (changes saved)	PHYS (n,*,#,Q)?
*	next physical number	007=107 (n,*,#)
*	assign arch number 1 greater the arch number of the previous physical number	007=343 (A,*,#)
*	copy A,B, & Z attributes of previous physical number and save changes	PHYS (n,*,#,Q)?
*	next physical number	008=108 (n,*,#)

etc.

#98 Location Code Programming

Summary: Location Codes, together with attributes, constitute the user programmable features of the system. Use the Location Code Programming Worksheet and Location Code Directory and define the desired codes.

Step 1. Make a copy of the Location Code Programming Worksheet and complete it by referring to the relevant Location Code Guides on the next page. For fuller explanations and formulas, go to the Location Code Directory.

All systems: **System Characteristics Location Codes Guide.**

Line Authorizations Location Codes Guide.

System with Call Control Console only:

Call Control Console Location Codes Guide.

Systems with Graphic Annunciator Modules installed:

Graphics Displays Controls Location Codes Guide.

Step 2. Program each location code from the display phone using the data noted on the Location Code Programming Worksheet and keeping the following in mind:

Programmed values appear in the display to the right of the equal (=) sign.
Location Codes will have a value of 0 to 65535.

Following are the Location Code programming keypad inputs and their meanings:

- # Accept value as shown or entered.
- * Next Display: Go to next location code without saving changes.

Step 3. Review the following example of Location Code programming and use it as a guide. Values in parentheses are for illustration only. Use your own values. If an entry error is made: Input # to accept the error; then, retype the location code and correct the error.

Input	Display
#98	LOC?
64000 (input location code)	64000= [current value]
20 (input new value)	64000=20
# (accept displayed value)	64000=20

At this point, two options exist:

* (Go to next Location Code.) 64002= [current value]

or

64016 (Go to this Location Code) 64016= [current value]

When ready to end location code programming:

Hang-up

SYSTEM CHARACTERISTICS LOCATION CODES GUIDE

64000	System Attendant Phone physical number, or 0 if TC4400 is used.
64002	Time-Zone Tone selection (4).
64006	Extra character ASCII code for data-sending.
64008	Single-Link Staff Phones line physical number (typically = 4).
64010	3 or 4 digit dialing enable (3=3, 4=4).
64012	Dial Tone time limit (600= 10 seconds).
64014	Hook-flash time limit (60=1 second).
64016-34	One-Digit dialing for up to 10 physical numbers.
64036	Keep-alive time for DISA lines (1200=20 seconds).
64038	Keep-alive response time (600= 10 seconds).
64040-80	Voice Control Module Lines for Speaker Control Boards.
64082-96	Time Zone tone duration (zones 1 - 8).
64098	Disconnect timeout for incoming calls (180=3 seconds) and trunk/trunk transfer option.
64100	Monitor Lock (255 to lock, 0 to unlock).
64102	Emergency call-in beep interval (60= 1 second).
64104	Normal call-in beep interval (600= 10 seconds).
64108	Set internally by TCIV.
64110	Remote hook-flash time limit (30= 1/2 second).
64192	Attendant ring-back timeout (1200=20 seconds)
64196	Link block: FOR EXPERIENCED TECHNICIANS ONLY!
64198	Trap Vector: Diagnostic tool for technicians only.
64210	PBX access digit(s).
64222	Attendant physical number for ring-back after timeout interval for incoming DIL or AAI calls.

LINE AUTHORIZATIONS LOCATION CODES GUIDE

64004	Remote call pick-up using #40 - #49.
64106	Repeat and Single Button dialing time limit.
64112-74	Special Page access physical numbers (Group N): See Special Page Line Type.
64176-90	Special Page access physical numbers (Group M): See Special Page Line Type.
65280-84	Limited access area codes.

CALL CONTROL CONSOLE LOCATION CODES GUIDE

64224	Audio line physical number where TC4400 is connected and repeat ring option.
64226	Trunk group identifier.
64228	Identifies physical numbers used by TC4400 for Telecenter Operator lines.
64230	First monitored extension group for the TC4400.
64232	Second monitored extension group for the TC4400

GRAPHICS DISPLAYS CONTROLS LOCATION CODES GUIDE

64202	Trunk Group 1 busy signal via MIO pin B20.
64204	Trunk Group 2 busy signal via MIO pin B22.
64206	Record system activities via serial port.
64208	Graphic Driver 1 monitor group.
64216	Graphic Driver 2 monitor group.
64218-20	Not used.

Prefix Restrictions

Summary: Use the **#96** function to revise or review prefix authorizations for lines which do not have access to toll calling. The TCIV has one set of allowed prefixes which are the same for all limited access phones. To speed up programming, this procedure has an **Allow All** and a **Restrict All** function. Either function can be used to initialize all prefixes to one condition. Following this, individual prefixes can be set as desired using the **Specify Individual Prefixes Procedure**. Valid prefixes range from 200 to 999.

Keep the following in mind:

Symbols on the display phone will have the following meanings:

PREFIX? Enter a prefix (000 for all prefixes, or a single prefix from 200 to 999).
ALLOWED Currently displayed prefix can be dialed.
RESTRICTED Currently displayed prefix cannot be dialed.

Following are the programming keypad inputs and their meanings:

Go to next prefix.
***** Go to non-consecutive prefix.
 (digit) Toggle displayed authorization/restriction.

Note: If an entry error is made: Accept the error and then correct it.

Allow All Prefixes.

Input	Display
#96	PREFIX?
000 (all prefixes)	ALLOW ALL?
Y (Yes, via the 9 touch key)	PREFIX?

Restrict All Prefixes

Input	Display
#96	PREFIX?
000 (all prefixes)	ALLOW ALL?
N (No, via the 6 touch key)	RESTRICT ALL?
Y (Yes)	PREFIX?

Specify Individual prefixes.

Input	Display
#96	PREFIX?
(312) (any prefix FROM 200 - 999)	312 ALLOWED
2 (any digit, Not * or #)	312 RESTRICTED
# (next prefix)	313 RESTRICTED
* (go to non-consecutive prefix)	PREFIX?
(815) (any prefix FROM 200 - 999)	815 RESTRICTED
2 (any digit, Not * or #)	815 ALLOWED
Hang-up	

Line Types Attribute Selection Index

Summary: Each physical number, or node, in the TCIV system must be specified as a line type by programming its A: attributes A:1 through A:4. The options associated with each line type, how it is to be treated by the system, must be specified using A: attributes A:5 through A:8 and B: attributes B:1 through B:8. Available options are line type dependant, so the following index describes the basic line types and points to Attribute Selection Chart which describes all of the A: and B: attribute settings available for each.

Line Type	Attribute	Selection Chart
Speaker Only Communication	A: ____7_	(see note) 1
Administrative Phone, 16 Link	A:1____	2
Staff Phone, 16 Link	A: 2____	3
Staff Phone, 1 Link	A:12____	4
AAI Trunk Line	A: 3____	5
DISA Trunk Line	A:1_3____	6
Special Page Line	A: 23____	7
DIL Trunk Line	A:123____	8
TC4400 Console Operator Line	A:1__4____	9
TC4400 Audio Line	A:1__4____	10
Not used	A: __4____	

Note:

When A: attributes A:1 through A:4 are off, there is no line type because the equipment on these lines do not provide service requests to the system. This A:(blank) configuration is used in the following three cases.

Speaker Only Intercom Communication Lines (see Chart 1 of 10) for stations equipped with only a speaker and call-in switch. This type of line requires the A:7 attribute.

VCM Lines (if used with Special Page lines, see Chart 7 of 10 for restrictions); otherwise, they are A:(blank).

Any line which may have defective hardware may be set to A:(blank) to minimize system response during troubleshooting.

Attribute Selection Chart 1 of 10

Speaker Only Line Attributes

Summary: Speaker only lines may also include a call switch. If call switch is included with an Administrative Line (special cases only), the TCIV will interpret call-ins from the switch according to the following B: attributes and not those listed for Administrative Line Types on Attribute Selection Chart 2 of 10.

A: _____ Speaker Only Line Type (the A:7 attribute must be set).

One A: attribute and eight B: attribute options can be included with the Speaker Only Line type.

- A:7** This option must be set to call the speaker by intercom or to receive call-ins.
- B:1** If on, a ground on terminal T will produce an **Emergency call-in**.
If off, this ground will produce a **Normal call-in**.
- B:2** Releasing a ground of more then 4 seconds (e.g.: locking switch) will cancel the call-in.

Note: A call-in from a locking switch cannot be cleared without first releasing the switch.
- B:3** Ground signal will cause a **call-in to LCD1**.
- B:4** Ground signal will cause a **call-in to LCD2**.
- B:5** If on, a resistor applied to terminal T will cause an **Emergency call-in**.
If off, the resistor will produce a **Normal call-in**.
- B:6** Releasing a resistor ground of more the 4 seconds (e.g.: locking switch) will cancel the call-in.

Note: A call-in from a locking switch cannot be cleared without first releasing the switch.
- B:7** Resistor signal will cause a call-in to LCD1.
- B:8** Resistor signal will cause a call-in to LCD2.

Attribute Selection Chart 2 of 10

Administrative Line Attributes

Summary: Administrative Phone Line may also include a speaker for paging functions and, in special cases, a call switch may be used. If a call switch is used, the TCIV main program will interpret a call-in according to the B: attributes specified on Attribute Selection Chart 1 of 10, rather than those listed below.

A:1 _____ Administrative Line Type Attribute

Two A: and eight B: attribute options can be included with the Administrative Line type.

- A:7** Route all incoming calls to the speaker instead of the phone.
- A:8** If this line is busy, route incoming calls to the next higher physical number.
- B:1** Allows this line access to interconnect trunks (AAI, DISA, DIL). This attribute is not needed for calls on trunks which do not have the B:1 attribute set.
- B:2** Allows toll calls. The TCIV will not monitor and restrict area codes and prefixes on outside calls from this line. This attribute is not needed for calls on trunks which do not have the B:2 attribute set.
- B:3** Allows Zone announcements from this line.
- B:4** Allows All-Page calls from this line.
- B:5** Allows tone activation from this line.
- B:6** Allows executive override to be performed from this line by inputting "*". This will override a busy signal and break into an ongoing conversation.
- B:7** Allows this line to answer and cancel call-ins to LCD1. When an LCD1 call-in is answered by this line, its associated display will show the last number dialed and the call-in will be cancelled. The LCD 1 last-number-dialed display field will update each time the owner dials an architectural number.

This option also allows this line the ability to use an "*" for single button dialing to answer call-ins.
- B:8** Allows this line to answer and cancel call-ins to LCD2. When an LCD2 call-in is answered by this line, its associated display will show the last number dialed and the call-in will be cancelled. The LCD 2 last-number-dialed display field will update each time the owner dials an architectural number.

This option also allows this line the ability to use an "*" for single button dialing to answer call-ins.

ATTRIBUTE SELECTION CHART 3 OF 10

16 Link Staff Phone

Summary: This type of line may also include a speaker for paging and intercom functions and a switch for calls-in to administrative stations.

A: 2 _____ **16 Link Staff Phone Line Type.**

Two A: attribute and eight B: attribute options may be included with the 16 link staff phone line attribute.

- A:7** Route all incoming calls to speaker instead of phone.
- A:8** If this line is busy, route incoming calls to the next higher physical number.
- B:1** If B:1 is **on**, removing the hand set from the cradle (grounding the "T" terminal) will produce an **Emergency** call-in.
With B:1, **off** a normal call-in will be produced.
- B:2** If B:2 is **on**, replacing the hand set after 4 seconds (releasing the ground on the "T" terminal) will cancel the call-in.
If B:2 is **off**, the call-in cannot be cancelled from the calling station. This option is normally **off**.
- B:3** If B:3 is **on**, a hand set signal (ground on "T" terminal) will call-in to LCD1.
- B:4** If B:4 is **on**, a hand set signal (ground on "T" terminal) will call-in to LCD2.
- B:5** If B:5 is **on**, a resistor on "T" terminal will produce an **emergency** call-in.
With B:5 off the resistor will produce a **normal** call-in.
- B:6** Releasing a resistor ground of more than 4 seconds (eg.: from a locking switch) will cancel the call-in.
Note: A call-in from a locking switch cannot be cleared without first releasing the switch.
- B:7** Resistor signal will call-in to LCD1.
- B:8** Resistor signal will call-in to LCD2.

ATTRIBUTE SELECTION CHART 4 OF 10

1 Link Staff Phone

Summary: All incoming calls are routed to the speaker and the user may pick up the handset to switch the communication path to the phone and away from the speaker, allowing private communication. This line type may include a switch for placing call-ins to administrative stations.

A:12 _____ **Single Link Staff Phone Line Type.**

Eight B: attribute options may be included with the Single Link Staff Phone Line Type.

B:1 If B:1 is **on**, removing the hand set from the cradle (grounding the "T" terminal) will produce an **Emergency call-in**.

With B:1 **off**, a normal call-in will be produced.

B:2 If B:2 is **on**, replacing the hand set after 4 seconds (releasing the ground on the "T" terminal) will cancel the call-in.

If B:2 is **off**, the call-in cannot be cancelled from the calling station. This option is normally **off**.

B:3 If B:3 is **on**, a hand set signal (ground on "T" terminal) will call-in to **LCD1**.

B:4 If B:4 is **on**, a hand set signal (ground on "T" terminal) will call-in to **LCD2**.

B:5 If B:5 is **on**, a resistor on "T" terminal will produce an **emergency call-in**.

With B:5 **off** the resistor will produce a **normal call-in**.

B:6 Releasing a resistor ground of more than 4 seconds (eg.: from a locking switch) will cancel the call-in.

Note: A call-in from a locking switch cannot be cleared without first releasing the switch.

B:7 Resistor signal will call-in to **LCD1**.

B:8 Resistor signal will call-in to **LCD2**.

ATTRIBUTE SELECTION CHART 5 OF 10**Attendant Answered Interconnect Trunk Line (AAI)**

Summary: Incoming calls on this line type are routed to the attendant. This type of line can also be used to place out going calls. **Note:** AAI lines are normally used for Central Office and not PBX trunks (See Attribute Selection Chart 6 of 10).

A: 3 _____ AAI Trunk Line Type.

One A: attribute and four B: attributes may be used with the AAI line type.

A:8 If this line is busy, route call to the next higher physical number (out going calls only).

B:1 If B:1 is **on**, only administrative phones with attribute B:1 on may use this line for out going calls.

If B:1 is **off**, any administrative line may use this line for out going calls.

B:2 If B:2 is **on**, administrative phones are restricted to dialing the allowed prefixes and area codes.

However, an administrative line which has its own B:2 attribute turned on is not restricted from dialing to any area code or prefix.

If B:2 is **off**, there are no dialing restrictions on this line.

B:6 If B:6 is **on**, the line is to be connected to a PBX and any administrative line may access the PBX via this line.

However, if the administrative line dials one of the PBX outside line access codes, the B:1 and B:2 access restrictions of the dialing line will apply.

B:8 If B:8 is **on**, the trunk line must provide a service request to the TCIV.

Note: A service request is a ground signal applied to the "CS" pin of the TC4171 COA used to interface the TCIV with the AAI trunk.

ATTRIBUTE SELECTION CHART 6 OF 10

Dial In System Access Trunk Line (DISA)

Summary: The Dial In System Access Trunk Line allows lines external to Telecenter IV to receive Telecenter dial tone. It may also be made available for outgoing calls. **Note:** DISA trunks are also sometimes referred to as DIA (Dial In Access), they mean essentially the same thing.

DISA lines are recommended for interfacing with a PBX.

A:1_3 _____ **DISA Line Type.**

One A: attribute and Eight B: attributes may be used with the DISA line type.

A:8 If this line is busy, route call to the next higher physical number (out going calls only).

B:1 If B:1 is **on**, only administrative phones with attribute B:1 on may use this line for out going calls.

If B:1 is **off**, any administrative line may use this line for out going calls.

B:2 If B:2 is **on**, administrative phones are restricted to dialing the allowed prefixes and area codes unless the administrative line has its own B:2 attribute turned on.

If B:2 is **off**, there are no dialing restrictions on this line.

B:3 If B:3 is **on**, the caller using this line may perform zone paging (**#0x**).

B:4 If B:4 is **on**, the caller using this line may perform all paging (**#00**).

B:5 If B:5 is **on**, the caller using this line may send tone signals (**#1x**).

B:6 If B:6 is **on**, the line is to be connected to a PBX and any administrative line may access the PBX via this line.

However, if the administrative line dials one of the PBX outside line access codes, the B:1 and B:2 access restrictions of the calling line will apply.

B:7 If B:7 is **on**, the caller using this line may perform single button dialing.

B:8 If B:8 is **on**, the trunk line must provide a service request to the TCIV.

Note: A service request is a ground signal applied to the "CS" pin of the TC4171 COA used to interface the TCIV with the DISA trunk.

ATTRIBUTE SELECTION CHART 7 OF 10

Special Page Line

Summary: This type of line is used to control a paging system or other functions external to the TCIV. It can be accessed only by authorized **A:1 Administrative Lines**. If all eight B: attributes are off, any administrative line may access the Special Page line.

A: 23 _____ **Special Page Line Type.**

B: attributes: The B-attributes for the Special Page line act as two groups, each group associated with a range of Location Codes. Each Location Code may be programmed with a range of A:1 Administrative Lines. Each of these lines will have access to the Special Page Lines given the B: attribute with the Location Code in which they are programmed.

Group N (B:1 - B:5) is associated with Location Codes 64112 through 64174.

Group M (B:6 - B:8) is associated with Location Codes 64176 through 64190.

After reviewing the following examples, make a copy of the **Special Page Line Programming Worksheet** at the back of this Section and complete it to determine the B: attributes for each Special Page Line. (These Location Codes and B: attributes may also be applied to **VCM lines**; however, VCM lines must be programmed as A: _____ (A:blank).)

A segment of the **Special Page Line Programming Worksheet** is reproduced below showing a Group N and a Group M B: attribute and their associated location codes. Following is the situation this programming would produce.

Physical Number 300 A: 23 _____ B: 2345__8 Accessible by A:1 lines 101 - 115
 Physical Number 301 A: 23 _____ B: 2345__ Accessible by A:1 lines 101 - 107

The number to enter at any Location Code can be computed as follows:

$$\text{number} = (1024 * [\text{number of lines} - 1]) + \text{the lowest physical number of the group}$$

Examples: To authorize only the line associated with physical number 101, enter 101, i.e.:

$$101 = (1024 * [1 - 1]) + 101; \quad 101 = (1024 * 0) + 101; \quad 101 = 0 + 101$$

To authorize lines associated with physical numbers 101 and 102, enter 1125, i.e.:

$$1125 = (1024 * [2 - 1]) + 101; \quad 1125 = 1024 + 101$$

To authorize lines associated with physical numbers 108 through 115, enter 7276, i.e.:

$$7276 = (1024 * [8 - 1]) + 108; \quad 7276 = (1024 * [7]) + 108; \quad 7276 = 7168 + 108$$

B Attribute	Location Code	Value	Physical Numbers		Page Line Architectural Number
			Authorized Phone Lines	Special Page Lines	
B:2345	64172	6245	101 - 107	300, 301	
B:8	64184	7276	108 - 115	300	

ATTRIBUTE SELECTION CHART 8 OF 10

Direct Inward Line Trunk (DIL)

Summary: Incoming calls on lines of this type are directed to a particular extension. These lines can also be made available for outgoing calls. The architectural number of this type of trunk is the physical number of the extension assigned to receive calls incoming on it.

A:123 _____ **Directed Inward Line attribute.**

One A: attribute and six B: attributes may be used with the **DIL** line type.

- A:8** If this line is busy, route call to the next higher physical number (out going calls only).
- B:1** If B:1 is **on**, only administrative phones with their own attribute B:1 on may use this line for out going calls.
If B:1 is **off**, any administrative line may use this line for out going calls.
- B:2** If B:2 is **on**, administrative phones are restricted to dialing the allowed prefixes and area codes unless the administrative line has it own B:2 turned on.
If B:2 is **off**, there are no dialing restrictions on this line.
- B:3** If B:3 is **on**, only the owner line may use this line for out going calls.
If B:3 is **off**, any authorized A:1 administrative line may place out going calls on this trunk.
- B:6** If B:6 is **on**, the line is to be connected to a PBX and any administrative line may access the PBX via this line.
However, if the administrative line dials one of the PBX outside line access codes, its own the B:1 and B:2 access restrictions will apply.
- B:7** If B:7 is **on** and the owner of this line is busy, any calls incoming to it will be queued and not be answered until the owner is available to take the call.
If B:7 is **off** and the owner of this line is busy, any calls to it are directed to the attendant.
- B:8** If B:8 is **on**, the trunk line must provide a service request to the TCIV.

Note: A service request is a ground signal applied to the "CS" pin of the TC4171 COA used to interface the TCIV with the DIL trunk.

ATTRIBUTE SELECTION CHART 9 OF 10

TC4400 Console Operator Line

Summary: Used by the Call Control Console for internal calls. This is a virtual line type and does not require a TC4150 LLM line; however, it must be assigned a physical number in the range 6 to 255. Refer to Attribute Selection Chart 10 of 10 for TC4400 audio line programming information.

A:1__4__ Console Operator Line Type.

One A: attribute and eight B: attributes may be used with the Operator line type.

A:8 If this line is busy, route incoming calls to the next higher physical number.

B:1 Allow this line access to interconnect trunks (AAI,DISA, & DIL).

Note: This attribute is not needed for trunks which do not have their own B:1 attribute set.

B:2 Allow **toll calls**. TCIV will not have to monitor and restrict area codes and prefixes on outside calls from this line.

Note: This attribute is not needed for toll calls on trunks which do not have their own B:2 attribute set.

B:3 Allow **Zone announce** calls from this line.

B:4 Allow **All Page** calls from this line.

B:5 Allow **alarm tone activation** from this line.

B:6 Allow **executive override** with * by this line to override a busy signal and break into an ongoing conversation.

B:7 Allows this line to answer and cancel call-ins to **LCD1**. When an LCD1 call-in is answered by this line, its associated display will show the last number dialed and the call-in will be cancelled. The LCD 1 last-number-dialed display field will update each time the owner dials an architectural number.

This option also allows this line the ability to use an "*" for single button dialing to answer call-ins.

B:8 Allows this line to answer and cancel call-ins to **LCD2**. When an LCD2 call-in is answered by this line, its associated display will show the last number dialed and the call-in will be cancelled. The LCD 2 last-number-dialed display field will update each time the owner dials an architectural number.

This option also allows this line the ability to use an "*" for single button dialing to answer call-ins.

ATTRIBUTE SELECTION CHART 10 OF 10

TC4400 Audio Line

Summary: Used by the TC4400 for audio connection. This line must be connected to the TC4150 LLM line at physical number 4 or any physical number in the range 6 to 255. There is only one TC4400 Audio Line in a TCIV system.

Caution: Do not confuse the **TC4400 Audio Line** with the **TC4400 Console Line** which is described in **Attribute Selection Chart 9 of 10**. While they both have the same A: attribute, the TC4400 Audio Line cannot be called directly, but the architectural number stored for it can be used for remote answering of incoming calls. Single digit codes can also be used for remote answer if desired.

A:1__4___ **TC4400 Audio Line Type.**

The following B: attribute options are also available with this line type:

- B:1 Allow the Console user access to outside lines
- B:2 No meaning is assigned to this attribute.
- B:3 Allow Console access to Zone announce
- B:4 Allow Console access to All page.
- B:5 Allow Console to activate Alarm tones.
- B:6 Allow barge in. Console operator can press a key on an in use line and break in and out at will.
- B:7 Last number dialed will be displayed at the TC4400 Console and LCD1 when a TCIV extension is selected as a transfer target.

When an operator key is used, its B:7 attribute applies instead of this one.

- 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.

LOCATION CODE DIRECTORY

Location codes are pointers to memory locations used by the system to access information concerning operational characteristics. This directory lists the location codes in numerical order and provides a full definition for each. When required, a formula is provided for determining the appropriate value to enter during programming or troubleshooting.

- 64000** **Attendant Line:** Input the physical number of the line to be rung by incoming AAI calls. See the **A3 Line Type**. Placing a **0** here enables the TC4400, if it is installed.
- 64002** **Time-Zone Tone:** Input the number (1-4) which specifies the tone to be sounded by the optional master clock, or programmer. They are:
- 1 Pulsating Tone
 - 2 Siren
 - 3 European Warble OR Steady Tone (as wired).
 - 4 Electronic Chimes.
- 64004** **Call Pick-up:** Input one of the following to authorize/inhibit using the #41 - #40 function to pick up outside calls on hold at the attendant phone.
- Enter **1000** to disable the function.
 - or
 - Enter **0** to authorize call pick-up by any Administrative line.
 - or
 - Enter the physical number of a single line to be authorized.
 - or
 - Enter the result of the following formula to authorize a group of Administrative lines:
$$\text{number} = \text{Lowest physical number in group} + (1024 * [\text{number of lines in group} - 1])$$
- 64006** **ASCII Code:** Input the ASCII code for the extra character required in the data-sending function. The character is sent by dialing * * * 0.
- 64008** **Single Link Phones:** Input the physical number of the line dedicated to single-link phones. This number must correspond with the LLM terminal to which the SCC25 phone boards are wired (**normally, Physical Number 4**).
- 64010** **3-4 Digit Dialing:** Input **4** to enable four-digit dialing. Any other setting will result in three-digit dialing.

64012 Dial Tone Timeout: Enter the dial tone timeout period after which dial tone will cease. Perform the following calculation to determine the number to store at this location. **Note: Do not lock out both receivers.**

	600	For a normal dial tone timeout period (10 seconds).
or:	0 to 100	For unlimited dial tone time for test purposes.
or:	xxxx	Any number from 121-8191, where 60= 1 second.

Plus: any of the following options which are required.

8192	Enable DTMF logging to serial port.
16384	Receiver 0 lockout for test purposes or until repairs can be made.
32768	Receiver 1 lockout.
----- (total)	Value to enter at 64012

64014 Hook-flash Time Limit: Determines how long the hook-switch must be held down to disengage a connection. Holding the hook switch down for less than this time will cause a hook-flash to occur. The **normal setting is 65** (1.1 second) and hook-flashing is disallowed at settings under 24. Set in 60ths of a second; if 2 seconds required, $2 * 60 = 120$.

64016-34 One-Digit Dialing: Use the table below to determine the relationship between dialing digits and location codes and enter the physical numbers of the lines to be accessed through one digit dialing at the appropriate location code. Typical one-digit dialing features are: **0** for Operator and **9** for an outside line (location code 64016 would contain the physical number of the Operator's line and location code 64034 would contain the physical number of the outside line).

Note: The same digit cannot be used for both single-digit dialing and the first digit of an Architectural Number or the line associated with the architectural number will not be accessible.

If the **hunt bit (A:8)** is set for the line associated with the physical number entered at a location, the system will hunt upwards when the line is busy (typically used for interconnect lines).

Rotary hunt can be used *instead of* hunt bits to distribute traffic evenly to a group of lines. To rotate calls among a group of phones or trunks, enter the result of this calculation:

$[1024 * (\text{Number of lines in group} - 1)] + \text{lowest Physical Number in group}$
 (For lines 10 - 14 enter 4106. $4106 = [1024 * (5 - 1)] + 10$; $4106 = 4096 + 10$)

0 at any of these locations will disable this dialing function for the corresponding digit.

Location Codes to Single Digit Dialing Reference Table

64016	0	64018	1	64020	2	64022	3	64024	4
64026	5	64028	6	64030	7	64032	8	64034	9

64036 **Keep-Alive Time:** The delay time until two warning beeps are given DISA callers connected to speakers. If the interconnected system does not provide a service request signal, this allows the TCIV 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 64038. The normal setting 1200, provides a 20 second delay. Calculate the value to enter as: (time delay desired) * 60 = value to enter.

64038 **Response Time:** Set the amount of time DISA callers have to press a DTMF key after receiving keep-alive time warning beeps (see 64036, immediately above). Normal setting is 600 (10 seconds). After timeout, the TCIV reverts to dial tone for the time set at 64012 and then disconnects if no DTMF tones are received.

64040-80 **Intercom Map:** Refer to the table below for Location Code to Speaker Control Board relationships. In each location code, enter the physical number of the multi-link line used by the VCM providing intercom through the associated TC4110 or TC4120. (e.g.: If only one VCM on LLM16 line 2, all get set to 2.) Only one physical number can be entered per location code. VCM to speaker board relationships may be determined by tracing the shielded pair between them. Enter a 0 for locations associated with unused speaker boards. (VCM A: and B: attributes should be blank; however, Special Page Line Type restrictions may be used.)

Location	Speaker Brd.	Location	Speaker Brd.	Location	Speaker Brd.
64040	48	64054	6	64068	13
64042	0	64056	7	64070	14
64044	1	64058	8	64072	15
64046	2	64060	9	64074	16
64048	3	64062	10	64076	17
64050	4	64064	11	64078	18
64052	5	64066	12	64080	19

64082-96 **Time Zone Tone Duration:** This is the minimum duration (set in 60ths of a second) for a time zone tone signal which is turned on by an optional master clock or through programmer (the clock or programmer can prolong this setting). The following table provides a reference to location codes and their associated time zones.

Location	Zone	Location	Zone	Location	Zone	Location	Zone
64082	1	64086	3	64090	5	64094	7
64084	2	64088	4	64092	6	64096	8

64098 **Disconnect Timeout:** Set the time period during which an outside line is kept dead after a call is completed. This allows proper disconnect with a central-office or PBX. Set in 60ths of a second. Normal setting is 180 (3 seconds). In version 102, Using an odd number at this location disables trunk-to-trunk transfers. If this is attempted, the first trunk will be dropped to prevent tying-up two trunks with an accidental hook-flash.

64100 **Monitor Lock:** For technician use only. Enter a 0 to allow entering a special set of commands with a computer. The normal setting is 255; however, the factory default is 0.

64102 **Emergency Call-in Beep Interval:** Enter the time period between the beeps that announce a priority call-in. Set in 60ths of a second. The normal setting is 60 (1 second).

64104 **Normal Call-in Beep Interval:** Enter the time period between the beep that announce a normal call-in. Set in 60ths of a second. **The normal setting is 600 (10 seconds).**

64106 *** Call Answering:** From the following choices, set the single button answering mode desired to enable Administrative phones that can answer calls (lines with their B:7 and/or B:8 attributes set) to answer the first one on their display by dialing an asterisk (*).

Enter **0** to allow only one call-in to be answered by dialing *. The user must hang up before answering the next call-in.

Enter any number between **1 and 59** to enable * dialing which simultaneously disconnects from one call-in and answers the next. While in use, this function uses a DTMF register, thereby reducing system traffic handling capability.

Enter a number between **60 and 63535** to set a time-out (in 60ths of a second) after which the DTMF register is freed for other users. The time-out period is restarted each time the user presses * before the register drops out. After the register drops out, the user must hang up before answering the next call.

64108 **Night Answer:** Used internally by TCIV.

64110 **Remote Hook-flash:** Use when the system is connected with a PBX or another Telecenter system. This sets the length of an on-hook signal (simulated hook-flash) which is sent to a remote system. Dialing a hook-flash plus a star tells your system that the hook-flash signal is intended for the other system. **The normal setting is 30 (1/2 second).**

64112-74 **Group N Special Page Authorizations:** Enter the physical numbers of Administrative lines authorized to use the Special Page lines whose B attributes designate the corresponding locations.

64176-90: **Group M Special Page Authorizations:** Enter the physical numbers of Administrative lines authorized to use the Special Page lines whose B attributes designate the corresponding locations.

64192 **Attendant Ring-Back:** Enter the time period allowed for an outside call transferred within the system to be accepted. Upon completion of this time period, the call will be transferred back to the attendant. **The normal setting is 1200 (20 seconds).**

64194 The RT4000 system number is normally stored here to help identify printouts (e.g., 211 would be stored here in system RT4000-211).

64196 **Link Block:** For diagnostic test purposes by experienced technicians only. Use to block the designated links.

CAUTION:

Do not enter 65535. The system will lock-up and RESET will not clear the condition.

To enable all links, enter **0**.

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 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** ($16 + 4 = 20$)).

64198 T Vector Diagnostic Tool: For experienced technicians only. Enter the memory address of a test program. Pressing the CPU Trap button will then direct the system to the program at that address. The normal setting is 0.

The Following are Interdependent Location Codes

Location Codes 64202, 64204, & 64206 control logic outputs to **MIO pins B20 & B22**: These pins can only support one location code each. Outputs will be useless if more than one location code is programmed to provide output to a single pin.

64202 All Trunks Busy (group 1): Enter a number representing a trunk group so the system can provide a signal to **MIO pin B20** whenever all trunks in the group are busy. The trunk group is specified by the following formula:

$$\text{number} = \text{Lowest physical number in trunk group} + (1024 * [\text{number of lines in group} - 1])$$

64204 All Trunks Busy (group 2): Same as the all-trunks busy (group 1) 64202 except that the signal is sent via **MIO pin B22**.

64206 Call Present and Serial Logging Control: The numbers listed below are bit numbers and decimal values. Adding all the decimal values of the functions wanted will yield the value to store in this location. For call logging, The Architectural Number of the administrative phone that answers a call-in is also sent to the serial port.

- | | |
|-----|--|
| 1 | Enable Call-in Logging. |
| 2 | Enable Page Logging. |
| 16 | MIO pin# B20 will show normal calls to LCD 1 |
| 32 | MIO pin# B20 will show priority calls to LCD 1 |
| 64 | MIO pin# B22 will show normal calls to LCD 2 |
| 128 | MIO pin# B22 will show priority calls to LCD 2 |

64208 Graphic Drivers 1 and 2 (GR1 and GR2): Enter the range of graphic display update bits required. Enter one (1) if graphic displays are not used. This will speed-up processing and input/output (I/O) time. Otherwise, enter the value calculated by the following formula:

$$[32768 * A] + [1024 * (B - 1)] + C$$

- | | | | |
|----------|---|---|-------------------------------------|
| A | = | 0 | Show call-ins to LCD Driver 1 only. |
| A | = | 1 | Show call-ins to both LCD Drivers. |
| B | = | Total number of TM432 modules. | |
| C | = | Lowest Physical Number to be displayed. | |

To reduce the time it takes to update the Graphic Display, enter values for **B** and **C** that specify the Physical Numbers whose activities are to be displayed (otherwise, the system will check all 512 possible Physical Numbers whether or not they are used or meant to be displayed).

64210 **PBX Access Codes:** This location is used to specify one or two PBX access codes. The access codes are used to restrict dialing when a 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. You may specify 1 or two digits as follows:

Represent a "0" as the number 10.

Represent any other digit at face value (i.e.: "5" as 5).

$$\text{code} = [\text{digit 1}] + (256 * [\text{digit 2}])$$

Example: To specify 9 as the single PBX Access Code, enter 9 (9 + 256*[0]).

To specify 9 and 8 as PBX Access Codes, enter 2057 (9 + 256*[8]).

64216 **Graphics Driver 2:** Graphics Driver 2 (GR2) provides buffered lamp driver output. Enter 0 to show when any line in the range specified in 64208 is in use.. Or, specify a separate range of administrative (A:1) lines: then, GR2 will provide a busy indication only when one of these lines is communicating with one of the lines in the range specified at location code 64208.

This allows the administrative phone(s) to have a graphic display showing call-ins and another showing who they are talking to. GR2 can also be used for remote control of cameras or door locks.

Use the following formula to determine the value to enter:

$$\text{value} = [1024 * (\text{number of lines} - 1)] + \text{Lowest physical number in the group}$$

64218-20 **Graphic Drivers 3 and 4:** Not implemented in hardware. Contact engineering support before attempting to use drivers 3 and 4. Enter 0 at Location Codes 64218 and 62220.

64222 **Attendant Recall:** Enter the physical number of the line to ring when DIL and AAI calls receive no answer and the time-out interval passes. Normally the physical number of the Attendant line.

64224 **Audio Line:** The physical number of the LLM line that carries the audio signals for the Call Control Console. Adding 32768 to this number 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 **64226 - 64232** limits the range of available physical numbers to be within the range of 5 to 255 for each group.

A zero at any of these locations means there are no lines in the group.

64226 Console Trunk Group: This location designates the group of trunks to be monitored and accessed by the Call Control Console. The value is of the form:

$$\text{value} = [\text{physical number of the first trunk in the group}] + (256 * [\text{the number of trunks in the group} - 1])$$

64228 Operator Lines: This location designates the physical numbers to be used by the Call Control Console for its operator lines. Actual LLM line hardware need not be present for these physical numbers. The value is of the form:

$$\text{value} = [\text{physical number of the first operator line in the group}] + (256 * [\text{the number of lines in the group} - 1])$$

64230 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 :

$$\text{value} = [\text{physical number of the first line in the group}] + (256 * [\text{the number of lines in the group} - 1])$$

64232 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:

$$\text{value} = [\text{physical number of the first line in the group}] + (256 * [\text{the number of lines in the group} - 1])$$

65280-84: Limited Access Area Codes: Enter one Area Code in each location which can be called by an Administrative phone that is otherwise restricted to local outside calls (B1 attribute). Note that the dialing restrictions are predicated upon **Dial 1** access to toll calls.

Location Code Programming Worksheet

Date: _____

Installation: _____

Distributor: _____

RT4000- _____

Software Version: _____

Sheet 1 of 2

Location Code	Factory Setting	Installed Setting	Location Code Function	Set Results
64000	5		KSU or TC4400	
64002	4		MTG100 time tone choice	
64004	0		#40 - #49 remote pickup	
64006	0		ASCII code (data character)	
64008	4		Single-link staff Physical No.	
64010	3		3 or 4 digit dialing	
64012	600		Dial Tone time limit	
64014	65		Hookflash time limit	
64016	0		Dial 0 physical no.	
64018	0		Dial 1 physical no.	
64020	0		Dial 2 physical no.	
64022	0		Dial 3 physical no.	
64024	0		Dial 4 physical no.	
64026	0		Dial 5 physical no.	
64028	0		Dial 6 physical no.	
64030	0		Dial 7 physical no.	
64032	0		Dial 8 physical no.	
64034	0		Dial 9 physical no.	
64036	1200		Keep alive time limit - DISA	
64038	300		Keep alive response time	
64040-80	all=2		Intercom mapping	
64082-96	300		Time zone tone time limits	
64098	180		Trunk disable time limit	
64100	0		System freeze ON/OFF	

Location Code Programming Worksheet

Date: _____

Installation: _____

Distributor: _____

RT4000-_____

Software Version: _____

Sheet 2 of 2

Location Code	Factory Setting	Installed Setting	Location Code Function	Set Results
64102	60		Normal beep time limit	
64104	600		Normal beep time interval	
64106	1		Press * repetitive call-in answer	
64108	Not used	Don't change	Used internally by TCIV	
64110	30		Remote hookflash time limit	
64112-90	All=0		Special Page or VCM restrictions	
64192	1200		Attendant ringback time limit	
64194	?	Don't change	TCIV System Number	
64196	0		Line and link blockout	
64198	0		Trap Vector diagnostic	
64202	0		Trunk lines busy group 1	
64204	0		Trunk lines busy group 2	
64206	0		Call-in and Page Logging	
64208	1		Graphic Display Function	
64210	0		Continue link blocking at PBX	
64212	0		Not used	
64214	0		Not used	
64216-20	All=0		Graphic Display Function	
64222	0		Attendant recall physical No.	
64226	0		TC4400 trunks physical No's.	
64228	0		TC4400 TCIV lines phys. no's.	
64230	0		TC4400 Mon. ext. grp. 1 phys. no's.	
64232	0		TC4400 Mon. ext. grp. 2 phys. no's.	
64234-5276	?	Don't change	Used internally by TCIV	
65280-84	All=0		Allowed Area Codes	

SPECIAL PAGE LINE PROGRAMMING WORKSHEET

Group N

B Attribute	Location Code	Value	Physical Numbers		Page Line Architectural Number
			Authorized Phone Lines	Special Page Lines	
B:	64112				
B:1	64114				
B:2	64116				
B:12	64118				
B:3	64120				
B:13	64122				
B:23	64124				
B:123	64126				
B:4	64128				
B:14	64130				
B:24	64132				
B:124	64134				
B:34	64136				
B:134	64138				
B:234	64140				
B:1234	64142				
B:5	64144				
B:15	64146				
B:25	64148				
B:125	64150				
B:35	64152				
B:135	64154				
B:235	64156				
B:1235	64158				
B:45	64160				
B:145	64162				
B:245	64164				
B:1245	64166				
B:345	64168				
B:1345	64170				
B:2345	64172				
B:12345	64174				

Group M

B:	64176				
B:6	64178				
B:7	64180				
B:67	64182				
B:8	64184				
B:68	64186				
B:78	64188				
B:678	64190				