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DMS-100 Family

TOPS MPX NT DA

Operator Guide

BCS35 and up Standard 02.01 October 1993

northern telecom

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Operator Guide

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- added note on override room number checks feature for TOPS MPX/AOSS
- added information on the Automated Directory Assistance Service (ADAS) feature

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About this guide

This guide provides an overview of TOPS MPX Northern Telecom Directory Assistance (TOPS MPX NT DA). It includes descriptions of product hardware, software functionality, and the enhancements and applications using the TOPS MPX NT DA system. This guide is intended for use by those that are responsible for providing directory assistance and related services.

When to use this guide

Northern Telecom (NT) software releases are referred to as batch change supplements (BCS) and are identified by a number, for example, BCS29. This document is written for DMS-100 Family offices that have BCS35 and up.

More than one version of this guide may exist. The version and issue are indicated throughout the guide, for example, 01.01. The first two digits increase by one each time the document content is changed to support new BCS-related developments. For example, the first release of a document is 01.01, and the next release of the document in a subsequent BCS is 02.01. The second two digits increase by one each time a document is revised and released again for the same BCS.

To determine which version of this guide applies to the BCS in your office, check the release information in *DMS-100 Family Guide to Northern Telecom Publications*, 297-1001-001.

How to identify the software in your office

The *Office Feature Record* (D190) identifies the current BCS level and the NT feature packages in your switch. You can list a specific feature package or patch on the MAP (maintenance and administration position) terminal by typing

>PATCHER;INFORM LIST identifier

and pressing the Enter key.

where

identifier is the number of the feature package or patch ID

You can identify your current BCS level and print a list of all the feature packages and patches in your switch by performing the following steps. First, direct the terminal response to the desired printer by typing

>SEND printer_id
and pressing the Enter key.

where
printer_id is the number of the printer where you want to print the data

Then, print the desired information by typing

>PATCHER;INFORM LIST;LEAVE
and pressing the Enter key.

Finally, redirect the display back to the terminal by typing

>SEND PREVIOUS
and pressing the Enter key.

References in this guide

The following documents are referred to in this guide.

Number	Title
203-3111-901	*Operator Message Guide*
297-1001-001	*DMS-100 Family Guide to Northern Telecom Publications*

How commands, parameters, and responses are represented

Commands, parameters, and responses in this guide conform to the following conventions.

Input prompt (>)

An input prompt (>) indicates that the information that follows it is a command:

>BSY

Commands and fixed parameters

Commands and fixed parameters that are entered at a MAP are shown in uppercase letters:

>BSY LINK

Variables

Variables are shown in lowercase letters:

>BSY LINK ps_link

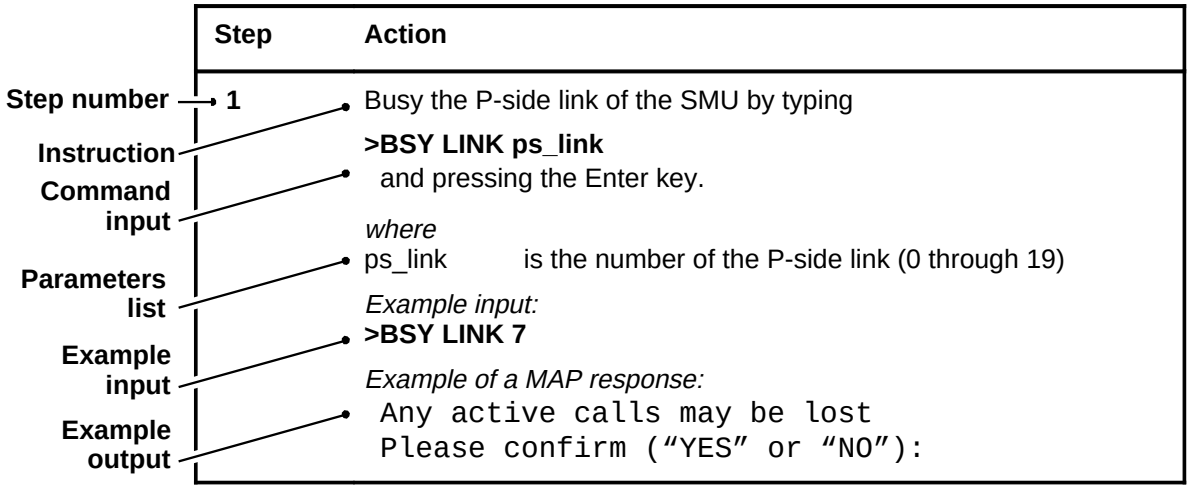
The letters or numbers that the variable represents must be entered. Each variable is explained in a list that follows the command string.

Responses

Responses correspond to the MAP display and are shown in a different type:

```
Any active calls may be lost
Please confirm (“YES” or “NO”):
```

The following example illustrates the command syntax used in this guide.



Introduction to TOPS MPX NT DA AOSS

Description of TOPS MPX NT DA AOSS

The TOPS MPX Northern Telecom Directory Assistance (NT DA) AOSS product is an operator services system that has the capabilities to provide directory assistance (DA), customer name and address (CNA), and intercept services. It provides these services using the Northern Telecom Auxiliary Operator Services System (AOSS) protocol. This product does not provide toll and assistance service.

TOPS MPX NT DA AOSS configuration

The TOPS MPX system is comprised of three main functional areas (see figure 1-1) and their associated components as follows:

- the DMS 100/200 switch that presents the calls to the operator positions and completes the calls upon successful interaction between the operator, the subscriber, and appropriate database.
- the operator office comprised of the operator computer terminals, DMS and database gateway terminals, the maintenance positions, the token ring local area network (LAN), and associated interfaces.
- the NT DA system comprised of the NAS FT gateway, the NAS databases, and the interactive voice systems used to provide audio responses to database requests.

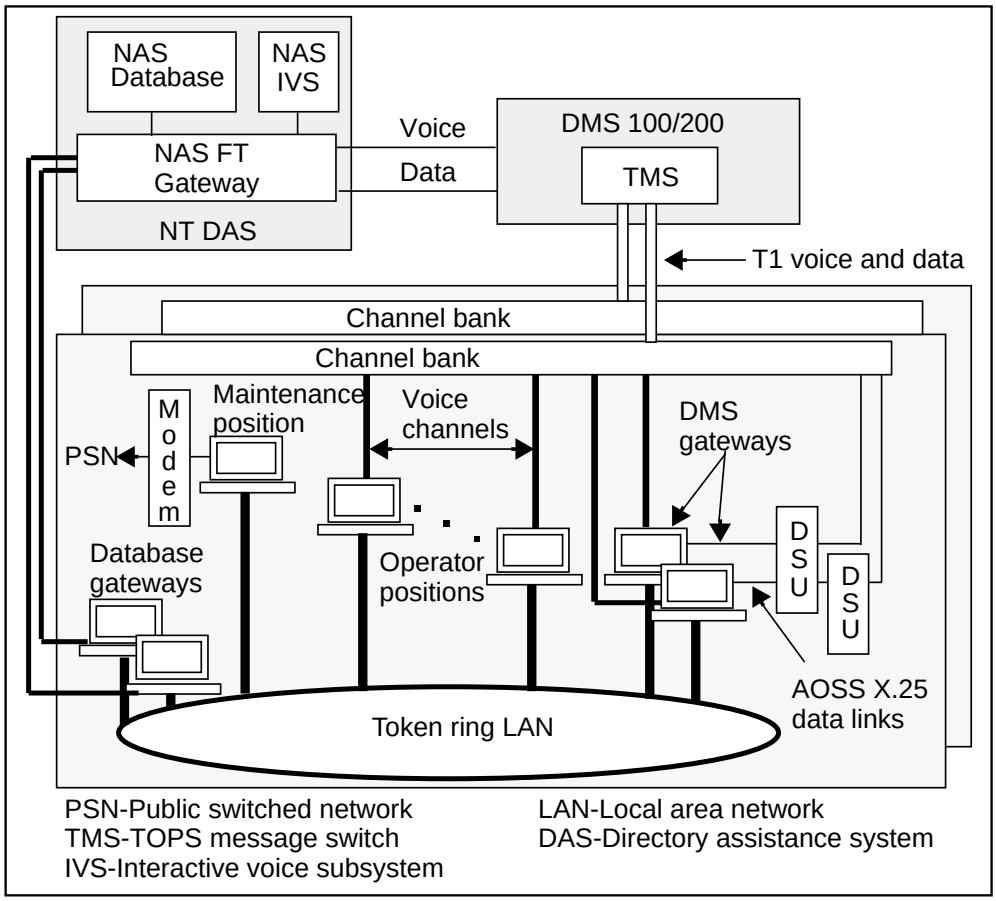
Interfaces

The TOPS MPX uses a number of interfaces listed as follows:

- Call control between the host DMS switch and the NT DA FT (fault tolerant) gateway. This interface is a data link that provides for call control
- Trunks on T1 facilities between the DMS switch and the interactive voice subsystems (IVS). Interactive voice subsystems are used for automated DA and intercept calls when the operator releases the call to an audio announcement. The automated audio announcement is done entirely by the FT gateway and IVS.

- Listing services data transfer between the NT DA FT gateway and designated MPX database gateway positions. Redundant data links connect two MPXs on each token ring LAN to the NT DA FT gateway. The DA information is passed from the database gateway position to the token ring LAN, where it is available to all other MPX positions attached to the LAN.
- Digital links between the DMS switch and each MPX position provide the operator voice paths, one to each position.
- Data links between the DMS switch and designated MPX DMS gateway positions to provide central control-to-position data communications
- Token ring LAN access for all MPX positions, used for MPX position-to-position communications.
- Human computer interface (HCI) between the MPX position and the operator. This interface comprises screen displays, keyboard input, Sonalert notification, and the headset interface for the operator.
- External database interface (not supported at this time).

Figure 1-1xxx
Typical TOPS MPX system architecture



Types of service

The TOPS MPX NT DA provides for the following services:

- DA service calls
  - regular DA calls
  - DA ONI (operator number identification) or ANIF (automatic number identification failure) calls
  - DA recall calls
  - emergency DA call connection
- Intercept service calls
  - automatic intercept calls
  - intercept ONI and ANIF calls
  - intercept cut-through calls
  - intercept recalls
  - intercept special

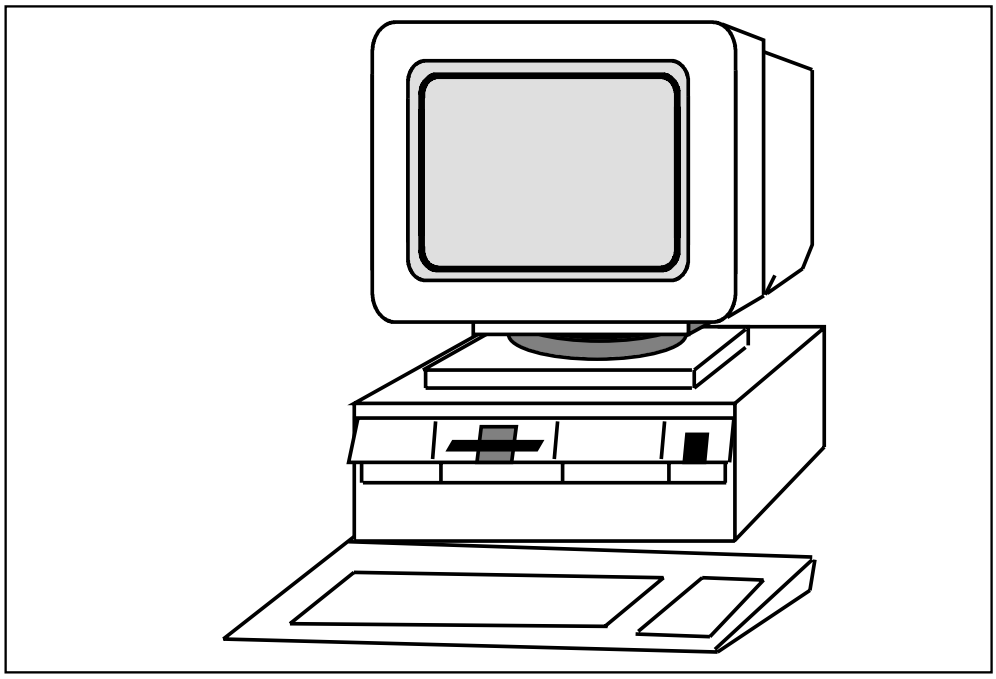
In addition to the services listed above, TOPS MPX NT DA provides customer name and address (CNA) information. The TOPS MPX NT DA AOSS product does not provide toll and assistance service.

The TOPS MPX NT DA position

The TOPS MPX position

The TOPS MPX NT DA position is a custom-packaged IBM Personal System/2 based operator service workstation (see Figure 2-1 for an illustration). It combines existing IBM hardware products along with custom hardware developed by NT and other commercial vendors.

Figure 2-1
The TOPS MPX position



The TOPS MPX operator position screen

The TOPS-MPX NT DA screen is divided into five major areas for call handling. Table 2-1 identifies the names of each of these five areas and their functions. Refer to figure 2-2 for an illustration of the layout of the TOPS MPX screen.

Table 2-1xxx
The five areas/lines of the TOPS MPX screen

Field name	Field description
Message/status area	This area presents four lines of information under the control of the TOPS MPX-AOSS software.
AOSS call processing area	This area displays the call service type, call information, the call type for queueing, and calling directory umber.
DA input area	This line contains the fields for entering DA, intercept, and CNA search information.
Listings display area	This area displays the listings of information that result from a search of an NT DA database.
Softkey area	This area contains eight softkeys corresponding to the eight unlabeled keys at the top of the main keyboard.

Note: The positions of the fields on the TOPS MPX operator position screen shown in this document reflect the default positions. The operating company can customize the screen layout to suit its needs.

Figure 2-2xxx
Illustration of areas of TOPS MPX NT DA screen

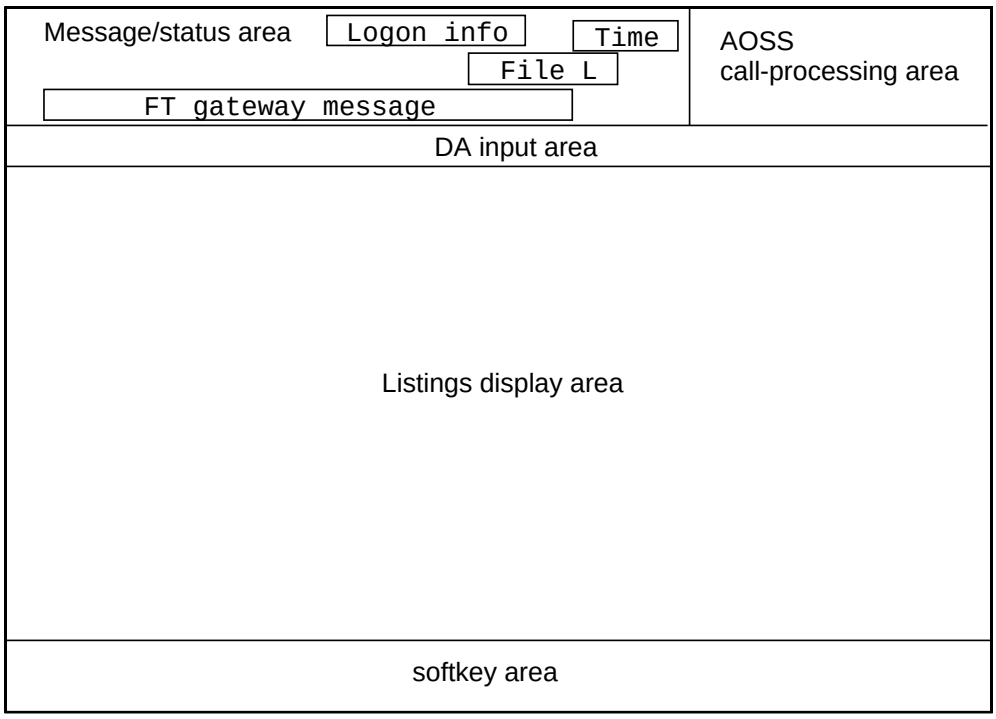
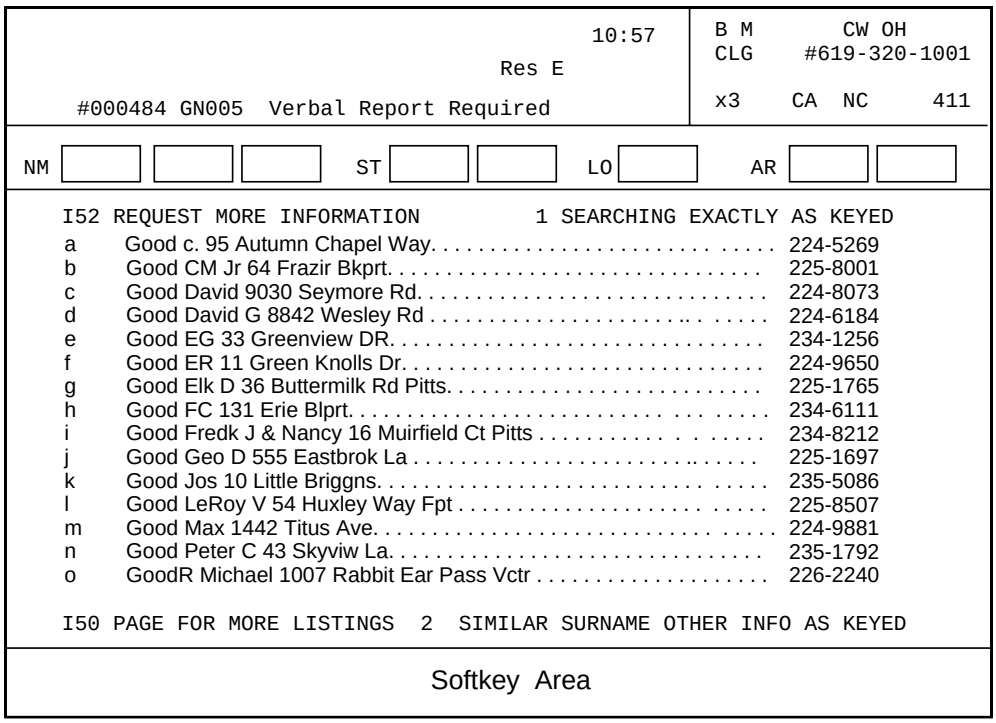


Figure 2-3xxx
Example of TOPS MPX NT DA search screen



TOPS MPX screens

TOPS MPX with the NT DA system has three screens: logon, idle (DA service), and DA service. Initially, the logon screen displays only the Northern Telecom (NT) logo and a TOPS MPX system message. There is also a separate logon window.

The idle DA service screen is a background that appears when the operator logs in or accesses the options menu by pressing the **Opts** key. It displays softkeys, the message/status area, and a blank listings area. This screen allows the operator to adjust the headset volume louder or softer by using the soft function keys. The idle DA service screen also appears when no call has been presented to the position or when the operator has chosen to do other administrative tasks.

The DA service screen allows the operator to interact with the NT DA system for DA and CNA searches, and with the NT Intercept database for intercept responses. The operator can access an options menu window that lists the NT DA options that may be executed.

Service screen

All DA, CNA, and intercept searches are performed from the NT DA service screen. This section describes the characteristics that distinguish the NT DA service screen from the DA service screens of other DA applications.

The DA service screen is organized into five separate areas:

- message/status area
- AOSS call-processing area
- DA input area
- listings display area
- softkey area

The following paragraphs describe the screen areas shown in figure 2-2.

Message/status area

The message/status area consists of the top four lines of the screen. In this area the DA application has access to various output fields. The DA application uses these fields to present informational messages to the operator. A seven-character field on the third line is used to indicate the search file (or type). This is followed by a one-character language indicator, a 44-character field on the fourth line used for displaying FT gateway status messages (including call ID and reconnect count), and a pair of 10-character fields on the first line used for logon information.

The files (or search types) available depend on the particular application in use. The following examples are typical search type indicators:

- RES - residential
- BUS - business
- GOV - government

Each search type may be supplemented with secondary searches in the following (these are examples only) ways:

- P - phonetic
- K - keyword
- X - expanded location
- F - full set

Typical language indicators are E (English), F (French), and S (Spanish).

The language indicator shows the language for automatic announcement for the current call if the position is datafilled for language selection. Pressing the **Alt Lang** key toggles the selection between the primary and secondary languages. The indicator shows which is currently selected.

The FT gateway status messages begin with a call ID in columns 1-7 and end with a provision for a reconnect count in column 44.

While logon to the DMS switch is incomplete, the message `No AOSS` is displayed in the logon information area. When logon to the DA FT gateway is incomplete, the message `No DA` is displayed.

AOSS call-processing area The AOSS call-processing display is a four-line by sixteen-column character display located in the upper right-hand corner of the screen. Call-processing information is displayed in this area (see figure 2-4).

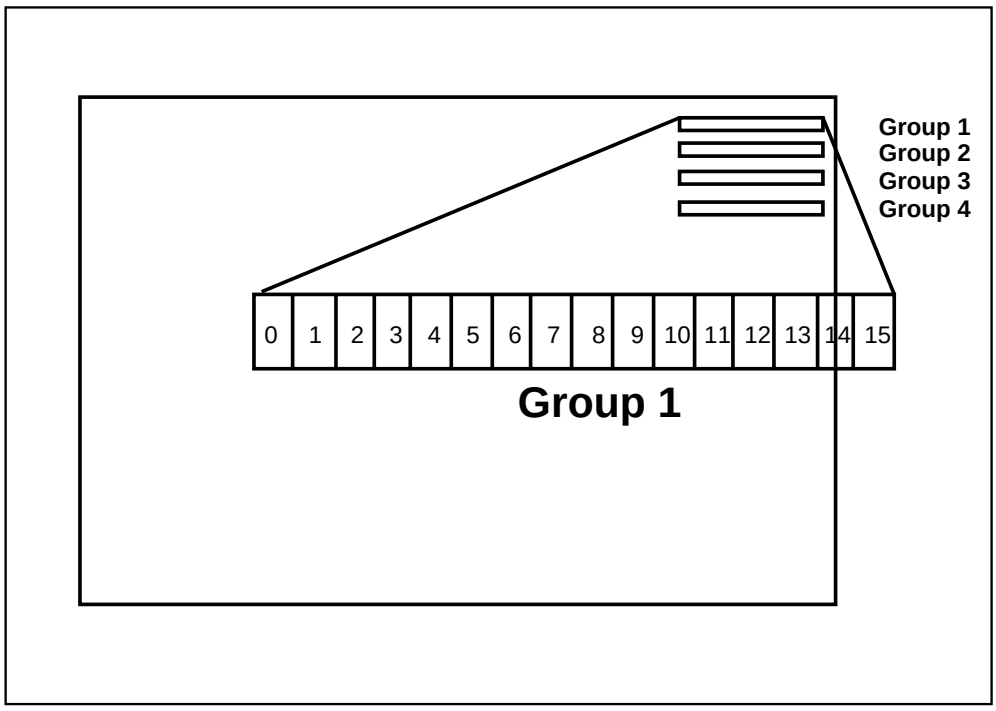
DA input area Under the message/status area is the input line, line 6 on the TOPS MPX screen. The input line contains the fields for entering DA, intercept, and CNA search information. There are eight fields: the first six are nine characters long, and the last two are four characters long. You may enter the locality by pressing a locality softkey, or it can be keyed in manually.

Listings display area The various NT databases (V2, V3, DDA, BTDAS, and DAS/C) each implement the listings display area in slightly different ways. The presentation of the listings display area is determined by the DA system, not by the TOPS MPX position.

softkey area At the bottom of the screen are eight softkey labels corresponding to the eight unlabeled keys in the top row of the main keyboard. Both shifted and unshifted values are supported. When a DA search is made, the softkey labels indicate the localities available.

Brackets (<>) enclosing a display indicate that the display appears in flashing mode. Lowercase letters serve as place holders for numbers that are actually displayed. Certain displays overwrite one another. In these cases, the illustration shows only one display; however, the explanation lists all displays and specifies their relative position in the group.

Figure 2-4
Groups in the AOSS call-processing area



TOPS MPX keyboard

The TOPS MPX keyboard includes a main keyboard and a cluster of call-processing keys. This keyboard accommodates combined services functions. Figure 2-5 and figure 2-6 illustrate the keyboard, including keys specific to the NT DA system. The various NT DA applications implement differing keys and keying-search strategies. The keys illustrated here are for the digital directory assistance (DDA) system, which provides all of the defined keys. Therefore, this keyboard is suitable for all NT DA products. The second row of keys and the fourteen-key cluster on the right have transparent keycaps with label inserts.

Figure 2-5xxx
The QWERTY keys

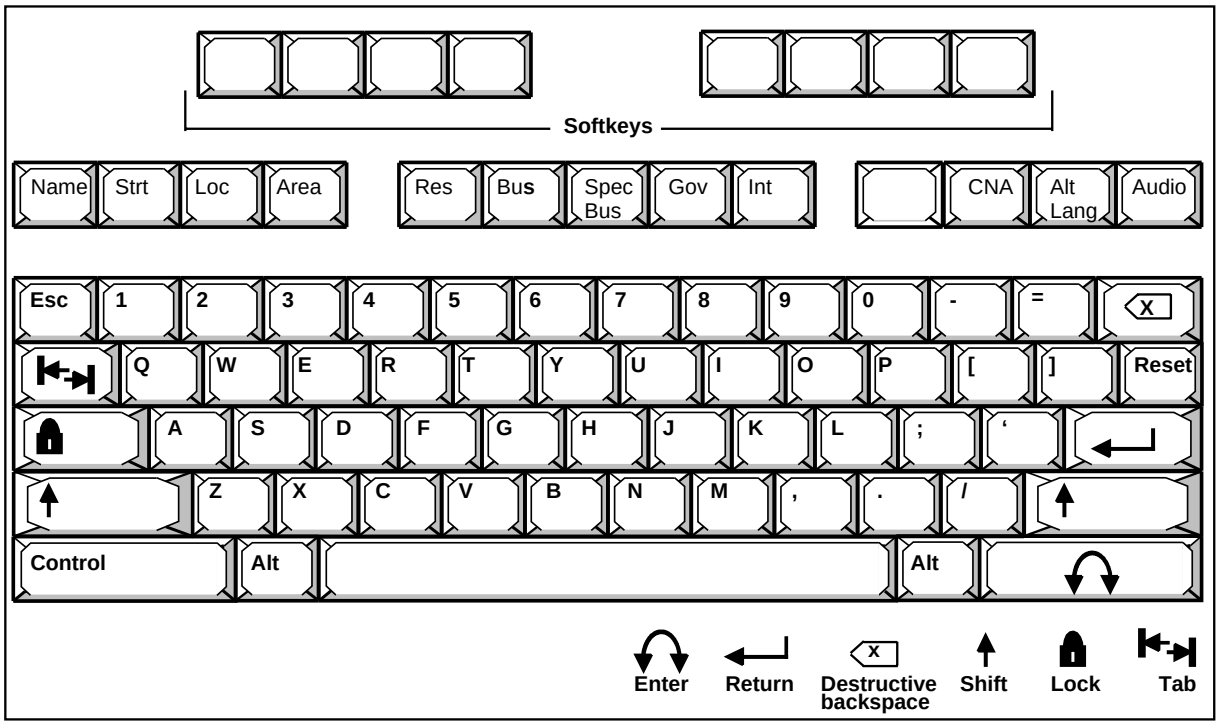
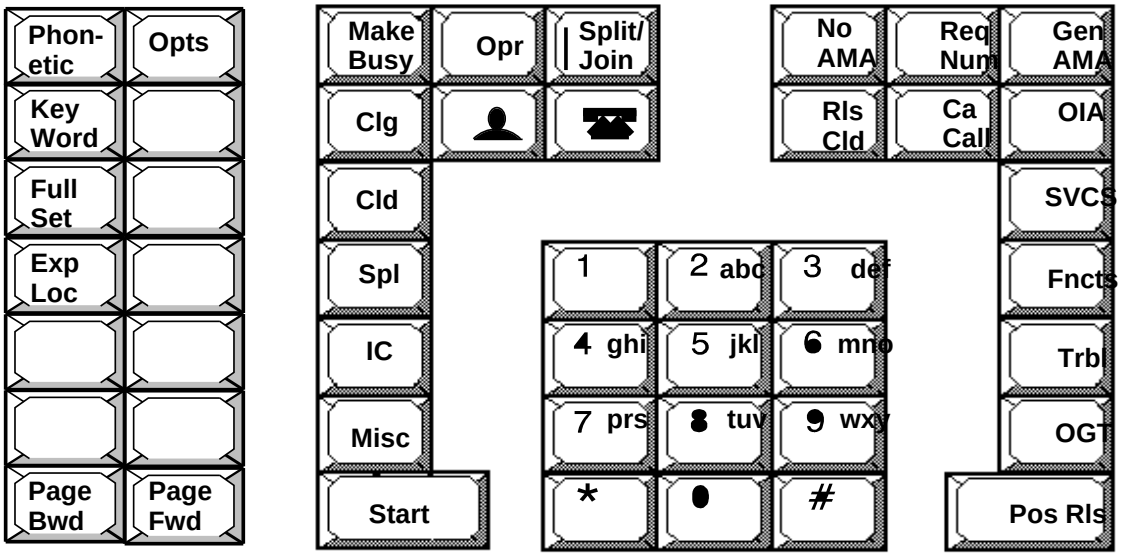


Figure 2-6xxx
Secondary search keys and call processing cluster keys



The shaded keys indicate functions that do not apply to the current release of NT DA.

Table 2-2 lists and describes the functions of the QWERTY keys.

Table 2-2xxx
Description of QWERTY keys

Key	Description
A-Z	standard alphabetical characters used to enter search information
Esc	clears the field in which the cursor is currently displayed
Reset	resets DA input fields to initial values
 (Backspace)	moves the cursor one space to the left, and if no character to the left, cycles between minor fields. Used for corrections to input entries.
 (Enter icon)	cycles cursor between major fields
 (Tab icon)	moves cursor to name and street fields
 (Lock icon)	locks on capitalization
 (Return icon)	cycles cursor between major fields
 (Up arrow icon)	changes (shifts) input from lower case to upper case or selects softkeys top-labeled function

The database keys

Following is an illustration of the database keys (figure 2-7) with an explanation of each in table 2-3.

Figure 2-7
Database keys

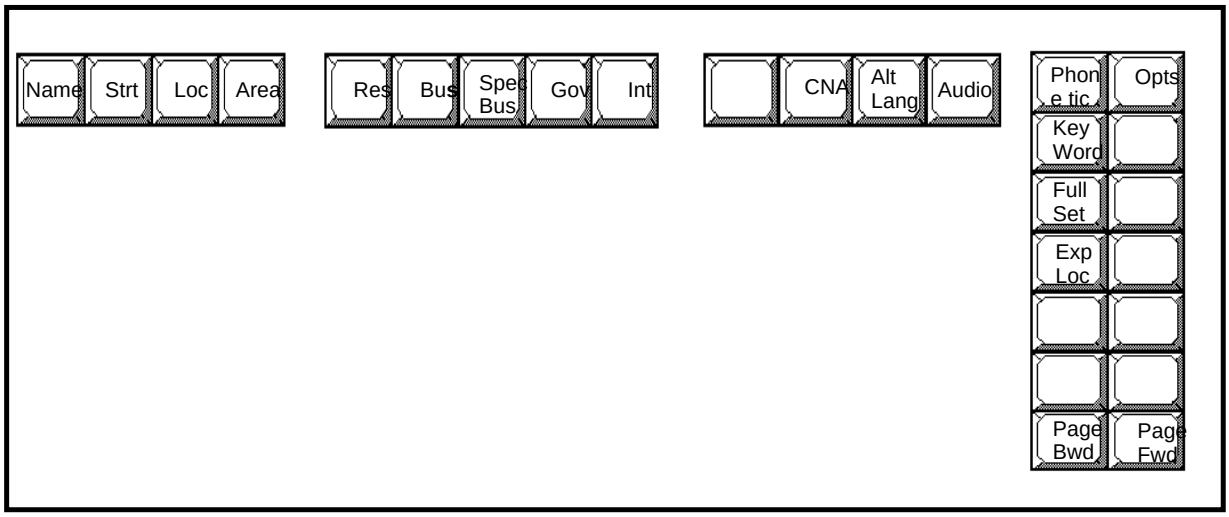


Table 2-3xxx
Description of the database keys

Key	Description
Name	moves cursor to the Name field. If the cursor is already in the Nm field, it cycles the cursor between minor name fields.
Strt	moves cursor to the street field. If the cursor is already in the street field, it cycles the cursor to minor street fields.
Loc	moves cursor to the locality field
Area	moves cursor to the area field If the cursor is already in the area field, it cycles the cursor to minor area fields.
Res	initiates a residential search
Bus	initiates a business search
Spec Bus	initiates a special search
Gov	initiates a government search
Int	processes an intercept call
CNA	initiates a search on a given telephone number to locate name and address information
Alt Lang	selects an alternate language for the audio announcement. This key is pressed prior to **Audio** key.

-continued-

Table 2-3xxx
Description of the database keys (continued)

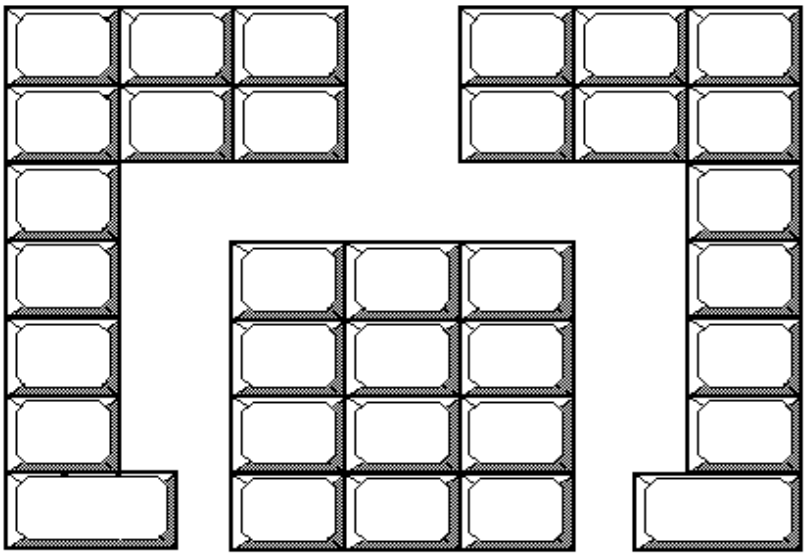
Key	Description
Audio	releases call to audio announcement
Phonetic	initiates a phonetic search
Opts	displays or removes options menu. The window appears in the center of the screen. While the options menu is displayed, softkeys for adjusting the headset volume are also displayed. The availability of the options menu is dependent on operator permissions. The options are: nonpublished search, training search, non-connected search, and exit search.
Key Word	initiates a keyword search
Full Set	initiates a full set search
Exp Loc	initiates an expanded locality search
Page Bwd	allows the operator to display the previous page of information
Page Fwd	allows the operator to display the next page of information

End

The call processing keys

The call processing keys are used to enter numbers, report trouble, connect a subscriber to the service assistant (SA), or process calls. Not all of the call processing keys will be functional with the initial release of TOPS MPX NT DA.

Figure 2-8xxx
Call processing keys



The shaded keys indicate functions that are not operational in TOPS MPX NT DA.

Table 2-4xxx
Description of call processing keys

Key	Description
Make Busy	Makes the position unavailable to accept calls. Toggle action makes the position available to accept calls.
Opr	pressed with the number keys and the **Start** key to sign on, request assistance, and transfer a call to another operator in the office. See the following examples: Request assistance: **Opr** +**0** + **Start** or directed request for assistance: **Opr** + **0** + position number + **Start** Mark the call for transfer queue: **Opr** + 1 + **Start** (for queue one) , **Opr** + 2 + **Start** (for queue two) and **Opr** + 3 + **Start** (for queue 3). If the number flashes, you have entered an invalid number.

-continued-

Table 2-4xxx
Description of call processing keys (continued)

Key	Description
Split/Join	enables the operator to cut off and restore the subscriber voice connection so that the operator can speak with the service assistant/forward party without the subscriber overhearing the conversation. It is not necessary to have a forward party connected to operate the **Split/Join** key.
No AMA	toggles between marking the next AMA record no charge and removing the no charge mark. No AMA can be set any time during the call. Calls initially coded no charge cannot be toggled to charge.
Req Num	used to enter the requested number Enter **Req Num** + digits of the requested number + **Start**. A flashing number indicates you have entered an invalid number.
Gen AMA	used to generate an AMA billing record
Clg	used with the number keys and the **Start** key to enter the calling number for calls that arrive ONI (operator number identification) or ANIF (automatic number identification failure)
(Person icon)	not available with initial release of TOPS MPX NT DA
(Station icon)	not available with initial release of TOPS MPX NT DA
Rls Cld	used to release the called or forward party
Ca Call	used to cancel off-hook call or ignore billing requirements
OIA	not available with initial release of TOPS MPX NT DA.
Cld	used in conjunction with the number keys and the **Start** key to enter a called number and connect to that forward party
SVCS	not available with initial release of TOPS MPX NT DA
Spl	not available with initial release of TOPS MPX NT DA
Fncts	not available with initial release of TOPS MPX NT DA
IC	not available with initial release of TOPS MPX NT DA
Trbl	used to enter a trouble code
Misc	not available with initial release of TOPS MPX NT DA
Start	used with other keys to terminate the entry of information
Fncts	not available with initial release of TOPS MPX NT DA
OGT	not available with initial release of TOPS MPX NT DA
Start	sends command to the system
Pos Rls	releases the call from a position after billing is satisfied and cancels the call if not released to audio

End

Position sanity timer

The TOPS MPX position sanity timer takes down calls attached to an unoccupied position.

During operator call processing, situations can arise that result in the calling or called parties remaining attached to an unoccupied position, for example, if you log out with a call at the position and you do not first release the call. When this occurs, a display appears on the in-charge position for your team. Without operator involvement, the calling and called parties will eventually go on-hook in an attempt to disconnect.

The position sanity timer is activated when the DMS receives indication that all attached parties are on-hook. If this timer expires, the DMS will automatically take the call down.

> ***Note:*** The duration of the position sanity timer is datafilled in TOPS parameter table, TOPSPARM.

Operator action following timer initiation

If all attached parties have gone on-hook, the timer is initiated. Every subsequent operator keystroke will clear the timer and then restart it.

Subscriber behavior following call abandon

If an operator abandons a call with a subscriber attached, the subscriber will receive no indication that this procedure has taken place. The subscriber will probably flash the switchhook to try to recover dial tone. Eventually, the subscriber will go on-hook, starting the timer and taking the call down.

Subscriber off-hook

Once all parties have indicated on-hook to the DMS, the position sanity timer will be initiated. If an attached party goes off-hook, the timer will clear.

> ***Note:*** No call will be taken down if there is an off-hook subscriber attached.

Parties on hold

If the calling and called parties are attached to a loop that you hold, and the attached parties go on-hook, the timer is initiated and you receive an on-hook indication. If you do not reaccess the held call before the timer expires, the call will be taken down.

Call take down

When the timer expires, the timeout will be handled as follows. The call will be taken down as if cancelled by the operator. If the operator is still logged in to the position, the position will be made busy. If the operator has initiated logout, logout will be completed. If the operator has more than one

call attached, the previous actions will not be performed until the final call is taken down.

TOPS MPX screen messages and descriptions

This chapter describes the messages that appear on the TOPS MPX NT DA operator position screen. The messages have been broken down into two main categories:

- those displayed by the directory assistance system (DAS)
- those displayed by the digital multiplex system (DMS) switch.

This chapter deals mainly with the messages displayed by the DMS switch. The DMS switch displays information in the four groups in the call control function area. See figure 3-2 for the position of the call control function area on the TOPS MPX operator position screen.

Messages displayed in the message/status area

The messages displayed in the message/status area of the TOPS MPX operator screen are controlled by the directory assistance system. Messages appear on the screen for a variety of reasons. Some messages simply reassure the operators that they have performed an action correctly, or let them know that the system is working on their request. Other messages alert operators to keying errors, to help interpret the message displayed, or to begin recovery procedures.

The messages are divided into digital directory assistance (DDA) messages and gateway messages.

Table 3-1 lists some of the most common messages displayed. Refer to the *Operator Message Guide,* 203-3111-901 for a complete listing of messages.

> ***Note:*** The messages that appear on the operator screen can be defined by the operating company if they choose not to use the defaults provided.

Table 3-1xxx
Common messages appearing in the message/status area

Message	Explanation
LOGIN SUCCESSFUL	You successfully logged in to the system.
ANNOUNCEABLE	The system was able to execute the request and will announce the information to the caller.
FUNCTION NOT AVAILABLE	You pressed a function key that is not applicable to your system.
FUNCTION NOT ALLOWED	While handling a call, you pressed a key not related to the search function.
NO LISTINGS FOUND	The system did not find any listings matching your search and permission criteria.
NO MORE LISTINGS	The screen displayed is the last one available.
NOTIFY YOUR SUPERVISOR	An unrecoverable error has occurred.
PAGING FORWARD NOT ALLOWED	You pressed the **Page Fwd** key, when the PAGE FOR MORE LISTINGS message was not displayed.
PAGING BACKWARD NOT ALLOWED	This message might be displayed if you press the **Page Bwd** twice, or if the first screen of listings is already displayed, or if the message NO LISTINGS FOUND is displayed.
PAGE FOR MORE LISTINGS	More than one page of listings matches the keyed information.
VERBAL REPORT REQUIRED	Either the caller was reconnected to an operator more often than the maximum number of reconnects allowed, or an audio system announcement cannot be made.

End

Calling number display

The TOPS MPX NT DA AOSS has an optional feature to display the calling number at call arrival. Operating companies have the option of displaying the calling number of a trunk to TOPS call, for specified TOPS-supported trunk groups, at the operator position upon call arrival.

Note: This feature only applies to calls coming in on the corresponding trunk groups in table TOPSTOPT.

If a call arrives to the TOPS over a trunk that is datafilled in table TOPSTOPT, and the calling number has been received, it will be displayed at the operator position upon call arrival.

Note 1: This feature does not apply to line to TOPS calls, or to intercept calls.

Note 2: This feature only adds the option of having the calling number displayed; it does not prevent the calling number from being displayed if it is turned off (field DISPCLG set to N).

Messages displayed in the call control function area

The call control function area is divided into four groups. Each group is 16 characters long, and call control information is displayed in these groups (see figure 3-1). The following sections provide illustrations of what appears in each group, followed by a brief explanation. Any displays enclosed in <> indicate that the display appears in flashing mode. In addition, lowercase letters are used as place holders for numbers that are actually displayed. Certain displays overwrite one another. In these cases, only one display will be shown in the illustration; however, the explanation will list all displays and specify their relative position in the group.

Figure 3-1
Illustration of groups in call control function area

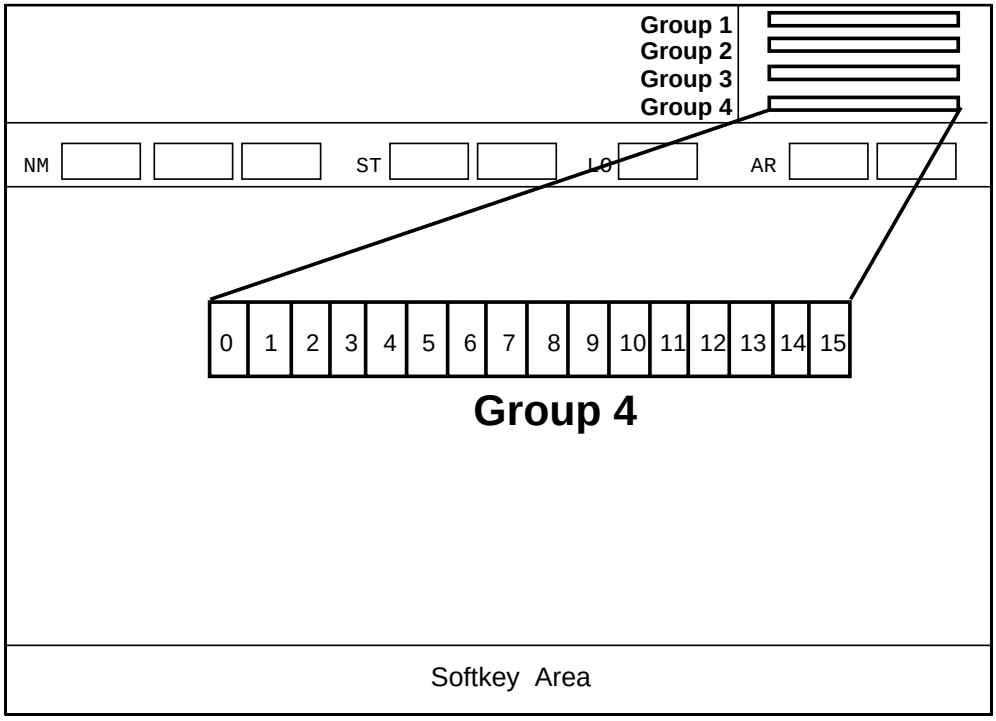


Figure 3-2
Call control messages displayed in group 1

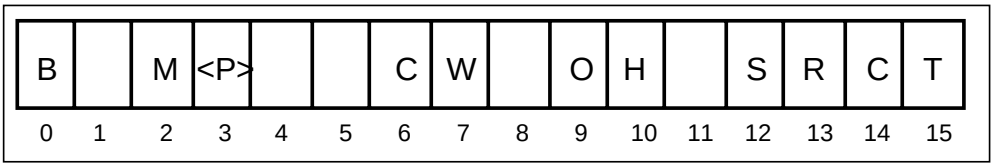


Table 3-2
Call control messages displayed in group 1

Display	Column number	Explanation
B	0	Position is not available to accept incoming calls. The display is produced after the operator presses the **Make Busy** key.
M	2	Position is being monitored by a service assistant or in-charge operator. The character M is displayed during monitoring only if the TOPS_DISPLAY_MON parameter is enabled.
<P>	3	The operator is being paged by the service assistant or in-charge operator. The operator goes into the make busy mode by pressing the **Make Busy** key to prevent another call from accessing the position. When the current call is complete, the number of the service assistant or in-charge position that paged the operator is displayed in group 2.
	4	For QMS positions, the calling language confirmation.
	5	For QMS positions, the called language confirmation.
CW	6-7	Calls are waiting in the calls waiting queue. Calls are placed in the calls waiting queue when there are no operators currently available to handle a new call.
OH	9-10	The data link between the DMS switch and the DAS is not available and the call must be handled manually by the operator (that is, the operator must enter any billing information, if necessary, and verbally quote the requested number).

-continued-

Table 3-2
Call control messages displayed in group 1 (continued)

Display	Column number	Explanation
VQ	9-10	There are no automatic recording units (ARU) available and the operator must verbally quote the requested number to the calling party.
SR	12-13	The force manager has included the operator in the study register system. Refer to the *TOPS MPX Force Management Guide,* 297-2291-310 for details on the study register system.
CT	14-15	The force manager has placed the operator in a controlled traffic situation. In controlled traffic, only the designated call types are brought to that position.
End		

Figure 3-3xxx
Call control messages displayed in group 2

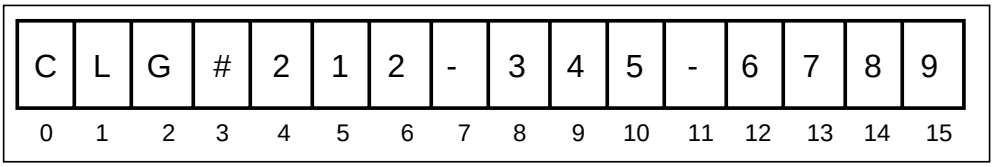


Table 3-3xxx
Call control messages displayed in group 2

Display	Column number	Explanation
OPR#xxxx	0-7	A valid operator number, xxxx, was keyed in at login and displays the number entered.
OPR#<xxxx>	0-7	An invalid operator number was keyed in at login and displays the number entered in the flashing mode.
OPR#xxxxx	0-8	The first digit shows that a valid operator function was keyed. The last four digits show the operator number and are optional depending on the function keyed.
OPR#<x>	0-4	An invalid operator function was keyed.
POS#xxxx	0-7	The position number of the service assistant or in-charge operator that paged the operator.
G	11	The operator logged on is a general operator and will receive calls from the general queue.
X123	12-15	The operator at login learns the queues from which calls will be brought to the position. The display X123 means that the operator services all four queues (the general queue from above is included). If the display is X23, the operator services the general queue and queues 2 and 3.
CLG#	0-3	The call is ONI and the operator must enter the calling number.
<CLG#>	0-3	The call is ANIF and the operator must enter the calling number **Clg** + digits + **Start**.
CLG#xxx-xxx-xxxx	0-15	A valid calling number was entered.

-continued-

Table 3-3xxx
Call control messages displayed in group 2 (continued)

Display	Column number	Explanation
CLG#<xxxxxxxxxxxx>	0-15	An invalid calling number was entered. A number could be invalid because of too many or too few digits entered or because it failed a validity check.
REQ#	0-3	The operator has keyed **Req Num** + **Start** and the requested number has not been entered.
<REQ#>	0-3	The requested number has not been entered on a call for which the requested number is required.
REQ#xxx-xxx-xxxx	0-15	A valid requested number has been entered. The number can be seven or ten digits.
REQ#<xxxxxxxxxxxx>	0-15	An invalid requested number has been entered.
CLD#xxx-xxx-xxxx	0-15	A valid forward number has been entered. If the operator keyed **OGT** + 7 or 10 digits + **Start** and the outgoing trunk number corresponds to a billable directory number datafilled in table OGTMPKEY, this billable number is displayed on the operator screen.
CLD#<xxxxxxxxxxxx>	0-15	An invalid forward number was entered. The invalid number is displayed.
CLD#xx	0-9 0-5	A two-digit OGT code was entered. This code corresponds to a nonbillable number in table OGTMPKEY. The OGT code is displayed on the operator screen, centered within the called number field.
CLD#<xx>	0-9 0-5	An invalid two-digit OGT code was entered for the called number.
End		

Figure 3-4xxx
Call control messages displayed in group 3

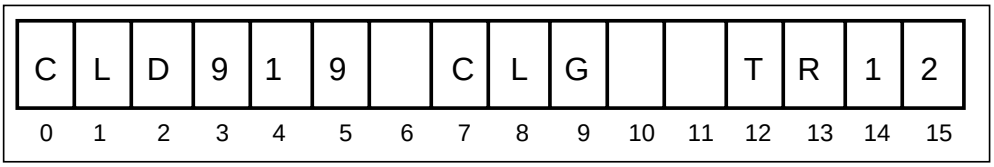


Table 3-4xxx
Call control messages displayed in group 3

Display	Column number	Explanation
RCL	0-2	The call is a recall and has previously been to the operator for service.
CUT	0-2	The call is an intercept cut-through.
SPL	0-2	The call is an intercept special call. Examples of intercept special calls include split referrals and intercept calls that arrive due to ARU failure.
CLD	0-2	A forward connection has been established and the forward party is on-hook. CLD is displayed in the steady mode while the line is ringing. When the called party answers, the CLD display disappears. If the party goes back on-hook, CLD reappears.
xxx	3-5	The serving NPA (SNPA) displays so that the operator can specify the SNPA if required by the directory assistance system (DAS). The SNPA is displayed on calls when the NPA from the incoming number differs from the NPA in table OPRTRANS. If the original number is not present (ONI), the DAS will use the NPA of the incoming trunk.
CLG	7-9	The calling party is on-hook or is disconnected. If the subscriber voice connection is still up, a trouble report should be generated. Otherwise, the operator presses **Pos Rls**.
<CLG>	7-9	The subscriber is on hold (the operator has pressed the **Split/Join** key). The operator must press **Split/Join** to reestablish the subscriber voice connection.

-continued-

Table 3-4xxx
Call control messages displayed in group 3 (continued)

Display	Column number	Explanation
X	11	For QMS positions, indicates the call is set for call transfer.
	12	For QMS positions, indicates a call type for queuing (CT4Q) change confirmation.
TRxx	12-15	A trouble report was keyed into the system. The two-digit trouble code is displayed.
TR<xx>	12-15	A trouble report failed the system validity check. The two-digit trouble code is displayed flashing.
End		

Figure 3-5xxx
Call control messages displayed in group 4

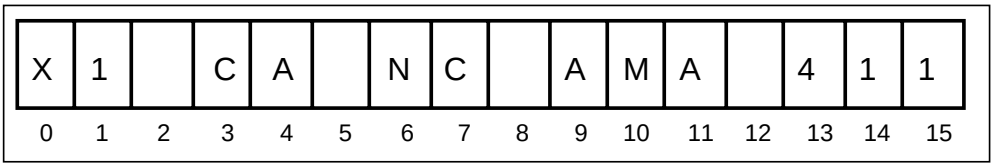


Table 3-5xxx
Call control messages displayed in group 4

Display	Column number	Explanation
X1	0-1	The operator is receiving calls from the transfer 1 queue.
X2	0-1	The operator is receiving calls from the transfer 2 queue.
X3	0-1	The operator is receiving calls from the transfer 3 queue.
	0-1	For QMS positions, the first two characters of the OPRDISP field in table CT4QNAMS is used for the call type for queuing (CT4Q) display.
CA	3-4	The operator pressed the **Ca Call** key.
NC	6-7	The subscriber will not be charged for the requested number. This display appears when the **No AMA** key is pressed and on call arrival of nonchargeable calls.
AMA	9-11	Billing information has been forwarded to the automatic message accounting (AMA) tape, displayed approximately two seconds after the operator presses the **Gen AMA** key when handling multiple requests.
<AMA>	9-11	Billing information is missing. The call cannot be released from the position until all billing information has been entered.

-continued-

Table 3-5xxx
Call control messages displayed in group 4 (continued)

Display	Column number	Explanation
<ACS>	13-15	A forward connection is being established without a customer call at the position. To establish the forward connection, the operator keys **Opr** + 0 + digits + **Start**. This connection applies for calls to the service assistant only. Forward calls without a calling party attached are blocked.
HOM	13-15	A call from within the home NPA is attached to the position. The call would have been dialed 1+555+1212 or 1+NPA+1212. This display is flashing if the call arrives at the position with severe ANI failure.
FOR	13-15	A call from outside the NPA is attached to the position. The call would have been dialed 1+NPA+555+1212. This display is flashing if the call arrives with severe ANI failure.
555	13-15	This display indicates the arrival of a 555 call not defined as HOM or FOR. This display is flashing if the call arrives at the position with severe ANI failure.
131	13-15	This display indicates the arrival of an inward directory assistance (DA) call (a call from another operator located at another TOPS MPX office).
141	13-15	This display indicates the arrival of an inward 141 directory assistance (DA) call.
411	13-15	This display indicates the arrival of a local DA call. This display is flashing if the call arrives at the position with severe ANI failure.

-continued-

Table 3-5xxx
Call control messages displayed in group 4 (continued)

Display	Column number	Explanation
INT	13-15	This display indicates the arrival of an intercept call. This display is flashing if an intercept call arrives at the position with severe ANI failure.
***	13-15	This display indicates the arrival of an unspecified call type. This display is flashing if the call arrives at the position with severe ANI failure. ***Note 1***: Three-character customized screen displays can be used out of table TOPS. ***Note 2***: Severe ANI failure refers to a call arriving on an originating trunk group.
End		

Logging on and logging off a TOPS MPX position

Logging on to a TOPS MPX operator position

To log on to the TOPS MPX position, follow procedure 4-1.

Procedure 4-1xxx
Logging on an MPX operator position

Step	Action
1	Seat your headset. After properly seating your headset, the message Please log on... will appear (see figure 4-1).
2	Press the **Space bar**. The ID and password screen appears (see figure 4-2).
3	Enter your one-to four-digit operator ID using the number keys located above the alphabet keys or the number keypad located in the call processing area of the keyboard.
4	Press the **Start** key. If the logon is done incorrectly, the ID and password window will reappear. If the first digit of the ID number begins to flash in the small window in the upper right-hand corner of the screen, reseat the headset and begin the login procedure again.
5	After successfully logging in, the directory assistance options menu will display, if the position configuration has the necessary permissions (see figure 4-3). If the position configuration does not have the necessary permissions, only the softkeys for adjusting the headset volume will display.
6	Press the **Make Busy** key (ensures that calls will be received at your position). When a call arrives, The message/status area, logon information in the AOSS window clears, and the search screen displays. The position is now ready to receive calls and perform searches.

Note: If the Queue Management System (QMS) serves a position that is vacated by an operator while a call is on permanent hold, the next operator's profile may not match the call on hold. In this event, the next operator is unable to log on to the position until the call on hold is completed. Follow local instructions when this condition is encountered.

Figure 4-1xxx
NT DA logon screen

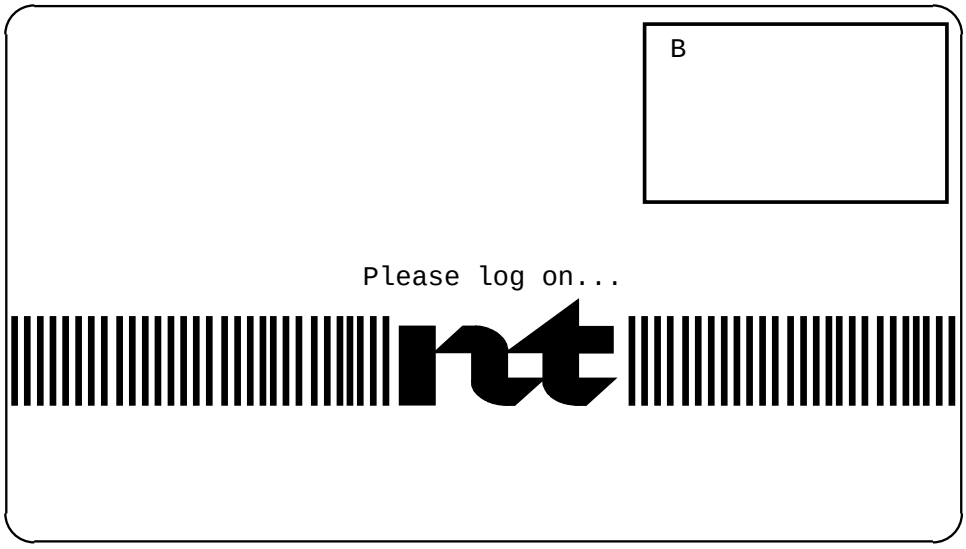


Figure 4-2xxx
Operator ID and password screen

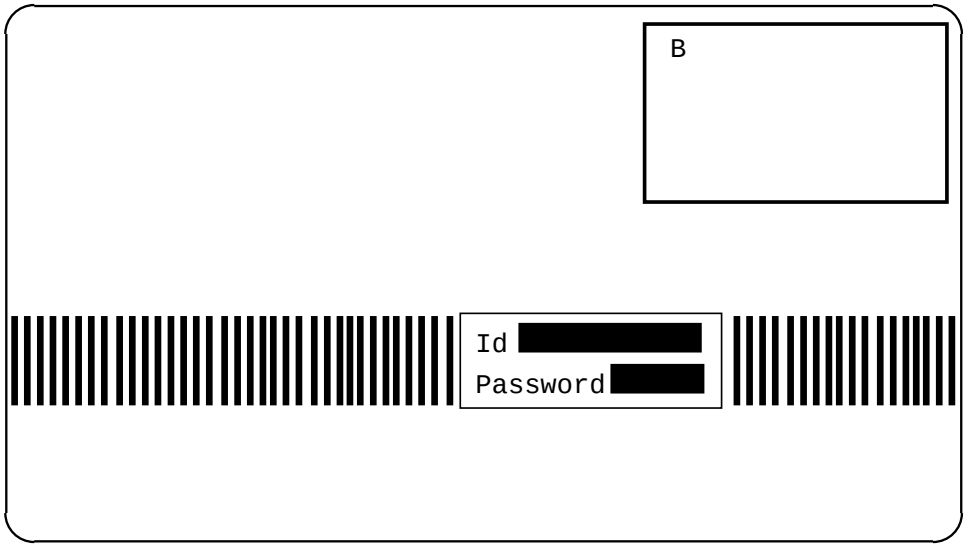
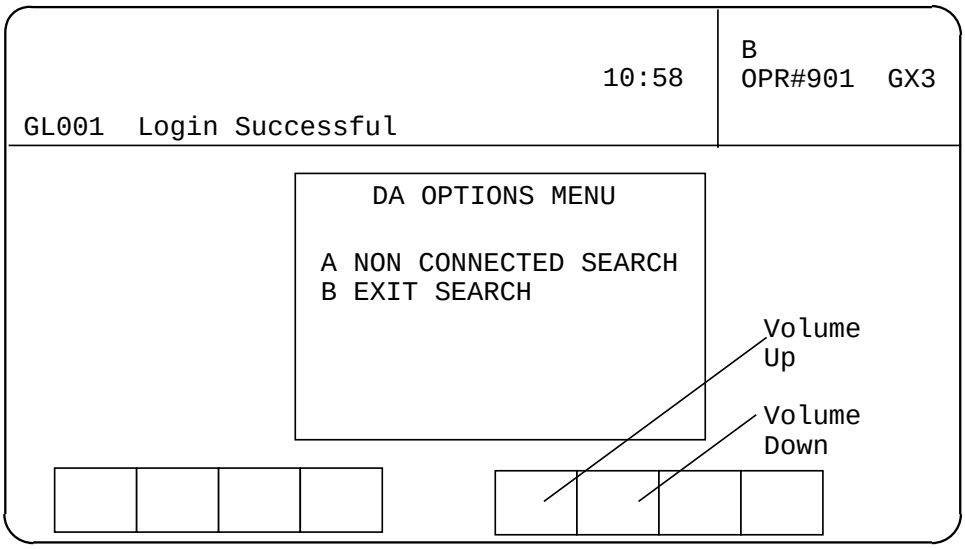


Figure 4-3xxx
Successful login with options menu screen



Logging off of a TOPS MPX operator position

To log off of a TOPS MPX position, follow procedure 4-2.

Procedure 4-2xxx
Logging off an MPX operator position

Step	Action
1	Press the **Make Busy** key before completing the current call. This will prevent new calls from accessing the position when the current call is released.
2	Complete the current call.
3	Unseat the headset.

Initiating database searches

There are seven types of searches that the operator performs from the TOPS MPX NT DA operator position. These types are as follows:

- business
- government
- residential
- intercept
- customer name and address
- nonconnected searches.

This chapter will provide general information on how to enter search criteria for the above search types and how to conduct the search.

Entering search criteria

To enter search criteria, the operator must first position the cursor in the appropriate field. Search criteria is entered in one or more of the following fields:

- Lo (locality)
- Nm (Name)
- St (street)
- Ar (area)

The minimum information required to initiate a database search is the locality and the name. All calls will have a default locality, NPA, and book defined. Think of the database as a phone book; as you would have a number of different books for different cities, the database is similarly partitioned for management purposes. However, there will be situations when the operator will have to change the defaults or provide more information to target the database search.

The following pages describe how to enter or change information in the Lo, Nm, and St fields.

Entering information in the Lo (locality) field

There are two ways to enter information in the Lo field:

- accepting the default

- using the **Loc** key

Accepting the default locality information

A locality is already identified on call arrival. The cursor is positioned in the Nm field. The operator can enter the name search criteria.

Using the Loc key to enter locality information

A call arrives at the position; a default locality is identified; however, the locality the subscriber asks for differs from the default locality. To enter the required locality, follow procedure 5-1.

Procedure 5-1xxx
Using the Loc key to enter locality information

Step	Action
1	Press the **Loc** key to position cursor in Lo field. ***Note:*** On call arrival, the cursor defaults to the Nm field (determined by the operating company).
2	Enter the search argument, for example, ZEB for Zebulon. If locality is two words, for example, Holly Springs, enter the initial letter of each word separated by a space, for example, H S. ***Note:*** The method for entering locality information is locally defined by the operating company. Please consult your local practices.

Entering information in the Nm (name) field

Entering information in the Nm field can be a little more difficult than entering information in the Lo field, especially when trying to perform business searches. Therefore, it is necessary for the operator to make the name information as unique as possible. To conduct a business search, one strategy for entering name information is to enter the first three characters of one distinct part of the business name followed by a period and another three distinct characters followed by a second period. For example, Southeastern Wholesale would be entered as SOU.WHO., Carroll's Florist would be entered as CAR.FLO., and The China Garden would be entered as CHI.GAR.

To conduct a residential search, the recommended strategy is to enter the first four letters of the last name followed by a period and the first letter of the first name. For example, a subscriber asks for the number for Robert Breck; the operator enters BREC.R. as the name search criteria.

On call arrival, the cursor defaults to the Nm field. If the cursor is not in the Nm field, perform the following steps to reposition the cursor in the Nm field:

- Press **Name** key.

- Enter the name as discussed in the previous paragraph.

Entering information in the St (street) field

Street information is usually not required to perform database searches. However, there are situations when street information needs to be entered to target a search, for example, when a business has several locations and a subscriber requests the number for one specific location. To enter the street name, follow procedure 5-2.

Procedure 5-2xxx
Entering information in the St field

Step	Action
1	Press the **Strt** key to position cursor in the St field.
2	Enter the first letter of the street name (or the digit if the street is a number). The system will automatically follow your entry with a period. ***Note:*** The method for entering street information is locally defined by the operating company. Please consult your local practices.

Initiating the database search

Once the search criteria is entered, the next step is to send that information to the database by pressing one of the following keys:

- **Res**
- **Bus**
- **Spec Bus**
- **Gov**
- **Int**
- **CNA**
- **Phonetic**
- **Key Word**
- **Exp Loc**
- **Full Set**

Pressing one of the above keys not only sends the search criteria to the database and initiates the search, but it also classifies your search as one of five types: business, residential, government, intercept, or customer name and address. Each type of search is discussed in the following pages except emergency calls. Refer to local instructions for handling emergency service.

Performing a residential search

After entering the appropriate search criteria, press the **Res** key to initiate a residential search.

Once the search is complete, the results will be displayed in the listing area of the screen. The search file (type) field identifies the type of search that just took place (for example, Res), and the cursor defaults to the Nm field.

The operator will know how many listings that matched the search criteria were found by the message that is displayed at the bottom of the listing area. The message states exactly how many listings were found, for example, `0046 listings`. This information will be indicated only if there are more listings than can be displayed on the operator's screen. In cases such as this one, the operator uses the page forward and page backward keys to view all of the listings.

If the name the operator is searching for is a common name, entering a street name will target the search and cut back on the number of listings returned by the database. Refer to "Entering information in the Strt field" on page 5-3 for details on entering street information.

To determine what to do with the information displayed in the listing area of the screen, refer to chapter 6, "Releasing a call to audio announcement."

Requested number is not displayed in the initial database response

If the requested number is not found on the initial search of the database, the operator may have to give a "not found" report to the customer or expand the search.

> ***Note:*** Methods for expanding the database search are locally defined by each operating company.

Performing a business search

After entering the appropriate search criteria, press the **Bus** key.

Once the database search is complete, the results will be displayed in the listing field of the screen. The search file (type) field identifies the type of search that just took place (for example, Bus), and the cursor defaults to the Nm field.

A message is displayed at the bottom of the listings area stating how many listings matched the search criteria; for example, `0046 listings`. This information will be indicated only if there are more listings than can be displayed on the operator screen. If the number of listings exceed the capacity of the screen, the operator uses the **Page Fwd** (page forward) and **Page Bwd** (page backward) keys to view all of the listings.

To determine what to do with the information displayed in the listing area of the screen, refer to chapter 6, “Releasing a call to audio announcement.”

Requested number is not displayed in initial database response

If the requested number is not found on the initial search of the database, the operator may have to give a ‘‘not found” report to the customer or expand the search.

> ***Note:*** Methods for expanding the database search are locally defined by each operating company. Consult local practices for further details.

Performing a government search

After entering the appropriate search criteria, press the **Gov** key to initiate a government search.

Once the database search is complete, the results will be displayed in the listing area of the screen. The type field identifies the type of search that just took place (for example, type: GOV) , and the cursor defaults to the Nm field.

The operator will know if there ae more listings than displayed by the message shown at the bottom of the listing area. For example, PAGE FOR MORE LISTINGS is displayed. This message is indicated only if there are more listings than can be displayed at one time on the operator screen. The operator uses the **Page Fwd** (page forward) and **Page Bwd** (page backward) keys to view all of the listings.

Requested number is not displayed in initial database response

If the requested number is not found on the initial search of the database, the operator may have to give a “not found” report to the customer or expand the search.

> ***Note:*** Methods for expanding the database search are locally defined by each operating company. Consult with local practices for further details.

Phonetic searches

When the **Phonetic** key is pressed, the system searches for names that sound similar to the surname or business name entered in the name field. The operator may use this key if the first search did not yield the desired listing.

Key word searches

When the **Key Word** key is pressed,, the system searches for listings by using the same search information that was entered, but the system searches in a different order. In the residential file, key wording is performed on names that follow the surname. In business and government searches, keywording is performed on all names regardless of the order. The operator may use the **Key Word** key after an unsuccessful initial search.

Full set searches

For special business, the **Full Set** key is used when the operator is looking for a caption set and does not find it. The operator rekeys for the header of the set, presses the **Full Set** key, and the whole caption set of the initial listing appears

During business searches, if the operator wants to reduce the amount of information displayed while searching for a business name that is part of a caption set, he or she presses the **Full Set** key to display the caption sets only.

Another use of the **Full Set** key is when the display for a business search is a floating header. A floating header is the result of a search for a business caption set header and the place name searched contains none of the members. Upon pressing the **Full Set** key, the caption set appears (if the members exist within the same book and the same white pages database as the place initially searched).

Expanded locality searches

Pressing the **Exp Loc** key expands the geographical area of the locality initially searched. The broader geographical area is usually defined as a larger, but adjacent area.

> ***Note:*** The use of subsequent searches is determined by the operating company.

Performing an intercept search

Unlike directory assistance where the database returns listings for operator selection, the intercept search is requested and the call is automatically released to audio announcement. The operator can override the automatic release to audio announcement. Overriding the automatic release to audio indicates to the database that the operator wishes the results of the search to be displayed at the position for verbal quotation of the number.

The operator can perform an intercept search while servicing a DA or intercept call by entering the called number in the Nm field. See chapter 6, “Processing mixed DA/intercept requests within a single call.”

Performing a customer name and address search

By using the telephone number, the operator can find the name and address of the subscriber. These calls are billed as regular directory assistance calls. The billing record contains nothing to indicate that it was a customer name and address call. To perform a customer name and address search, follow procedure 5-3.

Procedure 5-3xxx
Performing a subscriber name and address search

Step	Action
1	Enter the telephone number for the name and address request.
2	Press the **CNA** key.

Initiating an administrative database search

An administrative search is a search that is performed without a call attached. To conduct an administrative search, follow procedure 5-4.

Procedure 5-4xxx
Initiating an administrative database search

Step	Action
1	Press the **Opts** key to select nonconnected type of search
2	Enter the required search data.
3	Press the appropriate search key (for example, **Bus**, **Res**, **Gov**).

Call handling procedures

What call types can arrive at the position

The TOPS MPX NT DA system can handle a variety of call types including directory assistance, intercept, and customer name and address calls.

DA call types

Seven DA call types can arrive at the operator position. They are as follows:

- 411 calls are local DA requests.
- 555-HOM calls are from within the home or serving NPA.
- 555-FOR calls are from outside the serving NPA.
- 555 calls are undifferentiated.
- 131 calls are from other DA operators from another office.
- 141 calls are from other DA operators from another office.
- DA-Rcl calls are recalls that result from situations such as when a subscriber is released to audio and remains off hook after the announcement has been played. On recalls, the search criteria and the selected listing are displayed to the operator when the DA recall is brought to the position.

Intercept call types

Most intercept calls are handled automatically without operator intervention. The end office identifies the called number and delivers the call to the TOPS MPX position. The new number is retrieved from the database and quoted by an automatic announcement system. Intercept calls are routed to an operator only if the above process fails or if the called number is not suitable for automatic quoting.

There are five intercept call types. They are as follows:

- Intercept operator numbers (Int-ONI)
  Intercept ONI calls occur when the end office is not equipped to automatically identify the called number. The operator must determine and enter the called number and then initiate an intercept database search.

- Intercept automatic number identification failure (Int-ANIF)
  Intercept ANIF calls occur when the end office is equipped to automatically identify the called number but fails to do so. The operator must determine and enter the called number and then initiate an intercept database search.
- Intercept cut (Int-cut)
  If on a normal auto-intercept call, the subscriber stays off-hook beyond the specified post announcement time-out, the system routes the call to an operator. The operator determines what additional information the caller requires, retrieves the information from the database if necessary, and verbally quotes the information to the subscriber.
- Intercept recall (Int-rcl)
  These calls are similar to Int-cut calls except that the subscriber has been previously connected to an operator. Int-rcl calls are handled the same way as Int-cut calls.
- Intercept special (Int-spl)
  These calls occur when the results of the database search are not suitable for automatic quoting, for example, when a disconnected telephone has more than one new listing. On call presentation, the operator is presented with the multiple listing and the operator must ask the subscriber which number is desired and quote it verbally.

Processing multiple requests within a single call

If the subscriber requests quotation of several numbers during one DA call, the operator can generate an AMA record for each request processed.

When all billing information is complete for the first number requested and the call completed, the DA service screen is cleared by initiating the next requested search. If the required billing information is not completed, the request for DA service is denied. The database again displays the listing data and the operator input in the DA service screen. This process allows the operator to enter the missing billing information.

During multiple DA requests in a single call, the last request can be released to audio announcement. All previous requests must be verbally quoted.

Processing mixed DA/intercept requests within a single call

Calls are presented to the operator as either DA, intercept, or CNA calls. A database session is therefore established on a call-by-call basis between the DMS switch, the position, and the database. If an intercept search is requested during a DA call or a DA call is requested during an intercept search, the database will honor the search request if possible. However, this type of mixed search is not recommended because of the way billing and statistics are handled on DA searches versus intercept searches. Since some operating companies do not currently bill intercept searches on a call-by-call

basis, a billable DA request within an intercept call would not be billed (however, note that an AMA record is generated).

The DA request must be verbally quoted since no line selection characters would be displayed. An intercept search within a billable DA call session would be billed as if the search were for a DA call.

Announcing the requested number

Audio announcements quote the requested number. For offices supporting more than one language, a language indicator, for example, F (French) is placed in the message/status area by the database to indicate that the secondary language is chosen for the audio announcement. The operator can select an alternate language before the request is released to audio announcement. Pressing the **Alt Lang** key causes the use of the alternate language function to be in effect only during the current call. If all billing requirements for the call are satisfied, the call is released from the position; otherwise, the release to audio is denied and the operator must enter the missing information.

Releasing a call to audio announcement

Release to audio is automatically done after the operator enters the search criteria and presses the **Int** key for intercept calls.

On DA calls that require the operator to manually release the call to audio, once the line designator is found, the operator enters the line designator associated with the requested number and presses the **Audio** key to release the call to audio announcement.

Optional automatic position release parameter

If your office has the automatic position release parameter set to yes (Y), then a DA call at the TOPS position will release from that position when the calling party goes on-hook, subject to the same conditions that apply to the **Pos Rls** keying action. The call may not automatically release if required billing information is not present, and the same indications are sent to the position as when the **Pos Rls** key is pressed when required information is not present. Examples of required information include the requested number and the calling number.

> ***Note:*** If the subscriber goes on-hook, no DA listing has been provided, and the operator is unable to press cancel call plus position release (**Ca Call** + **Pos Rls**) before the call releases, the subscriber may be billed for the call in error depending on operating company DA billing arrangements and operating instructions.

Verbal quote of requested number

The operator must verbally quote the number to the subscriber if the audio announcement system is unavailable or if the operator is handling a multiple request call. In cases where the audio announcement system is not available, the operator chooses the desired listing, quotes the requested number, and presses **Pos Rls** to release the call from the position.

Connecting a forward party

Completing a call in the context of DA means connecting the calling party to the requested number. Directory assistance call completion requires toll and assist capabilities that are not supported in the initial release of the TOPS MPX NT DA, but numbers can be outpulsed during a DA session.

Note 1: Once the forward party is attached, the operator cannot enter the requested number for billing purposes. Also, hook status changes are not displayed while a requested number appears in the Cld number field.

Note 2: A parameter change is enabled in BCS34 to block DA forward number calling (DA_BLOCK_FWD_NUMBER in table VROPT) and makes the capability to connect to a forward party optional.

Automated intercept call completion

Ordinarily, when a caller dials an intercepted number, he or she gets a recording that announces the new number. The caller then has to hang up and redial the new number. However, with the optional feature called automated intercept call completion (AINTCC), calls to intercepted numbers can be automatically connected to the new number. If desired, the new number can also be announced to the caller before the connection is made.

The following types of intercept calls can be automatically completed with the presence of the optional AINTCC feature:

- Automatic intercept calls
  - The called number is transmitted to the DMS switch where the call is automatically processed and completed without the assistance of an operator.
- Intercept ONI and ANIF calls
  - For intercept calls, the called number is transmitted from the end office (EO) in the automatic number identification (ANI) spill. Therefore, for operator number identification (ONI) or automatic number identification failure (ANIF), the called number is not provided. The call is connected to an operator and the called number is obtained from the subscriber. The operator enters the called number and releases the call to the DAS. The DMS switch and the DAS exchange messages and complete the call.

- Intercept special
  - When an intercept special call arrives at a position, it may contain multiple listings. For these calls, the operator would select the appropriate listing and, if possible, release the call to the DAS.

AINTCC impact on billing

Three automatic message accounting (AMA) records are generated when an intercept call is automatically connected to the referral number. Only two of the three are billable. The AMA records are generated as follows.

- An AMA record billable to the calling subscriber will be generated in the originating end office (EO) when the call is successfully completed and one of the two parties goes on-hook.
- Two AMA records are generated in the TOPS MP office. The office must record AMA using Expanded Bellcore AMA Format (EBAF), Phase 2.

Accessing a loop while servicing a DA call

An operator cannot access the the first or second loop with the initial release of TOPS MPX NT DA. Only the service assistance and in-charge positions have access to the loops.

Billing types allowed

The following types of calls are handled by TOPS MPX: station paid and no charge calls. Under station paid, only station class and restricted calls are allowed (no coin calls). Billing is automated where possible. The DMS switch makes the distinction as to whether a call is billable or not. On calls eligible for billing, the requested number is sent from the database to the DMS switch for billing purposes. This process allows for billing for most DA calls to be transparent to the operator.

Call handling procedures

Most DA calls are handled in a similar manner and most intercept calls are handled in a similar manner. The considerations that cause the handling to differ from call to call are as follows:

- Was a listing found for the requested number?
- Can the call be released to audio or must it be verbally quoted?
- Does the call require a trouble report?
- Does the call require connection to the SA?
- Does the call require billing (DMS switch to DAS connection unavailable)?

The following pages present call scenarios that provide examples of the above situations.

Note 1: Call arrival screens will differ slightly depending on what the subscriber dialed to reach the operator; however, this distinction will not make much difference as to what the operator must do to process that call other than possibly changing the locality from the default locality.

Note 2: Call type displays are customer definable in table TOPS. The call type displays shown in this document reflect default settings.

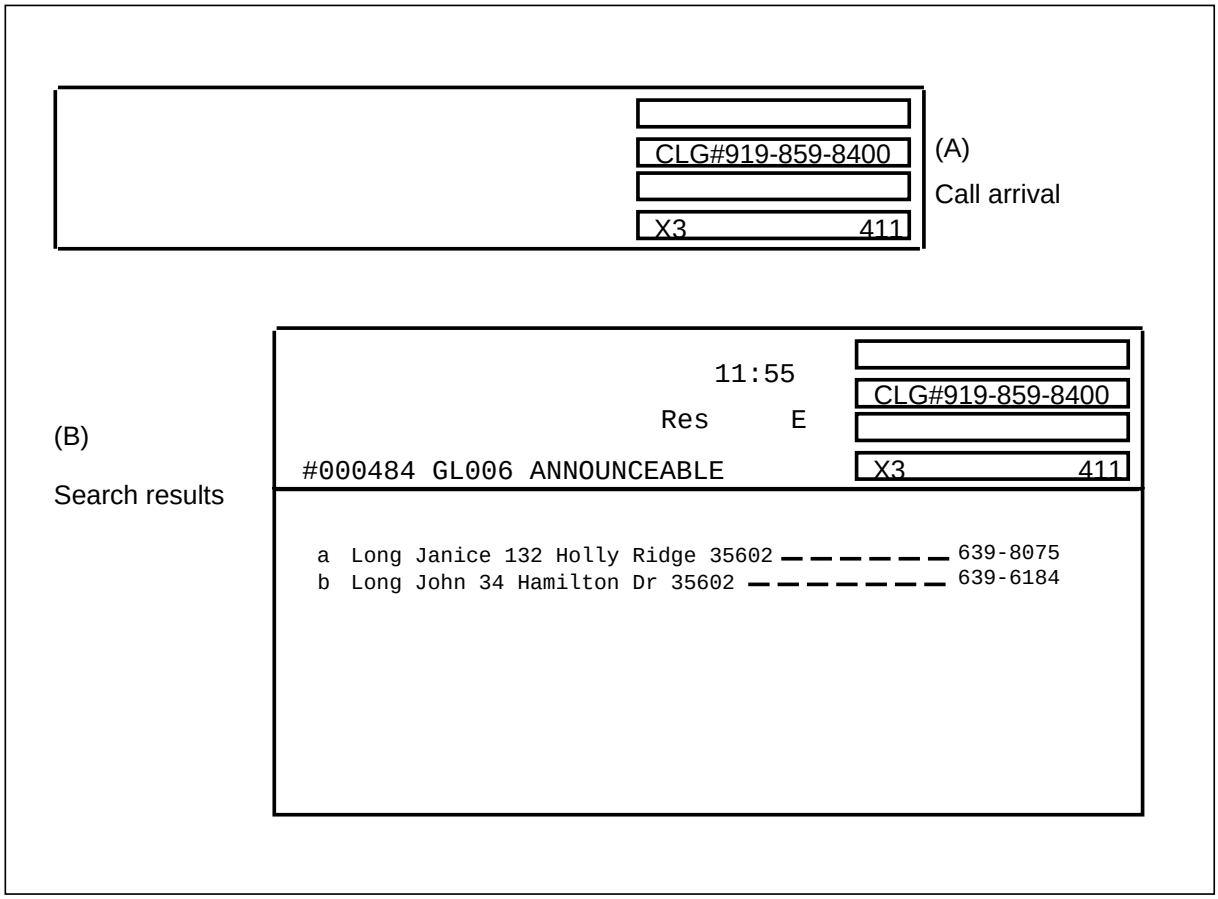
Listing found/release to audio call scenario (typical call)

Calling party (919-859-8400) dials 411 and asks for the number for John Long in Raleigh. Follow procedure 6-1.

Procedure 6-1xxx
Listing found/release to audio call scenario (typical call)

Step	Action
1	Call arrives at position, calling number appears in group 2 and XX (the transfer group) and 411 appear in group 4 (see figure 6-1, part A). The default locality is Raleigh; the NPA is 919. Answer call using locally defined answer phrase.
2	Subscriber requests residential listing for John Long in Raleigh. Enter Long.J.
3	Press **Res** key to initiate residential search.
4	Database search results are displayed in the listing area of the screen Enter line designator b in Nm field.
5	Press **Audio** key.
6	The message ANNOUNCEABLE displays in the message/status area.
7	Call is released to audio announcement and the screen clears. ***Note 1:*** The calling number is displayed only if Calling_Number_Required parameter is set to Y (yes). If this parameter is enabled, the calling number is displayed on billable calls only. If the parameter is enabled and the call is not a billable call, the calling number is not displayed. ***Note 2:*** If the parameter DA_BP_HOTEL_ROOM_REQUIRED is set to Y (yes), then billable DA hotel calls received on TOPS MPX/AOSS positions can not be released to an ARU because a room number is necessary to satisfy AMA requirements. The operator must quote the number to the hotel subscriber. If the parameter DA_BP_HOTEL_ROOM_REQUIRED is set to N (no), then billable DA hotel calls received on TOPS MPX/AOSS positions can be released to an ARU without entering a room number.

Figure 6-1xxx
Illustration of 411 call arrival and residential search screen results



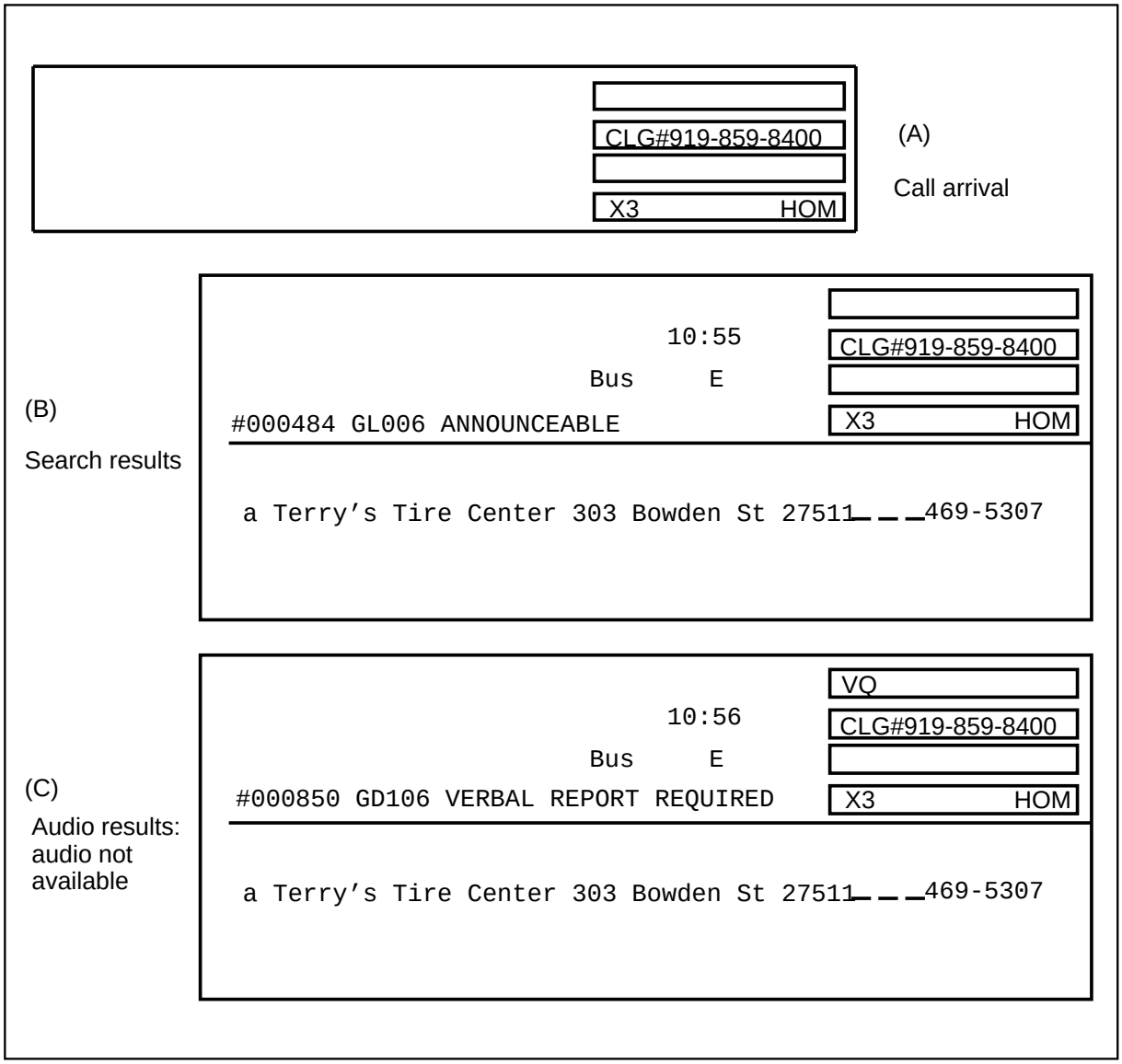
Listing found/verbal quote call scenario

Calling party (919-859-8400) dials 1+ 555 + 1212 and asks for the number for Terry's Tire Center in Cary. The audio system is not available. Follow procedure 6-2.

Procedure 6-2xxx
Listing found/verbal quote call scenario

Step	Action
1	Call arrives at position, calling number appears in group 2, and X3 and HOM appear in group 4 (see figure 6-2, part A). The default locality is Raleigh; the NPA is 919. Answer call using locally defined answer phrase.
2	Subscriber requests business listing for Terry's Tire Center in Cary. Press the appropriate softkey to replace the Raleigh locality with the Cary locality or type in Cary in the Lo field.
3	Enter Ter.Tir.
4	Press **Bus** key to initiate business search.
5	Database results are displayed in the listing area of the screen and the cursor defaults to Nm field. The message `VERBAL REPORT REQUIRED` appears in the message/status area and VQ appears in group 1 of the AOSS call processing area. Verbally relay the requested number to the subscriber.
6	Press **Pos Rls** to release the call.

Figure 6-2xxx
Illustration of 555-HOM call requiring verbal quote



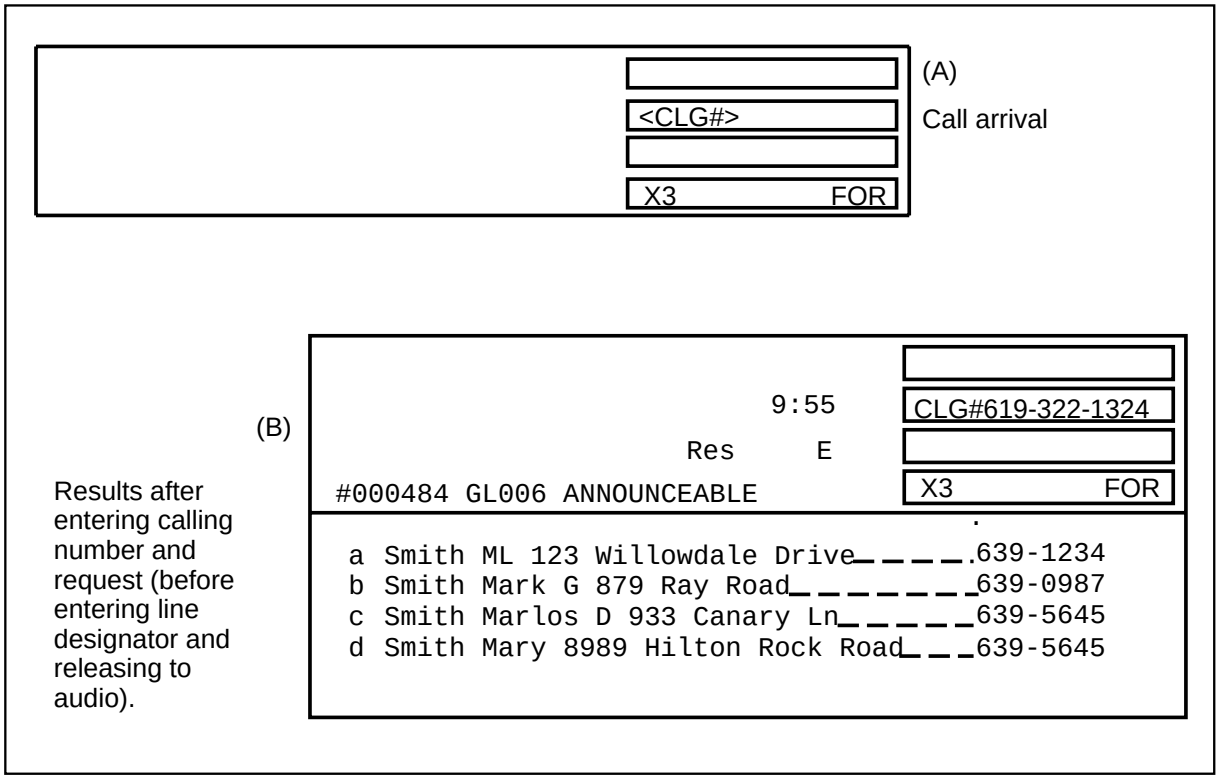
Release to audio/555-FOR call arrival with ANI failure scenario

Calling party (619-322-1324) dials 1 + 919 + 555 + 1212 and asks for the number for Mary Smith in Raleigh. Follow procedure 6-3.

Procedure 6-3xxx
Release to audio/555-FOR call arrival with ANI failure scenario

Step	Action
1	Call arrives at position, <CLG#> appears in flashing mode in group 2, and X3 and FOR appear in group 4 (see figure 6-3, part A). This indicates that for some reason the system was not able to obtain the calling number. The LOC field indicates default locality as Raleigh. The NPA is 919. ***Note:*** The FOR display will appear in flashing mode only if the ANI spill is unrecognizable. If the ANI digit 2 (used to indicate ANI failure) is received, then the FOR display appears in a solid state. Answer call using locally defined answer phrase and obtaining calling number.
2	Enter **Clg** + 6193221324 + **Start.**
3	Subscriber requests residential listing for Mary Smith. Enter Smit.M.
4	Press **Res** key to initiate residential search.
5	Database search results are displayed in the listing area of the screen and cursor defaults to Nm field. The message ANNOUNCEABLE is displayed in the message/status area.
6	Enter line designator D for Mary Smith in Nm field.
7	Press **Audio** key. Call is released to audio announcement and the screen clears when next call is initiated.

Figure 6-3xxx
Illustration of 555-FOR call arrival with ANI failure and search screen results



Multiple request 555-FOR/generate AMA call scenario

Calling party (802-442-1234) dials 1 + 919 + 555 + 1212 and requests numbers for Jennifer Long and Harold Baker in Sanford. Follow procedure 6-4.

Procedure 6-4xxx
Multiple request 555-FOR/generate AMA call scenario

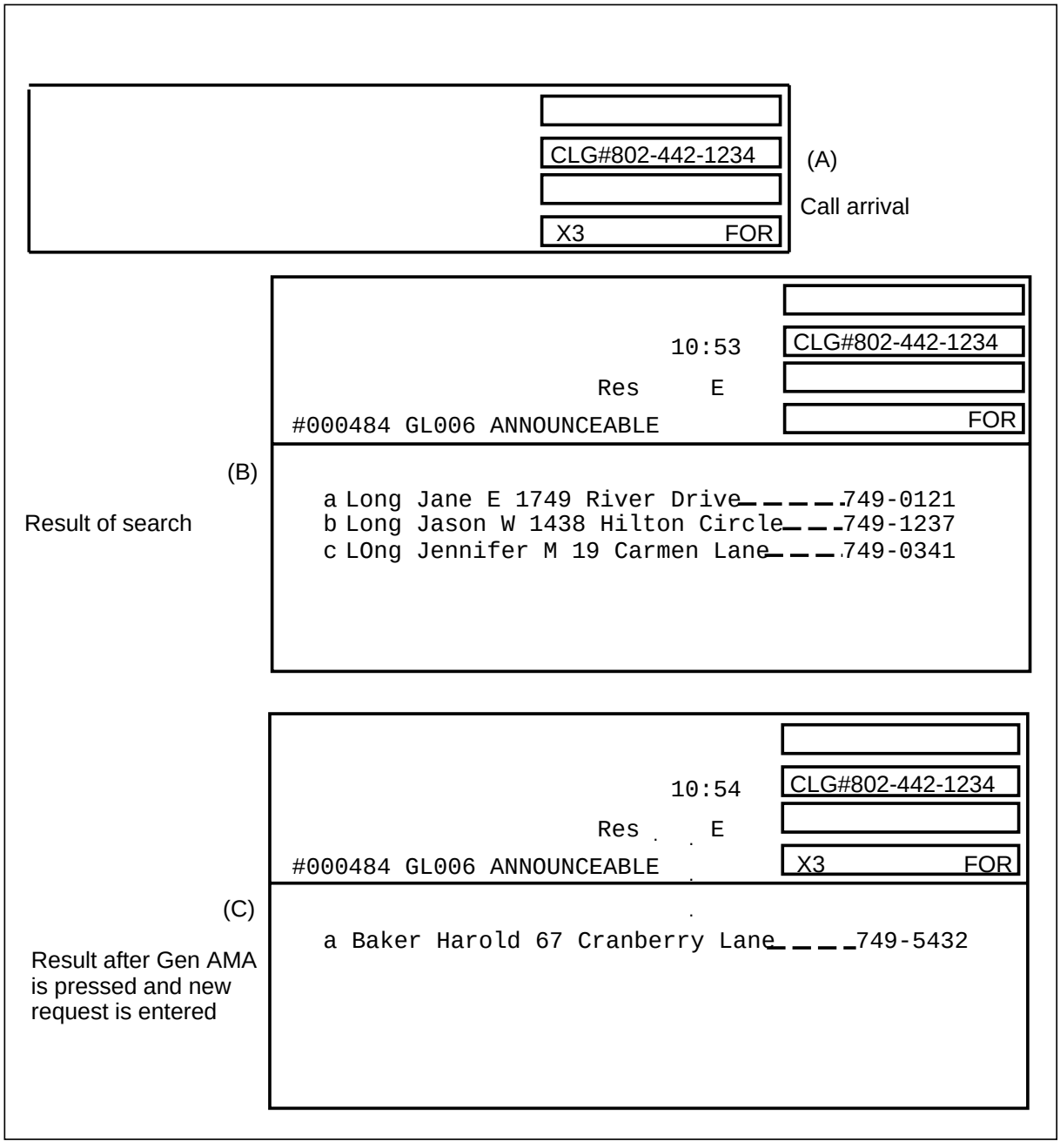
Step	Action
1	Call arrives at position; calling number appears in group 2; X3 and FOR appear in group 4. Lo is identified as Raleigh; the NPA is 919 (see figure 6-4, part A). Answer call using locally defined answer phrase.
2	Subscriber requests numbers for Jennifer Long and Harold Baker, both in Sanford. Default locality must be changed. Use softkeys to obtain required locality, or type locality in Lo field.
3	SANFORD is displayed in LOC field. Enter Long.J.
4	Press **Res** key to initiate residential database search.
5	Database results are displayed in the listing area of screen, File (type) field indicates the type of search that took place (type: Res), and cursor defaults to Nm field (see figure 6-4, part B). Verbally quote the number of Jennifer Long to the subscriber. ***Note:*** The operator cannot release the call to audio on multiple requests unless it is the last number that the subscriber requested. Also, the operator must manually key in the requested number if datafill requires the requested number.
6	Press the **Gen AMA** key to generate a billing record for the first request.
7	Press **Esc** key to clear the listing area, Nm, St, and File (type) fields, or type over the previous name. The cursor is repositioned in the Nm field.
8	Enter Baker.H.
9	Press **Res** to initiate the residential database search.

-continued-

Procedure 6-4xxx
Multiple request 555-FOR/generate AMA call scenario(continued)

Step	Action
10	Database results are displayed in the listing area of screen; File field indicates that type of search that took place (type: RES), and cursor defaults to Nm field. Enter appropriate line designator for Harold Baker.
11	Press **Audio** key.
12	The message ANNOUNCEABLE is displayed in message/status area (see figure 6-4, part C). Call is released to audio announcement and the screen clears.
	End

Figure 6-4xxx
Illustration of screens on multiple request call scenario



DA recall call scenario

Several situations can result in the customer being released from a position and later reconnected to an operator (not necessarily the same operator). Recall after DA audio announcement is one such case. When a subscriber stays off-hook for a predetermined period of time after having received the required information from an IVS, he or she is reconnected to an operator. The search criteria, the listings generated by the previous operator, and the line designator previously used to perform the audio release are returned and displayed to the newly connected operator.

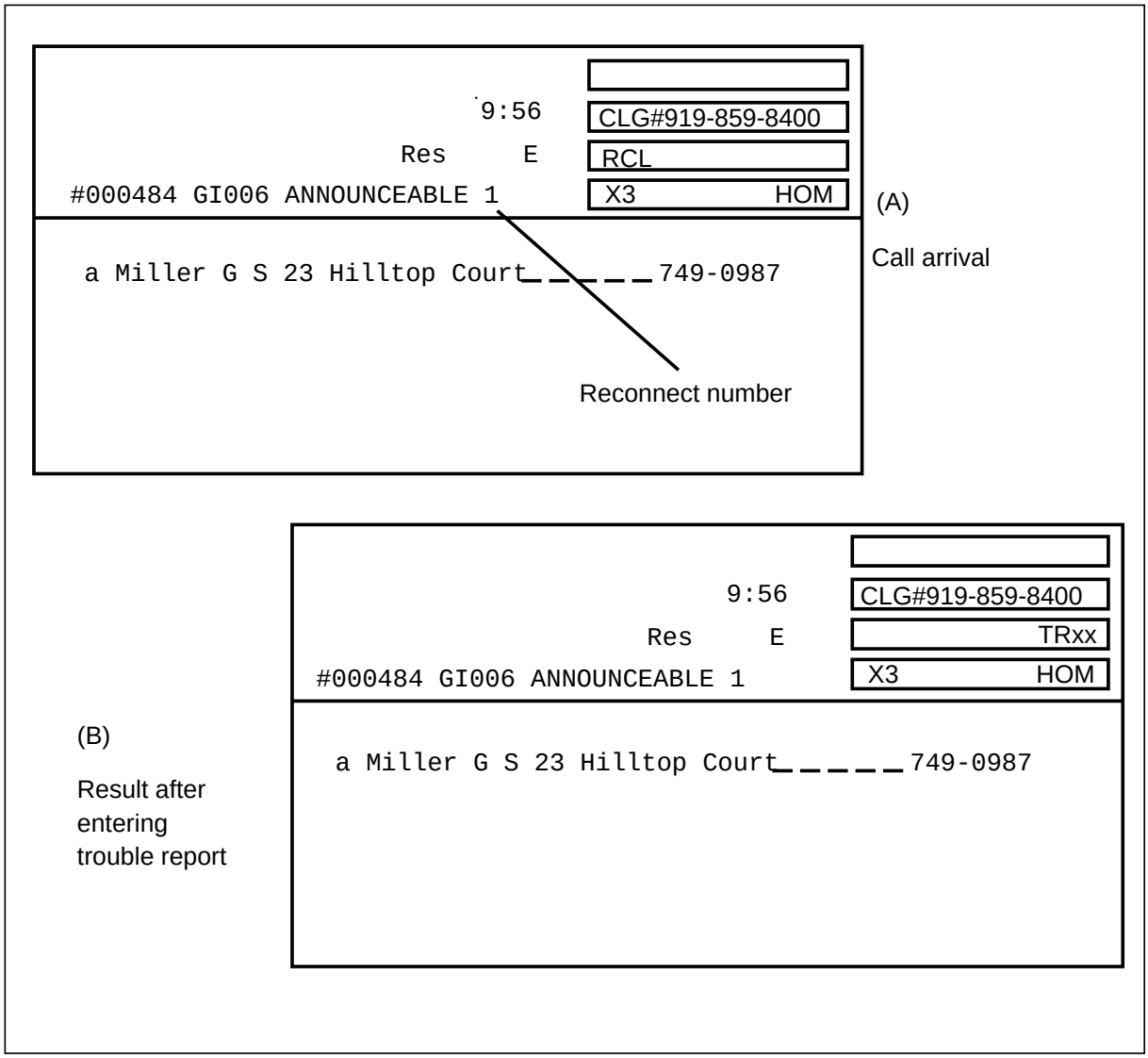
In the following call scenario, (see procedure 6-5) the subscriber (919-859-8400) dialed 411 and requested the number for Greg Miller. The subscriber was released to audio, however; the subscriber did not hang up after the audio announcement quoted the requested number. After a predefined period of time, the subscriber was reconnected to the operator.

Note: Recalls are handled just as any other directory assistance call, except that they cannot be released to audio. By default setting, recalls are verbally quoted; table DEFOPT can be set to have audio release capability. If so, the line selectors would be displayed.

Procedure 6-5xxx
DA recall call scenario

Step	Action
1	Call arrives at position; information as described in previous paragraph appears on screen (See figure 6-5, part A).
2	Answer call using locally defined answer phrase.
3	Subscriber says that noise on the line was so bad that he could not hear the audio announcement very well. Press **Trbl** + digit code for noise on line + **Start**.
4	TRxx appears in group 3, where xx represents the digit code for noise on line (see figure 6-5, part B).
5	Verbally quote the requested number to the subscriber. Press **Pos Rls** to release call.

Figure 6-5xxx
Illustration of screens on DA recall



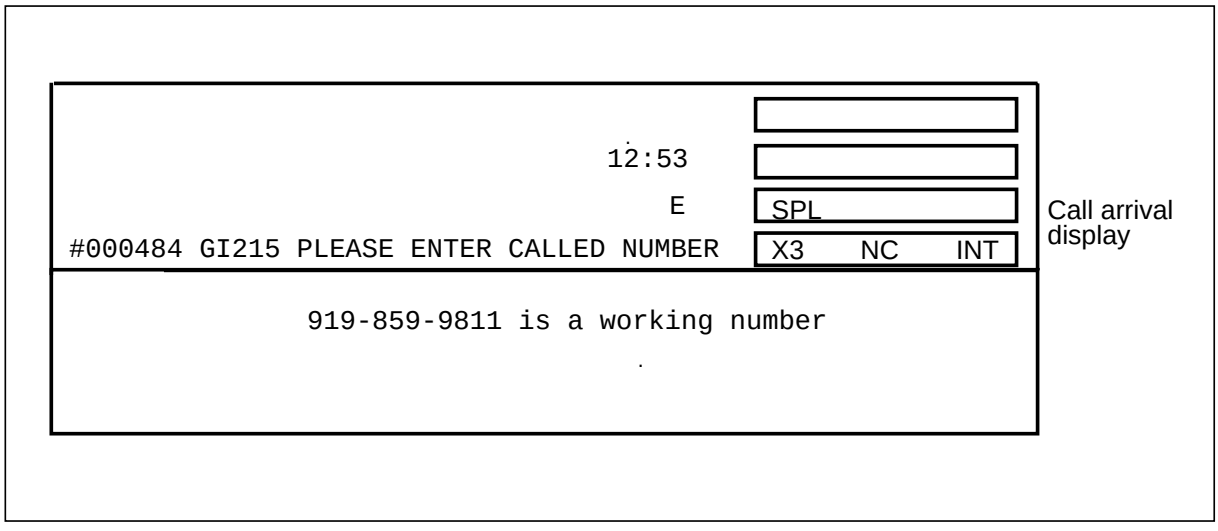
Intercept ANI failure call scenario

In this intercept ANI failure scenario (see procedure 6-6), the calling party (919-859-8400) dials 859-9811.

Procedure 6-6xxx
Intercept ANI failure call scenario

Step	Action
1	Call arrives at position, Intercept `PLEASE ENTER CALLED NUMBER` appears in the message/status area and SPL appears in group 3; X3, NC and INT appear in group 4, and the default NPA of 919 appears in the Ar field (see figure 6-6, part A). Enter dialed number (intercept number) 859-9811 + **Start**.
2	Press the **Int** key. Call is released from the position and the screen clears. ***Note 1:*** The calling number will not display on intercept calls because the Calling Required field in table DABILL is always set to N (No). ***Note 2:*** There are no line designators associated with intercept calls.

Figure 6-6xxx
Call screen on an intercept ANI failure call



Intercept cut-through call scenario

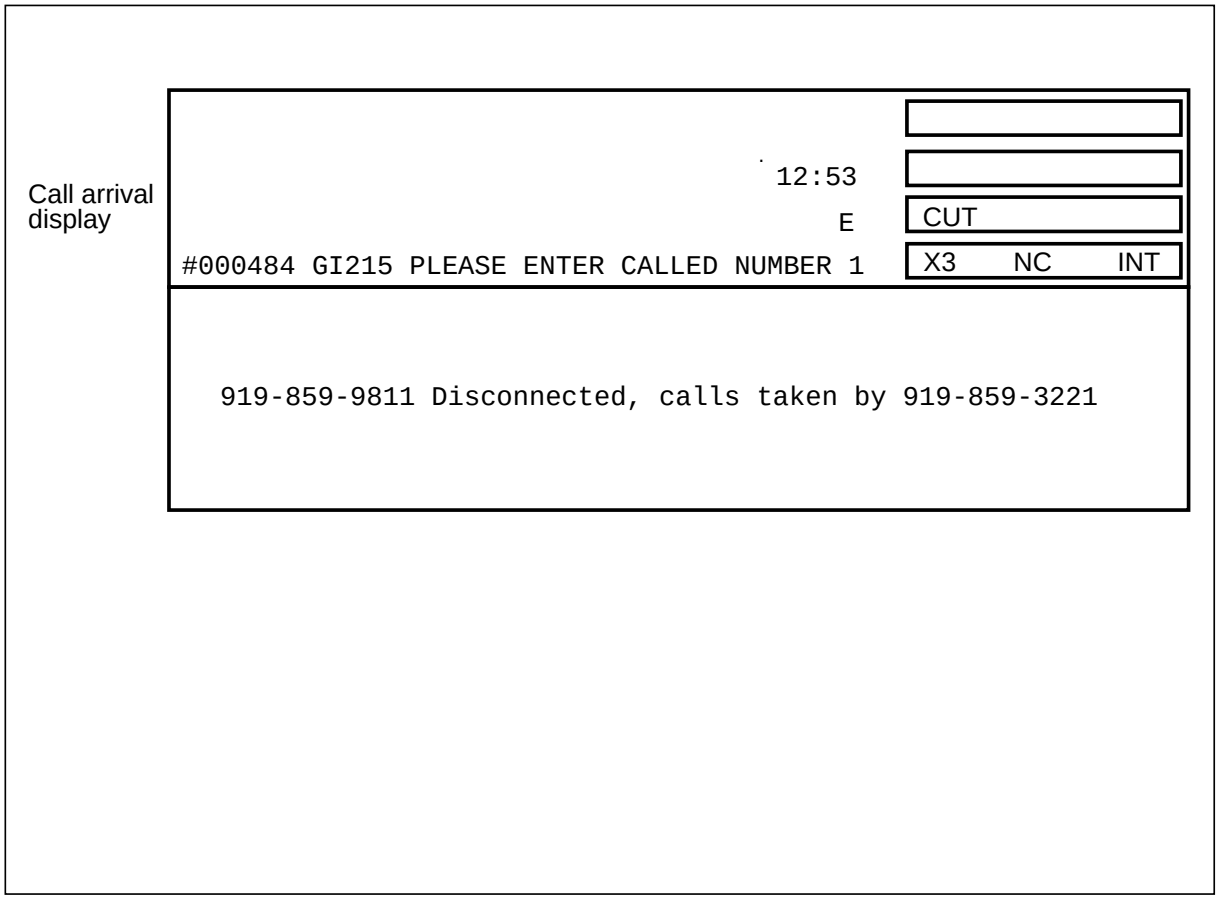
Intercept cut-through calls result when the subscriber has received audio announcement and stays off-hook beyond a post announcement time-out.

In this scenario (see procedure 6-7), the calling party (919-859-8400) dialed 859-9811, received audio announcement, and did not hang up.

Procedure 6-7xxx
Intercept ANI failure call scenario

Step	Action
1	Calling party (919-859-8400) dialed 859-9811, received audio announcement, and did not hang up. Call arrives, CUT appears in group 3; X3, NC, and INT appear in group 4 (see figure 6-7, part A). The Ar field shows 919 and `PLEASE ENTER CALLED NUMBER` displays in the message/status area. Ask subscriber for more information.
2	Enter additional information which the subscriber provides.
3	Press the **Int** key; the intercept database search is initiated, and call is released to audio.

Figure 6-7xxx
Call screens on an intercept cut-through call



Intercept recall/verbal quote call scenario

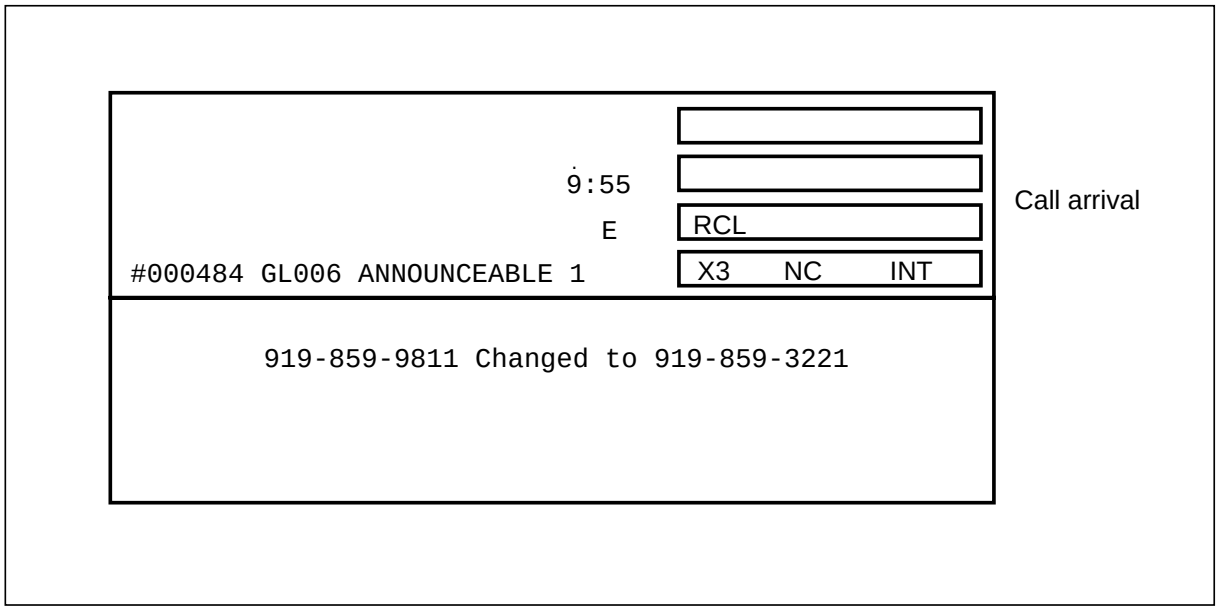
An intercept recall occurs when a subscriber has been previously connected to an audio announcement by an operator (for example, on an ONI call).

In this scenario (see procedure 6-8), the calling party (919-859-8400) dialed 859-9811, was connected to audio announcement by an operator, and did not hang up.

Procedure 6-8xxx
Intercept ANI failure call scenario

Step	Action
1	Call arrives at position, RCL appears in group 3; X3, NC, and INT appear in group 4 (see figure 6-8, part A). The Ar field shows 919, ANNOUNCEABLE appears in the message/command line. Answer using locally defined phrase.
2	Subscriber says he did not hear the audio announcement. Verbally quote the number from the listing area to the subscriber.
3	Press **Pos Rls** to release call from position; screen clears.

Figure 6-8xxx
Call screens on an intercept recall call



Administrative procedures

General operators may need assistance with call handling. The service assistant (SA) and in-charge (IC) operator assists the general operator with calls when requested. Enhanced SA/IC queueing allows more than one operator per team to be queued at a time.

Types of assistance requests

There are two types of assistance requests that general operators will make:

- general requests-no particular SA/IC requested
- directed requests-a particular SA/IC requested.

General requests for assistance

When a general operator makes a request for assistance, the DMS switch attempts to connect to the SA that has been available the longest. If no SA is available, the DMS switch searches for an available IC. In order to respond to an assistance request, the assistant must share service types with the requesting operator.

In-charge positions

The in-charge can be in one of three modes:

- accepting no assistance requests
- accepting directed assistance requests only
- accepting general and directed assistance requests.

If there is no available SA/IC, the general assistance will be queued. There is only one queue per operator team; however, up to 16 operators can be queued at one time. The requesting operator will have an on-hook forward supervision display on their screen indicating that the SA/IC is on-hook. If the operator presses **Pos Rls** while in queue, the subscriber is released to the queue.

Table SAQSIZE

The queue has the capability to queue up to 16 requests. Operating companies can datafill how large the queue can be (up to 16). Table SAQSIZE provides this capability for each team. The table also allows the operating company to determine when the Sonalert will be activated. When

the number of SA requests exceeds the value, the Sonalert is activated. When the queue falls under that value, the Sonalert is deactivated.

In-charge screen displays

When assistance requests are in queue in a team, the in-charge screen for that team is updated. A display will show when an SA/IC is in queue, and the IC can become available to assist with the requests. When the SA/IC queue is full for a team, the display indicates that the SA/IC queue is full and further requests will be connected to a busy tone.

An SA/IC becomes available either by releasing the current request or entering keystrokes to accept general requests. When an SA/IC becomes available, the DMS switch will look for an assistance request for the SA/IC to handle. If a queued general request is in the SA/IC team, the request will be connected to the SA/IC.

Cross team routing

Typically, operators will not receive assistance from the SA/IC in another operator team. Table OFCENG has an office parameter--TOPS_CROSS_TEAM_ROUTING that applies to both general and directed requests. If the parameter is set to Y (yes) and an operator places a request with no SA/IC available in the team, the DMS witch searches for an available SA/IC in other teams. The available SA/IC will be connected to the queued operator. If the parameter is set to N (no), the DMS switch will not search other teams for an available SA/IC.

Note 1: Cross team routing only applies to general operators. SA/IC operators can place directed requests regardless of the value of the parameter.

Note 2: When a general operator is queued, a display appears on the IC position in the general operators team only.

Directed requests for assistance

Directed requests are not queued. When an operator places a directed request and the desired SA/IC is unavailable, the operator gets a busy tone. When an operator gets a busy tone, the operator should release the call and try again.

SA/IC operators can request assistance. SA/IC positions can only place directed requests so that general operators have exclusive access to the queues for their requests.

In-charge screen displays

Since directed requests are not queued, no additional screen displays appear at the IC position.

Releasing calls to queue

When the operator requests assistance and is queued, there is not an immediate answer by an SA/IC. If the general operator is no longer needed, the operator can hit **Pos Rls** to release the call to queue. Before releasing, the operator should inform the calling party that the subscriber is in queue for assistance by saying, for example, "Please hold for assistance." The general operator is available for the next call.

The subscriber will hear ringing as when in queue for a general operator. From the queue, the SA/IC can assist with the call and hit **Pos Rls** to end the call. The SA/IC does not have the capability to float a call because he or she has no way to collect charges or classify the call.

SA/IC queueing enhancements

SA/IC queueing enhancements allow the operating company to choose to have SA/IC requests serviced on the basis of the age of the request. Any SA/IC can receive general SA/IC requests from operators in any team (provided cross team routing is in effect). To prevent subscribers from waiting an excessive amount of time for an SA/IC to respond, operating companies can use a parameter to select queueing by request age.

When an SA/IC becomes available, the DMS switch will search the request queue for each team in the switch. The oldest SA/IC request will be connected to the newly available SA/IC.

> ***Note:*** Parameter SA_QUEUEING_BY_REQUEST_AGE in Table TOPSPARM must be set to Y for the queueing by request age to function. The default value is N.

Interaction with cross team routing

Queueing by request age will only have a noticeable affect when cross team routing is activated. If cross team routing is off, then no scanning is done for requests in other teams. The first queued request from the newly available SA/IC's team will be connected, and since the queue is first-in, first-out, this request is the oldest request in the SA/IC's team.

Interactions with service type

No requests will be attached to SA/IC positions that cannot handle the request. This distinction means that the oldest request in the office may be passed over temporarily if it is of inappropriate service type for the newly available SA/IC. When the next SA/IC with a compatible service type becomes available, the oldest request will be serviced.

Expansion to maximum SA/IC's per team

This enhancement also expands the maximum number of SA/IC's that may be datafilled per team. The former limit was 6 SA/IC's per team, the new limit is 126 SA/IC's per team.

> ***Note:*** The maximum number of SA/IC's that can be datafilled in Table TOPSPOS remains 126. Therefore, if a team is datafilled with 126 SA/IC's, then no other SA/IC's may be datafilled in any other teams.

Procedures for connecting to a service assistant

There are a couple of situations when the operator will need to connect to a service assistant (SA):

- in response to a page
- to obtain assistance in call handling.

Connecting to an SA in response to a page

To reach the SA, follow procedure 7-1.

Procedure 7-1xxx
How to connect to an SA in response to a page

Step	Action
1	Press **Make Busy** and complete current call.
2	Press the **Opr** key.
3	Enter 0.
4	Enter the number of the SA position to direct the request to the specific SA. ***Note:*** The number of the paging SA/IC displays in the call control function area 2 of the general operator screen.
5	Press **Start**.

Connecting to an SA to obtain assistance in call handling

The steps for reaching the SA to obtain assistance in call handling are the same as for reaching the SA in response to a page; however, there are a couple of additional considerations when attaching to an SA for call handling assistance.

If the operator is going to stay on the line while the subscriber is connected to the SA and the operator wants to pass information to the SA without the customer hearing the exchange, follow procedure 7-2.

Procedure 7-2xxx
How to connect to an SA to obtain assistance in call handling

Step	Action
1	Press the **Opr** key.
2	Enter 0.
3	If you want to direct the call to a specific SA position, enter the number of the SA position. If not, go to step 4.
4	Press **Start**.
5	Press **Split/Join** key to put subscriber on temporary hold while you converse with the SA.
6	After passing the necessary information to SA, press **Split/Join** to reconnect if you want all three parties on the line; otherwise, press **Pos RIs**.
7	If you are no longer needed on the call, press **Pos RIs** to release the call from your position to the service assistant. ***Note 1:*** Billing cannot be done from the an SA position. If billing is required on the call, the SA or the operator must fill out a manual ticket. ***Note 2:*** If no charge applies to a call when only dialing instructions are given, the operator should press **No AMA** key prior to releasing the call from the position.

Originating a call from the position without having a call connected

To originate a call from the position without having a call connected to the position, follow procedure 7-3.

Procedure 7-3xxx
Originating a call from the position without having a call connected

Step	Action
1	Press **Make Busy** and complete current call.
2	Press the **OPR** key + 0 + **Start**
3	If a specific position is requested, enter the appropriate two digit code. ***Note:*** Codes range from 00-99 and are defined in T able OGTMPKEY.
4	Press **Start**.

Personal audio response system

This chapter describes the personal audio response system (PARS), a feature that plays custom announcements to a subscriber when a call is presented to a TOPS MPX position. The PARS announcement uses the voice of the operator occupying the TOPS MPX position.

PARS announcements

PARS announcements are determined by call attributes sent from TOPS MPX to PARS. These prerecorded announcements give the operator a brief rest between calls, thereby reducing his or her fatigue. The announcements also provide a consistent tone of voice for call presentation.

Each TOPS MPX position headset connects to a PARS "box" that links the position to the DMS switch. Because of this connection, loops should not be changed during a PARS announcement. Changing loops during an announcement may cause the subscriber on one loop to hear all or part of the announcement meant for the other loop.

> ***Note:*** The time spent playing the PARS announcement is included in the operator actual work time (AWT).

Call-handling example

In a typical scenario, PARS might play the announcement "What city, please?" to a subscriber. The DA operator does not have to repeat the phrase for each call, and so gets a brief rest between calls. In addition, the operator gets an indication of the type of call that has arrived before he or she has to respond to the caller.

Call presentation tones

PARS calls do not receive a call presentation tone, so if a PARS announcement fails, the only indication of a call arrival is a screen display. If the operating company requires a call presentation tone, then the tone must be part of the PARS announcement.

Responding to the subscriber

A PARS recorded announcement gives the operator time to determine the type of call before responding to the subscriber. Then the subscriber's request must be acknowledged and the call answered appropriately.

TOPS with QMS

Using the Queue Management System

The Queue Management System (QMS) feature is available to TOPS offices and is referred to as TOPS QMS. The QMS feature is a software package that provides enhanced capabilities for the management of up to 255 call queues (limited to 16 services for BCS34).

Queues can be used to separate types of traffic, for example, 555 directory assistance for the home NPA, 555 directory assistance for a foreign NPA, or 131 and 141 calls from other directory assistance offices. Database searches and call handling procedures remain essentially the same as non-QMS positions.

This feature provides the capability to create a class of senior operators that can assist other operators as well as serve regular operator traffic. With this feature, operators are assigned based on a profile of their abilities, consideration of the traffic load, and other factors. The following is an example of a call queue and operator profile arrangement:

- profile 1 - directory assistance (English)
- profile 2 - directory assistance (Spanish)
- profile 3 - intercept service (English)
- profile 4 - intercept service (Spanish)
- profile 5 - directory assistance and intercept (English)
- profile 6 - directory assistance and intercept (Spanish)

The QMS feature provides for up to 255 individual queues which also may be assigned such as the following:

- call queue 1 - directory assistance (English)
- call queue 2 - directory assistance (Spanish)
- call queue 3 - intercept service (English)
- call queue 4 - intercept service (Spanish)

The QMS feature matches the call queue to the operator's profile. In this example, operators assigned profile 1 are sent calls from call queue 1.

Operators assigned profile 2 can receive calls from call queue 2. Operators assigned profile 5 are sent calls from both call queues 1 and 3.

When an operator logs on to a suitably configured operator's position, calls are presented according to the operator's call selection profile. Once a call arrives at a position, the operator may provide any service defined in the operator's QMS service profile.

Logging on to a QMS position

To log on to a TOPS QMS position, perform the following steps. A successful logon screen (which appears before pressing make busy key to accept calls) is shown in figure 9-1. The letter `G` in this example refers to the classification of general operator.

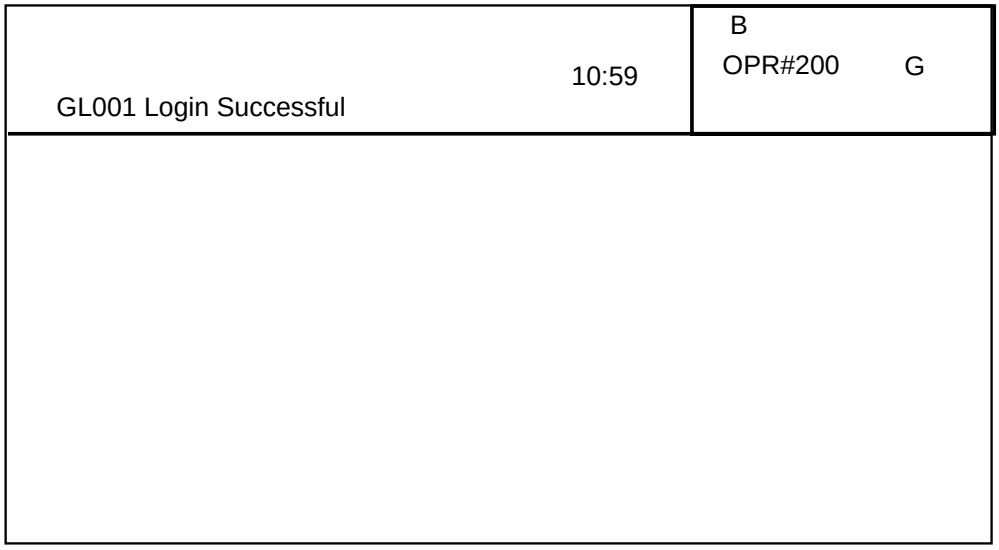
To log on to the TOPS QMS position, follow procedure 9-1.

Procedure 9-1xxx
Logging on to a QMS position

Step	Action
1	Seat your headset.
2	Press the **Opr** key.
3	Enter your one- to four-digit operator ID using the number keypad in the call processing cluster.
4	Press the **Start** key.
5	Press the **Make Busy** key (ensures that calls will be received at your position).

Note: If the Queue Management System (QMS) serves a position that is vacated by an operator while a call is on permanent hold, the next operator's profile may not match the call on hold. In this event, the next operator is unable to log on to the position until the call on hold is completed. Follow local instructions when this condition is encountered.

Figure 9-1xxx
Example of successful logon to QMS position

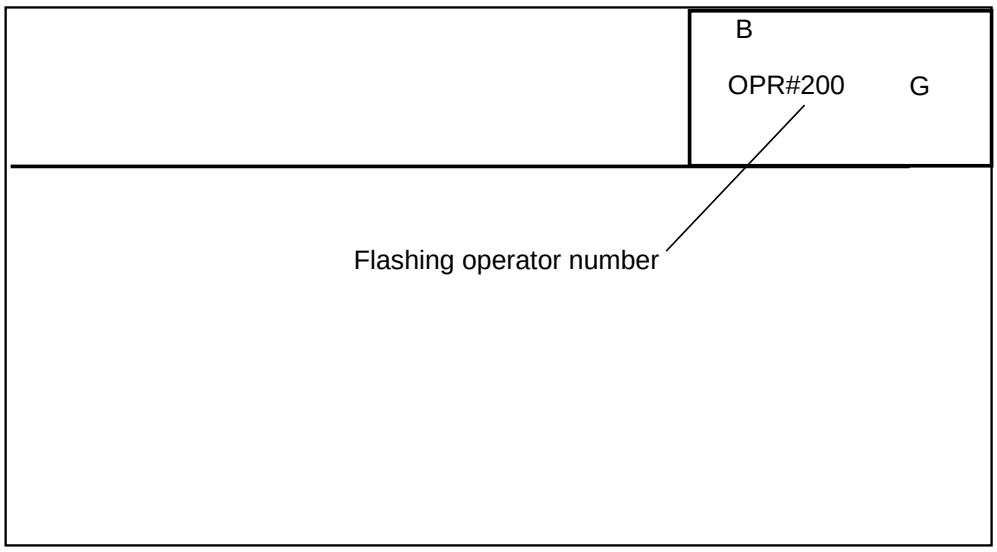


Unsuccessful logon

An unsuccessful logon can occur by entering wrong data or by using a improper keying sequence. Figure 9-2 is an example of the position screen with an unsuccessful logon indication (flashing operator number). A logon may be denied by the DMS switch for such reasons as follows:

- no operator profile datafilled which corresponds to the operator number used to log on
- position service profile and the operator's service profile are inconsistent
- operator's identification number is out of range
- operator's number for logging on is missing
- operator's number used for logging on is already in use

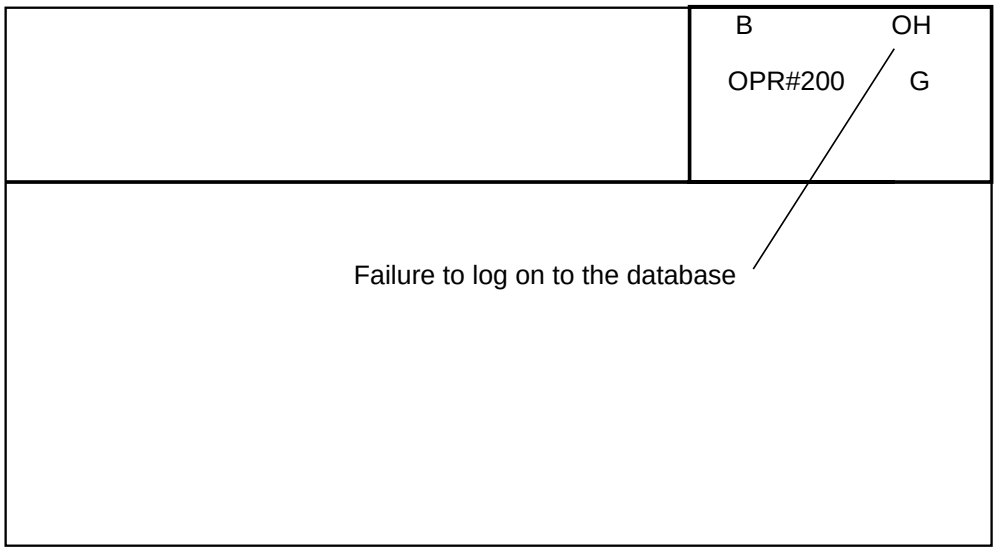
Figure 9-2xxx
Unsuccessful logon attempt



Unsuccessful logon to the database

In the event of a failure to log on to the database (such as directory assistance), the indicator OH (operator handled) is shown on the screen (figure 9-3). The operator still receives calls for that service, but the calls have to be processed manually (as locally directed) or the subscriber instructed to hang up and try the call again.

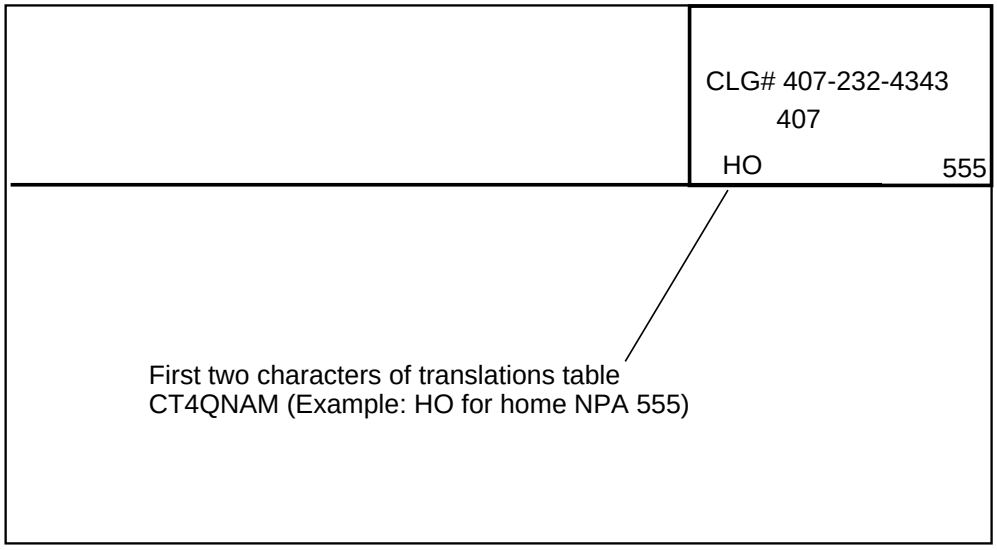
Figure 9-3xxx
Failure to log on to the database



Receiving a call

When a call request is received at the switch, the TOPS call processing program of the DMS switch searches for an idle position with a position profile that matches (a position that can serve this call request) the requirements of the call. When the required position is found, the call is sent to the position. Figure 9-4 shows an example of a call at the operator's position.

Figure 9-4xxx
Screen display of 555 directory assistance call arrival



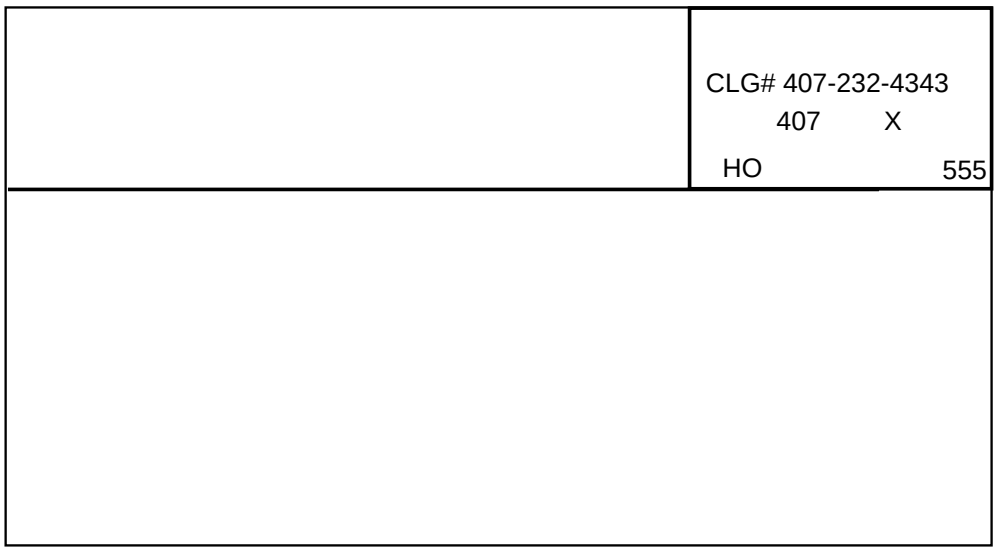
Making changes to a call for recall or transfer

An operator has the capability to change the call type for queuing (CT4Q) or the language mark. These capabilities are available to allow an operator (who cannot complete the call) to transfer the call to another operator who can complete the call (change of CT4Q or language mark), or to mark the call for recall, which, when the call is released form the first position, causes the call to be assigned to another operator who can complete the call.

Transferring a call to another operator

Pressing **Opr** + 1 + **Start** causes a call to be set (toggle) to transfer or recall. An operator can transfer a call to another operator by pressing **Opr** + 1 + **Start** (to set for transfer) and then **OGT** + digits + **Start** followed by **Pos Rls.** The digits are those that are datafilled in translations Table TQOGTKEY, indicating call transfer. Figure 9-5 shows an example of the position screen during the transfer sequence before the position has been released. The X indicates that the call is prepared to be transferred. If the call is marked for recall, the X does not appear, but the CT4Q display will change to the recall indicator.

Figure 9-5xxx
Screen during call transfer sequence before position release



Marking a call for recall

A call can be marked for recall by pressing the **Opr** + 1 + **Start** which causes the call to set (toggle) to recall.

Logging off of a TOPS QMS operator position

To log off of a TOPS QMS position, follow procedure 9-2.

Procedure 9-2xxx
Logging off of a TOPS QMS operator position

Step	Action
1	Press the **Make Busy** key.
2	Complete the current search.
3	Unseat the headset.

Senior operator position

The senior operator class of operators is available with TOPS QMS in addition to the SA class of operators. Service assistants provide assistance to other operators, but unlike senior operators, cannot serve subscriber initiated traffic or complete calls for operators that are being assisted. Service assistants can page and monitor other operators, but senior operators cannot.

The senior operator capability is available through the use of outgoing trunk keys and loop-around trunks. To request a senior operator, an operator presses an OGT key followed by a two digit code specifying the type of senior operator required. The types of senior operators available can be designated at the discretion of the operating company, for example, senior operators specializing in emergency calls.

Automated directory assistance service

Automated directory assistance service

The Automated Directory Assistance Service (ADAS) feature reduces the average work time (AWT) of DA operators by automating the initial inquiry portion of DA call processing. As a voice processing service, ADAS is built on Northern Telecom's (NT) experience with the Automated Alternate Billing Service (AABS) and fits into a family of similar services, such as voice mail, message delivery, and interactive automatic call distribution (ACD).

ADAS is the first application developed for a software platform used to support enhanced voice and data service applications. The software platform is known as the voice processing platform (VPP) and is integrated with a DMS SuperNode switch.

The ADAS system is used with either a DMS-100/200/TOPS or a DMS-200/TOPS SuperNode switch, whether configured as host, remote, or stand-alone operator centers. ADAS is compatible with S/DMS-100/200 TOPS switches using either TOPS, TOPS Multipurpose (TOPS MP), TOPS MPX, or other open position protocol (OPP) positions. Because the functionality of ADAS is contained in the switch, ADAS can be used with any commercially available DA system.

Link interface shelves

Link interface shelves (LIS) located in the DMS switch contain link interface units, which are the modular, provisionable cards that handle special applications. For ADAS, LIS are equipped with a VPP software platform providing ADAS voice service resources.

A VPP consists of a voice processing unit (VPU) application processor unit (APU), network interface unit (NIU), and Ethernet interface unit (EIU). These modules are described as follows:

- A VPU has specialized hardware that records a caller's voice, detects DTMF tones, and plays back stored audio recordings to an operator.
- An APU contains the application software which controls VPU voice processing.

- An NIU provides voice channel interface between the network and a VPU.
- An EIU provides the interface between a VPP and an ADAS OA&M position through an Ethernet LAN.

ADAS call-processing description

The system performs the following eligibility checks before routing a call to ADAS:

- The call must require DA service
- The incoming trunk group (datafilled in table TPOSTOPT) must specify ADAS service
- DA billing checks must be satisfied for the call

If the eligibility checks are successful, the ADAS application software does the following:

1 greets the DA caller

2 prompts the caller for the locality and the requested listing

3 records the caller's responses

4 compresses each response by removing the silences and pauses

Once the connection is made between the operator and ADAS, ADAS plays back the caller's responses. When the playback completes, the ADAS service is released from the call. The remainder of the process is the same as a traditional DA call.

Usually, the operator does not interact with the caller before releasing the call to the ARU, but some calls require interaction. Operators interact with callers if ADAS is bypassed or fails. Operators also interact with callers if the customer response is incomplete or ambiguous. Or, the operator might need additional information from the caller to identify a common listing name.

List of terms

AMA

automatic message accounting

automatic message accounting (AMA)

An automatic recording system that documents all the necessary billing data of subscriber-dialed long distance calls.

ANI

automatic number identification

ANIF

automatic number identification failure

AOSS

Auxiliary Operator Services System

automatic number identification (ANI)

The automatic number identification of the calling station. This number is used for billing records generated by an interLATA/international carrier. ANI is used in the United States only.

automatic number identification failure (ANIF)

A failure to automatically identify the directory number of the calling station.

Auxiliary Operator Services System (AOSS)

A service-related system in which operators provide subscribers with such services as local and long distance directory assistance (DA) and call intercept.

CNA

customer name and address

customer name and address (CNA)

An operator service which supplies the name and address associated with a directory number that is provided by the calling subscriber.

DA

directory assistance

directory assistance (DA)

A service that allows a subscriber to ask an operator to look up information from a telephone listing database.

DAS

Directory Assistance System

Directory Assistance System (DAS)

A system that provides directory assistance (DA) information and information for Intercept calls.

end office (EO)

A switching office arranged for terminating subscriber lines and provided with trunks for establishing connections to and from other switching offices.

EO

end office

IC

in-charge

in charge

The in-charge operator is the person using the TOPS MPX in-charge position to assist other operators and monitor the operating team.

IVS

Interactive Voice Subsystems

Interactive Voice Subsystems

A system used to automate DA and intercept calls that supplies the requested information by an audio announcement after release by the operator.

intercept call

An intercept call is a call that comes to an operator position when a subscriber dials an out-of-service number or a number that has recently been changed.

LAN

local area network

local area network (LAN)

Network permitting the interconnection and intercommunication of a group of computers, primarily for the sharing of resources such as data storage

devices and printers. LANs cover short distances, usually within a single building complex.

NPA

numbering plan area

numbering plan area (NPA)

Any of the designated geographical divisions of the United States, Canada, Bermuda, the Caribbean, Northwestern Mexico, and Hawaii within which no two telephones will have the same seven-digit number. Each NPA is assigned a unique three-digit area code. Also known as area code.

ONI

operator number identification

operator number identification (ONI)

The equipment used to bring an operator into the circuit to check the calling number when a subscriber has direct-dialed a long distance call that is to be charged on an itemized bill basis by CAMA equipment.

operating company

The owner/operator of a DMS-100 Family switch.

PARS

Personal Audio Response System

Personal Audio Response System (PARS)

A feature that plays custom announcements to a subscriber when a call is presented to a TOPS MPX position, thereby, eliminating the need to repeat phrases for each call.

QMS

Queue Management System

Queue Management System (QMS)

A software package that provides enhanced capabilities for the management of queues in the DMS-100/200 Family of switches.

SA

service assistant

service assistant (SA)

The service assistant (SA) is the person using the TOPS MPX assistance position.

subscriber

The individual user of a telephone station set that is connected to a DMS-100 Family switch.

TA

toll and assistance

toll and assistance (TA)

The service given by an operator to help a subscriber complete a dialed toll call.

TMS

TOPS message switch

TOPS message switch (TMS)

A DMS-100 Family XMS-based peripheral module (XPM) used as a concentration and switching device for data links.

TOPS MPX

Traffic Operator Position System MPX

Traffic Operator Position System (TOPS) MPX

A personal computer consisting of a controller, a video display, and keyboard for monitoring call details and entering routing and billing information for directory assistance calls utilizing an IBM DA database.

DMS-100 Family

TOPS MPX NT DA

Operator Guide

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