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DMS-100 Family

TOPS Translations and Screening

User's Guide

LET0012 and up Standard 02.01 August 1999

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DMS-100 Family

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Version 02.01 Standard release for LET0012 adds or changes the following technical content:

- adds XLAGRP translations support for TOPS equal access calls that require a carrier
- adds XLAGRP translations support for special call types using new table OPRINFO

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Contents

About this document

The *TOPS Translations and Screening User's Guide* describes an optional method of translating, screening, and routing of North American (NA) calls using the Traffic Operator Position System (TOPS). The Translations Group (XLAGRP) translations method meets new requirements brought about by the Telecom Reform Act of 1996 (TRA96), and also allows more flexible access to translations and screening data.

The XLAGRP translations method does *not* affect the TOPS translations processing flow, or the translations and screening steps which are performed. Instead the difference between traditional TOPS translations and XLAGRP translations is where the data used to perform translations and screening is obtained.

The XLAGRP method creates a single TOPS table that contains all of the translations and screening data. The idea is to view the pieces of translations data as a related group rather than as individual entities.

This document provides the reader with an overview of the XLAGRP method, the reasons for its introduction, and information on datafill and restrictions.

The XLAGRP translations method is being developed in a phased approach. Changes for TRA96 are also being phased in over a number of TOPS releases. At this time this document only describes the affected portions of translations and screening for the LET0012 TOPS release.

The XLAGRP translations method currently is optional, and can be selected for use on a per-trunk group basis.

Note: The existing method of TOPS translations and screening, referred to as *traditional* TOPS translations, is not described in this document.

This document accompanies the base TOPS software product. It is intended for readers who are familiar with TOPS call processing. For more information on DMS translations in general, refer to NTP 297-8021-350, *North American DMS-100 Translations Guide*.

Chapters in this book

The following road map is a guide to the location of specific information in the *TOPS Translations and Screening User's Guide*.

Chapter 1: Overview of TOPS translations

This chapter provides a general overview of TOPS translations and screening.

Chapter 2: Introduction to XLAGRP translations

This chapter provides an introduction to the XLAGRP translations method, and describes the reasons behind and benefits of the XLAGRP method.

Chapter 3: XLAGRP translations tables and datafill

This chapter describes the new tables, and new fields in existing tables, for the datafill that supports the XLAGRP translations method. It also provides some guidance on how to datafill the tables for the XLAGRP method.

Chapter 4: XLAGRP translations call flow steps

This chapter presents the XLAGRP method as a series of numbered steps in an example call flow, which are used in the call examples in the next chapter.

Chapter 5: XLAGRP translations call examples

This chapter provides some sample call examples to illustrate the translations and screening process using the XLAGRP method.

List of terms

This chapter lists the TOPS translation terms and definitions used within this document.

References in this book

Following are the documents referred to in this book.

- *North American DMS-100 Translations Guide*, 297-8021-350
- *North American DMS-100 Customer Data Schema Reference Manual*, 297-8021-351
- *North American DMS-100 Office Parameters Reference Manual*, 297-8021-855
- *Software Optionality Control User's Manual*, 297-8991-901
- *TOPS Local Number Portability (LNP) User's Guide*, 297-8403-902
- *TOPS Unbundling User's Guide*, 297-8403-903

Chapter 1: Overview of TOPS translations

This chapter presents some background information on TOPS translations. It provides a description of the process used in performing *traditional* TOPS translations. This information will prove useful when the XLAGRP method is presented, because these same process steps apply to both traditional TOPS translations and the XLAGRP method.

TOPS translations and screening

Translations, in general, is the process of determining a route for a call to a destination based on a string of valid digits dialed. If the dialed digits are not valid, the call is generally routed to treatment. The dial plan defines the valid digit strings that can be dialed. For example, the dial plan dictates the standard NPA-NXX-XXXX format for calls dialed in North America.

In TOPS, the digits to be translated can either be:

- dialed by a subscriber (and signaled to TOPS on an originating trunk group)
- entered by a TOPS operator on behalf of the subscriber

  Note: The operator is allowed certain dialing patterns that the subscriber is not (such as service codes and zenith numbers). The operator also has the ability to enter a calling number, a billing (third) number, or a number for Busy Line Verification (BLV) which must be translated as well.
- received from either an external data base response (such as from a Local Number Portability query) or from an external Service Node (SN) that is connect to the call

The digits that are translated are referred to as *address digits*.

Screening is the process of modifying, if necessary, the translations results based upon certain call characteristics (direct dialed or operator assisted) and attributes of the calling party.

The translations and screening process can actually be broken down into a number of steps, as follows:

- The **pretranslations** step is used to process any prefix digits dialed (1+, 0+, 10xxx+), and to build the remaining "address" digits into standard format. Pretranslations can also be used to identify any service codes dialed (such as 911 and 411). After interpreting the prefix digits, they are eliminated from further translations processing.
- The **code translations** step is used to process the address digits and determine a route for the call. In some cases a route may be determined directly out of the pretranslation step, and then this step is bypassed.
- The **class of service screening** step is used to modify the route, if required, based on either the call type (direct dialed or operator assisted) or the NPA-NXX digits of the originator's ten-digit directory number.
- The **local call area screening** step is merely used to identify the call as either a local call (to the originator) or not. It does not affect the route chosen, unless the screening results in a treatment as the call disposition.

The four-step description of translations and screening as described here is referred to as *standard,* or *non-equal access*, translations. The additional steps for Equal Access (EA) translations are discussed later in this document.

The term "translations" is sometimes used loosely to refer to all of these steps. Other times the term "translations and screening" is used to make a distinction between the first two steps and the last two steps. The use of the terms "translations" or "translations and screening" in this document refers to these four standard translations steps.

Pretranslations

The pretranslations step uses the Standard Pretranslator (STDPRTCT) table to interpret any prefix digits or identify any service codes dialed (such as 411).

Note: Typically the end office removes any prefix digits (0+ or 1+) before outpulsing to the TOPS office.

STDPRTCT is indexed with a pretranslator name, and then subtable STDPRT is accessed with the digits dialed by the subscriber. Following is an example of datafill for table STDPRTCT and subtable STDPRT.

Figure 1 MAP display example for table STDPRTCT

```
EXTPRTNM  STDPRT  AMAPRT
------------------------
    PTOP (    1) (65021)
    OPER (    1) (65021)
```

Figure 2 MAP display example for subtable STDPRT

```
          FROMDIGS             TODIGS                              PRETRTE
 ------------------------------------------------------------------------
                 0                  0                           N OA 0 NA
                12                 19                           N NL 1 IN
                 2                410                           N NL 0 NA
               411                411        T NL 0   TOPS 411 3  3 NONE
               412                  9                           N NL 0 NA
```

In subtable STDPRT, the FROMDIGS and TODIGS provide a range of digits, and the entry that is used depends on which range the dialed digits fall. For example, dialed digits of 201-220-1234 would fall in the range for the first entry (FROMDIGS = 2, TODIGS = 410) in the given example.

Datafill in table STDPRTCT typically supplies the following information:

- the call type of either direct dialed (DD), operator assisted (OA), no prefix digits (NP), or nil (NL)
- the number of prefix digits
- whether the translations system being used is North American (NA) or International (IN)

Table STDPRTCT can also specify a route directly out of pretranslations. For example, a “T” selector can be used to specify an index into a table such as Office Route (OFRT) to identify an outgoing route.

Code translations

The code translations step uses the Home NPA Control (HNPACONT) table, and *may* use the Foreign NPA Control (FNPACONT) table, to interpret the dialed address digits to determine an outgoing route. For simplicity, only table HNPACONT is presented here. Please refer to NTP 297-8021-350, *North American DMS-100 Translations Guide*, for an explanation of when and how FNPACONT is used.

Table HNPACONT is indexed with a Serving Translation Scheme (STS) which used to be equivalent to the Serving Numbering Plan Area (SNPA), commonly referred to as an area code. Since the LET0010 release, TOPS no longer requires the STS and SNPA to be equivalent.

Subtable HNPACODE is then indexed with the dialed address digits. The following is an example of datafill for table HNPACONT and HNPACODE.

Figure 3 MAP display example for table HNPACONT

```
STS SNPA NORTREFS NOAMBIGC  RTEREF HNPACODE  ATTRIB  RTEMAP     OPTIONS
-------------------------------------------------------------------------
619    Y    1000         8 (   57)  (    1) (    0) (    0)          $
```

Figure 4 MAP display example for subtable HNPACODE

```
          FROMDIGS             TODIGS     CDRRTMT
-----------------------------------------------
               103                103   OPC3    8
               201                201   FRTD  801
```

In subtable HNPACODE, the FROMDIGS and TODIGS provide a range of digits, and the entry that is used depends on which range the dialed digits fall. For example, dialed digits of 201-220-1234 would fall in the range for the second entry (FROMDIGS = 201, TODIGS = 201) in the given example.

The entry in subtable HNPACODE specifies a code type (refer to DMS translations documentation for valid code types), which for this example is an index into subtable RTEREF for the routing information.

Figure 5 MAP display example for subtable RTEREF

```
 RTE                                                                RTELIST
-------------------------------------------------------------------------
 801                        (    N        D          TITOGA1 0   N   N)$
```

Subtable RTEREF is indexed with the value 801 from subtable HNPACODE for the route(s) that can be used to reach the destination. This example specifies a single trunk group, TITOGA1, that can be used to route the call.

Class of service screening

The class of service screening step uses the Class of Service Screening (CLSVSCRC) table to override a route, if required, based on characteristics of the call.

Note: It is uncommon for TOPS to use table CLSVSCRC, except for TOPS equal access calls.

Table CLSVSCRC is indexed with an STS, a screen class name based on the originator's NPA or NPA-NXX, and the call type (OA or DD). Subtable CLSVSCR is then indexed with the dialed address digits.

Following is an example of datafill for table CLSVSCRC and subtable CLSVSCR.

Figure 6 MAP display example for table CLSVSCRC

```
   NPASCTYP NORSLTS     TMTOFRT CLSVSCR
-------------------------------------
407 STER DD       2   N    NONE (    1)
407 STER OA       2   N    NONE (    1)
```

Figure 7 MAP display example for subtable CLSVSCR

```
          FROMDIGS             TODIGS               SUB_TMTOFRT
-------------------------------------------------------------
               122                122               T OFRT  819
               888                888               T OFRT  804
               999                999               D VACT
```

In subtable CLSVSCR, the FROMDIGS and TODIGS provide a range of digits, and the entry that is used depends on which range the dialed digits fall. For example, dialed digits of 201-220-1234 would not fall in the range for any entry in the given example, and thus the outgoing route selected in the code translations step would remain unchanged.

Note: If screening returns a result of a treatment (such as VACT), the treatment replaces the route and the screening process halts.

Local call area screening

Local call area (LCA) screening uses both the Local Call Area Screening (LCASCRCN) table and the Prefix Treatment (PFXTREAT) table to identify a call as local or not. TOPS does *not* use LCA screening to determine a route.

Note: As of the LET0012 release, TOPS supports the use of table LCAINFO. Table LCAINFO is a replacement for table LCASCRCN.

Table LCASCRCN is indexed with an STS and an LCA screening name (where these are obtained is explained later), both based upon the originating party. Following is an example of datafill for table LCASCRCN.

Figure 8 MAP display example for table LCASCRCN

```
NPALOCNM  LCASCR PFXSELEC PFXFOR10 LOCALOVR
-----------------------------------------
619 L32X (    1)     OPTL        N        N
```

Note: When 10-digit dialing is needed for local calls between subscriber in different NPAs, then two separate entries are required in table LCASCRCN.

Subtable LCASCR is indexed with the dialed address digits. Following is an example of datafill for subtable LCASCR.

Figure 9 MAP display example for subtable LCASCR

```
FROMDIGS TODIGS
---------------
     521    522
```

Subtable LCASCR is indexed with the NXX digits of the dialed number. The FROMDIGS and TODIGS provide a range of digits, and if the NXX of the dialed number falls in this range then the call is *eligible* to be marked as local. For example, dialed digits of 521-1234 (with 521 being the NXX) would fall in the range for the given example, and would be eligible to be a local call.

TOPS also requires that a treatment be datafilled in table PFXTREAT before a call is marked as local. PFXTREAT is indexed with a prefix selector (from field PFXSELEC in table LCASCRCN), type of call (OA or DD), and a Y for local eligibility. Following is an example of datafill for table PFXTREAT.

Figure 10 MAP display example for table PFXTREAT

```
 TYPLCLCD UPDTYPCA TREAT
----------------------------------------
OPTL OA Y       OA  MSCA
```

Since a valid treatment is datafilled, the call is now marked as local.

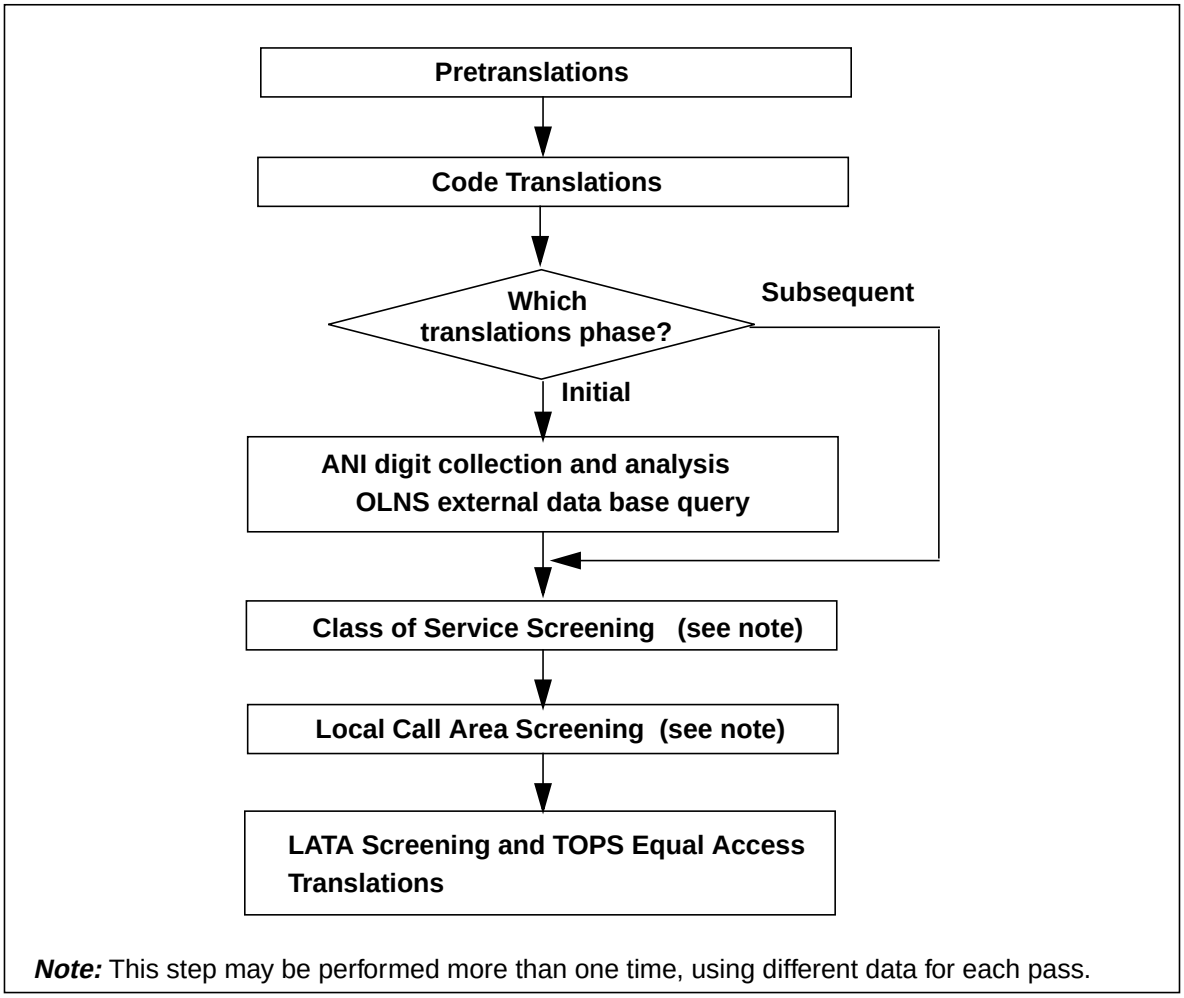
TOPS initial and subsequent translations

For TOPS calls, the four steps of translations and screening described before are actually performed twice (on most calls):

- **Initial** translations and screening is performed prior to the calls presentation to an operator (or TOPS automated system). Its primary purpose is to identify whether the call should involve TOPS services, or simply tandem through the TOPS switch to another office.
- **Subsequent** translations and screening occurs when the call is routed from the operator (or TOPS automated system) to its final destination. A re-translation is needed to account for certain dialing patterns that an operator is allowed to dial that a subscriber is not. Also, the operator may change call information (such as called number or carrier) that could impact the initial translations result.

The following figure shows a high-level view of the TOPS translations flow, including both initial and subsequent translations.

Figure 11 TOPS translations and screening flow



The TOPS translations flow presented in the Figure 11 above highlights a couple of interesting situations found in initial translations that are not encountered in subsequent translations:

- The pretranslations and code translations steps are performed prior to the collection of the Automatic Number Identification (ANI) digits to identify the calling number. Thus initial translations includes an extra step to collect ANI, as well as possible Originating Line Number Screening (OLNS) queries to an external Line Information Data Base (LIDB).
- With no calling number available, pretranslations and code translations steps are performed using information from table TRKGRP. After ANI has been collected, certain information (for example SPID) can then be obtained and used for the two remaining initial *screening* steps.

It is also worth noting here that when the ANI digits are received, traditional TOPS translations normally performs verification of the NXX digits of the calling number to ensure that the calling DN is valid for the trunk group.

TOPS enhanced bill code

Although not strictly part of XLAGRP translations, an optional Enhanced Bill Code (ENHBC) method is provided as of the LET0010 release that can replace the use of table TOPS Bill Code (TOPSBC). Field BCTYPE in table TRKGRP allows the choice of using either TOPSBC or the ENHBC method. The ENHBC method is introduced to address some limitations of TOPSBC:

- Trunk groups that serve traffic from multiple SNPAs and that only receive 7-digit ANI must restrict the NXX codes carried to be unique, so that the correct SNPA can be identified. This situation is referred to as the “duplicate NXX” problem.
- Calling number verification is not optional, so that all NXXs carried on a trunk group (even ported numbers) must be datafilled in table TOPSBC.

Two functions performed by either the ENHBC method or TOPSBC that are of interest to the XLAGRP translations method are calling number expansion and calling number verification.

The ENHBC method performs calling number expansion for 7-digit ANI using table TOPS Calling 7 Digits (TCLG7DIG) instead of table TOPSBC. Table TCLG7DIG reduces the datafilled needed as compared to TOPSBC, since if no entry is found in TCLG7DIG the trunk group SNPA is used. The NPA-NXX digits of this expanded calling number are used during XLAGRP translations (described later in this chapter).

Note: Table TCLG7DIG can not handle duplicate NXXs on the same trunk group any better than table TOPSBC. The proper solution to carry duplicate NXXs on the same trunk group is to use 10-digit calling number ANI.

With the ENHBC method, calling number verification is optional. If the field CLGVER in table TRKGRP is Y, then verification is performed using table TOPS Calling Verification (TCLGVER) instead of TOPSBC. If CLGVER is N, then verification is not performed and no NXX entries are needed in table TCLGVER for that trunk group. The choice to not perform calling number verification or not must be weighed against the potential for toll fraud, which should be limited if the trunk group has very little ONI or ANIF traffic.

Note: Calling number verification for operator handled calls is bypassed if the OHNXXSCR field in table TRKGRP is set to N.

The SCRNCL and LCANAME fields in table TOPSBC continue to be used for class of service and local call area screening if the XLAGRP translations method is not used. Conversion to the XLAGRP translations method is required to eliminate the use of table TOPSBC.

The ENHBC method also addresses an operator screen display for Operator Number Identification (ONI) and ANI Failure (ANIF) calls, and a charge class for Automatic Message Accounting (AMA) records. These two items are not related to translations, and are not discussed in this document.

TOPS equal access translations

TOPS Equal Access (EA) translations, for calls requiring an interexchange carrier, are performed as additional steps to the standard translations steps discussed up to now. The key differences are:

- TOPS EA translations and screening is invoked after standard (non-EA) translations and screening is performed.
- TOPS EA translations uses class of service screening to *modify* the route produced by standard translations. Thus it is *required* that the standard translations must provide a valid route, although TOPS EA translations will normally replace the selected standard translations route.
- The only translations step from standard translations used by TOPS EA translations is class of service screening. The steps of pretranslations, code translations, and local call area screening are not used.
- To allow for differences in route selection based on the selected carrier, TOPS prepends the carrier's Carrier Identification Code (CIC) digits to the called digits prior to invoking class of service screening.
- Some of the datafill used by TOPS EA translations comes from different tables than the datafill used by standard TOPS translations.

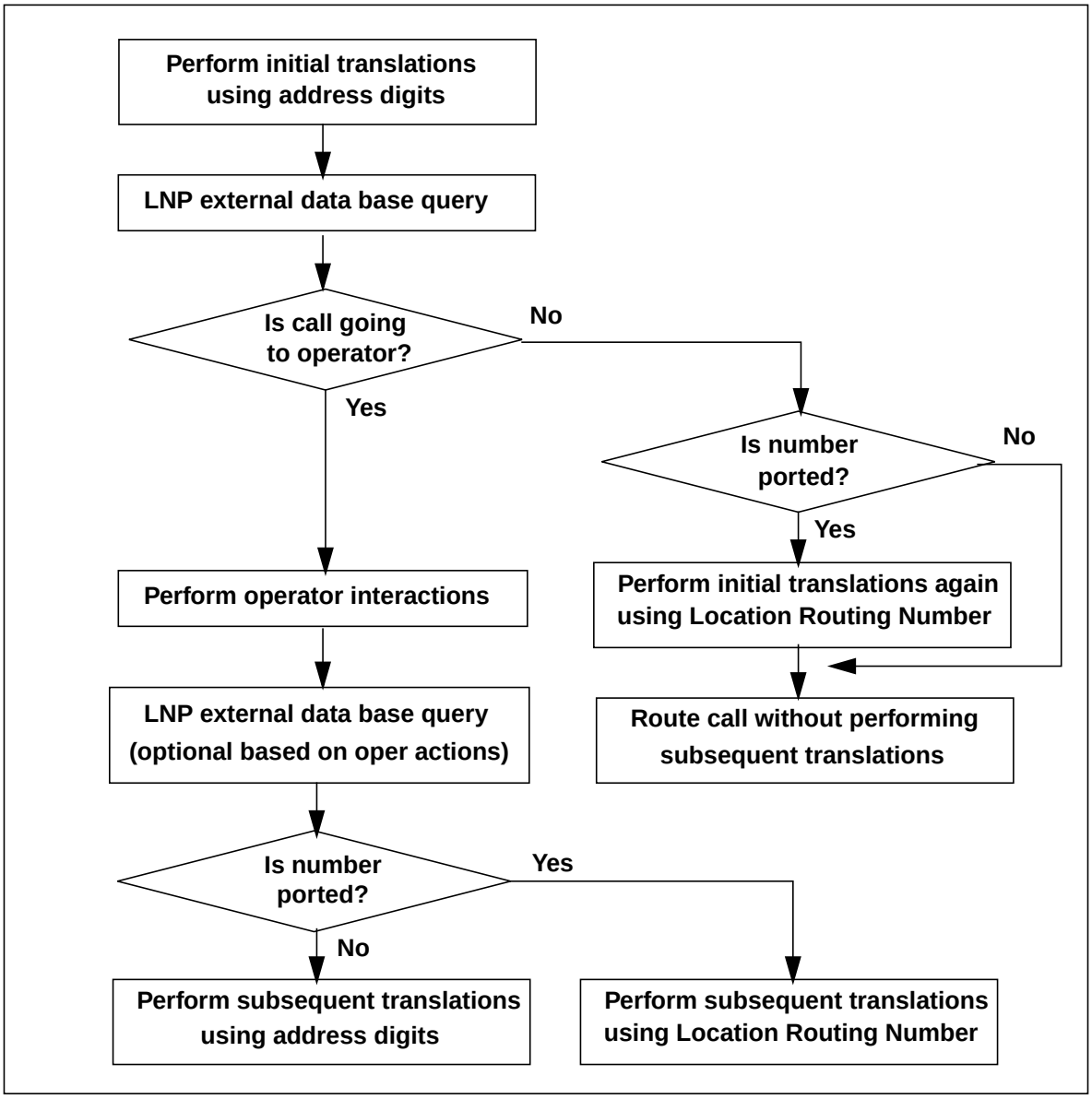
Chapter 4: "XLAGRP translations call flow steps," shows how standard translations and EA translations are performed together in the context of a call.

Local Number Portability (LNP)

Local Number Portability (LNP) performs its actions outside the context of the standard TOPS translations and screening steps described previously. However, its actions are done between initial and subsequent translations, and can have a profound impact on the TOPS translations flow.

The following figure shows a high-level view of the impact of LNP on the TOPS translations flow, including both initial and subsequent translations.

Figure 12 TOPS translations and screening flow



For more information about LNP, refer to NTP 297-8403-902, *TOPS Local Number Portability (LNP) User's Guide*.

Table OPRTRANS translations

Once a call is at an operator position, the TOPS operator can enter and perform translations on numbers which are not standard called numbers. For example, the operator can enter a billing (third) party number and route to this number for acceptance of billing charges. Another example is the operator function of Busy Line Verification (BLV), where the operator enters a number to determine if a line is busy, without connecting the calling party to this number.

With traditional TOPS translations, table OPRTRANS defines translations and screening data used for these numbers. Table OPRTRANS has the following six fixed entries:

- OPERATOR

  This entry provides data for the translations of called numbers, but is only used under special circumstances. For example, when an operator originates a call with no originating party present, the called number is translated using this entry in table OPRTRANS. Zenith numbers are another example of called numbers entered by the operator which use the OPERATOR entry (even though a calling party is present).

- DELAY

  This entry provides data for the translations of calling numbers.

- OVERSEAS

  This entry provides data for the translations of overseas numbers.

- SPLVFY

  This entry provides data for the translations of billing (third) numbers.

- VERIFY

  This entry provides data for the translations of Busy Line Verification (BLV) numbers.

- MCCS

  This entry provides data for the translations of Mechanized Calling Card Service (MCCS) sequence call numbers.

Table OPRTRANS defines the translations and screening data used for these types of numbers, but the standard 4-step process described previously is still performed on these numbers.

Chapter 2: Introduction to XLAGRP translations

Reason for changes

The telephone operating company defines translations data in DMS tables to specify how to interpret the dialed digits and select the desired route. With the Telecom Reform Act of 1996 (TRA96), the United States Congress and the Federal Communications Commission (FCC) have introduced new rules to the United States telecommunications industry, including Operator Services. Some of the objectives during development of TRA96 include the following:

- open local exchange networks to competition
- maintain universal accessibility to telecommunication services
- move to a cost based pricing for telecommunication services
- encourage innovation and advanced telecommunication capabilities
- phase out the 1984 Modified Final Judgement (MFJ) restrictions

To be compliant with the TRA96 directives affects the traditional ways of routing calls, and thus affects the translations process. Some of these changes include support for:

- Competitive Local Exchange Carriers
- Local Number Portability
- SNPA and STS Decoupling

Competitive Local Exchange Carriers

TRA96 provides for competition in the Local Exchange Carrier (LEC) market. New Competitive LECs (CLECs) may elect to provide local service either by using their own equipment, or by reselling service using Incumbent LEC (ILEC) equipment. These CLECs may require the ability to specify translations and routing data that differs from that of the ILEC. For example, a CLEC may want to route a call for one of its subscribers over a different outgoing trunk group than would be used for an ILEC subscriber dialing the same digits. A CLEC could provide different local calling areas than the ILEC, as another example.

One way to accomplish unique routing for CLECs with traditional TOPS translations is simply to require that the *incoming* CLEC traffic to TOPS be segregated from the ILEC traffic by transporting it on separate trunk groups. In this way, the data for the *outgoing* translations, specified on a per-trunk group basis, could be made unique for the CLEC traffic. However, TRA96 specifically disallows this segregated traffic option.

Thus the translation system must be able to identify the CLEC traffic on a combined trunk group, and to perform translations for the CLEC traffic in a different manner than for the ILEC traffic on the same trunk group.

Local Number Portability

One factor taken into consideration in the translations process is the Directory Number (DN) of the subscriber who originates the call. Traditionally the switch that served a subscriber (at least within North America) could be determined by the Numbering Plan Area (NPA) and Number Exchange (NXX) of the subscriber's DN. Table TOPS Bill Code (TOPSBC) contains Class of Service screening and Local Call Area (LCA) screening entries for each NXX per trunk group, and these can be used to modify a translation route.

Local Number Portability (LNP) allows a subscriber to change their Local Exchange Carrier (due to TRA96) and still retain their current directory number. Thus the NPA-NXX of a DN can no longer be used to uniquely identify the switch that serves the subscriber. The DNs for such subscribers are said to be "ported."

Traditional TOPS translations uses table TOPSBC to perform a number of functions, one of which is to determine whether or not the NXX of the calling party received on a trunk group is valid. With LNP, the NPA-NXX of every ported number would need to be entered in table TOPSBC to be valid. Operating companies have expressed a concern regarding the potential explosion of datafill required in table TOPSBC.

SNPA and STS decoupling

The Serving Translations Scheme (STS) is a key piece of data used within the DMS translations process, as it is used to access many of the base tables used in translations (for example, HNPACONT and CLSVSCRC). Traditionally the DMS has enforced that the STS value be equivalent to the Serving Numbering Plan Area (SNPA). To address the requirements brought on by TRA96, as of the LET0010 release TOPS has decoupled the STS and SNPA values so that they no longer need to be equivalent.

One benefit of the decoupling of the SNPA and STS is that translations data no longer needs to be based upon the SNPA of the originating party. Decoupling provides the ability to define many more unique STS values for TOPS calls, allowing many more entries of information in the base DMS translations tables.

Scope of changes

Rather than attempting to modify the existing TOPS translations (hereafter referred to as *traditional* TOPS translations) to address these changes, a new translations method was developed as a replacement. The Translations Group (XLAGRP) method of translations and screening is designed to not only meet the TRA96 requirements previously mentioned, but also to provide a general approach that can be used for all of TOPS traffic.

Since the Telecom Reform Act is mandated by the United States Federal Communications Commission, the XLAGRP translations method described here currently applies *only* to the North American market.

As mentioned, changes for TRA96 are being phased in over a number of TOPS releases. Some changes in coming releases may also impact other aspects of TOPS translations and screening. Currently this document only describes the affected portions of translations and screening for the TOPS releases up to and including LET0012, which provides capabilities to:

- decouple the SNPA and STS values used for TOPS translations
- allow for optional Service Provider Identifier (SPID) based translation and screening
- allow unique screening based on the NPA-NXX of the calling party instead of simply based upon NXX as currently done in table TOPSBC
- provides the option to perform calling number verification or not
- defines a new table for performing 7-digit calling number expansion
- provide support of TOPS Equal Access translations for calls that require a carrier
- support for number types which can be entered by the TOPS operator, such as busy line verification numbers, calling (back) numbers, billing (third) numbers, overseas numbers, and operator entered called numbers with no calling party present (delay)

The new translations scheme can be activated on a per-trunk group basis. There is no Software Optionality Control (SOC) to control the activation of the XLAGRP translations scheme. There is, however, a SOC (UNBN0003) that controls the SPID based translation and screening.

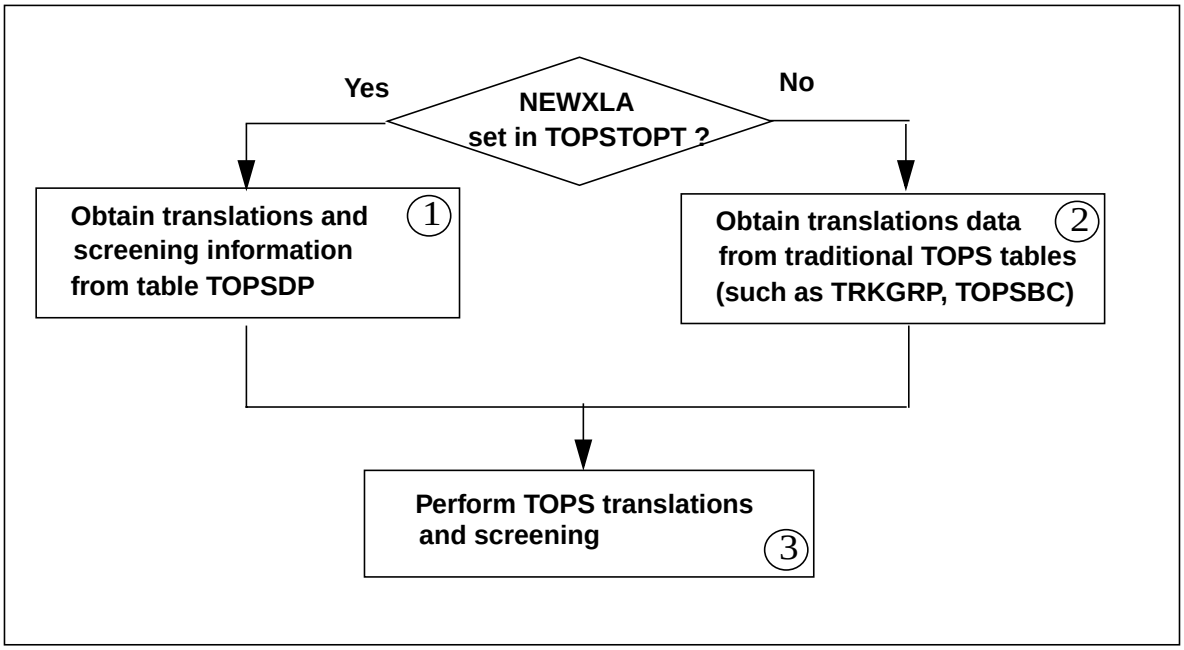
For more information about TRA96 and its impact on Operator Services, refer to NTP 297-8403-903, *TOPS Unbundling User's Guide*.

XLAGRP translations and screening

The XLAGRP translations method does *not* affect the translations processing flow, or the four translations and screening steps that are performed. Instead the difference between traditional TOPS translations and the XLAGRP method is where the data used to perform translations and screening is obtained.

The following figure shows a simplistic view of the TOPS translations flow from the perspective of how the translations and screening data is obtained.

Figure 13 Comparison of XLAGRP and traditional TOPS translations



The XLAGRP translations method creates a single TOPS Dial Plan (TOPSDP) table that contains all the translations and screening parameters. The idea is to view a pretranslator name, a serving translation scheme, screen class names, and a local call area name as a related group rather than individual entities. This grouping is called a Translations Group (XLAGRP).

The previous chapter presented the standard 4-step translation and screening process. This discussion was focused on the operations performed for box 3 in the diagram presented above. As can be seen from the diagram, these operations are performed for both traditional TOPS translations (box 2) and XLAGRP translations (box 1).

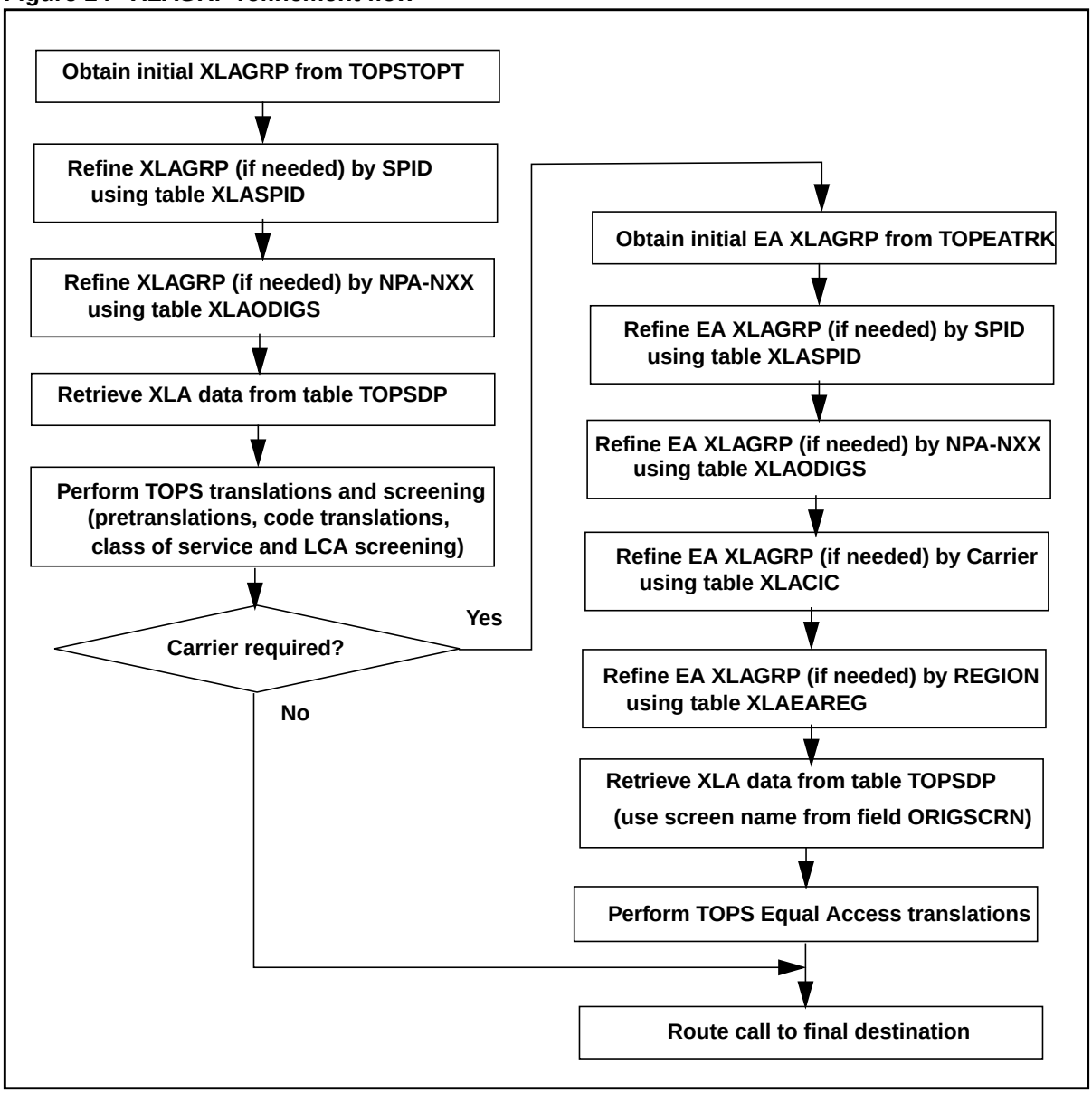
This chapter provides a high-level view on the operations performed in box 1, which apply strictly to the XLAGRP translations method, and how these are connected to the 4-step translations process in box 3.

XLAGRP refinement flow

The Translation Group name (XLAGRP) is the key to the new translations scheme. The XLAGRP provides the grouping of translations and screening data in a flexible manner, giving the operating company the ability to fit their individual network needs.

The XLAGRP method uses a refinement approach to the selection of the translations data. A high-level view of the refinement steps involved are presented in the following diagram.

Figure 14 XLAGRP refinement flow



XLAGRP refinement tables

Following is a brief view of some of the tables involved in the XLAGRP refinement process. The next chapter examines all of the XLAGRP method datafill in much greater detail.

Note: The data presented here is for illustration only, and does *not* reflect the data used in any of the call examples later in this document.

The XLAGRP names used for translations are established in table XLAGRP. The following figure shows an example of datafill for table XLAGRP.

Figure 15 MAP display example for table XLAGRP

```
XLAGRP
------------------------------------------------------------------
TRKGRPXLA
SPIDXLA
TRKGRP325XLA
SPID325XLA
CIC123XLA
EAZONE1XLA
```

An *initial* XLAGRP name is first established for an originating trunk group, and provides an initial grouping of translation data that handles the majority of the traffic on the trunk group. For example, imagine that trunk group TRKGRP1 carries a variety of traffic, but primarily carries calls by ILEC subscribers. An XLAGRP name of TRKGRPXLA is established for the trunk group. With this XLAGRP, all calls by ILEC subscribers originating on the trunk group dialing a common digit string would be routed in the same manner, based on the translations and screening data from table TOPSDP.

For non-equal access TOPS traffic, the initial XLAGRP is entered in field XLASCHEM in table TOPSTOPT. The following figure shows an example of the datafill for TOPSTOPT.

Figure 16 MAP display example for table TOPSTOPT

```
GRPKEY     ORGAREA  DISPCLG ADASERV ADASANS ANITOCLI OLNSQRY DCIBIDX
    LNPCLGAM  XLASCHEM       SPIDPRC     TRKSPID     BILLSCRN    ANIFSPL
------------------------------------------------------------------------
TRKGRP1    N        N       NONE    NA      N        ALL     0
    N         Y  TRKGRPXLA   Y           N           N           N
```

Setting of this initial XLAGRP at the trunk group level in TOPSTOPT for the non-equal access traffic is *required.* This is because all the other XLAGRP refinement steps are optional. Thus a routing result must, as a minimum, be obtained from this step in the translations process.

For equal access traffic, the initial XLAGRP is entered in field XLASCHEM in table TOPEATRK. The following figure shows an example of the datafill for table TOPEATRK.

Figure 17 MAP display example for table TOPEATRK

```
         TRUNKGRP ENDOFFCE CARRIER SCRNFLDS     XLASCHEM     DNLOOK
DFLTPIC           BYPASS
-------------------------------------------------------------------------
          TOPEAIC CONFORM  0803    LATA   L133  Y  TOPEAXLA      Y
      Y               $
```

Setting of the initial XLAGRP at this trunk group level in table TOPEATRK is *not* required. One reason is because if EA translations does not produce a route, the standard (non-equal access) routing result can be used as default. Another reason is the use of the XLAGRP method for EA translations in TOPEATRK is independent of its use in table TOPSTOPT. Thus the XLAGRP method may be used for the standard translations part of the call, but *traditional* TOPS translations can be used for the EA translations part of the call.

The initial XLAGRP, from either TOPSTOPT or TOPEATRK, can then be *refined* by either the originating party's SPID with new table XLASPID or the NPA-NXX of the calling party's DN with new table XLAODIGS, or both. The result would be a new XLAGRP name that would provide the translation data for the trunk group traffic that has either a SPID or has an NPA-NXX that the operating company wishes to route differently.

The following two figures show examples of datafill for table XLASPID and table XLAODIGS.

Figure 18 MAP display example for table XLASPID

```
GRPKEY                  NEWXLGRP
-----------------------------------------------------------------
TRKGRPXLA  CLECGRP      SPIDXLA
```

Figure 19 MAP display example for table XLAODIGS

```
GRPKEY               NEWXLGRP
-----------------------------------------------------------------
TRKGRPXLA    619325   TRKGRP325XLA
SPIDXLA      619325   SPID325XLA
```

A call on trunk group TRKGRP1 made by a CLEC subscriber, dialing the same digits as an ILEC subscriber, can be routed differently by defining a different XLAGRP in table XLASPID based upon the CLEC's SPID. Or the operating company can route calls differently for ILEC subscribers from a particular NPA-NXX, still dialing the same digits, by defining an XLAGRP in table XLAODIGS for that NPA-NXX.

For Equal Access (EA) calls requiring a carrier, the XLAGRP from table TOPEATRK can also be refined by the Carrier Information Code (CIC) of the carrier or by an EA region designation such as a Local Area and Transport Area (LATA).

The following two figures show examples of datafill for table XLACIC and table XLAEAREG.

Figure 20 MAP display example for table XLACIC

```
GRPKEY                      NEWXLGRP
-------------------------------------------------------------------
TRKGRPXLA    CIC123         CIC123XLA
```

Figure 21 MAP display example for table XLAEAREG

```
GRPKEY                      NEWXLGRP
-------------------------------------------------------------------
TRKGRPXLA    ZONE1          EAZONE1XLA
```

Here calls on trunk group TRKGRP1 requiring a carrier can be routed differently based upon the CIC group of the carrier transporting the call. Or the operating company can assign region designations to traffic from one area to another, and assign a unique XLAGRP so calls can be routed differently.

An XLAGRP is associated with the translations data needed to route these calls by using the new table TOPSDP. The following figure shows example datafill for TOPSDP.

Figure 22 MAP display example for table TOPSDP

```
XLAGRP        STS  OPERPRTN  ORIGSCRN  OPERSCRN  MCCSPRTN MCCSSCRN LCANAME
-------------------------------------------------------------------------
TRKGRPXLA     619   OPER      NSCR      NSCR       MCCS     NSCR     NLCA
SPIDXLA       100   OPER      NSCR      NSCR       MCCS     NSCR     NLCA
TRKGRP325XLA  619   OPER      NSCR      NSCR       MCCS     NSCR     L32X
SPID325XLA    100   OPER      NSCR      NSCR       MCCS     NSCR     L32X
CIC123XLA     619   OPER      STER      NSCR       MCCS     NSCR     NLCA
EAZONE1XLA    407   OPER      NSCR      NSCR       MCCS     NSCR     L32X
```

This is the data used in the 4-step translations and screening process that has already been presented.

Benefits of using the XLAGRP method

The XLAGRP translations method is an improvement over the traditional TOPS translation method, by allowing more flexible access to the translations and screening data. It also offers some capabilities that the traditional method does not offer, to address the TRA96 requirements.

The following are a few examples of the benefits of the XLAGRP method.

Elimination of special pretranslators

Because of the coupling of the STS and SNPA mentioned previously, in a DMS combination office (with an LET software load) both the DMS100 and TOPS would want to use the same entries in the translations table HNPACONT. However, there are special codes (for example 121 or 131) that are only dialable by an operator. If the STS entry in HNPACONT were shared by the DMS100 and TOPS, an end-user would be able to dial these operator codes.

TOPS was able to handle this conflict under the traditional translations method by using unique pretranslators for TOPS instead of using table HNPACONT. With the new XLAGRP translations method, an STS can be specified that is not the same as the SNPA. Thus TOPS can use a unique STS to index table HNPACONT, and not conflict with those being used by the DMS100 translations. STS decoupling allows elimination of special TOPS pretranslator entries in table STDPRTCT.

Flexible assignment of STS decoupled from SNPA

Since the STS and SNPA are not coupled using the XLAGRP translations method, a unique STS can be assigned based upon SPID to allow a CLEC to define distinct translations and routing data. For example, a CLEC may elect to define local calling areas that are different from those used by the operating company. Or a CLEC may want to route a call over a different outgoing trunk group than the operating company.

The traditional TOPS translations method does not use SPID information in the translations process at all, and therefore cannot provide different routes or local calling areas for CLECs. Thus traditional translations cannot meet this objective of TRA96.

Class of service screening based on SPID

Class of service screening exists for cases where it is not appropriate to establish a separate STS. If an STS already exists where the majority of the translations and routing is what is desired, a new screening class name can simply be created to modify the translation results for the specific situations where the routing is different.

With traditional TOPS translations, class of service screening names can be defined for *initial* translations by trunk group CLLI (table TRKGRP) or by NXX of the calling party (table TOPSBC). The XLAGRP method allows screening by trunk group, by NPA-NXX, and by SPID. So, again, the traditional translations does not meet the objective of TRA96.

Fewer tables to datafill with translations information

With XLAGRP translations the trunk group, NPA-NXX, and SPID information is incorporated up-front into the XLAGRP name. Then only one access in table TOPSDP is required to obtain screening information. With traditional translations, class of service screening and local call area screening names can be obtained from variety of places: table TRKGRP, table TOPSBC, and table OPRTRANS.

Depending upon whether initial or subsequent translations is performed, either one or two screen class names may be obtained from TOPSDP. With traditional translations, screening may need to be performed as many as three times. Thus XLAGRP translations also reduces the number of screenings that must be performed, including SPID.

Screening based on NPA-NXX instead of just NXX

If a call is received on a trunk that only provides 7-digit ANI, TOPS must determine the calling NPA. In some cases the NXX received could be in either of two NPAs, and is called a “duplicate NXX”. With traditional translations, separate screening cannot be provided to duplicate NXXs. The screening names entered in table TOPSBC, which is indexed only using an NXX code, cannot distinguish between the duplicate NXXs received on the same trunk group.

With XLAGRP translations, the ability is provided to define screening names based on NPA-NXX instead of just NXX. Thus the XLAGRP method allows the ability to provide unique translations and screening in duplicate NXX situations if the correct NPA-NXX can be determined (only the receipt of 10-digit ANI can unambiguously identify the SNPA).

Equal Access screening based on NPA-NXX

With traditional TOPS Equal Access (EA) translations, the NXX of the calling party is not taken into consideration in determining the outgoing route. With XLAGRP translations, part of the refinement process (even for an EA XLAGRP) is to refine by the NPA-NXX of the calling party.

Thus the XLAGRP method gives the ability to provide an extra level of granularity in the routing of equal access calls which is not available with traditional TOPS translations.

Equal access screening based on SPID, CIC, and region

The XLAGRP method allows screening by trunk group, by NPA-NXX, and by SPID for standard (non-equal access) calls. The XLAGRP method also provides screening by trunk group, by NPA-NXX, and by SPID for Equal Access (EA) calls as well. EA screening by SPID is not supported with traditional TOPS translations, so again it does not meet the objective of TRA96.

Equal access screening using traditional TOPS translations allows for routing based on a carrier's identity by prepending Carrier Identification Code (CIC) digits to the address before performing screening, and allows for routing based on a region designation such as INTER-state, INTRA-state, or OVERSEAS with LATA screening.

The XLAGRP method also allows routing based on CIC and by region for EA calls through the use of new tables XLACIC and XLAEAREG. With the Zone screening method, the XLAGRP method allows a flexible way to use region designations which are not the same as the traditional state designations used with LATA screening. So XLAGRP translations provides the equivalent, or greater, flexibility than the traditional TOPS translations method for equal access calls.

Note: XLAGRP translations continues the traditional TOPS translations approach of prepending carrier digits for EA translations and screening. This *forces* the datafill in subtable CLSVSCR to incorporate the carrier information. The use of table XLACIC simply incorporates the carrier information a second time, which is unnecessary. Plans are to evolve the TOPS EA translations at some point to not require the prepending of carrier digits, at which time table XLACIC will provide a benefit.

OPRTRANS number types included under XLAGRP method

With traditional TOPS translations, the information used for translations of special call types such as BLV or billing (third) numbers is found in table OPRTRANS. In keeping with the benefit for the XLAGRP method of maintaining all translations data in a single location (table TOPSDP), it is now possible to define XLAGRPs for these number types in table OPRINFO and eliminate the use of table OPRTRANS.

Chapter 3: XLAGRP translations tables and datafill

This chapter presents the tables and describes the datafill required to use the XLAGRP translations method. Specific call scenarios are presented in the next chapter to illustrate how the data is used. The datafill as shown in this chapter is used for these examples in the next chapter.

TOPS XLAGRP datafill requirements

The descriptions and examples in this chapter are organized around the following steps to set up datafill to perform XLAGRP translations:

1 specifying trunk group STS and pretranslator (page 41)

2 creating XLAGRP names (page 42)

3 creating and assigning SPIDGRP names (page 46)

4 creating and assigning CICGRP names (page 47)

5 creating and assigning TOPSZONE names (page 48)

6 creating and assigning EAREGN names (page 49)

7 XLAGRP assignment and refinement (page 50)

8 calling number expansion and verification (page 57)

9 setting translations parameters by XLAGRP (page 59)

10 pretranslations (page 61)

11 code translations (page 62)

12 class of service screening (page 64)

13 local call area screening (page 66)

14 activating XLAGRP translations (page 67)

Table datafill in this chapter is shown as it is displayed at a Maintenance and Administration Position (MAP).

Alphabetical reference for TOPS tables descriptions

The following table lists each TOPS table referenced in this chapter in alphabetical order, and the page where its description begins.

Table 1 Alphabetical reference for TOPS XLAGRP table descriptions

Table name	Page number(s)
CICGRP	page 47
CLSVSCRC	page 64
EAREGN	page 49
EASCRN	page 49
HNPACONT	page 62
LCASCRCN	page 66
OFRT	page 65
OPRINFO	page 53
PFXTREAT	page 66
SPIDDB	page 46
SPIDGRP	page 46
STDPRTCT	page 61
TCLG7DIG	page 58
TCLGVER	page 59
TOPSDP	page 59
TOPEACAR	page 47
TOPEATRK	page 52, page 67
TOPSPARM	page 58
TOPSTOPT	page 52, page 67
TOPSZONE	page 48
TRKGRP	page 41, page 57
XLACIC	page 55
XLAEAREG	page 56
XLAGRP	page 42
XLAODIGS	page 55
XLASPID	page 54
ZONENAT	page 48

Datafill sequence

This table lists the order in which each table should be datafilled.

Table 2 Datafill sequence for TOPS XLAGRP translations

Table name	Description
TRKGRP	The Trunk Group table contains general information on each trunk group type in a DMS switch.
XLAGRP	The XLA Group table contains user-defined names used to group translations and screening parameters.
SPIDGRP	The SPID Group table contains user-defined names used to group calling account owner SPIDs which share translations data.
SPIDDB	The SPID Database table contains TOPS call processing information for the SPID names defined in table SPID.
CICGRP	The Carrier Identification Code (CIC) Group table contains user-defined names used to group CICs which share translations data.
TOPSZONE	The TOPS Zone table contains user-defined names to define available zones for both originating and terminating numbers.
EAREGN	The Equal Access Region table contains user-defined names used to define region designations such as inter- or intrastate, or any user-defined designation.
EASCRN	The Equal Access Screening table uses the zone of the originating number and the zone of the terminating number to determine if a call is an Equal Access carrier call.
ZONENAT	The Zone National table assigns a zone name to either a calling or called number based on the directory number digits.
XLAEAREG	The Translations Equal Access Region table refines an XLAGRP based on the Equal Access Region of the call.
XLACIC	The Translations Carrier Information Code table refines an XLAGRP based on the CIC of an Equal Access call.
TOPEACAR	The TOPS Equal Access Carrier table contains information for TOPS Equal Access carriers, including the CICGRP assignment to be used during translations.
XLASPID	The Translations SPID table refines an XLAGRP based on the calling account owner (AO) SPID.
XLAODIGS	The Translations Originating Digits table refines an XLAGRP based on the NPA-NXX of the originator.
TCLG7DIG	The TOPS Calling Seven Digits table is used to expand a 7-digit calling number to ten digits.
TCLGVER	The TOPS Calling Verification table is used to perform calling number verification by defining valid NPA-NXXs on a given trunk group.

Table 2 Datafill sequence for TOPS XLAGRP translations

Table name	Description
TOPSPARM	The TOPS Parameter table specifies TOPS office-wide parameters.
TOPSDP	The TOPS Dialing Plan table defines the TOPS translations and screening parameters for each XLAGRP defined in table XLAGRP.
STDPRTCT	The Standard Pretranslator table interprets prefix digits of a dialed number. Subtable STDPRT specifies data based on the prefix digits.
HNPACONT	The Home NPA Control table interprets dialed digits to select a route. Subtable HNPACODE specifies outgoing route based on a digit range.
CLSVSCRC	The Class of Service Screening table modifies a route based on call characteristics. Subtable CLSVSCR modifies the outgoing route based on a digit range of the dialed digits.
OFRT	The Office Route table identifies the common language location identifier (CLLI) of outgoing trunks used to route calls.
LCASCRCN	The Local Call Area Screening table identifies a call as local to the originator. Subtable LCASCR specifies a digit range of the called NXX digits to determine if the call is local.
PFXTREAT	The Prefix Selector table specifies a treatment for local calls.
TOPSTOPT	The TOPS Trunk Options table specifies options for trunks that originate traffic to the TOPS switch.
TOPEATRK	The TOPS Equal Access Trunk table contains equal access information for TOPS trunks, including screening information.
OPRINFO	The Operator Information table provides translations and screening information for Busy Line Verification (BLV) calls, overseas calls, third party billing numbers, calling numbers, and called numbers (under special circumstances).

Specifying trunk group STS and pretranslator

Table TRKGRP

Table Trunk Group (TRKGRP) contains general information for each non-ISUP trunk group in the DMS switch. The first step required is to establish the STS and pretranslator name used during initial translations for the TOPS trunk groups which will use the XLAGRP scheme.

Note: TOPS incoming calls can also be carried on ISUP, Intertoll (IT), and Access Tandem to Carrier (ATC) trunk group types. ISUP trunk information is entered in table ISUPTRK, not table TRKGRP. None of these trunk group types are used in this document, and thus their datafill is not presented.

The following figure shows example datafill for the incoming TOPS trunk groups which are used for the call examples in the next chapter.

Figure 23 MAP display example for table TRKGRP

```
GRPKEY        GRPINFO
-------------------------------------------------------------------
TQMSOSSIC1    TOPS 0 TLD NCRT IC MIDL 619 619 PTOP NLCA NSCR Y SP COMBINED
              N Y 0 0000 NONE OSS  ENHBC Y 619320 10 10 Y N OFFHK N N $
TQMSOSSIC2    TOPS 0 TLD NCRT IC MIDL 619 619 PTOP NLCA NSCR Y SP COMBINED
              N Y 0 0000 NONE OSS  ENHBC N 619321 10 10 Y N OFFHK N N $
TQMSOSSIC3    TOPS 0 TLD NCRT IC MIDL 619 100 PTOP NLCA NSCR Y SP COMBINED
              N Y 0 0000 NONE OSS  ENHBC Y 619322 10 10 Y N OFFHK N N $
TOPEAIC1      TOPS 0 TLD NCRT IC MIDL 619 619 PTOP NLCA NSCR Y SP COMBINED
              N Y 0 0000 NONE OSS  ENHBC Y 619322 10 10 Y N OFFHK N N $
TOPEAIC2      TOPS 0 TLD NCRT IC MIDL 619 619 PTOP NLCA NSCR Y SP COMBINED
              N Y 0 0000 NONE OSS  ENHBC Y 619322 10 10 Y N OFFHK N N $
```

The information used by translations from table TRKGRP are the STS (field STS) and the pretranslator name (field PRTNM), which are shown in **bold** in the previous figure. The STS specified for trunk groups TQMSOSSIC1 and TQMSOSSIC2 is 619. The STS specified for trunk group TQMSOSSIC3 is 100. All of these trunk groups have PTOP specified as the pretranslator name. Trunk groups TOPEAIC1 and TOPEAIC2 have 619 specified as the STS and have A1IC specified as the pretranslator name.

For the pretranslator name, the key decision to be made at this point is whether or not using the XLAGRP method eliminates the need for certain entries (such as T selector routes to looparound trunks) in table STDPRTCT.

For the STS, the key decision to be made at this point is whether or not the STS and SNPA values should be equivalent. TOPS has decoupled the SNPA and STS values, so they are not required to be equivalent. For example, one reason for using an STS different from the SNPA might be if the trunk group was dedicated to carrying CLEC traffic. The operating company *might* want to assign an entire STS for the translation and routing of this CLEC traffic.

Creating XLAGRP names

Table XLAGRP

The Translation Group (XLAGRP) table defines the various names which represent groupings for translation purposes. The names entered in table XLAGRP can be up to 32 alpha-numeric characters. This table must be datafilled with XLAGRP names before other tables used by the XLAGRP translations method can be datafilled, so this table must be datafilled *first*.

Trunk-based XLAGRPs

Once trunk groups using the XLAGRP translations scheme are determined, a customer-defined XLAGRP name is entered which represents trunk group based translations. One possibility is simply to name the XLAGRP the same as the trunk group CLLI name.

The following figure shows example datafill defining two XLAGRPs.

Figure 24 MAP display example for table XLAGRP

```
XLAGRP
------------------------------------------------------------------
TRKGRP1
TRKGRP2
EAGRP1
EAGRP2
```

The XLAGRP of TRKGRP1 is defined for trunk group TQMSOSSIC1, and the XLAGRP of TRKGRP2 is defined for trunk group TQMSOSSIC2. Trunk group TQMSOSSIC3 reuses the XLAGRP of TRKGRP1.

SPID-based XLAGRPs

The next step is to determine the Service Providers Identifiers (SPIDs) for the Competitive Local Exchange Carriers (CLECs) that have traffic carried on the trunk groups which will use the XLAGRP translations scheme. For each of these SPIDs, if there are translations and routing requirements which *differ* from that of the rest of the traffic on the trunk group, then separate XLAGRPs must be established.

The following figure shows example datafill with the addition of a third XLAGRP for a SPID.

Figure 25 MAP display example for table XLAGRP

```
XLAGRP
------------------------------------------------------------------
TRKGRP1
TRKGRP2
EAGRP1
EAGRP2
TG2CLEC
```

Note that the trunk group TQMSOSSIC2 now has *two* entries within table XLAGRP (TRKGRP2 and TG2CLEC), both of which are used. The entry TRKGRP2 is used for standard traffic on the trunk group, while the entry TG2CLEC is used for the CLEC traffic on that same trunk group.

NPANXX-based XLAGRPs

The next step is to determine which NPA-NXXs have translations and routing requirements which *differs* from traffic on the rest of the trunk group or SPID. Separate XLAGRPs must be established for these also.

The following figure shows example datafill with the addition of two more XLAGRPs: one for calls which originate from an NPA-NXX of 619-325 (for trunk group TQMSOSSIC3) and another for calls which originate from an NPA-NXX of 619-355 (for trunk group TQMSOSSIC1).

Figure 26 MAP display example for table XLAGRP

```
XLAGRP
------------------------------------------------------------------
TRKGRP1
TRKGRP2
EAGRP1
EAGRP2
TG2CLEC
TG1325
TG1355
```

Here the 619-325 exchange has translations requirements which differ from the standard trunk group. The XLAGRP of TG1325 is used for traffic from 619-325 because its routing requirements are different from those provided by the XLAGRP of TRKGRP1. Likewise, the XLAGRP of TG1355 is used for traffic originating from 619-355 which has routing needs that are different from those provided by the XLAGRP of TRKGRP1.

So trunk group TQMSOSSIC1 has *two* entries in table XLAGRP (TRKGRP1 and TG1355), and trunk group TQMSOSSIC1 has *two* entries in table XLAGRP (TRKGRP1 and TG1325).

CIC-based XLAGRPs

The next step is to determine the Equal Access (EA) carriers that have traffic carried on the trunk groups which will use the XLAGRP translations scheme. For each of the Carrier Identification Code (CIC) digits associated with these carriers, if there are translations and routing requirements which *differ* from that of the rest of the traffic on the trunk group, then separate XLAGRPs must be established.

The following figure shows example datafill with the addition of a third XLAGRP for a CIC.

Figure 27 MAP display example for table XLAGRP

```
XLAGRP
-----------------------------------------------------------------
TRKGRP1
TRKGRP2
EAGRP1
EAGRP2
TG2CLEC
TG1325
TG1355
CIC803XLA
```

EAREGN-based XLAGRPs

The next step is to determine whether Zone screening or traditional LATA screening will be used for EA calls on the trunk groups using the XLAGRP translations scheme. Separate XLAGRPs must be established for these EA LATAs or Zones if there are translations and routing requirements which *differ* from that of the rest of the traffic on the trunk group.

The following figure shows example datafill with the addition of a third XLAGRP for an EAREGN.

Figure 28 MAP display example for table XLAGRP

```
XLAGRP
-----------------------------------------------------------------
TRKGRP1
TRKGRP2
EAGRP1
EAGRP2
TG2CLEC
TG1325
TG1355
CIC803XLA
EASTXLA
OVSXLA
```

OPRINFO-based XLAGRPs

The last step is to determine whether any special number types in table OPRINFO will use the XLAGRP translations scheme. Separate XLAGRPs must be established for the translations and routing requirements for these number types.

The following figure shows example datafill with the addition of another XLAGRP for a BLV number type.

Figure 29 MAP display example for table XLAGRP

```
XLAGRP
------------------------------------------------------------------------
TRKGRP1
TRKGRP2
EAGRP1
EAGRP2
TG2CLEC
TG1325
TG1355
CIC803XLA
EASTXLA
OVSXLA
BLVXLA
```

Creating and assigning SPIDGRP names

Table SPIDGRP

Table Service Provider Group (SPIDGRP) contains a list of user-defined names for the grouping of SPIDs. These SPIDGRPs allow SPIDs which share translations and screening data to be combined. SPIDGRP names entered in table SPIDGRP can be up to 32 alpha-numeric characters.

The following figure shows example datafill with only one SPIDGRP name entered.

Figure 30 MAP display example for table SPIDGRP

```
SPIDGRP
--------------------------------
CLECGRP
```

In some cases a SPID will not share translations data with another SPID. The XLAGRP translations method refines based on SPIDGRP, thus a SPIDGRP name must still be entered in table SPIDGRP for these SPIDs as well.

Table SPIDDB

The next step is to assign the SPIDGRP names to each SPID. Table SPID Data Base (SPIDDB) contains an entry for each SPID, and field XLA is used to indicate if the XLAGRP translations method is being used for that SPID. If set to Y, the user is prompted to enter a SPIDGRP name for that SPID.

In the example presented here, a SPIDGRP name of CLECGRP is associated with service provider BTEL.

Figure 31 MAP display example for table SPIDDB

```
SPID   SCRNDISP   OPERSYS                  TAANN      DAANN
   ACTSANN                      XLA          SPIDCRIT    SCRNIDX
-------------------------------------------------------------------
BTEL   Y BTEL     ALL                        Y BBRAND   Y BBRANDN
       N                        Y CLECGRP    N          100
```

Note: Service Provider names should already be entered in table SPID. The datafill for table SPID is not presented here.

Creating and assigning CICGRP names

Table CICGRP

Table Carrier Information Code Group (CICGRP) contains a list of user-defined names for the grouping of CICs. These CICGRPs allow CICs which share translations and screening data to be combined. The CICGRP names entered in table CICGRP can be up to 32 alpha-numeric characters.

The following figure shows example datafill with only one CICGRP name entered.

Figure 32 MAP display example for table CICGRP

```
CICGRP
--------------------------------
CICGRP111
CICGRP803
```

In some cases a CIC will not share translations data with another CIC. The XLAGRP translations method refines based on CICGRP, thus a CICGRP name must still be entered in table CICGRP for these CICs as well.

Table TOPEACAR

The next step is to assign the CICGRP names to each carrier. Table TOPS Equal Access Carrier (TOPEACAR) contains an entry for each carrier, and field CICSCHEM indicates the CICGRP name to be used when performing a refinement of the XLAGRP for an equal access call that is using that carrier. If CICSCHEM is set to Y, the user is prompted to enter a CICGRP name for that carrier. If CICSCHEM is set to N, then CICGRP refinement is not done.

In the example presented here, a CICGRP name of CICGRP803 is associated with carrier 0803, and there is a CICGRP name of CICGRP111 associated with carrier 0111.

Figure 33 MAP display example for table TOPEACAR

```
CARDIG CARNAME          ALTDISP OPLSCLD CAMABILL ALTCARR     NATERM
    INTERM                                        OPSERV TDBIDX  CICSCHEM
-------------------------------------------------------------------------
  0111    C111             C111       Y         Y    0111    UNREST
   UNREST    SERV NOQUERY Y NOQUERY Y NOQUERY Y Y Y Y 100     0 Y CICGRP111
  0803    C803             C803       Y         Y    0803    UNREST
   UNREST    SERV NOQUERY Y NOQUERY Y NOQUERY Y Y Y Y 100     0 Y CICGRP803
```

Creating and assigning TOPSZONE names

Table TOPSZONE

With Zone screening, table TOPS Zone (TOPSZONE) contains a list of user-defined names of all the available zones. Zone names entered in table TOPSZONE can be up to 32 alpha-numeric characters. With Zone screening, zone names are used to provide the equivalent of LATA assignments.

The following figure shows example datafill with two zone name.

Figure 34 MAP display example for table TOPSZONE

```
INDEX                          TOPSZONE
-------------------------------------
    0                           RALEIGH
    1                           FLORIDA
```

The TOPSZONE table allows for 2000 entries. Table TOPSZONE is not a new table, but has been used only in Global markets. With the use described here, it can now be used in both Global and North American markets.

Table ZONENAT

The Zone National (ZONENAT) table is used for zone assignment. It assigns a zone to an originating number based on the calling subscriber's Directory Number (DN) digits. It assigns a zone to an terminating number based on the called party's digits. Table ZONENAT allows up to 18 digits to be entered. The key to indexing the table consists of FROMDIGS and TODIGS subfields, which allows a digit range to be specified when assigning zones.

The following figure shows example datafill with two zone names.

Figure 35 MAP display example for table ZONENAT

```
                                  KEY TOPSZONE
-------------------------------------------
            212220             212222  FLORIDA
            619320             619322  RALEIGH
```

The zone for originating numbers can also be specified on a trunk group basis, using field TRKZONE in table TOPEATRK. This provides a means to minimize the amount of datafill required in table ZONENAT.

Note: Table Zone Foreign (ZONEFOR) assigns a zone to international numbers. It is not used in the examples in the next chapter, so is not presented here.

Creating and assigning EAREGN names

Table EAREGN

LATA screening uses the concept of a state region designation. The zone screening equivalent uses a more generic region designation. Table Equal Access Region (EAREGN) provides a list of user-defined names for these equal access regions. The region names entered in table EAREGN can be up to 32 alpha-numeric characters. Table EAREGN allows for 2000 entries.

The following figure shows example datafill with a number of region names.

Figure 36 MAP display example for table EAREGN

```
                            REGION
--------------------------------
                             INTRA
                             INTER
                          OVERSEAS
                         EASTCOAST
```

The three region names INTRA, INTER, and OVERSEAS in EAREGN are default entries which are the traditional values used for the state designation with LATA screening.

Table EASCRN

Zone screening is based on the originator's zone and the terminator's zone. Table Equal Access Screening (EASCRN) uses the zone of the originating number and the zone of the terminating number to determine if the call is a carrier call. If an entry exists in EASCRN for the originating and terminating zone, the call is a carrier call and is handled by an interZone carrier. If an entry is not found in the table, the call is a LEC call.

Note: If a call is signalled as a carrier call, the call remains a carrier call even if an entry is not found in table EASCRN.

The REGION field in EASCRN indicates the region designation, which is a name entered in table EAREGN. This is used to allow different routes to be selected using the XLAGRP refinement table XLAEAREG (see page 56).

The following figure shows example datafill with one EASCRN assignment.

Figure 37 MAP display example for table EASCRN

```
        CALLINFO       REGION
----------------------------
RALEIGH  FLORIDA    EASTCOAST
```

XLAGRP assignment and refinement

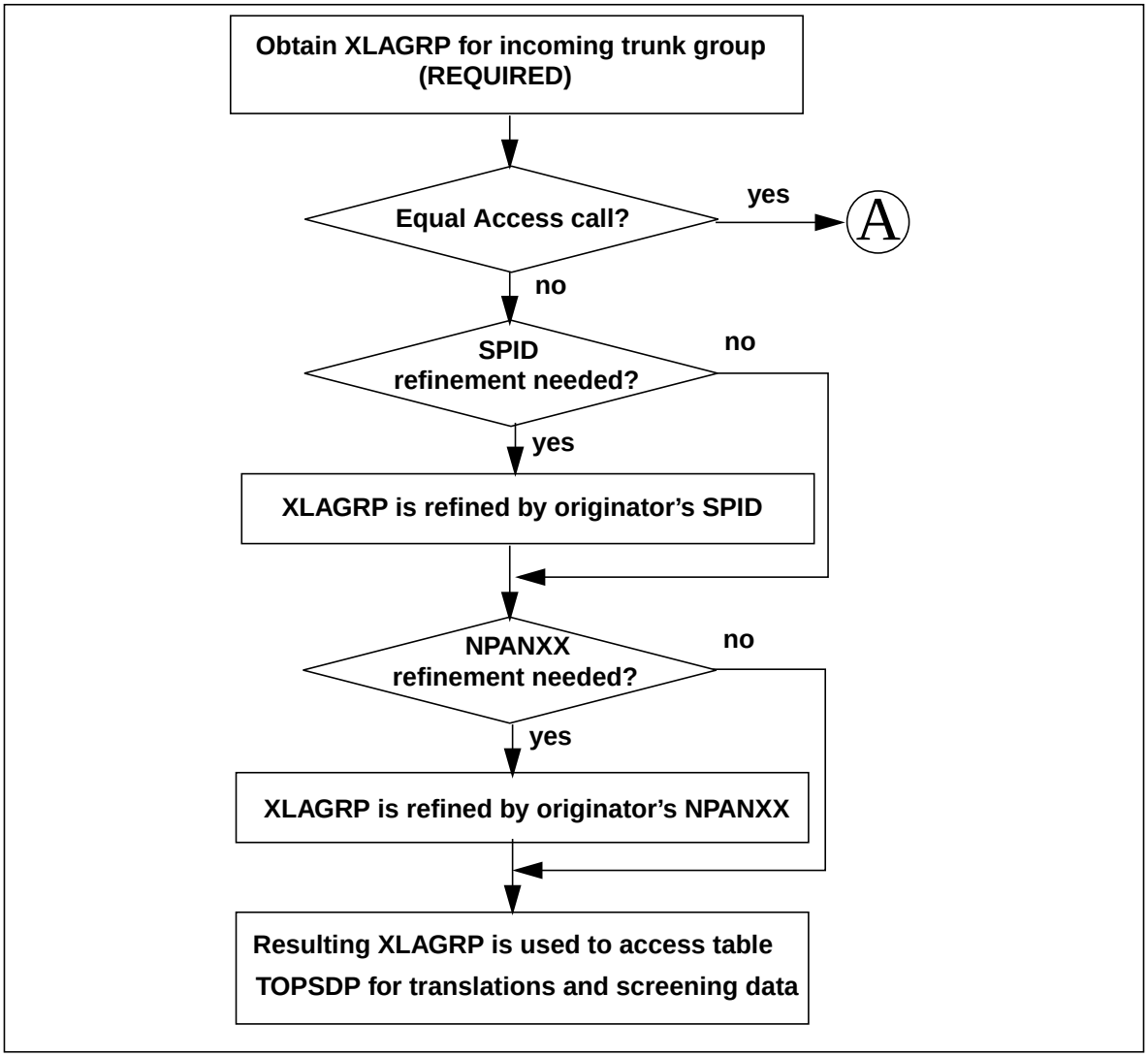
XLAGRP refinement hierarchy

To summarize, the XLAGRP translations method is activated on a trunk group basis in table TOPSTOPT. An XLAGRP is used to index into table TOPSDP to obtain translations and screening data (such as pretranslator name and STS) used for routing of calls.

The determination of the XLAGRP used for translations is hierarchical, with optional steps built in. The first level is to set the XLAGRP for each incoming trunk group. Setting an XLAGRP at this first level is *required.* This XLAGRP can then be refined based upon the originator's SPID if needed. Then, the XLAGRP can be refined based upon the originator's NPA-NXX, if needed.

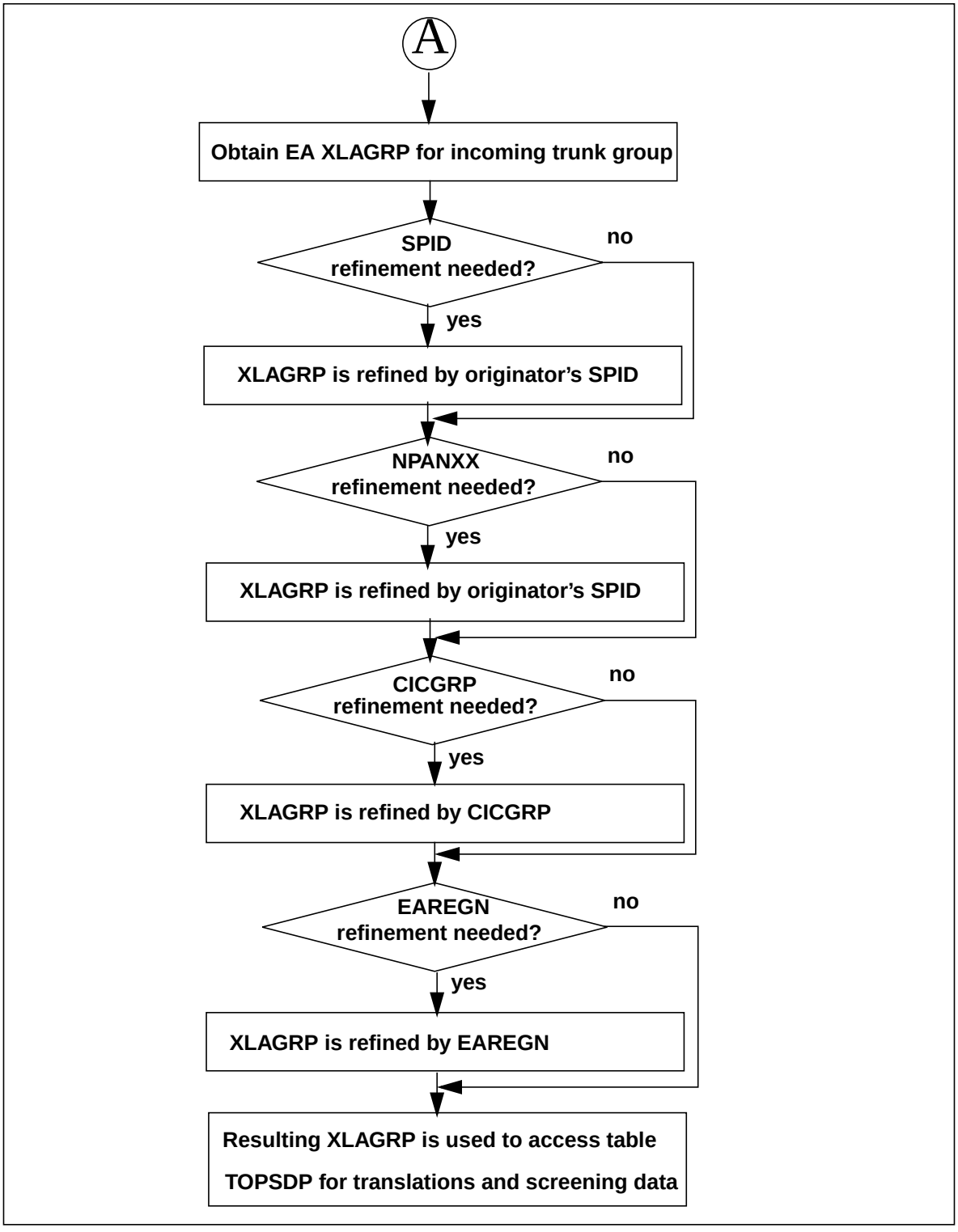
This figure shows the logic flow used to arrive at the XLAGRP used for translations and screening for non-Equal Access (EA) calls.

Figure 38 Non-EA XLAGRP Refinement Hierarchy



This figure shows the logic flow used to arrive at the XLAGRP used for translations and screening for Equal Access (EA) calls.

Figure 39 EA XLAGRP Refinement Hierarchy



Initial XLAGRP assignment

Note: Initial XLAGRP assignment is presented here because it reflects where it occurs in the XLAGRP refinement steps. However, datafill of the initial XLAGRP in these tables also activates the XLAGRP method, so in reality the tables presented here *must* be datafilled last.

Table TOPSTOPT

The initial XLAGRP for each incoming trunk group is entered in TOPSTOPT (field XLASCHEM). This XLAGRP is used for the standard (non-EA) translations portion of the call. Setting of the initial XLAGRP at this level is *required* because all the other XLAGRP refinement steps are optional. Thus standard translations must produce a valid route based on an initial XLAGRP.

The following figure shows example datafill. In the example, trunk groups TQMSOSSIC1 and TQMSOSSIC3 have set the initial XLAGRP to TRKGRP1, while trunk group TQMSOSSIC2 has the initial XLAGRP set to TRKGRP2.

Figure 40 MAP display example for table TOPSTOPT

```
GRPKEY      ORGAREA  DISPCLG ADASERV ADASANS ANITOCLI OLNSQRY DCIBIDX
    LNPCLGAM  XLASCHEM       SPIDPRC     TRKSPID   BILLSCRN  ANIFSPL
-------------------------------------------------------------------------
TQMSOSSIC1  N        N       NONE    NA       N       ALL      0
   N          Y  TRKGRP1      Y          N         N         N
TQMSOSSIC2  N        N       NONE    NA       N       ALL      0
   N          Y  TRKGRP2      Y          N         N         N
TQMSOSSIC3  N        N       NONE    NA       N       ALL      0
   N          Y  TRKGRP1      Y          N         N         N
```

Table TOPEATRK

The initial XLAGRP for EA translations is specified on a trunk group basis by field XLASCHEM in table TOPEATRK. The following figure shows some example datafill. In this example, both trunk groups TOPEAIC1 and TOPEAIC2 have set the initial XLAGRP to EAGRP1.

Figure 41 MAP display example for table TOPEATRK

```
       TRUNKGRP ENDOFFCE CARRIER      SCRNFLDS          XLASCHEM DNLOOK
DFLTPIC          BYPASS
-------------------------------------------------------------------------
       TOPEAIC1  CONFORM    0803  LATA     L133        Y    EAGRP1      Y
      Y              $
       TOPEAIC2  CONFORM    0111  ZONE       N         Y    EAGRP1      Y
      Y              $
```

It is important to note that the XLAGRP translations method can be specified for non-EA portion of translations with table TOPSTOPT, and yet traditional translations can be specified for the EA portion of the call in TOPEATRK.

Note: Field XLASCHEM in table TOPEATRK *cannot* be set to Y unless the trunk group also has an entry in table TOPSTOPT, and field XLASCHEM in TOPSTOPT is also set to Y.

Table OPRINFO

During subsequent translations, the TOPS operator can enter and perform translations on numbers which are not standard called numbers. For example, the operator can enter a billing (third) party number and route to this number for acceptance of billing charges. With traditional TOPS translations, table OPRTRANS defines the translations and screening data for these numbers.

Table OPRINFO allows the option of using traditional translations or the XLAGRP method for these types of operator-entered numbers. Table OPRINFO has five fixed entries: OPERCLG for calling numbers, OPERCLD for called numbers, OVERSEAS for overseas numbers, THIRD for billing numbers, and BLV for busy line verification numbers.

Note: There are six tuples in table OPRTRANS, but only five in OPRINFO. The reason is that the need for an MCCS tuple has been eliminated. MCCS screening names, which are still needed, have been incorporated into table TOPSDP.

The following figure shows example datafill.

Figure 42 MAP display example for table OPRINFO

```
   NUMTYP       XLASCHEM
----------------------
 OPERCLG     N
 OPERCLD     N
OVERSEAS     Y  OVSXLA
   THIRD     N
     BLV     Y  BLVXLA
```

In the example shown above, an XLAGRP name of OVSXLA has been chosen for the OVERSEAS entry, and an XLAGRP name of BLVXLA has been chosen for the BLV entry. Traditional translations (using OPRTRANS) has been chosen for the entries OPERCLG, OPERCLD, and THIRD.

Is is also important to note that, unlike standard called numbers, refinement of the XLAGRP is *not* performed for these types of numbers. The XLAGRP as entered in OPRINFO is used to access table TOPSDP for translations and screening information.

Note: The OVERSEAS tuple is an exception to this rule. See the OVERSEAS call example in Chapter 5: “XLAGRP translations call examples.”

XLAGRP refinement steps

Table XLASPID

The next step is to now refine the original XLAGRP names based upon trunk group (either EA or non-EA) by the defined SPIDGRPs. Before refinement by SPIDGRP may be performed, SPID processing must be activated for the trunk group. Table TOPSTOPT contains options for trunk groups that originate traffic to a TOPS switch. The SPIDPRC field specifies whether to use SPID processing for traffic arriving on the trunk.

The following figure shows example datafill. In the example, both trunk group TQMSOSSIC1 and TQMSOSSIC2 have SPID processing enabled. A Software Optionality Control (SOC) of UNBN0003 also exists to control the refinement of XLAGRP by SPID, and must be activated as well.

Figure 43 MAP display example for table TOPSTOPT

```
GRPKEY      ORGAREA  DISPCLG ADASERV ADASANS ANITOCLI OLNSQRY DCIBIDX
    LNPCLGAM  XLASCHEM       SPIDPRC     TRKSPID   BILLSCRN  ANIFSPL
-------------------------------------------------------------------------
TQMSOSSIC2  N        N       NONE     NA       N       ALL      0
   N          Y  TRKGRP2      Y          N         N         N
```

Table XLASPID takes the trunk-based XLAGRP as set in either table TOPSTOPT or table TOPEATRK, and the SPIDGRP as set in table SPIDDB, and allows a new refined XLAGRP to be established.

In the following example, a new XLAGRP is defined for the XLAGRP of TRKGRP2 based upon SPIDs assigned a SPIDGRP of CLECGRP.

Figure 44 MAP display example for table XLASPID

```
GRPKEY                  NEWXLGRP
-------------------------------------------------------------------
TRKGRP2  CLECGRP        TG2CLEC
```

Note that this refinement is only required for those SPIDGRPs which have translations requirements which *differ* from the primary XLAGRP.

A common way to obtain SPID information about the calling party is with an Originating Line Number Screening (OLNS) query. The OLNSQRY field in table TOPSTOPT specifies whether or not OLNS queries are performed. For the datafill presented here, all trunk groups TQMSOSSIC1, TQMSOSSIC2, and TQMSOSSIC3 perform OLNS queries.

Table XLAODIGS

The next refinement step is to now refine the resulting XLAGRP name (either based on trunk group or refined by SPID) by the originator's NPA-NXX digits. Table XLAODIGS takes the XLAGRP resulting from the previous step, and the NPA-NXX digits of the calling party, and allows a new refined XLAGRP to be established.

Table XLAODIGS allows the XLAGRP to be refined based on the calling NPA-NXX. This table defines a translations group name that associates the XLAGRP with the calling digits of the NPA-NXX. For non-EA translations, this is the final refinement step performed.

The following figure shows example datafill. In the example, TRKGRP1 contains two new XLAGRPs based on the calling digits 619325 and 407355.

Figure 45 MAP display example for table XLAODIGS

```
GRPKEY                NEWXLGRP
-------------------------------------------------------------------------
TRKGRP1      619325   TG1325
TRKGRP1      407355   TG1355
```

Note that it is possible to refine the trunk group-based XLAGRP name by the NPA-NXX digits, as well as refining the SPID-based XLAGRP name by NPA-NXX (although no example of this is shown here).

Note: Table TOPSBC only requires the NXX digits of the calling party, while table XLAODIGS requires the NPA-NXX digits.

Table XLACIC

For EA translations only, the next step is to refine the XLAGRP resulting from the previous step by the defined CICGRPs. Table XLACIC takes the XLAGRP resulting from the previous step, and the CICGRP as set in table TOPEACAR, and allows a new refined XLAGRP to be established.

In the following example, a new XLAGRP is defined for the XLAGRP of EAGRP1 based upon an assigned CICGRP name of CICGRP803.

Figure 46 MAP display example for table XLACIC

```
GRPKEY                  NEWXLGRP
-----------------------------------------------------------------------
EAGRP1   CICGRP803        803XLA
```

Note that this refinement is only required for those CICGRPs which have translations requirements which *differ* from the primary XLAGRP.

Table XLAEAREG

For EA translations only, the last refinement step is to refine the XLAGRP resulting from the previous step by a designated Equal Access (EA) region. This EA region can either be the traditional state designation (OVERSEAS, INTER, or INTRA), or can be any EA region name defined in table EAREGN (if using ZONE screening). Table XLAEAREG takes the XLAGRP resulting from the previous step and this EA region, and allows a new refined XLAGRP to be established.

The following figure shows example datafill.

Figure 47 MAP display example for table XLAEAREG

```
GRPKEY                    NEWXLGRP
-------------------------------------------------------------------------
EAGRP1  OVERSEAS            OVSXLA
EAGRP1  EASTCOAST          EASTXLA
```

In the example above, TRKGRP1 contains two new XLAGRPs based on the the EA regions of INTER and EASTCOAST.

Note that this refinement is only required for those EA regions which have translations requirements which *differ* from the primary XLAGRP.

Calling number expansion and verification

Table TRKGRP

Some trunk groups only provide seven Automatic Number Identification (ANI) digits to identify the calling number. But table XLAODIGS uses the NPA-NXX digits of the calling party for refinement of the XLAGRP. So, for 7-digit ANI, the XLAGRP method requires that the calling number be expanded to 10 digits by prepending the NPA digits.

Field BILLCD in table TRKGRP determines whether to use the traditional approach (table TOPSBC) or the *enhanced* approach (table TCLG7DIG) to perform this calling number expansion. Note this choice for calling number expansion is independent of the choice to use the XLAGRP method (or not) for the trunk group.

Note: The same choices for calling number expansion and verification are provided to ISUP trunks in table ISUPTRK instead of table TRKGRP.

In addition, if the enhanced approach is selected, table TRKGRP provides the opportunity to select whether or not to perform verification of the ANI digits using table TCLGVER. The traditional TOPS approach using table TOPSBC always performs calling number verification, with no option provided (except for trunk groups which use COMFGD signalling).

The enhanced approach also provides the means to specify the digits to display to the operator in case of ANI failure. This is not relevant to translations, and is not discussed further.

The following figure shows example datafill for the three incoming TOPS trunk groups which are used for the call examples in the next chapter.

Figure 48 MAP display example for table TRKGRP

```
GRPKEY      GRPINFO
------------------------------------------------------------------------
TQMSOSSIC1
           TOPS 0 TLD NCRT IC MIDL 619 619 PTOP NLCA NSCR Y SP COMBINED N
             Y 0 0000 NONE BELL ENHBC Y 619320 10 10 Y N OFFHK N N $
TQMSOSSIC2
           TOPS 0 TLD NCRT IC MIDL 619 619 PTOP NLCA NSCR Y SP COMBINED N
             Y 0 0000 NONE BELL ENHBC N 619321 10 10 Y N OFFHK N N $
TQMSOSSIC3
           TOPS 0 TLD NCRT IC MIDL 619 100 PTOP NLCA NSCR Y SP COMBINED N
             Y 0 0000 NONE BELL ENHBC Y 619322 10 10 Y N OFFHK N N $
```

Trunk groups TQMSOSSIC1 and TQMSOSSIC3 have chosen the enhanced bill code method of table TCLG7DIG and calling number verification using table TCLGVER. Trunk group TQMSOSSIC2 has also chosen the enhanced method, but elected not to perform calling number verification.

Table TCLG7DIG

Table TOPS Calling 7 Digit (TCLG7DIG) specifies the Serving Numbering Plan Area (SNPA) to be prepended to a 7-digit calling number. The table is indexed with an incoming trunk group and a billing code NXX. Datafill is required in TCLG7DIG *only* if the SNPA to be prepended is different from the SNPA datafilled in table TRKGRP. The enhanced method, if there is no entry in table TCLG7DIG, prepends the SNPA field in table TRKGRP to the 7-digit calling number.

The following figure shows example datafill for table TCLG7DIG.

Figure 49 MAP display example for table TCLG7DIG

```
            TCLG7KEY SNPA
-------------------------
      TQMSOSSIC1 355  407
```

With the datafill shown, a call on trunk group TQMSOSSIC1 which provides a 7-digit ANI number with NXX of 355 would be prepended with SNPA 407.

Note that 10 digit calling numbers (either 10 ANI digits received in signalling for the calling number, or an operator entered a 10-digit calling number) do not need to be expanded, and do not use table TCLG7DIG.

Table TOPSPARM

The TOPS Parameters (TOPSPARM) table contains a list of various TOPS parameters which apply to the entire TOPS office. In some cases for calling number expansion, the SNPA can not be obtained from table TRKGRP. For operator-originated calls there is no trunk group which can be used. There are two parameters in table TOPSPARM which are used in these situations: OPR_SPECIFIED_SNPA and DELAY_SPECIFIED_SNPA.

The following figure shows example datafill for table TOPSPARM.

Figure 50 MAP display example for table TCLGVER

```
                        PARMNAME             PARMVAL
-------------------------------------------------------
             OPR_SPECIFIED_SNPA                 619
           DELAY_SPECIFIED_SNPA                 619
```

This datafill shows an SNPA of 619 to be prepended in both cases.

Refer to NTP 297-8021-855, *North American DMS-100 Office Parameters Reference Manual,* for more information on DMS office parameters.

Table TCLGVER

The TOPS Calling Verification (TCLGVER) table maintains a list of valid NPA-NXXs for a trunk group. Calling number verification is performed following calling number expansion, so that the calling number is guaranteed to be ten digits. Table TCLGVER is indexed with an incoming trunk group and a 6-digit NPANXX.

The following figure shows example datafill for table TCLGVER.

Figure 51 MAP display example for table TCLGVER

```
                              GRPKEY
-----------------------------------
        TQMSOSSIC1            619322
        TQMSOSSIC1            407355
        TQMSOSSIC3            619325
          TOPEAIC1            619322
          TOPEAIC2            619322
```

If an entry is found in table TCLGVER for combination of incoming trunk group and 6-digit NPA-NXX, then calling number verification succeeds. If verification fails, the call is routed to an operator as ANI Failure (ANIF). The datafill here shows that calling numbers with an NPA-NXX of either 619322 or 407355 are valid on trunk group TQMSOSSIC1. An NPA-NXX of 619325 is shown as being valid on trunk group TQMSOSSIC3. An NPA-NXX of 619322 is shown as being valid on trunk group TOPEAIC1. An NPA-NXX of 619322 is shown as being valid on trunk group TOPEAIC3. No entries are shown for trunk group TQMSOSSIC2, which does not do verification.

Setting translations parameters by XLAGRP

Table TOPSDP

The TOPS Dial Plan (TOPSDP) table sets TOPS translations and screening parameters for each XLAGRP as defined and refined by the tables presented. The parameters that are set are the following:

- STS

  This is the Serving Translations Scheme (STS) which is used during the code translations step as the index into table HNPACONT. It is also a part of the keys used to index into table CLSVSCRC and table LCASCRN.

- OPERPRTN

  This is the operator pretranslator name that is used during pretranslations as the index into table STDPRTCT. This pretranslator name is used when routing from the operator position during subsequent translations.

- ORIGSCRN

  This is the screening name based upon the originator's "perspective" that is used during class of service screening to index into Table CLSVSCRC. This screening name is used to modify the routing results based upon the characteristics of the originator. This is also the screening name used for Equal Access (EA) translations and screening.

- OPERSCRN

  This is the screening name based upon the operator's "perspective" that is used during class of service screening to index into Table CLSVSCRC (during subsequent translations). This screening name is used to modify the routing results based upon being at an operator position.

- MCCSPRTN

  This is the pretranslator name that is used during pretranslations for Mechanized Calling Card Service (MCCS) sequence calls as the index into Table STDPRTCT.

- MCCSSCRN

  This is the screening name that is used for class of service screening for Mechanized Calling Card Service (MCCS) sequence calls as the index into Table CLSVSCRC.

- LCASCRN

  This is the screening name which is used during local call area screening to index into Table LCASCRCN. It is used to determine if the call is local from the perspective of the originator.

The following figure shows example datafill for TOPSDP. In the example, the translations and screening data for each XLAGRP is shown.

Figure 52 MAP display example for table TOPSDP

```
XLAGRP        STS  OPERPRTN  ORIGSCRN  OPERSCRN  MCCSPRTN MCCSSCRN LCANAME
-------------------------------------------------------------------------
TRKGRP1       619   OPER      NSCR      NSCR       MCCS      NSCR      NLCA
TRKGRP2       619   OPER      NSCR      NSCR       MCCS      NSCR      L32X
TG2CLEC       100   OPER      NSCR      NSCR       MCCS      NSCR      L32X
TG1325        100   OPER      NSCR      NSCR       MCCS      NSCR      L32X
TG1355        619   OPER      STER      NSCR       MCCS      NSCR      NLCA
EAGRP1        619   OPER      NSCR      NSCR       MCCS      NSCR      NLCA
803XLA        619   OPER      STER      NSCR       MCCS      NSCR      NLCA
EASTXLA       619   OPER      STRA      NSCR       MCCS      NSCR      NLCA
BLVXLA        100   OPER      NSCR      NSCR       MCCS      NSCR      NLCA
OVSXLA        619   OPER      SOVS      NSCR       MCCS      NSCR      NLCA
```

Table TOPSDP provides the data required to access the base DMS tables.

Pretranslations

Table STDPRTCT

The Standard Pretranslator (STDPRTCT) table interprets any prefix digits or identifies any service codes dialed (such as 411). It also may identify a call type of Direct Dialed (DD) or Operator Assisted (OA), and whether the North American (NA) or an International (IN) translations system is being used. STDPRTCT is indexed with a pretranslator name, and then subtable STDPRT is accessed with the digits signalled to the TOPS office.

An example MAP display of the datafill in table STDPRTCT is shown here. There is an entry for the pretranslator name of PTOP for initial translations, and an entry for the pretranslator name of OPER (obtained from table TOPSDP) for subsequent translations.

Figure 53 MAP display example for table STDPRTCT

```
EXTPRTNM  STDPRT  AMAPRT
------------------------
    PTOP (    1) (65021)
    OPER (    1) (65021)
```

Each pretranslator has its own version of subtable STDPRT (one for PTOP and one for OPER). The example MAP display below is for the datafill in subtable STDPRT for the pretranslator of PTOP.

Figure 54 MAP display example for subtable STDPRT for PTOP pretranslator

```
          FROMDIGS             TODIGS                    PRETRTE
  ------------------------------------------------------------
                 0                  0                N OA 0 NA
                12                 19                N NL 1 IN
                 2                410                N NL 0 NA
               411                411     T NL 0  TOPS 411 3 3 NONE
               412                  9                N NL 0 NA
```

The example MAP display below is the datafill in subtable STDPRT for the pretranslator of OPER.

Figure 55 MAP display example for subtable STDPRT for OPER pretranslator

```
          FROMDIGS             TODIGS                    PRETRTE
  ------------------------------------------------------------
                 0                  0                N OA 0 NA
                12                 19                N OA 1 IN
                 2                410                N OA 0 NA
               411                411     T OA 0  TOPS 411 3 3 NONE
               412                  9                N OA 0 NA
```

Code translations

Table HNPACONT

The Home NPA Control (HNPACONT) table interprets the dialed address digits during the code translations step to determine an outgoing route. Table HNPACONT is indexed with the STS of the originating party.

An example MAP display of the datafill in table HNPACONT is presented for the STS of 619 and the STS of 100.

Figure 56 MAP display example for table HNPACONT

```
STS SNPA NORTREFS NOAMBIGC  RTEREF HNPACODE  ATTRIB  RTEMAP     OPTIONS
-------------------------------------------------------------------------
100    Y    1000         8 (   57)  (    1) (    0) (    0)           $
619    Y    1000         8 (   57)  (    1) (    0) (    0)           $
```

Subtable HNPACODE is accessed with the digits dialed by the subscriber, and specifies routing information for the call. The example MAP display shown here of the datafill in subtable HNPACODE is for the STS of 619.

Figure 57 MAP display example for subtable HNPACODE for STS of 619

```
          FROMDIGS             TODIGS     CDRRTMT
-------------------------------------------------
            201220             201333   FRTD  801
            212220             212222   FRTD  801
               521                521   FRTD  801
        6195440000         6195440000   FRTD  804
```

The second entry shows a Directory Number (DN) result within the same switching office, and other entries illustrate an index into subtable RTEREF.

Here is an example MAP display of the datafill in subtable HNPACODE for the STS of 100.

Figure 58 MAP display example for subtable HNPACODE for STS of 100

```
          FROMDIGS             TODIGS     CDRRTMT
-------------------------------------------------
               325                325   LRTE  601
               521                521   FRTD  703
            619321             619322   FRTD  810
```

Again, the entries shown here illustrate an index into subtable RTEREF.

Subtable RTEREF identifies the route(s) that can be used to reach the destination. Here is an example MAP display of the datafill in subtable RTEREF for the STS of 619.

Figure 59 MAP display example for subtable RTEREF for STS of 619

```
 RTE                                                                RTELIST
-------------------------------------------------------------------------
 801                        (    N        D           TITOGA1   0   N N)$
 804                        (    N        D          TPORTOG1   0   N N)$
```

The entry for index 801 shows a routing result of a single outgoing trunk group, TITOGA1. This route is the normal result of code translations for all of the call examples presented, unless indicated otherwise. The entry for index 804 also shows a result of a single outgoing trunk group, TPORTOG1.

This figure shows an example MAP display of the datafill in subtable RTEREF for the STS of 100.

Figure 60 MAP display example for subtable RTEREF for STS of 100

```
 RTE                                                                RTELIST
-------------------------------------------------------------------------
 601                        (    N        D           TLOOPOG1   0   N N)$
 703                        (    N        D           TCLECOG1   0   N N)$
 810                        (    N        D         TSCRAMBOG1   0   N N)$
```

The entry for index 703 shows a routing result of a single outgoing trunk group, TCLECOG1. The entry for index 601 shows a routing result of a single outgoing trunk group, TLOOPOG1. The entry for index 810 shows a routing result of a single outgoing trunk group, TSCRAMBOG1.

Class of service screening

Table CLSVSCRC

The Class of Service Screening (CLSVSCRC) table is used to modify the route, if required, based on characteristics of the call. Table CLSVSCRC is indexed with an STS, a screen class name based on the originator's NPA or NPA-NXX, and a call type of either OA or DD. Subtable CLSVSCR is then indexed with the dialed address digits.

The following shows example datafill for an entry of *619 STER OA* in table CLSVSCRC.

Figure 61 MAP display example for table CLSVSCRC

```
   NPASCTYP NORSLTS     TMTOFRT CLSVSCR
----------------------------------------
619 STER OA       2   N    NONE (    1)
```

Following is an example of the datafill for subtable CLSVSCR.

Figure 62 MAP display example for subtable CLSVSCR

```
          FROMDIGS             TODIGS               SUB_TMTOFRT
------------------------------------------------------------------
           0803212             0803212              T OFRT  600
            201220              201220              T OFRT  300
```

This entry shows that for dialed digits that begin with 0803-212, the result is an index of 600 into the Office Route table. For dialed digits that begin with 201-220, the result is an index of 300 into the Office Route table.

The following shows example datafill for an entry of *619 STRA OA* in table CLSVSCRC.

Figure 63 MAP display example for table CLSVSCRC

```
   NPASCTYP NORSLTS     TMTOFRT CLSVSCR
----------------------------------------
619 STRA OA       2   N    NONE (    1)
```

Following is an example of datafill for subtable CLSVSCR.

Figure 64 MAP display example for subtable CLSVSCR

```
          FROMDIGS             TODIGS               SUB_TMTOFRT
------------------------------------------------------------------
           0111212             0111212              T OFRT  100
```

This entry shows that for dialed digits that begin with 0111-212, the result is an index of 100 into the Office Route table.

The following shows example datafill for an entry of *619 SOVS OA* in table CLSVSCRC.

Figure 65 MAP display example for table CLSVSCRC

```
   NPASCTYP NORSLTS     TMTOFRT CLSVSCR
---------------------------------------
619 SOVS OA       2   N    NONE (    1)
```

Following is an example of datafill for subtable CLSVSCR.

Figure 66 MAP display example for subtable CLSVSCR

```
          FROMDIGS             TODIGS               SUB_TMTOFRT
-------------------------------------------------------------
            080333             080333               T OFRT  300
```

This entry shows that for dialed digits that begin with 0803-33, the result is an index of 300 into the Office Route table.

Note: For a screening result of a treatment (such as VACT), screening halts.

Table OFRT

The Office Route (OFRT) table contains routing *lists* of up to eight elements (normally trunk groups) used to route a call to the desired destination. For each trunk group in the route list a search is done to find an idle outgoing trunk, and if none is available selection proceeds to the next element.

The following figure shows example datafill for table OFRT.

Figure 67 MAP display example for table OFRT

```
RTE                                                    RTELIST
-------------------------------------------------------------
100                    (     N     D     ATC803OG1   0   N N) $
300                    (     N     D       TITOGB1   0   N N) $
600                    (     N     D     ATC111OG1   0   N N) $
832                  (    TS     D       TITOGA1   0   N N 6 N) $
```

Table OFRT is an office-wide table, and is commonly used where route lists are pointed to from tables other than HNPACONT and FNPACONT.

Local call area screening

Table LCASCRCN

The Local Call Area (LCA) Screening (LCASCRCN) table identifies a call as either a local call (to the originator) or not. Table LCASCRCN is indexed with an STS and an LCA screening name, both based on the originating party. TOPS does **not** use LCA screening to determine a route.

Here is an example MAP display of the datafill in table LCASCRCN.

Figure 68 MAP display example for table LCASCRCN

```
NPALOCNM  LCASCR PFXSELEC PFXFOR10 LOCALOVR
-----------------------------------------
100 L32X (    1)     MNDT        N        N
619 L32X (    1)     MNDT        N        N
```

Subtable LCASCR is indexed with the dialed address digits. Following is an example of datafill for the 100 L32X entry in subtable LCASCR.

Figure 69 MAP display example for subtable LCASCR

```
FROMDIGS  TODIGS
---------------
     325     325
     521     522
```

The FROMDIGS and TODIGS provide a range of digits, but each is limited to being only three digits. Thus the first three digits of the dialed number must fall within the range in subtable LCASCR. If the dialed number falls in this range then the call is marked as *eligible* to be local. In this example the dialed digits of 522-1234 would fall within the given range (from 521 through 522), and thus the call would be eligible to be a local call.

Table PFXTREAT

The Prefix Treatment (PFXTREAT) table works in concert with table LCASCRCN, and specifies the treatment to be used for a misdialed local call. Here is an example MAP display of the datafill in table PFXTREAT.

Figure 70 MAP display example for table PFXTREAT

```
 TYPLCLCD UPDTYPCA TREAT
-----------------------
MNDT OA Y       OA  MSCA
```

Table PFXTREAT is indexed with a PFXSELEC name (from table LCASCRCN), a call type (OA or DD), and a local code indicator (Y or N). TOPS also requires that a treatment be datafilled in table PFXTREAT.

Activating XLAGRP translations

Once all of the preceding datafill has been established, the final step is to activate XLAGRP translations for the trunk group.

Table TOPSTOPT

Table TOPSTOPT contains options for trunk groups that originate traffic to a TOPS switch. For each trunk group entry in table TOPSTOPT which is converting to XLAGRP translations, field XLASCHEM must be set to Y.

The following figure shows example datafill.

Figure 71 MAP display example for table TOPSTOPT

```
GRPKEY       ORGAREA  DISPCLG ADASERV ADASANS ANITOCLI OLNSQRY DCIBIDX
    LNPCLGAM  XLASCHEM       SPIDPRC     TRKSPID   BILLSCRN  ANIFSPL
-------------------------------------------------------------------------
TQMSOSSIC1   N        N      NONE     NA       N       ALL      0
   N          Y  TRKGRP1      Y          N         N         N
TQMSOSSIC2   N        N      NONE     NA       N       ALL      0
   N          Y  TRKGRP2      Y          N         N         N
TQMSOSSIC3   N        N      NONE     NA       N       ALL      0
   N          Y  TRKGRP1      Y          N         N         N
```

Note that once field XLASCHEM has been set to Y, the XLAGRP scheme is immediately activated for that trunk group. Thus it is very important that the other datafill described in this chapter has been entered *before* the XLAGRP translations is activated for the trunk group.

Table TOPEATRK

Table TOPEATRK contains Equal Access options for TOPS trunk groups. For each entry in table TOPEATRK which is using the XLAGRP method for EA translations, field XLASCHEM must be set to Y.

The following figure shows example datafill.

Figure 72 MAP display example for table TOPEATRK

```
       TRUNKGRP ENDOFFCE CARRIER      SCRNFLDS           XLASCHEM DNLOOK
DFLTPIC           BYPASS
-------------------------------------------------------------------------
       TOPEAIC1  CONFORM    0803  LATA     L133         Y    EAGRP1      Y
      Y               $
       TOPEAIC2  CONFORM    0803  LATA     L133         Y    EAGRP1      Y
      Y               $
```

Again, once XLASCHEM is set to Y, the XLAGRP method is immediately activated for that trunk group. Recall that field XLASCHEM in TOPSTOPT for the trunk group must also be set to Y.

Table OPRINFO

Table OPRINFO allows the option of using traditional translations or the XLAGRP method for five special types of operator-entered numbers. For each entry in table OPRINFO which is converting to XLAGRP translations, field XLASCHEM must be set to Y.

The following figure shows example datafill.

Figure 73 MAP display example for table OPRINFO

```
   NUMTYP       XLASCHEM
----------------------
  OPERCLG      N
  OPERCLD      N
 OVERSEAS      Y  OVSXLA
    THIRD      N
      BLV      Y  BLVXLA
```

In the example shown above, the XLAGRP method has been chosen for four of the five entries. The OPERCLD entry is set to use traditional translations.

Again, once XLASCHEM is set to Y, the XLAGRP method is immediately activated for that number type.

The next chapter shows a generic call flow diagram illustrating the steps of the XLAGRP translations method, followed by a chapter of specific call scenarios to show how the XLAGRP method can actually be used.

Chapter 4: XLAGRP translations call flow steps

The approach taken in this chapter is to provide a call flow of the XLAGRP method (XLAGRP method is assumed to be active) shown as a series of steps. The steps in this call flow have been numbered to allow comparisons to be made between the various call examples presented later. The processing flow for each specific TOPS call, of course, is dictated by the datafill that has been entered.

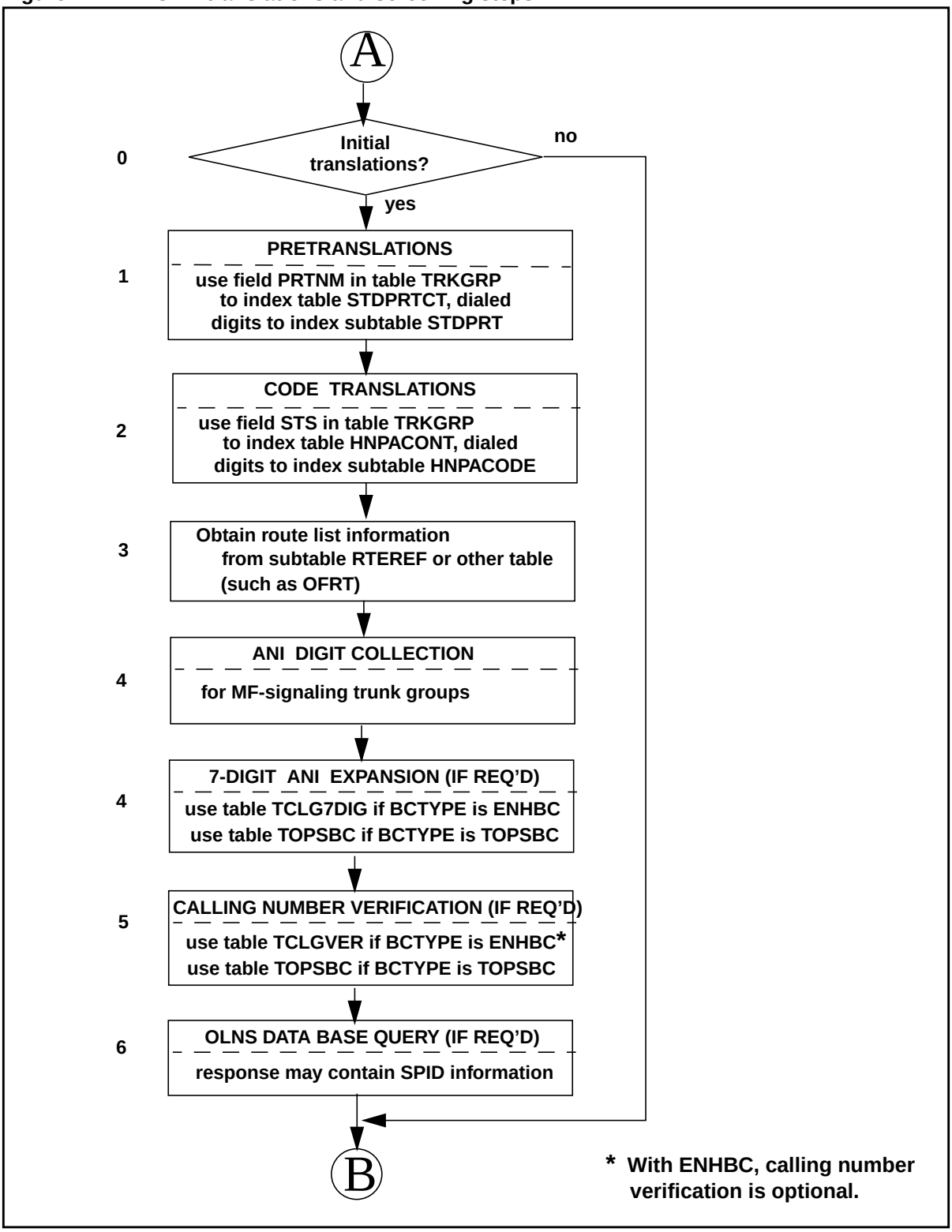
It is important to understand two things about illustrating calls using this call flow approach. First, a number of call examples must be presented because a single call *cannot* illustrate all the call flow possibilities. Second, the call flow presented here must be somewhat generic to simplify the complexity of the presentation. Thus some assumptions have been incorporated into the flow. It therefore may be more accurate to say that the steps presented represent the *typical* steps performed for most TOPS North American calls arriving on a trunk group using in-band Multi Frequency (MF) signaling, and completing as either a toll or local call to another North American destination number.

The next few pages show the steps for XLAGRP translations and screening in a flow diagram format. One page of flow diagram is presented, followed by a page of text explanation of the steps on the previous page. The flow diagram contains some minimal amount of text, as a reference for those who are familiar with the XLAGRP method. The following page has text with more detail about each step in the call flow, for those who are not as familiar with the XLAGRP translations method.

The flow diagram presented is divided into three major parts. The first part shows the main flow which all calls are required to perform. This is the only portion which non-Equal Access calls perform, so it has been titled as the Standard non-EA steps. The second part has been titled as the Zone screening steps. This is an alternative to the LATA screening method of determining if a call requires an Equal Access carrier. The final part shows the steps for Equal Access translations and screening. These steps are only performed if it is determined that the an Equal Access carrier is required to transport the call.

Standard (non-EA) translations and screening steps

Figure 74 XLAGRP translations and screening steps



0 If subsequent translations are being performed, begin at step 7.

1 Pretranslations are performed using the pretranslator name from table TRKGRP (field PRTNM) to index into table STDPRTCT. The subtable STDPRT is then accessed with the dialed digits.

2 Code translations are performed using the STS from table TRKGRP to index into table HNPACONT. Subtable HNPACODE is then indexed with the dialed address digits.

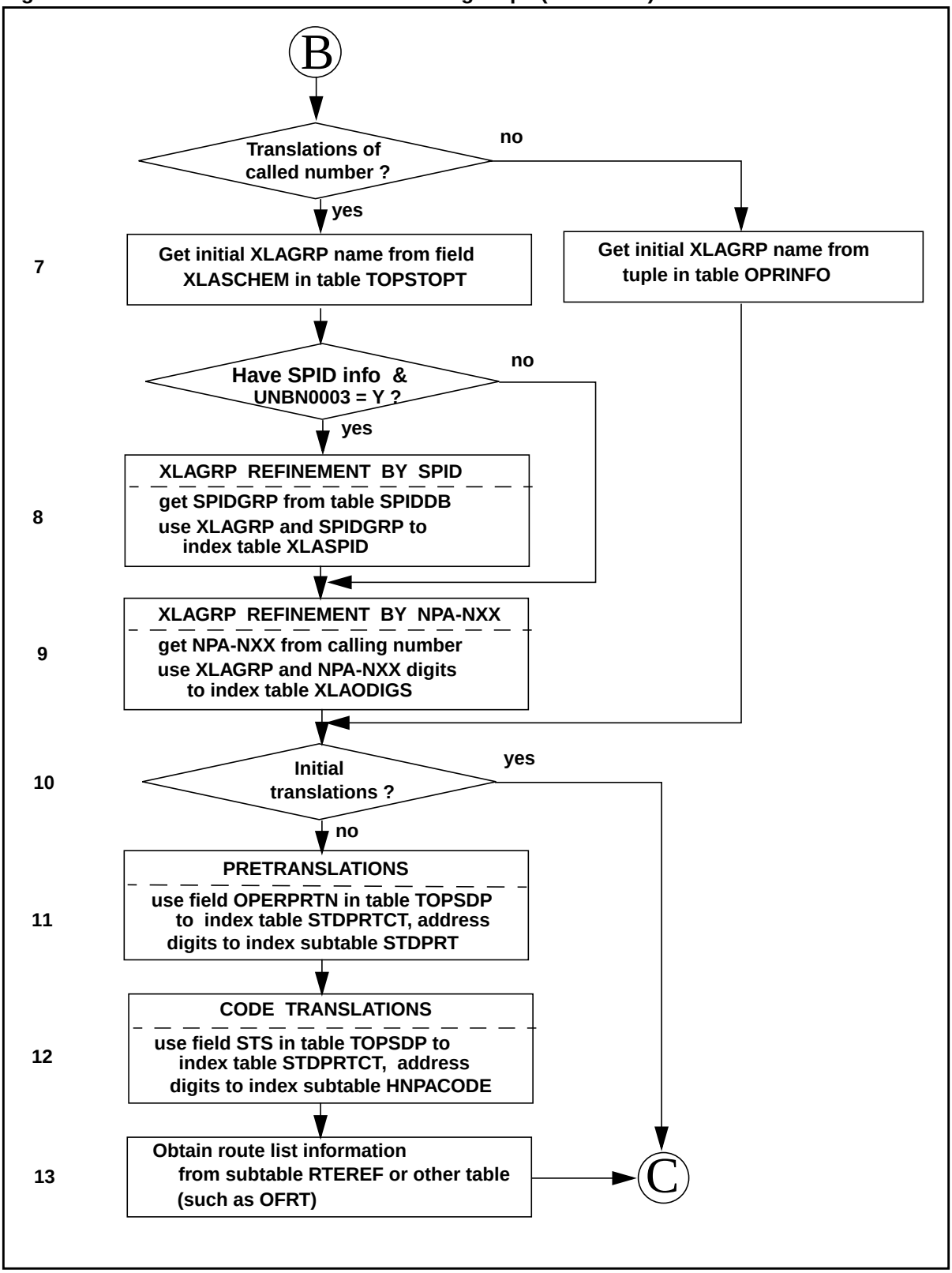
3 Subtable HNPACODE specifies where to obtain the routing information. This typically is an index into either subtable RTEREF or another table (such as OFRT) that identifies a route list containing the outgoing trunk group(s).

4 For MF-type trunks, Automatic Number Identification (ANI) digits are collected to identify the calling number. If only seven ANI digits are received, the calling number is expanded to ten digits using either table TOPSBC or table TCLG7DIG.

5 If required, verification of the calling number is performed using either table TOPSBC or table TCLGVER.

6 An OLNS external data base query, if specified in table TOPSTOPT, is performed to obtain calling number information (such as SPID).

Figure 75 XLAGRP translations and screening steps (continued)



7 If translations is being performed for called number, the initial XLAGRP for the originating trunk group is obtained from field XLASCHEM in table TOPSTOPT.

If translations is being performed for another number type (such as BLV or third), the initial XLAGRP is obtained from field XLASCHEM in table OPRINFO. For these number types, no XLAGRP refinement is performed. Proceed to step 11.

This call flow depicts XLAGRP translations. Thus it is assumed that for called numbers that field XLASCHEM in table TOPSTOPT is set to Y, and for other number types that field XLASCHEM for the appropriate tuple in table OPRINFO is set to Y. If either is set to N, traditional TOPS translations would be performed.

Note: Numbers besides called numbers which are translated in TOPS are entered by the operator, such as BLV. Thus only subsequent translations applies to these types of numbers.

8 If SPID information is available, refinement of the initial XLAGRP may be performed (based on SOC UNBN0003 and datafill in table XLASPID) and may result in a new XLAGRP.

9 Refinement of the XLAGRP by NPA-NXX of the calling number may be performed if necessary (based on datafill in table XLAODIGS) and may result in a new XLAGRP.

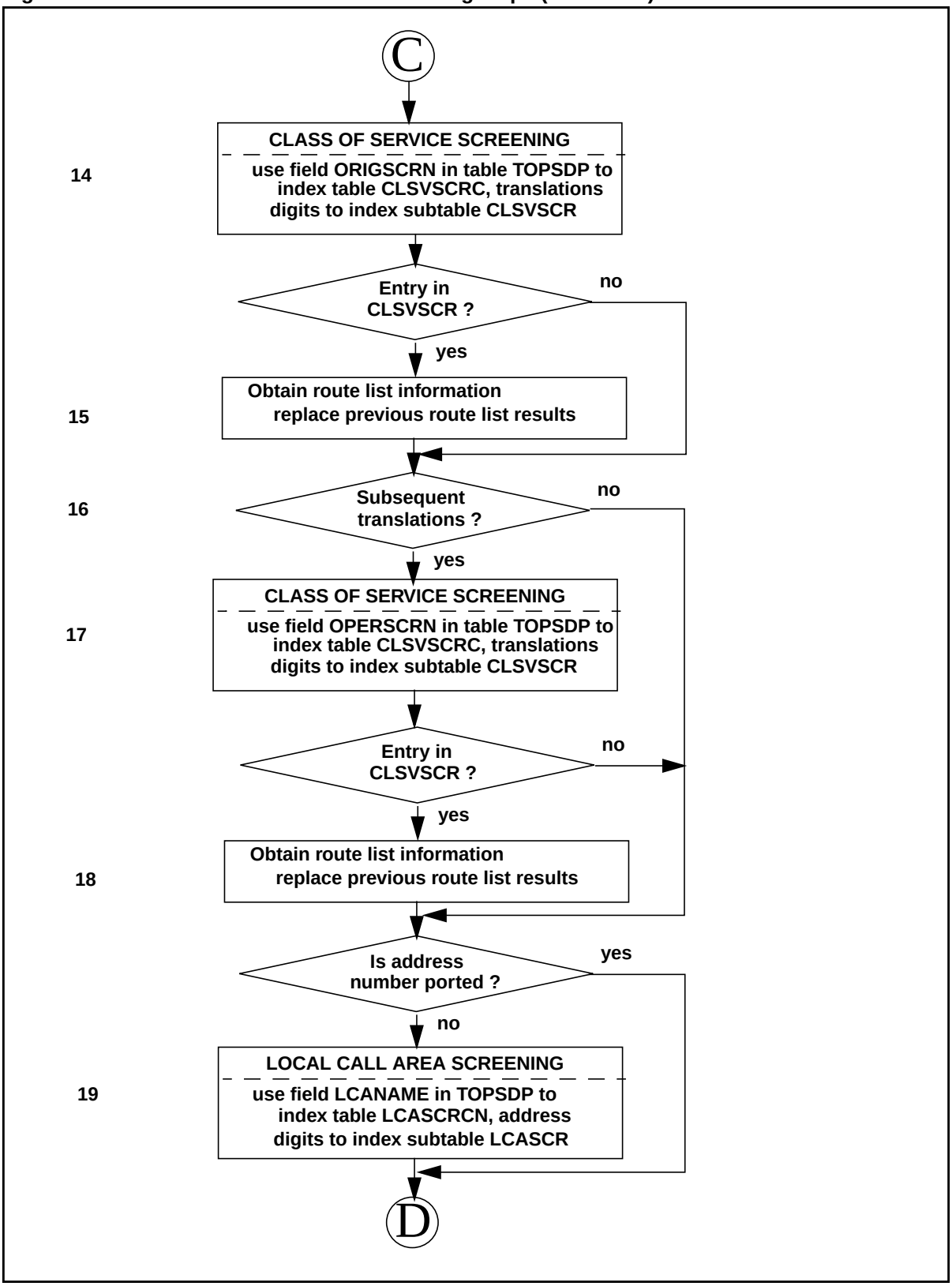
10 If initial translations are being performed, proceed to step 14.

11 Pretranslations are performed using the pretranslator name from table TOPSDP (field OPERPRTN) to index into table STDPRTCT. Subtable STDPRT is then accessed with the address digits.

12 Code translations are performed using the STS from table TOPSDP to index into table HNPACONT. Subtable HNPACODE is then indexed with the address digits.

13 Subtable HNPACODE specifies where to obtain the routing information. This typically is an index into either subtable RTEREF or another table (such as OFRT) that identifies a route list containing the outgoing trunk group(s).

Figure 76 XLAGRP translations and screening steps (continued)



14 Class of service screening is performed if a valid (non-NIL) screen class name is entered for field ORIGSCRN in TOPSDP. Table CLSVSCRC is indexed using the STS and ORIGSCRN from TOPSDP, and a call type of OA or DD. Subtable CLSVSCR is then indexed with the address digits.

15 If an entry is found in subtable CLSVSCR, the routing information that is specified replaces any previous routing information.

16 If initial translations are being performed, no further class of service screening is performed. Proceed to step 19.

17 If subsequent translations are being performed, class of service screening is performed a *second* time from the operator's perspective if a valid (non-NIL) screen class name is entered for field OPERSCRN in TOPSDP. CLSVSCRC is indexed using the STS and OPERSCRN from TOPSDP, and a call type of either OA or DD. Subtable CLSVSCR is then indexed with the address digits.

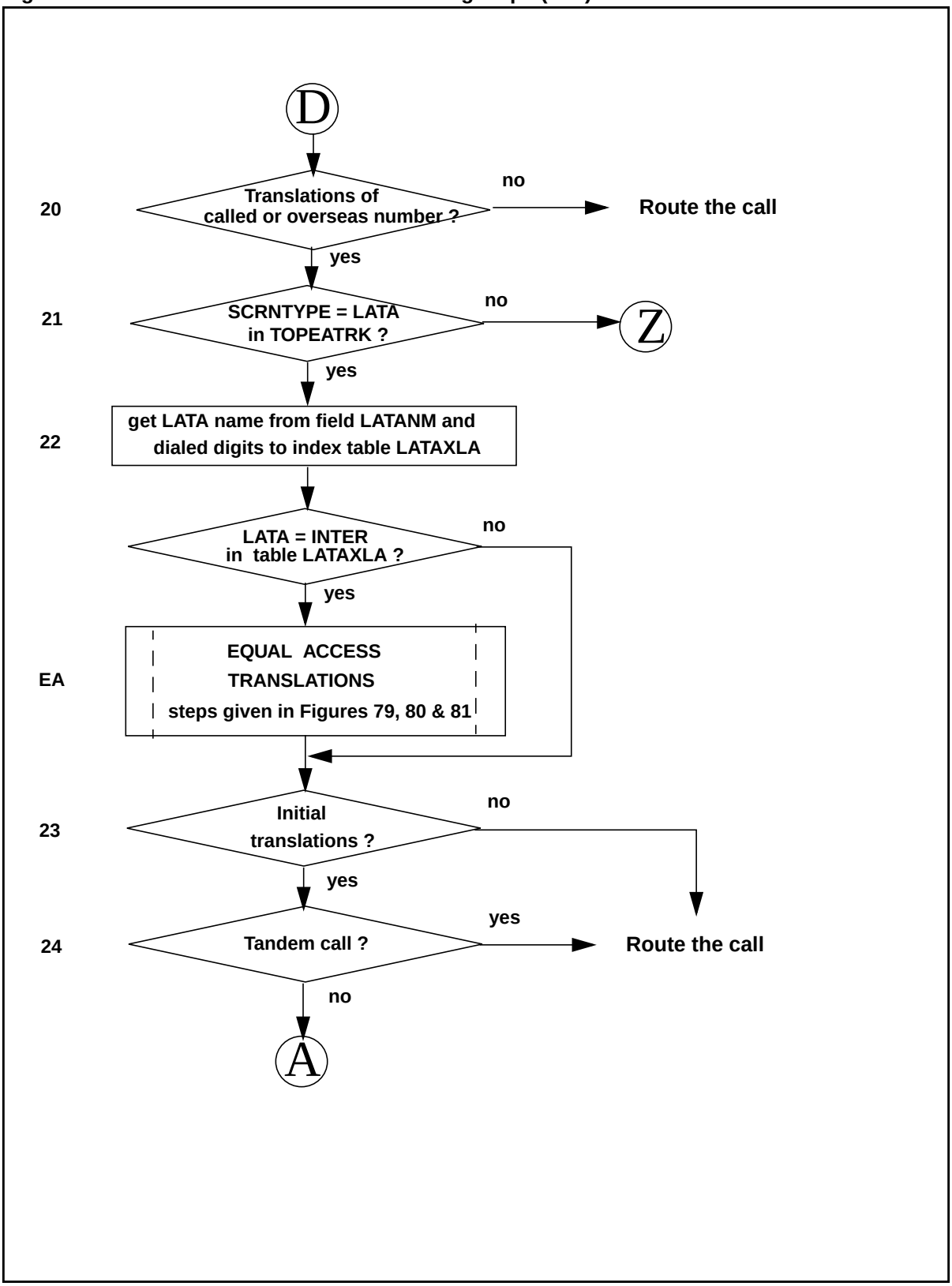
18 If an entry is found in subtable CLSVSCR, the routing information that is specified replaces any previous route list information.

19 If an LNP query has indicated that the number to be translated is ported, local call area screening is not performed.

Local calling area screening is performed if a valid (non-NIL) LCA name is entered for field LCANAME in TOPSDP. Table LCASCRCN is indexed using the STS and LCANAME from table TOPSDP, and subtable LCASCR is then indexed with the address digits.

The call is marked as either local or toll depending upon whether or not an entry is found in subtable LCASCR. As mentioned in chapter 1, TOPS also requires that a treatment be datafilled in table PFXTREAT before a call is marked as local.

Figure 77 XLAGRP translations and screening steps (end)



20 If the number to be translated is not a called number or an overseas number, it must be a special number type such as BLV or third, which has been entered by the operator. No equal access screening is done on these types of numbers, so the call is now routed to its final destination.

21 Equal access screening is performed to determine if a carrier is required. If field SCRNTYPE in table TOPEATRK is set to ZONE, then the zone screening steps on page 78 are performed. Otherwise the LATA screening steps below are performed.

22 If a valid (non-NIL) LATA name is entered for field LATANM in table TOPEATRK, table LATAXLA is indexed using the LATANM and the address digits.

EA If field LATA in LATAXLA is set to INTER (a carrier is required), the Equal Access translations and screening steps beginning on page 80 are performed before proceeding to the next step.

23 If subsequent translations are being performed, then the call is now routed to its final destination.

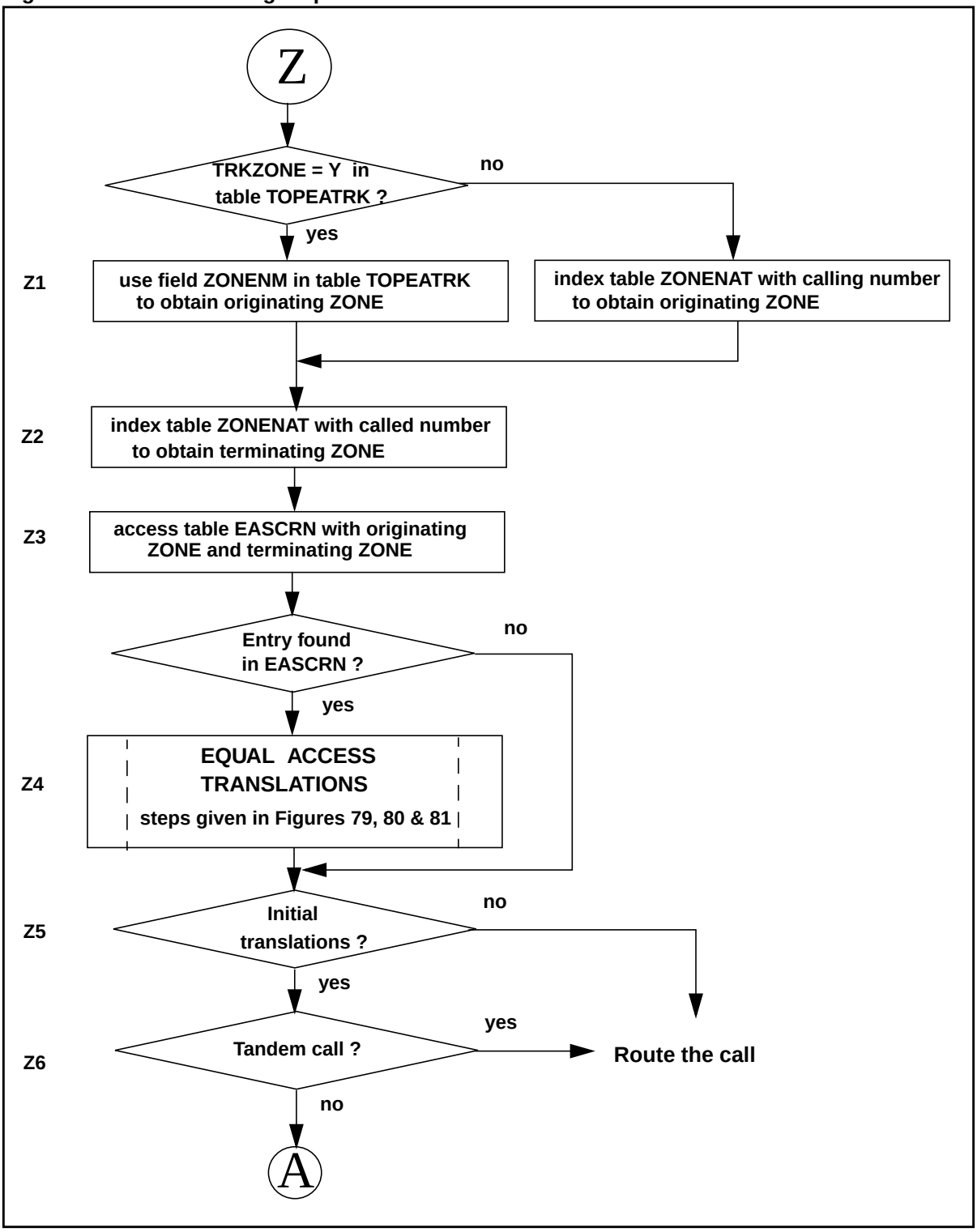
24 If call is a 1+ dialed tandem call which is not being routed to an operator position, then the call is now routed to its final destination. Subsequent translations are not performed for this type of call.

Note: Since only initial translations are performed on these calls, it is important to remember that the code translations step uses the STS from table TRKGRP, and *not* the STS from table TOPSDP, for routing.

Zone screening steps

The following figure shows the steps for Zone screening:

Figure 78 Zone screening steps



Z1 If field TRKZONE in table TOPEATRK is set to N, then the originating zone must be determined by indexing table ZONENAT with the calling number. (***Note:*** Table ZONENAT instead of table ZONEFOR is used due to the assumption that the number is national, not an overseas number.) Field TOPSZONE in ZONENAT specifies the originating zone to use.

If field TRKZONE in table TOPEATRK is set to Y, then the originating zone to use is specified.

Z2 To determine the terminating zone, table ZONENAT is indexed with the address digits. Field TOPSZONE specifies the terminating zone to use.

Z3 Table EASCRN is indexed with the originating and the terminating zones. Field REGION, if a matching entry is found, indicates an EA region name to be used for Equal Access (EA) translations and screening.

Z4 The presence of an entry in table EASCRN which matches the originating and terminating zones indicates to perform EA translations and screening.

Z5 If subsequent translations are being performed, then the call is now routed to its final destination.

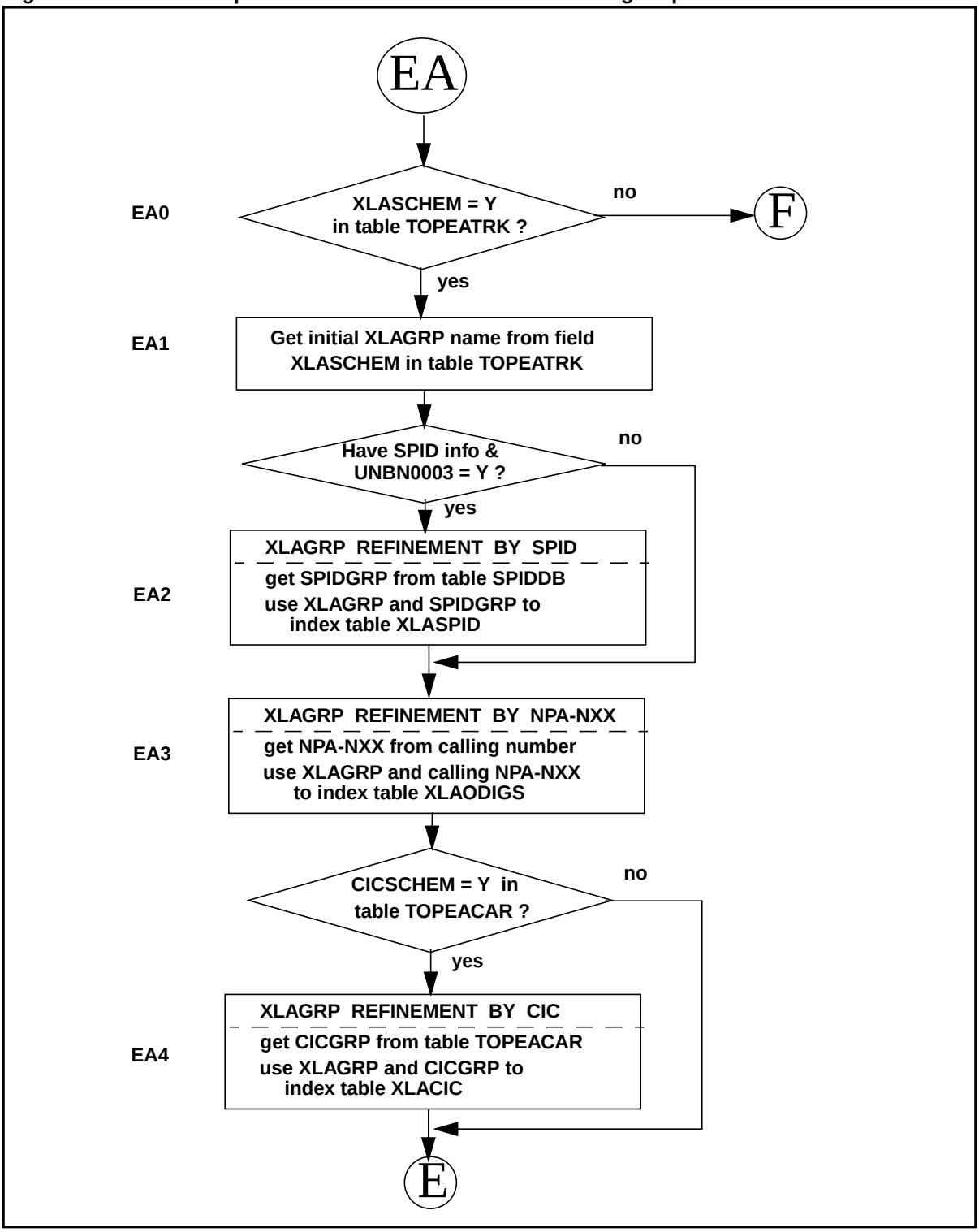
Z6 If call is a 1+ dialed tandem call which is not being routed to an operator position, then the call is now routed to its final destination. Subsequent translations are not performed for this type of call.

Note: Since only initial translations are performed on these calls, it is important to remember that the code translations step uses the STS from table TRKGRP, and *not* the STS from table TOPSDP, for routing.

EA translations and screening steps

The following figures show the steps for EA translations and screening:

Figure 79 XLAGRP Equal Access translations and screening steps



EA0 If field XLASCHEM in table TOPEATRK is set to N, then the XLAGRP method is *not* used for the Equal Access screening portion of this call. Proceed to step EA10 for EA screening.

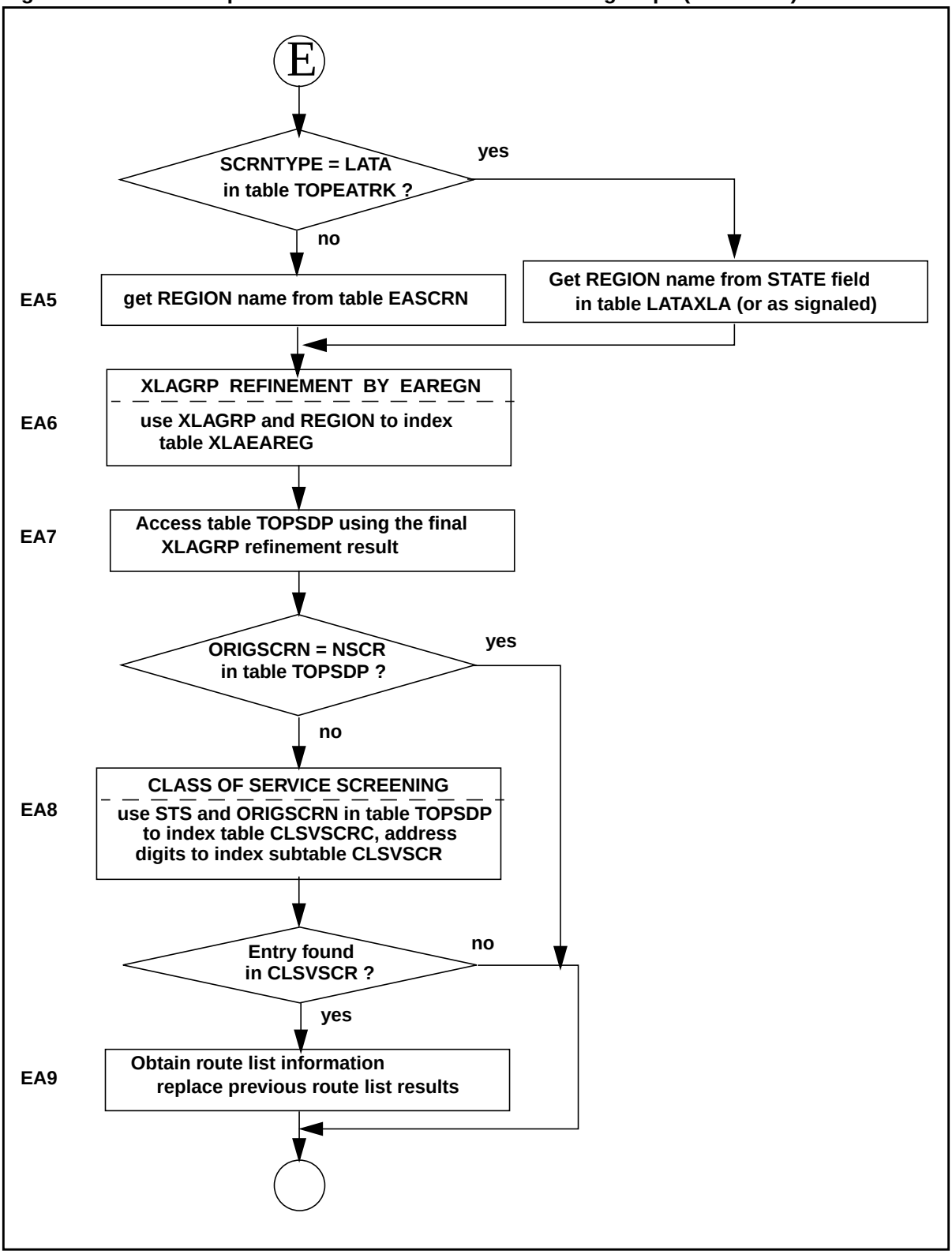
EA1 The initial Equal Access XLAGRP for the originating trunk group is obtained from field XLASCHEM in table TOPEATRK.

EA2 If SPID information is available, refinement of the initial XLAGRP may be performed (based on SOC UNBN0003 and datafill in table XLASPID) and may result in a new XLAGRP.

EA3 Refinement of the XLAGRP by NPA-NXX of the calling number may be performed if necessary (based on datafill in table XLAODIGS) and may result in a new XLAGRP.

EA4 If field CICSCHEM in table TOPEACAR assigns a CICGRP to a carrier's CIC digits, then refinement of the XLAGRP by the CICGRP may then be performed if necessary (based on datafill in table XLACIC) and may result in a new XLAGRP.

Figure 80 XLAGRP Equal Access translations and screening steps (continued)



EA5 If field SCRNTYPE in table TOPEATRK indicates that ZONE screening is being used for EA calls, then the entry for the REGION field in table EASCRN (as determined in step Z3) is used for XLAGRP refinement.

If field SCRNTYPE in table TOPEATRK indicates that LATA screening is being used for EA calls, then data from the STATE field in table LATAXLA (INTER or INTRA) is used as the REGION designation for XLAGRP refinement. A REGION designation of OVERSEAS is used if the call has been marked as an overseas call.

EA6 Refinement of the XLAGRP by the equal access region may be performed if necessary (based on datafill in table XLAEAREG) and may result in a new XLAGRP.

EA7 The final XLAGRP result from the proceeding series of refinements is used to access table TOPSDP.

EA8 EA class of service screening is performed if a valid (non-NIL) screen class name is entered for field ORIGSCRN in table TOPSDP. If NSCR (no screening) is indicated, return to the main non-EA TOPS translations flow at step 23.

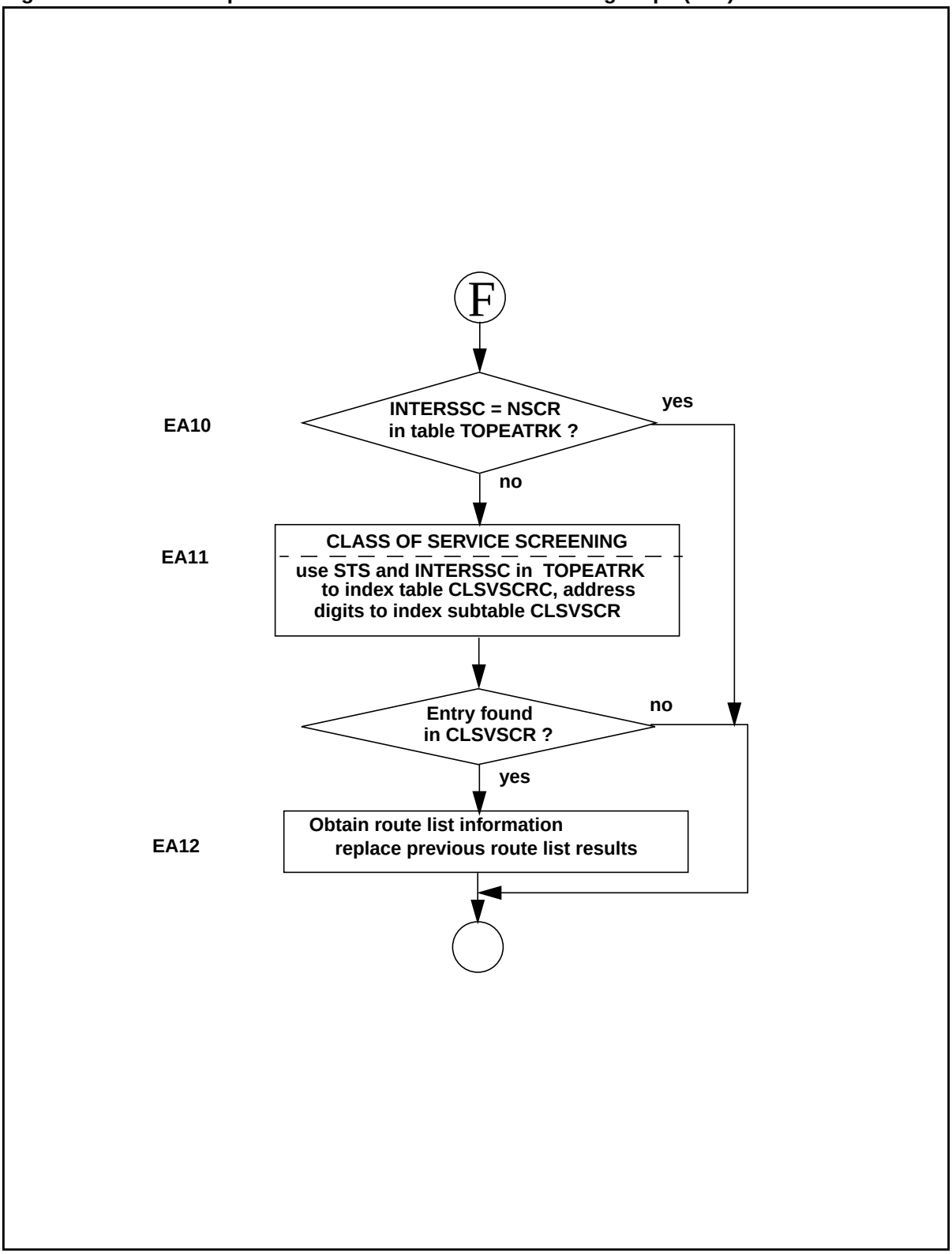
Table CLSVSCRC is indexed using the STS and ORIGSCRN from TOPSDP, and a call type of either OA or DD. For EA screening, the carrier code (CIC) digits are prepended to the address digits. Subtable CLSVSCR is then indexed with the address digits.

Note: XLAGRP translations continues the traditional TOPS translations approach of prepending carrier digits for EA translations and screening. This *forces* the datafill in subtable CLSVSCR to incorporate the carrier information. There is no need at this time to also use table XLACIC to incorporate the carrier information. Plans are to evolve the TOPS EA translations at some point to not require the prepending of carrier digits.

EA9 Subtable CLSVSCR typically specifies an index into another table such as OFRT to identify a route list containing the outgoing trunk group(s). If an entry is found in subtable CLSVSCR for EA screening, this replaces the previous route list information.

Then return to the main non-EA TOPS translations flow at step 23, which is where EA translations left the standard translations flow.

Figure 81 XLAGRP Equal Access translations and screening steps (end)



EA10 EA class of service screening is performed if a valid (non-NIL) screen class name is entered for field INTERSSC in table TOPEATRK. If NSCR (no screening) is indicated, return to the main non-EA TOPS translations flow at step 23.

EA11 Table CLSVSCRC is indexed using the STS and the screen class name from either field INTERSSC, INTRASSC, or OVERSEAS from table TOPEATRK, and a call type of OA. For EA screening, the carrier code (CIC) digits are prepended to the address digits. Subtable CLSVSCR is then indexed with these address digits.

Note: XLAGRP translations continues the standard TOPS translations approach of prepending carrier digits for EA translations and screening. This *forces* the datafill in subtable CLSVSCR to incorporate the carrier information. There is no need at this time to also use table XLACIC to incorporate the carrier information. Plans are to evolve the TOPS EA translations at some point to not require the prepending of carrier digits.

EA12 Subtable CLSVSCR typically specifies an index into another table such as OFRT to identify a route list containing the outgoing trunk group(s). If an entry is found in subtable CLSVSCR for EA screening, this replaces the previous route list information.

Then return to the main non-EA TOPS translations flow at step 23, which is where EA translations left the standard translations flow.

Chapter 5: XLAGRP translations call examples

So far, chapter 2 has presented a high-level view of the XLAGRP translations method. Chapter 3 focused on TOPS tables and datafill used by the XLAGRP method, and how the XLAGRP method accesses data in base translations tables presented in chapter 1. Chapter 4 then went into more detail to show the XLAGRP process as a series of steps in a generic call flow diagram.

This chapter presents the "whole picture" in the form of entire call examples which illustrate how XLAGRP translations and screening is performed. The call examples are presented as a series of steps in the translations and screening process. This allows each example in the chapter to be presented with an explanation to highlight how table datafill is "driving" translations at each particular step within the call.

At this level of detail the explanation includes the *table* being accessed, the *tuple* (entry) within that table which is being accessed, and the particular *field(s)* within the tuple which are being used for that step in the call example. A MAP example of the table data for a specific step is presented as it is used, with any fields of interest within the tuple in a table being highlighted in **bold**.

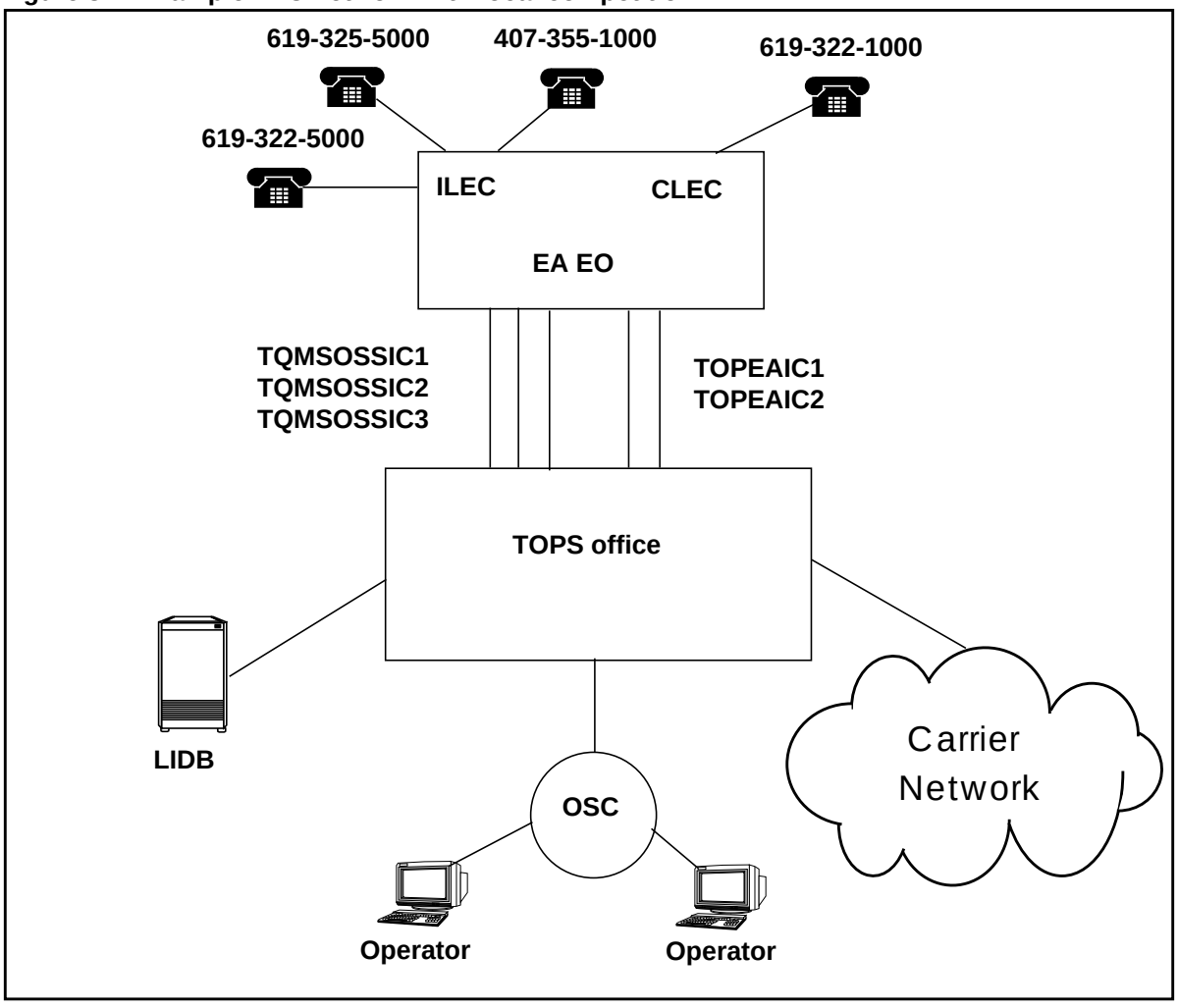
There are call flow scenarios presented for the following types of calls:

All of the call examples in this chapter use one of the following incoming TOPS trunk groups as the starting point:

- TQMSOSSIC1, which performs calling number verification
- TQMSOSSIC2, which does not perform calling number verification
- TQMSOSSIC3, which has a trunk group STS of 100
- TOPEAIC1, which uses carrier 0803 for Equal Access traffic
- TOPEAIC2, which uses carrier 0111 for Equal Access traffic

All of the call examples in this chapter use an Originating Line Number Screening (OLNS) LIDB data base to obtain SPID information about the calling party. In the examples, only the party with a directory number (DN) of 619-322-1000 is a CLEC subscriber. The dialed DN of 212-220-1234 is an EA call. The following figure shows a sample network used in the call flows.

Figure 82 Example LEC network with local competition



Note: Outgoing trunk groups are not shown in this sample network.

0- translations call example

This example shows simply routing out of table HNPACONT with the XLAGRP method, and calling number verification with table TCLGVER using the enhanced bill code method. The example assumes that a subscriber with a DN of 619-322-5000 dials 0-, and shows both initial and subsequent translations.

Initial translations and screening

0 For initial translations, the call arrives at TOPS on incoming trunk group TQMSOSSIC1.

Figure 83 MAP display example for table TRKGRP

```
GRPKEY      GRPINFO
-------------------------------------------------------------------------
TQMSOSSIC1
           TOPS 0 TLD NCRT IC MIDL 619 619 PTOP NLCA NSCR Y SP COMBINED N
             Y 0 0000 NONE OSS ENHBC Y 619320 10 10 Y N OFFHK N N $
```

1 The pretranslator name of PTOP is obtained from table TRKGRP and is used to index into table STDPRTCT.

Figure 84 MAP display example for subtable STDPRTCT

```
EXTPRTNM  STDPRT  AMAPRT
------------------------
    PTOP (    1) (    0)
```

Since there are no dialed digits received (the end office removes the prefix digit 0 before outpulsing to TOPS), pretranslations are not done.

2 For code translations, the STS of 619 is obtained from table TRKGRP and used to index into table HNPACONT.

Figure 85 MAP display example for subtable HNPACONT

```
STS SNPA NORTREFS NOAMBIGC  RTEREF HNPACODE  ATTRIB  RTEMAP      OPTIONS
-------------------------------------------------------------------------
619    Y     1000        8 (   59)  (    1) (    0) (    0)            $
```

Again, since there are no dialed address digits to use, initial code translations from table HNPACONT are not performed at this time.

3 Since there are no dialed digits received, no outgoing route can be identified from subtable HNPACONT for code translations at this stage.

4 At this point ANI digits are collected and identify the calling number as 322-5000. Trunk group TQMSOSSIC1 uses the enhanced bill code method (ENHBC), and so does calling number expansion using table TCLG7DIG.

Figure 86 MAP display example for table TRKGRP

```
GRPKEY      GRPINFO
-------------------------------------------------------------------
TQMSOSSIC1
           TOPS 0 TLD NCRT IC MIDL 619 619 PTOP NLCA NSCR Y SP COMBINED N
             Y 0 0000 NONE OSS ENHBC Y 619320 10 10 Y N OFFHK N N $
```

There is no entry for an NXX of 322 in table TCLG7DIG, so the SNPA of 619 from TRKGRP is used to expand the number to 619-322-5000.

Figure 87 MAP display example for table TCLG7DIG

```
            TCLG7KEY SNPA
-------------------------
      TQMSOSSIC1 355  407
```

5 Trunk group TQMSOSSIC1 uses enhanced bill code method (ENHBC), and performs calling number verification. Table TCLGVER contains the NPA-NXX of 619-322, so calling number verification succeeds.

Figure 88 MAP display example for table TCLGVER

```
                              GRPKEY
----------------------------------
      TQMSOSSIC1              619322
```

6 The datafill in table TOPSTOPT indicates that an OLNS external data base query is done for this call.

Figure 89 MAP display example for table TOPSTOPT

```
GRPKEY       ORGAREA  DISPCLG ADASERV ADASANS ANITOCLI OLNSQRY DCIBIDX
    LNPCLGAM  XLASCHEM       SPIDPRC     TRKSPID   BILLSCRN  ANIFSPL
-------------------------------------------------------------------------
TQMSOSSIC1   N        N      NONE     NA       N       ALL     0
   N          Y  TRKGRP1      Y          N         N         N
```

This call example assumes that no SPID information is received in the OLNS data base response for the DN of 6193225000.

7 Table TOPSTOPT is accessed for trunk group TQMSOSSIC1, and the initial XLAGRP of TRKGRP1 is obtained from field XLASCHEM.

Figure 90 MAP display example for table TOPSTOPT

```
GRPKEY       ORGAREA  DISPCLG ADASERV ADASANS ANITOCLI OLNSQRY DCIBIDX
    LNPCLGAM  XLASCHEM       SPIDPRC     TRKSPID   BILLSCRN  ANIFSPL
-------------------------------------------------------------------------
TQMSOSSIC1   N        N      NONE     NA       N       ALL     0
   N          Y  TRKGRP1      Y          N         N         N
```

8 There is no SPID information available, so refinement of the XLAGRP by SPID is not performed for this call.

9 There is no matching entry in table XLAODIGS for the NPA-NXX of 619-322, so refinement of the XLAGRP by NPA-NXX of the calling number is not performed for this call.

Figure 91 MAP display example for table XLAODIGS

```
GRPKEY               NEWXLGRP
-------------------------------------------------------------------
TRKGRP1    407355     TG1355
```

The final XLAGRP refinement of TRKGRP1 is used to access TOPSDP.

14 For field ORIGSCRN in table TOPSDP, no screen class name (NSCR) is specified for the XLAGRP of TRKGRP1, so class of service screening is not performed.

Figure 92 MAP display example for table TOPSDP

```
XLAGRP       STS  OPERPRTN  ORIGSCRN  OPERSCRN  MCCSPRTN MCCSSCRN LCANAME
-------------------------------------------------------------------------
TRKGRP1       619   OPER     NSCR       NSCR       MCCS     NSCR     NLCA
```

Also, no dialed digits are available to perform class of service screening at this point.

19 No local call area name (NLCA) is specified for XLAGRP of TRKGRP1 in table TOPSDP.

Figure 93 MAP display example for table TOPSDP

```
XLAGRP       STS  OPERPRTN  ORIGSCRN  OPERSCRN  MCCSPRTN MCCSSCRN LCANAME
-------------------------------------------------------------------------
TRKGRP1       619  OPER      STER      NSCR      MCCS     NSCR     NLCA
```

So not only is datafill set to not perform LCA screening, but there also are no dialed digits available to use.

21 Field SCRNTYPE in table TOPEATRK indicates that LATA screening is specified, but indicates an originating LATA name of NILLATA for trunk group TQMSOSSIC1.

Figure 94 MAP display example for table TOPEATRK

```
        TRUNKGRP ENDOFFCE CARRIER     SCRNFLDS            XLASCHEM DNLOOK
DFLTPIC           BYPASS
-------------------------------------------------------------------------
      TQMSOSSIC1     NONE    NNNN LATA  NILLATA   Y           EAXLA     Y
      Y               $
```

22 At this point equal access screening is not performed. With no dialed digits, it cannot yet be determined if an inter-exchange carrier is required.

24 The call is not dialed as a 1+ tandem call, so at this point the call is routed to a TOPS operator position.

The are no dialed digits for a 0- call, so there is no resulting route from initial translations for this call example. We proceed assuming the operator enters a called number of 201-220-1234 for the subscriber.

Subsequent translations and screening

7 Table TOPSTOPT is accessed for trunk group TQMSOSSIC1, and the initial XLAGRP of TRKGRP1 is obtained from field XLASCHEM.

Figure 95 MAP display example for table TOPSTOPT

```
GRPKEY       ORGAREA  DISPCLG ADASERV ADASANS ANITOCLI OLNSQRY DCIBIDX
    LNPCLGAM  XLASCHEM       SPIDPRC     TRKSPID   BILLSCRN  ANIFSPL
-------------------------------------------------------------------------
TQMSOSSIC1   N        N      NONE     NA       N       ALL     0
   N          Y  TRKGRP1      Y          N         N         N
```

8 No SPID information is available, so refinement of the XLAGRP by SPID is not performed for this call.

9 There is no matching entry in table XLAODIGS for the NPA-NXX of 619-322, so refinement of the XLAGRP by NPA-NXX of the calling number is not performed for this call.

Figure 96 MAP display example for table XLAODIGS

```
GRPKEY                NEWXLGRP
-------------------------------------------------------------------------
TRKGRP1    407355     TG1355
```

11 For field OPERPRTN in table TOPSDP, the pretranslator name for the XLAGRP of TRKGRP1 is identified as OPER, which is used to index into table STDPRTCT.

Figure 97 MAP display example for table TOPSDP

```
XLAGRP       STS  OPERPRTN  ORIGSCRN  OPERSCRN  MCCSPRTN MCCSSCRN LCANAME
-------------------------------------------------------------------------
TRKGRP1      619   OPER      NSCR      NSCR       MCCS     NSCR     NLCA
```

Subtable STDPRT is accessed with the dialed digits of 201-220-1234 to arrive at a call type of OA.

Figure 98 MAP display example for subtable STDPRT

```
          FROMDIGS            TODIGS                  PRETRTE
  ------------------------------------------------------------
                2                410                N OA 0 NA
```

12 For subsequent code translations, the STS of 619 from table TOPSDP is used to index into table HNPACONT.

Figure 99 MAP display example for table TOPSDP

```
XLAGRP       STS  OPERPRTN  ORIGSCRN  OPERSCRN  MCCSPRTN MCCSSCRN LCANAME
-------------------------------------------------------------------------
TRKGRP1      619   OPER      NSCR      NSCR       MCCS     NSCR     NLCA
```

Subtable HNPACODE is indexed with the dialed address digits of 201-220-1234 and obtains an index of 801 into subtable RTEREF.

Figure 100 MAP display example for subtable HNPACODE

```
          FROMDIGS            TODIGS     CDRRTMT
-----------------------------------------------
            201220            201222   FRTD  801
```

13 Subtable RTEREF is indexed with 801 to identify the selected outgoing trunk group of TITOGA1 which can be used to route the call.

Figure 101 MAP display example for subtable RTEREF

```
 RTE                                                          RTELIST
-------------------------------------------------------------------------
 801                        (    N        D          TITOGA1 0   N   N)
```

14 For field ORIGSCRN in table TOPSDP, no screen class name (NSCR) is specified for the XLAGRP of TRKGRP1, so class of service screening is not performed.

Figure 102 MAP display example for table TOPSDP

```
XLAGRP       STS  OPERPRTN  ORIGSCRN  OPERSCRN  MCCSPRTN MCCSSCRN LCANAME
-------------------------------------------------------------------------
TRKGRP1      619  OPER      NSCR      NSCR      MCCS     NSCR     NLCA
```

17 An attempt is made to perform class of service screening a *second* time. For field OPERSCRN in table TOPSDP, no screen class name (NSCR) is specified for the XLAGRP of TRKGRP1 in table TOPSDP so class of service screening is not performed.

Figure 103 MAP display example for table TOPSDP

```
XLAGRP       STS  OPERPRTN  ORIGSCRN  OPERSCRN  MCCSPRTN MCCSSCRN LCANAME
-------------------------------------------------------------------------
TRKGRP1      619  OPER      NSCR      NSCR      MCCS     NSCR     NLCA
```

19 For field LCANAME in table TOPSDP, no local call area name (NLCA) is specified for XLAGRP of TRKGRP1 in table TOPSDP so LCA screening is not performed. The call is marked as toll (non-local).

Figure 104 MAP display example for table TOPSDP

```
XLAGRP       STS  OPERPRTN  ORIGSCRN  OPERSCRN  MCCSPRTN MCCSSCRN LCANAME
-------------------------------------------------------------------------
TRKGRP1      619  OPER      NSCR      NSCR      MCCS     NSCR     NLCA
```

21 Field SCRNTYPE in table TOPEATRK indicates that LATA screening is being performed, and specifies originating LATA name of NILLATA for trunk group TQMSOSSIC1.

Figure 105 MAP display example for table TOPEATRK

```
       TRUNKGRP ENDOFFCE CARRIER     SCRNFLDS            XLASCHEM DNLOOK
DFLTPIC          BYPASS
-------------------------------------------------------------------------
     TQMSOSSIC1     NONE    NNNN LATA  NILLATA   Y          EAXLA     Y
     Y               $
```

22 At this point no equal access screening is performed, since NILLATA indicates the call does not require an inter-exchange carrier.

23 For subsequent translations, the call is routed to its final destination over trunk group TITOGA1 and TOPS translations is complete.

0+ toll translations call example

This example shows using class of service screening to alter a route with the XLAGRP method based on the calling party's NPA-NXX, with routing done out of table Office Routing (OFRT). Calling number verification and expansion using table TCLG7DIG is shown using the enhanced bill code method. The example assumes that a subscriber with a DN of 407-355-1000 dials 0+201-220-1234.

Initial translations and screening

0 For initial translations, the call arrives at TOPS on incoming trunk group TQMSOSSIC1.

1 The pretranslator name of PTOP from table TRKGRP is used to index into table STDPRTCT.

Figure 106 MAP display example for table TRKGRP

```
GRPKEY      GRPINFO
-------------------------------------------------------------------------
TQMSOSSIC1
            TOPS 0 TLD NCRT IC MIDL 619 619 PTOP NLCA NSCR Y SP COMBINED
             N Y 0 0000 NONE OSS ENHBC Y 619320 10 10 Y N OFFHK N N $
```

Subtable STDPRT is accessed with the dialed digits of 201-220-1234, which specifies a call type of Nil (NL). This indicates to determine the actual call type from trunk signalling, which for this example is OA (0+). The North American translations system is used.

Figure 107 MAP display example for subtable STDPRT

```
          FROMDIGS            TODIGS                  PRETRTE
  ------------------------------------------------------------
                2                410                N NL 0 NA
```

2 For initial code translations, the STS of 619 from table TRKGRP is used to index into table HNPACONT.

Figure 108 MAP display example for table TRKGRP

```
GRPKEY      GRPINFO
-------------------------------------------------------------------------
TQMSOSSIC1
            TOPS 0 TLD NCRT IC MIDL 619 619 PTOP NLCA NSCR Y SP COMBINED
             N Y 0 0000 NONE OSS ENHBC Y 619320 10 10 Y N OFFHK N N $
```

Subtable HNPACODE is accessed with the dialed address digits of 201-220-1234 and obtains an index of 801 into subtable RTEREF.

Figure 109 MAP display example for subtable HNPACODE

```
          FROMDIGS             TODIGS     CDRRTMT
-----------------------------------------------
            201220             201222   FRTD  801
```

3 Subtable RTEREF is indexed with 801 to identify the single selected outgoing trunk group of TITOGA1 which can be used to route the call.

Figure 110 MAP display example for subtable RTEREF

```
 RTE                                                                RTELIST
-------------------------------------------------------------------------
 801                        (    N        D          TITOGA1 0   N   N)$
```

4 At this point ANI digits are collected to identify the calling number as 355-1000. Trunk group TQMSOSSIC1 uses the enhanced bill code method (ENHBC), and does calling number expansion using table TCLG7DIG.

Figure 111 MAP display example for table TRKGRP

```
GRPKEY      GRPINFO
-------------------------------------------------------------------------
TQMSOSSIC1
           TOPS 0 TLD NCRT IC MIDL 619 619 PTOP NLCA NSCR Y SP COMBINED N
             Y 0 0000 NONE OSS ENHBC Y 619320 10 10 Y N OFFHK N N $
```

An entry is found in table TCLG7DIG for trunk group TQMSOSSIC1 and an NXX of 355.

Figure 112 MAP display example for table TCLG7DIG

```
            TCLG7KEY SNPA
-------------------------
      TQMSOSSIC1 355  407
```

The SNPA of 407 from table TCLG7DIG is used to expand the calling number to 407-355-1000.

5 Trunk group TQMSOSSIC1 specifies to perform calling number verification (CLGVER set to Y). An entry is found in table TCLGVER for the trunk group TQMSOSSIC1 and an NPA-NXX of 619-355, so verification succeeds.

Figure 113 MAP display example for table TCLGVER

```
                              GRPKEY
---------------------------------
      TQMSOSSIC1              619355
```

6 The datafill in table TOPSTOPT indicates that an OLNS external data base query is done for this call.

Figure 114 MAP display example for table TOPSTOPT

```
GRPKEY       ORGAREA  DISPCLG ADASERV ADASANS ANITOCLI OLNSQRY DCIBIDX
    LNPCLGAM  XLASCHEM       SPIDPRC     TRKSPID   BILLSCRN  ANIFSPL
-------------------------------------------------------------------------
TQMSOSSIC1   N        N      NONE     NA       N       ALL     0
   N          Y  TRKGRP1      Y          N         N         N
```

This call example assumes that no SPID information is received in the OLNS data base response for the DN of 4073551000.

7 Table TOPSTOPT is accessed for trunk group TQMSOSSIC1, and the initial XLAGRP of TRKGRP1 is obtained from field XLASCHEM.

Figure 115 MAP display example for table TOPSTOPT

```
GRPKEY       ORGAREA  DISPCLG ADASERV ADASANS ANITOCLI OLNSQRY DCIBIDX
    LNPCLGAM  XLASCHEM       SPIDPRC     TRKSPID   BILLSCRN  ANIFSPL
-------------------------------------------------------------------------
TQMSOSSIC1   N        N      NONE     NA       N       ALL     0
   N          Y  TRKGRP1      Y          N         N         N
```

8 There is no SPID information available, so refinement of the XLAGRP by SPID is not performed for this call.

9 Refinement of the XLAGRP by NPA-NXX of the calling number is attempted. An entry is found in table XLAODIGS for the XLAGRP of TRKGRP1 and NPA-NXX of 407355.

Figure 116 MAP display example for table XLAODIGS

```
GRPKEY               NEWXLGRP
-------------------------------------------------------------------
TRKGRP1    407355    TG1355
```

The XLAGRP of TRKGRP1 is replaced with a new refined XLAGRP of TG1355, which is used to access table TOPSDP.

14 For the XLAGRP of TG1355 in table TOPSDP, the field ORIGSCRN specifies a screen class name of STER and an STS of 619 is specified.

Figure 117 MAP display example for table TOPSDP

```
XLAGRP       STS  OPERPRTN  ORIGSCRN  OPERSCRN  MCCSPRTN MCCSSCRN LCANAME
-------------------------------------------------------------------------
TG1355       619  OPER      STER      NSCR      MCCS     NSCR     NLCA
```

Table CLSVSCRC is indexed with an STS of 619 and screen class name of STER, and a call type of OA.

Figure 118 MAP display example for table CLSVSCRC

```
   NPASCTYP NORSLTS     TMTOFRT CLSVSCR
-------------------------------------
619 STER OA       2   N    NONE (    1)
```

15 Subtable CLSVSCR is indexed with the dialed digits of 201-220-1234, which specifies an index of 300 into table OFRT for routing information.

Figure 119 MAP display example for subtable CLSVSCR

```
          FROMDIGS             TODIGS                  CDRRTMT
-----------------------------------------------------------------
            201220             201222             T   OFRT  300
```

Table OFRT is indexed with 300 to identify an outgoing trunk group of TITOGB1 to route the call, replacing trunk group TITOGA1.

Figure 120 MAP display example for table OFRT

```
RTE                                                          RTELIST
-----------------------------------------------------------------------
300                          (    N        D          TITOGB1 0   N   N)
```

19 For field LCANAME in table TOPSDP, no local call area name (NLCA) is specified for XLAGRP of TRKGRP1, so LCA screening is not done. The call is marked as toll (non-local).

Figure 121 MAP display example for table TOPSDP

```
XLAGRP       STS  OPERPRTN  ORIGSCRN  OPERSCRN  MCCSPRTN MCCSSCRN LCANAME
-------------------------------------------------------------------------
TG1355       619  OPER      NSCR      NSCR      MCCS     NSCR     NLCA
```

21 Field SCRNTYPE in table TOPEATRK indicates that LATA screening is being performed, but specifies originating LATA name of NILLATA for trunk group TQMSOSSIC1.

Figure 122 MAP display example for table TOPEATRK

```
        TRUNKGRP ENDOFFCE CARRIER     SCRNFLDS             XLASCHEM DNLOOK
DFLTPIC           BYPASS
-------------------------------------------------------------------------
      TQMSOSSIC1     NONE    NNNN LATA  NILLATA   Y           EAXLA     Y
      Y               $
```

22 At this point no equal access screening is performed, since NILLATA indicates the call does not require an inter-exchange carrier.

24 The call is not dialed as a 1+ tandem call, so at this point the call is routed to a TOPS operator position. The selected route at this point in the call is outgoing trunk group TITOGB1.

Subsequent translations and screening

The key point of this example has already been illustrated. Therefore the steps for subsequent translations are not shown.

SPID translations call example

This call example shows altering a route with the XLAGRP method based on the calling party's SPID. Routing is done out of table HNPACONT by using an STS that is different from the STS in table TRKGRP. No calling number verification is done. The local call area is also different based upon the SPID. The example assumes that a subscriber with a DN of 619-322-1000 dials 0+521-1234.

Initial translations and screening

0 For initial translations, the call arrives at TOPS on incoming trunk group TQMSOSSIC2.

1 The pretranslator name of PTOP from table TRKGRP is used to index into table STDPRTCT.

Figure 123 MAP display example for table TRKGRP

```
GRPKEY      GRPINFO
-------------------------------------------------------------------
TQMSOSSIC2
           TOPS 0 TLD NCRT IC MIDL 619 619 PTOP NLCA NSCR Y SP COMBINED N
             Y 0 0000 NONE OSS ENHBC N 619320 10 10 Y N OFFHK N N $
```

Subtable STDPRT is accessed with the dialed digits of 521-1234, which specifies a call type of Nil (NL). This indicates to determine the actual call type from trunk signalling, which for this example is OA. The North American translations system is used.

Figure 124 MAP display example for subtable STDPRT

```
          FROMDIGS             TODIGS                    PRETRTE
  ------------------------------------------------------------
              412                 554                  N NL 0 NA
```

2 For initial code translations, the STS of 619 from table TRKGRP is used to index into table HNPACONT.

Figure 125 MAP display example for table TRKGRP

```
GRPKEY      GRPINFO
-------------------------------------------------------------------
TQMSOSSIC2
           TOPS 0 TLD NCRT IC MIDL 619 619 PTOP NLCA NSCR Y SP COMBINED N
             Y 0 0000 NONE OSS ENHBC N 619320 10 10 Y N OFFHK N N $
```

Subtable HNPACODE is accessed with the dialed address digits of 521-1234 and obtains an index of 801 into subtable RTEREF.

Figure 126 MAP display example for subtable HNPACODE

```
          FROMDIGS             TODIGS     CDRRTMT
-------------------------------------------------
               521                521   LRTE  801
```

3 Subtable RTEREF is indexed with 801 to identify the selected outgoing trunk group of TITOGA1 which can be used to route the call.

Figure 127 MAP display example for subtable RTEREF

```
 RTE                                                                  RTELIST
-------------------------------------------------------------------------------
 801                          (    N        D          TITOGA1 0   N   N)
```

4 At this point ANI digits are collected and identify the calling number as 322-1000. Trunk group TQMSOSSIC2 uses the enhanced bill code method (ENHBC), and does calling number expansion using table TCLG7DIG.

Figure 128 MAP display example for table TRKGRP

```
GRPKEY      GRPINFO
-------------------------------------------------------------------------
TQMSOSSIC1
           TOPS 0 TLD NCRT IC MIDL 619 619 PTOP NLCA NSCR Y SP COMBINED N
             Y 0 0000 NONE OSS ENHBC N 619320 10 10 Y N OFFHK N N $
```

There is no entry for an NXX of 322 in table TCLG7DIG, so the SNPA of 619 from TRKGRP is used to expand the number to 619-322-1000.

Figure 129 MAP display example for table TCLG7DIG

```
            TCLG7KEY SNPA
------------------------
      TQMSOSSIC1 355  407
```

5 Trunk group TQMSOSSIC2 uses the enhanced bill code method (ENHBC), but does *not* perform calling number verification (CLGVER set to N).

6 The datafill in table TOPSTOPT for TQMSOSSIC2 indicates to perform an OLNS query for this call.

Figure 130 MAP display example for table TOPSTOPT

```
GRPKEY       ORGAREA  DISPCLG ADASERV ADASANS ANITOCLI OLNSQRY DCIBIDX
    LNPCLGAM  XLASCHEM       SPIDPRC     TRKSPID   BILLSCRN  ANIFSPL
-------------------------------------------------------------------------
TQMSOSSIC2   N        N       NONE    NA      N        ALL     0
    N         Y  TRKGRP2       Y           N         N         N
```

The response from the OLNS data base indicates that this subscriber is served by a Competitive Local Exchange Carrier with a SPID of BTEL.

7 Table TOPSTOPT is accessed for trunk group TQMSOSSIC2, and the initial XLAGRP of TRKGRP2 is obtained from field XLASCHEM.

Figure 131 MAP display example for table TOPSTOPT

```
GRPKEY       ORGAREA  DISPCLG ADASERV ADASANS ANITOCLI OLNSQRY DCIBIDX
    LNPCLGAM  XLASCHEM       SPIDPRC     TRKSPID   BILLSCRN  ANIFSPL
-------------------------------------------------------------------------
TQMSOSSIC2   N        N       NONE     NA       N       ALL     0
   N          Y  TRKGRP2       Y          N         N         N
```

8 Refinement of the XLAGRP by SPID of the calling number is attempted. The SPID Software Optionality Control (SOC) UNBN0003 is already activated. Also the SPID processing (SPIDPRC) field in table TRKGRP is set to Y. From table SPIDDB, the SPIDGRP name of CLECGRP is associated with service provider BTEL.

Figure 132 MAP display example for table SPIDDB

```
SPID   SCRNDISP   OPERSYS                  TAANN      DAANN
   ACTSANN                      XLA          SPIDCRIT    SCRNIDX
-------------------------------------------------------------------------
BTEL   Y BTEL     ALL                       Y BBRAND   Y BBRAND
       N                       Y CLECGRP    N          100
```

An entry is found in table XLASPID for an XLAGRP of TRKGRP2 and the SPIDGRP of CLECGRP.

Figure 133 MAP display example for table XLASPID

```
GRPKEY               NEWXLGRP
-------------------------------------------------------------------------
TRKGRP2     CLECGRP   TG2CLEC
```

The XLAGRP of TRKGRP2 is replaced with a new refined XLAGRP of TG2CLEC.

9 There is no matching entry in table XLAODIGS for the NPA-NXX of 619-322, so no refinement of the XLAGRP by NPA-NXX of the calling number is performed for this call.

Figure 134 MAP display example for table XLAODIGS

```
GRPKEY                NEWXLGRP
-----------------------------------------------------------------------
TRKGRP1      407355     TG1355
```

The XLAGRP of TG2CLEC is used to index into table TOPSDP.

14 For field ORIGSCRN in table TOPSDP, no screen class name (NSCR) is specified for the XLAGRP of TG2CLEC, so class of service screening is not performed.

Figure 135 MAP display example for table TOPSDP

```
XLAGRP       STS  OPERPRTN  ORIGSCRN  OPERSCRN  MCCSPRTN MCCSSCRN LCANAME
-----------------------------------------------------------------------
TG2CLEC       100   OPER      NSCR       NSCR       MCCS      NSCR      L32X
```

19 Field LCANAME in table TOPSDP specifies an LCA name of L32X for the XLAGRP of TG2CLEC. The STS specified in TOPSDP is 100.

Figure 136 MAP display example for table TOPSDP

```
XLAGRP       STS  OPERPRTN  ORIGSCRN  OPERSCRN  MCCSPRTN MCCSSCRN LCANAME
-----------------------------------------------------------------------
TG2CLEC       100   OPER      NSCR       NSCR       MCCS      NSCR      L32X
```

Table LCASCRCN is indexed with an STS of 100 and LCA name of L32X. Notice that the PFXSELEC for this entry is MNDT.

Figure 137 MAP display example for table LCASCRCN

```
NPALOCNM  LCASCR PFXSELEC PFXFOR10 LOCALOVR
-----------------------------------------
100 L32X (    1)     MNDT        N        N
```

Subtable LCASCR is then indexed with the called number of 521-1234. The NXX digits of 521 from the called number fall within the range of 521 through 522 shown here, so the call is eligible to be local.

Figure 138 MAP display example for subtable LCASCR

```
FROMDIGS  TODIGS
---------------
     521     522
```

Table PFXTREAT is indexed with the PFXSELEC of MNDT, a call type of OA, and a local code setting of Y.

Figure 139 MAP display example for subtable PFXTREAT

```
 TYPLCLCD UPDTYPCA TREAT
------------------------
MNDT OA Y       OA  MSCA
```

An entry exists in table PFXTREAT, so the call is marked as local.

21 Field SCRNTYPE in table TOPEATRK indicates that LATA screening is being performed, and specifies originating LATA name of NILLATA for trunk group TQMSOSSIC2.

Figure 140 MAP display example for table TOPEATRK

```
        TRUNKGRP ENDOFFCE CARRIER     SCRNFLDS             XLASCHEM DNLOOK
DFLTPIC           BYPASS
-------------------------------------------------------------------------
      TQMSOSSIC2     NONE    NNNN LATA  NILLATA   Y           EAXLA     Y
      Y               $
```

22 At this point no equal access screening is performed, since NILLATA indicates the call does not require an inter-exchange carrier.

24 The call is not dialed as a 1+ tandem call, so at this point the call is routed to a TOPS operator position. The selected route at this point in the call is outgoing trunk group TITOGA1.

The only action performed by the operator is for billing of the call.

Subsequent translations and screening

7 Table TOPSTOPT is accessed for trunk group TQMSOSSIC2, and the initial XLAGRP of TRKGRP2 is obtained from field XLASCHEM.

Figure 141 MAP display example for table TOPSTOPT

```
GRPKEY       ORGAREA  DISPCLG ADASERV ADASANS ANITOCLI OLNSQRY DCIBIDX
    LNPCLGAM  XLASCHEM       SPIDPRC     TRKSPID   BILLSCRN  ANIFSPL
-------------------------------------------------------------------------
TQMSOSSIC2   N        N      NONE     NA       N       ALL     0
   N          Y  TRKGRP2      Y          N         N         N
```

8 Refinement of the XLAGRP by SPID of the calling number is attempted. The same refinement as shown from initial translations is done, resulting in an XLAGRP of TG2CLEC which replaces TRKGRP2.

Figure 142 MAP display example for table XLASPID

```
GRPKEY                NEWXLGRP
-------------------------------------------------------------------
TRKGRP2     CLECGRP   TG2CLEC
```

9 There is no matching entry in table XLAODIGS for the NPA-NXX of 619-322, so refinement of the XLAGRP by NPA-NXX of the calling number is not performed for this call.

Figure 143 MAP display example for table XLAODIGS

```
GRPKEY                NEWXLGRP
-------------------------------------------------------------------
TRKGRP1    407355       TG1355
```

11 For field OPERPRTN in table TOPSDP, the pretranslator name for the XLAGRP of TRKGRP1 is identified as OPER, which is used to index into table STDPRTCT.

Figure 144 MAP display example for table TOPSDP

```
XLAGRP       STS  OPERPRTN  ORIGSCRN  OPERSCRN  MCCSPRTN MCCSSCRN LCANAME
-------------------------------------------------------------------------
TG2CLEC       100   OPER      NSCR      NSCR       MCCS      NSCR      L32X
```

Subtable STDPRT is accessed with the dialed digits of 201-220-1234 to arrive at a call type of OA.

Figure 145 MAP display example for subtable STDPRT

```
          FROMDIGS            TODIGS                  PRETRTE
  ------------------------------------------------------------
                2               410                N OA 0 NA
```

12 For subsequent code translations, the STS of 100 from table TOPSDP is used to index into table HNPACONT. (Note that STS/SNPA decoupling allows this choice, which wasn't available before the XLAGRP method).

Figure 146 MAP display example for table TOPSDP

```
XLAGRP       STS  OPERPRTN  ORIGSCRN  OPERSCRN  MCCSPRTN MCCSSCRN LCANAME
-------------------------------------------------------------------------
TG2CLEC      100   OPER      NSCR      NSCR       MCCS      NSCR      L32X
```

Subtable HNPACODE is accessed with the dialed address digits of 521-1234 and obtains an index of 703 into subtable RTEREF.

Figure 147 MAP display example for subtable HNPACODE

```
          FROMDIGS             TODIGS     CDRRTMT
-------------------------------------------------
               521                521   LRTE  703
```

13 Subtable RTEREF is indexed with 703 to identify the selected outgoing trunk group of TCLECOG1 which can be used to route the call. This replaces the route of TITOGA1 selected during initial translations.

Figure 148 MAP display example for subtable RTEREF

```
 RTE                                                                  RTELIST
-------------------------------------------------------------------------------
 703                        (    N        D          TCLECOG1 0   N   N)
```

14 For field ORIGSCRN in table TOPSDP, no screen class name (NSCR) is specified for the XLAGRP of TG2CLEC so class of service screening is not performed.

Figure 149 MAP display example for table TOPSDP

```
XLAGRP       STS  OPERPRTN  ORIGSCRN  OPERSCRN  MCCSPRTN MCCSSCRN LCANAME
-------------------------------------------------------------------------
TG2CLEC       100   OPER      NSCR       NSCR       MCCS      NSCR      L32X
```

17 An attempt is made to perform class of service screening a *second* time. For field OPERSCRN in table TOPSDP, no screen class name (NSCR) is specified for the XLAGRP of TG2CLEC in table TOPSDP so this second class of service screening is not performed.

Figure 150 MAP display example for table TOPSDP

```
XLAGRP       STS  OPERPRTN  ORIGSCRN  OPERSCRN  MCCSPRTN MCCSSCRN LCANAME
-------------------------------------------------------------------------
TG2CLEC       100   OPER      NSCR       NSCR       MCCS      NSCR      L32X
```

Thus trunk group TCLECOG1 remains the outgoing route selected.

19 LCA screening is performed just as it was in initial translations. The NXX digits of 521 from the called number fall within the range of 521 through 522 in subtable LCASCR.

Figure 151 MAP display example for subtable LCASCR

```
FROMDIGS  TODIGS
---------------
     521     522
```

The treatment datafill is present in table PFXTREAT, so the call is marked as local.

Figure 152 MAP display example for subtable PFXTREAT

```
 TYPLCLCD UPDTYPCA TREAT
------------------------
MNDT OA Y       OA  MSCA
```

21 Field SCRNTYPE in table TOPEATRK indicates that LATA screening is being performed, and specifies originating LATA name of NILLATA for trunk group TQMSOSSIC2.

Figure 153 MAP display example for table TOPEATRK

```
        TRUNKGRP ENDOFFCE CARRIER     SCRNFLDS             XLASCHEM DNLOOK
DFLTPIC           BYPASS
-------------------------------------------------------------------------
      TQMSOSSIC2     NONE    NNNN LATA  NILLATA   Y           EAXLA     Y
      Y               $
```

22 At this point no equal access screening is performed, since NILLATA indicates the call does not require an inter-exchange carrier.

23 For subsequent translations, the call is routed to its final destination over trunk group TCLECOG1.

At this point, TOPS translations and screening is complete.

LNP translations call example

This example shows a call placed to a ported number, which alters the route. The example assumes that a subscriber with a DN of 619-322-5000 dials 0+201-333-1234.

Initial translations and screening

0 For initial translations, the call arrives at TOPS on incoming trunk group TQMSOSSIC2.

1 The pretranslator name of PTOP from table TRKGRP is used to index into table STDPRTCT.

Figure 154 MAP display example for table TRKGRP

```
GRPKEY      GRPINFO
-------------------------------------------------------------------
TQMSOSSIC2
           TOPS 0 TLD NCRT IC MIDL 619 619 PTOP NLCA NSCR Y SP COMBINED N
             Y 0 0000 NONE OSS ENHBC N 619320 10 10 Y N OFFHK N N $
```

Subtable STDPRT is accessed with the dialed digits of 201-333-1234, which specifies a call type of Nil (NL). This indicates to determine the actual call type from trunk signalling, which for this example is OA. The North American translations system is used.

Figure 155 MAP display example for subtable STDPRT

```
          FROMDIGS             TODIGS                    PRETRTE
  ------------------------------------------------------------
                2                410                  N NL 0 NA
```

2 For initial code translations, the STS of 619 from table TRKGRP is used to index into table HNPACONT.

Figure 156 MAP display example for table TRKGRP

```
GRPKEY      GRPINFO
-------------------------------------------------------------------
TQMSOSSIC2
           TOPS 0 TLD NCRT IC MIDL 619 619 PTOP NLCA NSCR Y SP COMBINED N
             Y 0 0000 NONE OSS ENHBC Y 619320 10 10 Y N OFFHK N N $
```

Subtable HNPACODE is accessed with the dialed address digits of 201-333-1234 and obtains an index of 801 into subtable RTEREF.

Figure 157 MAP display example for subtable HNPACODE

```
          FROMDIGS             TODIGS     CDRRTMT
-------------------------------------------------
             201220             201333   FRTD  801
```

3 Subtable RTEREF is indexed with 801 to identify the selected outgoing trunk group of TITOGA1 which can be used to route the call.

Figure 158 MAP display example for subtable RTEREF

```
 RTE                                                                 RTELIST
-------------------------------------------------------------------------------
 801                          (    N        D          TITOGA1 0   N   N)
```

4 At this point ANI digits are collected to identify the calling number as 322-5000. Trunk group TQMSOSSIC2 uses the enhanced bill code method (ENHBC), and does calling number expansion using table TCLG7DIG.

Figure 159 MAP display example for table TRKGRP

```
GRPKEY      GRPINFO
-------------------------------------------------------------------------
TQMSOSSIC2
           TOPS 0 TLD NCRT IC MIDL 619 619 PTOP NLCA NSCR Y SP COMBINED N
             Y 0 0000 NONE OSS ENHBC N 619320 10 10 Y N OFFHK N N $
```

There is no entry for an NXX of 322 in table TCLG7DIG, so the SNPA of 619 from TRKGRP is used to expand the number to 619-322-5000.

Figure 160 MAP display example for table TCLG7DIG

```
            TCLG7KEY SNPA
------------------------
      TQMSOSSIC1 355  407
```

5 Trunk group TQMSOSSIC2 uses the enhanced bill code method (ENHBC), but does *not* perform calling number verification (subfield CLGVER is set to N in Figure 159 above).

6 An OLNS external data base query is done for this call based on the datafill for field OLNSQRY in table TOPSTOPT for TQMSOSSIC2.

Figure 161 MAP display example for table TOPSTOPT

```
GRPKEY       ORGAREA  DISPCLG ADASERV ADASANS ANITOCLI OLNSQRY DCIBIDX
    LNPCLGAM  XLASCHEM       SPIDPRC     TRKSPID   BILLSCRN  ANIFSPL
-------------------------------------------------------------------------
TQMSOSSIC2   N        N       NONE    NA      N        ALL     0
    N         Y  TRKGRP2       Y           N         N         N
```

This call example assumes that no SPID information is received in the OLNS data base response for the DN of 6193225000.

7 Table TOPSTOPT is accessed for trunk group TQMSOSSIC2, and the initial XLAGRP of TRKGRP2 is obtained from field XLASCHEM.

Figure 162 MAP display example for table TOPSTOPT

```
GRPKEY       ORGAREA  DISPCLG ADASERV ADASANS ANITOCLI OLNSQRY DCIBIDX
    LNPCLGAM  XLASCHEM       SPIDPRC     TRKSPID   BILLSCRN  ANIFSPL
-------------------------------------------------------------------------
TQMSOSSIC2   N        N      NONE     NA       N       ALL     0
   N          Y  TRKGRP2      Y          N         N         N
```

8 There is no SPID information available, so no refinement of the XLAGRP by SPID is performed for this call.

9 There is no matching entry in table XLAODIGS, so no refinement of the XLAGRP by NPA-NXX of the calling number is performed for this call.

Figure 163 MAP display example for table XLAODIGS

```
GRPKEY               NEWXLGRP
-------------------------------------------------------------------------
TRKGRP1    407355       TG1355
```

The final XLAGRP refinement of TRKGRP2 is used to access TOPSDP.

14 For field ORIGSCRN in table TOPSDP, no screen class name (NSCR) is specified for the XLAGRP of TRKGRP2 so class of service screening is not performed.

Figure 164 MAP display example for table TOPSDP

```
XLAGRP       STS  OPERPRTN  ORIGSCRN  OPERSCRN  MCCSPRTN MCCSSCRN LCANAME
-------------------------------------------------------------------------
TRKGRP2       619   OPER     NSCR       NSCR       MCCS     NSCR     L32X
```

19 Field LCANAME in table TOPSDP specifies an LCA name of L32X for the XLAGRP of TRKGRP2.

Figure 165 MAP display example for table TOPSDP

```
XLAGRP        STS  OPERPRTN  ORIGSCRN  OPERSCRN  MCCSPRTN MCCSSCRN LCANAME
-------------------------------------------------------------------------
TRKGRP2       619    OPER      NSCR       NSCR       MCCS      NSCR      L32X
```

Table LCASCRCN is indexed with an STS of 619 and LCA name of L32X. Notice that the PFXSELEC for this entry is MNDT.

Figure 166 MAP display example for table LCASCRCN

```
NPALOCNM  LCASCR PFXSELEC PFXFOR10 LOCALOVR
-----------------------------------------
619 L32X (    1)     MNDT        N        N
```

Subtable LCASCR is then indexed with called number of 201-333-1234.

Figure 167 MAP display example for subtable LCASCR

```
FROMDIGS  TODIGS
---------------
     521     522
```

The NPA digits of 201 from the called number do not match any range in subtable LCASCR, so the call is marked as toll (non-local).

21 Field SCRNTYPE in table TOPEATRK indicates that LATA screening is being performed, and specifies originating LATA name of NILLATA for trunk group TQMSOSSIC1.

Figure 168 MAP display example for table TOPEATRK

```
        TRUNKGRP ENDOFFCE CARRIER     SCRNFLDS            XLASCHEM DNLOOK
DFLTPIC           BYPASS
-------------------------------------------------------------------------
      TQMSOSSIC2     NONE    NNNN LATA  NILLATA   Y           EAXLA     Y
      Y               $
```

22 At this point no equal access screening is performed, since NILLATA indicates the call does not require an inter-exchange carrier.

The LNP Software Optionality Control (SOC) OSEA0008 is activated. The table PORTNUMS indicates that some called numbers beginning with an NPA-NXX of 201-333 are ported, so an LNP query is performed between the initial and subsequent translations steps.

Figure 169 MAP display example for table PORTNUMS

```
LNPKEY          GTTNAME
-------------------------------------------------------------------
201333          LRNGTT
```

The TOPS switch sends an LNP query to the LNP SCP for the called number of 201-333-1234. The LNP SCP response is CalledPartyID of 201-544-0000. This is a Location Routing Number (LRN) because it is not the same number as the original called DN, and indicates the called number is ported.

24 The call is being routed to an operator (dialed as 0+), so retranslating of the call using the LRN is not performed at this time. The selected route at this point in the call is outgoing trunk group TITOGA1.

Subsequent translations and screening

7 Table TOPSTOPT is accessed for trunk group TQMSOSSIC2, and the initial XLAGRP of TRKGRP2 is obtained from field XLASCHEM.

Figure 170 MAP display example for table TOPSTOPT

```
GRPKEY       ORGAREA  DISPCLG ADASERV ADASANS ANITOCLI OLNSQRY DCIBIDX
    LNPCLGAM  XLASCHEM       SPIDPRC     TRKSPID   BILLSCRN  ANIFSPL
-------------------------------------------------------------------------
TQMSOSSIC2   N        N      NONE     NA       N       ALL     0
   N          Y  TRKGRP2      Y          N         N         N
```

8 There is no SPID information available, so no refinement of the XLAGRP by SPID is performed for this call.

9 There is no matching entry in table XLAODIGS, so no refinement of the XLAGRP by NPA-NXX of the calling number is performed for this call.

Figure 171 MAP display example for table XLAODIGS

```
GRPKEY                NEWXLGRP
-----------------------------------------------------------------------
TRKGRP1    407355     TG1355
```

11 For field OPERPRTN in table TOPSDP, the pretranslator name for the XLAGRP of TRKGRP1 is identified as OPER, which is used to index into table STDPRTCT.

Figure 172 MAP display example for table TOPSDP

```
XLAGRP       STS  OPERPRTN  ORIGSCRN  OPERSCRN  MCCSPRTN MCCSSCRN LCANAME
-------------------------------------------------------------------------
TRKGRP2      619   OPER      NSCR      NSCR       MCCS     NSCR     L32X
```

Subtable STDPRT is accessed with the LRN of 201-544-0000 to arrive at a call type of OA.

Figure 173 MAP display example for subtable STDPRT

```
          FROMDIGS            TODIGS                  PRETRTE
  ------------------------------------------------------------
                2                410                N OA 0 NA
```

12 For subsequent code translations, the STS of 619 is obtained from table TOPSDP.

Figure 174 MAP display example for table TOPSDP

```
XLAGRP       STS  OPERPRTN  ORIGSCRN  OPERSCRN  MCCSPRTN MCCSSCRN LCANAME
-------------------------------------------------------------------------
TRKGRP2      619   OPER      NSCR      NSCR       MCCS     NSCR     L32X
```

This STS of 619 is used to index into table HNPACONT, and subtable HNPACODE is indexed with the LRN of 201-544-0000.

Figure 175 MAP display example for subtable HNPACODE

```
          FROMDIGS            TODIGS     CDRRTMT
-------------------------------------------------
        2015440000         2015440000   FRTD  804
```

13 Subtable RTEREF is indexed with the 804 from subtable HNPACODE and identifies a single trunk group, TPORTOG1, for routing the call.

Figure 176 MAP display example for subtable RTEREF

```
 RTE                                                          RTELIST
-------------------------------------------------------------------------
 804                      (    N       D          TPORTOG1 0   N   N)
```

The original route (from initial translations) of trunk group TITOGA1 has been replaced with trunk group TPORTOG1 as the new route.

14 For field ORIGSCRN in table TOPSDP, no screen class name (NSCR) is specified for the XLAGRP of TRKGRP2 so class of service screening is not performed.

Figure 177 MAP display example for table TOPSDP

```
XLAGRP       STS  OPERPRTN  ORIGSCRN  OPERSCRN  MCCSPRTN MCCSSCRN LCANAME
-------------------------------------------------------------------------
TRKGRP2       619   OPER      NSCR       NSCR       MCCS      NSCR      L32X
```

Trunk group TPORTOG1 remains the selected route.

17 An attempt is made to perform class of service screening a *second* time. For field OPERSCRN in table TOPSDP, no screen class name (NSCR) is specified for the XLAGRP of TRKGRP2 in table TOPSDP so this second class of service screening is not performed.

Figure 178 MAP display example for table TOPSDP

```
XLAGRP       STS  OPERPRTN  ORIGSCRN  OPERSCRN  MCCSPRTN MCCSSCRN LCANAME
-------------------------------------------------------------------------
TRKGRP2       619   OPER      NSCR       NSCR       MCCS      NSCR      L32X
```

Again the selected route remains trunk group TPORTOG1.

19 LCA screening is *not* performed on an LRN. The original LCA result of toll from initial translations is preserved.

21 Field SCRNTYPE in table TOPEATRK indicates that LATA screening is being performed, and specifies originating LATA name of NILLATA for trunk group TQMSOSSIC1.

Figure 179 MAP display example for table TOPEATRK

```
       TRUNKGRP ENDOFFCE CARRIER     SCRNFLDS            XLASCHEM DNLOOK
DFLTPIC           BYPASS
-------------------------------------------------------------------------
      TQMSOSSIC2     NONE    NNNN LATA  NILLATA   Y           EAXLA     Y
      Y               $
```

22 At this point no equal access screening is performed, since NILLATA indicates the call does not require an inter-exchange carrier.

23 For subsequent translations, the call is routed to its final destination over trunk group TPORTOG1.

At this point, TOPS translations and screening is complete.

Looparound trunk translations call example

This example shows how to use the XLAGRP method in a DMS 100/TOPS combination office to avoid special TOPS entries in table STDPRTCT. The XLAGRP method can use a unique STS to avoid conflicts with DMS-100 translations data, and thus route out of table HNPACONT. This example assumes that a subscriber with a DN of 619-325-5000 dials 0+325-1000.

Initial translations and screening

0 For initial translations, the call arrives at TOPS on incoming trunk group TQMSOSSIC3.

1 The pretranslator name of PTOP from table TRKGRP is used to index into table STDPRTCT.

Figure 180 MAP display example for table TRKGRP

```
GRPKEY      GRPINFO
-------------------------------------------------------------------------
TQMSOSSIC3
           TOPS 0 TLD NCRT IC MIDL 619 100 PTOP NLCA NSCR Y SP COMBINED N
             Y 0 0000 NONE OSS ENHBC Y 619320 10 10 Y N OFFHK N N $
```

Subtable STDPRT is accessed with the dialed digits of 325-1000, which specifies a call type of Nil (NL). This indicates to determine the actual call type from trunk signalling, which for this example is OA. The North American translations system is used.

Figure 181 MAP display example for subtable STDPRT

```
          FROMDIGS             TODIGS                    PRETRTE
  ------------------------------------------------------------
                2                410                  N NL 0 NA
```

2 For initial code translations, the STS of 100 from table TRKGRP is used to index into table HNPACONT.

Figure 182 MAP display example for table TRKGRP

```
GRPKEY      GRPINFO
-------------------------------------------------------------------------
TQMSOSSIC3
           TOPS 0 TLD NCRT IC MIDL 619 100 PTOP NLCA NSCR Y SP COMBINED N
             Y 0 0000 NONE OSS ENHBC Y 619320 10 10 Y N OFFHK N N $
```

Note: The ability to have the STS different from the SNPA allows the STS value of 100 to be datafilled in the manner shown in this step.

Subtable HNPACODE is accessed with the dialed address digits of 325-1000 and obtains an index of 601 into subtable RTEREF.

Figure 183 MAP display example for subtable HNPACODE

```
          FROMDIGS             TODIGS      CDRRTMT
-------------------------------------------------
               325                325     LRTE 601
```

3 Subtable RTEREF is indexed with 601 to identify the selected outgoing trunk group of TLOOPOG1 which can be used to route the call.

Figure 184 MAP display example for subtable RTEREF

```
 RTE                                                                RTELIST
-------------------------------------------------------------------------
 601                       (    N        D          TLOOPOG1 0   N   N)
```

Special note:

Without the de-coupling of the STS and SNPA, DMS-100 and TOPS would both be forced to use an STS of 619. DMS-100 translations would also need an entry in subtable HNPACODE for the NXX of 325, as follows.

Figure 185 MAP display example for subtable HNPACODE

```
          FROMDIGS             TODIGS     CDRRTMT
-------------------------------------------------
               325                325  DN 619 325
```

This entry specifies that the call is routed as a Directory Number (DN) within the same switching office, with an SNPA of 619 and an NXX of 325. Obviously this conflicts with the entry in HNPACODE that TOPS requires (as shown in the Figure 183).

Prior to the STS and SNPA being de-coupled, this was handled by TOPS with a special entry in the STDPRTCT table, as shown below.

Figure 186 MAP display example for subtable STDPRT

```
          FROMDIGS             TODIGS                              PRETRTE
-------------------------------------------------------------------------
               325                325         T OA 0  OFRT 800  7 7 NONE
```

This entry would, for the same dialed digits of 325-1000, obtain an index of 800 into table OFRT. The entry in table OFRT would then have the outgoing trunk group of TLOOPOG1 which TOPS desires.

With the de-coupling of the STS and SNPA, this type of special entry in table STDPRTCT is no longer required for combined offices.

Now, continuing with the call example using the decoupled STS of 100.

4 At this point ANI digits are collected to identify the calling number as 325-5000. Trunk group TQMSOSSIC3 uses the enhanced bill code method (ENHBC), and does calling number expansion using table TCLG7DIG.

Figure 187 MAP display example for table TRKGRP

```
GRPKEY      GRPINFO
-------------------------------------------------------------------------
TQMSOSSIC3
           TOPS 0 TLD NCRT IC MIDL 619 100 PTOP NLCA NSCR Y SP COMBINED N
             Y 0 0000 NONE OSS ENHBC Y 619320 10 10 Y N OFFHK N N $
```

There is no entry for an NXX of 325 in table TCLG7DIG, so the SNPA of 619 from table TRKGRP is used to expand the calling number to 619-325-5000.

Figure 188 MAP display example for table TCLG7DIG

```
            TCLG7KEY SNPA
------------------------
      TQMSOSSIC1 355  407
```

5 Trunk group TQMSOSSIC3 uses the enhanced bill code method (ENHBC), and specifies to perform calling number verification (CLGVER set to Y). Table TCLGVER contains the NPA-NXX of 619-325 on trunk group TQMSOSSIC3, so calling number verification succeeds.

Figure 189 MAP display example for table TCLGVER

```
                             GRPKEY
----------------------------------
      TQMSOSSIC3             619325
```

6 The datafill in table TOPSTOPT indicates that an OLNS external data base query is done for this call.

Figure 190 MAP display example for table TOPSTOPT

```
GRPKEY       ORGAREA  DISPCLG ADASERV ADASANS ANITOCLI OLNSQRY DCIBIDX
    LNPCLGAM  XLASCHEM       SPIDPRC     TRKSPID   BILLSCRN  ANIFSPL
-------------------------------------------------------------------------
TQMSOSSIC3   N        N      NONE     NA       N       ALL     0
   N          Y  TRKGRP1      Y          N         N         N
```

This call example assumes that no SPID information is received in the OLNS data base response for the DN of 6193255000.

7 Table TOPSTOPT is accessed for trunk group TQMSOSSIC3, and the initial XLAGRP of TRKGRP1 is obtained from field XLASCHEM.

Figure 191 MAP display example for table TOPSTOPT

```
GRPKEY       ORGAREA  DISPCLG ADASERV ADASANS ANITOCLI OLNSQRY DCIBIDX
    LNPCLGAM  XLASCHEM       SPIDPRC     TRKSPID   BILLSCRN  ANIFSPL
-------------------------------------------------------------------------
TQMSOSSIC3   N        N      NONE     NA       N       ALL     0
   N          Y  TRKGRP1      Y          N         N         N
```

8 There is no SPID information available, so no refinement of the XLAGRP by SPID is performed for this call.

9 A matching entry for an XLAGRP of TRKGRP1 and an NPA-NXX of 619-325 is found in table XLAODIGS.

Figure 192 MAP display example for table XLAODIGS

```
GRPKEY               NEWXLGRP
-------------------------------------------------------------------------
TRKGRP1    619325     TG1325
```

The XLAGRP of TRKGRP1 is replaced with new XLAGRP of TG1325.

14 For field ORIGSCRN in table TOPSDP, no screen class name (NSCR) is specified for the XLAGRP of TG1325, so class of service screening is not performed.

Figure 193 MAP display example for table TOPSDP

```
XLAGRP       STS  OPERPRTN  ORIGSCRN  OPERSCRN  MCCSPRTN MCCSSCRN LCANAME
-------------------------------------------------------------------------
TG1325        100   OPER      NSCR       NSCR       MCCS      NSCR      L32X
```

19 Field LCANAME in table TOPSDP specifies an LCA name of L32X for the XLAGRP of TG1325. The STS specified in TOPSDP is 100.

Figure 194 MAP display example for table TOPSDP

```
XLAGRP        STS  OPERPRTN  ORIGSCRN  OPERSCRN  MCCSPRTN MCCSSCRN LCANAME
-------------------------------------------------------------------------
TG1325        100   OPER      NSCR       NSCR       MCCS      NSCR      L32X
```

Table LCASCRCN is indexed with an STS of 100 and LCA name of L32X. Notice that the PFXSELEC for this entry is MNDT.

Figure 195 MAP display example for table LCASCRCN

```
NPALOCNM  LCASCR PFXSELEC PFXFOR10 LOCALOVR
-----------------------------------------
100 L32X (    1)     MNDT        N        N
```

Subtable LCASCR is then indexed with the called number of 325-1000. The NXX digits of 325 from the called number fall within the range of 325 through 325 shown here, so the call is eligible to be local.

Figure 196 MAP display example for subtable LCASCR

```
FROMDIGS  TODIGS
---------------
     325     325
```

Table PFXTREAT is indexed with the PFXSELEC of MNDT, a call type of OA, and a local code setting of Y.

Figure 197 MAP display example for subtable PFXTREAT

```
 TYPLCLCD UPDTYPCA TREAT
------------------------
MNDT OA Y       OA  MSCA
```

An entry exists in table PFXTREAT, so the call is marked as local.

21 Field SCRNTYPE in table TOPEATRK indicates that LATA screening is being performed, and specifies originating LATA name of NILLATA for trunk group TQMSOSSIC3.

Figure 198 MAP display example for table TOPEATRK

```
        TRUNKGRP ENDOFFCE CARRIER     SCRNFLDS            XLASCHEM DNLOOK
DFLTPIC           BYPASS
-------------------------------------------------------------------------
      TQMSOSSIC3     NONE    NNNN LATA  NILLATA   Y           EAXLA     Y
      Y               $
```

22 At this point no equal access screening is performed, since NILLATA indicates the call does not require an inter-exchange carrier.

24 The call is not dialed as a 1+ tandem call, so at this point the call is routed to a TOPS operator position. The selected route at this point in the call is outgoing trunk group TLOOPOG1.

Subsequent translations and screening

The key point of this example has already been illustrated. Therefore the steps for subsequent translations are not shown.

0+ Equal Access LATA screening call example

This example shows routing out of table HNPACONT with the XLAGRP method, but in this case the call is an equal access carrier call. Therefore the XLAGRP data is obtained using Equal Access refinements. The example assumes that a subscriber with a DN of 619-322-5000 dials 0+212-220-1234.

Initial translations and screening

0 For initial translations, the call arrives at TOPS on incoming trunk group TOPEAIC1.

1 The pretranslator name of A1IC from table TRKGRP is used to index into table STDPRTCT.

Figure 199 MAP display example for table TRKGRP

```
GRPKEY      GRPINFO
------------------------------------------------------------------------
TOPEAIC1
            TOPS 0 TLD NCRT IC MIDL 619 619 A1IC NLCA NSCR Y NIL COMBINED
              N Y 0 0000 NONE OSS ENHBC Y 619320 10 10 Y N OFFHK N N $
```

Subtable STDPRT is accessed with the dialed digits of 212-220-1234, which specifies a call type of Nil (NL). This indicates to determine the actual call type from trunk signalling, which for this example is OA. The data indicates to use the North American (NA) translations system.

Figure 200 MAP display example for subtable STDPRT

```
          FROMDIGS             TODIGS                    PRETRTE
-------------------------------------------------------------
                2                410                  N NL 0 NA
```

2 For initial code translations, the STS of 619 from table TRKGRP is used to index into table HNPACONT.

Figure 201 MAP display example for table TRKGRP

```
GRPKEY      GRPINFO
------------------------------------------------------------------------
TOPEAIC1
            TOPS 0 TLD NCRT IC MIDL 619 619 PTOP NLCA NSCR Y SP COMBINED
              N Y 0 0000 NONE OSS ENHBC Y 619320 10 10 Y N OFFHK N N $
```

Subtable HNPACODE is then accessed with the dialed address digits of 212-220-1234 and obtains an index of 801 into subtable RTEREF.

Figure 202 MAP display example for subtable HNPACODE

```
          FROMDIGS             TODIGS     CDRRTMT
-----------------------------------------------
            212220             212222   FRTD  801
```

3 Subtable RTEREF is indexed with 801 to identify the single selected outgoing trunk group of TITOGA1 which can be used to route the call.

Figure 203 MAP display example for subtable RTEREF

```
 RTE                                                                RTELIST
-------------------------------------------------------------------------
 801                        (    N        D          TITOGA1 0   N   N)$
```

4 At this point ANI digits are collected to identify the calling number as 322-5000. Trunk group TOPEAIC1 uses the enhanced bill code method (ENHBC), and does calling number expansion using table TCLG7DIG.

Figure 204 MAP display example for table TRKGRP

```
GRPKEY      GRPINFO
-------------------------------------------------------------------------
TOPEAIC1
           TOPS 0 TLD NCRT IC MIDL 619 619 PTOP NLCA NSCR Y SP COMBINED N
             Y 0 0000 NONE OSS ENHBC Y 619320 10 10 Y N OFFHK N N $
```

There is no entry for an NXX of 322 in table TCLG7DIG, so the SNPA of 619 from TRKGRP is used to expand the number to 619-322-5000.

Figure 205 MAP display example for table TCLG7DIG

```
            TCLG7KEY SNPA
------------------------
      TQMSOSSIC1 355  407
```

5 Trunk group TOPEAIC1 specifies to perform calling number verification (CLGVER set to Y). An entry is found in table TCLGVER for the trunk group TOPEAIC and an NPA-NXX of 619322, so verification succeeds.

Figure 206 MAP display example for table TCLGVER

```
                             GRPKEY
---------------------------------
         TOPEAIC1            619322
```

6 The datafill in table TOPSTOPT indicates that an OLNS external data base query is done for this call.

Figure 207 MAP display example for table TOPSTOPT

```
GRPKEY      ORGAREA  DISPCLG ADASERV ADASANS ANITOCLI OLNSQRY DCIBIDX
    LNPCLGAM  XLASCHEM       SPIDPRC     TRKSPID   BILLSCRN  ANIFSPL
-------------------------------------------------------------------------
TOPEAIC1    N        N      NONE     NA       N       ALL     0
   N          Y  TRKGRP1      Y          N         N         N
```

This call example assumes that no SPID information is received in the OLNS data base response for the DN of 6193225000.

7 Table TOPSTOPT is accessed for trunk group TOPEAIC1, and the initial XLAGRP of TRKGRP1 is obtained from field XLASCHEM.

Figure 208 MAP display example for table TOPSTOPT

```
GRPKEY      ORGAREA  DISPCLG ADASERV ADASANS ANITOCLI OLNSQRY DCIBIDX
    LNPCLGAM  XLASCHEM       SPIDPRC     TRKSPID   BILLSCRN  ANIFSPL
-------------------------------------------------------------------------
TOPEAIC1    N        N      NONE     NA       N       ALL     0
   N          Y  TRKGRP1      Y          N         N         N
```

8 There was no SPID information received for this DN, so no refinement of the XLAGRP by SPID is performed for this call.

9 There is no matching entry in table XLAODIGS for the NPA-NXX of 619-322, so refinement of the XLAGRP by NPA-NXX of the calling number is not performed for this call.

Figure 209 MAP display example for table XLAODIGS

```
GRPKEY               NEWXLGRP
-------------------------------------------------------------------------
TQMSOSSIC1   407355     TG1355
```

The final XLAGRP refinement of TRKGRP1 is used to access TOPSDP.

14 For the XLAGRP of TRKGRP1 in table TOPSDP, no screen class name (NSCR) is specified in field ORIGSCRN. No class of service screening is performed.

Figure 210 MAP display example for table TOPSDP

```
XLAGRP       STS  OPERPRTN  ORIGSCRN  OPERSCRN  MCCSPRTN MCCSSCRN LCANAME
-------------------------------------------------------------------------
TRKGRP1       619   OPER     NSCR       NSCR       MCCS     NSCR     NLCA
```

16 Initial translations are being performed, so no further class of service screening is done.

19 For field LCANAME in table TOPSDP, no local call area name (NLCA) is specified for XLAGRP of TRKGRP1, so LCA screening is not done. The call is marked as toll (non-local).

Figure 211 MAP display example for table TOPSDP

```
XLAGRP       STS  OPERPRTN  ORIGSCRN  OPERSCRN  MCCSPRTN MCCSSCRN LCANAME
-------------------------------------------------------------------------
TRKGRP1       619   OPER      NSCR      NSCR       MCCS      NSCR     NLCA
```

21 Field SCRNTYPE in table TOPEATRK indicates that LATA screening is being performed, and specifies an originating LATA name of L132 for trunk group TOPEAIC1.

Figure 212 MAP display example for table TOPEATRK

```
       TRUNKGRP ENDOFFCE CARRIER     SCRNFLDS            XLASCHEM DNLOOK
DFLTPIC           BYPASS
-------------------------------------------------------------------------
       TOPEAIC1 CONFORM    0803 LATA     L132   Y          EAGRP1      Y
      Y               $
```

22 EA screening is performed by indexing table LATAXLA using L132 and the dialed address digits of 212-220-1234. Field LATA specifies this as an inter-LATA call requiring an inter-exchange carrier for routing.

Figure 213 MAP display example for table LATAXLA

```
                   LATACODE  LATA STATE    EATYPE
-------------------------------------------------
    L123               212 INTER INTER       STD
```

EA1 Table TOPEATRK is accessed for trunk group TOPEAIC1. The field XLASCHEM indicates to use XLAGRP translations for the Equal Access screening, and the initial EA XLAGRP of EAGRP1 is obtained from field XLASCHEM.

Figure 214 MAP display example for table TOPEATRK

```
       TRUNKGRP ENDOFFCE CARRIER     SCRNFLDS            XLASCHEM DNLOOK
DFLTPIC           BYPASS
-------------------------------------------------------------------------
       TOPEAIC1 CONFORM    0803 LATA     L132   Y          EAGRP1      Y
      Y               $
```

EA2 There is no SPID information for this call, so no refinement of the XLAGRP by SPID is performed for this call.

EA3 There is no matching entry in table XLAODIGS for the NPA-NXX of 619-322, so refinement of the XLAGRP by NPA-NXX of the calling number is not performed for this call.

Figure 215 MAP display example for table XLAODIGS

```
GRPKEY                NEWXLGRP
-------------------------------------------------------------------
TRKGRP1     407355      TG1355
```

EA4 In table TOPEATRK, field CARRIER specifies carrier digits of 0803 for trunk group TOPEAIC1.

Figure 216 MAP display example for table TOPEATRK

```
       TRUNKGRP ENDOFFCE CARRIER      SCRNFLDS            XLASCHEM DNLOOK
DFLTPIC           BYPASS
-------------------------------------------------------------------
       TOPEAIC1 CONFORM    0803 LATA     L132   Y           EAGRP1      Y
      Y               $
```

Table TOPEACAR assigns a CICGRP for each carrier number which is used in XLAGRP translations. For a carrier number of 0803, CICGRP assigned is CICGRP803.

Figure 217 MAP display example for table TOPEACAR

```
CARDIG CARNAME         ALTDISP OPLSCLD CAMABILL ALTCARR             NATERM
            INTERM                                            OPSERV TDBIDX
   CICSCHEM
-------------------------------------------------------------------------
  0803    C803            C803       Y        Y    0803             UNREST
           UNREST    SERV NOQUERY Y NOQUERY Y NOQUERY Y Y Y Y 100      0
   Y  CICGRP803
```

There is a matching entry in table XLACIC for CICGRP of CICGRP803. The XLAGRP of EAGRP1 is replaced with new XLAGRP of 803XLA.

Figure 218 MAP display example for table XLACIC

```
GRPKEY                NEWXLGRP
-------------------------------------------------------------------
EAGRP1   CICGRP803      803XLA
```

EA5 Field SCRNTYPE in table TOPEATRK indicates that LATA screening is being used. The STATE field in table LATAXLA is used as the region name, which is set to INTER.

Figure 219 MAP display example for table LATAXLA

```
                    LATACODE  LATA STATE    EATYPE
-------------------------------------------------
    L123                 212 INTER INTER       STD
```

EA6 There is no matching entry in table XLAEAREG for the EA region name of INTER, so refinement of the XLAGRP is not performed for this call.

Figure 220 MAP display example for table XLAEAREG

```
GRPKEY                NEWXLGRP
---------------------------------------------------------------------
EAGRP1       INTER      TG1325
EAGRP1       INTRA      TG1355
```

EA7 The final XLAGRP refinement of 803XLA is used to access TOPSDP.

EA8 For the XLAGRP of 803XLA in table TOPSDP, the field ORIGSCRN specifies a screen class name of STER and an STS of 619 is specified.

Figure 221 MAP display example for table TOPSDP

```
XLAGRP       STS  OPERPRTN  ORIGSCRN  OPERSCRN  MCCSPRTN MCCSSCRN LCANAME
-------------------------------------------------------------------------
803XLA        619   OPER      STER       NSCR       MCCS      NSCR      NLCA
```

Table CLSVSCRC is indexed with an STS of 619 and screen class name of STER, and a call type of OA.

Figure 222 MAP display example for table CLSVSCRC

```
   NPASCTYP NORSLTS     TMTOFRT CLSVSCR
-------------------------------------
619 STER OA       2   N    NONE (    1)
```

EA9 The carrier digits of 0803 are prepended to the dialed address digits. Subtable CLSVSCR is indexed with the digits of 0803-212-220-1234, which specifies an index of 300 into table OFRT for routing information.

Figure 223 MAP display example for subtable CLSVSCR

```
          FROMDIGS             TODIGS                    CDRRTMT
-------------------------------------------------------------------
           0803212             0803212              T   OFRT  600
```

Table OFRT is indexed with 600 to identify the outgoing trunk group of ATC803OG1 to route the call, replacing trunk group TITOGA1.

Figure 224 MAP display example for table OFRT

```
RTE                                                                RTELIST
-------------------------------------------------------------------------
600                          (    N        D        ATC803OG1 0   N   N)
```

24 Initial translations are being performed, and this call is not being tandemed through the TOPS office, so the call is marked to be routed to an operator position.

The trunk group ATC803OG1 is the selected route. At this point, the call is routed to an operator position.

Subsequent translations and screening

The key point of this example has already been illustrated. Therefore the steps for subsequent translations are not shown.

0+ Equal Access ZONE screening call example

This example shows routing out of table HNPACONT with the XLAGRP method, but in this case the call is an equal access carrier call. Therefore the XLAGRP data is obtained using Equal Access refinements. The example assumes that a subscriber with a DN of 619-322-5000 dials 0+212-220-1234.

Initial translations and screening

0 For initial translations, the call arrives at TOPS on incoming trunk group TOPEAIC2.

1 The pretranslator name of A1IC from table TRKGRP is used to index into table STDPRTCT.

Figure 225 MAP display example for table TRKGRP

```
GRPKEY      GRPINFO
-------------------------------------------------------------------------
TOPEAIC2
            TOPS 0 TLD NCRT IC MIDL 619 619 A1IC NLCA NSCR Y NIL COMBINED
              N Y 0 0000 NONE OSS ENHBC Y 619320 10 10 Y N OFFHK N N $
```

Subtable STDPRT is accessed with the dialed digits of 212-220-1234, which specifies a call type of Nil (NL). This indicates to determine the actual call type from trunk signalling, which for this example is OA. The data indicates to use the North American (NA) translations system.

Figure 226 MAP display example for subtable STDPRT

```
          FROMDIGS             TODIGS                    PRETRTE
-------------------------------------------------------------
                2                410                  N NL 0 NA
```

2 For initial code translations, the STS of 619 from table TRKGRP is used to index into table HNPACONT.

Figure 227 MAP display example for table TRKGRP

```
GRPKEY      GRPINFO
-------------------------------------------------------------------------
TOPEAIC2
            TOPS 0 TLD NCRT IC MIDL 619 619 PTOP NLCA NSCR Y SP COMBINED
              N Y 0 0000 NONE OSS ENHBC Y 619320 10 10 Y N OFFHK N N $
```

Subtable HNPACODE is accessed with the dialed address digits of 212-220-1234 and obtains an index of 801 into subtable RTEREF.

Figure 228 MAP display example for subtable HNPACODE

```
          FROMDIGS             TODIGS     CDRRTMT
-----------------------------------------------
             212220             212222   FRTD  801
```

3 Subtable RTEREF is indexed with 801 to identify the single selected outgoing trunk group of TITOGA1 which can be used to route the call.

Figure 229 MAP display example for subtable RTEREF

```
 RTE                                                                  RTELIST
-------------------------------------------------------------------------------
 801                         (    N        D          TITOGA1 0   N   N)$
```

4 At this point ANI digits are collected to identify the calling number as 322-5000. Trunk group TOPEAIC2 uses the enhanced bill code method (ENHBC), and does calling number expansion using table TCLG7DIG.

Figure 230 MAP display example for table TRKGRP

```
GRPKEY      GRPINFO
-------------------------------------------------------------------------
TOPEAIC2
           TOPS 0 TLD NCRT IC MIDL 619 619 PTOP NLCA NSCR Y SP COMBINED N
             Y 0 0000 NONE OSS ENHBC Y 619320 10 10 Y N OFFHK N N $
```

There is no entry for an NXX of 322 in table TCLG7DIG, so the SNPA of 619 from TRKGRP is used to expand the number to 619-322-5000.

Figure 231 MAP display example for table TCLG7DIG

```
            TCLG7KEY SNPA
------------------------
      TQMSOSSIC1 355  407
```

5 Trunk group TOPEAIC2 specifies to perform calling number verification (CLGVER set to Y). An entry is found in table TCLGVER for the trunk group TOPEAIC2 and NPA-NXX of 619322, so verification succeeds.

Figure 232 MAP display example for table TCLGVER

```
                             GRPKEY
---------------------------------
         TOPEAIC2            619322
```

6 The datafill in table TOPSTOPT indicates that an OLNS external data base query is done for this call.

Figure 233 MAP display example for table TOPSTOPT

```
GRPKEY      ORGAREA  DISPCLG ADASERV ADASANS ANITOCLI OLNSQRY DCIBIDX
    LNPCLGAM  XLASCHEM       SPIDPRC     TRKSPID   BILLSCRN  ANIFSPL
-------------------------------------------------------------------------
TOPEAIC2    N        N      NONE     NA       N       ALL     0
   N          Y  TRKGRP1      Y          N         N         N
```

This call example assumes that no SPID information is received in the OLNS data base response for the DN of 6193225000.

7 Table TOPSTOPT is accessed for trunk group TOPEAIC2, and the initial XLAGRP of TRKGRP1 is obtained from field XLASCHEM.

Figure 234 MAP display example for table TOPSTOPT

```
GRPKEY      ORGAREA  DISPCLG ADASERV ADASANS ANITOCLI OLNSQRY DCIBIDX
    LNPCLGAM  XLASCHEM       SPIDPRC     TRKSPID   BILLSCRN  ANIFSPL
-------------------------------------------------------------------------
TOPEAIC2    N        N      NONE     NA       N       ALL     0
   N          Y  TRKGRP1      Y          N         N         N
```

8 There was no SPID information received for this DN, so no refinement of the XLAGRP by SPID is performed for this call.

9 There is no matching entry in table XLAODIGS for the NPA-NXX of 619-322, so refinement of the XLAGRP by NPA-NXX of the calling number is not performed for this call.

Figure 235 MAP display example for table XLAODIGS

```
GRPKEY               NEWXLGRP
-------------------------------------------------------------------------
TRKGRP1     407355      TG1355
```

The final XLAGRP refinement of TRKGRP1 is used to access TOPSDP.

14 For the XLAGRP of TRKGRP1 in table TOPSDP, no screen class name (NSCR) is specified in field ORIGSCRN. No class of service screening is performed.

Figure 236 MAP display example for table TOPSDP

```
XLAGRP       STS  OPERPRTN  ORIGSCRN  OPERSCRN  MCCSPRTN MCCSSCRN LCANAME
-------------------------------------------------------------------------
TRKGRP1       619   OPER      NSCR       NSCR       MCCS      NSCR      NLCA
```

16 Initial translations are being performed, so no further class of service screening is done.

19 For field LCANAME in table TOPSDP, no local call area name (NLCA) is specified for XLAGRP of TRKGRP1, so LCA screening is not done. The call is marked as toll (non-local).

Figure 237 MAP display example for table TOPSDP

```
XLAGRP        STS  OPERPRTN  ORIGSCRN  OPERSCRN  MCCSPRTN MCCSSCRN LCANAME
-------------------------------------------------------------------------
TRKGRP1       619   OPER      NSCR      NSCR       MCCS      NSCR     NLCA
```

21 Field SCRNFLDS in table TOPEATRK indicates that ZONE screening is being performed for trunk group TOPEAIC.

Figure 238 MAP display example for table TOPEATRK

```
       TRUNKGRP ENDOFFCE CARRIER     SCRNFLDS            XLASCHEM DNLOOK
DFLTPIC           BYPASS
-------------------------------------------------------------------------
       TOPEAIC2 CONFORM    0111    ZONE     N   Y           EAGRP1      Y
      Y                $
```

Z1 Field TRKZONE in table TOPEATRK indicates that there is no zone assigned to trunk group TOPEAIC2. Table ZONENAT is indexed with the calling number of 619-322-5000, and field TOPSZONE indicates the originating zone name as RALEIGH.

Figure 239 MAP display example for table ZONENAT

```
                                  KEY TOPSZONE
-------------------------------------------
                  619320      619322  RALEIGH
```

Z2 Table ZONENAT is indexed with the dialed address digits, and field TOPSZONE indicates the terminating zone name as FLORIDA.

Figure 240 MAP display example for table ZONENAT

```
                                  KEY TOPSZONE
-------------------------------------------
                   212220     212222  FLORIDA
```

Z3 Table EASCRN in indexed with an originating zone of RALEIGH and a terminating zone of FLORIDA, and field REGION indicates a region assignment of EASTCOAST.

Figure 241 MAP display example for table EASCRN

```
                              CALLINFO     REGION
-------------------------------------------------
                    RALEIGH   FLORIDA  EASTCOAST
```

Z4 Since an entry was found in table EASCRN, Equal Access translations are performed. The EA region is designated as EASTCOAST.

EA1 Table TOPEATRK is accessed for trunk group TOPEAIC2. The field XLASCHEM indicates to use XLAGRP translations for the Equal Access screening, and the initial EA XLAGRP of EAGRP1 is obtained from field XLASCHEM.

Figure 242 MAP display example for table TOPEATRK

```
       TRUNKGRP ENDOFFCE CARRIER     SCRNFLDS            XLASCHEM DNLOOK
DFLTPIC           BYPASS
-------------------------------------------------------------------------
       TOPEAIC2  CONFORM    0803 LATA     L132   Y           EAGRP1      Y
      Y               $
```

EA2 There is no SPID information for this call, so no refinement of the XLAGRP by SPID is performed for this call.

EA3 There is no matching entry in table XLAODIGS for the NPA-NXX of 619-322, so refinement of the XLAGRP by NPA-NXX of the calling number is not performed for this call.

Figure 243 MAP display example for table XLAODIGS

```
GRPKEY                NEWXLGRP
-------------------------------------------------------------------------
TRKGRP1     407355      TG1355
```

EA4 In table TOPEATRK, field CARRIER specifies carrier digits of 0111 for trunk group TOPEAIC2.

Figure 244 MAP display example for table TOPEATRK

```
       TRUNKGRP ENDOFFCE CARRIER      SCRNFLDS            XLASCHEM DNLOOK
DFLTPIC           BYPASS
-------------------------------------------------------------------------
       TOPEAIC2 CONFORM    0111    LATA   L132   Y           EAXLA      Y
      Y               $
```

For each carrier number in table TOPEACAR, a CICGRP is assigned if XLAGRP refinement by CICGRP is wanted. For a carrier number of 0111, no CICGRP assigned so no refinement in XLACIC is done.

Figure 245 MAP display example for table TOPEACAR

```
CARDIG CARNAME         ALTDISP OPLSCLD CAMABILL ALTCARR             NATERM
             INTERM                                            OPSERV TDBIDX
   CICSCHEM
-------------------------------------------------------------------------
  0111    C111            C111       Y        Y    0111             UNREST
            UNREST    SERV NOQUERY Y NOQUERY Y NOQUERY Y Y Y Y 100      0
   N
```

EA5 Field SCRNTYPE in table TOPEATRK indicates that ZONE screening is being used. The REGION field in table EASCRN, which was determined in step Z4, is EASTCOAST.

Figure 246 MAP display example for table EASCRN

```
                              CALLINFO     REGION
-------------------------------------------------
                     RALEIGH   FLORIDA  EASTCOAST
```

EA6 There is a matching entry in table XLAEAREG for the EA region name of EASTCOAST, so refinement of the XLAGRP is performed for this call. The XLAGRP of EAGRP1 is replaced with a new XLAGRP of EASTXLA.

Figure 247 MAP display example for table XLAEAREG

```
GRPKEY                 NEWXLGRP
-------------------------------------------------------------------------
EAGRP1  EASTCOAST      EASTXLA
```

EA7 The final XLAGRP refinement of EASTXLA is used to access TOPSDP.

EA8 For the XLAGRP of EASTXLA in table TOPSDP, the field ORIGSCRN specifies a screen class name of STRA and an STS of 619 is specified.

Figure 248 MAP display example for table TOPSDP

```
XLAGRP        STS  OPERPRTN  ORIGSCRN  OPERSCRN  MCCSPRTN MCCSSCRN LCANAME
-------------------------------------------------------------------------
EASTXLA       619   OPER      STRA       NSCR       MCCS     NSCR     NLCA
```

Table CLSVSCRC is indexed with an STS of 619 and screen class name of STRA, and a call type of OA.

Figure 249 MAP display example for table CLSVSCRC

```
   NPASCTYP NORSLTS     TMTOFRT CLSVSCR
-------------------------------------
619 STRA OA       2   N    NONE (    1)
```

EA9 The carrier digits of 0111 are prepended to the dialed address digits. Subtable CLSVSCR is indexed with the digits of 0111-212-220-1234, which specifies an index of 100 into table OFRT for routing information.

Figure 250 MAP display example for subtable CLSVSCR

```
          FROMDIGS             TODIGS                    CDRRTMT
-------------------------------------------------------------
           0111212            0111212             T   OFRT  100
```

Table OFRT is indexed with 100 to identify the outgoing trunk group of TATC111OG1 to route the call, replacing trunk group TITOGA1.

Figure 251 MAP display example for table OFRT

```
RTE                                                                  RTELIST
-------------------------------------------------------------------------
100                          (    N        D       ATC111OG1 0   N   N)
```

24 Initial translations are being performed, and this call is not being tandemed through the TOPS office, so the call is marked to be routed to an operator position.

The trunk group ATC111OG1 is the selected route. At this point, the call is routed to an operator position.

Subsequent translations and screening

The key point of this example has already been illustrated. Therefore the steps for subsequent translations are not shown.

BLV translations call example

This example shows a Busy Line Verification (BLV) performed by the TOPS operator, using table OPRINFO for translation and screening information. The example assumes that a subscriber with a DN of 619-322-5000 has dialed 0- and requests the operator to perform BLV for the number 322-5001.

BLV is performed once a call is at an operator position. Initial translations are not pertinent to this call scenario, and thus are not shown in this example.

Subsequent translations and screening

7 The TOPS operator keys for a BLV operation, and then enters the digits 619-322-5001. The BLV tuple in table OPRINFO is accessed, and field XLASCHEM indicates the XLAGRP name of BLVXLA is used for BLV.

Figure 252 MAP display example for table OPRINFO

```
NUMTYP                XLASCHEM
----------------------------
BLV                   Y BLVXLA
```

No XLAGRP refinements are performed for entries in table OPRINFO, so the XLAGRP of BLVXLA is used to index into table TOPSDP.

11 For field OPERPRTN in table TOPSDP, the pretranslator name for the XLAGRP of TRKGRP1 is identified as OPER.

Figure 253 MAP display example for table TOPSDP

```
XLAGRP       STS  OPERPRTN  ORIGSCRN  OPERSCRN  MCCSPRTN MCCSSCRN LCANAME
-------------------------------------------------------------------------
BLVXLA        100   OPER      NSCR      NSCR       MCCS     NSCR     NLCA
```

The pretranslator name of OPER is used to index into table STDPRTCT. Subtable STDPRT is then accessed with the BLV digits of 619-322-5001.

Figure 254 MAP display example for subtable STDPRT

```
          FROMDIGS            TODIGS                  PRETRTE
  ------------------------------------------------------------
              412                 9                N OA 0 NA
```

Subtable STDPRT specifies a call type of OA.

Special note:

This is another example where the decoupling of the STS and SNPA allows TOPS to avoid the use of a special pretranslator. To avoid conflicts with DMS-100 translations, TOPS would normally use an entry in STDPRT as follows:

Figure 255 MAP display example for subtable STDPRT

```
          FROMDIGS              TODIGS                      PRETRTE
  ------------------------------------------------------------------
            619321              619322
                              T OA 0    OFRT  810  10  10   NONE
```

Here, subtable STDPRT indicates that the routing information is to be found at index 810 in the Office Routing (OFRT) table. Table OFRT is indexed with 810 to identify outgoing trunk group TSCRAMBOG1 to route the BLV call.

Figure 256 MAP display example for table OFRT

```
RTE                                                                RTELIST
-------------------------------------------------------------------------
810                         (    N        D        TSCRAMBOG1 0   N   N)
```

Note that this is one of those instances where the route is determined out of the pretranslator, so the next step, code translations, would be bypassed.

Now, continuing with the call example of not using a special pretranslator.

12 For initial code translations, the STS of 100 from the BLVXLA entry in table TOPSDP is used to index into table HNPACONT.

Figure 257 MAP display example for table TOPSDP

```
XLAGRP       STS  OPERPRTN  ORIGSCRN  OPERSCRN  MCCSPRTN MCCSSCRN LCANAME
-------------------------------------------------------------------------
BLVXLA       100   OPER      NSCR      NSCR       MCCS      NSCR     NLCA
```

Subtable HNPACODE is accessed with the BLV digits of 619-322-5001 and obtains an index of 801 into subtable RTEREF.

Figure 258 MAP display example for subtable HNPACODE

```
          FROMDIGS              TODIGS     CDRRTMT
-----------------------------------------------
            619321              619322   FRTD  810
```

13 Subtable RTEREF is indexed with 810 to identify the selected outgoing trunk group of TSCRAMBOG1 to route the BLV call.

Figure 259 MAP display example for subtable RTEREF

```
 RTE                                                                  RTELIST
-------------------------------------------------------------------------------
810                          (    N        D        TSCRAMBOG1 0   N   N)
```

14 For field ORIGSCRN in table TOPSDP, no screen class name (NSCR) is specified for the XLAGRP of BLVXLA, so class of service screening is not performed.

Figure 260 MAP display example for table TOPSDP

```
XLAGRP        STS  OPERPRTN  ORIGSCRN  OPERSCRN  MCCSPRTN MCCSSCRN LCANAME
-------------------------------------------------------------------------
BLVXLA         619   OPER      NSCR       NSCR       MCCS      NSCR      NLCA
```

Trunk group TSCRAMBOG1 remains the outgoing route selected.

17 An attempt is made to perform class of service screening a *second* time. For field OPERSCRN in table TOPSDP, no screen class name (NSCR) is specified for the XLAGRP of BLVXLA in table TOPSDP so class of service screening is not performed.

Figure 261 MAP display example for table TOPSDP

```
XLAGRP        STS  OPERPRTN  ORIGSCRN  OPERSCRN  MCCSPRTN MCCSSCRN LCANAME
-------------------------------------------------------------------------
BLVXLA         619   OPER      NSCR       NSCR       MCCS      NSCR      NLCA
```

Again trunk group TSCRAMBOG1 remains the outgoing route selected.

19 Local call area screening is not performed on BLV numbers.

20 Since this is a BLV number that is being translated, EA translations and screening is also not performed.

23 For subsequent translations, the call is routed to its final destination over trunk group TSCRAMBOG1.

At this point, TOPS translations and screening is complete.

0+ overseas number call example

This example shows routing out of table HNPACONT with the XLAGRP method, but in this case the call is an overseas call. Therefore the XLAGRP data is obtained using Equal Access refinements. The example assumes that a subscriber with a DN of 619-322-5000 dials 0+133-12345.

Initial translations and screening

0 For initial translations, the call arrives at TOPS on incoming trunk group TOPEAIC1.

1 The pretranslator name of PTOP from table TRKGRP is used to index into table STDPRTCT.

Figure 262 MAP display example for table TRKGRP

```
GRPKEY      GRPINFO
-------------------------------------------------------------------
TOPEAIC1
           TOPS 0 TLD NCRT IC MIDL 619 619 PTOP NLCA NSCR Y NIL COMBINED
            N Y 0 0000 NONE OSS ENHBC Y 619320 10 10 Y N OFFHK N N $
```

Subtable STDPRT is accessed with the dialed digits of 133-12345, which indicates to use the International (IN) translations system. The call type specified is Nil (NL), which indicates to determine the actual call type from trunk signalling. However, since International translations are being used, the call type is set to OVERSEAS.

Figure 263 MAP display example for subtable STDPRT

```
          FROMDIGS             TODIGS                    PRETRTE
-----------------------------------------------------------------
                12                 19                  N NL 1 IN
```

Also note that the entry in subtable STDPRT indicates the removal of one prefix digit. Thus the address digits used now are 33-12345.

2 For international translations, table Country Code Translations (CCTR) is used instead of HNPACONT. The STS in table TRKGRP is not used.

Figure 264 MAP display example for table CCTR

```
            CCNAME
         GIVENCC      MINDIGSR MAXDIGSR              TMTORRTE
-----------------------------------------------------------------
                33
        T    033             6       13     T     OFRT  832 Y
```

Table CCTR is indexed with the dialed address digits of 33-12345, and an index of 832 into table OFRT is obtained.

3 Table OFRT is indexed with 832 to identify the single selected outgoing trunk group of TITOGA1 which can be used to route the call.

Figure 265 MAP display example for table OFRT

```
 RTE                                                                  RTELIST
-------------------------------------------------------------------------------
 832                    (   TS        D          TITOGA1 0   N   N 6 N)$
```

4 At this point ANI digits are collected to identify the calling number as 322-5000. Trunk group TOPEAIC uses the enhanced bill code method (ENHBC), and does calling number expansion using table TCLG7DIG.

Figure 266 MAP display example for table TRKGRP

```
GRPKEY      GRPINFO
-------------------------------------------------------------------------
TOPEAIC1
           TOPS 0 TLD NCRT IC MIDL 619 619 PTOP NLCA NSCR Y SP COMBINED N
             Y 0 0000 NONE OSS ENHBC Y 619320 10 10 Y N OFFHK N N $
```

There is no entry for an NXX of 322 in table TCLG7DIG, so the SNPA of 619 from TRKGRP is used to expand the number to 619-322-5000.

Figure 267 MAP display example for table TCLG7DIG

```
            TCLG7KEY SNPA
-------------------------
      TQMSOSSIC1 355  407
```

5 Trunk group TOPEAIC1 specifies to perform calling number verification (CLGVER set to Y). An entry is found in table TCLGVER for the trunk group TOPEAIC and an NPA-NXX of 619322, so verification succeeds.

Figure 268 MAP display example for table TCLGVER

```
                              GRPKEY
-----------------------------------
            TOPEAIC1          619322
```

6 The datafill in table TOPSTOPT indicates that an OLNS external data base query is done for this call.

Figure 269 MAP display example for table TOPSTOPT

```
GRPKEY      ORGAREA  DISPCLG ADASERV ADASANS ANITOCLI OLNSQRY DCIBIDX
    LNPCLGAM  XLASCHEM       SPIDPRC     TRKSPID   BILLSCRN  ANIFSPL
-------------------------------------------------------------------------
TOPEAIC1    N        N      NONE     NA       N       ALL     0
   N          Y  TRKGRP1      Y          N         N         N
```

This call example assumes that no SPID information is received in the OLNS data base response for the DN of 6193225000.

7 Table TOPSTOPT is accessed for trunk group TOPEAIC1, and the initial XLAGRP of TRKGRP1 is obtained from field XLASCHEM.

Figure 270 MAP display example for table TOPSTOPT

```
GRPKEY      ORGAREA  DISPCLG ADASERV ADASANS ANITOCLI OLNSQRY DCIBIDX
    LNPCLGAM  XLASCHEM       SPIDPRC     TRKSPID   BILLSCRN  ANIFSPL
-------------------------------------------------------------------------
TOPEAIC1    N        N      NONE     NA       N       ALL     0
   N          Y  TRKGRP1      Y          N         N         N
```

8 There was no SPID information received for this DN, so no refinement of the XLAGRP by SPID is performed for this call.

9 There is no matching entry in table XLAODIGS for the NPA-NXX of 619-322, so refinement of the XLAGRP by NPA-NXX of the calling number is not performed for this call.

Figure 271 MAP display example for table XLAODIGS

```
GRPKEY               NEWXLGRP
-------------------------------------------------------------------
TRKGRP1     407355      TG1355
```

The final XLAGRP refinement of TRKGRP1 is used to access TOPSDP.

14 For the XLAGRP of TRKGRP1 in table TOPSDP, no screen class name (NSCR) is specified in field ORIGSCRN. No class of service screening is performed.

Figure 272 MAP display example for table TOPSDP

```
XLAGRP       STS  OPERPRTN  ORIGSCRN  OPERSCRN  MCCSPRTN MCCSSCRN LCANAME
-------------------------------------------------------------------------
TRKGRP1       619   OPER      NSCR       NSCR       MCCS      NSCR      NLCA
```

16 Initial translations are being performed, so no further class of service screening is done.

19 For field LCANAME in table TOPSDP, no local call area name (NLCA) is specified for XLAGRP of TRKGRP1, so LCA screening is not done. The call is marked as toll (non-local).

Figure 273 MAP display example for table TOPSDP

```
XLAGRP        STS  OPERPRTN  ORIGSCRN  OPERSCRN  MCCSPRTN MCCSSCRN LCANAME
-------------------------------------------------------------------------
TRKGRP1       619   OPER     NSCR      NSCR       MCCS     NSCR     NLCA
```

21 Field SCRNTYPE in table TOPEATRK indicates that LATA screening is being performed, and specifies an originating LATA name of L132 for trunk group TOPEAIC1.

Figure 274 MAP display example for table TOPEATRK

```
       TRUNKGRP ENDOFFCE CARRIER     SCRNFLDS            XLASCHEM DNLOOK
DFLTPIC           BYPASS
-------------------------------------------------------------------------
       TOPEAIC1 CONFORM    0803 LATA    L132   Y          EAGRP1      Y
      Y               $
```

22 Overseas calls do *not* perform EA screening using table LATAXLA. They are handled like a carrier-originated call, and are automatically marked as InterLATA.

EA1 Table TOPEATRK is accessed for trunk group TOPEAIC1. The field XLASCHEM indicates to use XLAGRP translations for the Equal Access screening, and the initial EA XLAGRP of EAGRP1 is obtained from field XLASCHEM.

Figure 275 MAP display example for table TOPEATRK

```
       TRUNKGRP ENDOFFCE CARRIER     SCRNFLDS            XLASCHEM DNLOOK
DFLTPIC           BYPASS
-------------------------------------------------------------------------
       TOPEAIC1 CONFORM   0803   LATA    L132   Y          EAGRP1      Y
      Y               $
```

EA2 There is no SPID information for this call, so no refinement of the XLAGRP by SPID is performed for this call.

EA3 There is no matching entry in table XLAODIGS for the NPA-NXX of 619-322, so refinement of the XLAGRP by NPA-NXX of the calling number is not performed for this call.

Figure 276 MAP display example for table XLAODIGS

```
GRPKEY                NEWXLGRP
-------------------------------------------------------------------
TRKGRP1     407355      TG1355
```

EA4 In table TOPEATRK, field CARRIER specifies carrier digits of 0803 for trunk group TOPEAIC1.

Figure 277 MAP display example for table TOPEATRK

```
       TRUNKGRP ENDOFFCE CARRIER      SCRNFLDS            XLASCHEM DNLOOK
DFLTPIC           BYPASS
-------------------------------------------------------------------------
      TOPEAIC     CONFORM    0803 LATA     L132   Y           EAGRP1      Y
      Y               $
```

Table TOPEACAR assigns a CICGRP for each carrier number which is used in XLAGRP translations. For a carrier number of 0803, CICGRP assigned is CICGRP803.

Figure 278 MAP display example for table TOPEACAR

```
CARDIG CARNAME         ALTDISP OPLSCLD CAMABILL ALTCARR             NATERM
            INTERM                                              OPSERV TDBIDX
   CICSCHEM
-------------------------------------------------------------------------
  0803    C803            C803       Y        Y    0803             UNREST
           UNREST    SERV NOQUERY Y NOQUERY Y NOQUERY Y Y Y Y 100      0
   Y  CICGRP803
```

There is no matching entry in table XLACIC for a CICGRP of CICGRP803. The XLAGRP remains EAGRP1.

Figure 279 MAP display example for table XLACIC

```
GRPKEY                NEWXLGRP
-------------------------------------------------------------------
EAGRP1   CICGRP111      111XLA
```

EA5 For overseas calls, the STATE field in table LATAXLA is not used. The region designation is set to OVERSEAS.

EA6 There is a matching entry in table XLAEAREG for the EA region name of OVERSEAS, so refinement of the XLAGRP is not performed for this call.

Figure 280 MAP display example for table XLAEAREG

```
GRPKEY                NEWXLGRP
-------------------------------------------------------------------
EAGRP1    OVERSEAS      OVSXLA
```

EA7 The final XLAGRP refinement of OVSXLA is used to access TOPSDP.

EA8 For the XLAGRP of EAGRP1 in table TOPSDP, the field ORIGSCRN specifies a screen class name of SOVS and an STS of 619 is specified.

Figure 281 MAP display example for table TOPSDP

```
XLAGRP       STS  OPERPRTN  ORIGSCRN  OPERSCRN  MCCSPRTN MCCSSCRN LCANAME
-------------------------------------------------------------------------
OVSXLA       619   OPER      SOVS       NSCR       MCCS      NSCR      NLCA
```

Table CLSVSCRC is indexed with an STS of 619 and screen class name of SOVS, and a call type of OA.

Figure 282 MAP display example for table CLSVSCRC

```
   NPASCTYP NORSLTS     TMTOFRT CLSVSCR
-------------------------------------
619 SOVS OA       2   N    NONE (    1)
```

EA9 The carrier digits of 0803 are prepended to the dialed address digits. Subtable CLSVSCR is indexed with the digits of 0803-33-12345, which specifies an index of 300 into table OFRT for routing information.

Figure 283 MAP display example for subtable CLSVSCR

```
          FROMDIGS            TODIGS                  CDRRTMT
-----------------------------------------------------------
            080333            080333            T   OFRT  300
```

Table OFRT is indexed with 300 to identify the outgoing trunk group of TITOGB1 to route the call, replacing trunk group TITOGA1.

Figure 284 MAP display example for table OFRT

```
RTE                                                          RTELIST
-------------------------------------------------------------------
300                        (    N        D          TITOGB1 0   N   N)
```

24 The call is not dialed as a 1+ tandem call, so at this point the call is routed to a TOPS operator position. The selected route at this point in the call is outgoing trunk group TITOGB1.

Subsequent translations and screening

The key point of this example has already been illustrated. Therefore the steps for subsequent translations are not shown.

List of terms

address digits

Dialed destination digits that have had any prefix digits (such as 1+, 0+) removed, and are interpreted as part of determining a route.

AMA

automatic message accounting

ANI

automatic number identification

ANIF

automatic number identification failure

automatic message accounting (AMA)

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

automatic number identification (ANI)

A system whereby a calling number is identified automatically and transmitted to the automatic message accounting (AMA) office equipment for billing.

automatic number identification failure (ANIF)

A failure of the ANI system to identify and automatically transmit the calling number to the automatic message accounting (AMA) office equipment for billing.

BLV

busy line verification

busy line verification (BLV)

A DMS TOPS service that allows the subscriber to obtain operator assistance to determine whether a called line is in use or out of order.

carrier identification code

A set of digits under the equal access dialing plan that identifies the carrier used to transport a call across a LATA boundary.

CIC

carrier identification code

class of service screening

A step in the translations process that allows modifying the selected route based on certain characteristics of the call or attributes of the calling party.

CLEC

competitive local exchange carrier

CLLI

common language location identifier

code translations

A step in the translations process that uses the address digits to determine a route for the call.

common language location identifier (CLLI)

A user-defined name that identifies trunk group information.

competitive local exchange carrier (CLEC)

A company that provides local telephone service in competition to the pre-Telecom Reform Act of 1996 (TRA96) incumbent local service provider.

DA

directory assistance

DD

direct dialed

delay call

A call set up by an operator who establishes links to both of the concerned parties. When the connection is established, all operator functions are the same as for a subscriber-originated call, and the operator position can be released.

Digital Multiplex System (DMS)

A central office switching system in which all external signals are converted to digital data and stored in assigned time slots. Switching is performed by reassigning the original time slots.

direct dialed (DD)

A call type that indicates the subscriber has dialed a 1+ prefix digit in placing a call.

directory assistance (DA)

A facility that allows an operator to help a subscriber complete a dialed directory assistance call.

directory number (DN)

The full complement of digits required to designate a subscriber's station within one numbering plan area (NPA)—usually a three-digit central office (CO) code followed by a four-digit station number.

DMS

Digital Multiplex System

DN

directory number

duplicate NXX

A situation where a three-digit office code which is valid in two neighboring numbering plan areas (NPAs), and a single trunk group that carries traffic from both NPAs is not able to distinguish the correct NPA based on the NXX.

EA

equal access

end office (EO)

A telephone switching office (SO) arranged for terminating subscriber lines and provided with trunks for establishing connections to and from other SOs.

enhanced bill code (ENHBC)

An optional TOPS service that provides expansion of seven-digit calling numbers to ten digits and performs calling number verification.

ENHBC

enhanced bill code

EO

end office

equal access (EA)

An operating company tariff offering for local access and transport area (LATA) access equal in type, quality, and price for all connected interLATA and international carriers.

FCC

Federal Communications Commission

Federal Communications Commission (FCC)

The government body in the United States that determines policy for the telecommunications industry.

ILEC

incumbent local exchange carrier

incumbent local exchange carrier (ILEC)

The telephone company that provided local telephone service prior to the introduction of local service competition as specified in the Telecom Reform Act of 1996 (TRA).

initial translations

The TOPS translations stage that is performed prior to a call's presentation to an operator (or TOPS automated system). Its primary purpose is to identify whether the call should involve TOPS services, or simply tandem through the TOPS switch to another office.

integrated service digital network (ISDN)

A digital network based on a technology that allows both digital voice and data to be transported over a single subscriber line at the same time.

interexchange carrier

Any carrier that provides telecommunication services to transport traffic between geographic areas served by two separate operating companies.

interLATA

Telecommunication services, revenues, and functions that originate in one local access and transport area (LATA) and terminate either outside that LATA or inside another LATA.

intraLATA

Telecommunication services, revenues, and functions that originate and terminate within the same local access and transport area (LATA).

ISDN

integrated service digital network

ISDN user part (ISUP)

A common channel signalling 7 (CCS7) message-based signaling protocol that acts as a transport carrier for ISDN services. ISUP provides the functionality in a CCS7 network for voice and data services.

ISUP

ISDN user part

LATA

local access and transport area

LCA

local calling area

LEC

local exchange carrier

LIDB

line information database

line information database (LIDB)

A database used to query alternate billed intraLATA calls. The LIDB relays to the DMS switch information regarding billing number verification for a given dialing number.

LNP

local number portability

local access and transport area (LATA)

A geographic area within which an operating company is allowed to offer telecommunications-related services.

local call area screening

A step in the translations process that is used to determine if the destination route is a local call for the calling party.

local calling area (LCA)

A geographic area within which calls are billed at a local rate.

local exchange carrier (LEC)

An operating company which is allowed to offer telecommunications-related services within a local geographic area.

local number portability (LNP)

A circuit switched network capability that allows telephone subscribers to keep their directory number (DN) when they change service providers. The subscriber keeps the same DN when the DN is moved, or *ported*, to a different end office. Other subscribers can connect to the ported DN without changing their dialing procedure.

location routing number (LRN)

A ten-digit number used to uniquely identify and used to route calls to a switch that has ported numbers

LRN

location routing number

MAP

maintenance and administration position

maintenance and administration position (MAP)

A group of components that provides a user interface between operating company personnel and the DMS-100 Family of switches. The interface consists of a video display unit and keyboard, a voice communications module, test facilities, and special furniture.

MCCS

mechanized calling card service

mechanized calling card service (MCCS)

A feature that allows the subscriber to dial a call and bill it to a calling card number provided by the operating company.

MF

multifrequency

MFJ

modified final judgement

modified final judgement (MFJ)

The 1984 decision by the United States Federal Communications Commission regulating the breakup of AT&T and local operating companies.

multifrequency (MF)

A signaling method that makes use of pairs of standard toes to transmit signaling codes, digit pulsing, and coin-control signals. The method is used by interregister signaling on analog trunks.

NA

North American

North American (NA)

The geographic area including the United States, Canada, and Mexico.

NPA

numbering plan area

numbering plan area (NPA)

Any of the designated geographical divisions of the United States, Canada, Bermuda, Caribbean, Northwestern Mexico within which no two telephones have the same seven-digit number. Each NPA is assigned a unique three-digit area code. The NPA of the directory number 613-621-1234 is 613.

NXX

The three-digit office code. The NXX of the directory number 613-621-1234 is 621.

OA

operator assisted

OLNS

originating line number screening

ONI

operator number identification

operating company

A telephone company that owns the switching equipment.

operator assisted (OA)

A call type that indicates a TOPS operator has been involved to complete the subscriber connection to the destination.

operator number identification (ONI)

A manual system using an operator to identify a calling number to transmit to the automatic message accounting (AMA) office equipment for billing when an automatic number identification (ANI) system is not available.

originating line number screening (OLNS)

A feature that queries an external Line Information Data Base (LIDB) to obtain information about a subscriber.

per-trunk signaling (PTS)

A conventional telephony method of signaling that multiplexes the control signal of a call with voice or data over the same trunk.

prefix digits

Certain digits patterns, such as 1+ or 0+, which are dialed before the destination digits and are interpreted as part of determining a route.

pretranslations

A step in the translations process that is used to process any prefix digits dialed and build the remaining dialed address digits into a standard format. Or used to identify certain service codes (e.g., 911 or 411) which can be dialed.

PTS

per-trunk signaling

screening

The process of modifying the translations results (if necessary) based on certain characteristics of the call and attributes of the calling party.

service node (SN)

An external node that interacts with the switch to provide OSSAIN services.

service provider identifier (SPID)

A code that uniquely identifies the service provider of the originating party.

serving numbering plan area (SNPA)

Any of the designated geographical divisions of the United States, Canada, Bermuda, Caribbean, Northwestern Mexico within which no two telephones have the same seven-digit number. Each NPA is assigned a unique three-digit area code. The NPA of the directory number 613-621-1234 is 613.

serving translations scheme (STS)

An internal DMS switch index used to reference the translations and screening tables.

SN

service node

SNPA

serving numbering plan area

SOC

software optionality control

software optionality control (SOC)

A tool for controlling and monitoring the options in a product computing module load (PCL).

SPID

service provider identifier

STS

serving translation scheme

subsequent translations

The translations stage that occurs when the call is routed from the TOPS operator (or TOPS automated system) to its final destination in the network.

TA

toll and assist

Telecom Reform Act of 1996 (TRA96)

A directive by the United States Federal Communications Commission which introduces a set of regulations for competition in the telecommunications industry.

toll and assist (TA)

A facility that allows an operator to help a subscriber complete a dialed toll call.

TOPS

Traffic Operator Position System

TOPS Intelligent Workstation System (TOPS IWS)

An integrated operator assistance, intercept, and DA position, which uses a personal computer with customized software, keyboard, and interface.

TOPS IWS

TOPS Intelligent Workstation System

TRA96

Telecom Reform Act of 1996

Traffic Operator Position System (TOPS)

A call processing system made up of a number of operator positions. Each operator position consists of a visual display unit (VDU), a controller, a keyboard, and a headset.

translations

The process of determining a route for a call to a destination based on a string of valid dialed digits.

translations group (XLAGRP)

A user-defined name that identifies translations and screening information.

XLAGRP

translations group

DMS-100 Family

TOPS Translations and Screening

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