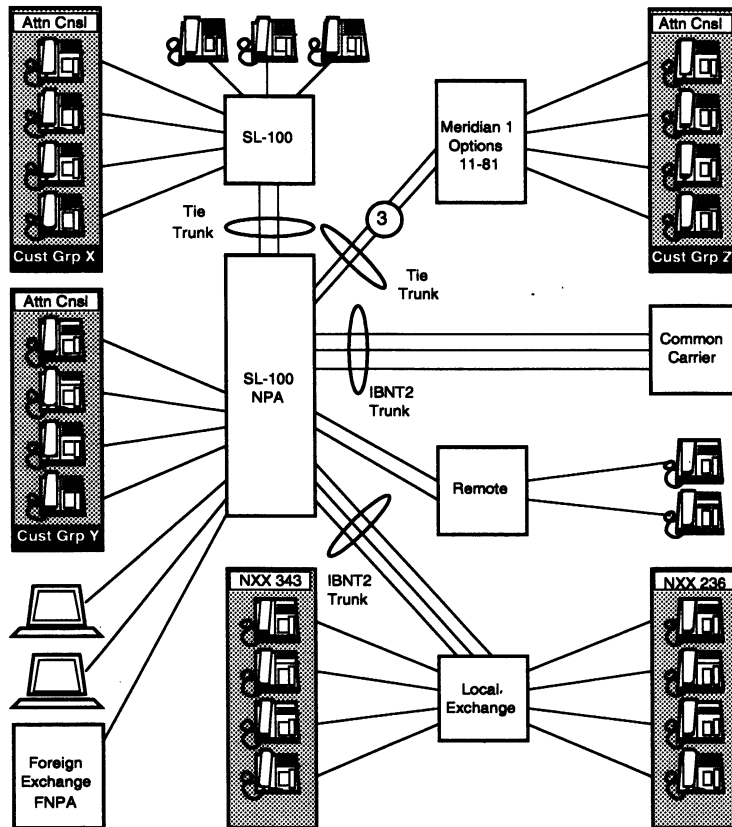


SL-100 Translations, part 1

Student Guide



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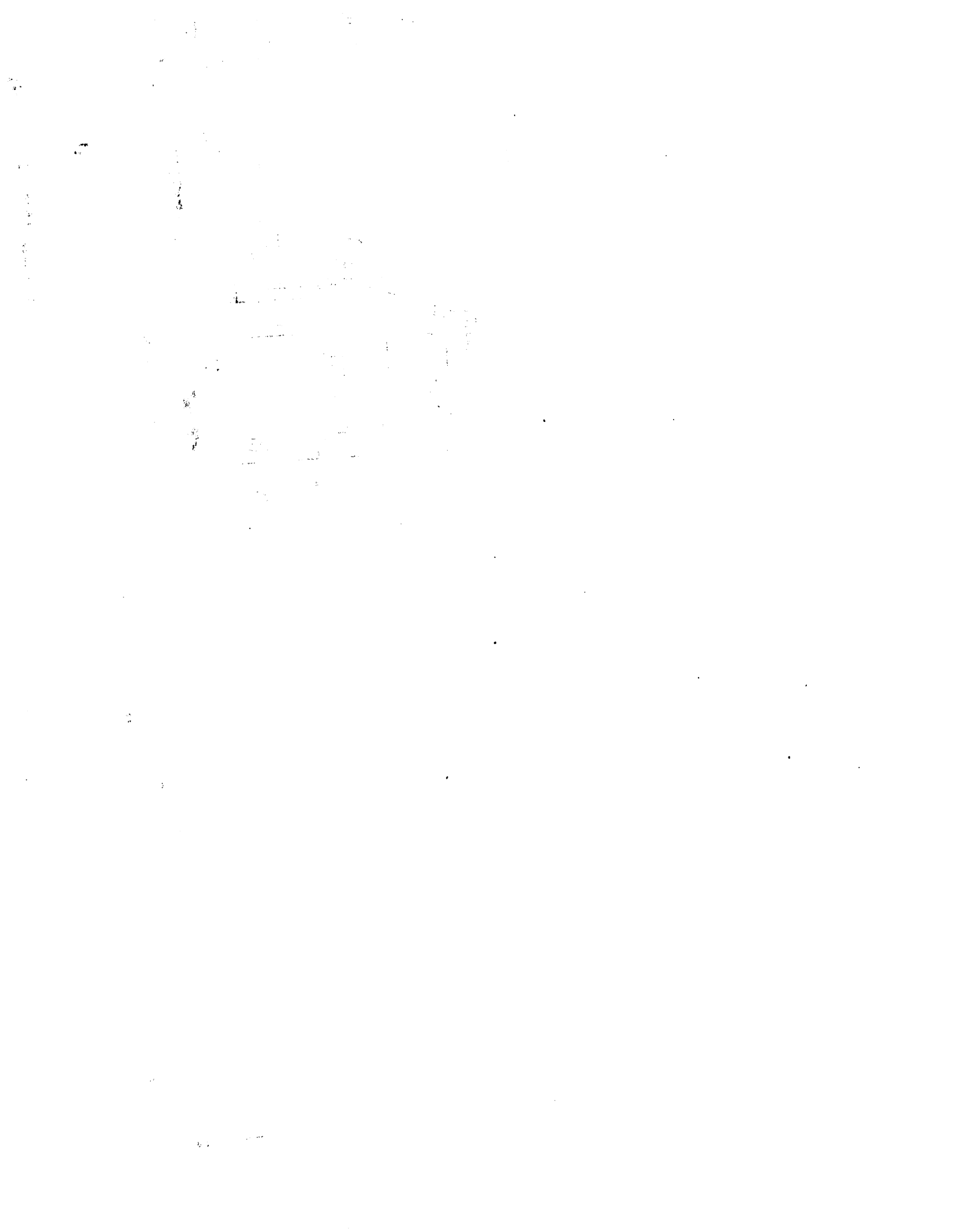


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Use Helmsman

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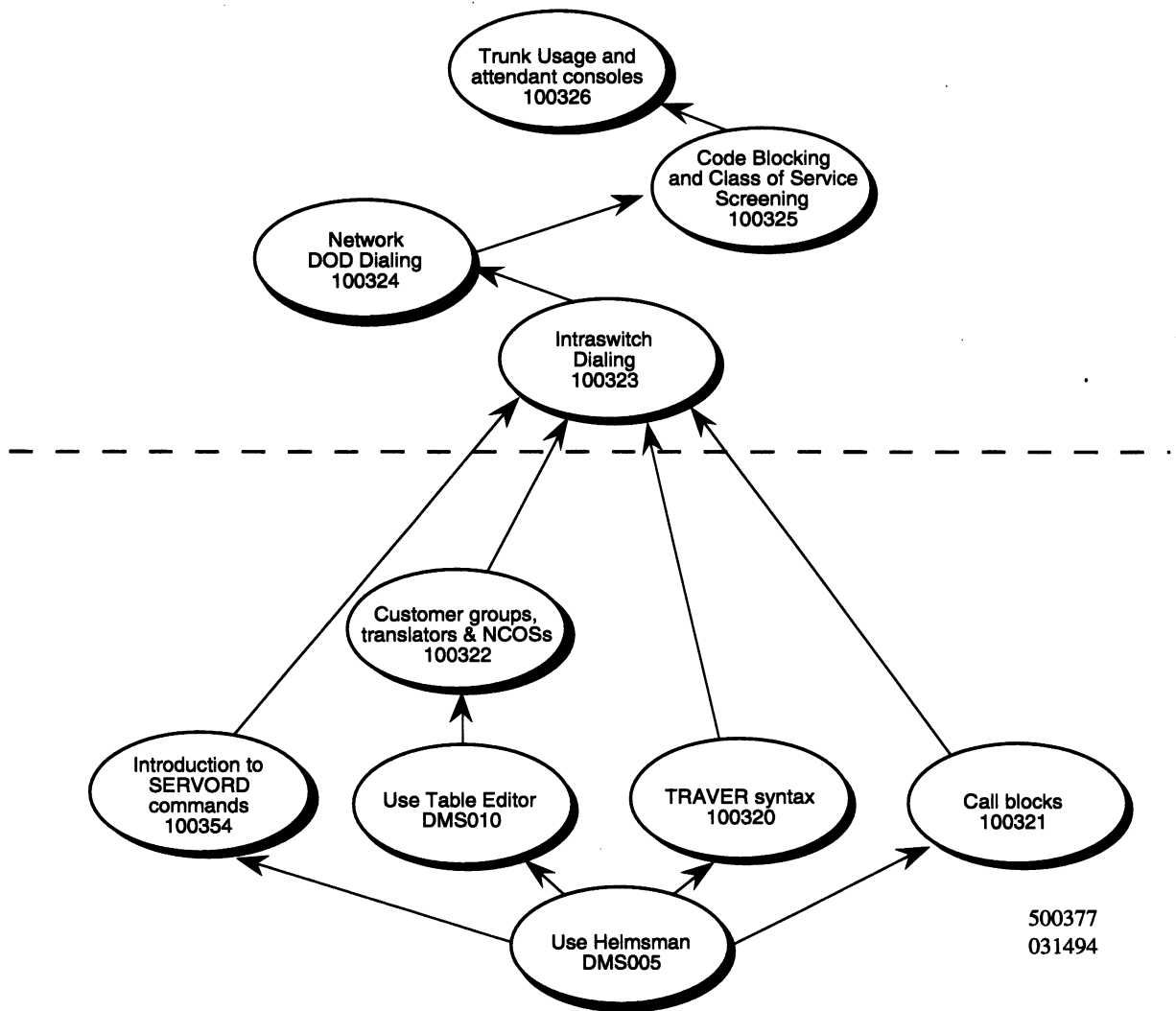
Personal progress summary

Lesson Number	Lesson Title	<u>Completed</u>	<u>Not Completed</u>
DMS005	Use Helmsman	<hr/>	<hr/>
DMS010	Use Table Editor	<hr/>	<hr/>
100321	Call blocks	<hr/>	<hr/>
100320	TRAVER syntax	<hr/>	<hr/>
100354	Introduction to SERVORD	<hr/>	<hr/>
100322	Customer groups, translators, and NCOSs	<hr/>	<hr/>
100323	Intraswitch dialing	<hr/>	<hr/>
100324	Network DOD dialing	<hr/>	<hr/>
100325	Code blocking, Class of service screening	<hr/>	<hr/>
100326	Trunk usage and attendant consoles	<hr/>	<hr/>

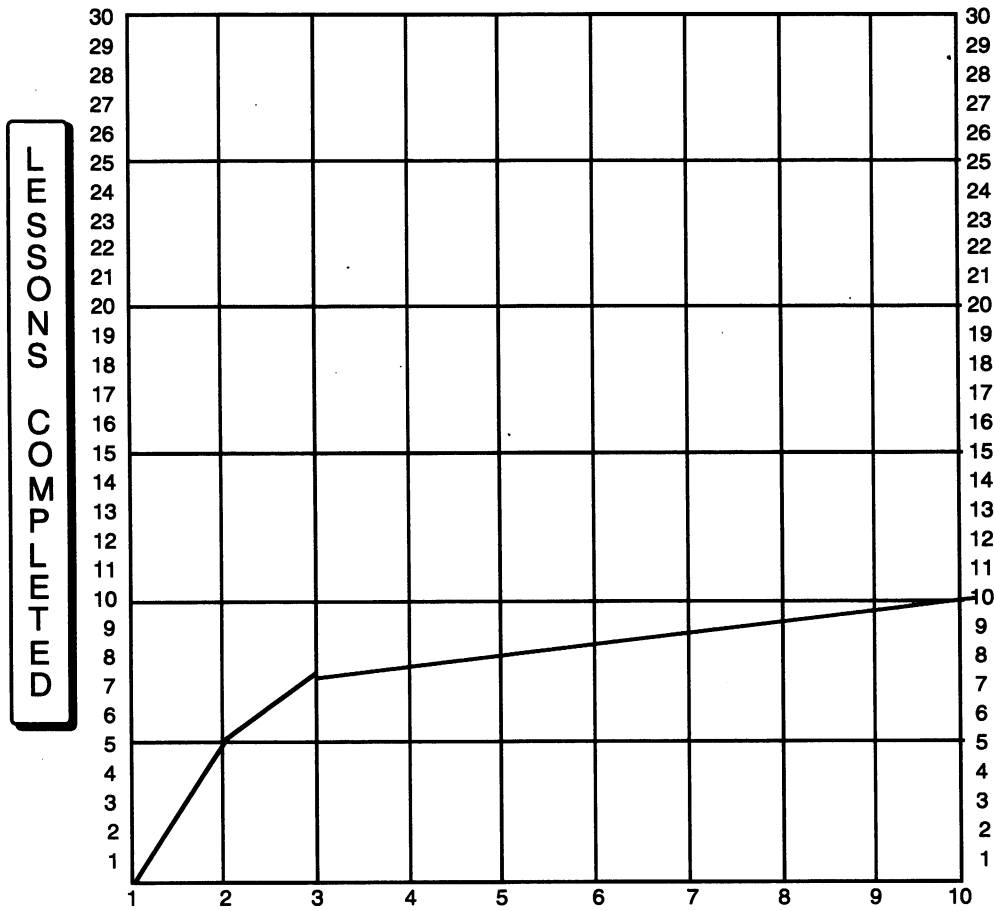
Student Name: _____

Comments: _____

Course map



Daily progress guide



Note: If the total number of lessons you have completed each day matches the progress line above, you will have adequate time to complete the workshop in the time provided

999027
012792

Workshop Days

Course procedures

Following are the procedures by which this course is operated. In general, the procedures tell you to select for yourself the lesson you wish to study, to proceed at your own rate, to ask for the skill check when you are ready, to work with others as much or as little as you wish, and to use as many or as few resources as you feel you need or want.

How to begin

1. Read the course procedures.
2. Begin with DMS005, Use Helmsman.
3. Remember that you are expected to use only those additional resources you feel will help you develop the skill in question.
4. Be sure to practice each skill thoroughly before proceeding to the next lesson.
5. Take time to think, talk to others, see how others are applying the procedures to their own areas. This is not a race. Use the opportunity to sharpen your skills.

Course map

The course map shows how each lesson of the course is related to other lessons and to the course as a whole.

1. Before beginning to study a lesson, complete all prerequisites for that lesson (i.e., all lessons shown by arrows to lead into that lesson).
2. The location of a lesson on the map is a suggestion as to the approximate point in the course where it will be most meaningful. Where no sequence is shown (i.e., where there are no arrows leading into a lesson), you are free to study the lessons in any order you please.
3. Try to complete all the lessons shown below the line before beginning those shown above it.
4. Lessons shown in a rectangle on the course map are optional lessons.

Lessons

1. Begin a lesson by reading the relevancy statement ("Why this lesson is important") and the objective.
2. Work through the lesson at your own rate or as a group (your instructor will determine the pace of the course).
3. Spend as much, or as little, time as you desire working with others.
4. When the lesson asks you to complete a practice exercise, write directly on the worksheets in your lesson.

Resources

1. There are at least three resources for each lesson: (a) the lesson itself, (b) other course participants, and (c) the instructor. Additional resources may also be available; if so, they are listed on the second page of the lesson.
2. Consult any of the resources that seem to you to be appropriate; study as many as you feel you need, but do not feel compelled to consult them all.
3. Feel free to ask other course participants which resources they found most helpful; do the same for others if they ask.
4. Work with a colleague whenever you wish.

Personal progress summary

Ask whomever is certifying your work to date and initial your Personal Progress Summary next to the appropriate module.

Master progress plotter

When you have been certified on a lesson, be sure to have the course manager make the proper entry on the Master Progress Plotter. Until this entry is made, it is assumed that you have not yet mastered the lesson.

Glossary of terms

If you are need of a glossary, please refer to NTP 297-1001-825 for a complete resource of Northern Telecom terms.

Course agenda

Agenda

Following is a suggested outline regarding this course. Some lessons may take longer than usual or shorter than usual base on class experience. This is provided as a directional guide only.

Day 1

- Intro
- Big Picture/How It Works Presentation
- Switchroom tour
- DMS005, Use Helmsman
- DMS010, Use Table Editor
- 100354, Introduction to SERVORD
- 100320, TRAVER syntax

Day 2

- 100321, Call blocks
- 100322, Customer groups, translators, and NCOSs

Day 3 and 4

- Customer data questionnaire
- Sample forms
- 100323, Intraswitch dialing

Day 4 and 5

- 100324, Network DOD dialing

Day 6 and 7

- 100325, Code blocking, class of service screening, etc.

Day 8

- 100325, Code blocking, class of service screening, etc.
- 100326, Trunk usage and attendant consoles

Day 9 and 10

- 100326, Trunk usage and attendant consoles
- Skill check

Sign-off Colleague > Instructor

A large oval containing the text "DMS005" in a bold, sans-serif font.

Use Helmsman

Why this lesson is important

Documentation is an important resource, and the ability to access it quickly and easily can be a tremendous asset. Helmsman is a software tool which provides access functions for Northern Telecom documentation (Northern Telecom Publications) stored on CD-ROM (Compact Disk - Read Only Memory). It was designed to replace its predecessor, COMPASS, with more advanced search functions.

The advantages are still the same over paper-based documentation:

- physical storage space (a few small CDs compared to a whole library),
- ability to easily update documentation, and
- ability to quickly and easily access information.

This lesson will give instruction and practice on how to use Helmsman to locate information in the NTPs.

Objective

Given the following items:

- a DOS computer work station equipped with a CD-drive;
- a Helmsman CD-ROM disk (SL100 Commercial or DMS-MTX);
- a Helmsman user's guide (MS-DOS); and
- a Helmsman job aid

locate information using Helmsman without any errors.

What to do

1. Read Lesson DMS005: Use Helmsman.
2. Complete the practices within this lesson. You may practice as many times as you like. If you have any questions, ask a colleague or the instructor for assistance.
3. Compare your answers with the practice feedback at the end of the lesson.
4. Have the instructor sign off on your correctly completed practices.

What resources to use

Resources	Resource number
Helmsman User's Guide (MS-DOS)	DMS005A
Helmsman quick reference sheet	DMS005B

Note: The Helmsman User's Guide is also found on every Helmsman CD. There are 3 versions: User's Guide for MS-DOS, Macintosh, and UNIX. The one used in this lesson is the MS-DOS version.

Practice 1: Helmsman sample session

Instructions:

Obtain the Helmsman User's Guide. Work through Appendix D of the Guide at a Helmsman work station. Make sure you have the quick reference sheet as well.

Note: When you arrive at the section on 'Search Proximity', use a value of 10 instead of 1.

WARNING: The Docubase used in Appendix D differs from the one you have; so the documents found in your searches may be different. Just make sure to follow the steps, and you will be able to complete the practice session with a different docubase.



Practice 2: Explain Helmsman features

Instructions:

Use the **Helmsman User's Guide** and the **quick reference sheet** to answer the following questions. If you have any questions, you may ask a colleague or the instructor for assistance.

1. Docubase Browser window:

a. Explain the "Document Selection" window.

Document Selection Window gives the Document #
and title of all the documents from the
Search performed.

b. Explain the "Page Selection" window.

gives the page # and how many
occurrences are on that page

2. Search Editor window:

a. Explain the "Search in" pull-down menu.

Search in pull down menu allows you
to search by document titles, document #,
and document text.



b. Explain the "Search term (or phrase history)" window.

c. Explain the "Search proximity" function.

Located across the top of the screen are several menus.

3. **Window** menu.

a. Explain the window menu.

4. **Annotate** menu:

a. Contrast annotations vs. bookmarks.

b. Explain the "Marks List".

5. **Navigate Menu:**

- a. Explain Next Occurrence and Previous Occurrence.

next occurrence goes to the next occurrence
in the document, Previous Occurrence
goes to the

6. **Search Menu:**

- a. Explain the "Expand plurals" option in the Search Defaults window.

- b. Explain "Limiting by Category".

Practice 2 Feedback

1. Docubase Browser window:
 - a. The document selection window lists all of the documents in which the search terms were found.
 - b. The page selection window lists the page numbers and the number of occurrences per page in each document in which the search terms were found. You can go directly to the page by double-clicking on the page number.
2. Search Editor window:
 - a. The Search in pull-down menu allows you to search the docubase in all of the document text, document numbers, or document titles. You can also search in a specific document.
 - b. The Search term window lists all of the search terms that pertain to a particular search.
 - c. The Search proximity function allows you to control the size of the Search Set. It has to do with how many words separate terms in the Search Term window that are connected by the boolean operator AND. The larger the proximity, the more likely it is to find occurrences of the terms linked by the AND operator.
3. Window menu.
 - a. The window menu lists all of the viewer windows that are open. A check mark indicates the current active window. You can make a window in the list active by selecting it. The CASCADE and TILE options affect how the windows are placed on the screen in relation to each other. Try these options and see if you have a preference for a configuration.

4. Annotate menu:

- a. Annotations are marks you can place on documents for later reference. You can also enter notes to clarify or explain the part of the text it marks. Bookmarks only allow you to mark the text for later reference.
- b. The Marks List shows the bookmarks and annotations you have made for the document, along with the page on which the mark is found. It can be used as a table of contents for your marks and as a quick way to open a document to references you use regularly.

5. Navigate Menu:

- a. Next occurrence allows you to go to the next occurrence of the search term within a document while previous occurrence goes back to the prior occurrence.

6. Search Menu:

- a. The Expand Plurals box allows Helmsman to search for the singular as well as the plural form of the search term.
- b. Limiting by Category reduces the number of documents before you run a search. It creates a subset of documents that fall into specific categories and classifications. Helmsman groups classifications into 3 categories. Keep in mind that the categories and classifications may differ from one library to another.

Practice 3: Use Helmsman

Instructions:

Use the Helmsman User's Guide, quick reference sheet, and Helmsman CD-ROM system to answer the following questions. Keep in mind all of the features that you were introduced to in Practice 1:

Note: Be sure to check the search term window before every search to verify that the search terms and Boolean operators (and/or) are the ones you want. Delete any search terms that do not apply.

1. Locate and open NTP 297-1001-450. Using the Search Editor, locate the beginning of the section on **Integrated Services Digital Network** and place a bookmark there (Name it "isdnprov"). Using the Search Editor, go to the beginning of the section titled **Introduction to Hardware** and place a bookmark there (Name it "hwprov"). Close the document.

2. You have just started as a new technician and want to find the NTP on how to perform routine maintenance. You know that the index to Maintenance Procedure documents is NTP 297-1001-500.
 - a. Locate this document using Helmsman, and use it to find the NTP that contains information on **Routine Maintenance**. Write the title of the NTP and the number below.

index to maintenance procedures



- b. Go to the document on Routine Maintenance and use the Search Editor to locate the procedure on inspecting cooling unit filters. Use the Search Editor and key words **cooling unit filters**. What chapter and page number is it in?

- c. What is the first step listed in the procedure?

3. Open NTP 297-1001-450. What feature could you use to get a list of all of the bookmarks and the page numbers they are on? Write down the names of the bookmarks and their page numbers. **Delete the bookmarks.**

4. As a database technician, you work with numerous translations tables.
- a. Use the Search Editor to locate the NTP number for Local Customer Data Schema. Write it down below.

- b. Open this document and use the Search Editor to find what form code you would use for Table LINEATTR. Use the key word **Line Attribute Table** and write it down below.

- c. What is the name of the LNATTIDX field in Table LINEATTR?

- d. What is the range of entry for this field?

Practice 3 Feedback

1. (There is no answer for this; #1 is a command to do something.)
2.
 - a. 297-1001-553.
 - b. Chapter 3, page 6.
 - c. Set FAN MAIL ALARM OVERRIDE switch to ON.
3. Use the Marks list under the ANNOTATE menu.

hwprov p.104
isdnpov p. 2680
4.
 - a. 297-2101-451.
 - b. 2208A - B
 - c. Line Attribute Index
 - d. 0 - 1023

2

Table
Editor

Eq. 100
19 61

2

Sign-off
Colleague
> **Instructor**

DMS010

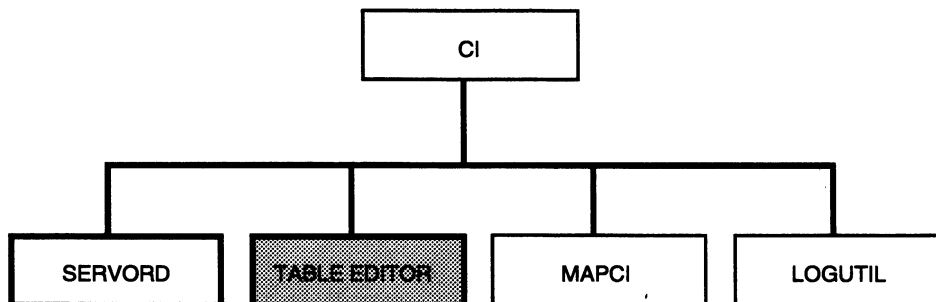
Use Table Editor

Why this lesson is important

In order to datafill tables for translations, you must know two things:

- data table structure, and
- how to move around and manipulate data within the tables using the MAP.

This lesson has information on data table structure as well as how to use Table Editor. Table Editor is one of several tools within the Command Interpreter (CI) hierarchy. (You will use SERVORD in Lesson 100354).



400052
042393

Objective

Given a logged on terminal, site specific information, and appropriate documentation, use Table Editor to examine and manipulate data tables .

What to do

1. Read "Lesson DMS010: Use Table Editor."
2. **Read the Table Editor section of the Translations Tools chapter found in NTP 297-1001-360.** The explanations and examples of each command will be very helpful in completing the practices in this lesson. You may also want to read the Appendix: Basic Table Definitions which gives basic table definitions.
3. Work through the lesson including the practices. You may practice as many times as you like.
4. There is no skill check for this lesson; your correctly completed practices will serve as your skill check.
5. Have your instructor check this lesson, and go to the next lesson.

What resources to use

Resources	Resource number
Basic Translations Tools Guide	NTP 297-1001-360

Data Table Structure

In the switch, the data for a given office is located within software structures known as **tables**. Since an office has requirements for many different types of data (lines, trunks, I/O devices, translations, network management), each table within the switch has a unique **table structure**. Each table structure stores all of the data inputs relative to that structure's data type.

Table Update Line Entries (TUPLES)

Translations is the reading of selected entries in designated tables to determine the path a call should follow. A table consists of horizontal rows and vertical columns. A row is called a **tuple (Table Update Line Entry)** and the columns within a tuple are called **fields** (refer to Figure 1).

The switch reads selected tuples in these tables to determine the path a call takes through the switch. Each tuple is identified by a **key field**. Key fields make each of the tuples in the switch tables unique so that the DMS can distinguish which tuple to index when processing a call. For most tables, the key field comprises only one field; however, in some tables more than one field of data is required to make the key field unique. Figure 1 shows sample tuples that you would see in Table CLLI. Figure 2 on the following page shows the structure of a tuple within a table.

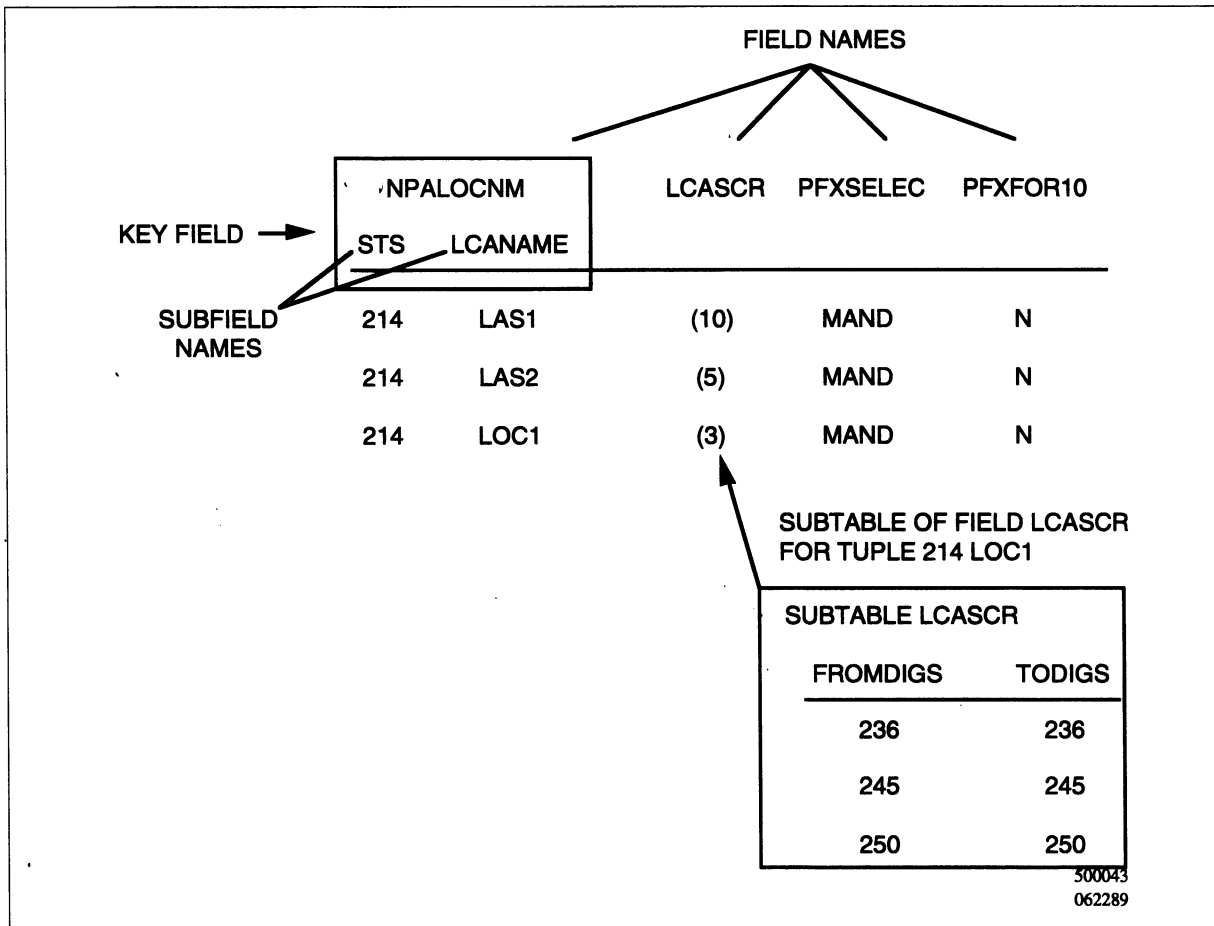
Figure 1

Sample tuples in Table CLLI

TABLE CLLI			
lis all			
TOP			
CLLI	ADNUM	TRKGRSIZ	ADMININF
DALMTXO	120	10	CELLO_VOICE_TRKS
DALMTXOD	121	5	CELLO_D_CHANNEL_TRKS
CSC1TRK	60	10	CSC_1_VTRKS
			982016
			102692

Figure 2

Relationship between tuples, key field, field, subfield and subtable



Fields

Fields are vertical columns of information which appear in the tables (refer to Figure 2). Each field has a unique name and field number. The first field in the table is known as the Key Field and will always contain unique information which allows the system to conduct a search for a specific entry in the table. No 2 tuples within a table can have the same key field. Fields are read top to bottom, and the first field will always begin to the far left of the table. The number of fields varies from table to table; some tables may have two or three fields while others may have nine or 10. The data may consist of letters, numbers, or combinations of both.

Subfield

A subfield is a field that falls under **another** field. For example, in Table LCASCRCN in Figure 2, field NPALOCNM has two subfields: STS and LCANAME. It is important to note that not all fields have subfields under them. When you reference a tuple whose key field is comprised of subfields, you must reference it by **all** of the information that falls under its key field.

Subtables

Some fields within a table contain more information than can be displayed in the actual space allocated for it in the main table. When this occurs, the software allocates space in another area of memory and creates a **subtable** entry for that particular field. The subtable is usually denoted in the main table by a number within parentheses under a specific field name. You must go into the subtable if you want to view all of the data for that field. Figure 2 shows the structure of a field in a table. Note the parentheses in the third field; these indicate a subtable (LCASCR).

Table Editor

By using the terminal at your MAP workstation, you may use an administrative and maintenance tool known as **Table Editor**. Table Editor is one of several tools that Northern Telecom has to interact with its switches (refer to Figure 3).

Figure 3

Command Interpreter (CI) Hierarchy

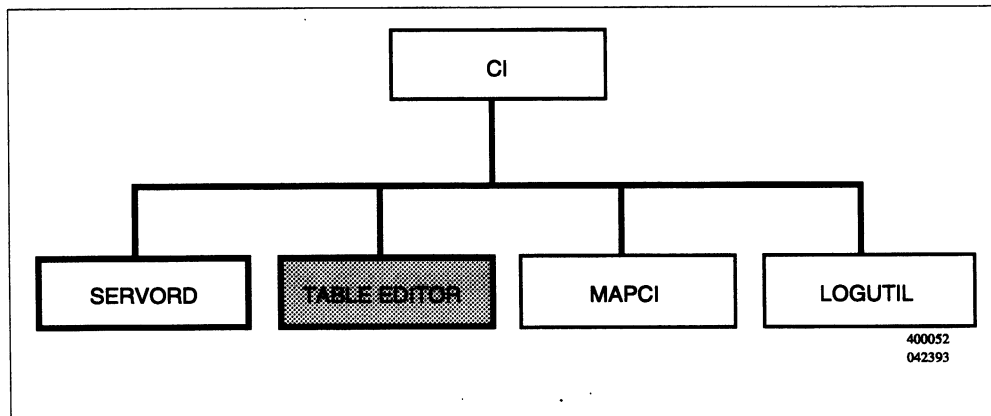


Table editor is a software subsystem in the MAP that allows you to read and/or manipulate the data tables contained in the system. You have access to the information already contained in the database as well as the ability to customize the data tables to support the specific telecommunication needs of each site. Each table has a unique name and unique entries. The table names and formats are hardcoded and cannot be changed by the customer. The entries into these tables are customer-definable and allow for a certain degree of customization.

The following practice introduces you to Table Editor.

Practice 1: Select commands in Table Editor (positioning)

Instructions:

Read the Table Editor section of the translations tools chapter found in NTP 297-1001-360. Match each function with its Table Editor command. (When entering commands, you can type the whole word or its abbreviated form which is shown in capital letters.)

- | | | |
|-------------|-------------------|---|
| A. BOTtom | <u>H</u> | 1. Moves the cursor out of a subtable back to the parent table. |
| B. DOWN | <u>K</u> | 2. Moves the cursor up a specified number of tuples. |
| C. FIRST | <u>L</u> <u>J</u> | 3. These two commands place the cursor at the beginning of the table. What is the difference between the two? |
| D. LAST | | <u>First doesn't display the tuple</u> |
| E. NEXT | | <u>Top displays the tuple</u> |
| F. POSition | <u>I</u> | 4. Enter a subtable. |
| G. QUIt | <u>A</u> <u>D</u> | 5. These commands place the cursor at the end of the table. What is the difference between the two? |
| H. RETurn | | <u>Last doesn't display the tuple</u> |
| I. SUBtable | | <u>Bottom displays the tuple</u> |
| J. TOP | <u>B</u> | 6. Moves the cursor down a specific number of tuples. |
| K. UP | <u>F</u> | 7. This command places the cursor on a specific tuple. |
| | <u>E</u> | 8. Positions the cursor one tuple below the current tuple. |
| | <u>G</u> | 9. Takes you to the CI level from a table or any of its subtables. |



Practice 1 Feedback: Select commands in table editor (positioning)

- H** 1. Moves the cursor out of a subtable back to the parent table.
- K** 2. Moves the cursor up a specified number of tuples.
- C&J** 3. These two commands place the cursor at the beginning of the table. What is the difference between the two?
Both FIRST and TOP position the cursor on the first tuple.
TOP also displays the tuple.
- I** 4. Enter a subtable.
- A&D** 5. These two commands place the cursor at the end of the table. What is the difference between the two?
Both BOTtom and LAST position the cursor on the last tuple.
BOTtom displays the tuple whereas LAST does not.
- B** 6. Moves the cursor down a specific number of tuples.
- F** 7. This commands places the cursor on a tuple with the specified key value.
- E** 8. Positions the cursor one tuple below the current tuple.
- G** 9. Takes you to the CI level from a table or any of its subtables.

Practice 2: Select commands in table editor (edit, info, etc.)

Instructions:

Read the table editor section of the translations tools chapter found in NTP 297-1001-360. Match each function with its table editor command.

- | | | |
|-----------------------|------------|--|
| A. ABORT | <u>G</u> | 1. Displays the table heading. |
| B. ADD | <u>K</u> | 2. Replaces a tuple with the tuple given as the command parameter. |
| C. CHAnge | <u>F I</u> | 3. These two commands print tuples to the screen. What is the difference between the two? |
| D. COUNT | | <u>display command has no heading</u> |
| E. DELeTe | <u>H</u> | <u>List has a heading</u>
4. Displays the available table editor commands or gives details about a specific command. |
| F. DISPLAY | <u>C</u> | 5. Edit tables using this command. |
| G. HEADING | <u>A.</u> | 6. Cancels a command or input that has been entered by accident or incorrectly. |
| H. HELP | <u>E</u> | 7. Removes tuples. |
| I. LISt | <u>B</u> | 8. Inputs a new tuple. |
| J. RANge | <u>D</u> | 9. Tells how many total tuples there are or how many tuples there are that fit a given condition. |
| K. REPlace | <u>J</u> | 10. Prints the fields in a table or subtable and gives a brief description of each. Also prints a more detailed description of each field within a table including the legal values for the field. |
| | <u>I</u> | 11. Displays the current tuple. |



Practice 2 Feedback: Select commands in table editor (edit, etc.)

- G 1. Displays the table heading.
- K 2. Replace a tuple with the tuple given as the command parameter.
- F&I 3. These two of the commands print tuples to the screen. What is the difference between the two?
The DISPLAY command displays the current tuple without a heading.
LIST can display multiple tuples and shows the heading as well.
- H 4. Displays the available table editor commands or gives details about a specific command.
- C 5. Edit tables using this command.
- A 6. Cancels a command or input that has been entered by accident or incorrectly.
- E 7. Removes tuples.
- B 8. Inputs a new tuple.
- D 9. Tells how many total tuples there are or how many tuples there are that fit a given condition.
- J 10. Prints the fields in a table or subtable and gives a brief description of each. Also prints a more detailed description of each field within a table including the legal values for the field.
- I 11. Displays the current position of the user in the database.

Practice 3: Use Table Editor commands

Instructions:

Log in to your terminal. Perform the following steps by typing the material within the quotation (" ") marks. Where the underscore (_) appears, a space is indicated. Type in the underscore as spaces are not always recognized by the system.

1. Type "Table HNPACONT".
 - Type "HELP" at the prompt. The system will respond with a list of all Table Editor commands.
2. Type "Table LNINV".
 - Enter "Q LIS". The system displays parameters associated with the LIS_t command.
 - Enter "LIS 5 (cardcode_eq_6x17ac_&_status_eq_HASU)".

(Refer to the 'Table Editor' section of the translations tools chapter found in NTP 297-1001-360 to find out what "eq" and other related "COUNT" commands mean).

The system will respond (it may take a minute or more) with a list of 5 LENS with cardcodes of 6x17ac **and** hardware assigned software unassigned, or HASU.



3. Type "LEAVE" to return to HNPACONT.
 - Type "LIS". The system lists the table header and the tuple the cursor is currently positioned to.
 - Type "RAN". The system displays fields for Table HNPACONT. Notice that it shows the field number, field name, and general description. If the description for a field is TABLE_OWNERSHIP, it means this field has a subtable.
 - Type "RAN_1". The system displays parameters for field 1 of Table HNPACONT.
 - Type "TOP". The system positions the cursor to the top tuple and displays its contents.
 - Type "Q BOTTOM". The system displays parameters associated with the BOTTOM command.
 - Type "BOTTOM". The system positions on the bottom tuple and displays its contents.
 - Type "Q POSITION". The system displays parameters associated with the POSITION command.
 - Type "POS 213". The system displays the contents for the tuple keyed by the NPA 213.
 - Type "LIST". The system lists the table header and the tuple the cursor is currently positioned on (NPA 213).
 - Type "Q SUB". The system displays the parameters of the command "subtable." Notice that you can use either the Field Name or the Field Number to enter a subtable.

-
4. Type "SUB HNPACODE". There is no display of the table contents. So, depress the carriage return three times, and the system will show TABLE: HNPACONT 213: HNPACODE. This means that you are in Table HNPACONT positioned on NPA 213 and specifically in Subtable HNPACODE.
- Type "LIS 5". The system lists 5 of the tuples in this subtable. (The commands are the same in the subtables as in the tables).
 - Type "RET". The system returns from subtable 5 to the main table and displays the tuple (213) which you entered a subtable on. (Depress the carriage return three times to show you that you are in the main table).
 - Type "SUB 4 of NPA 214 and list all tuples.

What commands did you have to enter to do this?

Pos 214 - Sub 4 - List All

What command takes you back to the main table from this subtable?

Ret

What shows up on your screen after entering this command?

Tuple 214

5. Enter "QUI".
- This exits the table and returns you to the CI level.

Practice 4: Select and use table editor commands

Instructions:

1. From the Command Interpreter (CI) level, type Table HNPACONT. List the fields in this table and give a brief description of each field.

STS Three digit code
 Nortrefs Number of Route References
 NoAmbig Number of Ambiguous Codes
 RTEref Table Ownership
 HNPACode Table Ownership
 Attrib Table Ownership
 RTEMAP Table Ownership

2. What are the first and last tuples in this table?

214
 119

3. Which of these fields in each tuple are subtables?

(4 RTEref) (5 HNPACode) (6 Attrib)
 (7 RTEMAP)

4. Position yourself on the first tuple and Type Subtable RTEMAP. What is the range of values for the NEWINDEX field of this subtable.

(0 - 1023)



5. Return to Table HNPACONT. What command would you use to find out how many tuples have a zero value for the NOAMBIGC? How many are there? How many total tuples are there?

Count (NOAMBIGC=0)
16, 18

6. Add a tuple to Table HNPACONT with the following characteristics:
- The area code will be the last 3 digits in your personal home phone number. Make sure your 3 digits are unique within the table. You can do this by either physically looking at all the tuples in the table or by trying to position on a tuple with your 3 digits as the key field.
 - The number of route references is 32.
 - There are no ambiguous codes (0).
 - The subtables will default to empty.
 - List your tuple below.

7. What is the last tuple in the table now?

8. How would you list the first 3 tuples in the table? What command would you use to list all the tuples?

lis 1 3
lis 1 All

9. Add another tuple with the same key and number of route references above but enter 2 as the number of ambiguous codes (NOAMBIGC). What happens? Can two tuples have the same NPA in table HNPACONT? (Type N or ABORT to exit the ADD command.)

NO

10. Add the following information to the ATTRIB subtable of your tuple. Make sure you are positioned on your tuple before entering the subtable.

- The LATTIX field will be 22.
 - Enter Yes for the LONGHAUL field.
 - Return to the main table. What does your tuple look like now?
-

11. Change the number of ambiguous codes to 3.

12. **Finally, delete your tuple and return to the CI level. Again, make sure you are positioned on your tuple before executing the DELeTe command. Enter Yes when the system asks if you really want to delete the tuple.**

Practice 4 Feedback: Select and use table editor commands

1. The fields in HNPACONT are:

1	NPA	THREE_DIGIT_CODE
2	MAXRTE	NUMBER_OF_ROUTE_REFERENCES
3	NOAMBIGC	NUMBER_OF_AMBIGUOUS_CODES
4	RTEREF	TABLE_OWNERSHIP
5	HNPACODE	TABLE_OWNERSHIP
6	ATTRIB	TABLE_OWNERSHIP
7	RTEMAP	TABLE_OWNERSHIP

2. The first and last tuples will look like the following but will probably not match exactly.

214	32	4	(3)	(1)	(0)	(0)
701	32	0	(0)	(0)	(0)	(0)

3. The subtables of table HNPACONT are:

RTEREF, HNPACODE, ATTRIB, RTEMAP

4. The legal range of values for the NEWINDEX field of subtable RTEMAP is

{0 to 1023}

This is obtained by first entering the subtable by typing either SUBtable RTEMAP or SUBtable 7. The range of values is then obtained by typing RANge NEWINDEX or RANge 2.

5. There are two ways to count tuples that have a certain characteristic. One is to list all of the tuples and physically count them. This may work in tables that have few tuples, but in larger tables, this is not the best method. The best way would be to type:

COUNT (NOAMBIGC EQ 0)

6. After executing the ADD command and entering the specified information, the system will respond with the following, assuming 280 was used as the key field:

```
TUPLE TO BE ADDED:
280 32 0 ( 0) ( 0) ( 0) ( 0)
ENTER Y TO CONFIRM, N TO REJECT OR E TO EDIT
```

Enter Y and the system will respond with TUPLE ADDED and other administrative information.

7. HNPACONT adds tuples at the end of the table; so the last tuple should be the tuple you just added in #6, provided no one else added a tuple immediately after you.
8. After executing the commands for #7, the cursor will be positioned on the last tuple. To print the first 3 tuples, enter FIRST to position the cursor on the first tuple and LIST 3 to list the first 3 tuples. To list all the tuples, enter LIST ALL.
9. No, two tuples in table HNPACONT cannot have the same key field. If you try to enter a tuple with the same key as an existing one, the system should respond with:

```
TUPLE TO BE ADDED:
280 32 2 ( 0) ( 0) ( 0) ( 0)
ENTER Y TO CONFIRM, N TO REJECT OR E TO EDIT
```

If Y is entered, the system responds with:

```
DUPLICATE KEY
TUPLE TO BE ADDED:
280 32 2 ( 0) ( 0) ( 0) ( 0)
ENTER Y TO CONFIRM, N TO REJECT OR E TO EDIT
```

The only way to get past this point is to type E and enter a unique NPA, or type N or ABORT to cancel the ADD command.

10. The subtable ATTRIB can be entered by typing SUBtable ATTRIB or SUBtable 6. Your tuple should look like the following when displayed:
- ```
280 32 0 (0) (0) (1) (0)
```
11. Use the CHAnge command. The system will scroll through each of the fields in the table. Enter data for fields that require new values which, in this case, is NOAMBIGC. Typing return at the prompts for the other fields will leave them unchanged.
12. Make sure you are positioned on your tuple before executing the DELeTe command. QUIT or QUIT ALL should get you back to the CI level.



Traver: Translations Verification.

Table Editor:

3 structures -

TABLE NAME

Tuple: Table update LineEntry

Horizontal information

Tuple

Vertical

Field

Field

Field

CLLI

Adnum

TRKGSIZ

DA1mtxo

120

10

DA1mtxod

121

5

Format a Pack Condenses to 1  
Line Entry in  
a Table.

( ) indicates Subtable in a tuple.

to go to subtable → Sub 1 Subtable Name

→ Sub 1 Subtable Number.

To Return From Subtable to table is Ret.



3

Servord.

Nov 2

3



**Sign-off**  
Colleague  
> **Instructor**

**100354**

# Introduction to SERVORD

---

## Why this lesson is important

In order to gain a basic understanding of what SERVORD can do, it is important that you be given an opportunity to use SERVORD with a hands-on approach.

## Objective

Given appropriate documentation and a terminal, perform the following tasks with no errors:

- query a LEN and DN;
- remove a line from service;
- establish new line service;
- suspend and restore line service; and
- add and delete options from a line.

**What to do**

1. Read Lesson 100354: Introduction to SERVORD.
2. Work through the lesson including all of the practices.
3. There is no skill check for this lesson; your completed practices will serve as your skill checks.
4. Have the instructor sign off on this lesson.

**What resources to use**

| <b>Resources</b>                          | <b>Resource number</b> |
|-------------------------------------------|------------------------|
| SERVORD System and Query Reference Manual | NTP 297-2101-808       |

## Querying DNs and LENS

Prior to entering service orders to a set, it is best to query the status of both the directory number (DN) and the line equipment number (LEN).

### Querying the DN

To use the QDN command, enter QDN and depress the CR key. The system will respond with the DIRECTORY NUMBER prompt. Enter the DN you want to query and depress CR.

|                                                                                                                                                       |
|-------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p><b>Example:</b>            &gt;QDN<br/>                                   DIRECTORY NUMBER:<br/>                                   &gt;2450900</p> |
|-------------------------------------------------------------------------------------------------------------------------------------------------------|

You may also enter the QDN command and the directory number (DN) on the same line.

|                                                   |
|---------------------------------------------------|
| <p><b>Example:</b>            &gt;QDN 2450900</p> |
|---------------------------------------------------|

In either case, the system will respond with information on the DN you are querying.

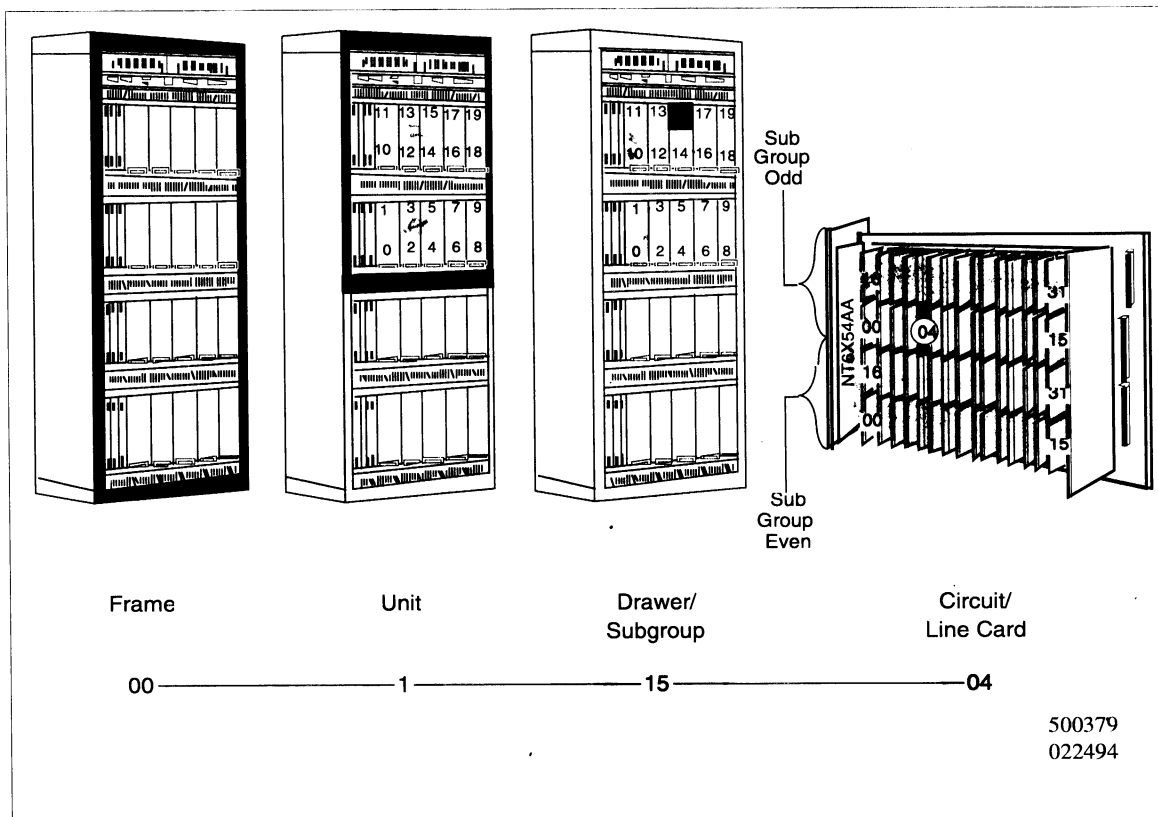
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p><b>Example:</b>            DN: 2450900<br/>                                   TYPE: SINGLE PARTY LINE<br/>                                   SNPA: 214 SIG: N / A LNATTIDX: N / A<br/>                                   LINE EQUIPMENT NUMBER: HOST 00 0 00 05<br/>                                   LINE CLASS CODE: P_PHONE<br/>                                   KEY: 1<br/>                                   CUSTGRP: FEATURES SUBGRP: 0 NCOS: 0<br/>                                   RING: Y<br/>                                   CARDCODE: 6X21AA GND: N PADGRP:<br/>                                   PPHON BNV: NL MNO: Y<br/>                                   PM NODE NUMBER: 100<br/>                                   PM TERMINAL NUMBER: 33<br/>                                   OPTIONS:<br/>                                   3WC PRK EBO RAG</p> |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

## Querying the LEN

If you'll remember from Course 400, the line equipment number is derived from the layout of the peripheral module cabinet (refer to Figure 1). In Figure 1, the LEN is 00 1 15 04 where the first set of numbers indicate the frame; the second set of numbers indicate the unit; the third set of numbers indicate the drawer; and the fourth set of numbers indicate the line card.

Figure 1

LEN number from cabinet



Querying the LEN (QLEN) is done the same way as querying the DN.

**Example:**

```
>QLEN
LINE EQUIPMENT NUMBER:
0 0 0 5

or

>QLEN 0 0 0 5
```

## Practice 1: Query the DN and LEN of a single-line set

### Instructions:

If you need more instruction on the QLEN and QDN commands, obtain NTP 297-2101-808. Study the sections of QLEN and QDN.

Log in to a terminal. Access the SERVORD level by typing "SERVORD" at the CO prompt.

1. Query the printer by typing "RECORD QUERY ONTO PRTxxx" (obtain printer name from instructor). Then, if no one is using it, start the printer by typing the command "RECORD START ONTO PRTxxx."
2. Follow the procedures for querying a DN for a single-line set (Use a single-line DN from a phone at your station).
3. Follow the procedures for querying a LEN for a single-line set (Use a single-line LEN from a phone at your station).
4. Stop the printer by typing "RECORD STOP ONTO PRTxxx." Tear off your printout. Compare it to the self-check found at the end of this lesson.

Go to the next practice.



## Practice 1 Feedback

QDN 2450009

---

DN: 2450009  
TYPE: SINGLE PARTY LINE  
SNPA: 214 SIG: DT LNATTIDX: N/A  
LINE EQUIPMENT NUMBER: HOST 00 0 00 02  
LINE CLASS CODE: IBN  
IBN TYPE: STATION  
CUSTGRP: FEATURES SUBGRP: 0 NCOS: 0  
CARDCODE: 6X19AA GND: N PADGRP: NPDGP BNV: NL MNO: N  
PM NODE NUMBER: 17  
PM TERMINAL NUMBER: 3  
OPTIONS:  
DGT

---

QLEN 0 0 0 2

---

LEN: HOST 00 0 00 02  
TYPE: SINGLE PARTY LINE  
SNPA: 214  
DIRECTORY NUMBER: 2450009  
LINE CLASS CODE: IBN  
IBN TYPE: STATION  
CUSTGRP: FEATURES SUBGRP: 0 NCOS: 0  
SIGNALLING TYPE: DIGITONE  
CARDCODE: 6X19AA GND: N PADGRP: NPDGP BNV: NL MNO: N  
PM NODE NUMBER: 17  
PM TERMINAL NUMBER: 3  
OPTIONS:  
DGT

## Practice 2: Take a phone out of service

### Instructions:

**DIRECTIONS:** Perform each of the following steps.

#### PROCEDURE

#### RESPONSE

Log in to the system.

Type SERVORD

Enters SERVORD level. SO: displayed on your VDU screen.

**Use a DN and LEN from a single-line set in front of you.** (Note: the DN should be entered **without** spaces between digits and the LEN should be entered **with** spaces between digits).

Type QLEN and the LEN number assigned by your instructor.

The LEN is displayed.

Enter OUT

SO number prompt displayed.

Depress the carriage return (CR) key once.

DN prompt displayed. DN is the number for your phone.

Type your DN

LEN: prompt displayed. LEN is the Line Equipment Number on your phone.

Type your LEN

INTERCEPT: prompt displayed.

Type BLDN

Confirmation request displayed.

Type Y (to all prompts).

Removes line from service assigns prompts.

**Pick up hand-set and check for absence of dial tone; go to the next practice.**







### Practice 3: Set up new phone service

#### Instructions:

**DIRECTIONS:** Perform each of the following steps while still logged into SERVORD.

| <u>PROCEDURE</u>        | <u>RESPONSE</u>                                                                                                                                                                                |
|-------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Type NEW                | SO number prompt displayed.                                                                                                                                                                    |
| Depress CR key once.    | DN: prompt displayed.                                                                                                                                                                          |
| Type your DN            | LCC: prompt displayed. (Line Class Code)                                                                                                                                                       |
| Type IBN                | GROUP: prompt displayed. (Customer Group Name)                                                                                                                                                 |
| Type COMMON             | SUBGRP: prompt displayed. (For remote attendant console control)                                                                                                                               |
| Type 0                  | NCOS: prompt displayed. (Network Class of Service)                                                                                                                                             |
| Type 0                  | SNPA: prompt displayed. (Our Area Code)                                                                                                                                                        |
| Type 214                | LATA NAME: prompt displayed                                                                                                                                                                    |
| Type NILLATA            | LEN: prompt displayed.                                                                                                                                                                         |
| Type your LEN           | OPTION: prompt displayed.                                                                                                                                                                      |
| Type DGT                | OPTION: prompt displayed.                                                                                                                                                                      |
| Type \$                 | Confirmation request displayed.                                                                                                                                                                |
| Type Y (to all prompts) | Establishes new Line service for your DN in IBN group COMMON sub-group 0, assigns a NCOS of 0 and the digitone (DGT) option. Pick up hand-set and check for dial tone and go to next practice. |





## Practice 4: Suspending phone service

### Instructions:

**DIRECTIONS:** Perform each of the following steps while still logged into SERVORD.

| <b>PROCEDURE</b>         | <b>RESPONSE</b>                |
|--------------------------|--------------------------------|
| Type SUS                 | SO number prompt displayed.    |
| Depress CR key once.     | DN: prompt displayed.          |
| Type your DN             | LEN: prompt displayed.         |
| Type your LEN            | Confirmation prompt displayed. |
| Type Y (to all prompts). | Suspends line service for DN.  |

**Pick up hand-set and check for busy signal.**

Go to next practice.





## Practice 5: Restoring phone service

### Instructions:

**DIRECTIONS:** Perform each of the following steps while still logged into SERVORD.

| <b>PROCEDURE</b>        | <b>RESPONSE</b>                |
|-------------------------|--------------------------------|
| Type RES                | SO number prompt displayed.    |
| Depress CR key once     | DN: prompt displayed.          |
| Type your DN            | Confirmation prompt displayed. |
| Type Y (to all prompts) | Restores your DN to service.   |

**Pick up hand-set and check for dial tone.**

Go to next practice.





## Practice 6: Add features to a phone

### Instructions:

**DIRECTIONS:** Perform each of the following steps while still logged into SERVORD.

#### PROCEDURE

Type ADO

Depress CR key once.

Type your DN or LEN

Type EBO and RAG

Type \$

Type Y (to all prompts).

#### RESPONSE

SO number prompt displayed.

DN or LEN: prompt displayed.

OPTION: prompt displayed.

OPTION: prompt displayed.

Confirmation prompt displayed.

Add call waiting option to you phone number.

Go to next practice.







## Practice 7: Delete features from a phone

### Instructions:

**DIRECTIONS:** Perform each of the following steps while still logged into SERVORD.

#### PROCEDURE

#### RESPONSE

Type DEO

SO number prompt displayed.

Depress CR key once.

DN or LEN: prompt displayed.

Type your DN or LEN.

OPTION: prompt displayed.

Type EBO and RAG.

OPTION: prompt displayed.

Type \$

Confirmation prompt displayed.

Type Y (to all prompts).

Deletes call waiting option your DN.

Enter LEAVE ALL

Exit to CI level.

LOGOUT



Servord. Service Order.

Query DNS & LENS

QDN - Querys Directory Number (DN)

QLEN - Querys Line Equipment Number (LEN)

LEN - Line equipment Number.

|       |        |      |      |
|-------|--------|------|------|
| Frame | Module | ESG  | Card |
| 0-99  | 0-3    | 0-19 | 0-31 |

SUS: Suspend.

RES: Restore

ADD: Add Features

DEL: Delete Features.



Call  
Blocks

Place  
Gull 4

**Sign-off**

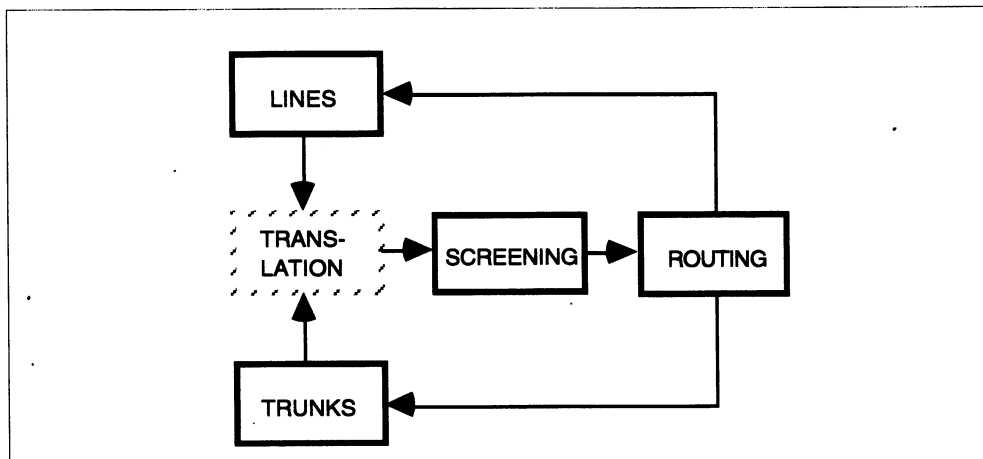
Colleague

> **Instructor****100321**

## Call blocks

### Why this lesson is important

Most switch calls can be traced using a simplified four-stage block diagram (see below).



Before you learn the details of each table, you need to understand each table's place within the four call blocks. This lesson gives you such an opportunity.

Following your understanding of call blocks, you will be introduced to a flowchart detailing IBN translations.

**Objective**

Given appropriate documentation and a list of tables, match the tables to the correct call blocks.

**What to do**

1. Read Lesson 100321: Call blocks.
2. Obtain NTP 297-1001-362 and read the section entitled "Translations system overview" paying particular attention to the call blocks reference.
3. Work through the lesson, including the practices. You may practice as many times as you like.
4. There is no skill check for this lesson; your ability to understand the principles within this lesson will be evaluated during later lessons.
5. Have a course manager check this lesson, and go to the next lesson.

**What resources to use**

| <b>Resources</b>        | <b>Resource number</b> |
|-------------------------|------------------------|
| Core translations guide | 297-1001-362           |
| MDC translations guide  | 297-2001-351           |
| Translations flowchart  | 100321A                |



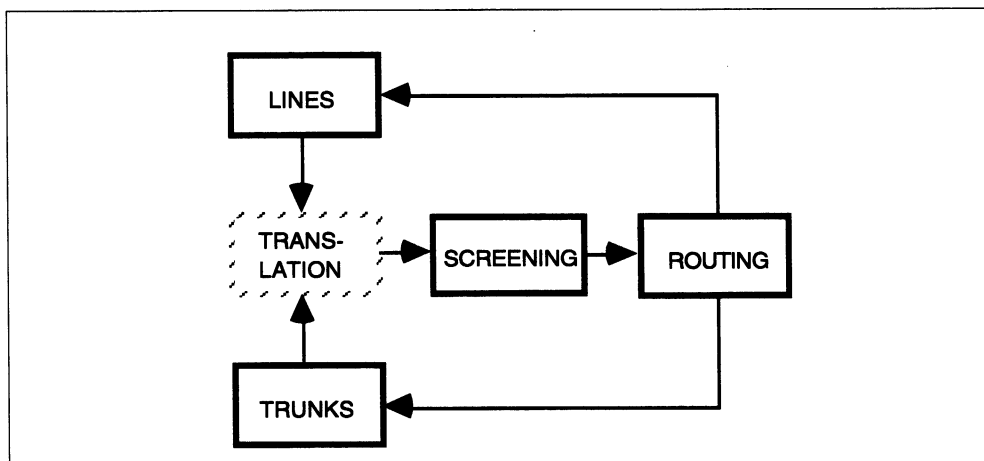
## Call blocks

When a call originates from a line, the associated line tables are read and interpreted. If the call originates on an incoming trunk, the appropriate trunk tables are used. For the system to analyze the dialed digits, the call enters the translations tables selected from the line or trunk tables. After pretranslation is performed and screening tests are passed, the call proceeds to the designated routing tables for final destination.

The data tables used in translating calls can be divided into what can be termed as **call blocks** (refer to Figure 1). Very simply, calls in a SL-100 use data tables which belong to any one of four call blocks:

- lines
- trunks
- screening
- routing

**Figure 1**  
**Call blocks**



Each of these four major categories contains the tables used in the translations process. These tables work together to provide the assorted information needed to process a call.

In the following paragraphs, you will find brief descriptions of the four call blocks along with their respective tables (especially tables pertinent to this course).

## Line tables

The lines tables contain information about lines. This block of tables gives informations such as:

- originator's hardware location and associated information. For example, what type of ringing codes are used or what options or features are assigned;
- groups of lines that are "tied together" and hunt to find an available line;
- numbers to route to other destinations; and
- for originating traffic, provide the next logical step in translation.

| SAMPLE LINES TABLES          |            |
|------------------------------|------------|
| Table Title                  | Table Name |
| Line Assignment              | IBNLINES   |
| Line Feature                 | IBNFEAT    |
| Directory Number Inventory   | DNINV      |
| Directory Number Route       | DNROUTE    |
| Line Attribute               | LINEATTR   |
| Terminating Office Code Name | TOFCNAME   |

### Table Functions

- IBNLINES -- establishes hardware location with information on each; is dynamically filled through the use of SERVORD
- IBNFEAT -- assigns features per LEN (requires additional supporting data)
- DNINV -- lists every directory number and associated result
- DNROUTE -- lists working DNs which require no LEN assignment
- LINEATTR -- establishes class of service and points to other tables for further instruction; known as the "**pointing table**" because it contains pointers for groups of subscribers to Screening/Routing tables
- TOFCNAME -- defines all terminating office codes (NPA/NXX) within the switching unit (for information on NPAs and NXXs, see Lesson 100323, *Intraswitch Dialing* )

## Trunk tables

The trunk tables contain information about tones, announcements, trunks, etc. For example, detailed information about each trunk connected to the office (originating and terminating). These tables may include:

- the type of trunk group;
- the type of signalling handled by the trunk group (multi-frequency or dial pulse) and other supplemental information on signalling;
- the hardware location of each trunk;
- screening information for incoming calls from trunks to define the next logical step in translation;
- types of tones and their patterns; and
- announcement types and their hardware location.

| <b>SAMPLE TRUNK TABLES</b>             |                   |
|----------------------------------------|-------------------|
| <b>Table Title</b>                     | <b>Table Name</b> |
| Common Language<br>Location Identifier | CLLI              |
| Trunk Group                            | TRKGRP            |
| Trunk Subgroup                         | TRKSGRP           |
| Trunk Member                           | TRKMEM            |

### Table Functions

- CLLI -- establishes a reference standard (name) for each trunk group, tone, or announcement
- TRKGRP -- establishes trunk groups by group type (with general information)
- TRKSGRP -- supplemental and signalling information on trunk groups
- TRKMEM -- establishes hardware location for each trunk group members

## Screening/Collection tables

The screening tables contain the information used to analyze the digits that the switch receives. This screening process performs "testing" on the digits dialed (or incoming digits from trunk groups). For example, selected data tables analyze the dialed digits to determine if correct rules were followed (e.g. verifying that a "9" was dialed first for a call going outside the system).

Another important function of the screening tables is to establish the call type based on the digits received. Often the call type is used for billing purposes. The three basic call types are: OA -- Operator Assisted, DD -- Direct Dialed, and NP -- No Prefix Dialed.

Table DIGCOL collects digits (if datafiled to do so) to keep the CPU from being unnecessarily interrupted. This will be covered in more depth in Lesson 100323, *Intrawitch Dialing*.

| <b>SAMPLE SCREENINGCOLLECTION TABLES</b>                     |                                              |
|--------------------------------------------------------------|----------------------------------------------|
| <b>Table Title</b>                                           | <b>Table Name</b>                            |
| Standard Pretranslator Control and associated subtables      | STDPRTCT<br>STDPRTCT.STDPRT<br>STDPRT.AMAPRT |
| Home Numbering Plan Area Control and associated subtables    | HNPACONT<br>HNPACONT.HNPACODE                |
| Foreign Numbering Plan Area Control and associated subtables | FNPACONT<br>FNPACONT.FNPACODE                |
| Class of Service Screening Control and associated subtables  | CLSVSCRC<br>CLSVSCRC.CLSVSCR                 |
| Local Calling Area Screening and associated subtables        | LCASCRCN<br>LCASCRCN.LCASCR                  |
| Prefix Treatment                                             | PFXTREAT                                     |
| Digit Collection                                             | DIGCOL                                       |

---

**Table Functions**

- STDPRTCT -- names of patterns (incoming or dialed digits)  
STDPRT -- analyzes incoming digits, initially defines billing status  
AMAPRT -- creates special AMA records based on leading digits
- HNPACONT -- your serving area code(s) for 3 digit screening  
HNPACODE -- national code validation
- FNPACONT -- area codes for 6 digit screening  
FNPACODE -- office codes of area codes specified in FNPACONT
- CLSVSCRC -- allows for 2 different paths than HNPA route
- LCASCRCN -- verifies local calling area NXXs
- PFXTREAT -- checks for proper dialing
- DIGCOL -- instructs the peripheral processor to individually report or collect the dialed digits and send them to the CPU

## Routing tables

The routing tables are responsible for routing calls to their final destination. This includes matching what we have after the screening process with what the far end wants to see. The information found in these tables dictates how and where a call will be completed or if the call will route to a recorded announcement or treatment. Functions that can be performed by the routing tables include:

- alternate routing -- if a primary path is busy, another path may be attempted;
- digit manipulation -- adding or deleting digits before the call is sent out; and
- changing a billing pattern based on where the call came from.

| <b>SAMPLE ROUTING TABLES</b>                            |                   |
|---------------------------------------------------------|-------------------|
| <b>Table Title</b>                                      | <b>Table Name</b> |
| Home Numbering Plan Area<br>Route Reference Subtable    | HNPACONT.RTEREF   |
| Foreign Numbering Plan Area<br>Route Reference Subtable | FNPACONT.RTEREF   |
| Treatment Control and<br>associated subtables           | TMTCNTL           |
| Office Route                                            | OFRT              |

### Table Functions

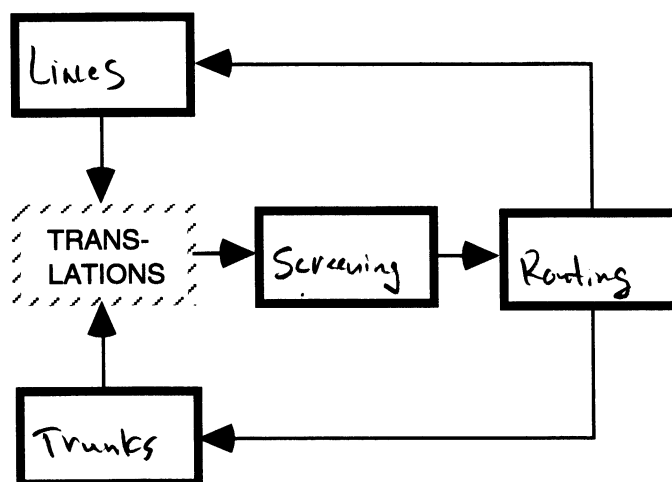
- HNPACONT.RTEREF -- establishes route lists from HNPACODE
- FNPACONT.RTEREF -- establishes route lists from HNPACODE
- OFRT -- defines the customer group POTS routes
- TMTCNTL -- defines treatments

## Practice 1: Identify four call blocks

### Instructions:

In the space provided, write the names of the four call blocks; then place the names of each block in the flow diagram.

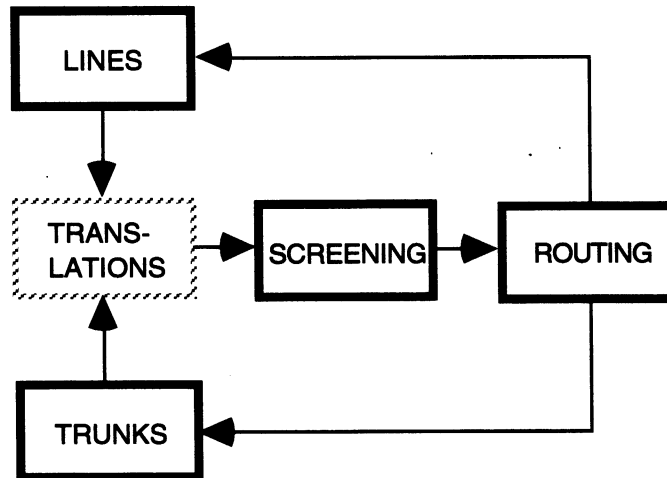
1. Lines
2. Trunks
3. Screening
4. Routing
- 5.



### Practice 1 Feedback

(answers 1 through 4 can be listed in any order)

1. lines
2. trunks
3. screening
4. routing
  
- 5.





## Practice 2: Match tables to call blocks

### Instructions:

Next to each table name, place one of the following letters: "L" if it belongs to the Line call block, "T" if it belongs to the Trunks call block, "S" if it belongs to the Screening call block, and "R" if it belongs to the Routing call block. Compare your answers to those found in the Practice 2 Feedback.

|                          |                          |
|--------------------------|--------------------------|
| <u>S</u> FNPACONT        | <u>T</u> TRKGRP          |
| <u>R</u> TMTCNTL         | <u>T</u> TRKMEM          |
| <u>S</u> STDPRTCT        | <u>S</u> LCASCRCN        |
| <u>S</u> STDPRT          | <u>R</u> OFRT            |
| <u>S</u> HNPACONT        | <u>S</u> FNPACODE        |
| <u>S</u> CLSVSCRC        | <u>R</u> FNPACONT.RTEREF |
| <u>L</u> DNINV           | <u>L</u> IBNLINES        |
| <u>R</u> HNPACONT.RTEREF | <u>S</u> PFXTREAT        |
| <u>L</u> IBNFEAT         | <u>T</u> TRKSGRP         |
| <u>L</u> DNROUTE         | <u>S</u> HNPACODE        |
| <u>L</u> LINEATTR        | <u>L</u> TOFCNAME        |
| <u>T</u> CLI             | <u>S</u> DIGCOL          |



**Practice 2 Feedback**S\_FNPACONTT\_TRKGRPR\_TMTCNTLT\_TRKMEMS\_STDPRTCTS\_LCASCRCNS\_STDPRTR\_OFRTS\_HNPACONTS\_FNPACODES\_CLSVSCRCR\_FNPACONT.RTEREFL\_DNINVL\_IBNLINESR\_HNPACONT.RTEREFS\_PFXTREATL\_IBNFEATT\_TRKSGRPL\_DNROUTES\_HNPACODEL\_LINEATTRL\_TOFCNAMET\_CLLIS\_DIGCOL

### Practice 3: Answer questions about call blocks

#### Instructions:

Answer the following questions by circling the correct answer.

1. Which call block do Tables PFXTREAT and LCASCRCN fit into?
  - a. Routing
  - b. Screening
  - c. Trunks
  - d. Lines
  
2. Which of the following is a Screening table?
  - a. Table HNPARTEREF
  - b. Table TOFCNAME
  - c. Table HNPACODE
  - d. Table OFRT
  
3. Table IBNLINES contains:
  - a. The hardware location for each line
  - b. Lists of all CLLIs assigned to a trunk group
  - c. Lists of non-LEN-assigned Directory Numbers
  
4. Table FNPACONT is built for three-digit translations.
  - a. True
  - b. False *b digit.*
  
5. Which table is known as the pointer table because it contains pointers for groups of subscribers to other Screening/Routing tables?
  - a. Table STDPRTCT
  - b. Table LINEATTR
  - c. Table FNPARTEREF



### **Practice 3 Feedback**

1. b
2. c
3. a
4. b
5. b

---

## **Translations table association chart (TTAC)**

Just as the switch uses tables to organize enormous amounts of data, the Translations Table Association Chart (TTAC) is a tool that you can use to organize these tables. The TTAC is a visual representation of the call blocks.

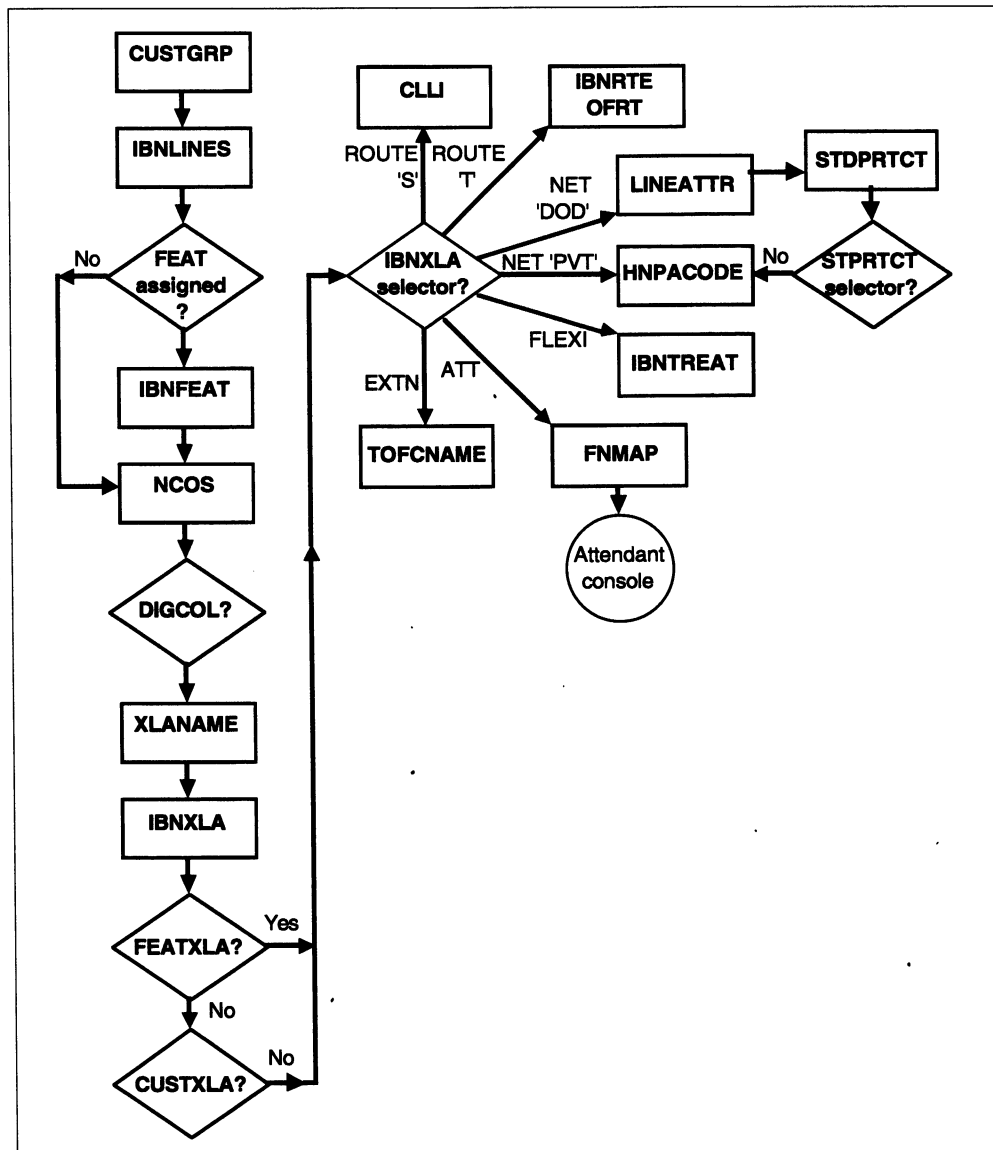
The tables are shown as boxes with the table name. Lines drawn between the boxes show the general path or association followed by the switch as it moves from table to table gathering information on how to handle a call.

The small letters and symbols around the boxes are called Route Selector Codes and are discussed at the end of this lesson (for more specific information, refer to the appropriate NTP). These codes direct you to the next appropriate table in the translations process. Route Selector Codes can be considered road signs that lead you through the translations process.

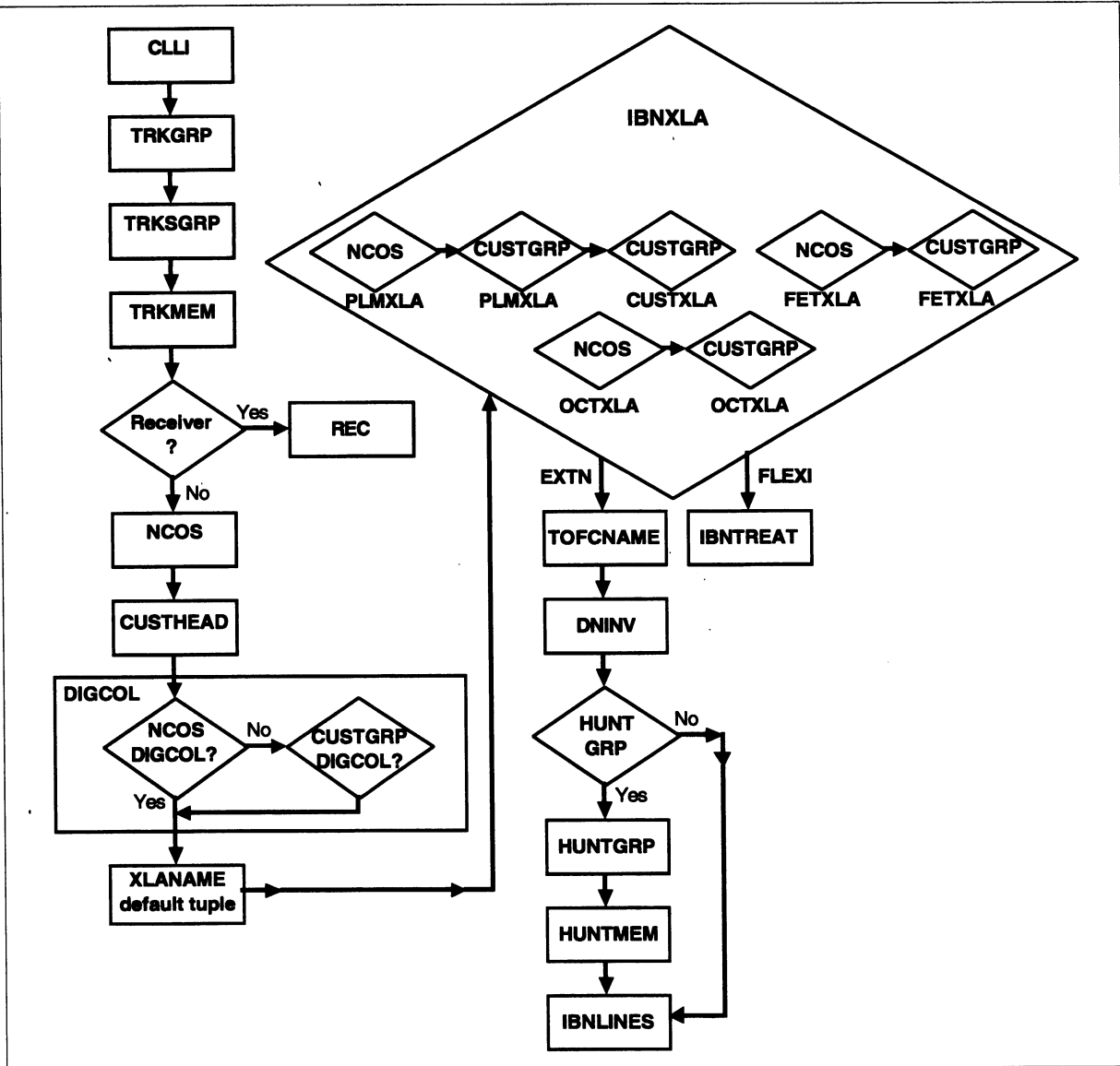
You will see each of the flowcharts again in later lessons.



**Figure 3**  
Simplified flowchart

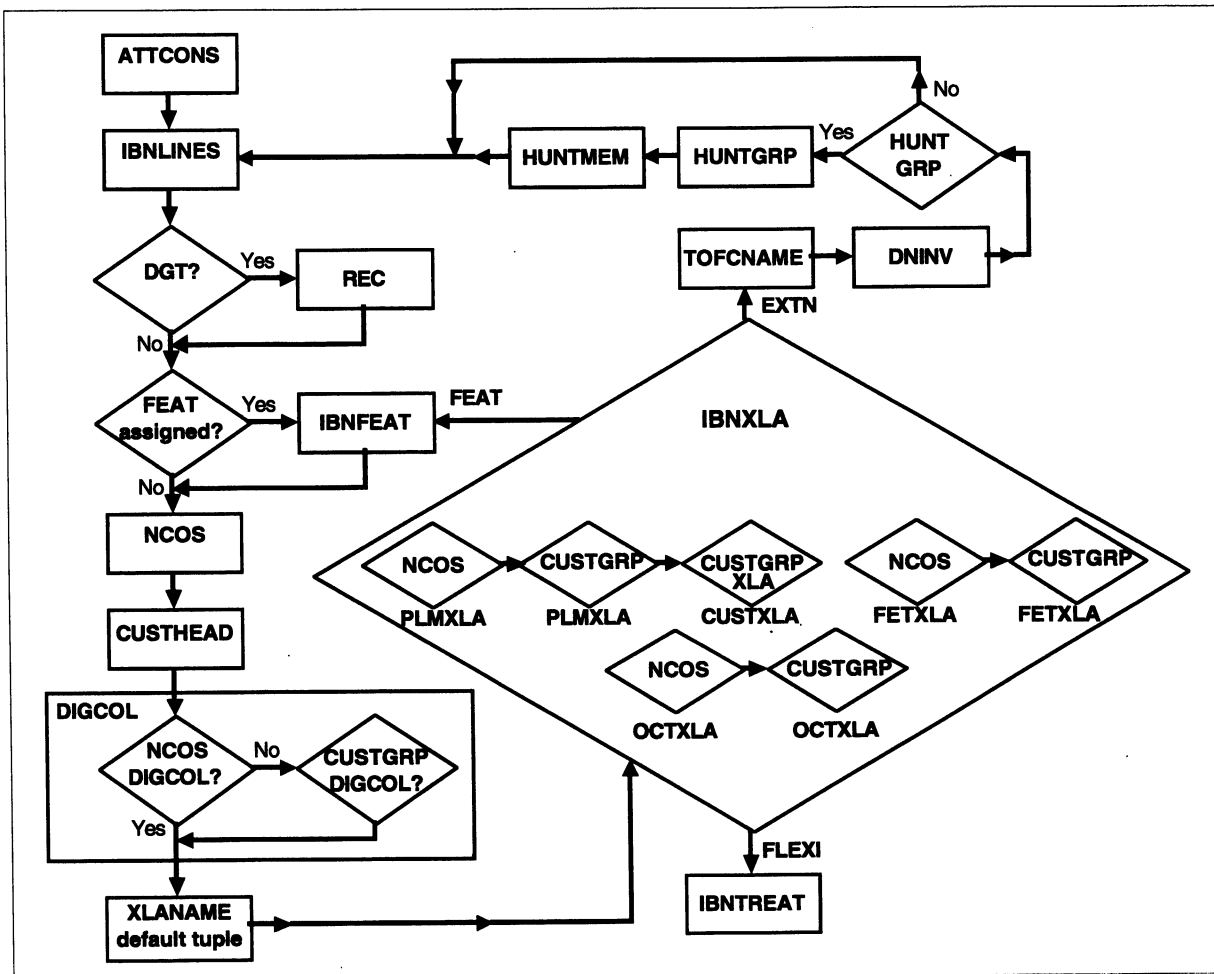


**Figure 4**  
**IBN trunk to line in group**





**Figure 5**  
**IBN to line in group**



**Figure 6**  
**IBN line to a 'DOD' net (9+CALL)**

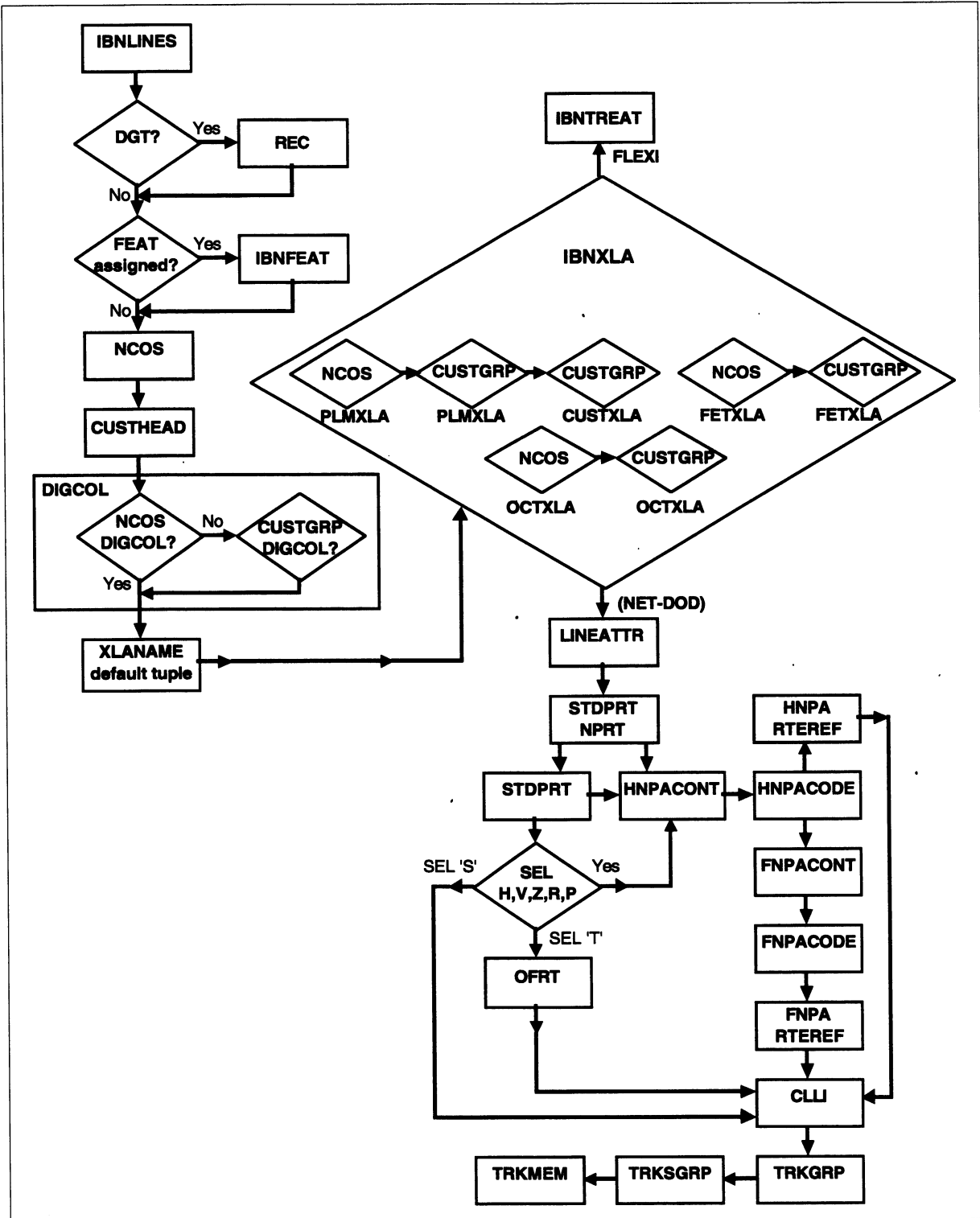
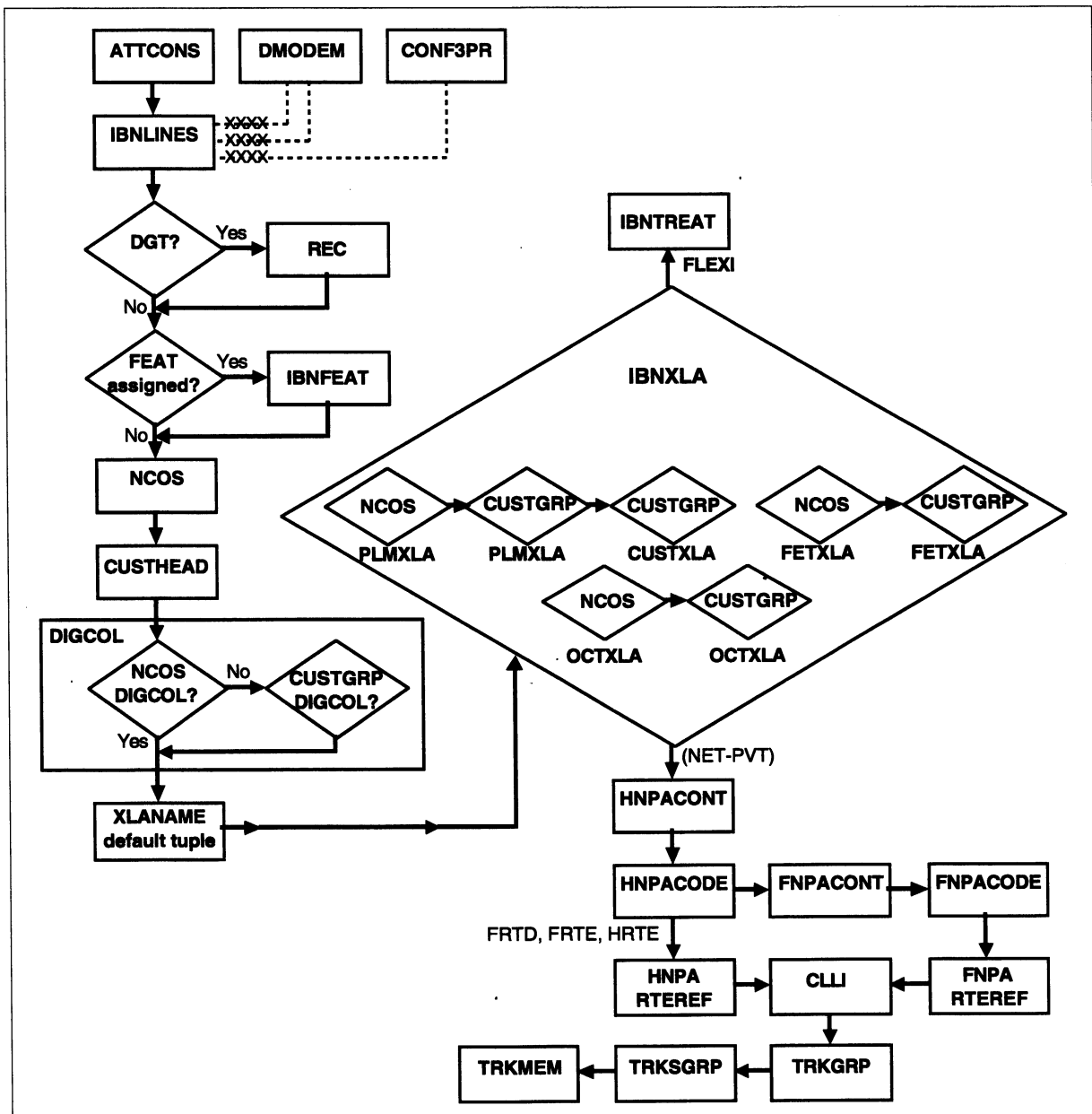
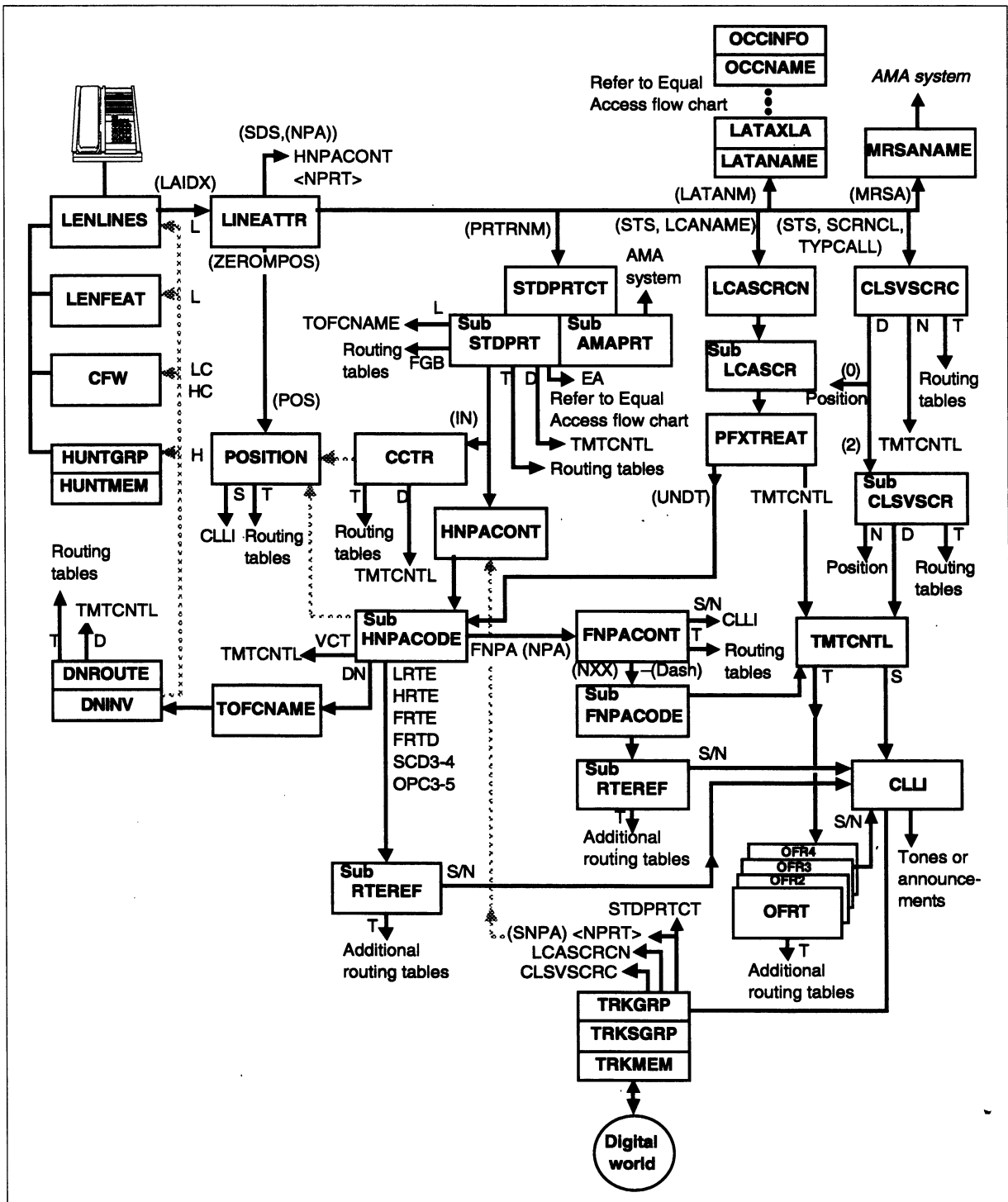


Figure 7  
IBN line to 'PVT' net



**Figure 8**  
**Translations table association chart for DMS-100**



**Table 1**  
**Selector descriptions**

| Selector | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|----------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| D        | Divert this call to Table Treatment Control                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| EA       | <p>Equal Access Translations used for Equal Access Plan, Feature Group C, Transitional and Interim Carriers (10XXX or 950YXXX). Further refined by Translations Types:</p> <p style="padding-left: 40px;">N = No further translations required</p> <p style="padding-left: 40px;">P = Pretranslator</p> <p style="padding-left: 40px;">T = Translation System (NA, IN, NO)</p>                                                                                                                                                                                                                                                                                                                                                      |
| F        | Further translations or recycle for 2nd dial tone is required - call is sent to a second Standard Pretranslator subtable.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| FGB      | Feature Group B Carriers (950YXXX).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| L        | Line translations to a directory number. Points to Table TOFCNAME (Trunk originations only).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| N        | <p>Needs further translations, three cases:</p> <p><i>Case 1 - From Standard Pretranslator Subtable:</i> Call will receive code validation and routing from either National (NA) or International (IN) translation system (Home Numbering Plan Area or Country Code Tables).</p> <p><i>Case 2 - From Class of Service Screening table:</i> Call will route to:</p> <ol style="list-style-type: none"> <li>1. Position table for operator intervention (Number of results = 0)</li> <li>2. Class of Service Screening Subtable (Number of Results = 2) for digit dependent routing.</li> </ol> <p><i>Case 3 - From Foreign Numbering Plan Area Control Table:</i> For Non-standard translations - provides code validation only.</p> |
| P        | Position Table is indexed after code validation for route to operator intervention (line origination only).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| R        | Replace entire digit string.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| T        | Transporter to Routing Tables.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| V        | Used in Table Standard Pretranslator for calls from an incoming trunk group for digit regeneration (Minimum/maximum quantities fixed).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| Z        | Used in Table Standard Pretranslator for calls from an incoming trunk group for digit regeneration (Minimum quantity fixed - maximum quantity may be variable).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |

**Table 2**  
**Code type descriptions**

| Selector | Description                                                                                                                                                                                                                                                                                |
|----------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| DN       | Directory Number in DMS 100 office, Points to Table TOFCNAME.                                                                                                                                                                                                                              |
| FNPA     | Foreign NPA requiring 6 digit screening (ten digit dialing).                                                                                                                                                                                                                               |
| FRTD     | Foreign Route representing a route outside the home NPA (Foreign NPA) where 3 digit screening is required (ten digit dialing), plus checking the 4th ("D") digit and the originating source. If the source is local, all codes with "D" digit of 0 or 1 route to vacant code announcement. |
| FRTE     | Foreign Route representing a route outside the home NPA (Foreign NPA) where 3 digit screening is required (ten digit dialing).                                                                                                                                                             |
| HNPA     | Home NPA ten digit dialing is permitted. The system will search for the NXX in subsequent digit translations.                                                                                                                                                                              |
| HRTE     | Home Route (seven or ten digit toll dialing within the Home NPA-See HNPA).                                                                                                                                                                                                                 |
| LRTE     | Local Route (seven digit local).                                                                                                                                                                                                                                                           |
| OPC3-5   | Operator Code of 3, 4 or 5 digits representing an operator or toll maintenance code.                                                                                                                                                                                                       |
| SCD3-4   | Service Code of 3 or 4 digits representing a local service or maintenance code.                                                                                                                                                                                                            |

**NOT USED**

**Table 3**  
**Route element selector descriptions**

| Selector | Description                                                                                                                                                                                                                                      |
|----------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| CND      | Conditional Selector to indicate the call is to proceed as specified in this route element only if a specified condition is met. If the condition is not met, the call is routed as specified in the next element of the route list.             |
| N        | Nonstandard translation where digit prefixing and deleting or cancellation of normal charging may be specified. Routing is to Trunk Group by CLLI name.                                                                                          |
| RT       | Replace received digits in their entirety with the digits specified.                                                                                                                                                                             |
| S        | Route to a tone or an announcement by CLLI name. (Will also permit standard digit manipulation to be performed on intertoll (IT) type trunk groups.)                                                                                             |
| ST       | Same Table selector is used to point to another route reference index number in the same table for the purpose of linking the route lists together. The route index referenced must be higher than the index of the route using the ST selector. |
| T        | Transporter to routing tables.                                                                                                                                                                                                                   |
| TS       | Two Stage outpulsing for International calls requiring traditional signalling.                                                                                                                                                                   |
| - (dash) | Indexes into Subtable Foreign Numbering Plan Area Code Table (FNPACODE) from the control table for code validation and routing.                                                                                                                  |

NOT USED





## Call Blocks.

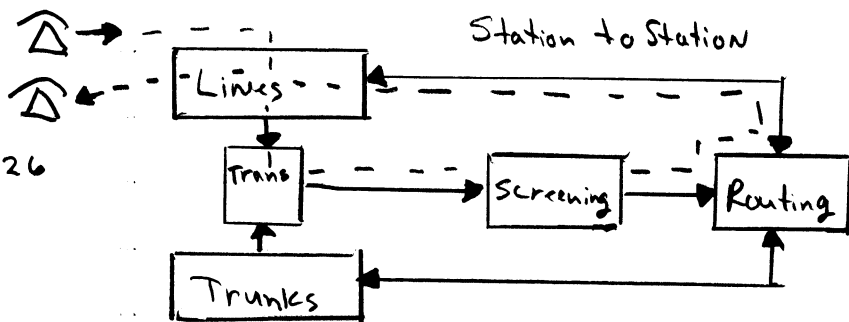
### 4 Types phone Calls

Trunk to trunk

Station to trunk

Station to station

Trunk to Station



line TABLE

IBNLINES - Establishes hardware location with information

Pg 4-26

IBNFAT - assigns Features per LEN

DNINV - Lists every DN

DNRoute - Lists working DN which require NO LEN

LINEATTR OR Pointertable - Establishes COS Points



## Call Blocks

Line TABLE Pg 4-26 TOFCNAME - Defines all terminating office codes.  
(NPA/NXX)

Trunk TABLE Pg 5-26 CLLI - name trunk Groups

TRKGRP - Establishes trunk Group By Type 2WAY etc...

TRKSGRP - Signalling information on trunk Groups

TRKMEM - Establishes hardware location for each Trunk Group member.

Screening TABLE Pg 6-26 STDPRCT - Type of call

SUB STDPRCT - analyzes incoming digits

SUB AMA PRCT - Creates special Ama records based on leading digits

HNPACONT. - 3 digit call Screening

SUB HNPACode - national code Validation

FNPACONT - 6 digit call Screening

SUB FNPAcode - Office Codes of Area Codes



## Call Blocks

Screening Table CLSVSCR - Allows 2 different paths than HNPACONT  
PG 6,7 - 26 SUB CLSVSCR

LCASCRN - Verifies local Calling area NXXs  
SUB LCASCR

PFXTRT - Checks For Proper Dialing

DEGCOL - instructs the P.P. to report or collect  
dialed digits and send them to CPU.

Routing Table HNPACONT

PG 8-26 Sub RTEREF - Establishes route list From HNPACODE

FNPACONT

Sub RTEREF - Establishes route list From HNPACODE

TMTCTL - Defines treatment.

OFRT - Defines Customer Group POTS routes.



57

Traver  
Syntax

2444  
2444  
2444

5



**Sign-off**  
Colleague  
> Instructor

**100320**

## **TRAVER syntax**

---

### **Why this lesson is important**

In order to verify your datafill, you must be able to invoke a TRAVER, or translation verification. TRAVERs are diagnostic tools that allow you to access and simulate a telephone call in the software. This lesson presents the proper syntax for invoking a TRAVER.

### **Objective**

Given appropriate documentation:

- define a TRAVER, and
- identify the proper syntax for invoking a TRAVER.

## What to do

1. Read Lesson 100320: TRAVER syntax.
2. Obtain NTP 297-1001-362 and read the section entitled "Translations review and verification. This section presents syntax as well as several TRAVER analyses.
3. Work through the lesson, including the practice. You may practice as many times as you like.
4. There is no skill check for this lesson; your correctly completed practices will serve as your skill checks.
5. Have a course manager check this lesson, and go to the next lesson.

## What resources to use

| Resources               | Resource number  |
|-------------------------|------------------|
| Core translations guide | NTP 297-1001-362 |

## Translations verification

A translation verification, or TRAVER, is a command that may be invoked to simulate a call and aid in determining the path which a particular call will take through the translation tables. TRAVER is used by database personnel to dry run a datafill so that the sequences of translations can be verified.

TRAVERs follow a specific syntax that can be represented generally by the following format:

| 1      | 2                     | 3   | 4             |
|--------|-----------------------|-----|---------------|
| TRAVER | originating parameter | cdn | trace options |

where:

1. the word **'TRAVER'** is **always typed** to invoke the command
2. ORIGINATING PARAMETER is one of the following:
  - L indicates that a **line** is the originator; the L parameter is **followed by the DN of the originator** which is a string of 7 or 10 digits in the following format:
 

**L digits**
  - TR indicates that an **incoming trunk** is the originator; the TR parameter must be followed by the trunk CLLI as follows
 

**TRAVER TR clli**

(values C, V, R, and AVLNP are other options but are **not** covered in this course; for more information, refer to 297-1001-362)
3. CDN is the **called party's directory number**; it consists of a string ranging from 1 to 24 digits
4. TRACE OPTIONS specifies one of the following trace options:
  - T; a request to trace through translations tables by listing each tuple of each **table** used during the translation process
  - NT; **no trace** of tuples is to be displayed; only digit translation routes are to be reported
  - B; **both** options; a request to trace through translations tables by listing each tuple of each table used during translations process, as well as displaying to actual routes (trunks, etc.) selected.

To verify a specific type of call (5-digit extension dialing in the following example), a TRAVER is entered at the VDU by typing in this command:

**TRAVER | L | 2373508 | 78930 | T**

The parameters in the previous example represent the following:

- L = line + 2373508 (dialing number)
- 78930 = called party's directory number
- T = trace showing tables used in process

This TRAVER will display the entries in the translations tables that were used to arrive at the terminating point which in this case is a termination on a directory number in the Meridian 1 Options 111-211.

When a TRAVER is run for a call, a report is displayed on the MAP VDU screen. This report lists the data tables and related tuples that the call uses in the Meridian 1 Option 211.

Figure 1 depicts a TRAVER which examines a network call (9+DN) that originates in the system and subsequently translates to a directory number outside the site.

**Figure 1**  
**Tables Used in a (Network) Call**

Station# 782-3556 dials 9+455-2112...

TRAVER L 7823556 94552112 T

1 TABLE IBNLINES  
HOST 00 0 00 05 DT STN 7823556

2 TABLE NCOS  
GRP3 0 0 NCOS0 \$

3 TABLE CUSTHEAD: PRELIMXLA, CUSTXLA, FEATXLA, VACTRMT, AND DIGCOL  
GRP3 NXLA CTN3 NXLA 0 DCN3

4 TABLE DIGCOL  
DCN3 9 POTS Y

5 TABLE IBNXLA: XLANAME CTN3  
CTN3 9 NET N N Y NDGT N N DOD N 7 NONE

6 TABLE LINEATTR  
7 IBN NONE NT NSCR 0 406 SPN3 LAS3

7 TABLE STDPRTCT  
SPN3 (1) Defines type of call

8 -> SUBTABLE STDPRT  
2 9

9 TABLE HNPACONT  
406 10 0 (3) (1) (0)

10 -> SUBTABLE HNPACODE  
455 455 LRTE 1

11 -> SUBTABLE RTEREF  
1 S D GRP3CLS52W

EXIT TABLE RTEREF

EXIT TABLE HNPACONT

12 TABLE LCASCRCN  
406 LAS3 (2) MAND N

13 -> SUBTABLE LCASCR  
455 455

14 TABLE PFXTREAT  
MAND NP Y NP UNDT

Cust GRP NCOS  
GRP3 0 0 406 \$

1 No of Digits Stripped  
2 Points to next table

3 LATE LATE L CAN

4 N Selected NO Prefix

5 # Stripped NA

*Orig caller* { 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14

*CPU Digits Dialed* { 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14

*TERM Point* { 5, 6, 7, 8, 9, 10, 11, 12, 13, 14

*Billing* { 12, 13, 14



## Practice 1: Identify TRAVER components

### Instructions:

Answer the following questions by indicating your answers in the spaces provided. Compare your answers with those found in Practice 1 Feedback.

1. In your own words, define TRAVER. Your answer should include what TRAVER stands for as well as what TRAVER's purpose is in translations.

Translations Verification (Traver) is used  
to Envoke or simulate a  
Call.



2. In the box below, write in the 3 missing parameters; then, on the following lines, describe each parameter; if the parameter has more than one option list and describe all options.

|        |                  |           |                  |
|--------|------------------|-----------|------------------|
| TRAVER | 1.<br>Orig Param | 2.<br>CON | 3.<br>Trace OPT. |
|--------|------------------|-----------|------------------|

1) Orig Param - Line + 7 or 10 digits

2) CON - Called Party Directory number  
1 to 24 digits.

3) Trace Option

T = Table - a request to trace through Translation tables.

NT = NO Trace Only digit translations Routes are displayed

B = Both. request to trace through trans. Tables as well as displaying actual routes



---

## Practice 1 Feedback

1. Your answer should resemble the following:

A translation verification, or TRAVER, is a command that may be invoked to simulate a call and aid in determining the path which a particular call will take through the translation tables.

2. Your answers should resemble the following:

- **ORIGINATING PARAMETER** is one of the following:
  - **L** indicates that a line is the originator; the **L** parameter is followed by the DN of the originator which is a string of 7 or 10 digits in the following format:

**L digits**

- **TR** indicates that an incoming trunk is the originator; the **TR** parameter must be followed by the trunk CLLI as follows

**TR AVER TR clli**

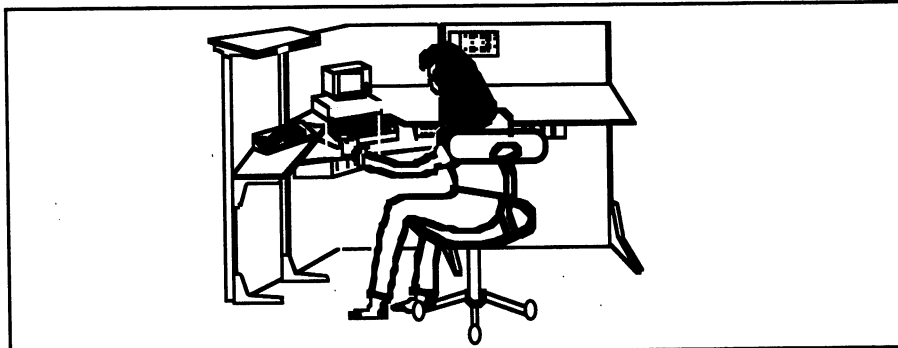
(values **C**, **V**, **R**, and **AVLNP** are other options but are not covered in this course; for more information, refer to *297-1001-362*)

- **CDN** is the called party's number; it consists of a string ranging from 1 to 24 digits
- **TRACE OPTIONS** specifies one of the following trace options:
  - **T**; a request to trace through translations tables by listing each tuple of each table used during the translation process
  - **NT**; no trace of tuples is to be displayed; only digit translation routes are to be reported
  - **B**; a request to trace through translations tables by listing each tuple of each table used during translations process, as well as displaying to actual routes (trunks, etc.) selected.

## Practice 2: Identify TRAVER syntax

### Instructions:

#### Part A:



To answer the following seven questions, assume you are a maintenance technician at a Meridian 1 Options 111-211. Unless otherwise specified, the trouble reports you will see are coming from stations at the Meridian 1 Options 111-211. Your job is to match each trouble report with the correct syntax for the TRAVER command to trace the problem call.

500169  
050391

Compare your answers with those found in Practice 2 Feedback.



1.

- A. TRAVER TR DALIBNINC 8324444 B
- B. TRAVER L 8328228 0 T
- C. TRAVER L 8329279 914222365 T
- D. TRAVER L 8322405 45581 T
- E. TRAVER L 8329128 98225566 T
- F. TRAVER L 8321234 2611 B
- G. TRAVER TR CLS5IC 223445 B
- H. TRAVER L 8325245 901791876543 T

-----

When trying to dial special operator-assist toll calls,  
subscribers cannot reach an "outside" operator.

500170  
060391

2.

- A. TRAVER TR DALIBNINC 8324444 B
- B. TRAVER L 8328228 0 T
- C. TRAVER L 8329279 914222365 T
- D. TRAVER L 8322405 45581 T
- E. TRAVER L 8329128 98225566 T
- F. TRAVER L 8321234 2611 B
- G. TRAVER TR CLS5IC 223445 B
- H. TRAVER L 8325245 901791876543 T

-----

There are reports of reaching an announcement  
saying the "call cannot be completed as dialed" each  
time a one plus 422 number is dialed.

500171  
060391

3.

- A. TRAVER TR DALIBNINC 8324444 B
- B. TRAVER L 8328228 0 T
- C. TRAVER L 8329279 914222365 T
- D. TRAVER L 8322405 45581 T
- E. TRAVER L 8329128 98225566 T
- F. TRAVER L 8321234 2611 B
- G. TRAVER TR CLS5IC 223445 B
- H. TRAVER L 8325245 901791876543 T

-----

Subscribers are not able to use four-digit dialing in the switch. Callers are routed to a recording.

500172  
050391

4.

- A. TRAVER TR DALIBNINC 8324444 B
- B. TRAVER L 8328228 0 T
- C. TRAVER L 8329279 914222365 T
- D. TRAVER L 8322405 45581 T
- E. TRAVER L 8329128 98225566 T
- F. TRAVER L 8321234 2611 B
- G. TRAVER TR CLS5IC 223445 B
- H. TRAVER L 8325245 901791876543 T

-----

Calls incoming from other offices to any 832 number are reaching vacant codes.

500173  
050391

5.

A. TRAVER TR DALIBNINC 8324444 B  
B. TRAVER L 8328228 0 T  
C. TRAVER L 8329279 914222365 T  
D. TRAVER L 8322405 45581 T  
E. TRAVER L 8329128 98225566 T  
F. TRAVER L 8321234 2611 B  
G. TRAVER TR CLS5IC 223445 B  
H. TRAVER L 8325245 901791876543 T

---

Subscribers cannot reach the attendant console.

500174  
050391

6.

A. TRAVER TR DALIBNINC 8324444 B  
B. TRAVER L 8328228 0 T  
C. TRAVER L 8329279 914222365 T  
D. TRAVER L 8322405 45581 T  
E. TRAVER L 8329128 98225566 T  
F. TRAVER L 8321234 2611 B  
G. TRAVER TR CLS5IC 223445 B  
H. TRAVER L 8325245 901791876543 T

---

Subscribers report that when they dial an 822 number they reach an 831 number.

500175  
050391

7.

- A. TRAVER TR DALIBNINC 8324444 B  
 B. TRAVER L 8328228 0 T  
 C. TRAVER L 8329279 914222365 T  
 D. TRAVER L 8322405 45581 T  
 E. TRAVER L 8329128 98225566 T  
 F. TRAVER L 8321234 2611 B  
 G. TRAVER TR CLS5IC 223445 B  
 H. TRAVER L 8325245 901791876543 T

-----  
 There are reports that five-digit dialing is not working.

500176  
 050391

**Part B:** Answer the following questions and compare your answers with those found in Practice 2 Feedback.

8. Invoke a TRAVER that lists only the tables used for a line call in which DN 237-8803 dials DN 334-1400.

TRAVER L 2378803 3341400 T

9. Which choice produces a TRAVER showing only a call's outpulsed digits?

a. T

b. NT

c. B

10. Invoke a TRAVER that lists only the tables used for a line call in which DN 237-8803 dials extension 4401.

TRAVER L 2378803 4401 T

## Practice 2 Feedback

### Part A:

1. H
2. C
3. F
4. A
5. B
6. E
7. D

### Part B:

8. TRAVER L 2378803 3341400 T
9. b.NT
10. TRAVER L 2378803 4401 T



## Traver Syntax.

TRAVER.- is A command that may be invoked to Simulate a Call.

1. Type Traver
2. Originating param.- Enter L + 7 digit #
3. CDN - Call Party DN 1 - 24 digits
4. Trace Options - T.OPT. - TABLE  
NT.OPT - Final output  
B.OPT - Both T & NT



•  
Cus Group  
TRANS  
NEOS

2021  
JAN 2  
CNS 2100b  
6

**Sign-off**

Colleague

> **Instructor****100322**

## Customer groups, translators, and NCOSs

### Why this lesson is important

In order for a company to use its SL-100, database technicians must be able to develop various partitions, or **customer groups**, within the switch as well as enable those partitions, using **translators and/or NCOSs**, to have varying dialing plans; therefore, the purpose of this lesson is to introduce you to:

- customer groups,
- translators (customer, preliminary, feature, star, and octothorpe), and
- network classes of service (NCOSs).

### Objective

Upon completion of this module, you will be able to, with available documentation:

- identify and describe the functions of customer group tables,
- identify and describe customer, preliminary, feature, and octothorpe translators,
- enter and examine tables specific to customer groups, translators, and NCOSs using Table Editor.

**What to do**

1. Read "Lesson 100322: Customer groups, translators, and NCOSs."
2. Complete the practices as you come to them within the lesson; you may practice as often as you need to to understand the concepts presented within the practices. Answers to the practices are provided in the section called "Practice Feedback."
3. There is no skill check for this lesson; your completed practices will serve as your skill checks; also, your ability to understand the principles within this lesson will be evaluated during Lesson 100323, *Intraswitch Dialing*.
4. **Hands-on Verification:** To view the contents of any Table X (table name), type "Table X" at your terminal...
  - Type "RANge" to get a list of fields.
  - Type "CHANge"; you won't actually change any data in this table. This allows you to go through the table field by field.
  - At the "DO YOU WANT TO SAVE THESE CHANGES" prompt, enter N.

**What resources to use**

| <b>Resources</b>                    | <b>Resource number</b> |
|-------------------------------------|------------------------|
| Glossary of Terms and Abbreviations | NTP 297-1001-825       |
| Customer Data Schema                | NTP 297-1001-451       |

---

# Customer group tables

---

## Introduction

To support their customers' individual needs, service providers divide their switches into partitions. These partitions are known as **customer groups** and define each company's place within the switch. Customer groups allow each customer to have its **own set of directory numbers, dialing plan, and features**. Customer groups also enable customers to define small groups within their own groups (using Table NCOS) and to further customize their dialing plans.

The customer group tables define or "partition" a customer group within the switch. Once a group is established, these tables also determine what resources and features are available to the group. For example, the Customer Group Engineering Table (CUSTENG) establishes the customer group type. An entry in the Customer Group Head Table (CUSTHEAD) determines whether any subscribers within the group will be using authorization codes in order to access certain facilities.

There are three types of Customer Groups.

- **PRIVATE** - Feature activation is allowed against:
  - members of the same customer group
  - other public customer groups
  - public family customer groups
- **PUBLIC** - Feature activation is allowed against:
  - members of the same customer group
  - other public customer groups
- **FAMILY** - There are two family types available for this customer group type.
  - The private family allows feature activation against:
    - members of the same customer group
    - other customer groups in the same family
    - public customer groups
    - public family customer groups
  - The public family allows feature activation against:
    - members of the same customer group
    - other customer groups in the same family
    - public customer groups

The following pages illustrate examples of private, public, and family customer groups.



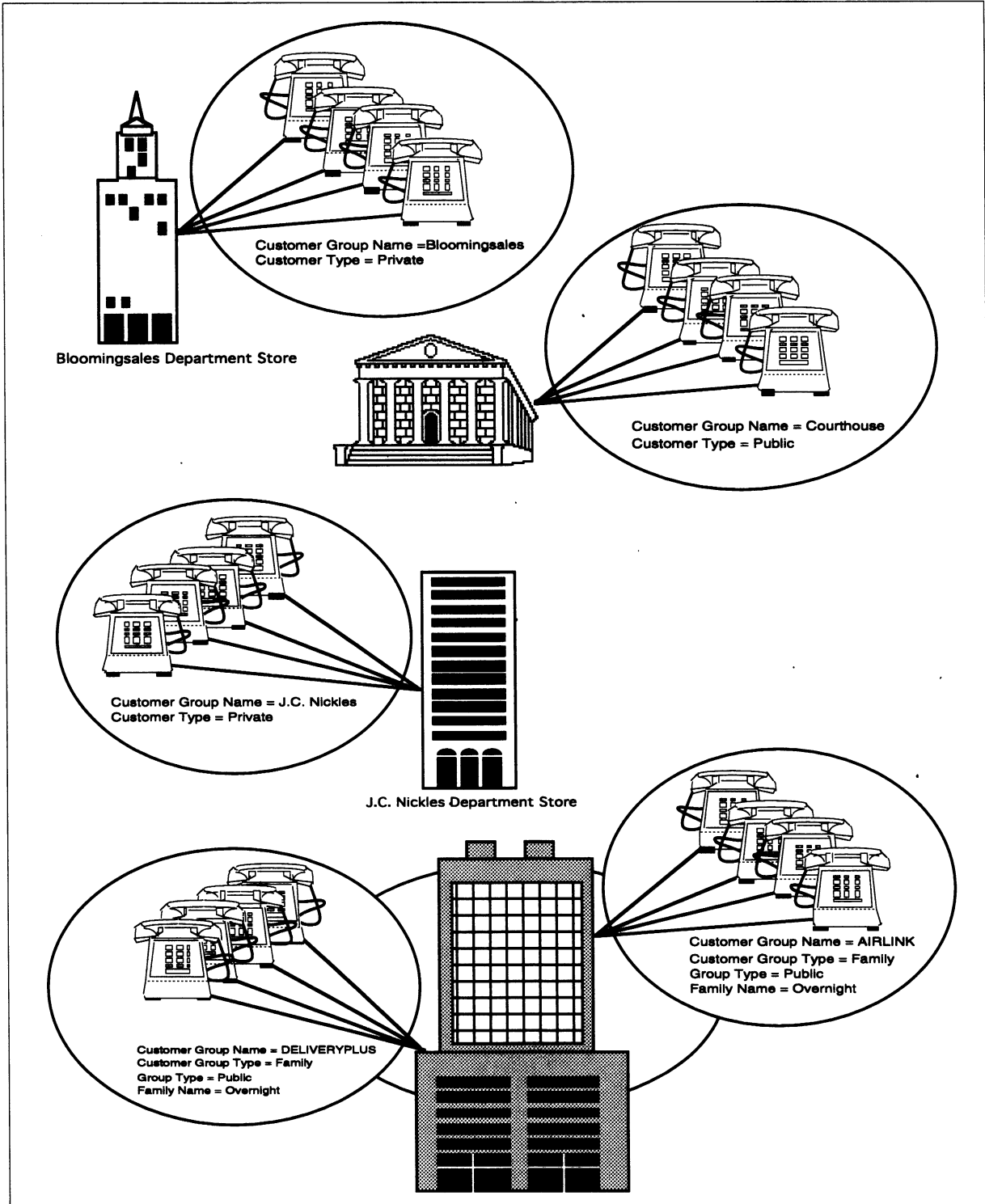
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## Private customer groups

Figure 1 illustrates two *private* customer groups. In the example, the Bloomingdale's and J. C. Nickels department stores are fierce rivals. Each store is a private customer group; therefore neither store can impose or share features with one another. For example, the chairperson of Bloomingdale's could not use Executive Busy Override (EBO) to barge in on the chairperson of J. C. Nickels. Each customer group has its own set of features and dialing plan.

Figure 1 also shows a public customer group and a public family group. Both the J. C. Nickels and Bloomingdale's stores can activate features against the Courthouse, Airlink and Deliveryplus customer groups.

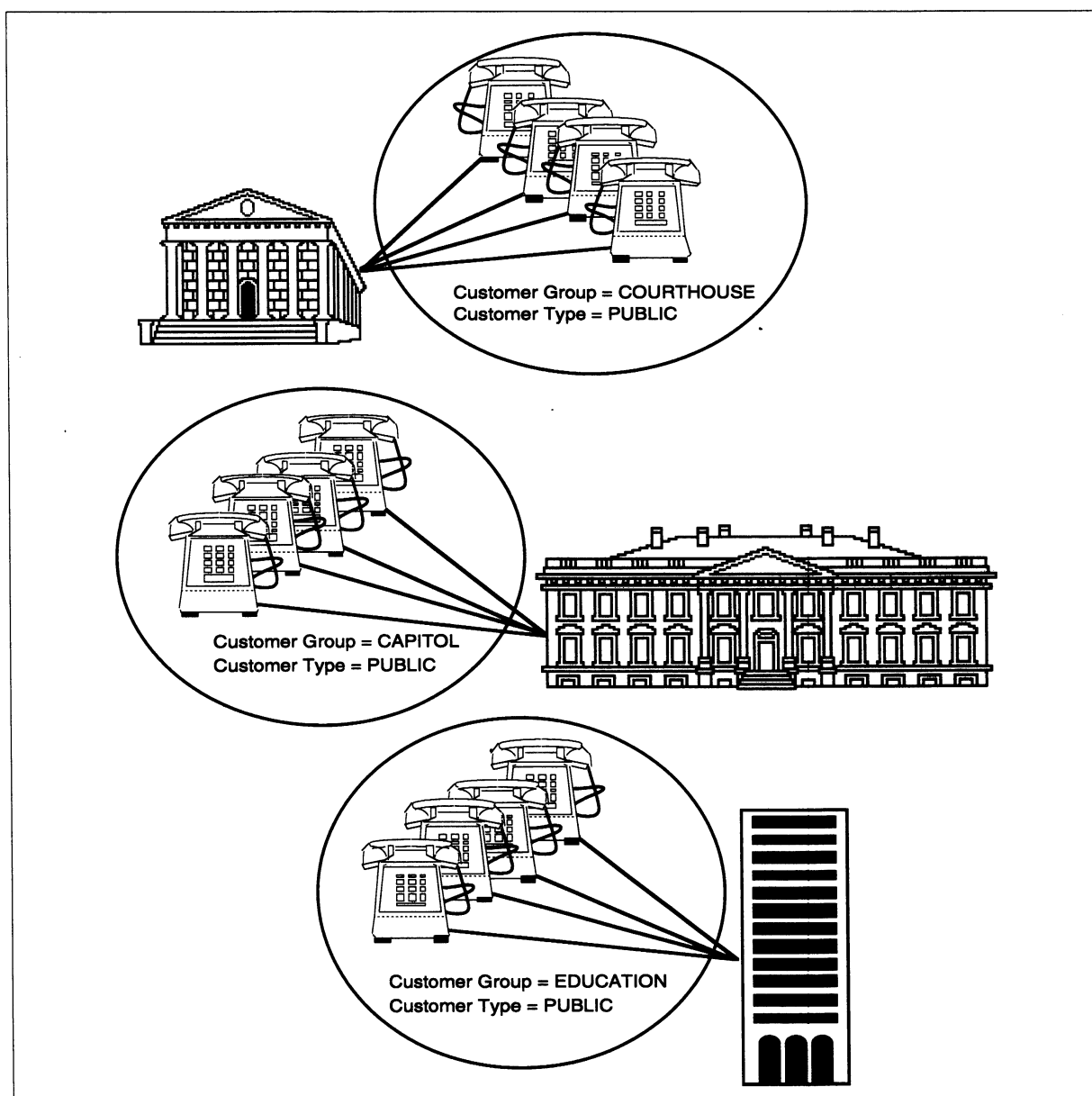
**Figure 1**  
**Private customer group**



## Public customer groups

Figure 2 shows an example of three *public* customer groups. In the example we see that the courthouse, capitol and Department of Education are all public customer groups. Since these groups are public, features can be used between each building. For example, a subscriber in the capitol may use Ring Again when reaching a busy station in the courthouse or Department of Education building, or vice versa.

**Figure 2**  
**Public customer group**



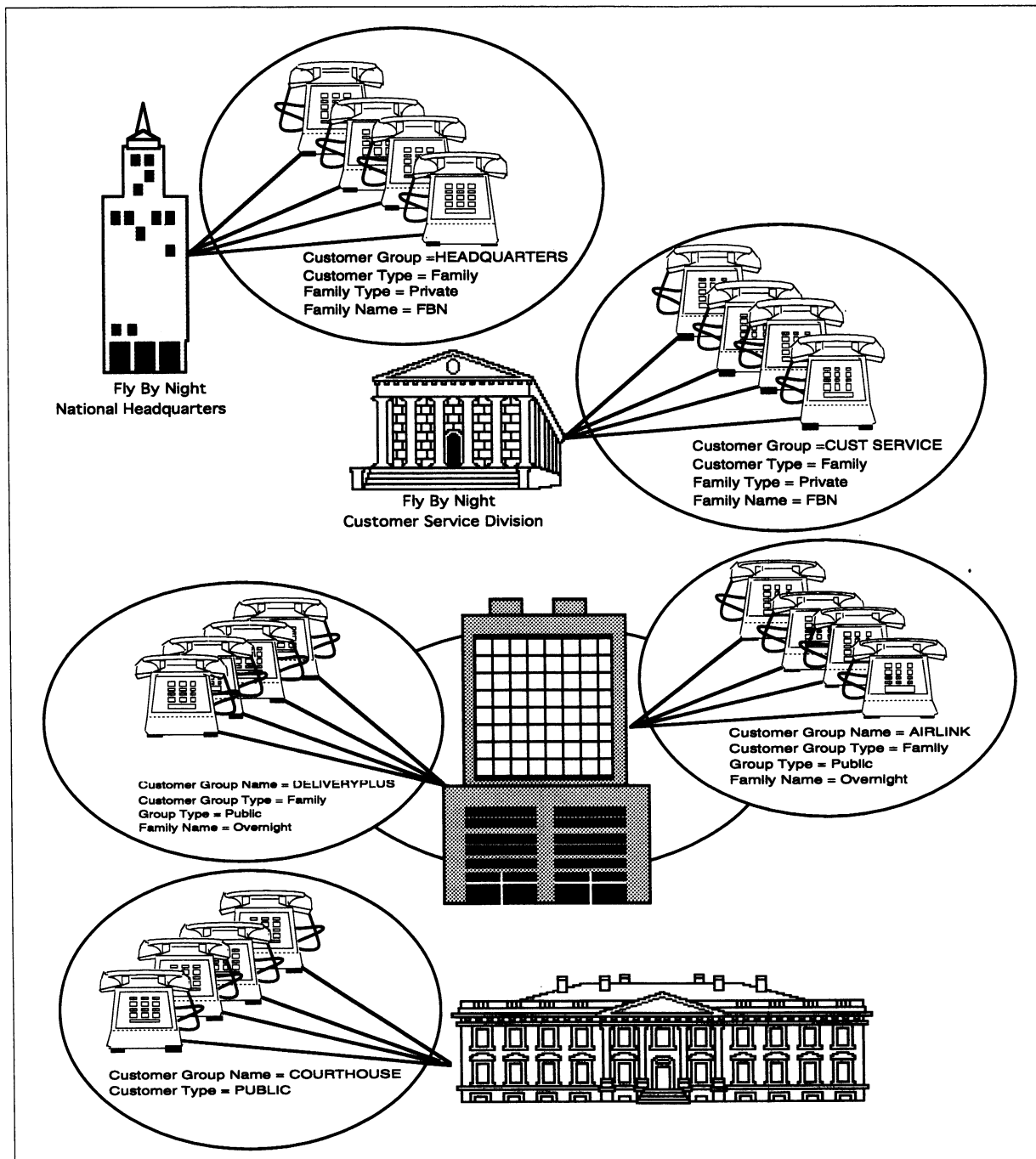
## **Family customer group**

Figure 3 shows two examples of the family customer group type.

The private family customer groups (Fly By Night) can activate features within their respective customer group boundaries, from one customer group to another within the same family, against the Courthouse customer group (which is a public group), and against the Overnight family of customer groups.

The public family customer groups (Overnight) can activate features within their respective customer group boundaries, from one customer group to another within the same family, and against the Courthouse, (which is a public group).

**Figure 3**  
**Family Customer Type**



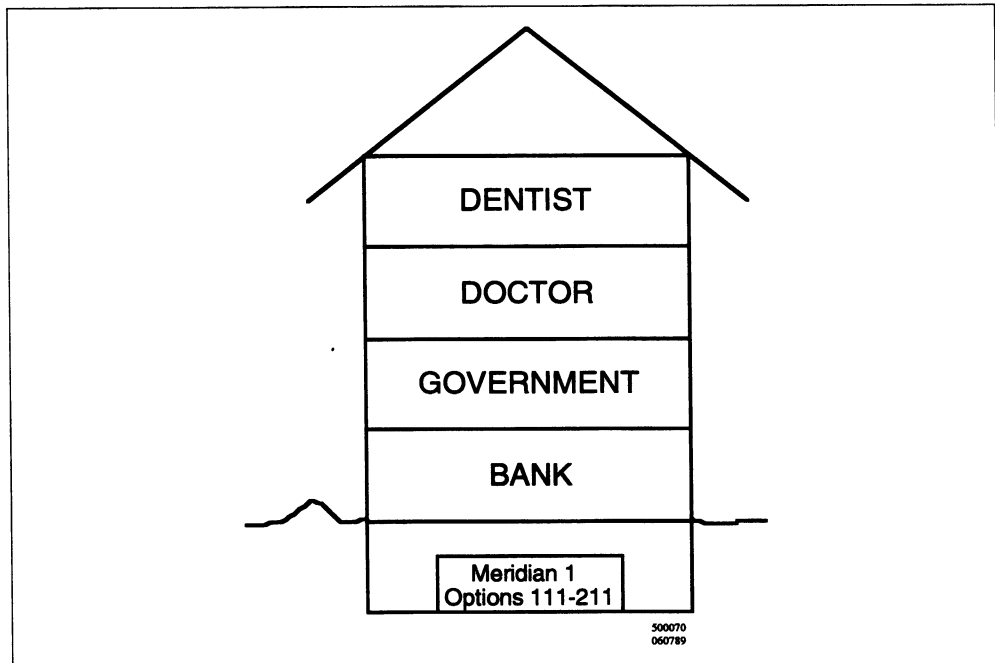
## Dialing plans for customer groups

Let's say that Building X in Figure 4 has four different tenants. Assume that each customer group in Building X wishes to give its employees extension dialing (i.e., the ability to dial other telephones within the same customer group without dialing the entire number). Differences, however, could exist in the dialing plan for each customer.

- The bank, for instance, wants 5-digit extension dialing (245-xxxx; their extension dialing could be 5xxxx). The leading digit of their extension dialing is 5.
- The government agency wants four-digit dialing for its stations. All of their directory numbers start with 246-4xxx (their extension dialing would be 4xxx). The leading digit of their extension dialing is 4.
- The doctor's office wants only 3-digit dialing (their extension dialing could be 247-63xx; users would dial 3xx). The leading digit of their extension dialing is 3.
- Finally, the dentist's office has requested two-digit dialing (their extension dialing could be 248-942x; users would dial 2x). The leading digit of their extension dialing is 2.

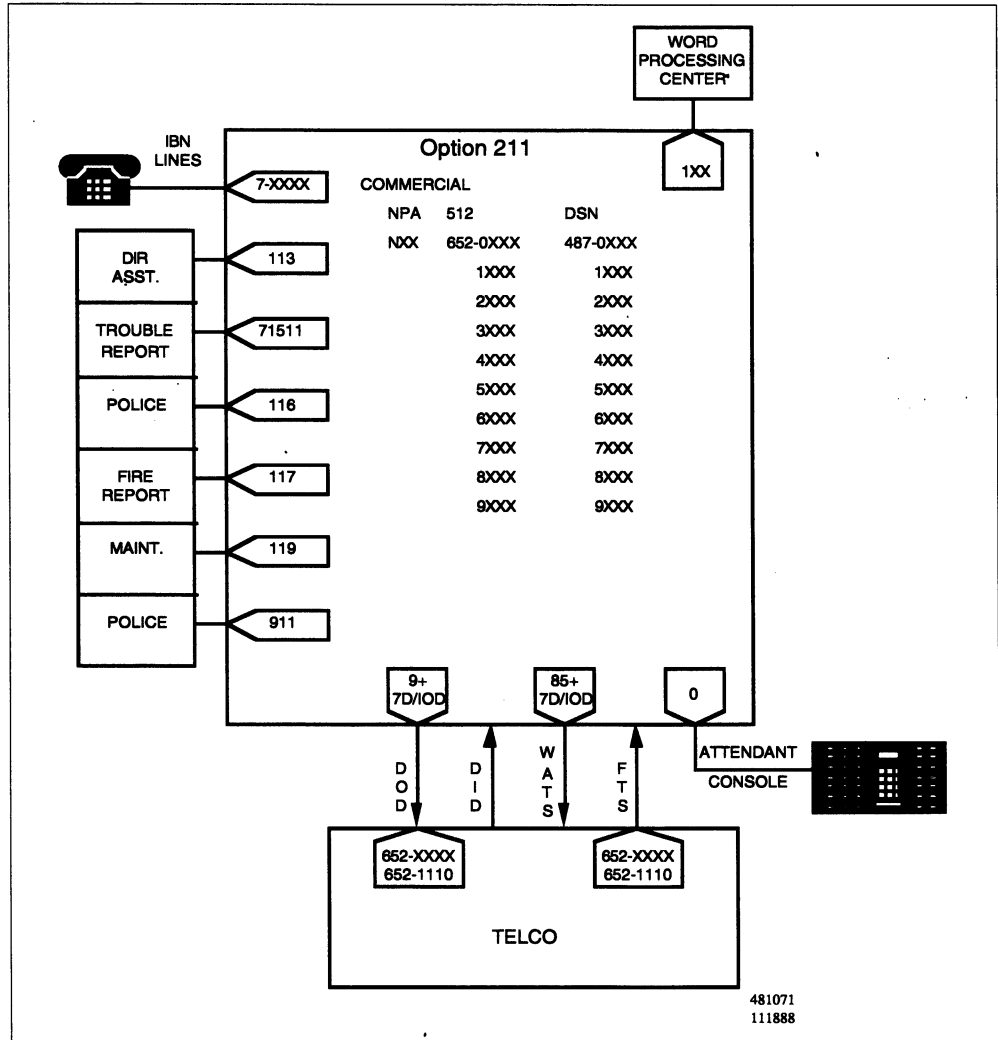
**Figure 4**

**Customer groups**



The dialing plan depicted in Figure 5 consists of the numbers to be used by a client for station-to-station calling and network access. Data from the dialing plan is entered into data tables supporting both screening and routing. Although the dialing plans for most sites are similar, each site does have some parts of its dialing plan that are unique.

**Figure 5**  
**Customer Dialing Plan**



## Customer group tables

The switch contains seven tables for establishing a customer group. These tables include:

- Customer Group Family (CUSTFAM)
- **Customer Group Engineering** (CUSTENG)
- Customer Group Name (CUSTNAME)\*
- **Customer Group Head** (CUSTHEAD)
- Customer Group Console (CUSTCONS)
- **Customer Group Station** (CUSTSTN)
- **Customer Group Station Message Detail Recording** (CUSTSMR)

**\* Note: This table is datafilled automatically as a result of datafilling table CUSTENG.**

The CUSTENG, CUSTHEAD, and CUSTSTN tables are the only tables **required** for a customer group. The CUSTFAM, CUSTCONS and CUSTSMR tables are **optional**.

The following pages will present information on the customer group tables; then the focus will be placed on those customer group tables that relate to translators and network classes of service.

**Do not forget to perform a 'Hands-on Verification' on any table presented in this lesson.**



---

**Customer Group Family (CUSTFAM)**

The Customer Group Family (CUSTFAM) Table lists all family names and specifies whether the family is private or public. Up to 64 family names can be allocated in this table. Family names must be listed in this table before a customer group can be defined as the "family" customer type in the CUSTENG Table. Field names include:

- FAMNAME is the 1 to 16 character family name that is assigned to a group of customer groups.
- FAMTYPE is PRIVATE or PUBLIC

**Table CUSTFAM**

| <u>FAMNAME</u> | <u>FAMTYPE</u> |
|----------------|----------------|
| SL100xlations  | Private        |

Refer to *NTP 297-1001-451* for detailed information about the Table CUSTFAM.

### Customer Group Engineering (CUSTENG)

Table CUSTENG gives a "birth certificate" to your customer group name. CUSTENG allocates certain resources available to a customer group as well as memory for other tables.

In order for the switch to use customer groups, the following fields must be datafilled:

- CUSTNAME -- key field; customer group name that is comprised of a 1-16 character name
- NONCOS -- maximum number of NCOSs (defined later in this lesson) for the customer group
- NOIBNTMT -- number of IBN Treatments required for the customer group
- CONSOLES -- whether or not the customer group may use consoles (Y/N); if set to N and you want consoles later (Y), you will have to restart your switch
- CUSTTYPE -- type of each customer group; remember that a customer group can be Private, Public, or a member of a family
- if the CUSTTYPE is FAMILY, enter the name of the family to which the customer group belongs (assigned in CUSTFAM)
- GROUPID -- customer group identification number (0-4095)

Below is an example of Table CUSTENG:

| <b>Table CUSTENG</b> |        |          |          |        |         |         |
|----------------------|--------|----------|----------|--------|---------|---------|
| CUSTNAME             | NONCOS | NOIBNTMT | CONSOLES | DOMAIN | GROUPID | OPTIONS |
| <b>BANK</b>          | 3      | 63       | Y        | PUBLIC | 0       | \$      |

**Table CUSTFAM must be datafilled prior to CUSTENG.**

Refer to *NTP 297-1001-451* for detailed information about the CUSTENG Table.

---

**Customer Group Name (CUSTNAME)**

Table CUSTNAME allows you to change a customer group name through one table. As new customer groups are added to table CUSTENG, the customer group names are **automatically** datafilled into TABLE CUSTNAME (under field name SYMBOL) and assigned an identifier (field UNINT, or unassigned integer).

The identifier is an arbitrary integer 0-4095 assigned by the switch. To change a customer group's name you position on its identifier, make the change and the switch will update the appropriate tables.

**Table CUSTNAME**

| <u>UNINT</u> | <u>SYMBOL</u> |
|--------------|---------------|
| 0            | GRP1          |

Refer to *NTP 297-1001-451* for detailed information about the CUSTNAME table.

**Table CUSTHEAD (Customer Head)**

The Customer Group Head (CUSTHEAD) Table defines the group options or system features that are available to the customer group. Once these features are assigned, they are "available" to the group.

The options assigned in this table include but are not limited to:

- **Customer Translator (CUSTXLA)**
- DISA Feature Announcement Code (DISAFAC)
- Expensive Route Delay Time (ERDT)
- Emergency Stand Alone (ESA) Prefix Translator (ESAPXLA)
- External NCOS Number (EXTNCOS)
- **Feature Translator (FETXLA)**
- Music On Hold (MHOLD)
- **Octothorpe Translator (OCTXLA)**
- Off Hook Queuing Announcement (OHQA)
- **Preliminary Translator (PRELMXLA)**
- Time of Day Network Class of Service (TODNCOS)
- **Vacant Treatment (VACTRMT)**

(Items in bold are discussed later in this lesson.)

Fields include the following data:

- customer name -- the name that is assigned to the customer group (1 to 16 character name),
- customer translator name (CUSTXLA) from XLANAME (remember, you cannot have translator names without defining them in XLANAME),
- digit collection name (DGCOLNM), and
- specify option VACTRMT, or vacant treatment; this option must be assigned to the customer group; this defines the treatment of digits for which no translation data has been provided in IBNXLA and no default data has been provided in XLANAME; you will enter treatment numbers ranging from 1-63 in IBNTREAT to which a vacant call is routed.

Below is an example of Table CUSTHEAD showing how translator names are assigned to different customer groups (field one). The various translators will be discussed in more detail later in the lesson.

**Table CUSTHEAD**

| <u>CUSTNAME</u> | <u>CUSTXLA</u> | <u>FETXLA</u> | <u>OCTXLA</u> | <u>DGCOLNM</u> |
|-----------------|----------------|---------------|---------------|----------------|
| BANK            | CTN1           | FTN1          | OCT1          | DCN1           |
| GOVT            | CTN2           | FTN2          | OCT2          | DCN2           |
| DOCT            | CTN3           | FTN3          | OCT3          | DCN3           |
| DENT            | CTN4           | FTN4          | OCT4          | DCN4           |

|                                                                                       |
|---------------------------------------------------------------------------------------|
| <b>CUSTENG, DIGCOL, and XLANAME must be datafilled prior to datafilling CUSTHEAD.</b> |
|---------------------------------------------------------------------------------------|

Refer to *NTP 297-1001-451* for detailed information about the CUSTHEAD Table.

## Customer Console (CUSTCONS)

The Customer Console (CUSTCONS) Table defines several parameters that affect how all consoles in the customer group will operate.

Field data includes:

- CUSTNAME -- field CUSTNAME from CUSTHEAD
- OPTIONS -- options assigned in this table include but are not limited to:
  - Attendant Console Calls to a Station with CFB will Get Forwarded if Station is busy (ACCFB)
  - Attendant Console calls to a Station with CFD will Get Forwarded if Station Does Not Answer (ACCFD)
  - Attendant Call Park Recall Timer (ACCPKTIM)
  - Attendant Call Hold with Music (ACHOLD)
  - Attendant Camp-On (ACO)
  - Announcements (ANN)
  - Call Waiting/No Answer Recall (CWNATIM)
  - ICI Flash Threshold (FLASHTHR)
  - Attendant Immediate Release (IMMREL)
  - No Disconnect Timeout (NDSCTIM)
  - Night Service Double Key Depression (NS2KEY)
  - Attendant Answer Delay Peg Count (PEGLA)
  - Secrecy (SEC)
  - Number of Attendant Subgroups (SGRPNUM)
  - Time and Date (TIM12)
  - Number of Incoming Call Identifiers (ICINUM)
  - Number of Loopkeys (LPKEY)
  - Hold Recall Total (HLDRECTO)

This table is required for any customer groups using one or more attendant consoles.

|                                                                             |
|-----------------------------------------------------------------------------|
| Tables CUSTFAM, CUSTENG, and OFCENG should be datafilled prior to CUSTCONS. |
|-----------------------------------------------------------------------------|

Refer to *NTP 297-1001-451* detailed information about the CUSTCONS Table.

## Customer Group Station (CUSTSTN)

The Customer Group Station (CUSTSTN) Table defines the parameters for options assigned to stations in a customer group. For example, if stations in your customer group have the Ring Again feature, you specify how many seconds of ringing should be applied to alert a station that a called party who was busy is now idle.

### Table CUSTSTN

| <u>CUSTNAME</u> | <u>OPTNAME</u> | <u>OPTIONS</u> |       |   |     |
|-----------------|----------------|----------------|-------|---|-----|
| GRP1            | RAGTIM         | OPTIONS        |       |   |     |
| GRP1            | CXFER          | CXFER          | CTALL | N | STD |

Assignable options include but are not limited to:

- Automatic Call Back (ACB)
- Variable Speed Calling Access Code (AMBISC)
- Ambiguous Digit 0 (AMBZERO)
- Automatic Recall (AR)
- Automatic Display Mode (AUTODISP)
- Call Back Queuing (CBQ)
- Call Forwarding Don't Answer Timeout (CFDATIM)
- Call Forwarding Remote Access (CFRA)
- IBN Call Forwarding Validation (CFWVAL)
- Call Forwarding Feature (CFXFEAT)
- Call Forwarding of Call Waiting Calls (CFCW)
- Call Forwarding Optional Lines (CFXOL)
- Call Forwarding Option (CFXOPT)
- Call Hold with Audio (CHD)
- Calling Name/Number Delivery Blocking Per Call (CNDB)
- Calling Number Delivery Blocking Override (CNDBO)
- Customer Originate Trace (COT)
- Call Park (CPARK)
- Call Request Intergroup (CRINTER)

- Call Request Retrieve/Keypad Short Hunt Interaction Control (CRRNOKSH)
- Call Transfer (CXFER)
- Dial Call Waiting (CWD)
- Call Waiting - Originating (CWO)
- Call Transfer Enhanced (CXFERSUP)
- Directed Call Pickup Barge-In Tone (DCBITONE)
- Denied Incoming Alternate Treatment (DINALT)
- Display Digits (DISPDIGS)
- Distinctive Call Waiting Tone (DISTCWTN)
- Do Not Disturb (DND)
- Distinctive Ringing (DRING)
- Executive Busy Override on MADN (EBOM)
- Group Intercom Page (GICPAGE)
- Inspect Activate Timer (INSPACT)
- Inspect Display Timer (INSPDISP)
- EBS as a Message Center (MCGROUP)
- P-Phone Make Set Busy (MSB)
- Meridian Business Set Camp On (MBSCAMPO)
- Name Display (NAMEDISP)
- Permanent Hold (PHOLD)
- Precedence Call Wait Terminating (PCWTTO)
- Ring Again Recall (RAGRCOPT)
- Ring Again Timer (RAGTIM)
- Reason Display (REASDISP)
- Customer Group with No Consoles (REDIRECT)
- Station Origination Restrictions (SOR)
- Station Programmable Pin (SPP)
- Trunk Answer from Any Station (TAFAS)

|                                                             |
|-------------------------------------------------------------|
| <b>Table CUSTENG should be datafilled prior to CUSTSTN.</b> |
|-------------------------------------------------------------|

Refer to *NTP 297-1001-451* for detailed information about the CUSTSTN Table.



## Customer Group Station Message Detail Recording (CUSTSMDR)

The Customer Group Station Message Detail Recording (CUSTSMDR) Table specifies certain information to be recorded on Station Message Detail Recording (SMDR). SMDR is a recording system that generates call details for the end user (a customer group). Once the switch generates the records, the end user is usually responsible for processing or sorting the information into a usable format.

Most end users employ SMDR in order to gain information about how they are using their telecommunications facilities. For example, SMDR can record how often subscribers use the end user's private network facilities. In addition, SMDR information may be used to allocate costs within the organization, to monitor usage (and possible abuse), to plan ongoing telecommunications requirements, or for client billing.

The SMDR options defined in this table include:

- AMA Customer Group Identification (AMACUST)
- Answer Timing (ANSTIM)
- Derived SMDR (DERVSMDR)
- Message Detail Recording Revenue Accounting Office (MDRRAO)
- Meridian Supernode (MSN)
- Personal Identification Number (PIN)
- Network Surveillance (NERVE)
- Network (NETWORK)
- Record Digits as Outpulsed (RAO)
- Record No Answer (RNA)
- Station Message Detail Recording Call Data Type (SMDRCDT)
- Travel Card Number (TCN)

While the CUSTSMDR Table determines certain information to be recorded, specific details about the information to be recorded is later defined in the IBN Translations (IBNXLA) Table.

Tables CUSTENG and CUSTHEAD should be datafilled prior to CUSTSMDR.

Refer to *NTP 297-2071-119*, Station Message Detail Recording Reference Manual, for detailed information about SMDR. Refer to *NTP 297-1001-451* for detailed information about the CUSTSMDR Table.



## Practice 1: Match customer group tables to purpose

### Instructions:

Obtain NTP 297-1001-451, and read about the tables discussed in this lesson. Match the table name on the left to its purpose on the right. Check your answers with those found in Practice 1 Feedback.

| Table Name           | Purpose                                                                                                                                    |
|----------------------|--------------------------------------------------------------------------------------------------------------------------------------------|
| 1. <u>D</u> CUSTENG  | a. allows you to change a customer group name through one table; automatically filled as CUSTENG is filled                                 |
| 2. <u>F</u> CUSTFAM  | b. defines several parameters that affect how all consoles in the customer group will operate                                              |
| 3. <u>G</u> CUSTHEAD | c. defines the parameters for options assigned to stations in a customer group                                                             |
| 4. <u>B</u> CUSTCONS | d. allocates certain resources available to a customer group as well as memory for other tables; birth certificate for customer group name |
| 5. <u>A</u> CUSTNAME | e. specifies certain information be recorded on Station Message Detail Recording                                                           |
| 6. <u>C</u> CUSTSTN  | f. lists all family names and specifies whether the family is public or private                                                            |
| 7. <u>E</u> CUSTSMR  | g. defines the group options, translators or system features that are available to the customer group                                      |



## Practice 1 Feedback

1. d
2. f
3. g
4. b
5. a
6. c
7. e

## Practice 2: Customer groups, tables, and dialing plans

### Instructions:

Answer the following questions based on the material presented so far; if you have any questions, do not hesitate to discuss them with another student or your course manager.

1. The Meridian 1 Options 111-211 (SL-100) classifies groups of users into A. Customer Groups.
  - a. Customer Groups
  - b. Dialing Plans
  - c. Networks
  - d. Building floors
  
2. Given the DN below, what type of dialing does a Customer Group have if an employee calls a fellow employee by first dialing the digit, 2, followed by the remaining extension digits?

**948-2XXX**

  - a. three-digit
  - b. four-digit
  - c. five-digit
  - d. seven-digit
  
3. What table gives a birth certificate to a customer group?

CUSTENG



## **Practice 2 Feedback**

1. Customer Groups
2. 4-digit dialing
3. Table CUSTENG (Customer Engineering)

---

# Translators

---

## Introduction

One of the most important aspects of translations is assigning **translator names** to a particular customer group. **A translator is a block of data that defines the customer's dialing plan.** There are four types of translators discussed in this lesson:

- *customer translators* - translates all access codes that have a numeric leading digit of 0 to 9 (mandatory); used where majority of customer groups desire a particular feature (*shown in this course as CTN*).
- *preliminary translator* - translates all access codes that have a numeric leading digit of 0 to 9 (optional); purpose of a preliminary translator in Table NCOS is to allow only a certain NCOS to use its tuple in Table IBNXLA (*shown in this course as PTN*).
- *feature translator* - translates all access codes that have a star (\*) as the leading digit (optional) (*shown in this course as FTN*).
- *octothorpe translator* - translates all access codes that have an octothorpe (#) as the leading digit (optional) (*shown in this course as OCT*).

## Table XLANAME (Translator Name) and translators

Before translators can be used, they must be defined in Table XLANAME. In other words, translators are born and given a birth certificate in Table XLANAME. Below is XLANAME with sample entries:

**Table XLANAME**

| <u>XLANAME</u> | <u>DEFAULT</u> | <u>MAXDIGS</u> |
|----------------|----------------|----------------|
|                | (TRSEL)        |                |
| CTN1           | \$             | 9              |
| CTN2           | \$             | 9              |
| PTN1           | \$             | 9              |
| FTN1           | \$             | 9              |
| OCT1           | \$             | 9              |

XLANAME is a 1-8 character name descriptive of the type of translator (CTRN, PTN, FTN, etc).

MAXDIGS is maximum digits; this field is set at the maximum.

**The DEFAULT field is not covered in this course and should be datafilled with a \$ (DEFAULT field is identical to RESULT field in IBNXLA; this course will focus on entries in IBNXLA).**

**Note: Table XLANAME will not appear in the TRAVER output.**

**Note: Again, all translators are defined in XLANAME. However, in order to understand subtle differences, each translator will be presented separately.**



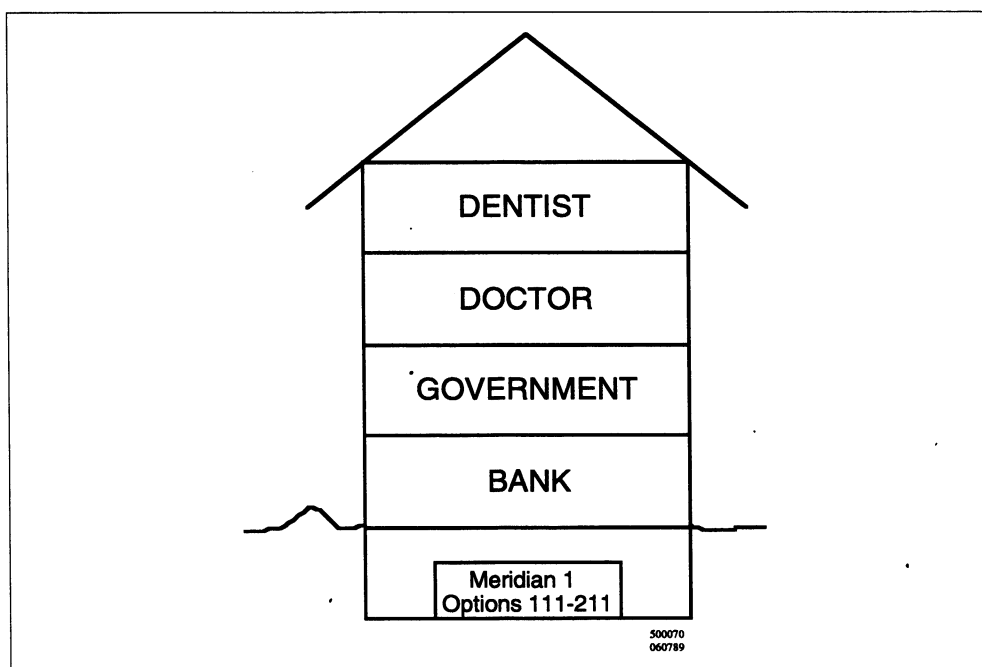
## Customer translators and associated tables

Once the customer groups have been defined in CUSTENG, they must be linked with **customer translators**.

For example, if Building X with four different tenant groups has an SL-100, four different partitions, or customer groups, must be defined in the switch -- BANK, GOVT, DOCT, and DENT (refer to Figure 6). These customer groups will be defined in CUSTENG and then linked to customer translators (CTNs) in Table Customer Group Head or CUSTHEAD as stated earlier in the lesson.

**Figure 6**

### Customer groups



### Table CUSTHEAD

Below are sample entries in CUSTHEAD (note that only customer translator information is shown; remember that all translator names can be listed here -- refer to 297-1001-451).

#### CUSTNAME CUSTXLA

|      |      |
|------|------|
| BANK | CTN1 |
| GOVT | CTN2 |
| DOCT | CTN3 |
| DENT | CTN4 |

**Table IBNLINES (Integrated Business Network Line Assignment)**

**Note:** Table IBNLINES will be discussed in more detail in the next lesson, *Intraswitch Dialing*.

For now, you need to know that the dialing number, customer group name, and NCOS are included in the datafill in IBNLINES.

IBNLINES provides information concerning the dialing number and is dynamically datafilled through the use of SERVORD. In this course, Table IBNLINES is already datafilled.

For more information, perform a hands-on verification or refer to 297-1001-451.

**Tables CUSTENG and CUSTHEAD must be datafilled before IBNLINES.**

### Table IBNXLA (Integrated Business Network Translations)

If you remember from the Lesson 100321, Call Blocks, calls are screened for digits and then routed to the appropriate destination. One data table that is important to the actual routing of calls is called **Table IBNXLA**. This table contains tuples with customer-defined data. Therefore, to use a particular tuple in Table IBNXLA, a telephone must be assigned to the customer group that owns the tuple's translator name. Below are examples of how the tuples in Table IBNXLA should be entered:

**Table IBNXLA**

| <u>XLANAME</u> | <u>DGLIDX</u> | <u>TRSEL</u> | ... | ... |
|----------------|---------------|--------------|-----|-----|
| <b>CTN1</b>    | <b>5</b>      | <b>EXTN</b>  | ... | ... |
| CTN1           | 0             | ATT          | ... | ... |
| CTN1           | 9             | NET          | ... | ... |
| CTN2           | 4             | EXTN         | ... | ... |
| CTN3           | 3             | EXTN         | ... | ... |
| CTN4           | 2             | EXTN         | ... | ... |
| CTN4           | 0             | TRMT         | ... | ... |

Each tuple in Table IBNXLA is indexed by a customer which ensures that only the correct customer group uses it for instructions. The "DGLIDX" field contains the **leading digit** that each customer group wants for extension dialing (or network dialing, attendant console, etc.) which is defined in the "TRESEL" (treatment selector) field. In the example above, the boldfaced tuple shows that in order for the CTN to allow extension dialing, a leading digit of 5 must be dialed.

One of the 4 customer groups (e.g., the bank) has an attendant console to answer certain calls, including those made by dialing 0 from phones inside the bank. This tenant needs to have another set of instructions in Table IBNXLA that will send callers dialing 0 to the attendant but only those callers who are in the bank.

**Table IBNXLA**

|          | <u>XLANAME</u> |   | <u>DGLIDX</u> | <u>TRSEL</u> | ... | ... |
|----------|----------------|---|---------------|--------------|-----|-----|
| KeyField | <u>CTN1</u>    | + | <u>5</u>      | EXTN         | ... | ... |
|          | CTN1           |   | 0             | ATT          | ... | ... |
|          | CTN1           |   | 9             | NET          | ... | ... |
|          | CTN2           |   | 4             | EXTN         | ... | ... |
|          | CTN3           |   | 3             | EXTN         | ... | ... |
|          | CTN4           |   | 2             | EXTN         | ... | ... |
|          | CTN4           |   | 0             | TRMT         | ... | ... |

We can now make the following observations about these tuples. Since both tuples start with CTN1, and CTN1 (according to Table CUSTHEAD) belongs to the BANK customer group, then only the BANK phones can use them. The specific tuple that actually is used is determined by the first (or leading) digit that's dialed (i.e., either a 5 or a 0).

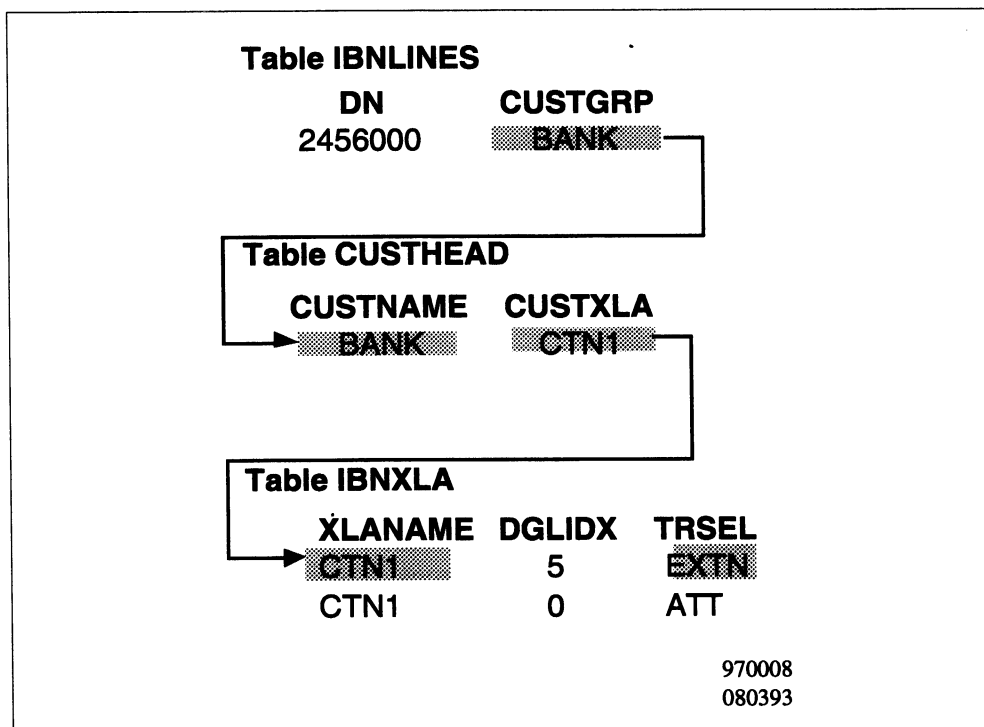
**Remember, the key field in a table can consist of one or more pieces of information (more than one piece of information is in a subfield). As you can see in the above example, the key field in Table IBNXLA consists of more than one piece of information (i.e., the customer translator name plus the leading digit).**

Figure 7 depicts a partial TRAVER sequence in which one BANK phone (245-6000) dials another bank extension (56405).

- Call processing programs look in a table called Table IBNLINES. Table IBNLINES provides information about the originating phone, including what customer group this phone is assigned to. The switch sees that this originator has been assigned to the BANK customer group. Having obtained this information, it can now go to Table CUSTHEAD.
- In Table CUSTHEAD, the switch finds out what customer translator the customer group called BANK owns. In the following example, the switch learns that the BANK owns the customer translator CTN1.
- The switch now proceeds to Table IBNXLA to find the tuple that begins with CTN1 and the leading digit (5) that the caller dialed. In the following example, the switch now finds the tuple which gives it instructions to route this call to an extension (EXTN).

**Figure 7**

**Translations path for 2456000 dialing extension 56405**



In the previous example, two scenarios exist for the **BANK**:

- the dialer can use extension dialing as long as the leading digit is 5, and
- the dialer may reach the attendant if he/she dials 0.

In the previous example, it is clear that everyone with a customer translator of 1 (CTN1 5) was not only able to perform extension dialing with a leading digit of 5 but also able to reach the attendant by dialing 0 (CTN1 0). What happens if, within a customer group such as the **BANK**, we want some phones (vice president phone vs. lobby phone) to have different privileges than others? This is when you must create Network Classes of Service (NCOSs) or preliminary translators.

### **NCOSs and preliminary translators**

Most companies will not want to give all the phones within a customer group the same dialing privileges. For example, a few phones belong to the bank that should be **restricted** from calling other extensions such as a lobby telephone. Two ways exist to restrict phones such as lobby phones:

- network class of service and
- preliminary translators.

**Just as customer translators are assigned to specific customer groups, preliminary translators can be assigned to specific NCOSs.** Preliminary translators are assigned to NCOSs through **Table NCOS**. Therefore, before we discuss preliminary translators, a general knowledge of network class of service (NCOS) is needed

### **NCOSs and Table NCOS (Network Class of Service)**

A Network Class of Service (NCOS) is a way of grouping telephones, trunks, and attendant consoles with specific dialing privileges, or a class of service, by attaching respective designations in **Table NCOS**. Users in a given NCOS may be assigned dialing privileges or restrictions in addition to those provided by the NCOS's customer group, or that same NCOS may be denied from using privileges available to its customer group.

Every call type that can be dialed by a NCOS, such as feature codes and special routing, must be indicated in **Table NCOS**. The contents of a NCOS data table can be summarized in a "NCOS Matrix" found in **Figure 8**.



## Preliminary translators

In Table IBNXLA below, the second tuple is needed to restrict a group from dialing with a leading digit of 5 and ultimately sending it to treatment (TRMT).

**Table IBNXLA**

(.....key field.....)

| <u>XLANAME</u> | <u>DGLIDX</u> | <u>TRSEL</u> |
|----------------|---------------|--------------|
| CTN1           | 5             | EXTN         |
| <b>CTN1</b>    | <b>5</b>      | <b>TRMT</b>  |

Without NCOSs or preliminary translators, the two tuples would begin with the same translator name (CTN1); **thus, the system would not know which tuple to access. This is why tuples within the same table cannot have identical key fields.**

Just as the first tuple is indexed by a customer translator, the second tuple must also be indexed by a translator. **This translator is called a preliminary translator (PRELMLA).** Similar to a customer translator, it is nothing more than a one-to-eight alphanumeric character (e.g., PTN1, PTN2, PTN3, etc.) whose purpose in Table NCOS is to allow only a certain NCOS to use its tuple in Table IBNXLA.



**Table NCOS**

| <u>CUSTNAME</u> | <u>NCOS</u> | <u>PRELMLA</u> |
|-----------------|-------------|----------------|
| Bank            | 1           | \$ (none)      |
| Bank            | 2           | PTN1           |

**Table IBNXLA**

| <u>XLANAME</u> | <u>DGLIDX</u> | <u>TRSEL</u> |
|----------------|---------------|--------------|
| CTN1           | 5             | EXTN         |
| PTN1           | 5             | TRMT         |

In the previous examples, the Bank phones in NCOS 2 have special instructions in Table IBNXLA because they have been assigned a preliminary translator. NCOS 1 has a \$ in this field meaning that it does not have a preliminary translator assigned.

Preliminary translators are defined along with all other translator names in Table XLANAME and are assigned in Table NCOS. **The software seeks a preliminary translator first for call processing;** if none are found, the next translator name is used, and call processing continues.

A preliminary translator is used to customize a dialing plan. For example, if only certain people are allowed certain privileges on their phones (e.g. long distance), they could use a preliminary translator.

**The golden rule**

**When a phone makes a call and there are two sets of instructions in Table IBNXLA for it to use, the call processing programs will always try to use the instructions starting with the preliminary translator first. Preliminary translators always override customer translators.**

Each tuple in Table IBNXLA begins with a translator. To use one of these tuples, a phone must be assigned to either a listed customer group (that owns a tuple's customer translator name) or to a listed NCOS. If a phone owns both translators, the switch first will try to find a tuple in Table IBNXLA that begins with a preliminary translator name and the digit(s) that were dialed.

In summary, the switch must ask the following questions *before* it can determine which of the tuples in Table IBNXLA it should use:

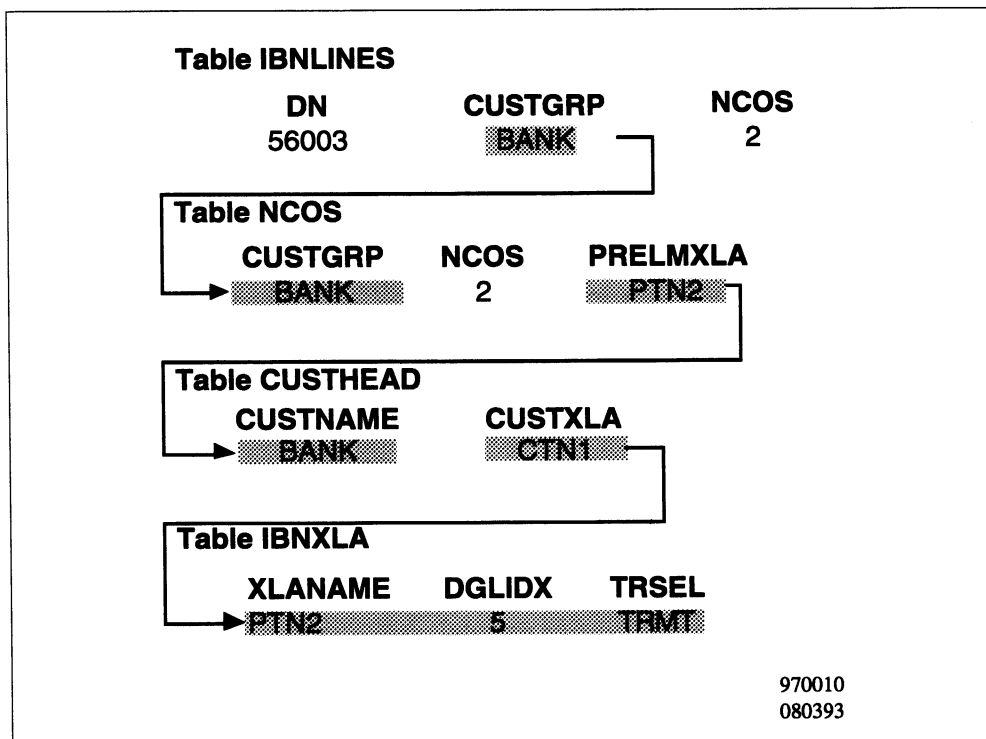
- What *customer group* is the originating phone assigned to?
- What *NCOS* is that phone assigned to?
- What *preliminary translator* does that NCOS "own"?
- What *customer translator* does that customer group "own"?
- What *leading digit* was dialed by the caller?

Figure 9 depicts a partial TRAVER sequence. A BANK phone (245-6003) in NCOS 2 tries to dial another bank extension (56405).

- The call processing program first looks in Table IBNLINES to find out information about the originating phone, including what customer group and NCOS it has been assigned to. Here it sees that the originator has been assigned to the BANK customer group and NCOS 2.
- Having obtained this information, it then goes to Table NCOS to find out what preliminary translator NCOS 2 owns. Here, it sees that NCOS 2 owns preliminary translator PTN2.
- Now, it proceeds to Table CUSTHEAD to find out what customer translator the customer group BANK owns. Here it sees that the BANK owns the customer translator CTN1.
- Now, the switch proceeds to Table IBNXLA. In Table IBNXLA, the switch first looks for a tuple that begins with PTN2 and the leading digit by the caller (5). Here, it finds such a tuple with a leading digit 5, giving it special instructions to block the call by giving it a customer-defined treatment (TRMT).

**Figure 9**

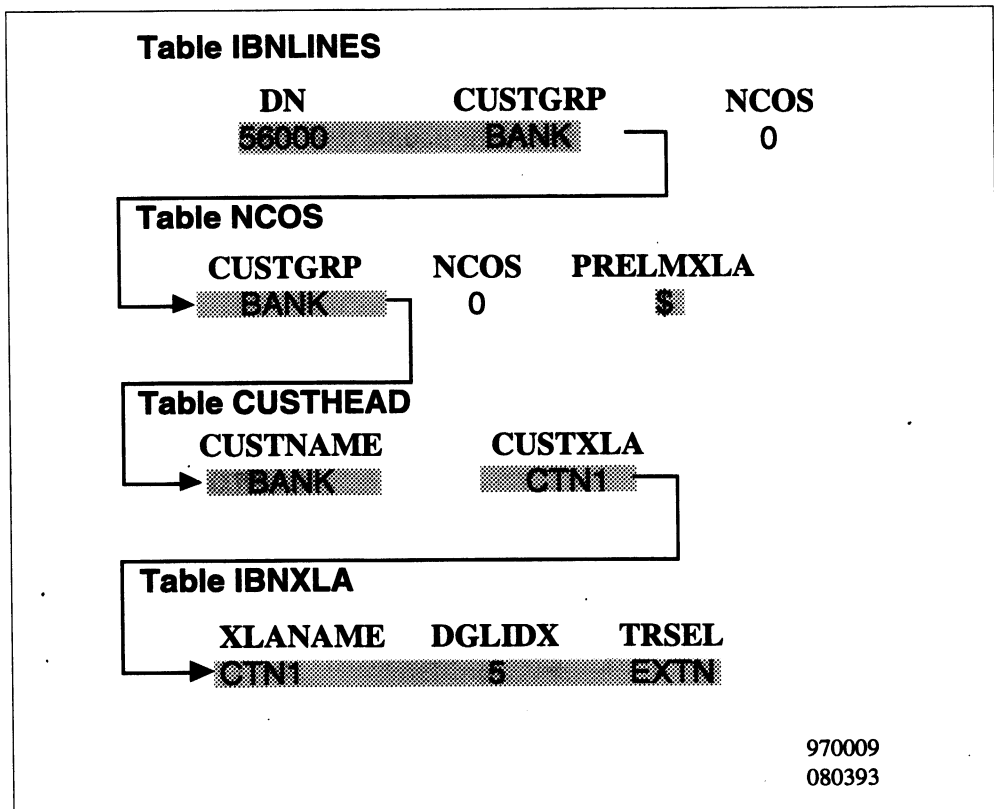
**Translations path using a preliminary translator (2456003 dialing 56405)**



What happens when a BANK phone (245-6000) in another NCOS (NCOS 0) dials the same extension (56405) (refer to Figure 10)? The call processing program still goes to the same tables and in the same order as before; however, it finds different information in these tuples. The switch finds that NCOS 0 does not own a preliminary translator name. Thus, when it goes to Table IBNXLA, it does not begin searching for a tuple starting with a preliminary translator name. Instead, it searches for the customer translator name that was found in Table CUSTHEAD. The switch now is able to find a tuple in Table IBNXLA that gives instructions to route the call to an extension (EXTN).

Figure 10

Translations path using no preliminary translator (245-6000 dials 56405)



## Feature translators

There are many features to select from, but how do IBN (single-line) stations activate the features that are assigned to them? Some station features are activated by a caller dialing the star (\*) and then a special code for the desired feature. For example, you might dial \*75 to activate the feature called Permanent Hold (HLD), \*76 to activate Ring Again (RAG), and \*77 to activate Call Pickup (CPU). To permit this code-activated feature dialing, special instructions in Table IBNXLA will be written and codes assigned to features.

Assume users are required to dial a star (\*) before dialing any of these feature activation codes. You must ensure that tuples in Table IBNXLA only will be used if a star (\*) has first been dialed by beginning those tuples with another translator called a **feature translator (FETXLA)**. Similar to customer translators and preliminary translators, feature translators are nothing more than a one-to-eight character abbreviation or name (e.g., FTN1, FTN2, FTN3, etc.). Thus, each of these special feature instructions in Table IBNXLA can begin with one of the feature translators shown below:

**Table IBNXLA**

|      |    |          |
|------|----|----------|
| FTN1 | 75 | FEAT HLD |
| FTN1 | 76 | FEAT RAG |
| FTN1 | 77 | FEAT CPU |

**In order for a caller to use any of these three tuples, he must first dial a star (\*) and then dial the activation code (75, 76, or 77).**

**Assigning FETXLA name to all phones**

If all the phones in the entire customer group (that have a particular feature) will use the same activation code to activate a particular feature, then we can assign the feature translator to the entire customer group. Feature translators are assigned to **entire** customer groups in Table CUSTHEAD. A simplified example is shown below:

**Table CUSTHEAD**

| <u>CUSTNAME</u> | <u>CUSTXLA</u> | <u>FETXLA</u> |
|-----------------|----------------|---------------|
| BANK            | CTN1           | FTN1          |
| GOVT            | CTN2           | FTN2          |

**Features assigned to individual phones**

In addition to assigning feature translator names to customer groups and using them to begin tuples in Table IBNXLA, some features also need to be assigned directly to individual phones. This assignment of features is either done on a per phone basis in one of several tables (e.g., IBNLINES, IBNFEAT, KSETLINE, KSETFEAT), or may be done via the SERVORD subsystem. Adding the feature to a specific phone via SERVORD will **automatically** place the feature in the appropriate table. This ability to assign features to stations on an individual basis gives you further control on the distribution of features (see Lesson 100304).

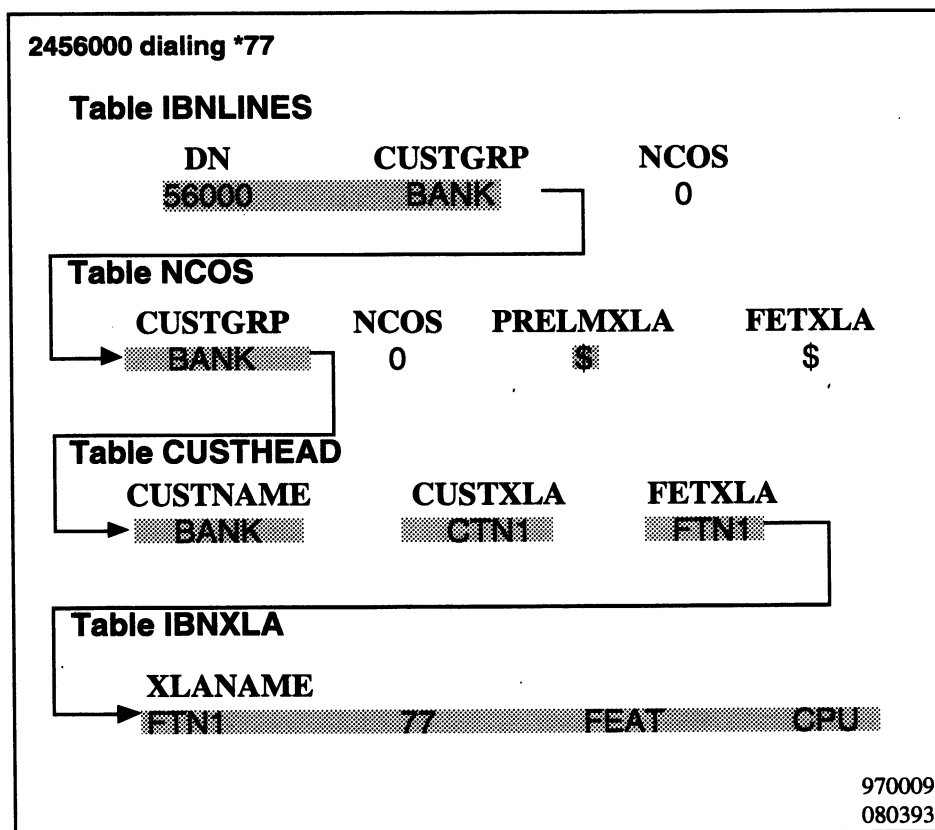
*(Note: This course emphasizes feature assignment to individual phones using SERVORD; Northern Telecom offers a 4-day course on SERVORD, Course 506, Feature Activation and Assignment.)*

In order to have a better understanding of just how call processing programs use feature translators to translate calls, the following example simulates a translations sequence in which a BANK phone (245-6000) activates a Call Pickup (CPU) feature (refer to Figure 11). The call processing programs reference Tables IBNLINES, NCOS, and CUSTHEAD.

- In Table NCOS, the switch finds that no preliminary or feature translators have been assigned to this NCOS.
- In Table CUSTHEAD, however, the switch finds that this phone's customer group (BANK) owns the feature translator name FTN1.
- Since the caller dialed a star (\*) before he dialed anything else, the switch looked for a tuple in Table IBNXLA that began with the phone's feature translator's name and the digits that were dialed (77). When the switch finds that tuple, it is instructed to activate the Call Pick Up (CPU) feature.

**Figure 11**

**Translations using feature translator**



## Octothorpe (#) translator

A feature translator guards tuples in Table IBNXLA that cannot be used unless the owner of the translator first dials the star (\*) or star equivalent. An octothorpe translator is very similar. It guards tuples in Table IBNXLA that cannot be used unless the owner of the translator first dials the octothorpe (#).

There are two reasons why octothorpe translators are sometimes used in addition to feature translators.

- The first reason is that the octothorpe is used as a translator when a same special code (e.g., 78) needs to be used in more than one application in Table IBNXLA. For example, look at the two tuples from Table IBNXLA below:

**Table IBNXLA**

| <u>XLANAME</u> | <u>DGLIDX</u> | <u>RESULT</u> |            |
|----------------|---------------|---------------|------------|
|                |               | (TRSEL)       | (FEAT)     |
| <b>FTN1</b>    | <b>78</b>     | FEAT          | <b>RAG</b> |
| <b>OCT1</b>    | <b>78</b>     | FEAT          | <b>CPU</b> |

Here are tuples whose digits are the same (78). These same two digits can result in two different outcomes (RAG or CPU) by requiring that a star (\*) be dialed for one result and that an octothorpe (#) be dialed for the other result.

- The second reason to use octothorpe translators is that they can also help your subscribers better remember your dialing plan. For example, look at the following two tuples from Table IBNXLA:

**Table IBNXLA**

| <u>XLANAME</u> | <u>DGLIDX</u> | <u>RESULT</u> |                                |
|----------------|---------------|---------------|--------------------------------|
|                |               | (TRSEL)       | (FEAT)                         |
| <b>FTN1</b>    | <b>79</b>     | FEAT          | <b>PRKS</b> ( <i>store</i> )   |
| <b>OCT1</b>    | <b>79</b>     | FEAT          | <b>PRKR</b> ( <i>release</i> ) |

In the above example, subscribers only have to remember one set of digits (79) to operate the Call Park feature. \*79 is dialed when a user wants to park a call and #79 is used when a user wants to unpark the call.



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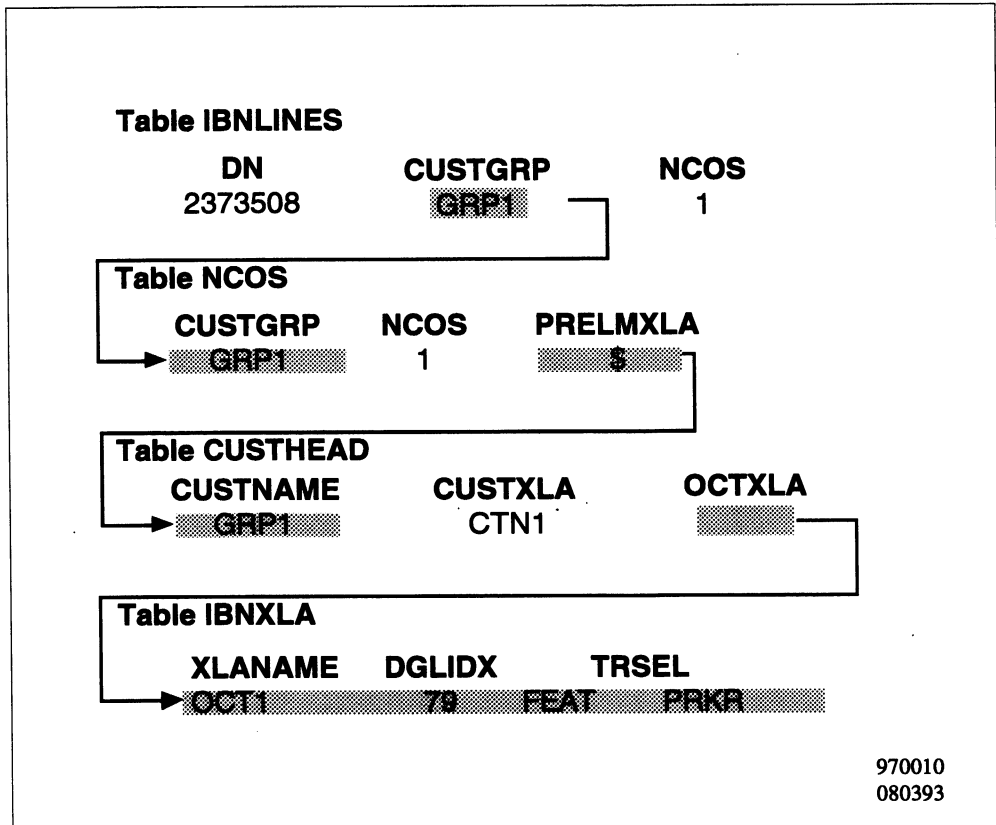
You can assign a feature translator name to either the whole customer group (in Table CUSTHEAD) or to only a particular NCOS (in Table NCOS). The same strategy is applicable with an octothorpe translator. **However, in this course, the octothorpe will only be assigned to customer groups.** As you can see from the example below, one of the many options that you can assign to the customer group is an octothorpe translator (OCTXLA). You must first input the option OCTXLA before the system will prompt you for the translator name in XLANAME. Before you can enter the octothorpe option in Table CUSTHEAD, you must place the translator name in Table XLANAME to give it a birth certificate. Below is an example of Table CUSTHEAD.

**Table CUSTHEAD**

| <u>CUSTGRP</u> | <u>CUSTXLA</u> | <u>OCTXLA</u> |
|----------------|----------------|---------------|
| BANK           | CTN1           | OCT1          |
| GOVT           | CTN2           | OCT2          |

In Figure 12, you can see how an octothorpe is traced through the translation process.

**Figure 12**  
**237-3508 dialing #79**



## Star and octothorpe equivalents

Some subscribers on the Meridian 1 Options 111-211 may have **rotary** phones. This is an important consideration in a dialing plan because some tuples in Table IBNXLA begin with feature and octothorpe translators. As you know, these tuples cannot be used without first dialing a star (\*) or octothorpe (#), and therein lies the problem. Subscribers with rotary dial phones do not have a star or octothorpe. To accommodate the rotary phones, you need to give them some digits that they can dial on the rotary set that will be equivalent to pushing a star or octothorpe on a push button set.

To do this, you need to build two new tuples in Table IBNXLA. One tuple will state that if they dial the digits 12, the switch should treat the call as if they had dialed the star (\*) instead of just 12. The other tuple will state that if they dial the digits 13, the switch should treat the call as if they had dialed the octothorpe (#), instead of just 13. The tuples will look similar to the following examples:

**Table IBNXLA**

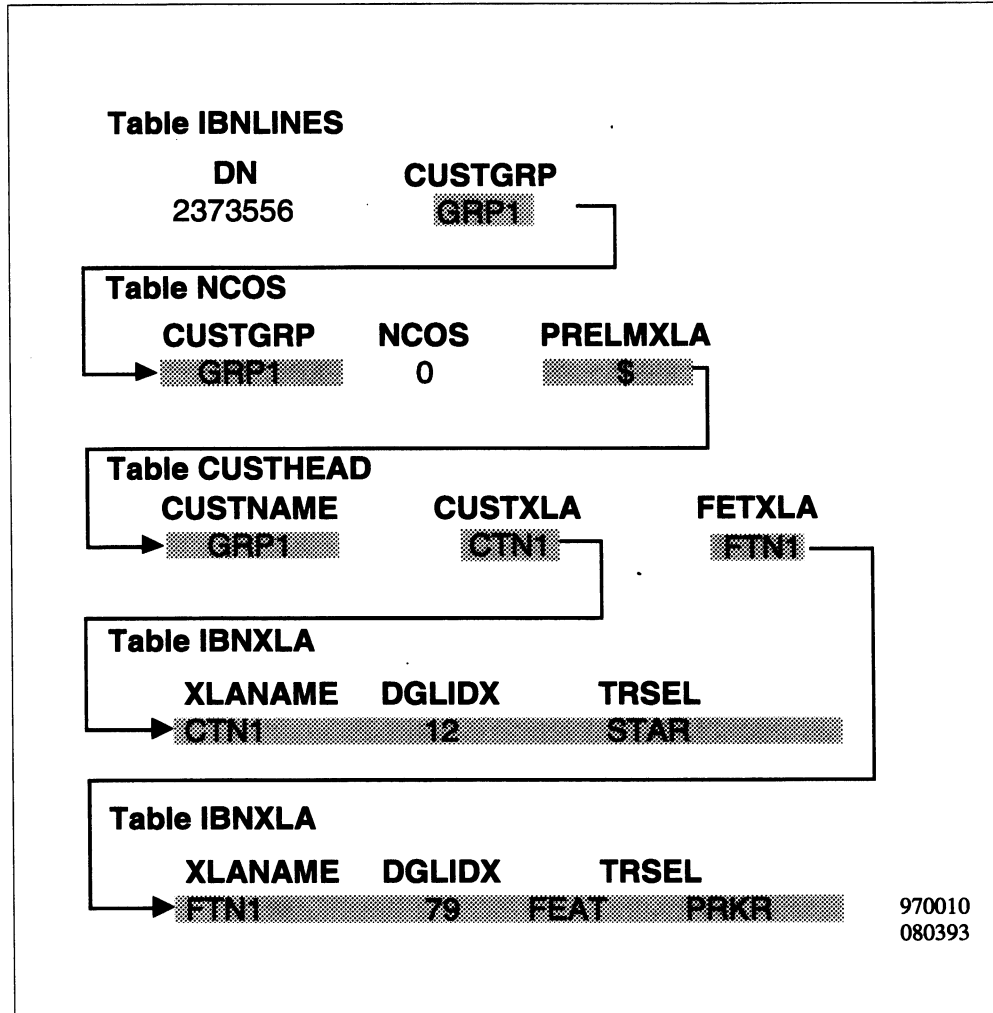
| <u>XLANAME</u> | <u>DGLIDX</u> | <u>TRESEL</u> |
|----------------|---------------|---------------|
| CTN1           | 12            | STAR          |
| CTN1           | 13            | OCT           |

As you can see from the above examples, the translator selectors (TRESEL) for the star and octothorpe are STAR and OCT respectively.

The example below reflects a caller activating a feature from a rotary phone.

**Figure 13**

**Feature activation on a rotary phone (2373556 dials 1279)**



### Practice 3: Translators and NCOSs

#### Instructions:

Answer the following questions based on the material presented so far; if you have any questions, do not hesitate to discuss them with another student or your instructor.

Indicate your answer by circling your choice; check your answers in the Practice 3 Feedback section.

1.

| Table IBNLINES  |    |             |      |   |   |     |    |
|-----------------|----|-------------|------|---|---|-----|----|
| HOST 00 0 00 02 | DT | STN 7450000 | GRP1 | 0 | 1 | 214 | \$ |
| HOST 00 0 00 03 | DT | STN 7454100 | GRP2 | 0 | 1 | 214 | \$ |
| HOST 00 0 00 04 | DT | STN 7454300 | GRP3 | 0 | 1 | 214 | \$ |

| Table CUSTHEAD  |                |
|-----------------|----------------|
| <u>CUSTNAME</u> | <u>CUSTXLA</u> |
| GRP1            | CTN1           |
| GRP2            | CTN2           |
| GRP3            | CTN3           |

| Table IBNXLA |   |      |
|--------------|---|------|
| CTN1         | 5 | EXTN |
| CTN1         | 0 | ATT  |
| CTN2         | 4 | EXTN |
| CTN3         | 3 | EXTN |

DN 745-4300, when dialing a "0," will reach the attendant console.

a. True  
 b. False

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2.

|                                                                      |    |             |      |                |   |     |    |
|----------------------------------------------------------------------|----|-------------|------|----------------|---|-----|----|
| Table IBNLINES                                                       |    |             |      |                |   |     |    |
| HOST 00 0 00 02                                                      | DT | STN 7450000 | GRP1 | 0              | 1 | 214 | \$ |
| HOST 00 0 00 03                                                      | DT | STN 7454100 | GRP2 | 0              | 1 | 214 | \$ |
| HOST 00 0 00 04                                                      | DT | STN 7454300 | GRP3 | 0              | 1 | 214 | \$ |
| Table CUSTHEAD                                                       |    |             |      |                |   |     |    |
| <u>CUSTNAME</u>                                                      |    |             |      | <u>CUSTXLA</u> |   |     |    |
| GRP1                                                                 |    |             |      | CTN1           |   |     |    |
| GRP2                                                                 |    |             |      | CTN2           |   |     |    |
| GRP3                                                                 |    |             |      | CTN3           |   |     |    |
| Table IBNXLA                                                         |    |             |      |                |   |     |    |
| CTN1                                                                 | 5  | EXTN        |      |                |   |     |    |
| CTN1                                                                 | 0  | ATT         |      |                |   |     |    |
| CTN2                                                                 | 4  | EXTN        |      |                |   |     |    |
| CTN3                                                                 | 3  | EXTN        |      |                |   |     |    |
| To dial another extension, what leading digit must DN 745-4100 dial? |    |             |      |                |   |     |    |
| a. 0                                                                 |    |             |      |                |   |     |    |
| b. 3                                                                 |    |             |      |                |   |     |    |
| c. 4                                                                 |    |             |      |                |   |     |    |
| d. 5                                                                 |    |             |      |                |   |     |    |

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3.

|                                                                                                                                                                            |                 |                |      |   |   |     |    |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|----------------|------|---|---|-----|----|
| <b>Table IBNLINES</b>                                                                                                                                                      |                 |                |      |   |   |     |    |
| HOST 00 0 00 02                                                                                                                                                            | DT              | STN 7450000    | GRP1 | 0 | 1 | 214 | \$ |
| HOST 00 0 00 03                                                                                                                                                            | DT              | STN 7454100    | GRP2 | 0 | 1 | 214 | \$ |
| HOST 00 0 00 04                                                                                                                                                            | DT              | STN 7454300    | GRP3 | 0 | 1 | 214 | \$ |
| <b>Table CUSTHEAD</b>                                                                                                                                                      |                 |                |      |   |   |     |    |
|                                                                                                                                                                            | <u>CUSTNAME</u> | <u>CUSTXLA</u> |      |   |   |     |    |
|                                                                                                                                                                            | GRP1            | CTN1           |      |   |   |     |    |
|                                                                                                                                                                            | GRP2            | CTN2           |      |   |   |     |    |
|                                                                                                                                                                            | GRP3            | CTN3           |      |   |   |     |    |
| <b>Table IBNXLA</b>                                                                                                                                                        |                 |                |      |   |   |     |    |
| CTN1                                                                                                                                                                       | 5               | EXTN           |      |   |   |     |    |
| CTN1                                                                                                                                                                       | 0               | ATT            |      |   |   |     |    |
| CTN2                                                                                                                                                                       | 4               | EXTN           |      |   |   |     |    |
| CTN3                                                                                                                                                                       | 3               | EXTN           |      |   |   |     |    |
| <p>Given the data table contents above, which DN in Table IBNLINES can use the first two tuples in Table IBNXLA?</p> <p>a. 7450000</p> <p>b. 7454100</p> <p>c. 7454300</p> |                 |                |      |   |   |     |    |

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4. Below are three tables that you have studied thus far. Each table has several tuples. Look over these tuples and answer the questions that follow.

**Table IBNLINES**

|      |    |   |    |    |    |     |         |      |   |   |     |    |
|------|----|---|----|----|----|-----|---------|------|---|---|-----|----|
| HOST | 00 | 0 | 00 | 02 | DT | STN | 7450000 | GRP1 | 0 | 1 | 214 | \$ |
| HOST | 00 | 0 | 00 | 03 | DT | STN | 7454100 | GRP2 | 0 | 1 | 214 | \$ |
| HOST | 00 | 0 | 00 | 04 | DT | STN | 7454300 | GRP3 | 0 | 1 | 214 | \$ |

**Table CUSTHEAD**

| CUSTNAME | CUSTXLA |
|----------|---------|
| GRP1     | CTN1    |
| GRP2     | CTN2    |
| GRP3     | CTN3    |

**Table IBNXLA**

|      |   |      |
|------|---|------|
| CTN1 | 5 | EXTN |
| CTN1 | 0 | ATT  |
| CTN2 | 4 | EXTN |
| CTN3 | 3 | EXTN |

- a. Which phone(s) can use the third tuple in Table IBNXLA? In order for them to use this tuples, what leading digit(s) must this phone(s) actually dial?

7454100

4

- b. Can you dial "0" to get the attendant console from stations 745-4100 or 745-4300?

no

- c. The user at station 745-4300 needs to dial another extension. What digit must his leading digit be?

3



5. Which data table normally assigns PRELMXLAs to a station?
- a. LINEATTR
  - b. STDPRTCT
  - c. CUSTHEAD
  - d. NCOS
6. Preliminary translators always override customer translators.
- a. True
  - b. False

7. Study these tables and answer the following questions.

**Table IBNLINES**

|      |      |    |    |    |     |         |      |     |     |    |
|------|------|----|----|----|-----|---------|------|-----|-----|----|
| HOST | 00 0 | 00 | 02 | DT | STN | 7450000 | GRP1 | 0 0 | 214 | \$ |
| HOST | 00 0 | 00 | 03 | DT | STN | 7454100 | GRP2 | 0 1 | 214 | \$ |
| HOST | 00 0 | 00 | 04 | DT | STN | 7454300 | GRP3 | 0 2 | 214 | \$ |

**Table NCOS**

| <u>CUSTNAME</u> | <u>NCOS</u> | <u>PRELMXLA</u> |
|-----------------|-------------|-----------------|
| GRP1            | 0           | PTN0            |
| GRP1            | 1           | \$              |
| GRP1            | 2           | PTN2            |

**Table CUSTHEAD**

| <u>CUSTNAME</u> | <u>CUSTXLA</u> |
|-----------------|----------------|
| GRP1            | CTN1           |
| GRP2            | CTN2           |
| GRP3            | CTN3           |

**Table IBNXLA**

|      |   |      |     |
|------|---|------|-----|
| CTN1 | 5 | EXTN | ... |
| CTN1 | 0 | ATT  | ... |
| CTN2 | 4 | EXTN | ... |
| PTN0 | 9 | NET  | ... |
| CTN3 | 9 | NET  | ... |

a. Which DN can dial network calls?

745-0000, 745-4300

b. Which DNs can't dial extensions?

- 745-4300

c. Which DNs can dial an attendant console?

745 0000

- 
8. For a translations sequence, what type of translator does the switch always look for first?
- a. PRELXLA in Table CUSTHEAD
  - b. PRELXLA in Table NCOS
  - c. CUSTXLA in Table CUSTHEAD
  - d. CUSTXLA in Table NCOS
  - e. OCTXLA in Table CUSTHEAD
9. An OCTXLA guards its tuples in Table IBNXLA from being used, unless the translator's owner first dials a(n) \_\_\_\_\_.
- a. octothorpe (#)
  - b. star (\*)
  - c. feature
  - d. extension
10. Activation of a feature by dialing a star (\*) requires the switch to find a FETXLA guarding the code digits in Table \_\_\_\_\_.
- a. NCOS
  - b. IBNXLA
  - c. CUSTHEAD
  - d. IBNLINES
11. What are the translator selector names for \* and #, respectively?
- a. \* and #
  - b. STAR and POUND
  - c. STAR and OCT
  - d. STAR and OCTO

12.

| Table IBNLINES  |    |             |      | NCOS |   |    |    |
|-----------------|----|-------------|------|------|---|----|----|
| HOST 00 0 00 02 | DT | STN 7450000 | GRP1 | 0    | 0 | 14 | \$ |
| HOST 00 0 00 03 | DT | STN 7454100 | GRP2 | 0    | 1 | 14 | \$ |
| HOST 00 0 00 04 | DT | STN 7454300 | GRP3 | 0    | 2 | 14 | \$ |

| Table NCOS |      |          |
|------------|------|----------|
| CUSTNAME   | NCOS | PRELMXLA |
| GRP1       | 0    | PTN0     |
| GRP2       | 1    | \$       |
| GRP3       | 2    | PTN2     |

| Table CUSTHEAD |         | Table IBNXLA |   |
|----------------|---------|--------------|---|
| CUSTNAME       | CUSTXLA |              |   |
| GRP1           | CTN1    | CTN1         | 5 |
| GRP2           | CTN2    | CTN1         | 0 |
| GRP3           | CTN3    | CTN2         | 4 |
|                |         | PTN0         | 9 |
|                |         | CTN3         | 9 |

| Table CUSTHEAD |         | Table IBNXLA |   |
|----------------|---------|--------------|---|
| CUSTNAME       | CUSTXLA |              |   |
| GRP1           | CTN1    | CTN1         | 5 |
| GRP2           | CTN2    | CTN1         | 0 |
| GRP3           | CTN3    | CTN2         | 4 |
|                |         | PTN0         | 9 |
|                |         | CTN3         | 9 |

Based on these "tuples" GRP1 stations can dial:

- Network (NET) calls
- Extension (EXTN) calls
- Attendant console (ATT) calls
- All of these

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## Practice 3 Feedback

1.

| Table IBNLINES  |    |             |      |   |   |     |    |
|-----------------|----|-------------|------|---|---|-----|----|
| HOST 00 0 00 02 | DT | STN 7450000 | GRP1 | 0 | 1 | 214 | \$ |
| HOST 00 0 00 03 | DT | STN 7454100 | GRP2 | 0 | 1 | 214 | \$ |
| HOST 00 0 00 04 | DT | STN 7454300 | GRP3 | 0 | 1 | 214 | \$ |

| Table CUSTHEAD |         |
|----------------|---------|
| CUSTNAME       | CUSTXLA |
| GRP1           | CTN1    |
| GRP2           | CTN2    |
| GRP3           | CTN3    |

| Table IBNXLA |   |      |
|--------------|---|------|
| CTN1         | 5 | EXTN |
| CTN1         | 0 | ATT  |
| CTN2         | 4 | EXTN |
| CTN3         | 3 | EXTN |

DN 745-4300, when dialing a "0" will reach the attendant console.

False; there is no tuple in IBNXLA that allows CTN3 to reach the attendant.

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2.

| Table IBNLINES  |    |             |      |   |   |     |    |
|-----------------|----|-------------|------|---|---|-----|----|
| HOST 00 0 00 02 | DT | STN 7450000 | GRP1 | 0 | 1 | 214 | \$ |
| HOST 00 0 00 03 | DT | STN 7454100 | GRP2 | 0 | 1 | 214 | \$ |
| HOST 00 0 00 04 | DT | STN 7454300 | GRP3 | 0 | 1 | 214 | \$ |

| Table CUSTHEAD |         |
|----------------|---------|
| CUSTNAME       | CUSTXLA |
| GRP1           | CTN1    |
| GRP2           | CTN2    |
| GRP3           | CTN3    |

| Table IBNXLA |   |      |
|--------------|---|------|
| CTN1         | 5 | EXTN |
| CTN1         | 0 | ATT  |
| CTN2         | 4 | EXTN |
| CTN3         | 3 | EXTN |

To dial another extension, what leading digit must DN 745-4100 dial?

The answer is leading digit of 4; the middle column in table IBNXLA shows the leading digit that GRP2/CTN2 must dial for extension dialing.

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3.

| Table IBNLINES  |    |     |         |      |   |   |        |
|-----------------|----|-----|---------|------|---|---|--------|
| HOST 00 0 00 02 | DT | STN | 7450000 | GRP1 | 0 | 1 | 214 \$ |
| HOST 00 0 00 03 | DT | STN | 7454100 | GRP2 | 0 | 1 | 214 \$ |
| HOST 00 0 00 04 | DT | STN | 7454300 | GRP3 | 0 | 1 | 214 \$ |

| Table CUSTHEAD |  | CUSTXLA |   |
|----------------|--|---------|---|
| CUSTNAME       |  |         |   |
| GRP1           |  | CTN1    | ← |
| GRP2           |  | CTN2    |   |
| GRP3           |  | CTN3    |   |

| Table IBNXLA |   |      |  |
|--------------|---|------|--|
| CTN1         | 5 | EXTN |  |
| CTN1         | 0 | ATT  |  |
| CTN2         | 4 | EXTN |  |
| CTN3         | 3 | EXTN |  |

Given the data table contents above, which DN in Table IBNLINES can use the first two tuples in Table IBNXLA?

DN 7450000; the first two tuples in IBNXLA have CTN1 has the key field; in CUSTHEAD, CTN1 is assigned to GRP1 which is linked to DN 7450000 in IBNLINES

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4 a)

| Table IBNLINES |    |   |    |    |        |         |      |   |   |     |    |
|----------------|----|---|----|----|--------|---------|------|---|---|-----|----|
| Host           | 00 | 0 | 00 | 02 | DT STN | 7450000 | GRP1 | 0 | 1 | 214 | \$ |
| Host           | 00 | 0 | 00 | 03 | DT STN | 7454100 | GRP2 | 0 | 1 | 214 | \$ |
| Host           | 00 | 0 | 00 | 04 | DT STN | 7454300 | GRP3 | 0 | 1 | 214 | \$ |

| Table CUSTHEAD  |                |  |
|-----------------|----------------|--|
| <u>CUSTNAME</u> | <u>CUSTXLA</u> |  |
| GRP1            | CTN1           |  |
| GRP2            | CTN2           |  |
| GRP3            | CTN3           |  |

| Table IBNXLA |   |      |
|--------------|---|------|
| CTN1         | 5 | EXTN |
| CTN1         | 0 | ATT  |
| CTN2         | 4 | EXTN |
| CTN3         | 3 | EXTN |

The answer to the first part of #4 is 745-4100. To use the third tuple in IBNXLA, the phone must be in Customer Group, GRP2. The only DN assigned to GRP2 is 745-4100; therefore, 745-4100 is the only phone which can use the CTN2 tuple.

The answer to the second part of Question 4 is: the digit "4" must be dialed for this phone to use this tuple in Table IBNXLA.

500403  
081391



4 b)

| Table IBNLINES |    |   |    |    |        |         |      |   |   |     |    |
|----------------|----|---|----|----|--------|---------|------|---|---|-----|----|
| Host           | 00 | 0 | 00 | 02 | DT STN | 7450000 | GRP1 | 0 | 1 | 214 | \$ |
| Host           | 00 | 0 | 00 | 03 | DT STN | 7454100 | GRP2 | 0 | 1 | 214 | \$ |
| Host           | 00 | 0 | 00 | 04 | DT STN | 7454300 | GRP3 | 0 | 1 | 214 | \$ |

| Table CUSTHEAD |         |  |
|----------------|---------|--|
| CUSTNAME       | CUSTXLA |  |
| GRP1           | CTN1    |  |
| GRP2           | CTN2    |  |
| GRP3           | CTN3    |  |

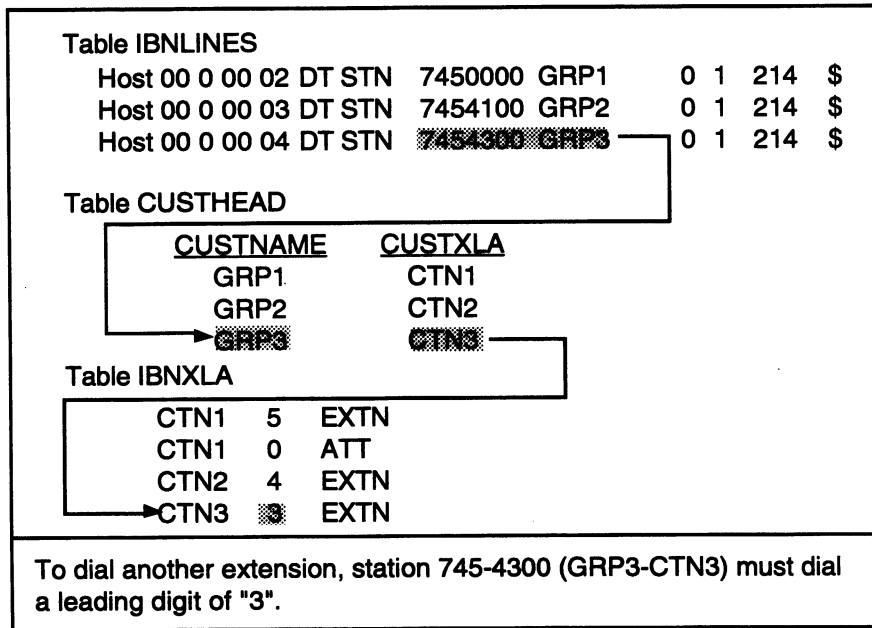
| Table IBNXLA |   |      |  |
|--------------|---|------|--|
| CTN1         | 5 | EXTN |  |
| CTN1         | 0 | ATT  |  |
| CTN2         | 4 | EXTN |  |
| CTN3         | 3 | EXTN |  |

#4 part b answer is: neither 745-4100 nor 745-4300 will get the attendant console when "0" is dialed. That is because of two reasons:

- 1) 745-4100's Customer Groups, GRP2, is assigned customer translator, CTN2 which has no leading digit "0" datafilled in Table IBNXLA.
- 2) 745-4300's Customer Group, GRP3, is assigned customer translator, CTN3, which also has no leading digit "0" datafilled in tble IBNXLA.

500405  
081391

4 c)

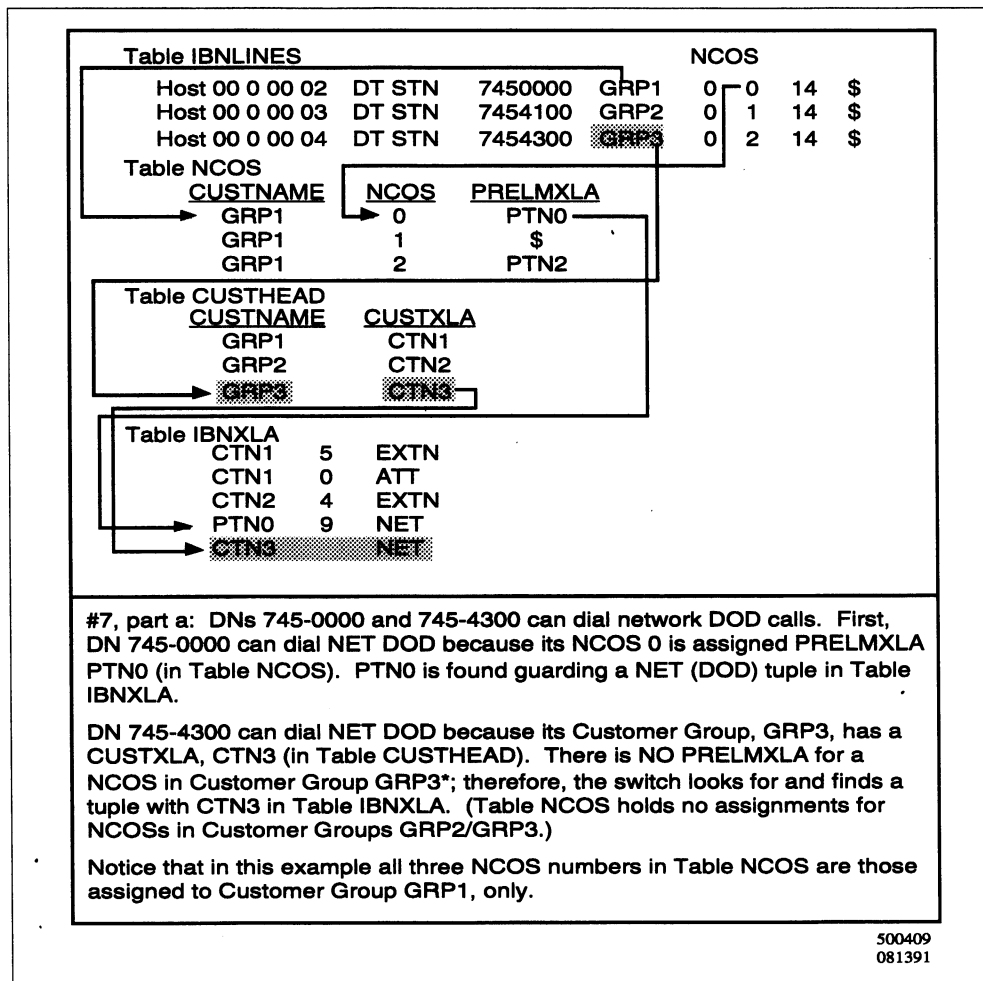


500407  
081391

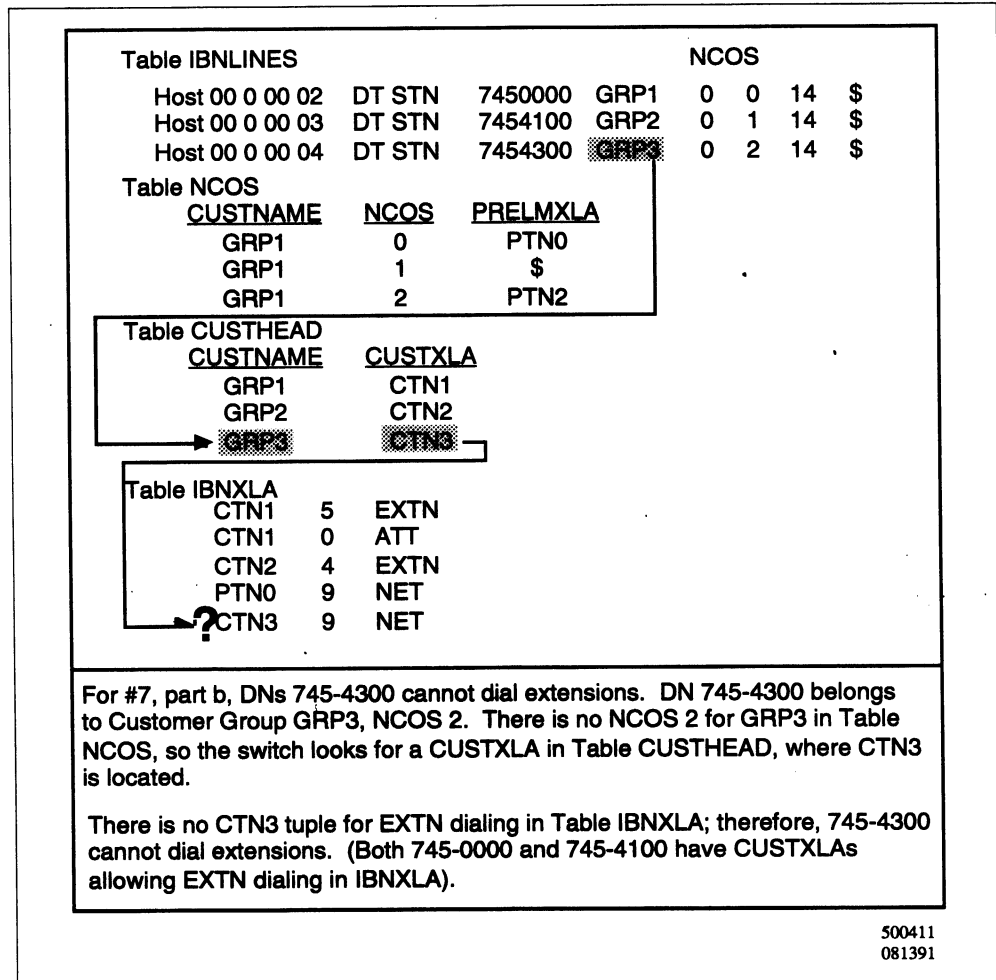
5. NCOS

6. True

7 a)



7 b)



7 c)

| Table IBNLINES  |        |         |      | NCOS |   |    |    |
|-----------------|--------|---------|------|------|---|----|----|
| Host 00 0 00 02 | DT STN | 7450000 | GRP1 | 0    | 0 | 14 | \$ |
| Host 00 0 00 03 | DT STN | 7454100 | GRP2 | 0    | 1 | 14 | \$ |
| Host 00 0 00 04 | DT STN | 7454300 | GRP3 | 0    | 2 | 14 | \$ |

| Table NCOS |      |         |
|------------|------|---------|
| CUSTNAME   | NCOS | PRELMLA |
| GRP1       | 0    | PTN0    |
| GRP1       | 1    | \$      |
| GRP1       | 2    | PTN2    |

| Table CUSTHEAD |         |
|----------------|---------|
| CUSTNAME       | CUSTXLA |
| GRP1           | CTN1    |
| GRP2           | CTN2    |
| GRP3           | CTN3    |

| Table IBNXLA |      |      |
|--------------|------|------|
| CTN          | EXTN | NET  |
| CTN1         | 5    | EXTN |
| CTN1         | 0    | ATT  |
| CTN2         | 4    | EXTN |
| PTN0         | 9    | NET  |
| CTN3         | 9    | NET  |

The answer to #7, part c is all DNs in all NCOSs in GRP1 can dial an attendant. Here is how this works:  
 In Table IBNXLA, there are no PRELMLAs for NCOSs in GRP1 that restrict phones in those NCOSs from attendant ("0") dialing.  
 --In Table IBNXLA, GRP1's CUSTXLA, CTN1, allows all phones in GRP1 to dial "0" to reach an attendant.

500413  
081391

8. b
9. a
10. b
11. c
12. d



Customer Groups, Translators, NCOS.

Customer Group. - Defined Partition that deals with certain people or Department. Total 4096 Cus groups, each group can have its own Dialing plan and features.

Table CUSTENG - establishes the customer group

Pg-3-66

Table CUSTHEAD - determines whether subscribers within a group will use Auth codes

Pg 4-66 3 Types of Groups. -

Private - Feature Activation is allowed against members of the Same Cus Grp, Public Cus Grp, Public Family Cus Grp.

Public - Feature Activation is allowed against members of The Same Cus Grp, Other Public Cus Grps.

Family - 2 Types

private - Allows Feature Act. against members of the Same Cust grp, other Cust Grp in the same family, Public Cust Grp, Public Family Cust Grps

Public - Allows Feature Act. against members of the Same Cust Grp, other Cust Grps in the same family, and Public Cust Grps.

| Problem | Answer |
|---------|--------|
| 1       | 1      |
| 2       | 2      |
| 3       | 3      |
| 4       | 4      |
| 5       | 5      |
| 6       | 6      |
| 7       | 7      |
| 8       | 8      |
| 9       | 9      |
| 10      | 10     |
| 11      | 11     |
| 12      | 12     |
| 13      | 13     |
| 14      | 14     |
| 15      | 15     |
| 16      | 16     |
| 17      | 17     |
| 18      | 18     |
| 19      | 19     |
| 20      | 20     |
| 21      | 21     |
| 22      | 22     |
| 23      | 23     |
| 24      | 24     |
| 25      | 25     |
| 26      | 26     |
| 27      | 27     |
| 28      | 28     |
| 29      | 29     |
| 30      | 30     |
| 31      | 31     |
| 32      | 32     |
| 33      | 33     |
| 34      | 34     |
| 35      | 35     |
| 36      | 36     |
| 37      | 37     |
| 38      | 38     |
| 39      | 39     |
| 40      | 40     |
| 41      | 41     |
| 42      | 42     |
| 43      | 43     |
| 44      | 44     |
| 45      | 45     |
| 46      | 46     |
| 47      | 47     |
| 48      | 48     |
| 49      | 49     |
| 50      | 50     |
| 51      | 51     |
| 52      | 52     |
| 53      | 53     |
| 54      | 54     |
| 55      | 55     |
| 56      | 56     |
| 57      | 57     |
| 58      | 58     |
| 59      | 59     |
| 60      | 60     |
| 61      | 61     |
| 62      | 62     |
| 63      | 63     |
| 64      | 64     |
| 65      | 65     |
| 66      | 66     |
| 67      | 67     |
| 68      | 68     |
| 69      | 69     |
| 70      | 70     |
| 71      | 71     |
| 72      | 72     |
| 73      | 73     |
| 74      | 74     |
| 75      | 75     |
| 76      | 76     |
| 77      | 77     |
| 78      | 78     |
| 79      | 79     |
| 80      | 80     |
| 81      | 81     |
| 82      | 82     |
| 83      | 83     |
| 84      | 84     |
| 85      | 85     |
| 86      | 86     |
| 87      | 87     |
| 88      | 88     |
| 89      | 89     |
| 90      | 90     |
| 91      | 91     |
| 92      | 92     |
| 93      | 93     |
| 94      | 94     |
| 95      | 95     |
| 96      | 96     |
| 97      | 97     |
| 98      | 98     |
| 99      | 99     |
| 100     | 100    |



## Cust Grps, Translations, Ncos.

- Cust Grp table Pg 12-66    CUSTFAM (optional) lists all family names a (1-16 char)  
Specifies whether the Family is private or public (upto 64)
- Pg 14-66    CUSTENG - allocates certain resources available to a Cust GRP  
as well as memory for other tables.
- Pg 15-66    CUSTNAME (optional) allows you to change a Cust Grp name  
through on table
- Pg 16-66    CUSTHEAD - Refines the group options or System Features  
that are available to the Cust Grp.
- Pg 18-66    CUSTCONS optional - defines parameters that affect how  
all consoles in the Cust Grp will operate.
- Pg 19-66    CUSTSTN - Defines parameters for options assigned  
to Stations in a Cust Grp.  
Key Field. CUSTNAME  
          OPTNAME
- Pg 21-66    CUSTSMDR. - specifies certain information recorded on  
SMDR.

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Customer Groups, translators, NCOS use Translator Name CTN.

Pg 27-66 Translator: A Block of Data that defines the Customers dialing plan (4 Types)

(CTN) Customer Translators. Translates all access codes that have leading digits of 0-9 (mandatory)

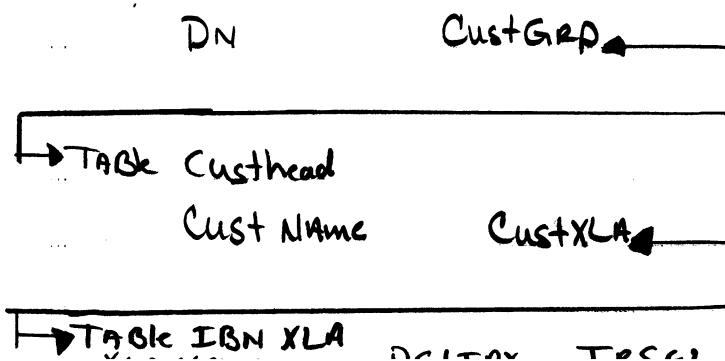
(PTN) Preliminary Translator - translates all access codes (only to NCOS) that have a numeric digit of 0-9 (optional)

(FTN) Feature Translator - Translates all access codes that have a (\*) as the leading digit (optional)

(OCT) Octothorpe Translator - Translates all access codes with an octothorpe (#) as leading digit. (optional)

TABLE XLANAME - Creates the translator name  
Pg 28-66 CTN \$ 9

Pg 33-66 TABLE IBN lines



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Customer Groups, Translators, NCOS.  
Golden Rule:

Preliminary translators Checked First.

Customer translators Checked Next

Preliminary may restrict or Add dialing privileges.

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7  
Intra Switch  
Dialing

Dialing  
Internation  
7



**Sign-off**  
Colleague  
> **Instructor**

**100323**

## Intraswitch dialing

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### Why this lesson is important

The majority of calls in an SL-100 are intraswitch calls. This lesson provides you with an opportunity to build a customer database that supports intraswitch dialing and analyze resultant TRAVERS.

### Objective

Given a logged on terminal, site specific information, and appropriate documentation:

- datafill tables appropriate to intraswitch dialing,
- invoke TRAVERS to verify datafill; and
- analyze and explain tuple and table interaction to classmates and/or instructor.

If the TRAVER is unsuccessful, identify and correct the datafill error, and run the TRAVER again. You may also verify your datafill by performing telephone calls.

### What to do

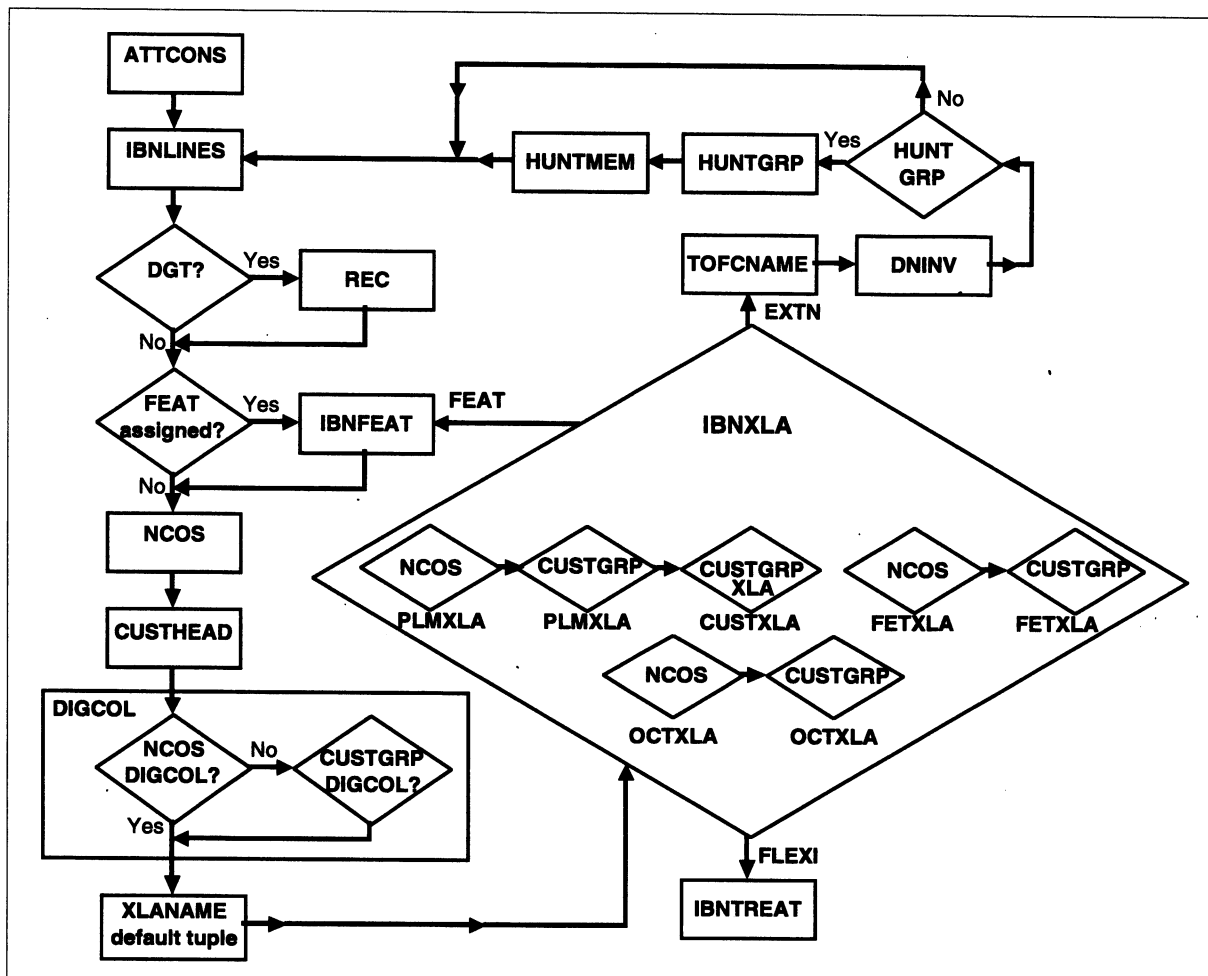
1. Read Lesson 100323: Intraswitch dialing.
2. Work through the lesson including all of the practices.
3. There is no skill check for this lesson; your completed practices will serve as your skill checks; be prepared to explain the TRAVERs to your instructor or to the class.
4. Have the instructor sign off on this lesson and proceed to the next lesson.

### What resources to use

| <b>Resources</b>                            | <b>Resource number</b> |
|---------------------------------------------|------------------------|
| Customer Data Schema                        | NTP 297-1001-451       |
| Meridian Digital Centrex Translations Guide | NTP 297-1001-351       |

Figure 1

## IBN to line in group or intraswitch dialing



Tables shown in the above flowchart indicate the order in which they are accessed during an intraswitch call; however, in this lesson, the tables will be presented in order of datafill (certain tables must be datafilled prior to others).

**Note: this course does not present material on Tables HUNTGRP or HUNTMEM because we encourage you to assign hunt groups individually via SERVORD; refer to 297-1001-451 for specific information on Tables HUNTGRP and HUNTMEM.**

# Tables related to the originating number

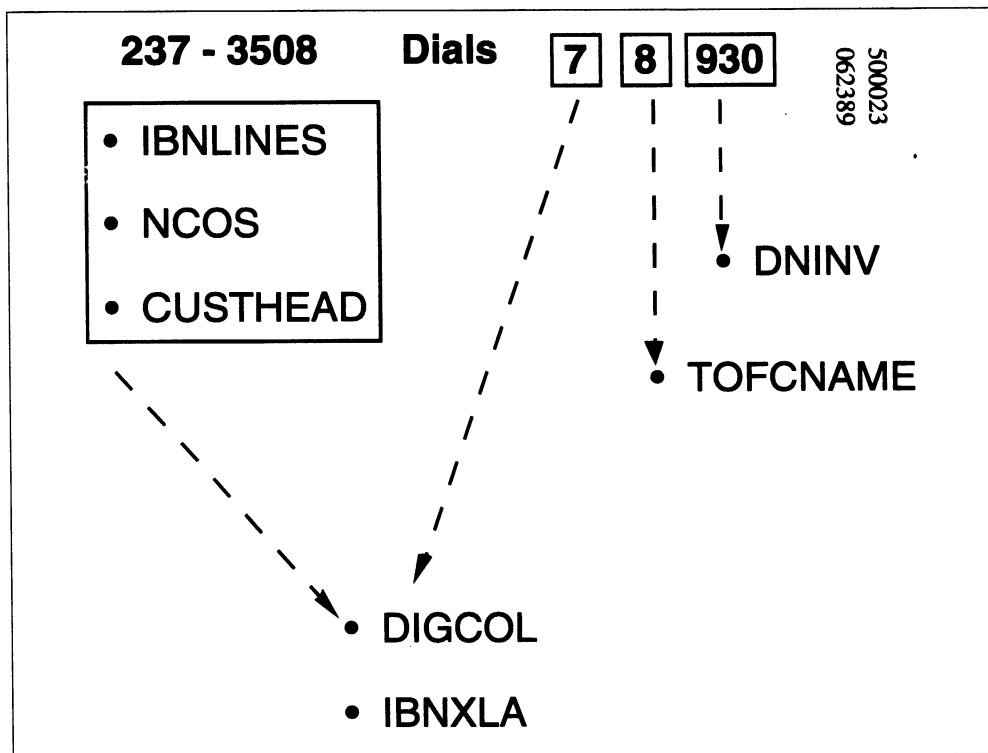
## Tables related to the dialing number

In Figure 1 on the previous page, you'll notice that Tables IBNLINES, NCOS and CUSTHEAD are present at the beginning of the flowchart. This is due to the fact that they contain information on the **originating number**. In this section of the lesson, you will review Tables CUSTHEAD and NCOS (from Lesson 100322) and learn about IBNLINES (and KSETLINES).

Figure 2 below shows a description of the various tables that contain information regarding the **originating directory number**.

**Figure 2**

**Tables used in station-to-station dialing**



**Table CUSTHEAD (Customer Group Head)**

As stated in Lesson 100322, *Customer groups, translators, and NCOSs*, this table defines parameters for each customer group including the following information:

- Key Field →
- customer name -- the name that is assigned to the customer group (1 to 16 character name),
  - customer translator name (CUSTXLA) from XLANAME (remember, you cannot have translator names without defining them in XLANAME),
  - digit collection name (DGCOLNM), and
  - specify option VACTRMT, or vacant treatment; this option must be assigned to the customer group; this defines the treatment of digits for which no translation data has been provided in IBNXLA and no default data has been provided in XLANAME; you will enter treatment numbers ranging from 1-63 in IBNTREAT to which a vacant call is routed.

**CUSTENG, DIGCOL, and XLANAME must be datafilled prior to datafilling CUSTHEAD.**

### Table NCOS (Network Class of Service)

You were first introduced to Table NCOS in Lesson 100322, *Customer groups, translators, and NCOSs* in order to originate preliminary translators (PTNs). Below is additional information on Table NCOS:

- customer group name (from field CUSTNAME in CUSTHEAD);
- NCOS number (0 to 255) for each different class of user in the customer group;
- 1 to 6 character name NCOSNAME that will be displayed on the attendant console when a phone in this NCOS dials the attendant,
- a line screening code (field LSC) that references Table LSCFLAGS,
- traffic separation number (TRAFSNO) (0, 10-127)
- certain options including translators. Translators can be assigned in the OPTIONS field by first inputting **XLAS** (translators), after which the switch will ask for one of the following:
  - **the preliminary translator (PRELMLA)**
  - the feature translator (FEATXLA)
  - the digit collection name (DGCOLNM), if different than what will be specified in Table CUSTHEAD,
  - other options such as: ATTCONS, CBQSP, CBQMP, CRL, OHQNOTICE, etc. (refer to 297-1001-451 for more details) (*Lesson 100326, Trunk usage and attendant console* covers these options in more detail),
  - **If you do not wish to add any options, input a \$.** If you wish to assign one of the options but not all three, input NXLA for either PRELMLA or FEATXLA and NDGT for DGCOLNM.

The key field for this table is CUSTGRP plus NCOS.

CUSTENG and XLANAME must be datafilled prior to datafilling NCOS.

#### Table NCOS

| CUSTGRP | NCOS | NCOSNAME   | LSC       | TRAFSNO   | OPTIONS   |
|---------|------|------------|-----------|-----------|-----------|
| GRP1    | 0    | NCOS0      | 0         | 0         | \$        |
| GRP1    | 1    | NCOS1      | 0         | 0         |           |
|         |      | (NCOSOPTN) | (PRELMLA) | (FEATXLA) | (DGCOLNM) |
|         |      | XLAS       | PTN1      | NXLA      | NDGT      |

### Table IBNLINES (IBN Line Assignment)

In this table, the customer can define the line assignment for each IBN station number and multiple appearance directory numbers (MADNs).

**Note: In this course, you will not datafill IBNLINES; it is dynamically datafilled using SERVORD.**

Below are descriptions of IBNLINES fields:

- the FIELD LEN is the line equipment number which is comprised of the subfields SITE, FRAME, UNIT, DRAWER, and CIRCUIT;
- SIGTYPE -- signaling type; Digitone (DT) or Dial Pulse (DP);
- FORMAT -- enter station (STN) or an attendant console in (MADN) may also be entered here further references to MADNs will not be covered here; refer to 297-1001-451);
- LCC -- line class code or phone type (IBN, M5312, etc.);
- DN -- the directory number of the dialing DN;
- the customer group name defined in field CUSTNAME of CUSTHEAD;
- the subgroup number;
- the NCOS number defined in Table NCOS;
- the SNPA; and
- possible options (3WC, HLD, etc).

CUSTENG and CUSTHEAD must be datafilled prior to datafilling IBNLINES.

### Table IBNLINES

| <u>LEN</u>    |           |             |          |           |           |          | <u>RESULT</u> |
|---------------|-----------|-------------|----------|-----------|-----------|----------|---------------|
| (SITE)        | (FRAME)   | (UNIT)      | (LSG)    | (CIRCUIT) | (SIGTYPE) | (FORMAT) |               |
| HOST          | 00        | 0           | 00       | 13        | DT        | STN      |               |
| <u>RESULT</u> |           |             |          |           |           |          |               |
| (LCC)         | (DN)      | (CUSTGRP)   | (SUBGRP) | (NCOS)    | (SNPA)    | (MDNTYP) |               |
| IBN           | 2373508   | <b>GRP1</b> | 0        | <b>0</b>  | 214       | \$       |               |
| (RING)        | (PRIMARY) | (OPTLIST)   |          |           |           |          |               |
| \$            | \$        | \$          |          |           |           |          |               |

**Table KSETLINE (Business Set and Data Unit Line Assignment)**

This table contains the directory numbr appearances for the business sets (multi-line sets) and data units. One entry is required for each directory number related key on a business set and a data unit. Business sets include the integrated voice and data M2000 and M3000 digital telephones. Data units include the Meridian asynchronous data option (MADO) and the touch synchronous data option (TADO).

Four formats are provided for entries in this table: DN, MDN, GIC, and ACD. Datafill for this table is done through SERVORD; refer to 297-1001-451 for further information.

**Note: This course covers Table IBNLINES due to single-line sets in the classroom/lab.**



## Practice 1: Tables related to dialing number

### Instructions:

Obtain NTP 297-1001-451, and read about Tables CUSTHEAD, IBNLINES, and NCOS.

**Part A:** Match the table name on the left to its purpose on the right. Check your answers with those found in Practice 1 Feedback.

| Table Name           | Purpose                                              |
|----------------------|------------------------------------------------------|
| 1. <u>C</u> CUSTHEAD | a. assigns information to a line card                |
| 2. <u>B</u> NCOS     | b. assigns information to a network class of service |
| 3. <u>A</u> IBNLINES | c. defines parameters for each customer group        |



**Part B:** The following graphics contain sample table entries; answer the questions below the graphics by circling the correct response; check your answers with those found in Practice 1 Feedback.

4.

| LEN                                                     | RESULT |
|---------------------------------------------------------|--------|
| HOST 00 0 00 01 DT STN IBN 3622100 COMMON 0 0 214       | \$     |
| HOST 00 0 00 02 DT STN IBN 3622500 COMMON 0 0 214 (3WC) | \$     |
| HOST 00 0 00 03 DP AC 1 INC_SIG_CARD                    | \$     |
| HOST 00 0 00 03 DP AC 1 OUT_SIG_CARD                    | \$     |
| HOST 00 0 00 03 DP AC 1 VOICE_CARD                      | \$     |

How many of the above tuples are datafilled as stations?

a. One  
 b. Two  
 c. Three

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5.

| LEN                                                     | RESULT |
|---------------------------------------------------------|--------|
| HOST 00 0 00 01 DT STN IBN 3622100 COMMON 0 0 214       | \$     |
| HOST 00 0 00 02 DT STN IBN 3622500 COMMON 0 0 214 (3WC) | \$     |
| HOST 00 0 00 03 DP AC 1 INC_SIG_CARD                    | \$     |
| HOST 00 0 00 03 DP AC 1 OUT_SIG_CARD                    | \$     |
| HOST 00 0 00 03 DP AC 1 VOICE_CARD                      | \$     |

Which field value indicates the type of signaling the switch expects?

a. HOST  
 b. DT  
 c. STN  
 d. IBN

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6.

| LEN             |                    | RESULT                    |    |
|-----------------|--------------------|---------------------------|----|
| HOST 00 0 00 01 | DT STN IBN 3622100 | COMMON 0 0 214 (FNT)      | \$ |
| HOST 00 0 00 02 | DT STN IBN 3622500 | COMMON 0 0 214 (3WC)(FIG) | \$ |
| HOST 00 0 00 03 | DT STN IBN 3622101 | COMMON 0 0 214            | \$ |
| HOST 00 0 00 03 | DT STN IBN 3622503 | COMMON 0 0 214 (RAG)      | \$ |
| HOST 00 0 00 03 | DT STN IBN 3622110 | COMMON 0 0 214 (HLD)      | \$ |

Which options are attached to the line with Directory Number 3622500?

a. FIG (Ignore Flash) and 3WC (Three Way Conference)

b. FNT (Free Number Terminating)

c. RAG (Ring Again)

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7.

| TABLE: CUSTHEAD |         |         |                                       |
|-----------------|---------|---------|---------------------------------------|
| CUSTNAME        | CUSTXLA | DGCOLNM | OPTIONS                               |
| GRP1            | CTN1    | DCN1    | (VACTRMT 0) (EXTNCOS) (FETXLA FTN1)\$ |

Which data entry here tells the switch what to do when a call can't complete?

a. DCN1

b. EXTNCOS

c. VACTRMT 0

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## Practice 1 Feedback

### Part A

1. c
2. b
3. a

### Part B

4. b
5. b
6. a
7. c.

# Tables relating to the originating and terminating numbers

## Introduction to tables related to both the dialing and dialed DN

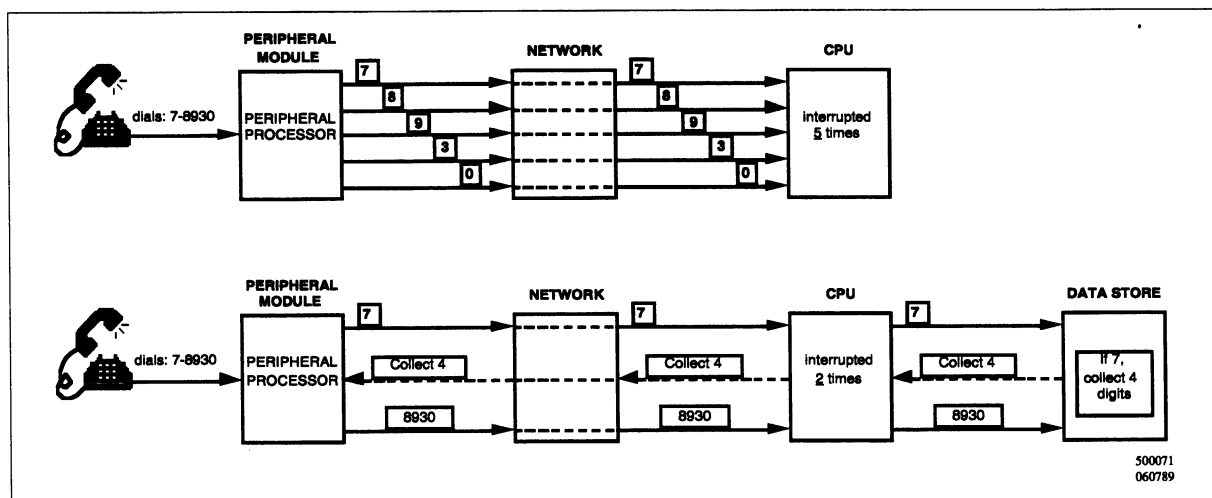
The tables described in the following pages are used to store data regarding both the **originating** directory number (237-3508) and the **terminating directory number** (78930).

### Table DIGCOL

One way to keep the CPU from being unnecessarily interrupted is to create a set of instructions in Data Store. These instructions should tell the CPU that when it receives a particular leading digit from a peripheral processor, it should immediately send the peripheral processor a message telling it to collect the remaining digits. These digits then can be sent to the CPU at one time, instead of individually. Figure 3 demonstrates this concept.

**Figure 3**

**Peripheral processor and digit collection**



When a caller dials a five-digit extension beginning with a leading digit of 7, the digit 7 is immediately sent to the CPU. The CPU then looks in data store for a set of instructions regarding the collection of the remaining digits. These instructions say that whenever anyone begins by dialing the leading digit of 7, the CPU should send a message to the originating peripheral processor to collect the remaining for digits. Furthermore, once the peripheral processor has collected these digits, it should simultaneously send them to the CPU. This instruction results in the CPU being interrupted only twice; once by the leading digit of 7 and once again by all of the remaining digits.

Information contained in this table is included in 2 fields:

- **DATNAME** -- 1 to 8 character digit collection name that is assigned to the originator, usually in Table CUSTHEAD but also can be in NCOS or IBNXLA.
- **DIGIT** -- the leading digit that the originator dialed. Remember, the leading digit is immediately sent to the CPU as soon as it is dialed. The CPU uses this digit plus the digit collection name assigned to the originator to find the correct tuple in Table DIGCOL. The digit is either a STAR, OCT, or a digit within a range of 0 to 9.
  - If data is not provided for a digit, it automatically defaults to the format with **RPT**, or report, for **DGCOLSEL** (digit collection selector). **RPT** means that each digit will be sent to the CPU such as '0'. **COL** indicates that the CPU should collect a specified number of digits within a determined amount of time; **POTS** indicates that upon receipt of one digit, that digit will transfer from IBN to POTS digit translation (might be used for DOD dialing).
    - > If the peripheral processor is to COL (collect) for one-to-three remaining digits (**NUMDIGS** column), then a short (**S**) timing mode (**TMODE**) could be used (usually equating to a four second wait by the peripheral processor). If, on the other hand, the Peripheral Processor is to wait for four-to-seven remaining digits (**NUMDIGS** column), then a long (**L**) timing mode (**TMODE**) is recommended (ten seconds of waiting between digits).

**Table DIGCOL**

| <b>DGKEY</b>   |              | <b>DGDATA</b>   |              |                |
|----------------|--------------|-----------------|--------------|----------------|
| <b>DATNAME</b> | <b>DIGIT</b> | <b>DGCOLSEL</b> | <b>TMODE</b> | <b>NUMDIGS</b> |
| DCN1           | 0            | RPT             |              |                |
| DCN1           | 1            | COL             | S            | 2              |
| DCN1           | 7            | COL             | L            | 4              |
| DCN1           | STAR         | COL             | S            | 2              |
| DCN1           | OCT          | COL             | S            | 2              |

*Key Field*

**The key field in Table DIGCOL is DATNAME plus DIGIT.**

---

### Table IBXLA (Integrated Business Network Translations)

This table tells the CPU what it is to do with calls dialed by the owner of a translator name. The first tuple shown in the following table tells the CPU that if any phone with a translator name of CTN1 begins dialing with the leading digit of 7, it is to be processed as an extension (EXTN) call as indicated in the TRESEL field (many treatment selectors exist; refer to *297-1001-451* for descriptions of TRESEL other than EXTN, TRMT, ATT, STAR, OCT, and FEAT). Headings are shown in bold for the first tuple only. Field data include:

- **XLANAME** -- 1-8 character translator name from XLANAME
- **DGLIDX** -- digilator index; the range of this field depends on the MAXDIG field in XLANAME (refer to *297-1001-451* for further information); this is the leading digit that the dialing number dials
- the **RESULT** field includes the following:
  - **TRSEL** -- the type of call being made; there are many; however this course concentrates on AMBI, EXTN, NET, TRMT, STAR, OCT, and FEAT (refer to refer to *297-1001-451* for detailed information); it is important to note that depending on the TRSEL value, subsequent values may be different or not exist; the remaining descriptions exist for EXTN dialing
  - **SMDR** -- whether or not a Station Message Detailed Record (SMDR) is to be made every time a phone uses this tuple to be processed,
  - **VCDR** -- in EXTN dialing, variable call detail record (VCDR) must always be N,
  - **INTRAGRP** -- whether or not, under certain conditions, features can be activated between customer groups,
  - **SNPA** and **NXX** -- the area code and NXX of your switch,
  - **DIGINEXT** -- the number of digits in extension dialing, and
  - **FILLDIGS** -- whether or not filler digits should be used in processing the call (up to 3 digits); entry of \$ indicates no filler digits).

**Table IBNXLA**

|                  | KEY             |               | RESULT       |                       |                 |             |
|------------------|-----------------|---------------|--------------|-----------------------|-----------------|-------------|
|                  | <b>XLANAME</b>  | <b>DGLIDX</b> | <b>TRSEL</b> | <b>SMDR</b>           | <b>VCDR</b>     |             |
| <i>Key Field</i> | <b>CTN1</b>     | <b>7</b>      | <b>EXTN</b>  | <b>Y</b>              | <b>N</b>        |             |
|                  | <b>INTRAGRP</b> | <b>SNPA</b>   | <b>NXX</b>   | <b>DIGINEXT</b>       | <b>FILLDIGS</b> |             |
|                  | <b>Y</b>        | <b>214</b>    | <b>237</b>   | <b>5</b>              | <b>\$</b>       |             |
|                  | <b>CTN1</b>     | <b>7</b>      | <b>TRMT</b>  | <b>VACT</b>           |                 |             |
|                  | <b>CTN1</b>     | <b>0</b>      | <b>ATT</b>   | <b>1 (ICI, 0-255)</b> |                 |             |
|                  | <b>CTN1</b>     | <b>113</b>    | <b>ATT</b>   | <b>63</b>             |                 |             |
|                  | <b>CTN1</b>     | <b>12</b>     | <b>STAR</b>  |                       |                 |             |
|                  | <b>CTN1</b>     | <b>13</b>     | <b>OCT</b>   |                       |                 |             |
|                  | <b>FTN1</b>     | <b>75</b>     | <b>FEAT</b>  | <b>N</b>              | <b>Y</b>        | <b>HLD</b>  |
|                  | <b>FTN1</b>     | <b>76</b>     | <b>FEAT</b>  | <b>N</b>              | <b>Y</b>        | <b>PRKS</b> |
|                  | <b>OCT1</b>     | <b>76</b>     | <b>FEAT</b>  | <b>N</b>              | <b>Y</b>        | <b>PRKR</b> |



**Practice 2: Tables related to dialing and dialed numbers****Instructions:**

Obtain NTP 297-1001-451, and read about Tables IBNXLA and DIGCOL.

**Part A:** Match the table name on the left to its purpose on the right.  
Check your answers with those found in Practice 2 Feedback.

| Table Name         | Purpose                                                                                                             |
|--------------------|---------------------------------------------------------------------------------------------------------------------|
| 1. <u>B</u> IBNXLA | a. upon receipt of a leading digit instructions tell the CPU to collect the remaining digits or report the digit(s) |
| 2. <u>A</u> DIGCOL | b. tells the CPU what it is to do with calls dialed by the owner of a translator name                               |



**Part B:** The following graphics contain sample Table entries; answer the questions below the graphics by circling the correct response; check your answers with those found in Practice 2 Feedback.

3.

| TABLE: DIGCOL |       |          |       |         |
|---------------|-------|----------|-------|---------|
| DGKEY         |       | DGDATA   |       |         |
| DATANAME      | DIGIT | DGCOLSEL | TMODE | NUMDIGS |
| DCN1          | 0     | RPT      |       |         |
| DCN1          | 1     | COL      | S     | 2       |
| DCN1          | 7     | COL      | L     | 4       |
| DCN1          | STAR  | COL      | S     | 2       |
| DCN1          | OCT   | COL      | S     | 2       |

Which tuple above tells the Peripheral Processor to send the digits to the CPU as the digits are dialed?

- a. DCN1 0 RPT
- b. DCN 1 COL S 2
- c. DCN1 7 COL L 4

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4.

TABLE: IBNXLA

| KEY     |        | RESULT |        |          |      |     |          |          |
|---------|--------|--------|--------|----------|------|-----|----------|----------|
| XLANAME | DGLIDX | TRSEL  | SMDR   | INTRAGRP | SNPA | NXX | DIGINEXT | FILLDIGS |
| CTN1    | 7      | EXTN   | Y      | Y        | 214  | 237 | 5        | \$       |
| PTN1    | 7      | TRMT   |        |          |      |     |          |          |
|         |        |        | (TRMT) |          |      |     |          |          |
|         |        |        | VACT   |          |      |     |          |          |
|         |        |        | (ICI)  |          |      |     |          |          |
| CTN1    | 0      | ATT    | 1      |          |      |     |          |          |
| CTN1    | 113    | ATT    | 63     |          |      |     |          |          |
| CTN1    | 12     | STAR   |        |          |      |     |          |          |
| CTN2    | 13     | OCT    |        |          |      |     |          |          |

What happens to owners of preliminary translators PTN1 who dial a leading digit of "7"?

- a. The call is typed as an EXTN call.
- b. The call goes to a treatment.
- c. The call invokes a feature.

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5.

| TABLE: IBNXLA |        |        |                |         |      |     |          |          |
|---------------|--------|--------|----------------|---------|------|-----|----------|----------|
| KEY           |        | RESULT |                |         |      |     |          |          |
| XLANAME       | DGLIDX | TRSEL  | SMDR           | INTRAGR | SNPA | NXX | DIGINEXT | FILLDIGS |
| CTN1          | 7      | EXTN   | Y              | Y       | 214  | 237 | 5        | \$       |
| PTN1          | 9      | TRMT   | (TRMT)<br>VACT |         |      |     |          |          |
| CTN1          | 0      | ATT    | (ICI)<br>1     |         |      |     |          |          |
| CTN1          | 113    | ATT    | 63             |         |      |     |          |          |

Which item below represents a key field in Table IBNXLA?

- a. EXTN
- b. CTN1
- c. FEAT FTN1
- d. PTN1 9

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080991

6.

TABLE: IBNXLA

| KEY     |        | RESULT |                |          |      |     |          |          |
|---------|--------|--------|----------------|----------|------|-----|----------|----------|
| XLANAME | DGLIDX | TRSEL  | SMDR           | INTRAGRP | SNPA | NXX | DIGINEXT | FILLDIGS |
| CTN1    | 7      | EXTN   | Y              | Y        | 214  | 237 | 5        | \$       |
| PTN1    | 7      | TRMT   | (TRMT)<br>VACT |          |      |     |          |          |
| CTN1    | 0      | ATT    | (ICI)<br>1     |          |      |     |          |          |
| CTN1    | 113    | ATT    | 63             |          |      |     |          |          |

Owners of customer translator CTN1 who dial 70113  
will be routed to \_\_\_\_\_.

- a. an extension
- b. a treatment
- c. an attendant console, ICI 1
- d. an attendant console, ICI 63

500137  
080991

## Practice 2 Feedback

### Part A

1. b
2. a

### Part B

3. You should have selected choice a. The "RPT" selector tells the switch to report the digits as they are dialed.
4. The correct answer is b. By referring to "PTN1 7," you can see that the call goes to TRMT.
5. The correct answer is response d. Remember, the key field in IBNXLA is comprised of XLANAME plus DGLIDX. Only PTN1 9 is in the correct format for the key of IBNXLA.
6. The correct answer is choice a. The first tuple in the sample shows CTN1 with a dialed leading digit of 7 will be routed to an extension call.

---

# Tables relating to the dialed number

---

## Introduction to tables related to the dialed DN

The following paragraphs contain information on tables related to the *dialed* DN.

### Table TOFCNAME (Terminating Office Name)

TOFCNAME is used to define all the terminating offices in the switch. A terminating office is a combination of area code and office code.

TOFCNAME replaces THOUGRP. Any routing information that used to appear in THOUGRP now appears in DNROUTE (was Table WRDN).

Table TOFCNAME is comprised of two fields, both of which comprise the key field: AREACODE and OFCCODE.

**TOFCNAME must be datafilled before IBNLINES and after HNPACONT.**

### Table TOFCNAME

| AREACODE | OFCCODE |
|----------|---------|
| 214      | 237     |
| 214      | 238     |

**Table DNINV (Directory Number Inventory)**

Table DNINV replaces DN and contains the data for all assigned and unassigned directory numbers including the directory numbers in DNROUTE. Information is added as directory numbers are assigned or used in other tables such as LENLINES (public) or IBNLINES. An input form (297-1001-454) is not provided for this table.

Field data include:

- DNNM -- comprised of three (3) sub-fields: AREACODE, OFCCODE, and STNCODE. DNNM is the directory number (DN) of the **called** party. This key field tells the switch what line equipment number (if any) is assigned to the called DN.
- DNRESULT -- comprised of DNSEL and TRMT; DNSEL options include D, MEM, M, MM, SYN, T, and FEAT. Refer to 297-1001-451 for a detailed description.

This table is the counterpart of Table IBNLINES. As the switch used Table IBNLINES to reference information regarding the **originator** of the call, it will use Table DNINV to find information about the **terminating** directory number.

Table DNINV is a **read only table** -- tuples are automatically filled by the database entries in Table TOFCNAME and are updated by entering SERVORD. Operating company personnel must not change any of the line data tables through the use of table control because of the possibility of corrupting the internal database.

**DNINV must be datafilled after TOFCNAME, CUSTHEAD, HNPACONT, LINEATTR, NCOS, OFRT, and TMTCNTL.TREAT.**

**Table DNINV**

| AREACODE | OFCCODE | STNCODE | DNRESULT<br>(DNSEL) | (TRMT) |
|----------|---------|---------|---------------------|--------|
| 214      | 237     | 8931    | D                   | BLDN   |



**Practice 3: Tables related to the dialed number****Instructions:**

Obtain NTP 297-1001-451, and read about Tables TOFCNAME and DNINV or use information presented in the previous section. Match the table name on the left to its purpose on the right. Check your answers with those found in Practice 3 Feedback.

**Table Name****Purpose**1. B TOFCNAMEa. ~~read-only~~ table that contains data for all assigned and unassigned DNs2. A DNINV

b. defines all terminating offices in switch



### **Practice 3 Feedback**

1. b

2. a

# Additional intraswitch tables

## Additional intraswitch tables

Below is a description of several other tables involved in intraswitch dialing:

- HNPACONT
- IBNTREAT
- OFRT
- TMTCNTL

### Table HNPACONT (Home Numbering Plan Area Control)

HNPACONT lists the number of route references and the number of ambiguous codes served by the switch. HNPACONT is the control table for accessing subtables HNPACODE and RTEREF.

In HNPACONT, you will define all ambiguous codes.

Table values include:

- NPA -- identifies your home area code; an entry for your site's NPA is necessary in this table; otherwise, Table TOFCNAME cannot accept tuples containing this same NPA; also known as an STS, or serving translation scheme.
- NORTREFS -- number of route references; enter 2 for the quantity of route reference numbers; field MAXRTE is automatically extended to the highest route index used in subtable RTEREF.
- NOAMBIGC -- number of ambiguous codes (ambiguous codes are NXXs, or station codes that could also be NPAs or area codes).

HNPACONT does not depend on datafill from any other table.

### Table HNPACONT

*Key Field*

| NPA | NORTREFS | NOAMBIGC | RTEREF | HNPACODE | ATTRIB |
|-----|----------|----------|--------|----------|--------|
| 214 | 10       | 0        | ( 4)   | ( 1)     | ( 0)   |

### IBNTREAT (Integrated Business Network Treatment)

As its name implies, this table is sometimes used for call treatments. One example is when the switch cannot find any instructions for a particular call in Table IBNXLA (i.e., it finds neither a tuple that permits the call nor blocks the call). Since the switch must do something with the call, it automatically defaults by looking to this table. Sample treatments are VACT and ANNMEM. Treatments are listed in Table TMTCNTL (Treatment Control).

The key field for IBNTREAT is CUSTGRP plus IBNTRTMT.

CUSTHEAD, CUSTSTN, IBNRTE, and OFRT must be datafilled before IBNTREAT.

#### Table IBNTREAT

Key Field

| <u>CUSTGRP</u> | <u>IBNTRTMT</u> | <u>ITDATA</u> |          |         |
|----------------|-----------------|---------------|----------|---------|
|                |                 | (LOG)         | (RTESEL) |         |
| GRP1           | 0               | Y             | S        | ANNMEM6 |
| GRP1           | 1               | Y             | C        | 8       |
| GRP1           | 2               | Y             | T        | OFRT2   |

Route selectors include the following:

|      |   |                                                             |
|------|---|-------------------------------------------------------------|
| C    | > | attendant console                                           |
| S    | > | treatment in another table (fast busy tone defined in CLLI) |
| T    | > | Tables OFRT or IBNRTE                                       |
| TRMT | > | treatments in Table TMTCNTL                                 |

### Intrastwitch Call Where Instructions In Table IBNXLA Do Not Exist

The following TRAVER provides an example of how a call is processed when a directory number tries to call another extension via five-digit dialing, but the switch cannot find instructions in Table IBNXLA for this call (i.e., to either block or permit the call).

**DN 2373508 calling extension 78930:**

TABLE IBNLINES

HOST 00 0 00 02 DT STN 2373508 GRP1 0 0 214 \$

TABLE NCOS

GRP1 0 0 NCOS0 \$

TABLE CUSTHEAD: CUSTGRP, PRELIMXLA, CUSTXLA,  
FEATXLA, VACTRMT, AND DIGCOL (not seen in TRAVER)

GRP1 NXLA CTN1 FTN1 0 DCN1

TABLE DIGCOL

DCN1 7 COL L 4

NCOS PRELIM XLA name is NIL. Go to next XLA name.

CUST PRELIM XLA name is NIL. Go to next XLA name.

TABLE IBNXLA: XLANAME CTN1

**TUPLE NOT FOUND**

Default is to use **TRMT VACTRMT** from **CUSTHEAD**

TABLE IBNTREAT

GRP1 0 Y S ANNMEM6

**Table TMTCNTL**

When a call is not successfully completed by the switch for some reason, the switch will route the call to a **treatment** by default. The type of treatment that such a call is automatically routed to is dependent on what actually went wrong.

| <b>Reason</b>                                                                                          | <b>Treatment</b>                |
|--------------------------------------------------------------------------------------------------------|---------------------------------|
| 1. A DN was called that has not been assigned to a LEN                                                 | Blank DN (BLDN)                 |
| 2. A DN was called that was call-processing busy                                                       | Busy Line (BUSY)                |
| 3. A subscriber dialed a feature activation code that was not assigned to his DN                       | Feature Not Allowed (FNAL)      |
| 4. A subscriber went offhook but didn't dial any digits before timeout.                                | Permanent Signal Timeout (PSIG) |
| 5. A subscriber went offhook and dialed one or more digits but not enough digits to complete the call. | Partial Dial Timeout (PDIL)     |
| 6. A call experienced distorted signals during dialing or inpulsing.                                   | Reorder (RODR)                  |

Tuples in Table TMTCNTL actually are stored in subtables. Below are three subtables from Table TMTCNTL (there are actually 11; refer to 297-1001-451 for a detailed description):

- subtable LNT (specifies routing for treatments associated with lines);
- subtable TITRKGRP (optional; used in a combined local/toll switch to list treatments for incoming and two-way local trunk groups that differ from treatments in OFFTREAT); and
- subtable OFFTREAT (lists every treatment and provides a common set of treatments for incoming trunks).

Subtable LNT stores those treatments that *lines* are routed to when experiencing problems.

Subtable TITRKGRP stores treatments that incoming *FX* and *tie trunks* can be routed to.

There are other subtables (e.g., for AUTOVON trunks, etc.) that are not covered in this course.

#### Table TMTCNTL

LNT (30)  
 TITRKGRP (30)  
 OFFTREAT (30)

#### Subtable TREAT

| TREATMT | LOG | FSTRTE<br>(FSTRSEL) |
|---------|-----|---------------------|
| BLDN    | Y   | T OFRT 1            |

|                                                    |
|----------------------------------------------------|
| TMTCNTL does not depend on other tables' datafill. |
|----------------------------------------------------|

**Table OFRT**

Often in the TMTCNTL subtables, treatments are sent to *another table* instead of directly to an announcement or tone. This other table's name is OFRT (office route). As the name states, OFRT is a routing table. This table (and its subtable) is used if an originating call is being translated and a preceding stage identifies a route reference index number. The route reference index is defined in HNPACONT.RTEREF or FNPACONT.RTEREF (these tables will be discussed in later lessons) as well as the following list of tables:

- STDPRTCT.STDPRT
- DNROUTE
- TOFCNAME
- CLSVSCRC

Key Field

**Table OFRT**

| RTE | RTELIST                           |
|-----|-----------------------------------|
| 1   | (S D ANNOUNCEMENT1) (S D T120) \$ |

As you can see from the above example, by using Table OFRT, a dialer, upon receiving BLDN treatment, will hear an announcement, followed by a tone (if he doesn't hang up first).

Refer to NTP 297-1001-451 for descriptions of the subfields under RTELIST.



**Practice 4: Additional intraswitch tables**

**Instructions:**

Obtain NTP 297-1001-451, and read about Tables HNPACONT, IBNTREAT, CUSTSTN, CUSTSMR, TMTCNTL, and OFRT or use the information presented in the previous section.

**Part A:** Match the table name on the left to its purpose on the right. Check your answers with those found in Practice 4 Feedback.

| <b>Table Name</b>    | <b>Purpose</b>                                                                                                                                               |
|----------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1. <u>C</u> HNPACONT | a. instead of announcements and tones, treatments from TMTCNTL subtables may send route reference index numbers to this table                                |
| 2. <u>D</u> IBNTREAT | b. treatments are listed in this table                                                                                                                       |
| 3. <u>B</u> TMTCNTL  | c. lists the number of route references and the number of ambiguous codes served by the switch                                                               |
| 4. <u>A</u> OFRT     | d. when the switch cannot find any instructions for a particular call in Table IBNXLA, it sends the call to this table to possibly receive an ANNMEM or VACT |



**Part B:** The following graphics contain sample table entries; answer the questions below the graphics by circling the correct response; check your answers with those found in Practice 4 Feedback.

5.

| TABLE: IBNTREAT |          |        |          |         |
|-----------------|----------|--------|----------|---------|
| CUSTGRP         | IBNTREAT | ITDATA |          |         |
|                 |          | (LOG)  | (RTESEL) |         |
| GRP1            | 0        | Y      | S        | ANNMEM6 |
| GRP1            | 1        | Y      | C        | 8       |
| GRP1            | 2        | Y      | T        | OFRT 2  |

Given the tuples above, which treatment routes the call to a CLLI?

a. 0  
b. 1  
c. 2

500130  
080891

6.

| TABLE: IBNTREAT |          |        |          |         |
|-----------------|----------|--------|----------|---------|
| CUSTGRP         | IBNTREAT | ITDATA |          |         |
|                 |          | (LOG)  | (RTESEL) |         |
| GRP1            | 0        | Y      | S        | ANNMEM6 |
| GRP1            | 1        | Y      | C        | 8       |
| GRP1            | 2        | Y      | T        | OFRT 2  |

Given the tuples above, which selector tells the switch to route the call to another table?

- S
- C
- T

500131  
080891

7. The treatment in Table IBNTREAT used for a call is determined by \_\_\_\_\_.

- The route reference number in Table TMTCNL
- The treatment specified in Subtable OFFTREAT
- The value of VACTRMT in Table CUSTHEAD

8. Subtable LNT is subtable of TmTCNTL\_\_\_\_\_.

## Practice 4 Feedback

### Part A

1. c
2. d
3. b
4. a

### Part B

5. The correct response is a; the S in the RTESEL column refers to CLI.
6. Your response should be choice number c. In the field "RTESEL" (route selector), value T routes the call to another table.
7. c
8. TMTCNTL

---

# TRAVER analysis

---

## Introduction

There are 4 sample TRAVERs in this section. For each TRAVER, you will be presented with several paragraphs that explain what the TRAVER is depicting.

**TRAVER 1**

TRAVER L **3343556** 44442 B

1 TABLE IBNLINES

HOST 00 0 07 29 DP STN **3343556** GRP1 0 0 804 \$

2 TABLE NCOS

**GRP1 0 0 0** NCOS0 \$

3 TABLE CUSTHEAD: CUSTGRP, PRELIMXLA, CUSTXLA,

4 FEATXLA, VACTRMT, AND DIGCOL

**GRP1 NXLA CTN1 FTN1 0 DCN1**

5 TABLE DIGCOL

▶ **DCN1 4 COL L 4**

NCOS PRELIM XLA name is NIL. Go to next XLA name.

CUST PRELIM XLA name is NIL. Go to next XLA name.

6 TABLE IBNXLA: XLANAME CTN1

▶ **CTN1 4 EXTN N Y Y 804 334 5 \$**

7 TABLE TOFCNAME

**804 334**

8 TABLE DNINV

**804 334 4442 L** HOST 00 0 07 30

+++ TRAVER: SUCCESSFUL CALL TRACE +++

---

In this TRAVER, DN3343556 makes an extension call to 44442.

Table INBLINES provides information about the dialing number. The switch sees that this originator has been assigned to customer group, GRP1 and NCOS 0.

The call then proceeds to Table NCOS where the customer group name and NCOS are indexed.

In Table CUSTHEAD, the switch needs to identify the customer translator. The switch sees that GRP1 owns customer translator CTN1 (as well as other translator names) and the digit collection name is identified.

Table DIGCOL picks up the digit collection name, DCN1, from CUSTHEAD, and uses it to tell the CPU to collect 4 digits (it also tells it to collect (COL), the digits within a long (L) period of time.

The switch now proceeds to IBNXLA to find the tuple that begins with CTN1 and the leading digit that was dialed (4). Here IBNXLA recognizes the leading digit of 4, identifies the EXTN treatment selector, identifies the NPA (804), the NXX (334), the number of digits in the extension (5), and determines that there are no filler digits.

With this information in hand, the switch goes to TOFCNAME with the area code (NPA) and office code (NXX) from IBNXLA and verifies that this switch covers those codes in TOFCNAME.

The switch now proceeds to DNINV to identify the NPA, NXX and the station code, 4442, as the dialed digits. The call completes as an extension call.

**TRAVER 2**

```

TRAVER L 3344442 1275 B
1 TABLE IBNLINES
HOST 00 0 07 30 DP STN 3344442 GRP1 0 1 804 HLD $
2 TABLE NCOS
GRP1 1 0 0 NCOS 1 $
3 TABLE CUSTHEAD: CUSTGRP, PRELIMXLA, CUSTXLA,
FEATXLA, VACTRMT, AND DIGCOL
GRP1 NXLA CTN1 FTN1 0 DCN1
4 TABLE DIGCOL
TUPLE NOT FOUND
Default is RPT Report digits as Dialed
NCOS PRELIM XLA name is NIL. Go to next XLA name.
5 TABLE IBNXLA: XLANAME CTN1
CTN1 12 STAR
NCOS FEAT XLA name is NIL. Go to next XLA name.
6 TABLE IBNXLA: XLANAME FTN1
FTN1 75 FEAT N N HLD

```

+++ TRAVER: SUCCESSFUL CALL TRACE +++

The translations process is similar to the previous example until DIGCOL indicates that a tuple is not found; the default, as indicated, is to report each digit as it comes in rather than a collecting the digits.

The switch then looks to Table IBNXLA for a customer translator with leading digits of 12; consequently it sees that 12 is given the treatment selector of STAR; the switch then looks at the feature translator in IBNXLA to identify the feature. In this case, the feature is permanent hold.



**TRAVER 3**

```

TRAVER L 3343556 0 B
1 TABLE IBNLINES
 HOST 00 0 07 29 DP STN 3343556 GRP1 0 0 804 $
2 TABLE NCOS
 GRP1 0 0 0 NCOS 0 $
3 TABLE CUSTHEAD: CUSTGRP, PRELIMXLA, CUSTXLA
 FEATXLA, VACTRMT, AND DIGCOL
 GRP1 NXLA CTN1 FTN1 0 DCN1
4 TABLE DIGCOL
 DCN1 0 RPT
 NCOS PRELIM XLA name is NIL. Go to next XLA name.
 CUST PRELIM XLA name is NIL. Go to next XLA name.
5 TABLE IBNXLA: XLANAME CTN1
 CTN1 0 ATT 1
 Call routed to ATTENDANT CONSOLE:
 GRP1 SUBGRP: 0 ICI: 1

```

+++ TRAVER: SUCCESSFUL CALL TRACE +++

The translations process in TRAVER 3 is similar to the previous example.

The switch then looks to Table IBNXLA for a customer translator with a leading digits of 0; consequently it sees that 0 is given the treatment selector of ATT. The call is completed to the attendant. You'll notice that in IBNXLA, once the treatment selector is set at ATT, the ICI code is prompted (1 in IBNXLA). ICI stands for Incoming Call Identifier; this is identifying what key will light up on the attendant console.

**TRAYER 4**

```
TRAYER L 3344442 113 B
1 TABLE IBNLINES
 HOST 00 0 07 30 DP STN 3344442 GRP1 0 1 804 $
2 TABLE NCOS
 GRP1 1 0 0 NCOS 1 $
3 TABLE CUSTHEAD: CUSTGRP, PRELIMXLA, CUSTXLA,
 FEATXLA, VACTRMT, AND DIGCOL
 GRP1 NXLA CTN1 FTN1 0 DCN1
4 TABLE DIGCOL
 DCN1 1 COL L 2
 NCOS PRELIM XLA name is NIL. Go to next XLA name.
 CUST PRELIM XLA name is NIL. Go to next XLA name.
5 TABLE IBNXLA: XLANAME CTN1
 CTN1 113 ATT 63
 Call routed to ATTENDANT CONSOLE:
 GRP1 SUBGRP: 0 ICI: 63
```

+++ TRAYER: SUCCESSFUL CALL TRACE +++

In DIGCOL, you'll notice that the switch is prompted to collect the digits rather than report them; this is due to the fact that a 1 was dialed (within 113). If DIGCOL reported the digits, the switch would have begun the process of long distance dialing translation. Once the remainder of the digits were dialed (13), the switch would have realized the error.

The switch then looks to IBNXLA for a customer translator of CTN1, identified in CUSTHEAD, with leading digits of 113. IBNXLA shows that this call is given a treatment selector of ATT with ICI code of 63.

## Practice 5: Tuple interaction and TRAVER analysis

### Situation:

As a database or trouble-desk technician, you have received the following printed TRAVERs. You have been asked to locate the problem and then indicate how to correct the datafill errors.

### Instructions:

#### Part A

1. Read through the TRAVER.
2. Access any NTP you may need.
3. If necessary, review the tables used in this lesson.
4. Indicate what is causing the problem as well as what can be done to correct the problem.
5. Compare your answers with those found in Practice 5 Feedback; discuss any differences with your instructor or colleague.



**TRAYER 1**

TRAYER L 3343556 44443 T

1 TABLE IBNLINES

HOST 01 0 01 20 DP STN 3343556 GRP1 0 0 804 \$

2 TABLE NCOS

GRP1 0 0 0 NCOS0 \$

3 TABLE CUSTHEAD: CUSTGRP, PRELIMXLA, CUSTXLA

FEATXLA, VACTRMT, AND DIGCOL

GRP1 NXLA CTN1 FTN1 0 DCN1

4 TABLE DIGCOL

DCN1 4 COL L 4

NCOS PRELIM XLA name is NIL. Go to next XLA name.

CUST PRELIM XLA name is NIL. Go to next XLA name.

5 TABLE IBNXLA: XLANAME CTN1

CTN1 4 EXTN N Y N 804 334 5 \$

6 TABLE TOFCNAME

804 334

7 TABLE DNINV

804 334 4443 D BLDN

+++ TRAYER: SOFTWARE FAILURE +++

a. What is causing the problem? 804 334 4443 is  
BLDN

b. What should be done to correct the problem?  
go to SO nld 804 334 4443

**TRAVER 2**

TRAVER L 3343556 46556 T  
 TABLE IBNLINES  
 HOST 01 0 01 20 DP STN 3343556 GRP1 0 0 804 \$  
 TABLE NCOS  
GRP1 0 0 0 NCOS0 \$  
 TABLE CUSTHEAD: CUSTGRP, PRELIMXLA, CUSTXLA  
 FEATXLA, VACTRMT, AND DIGCOL  
GRP1 NXLA CTN1 FTN1 0 DCN1  
 TABLE DIGCOL  
DCN1 4 COL L 4  
 NCOS PRELIM XLA name is NIL. Go to next XLA name.  
 CUST PRELIM XLA name is NIL. Go to next XLA name.  
 TABLE IBNXLA: XLANAME CTN1  
CTN1 4 EXTN N Y N 804 334 5 \$  
 TABLE TOFCNAME ←  
 TUPLE NOT FOUND

+++ TRAVER: CALL TRACE TERMINATED DUE TO DATA  
 TROUBLE +++

- a. What is causing the problem? 804 334 Does not appear  
in Table TOFCNAME
- b. What should be done to correct the problem? Create Tuple  
in TOFLOWARE with area code and OFFICE Code

**TRAVER 3**

TRAVER L 3343556 44442 B  
 TABLE IBNLINES  
 HOST 00 0 07 29 DP STN 3343556 GRP1 0 0 804 \$  
 TABLE NCOS  
GRP1 0 0 0 NCOS0 \$  
 TABLE CUSTHEAD: CUSTGRP, PRELIMXLA, CUSTXLA  
 FEATXLA, VACTRMT, AND DIGCOL  
 GRP1 NXLA CTN1 FTN1 0 DCN1  
 TABLE DIGCOL  
DCN1 4 COL L 4  
 NCOS PRELIM XLA name is NIL. Go to next XLA name.  
 CUST PRELIM XLA name is NIL. Go to next XLA name.  
 TABLE IBNXLA: XLANAME CTN1  
 CTN1 4 EXTN N Y N 804 334 5 \$  
 TABLE TOFCNAME  
 804 334  
 TABLE DNINV  
 TUPLE NOT FOUND  
  
 +++ TRAVER: CALL TRACE TERMINATED DUE TO DATA  
 TROUBLE +++

a. What is causing the problem? No Tuple in DNINV

---

b. What should be done to correct the problem? Create

804 334 4442 IN S.O

**TRAVER 4**

TRAVER L 3345443 43556 B  
 TABLE IBNLINES  
 HOST 00 0 07 31 DP STN 3345443 GRP1 0 2 804 \$  
 TABLE NCOS  
GRP1 2 0 0 NCOS2 ( XLAS PTN1 NXLA NDGT) \$  
 TABLE CUSTHEAD: CUSTGRP, PRELIMXLA, CUSTXLA  
 FEATXLA, VACTRMT, AND DIGCOL  
GRP1 NXLA CTN1 FTN1 0 DCN1  
 TABLE DIGCOL  
DCN1 4 COL L 4  
 TABLE IBNXLA: XLANAME PTN1  
 PTN1 4 TRMT VACT *← EXT*  
 TABLE TMTCNTL  
 LNT ( 27)  
 • SUBTABLE TREAT  
 • VACT N T OFRT 14  
 • TABLE OFRT  
 • 14 S D ANNMEM10  
 • S D IDLE  
 • EXIT TABLE OFRT

+++ TRAVER: SUCCESSFUL CALL TRACE +++

a. Assuming you want the call to go through, what is causing the problem?

TABLE IBNXLA HAS VACT TREATMENT

b. What should be done to correct the problem? Change

IBNXLA TO PTN1 4 TRMT EXT.

**TRAVER 5**

```

TRAVER L 3343556 44442 B
TABLE IBNLINES
HOST 00 0 07 29 DP STN 3343556 GRP1 0 0 804 $
TABLE NCOS
GRP1 0 0 0 NCOS0 $
TABLE CUSTHEAD: CUSTGRP, PRELIMXLA, CUSTXLA
FEATXLA, VACTRMT, AND DIGCOL
GRP1 NXLA CTN1 FTN1 0 DCN1
TABLE DIGCOL
DCN1 4 COL L 4
NCOS PRELIM XLA name is NIL. Go to next XLA name.
CUST PRELIM XLA name is NIL. Go to next XLA name.
TABLE IBNXLA: XLANAME CTN1
TUPLE NOT FOUND
Default is to use TRMT VACTRMT from CUSTHEAD
TABLE IBNTREAT
GRP1 0 Y S ANNMEM6

```

+++ TRAVER: SUCCESSFUL CALL TRACE +++

a. What is causing the problem? No Tuple in  
IBNXLA

b. What should be done to correct the problem? Add tuple in  
IBNXLA CTN 1 4 FTN



**Part B**

Each TRAVER graphic below has a corresponding question; indicate your answer by circling the correct response. Compare your answers with those found in Practice 5 Feedback.

6.

```
TRAVER L 2373508 78930 T
TABLE INBLINES
HOST 00 0 00 29 DT STN 2373508 GRP1 0 0 214 $
TABLE NCOS
GRP1 0 0 NCOS0 $
TABLE CUSTHEAD: CUSTGRP, PRELIMXLA, CUSTXLA, FEATXLA, VACTRMT, AND
DIGCOL
GRP1 NXLA CTN1 FTN1 0 DCN1
TABLE DIGCOL
DCN1 7 COL L 4
NCOS PRELIM XLA name is NIL. Go to next XLA name.
CUST PRELIM XLA name is NIL. Go to next XLA name.
TABLE IBNXLA: XLANAME CTN1
CTN1 7 EXTN Y Y N 214 237 5 $
TABLE TOFCNAME
214 237
TABLE DNINV
214 237 8930 L HOST 00 0 0 28
```

For this TRAVER, what does the switch look for in Table INBLINES?

- a. The caller's DN
- b. The caller's NCOS
- c. The caller's CUSTGRP name
- d. All of the above

500126  
080891

7.

TRAVEL 2373508 78930 T  
TABLE IBNLINES  
HOST 00 0 00 29 DT STN 2373508 GRP1 0 0 214 \$  
TABLE NCOS  
GRP1 0 0 NCOS0 \$  
TABLE CUSTHEAD: CUSTGRP, PRELIMXLA, CUSTXLA, FEATXLA, VACTRMT, AND  
DIGCOL  
GRP1 NXLA CTN1 FTN1 0 DCN1  
TABLE DIGCOL  
DCN1 7 COL L 4  
NCOS PRELIM XLA name is NIL. Go to next XLA name.  
CUST PRELIM XLA name is NIL. Go to next XLA name.  
TABLE IBNXLA: XLANAME CTN1  
CTN1 7 EXTN Y Y N 214 237 5 \$  
TABLE TOFCNAME  
214 237  
TABLE DNINV  
214 237 8930 L HOST 00 0 0 28

What is the CUSTXLA used for in this call?

- a. To carry out instructions in Table IBNXLA.
- b. To provide digit collection data in Table DIGCOL.
- c. To position on TOFCNAME's tuple.

500128  
080891

8.

```
TRAVER 3345443 43556 B
TABLE IBNLINES
HOST 00 0 07 31 DP STN 3345443 GRP1 0 2 804 $
TABLE NCOS
GRP1 2 0 0 NCOS2 (XLAS PTN1 NXLA NDGT) $
TABLE CUSTHEAD: CUSTGRP, PRELIMXLA, CUSTXLA, FEATXLA, VACTRMT, AND DIGCOL
GRP1 NXLA CTN1 FTN1 0 DCN1
TABLE DIGCOL
DCN1 4 COL I 4
TABLE IBNXLA: XLANAME PTN1
PTN1 4 TRMT VACT
TABLE TMTCTL
LNT (27)
• SUBTABLE TREAT
• VACT N T OFRT 14
• TABLE OFRT
• 14 S D ANNMEM10
• S D IDLE
• EXIT TABLE OFRT
```

Which tuple in this TRAVER sends the call to the Treatment Control Table?

- a. PTN1 4 TRMT VACT
- b. DCN1 4 COL L 4
- c. LNT (27)
- d. VACT N T OFRT 14

500143a  
081291

**Practice 5 Feedback****Part A**

1. The tuple in DNINV contains BLDN; for this call to go through successfully, you would have to go into SERVORD to new the phone into service.
2. There is no tuple in TOFCNAME; a tuple would need to be entered in TOFCNAME that would allow the area code and office code, 804 334, to be indexed.
3. There is no tuple in DNINV; a tuple would have to be added for 804 334 4442 by newing the phone into service using SERVORD.
4. A 5-digit extension call was dialed; however, once the switch got to IBNXLA saw the TRMT selector, the call went to Table TRMTCNTL which indicated an announcement. The tuple in IBNXLA would have to be changed if possible (PTN1 4 EXTN...).
5. Once the switch got to IBNXLA, it saw no tuple. As a result, the call was routed to IBNTREAT via the VACTREAT in CUSTHEAD. In IBNTREAT, the call was sent to an announcement. To remedy this situation, a tuple would have to be added to IBNXLA (CTN1 4 EXTN...).

**Part B**

6. The correct answer to this is choice d. The DN, NCOS and CUSTGRP name are all used in IBNLINES. From IBNLINES, NCOS and CUSTRGRP fields are used to point down to Table NCOS.  
Remember: the second zero (0) after GRP1 is the NCOS; the first zero (0) is the subgroup number.
7. The answer is choice number a. Customer translators are given a name in Table CUSTHEAD and then used, along with the leading digit dialed (in this case 7) to position on the leading digit in Table IBNXLA.
8. The correct answer is choice number a. Table IBNXLA's tuple indicates that preliminary translator 1 (PTN1) with a leading digit of 4 is to be sent to treatment.

# Sample forms

---

## Introduction

Before you proceed to the customer database development for intraswitch dialing, refer to tabs 11 and 12 to review customer data questionnaire (Appendix A) and sample datafill forms (Appendix B).



## Practice 6: Intraswitch dialing

### Situation:

Your supervisor has given you the information required to modify the database and has requested that you complete all necessary forms and input the changes to the customer database that will allow the customer to have intraswitch dialing and restrictions associated with the various NCOSs. You have been given until the end of your shift to finish the project, and have been instructed to run hard copy of the TRAVERs supporting the features. You will have another associate working with you, but the person has only a little more experience than you. Your supervisor will check the hard copy TRAVER examples of the inputted database and completed forms to ensure all of the conditions have been successfully supported.

### Instructions:

Your task is to correctly datafill the appropriate tables to support intraswitch dialing in a Meridian 1 Options 111-211.

- Complete strategy sheets for translators.
  - Translator Strategy Sheet. Look at your dialing plan in the Database Questionnaire (especially the NCOS matrix) and plan your strategy for using translators on the Translator Strategy Sheet.
  - The following pages contain the NCOS matrix and Translator Strategy Sheet. The NCOS matrix contains information pertaining to 3 different NCOSs. Different NCOSs have different dialing plans. From the NCOS matrix, you will then define the various customer, feature and octothorpe translators.
- **Fill out one form for each table** that is listed on the following pages using the appropriate NTPs and information provided as references.



Figure 4  
NCOS matrix

| NCOS MATRIX                        |                           |                         |                            |              |              |                         |                                      |                             |  |  |  |             |
|------------------------------------|---------------------------|-------------------------|----------------------------|--------------|--------------|-------------------------|--------------------------------------|-----------------------------|--|--|--|-------------|
| CUSTOMER GROUP NAME: GRP <u>10</u> |                           |                         |                            |              |              |                         |                                      |                             |  |  |  |             |
| NCOS NUMBER                        | POSSIBLE DIALING PATTERNS |                         |                            |              | FEATURE INFO |                         |                                      | ADDITIONAL INFORMATION      |  |  |  |             |
|                                    | STN - STN                 | DIAL 0 (ATT)<br>(ICI=1) | ATT INFO (113)<br>(ICI=63) | * EQUIV (12) | # EQUIV (13) | RING AGAIN<br>(RAG) *76 | Executive Busy<br>Override (EBO) #76 | PERMANENT HOLD<br>(HLD) *75 |  |  |  |             |
| 0                                  | X                         | X                       | X                          | X            | X            | X                       | X                                    | X                           |  |  |  | PRESIDENT   |
| 1                                  | X                         | X                       | X                          | X            | X            | X                       | X                                    | X                           |  |  |  | SECRETARIES |
| 2                                  | B                         | X                       | X                          | X            | X            | X                       | X                                    | X                           |  |  |  | JANITORS    |
|                                    | ←                         |                         |                            |              |              |                         |                                      |                             |  |  |  |             |

500069a  
090991

PTN-10



**Figure 5**  
**Translator strategy sheet**

**TRANSLATOR STRATEGY SHEET**

(IBNXLA)

| Who (majority or specific NCOS) gets what dialing privileges or restrictions: |           | Translator name (CTN, PTN, FTN) you will use in Table IBNXLA to give it to them. | In Table IBNXLA:                                 |                                                                                       | What table tells me who "owns" this translator name? |
|-------------------------------------------------------------------------------|-----------|----------------------------------------------------------------------------------|--------------------------------------------------|---------------------------------------------------------------------------------------|------------------------------------------------------|
| Who?                                                                          | What?     |                                                                                  | (1) What digit(s) will this translator focus on? | (2) What will be the "instructions" (i.e., TRSEL). e.g., EXTN, ATT, TRMT, NET, etc. ? |                                                      |
|                                                                               |           |                                                                                  |                                                  | Tuple entered <input checked="" type="checkbox"/>                                     |                                                      |
| Majority                                                                      | STN - STM | CTN - 3                                                                          | EXTN                                             | N Y Y 438 708 5                                                                       | \$                                                   |
|                                                                               | 0         | CTN 0                                                                            | ATT                                              | ICI - 1                                                                               |                                                      |
|                                                                               | INFO      | CTN 113                                                                          | ATT                                              | ICI - 63                                                                              |                                                      |
|                                                                               | *         | CTN 12                                                                           | STAR                                             |                                                                                       |                                                      |
|                                                                               | OCT       | CTN 13                                                                           | OCT                                              |                                                                                       |                                                      |
|                                                                               | RAG       | FTN 76                                                                           | FEAT                                             | RAG                                                                                   |                                                      |
|                                                                               | EBD       | OCT 76                                                                           | FEAT                                             | EBD                                                                                   |                                                      |
|                                                                               | Hold      | FTN 75                                                                           | FEAT                                             | HLD                                                                                   |                                                      |
|                                                                               |           |                                                                                  |                                                  |                                                                                       |                                                      |
|                                                                               |           |                                                                                  |                                                  |                                                                                       |                                                      |
|                                                                               |           |                                                                                  |                                                  |                                                                                       |                                                      |
| Only NCOS 0                                                                   |           |                                                                                  |                                                  |                                                                                       |                                                      |
|                                                                               |           |                                                                                  |                                                  |                                                                                       |                                                      |
|                                                                               |           |                                                                                  |                                                  |                                                                                       |                                                      |
| Only NCOS 1                                                                   |           |                                                                                  |                                                  |                                                                                       |                                                      |
|                                                                               |           |                                                                                  |                                                  |                                                                                       |                                                      |
|                                                                               |           |                                                                                  |                                                  |                                                                                       |                                                      |
| Only NCOS 2                                                                   | STA - STA | PTN 3                                                                            | TRMT                                             | VACT                                                                                  |                                                      |
|                                                                               |           |                                                                                  |                                                  |                                                                                       |                                                      |
|                                                                               |           |                                                                                  |                                                  |                                                                                       |                                                      |

Table NCOS

500015b  
011591

The following table not only shows what tables are involved in intraswitch dialing but also the order in which these tables should be datafilled.

**Table 2-1**  
**Tables in order of datafill**

|                |
|----------------|
| ✓(1) XLANAME   |
| ✓(2) DIGCOL    |
| ✓(3) CUSTENG   |
| ✓(4) NCOS      |
| ✓(5) CUSTHEAD  |
| ✓(6) CUSTSTN   |
| (7) CUSTSMR    |
| ✓(8) TOFCNAME  |
| ✓(9) HNPACONT  |
| ✓(10) IBNTREAT |
| (11) IBNXLA    |

---

**Table XLANAME**

- Give your translator names "birth certificates" by listing them on this form. Obtain the following data from your information booklet:
  - CTN<sub>10</sub>
  - PTN<sub>10</sub>
  - FTN<sub>10</sub>
  - OCT<sub>10</sub>

**Table DIGCOL**

- **LEADING DIGIT ASSIGNMENT** -- Identify how each of the following leading digits will be used

✓ 0 DEN 10 0

✓ 113 DEN 10 1 COL S 2

✓ \*75 DEN 10 \* COL S 2

- \*76

✓ #76 DEN 10 # COL S 2

~~3XXN~~ DEN 10 3 COL L 4

---

**Table CUSTENG**

- Give your Customer Group Name a "birth certificate" by listing it in this table.
- Obtain information from your information sheet:
  - ✓ Number of NCOSs is 3.
  - ✓ Number of IBN treatments is 63.
  - ✓ Answer Y to consoles.
  - ✓ No to master console.
  - ✓ The domain is public.
  - ✓ GROUP ID is 0.
  - ✓ Assign no options.

**Table NCOS**

- Add one tuple for **each NCOS**, assigning it a name (which will appear on the console's KLD; use name "NCOS0" for NCOS0, "NCOS1" for NCOS1, etc.), and a PRELMXLA if it needs one. Check your Translator Strategy Sheet.
- Remember, you don't have to input a FETXLA or DGCOLNM just because it may prompt you for one.

|       |   |       |   |   |                              |
|-------|---|-------|---|---|------------------------------|
| GRP10 | 0 | NCOS0 | 0 | 0 | (XLAS NYLA NXLA N10GT)       |
| GRP10 | 1 | NCOS1 | 0 | 0 | \$                           |
| GRP10 | 2 | NCOS2 | 0 | 0 | (XLAS PTN3 NXLA N10GT)<br>\$ |

**Table CUSTHEAD**

- In this table, enter the names (e.g., CUSTXLA, FETXLA, OCTXLA, and DGCOLNM) that every phone in your Customer Group can use.
- Treatment number = 8.

GRP10 CTN10 DCN10 Nil  
(FETXLA FTX10)(OCTXLA OCT10)(VACANT 8) \$

**Table CUSTSTN**

- Define the timing parameters for the station features.
- OPTION = RAGTIM
  - RAGRECTO = 18
  - RAGCANTO = 0
- OPTION = PHOLD
  - HLDTIME = 60
  - PHOLDOPT = HLDRCL (No), HLDREM (Yes)
  - ANNMUSIC = No
- OPTION = CXFER (refer to Lesson 100322, Customer groups, translators, and NCOSs for sample)

|       |        |        |         |        |   |
|-------|--------|--------|---------|--------|---|
| GRP10 | RAGTIM | RAGTIM | 18      | 0      |   |
| GRP10 | PHOLD  | PHOLD  | PHOLD60 | HLDREM | N |
| GRP10 | EBOM   |        | EBOM    |        |   |



---

**Table CUSTSMR**

- SMDR should provide a record of calls which are not answered. The time after which the call will be pegged should be 48 seconds. Remember, the parameter for this field is input in four second increments; therefore, input 12 (ANSTIM).
- OPTION = RNA

GP10            2            (RNA) (ANSTIM 12) \$

**Table HNPACONT**

- Verify that your NPA is in the switch.

**Table TOFCNAME - 708 463**

- Verify that your NPA is in the switch.

---

**Table IBNTREAT**

- Position on same treatment as entered in CUSTHEAD
- An announcement treatment should be given to all digits not identified in Table IBNXLA via any translator name.
  - LOG = Y
  - RTESEL (recall from discussion that RTESEL options are C, S, T, etc.; in this case, you are sending the call to Table CLLI)
  - CLLI name = BLDNANN

GRP10    8    Y    S            BLDNANN

**Table IBNXLA**

Remember to use the following database information for selected instructions (EXTN, FEAT, NET, etc.)

**EXTN**

- ✦ SMDR is required for station to station calls.
- ✦ VCDR is not required for station to station calls.
- ✦ INTRAGRP is allowed for station to station calls.
- ✦ Number of digits in the extension number is 5.
- ✦ No filler digits are needed.

**FEAT**

- HLD   \*75
- RAG   \*76
- EBO   #76
- Account codes won't be used.
- SMDR is required for feature calls.

**ATT**

- Refer back to the NCOS matrix sheet for the ICI assignments (incoming Call identifiers) for the 2 attendant calls today.

**TRMT**

- Refer back to your Translator Strategy Sheet and use the treatment (i.e., BLDN) you have chosen for blocking particular digits in Table IBNXLA.

|        |     |      |   |   |   |     |     |    |      |
|--------|-----|------|---|---|---|-----|-----|----|------|
| CTN10  | 3   | EXTN | N | Y | Y | 708 | 483 | 4  | \$   |
| CTN10  | 0   | ATT  |   |   |   |     |     | 1  |      |
| CTN 10 | 113 | ATT  |   |   |   |     |     | 63 |      |
| CTN 10 | 12  | STAR |   |   |   |     |     |    |      |
| CTN 10 | 13  | OCT  |   |   |   |     |     |    |      |
| FTN 10 | 76  | FEAT | N | Y | N |     |     |    | RAG  |
| OCT 10 | 76  | FEAT | N | Y | N |     |     |    | E0B  |
| FTN 10 | 75  | FEAT | N | Y | N |     |     |    | HLD  |
| PTN 10 | 3   | TRMT |   |   |   |     |     |    | UACT |

## SERVORD Subsystem

You are now ready to go into the SERVORD (Service Order) subsystem to place each phone into service, using the appropriate information (e.g., options, subgroup, NCOS, etc.) listed in Table 1 below. Remember, this will datafill IBNLINES/KSETLINES dynamically.

**Table 1**  
**Table for putting phones into service**

| NCOS | DNs<br>(NXX from info<br>sheet) | Options<br>Assigned to<br>This DN | Subgrp | LENs        |
|------|---------------------------------|-----------------------------------|--------|-------------|
| 0    | <u>483</u> -3556                | DGT, RAG,<br>HLD, EBO             | 0      | <u>0071</u> |
| 1    | <u>483</u> 4442                 | DGT, RAG,<br>HLD, EBO             | 0      | <u>0141</u> |
| 2    | <u>483</u> 5443                 | DGT, RAG,<br>HLD, EBO             | 0      | <u>0061</u> |

## Invoke TRAVERS

Your task is to run TRAVERS to verify the datafill that you performed. You will now want to test your database to see if you have entered it correctly. Testing will consist of running TRAVERS. If a TRAVER does not work correctly, troubleshoot it by analyzing the information that the TRAVER gives you. Correct your mistake in the appropriate table and TRAVER the call again. You may also verify your datafill by performing the phone calls described below.

**Table 2**  
**Table for verification of datafill**

| Condition                                                                                | Allowed? | TRAVER |
|------------------------------------------------------------------------------------------|----------|--------|
| 1 NCOS0 dialing NCOS1 via EXTN dialing.<br>TRAVER L <u>483 3556</u> <u>3 4442</u> T      | Yes      |        |
| 2 NCS0 dialing 0 for the attendant.<br>TRAVER L <u>483 3556</u> 0 T                      | Yes      |        |
| 3 NCOS0 activating the Ring Again feature.<br>TRAVER L <u>483 3556</u> <u>1276</u> T     | Yes      |        |
| 4 NCOS1 dialing NCOS0 via EXTN dialing.<br>TRAVER L <u>483 4442</u> <u>3 3556</u> T      | Yes      |        |
| 5 NCOS1 dialing the attendant for information.<br>TRAVER L <u>483 4442</u> <u>113</u> T  | Yes      |        |
| 6 NCOS1 activating the Permanent Hold feature.<br>TRAVER L <u>483 4442</u> <u>1275</u> T | Yes      |        |
| 7 NCOS2 dialing NCOS0 via EXTN dialing.<br>TRAVER L <u>483 5443</u> <u>3 556</u> T       | No       |        |
| 8 NCOS2 activating the EBO feature.<br>TRAVER L <u>483 5443</u> <u>1376</u> T            | Yes      |        |

## IntraSwitch Dialing

### ORIG. NUMBER

TABLE 35-70 Custhead - Defines Param. for Cust Grep

Pg 6-70 NCOS - Assigns info to a Network COS

Pg 7-70 IBNLines - Assigns Information to a line for Single line

Pg 8-70 K SET Lines - Assigns Information to a line for MLI

### ORIG, TERM NUMBER

TABLE 14-70 Digcol - Define dialed digits collected (USES PP)  
(USE Selector RPT & COL)

S = Short, IF Collecting 1-3 digits - 4 Seconds between digits

L = Long, IF Collecting 4 or more digits 10 Second wait between digits

Selector - RPT: Report digits individually as they are dialed

Selector - COL: indicates that the CPU should collect a specified number of digits within a determined amount of time

Pg 15-70 IBNXLA - Tells CPU what to do with calls dialed.

Key XName + Lead Digit

### TR Selector FOR IBNXLA

EXTN

TRMT

ATT

STAR

OCT

E-T





## Intra Switch Dialing

### Tables Relating to Dialed Numbers

Table  
Pg 23-70

TERMINAME - Defines all terminating offices in the switch. (NPA, NXX)

(Terminator)

DMINV - Contains Data for All assigned and unassigned Directory Numbers. (Assigned in Servord)

### Additional Intra Switch Tables.

Table  
Pg 27-70 HNPACONT - Lists Number of Route Refs And Number of Ambig Codes.

(Key Field NPA)

Pg- 28-70 IBNTRTAT - Used for Call Treatments. When Switch Cant Find IBNXX

(Key Field CustGRP, IBNTRTMT)

Selections S = Send to CUI

C = Console

T = Table office Route, IBN Route

Pg- 30-70 TMICNTL when a call is not successfully completed.

Switch routes call to a treatment.

Reasons - Blank DN (BLDN) No assigned to a LCN

Busy Line (BUSY) A DN Called that's Call Process Busy.

Feature Not Allowed (FNAL) A Feature Activation Code No Valid

Permitted Signal Timeout (PSTG) Subscriber goes off Hook and didnt Dial

Partial dial Timeout (PDIL) Subscriber doesn't Dial enough Digits to  
complete call

Reorder (RODR) experienced distorted signals during dialing



## Intra Switch Dialing.

Additional Intra Switch Tables.

TABLE

OFRT - Routing TABLE

(Key Field RTE)

A Caller can be sent to more than  
one Treatment



00

Network  
DOD  
Dialing

DIVINE  
DAD  
MILMOR

88

|                                                     |
|-----------------------------------------------------|
| <b>Sign-off</b><br>Colleague<br>> <b>Instructor</b> |
|-----------------------------------------------------|



**100324**

---

## **Network DOD dialing, 6-digit screening, and 0-minus dialing**

---

### **Why this lesson is important**

Once a customer group has intraswitch dialing capabilities, it will more than likely need to dial out to the public network, use a foreign exchange trunk for a specific exchange in a different area code, and request selected NCOSs to dial operator calls. This lesson introduces you to network dialing, 6-digit screening and 0-minus dialing.

### **Objective**

Given a logged on terminal, site specific information, and appropriate documentation:

- datafill tables appropriate to intraswitch dialing, network DOD dialing, 6-digit screening, and 0-minus dialing;
- invoke TRAVERs to verify datafill; and
- analyze and explain tuple and table interaction to classmates and/or instructor.

If your TRAVERs are unsuccessful, identify and correct the datafill error and run the TRAVER again. You may also verify your datafill by making telephone calls.

**What to do**

1. Read Lesson 100324: Network DOD dialing, 6-digit screening, and 0-minus dialing.
2. Work through the lesson including all of the practices.
3. There is no skill check for this lesson; your completed practices will serve as your skill checks; be prepared to explain the TRAVERs to your instructor or to the class.
4. Have the instructor sign off on this lesson.

**What resources to use**

| <b>Resources</b>                            | <b>Resource number</b> |
|---------------------------------------------|------------------------|
| Customer Data Schema                        | NTP 297-1001-451       |
| Meridian Digital Centrex Translations Guide | NTP 297-1001-351       |



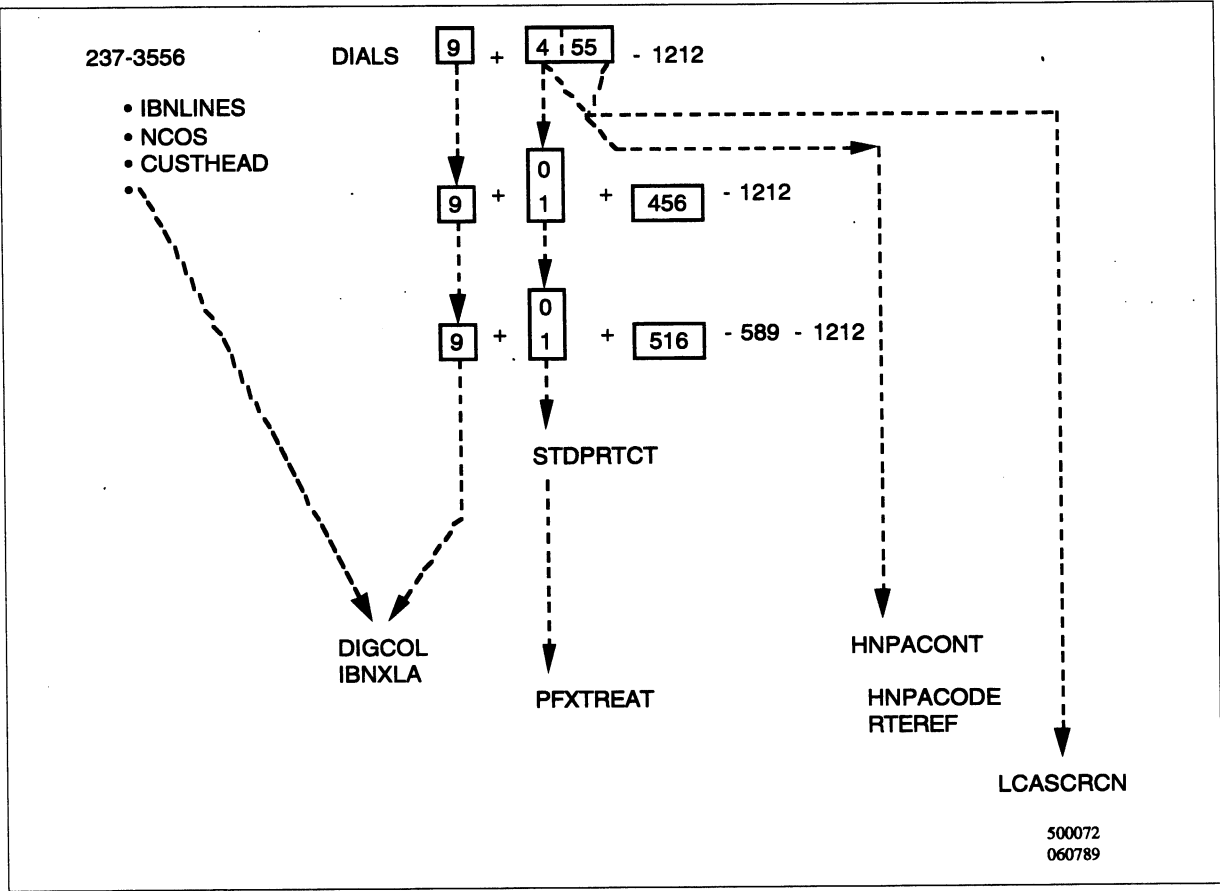
# Network Direct Outward Dialing (DOD)

## Introduction

The following illustration indicates several data tables that are used by the translations software to process network calls going out to the public network (DOD).

Figure 1

Tables used in network dialing



## Table DIGCOL (Digit Collection)

Most Meridian 1 Options 111-211 owners make their subscribers dial an access code (typically the digit 9) before they dial a call that's going out on the public (DOD) network. This access code says that the dialer wants his call to be routed out of the switch, instead of inside the switch to another extension. Table DIGCOL tells the peripheral processor what it can expect the leading digit of this access code to be and how many more digits it should collect after this leading digit.

Even though it is impossible to predict what the caller will be dialing, it is possible for the switch to determine the number of remaining digits by looking at the digits dialed immediately after the access digit. For example, if the caller dials the digit '0' **immediately after** the access code of 9, chances are he will be dialing 10 digits (e.g., 9 + 0 + NPA + NXX-xxxx). If he dials the digits 01 after the 9, then he probably is dialing an international number of up to 16 more digits.

There is a program in the peripheral processors called POTS. This program looks at the digits dialed immediately after the leading digit and makes a prediction about the number of digits remaining to be dialed. By inputting the word POTS in subfield DGCOLSEL of Table DIGCOL, the peripheral processors are instructed to use the POTS program.

- DGCOLSEL -- POTS required for each digit in DIGCOL for which a transfer from IBN digit collection to regular (POTS) digit translation is required after the digit has been received.
- DTONE -- enter Y if dial tone is required after receipt of the first digit; otherwise, enter N to indicate that dial tone is not required

### Table DIGCOL

| <u>DGKEY</u> |       | <u>DGDATA</u> |       |
|--------------|-------|---------------|-------|
| DATNAME      | DIGIT | DGCOLSEL      | DTONE |
| DCN1         | 9     | POTS          | Y     |

## Table IBNXLA (IBN Translations)

As has been discussed in the Lesson 100323, Intraswitch Dialing, Table IBNXLA tells the CPU what to do with a call if specific digits are dialed by the owner of a translator name. Thus, to permit network dialing, you create a tuple that states if a caller dials the leading digit of 9, you want the call processed as a network (NET) call. As you can see in the following example, the owner of this tuple is probably a particular NCOS instead of the whole customer group since the tuple begins with a preliminary translator name (PTN1).

**Table IBNXLA**

| <u>XLANAME</u>          | <u>DGLIDX</u> | <u>TRSEL</u>    | <u>ACR</u>      | <u>SMDR</u>    | <u>VCDR</u> |
|-------------------------|---------------|-----------------|-----------------|----------------|-------------|
| PTN1                    | 9             | NET             | N               | N              | N           |
| <u>NO ACCODE DIGITS</u> | <u>SDT</u>    | <u>DGCOLNM</u>  | <u>CRL</u>      | <u>INTRAGR</u> |             |
| 1                       | N             | NDGT            | N               | N              |             |
| <u>NETTYPE</u>          | <u>SMDRB</u>  | <u>LINEATTR</u> | <u>TOLLREST</u> |                |             |
| DOD                     | Y             | 4               | NONE            |                |             |

From the preceding example, you can see that the translator selector (TRSEL) that permits network dialing is NET. If this selector is used, then 11 other subfields must be datafilled. The following paragraphs contain descriptions of those subfields:

- **ACR (Account Code Restriction).** Will the dialer have to dial an account code in addition to dialing the access code 9? If so, you must answer Y (Yes) to ACR, otherwise answer N.
- **SMDR (Station Message Detail Recording).** Enter Y (Yes) if you want a SMDR record made of all network calls (local and billable). If you only want a SMDR record of billable calls, enter N (No) here and Y (Yes) to the subfield SMDRB that appears later in this table.
- **VCDR (Variable Call Detail Record).** This field must be datafilled with a Y/N.
- **NO ACCODE DIGITS (Number of Access Code Digits).** Enter the number of digits that will be dialed to tell the switch that you need access to the network. **If we are using only one digit (e.g., the digit 9) to access the network, then enter the number 1 here.**
- **SDT (Second Dial Tone).** In this subfield, you will be asked if you want to give the dialer of a network call a second dial tone.

- DGCOLNM (Digit Collection Name). This subfield asks for the Digit Collection Name. (The question was asked for the first time in Table CUSTHEAD where the digit collection name was assigned to every phone in a particular customer group). The application of using the Digit Collection Name in this table is not covered in this basic course.
- CRL (Code Restriction Level). This subfield references a way of blocking network calls called Code Blocking. This feature will be covered in a later lesson. For now, simply input N (NO).
- INTRAGRP (Intragroup). Intragroup has to do with the ability to activate features across customer groups. The subfield INTRAGRP is placed here for possible future use and should be answered N (No) at this point.
- NETTYPE (Network Type). In this subfield, you can specify the type of network to which you are allowing access. As mentioned at the beginning of this module, there are a number of network types including: Direct Outward Dial (DOD),
  - General network selector (GEN),
  - Electronic Switched Network (ESN),
  - Location selector (LOC),
  - Multiswitch business group (MBG),
  - OUTWATS (OWT),
  - Private network (PVT), etc.

(This lesson covers the DOD selector; for information on other network types, refer to 297-1001-451).

- SMDRB (Station Message Detail Recording Billable). As mentioned earlier, the subfield SMDRB is specific to the recording of only billable calls. Thus, if SMDR reports are to be made for billable calls only, you would input Y (Yes) in subfield SMDRB and N (No) in subfield SMDR. *You cannot answer Y (Yes) to both SMDR and SMDRB.*
- LINEATTR (Line Attribute Number). Once the DOD call leaves Table IBNXLA, it will proceed to a table called LINEATTR to receive further processing instructions. The question becomes which tuple in Table LINEATTR should the call be sent to. The answer is "whatever tuple number is input in this subfield." (We will discuss Table LINEATTR next). **(If you do not want a LNATTIDX, enter NLCC).**

- **TOLLREST (Toll Restriction).** Just because a tuple in Table IBNXLA is giving certain users access to the public DOD network, doesn't necessarily mean that the users can make toll (billable) calls on the network. In other words, it's possible to give users access to the network but restrict them to only making local (free) calls. If they are not restricted from making toll calls, enter NONE in this subfield. However, if the caller is to be toll restricted, enter either TDV (toll diverted) or TDN (toll denied).

## Table LINEATTR (Line Attribute)

After network DOD calls leave Table IBNXLA, they are sent to this **pointing table** known as LINEATTR (via the LINEATTR subfield in Table IBNXLA) to pick up instructions on which other tables should be referenced to complete a given call. The agenda of tables is determined by the data input into LINEATTR's fields. Below is a listing of several field names and the tables to which they will point the call.

| <b>Field Name:</b>               | <b>Table Referenced:</b>                            |
|----------------------------------|-----------------------------------------------------|
| PRTNM (Pretranslator Name)       | Table STDPRTCT                                      |
| LCANAME                          | Table LCASCRCN                                      |
| STS (Serving Translation Scheme) | Table LCASCRCN and specific tuple in Table HNPACONT |

The tables listed above will be covered later in this module. It is important at this point to simply remember that the field called PRTNM points the call to Table STDPRTCT, and the other field called LCANAME points the call to a table called LCASCRCN.

### Table LINEATTR

|                  |                 |                |                 |                |            |
|------------------|-----------------|----------------|-----------------|----------------|------------|
| <u>LNATTIDX</u>  | <u>LCC</u>      | <u>CHGCLSS</u> | <u>COST</u>     | <u>SCRNCL</u>  | <u>LTG</u> |
| 4                | IBN             | NONE           | NT              | NSCR           | 0          |
| <u>STS</u>       | <u>PRTNM</u>    | <u>LCANAME</u> | <u>ZEROMPOS</u> | <u>TRAFSNO</u> |            |
| 214              | SPN1            | LAS1           | NONE            | 0              |            |
| <u>MRSA</u>      | <u>SFC</u>      | <u>LATANM</u>  | <u>MDI</u>      | <u>IXNAME</u>  |            |
| NIL              | NILSFC          | NILLATA        | 0               | NIL            |            |
| <u>DGCLNCAME</u> | <u>FANIDIGS</u> | <u>RESINF</u>  |                 |                |            |
| NIL              | 00              | N              |                 |                |            |

Table LINEATTR's field descriptions are found on the following page.

- LNATTIDX -- line attribution index number;
- LCC -- line class code (in this course, it will be IBN due to the single-line sets at your workstation); 0 to 1023;
- CHGCLASS -- charge class; for this class, enter NONE; for descriptions of other field options, refer to *297-1001-451*;
- COST -- class of service tone; HI, LOW, or NT (no tone) for this class, you will see NONE;
- SCRNCL -- class of service screening subtable name (covered later in this lesson); up to 4 alphanumeric characters;
- LTG -- line treatment group; the line treatment group number discriminates between customer lines assigned to the same line class code but with different routing or screening patterns; 0 to 255
- STS -- serving translator scheme (NPA); 3 numeric digits;
- PRTNM -- standard pretranslator subtable name; up to 4 alphanumeric characters (discussed later in this lesson);
- LCANAME -- local calling area screening subtable name; up to 5 alphanumeric characters (discussed later in the lesson);
- ZEROMPOS -- zero minus position; up to 10 alphanumeric characters (discussed later in this lesson)

The remainder of the fields are not relevant to this course; for a more detailed discussion of these fields, refer to *297-1001-451*.

**Tables CUSTENG, NCOS, LCASCRCN, STDPRTCT, POSNAME must be datafilled prior to LINEATTR.**

It is important to remember that **changes will be made to this table -- not deletions.**

**Table STDPRTCT (Standard Pretranslator Control)**

In a Meridian 1 Options 111-211, this table's primary purpose is to tell the switch whether a call is **free** or **billable** and **which table it is to go to next**. The pretranslator names, listed in the key field in Table STDPRTCT, are pointed to from the field PRTNM in Table LINEATTR. An example of a tuple contained in STDPRTCT appears below.

**Table STDPRTCT**

EXTPRTNM                      STDPRT  
SPN1                                      ( 1)

The second field (STDPRT) is a subtable that actually classifies the type of call (i.e., billable versus free) that was dialed and gives instructions on where to go next.

Before we discuss the details of this subtable; however, look at the information below and study the differences in dialing billable versus free calls.

|                                             |                                                                                                                                |                                                                                     |
|---------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| To free NXXs in your NPA.                   | 9+NXXxxxx<br>Examples:<br>9+2XXxxxx<br>9+3XXxxxx<br>9+4XXxxxx<br>9+5XXxxxx<br>9+6XXxxxx<br>9+7XXxxxx<br>9+8XXxxxx<br>9+9XXxxxx | A free call will have a digit other than a 0 or 1 following the access code of '9'. |
| Direct dialing toll NXXs :                  | 9+1+NXXxxxx<br><b>or</b><br>9+1+NPA+NXXxxxx                                                                                    | All toll calls will have a "prefix" digit of 1.                                     |
| Calling toll NXXs with Operator Assistance: | 9+0+NPA+NXXxxxx<br><b>or</b><br>9+0+NPA+NXXxxxx                                                                                | All toll calls will have a "prefix" digit of 0.                                     |



### Subtable STDPRT

In Subtable STDPRT, fields FROMDIGS and TODIGS focus on the digit that immediately follows the network access code (i.e., 9).

### Subtable STDPRT

| <u>FROMDIGS</u> | <u>TODIGS</u> | <u>PRETRTE</u> | (PRETESEL TYPCALL NOPREDIG TRANSYS) |   |    |  |
|-----------------|---------------|----------------|-------------------------------------|---|----|--|
| 0               | 0             | N              | OA                                  | 1 | NA |  |
| 1               | 1             | N              | DD                                  | 1 | NA |  |
| 2               | 9             | N              | NP                                  | 0 | NA |  |

As you can see, this subtable looks at all the possible digits dialed after the leading digit of 9 (fields 1 and 2) to determine these facts:

- in subfield PRETESEL (PreRoute Selector), the table the call should go to next is determined; options include:
  - D, EA, SFMT, ET, E911, F, FGDCL, FGB, ID, L, **N**, NSC, P, R, S, T, V, X, and Z (for information on other than N select, please refer to 297-1001-451); **N sends the call to national** (HNPACONT.HNPACODE) or international translations. This lesson concentrates on the N selector.
- in subfield TYPCALL (Type of Call), the type of call billable (OA, DD), or free (NP) is determined
- what digit(s), if any, are to be **stripped off**, in subfield NOPREDIG (Number of Prefix Digits)
- if this is a national or international translations (system) call, in subfield TRANSYS (Translations System)

Based on these tuples in STDPRT, if the leading digit (following the network access digit) of a call is:

- **0**, the call is identified as a **billable operator assisted** (OA) call
- **1**, the call is identified as **billable direct dial** (DD) call
- **2 thru 9**, the call is a **free local no prefix** (NP) call

## Table HNPACONT (Home Numbering Plan Area Control)

As its name implies, this table is the controlling table for the home NPA (area code). In this table, the key field is the caller's NPA. This tuple, with the help of one of its subtables (HNPACODE), controls what the caller can dial.

### Table HNPACONT

| NPA | MAXRTE | NOAMBIGC | RTEREF | HNPACODE | ATTRIB |
|-----|--------|----------|--------|----------|--------|
| 214 | 10     | 0        | ( 2)   | ( 5)     | ( 0)   |

Below is a description of the fields in Table HNPACONT.

- **NPA.** As previously stated, this key field identifies the caller's NPA.
- **MAXRTE (Maximum Route References).** This field identified the maximum number of routes that you will use in the fourth field (subtable RTEREF).
- **NOAMBIGC (Number of Ambiguous Codes).** Codes that resemble one another (such as the 703 area code and 703 NXX) are called ambiguous codes. Field NOAMBIGC indicates the number of ambiguous codes that can be dialed in the switch's area code.
- **HNPACODE (Home NPA Code).** Since a call goes through subtable HNPACODE before it goes through subtable RTEREF, let's skip field RTEREF for now and discuss field HNPACODE. (Field RTEREF will be discussed next).

## Subtable HNPACODE

As we stated earlier, field HNPACODE is a subtable. The fields of this subtable include: FROMDIGS, TODIGS, and CDRRTMT. Following is an example of subtable HNPACODE and a description of its fields:

| <u>FROMDIGS</u> | <u>TODIGS</u> | <u>CDRRTMT</u> |     | (NPA)  | (NXX)  |
|-----------------|---------------|----------------|-----|--------|--------|
|                 |               | CD             | RR  |        |        |
| 455             | 455           | LRTE           | 1   |        |        |
| 456             | 456           | HRTE           | 1   |        |        |
| 516             | 516           | FRTE           | 1   |        |        |
| 237             | 237           | DN             | 214 | 237    |        |
| 703             | 703           | AMBI           | TIM | LRTE 1 | FRTE 1 |

### FROMDIGS/TODIGS (From Digits/To Digits)

These two fields constitute a range of digits that fall into one of the following two classifications:

- NXXs, located in the dialer's NPA, that the dialer is allowed to dial
- NPAs, located in the United States, Canada, and Mexico, the dialer is allowed to dial (the NXXs in these NPAs are not included).

### CDRRTMT

This field is made up to two subfields: CD and RR.

- CD (Code). Here, the allowed NXXs and NPAs are coded as either local route, home route, foreign route, DN, or ambiguous code. The code FRTE (foreign route will be discussed later) tells the switch that any NPA designated as outside of the caller's area is a foreign area code. Thus, the caller must dial exactly 10 digits or else be blocked because of misdialing.

**Local Route (LRTE)** --The special code LRTE (local route) designates all local (free) NXXs in the caller's area code. This code ensures that exactly seven digits are dialed after the network access code of 9. **Sample TRAVER is shown later.**

**Home Route (HRTE)** -- The code HRTE (home route) is placed next to those numbers that are in your area code but are located far enough away from you that they are not free calls. This code ensures that exactly seven digits will be dialed, including the NXX, after the prefix digit. **Sample TRAVER is shown later.**

**Foreign Route (FRTE)** -- The code FRTE (foreign route) is placed next to those numbers that are **not** in your area code. This code ensures that exactly ten digits will be dialed after the prefix digit. **Sample TRAVER is shown later.**

**Directory Number (DN)** -- One other NXX that could be dialed by a subscriber is the NXX that belongs to his/her own switch. In other words, it's possible for a user (for some reason) to dial another extension without taking advantage of five-digit dialing. Instead, the user dials the network access code (9) plus the seven-digit number of the extension. You code your own NXX as code DN (directory number). This code tells the switch to expect exactly seven digits after the network access code. However, this call stays in the user's switch since it belongs to one of his/her own directory numbers. **Sample TRAVER is shown later.**

**Ambiguous Code (AMBI)** -- One last code type can be entered into this subfield. It is the code type AMBI. AMBI tells the switch that the FROMDIGS/TODIGS designated is an ambiguous code and can therefore be used as either a NPA or NXX. **Sample TRAVER is shown later.**

- **RR (Route Reference).** This subfield lists the route (tuple) numbers (designated in subtable RTEREF) to which a number dialed will be sent to for routing. It is field RR that actually selects the tuple number in subtable RTEREF that will be used to specify the outgoing trunk group(s).

**TOFCNAME must be datafilled prior to HNPACODE.**

The following information reflects a simplistic view of how this table checks for the correctness of digits dialed for a specific code.

| List of all the :                              | Example of dialing:                             | Correct # of digits to be dialed after the 9 (and possibly a 1/0): | Application: Have switch "code" calls, based on first 3 digits of the dialed NPA or NXX: |
|------------------------------------------------|-------------------------------------------------|--------------------------------------------------------------------|------------------------------------------------------------------------------------------|
| NPAs in the U.S.<br>Example: 516               | 9+1/0+NPA+NXXxxxx<br>516+457xxxx<br>516+458xxxx | 10                                                                 | FRTE                                                                                     |
| NXXs in your NPA:<br>Free NXX's.<br>455<br>237 | 9+NXXxxxx<br>455xxxx<br>237xxxx                 | 7                                                                  | LRTE<br>DN                                                                               |
| Toll NXX's.<br>456                             | 9+1/0+NXXxxxx<br>456xxxx                        | 7                                                                  | HRTE                                                                                     |

The prefix method for AMBI determines if seven or ten digits should be expected by the presence of the prefix digit of "1".

**The timing method determines if ten or seven digits should be expected by determining the presence or absence of additional digits within four seconds after the receipt of the seventh digit.**

After you specify the code type of AMBI, the switch will then prompt you for the method. Specified here is the prefix method (PFX) or the timing method (TIM). Next, the switch will prompt you for the code type (CD) and route reference (RR) of the short route and the code type (CD) and route reference (RR) of the long route.

#### Subtable HNPACODE

| <u>FROMDIGS</u> | <u>TODIGS</u> | <u>CDRRTMT</u> |          |      |      |      |      |
|-----------------|---------------|----------------|----------|------|------|------|------|
|                 |               | (CD)           | (METHOD) | (CD) | (RR) | (CD) | (RR) |
| 516             | 516           | AMBI           | TIM      | LRTE | 1    | FRTE | 1    |

**Subtable RTEREF**

Table HNPACONT subtable RTEREF is accessed via the RTEREF field in Table HNPACONT. As the name of this subtable implies, RTEREF stores the list of routes used by outgoing DOD network calls. The individual trunk groups that comprise a tuple in Subtable RTEREF are called elements.

Below is an example of this tuple:

**Table HNPACONT.RTEREF**

| <u>RTE</u> | <u>RTESEL</u> | <u>CONNTYPE</u> | <u>CLLI</u> |
|------------|---------------|-----------------|-------------|
| 1          | S             | D               | DODTRK \$   |

**RTE (Route Number)**

This first field is the route or tuple number referenced in subtable HNPACODE, field RR.

**RTESEL (Route Selector)**

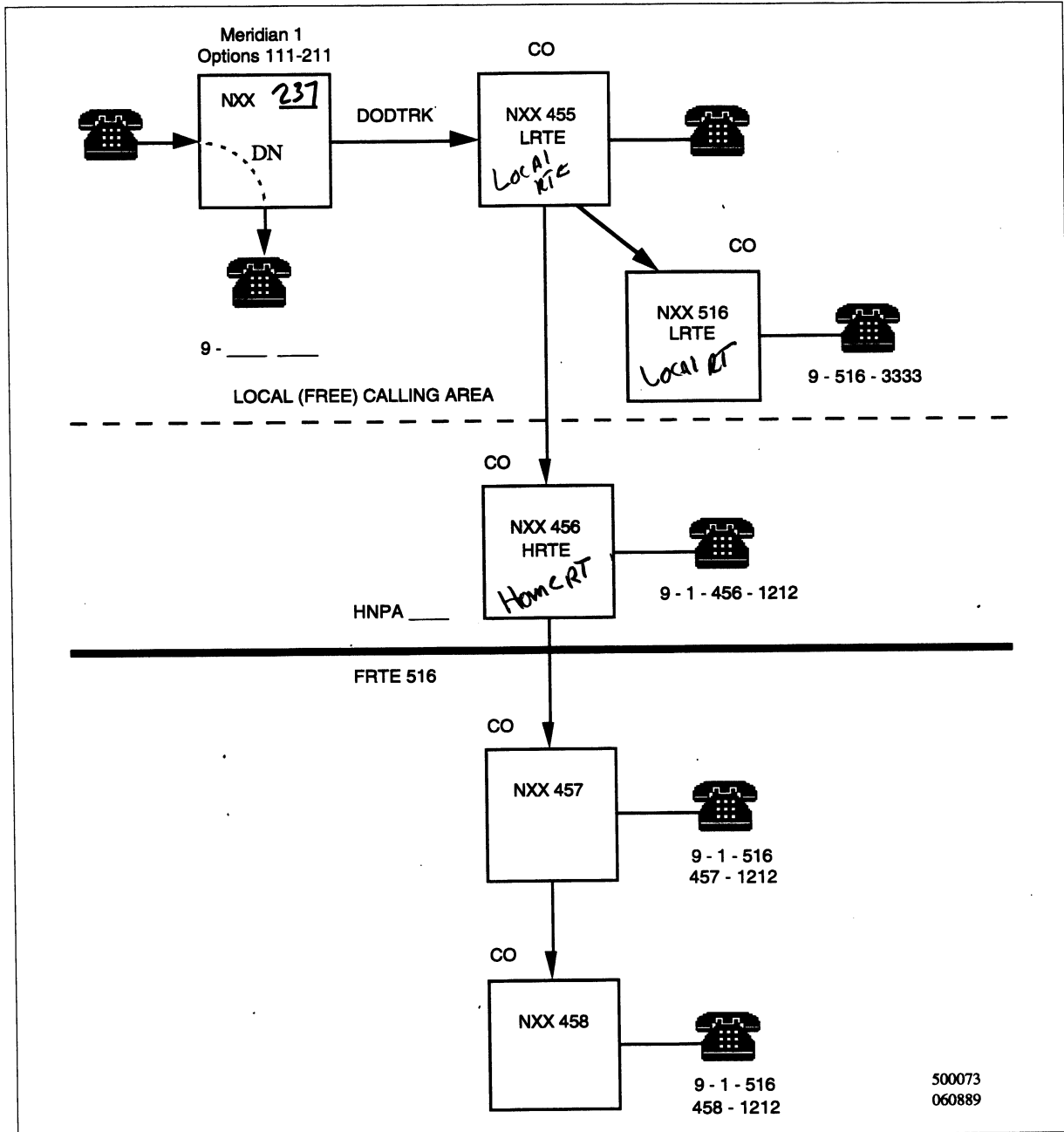
The options for this field are S, T, and N. You would input S if outgoing trunk group is intertoll and standard digit manipulation is required (this will prompt you for the name of a trunk group); T if translations routes the call to another table or to another route list in Table OFRT ; and N if translations requires digit substitution or cancellation of normal charges..

**For this course, the route selector S will be used, and the switch will prompt you for two other subfields:**

- **CONNTYPE (Connection Type).** This subfield is not used. However, it must be datafilled with the letter D to satisfy table control.
- **CLLI (Common Language Location Identifier).** The actual trunk group (CLLI) name may be specified in this subfield.

Figure 2 depicts a trunking design for use of the Subtable RTEREF in Table HNPACONT.

**Figure 2**  
**Trunking diagram**



## Table LCASCRCN (Local Calling Area Screening Control)

This table has several fields used for various aspects of screening control. Below is an example of a tuple in Table LCASCRCN.

### Table LCASCRCN

```
NPALOCNM LCASCR PFXSELEC PFXFOR10
(STS) (LCANAME)
214 LAS1 (2) MAND N
```

- **NPALOCNM** (NPA Local Area Name). This field is the key field in this table. It is comprised of two parts: (1) the dialer's STS, and (2) the dialer's Local Area Name. Remember that call processing is sent to this table by two fields in Table LINEATTR, fields STS and LCANAME. **(If you do not want to use this table to screen, input NLCA in LCANAME in Table LINEATTR).**
- **LCASCR** (Local Screening Area). This field is actually a subtable in which all free NXXs within your own NPA are listed. (The fields in the subtable are described in the next section).
- **PFXSELEC** (Prefix Selector). The PFXSELEC field lets you specify whether it is mandatory (MAND) or optional (OPTL) that your users actually dial a prefix digit (0 or 1) for toll calls. **In other words, this field points you to Table PFXTREAT.**
- **PFXFOR10** (Prefix Digit for 10-Digit Calls). Do you want your users to dial a prefix digit only for 10-digit calls? If we answer yes (Y), then a 1+7 digit call will always go to a treatment. This field has a specialized application which will not be covered in this course. Place the letter N ("No") in this field.



---

**Subtable LCASCR**

- **FROMDIGS** (From Digits). This is the key field in the subtable. It is used in conjunction with the second field **TODIGS** to itemize all free NXXs within your own area code.
- **TODIGS** (To Digits). This is the second (and last) field of Subtable LCASCR. **Thus, this subtable only lists free NXXs.**

Examples of tuples follows:

| <u>FROMDIGS</u> | <u>TODIGS</u> |
|-----------------|---------------|
| 455             | 455           |
| 237             | 237           |

### Table PFXTREAT (Prefix Treatment)

As its name implies, this table determines if a treatment (field TREAT) is needed based on the presence or absence of dialed prefix digits (Subfield TYPSCALL). In other words, as the chart below shows, prefix digits are appropriate under certain conditions (toll calls) but not others (local calls).

However, the second entry in our chart shows that if a prefix digit of 1 (DD) is dialed when the call is local (Y), the call should be routed to an announcement telling the dialer that there is no need to dial any prefix digit for a local call.

| CONDITION #1                                          | CONDITION #2                                                    | RESULT                                                 |                                           |
|-------------------------------------------------------|-----------------------------------------------------------------|--------------------------------------------------------|-------------------------------------------|
| What was the method of dialing? (from Table STDPRTCT) | Was the dialed NXX (or NPA) free (local)? (from Table LCASCRCN) | The call should:                                       | The treatment that will do this is named: |
| DD Billable                                           | N Billable                                                      | Be routed out of the switch.                           | UNDT*                                     |
| DD Billable                                           | Y Free                                                          | Be routed to announcement: "No need to dial a 1 or 0." | MSCA*                                     |
| OA Billable                                           | N Billable                                                      | Be routed out of the switch.                           | UNDT*                                     |
| OA Billable                                           | Y Free                                                          | Be routed to announcement: "No need to dial a 1 or 0." | MSCA*                                     |
| NP Free                                               | Y Free                                                          | Be routed out of the switch.                           | UNDT*                                     |
| NP Free                                               | N Billable                                                      | Be routed to announcement: "Need to dial a 1 or 0."    | MSLC*                                     |

- \* UNDT -- undefined treatment
- \* MSCA -- misdirected CAMA treatment
- \* MSLC -- misdirected local treatment

Table PFXTREAT includes the following three fields: **TYPLCLCD**, **UPDTYPCA**, AND **TREAT**. Below is a description of these fields.

- **TYPLCLCD** (Type of Call and Local Code). This is the key field for the table. It is comprised of the three following subfields:
  - **PFXSELEC** (Prefix Selector). This part of the key field is indexed from the third field (**PFXSELEC**) of Table LCASCRCN.
  - **TYPCALL** (Type of Call). This part of the key field states whether the call dialed was either DD, OA, or NP.
  - **LOCAL** (Local (or free) call). This final part of the key field states whether or not the call was a local (free) call.
- **UPDTYPCA** (Update Call Type). This field is used in certain conditions (not covered in this basic course) to actually change a call's classification (e.g., from NP in Table STDPRTCT to DD here) for billing (SMDR) purposes (for more information, refer to 297-1001-451).
- **TREAT** (Treatment). This field specifies the treatment names in Table TMTCNTL that calls should be sent to based on the conditions present in the call (and reflected by the data in the key field) (see previous page for descriptions).

**Table PFXTREAT**

| <u>TYPLCLCD</u> |                | <u>UPDTYPCA</u> |    | <u>TREAT</u> |
|-----------------|----------------|-----------------|----|--------------|
| <u>PFXSELEC</u> | <u>TYPCALL</u> | <u>LOCAL</u>    |    |              |
| MAND            | DD             | N               | DD | UNDT         |
| MAND            | DD             | Y               | DD | MSCA         |
| MAND            | OA             | N               | OA | UNDT         |
| MAND            | OA             | Y               | OA | MSCA         |
| MAND            | NP             | N               | NP | MSLC         |
| MAND            | NP             | Y               | NP | UNDT         |

## TRAVER Examples

This section describes six different TRAVER examples dealing with routes a network call might take from a Meridian 1 Options 111-211 site. The TRAVER examples include a **local route** call (LRTE), a **home route** call (HRTE), a **foreign route** call (FRTE), a **station-to-station call** (DN), and two **ambiguous code** (AMBI) situations.

### Local route (LRTE)

A network call takes a local route when a seven-digit number (excluding the access code) is dialed from the site. A local route includes calls placed to directory numbers located in the caller's own NPA or to a different NPA that is non-toll.

- IBNLINES identifies the caller's LEN having a DN belonging to customer group GRP1 and NCOS 0.
- NCOS shows that there is a preliminary translator name (PTN1) attached to this specific NCOS (0).
- CUSTHEAD assigns customer translator CTN1, feature translator FTN1, digit collection name DCN1, and VACTRMT 0 to everyone (all NCOSs) in the customer group.
- DIGCOL uses the dialer's digit collection name of DCN1 and the first digit he dialed, 9, to find instructions to send to the peripheral processor. In this example, it tells the peripheral processor to use its POTS program to determine how many more digits will be dialed and thus need to be collected. It also states that Y (Yes), second dial tone is requested after the user dials the network access code.
- IBNXLA translates with PTN1 and the 9, determines the call is a network call from the selector NET and network call type DOD, deletes the 9 digit, and assigns the tuple number to use in the next table.
- LINEATTR points the call to two additional tables (STDPRTCT and LCASCRCN) by assigning the dialer's serving translation scheme (214), a pretranslator, (SPN1), and local calling screening area name (LAS1).
- STDPRTCT positions on the SPN1 which translates to subtable STDPRT. In subtable STDPRT, the NOPREDIG field indicates there are no dialed prefixed digits to be deleted, thus the call was dialed as a no prefix call, and the N sends the call on to HNPACONT.
- HNPACONT locates the dialing number's NPA (214, referenced in field STS of Table LINEATTR). Then HNPACODE determines from the dialed number's NXX that the call code type is Local Route (LRTE). From this code type, the system determines that exactly seven digits should be dialed by the originator. The route reference index number, 1, points to the RTEREF subtable which in turn specifies trunk group DODTRK.

- LCASCRCN is referenced, since LINEATTR identified a local area screening name (LAS1) and serving translations scheme (214). The software goes into subtable LCASCR to check if the dialed number's NXX is free (local). The tuple indicates the dialing of prefix digits is mandatory (MAND) for a long distance call.
- PFXTREAT contains a tuple whose key field represents three conditions that are present: 1) the selector (MAND) from LCASCRCN, 2) the type of call (NP) from STDPRTCT, and 3) the call being free (found (Y) in subtable LCASCR of table LCASCRCN). Since these conditions are found, **no treatment is defined** (UNDT=undefined treatment). Instead, it is routed out of the switch.

```

TRAVER L 2373556 94551212 T
TABLE IBNLINES
HOST 00 0 00 05 DT STN 2373556 GRP1 0 0 214 $
TABLE NCOS
→ GRP1 0 0 0 NCOS0 XLAS PTN1 NXLA NDGT $
TABLE CUSTHEAD: CUSTRP, PRELIMXLA, CUSTXLA,
FEATXLA, VACTRMT, AND DIGCOL
→ GRP1 NXLA CTN1 FTN1 0 DCN1
TABLE DIGCOL
DCN1 2 POTS Y
TABLE IBNXLA: XLANAME PTN1
→ PTN1 2 NET N N N 1 N NDGT N N DOD Y 17 NONE
TABLE LINEATTR
→ 17 IBN NONE NT NSCR 0 (214) SPN1 (LAS1) NONE N 0
NIL NILSFC NILLATA 0 NIL NIL
→ TABLE STDPRTCT
SPN1 (1)
SUBTABLE STDPRT
4 9 N (NP) 0 NA
TABLE HNPACONT
→ 214 10 0 (3) (1) (0)
SUB TABLE HNPACODE
455 455 LRTE 1
SUBTABLE RTEREF
→ 1 S D DODTRK CLCT
EXIT TABLE RTEREF
EXIT TABLE HNPACONT
TABLE LCASCRCN
(214) (LAS1) (2) MAND N
SUBTABLE LCASCR
455 455
TABLE PFXTREAT
MAND (NP) (Y) NP UNDT

```

**Home route (HRTE)**

- Table IBNLINES identifies the caller's LEN as having a DN belonging to customer group GRP1 and NCOS 0.
- Table NCOS assigns a preliminary translator, PTN1 to the dialing number's NCOS.
- Table CUSTHEAD assigns customer translator CTN1, feature translator FTN1, and digit collection name DCN1 to everyone in the customer group (including this NCOS).
- Table DIGCOL focuses on the dialers digit collection name of DCN1 and on the first digit dialed, 9, and sends the peripheral processor instructions to use its POTS program.
- Table IBNXLA positions on the preliminary translator PTN1 to translate the access code, 9, which indicates that the call is a network call (selector NET and network call type DOD). The 9 digit is deleted and a line attribute index number of 4 is assigned.
- Table LINEATTR places two other tables (STDPRTCT) and LCASCRCN) on this call's agenda. It does this via the STS (214), PRTNM (SPN1), and LCANAME (LAS1) fields.
- Table STDPRTCT positions on SPN1, which translates to subtable STDPRT, where the DD indicates this is a direct dial call. The prefix digit, 1, is deleted before the call is routed to HNPACONT by the selector N.
- Table HNPACONT locates the dialing number's NPA (214) and determines from the dialed number's NXX code in subtable HNPACODE that exactly seven digits should be dialed. The route reference index number, 1, points to the RTEREF subtable, where the trunk group DODTRK is assigned to the call.
- Table LCASCRCN positions on the dialing number's NPA, and local calling area screening name (LCAS1). The tuple indicates the dialing of prefix digits is mandatory (MAND) for a long distance call. Subtable LCASCR fails to locate the dialed number's NXX (456). As a result, the translations software determines that the call is not in the dialing number's free area.
- Table PFXTREAT uses a tuple whose key field reflects the following: (1) MAND from LCASCRCN, (2) the type of call of DD from Table STDPRTCT, and (3) non-local (N) from subtable LCASCR in Table LCASCRCN. Since these conditions are found, no treatment is defined (UNDT). Thus, the call is allowed to be routed out on the trunk group specified in subtable RTEREF of Table HNPACONT.

TRAVER L 2373556 914561212 T

TABLE IBNLINES

HOST 00 0 00 05 DT STN 2373556 GRP1 0 0 214 \$

TABLE NCOS

→ GRP1 0 0 0 NCOS0 (XLAS PTN1 NXLA NDGT) \$  
 TABLE CUSTHEAD: CUSTRP, PRELIMXLA, CUSTXLA,  
 FEATXLA, VACTRMT, AND DIGCOL

→ GRP1 NXLA CTN1 FTN1 0 DCN1

TABLE DIGCOL

DCN1 9 POTS Y

TABLE IBNXLA: XLANAME PTN1

→ PTN1 9 NET N N N <sup>STP</sup>Y NDGT N N DOD N 4 NONE

TABLE LINEATTR

~~4 IBN NONE NT NSCR 07 214 SPN1 LAS1 NONE N 0~~

NIL NILSFC NILLATA 0 NIL NIL

TABLE STDPRTCT

→ SPN1 ( 1)

SUBTABLE STDPRT

1 1 N DD <sup>STP</sup> NA

TABLE HNPACONT

→ 214 10 0 ( 3) ( 1) ( 0)

SUB TABLE HNPACODE

456 456 HRTE 1 <sup>RT</sup> F

→ SUBTABLE RTEREF

1 S D DODTRK <sup>CCI</sup> DODTrunk

EXIT TABLE RTEREF

EXIT TABLE HNPACONT

→ TABLE LCASCRCN

→ 214 LAS1 ( 2) MAND N

SUBTABLE LCASCR

Tuple not found. ← Default is non-local.

TABLE PEXTREAT

MAND DD N DD UNDT

B B

### Foreign route (FRTE)

An example of a TRAVER for a dialed FRTE is displayed in the following TRAVER. Here is a summary of the call's translation:

- Table IBNLINES identifies the caller's LEN having a DN belonging to customer group GRP1 and NCOS 0.
- Table NCOS shows that there is a translator name of PTN1 attached to this specific NCOS (0).
- Table CUSTHEAD assigns customer translator CTN1, feature translator FTN1, and digit collection name DCN1 to everyone in the customer group (including this NCOS).
- Table DIGCOL focuses on a tuple with the key field of the dialers digits collection name DCN1 and the first digit dialed, 9, and issues instructions to the peripheral processor to use its POTS program.
- Table IBNXLA translates with PTN1 on the 9, determines the call is a network call from the selector NET and network call type DOD, deletes the 9 digit, and assigns a line attribute index number of 4.
- Table LINEATTR identifies the call as an IBN call and assigns the serving translation scheme 214, the pretranslator name SPN1, and local calling area screening name LAS1.
- Table HNPACONT subtables code the call as a FRTE and sends the call to RETREF 1, which selects DODTRK as the route.
- Table LCASCRCN positions on the dialing number's NPA, and local calling area screening name (LAS1). The tuple indicates the dialing of prefix digits is mandatory (MAND) for a long distance call. Subtable LCASCR cannot locate the dialed number's NPA (516), which indicates that the call is not in the dialing number's free area.
- Table PFXTREAT focuses on one of its tuples keyed by the selector (MAND) from LCASCRCN, the type of call (DD) from STDPRCT and N (No) the call was not found to be in subtable LCASCR as a free NXX. Since these conditions are found, a treatment isn't defined (UNDT). The call is allowed to exit the Meridian 1 Options 111-211 site on the selected trunk group.



TRAVER L 2373556 915165551212 T

TABLE IBNLINES

HOST 00 0 00 05 DT STN 2373556 GRP1 0 0 214 \$

TABLE NCOS

→ GRP1 0 0 0 NCOS0 (XLAS PTN1 NXLA NDGT) \$ *Problems*

→ TABLE CUSTHEAD: CUSTRP, PRELIMXLA, CUSTXLA,  
FEATXLA, VACTRMT, AND DIGCOL

GRP1 NXLA CTN1 FTN1 0 DCN1

→ TABLE DIGCOL

DCN1 9 POTS Y

TABLE IBNXLA: XLANAME PTN1

→ PTN1 9 NET N N N 1 N NDGT N N DOD N

4 NONE

TABLE LINEATTR

4 IBN NONE NT NSCR 0 214 *SIS* *Pre* *Loc Nam* SPN1 LAS1 NONE N 0

NIL NILSFC NILATA 0 NIL NIL

→ TABLE STDPRTCT

SPN1 ( 1)

SUBTABLE STDPRT

1 1 N DD 1 NA

TABLE HNPACONT

→ 214 10 0 ( 3) ( 1) ( 0)

SUB TABLE HNPACODE

516 516 FRTE *1 R R F*

→ SUBTABLE RTEREF

1 S D DODTRK *CLLT*

EXIT TABLE RTEREF

EXIT TABLE HNPACONT

→ TABLE LCASCRCN

214 LAS1 ( 2) MAND N

SUBTABLE LCASCR

Tuple not found. Default is non-local.

TABLE PEXTREAT

MAND DD N DD UNDT

β β

**Intraswitch (DN) TRAVER**

Shown below is an example of a TRAVER for an intraswitch call in which the dialer inadvertently dials the other station via the long way (9+7 digits), instead of the short way (5-digit dialing). Note the code of DN that is given in subtable HNPACODE to the NXX of the dialer (and, of course, the terminator when they're in the same switch. As you can see, the call is immediately sent to Table TOFCNAME, instead of the subtable RTEREF, since it does not need a trunk group for routing.

```

TRAVER L 2373556 92375443 T
TABLE IBNLINES
HOST 00 0 00 05 DT STN 2373556 GRP1 0 0 214 $
TABLE DNATTRS
TUPLE NOT FOUND
TABLE NCOS Prert
GRP1 0 0 0 NCOS0 (XLAS PTN1 NXLA NDGT) $
TABLE CUSTHEAD: CUSTRP, PRELIMXLA, CUSTXLA,
FEATXLA, VACTRMT, AND DIGCOL
GRP1 NXLA CTN1 FTN1 0 DCN1
TABLE DIGCOL
DCN1 9 POTS Y Secondary D Tone
TABLE IBNXLA: XLANAME PTN1
PTN1 9 NET N N N STN NDGT N Y DOD N 4 NONE
TABLE LINEATTR
4 IBN NONE NT NSCR 0 214 SPN1 LAS1 NONE N 0
NIL NILSFC NILATA 0 NIL NIL
TABLE STDPRTCT
SPN1 (1)
SUBTABLE STDPRT need more times
2 9 N NP 0 NA
SUBTABLE AMAPRT
TUPLE NOT FOUND
DEFAULT VALUE IS: NONE N
TABLE HNPACONT
214 16 0 (1) (1) (0)
SUB TABLE HNPACODE internal
237 237 DN 214 237
TABLE TOFCNAME
214 237
TABLE DNINV
214 237 5443 L HOST 00 0 07 3 valid on
TABLE LCASCRCN
214 LAS1 (2) MAND N
SUBTABLE LCASCR
237 237
TABLE PEXTREAT
MAND NP Y NP UNDT

```

**Ambiguous code**

The following 2 TRAVERs will demonstrate how ambiguous codes are processed. The first TRAVER will show the code being used as an **area code**.

```

TRAVER L 2373556 917034671212 B
TABLE IBNLINES
HOST 00 1 07 22 DT STN 2373556 GRP1 0 0 214 $
TABLE NCOS
→ GRP1 0 0 0 NCOS0 (XLAS PTN1 NXLA NDGT) $
→ TABLE CUSTHEAD: CUSTRP, PRELIMXLA, CUSTXLA,
FEATXLA, VACTRMT, AND DIGCOL
GRP1 NXLA CTN1 FTN1 0 DCN1
TABLE DIGCOL
→ DCN1 9 POTS Y
TABLE IBNXLA: XLANAME PTN1
→ PTN1 9 NET N N N 1 N NDGT N N DOD N 31 NONE
TABLE LINEATTR
→ 31 IBN NONE NT NSCR 0 214 SPN1 LAS1 NONE N 0
NIL NILSFC NILLATA 0 NIL NIL
→ TABLE STDPRTCT
SPN1 (1)
→ SUBTABLE STDPRT
1 1 N DD 1 NA
→ TABLE HNPACONT
214 3 1. (3) (1) (0)
→ SUB TABLE HNPACODE
703 703 AMBI TIM LRTE 1 FRTE 1 RT REF
→ SUBTABLE RTREF
1 S D DODTRK CLLI
EXIT TABLE RTREF
→ TABLE LCASCRN
214 LAS1 (2) MAND N
→ SUBTABLE LCASCR
703 703
→ TABLE PFXTREAT
MAND DD N DD UNDT

```

Handwritten annotations: A large circle is drawn around the DD and N in the PFXTREAT table. A note "TABLE LINEATTR (LCAS CRN)" with an arrow points to the 1 in the HNPACODE table. The letters "B B" are written below the MAND DD N DD UNDT line.

+++ TRAVER: SUCCESSFUL CALL TRACE +++

DIGIT TRANSLATION ROUTES  
1 DODTRK 7034671212

The second AMBI TRAVER shows code 703 being used as an **office code** in your own company's free calling area.

```

TRAVER L 2373556 97031212 B
TABLE IBNLINES
HOST 00 1 07 22 DT STN 2373556 GRP1 0 0 214 $
TABLE NCOS
→ GRP1 0 0 NCOS0 (XLAS PTN1 NXLA NDGT) $
→ TABLE CUSTHEAD: CUSTRP, PRELIMXLA, CUSTXLA,
FEATXLA, VACTRMT, AND DIGCOL
GRP1 NXLA CTN1 FTN1 0 DCN1
TABLE DIGCOL
DCN1 9 POTS Y
→ TABLE IBNXLA: XLANAME PTN1
PTN1 9 NET N N N 1 N NDGT N N DOD N 31 NONE
TABLE LINEATTR
31 IBN NONE NT NSCR 0 214 SPN1 LAS1 NONE N 0
NIL NILSFC NILLATA 0 NIL NIL
→ TABLE STDPRTCT
SPN1 (1)
→ SUBTABLE STDPRT
7 9 N NP 0 NA
→ TABLE HNPACONT
214 3 1 (3) (1) (0)
SUB TABLE HNPACODE
703 703 AMBI TIM LRTE 1 FRTE 1
SUBTABLE PTEREE
1 S D DODTRK
EXIT TABLE RTEREF
TABLE LCASCRN
→ 214 LAS1 (2) MAND N
SUBTABLE LCASCR
703 703
TABLE PFXTREAT
MAND NP Y NP UNDT

```

+++ TRAVER: SUCCESSFUL CALL TRACE +++

DIGIT TRANSLATION ROUTES  
1 DODTRK 7031212

## Problems in DOD calls finding instructions (TUPLES) to use

By assigning the option of VACTRMT in Table CUSTHEAD, the call is sent to a treatment number specified in Table IBNTREAT when the call cannot find any tuple in Table IBNXLA for instructions to process the call. This condition also applies to attempts of users to dial the network access code. They must be assigned a translator name that allows them to use a network access tuple in Table IBNXLA.

What happens when the call can not find instructions in the other tables?  
The chart below explains the process.

| <b>If no tuple is found in table/subtable...</b> | <b>then the result is that the call...</b>                                    |
|--------------------------------------------------|-------------------------------------------------------------------------------|
| Subtable STDPRT                                  | Uses a "default tuple" of "N NP O NA" and proceeds on.                        |
| Subtable HNPACODE<br>or<br>Subtable RTEREF       | Is routed by default to treatment VACT in Table TMTCNTL.                      |
| Table IBNXLA                                     | Is routed to Table IBNTREAT via what is found in TRMT field of Table CUSTHEAD |
| Table TOFCNAME                                   | Is routed to RODR in Table TMTCNTL                                            |

## Dialing consoles in other customer groups

There is another non-related translator selector in Table IBNXLA called **ATTO**. Similar to ATT, ATTO is used to route calls directly to the attendant console in **another** customer group. Once ATTO is specified as the translator selector in Table IBNXLA, the system will prompt the user for the name of the other customer group, the subgroup number, and the incoming call identification (ICI) code to route the call.

### Table IBNXLA

| (TRSEL) | (CUSTNAME) | (SUBGRP) | (ICI) | (INTRAGR) |
|---------|------------|----------|-------|-----------|
| ATTO    | DALIBN     | 0        | 64    | Y         |

### TRAVER example

```

TRAVER L 2373556 0 B
TABLE IBNLINES
HOST 00 0 0005 DT STN 2373556 GRP1 0 0 214 (RAG) (CPU)
TABLE NCOS
→ GRP1 0 0 0 NCOS0 (XLAS PTN1 NXLA NDGT) $
→ TABLE CUSTHEAD: CUSTRP, PRELIMXLA, CUSTXLA,
FEATXLA, VACTRMT, AND DIGCOL
GRP1 NXLA CTN1 FTN1 0 DCN1
TABLE DIGCOL
→ DCN1 0 RPT
→ TABLE IBNXLA: XLANAME PTN1
TUPLE NOT FOUND
Default is to go to next XLA name.
CUST PRELIM XLA name is NIL. Go to next XLA name.
→ TABLE IBNXLA: XLANAME CTN1
CTN1 0 ATTO DALIBN 0 64 Y
Call routed to ATTENDANT CONSOLE.
DALIBN SUBGRP: 0 ICI: 64

+++ TRAVER: SUCCESSFUL CALL TRACE +++

DIGIT TRANSLATION ROUTES
1 CON DALIBN SUBGROUP 0 ICI 64

```

## Practice 1: Answer questions about network DOD

### Instructions:

Obtain NTP 297-1001-451, and read about the tables that were introduced in the previous section or use the information presented in this section to answer the following questions. Compare your answers with those found in the Practice 1 Feedback.

1. What does LRTE stand for?
  - a. Line Route
  - b. Lower Route
  - c. Local Route
  
2. When the switch finds code type LRTE in Subtable HNPACODE, which table or subtable does it go to next?
  - a. Subtable HNPA.RTEREF
  - b. Table TRKGRP
  - c. Table CLI
  - d. Table TOFCNAME
  
3. The \_\_\_\_\_ subtable sets a “Yes/No” flag indicating whether a call is local. Table \_\_\_\_\_ indicates whether a call should continue or go to a treatment.
  - a. LCASCR; LINEATTR
  - b. LINEATTR; LCASCRCN
  - c. LCASCR; PFXTREAT



4. Table LINEATTR contains an index into Subtable HNPA.RTEREF.
  - a. True
  - b. False
  
5. Which field in Table LINEATTR corresponds to field LINEATTR (Line Attribute Index) in Table IBNXLA?
  - a. LCC
  - b. LTG
  - c. LNATTIDX
  - d. LCANAME
  
6. If a tuple has the entry NLCA in field LCANAME, will the call be pointed into Table LCASCRN for screening?
  - a. Yes
  - b. No
  
7. Only one subtable can be accessed from Table HNPACONT.
  - a. True
  - b. False
  
8. Which selector tells the switch to look for EXACTLY seven digits after the network access code?
  - a. FRTE
  - b. HRTE
  - c. LRTE
  
9. Which of the following selectors points a call to Table CLLI?
  - a. C
  - b. P
  - c. S
  
10. Which selector indicates that the call has been denied (is sent to an intercept condition)?
  - a. D
  - b. T
  - c. S
  - d. None of the above



11. Which route selector is used with standard digit manipulation?
- S
  - T
  - N
  - None of the above
  - All of the above
12. Which of the following is NOT a function or capability of Subtable RTEREF of HNPACONT?
- Indicates a trunk group for routing a call
  - Allows for the prefixing and deleting of digits
  - Allows for alternate routing
  - Defines whether or not a call is local
13. Which selector is used to point calls to additional Routing tables?
- N
  - T
  - S
14. Which table or subtable shows the switch a “Yes/No” flag indicating whether or not a call is local?
- Table LCASCRCN
  - Subtable LCASCR
  - Table PFXTREAT
15. Match the field on the left to the table it points to on the right.

**Field****Table**C PRTNM

a. Table LCASCRCN

A LCANAME

b. Table HNPACONT

B SNPA (STS)

c. Table STDPRTCT

16.

| FROMDIGS | TODIGS | PRETRTE   |
|----------|--------|-----------|
| 0        | 0      | N OA 1 NA |
| 1        | 1      | N DD 1 NA |
| 2        | 9      | N NP 0 NA |

If a user dialed 1+0+(610) 568-8956,  
 the switch would read the highlighted  
 tuple (assume IBXLA deleted the "1").

a. True  
 b. False

500279  
070391

17.

| FROMDIGS | TODIGS | PRETRTE   |
|----------|--------|-----------|
| 0        | 0      | N OA 1 NA |
| 1        | 1      | N DD 1 NA |
| 2        | 9      | N NP 0 NA |

Select a tuple which specifies that  
 prefix digits need to be deleted prior to  
 further translation.

500280  
080791

18. All of the following code types except \_\_\_\_\_ point the switch to Subtable HNPA.RTEREF from Subtable HNPACODE.
- a. LRTE
  - b. HRTE
  - c. FRTE
  - d. DN
19. Which table is referred to as the “pointer” table because it points the switch to various Screening tables?
- a. Table IBNLINES
  - b. Table POSITION
  - c. Table LINEATTR
  - d. Table HNPACODE
20. The key field in Table LINEATTR is:
- a. LEN
  - b. LCC
  - c. LTG
  - d. LNATTIDX
21. Field STS (SNPA) in Table LINEATTR points the switch to \_\_\_\_\_.
- a. Table STDPRTCT
  - b. Table FNPACONT
  - c. Table HNPACONT
  - d. Table LCASCRCN
22. T120 is the \_\_\_\_\_ tone.
- a. Busy
  - b. Fast Busy/RODR
  - c. Silent
  - d. Test

23. Table HNPACONT provides direct access to:
- a. Subtable HNPACODE only
  - b. HNP.A.RTEREF only
  - c. Subtable HNPACODE and Subtable RTEREF (of HNPACONT)
  - d. Table FNPACONT
24. Code type HRTE in Subtable HNPACODE is used for:
- a. Seven digit toll calls
  - b. Seven digit local calls
  - c. Ten digit toll calls
  - d. International calls

**Please turn the page for Practice 1 Feedback**



### Practice 1 Feedback

- |       |                            |
|-------|----------------------------|
| 1. c  | 13. b                      |
| 2. a  | 14. c                      |
| 3. c  | 15. c,a,b                  |
| 4. b  | 16. b                      |
| 5. c  | 17. first and second tuple |
| 6. b  | 18. d                      |
| 7. b  | 19. c                      |
| 8. c  | 20. d                      |
| 9. c  | 21. c, d                   |
| 10. a | 22. b                      |
| 11. a | 23. c                      |
| 12. d | 24. a                      |

# TRAVER analysis

---

## Introduction

There are 4 sample TRAVERS in this section. For each TRAVER, you will be presented with several paragraphs that explain what the TRAVER is depicting.

## TRAYER 1

```

TRAYER L 3343556 94551212 T
TABLE IBNLINES
HOST 00 0 07 29 DP STN 3343556 GRP1 0 0 804 $
TABLE NCOS
→ GRP1 0 0 0 NCOS0 (XLAS PTN1 NXLA NDGT) $
→ TABLE CUSTHEAD: CUSTGRP, PRELIMXLA, CUSTXLA
FEATXLA, VACTRMT, AND DIGCOL
GRP1 NXLA CTN1 FTN1 0 DCN1
→ TABLE DIGCOL
DCN1 9 POTS Second Dialtone
→ TABLE IBNXLA: XLANAME PTN1
PTN1 9 NET N N N strip1 NDGT N Y DOD N 5 NONE
→ TABLE LINEATTR
5 IBN NONE NT NSCR 0 804 SPN1 LAS1 NONE N 0 NIL
NILLATA 0 NIL NIL
→ TABLE STDPRTCT
SPN1 (1)
→ SUBTABLE STDPRT
4 9 N NP 0 NA
TABLE HNPACONT
→ 804 16 0 (1) (1) (0)
SUBTABLE HNPACODE
455 455 LRTE 1
SUBTABLE RTEREF
→ 1 S D DODTRK CLL
EXIT TABLE RTEREF
EXIT TABLE HNPACONT
→ TABLE LCASCRCN
804 LAS1 (2) MAND N
SUBTABLE LCASCR
455 455 (remember, this is a range)
TABLE PFXTREAT
MAND NP Y NP UNDT

+++ TRAYER: SUCCESSFUL CALL TRACE +++

```



- Table IBNLINES identifies the caller's LEN having a DN belonging to customer group GRP1 and NCOS0. Table NCOS0 shows that there is a preliminary translator PTN1 attached to this specific NCOS (0). Table CUSTHEAD assigns a customer translator, CTN1, a feature translator, FTN1, vacant treatment 0, and a digit collection name, DCN1 to everyone in the customer group.
- Table DIGCOL uses the dialer's digit collection name and the first digit dialed to find instructions to send to the peripheral processor (PP). In this TRAVEL, it tells the PP to use its POTS program to determine how many more digits will be dialed and need to be collected. It also states that yes, Y, a second dial tone is required after the user dials the network access code. Using the golden rule, Table IBNXLA translates with PTN1 and the 9 and determines that the call is a network call from the selector NET and network type DOD. It deletes the first digit 9 (1 indicated in the table means one digit will be stripped) and assigns the tuple number 5 to access LINEATTR.
- Table LINEATTR points the call to two additional tables (STDPRTCT and LCASCRCN) by assigning the dialer's serving translation scheme (STS=804), a pretranslator (SPN1), and a local calling screening area name (LAS1).
- Table STDPRTCT positions on the SPN1 which translates to subtable STDPRT. In STDPRT, the NOPREDIG field indicates there are no dialed prefixed digits to be stripped. Therefore, the call was dialed as a no prefix call (NP) and the N sends the call to HNPACONT; 4 and 9 represent a range whereby the first digit following the network access digit of 9 is found -- since the first digit is a 4, STDPRT positions on the range of values 4/9; the NA stands for North American.
- HNPACONT locates the dialing number's NPA (804 referenced in field STS of LINEATTR). Then subtable HNPACODE determines from the dialed number's NXX that the call code type is Local Route (LRTE). From this code type, the system determines that exactly 7 digits should be dialed by the originator. The route reference index number, 1, points to the RTEREF subtable which in turn specifies trunk group DODTRK.
- Table LCASCRCN is referenced since LINEATTR identified a local calling screening name (LAS1) and serving translation scheme (804). The software goes into subtable LCASCR to check if the dialed number's NXX is free (local). The tuple indicates the dialing of prefix digits is mandatory (MAND) for a long distance call.
- PFXTREAT contains a tuple whose key field represents three conditions that are present: (1) the selector MAND from LCASCRCN, (2) the type of call (NP) from STDPRTCT, and (3) the call being free (Y in subtable LCASCR). The call is not given a blocking treatment (UNDT=undefined treatment). Instead, it is routed out of the switch on a DODTRK.

**TRAVER 2**

TRAVER L 3343556 914561212 T  
TABLE IBNLINES  
HOST 00 0 07 29 DP STN 3343556 GRP1 0 0 804 \$  
TABLE NCOS  
GRP1 0 0 0 NCOS0 ( XLAS PTN1 NXLA NDGT) \$  
TABLE CUSTHEAD: CUSTGRP, PRELIMXLA, CUSTXLA  
FEATXLA, VACTRMT, AND DIGCOL  
GRP1 NXLA CTN1 FTN1 0 DCN1  
TABLE DIGCOL  
DCN1 9 POTS Y  
TABLE IBNXLA: XLANAME PTN1  
PTN1 9 NET N N N 1 NDGT N Y DOD N 5 NONE  
TABLE LINEATTR  
5 IBN NONE NT NSCR 0 804 SPN1 LAS1 NONE N 0 NIL  
NILLATA 0 NIL NIL  
TABLE STDPRTCT  
SPN1 ( 1)  
SUBTABLE STDPRT  
1 1 N DD 1 NA  
TABLE HNPACONT  
804 16 0 ( 1) ( 1) ( 0)  
SUBTABLE HNPACODE  
456 456 HRTE 1  
SUBTABLE RTEREF  
1 S D DODTRK  
EXIT TABLE RTEREF  
EXIT TABLE HNPACONT  
TABLE LCASCRCN  
804 LAS1 ( 2) MAND N  
SUBTABLE LCASCR  
TUPLE NOT FOUND. DEFAULT IS NON-LOCAL  
TABLE PFXTREAT  
MAND DD N DD UNDT

+++ TRAVER: SUCCESSFUL CALL TRACE +++

- Table IBNLINES identifies the caller's LEN having a DN belonging to customer group GRP1 and NCOS0. Table NCOS shows that there is a preliminary translator PTN1 attached to this specific NCOS (0). Table CUSTHEAD assigns a customer translator, CTN1, a feature translator, FTN1, vacant treatment 0, and a digit collection name, DCN1 to everyone in the customer group.
- Table DIGCOL uses the dialer's digit collection name and the first digit dialed to find instructions to send to the peripheral processor (PP). In this TRAVEL, it tells the PP to use its POTS program to determine how many more digits will be dialed and need to be collected. It also states that yes, Y, a second dial tone is required after the user dials the network access code. Using the golden rule, Table IBNXLA translates with PTN1 and the 9 and determines that the call is a network call from the selector NET and network type DOD. It deletes one digit, '9', and assigns the tuple number 5 to access LINEATTR.
- Table LINEATTR points the call to two additional tables (STDPRTCT and LCASCRCN) by assigning the dialer's serving translation scheme (STS=804), a pretranslator (SPN1), and a local calling screening area name (LAS1).
- Table STDPRTCT positions on the SPN1 which translates to subtable STDPRT where the DD indicates that this is a direct dial call. The prefix digit '1' is deleted before the call is routed to HNPACONT by the selector N.
- HNPACONT locates the dialing number's NPA (804 referenced in field STS of LINEATTR). Then subtable HNPACODE determines from the dialed number's NXX that the call code type is Home Route (HRTE). From this code type, the system determines that exactly 7 digits should be dialed by the originator. The route reference index number, 1, points to the RTEREF subtable which in turn specifies trunk group DODTRK.
- Table LCASCRCN is referenced since LINEATTR identified a local calling screening name (LAS1) and serving translation scheme (804). The tuple indicates the dialing of prefix digits is mandatory (MAND) for a long distance call. The software goes into subtable LCASCR to check if the dialed number's NXX is free (local). LCASCR fails to locate the dialed number's NXX (456). As a result, the translation software determines that the call is not in the dialing number's free area.
- PFXTREAT uses a tuple whose key field reflects the following: (1) MAND from LCASCRCN, (2) the type of call (DD) from STDPRTCT, and (3) non-local from subtable LCASCR. Since these conditions are found, no treatment is defined (UNDT). Thus, the call is allowed to be routed out on the trunk group specified in RTEREF..

**TRAVER 3**

TRAVER L 3343556 915164571212 T  
TABLE IBNLINES  
HOST 00 0 07 29 DP STN 3343556 GRP1 0 0 804 \$  
TABLE NCOS  
GRP1 0 0 0 NCOS0 ( XLAS PTN1 NXLA NDGT) \$  
TABLE CUSTHEAD: CUSTGRP, PRELIMXLA, CUSTXLA  
FEATXLA, VACTRMT, AND DIGCOL  
GRP1 NXLA CTN1 FTN1 0 DCN1  
TABLE DIGCOL  
DCN1 9 POTS Y  
TABLE IBNXLA: XLANAME PTN1  
PTN1 9 NET N N N 1 N NDGT N Y DOD N 5 NONE  
TABLE LINEATTR  
5 IBN NONE NT NSCR 0 804 SPN1 LAS1 NONE N 0 NIL  
NILLATA 0 NIL NIL  
TABLE STDPRTCT  
SPN1 ( 1)  
SUBTABLE STDPRT  
1 1 N DD 1 NA  
TABLE HNPACONT  
804 16 0 ( 1) ( 1) ( 0)  
SUBTABLE HNPACODE  
516 516 FRTE 1  
SUBTABLE RTEREF  
1 S D DODTRK  
EXIT TABLE RTEREF  
EXIT TABLE HNPACONT  
TABLE LCASCRN  
804 LAS1 ( 2) MAND N  
SUBTABLE LCASCR  
TUPLE NOT FOUND. DEFAULT IS NON-LOCAL  
TABLE PFXTREAT  
MAND DD N DD UNDT

+++ TRAVER: SUCCESSFUL CALL TRACE +++

- Table IBNLINES identifies the caller's LEN having a DN belonging to customer group GRP1 and NCOS 0.
- Table NCOS shows that there is a translator name of PTN1 attached to this specific NCOS (0).
- Table CUSTHEAD assigns customer translator CTN1, feature translator FTN1, and digit collection name DCN1 to everyone in the customer group (including this NCOS).
- Table DIGCOL focuses on a tuple with the key field of the dialer's digit collection name DCN1 and the first digit dialed, 9, and issues instructions to the peripheral processor to use its POTS program.
- Table IBNXLA translates with PTN1 on the 9, determines the call is a network call from the selector NET and network call type DOD, deletes one digit, the 9, and assigns a line attribute index number of 5.
- Table LINEATTR identifies the call as an IBN call and assigns the serving translation scheme 804, the pretranslator name SPN1, and local calling area screening name LAS1.
- Table STDPRTCT positions on the SPN1 which translates to subtable STDPRT where the DD indicates that this is a direct dial call. The prefix digit '1' is deleted before the call is routed to HNPACONT by the selector N.
- Table HNPACONT subtables code the call as a FRTE and sends the call to RETREF 1 which selects DODTRK as the route.
- Table LCASCRCN positions on the dialing number's NPA, and local calling area screening name (LAS1). The tuple indicates the dialing of prefix digits is mandatory (MAND) for a long distance call. Subtable LCASCR cannot locate the dialed number's NPA (516), which indicates that the call is not in the dialing number's free area.
- Table PFXTREAT focuses on one of its tuples keyed by the selector (MAND) from LCASCRCN, the type of call (DD) from STDPRTCT and N (No) the call was not found to be in subtable LCASCR as a free NXX. Since these conditions are found, a treatment isn't specified (UNDT). The call is allowed to exit the Meridian 1 Options 111-211 site on the selected trunk group.

**TRAVER 4**

TRAVER L 3343556 93345443 T  
TABLE IBNLINES  
HOST 00 0 07 29 DT STN 3343556 GRP1 0 0 804 \$  
TABLE NCOS  
GRP1 0 0 0 NCOS0 ( XLAS PTN1 NXLA NDGT) \$  
TABLE CUSTHEAD: CUSTGRP, PRELIMXLA, CUSTXLA  
FEATXLA, VACTRMT, AND DIGCOL  
GRP1 NXLA CTN1 FTN1 0 DCN1  
TABLE DIGCOL  
DCN1 9 POTS Y  
TABLE IBNXLA: XLANAME PTN1  
PTN1 9 NET N N N 1 N NDGT N Y DOD N 5 NONE  
TABLE LINEATTR  
5 IBN NONE NT NSCR 0 804 SPN1 LAS1 NONE N 0 NI  
NILLATA 0 NIL NIL  
TABLE STDPRTCT  
SPN1 ( 1)  
SUBTABLE STDPRT  
3 9 N NP 0 NA  
TABLE HNPACONT  
804 16 0 ( 1) ( 1) ( 0)  
SUBTABLE HNPACODE  
334 334 DN 804 334  
TABLE TOFCNAME  
804 334  
TABLE DNINV  
804 334 5443 L HOST 00 0 07 03  
TABLE LCASCRCN  
804 LAS1 ( 2) MAND N  
SUBTABLE LCASCR  
334 334  
TABLE PFXTREAT  
MAND NP Y NP UNDT

+++ TRAVER: SUCCESSFUL CALL TRACE +++

- Table IBNLINES identifies the caller's LEN having a DN belonging to customer group GRP1 and NCOS 0. Table NCOS shows that there is a translator name of PTN1 attached to this specific NCOS (0). Table CUSTHEAD assigns customer translator CTN1, feature translator FTN1, and digit collection name DCN1 to everyone in the customer group (including this NCOS).
- Table DIGCOL focuses on a tuple with the key field of the dialer's digit collection name DCN1 and the first digit dialed, 9, and issues instructions to the peripheral processor to use its POTS program.
- Table IBNXLA translates with PTN1 on the 9, determines the call is a network call from the selector NET and network call type DOD, deletes one digit, the 9, and assigns a line attribute index number of 5.
- Table LINEATTR identifies the call as an IBN call and assigns the serving translation scheme 804, the pretranslator name SPN1, and local calling area screening name LAS1.
- Table STDPRTCT positions on the SPN1 which translates to subtable STDPRT. In STDPRT, the NOPREDIG field indicates there are no dialed prefixed digits to be stripped. Therefore, the call was dialed as a no prefix call (NP) and the N sends the call to HNPACONT; the numbers 3 and 9 represent a range whereby the first digit following the network access digit of 9 is found -- since the first digit is a 3, STDPRT positions on the FROMDIGS/TODIGS values of 3 and 9; the NA stands for North American.
- Table HNPACONT subtables code the call as a DN. Note the code of DN that is given in subtable HNPACODE to the NXX of the dialer (and, of course, the terminator when they're in the same switch). As you can see, the call is immediately sent to Table TOFCNAME, instead of the subtable RTEREF because it does not need a trunk group for routing. The 804 and 334 are used to position on the keyfield in TOFCNAME.
- The NPA and NXX are indexed in TOFCNAME to verify that these are in the terminator's switch. The same values are used to index DNINV.
- In DNINV, the software positions on the NPA, NXX, and station code that was dialed. The dialed number's LEN is also identified.
- Table LCASCRCN positions on the dialing number's NPA, and local calling area screening name (LAS1). The tuple indicates the dialing of prefix digits is mandatory (MAND) for a long distance call. Subtable LCASCR cannot locate the dialed number's NPA (416), which indicates that the call is not in the dialing number's free area.
- Table PFXTREAT focuses on one of its tuples keyed by the selector (MAND) from LCASCRCN, the type of call (NP) from STDPRTCT and Y (Yes) the call was found to be in subtable LCASCR as a free NXX. Since these conditions are found, a treatment isn't specified (UNDT).





## Practice 2: Tuple interaction and TRAVER analysis

### Situation:

As a database or trouble-desk technician, you have received the following printed TRAVERs. You have been asked to locate the problem and then tell how to correct the datafill errors.

### Instructions:

#### Part A

1. Read through the TRAVER.
2. Access any NTP you may need.
3. If necessary, review the tables used in this lesson.
4. Indicate what is causing the problem as well as what can be done to correct the problem.
5. Compare your answers with those found in Practice 2 Feedback; discuss any differences with your instructor or colleague.



**TRAYER 1**

```

TRAYER L 3343556 94551212 T
TABLE IBNLINES
HOST 01 0 01 20 DP STN 3343556 GRP1 0 0 804 $
TABLE NCOS
GRP1 0 0 0 NCOS0 (XLAS PTN1 NXLA NDGT) $
TABLE CUSTHEAD: CUSTGRP, PRELIMXLA, CUSTXLA
FEATXLA, VACTRMT, AND DIGCOL
GRP1 NXLA CTN1 FTN1 0 DCN1
TABLE DIGCOL
DCN1 9 POTS Y
TABLE IBNXLA: XLANAME PTN1
PTN1 9 NET N N N 1 NDGT N Y DOD N 5 NONE
TABLE LINEATTR
5 IBN NONE NT NSCR 0 804 SPN1 LAS1 NONE N 0 NIL NILSFC
NILLATA 0 NIL NIL
TABLE STDPRTCT
SPN1 (1)
SUBTABLE STDPRT
4 9 N NP 0 NA
TABLE HNPACONT
804 16 0 (1) (1) (0)
SUBTABLE HNPACODE
TUPLE NOT FOUND
DEFAULT VALUE IS: VCT VACT N
TABLE TMTCNTL
LNT (27)
SUBTABLE TREAT
VACT N T OFRT 14
TABLE OFRT
14 S D ANNMEM10
S D IDLE
EXIT TABLE OFRT

```

+++ TRAYER: SUCCESSFUL CALL TRACE +++

**TABLE: HNPACONT**

| 804 | 16 | 0        | ( 0)   | ( 1)    | ( 0) |
|-----|----|----------|--------|---------|------|
|     |    | FROMDIGS | TODIGS | CDRRTMT |      |
|     |    | 334      | 334    | DN 804  | 334  |
|     |    | 456      | 456    | HRTE    | 1    |
|     |    | 516      | 516    | FRTE    | 1    |

- 
- a. What is causing the problem? NO Tuple in Subtable  
HNPAcode For 455
- b. What should be done to correct the problem? program 455  
in subtable HNPAcode

**TRAVER 2**

```
TRAVER L 3345443 94551212 B
TABLE IBNLINES
HOST 01 0 02 09 DP STN 3345443 GRP1 0 2 804 $
TABLE NCOS
GRP1 2 0 0 NCOS2 (XLAS PTN13 NXLA NDGT) $
TABLE CUSTHEAD: CUSTGRP, PRELIMXLA, CUSTXLA
FEATXLA, VACTRMT, AND DIGCOL
GRP1 NXLA CTN1 FTN1 0 DCN1
TABLE DIGCOL
DCN1 9 POTS Y
TABLE IBNXLA: XLANAME PTN13
TUPLE NOT FOUND
Default is to go to next XLA name.
CUST PRELIM XLA name is NIL. Go to next XLA name.
TABLE IBNXLA: XLANAME CTN1
TUPLE NOT FOUND
Default is to use TRMT VACTREAT from CUSTHEAD
TABLE IBNTREAT
GRP1 0 Y S ANNMEM6

+++ TRAVER: SUCCESSFUL CALL TRACE +++
```

---

a. What is causing the problem? There is no tuple in  
IBNXL1 PTN 13

b. What should be done to correct the problem? PTN 13 19 1 NET

---

**TRAVER 3**

```

TRAVER L 3343556 94561212 T
TABLE IBNLINES
HOST 00 0 07 29 DP STN 3343556 GRP1 0 0 804 $
TABLE NCOS
GRP1 0 0 0 NCOS0 (XLAS PTN1 NXLA NDGT) $
TABLE CUSTHEAD: CUSTGRP, PRELIMXLA, CUSTXLA
FEATXLA, VACTRMT, AND DIGCOL
GRP1 NXLA CTN1 FTN1 0 DCN1
TABLE DIGCOL
DCN1 9 POTS Y
TABLE IBNXLA: XLANAME PTN1
PTN1 9 NET N N N N 1*NDGT N Y DOD N 5 NONE
TABLE LINEATTR
5 IBN NONE NT NSCR 0 804 SPN1 LAS1 NONE N 0 NIL NILSFC
NILLATA 0 NIL NIL
TABLE STDPRTCT
SPN1 (1)
SUBTABLE STDPRT
4 9 N NP 0 NA
TABLE HNPACONT
804 16 0 (1) (1) (0)
SUBTABLE HNPACODE
456 456 XHRTE 1
SUBTABLE RTEREF
1 S D DODTRK
EXIT TABLE RTEREF
EXIT TABLE HNPACONT
TABLE LCASCRCN
804 LAS1 (2) MAND N
SUBTABLE LCASCR
TUPLE NOT FOUND. DEFAULT IS NON-LOCAL.
TABLE PFXTREAT
MAND NP N NP MSLC
TABLE TMTCNTL
LNT (27)
SUBTABLE TREAT
MSLC N T OFRT 11
TABLE OFRT
11 S D ANNMEM13
S D IDLE
EXIT TABLE OFRT

```

+++ TRAVER: SOFTWARE FAILURE +++

a. What is causing the problem? \_\_\_\_\_

b. What should be done to correct the problem? \_\_\_\_\_

**TRAYER 4**

TRAYER L 3343556 914561212 T  
TABLE IBNLINES  
HOST 01 0 01 20 DP STN 3343556 GRP1 0 0 804 \$  
TABLE NCOS  
GRP1 0 0 0 NCOS0 ( XLAS PTN1 NXLA NDGT) \$  
TABLE CUSTHEAD: CUSTGRP, PRELIMXLA, CUSTXLA  
FEATXLA, VACTRMT, AND DIGCOL  
GRP1 NXLA CTN1 FTN1 0 DCN1  
TABLE DIGCOL  
DCN1 9 POTS Y  
TABLE IBNXLA: XLANAME PTN1  
PTN1 9 NET N N N 1 NDGT N Y DOD N 5 TDV  
TABLE LINEATTR  
5 IBN NONE NT NSCR 0 804 SPN1 LAS1 NONE N 0 NIL NILSFC  
NILLATA 0 NIL NIL  
TABLE STDPRTCT  
SPN1 ( 1)  
SUBTABLE STDPRT  
1 1 N DD 1 NA  
TABLE HNPACONT  
804 16 0 ( 1) ( 1) ( 0)  
SUBTABLE HNPACODE  
456 456 HRTE 1  
SUBTABLE RTEREF  
1 S D DODTRK  
EXIT TABLE RTEREF  
EXIT TABLE HNPACONT  
TABLE LCASCRCN  
804 LAS1 ( 2) MAND N  
SUBTABLE LCASCR  
TUPLE NOT FOUND. DEFAULT IS NON-LOCAL.  
TABLE PFXTREAT  
MAND DD N DD UNDT  
Call routed to ATTENDANT CONSOLE:  
GRP1 SUBGRP: 0 ICI: 8

+++ TRAYER: SUCCESSFUL CALL TRACE +++



- 
- a. What is causing the problem? TABLE IBNYLA TDV  
entry should be none
- b. What should be done to correct the problem? change Table  
IBNYLA TDV TO none

**TRAYER 5**

TRAYER L 3343556 915165551212 T  
TABLE IBNLINES  
HOST 01 0 01 20 DP STN 3343556 GRP1 0 0 804 \$  
TABLE NCOS  
GRP1 0 0 0 NCOS0 ( XLAS PTN1 NXLA NDGT) \$  
TABLE CUSTHEAD: CUSTGRP, PRELIMXLA, CUSTXLA  
FEATXLA, VACTRMT, AND DIGCOL  
GRP1 NXLA CTN1 FTN1 0 DCN1  
TABLE DIGCOL  
DCN1 9 POTS Y  
TABLE IBNXLA: XLANAME PTN1  
PTN1 9 NET N N N 1 NDGT N Y DOD N 5 TDN  
TABLE LINEATTR  
5 IBN NONE NT NSCR 0 804 SPN1 LAS1 NONE N 0 NIL NILSFC  
NILLATA 0 NIL NIL  
TABLE STDPRTCT  
SPN1 ( 1)  
SUBTABLE STDPRT  
1 1 N DD 1 NA  
TABLE HNPACONT  
804 16 0 ( 1) ( 1) ( 0)  
SUBTABLE HNPACODE  
516 516 FRTE 1  
SUBTABLE RTEREF  
1 S D DODTRK  
EXIT TABLE RTEREF  
EXIT TABLE HNPACONT  
TABLE LCASCRCN  
804 LAS1 ( 2) MAND N  
SUBTABLE LCASCR  
TUPLE NOT FOUND. DEFAULT IS NON-LOCAL.  
TABLE PFXTREAT  
MAND DD N DD UNDT  
This call has TDN (Toll DeNied)  
TABLE TMTCNTL  
LNT ( 27)  
SUBTABLE TREAT  
TDND N T OFRT 8  
TABLE OFRT  
8 S D ANNMEM5  
S D LKOUT  
EXIT TABLE OFRT

+++ TRAYER: SUCCESSFUL CALL TRACE +++

---

a. What is causing the problem? Table IBNXL A / TON

---

b. What should be done to correct the problem? Change Table  
IBNXL A TON to none.

---

### Practice 2 Part B

Each TRAVER graphic below has a corresponding question; indicate your answer by circling the correct response. Compare your answers with those found in Practice 2 Feedback.

6.

```

TRAVER L 2373556 92375443
TABLE IBNLINES
HOST 00 0 00 05 DT STN 2373556 GRP1 0 0 214 $
TABLE NCOS
GRP1 0 0 NCOS0 (XLAS PTN1 NXLA NDGT) $
TABLE CUSTHEAD: CUSTGRP, PRELIMXLA, CUSTXLA, FEATXLA, VACTRMT, AND DIGCOL
GRP1 NXLA CTN1 FTN1 0 DCN1
TABLE IBNXLA: XLANAME PTN1
PTN1 9 NET N N N 1 Y NDGT N Y DOD N 4 NONE
TABLE LINEATTR
4 IBN NONE NT NSCR 0 214 SPN1 LAS1 NONE N 0 NIL NILSFC NILLATA 0 NIL NIL
TABLE STDPRTCT
SPN1 (1)
. SUBTABLE STDPRT
. 2 9 N NP 0 NA
TABLE HNPACONT
214 16 0 (1) (1) (0)
. SUBTABLE HNPACODE
. 237 237 DN 214 237
TABLE TOFCNAME
214 237
TABLE DNINV
214 237 5443 L HOST 00 0 07 3
TABLE LCASCRCN
214 LAS1 (2) MAND N
. SUBTABLE LCASCR
. 237 237
TABLE PFXTREAT
MAND NP Y NP UNDT

```

Given this TRAVER, what entry sends the call to the respective Subtables STDPRT?

- a. NET DOD IN TABLE IBNXLA
- b. N in Table LINEATTR
- c. SPN1 in Table LINEATTR

500287  
070591

7.

```

TRAVER L 2373556 92375443
TABLE IBNLINES
HOST 00 0 00 05 DT STN 2373556 GRP1 0 0 214 $
TABLE NCOS
GRP1 0 0 NCOS0 (XLAS PTN1 NXLA NDGT) $
TABLE CUSTHEAD: CUSTGRP, PRELIMXLA, CUSTXLA, FEATXLA, VACTRMT, AND DIGCOL
GRP1 NXLA CTN1 FTN1 0 DCN1
TABLE IBNXLA: XLANAME PTN1
PTN1 9 NET N N N 1 Y NDGT N Y DOD N 4 NONE
TABLE LINEATTR
4 IBN NONE NT NSCR 0 214 SPN1 LAS1 NONE N 0 NIL NILSFC NILLATA 0 NIL NIL
TABLE STDPRTCT
SPN1 (1)
. SUBTABLE STDPRT
. 2 9 N NP 0 NA
TABLE HNPACONT
214 16 0 (1) (1) (0)
. SUBTABLE HNPACODE
. 237 237 DN 214 237
TABLE TOFCNAME
214 237
TABLE DNINV
214 237 5443 L HOST 00 0 07 3
TABLE LCASCRCN
214 LAS1 (2) MAND N
. SUBTABLE LCASCR
. 237 237
TABLE PFXTREAT
MAND NP Y NP UNDT

```

What does the 237 237 tuple in Subtable LCASCR indicate?

- The call can be completed as dialed.
- The call is a "free" call.
- The call is not in the "local area."

500288  
071991

8.

TRAVER L 2373556 92375443  
TABLE IBNLINES  
HOST 00 0 00 05 DT STN 2373556 GRP1 0 0 214 \$  
TABLE NCOS  
GRP1 0 0 NCOS0 (XLAS PTN1 NXLA NDGT) \$  
TABLE CUSTHEAD: CUSTGRP, PRELIMXLA, CUSTXLA, FEATXLA, VACTRMT, AND  
DIGCOL  
GRP1 NXLA CTN1 FTN1 0 DCN1  
TABLE IBNXLA: XLANAME PTN1  
PTN1 9 NET N N N 1 Y NDGT N Y DOD N 4 NONE  
TABLE LINEATTR  
4 IBN NONE NT NSCR 0 214 SPN1 LAS1 NONE N 0 NIL NILSFC NILLATA 0 NIL NIL  
TABLE STDPRTCT  
SPN1 (1)  
. SUBTABLE STDPRT  
. 2 9 N NP 0 NA  
TABLE HNPACONT  
214 16 0 (1) (1) (0)  
. SUBTABLE HNPACODE  
. 237 237 DN 214 237  
TABLE TOFCNAME  
214 237 5 Y C  
TABLE DNINV  
214 237 5443 L HOST 00 0 07 3  
TABLE LCASCRN  
214 LAS1 (2) MAND N  
. SUBTABLE LCASCR  
. 237 237  
TABLE PFXTREAT  
MAND NP Y NP UNDT

- This call completes to a DN \_\_\_\_\_.
- a. at the dialing DN's site.
  - b. in the public network (LRTE).
  - c. in the public network (HRTE).

500289  
071991

9.

```

TRAVER L 2373556 94551212 T
TABLE IBNLINES
HOST 00 0 00 05 DT STN 2373556 GRP1 0 0 214 $
TABLE NCOS
GRP1 0 0 NCOS0 XLAS PTN1 NXLA NDGT $
TABLE CUSTHEAD: CUSTGRP, PRELIMXLA, CUSTXLA, FEATXLA, VACTRMT,
AND DIGCOL
GRP1 NXLA CTN1 FTN1 0 DCN1
TABLE DIGCOL
DCN1 9 POTS Y
TABLE IBNXLA: XLANAME PTN1
PTN1 9 NET N N N 1 N NDGT N N DOD Y 4 NONE
TABLE LINEATTR
4 IBN NONE NT NSCR 0 214 SPN1 LAS1 NONE N 0 NIL NILSFC NILLATA 0 NIL NIL
TABLE STDPRTCT
SPN1 (1)
 SUBTABLE STDPRT
 4 9 N NP 0 NA
TABLE HNPACONT
214 10 0 (3) (1) (.0)
 SUBTABLE HNPACODE
 455 455 LRTE 1
 SUBTABLE RTEREF
 1 S D DODTRK
TABLE LCASCRCN
214 LAS1 (2) MAND N
 SUBTABLE LCASCR
 455 455
TABLE PFXTREAT
MAND NP Y NP UNDT

```

For this TRAVER, what does the LRTE 1 mean in Subtable HNPACODE?

- a. Translate the call to tuple 1 in RTEREF
- b. Expect a seven-digit DN
- c. The call is a "local" route.
- d. All of the above.

500291  
071991

10.

TRAVER L 2373556 94551212 T  
TABLE IBNLINES  
HOST 00 0 00 05 DT STN 2373556 GRP1 0 0 214 \$  
TABLE NCOS  
GRP1 0 0 NCOS0 XLAS PTN1 NXLA NDGT \$  
TABLE CUSTHEAD: CUSTGRP, PRELIMXLA, CUSTXLA, FEATXLA, VACTRMT,  
AND DIGCOL  
GRP1 NXLA CTN1 FTN1 0 DCN1  
TABLE DIGCOL  
DCN1 9 POTS Y  
TABLE IBNXLA: XLANAME PTN1  
PTN1 9 NET N N N 1 N NDGT N N DOD Y 4 NONE  
TABLE LINEATTR  
4 IBN NONE NT NSCR 0 214 SPN1 LAS1 NONE N 0 NIL NILSFC NILLATA 0 NIL NIL  
TABLE STDPRTCT  
SPN1 (1)  
SUBTABLE STDPRT  
1 1 N DD 1 NA  
TABLE HNPACONT  
214 10 0 (3) (1) (0)  
SUBTABLE HNPACODE  
455 455 HRTE 1  
SUBTABLE RTEREF  
1 S D DODTRK  
TABLE LCASCRCN  
214 LAS1 ( 2) MAND N  
SUBTABLE LCASCR  
Tuple not found. Default is non-local.  
TABLE PFXTREAT  
MAND DD Y DD UNDT

What entry(s) in Table LINEATTR point(s) to Table LCASCRCN?

- a. 214
- b. LAS1
- c. N
- d. Both a and b
- e. All of the above

500293  
071991



11.

TRAVER L 2373556 917034671212 B  
 TABLE IBNLINES  
 HOST 00 1 07 22 DT STN 2373556 GRP1 0 0 214 \$  
 TABLE NCOS  
 GRP1 0 0 NCOS0 (XLAS PTN1 NXLA NDGT) \$  
 TABLE CUSTHEAD: CUSTGRP, PRELIMXLA, CUSTXLA, FEATXLA, VACTRMT, AND DIGCOL  
 GRP1 NXLA CTN1 FTN1 0 DCN1  
 TABLE IBNXLA: XLANAME PTN1  
 PTN1 9 NET N N N 1 N NDGT N N DOD N 31 NONE  
 TABLE LINEATTR  
 31 IBN NONE NT NSCR 0 214 SPN1 LAS1 NONE N 0 NIL NILSFC NILLATA 0 NIL NIL  
 TABLE STDPRTCT  
 SPN1 ( 1)  
 SUBTABLE STDPRT  
 1 1 N DD 0 NA  
 TABLE HNPACONT  
 214 3 1 ( 3) ( 1) ( 0)  
 SUBTABLE HNPACODE  
 703 703 AMBI TIM LRTE 1 FRTE 1  
 SUBTABLE  
 RTEREF 1 S D DODTRK  
 TABLE LCASCRCN  
 214 LAS1 ( 2) MAND N  
 SUBTABLE LCASCR  
 Tuple not found. Default is non-local.  
 TABLE PFXTREAT  
 MAND DD N DD UNDT  
 DIGIT TRANSLATION ROUTES  
 1 DODTRK 7034671212

For this TRAVER, which route  
will the call take?

- a. LRTE 1
- b. FRTE 1
- c. Undetermined treatment

500294  
071991

**Practice 2 Feedback****Part A**

1. Datafill is missing from HNPACODE; to correct the problem, you need to add (FROMDIGS) 455 (TODIGS) 455 as well as add tuples for HNPACONT.RTEREF, LCASCRCN, LCASCRCN.LCASCRCN, and PFXTREAT (refer to page 42 for sample tuples):
2. This is a network DOD access call. There is no tuple in IBNXLA; you need to add a tuple that will key on the digit '9' (PTN13 9 NET...).
3. This is a local route call. The tuple in Subtable HNPACODE needs to be changed to LRTE, Subtable LCASCRCN needs to be datafilled with the digit range of 455 to 455, and Table PFXTREAT needs to be changed to UNDT rather than MSLC.
4. This is a toll call. In IBNXLA, the field TOLLREST (toll restriction) has TDV in it; this sends the call to an attendant. You need to change TDV to NONE.
5. This is a net DOD toll call. In IBNXLA, the field TOLLREST has TDN in it; again, you need to change this to NONE.

**Part B**

6. c
7. b
8. a
9. d
10. d
11. b

---

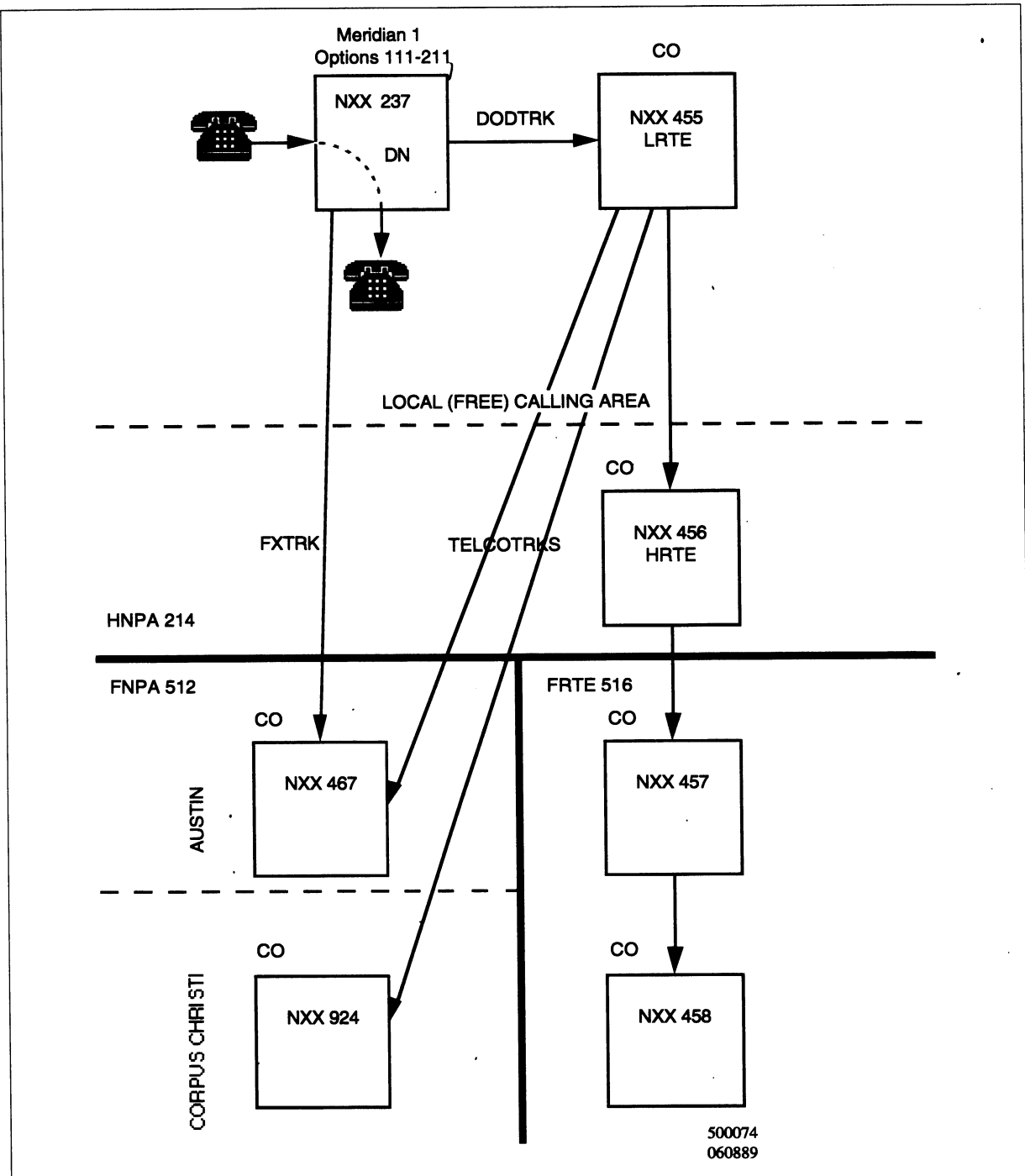
# Six-digit screening

---

## Introduction

In Figure 3 on the following page, the FX trunk is connecting your Meridian 1 Options 111-211 to the city of Austin, Texas. This FX hookup enables you to make calls to all numbers within Austin's local calling area as if you were dialing from a telephone located there. In other words, your callers, using the FX trunk, would have to dial only a seven-digit number to reach any Austin number. But how would your callers access the FX trunk for their calls? One way is for you to build a special tuple in Table IBNXLA that allows them access to the FX trunk. This tuple would specify that if a certain access code (e.g., 5) were dialed, the call should be routed (ROUTE) out of the switch using the designated FX trunk.

**Figure 3**  
**Trunking diagram**



Here's an example of such a tuple:

**Table IBNXLA**

| <u>KEY</u>          | <u>TRSEL</u>   | <u>ACR</u>     | <u>SMDR</u>     | <u>VCDR</u>     | <u>NO ACCODE DIGITS</u> |
|---------------------|----------------|----------------|-----------------|-----------------|-------------------------|
| PTN1 5              | ROUTE          | N              | Y               | N               | 1                       |
| <u>SDT</u>          | <u>MINDIGS</u> | <u>MAXDIGS</u> | <u>DIGCOLNM</u> | <u>INTRAGRP</u> |                         |
| Y                   | 8              | 8              | NDGT            | Y               |                         |
| <u>ROUTE SUBSEL</u> | <u>CLLI</u>    |                |                 |                 |                         |
| S                   |                | FXTRK          |                 |                 |                         |

The following is a discussion of the above example and all of the relevant subfields for the translator selector (TRSEL) of ROUTE.

- **TRSEL (Translator Selector).** The appropriate translator selector for this application is ROUTE. ROUTE means that you want the switch to route the call directly to a customer specifiable trunk, announcement or table.
- **ACR (Account Code Restriction/Auth Code Last Required).** This field determines whether or not the user will be required to dial an account code or auth code in addition to the access code of 5.
- **SMDR (Station Message Detail Recording).** This field determines whether or not a SMDR record is to be made every time a user dials the access code for this FX trunk.
- **VCDR (Variable Call Detail Record).** Y/N. If TRSEL is datafilled NET, ROUTE, TTTR, AMBI, EXTN, CUTTD, or FEAT, then only N can be entered. Refer to 297-1001-451 for TRSEL options that require a Y in this subfield.
- **NO ACCODE DIGITS (Number of Access Code Digits).** This field determines the number of digits in the access code that you have listed in the key field of this tuple. The switch will strip off the number of digits specified in this subfield.
- **SDT (Second Dial Tone).** Second Dial Tone can be given to the user (1) from Table DIGCOL if POTS is specified after a leading digit, or (2) if the translator selector of ROUTE is specified in table IBNXLA. Enter yes (Y) or no (N).

- **MINDIGS (Minimum Number of Digits).** This subfield specifies the minimum number of digits that the user should dial when using the FX trunk (1 to 25).
- **MAXDIGS (Maximum Number of Digits).** This subfield provides the ability of sending out more than seven digits over the FX trunk to the distant Central Office (e.g., eight digits include a prefix digit of 1 or 0 for long distance hop off at the CO) (1 to 25).
- **DGCOLNM (Digit Collection Name).** The Digit Collection Name subfield has a specialized application that is not covered in this basic course. NDGT should be entered for this field.
- **INTRAGRP (Intragroup).** This subfield relates to activating features across customer groups within the switch and is not applicable to our FX trunk.
- **ROUTE SUBSEL (Route Subselector).** Specify in this subfield whether you want the call routed directly to another table or to a CLLI name (e.g., a FX trunk group name). **Use the selector T for table or S for CLLI.**
- **CLLI.** This subfield, which is the name of the CLLI (e.g., the FX trunk group name), is requested if you specified the selector S in the last subfield of Table IBNXLA.

**TRAVER Example**

The following is a TRAVER of a user dialing a call, using the FX trunk.

```

TRAVER L 2373556 54671212 B
TABLE IBNLINES
HOST 00 1 07 23 DT STN 2373556 GRP1 0 0 214 $
TABLE DNATTRS
TUPLE NOT FOUND
TABLE NCOS
GRP1 0 0 0 NCOS0 (XLAS PTN1 NXLA NDGT) $
TABLE CUSTHEAD: CUSTGRP, PRELIMXLA, CUSTXLA,
FEATXLA, VACTRMT, DIGCOL
GRP1 NXLA CTN1 FTN1 0 DCN1
TABLE DIGCOL
DCN1 5 COL L 7
TABLE IBNXLA: PTN1
PTN1 5 ROUTE N N N 1 N 8 8 NDGT N S FXTRK cus

+++ TRAVER: SUCCESSFUL CALL TRACE +++

```

**DIGIT TRANSLATION ROUTES**

```
1 FXTRK 4671212
```

As you can see in the TRAVER above, the call is routed directly to the FX trunk group from Table IBNXLA without going to any of the other tables for a network call (e.g., Table LINEATTR, Table STDPRTCT, Table HNPACONT, etc.).

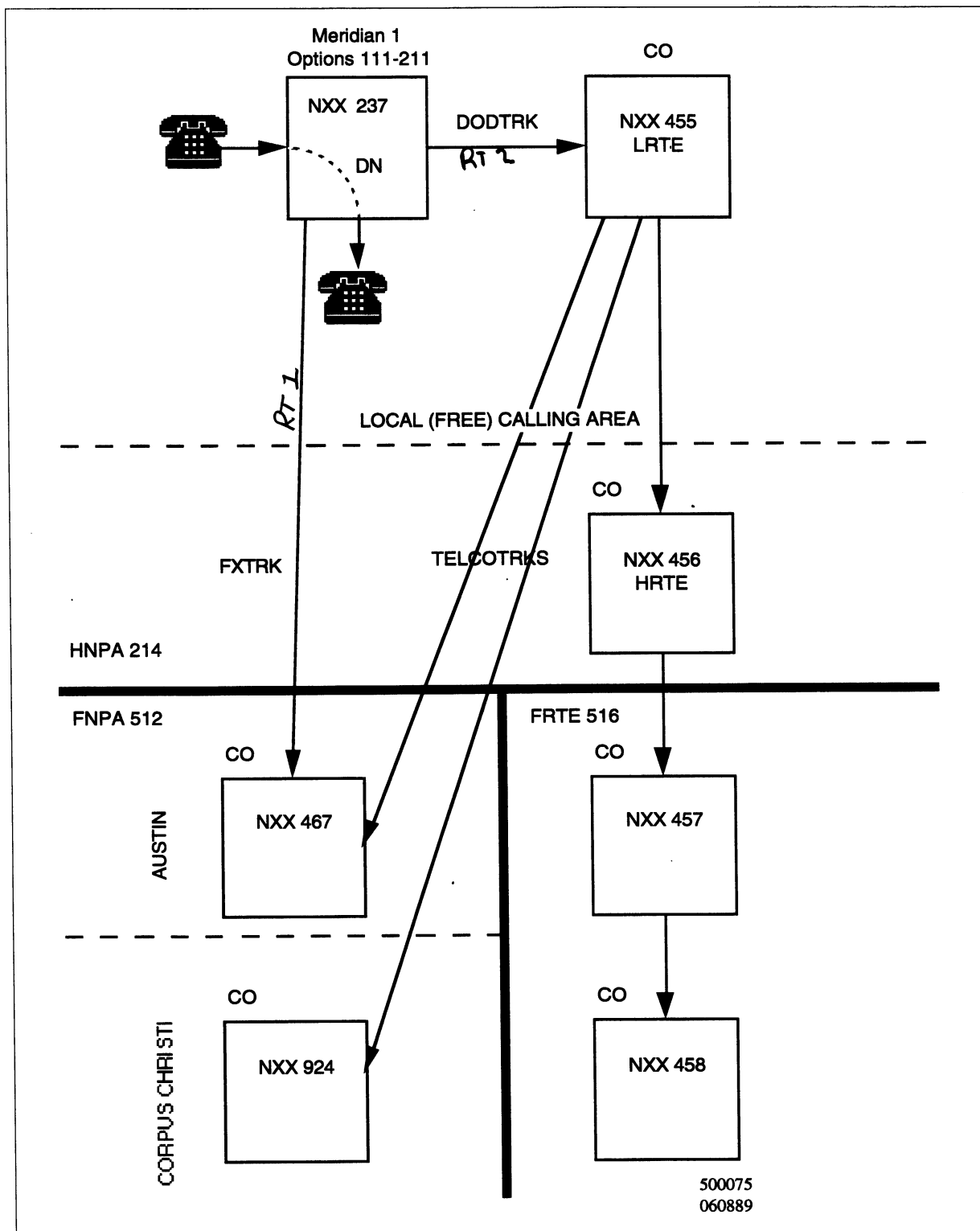
Thus, if users know about the FX trunk group and remember how to access it (by dialing 5 in the example), their calls can be efficiently routed directly out on that trunk via the tuple in Table IBNXLA. But what about the users who forgot about the FX trunk group? When they need to dial a number in Austin, they simply pick up the phone and dial the number their usual way (i.e., 9 + 1 + 512 + 4671212). How are you going to ensure that when these users dial a number in Austin the longer, more expensive way, the call will still be routed over your cheaper FX trunk?

Instructions could be set-up in Table HNPACONT (and its subtables) to send all calls that are made to area code 512 (regardless of the NXX) to our FX trunk group. However, while the FX trunk will give the Meridian 1 Options 111-211 user local access to all the NXXs in that distant city, it will not give them the same local access to all the other NXXs also located in that area code.

Figure 4 illustrates this distinction. Notice that your FX trunk group terminates in Austin. However, in the figure, only one exchange (i.e., 467) is shown. Your FX trunk allows you local access to this NXX. What the FX trunk does not give you local access to, is the many other NXXs in area code 512 outside of the Austin area. The figure only shows one other 512 NXX, NXX 924 in Corpus Christi. The dotted line in the area code 512 in the figure represents the end of Austin's (and thus your FX trunk's) local calling area. Therefore, you should not automatically route all calls made to area code 512 directly on your FX trunk but only those calls made to NXXs in Austin.



**Figure 4**  
**Trunking diagram**



Earlier you datafilled Subtable HNPACODE (of Table HNPACONT) with all of the area codes in the U.S., coded them all as FRTEs, and chose the appropriate route reference number to route the call in Subtable RTEREF. To select the appropriate outgoing trunk group to handle the call, you only examined the area code that was dialed, not the NXX. **That method of selecting the trunk group (based only on three digits, i.e., the area code), is no longer effective now that your routing needs to be different for some NXXs within area code 512.** If, for example, when the user dials 9 + 1 + 512 + 4671212, then you want him to use your FX trunk group. But if he dials 9 + 1 + 512 + 9241212, then you need to route the call via the DODRK to your local CO for handling. Thus, you need to examine the area code and the NXX before selecting the appropriate trunk group. This examination is called **six-digit screening**.

Remember, the key field in Table HNPACONT is the home NPA of the **dialer**, and its subtable HNPACODE only focuses on certain NXXs. Although, HNPACODE references other area codes that the dialer can call, it does not identify the various NXXs within those area codes. However, FNPACONT can itemize all the NXXs (some NXXs over FX trunks and some over CO trunks). **Calls are sent from HNPACODE to FNPACONT by coding these area codes FNPA.** The code FNPA serves two purposes:

- it double checks that the caller has dialed exactly 10 digits (just like code FRTE did), and
- it sends the call to Table FNPACONT.

The RR (route reference) number 0 tells the switch that the call will **not** be using a tuple in HNPACONT.RTEREF since **it will be sent directly to FNPACONT for further six-digit screening.** Below is an example of coding an area code FNPA (instead of FRTE) in subtable HNPACODE so that calls will be sent to FNPACONT for screening.

#### Subtable HNPACODE

| FROMDIGS | TODIGS | CD   | RR |
|----------|--------|------|----|
| 512      | 512    | FNPA | 0  |
| 516      | 516    | FRTE | 1  |

All calls made to area code 512 will be sent to FNPACONT for further screening, but calls made to area code 516 will simply go to RTEREF and use the trunks specified in tuple (route) number 1. When the switch sees that someone is dialing into area code 512, it must first examine the NXX dialed before selecting the appropriate trunk group. However, when it sees someone dialing into area code 516, it can immediately select the trunk group to use since routing is not dependant on the specific NXX.

## Table FNPACONT

Let's look at an example of an entry in Table FNPACONT.

### Table FNPACONT

| <u>NPA</u> | <u>MAXRTE</u> | <u>ROUTES</u> | <u>FNPACODE</u> | <u>FNPASTS</u> | <u>RTEREF</u> |
|------------|---------------|---------------|-----------------|----------------|---------------|
| 512        | 56            | -             | ( 1)            | ( 0)           | (56)          |

As you can see from our example above, this table has six fields.

### NPA (Numbering Plan Area)

This key field is used to store any area code(s) whose NXXs need to be analyzed before routes are selected.

### MAXRTE (Maximum Routes)

The second field specifies the maximum number of routes (tuples) you ever intend to use in the last field (subtable RTEREF).

### ROUTES

This third field is used to specify the name of the route that all calls to this area code should use. Since we do not want to specify any routes until after the NXXs are examined, we have placed a **dash ("-") selector in this field which sends the calls into subtable FNPACODE for further screening.**

### FNPACODE (FNPA Codes)

This fourth field is a subtable in which all the NXXs in this tuple's area code are specified.

#### Subtable FNPACODE

| <u>FROMDIGS</u> | <u>TODIGS</u> | <u>RTEREF</u> | <u>CAMAAUTH</u> |
|-----------------|---------------|---------------|-----------------|
| 467             | 467           | 1             | Y               |
| 924             | 924           | 2             | Y               |

As you can see in the example, there are four fields in this subfield. These are discussed below.

**FROMDIGS/TODIGS**

All the NXXs in this tuple's NPA may be itemized in these fields. These fields are put in the "range-format" to make it easier to input any consecutive NXXs whose routing will be identical.

**RTEREF (Route Reference Number)**

Listed here is the tuple (route) number in subtable RTEREF that the call should use for **this specific NXX**.

**CAMAAUTH (Centralized Automatic Message Accounting System Authorization)**

This field is asking the question whether billable calls made to this NXX should be permitted. In our example, we've said Y (Yes).

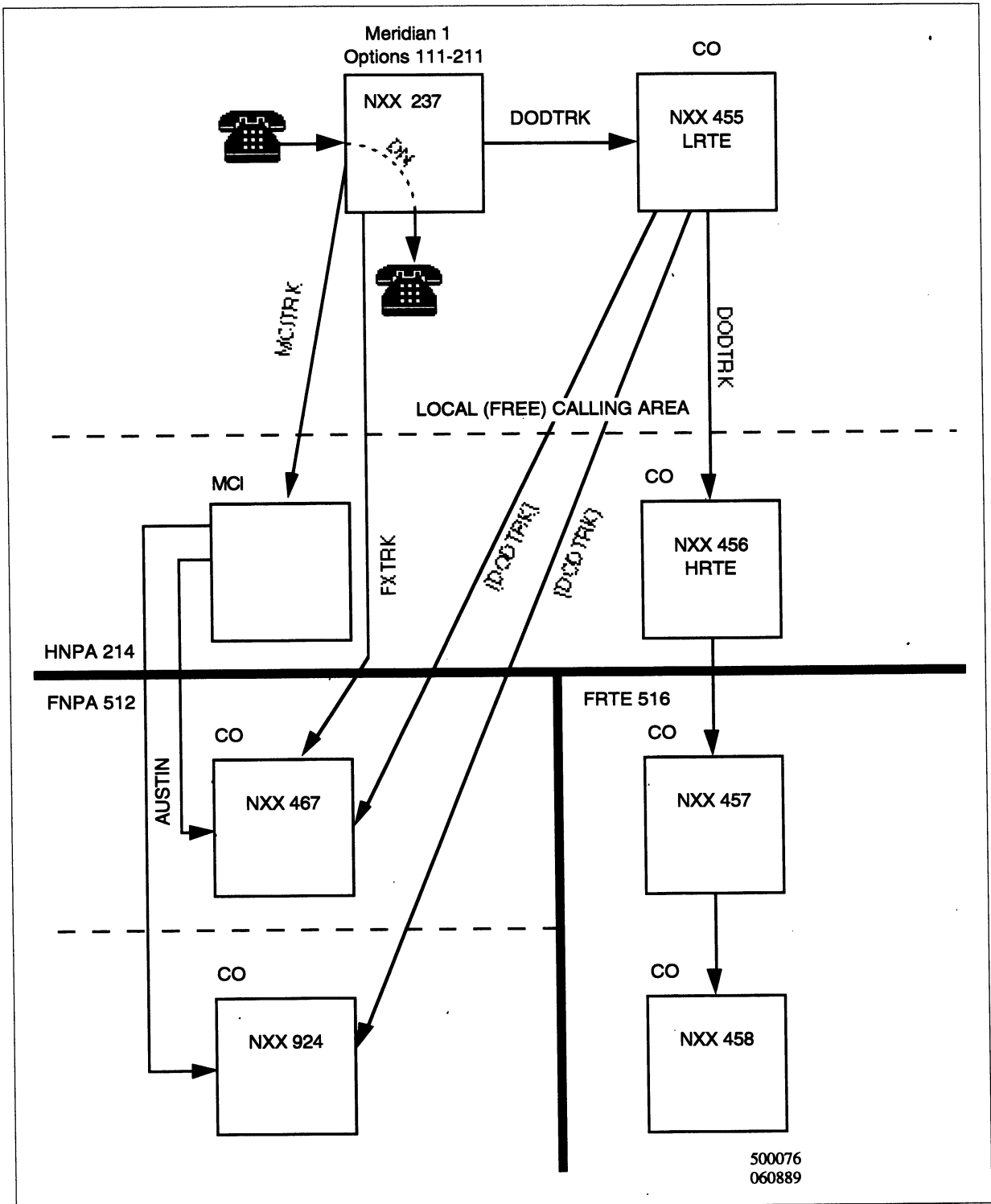
**FNPASTS (Foreign Numbering Plan Area Serving Translations Scheme)**

At present, this field (subtable) is not used by the Meridian 1 Options 111-211 and consequently does not have to be datafilled.

**RTEREF (Route Reference)**

This field is the last field in the table and represents the routing subtable. Listed here is the outgoing trunk group for calls made to specific NXXs within this particular foreign area code (FNPA). Refer to Figure 5 for a simplistic view of the type of routing this system is attempting to provide for its users.

**Figure 5**  
**Trunking diagram**



Following is an example of two tuples in Subtable RTEREF needed to support the trunking shown in Figure 5.

Notice that there are three kinds of trunk groups (i.e., MCI trunks, FX trunks, and DOD trunks) that we have made available for this particular customer.

**Subtable RTEREF**

RTE RTELIST

|   |          |            |                |           |           |            |
|---|----------|------------|----------------|-----------|-----------|------------|
| 1 | (RTESEL) | (CONNTYPE) | (CLLI)         | (DELDIGS) | (PFXDIGS) | (CANCNORC) |
|   | N        | D          | <b>FXTRK 3</b> |           | N         | N          |
|   | (RTESEL) | (CONNTYPE) | (CLLI)         |           |           |            |
|   | S        | D          | <b>MCITRK</b>  |           |           |            |
|   | (RTESEL) | (CONNTYPE) | (CLLI)         |           |           |            |
|   | S        | D          | <b>DODTRK</b>  |           |           |            |
|   | (RTESEL) |            |                |           |           |            |
|   | \$       |            |                |           |           |            |
| 2 | (RTESEL) | (CONNTYPE) | (CLLI)         |           |           |            |
|   | S        | D          | <b>MCITRK</b>  |           |           |            |
|   | (RTESEL) | (CONNTYPE) | (CLLI)         |           |           |            |
|   | S        | D          | <b>DODTRK</b>  |           |           |            |
|   | (RTESEL) |            |                |           |           |            |
|   | \$       |            |                |           |           |            |

As you can see, Subtable RTEREF has two fields, RTE and RTELIST. Both are discussed below.

### **RTE (Route)**

The key field here is the tuple (route) number. A call is pointed to a particular route number from field RTEREF in Subtable FNPACODE, based on the dialed NXX.

### **RTELIST (Route List)**

This field is used to specify the name(s) of outgoing trunk groups to be used to route the call. Up to eight trunk groups can be specified in one tuple. If the first trunk group listed in a tuple is busy, then the call can overflow to the next (more expensive) trunk group that is listed in that tuple. The following subfields comprise RTELIST.

- The RTESEL of N: The letter N is used when the digits are to be manipulated before outpulsing the call on the trunk group. **When using N as a RTESEL, the other subfields are as follows** (other selectors are S and T):
- CONNTYPE (Connection Type). This subfield is not used at this time. Simply input a letter D.
- CLLI. CLLI specifies the name of the outgoing trunk group to be used. Our example shows the name of our FX trunk.
- DELDIGS (Delete Digits). This subfield specifies the number of digits that need to be deleted before the call is outpulsed on this particular trunk group.
- PRFXDIGS (Prefix Digits). PRFXDIGS specifies the actual digits that need to be prefixed (added) onto the dialed digits before outpulsing on this trunk group.
- CANCNORC (Cancel Normal Charges). At present, this subfield is not used by the Meridian 1 Options 111-211; thus, the letter N should be input here.
- The RTESEL of S: The letter S is used when the digits would not be manipulated before outpulsing the call on the trunk group.
- The RTESEL of \$: The \$ is used to notify the switch that there are no other trunk groups in that tuple.

**FNPACONT and its subtables are dependent upon HNPACONT for datafill.**

## **FNPACONT and changes in North American Numbering Plan**

In the next several years, several mandated changes will be made in the North American Numbering Plan (NANP). These changes will be made to accommodate increasing requirements for new area codes and central office prefixes.

To review, telephone network codes stem from a nationwide direct distance dialing plan, or North American Numbering Plan. Its purpose is to permit any directory number within North America to be dialed by using a 10-digit number composed of two parts:

- a 3-digit NPA or area code, and
- a 7-digit directory number that starts with a Central Office Code (NXX).

The Numbering Plan Area (NPA) is the formal name of what's commonly referred to as an **area code**. Currently, the NPA's three digits follow a **NYX format** where:

- N = any number from 2 to 9
- Y = the number 0 or 1
- X = any number from 0 to 9

The Central Office Code (NXX) comprises the first 3 digits of a 7-digit directory number. These three digits are referred to as the NXX number due to the format they **currently** follow (see above example for format).

However, the growth of telecommunication services, combined with increasing population, has created a requirement for new telephone numbers. The following chart summarizes the NANP changes.

| <b>NANP Changes</b>                  | <b>Description</b>                                    | <b>Deadline</b> |
|--------------------------------------|-------------------------------------------------------|-----------------|
| Interchangeable CO Codes             | From NNX* to NXX format for CO code                   | Ongoing         |
| Interchangeable Numbering Plan Areas | From N (0/1) X to NXX format for area codes           | 1/1/95          |
| Expanded Carrier Access Codes        | From 10XXX to 101XXXX format for Carrier Access Codes | first half '95  |
| Dialing Procedure Changes            | 1+ dialing for all 10-digit calls                     | Ongoing         |

\* Note N= numbers 2 thru 9; X=number 0 thru 9



---

### **Interchangeable central office codes**

Some of the NANP changes were implemented a few years ago in the form of Interchangeable Central Office Codes.

Prior to the introduction of interchangeable central office codes, telephone number prefixes (or central office codes) were limited to an NNX format (see previous examples for format). For example, **325**-1234 uses a valid prefix (bolded), but the telephone number **315**-1234 does not. Interchangeable central office codes lifts that restriction and allows a central office prefix to use an NXX format so that both 325-1234 and 315-1234 use valid central office codes. Since the second digit of a central office code can now be a 1 or 0, a central office code can be identical to an area code. In other words, the number 315 could be central office code or it could be an area code. All of this can be compared to previously mentioned **AMBI** codes.

In some area codes that have interchangeable central office codes, 1+ dialing is being implemented to differentiate between central office codes and numbering plan areas. In addition, central offices are also converting 1+dialing to prepare for numbering plan area changes discussed shortly. Customers are notified of these changes by their local telephone company.

### **Interchangeable numbering plan areas**

Requiring the most attention are interchangeable numbering plan areas: changes to the format of numbering plan areas, or area codes. In order to meet the growing demand for new area codes, telephone companies have proposed that the second digit of an area code no longer be restricted to 1 or 0. Along with these changes, telephone companies provide recommendations for dialing procedures. These telephone companies recommend that 10 digit dialing be prefaced with 1+ following the recommended 1+NPA+NXX+XXXX format for all calls into a different area code. Table **FNPA**CONT will be expanded from 160 potential area codes to 800 potential area codes in **BCS36**. Most existing SL-100s use less than 160 entries in FNPACONT by listing adjacent area codes only and routing all other area codes to the central office for further routing. The expanded FNPA table in BCS36 will allow SL-100 users to accommodate the maximum number of potential new area codes as they are assigned.

Specific to Defense Switch Network, or DSN: The World-wide Numbering Plan for AUTOVON utilizes a 5-Theatre geographical NPA equivalent that does not use "Commercial NPAs." The FNPA table is not used with AUTOVON.

## Dialing plans

As part of the NANP changes, telephone companies also recommends preferred dialing formats. SL-100 supports all operating companies' recommended dialing procedures today. The preferred dialing format is as follows:

|             |                                                                                                                                         |
|-------------|-----------------------------------------------------------------------------------------------------------------------------------------|
| 7 digits    | all local calls and all direct-dialed toll calls within the home numbering plan area <sup>(1)</sup>                                     |
| 1+10 digits | all foreign numbering plan area calls or local calls into foreign numbering plan area central offices without protection <sup>(2)</sup> |
| 0+10 digits | all home and foreign numbering plan area calls that are customer dialed and operator assisted <sup>(3)</sup>                            |

**Note 1:** Home numbering plan area is the numbering plan area in which you are located. For example, if your office is in the 513 area code, the home numbering plan area is 513. (Using 7-digit for long distance calls apply only to those areas without step-by-step central offices).

**Note 2:** Foreign numbering plan area is any numbering plan area which is outside your home numbering plan area. For example, if you are located within the 513 area code and you are dialing a number in the 714 area code, 714 designates a foreign numbering plan area.

**Note 3:** Code protection is an arrangement where a central office code assigned in one NPA is not assigned in an adjacent NPA, thereby becomes "protected" to allow 7-digit dialing across the common boundary.

For 10-digit calls, 1+ dialing will be required once interchangeable area codes are introduced (January 1995). In anticipation of these changes, some local phone companies are already changing the way calls are dialed within their area.

For example, some phone companies may have used the NPA+NXX+XXXX or 1+NNX+XXXX format for long distance calls. Now they are converting to the recommended 1+ dialing; therefore, the dialing format is 1+NPA+NXX+XXXX.

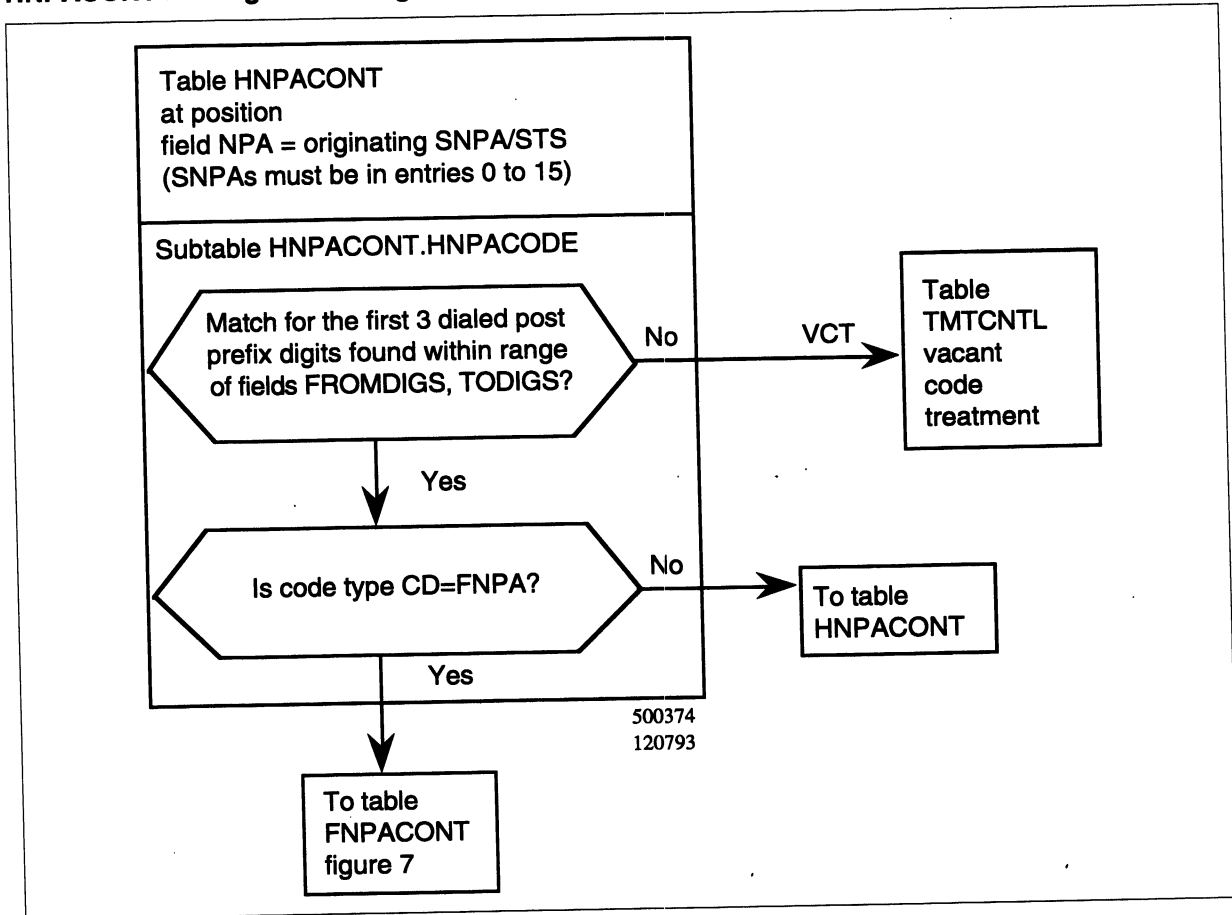
*(This information has been provided as information only; you will not be tested on your knowledge of this material. Remember, however, that these changes will occur starting BCS36, and you will be responsible for this knowledge at that point in time.)*

### 6-digit screening flowcharts

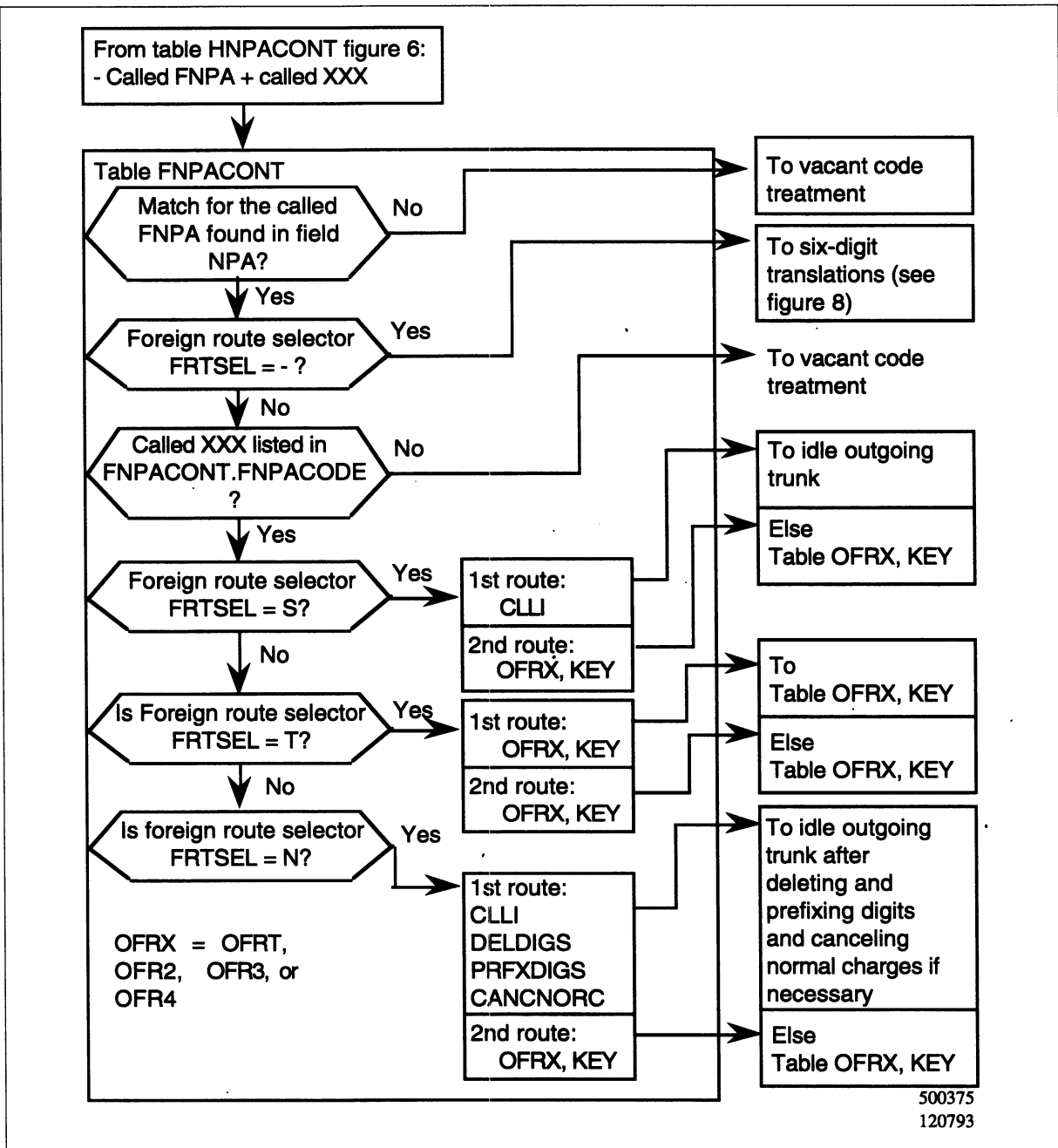
The following 3 flowcharts summarize HNPACONT and FNPACONT and their subtables in 6-digit screening.

**Figure 6**

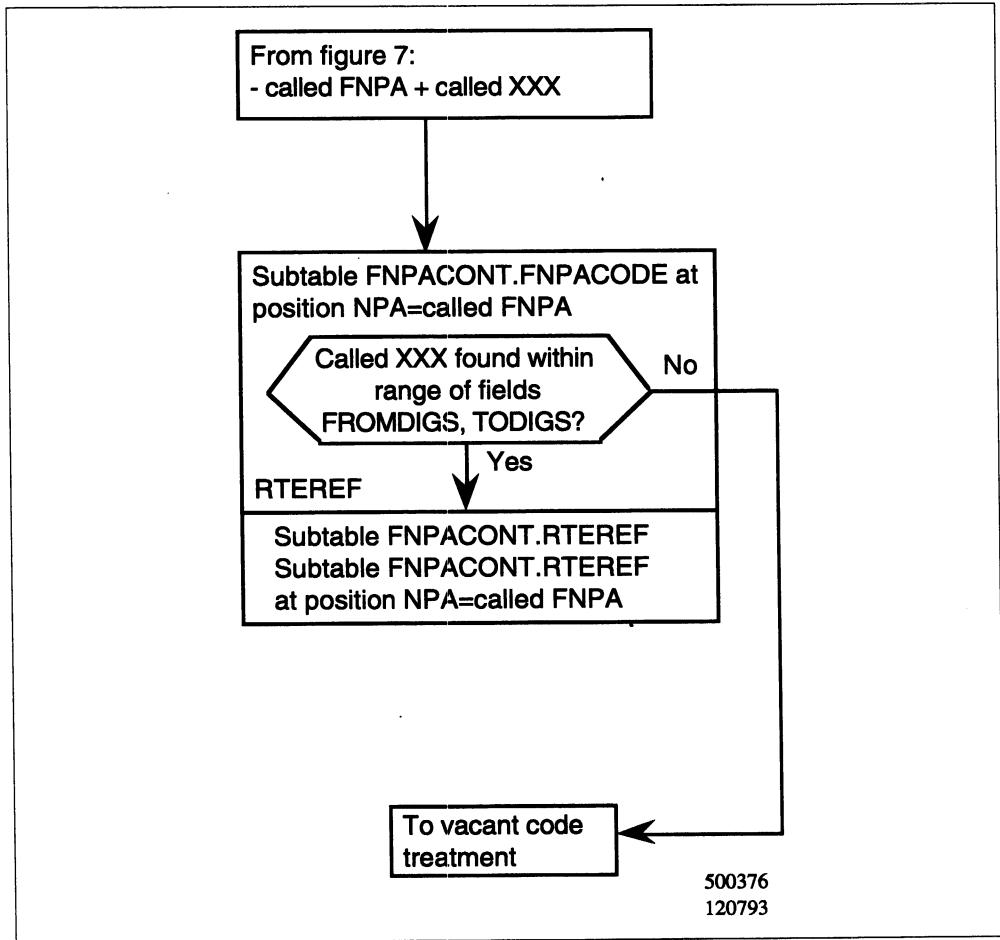
**HNPACONT in 6-digit screening**



**Figure 7**  
**FNPACONT in 6-digit screening**



**Figure 8**  
**FNPACONT and its subtables in 6-digit screening**



**Six-digit dialing TRAYER**

TRAYER L 2373556 915124671212 B  
 TABLE IBNLINES  
 HOST 00 1 07 22 DT STN 2373556 GRP1 0 0 214 \$  
 TABLE DNATTRS  
 TUPLE NOT FOUND  
 TABLE NCOS  
 GRP1 0 0 0 NCOS0 ( XLAS PTN1 NXLA NDGT) \$  
 TABLE CUSTHEAD: CUSTGRP, PRELIMXLA, CUSTXLA,  
 FEATXLA, VACTRMT, DIGCOL  
 GRP1 NXLA CTN1 FTN1 0 DCN1  
 TABLE DIGCOL  
 DCN1 9 POTS Y  
 TABLE IBNXLA; XLANAME PTN1  
PTN1+2 NET N N <sup>STW</sup> N NDGT N N DOD N 31 NONE  
 TABLE LINEATTR  
 31 IBN NONE NT NSCR 0 214 SPN1 LAS1 NONE N 0 NIL  
 NILLATA 0 NIL NIL  
 TABLE STDPRTCT  
SPN1 ( 1)  
 SUBTABLE STDPRT  
 1 1 N DD NA  
 TABLE HNPACONT  
214 3 0 ( 3) ( 1) ( 0)  
 SUBTABLE HNPACODE  
512 512 FNPA 0  
 TABLE FNPACONT  
512 56 ( ( 0) ( 0) ( 3)  
 SUBTABLE FNPACODE  
467 467 ( Y  
 SUBTABLE RTEREF  
( N D FXTRK 3 N N  
 S D MCITRK  
 S D DODTRK  
 EXIT TABLE RTEREF  
 EXIT TABLE FNPACONT  
 TABLE LCASCRCN  
214 LAS1 ( 2) MAND N  
 SUBTABLE LCASCRCN  
 Tuple not found. **Default is non-local.**  
 TABLE PFXTREAT  
 MAND DD ( DD UNDT

```

+++ TRAYER:
SUCCESSFUL CALL TRACE +++
DIGIT TRANSLATION ROUTES
1 FXTRK 4671212
2 MCITRK 5124671212
3 DODTRK 5124671212

```

B B

At this point, you have probably noticed that this type of call is translated in the same manner as a FRTE call until the TRAVER enters **Table FNPACONT**. This table lists the NPA that is to be included in six-digit screening and, by entering a dash in the third field, sends the call into its subtable FNPACODE. In subtable FNPACODE, the TRAVER sees a route reference number of 1, which points to another subtable, FNPACONT.RTEREF. This subtable lists three possible trunk groups which could route this call.

The TRAVER now enters LCASCRCN and its subtable LCASCR where the dialed number is determined to be outside the dialing number's free dialing area. The TRAVER picks up a MAND assignment to use in final processing through the next table.

Next, Table PFXTREAT determines that the call is a non-local call (i.e., it wasn't found in Table LCASCRCN) and was dialed with a prefix (DD from STDPRTCT). This combination of conditions meets the mandatory (MAND) requirement of dialing a prefix (from LCASCRCN). Thus, the call will receive an undefined treatment (UNDT).

Finally, the bottom of the TRAVER shows the trunk groups that would be used and the digits that would be outputted on each. As you can see, the digit manipulation that we accomplished when outputting on our FX trunk was successful.

Old Numbering plan

N Y X

N = 2-9

Y = 0-1

Y = 0-9

MANP

N Y X



# Zero minus dialing

## Introduction

Frequently, a Meridian 1 Options 111-211 user finds the need to dial the long distance operator (e.g., to find out what NPA serves a particular NXX, etc). This type of need is satisfied by the provision for "zero minus" dialing. To use zero minus dialing, a user must dial 9 + 0. Do not get confused. **Zero minus dialing is not the same thing as operator assistance dialing (e.g., 9 + 0 + 214-4571212).**

Zero minus dialing is established by designating the operator position to which a zero minus call is routed. Tables IBNXLA, LINEATTR, and POSITION contain the relevant data for zero minus dialing.

## Table IBNXLA

If you specify that a call is Network DOD call, Table IBNXLA will prompt you for a LINEATTR number. Here's an example of a tuple found in Table IBNXLA:

### Table IBNXLA

| <u>XLANAME</u> | <u>DGLIDX</u> | <u>TRSEL</u>    | <u>ACR</u>      | <u>SMDR</u>    | <u>VCDR</u> |                |
|----------------|---------------|-----------------|-----------------|----------------|-------------|----------------|
| PTN1           | 9             | NET             | N               | N              | N           |                |
| <u>NO</u>      | <u>ACC</u>    | <u>DIGITS</u>   | <u>SDT</u>      | <u>DGCOLNM</u> | <u>CRL</u>  | <u>INTRAGR</u> |
| 1              |               | N               | NDGT            | N              | Y           |                |
| <u>NETTYPE</u> | <u>SMDRB</u>  | <u>LINEATTR</u> | <u>TOLLREST</u> |                |             |                |
| DOD            | Y             | 12              | NONE            |                |             |                |

Once the DOD call leaves Table IBNXLA, it will proceed to subfield LINEATTR to receive further processing instructions. The question becomes which tuple in Table LINEATTR should the call be sent to. The answer is "whatever tuple number is input in this subfield." This number acts as an index into Table LINEATTR.

**Table LINEATTR**

A tuple providing for zero minus dialing would be similar to this:

**Table LINEATTR**

| <u>L</u> AIDX  | <u>L</u> CC     | <u>C</u> HGCLSS  | <u>C</u> OST    | <u>S</u> CRNCL | <u>L</u> TG | <u>S</u> TS |
|----------------|-----------------|------------------|-----------------|----------------|-------------|-------------|
| 12             | IBN             | NONE             | NT              | NSCR           | 0           | 214         |
| <u>P</u> RTNM  | <u>L</u> CANAME | <u>Z</u> EROMPOS | <u>T</u> RAFSNO | <u>M</u> RSA   | <u>S</u> FC |             |
| SPN1           | LAS1            | AMRX             | 0               | NIL            | NILSFC      |             |
| <u>L</u> ATANM | <u>M</u> DI     | <u>I</u> XNAME   | <u>F</u> ANDIGS | <u>R</u> ESINF |             |             |
| NILLATA        | 0               | NIL              | 00              | N              |             |             |

The AMRX indicates that zero minus dialing is to flow to the tuple containing AMRX in Table POSITION.

Refer to 297-1001-451 for variations of datafill.

**Table POSITION**

This table lists the various positions available an their associated routes.

**Table POSITION**

| <u>P</u> OS | <u>P</u> RTE |        |
|-------------|--------------|--------|
| AMRX        | S            | DODTRK |

**Table POSNAME**

This table lists the position names which are assigned to the switching unit.

**Table POSNAME**

| <u>V</u> ALUE | <u>S</u> YMBOL |
|---------------|----------------|
| 0             | AMRX           |
| 1             | TOPS           |

Refer to 297-1001-451 for variations of datafill.

## Zero minus dialing TRAVER

The following TRAVER shows the translations flow for a call that uses the zero minus option to connect to a network operator. Here is a summary of the steps involved in assigning the zero minus option to the call:

- The first digit, "9," is identified by the key, CTN1 9, in IBNXLA as the access code for a network DOD. IBNXLA also assigns a line attribute index number of "12".
- The line attribute index number, "12", is positioned on in LINEATTR, which indicates a zero minus attribute, AMRX, is to be assigned.
- Table POSITION directs the call to be routed over trunk group DODTRK.

```

TRAVER L 2373556 90
TABLE IBNLIES
HOST 00 1 07 222 DT STN 2373556 GRP1 0 0 214 $
TABLE DNATTRS
TUPLE NOT FOUND
TABLE NCOS
GRP1 0 0 0 NCOS0 $
TABLE CUSTHEAD: CUSTGRP, PRELIMXLA, CUSTXLA,
FEATXLA, VACTRMT, DIGCOL
GRP1 NXLA CTN1 FTN1 1 DCN1
TABLE DIGCOL
DCN1 9 POTS Y
NCOS PRELIM XLA name is NIL. Go to next XLA.
CUST PRELIM XLA name is NIL. Go to next XLA.
TABLE IBNXLA: XLANAME CTN1
CTN1 9 NET N N N STP N NDGT N N DOD Y 12 NONE
TABLE LINEATTR
12 IBN NONE NT NSCR 0 214 SPN1 LAS1 AMRX N 0 NIL NILSFC
NILATA 0 NIL NIL 00 N
ZERO MINUS Position from Line Attribute
TABLE POSITION
AMRX S DODTRK CLLI

+++ TRAVER: SUCCESSFUL CALL TRACE +++

DIGIT TRANSLATION ROUTES
1 DODTRK 0

```



### Practice 3: 6-digit screening and 0-minus dialing

#### Instructions:

Obtain NTP 297-1001-451, and read about the tables that were introduced in the previous section or use the information presented in this section to answer the following questions. Compare your answers with those found in the Practice 3 Feedback.

1. For zero minus dialing, what selector in Table LINEATTR points to the Table POSITION?
  - a. PRTNM
  - b. LCANAME
  - c. ZEROMPOS
  - d. AMRX
  
2. For zero minus dialing, what table provides the route to the public telephone company operator?
  - a. POSITION
  - b. IBNXLA
  - c. LINEATTR
  
3. What part does Table IBNXLA play in zero minus dialing?
  - a. It assigns the AMRX selector
  - b. It routes the call to Table POSITION
  - c. It assigns a LINEATTR reference index



4. Six-digit screening can be best defined as the examination of \_\_\_\_\_ digits for routing.
- a. NPA-NXX
  - b. NXX
  - c. NXX-ABC
  - d. NXX-ABCD
5. Which Subtable sends calls to Table FNPACONT?
- a. RTEREF
  - b. STDPRT
  - c. HNPACODE
6. Which code treatment indicates a call is to undergo six-digit screening?
- a. LRTE
  - b. FRTE
  - c. HNPA
  - d. FNPA
7. In Subtable HNPACODE, which code treatment would you use to send calls directly to a trunk group?
- a. FRTE
  - b. HNPA
  - c. FNPA
  - d. TMTL
8. The key field in Table HNPACONT is the home NPA of the \_\_\_\_\_.
- a. dialer
  - b. dialed number
9. What is the overall goal of six-digit screening?
- a. To outpulse the correct number of digits
  - b. To assign efficient routes for calls to FNPAs
  - c. To maximize the use of trunk routes

- 
10. For a call undergoing six-digit screening, at what point does the call route to Table FNPACONT?
- Table IBNXLA
  - Table HNPACONT
  - Subtable HNPACODE
11. What code type in Table HNPACODE sends translations to Table FNPACONT?
- "\_"
  - FNPA 0
  - FRTE
  - RTESEL
12. For a given call undergoing six-digit screening, what do Subtable HNPACODE and Table FNPACONT have in common?
- tuples
  - subtables
  - route references
  - NPAs
13. Subtable FNPACODE lists \_\_\_\_\_.
- NXXs
  - NPAs
  - Both NXXs and NPAs
14. Which value in Table FNPACONT sends a call to Subtable FNPACODE?
- "\_"
  - FNPA 0
  - FRTE
  - RTEREF
15. The individual trunk groups that comprise a tuple in Subtable RTEREF are referred to as \_\_\_\_\_.
- elements
  - primaries
  - alternates

16. What is the maximum number of elements Subtable RTEREF can contain?
- a. one
  - b. seven
  - c. eight
  - d. no limit
17. What does the "N" selector indicate for an element in Subtable RTEREF?
- a. Needs digit manipulation
  - b. Digits will not be deleted/prefixed
  - c. Route to a CLLI
18. What does the "S" selector indicate in Subtable RTEREF?
- a. No digit manipulation required
  - b. Route to a CLLI
  - c. Both 1 and 2
19. In the case of six-digit screening, which table/subtable translates on the last three (NXX) digits?
- a. FNPACODE
  - b. HNPACODE
  - c. IBNRTE
  - d. LINEATTR
20. A station dials an office code that has not been specified in Subtable HNPACODE. By default, where does this call go?
- a. TMTCNTL
  - b. IBNTREAT
  - c. RTEREF
  - d. IBNRTE



- 
21. For a given six-digit screening call, the value in the key field in Table FNPACONT is the same as the value of the
- a. NPA in Table HNPACONT
  - b. FROMDIGS/TODIGS value in Table HNPACONT
  - c. The NPA field in Subtable HNPACODE
  - d. FROMDIGS/TODIGS value in Table HNPACODE
22. Where does a call that translates through Subtable FNPACODE normally go to next?
- a. Subtable FNPARTEREF
  - b. Table FNPACONT
  - c. Table CLLI
23. The dash (-) selector in field ROUTES of Table FNPACONT sends a call to which table/subtable?
- a. FNPACODE
  - b. RTEREF
  - c. HNPACONT
  - d. IBNRTE

### Practice 3 Feedback

- |       |       |
|-------|-------|
| 1. d  | 13. a |
| 2. a  | 14. a |
| 3. c  | 15. a |
| 4. a  | 16. c |
| 5. c  | 17. a |
| 6. d  | 18. c |
| 7. a  | 19. a |
| 8. a  | 20. a |
| 9. b  | 21. d |
| 10. c | 22. a |
| 11. b | 23. a |
| 12. d |       |

# TRAVER analysis

---

## Introduction

There are 4 sample TRAVERs in this section. For each TRAVER, you will be presented with several paragraphs that explain what the TRAVER is depicting.

**TRAVER 1**

TRAVER L 3343556 917034671212 B  
TABLE IBNLINES  
HOST 01 0 01 20 DP STN 3343556 **GRP1 0 0 804 \$**  
TABLE NCOS  
**GRP1 0 0 0 NCOS0 (XLAS PTN1 NXLA NDGT) \$**  
TABLE CUSTHEAD: CUSTGRP, PRELIMXLA, CUSTXLA  
FEATXLA, VACTRMT, AND DIGCOL  
GRP1 NXLA CTN1 NXLA 0 **DCN1**  
TABLE DIGCOL  
**DCN1 9 POTS Y**  
TABLE IBNXLA: XLANAME PTN1  
**PTN1 9 NET N N N 1 Y NDGT N Y DOD N 5 NONE**  
TABLE DIGCOL  
NDGT specified: digits collected individually.  
TABLE LINEATTR  
**5 IBN NONE NT NSCR 0 804 SPN1 LAS1 NONE N 0 NIL**  
NILLATA 0 NIL NIL  
TABLE STDPRTCT  
**SPN1 ( 1)**  
SUBTABLE STDPRT  
**1 1 N DD 1 NA**  
TABLE HNPACONT  
**804 16 0 ( 1) ( 1) ( 0)**  
SUBTABLE HNPACODE  
**703 703 FNPA 0**  
TABLE FNPACONT  
**703 3 - ( 2) ( 0) ( 2)**  
SUBTABLE FNPACODE  
**467 467 1 Y**  
SUBTABLE RTEREF  
**1 N D FXTRK 3 N N**  
**S D MCITRK**  
**S D DODTRK**  
EXIT TABLE RTEREF  
EXIT TABLE FNPACONT  
TABLE LCASCRCN  
**804 LAS1 ( 2) MAND N**  
SUBTABLE LCASCR  
TUPLE NOT FOUND. DEFAULT IS NON-LOCAL  
TABLE PFXTREAT  
**MAND DD N DD UNDT**

+++ TRAVER: SUCCESSFUL CALL TRACE +++

At this point, you have probably noticed that this type of call is translated in the same manner as a FRTE call until the TRAVER enters **Table FNPACONT**. This table lists the NPA that is to be included in six-digit screening and, by entering a dash in the third field, sends the call into its subtable FNPACODE. In subtable FNPACODE, the TRAVER sees a route reference number of 1, which points to another subtable, FNPACONT.RTEREF. This subtable lists three possible trunk groups which could route this call.

The TRAVER now enters LCASCRCN and its subtable LCASCR where the dialed number is determined to be outside the dialing number's free dialing area. The TRAVER picks up a MAND assignment to use in final processing through the next table.

Next, Table PFXTREAT determines that the call is a non-local call (i.e., it wasn't found in Table LCASCRCN) and was dialed with a prefix (DD from STDPRTCT). This combination of conditions meets the mandatory (MAND) requirement of dialing a prefix (from LCASCRCN). Thus, the call will receive an undefined treatment (UNDT).

**TRAVER 2**

TRAVER L 3343556 917039241212 B  
TABLE IBNLINES  
HOST 01 0 01 20 DP STN 3343556 **GRP1 0 0 804 \$**  
TABLE NCOS  
**GRP1 0 0 0** NCOS0 (XLAS PTN1 NXLA NDGT) \$  
TABLE CUSTHEAD: CUSTGRP, PRELIMXLA, CUSTXLA  
FEATXLA, VACTRMT, AND DIGCOL  
GRP1 NXLA CTN1 NXLA 0 **DCN1**  
TABLE DIGCOL  
**DCN1 9 POTS Y**  
TABLE IBNXLA: XLANAME PTN1  
**PTN1 9 NET N N N 1 Y NDGT N Y DOD N 5 NONE**  
TABLE DIGCOL  
NDGT specified: digits collected individually.  
TABLE LINEATTR  
**5 IBN NONE NT NSCR 0 804 SPN1 LAS1 NONE N 0 NIL**  
NILLATA 0 NIL NIL  
TABLE STDPRTCT  
**SPN1 ( 1)**  
SUBTABLE STDPRT  
**1 1 N DD 1 NA**  
TABLE HNPACONT  
**804 16 0 ( 1) ( 1) ( 0)**  
SUBTABLE HNPACODE  
**703 703 FNPA 0**  
TABLE FNPACONT  
**703 3 - ( 2) ( 0) ( 2)**  
SUBTABLE FNPACODE  
**924 924 2 Y**  
SUBTABLE RTEREF  
**2 S D MCITRK**  
**S D DODTRK**  
EXIT TABLE RTEREF  
EXIT TABLE FNPACONT  
TABLE LCASCRCN  
**804 LAS1 ( 2) MAND N**  
SUBTABLE LCASCR  
TUPLE NOT FOUND. DEFAULT IS NON-LOCAL  
TABLE PFXTREAT  
**MAND DD N DD UNDT**  
  
+++ TRAVER: SUCCESSFUL CALL TRACE +++

At this point, you have probably noticed that this type of call is translated in the same manner as a FRTE call until the TRAVER enters **Table FNPACONT**. This table lists the NPA that is to be included in six-digit screening and, by entering a dash in the third field, sends the call into its subtable FNPACODE. In subtable FNPACODE, the TRAVER sees a route reference number of 2, which points to another subtable, FNPACONT.RTEREF. This subtable lists two possible trunk groups which could route this call.

The TRAVER now enters LCASCRCN and its subtable LCASCR where the dialed number is determined to be outside the dialing number's free dialing area. The TRAVER picks up a MAND assignment to use in final processing through the next table.

Next, Table PFXTREAT determines that the call is a non-local call (i.e., it wasn't found in Table LCASCRCN) and was dialed with a prefix (DD from STDPRCT). This combination of conditions meets the mandatory (MAND) requirement of dialing a prefix (from LCASCRCN). Thus, the call will receive an undefined treatment (UNDT).

**TRAVER 3**

TRAVER L 3343556 90 B  
TABLE IBNLINES  
HOST 01 0 01 20 DP STN 3343556 **GRP1 0 0 804 \$**  
TABLE NCOS  
**GRP1 0 0 0 NCOS0 (XLAS PTN1 NXLA NDGT) \$**  
TABLE CUSTHEAD: CUSTGRP, PRELIMXLA, CUSTXLA  
FEATXLA, VACTRMT, AND DIGCOL  
GRP1 NXLA CTN1 NXLA 0 DCN1  
TABLE DIGCOL  
**DCN1 9 POTS Y**  
TABLE IBNXLA: XLANAME PTN1  
**PTN1 9 NET N N N 1 Y NDGT N Y DOD N 5 NONE**  
TABLE DIGCOL  
NDGT specified: digits collected individually.  
TABLE LINEATTR  
**5 IBN NONE NT NSCR 0 804 SPN1 LAS1 AMRX N 0 NIL**  
NILATA 0 NIL NIL  
ZERO MINUS Position from Line Attribute  
TABLE POSITION  
**AMRX S DODTRK**

+++ TRAVER: SUCCESSFUL CALL TRACE +++



The following TRAVER shows the translations flow for a call that uses the zero minus option to connect to a network operator. Here is a summary of the steps involved in assigning the zero minus option to the call:

- The first digit, "9," is identified by the key, PTN1 9, in IBNXLA as the access code for a network DOD. IBNXLA also assigns a line attribute index number of "5".
- The line attribute index number, "5", is positioned on in LINEATTR, which indicates a zero minus attribute, AMRX, is to be assigned.
- Table POSITION directs the call to be routed over trunk group DODTRK.

**TRAYER 4**

TRAYER L 3343556 917034671212 B  
 TABLE IBNLINES  
 HOST 01 1 02 180 DT STN 3343556 GRP1 0 0 804 \$  
 TABLE NCOS  
 GRP1 0 0 0 NCOS0 (XLAS PTN1 NXLA NDGT) \$  
 TABLE CUSTHEAD: CUSTGRP, PRELIMXLA, CUSTXLA  
 FEATXLA, VACTRMT, AND DIGCOL  
 GRP1 NXLA CTN1 FTN1 0 DCN1  
 TABLE DIGCOL  
 DCN1 9 POTS Y  
 TABLE IBNXLA: XLANAME PTN1  
 PTN1 9 NET N N N 1 Y NDGT N Y DOD N 5 NONE  
 TABLE LINEATTR  
 5 IBN NONE NT NSCR 0 804 SPN1 LAS1 NONE N 0 NIL  
 NILLATA 0 NIL NIL  
 TABLE STDPRTCT  
 SPN1 ( 1 ) ( 0 )  
 SUBTABLE STDPRT  
 1 1 N DD 1 NA  
 TABLE HNPACONT  
 804 6 0 ( 1 ) ( 1 ) ( 0 )  
 SUBTABLE HNPACODE  
 703 703 FNPA 0  
 TABLE FNPACONT  
 703 20 - ( 2 ) ( 0 ) ( 2 )  
 SUBTABLE FNPACODE  
 467 467 1 Y  
 SUBTABLE RTEREF  
 1 N D FXTRK 3 N N  
 S D MCITRK  
 S D DODTRK  
 EXIT TABLE RTEREF  
 EXIT TABLE FNPACONT  
 TABLE LCASCRCN  
 804 LAS1 ( 2 ) MAND N  
 SUBTABLE LCASCR  
 TUPLE NOT FOUND. DEFAULT IS NON-LOCAL  
 TABLE PFXTTREAT  
 MAND DD N DD UNDT  
 DIGIT TRANSLATION ROUTES  
 1 FXTRK 4671212 ST  
 2 MCITRK 7034671212 ST  
 3 DODTRK 7034671212 ST  
 TREATMENT ROUTES. TREATMENT IS: GNCT  
 1 ANNMEM6 1 IDLE

---

At this point, you have probably noticed that this type of call is translated in the same manner as a FRTE call until the TRAVER enters **Table FNPACONT**. This table lists the NPA that is to be included in six-digit screening and, by entering a dash in the third field, sends the call into its subtable FNPACODE. In subtable FNPACODE, the TRAVER sees a route reference number of 1, which points to another subtable, FNPACONT.RTEREF. This subtable lists three possible trunk groups which could route this call.

The TRAVER now enters LCASCRCN and its subtable LCASCR where the dialed number is determined to be outside the dialing number's free dialing area. The TRAVER picks up a MAND assignment to use in final processing through the next table.

Next, Table PFXTREAT determines that the call is a non-local call (i.e., it wasn't found in Table LCASCRCN) and was dialed with a prefix (DD from STDPRTCT). This combination of conditions meets the mandatory (MAND) requirement of dialing a prefix (from LCASCRCN). Thus, the call will receive an undefined treatment (UNDT).

Finally, the bottom of the TRAVER shows the trunk groups that would be used and the digits that would be outputted on each. As you can see, the digit manipulation that we accomplished when outputting on our FX trunk was successful.



## Practice 4: Tuple interaction and TRAVER analysis

### Situation:

As a database or trouble-desk technician, you have received the following printed TRAVERs. You have been asked to locate the problem and then indicate how to correct the datafill errors.

### Instructions:

#### Part A

1. Read through the TRAVER.
2. Access any NTP you may need.
3. If necessary, review the tables used in this lesson.
4. Indicate what is causing the problem as well as what can be done to correct the problem.
5. Compare your answers with those found in Practice 4 Feedback; discuss any differences with your instructor or colleague.



**TRAVER 1**

TRAVER L 3343556 917034671212 B  
TABLE IBNLINES  
HOST 01 0 01 20 DP STN 3343556 GRP1 0 0 804 \$  
TABLE NCOS  
GRP1 0 0 0 NCOS0 (XLAS PTN1 NXLA NDGT) \$  
TABLE CUSTHEAD: CUSTGRP, PRELIMXLA, CUSTXLA  
FEATXLA, VACTRMT, AND DIGCOL  
GRP1 NXLA CTN1 NXLA 0 DCN1  
TABLE DIGCOL  
DCN1 9 POTS Y  
TABLE IBNXLA: XLANAME PTN1  
PTN1 9 NET N N N 1 Y NDGT N Y DOD N 5 NONE  
TABLE DIGCOL  
NDGT specified: digits collected individually.  
TABLE LINEATTR  
5 IBN NONE NT NSCR 0 804 SPN1 LAS1 NONE N 0 NIL  
NILLATA 0 NIL NIL  
TABLE STDPRTCT  
SPN1 ( 1)  
SUBTABLE STDPRT  
1 1 N DD 1 NA  
TABLE HNPACONT  
804 16 0 ( 1) ( 1) ( 0)  
SUBTABLE HNPACODE  
703 703 FNPA 0  
SUBTABLE RTEREF  
TABLE FNPACONT  
703 3 - ( 0) ( 0) ( 0)  
SUBTABLE FNPACODE  
KEY NOT FOUND  
DEFAULT VALUE IS: VCT VACT  
TABLE TMTCNTL  
LNT ( 27)  
SUBTABLE TREAT  
VACT N T OFRT 14  
14 S D ANNMEM10  
S D IDLE  
EXIT TABLE OFRT

+++ TRAVER: SOFTWARE FAILURE +++

---

a. What is causing the problem? Sub table FNPA code  
IS NOT DATA FILED

b. What should be done to correct the problem? Add tuples  
FOR 467 467 TO sub FNPA code

## TRAVER 2

TRAVER L 3343556 90 B  
TABLE IBNLINES  
HOST 01 0 01 20 DP STN 3343556 GRP1 0 0 804 \$  
TABLE NCOS  
GRP1 0 0 0 NCOS0 (XLAS PTN1 NXLA NDGT) \$  
TABLE CUSTHEAD: CUSTGRP, PRELIMXLA, CUSTXLA  
FEATXLA, VACTRMT, AND DIGCOL  
GRP1 NXLA CTN1 NXLA 0 DCN1  
TABLE DIGCOL  
DCN1 9 POTS Y  
TABLE IBNXLA: XLANAME PTN1  
PTN1 9 NET N N N 1 Y NDGT N Y DOD N 5 NONE  
TABLE DIGCOL  
NDGT specified: digits collected individually.  
TABLE LINEATTR  
5 IBN NONE NT NSCR 0 804 SPN1 LAS1 NONE N 0 NIL  
NILATA 0 NIL NIL  
ZERO MINUS Position from Line Attribute  
TABLE POSITION  
No tuple found.  
Default is to use TRMT VACTRMT from CUSTHEAD

+++ TRAVER: SUCCESSFUL CALL TRACE +++



---

a. What is causing the problem? There is no tuple  
in TABLE Partition

b. What should be done to correct the problem? Add tuple  
AMRX      TABLE LineAttr should be  
AMRX  
From none

**TRAVER 3**

TRAVER L 3343556 905164571212 B  
TABLE IBNLINES  
HOST 01 1 02 18 DT STN 3343556 GRP1 0 0 804 HLD \$  
TABLE NCOS  
GRP1 0 0 0 NCOS1 (XLAS PTN13 NXLA NDGT) \$  
TABLE CUSTHEAD: CUSTGRP, PRELIMXLA, CUSTXLA  
FEATXLA, VACTRMT, AND DIGCOL  
GRP1 NXLA CTN1 FTN1 0 DCN1  
TABLE DIGCOL  
DCN1 9 POTS Y  
TABLE IBNXLA: XLANAME PTN13  
PTN13 9 NET N N N 1 Y NDGT N N DOD Y 5 NONE  
TABLE DIGCOL  
NDGT specified: digits collected individually.  
TABLE LINEATTR  
5 IBN NONE NT NSCR 0 804 SPN1 LAS1 AMRX N 0 NIL  
NILLATA 0 NIL NIL  
TABLE STDPRTCT  
SPN1 ( 1) ( 0)  
SUBTABLE STDPRT  
0 0 N OA 1 NA  
TABLE HNPACONT  
804 6 0 ( 0) ( 1) ( 0)  
SUBTABLE HNPACODE  
516 516 FRTE 1  
SUBTABLE RTEREF  
KEY NOT FOUND

+++ TRAVER: CALL TRACE TERMINATED DUE TO DATA TROUBLE +++

- 
- a. What is causing the problem? NO tuple in Subtable  
KTE Ref
- b. What should be done to correct the problem? add tuple  
in Subtable KTE Ref

**Practice 4 Part B**

Each TRAVER graphic below has a corresponding question; indicate your answer by circling the correct response. Compare your answers with those found in Practice 4 Feedback.

4.

```
TRAVER L 2373556 90 T
TABLE IBNLINES
HOST 00 1 07 22 DT STN 2373556 GRP1 0 0 214 $
TABLE NCOS
GRP1 0 0 NCOS0 $
TABLE CUSTHEAD: CUSTGRP, PRELIMXLA, CUSTXLA, FEATXLA, VACTRMT, DIGCOL
GRP1 NXLA CTN1 FTN1 1 DCN1
TABLE DIGCOL
DCN1 9 POTS Y
NCOS PRELIM XLA name is NIL. Go to next XLA.
CUST PRELIM XLA name is NIL. Go to next XLA.
TABLE IBNXLA: XLANAME CTN1
CTN1 9 NET N N N 1 Y NDGT N DOD Y 12 NONE
TABLE DIGCOL
NDGT specified: digits collected individually.
TABLE LINEATTR
12 IBN NONE NT NSCR 0 214 SPN1 LAS1 AMRX N 0 NIL NILLATA 0 NIL NIL
ZERO MINUS Position from Line Attribute
TABLE POSITION
AMRX S DODTRK
DIGIT TRANSLATION ROUTES
1 DODTRK 0
```

Why does only the "0" digit route out on DODTRK?

- a. The "9" is a network access code.
- b. The DODTRK wants only one digit.
- c. Table IBNXLA strips the "9".

500307  
071191

5.

TRAVER L 2373556 915124571212 B  
 TABLE IBNLINES  
 HOST 00 1 07 22 DT STN 2373556 GRP1 0 0 214 \$

.....  
 TABLE HNPACONT  
 214 3 0 ( 3) ( 1) ( 0)  
 SUBTABLE HNPACODE  
 512 512 FNPA 0  
 TABLE FNPACONT  
 512 56 - ( 1) ( 1) ( 3)  
 SUBTABLE FNPACODE  
 467 467 1 Y  
 SUBTABLE RTEREF  
 1 N D FXTRK 3 N N  
 S D MCITRK  
 S D DODTRK

TABLE LCASCRCN  
 214 LAS1 ( 2) MAND N  
 SUBTABLE LCASCR  
 Tuple not found. Default is non-local.  
 TABLE PFXTREAT  
 MAND DD N DD UNDT

+++ TRAVER: SUCCESSFUL CALL TRACE +++

DIGIT TRANSLATION ROUTES  
 1 FXTRK 4671212  
 2 MCITRK 5124671212  
 3 DODTRK 5124671212

For this TRAVER, which trunk  
 group will the call look at first for  
 an idle circuit?  
 (circle the correct trunk group)

50030  
 08069

6.

TRAVEL 2373556 915124571212 B  
TABLE IBNLINES  
HOST 00 1 07 22 DT STN 2373556 GRP1 0 0 214 \$

.....  
TABLE HNPACONT  
214 3 0 ( 3 ) ( 1 ) ( 0 )  
SUBTABLE HNPACODE  
512 512 FNPA 0  
TABLE FNPACONT  
512 56 - ( 1 ) ( 1 ) ( 3 )  
SUBTABLE FNPACODE  
467 467 1 Y

SUBTABLE RTEREF  
1 N D FXTRK 3 N N  
S D MCITRK  
S D DODTRK

TABLE LCASCRCN  
214 LAS1 ( 2 ) MAND N  
SUBTABLE LCASCR  
Tuple not found. Default is non-local.  
TABLE PFXTREAT  
MAND DD N DD UNDT

+++ TRAVEL: SUCCESSFUL CALL TRACE +++

DIGIT TRANSLATION ROUTES  
1 FXTRK 4671212  
2 MCITRK 5124671212  
3 DODTRK 5124671212

Why does FXTRK outpulse only seven (4671212) digits?

- a. The DELDIGS field strips the 512
- b. Its tuple strips the NXX digits
- c. The PRFXDIGS field deletes the NPA

500305A  
080691

7.

```
TRAVER L 2373556 90 T
TABLE IBNLINES
HOST 00 1 07 22 DT STN 2373556 GRP1 0 0 214 $
TABLE NCOS
GRP1 0 0 NCOS0 $
TABLE CUSTHEAD: CUSTGRP, PRELIMXLA, CUSTXLA, FEATXLA, VACTRMT, DIGCOL
GRP1 NXLA CTN1 FTN1 1 DCN1
TABLE DIGCOL
DCN1 9 POTS Y
NCOS PRELIM XLA name is NIL. Go to next XLA.
CUST PRELIM XLA name is NIL. Go to next XLA.
TABLE IBNXLA: XLANAME CTN1
CTN1 9 NET N N N 1 Y NDGT N DOD Y 12 NONE
TABLE DIGCOL
NDGT specified: digits collected individually.
TABLE LINEATTR
12 IBN NONE NT NSCR 0 214 SPN1 LAS1 AMRX N 0 NIL NILLATA 0 NIL NIL
ZERO MINUS Position from Line Attribute
TABLE POSITION
AMRX S DODTRK
```

For the call in this TRAVER what digit(s) is(are) outpulsed by the trunk route.

- a. 0
- b. 1
- c. 90

500312  
080691

8.

```
TRAVER L 3343556 917034571212 B
TABLE IBNLINES
.....
.....
TABLE IBNXLA: XLANAME PTN1
PTN1 9 NET N N N 1 Y NDGT N Y DOD N 5 NONE
TABLE LINEATTR
5 IBN NONE NT NSCR 0 804 SPN1 LAS1 NONE N 0 NIL NILLATA 0 NIL NIL
TABLE STDPRTCT
SPN1 (1)
. SUBTABLE STDPART
. 1 1 N DD 1 NA
TABLE HNPACONT
804 16 0 (1) (1) (0)
. SUBTABLE HNPACODE
. 703 703 FNPA 0
TABLE FNPACONT
703 3 - (2) (0)
(2) SUBTABLE FNPACODE
. 457 457 1 Y
. SUBTABLE RTEREF
. . 1. N D FXTRK 3 N
. . S D MCITRK
TABLE LCASCRCN
804 LAS1 (2) MAND
N. SUBTABLE LCASCR
. TUPLE NOT FOUND. DEFAULT IS NON-LOCAL
TABLE PFXTREAT
MAND DD N DD UNDT
```

What type of call is this TRAVER reporting?

- a. Three-digit screening
- b. Six-digit screening
- c. Intraswitch

500313  
071291



9.

TRAVER L 3343556 917034571212B

TABLE IBNLINES

.....

.....

TABLE IBNXLA: XLANAME PETN1

PTN1 9 NET N N N 1 Y NDGT N Y DOD N 5 NONE

TABLE LINEATTR

5 IBN NONE NT NSCR 0 804 SPN<sup>i</sup> LAS1 NONE N 0 NIL NILLATA 0 NIL NIL

TABLE STDPRTCT

SPN1 ( 1)

. SUBTABLE STDPRT

. 1 1 N DD 1 NA

TABLE HNPACONT

804 16 0 (1) (1) (0)

. SUBTABLE HNPACODE

. 703 703 FNPA 0

TABLE FNPACONT

703 3 - (2) (0) (2)

. SUBTABLE FNPACODE

. 457 457 1 Y

. SUBTABLE RTEREF

. . . 1 N D FXTRK 3 N

. . . S D MCITRK

TABLE LCASCRCN

804 LAS1 (2) MAND N

. SUBTABLE LCASCR

. TUPLE NOT FOUND. DEFAULT

TABLE PFXTREAT

MAND DD N DD UNDT

For this TRAVER, what routes the call to  
Table FNPACONT?

- a. The 804 in HNPACONT
- b. The 703 in HNPACODE
- c. The FNPA 0 in HNPACODE

500314  
071291

## **Practice 4 Feedback**

### **Part A**

1. Subtable FNPACODE is not datafilled; to correct the problem, a tuple with 467 to 467 needs to be added.
2. This is a 0-minus call. There is no tuple in Table POSITION; for example, add AMRX S DODTRK. Also correct the datafill in LINEATTR field from NONE to AMRX.
3. There was no route reference number (1) found in RTEREF; add a tuple in subtable RTEREF.

### **Part B**

4. c
5. FXTRK
6. a
7. a
8. b
9. c

## Practice 5: Network DOD, six-digit screening, and zero minus dialing

### Situation:

Your supervisor has provided you with an opportunity to develop additional skills in redesigning a customer's database. The customer has requested the use of a foreign exchange trunk for a specific exchange in a different area code as well as requesting that some of the NCOSs be allowed to dial operator calls. Your supervisor has given you the task of redesigning this database. You have been provided with the information needed and have been asked to run hard copy of the TRAVERs of the "expected" results of the changes. Your supervisor has given you until the end of your shift to make the changes and provide the TRAVERs for verification. Your supervisor will be checking the TRAVERs to ensure that you have correctly modified the customer database. Your instructor will serve as your supervisor.

### Instructions:

Your task is to correctly datafill the appropriate tables to support network dialing, six-digit screening, zero minus dialing, as well as intraswitch dialing in a Meridian 1 Options 111-211.

- Complete Strategy Sheets for Translators, Screening, and Routing.
  - Translator Strategy Sheet. Look at your dialing plan in the Database Questionnaire (especially the NCOS matrix) and plan your strategy for using translators on the Translator Strategy Sheet.
  - Strategy Sheet for Screening
  - Routing Strategy Sheet. Plan how different NXXs and NPAs should be coded and then routed out of the switch via Table HNPACONT and its subtables.
- **Fill out one form for each table** that is listed on the following pages using the appropriate NTPs and information provided as references.



**Figure 9**  
**NCOS matrix**

| <b>NCOS MATRIX</b>                 |                           |                    |                       |                           |                   |       |                   |                     |              |               |                     |                                   |                      |             |
|------------------------------------|---------------------------|--------------------|-----------------------|---------------------------|-------------------|-------|-------------------|---------------------|--------------|---------------|---------------------|-----------------------------------|----------------------|-------------|
| CUSTOMER GROUP NAME: GRP <u>10</u> |                           |                    |                       |                           |                   |       |                   |                     |              |               |                     |                                   |                      |             |
| NCOS NUMBER                        | POSSIBLE DIALING PATTERNS |                    |                       |                           |                   |       |                   |                     |              |               | FEATURE INFORMATION | ADDITIONAL INFORMATION            |                      |             |
|                                    | STN - STN                 | INFO (113) (CI=63) | ATTENDANT (0) (CI=64) | IN COMMON (SBGRP=0;CI=64) | 5 + DIALING (F-X) | 9 + 0 | 9 + 0 + 10 DIGITS | 9 + 1 + 7/10 DIGITS | 9 + 7 DIGITS | * EQUIV. (12) | # EQUIV. (13)       |                                   |                      |             |
| 0                                  | X                         | X                  | X                     | X                         | X                 | X     | X                 | X                   | X            | X             | X                   | Executive Busy Override (EBO) #77 | RING AGAIN (RAG) *76 | PRESIDENT   |
| 1                                  | X                         | X                  | X                     | X                         |                   |       |                   |                     | X            | X             | X                   |                                   |                      | SECRETARIES |
| 2                                  |                           | X                  | X                     | X                         |                   |       |                   |                     | X            | X             | X                   |                                   |                      | JANITORS    |
|                                    |                           |                    | A                     | A                         | A                 | A     | A                 | A                   |              |               |                     | <i>Checked</i>                    |                      |             |

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Figure 10  
Translator strategy sheet

TRANSLATOR STRATEGY SHEET

| Who (majority or specific NCOS) gets what dialing privileges or restrictions: |       | Translator name (CTN_, PTN_, FTN_) you will use in Table IBNXLA to give it to them. | In Table IBNXLA:<br>(1) What digit(s) will this translator focus on?<br>(2) What will be the "instructions" (i.e., TRSEL). e.g., EXTN, ATT, TRMT, NET, etc. ? | What table tells me who "owns" this translator name? |
|-------------------------------------------------------------------------------|-------|-------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------|
| Who?                                                                          | What? |                                                                                     |                                                                                                                                                               |                                                      |
|                                                                               | EXTN  | CTN 3                                                                               |                                                                                                                                                               | Table NCOS                                           |
| Majority                                                                      |       | CTN 113                                                                             | ATT 63                                                                                                                                                        |                                                      |
|                                                                               |       | CTN 0                                                                               | ATT 0 Common 64                                                                                                                                               |                                                      |
|                                                                               |       | CTN 9                                                                               | TRMT VACT                                                                                                                                                     |                                                      |
|                                                                               |       | CTN 5                                                                               | TRMT VACT                                                                                                                                                     |                                                      |
|                                                                               |       |                                                                                     |                                                                                                                                                               |                                                      |
| Only NCOS 0                                                                   |       | PTN 31 9                                                                            | NET                                                                                                                                                           |                                                      |
|                                                                               |       | PTN 31 5                                                                            | Route                                                                                                                                                         |                                                      |
|                                                                               |       |                                                                                     |                                                                                                                                                               |                                                      |
| Only NCOS 1                                                                   |       |                                                                                     |                                                                                                                                                               |                                                      |
|                                                                               |       |                                                                                     |                                                                                                                                                               |                                                      |
|                                                                               |       |                                                                                     |                                                                                                                                                               |                                                      |
|                                                                               |       |                                                                                     |                                                                                                                                                               |                                                      |
| Only NCOS 2                                                                   |       | PTN 10                                                                              | TRMT VACT                                                                                                                                                     |                                                      |
|                                                                               |       |                                                                                     |                                                                                                                                                               |                                                      |
|                                                                               |       |                                                                                     |                                                                                                                                                               |                                                      |
|                                                                               |       |                                                                                     |                                                                                                                                                               |                                                      |

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**Figure 11**  
**Strategy sheet for screening calls**

| <b>STRATEGY SHEET FOR SCREENING CALLS</b>                                                           |          |                  |
|-----------------------------------------------------------------------------------------------------|----------|------------------|
| <p><b>Table NCOS</b> <del>0</del></p> <p>GRP <u>10</u> 0 ... XLAS    PTN <u>31</u></p>              |          |                  |
| <p><b>Table IBXLA</b></p> <p>PTN <u>31</u> 9 NET DOD ... <u>159</u>(LINEATTR)</p>                   |          |                  |
| <p><b>Table LINEATTR</b></p> <p>(LINEATTR) <u>159</u> .... SPN <u>10</u> ... <u><u>AMBX</u></u></p> |          |                  |
| <p><b>Table STDPRTCT</b></p> <p>SPN <u>10</u>    (3)</p>                                            |          |                  |
| From                                                                                                | To       | Pretrtsel        |
| <u>0</u>                                                                                            | <u>0</u> | <u>N OR 1 NA</u> |
| <u>1</u>                                                                                            | <u>1</u> | <u>N DD 1 NA</u> |
| <u>2</u>                                                                                            | <u>9</u> | <u>N NP 0 NA</u> |

Figure 12  
Trunking diagram

### TRUNKING DIAGRAM CUSTOMER GRP \_\_\_\_\_

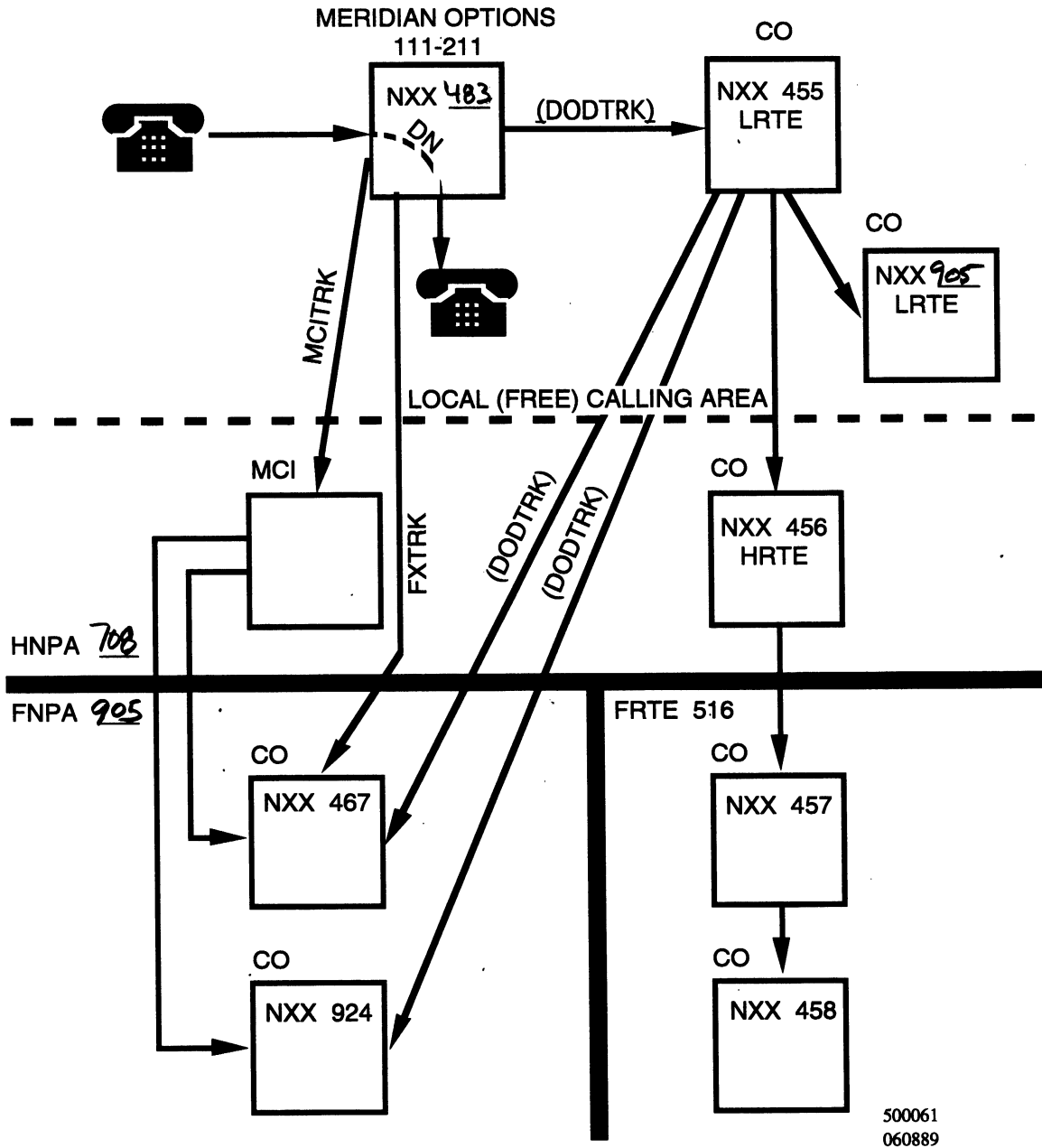


Figure 13  
Routing worksheet

# ROUTING WORK SHEET

Table HNPACONT  
Position 708  
Subtable HNPACODE

List of all the:  
- NPAs in the U.S.  
- NXX's in your NPA

|              |      |               |
|--------------|------|---------------|
| 'FROM' Field | DN   | 'TO' Field    |
| <u>483</u>   | LATE | <u>708</u>    |
| <u>455</u>   | AMBI | <u>483</u>    |
| <u>905</u>   | LATE | <u>FNPA 0</u> |
| <u>456</u>   | HATE |               |
| <u>516</u>   | FATE |               |

"Codes" that switch will use  
to check the correctness of  
# of digits dialed:

|             |                                         |
|-------------|-----------------------------------------|
| Route #     | How to route call<br>out of the switch: |
| <u>LRTE</u> | <u>1 DOD TRK</u>                        |
| <u>HATE</u> | <u>1 DOD TRK</u>                        |
| <u>FATE</u> | <u>1 DOD TRK</u>                        |

Subtable RTEREF

Table FNPACONT  
Position 905  
Subtable FNPACODE

NXX's in this FNPA

|              |            |
|--------------|------------|
| 'FROM' Field | 'TO' Field |
| <u>467</u>   | <u>2</u>   |
| <u>924</u>   |            |

Subtable RTEREF

|                                                   |
|---------------------------------------------------|
| ( <u>FXTRK</u> ) ( <u>MCJ</u> ) ( <u>DOD</u> ) \$ |
| ( <u>MCI</u> ) ( <u>DOD TRK</u> ) \$              |

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The following table not only shows what tables are involved in network DOD dialing, 6-digit screening, and 0-minus dialing but also the order in which these tables should be datafilled.

**Note:** If your instructor has performed a reload (he should tell you), you will have to go back into CUSTHEAD, CUSTENG, CUSTSTN, CUSTSMR, etc. and re-datafill as you did in Lesson 100323, *Intraswitch Dialing*; otherwise, position on your tuples within these tables and verify their existence.

**Table 1**

**Order of datafill**

|                                                                                                      |                                                                                        |
|------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------|
| ✓(1) <b>DIGCOL</b>                                                                                   | ✓(9) <b>STDPRTCT</b><br>POS on your (EXT)PRTNM.<br>SUB into subtable STDPRT.           |
| ✓(2) <b>NCOS</b><br>POS on appropriate NCOS.<br>CHA to include XLAS in options.                      | ✓(10) <b>STDPRT</b>                                                                    |
| ✓(3) <b>FNPACONT</b><br>ADD your FNPA.<br>POS on your FNPA.                                          | ✓(11) <b>LCASRCN</b><br>POS on your NPALOCNM.<br>SUB into subtable LCASCR.             |
| ✓(4) <b>RTEREF</b>                                                                                   | ✓(12) <b>LCASCR</b><br>ADD your tuples.                                                |
| ✓(5) <b>FNPACODE</b><br>ADD your tuples.<br>RET from subtable FNPACODE.<br>SUB into subtable RTEREF. | ✓(13) <b>LINEATTR</b><br>POS on your LNATTIDX.<br>CHA the appropriate fields.          |
| ✓(6) <b>HNPACONT</b><br>POS on your NPA.<br>SUB into HNPACODE.                                       | ✓(14) <b>POSITION</b><br>POS on the key field and see if it<br>has already been added. |
| ✓(7) <b>HNPACODE</b><br>RET from subtable HNPACODE.<br>SUB into subtable RTEREF.                     | (15) <b>IBNXLA</b>                                                                     |
| ✓(8) <b>RTEREF</b>                                                                                   |                                                                                        |

**Table XLANAME**

- Position on your translator names to ensure they are in this table. If not, add them to this table.

Add  
PTN31 \$ 9

**Table DIGCOL**

- Position on your tuples to ensure they are all included; if not, add them.
- Digit Collection Name (DATNAME; DGCOLNM): DCN\_\_
- *LEADING DIGIT ASSIGNMENT* - Identify how each leading digit will be used.

| Leading Digits | Assignment    | Dialed Digits |
|----------------|---------------|---------------|
| 5              | FX Trk Access | 5XXXXXXXX     |
| 9              | POTS          |               |

|       |   |      |   |
|-------|---|------|---|
| DCN10 | 5 | POTS | Y |
| DCN12 | 9 | POTS | Y |

**Table CUSTENG**

- Add the appropriate tuple if necessary.

**Table NCOS**

- Add the appropriate tuple and assign the preliminary translator.

Prcl NCOS ↷

NCOS2

GRP10 2 NCOS2 0 0 ( XLAS PTN10 NYLA NOGT )  
( XLAS PTN131 NYLA NOGT )

**Table CUSTHEAD**

- Add the appropriate tuple.

**Table CUSTSTN**

- Add the following options in the OPTIONS field when you add your tuples.

- *Call Transfer (CXFER)* allows a station to transfer a call to another station, also Call Transfer is required on multiline sets for second dial tone. Defaults are CTINTRA for call transfer type, and N for Call Transfer Recall (XFERRCL).
- *Ring Again Timer (RAGTIM)* defines the time that ringing will be applied when ring again is activated.

Ring Again Recall Timeout (RAGRECTO) = 18

Ring Again Cancellation Timeout (RAGCANTO) = 30

GRP10 CXFER

GRP10

CXFER

CXFER CTINTRA =N STD

GRP10 RAGTIM

GRP10

RAGTIM

RAGTIM 18 30

**Table FNPACONT**

- Listed below are area code(s) that you want to do six-digit screening on before the appropriate trunk group is chosen. In the second field (MAXRTE), indicate *more than* the number of tuples in subtable RTEREF that you will need to route out the calls to all the different NXXs in this special area code. (Refer back to the bottom portion of your Routing Work Sheet.) In the third field (ROUTES) simply place a dash ("-") in its subfield (FRTSEL) to send calls into subtable FNPACODE.
- If Foreign Exchange (FX) Trunk Groups will be used, please identify the area code and exchange each FX will be terminating into:

| Terminating NPA | Terminating NXX | FX Trunk Group Name |
|-----------------|-----------------|---------------------|
| _____           | 467             | FXTRK               |

Tuple  
 905 10 - 0 0 0



---

- **(Subtable) FNPACODE**

- List all the NXXs in this FNPA that you plan to let your users dial and give each a specific route number in subtable RTEREF to use. (Again, refer back to the bottom portion of your Routing Work Sheet.)

Say 'Y' (Yes) to CAMAAUTH.

- Remember to return to your FNPA's control tuple and sub into FNPACODE.

467      467      1      Y

924      924      2      Y

- **(Subtable) RTEREF of Table FNPACONT**

- List the different routes that calls made to FNPA NXXs will use. Refer to the bottom right-hand side of the Routing Work Sheet. Calls using these tuples will have been dialed via 9+ dialing format. Remember to include all routes that could be used to get to this destination. Use Least Cost Routing and Save. Do any dialed digits need to be removed before outpulsing on these trunk groups? If so, use the selector N.
- Remember to position on your FNPA and sub into RTEREF.

RT1

N D FXTRK 3 N N

S D MCITRK

S D DODTRK

RT2

S D MCITRK

S D DODTRK

---

**Table HNPACONT**

- Position on your Home Area Code (HNPA) of the switch.
  - Are there any ambiguous exchanges (NXXs) within the home area code that look like area codes? **Yes**
  - If yes, how many do you have? **1**

*Ambig code Ad 1*

708      10      (      (1) (1) (0) (0)

- (Subtable) HNPACODE of Table HNPACONT

- The information for this subtable can be found on the upper left-hand side of your Routing Strategy Sheet that you completed.
- Are there any *ambiguous exchanges* (NXXs) within the home area code that look like area codes? Y

483 483 DN 708 483  
455 455 LRTE RR1  
905 905 Ambi Tim LRTE 1- FNPA 0  
456 456 HRTE RR1  
514 514 FRTE RR1

- 
- **(Subtable) RTEREF of Table HNPACONT**
    - Position on your tuple to ensure the information is correct. Refer back to your routing worksheet for clarification.

l S D DOD TRK

**Table TOFCNAME**

- This table opens up the Directory Numbers terminating in your switch. How many tuples will you need?
- Enter the Terminating Office Code (NXX) of the switch.

708      483

---

**Table STDPRTCT**

- Add your tuple (found on your info sheet). Remember your Standard Pretranslator Name (EXTPRTNM) is: SP10

SP 10 ( 0 ) ( 0 )

- (Subtable) STDPRT of Table STDPRTCT

- Add your tuples.

|   |   |   |    |   |    |
|---|---|---|----|---|----|
| 0 | 0 | H | OA | 1 | XA |
| 1 | 1 | N | DD | 1 | NA |
| 2 | 9 | N | MP | 0 | WA |



---

**Table LCASCRCN**

- Add your tuple. Remember your Local Calling Area Name is LA10

708 LA10

- **(Subtable) LCASCR**

- It is in this subtable that you will list all the free NXXs in your area code. Check the trunking diagram to ensure that you list all those that are free (including your own NXX).

---

**Table LINEATTR**

- You need to position on and change some fields that ask you for "name pointers" to your tuples in other tables. (Refer to your information sheet and screening strategy sheets).

**Do not delete any tuples from this table.**

|                                                  |             |
|--------------------------------------------------|-------------|
| Line Attribute (LINEATTR) Index Numbers (LAIDX): | <u>159</u>  |
| Serving Translations Scheme (STS):               | <u>708</u>  |
| Pretranslator Name (PRTNM):                      | <u>SP10</u> |
| Local Calling Area Name (LCANAME):               | <u>LA10</u> |
| Zero Minus Position (ZEROMPOS):                  | AMRX        |

ARMX

**Table POSITION**

- You will need to position on a tuple with the "name pointer" that you used in Table LINEATTR (field ZEROMPOS) and name the trunk group that zero minus calls will route out of the switch on.

ARMX

5

DODTRK

**Table IBNXLA**

- Refer back to the last column on your Translator Work Sheet to see what tuples need to be entered here.
- Position on your tuples and make any changes that are needed.
- Use the following data information for selected instructions (EXTN, FEAT, NET, etc.)

**EXTN**

- SMDR is not required.
- Feature transparency, or INTRAGRP, is allowed for station to station calls.
- Extension number will be 5 digits.
- No filler digits are needed.

**FEAT**

- Below is a list of features to be datafilled today.

| Feature | Code |
|---------|------|
| EBO     | # 77 |
| RAG     | * 76 |

- Account (auth) codes are not required.
- SMDR is not required.

**ATT**

- Refer back to the NCOS matrix sheet for the ICI assignments.

**ATTO**

- Which other customer group(s), subgroup(s) and ICIs will you allow your users to terminate to when they dial the assigned digit(s)?

| <u>DIGITS</u> | <u>CUSTGRP</u> | <u>SUBGRP</u> | <u>ICI</u> | <u>INTRAGRP</u> |
|---------------|----------------|---------------|------------|-----------------|
| 0             | COMMON         | 0             | 64         | Y               |

**NET**

- Account (auth) codes will not be used.
- Indicate whether all calls or just billable calls should be recorded in SMDR for each access code terminating to the direct outward dial (DOD) network (e.g. 9):

PTN319 NET NYNL Y NDGT NY  
DOD N 10 NOWC

| <u>Access Code</u> | <u>SMDR All or Only Billable?</u> |
|--------------------|-----------------------------------|
| 9                  | Billable Only                     |

- Second dial tone is required.
- Code blocking will not be used.
- Feature transparency, or INTRAGRP, is allowed for network calls.
- There are no toll restrictions.
- If there are restrictions, toll calls will not go to the operator or the "toll" denied announcement.

**ROUTE**

- When calls are routed directly to an FX trunk group via an access code, please indicate the minimum and maximum digits that will be dialed *including the access code digits*:

PTN31 5 NNA 0 Y 88 NDGT Y S

| <u>Access Code</u> | <u>Minimum</u> | <u>Maximum</u> | <u>TRK/GROUP</u> |
|--------------------|----------------|----------------|------------------|
| 5                  | 8              | 8              | FXTRK            |

FXTRK

- Account (auth) codes will not be used.
- SMDR is not required to access this FX trunk.
- VCDR is not required.
- A second dial tone will be required.
- DGLONM = NDGT.
- Intragroup = Y.
- Route subselector = S.
- CLLI = FXT.
- Digit collection will not be redefined after the access digit(s).
- Feature transparency, or INTRAGRP, is not needed for FX access calls.

## SERVORD Subsystem

You are now ready to go into the SERVORD (Service Order) subsystem to place each phone into service, using the appropriate information (e.g., options, subgroup, NCOS, etc.) listed in Table 2 below. Remember, this will datafill IBNLINES/KSETLINES dynamically.

**Table 2**  
**Table for putting phones into service**

| NCOS | DNs      | Options Assigned to This DN | Subgrp | LENs  |
|------|----------|-----------------------------|--------|-------|
| 0    | ___-3556 | DGT, EBO                    | 0      | _____ |
| 1    | ___-4442 | DGT, EBO                    | 0      | _____ |
| 2    | ___-5443 | DGT, EBO                    | 0      | _____ |

## Invoke TRAVERS

You will now want to test your database to see if you have entered it correctly. Testing will consist of running TRAVERSs. If a TRAVER does not work correctly, troubleshoot it by analyzing the information that the traver gives you. Correct your mistake in the appropriate table and TRAVER the call again. Refer to Table 3 to verify your datafill. You may also verify your datafill by making telephone calls.

**Table 3**  
**Table for verification of datafill**

| Condition                                                                                                                                                    | Allowed | Traver |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|--------|
| 1 NCOS0 dialing NCOS1 via EXTN dialing.<br>✓ TRAVEL L <u>483 3556</u> <u>3 44 42</u> B                                                                       | Yes     |        |
| 2 NCOS0 dialing 0 for the attendant in another customer group<br>(COMMON).<br>✓ TRAVEL L <u>483 3556</u> <u>0</u> B                                          | Yes     |        |
| 3 NCOS0 dialing a LRTE (free) number via 9 + dialing.<br>✓ TRAVEL L <u>483 3556</u> <u>9 455 1212</u> B                                                      | Yes     |        |
| 4 NCOS0 dialing a HRTE (toll) number via 9 + (DD) dialing.<br>✓ TRAVEL L <u>483 3556</u> <u>91 456 1212</u> B                                                | Yes     |        |
| 5 NCOS0 dialing a FRTE (toll) number via 9+(DD) dialing.<br>✓ TRAVEL L <u>483 3556</u> <u>91 516 1212</u> B                                                  | Yes     |        |
| 6 NCOS0 misdialing a HRTE (toll) number (i.e., forgetting to dial a<br>prefix digit) via 9+ (NP) dialing.<br>✓ TRAVEL L <u>483 3556</u> <u>91 456 1212</u> B | No      |        |
| 7 NCOS0 dialing NCOS2 via 9+ dialing (instead of via EXTN).<br>✓ TRAVEL L <u>483 3556</u> <u>483 5443</u> B                                                  | Yes     |        |
| 8 NCOS0 using an ambiguous number as a FRTE via 9+1 dialing.<br>✓ TRAVEL L <u>483 3556</u> <u>91 905 1212</u> B                                              | No      |        |
| 9 NCOS1 dialing NCOS0 via EXTN dialing.<br>✓ TRAVEL L <u>483 4442</u> <u>3 3556</u> B                                                                        | Yes     |        |
| ✓ 10 NCOS1 dialing the attendant for information.<br>TRAVEL L <u>483 4442</u> <u>113</u> B                                                                   | Yes     |        |
| ✓ 11 NCOS1 trying to dial a LRTE number via 9+ dialing.<br>TRAVEL L <u>483 4442</u> <u>9 455 1212</u> B                                                      | No      |        |



|                                                                                                               |     |  |
|---------------------------------------------------------------------------------------------------------------|-----|--|
| ✓ 12. NCOS2 dialing NCOS0 via EXTN dialing.<br>TRAVEL L <u>483 5443</u> <u>33556</u> B                        | No  |  |
| ✓ 13. NCOS0 dialing number 4671212 in your FNPA via 5+ dialing.<br>TRAVEL L <u>483 3556</u> <u>54671212</u> B | Yes |  |
| ✓ 14. NCOS0 dialing number 4671212 in your FNPA via 9+ (DD).<br>TRAVEL L <u>483 3556</u> <u>914671212</u> B   | Yes |  |
| ✓ 15. NCOS0 dialing number 9241212 in your FNPA via 9+ (DD).<br>TRAVEL L <u>483 3556</u> <u>912411212</u> B   | Yes |  |
| ✓ 16. NCOS0 dialing the <i>telephone company operator</i> via 9+ .<br>TRAVEL L <u>483 3556</u> <u>90</u> B    | Yes |  |
| ✓ 17. NCOS0 dialing a FRTE NXX number via 9+ (OA).<br>TRAVEL L <u>483 3556</u> 905164571212 B                 | Yes |  |
| ✓ 18. NCOS1 dialing a local number via 9+<br>TRAVEL L <u>483 4442</u> 94551212 B                              | No  |  |
| ✓ 19. NCOS0 dialing a 7-digit ambiguous number via 9+.<br>TRAVEL L <u>483 3556</u> <u>99051212</u> B          | Yes |  |
| 20. NCOS2 dialing NCOS1 via EXTN dialing<br>TRAVEL L <u>483 5443</u> <u>33556</u> B                           | No  |  |



Network DOD, 6 digit screening & minus dialing

TABLE STOPRTCT - Look AT Digit dialed AFTER Access code  
(8, 9, ... ETC)

PFXTEAT - Validates Dialing pattern

LCASCRN -

\*IBNOLA - DIGCOL Looks AT digits Dialed.\*

TABLE DigCol - Collects digits Dialed.

pg 4-156 Selector - RPT Reports digits as there dialed.  
Selector - Col - indicates CPU should collect # of digits  
Selector - POTS - Process digits From P.P. To C.P.  
Based on dialing pattern.

| DGKey        | DGDATA |          |       |   |
|--------------|--------|----------|-------|---|
| DATNAME      | Digit  | DGcolsel | DTone |   |
| EXAMP. Tuple | DCN 1  | 9        | POTS  | Y |

TABLE IBNOLA - Tells CPU what to do with calls dialed

pg 5-156 Selector

EXTN - EXT

TRMT - Terminate

ATT - Attendant

STAR - \* For Feature Activation

OCT - # For Feature Activation

FEAT - Features

NET - Access To net side simulat.

1

2

3

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Table IBXKLA Cont.

Pg 5-156

|                        | <u>XLANAME</u>          | <u>DGLIDX</u>                 | <u>TRSEL</u>      | <u>ACK</u>                         | <u>SMOR</u><br>All calls | <u>VCRK</u> |
|------------------------|-------------------------|-------------------------------|-------------------|------------------------------------|--------------------------|-------------|
| Examp. Tuple<br>IBXKLA | PTN 1                   | 9                             | NET               | N                                  | N                        | N           |
|                        | <u>NO Accode Digits</u> | <u>STO</u>                    | <u>DGCOLNM</u>    | <u>CRL</u>                         | <u>INTRAGROUP</u>        |             |
|                        | 1                       | N                             | NOGT<br>Always BC | N                                  | N                        |             |
|                        | <u>NET Type</u>         | <u>SMORB</u><br>Bilable calls | <u>LINEATTR</u>   | <u>TOLLREST</u>                    |                          |             |
|                        | DOD                     | Y                             | 4                 | (None) (TON) (TON)<br>AT TOLL Deny |                          |             |
|                        | <u>NET RTOPT</u>        |                               |                   |                                    |                          |             |

Table LINEATTR; (Pointer Table) used to point to other tables points to \*(PRTNM, STS, LCA NAME)\*  
Pg 8-156

|              | <u>(key) LNATTIDX</u> | <u>LCC</u>       | <u>CHGCLASS</u>     | <u>COST</u>     | <u>SCRNCL</u>  | <u>LTG</u> |
|--------------|-----------------------|------------------|---------------------|-----------------|----------------|------------|
| Examp. Tuple | 4                     | IBW              | NONE                | NT              | USCR           | 0          |
|              | <u>* STS *</u>        | <u>* PRTNM *</u> | <u>* LCA NAME *</u> | <u>ZEROMPOS</u> | <u>TRAFSNO</u> |            |
|              | 214                   | SPN 1            | LAS 1               | NONE            | 0              |            |
|              | <u>MRSA</u>           | <u>SFC</u>       | <u>LATNAM</u>       | <u>MOI</u>      | <u>IXNAME</u>  |            |
|              | NIL                   | MILSFC           | MILHA               | 0               | NIL            |            |
|              | <u>DGCINAME</u>       | <u>FINIDIGS</u>  | <u>RESINF</u>       |                 |                |            |
|              | NIL                   | 00               | N                   |                 |                |            |

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NETwork DOD, 6 digit screening, Ø minus dialing

TABLE STOPRTCT- Determines if call is Free or  
PS 10-156 Billable

Examp tuple      STOPRTCTNUM      STOPRTCT(subtable)  
                                SPN 1                              (1)

PS 11-156 SubTABLE STOPRTCT

| <u>From Digs</u> | <u>To Digs</u> | <u>PRETRTE</u>                   | <u>TY RECALL</u>  | <u>NO PRE DIG</u> | <u>TRANSYS)</u> |
|------------------|----------------|----------------------------------|-------------------|-------------------|-----------------|
| 0                | 0              | (PRETSEL<br>N<br>Needs more INFO | OA<br>Oper Assist | 1<br>Strip Digs   | NA<br>National  |
| 1                | 1              | N<br>Needs more INFO             | DD<br>Direct Dial | 1<br>Strip Digs   | NA<br>National  |
| 2                | 9              | N<br>Needs more INFO             | NP<br>No Prefix   | 0<br>Strip Digs   | NA<br>National  |

TABLE HNPA CONT- Controls NPA

PS 12-156

(Key) NPA      MAX RTE      NO AMBIG      RTE REF      HNPA code      ATTRIB  
Examp tuple... 214      10      0      (2)      (5)      (0)

PS 13-156 SubTABLE HNPA code - Lists All NPA and Free NXX

| <u>From Digs</u> | <u>To Digs</u> | <u>CORRTMT</u>                                |
|------------------|----------------|-----------------------------------------------|
| 455              | 455            | CD<br>L RTE<br>LOCAL RT<br>7digs      RT<br>T |
| 456              | 456            | HRTE<br>7-10 digs<br>Home RT      I           |





pg 13-156 Subtable HNPAcode Cont.

|               | <u>From Digs</u> | <u>To Digs</u> | <u>CD</u>                 | <u>RT</u>                | <u>MT</u>          |
|---------------|------------------|----------------|---------------------------|--------------------------|--------------------|
| Example Tuple | 516              | 516            | CD<br>FRTE<br>Foreign RT  | RT<br>1                  |                    |
| Home NPA-NXX  | 237              | 237            | DN<br>Dist sent to Trunk. | (NPA)<br>214             | (NXX)<br>237       |
|               | 703              | 703            | AMSE                      | Method:<br>TIM<br>Timing | LRTG IRR FRTE I RK |

When Fromdigs and Todigs Are the Same

pg 15-156

2 ways Timing, Prefix

Timing - looks for more digits following the 7th digit.

Prefix - looks for 1 or 0

pg 16-156 Subtable RTE REF

| (Key) RTE        | RTESEL                       | CONNTypE       | CLLI   | \$ |
|------------------|------------------------------|----------------|--------|----|
| Example Tuple: 1 | S = CLI                      | D always us(D) | DOOTRK | \$ |
|                  | C = Console                  |                |        |    |
|                  | T = Table Office RT, IBN RTE |                |        |    |

\* Can have up to 9 elements per RT List. \*

1  
2  
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9  
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99  
100

Net Work DOD, 6 digit Screening, & Minus Dialing

Table LCASCRN -

pg 18-156

|               | <u>XIPALOCNM</u>                 | <u>LCASCR</u> | <u>PRXSELEC</u> | <u>PRXFOR10</u>    |
|---------------|----------------------------------|---------------|-----------------|--------------------|
| key           | (STS) (LCANAM)<br>(From LINCARE) |               |                 |                    |
| Example tuple | 214 LAS1                         | (2)           | MAND            | N Will Always Be N |

pg 19-156 Subtable LCASCR - List All Free Called Numbers in your area

| <u>From Digo</u> | <u>To Digo</u> |
|------------------|----------------|
| 455              | 455            |
| 237              | 237            |

Table PXFTREAT.

pg 20-156

|                                           | <u>TYPECLCD</u> | <u>UPDTYPEA</u> | <u>TREAT</u>                           |
|-------------------------------------------|-----------------|-----------------|----------------------------------------|
| (Key → <u>PRXSELEC</u> → <u>TYPEALL</u> ) |                 | Local           |                                        |
| pg 21-156                                 | MAND DD         | N DD            | UNDT<br>Undefined Treat                |
|                                           | MAND DD         | Y DD            | MSCA<br>misdirected CAMA<br>Treatment  |
|                                           | MAND OA         | N OA            | UNDT                                   |
|                                           | MAND OA         | Y OA            | MSCA                                   |
|                                           | MAND NP         | N NP            | MSLC<br>misdirected Local<br>Treatment |
|                                           | MAND NP         | Y NP            | UNDT                                   |



# 6 Digit Screening.

SubTable: #NPA code

pg 76-156

| <u>From Digs</u> | <u>To Digs</u> | <u>CD</u>                       | <u>RR</u> |
|------------------|----------------|---------------------------------|-----------|
| 512              | 512            | FNPA<br>↓<br>Sends to FNPA CONT | 0         |
| 516              | 516            | FKTE                            | 1         |

pg Table FNPA CONT  
77-156

| <u>NPA</u> | <u>MAXRTE</u> | <u>ERTSEL</u>                            | <u>FNPA Code</u> | <u>FNPASTS</u> | <u>RTEREF</u> |
|------------|---------------|------------------------------------------|------------------|----------------|---------------|
| 512        | 56            | ↓<br>Sends to FNPA Code<br>For Screening | (1)              | (0)            | (56)          |

Table FNPA code

pg 77-156

| <u>From Digs</u> | <u>To Digs</u> | <u>RTEREF</u>                     | <u>CANAAUTH</u>                           |
|------------------|----------------|-----------------------------------|-------------------------------------------|
| 467              | 467            | 1                                 | Y<br>For call to<br>be completed needs Y* |
| 924              | 924            | 2<br>Points to<br>Subtable RTEREF | Y                                         |

SubTable RTEREF (NPA)

pg 80-156

| <u>RTESEL</u>                   | <u>Countype</u> | <u>CLLI</u> | <u>DelDigs</u>   | <u>PREVDigs</u> | <u>ComCNOB</u> |
|---------------------------------|-----------------|-------------|------------------|-----------------|----------------|
| N needs<br>more<br>translations | D               | FYTRK       | 3<br>Del. Digits | N               | N              |



ATI INI Other CUST GRP

Table IBNVLA.

Pg 32-156

|               | <u>TRSEL</u> | <u>CUST GRP</u> | <u>SubGroup</u> | <u>ICI Code</u> | <u>INTRAGRP</u> |
|---------------|--------------|-----------------|-----------------|-----------------|-----------------|
| Example Tuple | CTM1 AT10    | DALIBN          | 0               | 64              | Y               |

6 Digit Screening

TABLE IBNVLA.

Pg 71-156 For FX Trunks

| <u>Key</u>          | <u>TRSEL</u>   | <u>ACR</u>     | <u>SMOR</u>       | <u>UCDR</u>     | <u>No Accord Digits</u> |
|---------------------|----------------|----------------|-------------------|-----------------|-------------------------|
| PTM1 5              | Route          | N              | Y                 | N               | 1                       |
| <u>STD</u>          | <u>mindigs</u> | <u>MAXDigs</u> | <u>Dig col/um</u> | <u>IntraGRP</u> |                         |
| Y                   | 8              | 8              | NOgt<br>Don't use | Y               |                         |
| <u>ROUTE SUBSEL</u> | <u>CLLI</u>    |                |                   |                 |                         |
| 5 gets to CLI       | → FXTRK        |                |                   |                 |                         |

Table

HMPA Cont.

Pg

DN

LRTE

HRTE

FRTE

\* FNPA - Foreign NPA. 6 digit Screening





# 6 digit Screening FX Trunks

SUBTABLE RTE REF  
Pg 80-156

|       |               |                 |             |
|-------|---------------|-----------------|-------------|
| RTE 2 | <u>RTESEL</u> | <u>ConnType</u> | <u>CLLI</u> |
|       | S             | D               | MCITR1C     |

|               |                 |             |
|---------------|-----------------|-------------|
| <u>RTESEL</u> | <u>ConnType</u> | <u>CLLI</u> |
| S             | D               | DOOTR1C     |

|           |               |                 |             |
|-----------|---------------|-----------------|-------------|
| RTE 2     | <u>RTESEL</u> | <u>ConnType</u> | <u>CLLI</u> |
| Pg 80-156 | S             | D               | MCITR1C     |

|               |                 |             |
|---------------|-----------------|-------------|
| <u>RTESEL</u> | <u>ConnType</u> | <u>CLLI</u> |
| S             | D               | DOOTR1C     |

RTESEL  
S

0 minus Dialing  
9+0 minus

Pg 91-156 TABLE IONXLA

|                |               |              |            |             |             |
|----------------|---------------|--------------|------------|-------------|-------------|
| <u>XLANAME</u> | <u>DGLDIX</u> | <u>TRSEL</u> | <u>ACK</u> | <u>SMOR</u> | <u>VCOR</u> |
| PTN1           | 9             | NET          | N          | N           | N           |

|                         |            |                  |            |                   |
|-------------------------|------------|------------------|------------|-------------------|
| <u>NO Access Digits</u> | <u>STD</u> | <u>DG COLUMN</u> | <u>CKL</u> | <u>Intragroup</u> |
| 1                       | N          | NDGT             | N          | Y                 |



① minus.

TABLE → NotType  
 ITRXLA 000

SMORR  
Y

LineAttr  
12

TollRest  
None

TABLE LineAttr

92-156

LADIX  
12

LCC  
ISBN

CHGCLASS  
None

COST  
NT

SCRREL  
NSCR

LTG  
0

STS  
Z14

PRTRM  
SPN1

LCANAME  
LASI

\* ZCRMPPOS \*  
AMRX  
TABLE position

TRAFSNO  
0

MBSA  
Nil

SFC  
NilSFC

LATANUM  
NILLATA

MDF  
0

IXNAME  
Nil

FANDIGS  
00

RESINF  
N

TABLE Position

92-156

POS  
AMRX

PRTE  
S

VOPTRK

TABLE Posname

92-156

VALUE  
0

SYMBOL  
AMRX

1

Tops



9  
Code  
Blocking

Blocking  
Cops

9

**Sign-off**

Colleague  
> **Instructor**



100325

## **Code blocking, the REPL selector, abbreviated dialing, class of service screening and screening with pretranslators**

### **Why this lesson is important**

Within customer groups, one or several classes of service may need to have its calling abilities restricted. **Code blocking** allows you to restrict calls to specific DOD numbers, Electronic Switched Network, OUTWATS or private network numbers.

In this lesson you will also become familiar with another, more versatile method of restricting calls through **class of service screening**. Class of service screening screens calls based on the type of call (DD, OA, NP) and the specific digits dialed.

## Objective

Given a logged on terminal, site specific information, and appropriate documentation:

- datafill tables appropriate to intraswitch dialing, network DOD dialing, 6-digit screening, 0-minus dialing, code blocking, abbreviated dialing, the REPL selector, international dialing, class of service screening, and screening with pretranslators
- invoke TRAVERs to verify datafill; and
- analyze and explain tuple and table interaction to classmates and/or instructor.

If any TRAVER is unsuccessful, identify and correct the datafill error and run the TRAVER again.

## What to do

1. Read Lesson 100325: Code blocking, the REPL selector, abbreviated dialing, class of service screening and screening with pretranslators.
2. Work through the lesson including all of the practices.
3. There is no skill check for this lesson; your completed practices will serve as your skill checks; be prepared to explain the TRAVERs to your instructor or to the class.
4. Have the instructor sign off on this lesson.

## What resources to use

| <b>Resources</b>                            | <b>Resource number</b> |
|---------------------------------------------|------------------------|
| Customer Data Schema                        | NTP 297-1001-451       |
| Meridian Digital Centrex Translations Guide | NTP 297-1001-351       |



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# Code blocking

---

## Introduction

You have learned about the different tables used to help the Meridian 1 Options 111-211 screen calls. You have also covered different types of translators (customer group translators, preliminary translators, feature translators, and octothorpe translators) that are available for your usage.

There are several methods of call screening used by the Meridian 1 Options 111-211. For example, a call can be screened by its NCOS or by its feature translator, etc. Another type of screening is called **code blocking**.

The functions of code blocking and class of service screening are often confused with one another. The results for both screening types can be essentially the same; however, class of service screening blocks **types of calls (OA, NP, DD) and digits**; whereas, code blocking blocks (or allows) based **only a call's digits**.

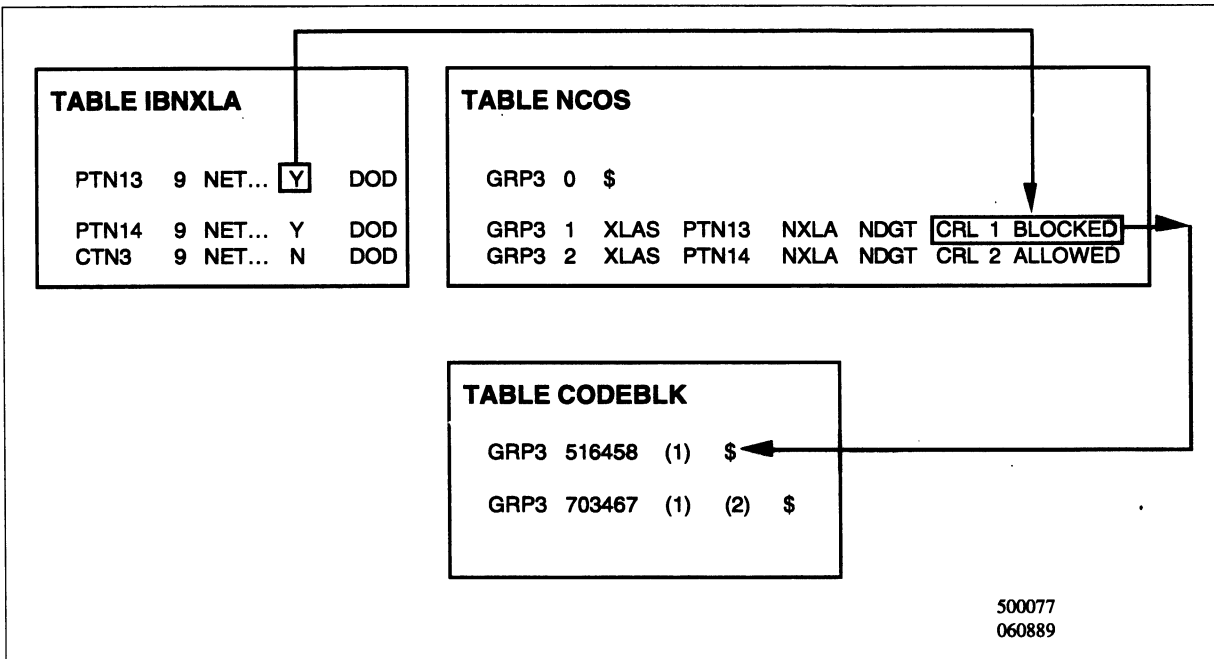
Code blocking allows you to restrict calls to specific DOD numbers, Electronic Switched Network, OUTWATS or private network numbers (the 976 numbers). These restrictions can be placed on just one class of service or on several classes of service. In this section, you will learn a new type of screening called blocking. You will also learn **how blocking can be performed through different pretranslator names**. Finally, you will be introduced to a new translator selector called **REPL**.

### Tables involved in blocking

Three tables are involved in code blocking: Table IBNXLA, Table NCOS, and Table CODEBLK. These tables are shown in Figure 1.

Figure 1

Table relationships in code blocking



**Table IBNXLA**

To allow code blocking, an entry of "Y" (yes) is placed in the subfield CRL (Code Restriction Level) when network dialing is to be permitted. The Y in this subfield means that code blocking is applicable to at least one NCOS in the customer group.

An example of such a tuple is listed below:

|        | (TRSEL) | (DGCOLNM) | (CRL) | (NET_TYPE) |
|--------|---------|-----------|-------|------------|
| CTN1 9 | NET ... | NDGT      | Y     | DOD        |

**Table NCOS**

When the call translates through Table NCOS, it determines whether or not the dialing NCOS is affected. When code blocking is applicable to a particular NCOS, CRL is entered as an option in Table NCOS. This CRL option signifies that Table CODEBLK is applicable to a particular NCOS in two ways:

- It references a particular tuple(s) in Table CODEBLK. (This tuple is referenced by the CRL number that appears in Table NCOS.)
- It states whether the digits listed in Table CODEBLK are to be blocked (BLOCKED) or allowed (ALLOWED) for this NCOS.

After inputting CRL as an option, two subfields must be completed: CRL and CRLACT.

- **CRL** (Code Restriction Level). As previously stated, this subfield assigns a number that indexes the call to the appropriate tuple(s) in Table CODEBLK to the appropriate NCOS .
- **CRLACT** (Code Restriction Level Action). This subfield designates what action is to take place if a tuple is found in Table CODEBLK for this call. Digits can be listed in Table CODEBLK that should either be blocked (**BLOCKED**) or permitted (**ALLOWED**).

Refer to the following table for an example of the code block option. As you can see, two of the NCOSs have the CRL option assigned but for two different reasons (refer to items in boldface).

**Table NCOS**

| <u>CUSTGRP</u> | <u>NCOS</u> | <u>OPTIONS</u> |       |                |
|----------------|-------------|----------------|-------|----------------|
|                |             | (NCOSOPTN)     | (CRL) | (CRLACT)       |
| GRP1           | 0           | <b>CRL</b>     | 1     | <b>BLOCKED</b> |
| GRP1           | 1           | <b>CRL</b>     | 2     | <b>ALLOWED</b> |
| GRP1           | 2           | \$             |       |                |

## Table CODEBLK

The key field in Table CODEBLK consists of the customer group name and the specific digits (from 3 to 18 in length) to be blocked (or allowed). This key field is followed by the CRLDATA number referenced in Table NCOS.

### Table CODEBLK

| <u>CRLKEY</u>       |        | <u>CRLDATA</u> |     |    |
|---------------------|--------|----------------|-----|----|
| (CUSTOMER) (NUMBER) |        |                |     |    |
| GRP1                | 804467 | (1)            |     | \$ |
| GRP1                | 804631 | (1)            |     | \$ |
| GRP1                | 405498 | (1)            | (2) | \$ |

### CRLKEY (CRL Key Field)

As you can see, the key field of this table consists of two subfields:

- **CUSTOMER (Customer Group).** The first part of the key field focuses on the customer group name of the phone originating the call. The customer group name is assigned to a phone in Table IBNLINES.
- **NUMBER.** The second part of the key field focuses on the number that you want blocked or allowed. This number can range from 3 to 18 digits in length. Remember, in order for a tuple in this table to be utilized by a call, both conditions (i.e., the originator's customer group and the terminator's directory number) must be present in the call. Also the condition specified in the second field (discussed below) must also be present.
- **CRLDATA (CRL Data Reference Number).** The numbers (1-15) assigned to a tuple in this field correspond to the CRL number that's assigned to various NCOSs in Table NCOS. To place a code restriction on a call, the number in this field must be assigned to the NCOS that's originating the call.

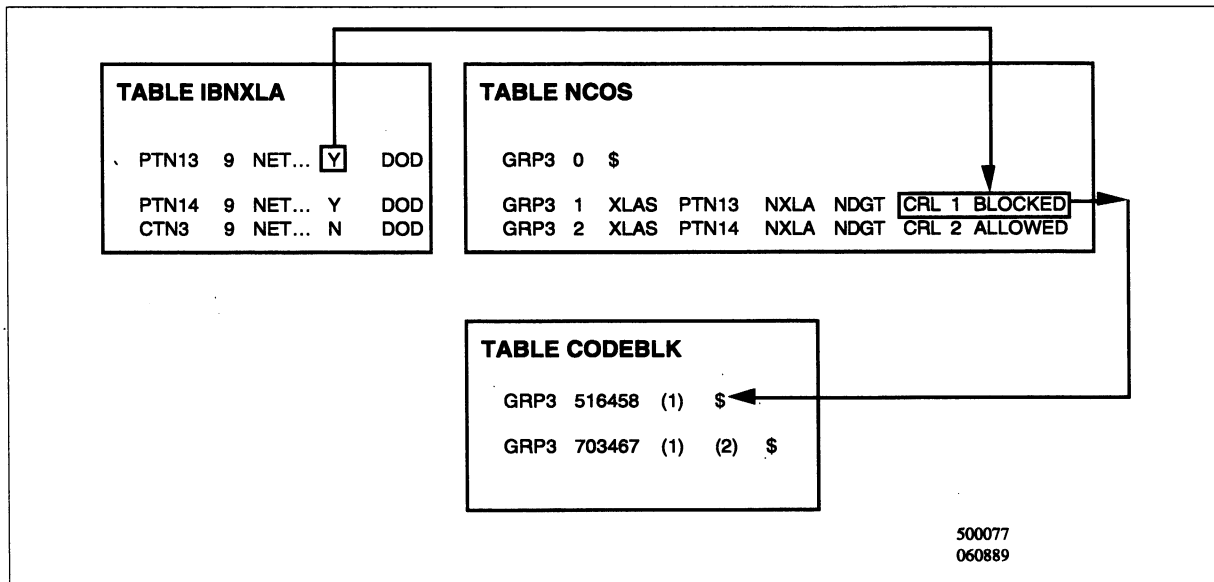
To better understand Table CODEBLK, consider this. If 'allowed' is entered in Table NCOS for 911 (and IBNXLA and supports this), then this specific NCOS has the exclusive ability to dial 911. Network dialing will be restricted in the NCOS.

## Interaction between IBNXLA, NCOS, and CODEBLK

Figure 2 demonstrates the interaction of the tables involved in code blocking. In this example, NCOS 1 is supposed to be blocked from dialing 915164581212.

Figure 2

Table relationships in code blocking



Only 1 CRL per NCOS.

**Code blocking TRAVER**

Now, take a look at the following TRAVER starting at the Table CODEBLK line. (Since an actual TRAVER will not reflect translations past Table CODEBLK, this part of the TRAVER report is hypothetical).

```

TRAVER L 2373556 915164581212 T
TABLE IBNLINES
HOST 00 0 00 05 DT STN 2373556 GRP3 0 1 406 $
TABLE NCOS
→ GRP3 1 0 0 NCOS1 (XLAS PTN13 NXLA NDGT) (CRI 1 BLOCKED)
TABLE CUSTHEAD: CUSTGRP, PRELIMXLA, CUSTXLA, FEATXLA,
VACTRMT, AND DIGCOL 3rd
GRP3 NXLA CTN3 FTN3 0 DCN3
TABLE DIGCOL
→ DCN3 2 POTS Y Second Dialtone
TABLE IBNXLA; XLANAME PTN13
PTN13 2 NET N N N (1) N NDGT (Y) N DOD Y 7 NONE
TABLE LINEATTR
7 IBN NONE NT NSCR 0 406 SPN3 LAS3 AMRX N 0 NIL
NILLATA 0 NIL
TABLE STDPRTCT
→ SPN3 (1)
SUBTABLE STDPRT
1 1 N DD 1 NA
TABLE HNPACONT
406 3 0 (3) (1) (0)
SUBTABLE HNPACODE
516 516 FRTE 2
SUBTABLE RTEREF
2 S D GRP3CLS50G
EXIT TABLE RTEREF
EXIT TABLE HNPACONT
TABLE LCASCRN
406 LAS3 (2) MAND N
SUBTABLE LCASCR
Tuple not found. Default is non-local..
TABLE PEKTREAT
MAND DD N DD UNDT
TABLE CODEBLK
GRP3 516 (1)
Route to VACT in TMTCNTL
Table TMTCNTL
VACT Y T OFRT 1
Table OFRT
1 S D ANN1
S D T120
S D ROH
S D LKOUT
EXIT Table OFRT

```

- Table CODEBLK positions on the customer group GRP3 and assigns blocking for 516. This NXX is associated with the code restriction level (1).
- A route to VACT in TMTCNTL is automatically indicated.
- In Table TMTCNTL, the subtable TREAT assigns a route to Table OFRT for the VACT treatment.
- OFRT lists four treatments for the call:
  - an announcement (ANN1)
  - a timed period (T120)
  - a receiver off-hook tone (ROH)
  - a lockout (LKOUT)

It is interesting to note that, in the case of a TRAVER, code blocking is not checked for until after a route has been defined for the dialed number.

## Practice 1: Code blocking

### Instructions:

Obtain NTP 297-1001-451, and read about Tables IBNLINES, NCOS, CUSTHEAD, IBNXLA, and CODEBLK as they relate to code blocking.

On the following page, there are tuples from Tables IBNLINES, NCOS, CUSTHEAD, IBNXLA, and CODEBLK. Analyze these tables and indicate below whether the calls will be allowed (A) or blocked (B). Compare your answers with those found in Practice 1 Feedback.

| Originator   | Dialed Number   | Allowed (A) or Blocked (B) |
|--------------|-----------------|----------------------------|
| 1. 245-4012  | 9+1+212+9762124 | <u>Blocked</u>             |
| 2. 245-4012  | 9+1+414+9216031 | <u>Blocked</u>             |
| 3. 245-4012  | 9+5213691       | <u>Allowed</u>             |
| 4. 245-4013  | 9+4922340       | <u>Blocked</u>             |
| 5. 245-4013  | 9+1+212+9761000 | <u>Blocked</u>             |
| 6. 245-4013  | 9+1+414+9211600 | <u>Allowed</u>             |
| 7. 245-4014  | 9+1+212+9761000 | <u>Allowed</u>             |
| 8. 245-4014  | 9+1+414+9214608 | <u>Blocked</u>             |
| 9. 245-4014  | 9+4922340       | <u>Allowed</u>             |
| 10. 521-3691 | 9+1+212+9761010 | <u>Allowed</u>             |
| 11. 521-3691 | 9+1+305+6214600 | <u>Allowed</u>             |
| 12. 521-3691 | 9+4922340       | <u>Allowed</u>             |





Table IBNLINES

|      | <u>(LEN)</u> |     | <u>(DN)</u> |     | <u>(CUSTNAME)</u> |  | <u>(NCOS)</u> |
|------|--------------|-----|-------------|-----|-------------------|--|---------------|
| HOST | 1 0 5 12     | ... | 2454012     | ... | GRP2              |  | 0             |
| HOST | 1 0 8 16     | ... | 2454013     | ... | GRP2              |  | 1             |
| HOST | 1 1 5 9      | ... | 2454014     | ... | GRP2              |  | 2             |
| HOST | 1 1 3 5      | ... | 5213691     | ... | GRP4              |  | 0             |

Table NCOS

|      | <u>NCOS</u> |     | <u>OPTNS</u>      |              |                 |
|------|-------------|-----|-------------------|--------------|-----------------|
|      |             |     | <u>(NCOSOPTN)</u> | <u>(CRL)</u> | <u>(CRLACT)</u> |
| GRP2 | 0           | ... | CRL               | 1            | BLOCKED         |
| GRP2 | 1           | ... | CRL               | 2            | BLOCKED         |
| GRP2 | 2           | ..  | CRL               | 2            | ALLOWED         |
| GRP4 | 0           | ..  | CRL               | 1            | BLOCKED         |

Table CUSTHEAD

| <u>CUSTNAME</u> | <u>CUSTXLA</u> | ... |
|-----------------|----------------|-----|
| GRP2            | CTN2           |     |
| GRP4            | CTN4           |     |

Table IBNXLA

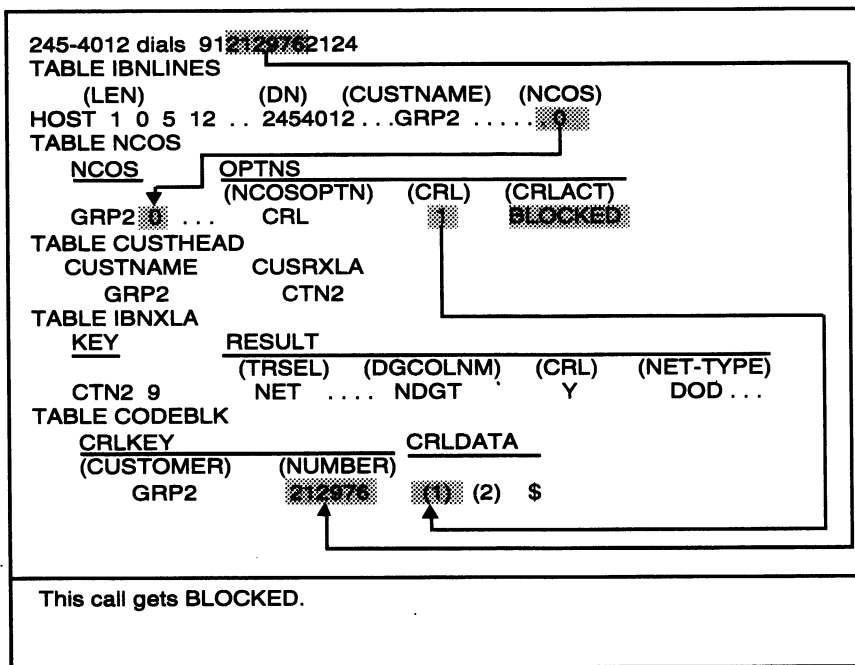
| <u>KEY</u> |   | <u>RESULT</u>  |                  |              |                   |
|------------|---|----------------|------------------|--------------|-------------------|
|            |   | <u>(TRSEL)</u> | <u>(DGCOLNM)</u> | <u>(CRL)</u> | <u>(NET_TYPE)</u> |
| CTN2       | 9 | NET ...        | NDGT             | Y            | DOD...            |
| CTN4       | 9 | NET ...        | NDGT             | N            | DOD...            |

Table CODEBLK

| <u>CRLKEY</u>     |                 | <u>CRLDATA</u> |     |    |  |
|-------------------|-----------------|----------------|-----|----|--|
| <u>(CUSTOMER)</u> | <u>(NUMBER)</u> |                |     |    |  |
| GRP2              | 212976          | (1)            | (2) | \$ |  |
| GRP2              | 4922340         | (2)            | \$  |    |  |
| GRP2              | 414921          | (1)            | \$  |    |  |
| GRP4              | 305621          | (1)            | \$  |    |  |

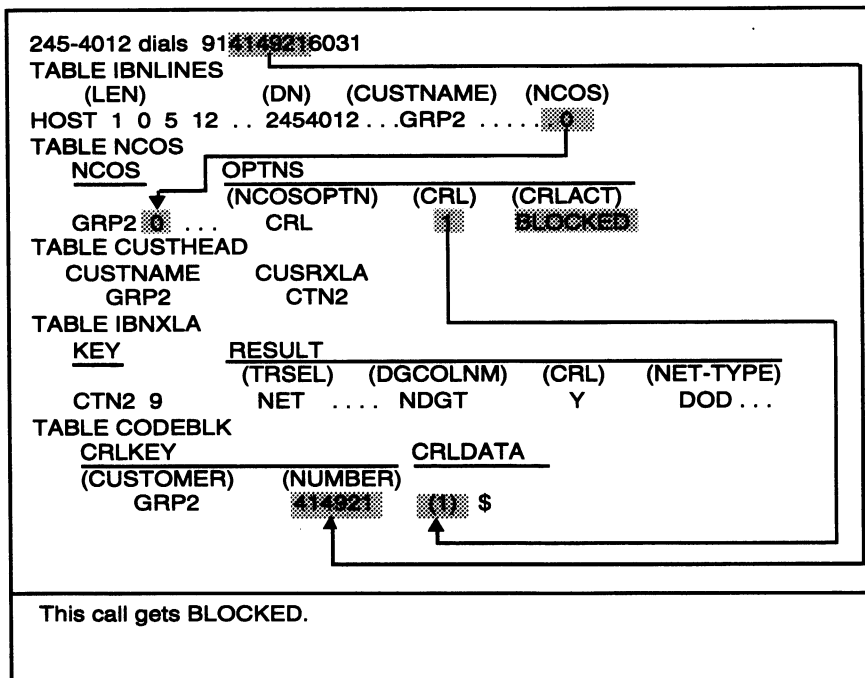
### Practice 1 Feedback

1.



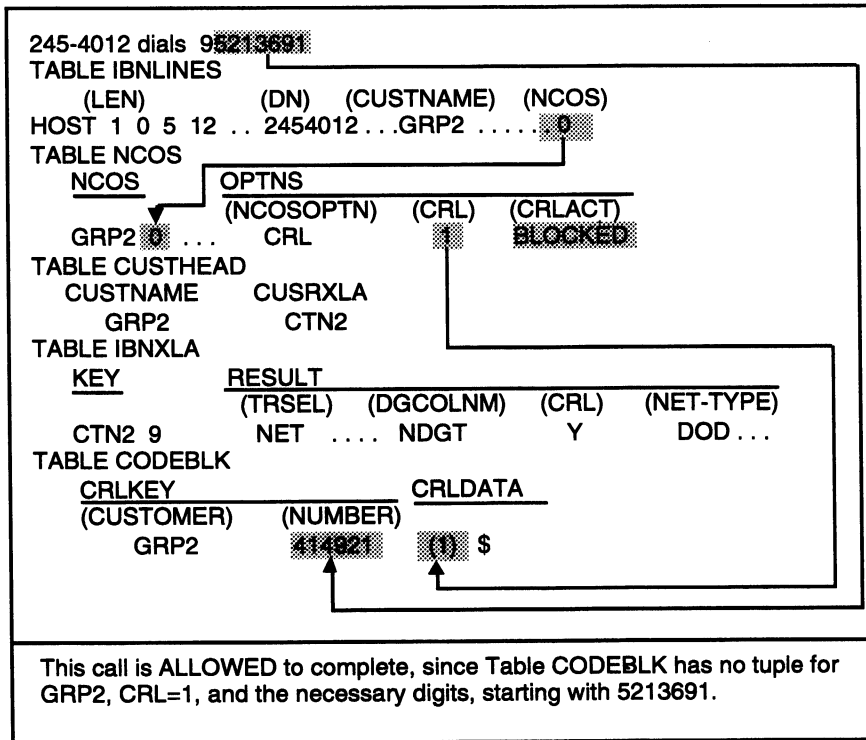
500317  
071291

2.



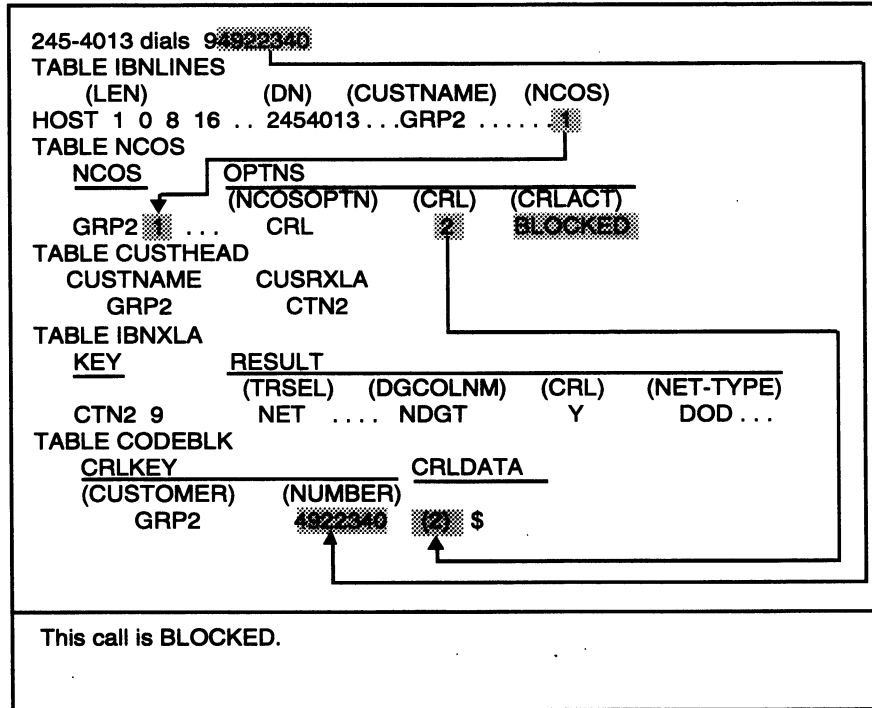
500318  
071291

3.



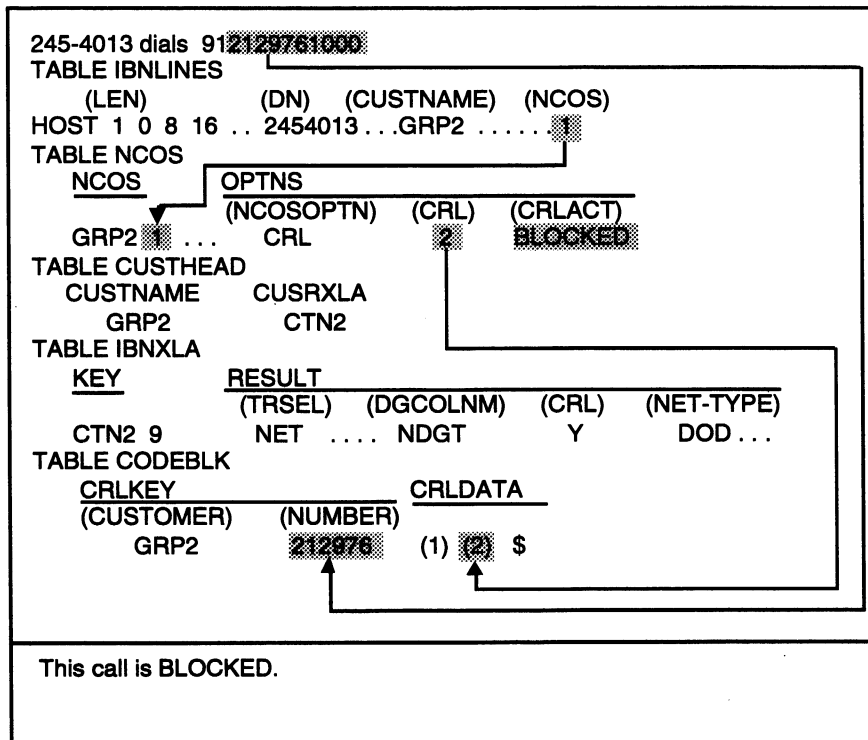
500319  
071291

4.



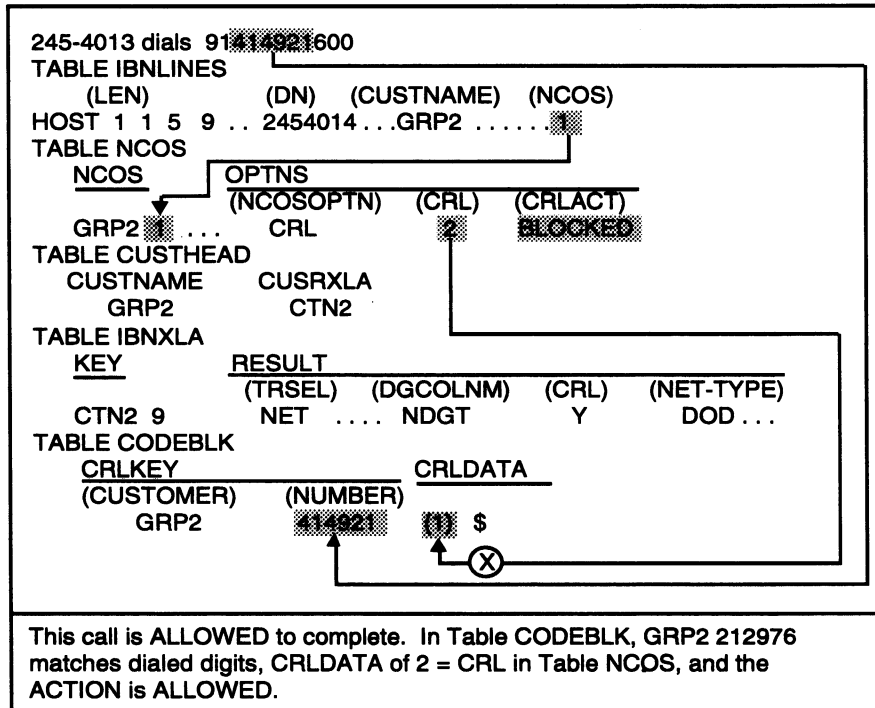
500320  
071291

5.



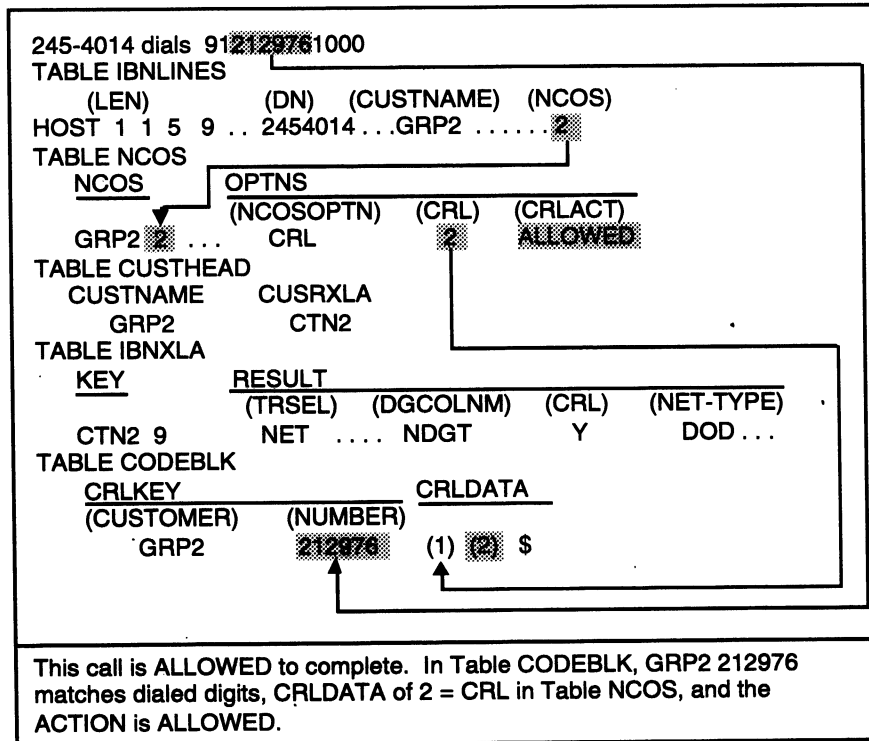
500321  
071291

6.



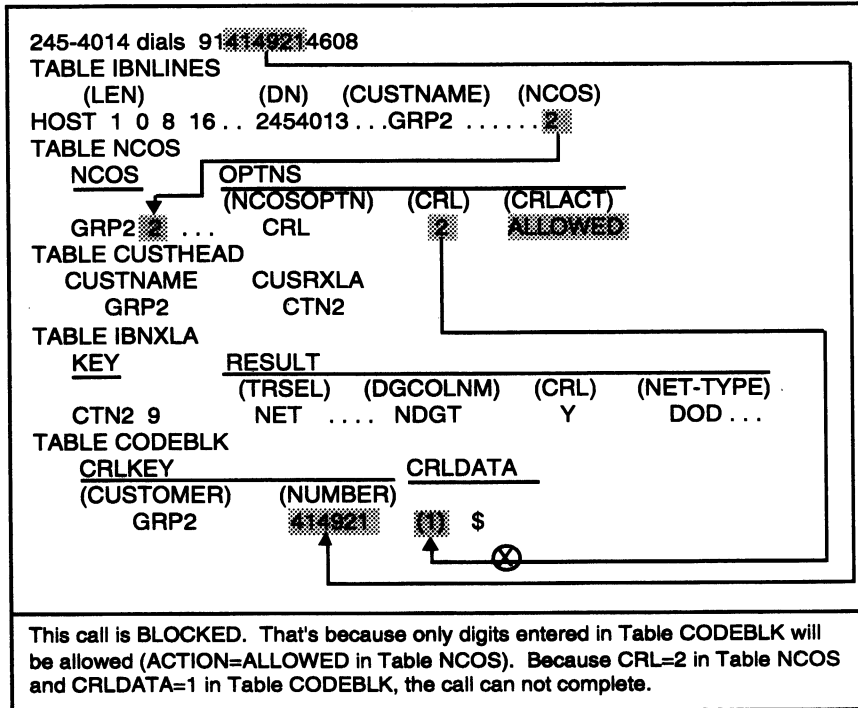
500322  
071591

7.



500323  
071591

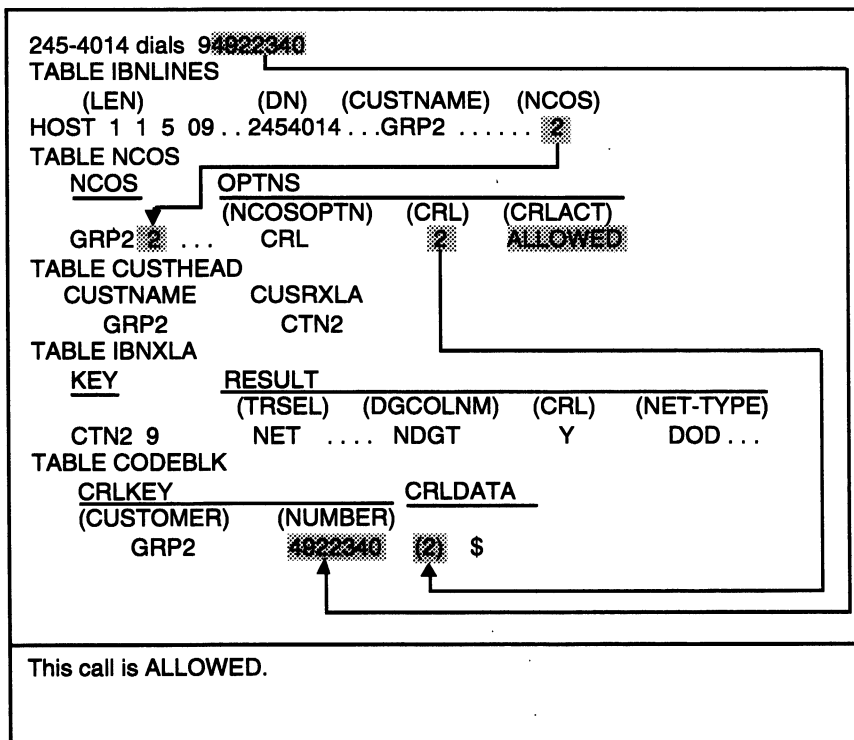
8.



500324  
071591



9.



500325  
071591

10.

```

521-3691 dials 912129761010
TABLE IBNLINES
 (LEN) (DN) (CUSTNAME) (NCOS)
HOST 1 1 3 5 .. 5213691 ...GRP40
TABLE NCOS
 NCOS OPTNS
 (NCOSOPTN) (CRL) (CRLACT)
GRP4 0 ... CRL 1 BLOCKED
TABLE CUSTHEAD
CUSTNAME CUSTXLA
 GRP4 CTN4
TABLE IBNXLA
 KEY RESULT
 (TRSEL) (DGCOLNM) (CRL) (NET-TYPE)
CTN4 9 NET NDGT N DOD...
TABLE CODEBLK
 CRLKEY CRLDATA
 (CUSTOMER) (NUMBER)


```

This call is ALLOWED to complete, because Code Blocking IS NOT activated ("N" under CRL in Table IBNXLA) for this caller's Customer Group phones, when placing NET DOD calls.

500326  
071291

11.

```

521-3691 dials 913056214600
TABLE IBNLINES
 (LEN) (DN) (CUSTNAME) (NCOS)
HOST 1 1 3 5 .. 5213691 ...GRP40
TABLE NCOS
 NCOS OPTNS
 (NCOSOPTN) (CRL) (CRLACT)
GRP4 0 ... CRL 1 BLOCKED
TABLE CUSTHEAD
 CUSTNAME CUSTXLA
 GRP4 CTN4
TABLE IBNXLA
 KEY RESULT
 (TRSEL) (DGCOLNM) (CRL) (NET-TYPE)
CTN4 9 NET NDGT' N DOD...
TABLE CODEBLK
 CRLKEY CRLDATA
 (CUSTOMER) (NUMBER)


```

This call is ALLOWED to complete, because Code Blocking IS NOT activated ("N" under CRL in Table IBNXLA) for this caller's Customer Group phones, when placing NET DOD calls.

500327  
071591

12.

```

521-3691 dials 94922340
TABLE IBNLINES
 (LEN) (DN) (CUSTNAME) (NCOS)
HOST 1 1 3 5 .. 5213691 ...GRP40
TABLE NCOS
 NCOS OPTNS
 (NCOSOPTN) (CRL) (CRLACT)
GRP4 0 ... CRL 1 BLOCKED
TABLE CUSTHEAD
 CUSTNAME CUSTXLA
 GRP4 CTN4
TABLE IBNXLA
 KEY RESULT
 (TRSEL) (DGCOLNM) (CRL) (NET-TYPE)
CTN4 9 NET NDGT N DOD...
TABLE CODEBLK
 CRLKEY CRLDATA
 (CUSTOMER) (NUMBER)


```

This call is ALLOWED to complete, because Code Blocking IS NOT activated ("N" under CRL in Table IBNXLA) for this caller's Customer Group phones, when placing NET DOD calls.

500328  
071591

---

# Blocking with pretranslators

---

## Introduction

There are instances when you may want two or more NCOSs to have network (9+) dialing privileges; however, you want their dialing privileges to be different. For instance, let's say that NCOS 0 and 1 both have 9+ dialing privileges, including toll calling. However, while NCOS 0 can make both operator-assisted (OA) and direct-dial (DD) long distance calls, NCOS 1 is limited to only operator assisted (OA) calls. This section discusses how you can set up this sort of dialing plan through the use of separate NCOS **Pretranslator Names** (and subtables).

## STDPRTCT and blocking with pretranslators

Table STDPRTCT performs several functions:

- analyzing the digit that immediately follows the network access code (e.g., 9),
- classifying the call as DD, OA, or NP, and
- sending the call to the next table in the call processing plan (HNPACONT).

It also performs one more function. Table STDPRTCT must now treat the NCOS 0 calls and the NCOS 1 calls differently.

Table STDPRTCT can perform this new function (treat NCOSs differently) **if each NCOS is given a separate Pretranslator Name**. Remember, the work that Table STDPRTCT does is actually accomplished in the subtable for pretranslator name (PRTNM) (i.e., subtable STDPRT). Thus, if each NCOS is given its own PRTNM to use, then each NCOS will have a separate subtable in Table STDPRTCT to address its own special needs.

To assign a separate PRTNM and thereby a separate subtable STDPRT to each NCOS, you must complete the following steps:

- Assign separate PRTNMs to each NCOS in Table LINEATTR.
- Assign separate line attribute numbers to each NCOS in Table IBNXLA.
- Assign a preroute selector (PRERTSEL) of **D** in subtable STDPRT to the tuple that is to receive a block treatment. **This D preroute selector will send the call associated with that tuple directly to the customer defined treatment** (rather than sending the call on to Table HNPACONT for further translating).

The following information depicts the previous strategy. As you can see from this chart, when NCOS 1 tries to dial an operator-assisted (0+) call, the switch will use the first tuple. As you can see from the second tuple, direct dial (DD) and no prefix (NP) calls will be processed as normal for this NCOS.

**Table NCOS**

```
GRP1 1 0 0 NCOS1 (XLAS PTN1 NXLA NDGT) $
GRP1 0 0 0 NCOS0 (XLAS PTN2 NXLA NDGT) $
```

**Table IBNXLA**

```
PTN1 9 NET N N 1 Y NDGT N Y DOD N 31
 NONE
PTN2 9 NET N N 1 Y NDGT N Y DOD N 30
 NONE
```

**Table LINEATTR**

```
30 IBN NONE NT NSCR 0 804 SPN2 LAS2 NONE N
 0 NIL NILLATA 0 NIL NIL
31 IBN NONE NT NSCR 0 804 SPN1 LAS2 NONE N
 0 NIL NILLATA 0 NIL NIL
```

**Table STDPRTCT**

## Subtable STDPRT

## SPN1 (3)

| From | To | Pretrtsel |      |   |    |
|------|----|-----------|------|---|----|
| 0    | 0  | D         | VACT |   |    |
| 1    | 1  | N         | DD   | 1 | NA |
| 2    | 9  | N         | NP   | 0 | NA |

## SPN2 (3)

| From | To | Pretrtsel |    |   |    |
|------|----|-----------|----|---|----|
| 0    | 0  | N         | OA | 1 | NA |
| 1    | 1  | N         | DD | 1 | NA |
| 2    | 9  | N         | NP | 0 | NA |

The following TRAVER illustrates NCOS 1 being blocked from dialing operator assisted (OA) calls by this STDPRT subtable.

```

TRAVER L 7834442 905124671212 B
TABLE IBNLINES
HOST 00 1 07 02 DT STN 7834442 GRP1 0 1 214 $
TABLE NCOS
GRP1 1 0 0 NCOS1 (XLAS PTN13 NXLA NDGT) $
TABLE CUSTHEAD: CUSTGRP, PRELIMXLA, CUSTXLA,
FEATXLA, VACTRMT, AND DIGCOL
GRP1 NXLA CTN1 FTN1 0 DCN1
TABLE DIGCOL
DCN1 9 POTS Y
TABLE IBNXLA; XLANAME PTN13
PTN13 9 NET N N N 1 N NDGT N N DOD N 31 NONE
TABLE LINEATTR
31 IBN NONE NT NSCR 0 406 SPN1 LAS1 NONE N 0 NIL
NILLATA 0 NIL NIL
TABLE STDPRTCT
SPN1 (1)
SUBTABLE STDPRT
0 0 D VACT
TABLE TMTCNTL
LNT (27)
SUBTABLE TREAT
VACT N T OFRT 7
TABLE OFRT
7 S D T120
EXIT TABLE OFRT

```

+++ TRAVER: SUCCESSFUL CALL TRACE +++

```

TREATMENT ROUTES.
TREATMENT IS VACT
1 T120

```

# REPL: an IBNXLA selector

## Introduction

As you learned earlier, Table IBNXLA gives instructions on what the CPU is to do when certain digits are dialed by a particular translator name. For example, when the 0 is dialed, the CPU is to send the call to the attendant. When a NCOS, blocked from making network calls, dials a 9, the CPU is to send the call to a treatment. Another translator selector that can be entered in Table IBNXLA is called **REPL** (replace).

## Replacing an old number with a new number

When a familiar number in your dialing plan changes, it takes many users a considerable amount of time to break their habit of dialing the old number and to use the new one. A mistake of dialing the old number results in delay and frustration on the part of the dialer. One way to control this is through the use of another translator selector in Table IBNXLA. This translator selector is called **REPL** (replace), and it means literally to replace whatever the user dialed with the correct number. Here's an example of **REPL** being used in a tuple in Table IBNXLA:

Table IBNXLA

| <u>KEY</u> | <u>RESULT</u> |            |            |
|------------|---------------|------------|------------|
|            | (TRSEL)       | (CONTINUE) | (REPLCODE) |
| CTN1 77    | REPL          | N          | 113        |

In our example above, the number for company information changed from 77 to 113. The above tuple was built for those users who will accidentally dial the **old** number (77). It will replace the digits they've just dialed (77) with the **new** digits (113) and retranslate on those new digits as if they had been dialed by the user. The subfield called **CONTINUE** gives instructions to the call process about which translator it should use for the remainder of this call. If you answer Y (Yes) to **CONTINUE**, the call process will continue the normal program using its current translator only one time to find a tuple in Table IBNXLA before looking to see if it can use another translator name to find a tuple. Thus, since the translator name CTN1 has already been used once to find the tuple with key field CTN1 77, the normal program cannot use CTN1 again to search for another key field with the new digits in Table IBNXLA. If you answer N (No) to **CONTINUE**, the call process will not continue the normal program of using its current translator only one time to find a tuple in Table IBNXLA. Instead, it will look for another key field in which that same translator name appears again, this time with the new digits.



The following TRAVER shows a user dialing a call in which the translator selector of REPL is used in Table IBNXLA. In this example, the call **retranslates** using CTN1 (because of N next to REPL).

TRAVER L 7833556 77 B

TABLE IBNLINES

HOST 00 1 07 22 DT STN 7833556 GRP1 0 0 214 \$

TABLE DNATTRS

TUPLE NOT FOUND

TABLE NCOS

GRP1 0 0 0 NCOS0 \$

TABLE CUSTHEAD: CUSTGRP, PRELIMXLA, CUSTXLA,

FEATXLA, VACTRMT, DIGCOL

GRP1 NXLA CTN1 FTN1 0 DCN1

TABLE DIGCOL

DCN1 7 COL S 1

TABLE IBNXLA: CTN1

CTN1 77 REPL N 113

TABLE IBNXLA: CTN1

CTN1 113 ATT 63

Call Routed To Attendant Subgroup 0 ICI 63

+++ TRAVER: SUCCESSFUL CALL TRACE +++

## Abbreviated dialing

Another function of the REPL selector is to allow **abbreviated dialing** to take place. When REPL performs this function, it allows the user to **dial one or two digits instead of up to 16 digits**.

In order to allow abbreviated dialing through the REPL selector, you must take the two-digit codes that the users will dial and tell the switch (in Table IBNXLA) to replace them with the 8 to 12-digit numbers. Below is an example of a tuple using the REPL selector to allow the user to dial 76 in place of the telephone number 9+455-1212.

Table IBNXLA

| <u>KEY</u> | <u>RESULT</u> |            |            |  |
|------------|---------------|------------|------------|--|
|            | (TRSEL)       | (CONTINUE) | (REPLCODE) |  |
| CTN1 76    | REPL          | N          | 94551212   |  |

A common use of abbreviated dialing is associated with the octothorpe character (#). This character, when used in the dialing process, makes it easy for the user to identify an abbreviated dialing access code. Remember, **when using the octothorpe translator, option OCTXLA must be datafilled in Table CUSTHEAD**. The following is an example of a tuple using the REPL selector:

Table IBNXLA

| <u>KEY</u> | <u>RESULT</u> |            |            |  |
|------------|---------------|------------|------------|--|
|            | (TRSEL)       | (CONTINUE) | (REPLCODE) |  |
| OCT1 76    | REPL          | N          | 94551212   |  |

**TRAVER illustrating the use of abbreviated dialing**

The following TRAVER shows the progression of the call when abbreviated dialing is used. Notice that this call retranslates using the OCT1 translator; however, it doesn't find another tuple keyed by OCT1 9. The call then proceeds to use the CTN1 translator.

```

TRAVER L 2373508 1376 T
TABLE IBNLINES
HOST 00 0 00 13 DP STN 2373508 GRP1 0 1 214 $
TABLE NCOS
→ GRP1 1 0 0 NCOS1 $
TABLE CUSTHEAD: CUSTGRP, PRELIMXLA, CUSTXLA,
FEATXLA, VACTRMT, AND DIGCOL
GRP1 NXLA CTN1 NXLA 0 DCN1
TABLE DIGCOL
→ DCN1 1 COL S 3
TABLE IBNXLA: XLANAME CTN1
CTN1 13 OCT
TABLE IBNXLA: XLANAME OCT1
→ OCT1 76 REPL N 94551212
TABLE IBNXLA: XLANAME CTN1
→ CTN1 9 NET N N N 1 N NDGT N N DOD Y 7 NONE
TABLE LINEATTR
→ 7 IBN NONE NT NSCR 0 214 SPN1 LAS1 NONE N 0 NIL
NILLATA 0 NIL NIL
TABLE STDPRTCT
SPN1 (1)
SUBTABLE STDPRT
4 9 N NP 0 NA
SUBTABLE AMAPRT
TUPLE NOT FOUND
DEFAULT VALUE IS: NONE N
TABLE HNPACONT
214 10 0 (3) (1) (0)
SUBTABLE HNPACODE
455 455 LRTE 1
SUBTABLE RTEREF
1 S D DODTRK
EXIT TABLE RTEREF
EXIT TABLE HNPACONT
TABLE LCASCRCN
214 LAS1 (2) MAND N
SUBTABLE LCASCR
455 455
TABLE PFXTREAT
MAND NP Y NP UNDT

```



---

# TRAVER analysis

---

## Introduction

There are 5 sample TRAVERs in this section. For each TRAVER, you will be presented with several paragraphs that explain what the TRAVER is depicting.

**TRAVER 1**

TRAVER L 3344442 914561212 B  
TABLE IBNLINES  
HOST 01 0 01 30 DP STN 3344442 GRP1 0 1 804 \$  
TABLE NCOS  
GRP1 1 0 0 NCOS1 (XLAS PTN13 NXLA NDGT)(CRL1  
BLOCKED) \$  
TABLE CUSTHEAD: CUSTGRP, PRELIMXLA, CUSTXLA  
FEATXLA, VACTRMT, AND DIGCOL  
GRP1 NXLA CTN1 NXLA 0 DCN1  
TABLE DIGCOL  
DCN1 9 POTS Y  
TABLE IBNXLA: XLANAME PTN13  
PTN13 9 NET N N N 1 Y NDGT Y N DOD Y 5 NONE  
TABLE DIGCOL  
NDGT specified: digits collected individually.  
TABLE LINEATTR  
5 IBN NONE NT NSCR 0 804 SPN1 LAS1 AMRX N 0 NIL  
NILLATA 0 NIL NIL  
TABLE STDPRTCT  
SPN1 ( 1)  
SUBTABLE STDPRT  
1 1 N DD 1 NA  
TABLE HNPACONT  
804 16 0 ( 1) ( 1) ( 0)  
SUBTABLE HNPACODE  
456 456 HRTE 1  
SUBTABLE RTEREF  
1 S D DODTRK  
EXIT TABLE RTEREF  
EXIT TABLE HNPACONT  
TABLE LCASCRCN  
804 LAS1 ( 2) MAND N  
SUBTABLE LCASCR  
TUPLE NOT FOUND. DEFAULT IS NON-LOCAL  
TABLE PFXTREAT  
MAND DD N DD UNDT  
TABLE CODEBLK  
TUPLE NOT FOUND

+++ TRAVER: SUCCESSFUL CALL TRACE +++

You will notice that the code restriction level in Table NCOS is referencing tuple 1 in Table CODEBLK and that the digits listed in CODEBLK are to be BLOCKED for this NCOS. The preliminary translator in IBNXLA indicates that this is a network DOD call. The Y following NDGT indicates that code blocking is to be permitted. Once the call gets to STDPRT, the call processing program recognizes:

- the field 1 to 1 as a direct dial call (DD);
- the call is a national call which requires more digit manipulation in HNPACONT.HNPACODE (N);
- and strips 1 digit before going to HNPACONT.

From there, the call follows normal translations; once it gets to CODEBLK, it sees that a tuple does not exist and the call goes out as dialed.

**TRAVER 2**

TRAVER L 3343556 904561212 B  
TABLE IBNLINES  
HOST 01 0 01 20 DT STN 3343556 GRP1 0 0 804 \$  
TABLE NCOS  
GRP1 0 0 0 NCOS1 (XLAS PTN1 NXLA NDGT) \$  
TABLE CUSTHEAD: CUSTGRP, PRELIMXLA, CUSTXLA  
FEATXLA, VACTRMT, AND DIGCOL  
GRP1 NXLA CTN1 FTN1 0 DCN1  
TABLE DIGCOL  
DCN1 9 POTS Y  
TABLE IBNXLA: XLANAME PTN1  
PTN1 9 NET N N N 1 Y NDGT N Y DOD N 5 NONE  
TABLE DIGCOL  
NDGT specified: digits collected individually.  
TABLE LINEATTR  
5 IBN NONE NT NSCR 0 804 SPN1 LAS1 NONE N 0 NIL  
NILATA 0 NIL NIL  
TABLE STDPRTCT  
SPN1 ( 1)  
SUBTABLE STDPRT  
0 0 N OA 1 NA  
TABLE HNPACONT  
804 16 0 ( 1) ( 1) ( 0)  
SUBTABLE HNPACODE  
456 456 HRTE 1  
SUBTABLE RTEREF  
1 S D DODTRK  
EXIT TABLE RTEREF  
EXIT TABLE HNPACONT  
TABLE LCASCRCN  
804 LAS1 ( 2) MAND N  
SUBTABLE LCASCR  
TUPLE NOT FOUND. DEFAULT IS NON-LOCAL  
TABLE PFXTREAT  
MAND OA N OA UNDT

+++ TRAVER: SUCCESSFUL CALL TRACE +++



Once the call gets to STDPRT, the call processing program recognizes:

- the 0 to 0 field as an operator assisted call (OA);
- the call is a national call which requires more digit manipulation in HNPACONT.HNPACODE (N);
- and strips 1 digit before going to HNPACONT.

HNPACODE indexes the office code and is defined as a HRTE with RR 1. The 1 takes the call to RTEREF where a DODTRK is defined. The NPA from HNPACONT indexes LCASCRCN where the LAS1 and MAND selector are indexed. The MAND selector takes the call to PFXTREAT, maintains the call as a OA and sends the call out with an UNDT.

**TRAVER 3**

TRAVER L 2373508 1376 T  
TABLE IBNLINES  
HOST 00 0 00 13 DP STN 2373508 **GRP1 0 1 214 \$**  
TABLE NCOS  
**GRP1 1 0 NCOS1 \$**  
TABLE CUSTHEAD: CUSTGRP, PRELIMXLA, CUSTXLA,  
FEATXLA, VACTRMT, AND DIGCOL  
**GRP1 NXLA CTN1 NXLA 0 DCN1**  
TABLE DIGCOL  
**DCN1 1 COL S 3**  
TABLE IBNXLA: XLANAME CTN1  
**CTN1 13 OCT**  
TABLE IBNXLA: XLANAME OCT1  
**OCT1 76 REPL N 93613421**  
TABLE IBNXLA: XLANAME CTN1  
**CTN1 9 NET N N N 1 N NDGT N N DOD Y 7 NONE**  
TABLE LINEATTR  
**7 IBN NONE NT NSCR 0 214 SPN1 LAS1 NONE N 0 NIL**  
NILATA 0 NIL NIL  
TABLE STDPRTCT  
**SPN1 ( 1)**  
SUBTABLE STDPRT  
**3 9 N NP 0 NA**  
TABLE HNPACONT  
**214 10 0 ( 3) ( 1) ( 0)**  
SUBTABLE HNPACODE  
**361 361 LRTE 1**  
SUBTABLE RTEREF  
**1 S D DODTRK**  
EXIT TABLE RTEREF  
EXIT TABLE HNPACONT  
TABLE LCASCRCN  
**214 LAS1 (2) MAND N**  
SUBTABLE LCASCR  
**361 366**  
TABLE PFXTREAT  
**MAND NP Y NP UNDT**

+++ TRAVER: SUCCESSFUL CALL TRACE +++

You will notice that in IBNXLA the REPL selector has been used in the octothorpe equivalent tuple. Apparently this is also an abbreviated dialing sequence. When a user dials 1376, he or she is wanting to dial 93613421 which is a network DOD call. The call then proceeds through standard network DOD translation sequences.

## TRAVER 4

TRAVER L 3345443 77 B  
TABLE IBNLINES  
HOST 01 1 02 08 DT STN 3345443 **GRP1 0 2 804 \$**  
TABLE DNATTRS  
TUPLE NOT FOUND  
TABLE NCOS  
**GRP1 2 0 0 NCOS2 ( XLAS PTN1 NXLA NDGT)\$**  
TABLE CUSTHEAD: CUSTGRP, PRELIMXLA, CUSTXLA,  
FEATXLA, VACTRMT, AND DIGCOL  
**GRP1 NXLA CTN1 FTN1 0 DCN1**  
TABLE DIGCOL  
**DCN1 7 COL S 1**  
TABLE IBNXLA: XLANAME PTN1  
**PTN1 77 REPL Y 113**  
CUST PRELIM XLA name is NIL. Go to next XLA name.  
TABLE IBNXLA: XLANAME CTN1  
**CTN1 113 ATT 63**  
Call routed to ATTENDANT CONSOLE:  
**GRP1 SUBGRP: 0 ICI: 63**

+++ TRAVER: SUCCESSFUL CALL TRACE +++

In this TRAVEL, you will notice that a preliminary translator has been assigned to NCOS2. When the user dials 77, the tuple in IBNXLA indexes to the REPL selector and replaces the 77 with a 113. When the call processing program indexes the customer translator, CTN1, the call is routed to the attendant. This call is translated to ICI 63 on the attendant console.

**TRAVER 5**

TRAVER L 9533556 1376 T  
 TABLE IBNLINES  
 HOST 00 0 12 01 DT STN 9533556 **GRP6 0 0 804 \$**  
 TABLE NCOS  
**GRP6 0 0 0 NCOS1 (XLAS PTN18 NXLA NDGT) \$**  
 TABLE CUSTHEAD: CUSTGRP,PRELIMXLA, CUSTXLA FEATXLA,  
 VACTRMT, AND DIGCOL  
**GRP6 NXLA CTN6 FTN6 0 DCN6**  
 TABLE DIGCOL  
**DCN6 1 COL S 3**  
 TABLE IBNXLA: XLANAME PTN18  
 TUPLE NOT FOUND  
 Default is to go to next XLA name.  
 CUST PRELIM XLA name is NIL. Go to next XLA name.  
 TABLE IBNXLA: XLANAME CTN6  
**CTN6 13 OCT**  
 NCOS OCT XLA name is NIL. Go to next XLA name.  
 TABLE IBNXLA: XLANAME OCT6  
**OCT6 76 REPL N 94551212**  
 TABLE IBNXLA: XLANAME PTN18  
**PTN18 9 NET N N N 1 Y NDGT N N DOD Y 86 NONE**  
 TABLE DIGCOL  
 NDGT specified: digits collected individually.  
 TABLE LINEATTR  
**86 IBN NONE NT NSCR 0 804 SPN6 LAS1 NONE N 0 NIL**  
 NILSFC NIL NILLATA 0 NIL 00 N  
 TABLE STDPRTCT  
**SPN6 ( 1) ( 0)**  
 SUBTABLE STDPRT  
**4 9 N NP 0 NA**  
 TABLE HNPACONT  
**804 5 0 ( 1) ( 1) ( 0)**  
 SUBTABLE HNPACODE  
**455 455 LRTE 1**  
 SUBTABLE RTEREF  
**1 S D DODTRK**  
 EXIT TABLE RTEREF  
 EXIT TABLE HNPACONT  
 TABLE LCASCRCN  
**804 LAS1 ( 2) MAND N**  
 SUBTABLE LCASCR  
**455 455**  
 TABLE PFXTREAT  
**MAND NP Y NP UNDT**

|                        |
|------------------------|
| +++ TRAVER: SUCCESSFUL |
| CALL TRACE +++         |

You will notice that in IBNXLA the REPL selector has been used in the octothorpe equivalent tuple. Apparently this is also an abbreviated dialing sequence. When a user dials 1376, he or she is wanting to dial 94551212 which is a network DOD call. The call then proceeds through standard network DOD translation sequences.





## Practice 2: Tuple interaction and TRAVER analysis

### Situation:

As a database or trouble-desk technician, you have received the following printed TRAVERs. You have been asked to locate the problem and then indicate how to correct the datafill errors.

### Instructions:

#### Part A

1. Read through the TRAVER.
2. Access any NTP you may need.
3. If necessary, review the tables used in this lesson.
4. Indicate what is causing the problem as well as what can be done to correct the problem.
5. Compare your answers with those found in Practice 2 Feedback; discuss any differences with your instructor or colleague.



**TRAYER 1**

```

TRAYER L 3344442 915164581212 B
TABLE IBNLINES
HOST 01 0 01 30 DP STN 3344442 GRP1 0 1 804 $
TABLE NCOS
GRP1 1 0 0 NCOS1 (XLAS PTN1 NXLA NDGT) (CRL 1 BLOCKED)$
TABLE CUSTHEAD: CUSTGRP, PRELIMXLA, CUSTXLA
FEATXLA, VACTRMT, AND DIGCOL
GRP1 NXLA CTN1 FTN1 0 DCN1
TABLE DIGCOL
DCN1 9 POTS Y
TABLE IBNXLA: XLANAME PTN1
PTN1 9 NET N N N 1 Y NDGT Y N DOD Y 5 NONE
TABLE DIGCOL
NDGT specified: digits collected individually.
TABLE LINEATTR
5 IBN NONE NT NSCR 0 804 SPN1 LAS1 AMRX N 0 NIL
NILLATA 0 NIL NIL
TABLE STDPRTCT
SPN1 (1)
SUBTABLE STDPRT
1 1 N DD 1 NA
TABLE HNPACONT
804 16 0 (1) (1) (0)
SUBTABLE HNPACODE
516 516 FRTE 1
SUBTABLE RTEREF
1 S D DODTRK
EXIT TABLE RTEREF
EXIT TABLE HNPACONT
TABLE LCASCRCN
804 LAS1 (2) MAND N
SUBTABLE LCASCR
TUPLE NOT FOUND. DEFAULT IS NON-LOCAL
TABLE PFXTREAT
MAND DD N DD UNDT
TABLE CODEBLK
GRP1 5164581212 (1)$

```

+++ TRAYER: SUCCESSFUL CALL TRACE +++

---

a. What is causing the problem? Table Code Block

---

b. What should be done to correct the problem? Remove that #  
From table Codeblock, Change Block to Allowed  
IN NCOS, Change FieldCellin IBNXL4 to N.

**TRAVER 2**

TRAVER L 3344442 ~~90~~4561212 B  
 TABLE IBNLINES  
 HOST 01 0 01 30 DP STN 3344442 GRP1 0 1 804 \$  
 TABLE NCOS  
~~GRP1 1 0 0 NCOS1 (XLAS PTN13 NXLA NDGT) (CRL 1 BLOCKED)\$~~  
 TABLE CUSTHEAD: CUSTGRP, PRELIMXLA, CUSTXLA  
 FEATXLA, VACTRMT, AND DIGCOL  
~~GRP1 NXLA CTN1 FTN1 0 DCN1~~  
 TABLE DIGCOL  
~~DCN1 9 POTS Y~~  
 TABLE IBNXLA: XLANAME PTN13  
 PTN13 9 NET N N N 1 Y NDGT Y N DOD Y 67 NONE  
 TABLE DIGCOL  
 NDGT specified: digits collected individually.  
 TABLE LINEATTR  
~~67 IBN NONE NT NSCR 0 804 SPN1 LAS1 AMRX N 0 NIL~~  
 NILLATA 0 NIL NIL  
 TABLE STDPRTCT  
~~SPN1 ( 1) Strip out dig~~  
 SUBTABLE STDPRT  
 0 0 D RODR  
 TABLE TMTCNTL  
 LNT ( 27)  
 804 16 0 ( 1) ( 1) ( 0)  
 SUBTABLE TREAT  
 RODR N T OFRT 7  
 TABLE OFRT  
 7 S D T60  
 EXIT TABLE OFRT

+++ TRAVER: SUCCESSFUL CALL TRACE +++

---

a. What is causing the problem? D in Subtable STDPRT  
Close call to sofa Table treatment Cont.

b. What should be done to correct the problem? Change the  
D to N For needs more translations

**TRAVER 3**

TRAVER L 3345443 77 B  
 TABLE IBNLINES  
 HOST 01 0 02 08 DT STN 3345443 GRP1 0 2 804 \$  
 TABLE NCOS  
GRP1 2 0 0 NCOS2 ( XLAS PTN1 NXLA NDGT) \$  
 TABLE CUSTHEAD: CUSTGRP, PRELIMXLA, CUSTXLA,  
 FEATXLA, VACTRMT, AND DIGCOL  
GRP1 NXLA CTN1 FTN1 0 DCN1  
 TABLE DIGCOL  
DCN1 7 COL S 1  
 TABLE IBNXLA: XLANAME PTN1  
 TUPLE NOT FOUND  
 Default is to go to next XLA name.  
 CUST PRELIM XLA name is NIL. Go to next XLA name.  
 TABLE IBNXLA: XLANAME CTN1  
 CTN1 77 REPL N 113  
 TABLE IBNXLA: XLANAME PTN1  
 TUPLE NOT FOUND  
 Default is to go to next XLA name.  
 CUST PRELIM XLA name is NIL. Go to next XLA name.  
 TABLE IBNXLA: XLANAME CTN1  
 TUPLE NOT FOUND  
 Default is to use Trmt VACTRMT from CUSTHEAD  
 TABLE IBNTREAT  
 GRP1 0 Y S ANNMEM6  
  
 +++ TRAVER: SUCCESSFUL CALL TRACE +++  
  
 DIGIT TRANSLATION ROUTES  
  
 ANNMEM6  
  
 TREATMENT ROUTES. TREATMENT IS: GNCT  
 1 ANNMEM10  
 2 IDLE  
  
 +++ TRAVER: SUCCESSFUL CALL TRACE +++

---

a. What is causing the problem? No tuple in I BANKA

---

b. What should be done to correct the problem? Add tuple in  
I BANKA CTN1 1113 ATT 63.

---

**Practice 2 Part B**

Each TRAVER graphic below has a corresponding question; indicate your answer by circling the correct response. Compare your answers with those found in Practice 2 Feedback.

1.

| TABLE IBNLINES |          |     |         |            |        |     |
|----------------|----------|-----|---------|------------|--------|-----|
|                | (LEN)    |     | (DN)    | (CUSTNAME) | (NCOS) |     |
| HOST           | 1 0 5 12 | ... | 2454012 | ...        | GRP2   | ... |
|                |          |     |         |            |        | 0   |
| HOST           | 1 0 8 16 | ... | 2454013 | ...        | GRP2   | ... |
|                |          |     |         |            |        | 1   |
| HOST           | 1 1 5 9  | ... | 2454014 | ...        | GRP2   | ... |
|                |          |     |         |            |        | 2   |
| HOST           | 1 1 3 5  | ... | 5213691 | ...        | GRP4   | ... |
|                |          |     |         |            |        | 0   |

| TABLE NCOS |            |       |                       |
|------------|------------|-------|-----------------------|
|            | NCOS       | OPTNS |                       |
|            | (NCOSOPTN) | (CRL) | (CRLACT)              |
| GRP2       | 0          | ...   | CRL ... 1 ... BLOCKED |
| GRP2       | 1          | ...   | CRL ... 2 ... BLOCKED |
| GRP2       | 2          | ...   | CRL ... 2 ... BLOCKED |
| GRP4       | 0          | ...   | CRL ... 1 ... BLOCKED |

| TABLE CUSTHEAD |         |     |
|----------------|---------|-----|
| CUSTNAME       | CUSTXLA | ... |
| GRP2           | CTN2    |     |
| GRP4           | CTN4    |     |
|                |         |     |

| TABLE IBNXLA |         |           |       |            |     |
|--------------|---------|-----------|-------|------------|-----|
| KEY          | RESULT  |           |       |            |     |
|              | (TRSEL) | (DGCOLNM) | (CRL) | (NET_TYPE) |     |
| CTN2         | 9       | NET       | ...   | NDGT       | ... |
|              |         |           |       | Y          | DOD |
| CTN4         | 9       | NET       | ...   | NDGT       | ... |
|              |         |           |       | N          | DOD |

| TABLE CODEBLK |            |          |     |        |
|---------------|------------|----------|-----|--------|
| CRLKEY        | (CUSTOMER) | (NUMBER) | (1) | (2)    |
|               | GRP2       | 212976   | (1) | (2) \$ |
|               | GRP2       | 4922340  | (2) | \$     |
|               | GRP2       | 414921   | (1) | \$     |
|               | GRP4       | 305621   | (1) | \$     |

Given this datafill, does a call in which DN 245-4014 dials 9 + 1 + 305 + 6214600 get blocked?

a. Yes  
 b. No



2.

| TABLE IBNLINES |   |   |      |            |     |         |     |      |     |    |
|----------------|---|---|------|------------|-----|---------|-----|------|-----|----|
| (LEN)          |   |   | (DN) | (CUSTNAME) |     | (NCOS)  |     |      |     |    |
| HOST           | 1 | 0 | 5    | 12         | ... | 2454012 | ... | GRP2 | ... | 0  |
| HOST           | 1 | 0 | 8    | 16         | ... | 2454013 | ... | GRP2 | ... | 1  |
| HOST           | 1 | 1 | 5    | 9          | ... | 2454014 | ... | GRP2 | ... | 2  |
| HOST           | 1 | 1 | 3    | 5          | ... | 5213691 | ... | GRP4 | ... | 0. |

| TABLE NCOS |   |     |            |       |          |     |         |  |  |  |
|------------|---|-----|------------|-------|----------|-----|---------|--|--|--|
| NCOS OPTNS |   |     |            |       |          |     |         |  |  |  |
|            |   |     | (NCOSOPTN) | (CRL) | (CRLACT) |     |         |  |  |  |
| GRP2       | 0 | ... | CRL        | ...   | 1        | ... | BLOCKED |  |  |  |
| GRP2       | 1 | ..  | CRL        | ...   | 2        | ... | BLOCKED |  |  |  |
| GRP2       | 2 | ..  | CRL        | ...   | 2        | ... | BLOCKED |  |  |  |
| GRP4       | 0 | ..  | CRL        | ...   | 1        | ... | BLOCKED |  |  |  |

| TABLE CUSTHEAD |      |         |  |     |  |  |  |  |  |
|----------------|------|---------|--|-----|--|--|--|--|--|
| CUSTNAME       |      | CUSTXLA |  | ... |  |  |  |  |  |
| GRP2           | CTN2 |         |  |     |  |  |  |  |  |
| GRP4           | CTN4 |         |  |     |  |  |  |  |  |
| GRP2           | CTN2 |         |  |     |  |  |  |  |  |
| GRP4           | CTN4 |         |  |     |  |  |  |  |  |

| TABLE IBNXLA |        |     |         |           |       |            |     |     |  |  |
|--------------|--------|-----|---------|-----------|-------|------------|-----|-----|--|--|
| KEY          | RESULT |     |         |           |       |            |     |     |  |  |
|              |        |     | (TRSEL) | (DGCOLNM) | (CRL) | (NET_TYPE) |     |     |  |  |
| CTN2         | 9      | NET | ...     | NDGT      | ...   | N          | DOD | ... |  |  |
| CTN4         | 9      | NET | ...     | NDGT      | ...   | Y          | DOD | ... |  |  |

| TABLE CODEBLK |          |            |     |    |  |  |  |  |  |
|---------------|----------|------------|-----|----|--|--|--|--|--|
| CRLKEY        |          | (CUSTNAME) |     |    |  |  |  |  |  |
| (CUSTOMER)    | (NUMBER) |            |     |    |  |  |  |  |  |
| GRP2          | 212976   | (1)        | (2) | \$ |  |  |  |  |  |
| GRP2          | 4922340  | (2)        | \$  |    |  |  |  |  |  |
| GRP2          | 414921   | (1)        | \$  |    |  |  |  |  |  |
| GRP4          | 305621   | (1)        | \$  |    |  |  |  |  |  |

Given this datafill, does a call in which DN 521-3691 dials 9 + 1 + 305 + 6214600 get blocked?

a. Yes

b. No

3.

```
TRAVEL 2373556 915164581212 T
TABLE IBNLINES
HOST 00 0 00 05 DT STN 2373556 GRP3 0 1 406 $
TABLE NCOS
GRP3 1 0 NCOS1 XLAS PTN13 NXLA NDGT (CRL 1 BLOCKED)
TABLE IBNXLA: XLANAME PTN13
```

```
.....
.....
```

```
TABLE LCASCRCN
406 LAS3 (2) MAND
N SUBTABLE LCASCR
 Tuple not found. Default is non-local.
```

```
TABLE PFXTREAT
MAND DD N DD UNDT
```

```
TABLE CODEBLK
GRP3 516 (1)
Route to VACT in TMTCNTL
```

```
Table TMTCNTL
VACT Y T OFRT 1
TABLE OFRT
1 S D ANN1
 S D T120
 S D ROH
 S D LKOUT
EXIT Table OFRT
```

Given this TRAVEL, what datafill would you change to let this call from a phone in NCOS1 complete successfully?

- a. Assign a new NCOS number to these phones
- b. Replace VACT in Table TMTCNTL with RODR
- c. Change BLOCKED in Table NCOS to ALLOWED

500331  
071591

4.

## TABLE: NCOS

GRP1 0 0 0 NCOS0 (XLAS PTN2 NXLA NDGT) \$  
 GRP1 1 0 0 NCOS1 (XLAS PTN1 NXLA NDGT) \$

## TABLE: IBNXLA

PTN2 9 NET N N N 1 Y NDGT N Y DOD N 30 NONE  
 PTN1 9 NET N N N 1 Y NDGT N Y DOD N 31 NONE

## TABLE: LINEATTR

30 IBN NONE NT NSCR 0 804 SPN2 LAS2 NO  
 31 IBN NONE NT NSCR 0 804 SPN1 LAS1 NO

## TABLE: STDPRTCT

## Subtable STDPRT

## SPN1

| From | To | Pretrtsel |
|------|----|-----------|
| 0    | 0  | D VACT    |
| 1    | 1  | N DD 1 NA |
| 2    | 9  | N NP 0 NA |

## SPN2

| From | To | Pretrtsel |
|------|----|-----------|
| 0    | 0  | N OA 1 NA |
| 1    | 1  | N DD 1 NA |
| 2    | 9  | N NP 0 NA |

Based on the datafill depicted here,  
 phones in NCOS0 can make NET  
 DOD calls to an "outside" operator.

- a. True  
 b. False

500332  
 071591

5.

TABLE: NCOS

GRP1 0 0 0 NCOS0 (XLAS PTN2 NXLA NDGT) \$  
 GRP1 1 0 0 NCOS1 (XLAS PTN1 NXLA NDGT) \$

TABLE: IBNXLA

PTN2 9 NET N N N 1 Y NDGT N Y DOD N 30 NONE  
 PTN1 9 NET N N N 1 Y NDGT N Y DOD N 31 NONE

TABLE: LINEATTR

30 IBN NONE NT NSCR 0 804 SPN2 LAS2 NO  
 31 IBN NONE NT NSCR 0 804 SPN1 LAS1 NO

TABLE: STDPRTCT

Subtable STDPRT

SPN1

| From | To | Pretrtsel                             |
|------|----|---------------------------------------|
| 0    | 0  | N OA 1 NA                             |
| 1    | 1  | <input checked="" type="radio"/> VACT |
| 2    | 9  | N NP 0 NA                             |

SPN2

| From | To | Pretrtsel |
|------|----|-----------|
| 0    | 0  | N OA 1 NA |
| 1    | 1  | N DD 1 NA |
| 2    | 9  | N NP 0 NA |

Based on the datafill depicted here,  
 phones in NCOS1 are blocked from  
 making direct dial toll calls.  
 a. True  
 b. False

500333  
 071591

6.7

## TABLE: NCOS

GRP1 0 0 0 NCOS0 (XLAS PTN2 NXLA NDGT) \$

GRP1 1 0 0 NCOS1 (XLAS PTN1 NXLA NDGT) \$

## TABLE: IBNXLA

PTN2 9 NET N N N 1 Y NDGT N Y DOD N 30 NONE

PTN1 9 NET N N N 1 Y NDGT N Y DOD N 31 NONE

## TABLE: LINEATTR

30 IBN NONE NT NSCR 0 804 SPN2 LAS2 NO

31 IBN NONE NT NSCR 0 804 SPN1 LAS1 NO

## TABLE: STDPRTCT

## Subtable STDPRT

## SPN1

| From | To | Pretrtsel |
|------|----|-----------|
| 0    | 0  | D VACT    |
| 1    | 1  | N DD 1 NA |
| 2    | 9  | N NP 0 NA |

## SPN2

| From | To | Pretrtsel |
|------|----|-----------|
| 0    | 0  | N OA 1 NA |
| 1    | 1  | N DD 1 NA |
| 2    | 9  | N NP 0 NA |

Based on the datafill depicted here,  
phones in NCOS1 are allowed to  
make NET DOD calls to an  
"outside" operator.

- a. True  
 b. False

500334  
071591

7.

| TABLE IBNLINES |      |            |        |      |     |   |  |  |  |
|----------------|------|------------|--------|------|-----|---|--|--|--|
| (LEN)          | (DN) | (CUSTNAME) | (NCOS) |      |     |   |  |  |  |
| HOST 1 0 5 12  | ...  | 2454012    | ...    | GRP2 | ... | 0 |  |  |  |
| HOST 1 0 8 16  | ...  | 2454013    | ...    | GRP2 | ... | 1 |  |  |  |
| HOST 1 1 5 9   | ...  | 2454014    | ...    | GRP2 | ... | 2 |  |  |  |
| HOST 1 1 3 5   | ...  | 5213691    | ...    | GRP4 | ... | 0 |  |  |  |

| TABLE NCOS |       |          |     |   |     |         |  |  |  |
|------------|-------|----------|-----|---|-----|---------|--|--|--|
| NCOS OPTNS |       |          |     |   |     |         |  |  |  |
| (NCOSOPTN) | (CRL) | (CRLACT) |     |   |     |         |  |  |  |
| GRP2 0     | ...   | CRL      | ... | 1 | ... | BLOCKED |  |  |  |
| GRP2 1     | ..    | CRL      | ... | 2 | ... | BLOCKED |  |  |  |
| GRP2 2     | ..    | CRL      | ... | 2 | ... | BLOCKED |  |  |  |
| GRP4 0     | ..    | CRL      | ... | 1 | ... | BLOCKED |  |  |  |

| TABLE CUSTHEAD       |      |  |  |  |  |  |  |  |  |
|----------------------|------|--|--|--|--|--|--|--|--|
| CUSTNAME CUSTXLA ... |      |  |  |  |  |  |  |  |  |
| GRP2                 | CTN2 |  |  |  |  |  |  |  |  |
| GRP4                 | CTN4 |  |  |  |  |  |  |  |  |
| GRP2                 | CTN2 |  |  |  |  |  |  |  |  |
| GRP4                 | CTN4 |  |  |  |  |  |  |  |  |

| TABLE IBNXLA |           |       |            |     |   |     |     |  |  |
|--------------|-----------|-------|------------|-----|---|-----|-----|--|--|
| KEY          | RESULT    |       |            |     |   |     |     |  |  |
| (TRSEL)      | (DGCOLNM) | (CRL) | (NET_TYPE) |     |   |     |     |  |  |
| CTN2 9       | NET       | ...   | NDGT       | ... | N | DOD | ... |  |  |
| CTN4 9       | NET       | ...   | NDGT       | ... | Y | DOD | ... |  |  |

| TABLE CODEBLK     |          |     |     |    |  |  |  |  |  |
|-------------------|----------|-----|-----|----|--|--|--|--|--|
| CRLKEY (CUSTNAME) |          |     |     |    |  |  |  |  |  |
| (CUSTOMER)        | (NUMBER) |     |     |    |  |  |  |  |  |
| GRP2              | 212976   | (1) | (2) | \$ |  |  |  |  |  |
| GRP2              | 4922340  | (2) | \$  |    |  |  |  |  |  |
| GRP2              | 414921   | (1) | \$  |    |  |  |  |  |  |
| GRP4              | 305621   | (1) | \$  |    |  |  |  |  |  |

Given this datafill, does a call in which DN 245-4013 dials 9 + 1 + 212 + 9761000 get blocked?  
 a. Yes  
 b. No

8.

| TABLE IBNLINES |      |            |        |      |     |   |
|----------------|------|------------|--------|------|-----|---|
| (LEN)          | (DN) | (CUSTNAME) | (NCOS) |      |     |   |
| HOST 1 0 5 12  | ...  | 2454012    | ...    | GRP2 | ... | 0 |
| HOST 1 0 8 16  | ...  | 2454013    | ...    | GRP2 | ... | 1 |
| HOST 1 1 5 9   | ...  | 2454014    | ...    | GRP2 | ... | 2 |
| HOST 1 1 3 5   | ...  | 5213691    | ...    | GRP4 | ... | 0 |

| TABLE NCOS |            |       |          |   |     |         |
|------------|------------|-------|----------|---|-----|---------|
| NCOS OPTNS |            |       |          |   |     |         |
|            | (NCOSOPTN) | (CRL) | (CRLACT) |   |     |         |
| GRP2 0     | ...        | CRL   | ...      | 1 | ... | BLOCKED |
| GRP2 1     | ..         | CRL   | ...      | 2 | ... | BLOCKED |
| GRP2 2     | ..         | CRL   | ...      | 2 | ... | BLOCKED |
| GRP4 0     | ..         | CRL   | ...      | 1 | ... | BLOCKED |

| TABLE CUSTHEAD |         |     |
|----------------|---------|-----|
| CUSTNAME       | CUSTXLA | ... |
| GRP2           | CTN2    |     |
| GRP4           | CTN4    |     |

TABLE IBNXLA

| KEY    | RESULT  |           |       |            |   |     |     |
|--------|---------|-----------|-------|------------|---|-----|-----|
|        | (TRSEL) | (DGCOLNM) | (CRL) | (NET_TYPE) |   |     |     |
| CTN2 9 | NET     | ...       | NDGT  | ...        | Y | DOD | ... |
| CTN4 9 | NET     | ...       | NDGT  | ...        | N | DOD | ... |

TABLE CODEBLK

| CRLKEY     | (CUSTNAME) |     |     |    |
|------------|------------|-----|-----|----|
| (CUSTOMER) | (NUMBER)   | (1) | (2) | \$ |
| GRP2       | 212976     | (1) | (2) | \$ |
| GRP2       | 4922340    | (2) |     | \$ |
| GRP2       | 414921     | (1) |     | \$ |
| GRP4       | 305621     | (1) |     | \$ |

Given this datafill, does a call in which DN 245-4014 dials 9 + 4922340 get blocked?

- a. Yes  
b. No

500336  
071591

9.

TRAVER L 2373508 1376 T  
TABLE IBNLINES  
HOST 00 0 00 13 DP STN 2373508 GRP1 0 1 214 \$  
TABLE NCOS  
GRP1 1 0 NCOS1 \$  
TABLE CUSTHEAD: CUSTGRP, PRELIMXLA, CUSTXLA, FEATXLA, VACTRMT, AND  
DIGCOL  
GRP1 PTN1 CTN1 NXLA 0 DCN1 OCT1  
TABLE IBNXLA: XLANAME PTN1  
PTN1 13 OCT  
TABLE IBNXLA: XLANAME OCT1  
OCT1 76 REPL N 94551212  
TABLE IBNXLA: XLANAME CTN1  
CTN1 9 NET N N 1 N NDGT N N DOD Y 7 NONE  
TABLE LINEATTR  
7 IBN NONE NT NSCR 0 214 SPN1 LAS1 NONE N 0 NIL NILLATA 0 NIL NIL  
TABLE STDPRTCT  
SPN1 (1)  
SUBTABLE STDPRT  
2 9 N NP 0 NA  
TABLE HNPACONT  
214 10 0 (3) (1) (0)  
SUBTABLE HNPACODE

In the Table INBXLA tuple keyed by OCT1 76, the  
"N" to the right of REPL tells the switch to  
retranslate in Table INBXLA, using \_\_\_\_\_.

- a. PRELMXLA, PTN1
- b. CUSTXLA, CTN1
- c. The OCTXLA, OCT1

500338  
071691



10.

```
TRAVEL 7833556 77 B
TABLE IBNLINES
HOST 00 1 07 22 DT STN 7833556 GRP1 0 0 214 $
TABLE NCOS
GRP1 0 0 NCOS0 $
TABLE CUSTHEAD: CUSTGRP, PRELIMXLA, CUSTXLA, FEATXLA, VACTRMT,
DIGCOL
GRP1 NXLA CTN1 FTN32 0 DCN1
TABLE DIGCOL
DCN1 7 COL S 1
TABLE IBNXLA: CTN1
CTN1 77 REPL N 113
TABLE IBNXLA: CTN1
CTN1 113 ATT 63
Call Routed to Attendant Subgroup 0 ICI 63
+++ TRAVEL: SUCCESSFUL CALL TRACE +++
```

Here's a TRAVEL showing the REPL selector in action. Immediately after its digits are replaced, the call \_\_\_\_\_.

- a. Retranslates in Table IBNXLA, using CUSTXLA CTN1
- b. Goes to Attendant Subgroup 0, ICI 63
- c. Looks first for a new translator to use in Table IBNXLA

500339  
071691

11.

```
TRAVER L 3345443 77 T
TABLE IBNLINES
HOST 01 1 02 08 DT STN 3345443 GRP1 0 2 804 $
TABLE NCOS
GRP1 2 0 0 NCOS2 (XLAS PTN1 NXLA NDGT)$
TABLE CUSTHEAD: CUSTGRP, PRELIMXLA, CUSTXLA, FEATXLA, VACTRMT, AND
DIGCOL
GRP1 NXLA CTN1 FTN1 0 DCN1
TABLE DIGCOL
DCN1 7 COL S 1
TABLE IBNXLA: XLANAME PTN1
TUPLE NOT FOUND
Default is to go to next XLA name.
CUST PRELIM XLA name is NIL. Go to next XLA
TABLE IBNXLA: XLANAME CTN1
CTN1 77 REPL N 113
TABLE IBNXLA: XLANAME PTN1
TUPLE NOT FOUND
Default is to go to next XLA name.
TABLE IBNXLA: XLANAME CTN1
CTN1 113 ATT 63
Call routed to ATTENDANT CONSOLE:
GRP1 SUBGRP: 0 ICI: 63
```

Given this TRAVER, if DN 334-5443 dialed the digits "113", the call would

- a. Route to an attendant console
- b. Receive a treatment
- c. Use a REPL selector in IBNXLA

+++ TRAVER: SUCCESSFUL CALL TRACE +++

500341  
080691

12.

## TABLE: NCOS

GRP1 0 0 0 NCOS0 (XLAS PTN2 NXLA NDGT) \$

GRP1 1 0 0 NCOS1 (XLAS PTN1 NXLA NDGT) \$

## TABLE: IBNXLA

PTN2 9 NET N N 1 Y NDGT N Y DOD N 30 NONE

PTN1 9 NET N N 1 Y NDGT N Y DOD N 31 NONE

## TABLE: LINEATTR

30 IBN NONE NT NSCR 0 804 SPN2 LAS2 NO

31 IBN NONE NT NSCR 0 804 SPN1 LAS1 NO

## TABLE: STDPRTCT

## Subtable STDPRT

## SPN1

| From | To | Pretrtsel |
|------|----|-----------|
| 0    | 0  | D VACT    |
| 1    | 1  | N DD 1 NA |
| 2    | 9  | N NP 0 NA |

## SPN2

| From | To | Pretrtsel |
|------|----|-----------|
| 0    | 0  | N OA 1 NA |
| 1    | 1  | N DD 1 NA |
| 2    | 9  | N NP 0 NA |

How would you block NCOS1 from making 9+ calls?

- a. Delete "PTN1 9 . . ." tuple in Table IBNXLA.
- b. Change "1 1 N DD 1 NA" Tuple in STPPRT (SPN1) to "1 1 D VACT".
- c. Delete "30 IBN . . ." tuple in Table LINEATTR.

500343  
071691

## Practice 2 Feedback

### Part A

1. The NCOS is assigned a CRL blocked; IBNXLA says Yto CRL; in Table NCOS, you would need to change BLOCKED to ALLOWED.
2. In STDPRT, the FROMDIGS/TODIGS field is datafilled with 0; the D selector has been assigned which routes this call to TMTCNTL; this selector needs to be changed to an N.
3. A tuple was not found in IBNXLA; a tuple needs to be added in order to tell the switch what to do with 113.  
(for example, CTN1 113 ATT 63)

### Part B

- |      |       |
|------|-------|
| 1. b | 7. b  |
| 2. a | 8. a  |
| 3. c | 9. b  |
| 4. a | 10. a |
| 5. a | 11. a |
| 6. b | 12. a |

---

# Class of service screening

---

## Introduction

Class of service screening screens calls are based on either of the following conditions:

- **Type of call.**
  - Direct Dial (DD) Dialing
  - Operator Assist (OA) Dialing
  - No Prefix (NP) Dialing
  
- **Type of call and specific digits dialed (3-18 in length).** Here, not only is the type of call important but also the actual dialed digits. Thus, only some calls (with specified digits) of a certain type (DD, NP, OA) will be screened.

Both conditions for class of service screening are controlled by a table called **CLSVSCRC** (Class of Service Screening Control).

---

**Table CLSVSCRC**

Table CLSVSCRC contains the following fields: NPASCTYP, NORSLTS, TMT/ORT, and CLSVSCR. Each one is described below along with its related subfields.

|                                                                   |
|-------------------------------------------------------------------|
| <b>HNPACONT must be datafilled prior to datafilling CLSVSCRC.</b> |
|-------------------------------------------------------------------|

**NPASCTYP (Numbering Plan Area Screening Type)**

NPASCTYP is the **key field** for this table. NPASCTYP is comprised of three subfields described below:

- **STS (Serving Translations System)**. The first part of the key field is the area code (i.e., STS or NPA) of the originator, indexed from field STS of Table LINEATTR.
- **SCRNCL (Screening Class)**. The second part of the key field is the screening class name that has been assigned to the originator in field SCRNCL in Table LINEATTR.
- **TYPCALL (Type of Call)**. The third part of the key field is the type of call (i.e., DD, OA, or NP). The switch will compare this subfield with the way (i.e., DD, OA, or NP) Table STDPRTCT states the caller has actually dialed this call.

For a call to be screened by a tuple in this table, it must first meet the requirements of all three parts of the key field. It must be assigned the same STS and SCRNCL in Table LINEATTR and the same TYPCALL in Table STDPRTCT.

---

### **NORSLTS (Number of Results)**

The selector in this field serves as a pointer to other fields and subtables for a call. Below is an illustration and discussion of the two possible selectors in this field and where they point.

- **0** indicates that the calls should **not** proceed to subtable CLSVSCR (last field in this table). Instead, every call should proceed to the next field, TMT/OFRT, (discussed later) that will define either a treatment (TMT) or a tuple in Table OFRT for these calls; **in other words, we are screening on the type of call (DD, OA, NP) and not the dialed digits.**
- **2** indicates that calls should ignore the next field (TMT/OFRT) and proceed to subtable CLSVSCR (discussed later) **to screen on digits.**

### **TMT/OFRT (Treatment or Table OFRT)**

This third field is **used only if a 0 appears in field NORSLTS**. However, it must be datafilled even if a 2 (instead of a 0) appears in field NORSLTS. Below is a discussion of the datafill for this field for both circumstances:

- **When 2 appears in field NORSLTS** (and thus field TMT/OFRT is not to be used), complete the subfields of field TMT/OFRT as follows:
  - **SCRNSEL** (Screening Selector). Enter the letter **N** since this subfield will not be used.
  - **POSN** (Position). Enter the word **NONE** since this subfield is not commonly used by Meridian 1 Options 111-211. Its primary application is in a DMS-100 (central office) environment when the screened call is to be sent to a telephone company operator for intercept (instead of a treatment in Table TMTCNTL or a tuple in Table OFRT). If the selector **N** is used in subfield **SCRNSEL**, it will be followed by subfield (prompt) **POSN** (Position Name) to specify the name of a tuple (the key field) in Table **POSITION**.

- **When a 0 appears in field NORSLTS** (and field TMT/OFRT will be used), complete the subfields of TMT/OFRT as follows:
  - **SCRNSEL** (Screening Selector). There are three selectors (D, T, N) that you may input here to send the call to one of three different places.
    - D:** This selector is used when you wish to send the call to a treatment name in Table TMTCNTL.
    - T:** This selector is used when you wish to send the call to a tuple in Table OFRT.
    - N:** (Previously described).

**Table CLSVSCRC**

| <u>NPASCTYP</u> |             |           | <u>NORSLTS</u> |
|-----------------|-------------|-----------|----------------|
| (STS)           | (SCRNCL)    | (TYPCALL) |                |
| 214             | CSS2        | DD        | 0              |
| <u>TMT/OFRT</u> |             |           |                |
| (SCRNSEL)       | (POSN)      |           |                |
| <b>D</b>        | <b>VACT</b> |           |                |

**Table CLSVSCRC**

| <u>NPASCTYP</u> |             |           | <u>NORSLTS</u> |
|-----------------|-------------|-----------|----------------|
| (STS)           | (SCRNCL)    | (TYPCALL) |                |
| 214             | CSS2        | DD        | 0              |
| <u>TMT/OFRT</u> |             |           |                |
| (SCRNSEL)       | (RTEREFFIX) |           |                |
| <b>T</b>        | <b>3</b>    |           |                |

**Table CLSVSCRC**

| <u>NPASCTYP</u> |             |            | <u>NORSLTS</u> |
|-----------------|-------------|------------|----------------|
| (STS)           | (SCRNCL)    | (TYPCALL)  |                |
| 214             | CSS2        | DD         | 2              |
| <u>TMT/OFRT</u> |             |            | <u>CLSVSCR</u> |
| (SCRNSEL)       | (POSN)      |            |                |
| <b>N</b>        | <b>NONE</b> | <b>(2)</b> |                |



### CLSVSCR (Class of Service Screening)

This fourth field is a subtable which is **used only when there is a 2 in field NORSLTS** indicating that **screening is dependent upon the specific digits dialed**. This subtable serves to specify the exact digits that are to be actually screened and the treatment in Table TMTCNTL or a tuple in Table OFRT to which the call will be sent. Its fields are as follows:

#### Subtable CLSVSCR

| <u>FROMDIGS</u> | <u>TODIGS</u> | <u>TMT/OFRT</u> |         |
|-----------------|---------------|-----------------|---------|
|                 |               | (SCRNSEL)       | (TREAT) |
| 900             | 900           | D               | VACT    |

- **FROMDIGS/TODIGS** (From Digits/ To Digits). These compose the first two fields of the subtable and are used to specify the digits (up to a maximum length of 18 digits in each number) that are to be screened.
- **TMT/OFRT** (Treatment or Table OFRT). Since a field with the identical name (TMT/OFRT) was not used in the main part of Table CLSVSCRC, it now will be used in this subtable for each number that is to be screened. **The selectors are also identical to those of field TMT/OFRT in the main table (D, T, and N).**

### Table LINEATTR

There is a field in Table LINEATTR' where you datafill a class of service screening name. It can consist of up to 4 alphanumeric characters (see the example below) If you do not want a screening class name, the proper input is NSCR.

#### Table LINEATTR

| <u>LAIDX</u> | <u>LCC</u>     | <u>CHGCLSS</u>  | <u>COST</u>   | <u>SCRNCL</u>  | <u>LTG</u>    | <u>STS</u> |
|--------------|----------------|-----------------|---------------|----------------|---------------|------------|
| 4            | IBN            | NONE            | NT            | CSSI           | 0             | 205        |
| <u>PRTNM</u> | <u>LCANAME</u> | <u>ZEROMPOS</u> | <u>HOT</u>    | <u>TRAFSNO</u> | <u>MRSA</u>   |            |
| SPN1         | LCN1           | NONE            | N             | 0              | NIL           |            |
| <u>SFC</u>   | <u>LATANM</u>  | <u>MDI</u>      | <u>IXNAME</u> | <u>FANDIGS</u> | <u>RESINF</u> |            |
| NILSFC       | NILLATA        | 0               | NIL           | 00             | N             |            |

### Class of service screening TRAVER

The following TRAVER illustrates the result of a network DOD call that received class of service screening treatment.

```

TRAVER L 7823556 919002361212 T
TABLE IBNLINES
HOST 00 0 00 05 DT STN 7823556 GRP3 0 0 205 $
TABLE NCOS
GRP3 0 0 0 NCOS0 (XLAS PTN3 NXLA NDGT) $
TABLE CUSTHEAD: PRELIMXLA, CUSTXLA, FEATXLA,
VACTRMT, AND DIGCOL
GRP3 NXLA CTN3 FTN3 0 DCN3
TABLE DIGCOL
DCN3 9 POTS Y
TABLE IBNXLA; XLANAME PTN3
→ PTN3 9 NET N N Y 1 NDGT N N DOD Y 4 NONE
TABLE DIGCOL
NDGT specified: digits collected individually.
TABLE LINEATTR
→ 4 IBN NONE NT CSS1 0 205 SPN3 LAS3 AMRX N 0 NIL NILSFC
NILLATA 0 NIL
TABLE STDPRTCT
SPN3 (1)
SUBTABLE STDPRT
1 1 N DD 1 NA
TABLE HNPACONT
205 3 0 (3) (1) (0)
SUBTABLE HNPACODE
900 900 FRTE 1
SUBTABLE RTEREF
→ 1 S D DODTRK
EXIT TABLE RTEREF
EXIT TABLE HNPACONT
TABLE LCASCRN
→ 205 LAS3 (2) MAND N
SUBTABLE LCASCR
Tuple not found.
Default is non-local.
TABLE PFXTREAT
MAND DD N DD UNDT\
TABLE CLSVSCRC
205 CSS1 DD 2 N NONE (1)
SUBTABLE CLSVSCR
900 900 D VACT
TABLE TMTCNL
LNT (44) SUBTABLE TREAT
VACT Y T OFRT 10

```

```

TABLE OFRT
10 S D T120
S D LKOUT
EXIT TABLE OFRT

```

- 
- Table LINEATTR assigns a screening class name of CSS1. When a screening class is named by an entry in LINEATTR, the call will automatically be sent (eventually) to the class of service screening table.
  - After passing through the standard pretranslator HNPACONT, PFXTREAT, and LCASCRCN tables and subtables, the TRAVER enters Table CLSVSCRC and positions on the dialing number's NPA, class of service screening subtable name (CSS1), and type of call (DD) in field TYPCALL. The 2 in field NORSLTS points the TRAVER to the subtable, CLSVSCR, where the NPA of the dialed number is found. Any calls (made by this NCOS) whose dialed digits match this NXX will receive the specified treatment (VACT).
  - The TRAVER completes its course by translating through TMTCNTL. This table defines the VACT treatment as requiring routing through Table OFRT, where, the call receives a 120 cycle tone, and then lock out.

## Selectively sending calls to class of service screening

There will probably be times when you will not want to subject all phones (NCOSs) to Class of Service Screening. Here's how this is accomplished:

### Table NCOS

Assign two separate NCOSs, each with a distinct preliminary translator. Table NCOS will now contain two tuples:

Table NCOS

| CUSTGRP | NCOS | NCOSNAME | LSC | TRAFSNO | OPTIONS                   |
|---------|------|----------|-----|---------|---------------------------|
| GRP1    | 1    | NCOS 1   | 0   | 0       | XLAS PTN1<br>NXLA NDGT \$ |
| GRP1    | 2    | NCOS 2   | 0   | 0       | XLAS PTN2<br>NXLA NDGT \$ |

NCOS1 and 2 are assigned preliminary translator PTN1 and PTN2, respectively.

### Table IBNXLA

In this table, the preliminary translators and digilator index, 9, reference two distinct line attribute index numbers, 4 and 8:

Table IBNXLA

| <u>KEY</u>     |               | <u>RESULT</u>  |                 |                 |                 |                         |
|----------------|---------------|----------------|-----------------|-----------------|-----------------|-------------------------|
| <u>XLANAME</u> | <u>DGLIDX</u> | <u>TRSEL</u>   | <u>ACR</u>      | <u>SMDR</u>     | <u>VCDR</u>     | <u>NO ACCODE DIGITS</u> |
| PTN1           | 9             | NET            | N               | Y               | N               | 1                       |
| PTN2           | 9             | NET            | N               | Y               | N               | 1                       |
|                |               | <u>SDT</u>     | <u>DIGCOLNM</u> | <u>CRL</u>      | <u>INTRAGR</u>  |                         |
|                |               | Y              | NDGT            | Y               | N               |                         |
|                |               | Y              | NDGT            | Y               | N               |                         |
|                |               | <u>NETTYPE</u> | <u>SMDRB</u>    | <u>LINEATTR</u> | <u>TOLLREST</u> |                         |
|                |               | DOD            | N               | 4               | NONE            |                         |
|                |               | DOD            | N               | 8               | NONE            |                         |

**Table LINEATTR**

This is where you assign class of service screening (CSS1) to one NCOS and omit it for the other (by not assigning it [NSCR]). Here are the two tuples:

**Table LINEATTR**

| <u>LAIDX</u> | <u>LCC</u>     | <u>CHGCLSS</u>  | <u>COST</u>   | <u>SCRNCL</u>  | <u>LTG</u>    | <u>STS</u> |
|--------------|----------------|-----------------|---------------|----------------|---------------|------------|
| 4            | IBN            | NONE            | NT            | CSSI           | 0             | 205        |
| 8            | IBN            | NONE            | NT            | NSCR           | 0             | 205        |
| <u>PRTNM</u> | <u>LCANAME</u> | <u>ZEROMPOS</u> | <u>HOT</u>    | <u>TRAFSNO</u> | <u>MRSA</u>   |            |
| SPN1         | LCN1           | NONE            | N             | 0              | NIL           |            |
| SPN1         | LCN1           | NONE            | N             | 0              | NIL           |            |
| <u>SFC</u>   | <u>LATANM</u>  | <u>MDI</u>      | <u>IXNAME</u> | <u>FANDIGS</u> | <u>RESINF</u> |            |
| NILSFC       | NILLATA        | 0               | NIL           | 00             | N             |            |
| NILSFC       | NILLATA        | 0               | NIL           | 00             | N             |            |

**Note: You will only be required to position on your assigned tuple and change the necessary information. There will be no deletions or additions of tuples in this table during this course.**

In order for you to trace the translations of a call through a TRAVER, the tuple pairs for both NCOSs are combined below. Both NCOSs assign preliminary translators. Even though the digit 9 is the network access code for both NCOSs, they will use separate tuples in Table IBNXLA so that two different LINEATTR numbers can be referenced. One LINEATTR tuple (i.e., #4) will be used to point the call to Table CLSVSCRC while the other one (i.e., #8) will not.

**Table NCOS**

|      |   |       |   |                          |
|------|---|-------|---|--------------------------|
| GRP1 | 1 | NCOS1 | 0 | (XLAS PTN1 NXLA NDGT) \$ |
| GRP1 | 2 | NCOS2 | 0 | (XLAS PTN2 NXLA NDGT) \$ |

**Table IBNXLA**

| <u>XLANAME</u> | <u>DGLIDX</u>  | <u>TRSEL</u>    | <u>ACR</u>      | <u>SMDR</u>     | <u>VCDR</u> | <u>NO</u> | <u>ACCODE</u> | <u>DIGITS</u> |
|----------------|----------------|-----------------|-----------------|-----------------|-------------|-----------|---------------|---------------|
| PTN1           | 9              | NET             | N               | N               | 1           | 1         |               |               |
| PTN2           | 9              | NET             | N               | N               | 1           | 1         |               |               |
|                | <u>SDT</u>     | <u>DIGCOLNM</u> | <u>CRL</u>      | <u>INTRAGR</u>  |             |           |               |               |
|                | Y              | NDGT            | Y               | N               |             |           |               |               |
|                | Y              | NDGT            | Y               | N               |             |           |               |               |
|                | <u>NETTYPE</u> | <u>SMDRB</u>    | <u>LINEATTR</u> | <u>TOLLREST</u> |             |           |               |               |
|                | DOD            | N               | 4               | NONE            |             |           |               |               |
|                | DOD            | N               | 8               | NONE            |             |           |               |               |

**Table LINEATTR**

| <u>LAI</u> | <u>DX</u> | <u>LCC</u>    | <u>CHGCLSS</u> | <u>COST</u>     | <u>SCRNCL</u>  | <u>LTG</u>     | <u>STS</u>  |
|------------|-----------|---------------|----------------|-----------------|----------------|----------------|-------------|
| 4          |           | IBN           | NONE           | NT              | CSSI           | 0              | 205         |
| 8          |           | IBN           | NONE           | NT              | NSCR           | 0              | 205         |
|            |           | <u>PRTNM</u>  | <u>LCANAME</u> | <u>ZEROMPOS</u> | <u>HOT</u>     | <u>TRAFSNO</u> | <u>MRSA</u> |
|            |           | SPN1          | LCN1           | NONE            | N              | 0              | NIL         |
|            |           | SPN1          | LCN1           | NONE            | N              | 0              | NIL         |
|            |           | <u>LATANM</u> | <u>MDI</u>     | <u>IXNAME</u>   | <u>FANDIGS</u> | <u>RESINF</u>  |             |
|            |           | NILLATA       | 0              | NIL             | 00             | N              |             |
|            |           | NILLATA       | 0              | NIL             | 00             | N              |             |

**Table CLSVSCRC**

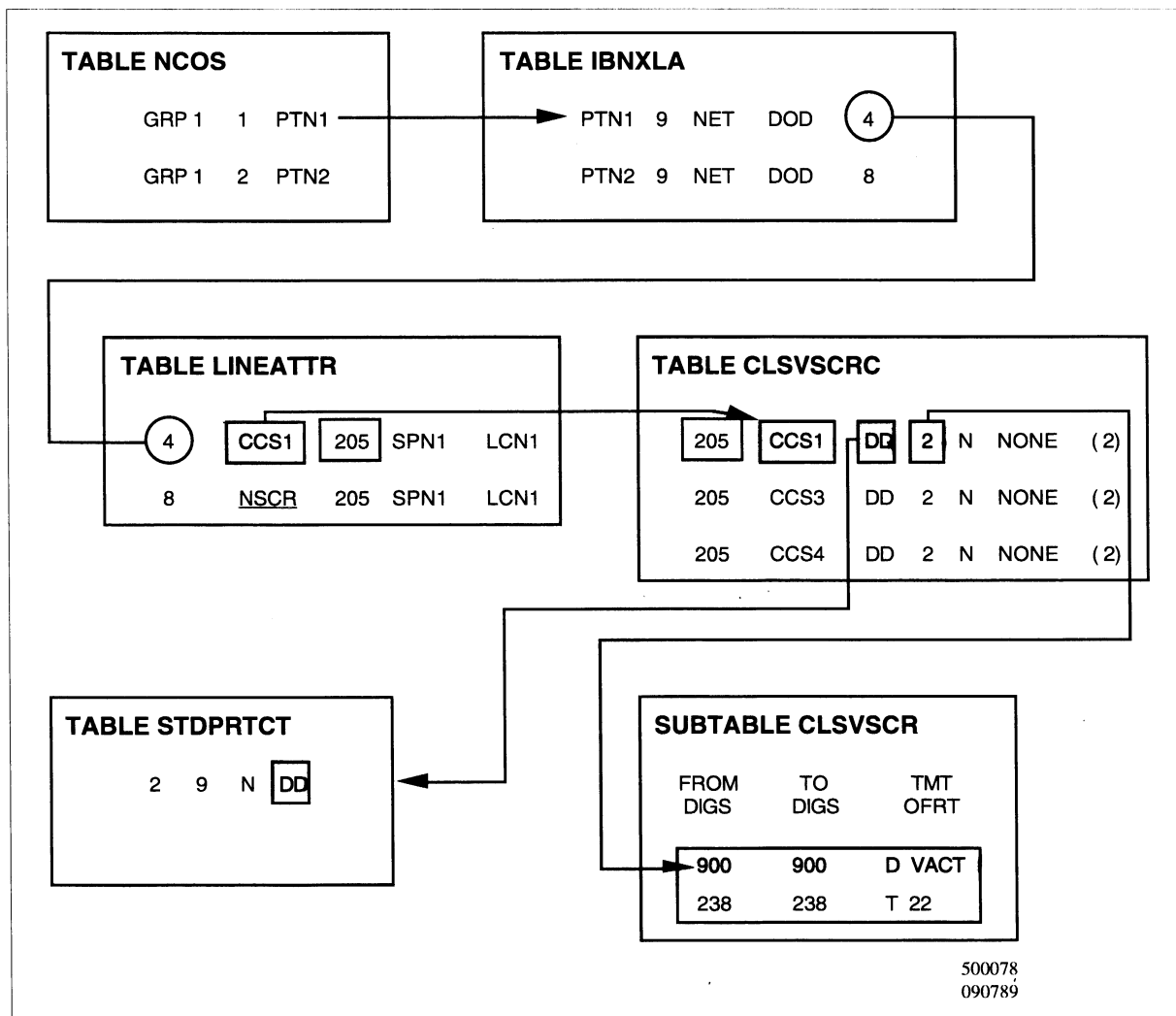
|     |      |    |   |   |      |      |
|-----|------|----|---|---|------|------|
| 205 | CSS1 | DD | 2 | N | NONE | ( 1) |
|-----|------|----|---|---|------|------|

**Subtable CLSVSCR**

|     |     |   |      |
|-----|-----|---|------|
| 900 | 900 | D | VACT |
|-----|-----|---|------|

Figure 3

Tables in class of service screening



### Practice 3: Class of service screening

#### Instructions:

Obtain NTP 297-1001-451, and read about Tables NCOS, IBNXLA, and LINEATTR, STDPRTCT, CLSVSCRC, and Subtable CLSVSCR as they relate to class of service screening.

The following page contains excerpts of several tables that relate to class of service screening. From the data provided, answer the following questions and compare your answers to those found in Practice 3 Feedback.

| Originator | Dialed Number   | Screened By            | If Yes,       |
|------------|-----------------|------------------------|---------------|
|            |                 | CLSVSCRC?<br>Yes or No | End Result?   |
| 1. NCOS0   | 9+1+212+5551212 | <u>NO</u>              | <u>      </u> |
| 2. NCOS1   | 9+1+212+5551212 | <u>Yes</u>             | <u>T-22</u>   |
| 3. NCOS1   | 9+0+212+5551212 | <u>NO</u>              | <u>      </u> |
| 4. NCOS2   | 9+1+212+5551212 | <u>Yes</u>             | <u>T 21</u>   |
| 5. NCOS2   | 9+0+212+5551212 | <u>NO</u>              | <u>      </u> |
| 6. NCOS3   | 9+1+212+5551212 | <u>NO</u>              | <u>      </u> |
| 7. NCOS3   | 9+2347500       | <u>Yes</u>             | <u>ROUTE</u>  |





**Table NCOS**

|      |   |      |      |
|------|---|------|------|
| GRP1 | 0 | .... | PTN0 |
| GRP1 | 1 | .... | PTN1 |
| GRP1 | 2 | .... | PTN2 |
| GRP1 | 3 | .... | PTN3 |

**Table IBNXLA**

(LINEATTR)

|      |   |     |     |     |     |    |
|------|---|-----|-----|-----|-----|----|
| PTN0 | 9 | NET | ... | DOD | ... | 20 |
| PTN1 | 9 | NET | ... | DOD | ... | 21 |
| PTN2 | 9 | NET | ... | DOD | ... | 22 |
| PTN3 | 9 | NET | ... | DOD | ... | 23 |

**Table LINEATTR**

(SCRNCL) (STS) (PRTNM)

|    |     |      |     |     |     |      |
|----|-----|------|-----|-----|-----|------|
| 20 | ... | NSCR | ... | 214 | ... | SPN1 |
| 21 | ... | CSS1 | ... | 214 | ... | SPN1 |
| 22 | ... | CSS2 | ... | 214 | ... | SPN1 |
| 23 | ... | CSS3 | ... | 214 | ... | SPN1 |

**Table STDPRTCT**

Subtable STDPRT

|   |   |     |    |     |
|---|---|-----|----|-----|
| 0 | 0 | ... | OA | ... |
| 1 | 1 | ... | DD | ... |
| 2 | 9 | ... | NP | ... |

**Table CLSVSCRC**

|     |      |    |   |   |          |
|-----|------|----|---|---|----------|
| 214 | CSS1 | DD | 2 | N | NONE (4) |
| 214 | CSS2 | DD | 0 | T | 21 (0)   |
| 214 | CSS3 | OA | 0 | D | RODR (0) |
| 214 | CSS3 | NP | 0 | D | RODR (0) |

Subtable CLSVSCR

|         |  |         |  |   |      |
|---------|--|---------|--|---|------|
| 212     |  | 212     |  | T | 22   |
| 348     |  | 348     |  | D | VACT |
| 716     |  | 716     |  | T | 22   |
| 2347500 |  | 2347500 |  | D | RODR |

### **Practice 3 Feedback**

1. No
2. Yes; T22
3. No
4. Yes; T21
5. No
6. No
7. Yes; RODR

---

# Screening with Table STDPRTCT

---

## Table STDPRTCT (deleting, classifying) *STRIP DIGS*

Public network calls (Lesson 100324, Network DOD Dialing) translate through Table STDPRTCT. Table STDPRTCT performs the following tasks (among others):

- deletes the 0 and 1 prefix digits from a call prior to entering Table HNPACONT for routing;
- classifies the type of call (OA, DD, NP) based on the prefix digit dialed; and
- determines which tables a call will be sent to next (e.g., HNPACONT, TMTCNTL, etc.).

Remember that an access code (usually 9) identifies a call as a network DOD call. **This 9 is deleted in Table IBNXLA (before it reaches Table STDPRTCT).**

*SPN S*

## Screening with Table STDPRTCT

Table Standard Pretranslator Control also can be used for screening. The following paragraphs describe how STDPRTCT and related tables are used in screening.

### Table STDPRTCT

This table lists all standard pretranslators names (SPNs). These pretranslators are used for certain types of network calls (e.g., DOD, ESN, etc.). Each standard pretranslator tuple names a standard pretranslator subtable. Preliminary translators are used to allow or deny a call access to specific tuples (dialing instructions) in Table IBNXLA while pretranslator names are used for network calls after the call has left Table IBNXLA.

### Subtable STDPRT

This subtable lists all possible prefix digits (including those receiving special routing or treatment). A specific STDPRT subtable is accessed by:

- Positioning on the subtable's name (EXPTNM) in Table STDPRTCT, and
- Entering the command, SUB 2, For example, the tuples in a given Table STDPRTCT are:

| <u>EXTPRTNM</u> | <u>STDPRT</u> | <u>AMAPART</u> |
|-----------------|---------------|----------------|
| SPN1            | ( 1)          | (12447)        |
| SPN2            | ( 1)          | (12447)        |

- To access the subtable named by pretranslator, SPN1, enter:  
**POS SPN1; SUB 2**
- This process, combined in a single command string, takes you to the respective STDPRT subtable.

An earlier example of tuples contained in STDPRT resembled this:

| <u>FROMDIGS</u> | <u>TODIGS</u> | <u>PRETRTE</u> |    |   |    |
|-----------------|---------------|----------------|----|---|----|
| 0               | 0             | N              | OA | 1 | NA |
| 1               | 1             | N              | DD | 1 | NA |
| 2               | 9             | N              | NP | 0 | NA |

In the previous sample of Subtable STDPRT, the first two fields (i.e., FROMDIGS and TODIGS) form a range of digits that a tuple can focus on. (For example, the last tuple in our example creates a range of eight possible digits; e.g., 2, 3, 4, etc.). The **range is the first digit** that was dialed **after** the network access code (e.g., 9). For example, the first tuple (that shows 0 in both the FROMDIGS and TODIGS fields) is used whenever a caller dials 9+0+NPA+NXXxxxx. The call is typed by this tuple as an operator-assisted (OA) call and directed onward (via N in field PRETRTE) to Table HNPACONT, where its subtable looks at the NPA that was dialed for appropriate routing.

As you probably know, many parts of the United States have Equal Access and, as a result, are allowed to use the long-distance carrier of their choice. This choice includes the long-distance **operator** of their choice. Typically, to call the designated operator, a caller dials 9+0. However, to dial a different long distance carrier operator, the caller must dial 9+00. The tuple will forward the call on to Table HNPACONT where it will look in Subtable HNPACODE for the dialed NPA or NXX. Since we do not list a 0 in Subtable HNPACODE, it will not find a tuple and default to VACT treatment in Table TMTCNTL.

**FROMDIGS/TODIGS Fields**

To avoid this kind of problem, fields FROMDIGS and TODIGS of Subtable STDPRT have been designed to hold a number up to 18 digits long. In the case of dialing the operator for a desired long-distance carrier, the tuple in STDPRT must ensure that if the two digits 00 are dialed, the call is sent to the desired carrier on an outgoing trunk and not to Table HNPACONT. There could be two tuples in subtable STDPRT each beginning with 0 as shown below.

**Subtable STDPRT**

| <u>FROMDIGS</u> | <u>TODIGS</u> | <u>PRETRTE</u>           |
|-----------------|---------------|--------------------------|
| 00              | 00            | (to the desired carrier) |
| 0               | 0             | N OA 1 NA                |
| 1               | 1             | N DD 1 NA                |
| 2               | 9             | N NP 0 NA                |

In each example above, the second tuple will screen for regular operator-assisted calls, to route them to Table HNPACONT. The first tuple will screen for calls going to their chosen long distance carrier.

**Since many times a customer will input only a one or two digit number in each field, as we have done above, the switch is programmed to invisibly fill in 0s behind the number(s) in the FROMDIGS field, and 9s behind the number(s) in the TODIGS field. The purpose of this automatic feature is to create the greatest possible range of numbers covered by each tuple, and minimize the number of tuples required.**

**Subtable STDPRT**

| <u>FROMDIGS</u> | <u>TODIGS</u> | <u>PRETRTE</u>                 |
|-----------------|---------------|--------------------------------|
| 00 (000. . .)   | 00 (999. . .) | . . . (to the desired carrier) |
| 0 (000. . .)    | 0 (999. . .)  | N OA 1 NA                      |
| 1 (000. . .)    | 1 (999. . .)  | N DD 1 NA                      |
| 2 (000. . .)    | 9 (999. . .)  | N NP 0 NA                      |

One digit (i.e., 0) was placed in the second tuple in the example above, and that's all that shows. **However, the switch invisibly filled in seventeen 0s behind it in order to define a range.** Similarly, one digit (i.e., 0) was placed in the TODIGS field, and that's all it shows. But the switch **invisibly filled in seventeen 9s behind it.** The same is true with the digits in the third and fourth tuples. However, since two digits were specified (i.e., 00 in the first tuple, only sixteen 0s are added in the FROMDIGS field, and only sixteen 9s in the TODIGS field.

**This addition of invisible 0s in the FROMDIGS field and 9s in the TODIGS field is what increases the range of numbers that can be screened by one tuple.** For instance, the first example only shows FROMDIGS: 0 and TODIGS: 0, but actually it is screening for all dialed numbers in the range of 000000000000000000 to 099999999999999999. Thus, the fewer the specified digits in each tuple, the broader the range of dialed digits screened by that tuple.

If you look closely at the range of numbers defined by the first tuple and compare it to the range defined by the second tuple, you'll notice a problem. Even though only one 0 was specified in the FROMDIGS field of tuple number two, the switch automatically added invisible 0s to it, thus making it look identical to the FROMDIGS field in tuple number one. Identical numbers here in the FROMDIGS field result in an overlap of the ranges for these two tuples. Overlapped ranges result in confusing call processing. For example, the Equal Access users can call the operator of their chosen long distance carrier by dialing 9+00. The digit 9 is the network access code and will be stripped off in Table IBNXL. The two 0s will be forwarded to Subtable STDPRT. Which of the tuples will be used to process the call since both of the first two tuples have ranges that address 00? To prevent such confusion, no overlapping of ranges is permitted. Thus you must take precaution in designing the ranges of each tuple. In order to avoid range overlapping, you must ensure that each FROMDIGS number is larger than the TODIGS number found in the preceding tuple. For example, if we add one digit to the number in our TODIGS field of our first tuple (i.e., 00999...), it would total 01. However, since no area code starts with a 1, we enter 02 in the FROMDIGS field. You could use that number in the FROMDIGS field on your next tuple. But what number would you need to place in the TODIGS field to create a range large enough to accommodate callers dialing operator-assisted calls to other area codes whose NPAs begin with any digit from 2 through 9? The answer is the combination 09. Thus, even though you now have two tuples in Subtable STDPRT that both begin with the digit 0, the ranges defined by their respective tuples are different as shown in the example below.

#### **Subtable STDPRT**

| <u>FROMDIGS</u> | <u>TODIGS</u>  | <u>PRETRTE</u>           |
|-----------------|----------------|--------------------------|
| 00 (0000. . .)  | 00 (9999. . .) | (to the desired carrier) |
| 02 (0000. . .)  | 09 (9999. . .) | N OA 1 NA                |
| 1 (00000. . .)  | 1 (99999. . .) | N DD 1 NA                |
| 2 (00000. . .)  | 9 (99999. . .) | N NP 0 NA                |

The reason for going through this trouble is to screen out calls placed to a carrier operator of (e.g., dialing 9+00). The other fields and selectors in Subtable STDPRT also are designed for this flexibility. The third field PRETRTE, has seven subfields. The first subfield is called PRERSTSEL (Preroute Selection). Placing the letter **N** in this subfield sends the call to Table HNPACONT. Placing the letter **S** sends the call out of this table on a trunk group to the selected carrier.

**Subtable STDPRT**

| <u>FROMDIGS</u> | <u>TODIGS</u> | <u>PRETRTE</u> |            |            |        |  |
|-----------------|---------------|----------------|------------|------------|--------|--|
|                 |               | (PRERTSEL)     | (TYPCALL)  | (NOPREDIG) | (CLLI) |  |
| 00              | 00            | S              | OA         | 0          | MCITRK |  |
|                 |               | (MINDIGSR)     | (MAXDIGSR) | (POS)      |        |  |
|                 |               | 2              | 2          |            | NONE   |  |

The following is a brief discussion of the subfields **related to a preroute selector (PRERTSEL) of S**.

- **PRERTSEL (Preroute Selector)**. A call is sent to a trunk group by specifying the selector **S** in this subfield.
- **TYPCALL (Type of Call)**. Remember, Subtable STDPRT identifies **billable versus non-billable calls**. Thus, in this instance, this subfield is datafilled with **OA**, since our tuple is routing a special kind of operator-assisted call.
- **NOPREDIG (Number of Prefix Digits)**. This subfield specifies the **number of prefix digits the switch should strip off before outputting the number on the trunk**. In the example, none (0) is datafilled since the carrier needs to be sent both 0s.
- **CLLI**. This subfield specifies the name of the outgoing trunk group to which the call should be routed.
- **MINDIGSR (Minimum Digits to Receive)**. This subfield double checks the accuracy of the number of digits that were dialed. Here, the minimum number of digits that the switch should expect to receive when a dialer is trying to access this CLLI route is specified.
- **MAXDIGSR (Maximum Digits to Receive)**. This subfield also double checks the accuracy of the number of digits dialed. It performs its double checking by specifying the maximum number of digits that can be dialed. When a dialed number exceeds this limit, the call is sent to a treatment.



- POS (Position). This subfield has little application for a Meridian 1 Options 111-211 and is primarily used in a DMS-100 class 5 environment. Therefore, NONE is placed in this subfield.

What would tuples in subtable STDPRT look like if they were set up to handle both kinds of operator-assisted dialing, plus direct dial and no prefix dialing?

### Subtable STDPRT

| <u>FROMDIGS</u> | <u>TODIGS</u> | <u>PRETRTE</u> |    |   |                 |
|-----------------|---------------|----------------|----|---|-----------------|
| 00              | 00            | S              | OA | 0 | MCITRK 2 2 NONE |
| 02              | 09            | N              | OA | 1 | NA              |
| 1               | 1             | N              | DD | 1 | NA              |
| 2               | 9             | N              | NP | 0 | NA              |

OA, INT, Restricted.

| From Digs | To Digs | PRETRTE |    |   |    |
|-----------|---------|---------|----|---|----|
| 00        | 01      | D       |    |   |    |
| 02        | 09      | N       | OA | 1 | NA |
| 1         | 1       | N       | DD | 1 | NA |
| 2         | 9       | N       | NP | 0 | NA |

## Screening for international dialing

As you have learned, to screen international telephone numbers, the switch must examine the tuples in Subtable STDPRT. The standard format for making a direct-dial (DD) **international** call is as follows:

(9+) 011 + Country Code + City Code + Directory Number

The digits **011** indicate that the caller is making a **direct-dial** international call. These digits are followed by a two or three-digit code that has been assigned to each **country** in the world. The country code is followed by a code that indicates the appropriate **city** in that country, and finally the actually **directory number**. The country codes and city codes are usually listed in the front of your local telephone directory. All country codes (with the exception of North American countries) begin with the digits 2 through 9. Therefore, if you were dialing the international direct-dial indicator of 011, the next digit that you would dial should be a digit from 2-9 and **never the digit 1**. Now, consider which of the four tuples created in Subtable STDPRT (on the previous page) would be used by such a call. The answer is the second tuple which (with its N selector in subfield PRERTSEL) would forward the call on to Table HNPACONT. **Therefore, the same problem exists in Subtable HNPACODE as it did earlier in the example of dialing 00 for your specialized carrier operator. The call would not find an appropriate tuple in Subtable HNPACODE and consequently would be sent to a VACT treatment.**

Operator-assisted international calls are indicated by the prefix digits 01. After the 01, the caller again dials the country code, the city code, and then the telephone number.

The following information in Subtable STDPRT shows the division of the subtable into seven tuples (instead of the four previously discussed). Now, one tuple starts with digits 010, one with 0112, one with 012, and one with 02.

**Subtable STDPRT**

| <u>FROMDIGS</u> | <u>TODIGS</u> | <u>PRETRTE</u>           |
|-----------------|---------------|--------------------------|
| 00 (00..)       | 00 (999...)   | S OA 0 MCITRK 2 2 NONE   |
| 010 (0..)       | 0111 (9...)   | D VACT                   |
| 0112 (0..)      | 0119 (9...)   | S DD 0 DODTRK 13 18 NONE |
| 012 (0..)       | 019 (9...)    | S OA 0 DODTRK 12 17 NONE |
| 02 (00..)       | 09 (99...)    | N OA 1 NA                |
| 1 (000..)       | 1 (999...)    | N DD 1 NA                |
| 2 (000..)       | 9 (999...)    | N NP 0 NA                |

Following is an explanation of each tuple in the above example of Subtable STDPRT.

- 00 through 00 -- The call routes to Table CLLI (via selector S), to trunk group MCITRK. The call is operator assisted and will have no digits deleted. Only two digits will be sent and they must be 00 (key field).
- 010 through 0111 -- The call routes to a treatment (VACT). The user who misdials an international operator-assisted call via dialing 010 (no country code starts with 0) or misdials a direct-dial international call via 0111 (no country code starts with 1) will receive the VACT treatment from Table TMTCNTL. **The D selector sends the call to Table TMTCNTL.**
- 0112 through 0119 -- This call routes to Table CLLI, to trunk DODTRK (the S selector). This is an international direct dial call. It will have no digits deleted. Between 13 and 18 digits will be collected before the call routes. **Remember that all country codes start with the digits 2 through 9 when dialing them from the United States.**
- 012 through 019 -- This international operator-assisted call routes through Table CLLI to trunk group DODTRK.
- 02 through 09 -- This call routes an operator-assisted call within North America and has one digit (the 0) deleted. **The call is sent to HNPACONT via the N selector.**
- 1 through 1 -- This call routes as a direct dial call within North America and has one digit (the 1) deleted. **The call is sent to Table HNPACONT via the N selector.**
- 2 through 9 -- This is a local no prefix call; therefore, no digits are deleted. **The call is sent to Table HNPACONT via the N selector.**

**TRAVER showing pretranslator screening**

The following TRAVER illustrates how the switch uses pretranslator screening to determine the routing of a call. The explanation below focuses on the TRAVER as it enters Table LINEATTR.

```

TRAVER L 3363556 90113015551212 B
TABLE IBNLINES
HOST 00 1 00 08 DT STN 3363556 GRP7 0 0 601 $
TABLE NCOS
GRP7 0 0 NCOS0 $
TABLE CUSTHEAD: CUSTGRP PRELIMXLA, CUSTXLA,
FEATXLA, VACTRMT, AND DIGCOL
GRP7 NXLA CTN3 FTN3 0 DCN3
TABLE DIGCOL
DCN3 9 POTS Y
NCOS PRELIM XLA is NIL Go to next XLA name.
CUST PRELIM XLA is NIL Go to next XLA name.
TABLE IBNXLA; XLANAME CTN3
CTN3 9 NET Y Y N 1 N NDGT Y N DOD N 7 NONE
TABLE LINEATTR
7 IBN NONE NT NSCR 0 601 SPN3 LAS3 AMRX N 0
NIL NILLATA 0 NIL
TABLE STDPRTCT
SPN3 (1)
SUBTABLE STDPRT
0113 0119 S DD 0 DODTRK 13 18 NONE

```

- LINEATTR assigns a pretranslator of SPN3.
- STDPRTCT positions on the pretranslator, SPN3 and subs to the appropriate STDPRT subtable.
- STDPRT positions on the leading digits 0113 (the 9 was deleted earlier) and routes this DD call type to trunk group DODTRK.
- Since no other translations are necessary for this call type, the call exits the Meridian 1 Options 111-211 at this point.

---

# TRAVER analysis

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## Introduction

There are 4 sample TRAVERs in this section. For each TRAVER, you will be presented with several paragraphs that explain what the TRAVER is depicting.

**TRAVER 1**

TRAVER L 3343556 919005551212 B  
 TABLE IBNLINES  
 HOST 01 0 01 20 DT STN 3343556 GRP1 0 0 804 \$  
 TABLE NCOS  
GRP1 0 0 0 NCOS0 ( XLAS PTN1 NXLA NDGT) \$  
 TABLE CUSTHEAD: CUSTGRP, PRELIMXLA, CUSTXLA  
 FEATXLA, VACTRMT, AND DIGCOL  
 GRP1 NXLA CTN1 FTN1 0 DCN1  
 TABLE DIGCOL  
DCN1 9 POTS Y  
 TABLE IBNXLA: XLANAME PTN1  
PTN1 9 NET N N N 1 Y NDGT N Y DOD N 5 NONE  
 TABLE DIGCOL  
 NDGT specified: digits collected individually.  
 TABLE LINEATTR  
 5 IBN NONE NT NSCR 0 804 SPN1 LAS1 NONE N 0 NIL  
 NILATA 0 NIL NIL  
 TABLE STDPRTCT  
SPN1 (1)  
 SUBTABLE STDPRT  
1 1 N DD 1 NA  
 TABLE HNPACONT  
 804 16 0 ( 1) ( 1) ( 0)  
 SUBTABLE HNPACODE  
900 900 FRTE 1  
 SUBTABLE RTEREF  
1 S D DODTRK  
 EXIT TABLE RTEREF  
 EXIT TABLE HNPACONT  
 TABLE LCASCRCN  
804 LAS1 ( 2) MAND N  
 SUBTABLE LCASCR  
 TUPLE NOT FOUND. DEFAULT IS NON-LOCAL  
 TABLE PFXTREAT  
MAND DD N DD UNDT  
 3 2  
 +++ TRAVER: SUCCESSFUL CALL TRACE +++

Standard translations occurs as discussed in previous lessons. Notice that in HNPACODE, the FROMDIGS/TODIGS contains the 900 area code and is designated as a foreign route with a route reference index of 1. In RTEREF, the call is sent to a DODTRK.

**TRAVER 2**

```
TRAVER L 3345443 909005551212 B
TABLE IBNLINES
HOST 01 0 02 09 DT STN 3345443 GRP1 0 2 804 $
TABLE NCOS
GRP1 2 0 0 NCOS2 (XLAS PTN13 NXLA NDGT) $
TABLE CUSTHEAD: CUSTGRP, PRELIMXLA, CUSTXLA
FEATXLA, VACTRMT, AND DIGCOL
GRP1 NXLA CTN1 FTN1 0 DCN1
TABLE DIGCOL
DCN1 9 POTS Y
TABLE IBNXLA: XLANAME PTN13
TUPLE NOT FOUND
Default is to go to next XLA name.
CUST PRELIM XLA name is NIL. go to next XLA name.
TABLE IBNXLA: XLANAME CTN1
CTN1 9 NET N N N 1 Y NDGT N Y DOD N 5 NONE
TABLE DIGCOL
NDGT specified: digits collected individually.
TABLE LINEATTR
5 IBN NONE NT CSS1 0 804 SP67 LAS1 AMRX N 0 NIL
NILLATA 0 NIL NIL
TABLE STDPRTCT
SP67 (1)
SUBTABLE STDPRT
09 09 N OA 1 NA
TABLE HNPACONT
804 16 0 (1) (1) (0)
SUBTABLE HNPACODE
900 900 FRTE 1
SUBTABLE RTEREF
1 S D DODTRK
EXIT TABLE RTEREF
EXIT TABLE HNPACONT
TABLE LCASCRCN
804 LAS1 (2) MAND N
SUBTABLE LCASCR
TUPLE NOT FOUND. DEFAULT IS NON-LOCAL
TABLE PFXTREAT
MAND OA N OA UNDT
TABLE CLSVSCRC
KEY NOT FOUND
DEFAULT IS TO LEAVE XLA RESULT UNCHANGED

+++ TRAVER: SUCCESSFUL CALL TRACE +++
```



Standard translations occurs as discussed in previous lessons. Notice that in HNPACODE, the FROMDIGS/TODIGS contains the 900 area code and is designated as a foreign route with a route reference index of 1. In RTEREF, the call is sent to a DODTRK. In PFXTREAT, the call is identified as an operator assisted phone call.

**TRAVER 3**

```

TRAVER L 3343556 9011492282331010 B
TABLE IBNLINES
HOST 01 0 01 20 DT STN 3343556 GRP1 0 0 804 $
TABLE NCOS
GRP1 0 0 0 NCOS0 (XLAS PTN1 NXLA NDGT) $
TABLE CUSTHEAD: CUSTGRP, PRELIMXLA, CUSTXLA
FEATXLA, VACTRMT, AND DIGCOL
GRP1 NXLA CTN1 FTN1 0 DCN1
TABLE DIGCOL
DCN1 9 POTS Y
TABLE IBNXLA: XLANAME PTN1
PTN1 9 NET N N N 1 Y NDGT N Y DOD N 5 NONE
TABLE DIGCOL
NDGT specified: digits collected individually.
TABLE LINEATTR
5 IBN NONE NT NSCR 0 804 SPN1 LAS1 ARMX N 0 NIL
NILLATA 0 NIL NIL
TABLE STDPRTCT
SPN1 (1)
SUBTABLE STDPRT
0114 0119 S DD 0 DODTRK 13 18 NONE

+++ TRAVER: SUCCESSFUL CALL TRACE +++

```

Standard translations occurs as discussed in previous lessons. Notice that in Subtable STDPRT, a direct dial international call is translated to the public network.

**TRAVER 4**

```

TRAVER L 3343556 901492282331010 B
TABLE IBNLINES
HOST 01 0 01 20 DT STN 3343556 GRP1 0 0 804 $
TABLE NCOS
GRP1 0 0 0 NCOS0 (XLAS PTN1 NXLA NDGT) $
TABLE CUSTHEAD: CUSTGRP, PRELIMXLA, CUSTXLA
FEATXLA, VACTRMT, AND DIGCOL
GRP1 NXLA CTN1 FTN1 0 DCN1
TABLE DIGCOL
DCN1 9 POTS Y
TABLE IBNXLA: XLANAME PTN1
PTN1 9 NET N N N 1 Y NDGT N Y DOD N 5 NONE
TABLE DIGCOL
NDGT specified: digits collected individually.
TABLE LINEATTR
5 IBN NONE NT CSS1 0 804 SPN1 LAS1 ARMX N 0 NIL
NILLATA 0 NIL NIL
TABLE STDPRTCT
SPN1 (1)
SUBTABLE STDPRT
014 019 S OA 0 DODTRK 12 18 NONE

+++ TRAVER: SUCCESSFUL CALL TRACE +++

```

Standard translations occurs as discussed in previous lessons. Notice that in Subtable STDPRT, an operator assisted international call is translated to the public network.



## Practice 4: Tuple interaction and TRAVER analysis

### Situation:

As a database or trouble-desk technician, you have received the following printed TRAVERs. You have been asked to locate the problem and then indicate how to correct the datafill errors.

### Instructions:

#### Part A

1. Read through the TRAVER.
2. Access any NTP you may need.
3. If necessary, review the tables used in this lesson.
4. Indicate what is causing the problem as well as what can be done to correct the problem.
5. Compare your answers with Practice 4 Feedback; discuss any differences with your instructor or colleague.



# TRAVER 1

TRAVER L 3345443 919005551212 B  
TABLE IBNLINES  
HOST 01 0 02 09 DT STN 3345443 GRP1 0 2 804 \$  
TABLE NCOS  
GRP1 2 0 0 NCOS2 ( XLAS PTN1 NXLA NDGT) \$  
TABLE CUSTHEAD: CUSTGRP, PRELIMXLA, CUSTXLA  
FEATXLA, VACTRMT, AND DIGCOL  
GRP1 NXLA CTN1 FTN1 0 DCN1  
TABLE DIGCOL  
DCN1 9 POTS Y  
TABLE IBNXLA: XLANAME PTN1  
TUPLE NOT FOUND  
Default is to go to next XLA name.  
CUST PRELIM XLA name is NIL. Go to next XLA name.  
TABLE IBNXLA: XLANAME CTN1  
CTN1 9 NET N N N 1 Y NDGT N N DOD Y 5 NONE  
TABLE DIGCOL  
NDGT specified: digits collected individually.  
TABLE LINEATTR  
5 IBN NONE NT CSS1 0 804 SPN1 LAS1 NONE N 0 NIL NILLATA 0 NIL NIL  
TABLE STDPRTCT  
SPN1 ( 1)  
SUBTABLE STDPRT  
1 1 N DD 1 NA  
SUBTABLE AMAPRT  
KEY NOT FOUND  
TABLE HNPACONT  
804 16 0 ( 1) ( 1) ( 0)  
SUBTABLE HNPACODE  
900 900 FRTE 1  
SUBTABLE RTEREF  
1 S D DODTRK  
EXIT TABLE RTEREF  
EXIT TABLE HNPACONT  
TABLE LCASRCN  
804 LAS1 ( 2) MAND N  
SUBTABLE LCASCR  
TUPLE NOT FOUND. DEFAULT IS NON-LOCAL  
TABLE PFXTTREAT  
MAND DD N DD UNDT  
TABLE CLSVSCRC  
804 CSS1 DD 2 N NONE ( 1)  
SUBTABLE CLSVSCR  
900 900 D RODR

---

TABLE TMTCNTL  
LNT (27)  
SUBTABLE TREAT  
RODR N T OFRT 7  
TABLE OFRT  
7 S D T120  
EXIT TABLE OFRT

+++ TRAVER: SUCCESSFUL CALL TRACE +++

- a. What is causing the problem? CSS1 in lineARR and  
CSS1 in Table CLSVSLR
- b. What should be done to correct the problem? Change Tuple in  
LINEARR CSS1 to NSCR,

**TRAVER 2**

```
TRAVER L 3345443 9011492282331010 B
TABLE IBNLINES
HOST 01 0 02 09 DT STN 3345443 GRP1 0 2 804 $
TABLE NCOS
GRP1 2 0 0 NCOS2 (XLAS PTN13 NXLA NDGT) $
TABLE CUSTHEAD: CUSTGRP, PRELIMXLA, CUSTXLA
FEATXLA, VACTRMT, AND DIGCOL
GRP1 NXLA CTN1 FTN1 0 DCN1
TABLE DIGCOL
DCN1 9 POTS Y
TABLE IBNXLA: XLANAME PTN13
TUPLE NOT FOUND
Default is to go to next XLA name.
TABLE IBNXLA: XLANAME CTN1
CTN1 9 NET N N N 1 Y NDGT N N DOD N 5 NONE
TABLE DIGCOL
NDGT specified: digits collected individually.
TABLE LINEATTR
5 IBN NONE NT CSS1 0 804 SP67 LAS1 AMRX N 0 NIL
NILLATA 0 NIL NIL
TABLE STDPRTCT
SP67 (1)
SUBTABLE STDPRT-
0114 0119 D RODR
TABLE TMTCNTL
LNT (27)
SUBTABLE TREAT
RODR N T OFRT 7
TABLE OFRT
7 S D T120
EXIT TABLE OFRT
```

+++ TRAVER: SUCCESSFUL CALL TRACE +++



---

a. What is causing the problem? Subtable STOPRT has  
RODR.

b. What should be done to correct the problem? Change Data File  
IN Subtable STOPRT

**TRAVER 3**

```

TRAVER L 9534442 915164581212 B
TABLE IBNLINES
HOST 01 1 02 01 DT STN 9534442 GRP6 0 1 505 (PRK) $
TABLE NCOS
GRP6 1 0 0 NCOS1 (XLAS PTN18 NXLA NDGT) $
TABLE CUSTHEAD: CUSTGRP, PRELIMXLA, CUSTXLA
FEATXLA, VACTRMT, AND DIGCOL
GRP6 NXLA CTN6 FTN6 0 DCN6
TABLE DIGCOL
DCN6 9 POTS Y
TABLE IBNXLA: XLANAME PTN18
PTN18 9 NET N N N 1 Y NDGT N N DOD N 16 TDN
TABLE DIGCOL
NDGT specified: digits collected individually.
TABLE LINEATTR
16 IBN NONE NT NSCR 0 505 SP18 LAS6 AMRX N 0 NIL
NILSFC NILLATA 0 NIL NIL
TABLE STDPRTCT
SP18 (1) (0)
SUBTABLE STDPRT
1 1 N DD 1 NA
TABLE HNPACONT
505 5 0 (1) (1) (0)
SUBTABLE HNPACODE
516 516 FRTE 1
SUBTABLE RTEREF
1 S D DODTRK
EXIT TABLE RTEREF
EXIT TABLE HNPACONT
TABLE LCASCRCN
505 LAS6 (2) MAND N
SUBTABLE LCASCR
TUPLE NOT FOUND. DEFAULT IS NON-LOCAL
TABLE PFXTREAT
MAND DD N DD UNDT
This call has TDN (Toll Denied)
TABLE TMTCNTL
SUBTABLE TREAT
TDND N T OFRT 8
TABLE OFRT
8 S D ANNMEM5
S D LKOUT
EXIT TABLE OFRT

```

```

+++ TRAVER: SUCCESSFUL
CALL TRACE +++
TREATMENT ROUTES.
TREATMENT IS: TDND
1 ANNMEM5
2 LKOUT

```

+++ TRAVER: SUCCESSFUL CALL TRACE +++

- 
- a. What is causing the problem? Table IBNYLA has  
prelYA Toll Denied
- b. What should be done to correct the problem? change TDN  
TO NONE IN TABLE IBNYLA

**TRAVER 4**

TRAVER L 9533556 '1376' T  
 TABLE IBNLINES  
 HOST 00 0 12 01 DT STN 9533556 GRP6 0 0 505 \$  
 TABLE NCOS  
 GRP6 0 0 0 NCOS0 ( XLAS PTN18 FTN6 NDGT) \$  
 TABLE CUSTHEAD: CUSTGRP, PRELIMXLA, CUSTXLA  
 FEATXLA, VACTRMT, AND DIGCOL  
 GRP6 NXLA CTN6 FTN6 0 DCN6  
 TABLE DIGCOL  
 DCN6 1 COL S 2  
 TABLE IBNXLA: XLANAME PTN18  
 TUPLE NOT FOUND  
 Default is to go to next XLA name.  
 CUST PRELIM XLA name is NIL. Go to next XLA name.  
 TABLE IBNXLA: XLANAME CTN6  
 CTN6 13 OCT  
 NCOS OCT XLA name is NIL. Go to next XLA name.  
 TABLE IBNXLA: XLANAME OCT6  
 OCT6 76 REPL N 93613421  
 TABLE IBNXLA: XLANAME PTN18  
 PTN18 9 NET N N N 1 Y NDGT N N DOD Y 86 NONE  
 TABLE DIGCOL  
 NDGT specified: digits collected individually.  
 TABLE LINEATTR  
 86 IBN NONE NT NSCR 0 505 SPN6 LAS6 AMRX N 0 NIL  
 NILSFC NILLATA 0 NIL NIL  
 TABLE STDPRTCT  
 SPN6 ( 1) ( 0)  
 SUBTABLE STDPRT  
 3 9 N NP 0 NA  
 TABLE HNPACONT  
 505 5 0 ( 1) ( 1) ( 0)  
 SUBTABLE HNPACODE  
 361 366 LRTE 1  
 SUBTABLE RTEREF  
 1 S D DODTRK  
 EXIT TABLE RTEREF  
 EXIT TABLE HNPACONT  
 TABLE LCASCRCN  
 505 LAS6 ( 2) MAND N  
 SUBTABLE LCASCR  
 TUPLE NOT FOUND. DEFAULT IS NON-LOCAL  
 TABLE PFXTREAT  
 MAND NP N NP MSLC

---

```
TABLE TMTCNTL
LNT (27)
SUBTABLE TREAT
MSLC N T OFRT 27
TABLE OFRT
27 S D ANS1ANN
S D T120
S D LKOUT
EXIT TABLE OFRT
+++ TRAVER: SUCCESSFUL CALL TRACE +++
```

- a. What is causing the problem? Nothing in LCAS
- 
- b. What should be done to correct the problem? Add tuple  
361 366 TO LCAS.
-

**TRAVER 5**

TRAVER L 9533556 9011492282331010 B  
TABLE IBNLINES  
HOST 01 0 02 06 DT STN 9533556 GRP6 0 0 505 (PRK)\$  
TABLE NCOS  
GRP6 0 0 0 NCOS0 ( XLAS PTN6 NXLA NDGT) \$  
TABLE CUSTHEAD: CUSTGRP, PRELIMXLA, CUSTXLA  
FEATXLA, VACTRMT, AND DIGCOL  
GRP6 NXLA CTN6 FTN6 0 DCN6  
TABLE DIGCOL  
DCN6 9 POTS Y  
TABLE IBNXLA: XLANAME PTN6  
PTN6 9 NET N Y N 1 Y NDGT N N DOD N 19 NONE  
TABLE DIGCOL  
NDGT specified: digits collected individually.  
TABLE LINEATTR  
19 IBN NONE NT CSS3, 0 406 SP15 LAS3 NONE N 0 NIL  
NILSFC NILLATA 0 NIL NIL  
TABLE STDPRTCT  
SPN15 ( 1) ( 0)  
SUBTABLE STDPRT  
01 01 D VACT  
TABLE TMTCNTL  
LNT ( 27)  
SUBTABLE TREAT  
VACT N T OFRT 14  
TABLE OFRT  
14 S D ANNMEM10  
S D IDLE  
EXIT TABLE OFRT

+++ TRAVER: SUCCESSFUL CALL TRACE +++

TREATMENT ROUTES. TREATMENT IS: VACT  
1 ANNMEM10  
2 IDLE  
+++ TRAVER: SUCCESSFUL CALL TRACE +++

---

a. What is causing the problem? Subtable STDPRT is set  
For Vact Term.

b. What should be done to correct the problem? Change tuple  
in subtable STDPRT 0112 0119 S DODTRK 13 18 none

## Practice 4 Feedback

1. This call is blocked due to datafill in LINEATTR (CSS1) and datafill in CLSVSCRC (and its subtable); assuming we want this call to go thru unblocked, we can simply change the datafill in LINEATTR to NSCR for no screening name. Therefore, the call will not enter Table CLSVSCRC; instead it will stop at PFXTREAT using the UNDT (undefined treatment).

2. Again, a field is datafilled with RODR; this time, the RODR is in subtable STDPRT. To correct the problem, you can datafill this field with...

```
0112 0119 S DD 0 DODTRK 13 18 NONE
```

3. This call is meant to be a network DOD call; the datafill can be corrected in IBNXLA. You'll notice the TDN (toll denied) in the last field (options are NONE, TDN, and TDV). The call translates as normal until it reaches TMTCNTL. Because this direct dial call has TDN assigned to it, this call cannot be completed. In TMTCNTL.TREAT, an OFRT of type 8 is assigned. In OFRT, ANNMEM 15 is assigned which is more than likely an announcement that says that this call cannot be completed as dialed and reference to an operator is probably made.

4. This call is an octothorpe equivalent (on a rotary set). The 76 is to be replaced with #93613421. Assuming we want the call to go thru as dialed, add the following tuple to LCASCR:  
361 366

5. This international direct dial call; however, in Subtable STDPRT, the tuple is looking for an operator assisted international call. In order to correct the situation the following tuple should replace the existing tuple:

```
0112 0119 S DD 0 DODTRK 13 18 NONE
```



## Practice 5: Class of service screening

### Instructions:

Obtain NTP 297-1001-451, and read about the tables that were introduced in the previous section or use the information presented in this section to answer the following questions. Compare your answers with those found in the Practice 5 Feedback.

1. Which table assigns class of service names to a call?
  - a. LINEATTR
  - b. LCASCRCN
  - c. CLSVSCRC
  - d. XLANAME
  
2. Which entry under NORSLTS in Table CLSVSCRC sends a call directly to Subtable CLSVSCR?
  - a. 0
  - b. 2
  - c. TMT/OFRT
  
3. Which entry under NORSLTS in Table CLSVSCRC sends the call directly to a treatment or Table OFRT?
  - a. 0
  - b. 1
  - c. TMTOFRT
  
4. In Table CLSVSCRC or Subtable CLSVSCR, which screening selector (SCRNSEL) sends the call to Table OFRT?
  - a. D
  - b. N
  - c. S
  - d. T



5. In what table are standard pretranslator names assigned to a call?
  - a. XLANAME
  - b. STDPRTCT
  - c. STDPRT
  - d. LINEATTR**
  
6. Which statement below defines the function of Table STDPRTCT?
  - a. Allows/denies access to tuples in Table IBNXLA
  - b. Provides an index to Subtable HNPACODE
  - c. Classifies calls (e.g., DD, NP, OA)**
  - d. All of the above

7.

| TABLE: NCOS |      |          |     |         |         |      |      |      |    |
|-------------|------|----------|-----|---------|---------|------|------|------|----|
| CUSTGRP     | NCOS | NCOSNAME | LSC | TRAFSNO | OPTIONS |      |      |      |    |
| GRP1        | 1    | NCOS1    | 0   | 0       | XLAS    | PTN1 | NXLA | NDGT | \$ |
| GRP1        | 2    | NCOS2    | 0   | 0       | XLAS    | PTN2 | NXLA | NDGT | \$ |

| TABLE: IBNXLA |        |          |   |   |   |   |   |      |  |
|---------------|--------|----------|---|---|---|---|---|------|--|
| XLANAME       | DGLIDX | LINEATTR |   |   |   |   |   |      |  |
| PTN1          | 9      | NET      | N | N | N | 1 | Y | NDGT |  |
| Y             | N      | DOD      | N |   | 4 |   |   | NONE |  |
| PTN2          | 9      | NET      | N | N | N | 1 | Y | NDGT |  |
| Y             | N      | DOD      | N |   | 8 |   |   | NONE |  |

| TABLE: LINEATTR |                      |      |    |      |         |     |      |  |  |
|-----------------|----------------------|------|----|------|---------|-----|------|--|--|
| LAIDX           | SCRNCL . . STS . . . |      |    |      |         |     |      |  |  |
| 4               | IBN                  | NONE | NT | CSS1 | 0       | 205 | SPN1 |  |  |
| LCN1            | NONE                 | N    | 0  | NIL  | NILLATA | 0   | NIL  |  |  |
| 8               | IBN                  | NONE | NT | NCSR | 0       | 215 | SPN1 |  |  |
| LCN1            | NONE                 | N    | 0  | NIL  | NILLATA | 0   | NIL  |  |  |

| TABLE: CLSVSCRC  |      |    |      |   |      |   |    |  |  |
|------------------|------|----|------|---|------|---|----|--|--|
| 205              | CSS1 | DD | 2    | N | NONE | ( | 1) |  |  |
| SUBTABLE CLSVSCR |      |    |      |   |      |   |    |  |  |
| 900              | 900  | D  | VACT |   |      |   |    |  |  |

What value(s) in Table CLSVSCRC represent(s) its key?

- a. 205
- b. CSS1
- c. DD
- d. All of the above**

500345  
071791

8.

TABLE: NCOS

| CUSTGRP | NCOS | NCOSNAME | LSC | TRAFSNO | OPTIONS                |
|---------|------|----------|-----|---------|------------------------|
| GRP1    | 1    | NCOS1    | 0   | 0       | XLAS PTN1 NXLA NDGT \$ |
| GRP1    | 2    | NCOS2    | 0   | 0       | XLAS PTN2 NXLA NDGT \$ |

TABLE: IBNXLA

| XLANAME | DGLIDX | LINEATTR           |
|---------|--------|--------------------|
| PTN1    | 9      | NET N N N 1 Y NDGT |
| Y       | N      | DOD N 4 NONE       |
| PTN2    | 9      | NET N N N 1 Y NDGT |
| Y       | N      | DOD N 8 NONE       |

TABLE: LINEATTR

| LAI DX | SCRNCL                      | STS |
|--------|-----------------------------|-----|
| 4      | IBN NONE NT CSS1 0 205 SPN1 |     |
| LCN1   | NONE N 0 NIL NILLATA 0 NIL  |     |
| 8      | IBN NONE NT NCSR 0 215 SPN1 |     |
| LCN1   | NONE N 0 NIL NILLATA 0 NIL  |     |

TABLE: CLSVSCRC

|                  |                       |
|------------------|-----------------------|
| 205              | CSS1 DD 2 N NONE ( 1) |
| SUBTABLE CLSVSCR |                       |
| 900              | 900 D VACT            |

Given this datafill, what entries START the process of dividing NCOSs into one NCOS that undergoes class of service screening and one NCOS that does not?

- a. Table IBNXLA: 4, 8
- b. Table LINEATTR: CSS1, NCSR
- c. Table NCOS: PTN1, PTN2

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071791

9.

TRAVER L 3363556 90113015551212 B  
TABLE IBNLINES  
HOST 00 1 00 08 DT STN 3363556 GRP7 0 0 601 R  
TABLE NCOS  
GRP7 0 0 NCOS0 \$  
TABLE CUSTHEAD: CUSTGRP, PRELIMXLA, CUSTXLA, FEATXLA,  
VACTRMT, AND DIGCOL  
GRP7 NXLA CTN3 FTN3 0 DCN3  
NCOS PRELIM XLA is NIL. Go to next XLA name.  
CUST PRELIM XLA is NIL. Go to next XLA name.  
TABLE IBNXLA; XLANAME CTN3  
CTN3 9 NET Y Y N 1 Y NDGT Y N DOD N 7 NONE  
TABLE LINEATTR  
7 IBN NONE NT NSCR 0 601 SPN3 LAS3 AMRX N 0 N  
TABLE STDPRTCT  
SPN3 ( 1)  
SUBTABLE STDPRT  
0113 0119 S DD 0 DODTRK 13 18 NONE

Given this TRAVER, which digits will be stripped from the call?

- a. 9
- b. 90
- c. 0113
- d. None. The call routes to DODTRK.

500351  
071791

10.

| FROMDIGS | TODIGS | PRTRTE    |
|----------|--------|-----------|
| 0        | 0      | N OA 1 NA |
| 1        | 1      | N DD 0 NA |
| 2        | 9      | N NP 0 NA |

1+ calls translating through Subtable STDPRT are going to a treatment. What data would you change to correct this problem?

(a) Change the second tuple's NOPREDIG value to "1".  
 b. Change the third tuple's FROMDIGS value to "1".  
 c. Add this tuple: 1 1 S DD 1 NA

500352  
080791

11.

| TABLE STDPRTCT: SUBTABLE STDPRT |        |           |
|---------------------------------|--------|-----------|
| FROMDIGS                        | TODIGS | PRTRTE    |
| 0                               | 0      | N OA 1 NA |
| 1                               | 1      | N DD 1 NA |
| 2                               | 9      | N NP 0 NA |

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071791

If you allowed the first tuple above to handle a "9 + 00" call (assuming "9" was deleted in Table IBNXL), what would happen?

a. The call would stop translating at Subtable STDPRT.  
 (b) The call would go on to Table HNPACONT and look for a "0".

12.

TRAVER L 3345443 909005551212 B  
TABLE NCOS  
GRP1 2 0 0 NCOS2 ( XLAS PTN13 NXLA NDGT)\$  
TABLE CUSTHEAD: CUSTGRP, PRELIMXLA, CUSTXLA, FEATXLA, VACTRMT, AND  
DIGCOL  
GRP1 NXLA CTN1 FTN1 0 DCN1  
TABLE IBNXLA: XLANAME CTN1  
CTN1 9 NET N N N 1 Y NDGT N Y DOD N 5 NONE  
TABLE LINEATTR  
5 IBN NONE NT CSS1 0 804 SP67 LAS1 AMRX N 0 NIL NILLATA 0 NIL NIL  
TABLE STDPRTCT  
SP67 ( 1)  
  . SUBTABLE STDPRT  
  . 09 09 N OA 1 NA  
TABLE HNPACONT  
804 16 0 ( 1) ( 1) ( 0)  
  . SUBTABLE HNPACODE  
  . 900 900 FRTE 1  
  . SUBTABLE RETREF  
  . 1 S D DODTRK  
TABLE LCASCRN  
804 LAS1 ( 2) MAND N  
  . SUBTABLE LCASCR  
  . TUPLE NOT FOUND. DEFAULT IS NON-LOCAL  
TABLE PFXTREAT  
MAND DD N DD UNDT  
TABLE CLSVSCRC  
KEY NOT FOUND  
DEFAULT IS TO LEAVE XLA RESULT UNCHANGED  
+++ TRAVER: SUCCESSFULL CALL TRACE +++

For this call, what digits are  
outpulsed?

- a. 5551212
- b. 9005551212
- c. 09005551212
- d. 909005551212

500358  
080791

**Please turn the page for Practice 5 feedback.**



## Practice 5 Feedback

1. a
2. b
3. a
4. d
5. d
6. c
7. d

8. c
9. a
10. a
11. b
12. b



## Practice 6: Code blocking, class of service screening and screening with pretranslators

### Situation:

Your supervisor is giving you an opportunity to perform a database change on the corporate customer group recently acquired by the company. This customer has requested international dialing capabilities for several NCOSs. Your supervisor has asked you to complete this assignment by the end of the work day. He has given you the information needed and requested a hard copy of the TRAVERS which will support the "expected" results of these changes. The senior database technician is available to answer questions but recommends that you use your documentation as she may be called away for an interview with a different department. Your supervisor will review the TRAVERS for support of the requested changes. Your instructor will serve as your supervisor.

### Instructions:

Your task is to correctly datafill the appropriate tables to support international dialing and class of service screening in a Meridian Options 111-211.

- Complete Strategy Sheets for Translators, Routing, and Screening Calls via Table STDPRTCT.
  - Translator Strategy Work Sheet. Look at your dialing plan information on the NCOS matrix and plan your strategy for using translators on this sheet.
  - Strategy Sheet for Screening Calls via Table STDPRTCT.
  - Routing Strategy Sheet.
- **Complete a form for each table.**



**Figure 4**  
**NCOS matrix**

| CUSTOMER GROUP NAME: GRP <u>10</u> |  | POSSIBLE DIALING PATTERNS |        |       |         |               |               |      |               |      |        | FEATURE INFORMATION |     |        |          |        |         |                  | ADDITIONAL INFORMATION |                         |                            |              |                  |  |  |  |  |  |
|------------------------------------|--|---------------------------|--------|-------|---------|---------------|---------------|------|---------------|------|--------|---------------------|-----|--------|----------|--------|---------|------------------|------------------------|-------------------------|----------------------------|--------------|------------------|--|--|--|--|--|
| NCOS NUMBER                        |  | STN - STN                 | DIAL O | (ATT) | (ICI=1) | 9+00 OPERATOR | 9+01 OVERSEAS | (OA) | 9+01 OVERSEAS | (DD) | 9+0+10 | DIGITS              | 9+7 | DIGITS | 9+1+7/10 | DIGITS | 9+1+900 | 9+1+516+458 1212 | # EQUIV (13)           | ABBREVIATED DIALING #76 | INFO 77 (REPLACE WITH 113) | * EQUIV.(12) | INFO 113 (CI=63) |  |  |  |  |  |
| 0                                  |  | X                         | X      | X     | X       | X             | X             | X    | X             | X    | X      | X                   | X   | X      | X        | X      | X       | X                | X                      | X                       | X                          | X            | X                |  |  |  |  |  |
| 1                                  |  | X                         | X      | X     | X       | X             | X             | X    | X             | X    | X      | X                   | X   | X      | X        | X      | X       | X                | X                      | X                       | X                          | X            | X                |  |  |  |  |  |
| 2                                  |  | X                         | X      | X     | X       | X             | X             | X    | X             | X    | X      | X                   | X   | X      | X        | X      | X       | X                | X                      | X                       | X                          | X            | X                |  |  |  |  |  |
|                                    |  |                           |        |       |         |               |               |      |               |      |        |                     |     |        |          |        |         |                  |                        |                         |                            |              |                  |  |  |  |  |  |

500056  
042790MS

*Block Using STD PRIC*  
*Block Using Code B11C*  
*Block Using CCSV SCREEN*

**Figure 5**  
**Translator strategy sheet**

| TRANSLATOR STRATEGY SHEET                                                     |       |                                                                                  |                                                                                                                                                               |                                                      |
|-------------------------------------------------------------------------------|-------|----------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------|
| Who (majority or specific NCOS) gets what dialing privileges or restrictions: |       | Translator name (CTN, PTN, FTN) you will use in Table IBNXLA to give it to them. | In Table IBNXLA:<br>(1) What digit(s) will this translator focus on?<br>(2) What will be the "instructions" (i.e., TRSEL). e.g., EXTN, ATT, TRMT, NET, etc. ? | What table tells me who "owns" this translator name? |
| Who?                                                                          | What? |                                                                                  |                                                                                                                                                               | Tuple entered <input checked="" type="checkbox"/>    |
| Majority                                                                      | ✓     | CTN 12                                                                           | STAR                                                                                                                                                          |                                                      |
|                                                                               | ✓     | CTN 13                                                                           | OCT                                                                                                                                                           |                                                      |
|                                                                               | ✓     | CTN 0                                                                            | ATT 1                                                                                                                                                         |                                                      |
|                                                                               | ✓     | CTN 113                                                                          | ATT 63                                                                                                                                                        |                                                      |
|                                                                               | ✓     | CTN 3                                                                            | EXTN                                                                                                                                                          |                                                      |
|                                                                               | ✓     | OCT 76                                                                           | Rep) N 94551212                                                                                                                                               |                                                      |
|                                                                               | ✓     | CTN 77                                                                           | Rep) N 113                                                                                                                                                    |                                                      |
| Only NCOS 0                                                                   | ✓     | PTN 10 9                                                                         | NET                                                                                                                                                           |                                                      |
|                                                                               |       |                                                                                  |                                                                                                                                                               |                                                      |
|                                                                               |       |                                                                                  |                                                                                                                                                               |                                                      |
| Only NCOS 1                                                                   | ✓     | PTN 31 9                                                                         | NET *CRLE=Y IBNXLA*                                                                                                                                           |                                                      |
|                                                                               |       |                                                                                  |                                                                                                                                                               |                                                      |
| Only NCOS 2                                                                   | ✓     | PTN 32 9                                                                         | NET                                                                                                                                                           |                                                      |
|                                                                               |       |                                                                                  |                                                                                                                                                               |                                                      |



Figure 7  
Trunking diagram

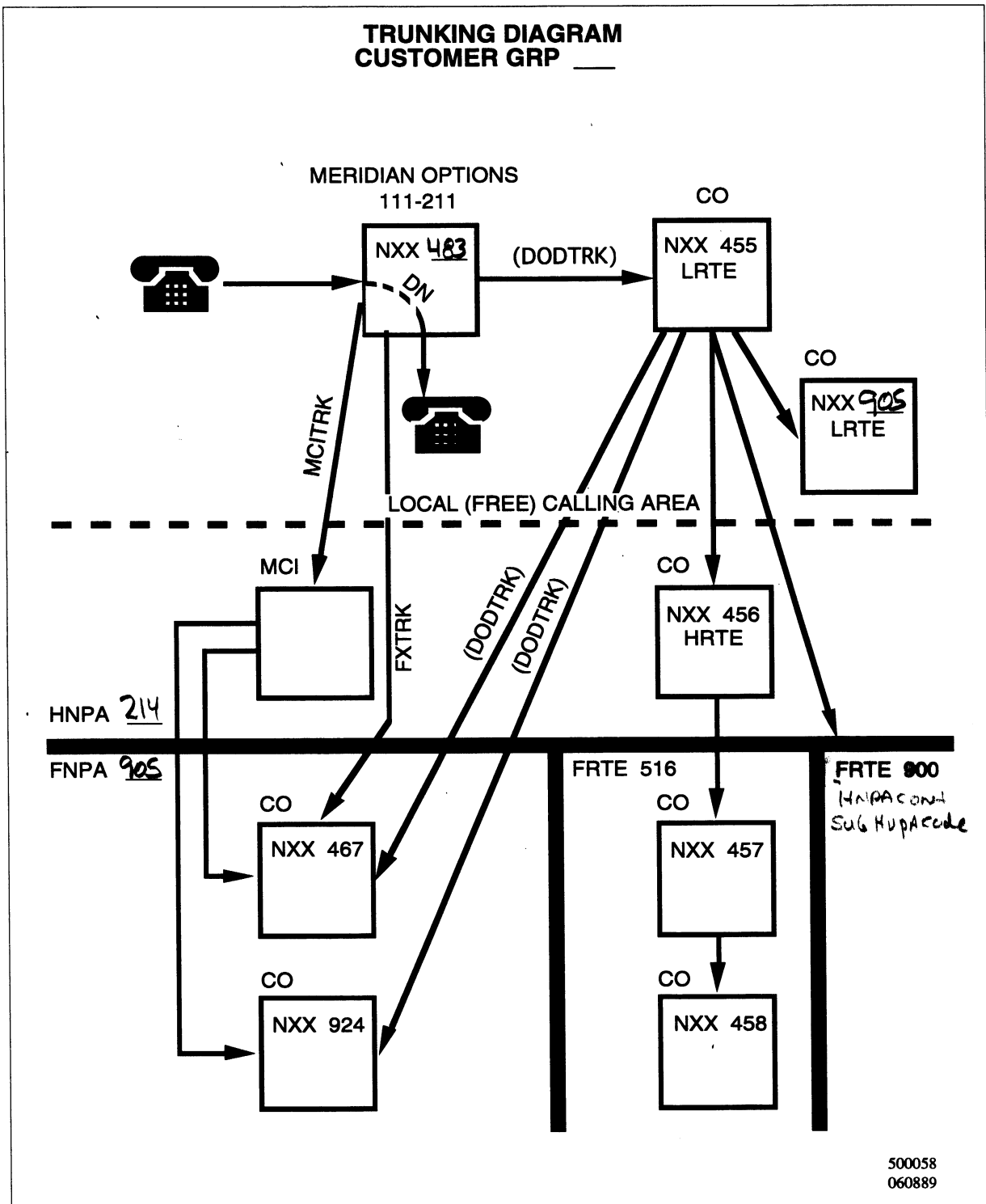


Figure 8  
Routing worksheet

# ROUTING WORK SHEET

Table HNPACONT  
Position 708  
Subtable HNPACODE

List of all the:  
- NPAs in the U.S.  
- NXX's in your NPA

'FROM' Field  
455  
905  
456  
900  
516  
483

"Codes" that switch will use  
to check the correctness of  
# of digits dialed:

'TO' Field  
455 LRTE  
905 AMBI TIME LRTE  
456 MKTE  
900 FRTE  
516 FRTE  
483 ON 708 483 \$

Subtable RTEREF 1 entry

How to route call  
out of the switch:

Route #  
1  
FNPA  
1  
1  
1

(S,D) (DODTRK)  
LRTE  
DODTRK  
DODTRK  
DODTRK

Table FNPACONT  
Position 905  
Subtable FNPACODE

NXX's in this FNPA  
'FROM' Field  
467  
924

Subtable RTEREF

1  
2

(NPA) (EXTN) (S, D, MKTE) (S, D DODTRK) \$  
(S, D, MKTE) (S, D DODTRK) \$

500059  
060889

**Table 1**  
**Tables in order of datafill**

|                                                                                                      |                                                                                                                                   |
|------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------|
| ✓(1) <b>XLANAME</b><br>ADD only the new tuples.                                                      | ✓(12) <b>STDPRTCT</b><br>POS on <i>your old</i> (EXT)PRTNM.<br>SUB into subtable STDPRT.                                          |
| ✓(2) <b>NCOS</b><br>POS on and CHA your tuples.                                                      | ✓(13) <b>STDPRT</b><br>ADD your tuples.<br>RET to the main part of the table.                                                     |
| ✓(3) <b>CUSTHEAD</b><br>POS on and CHA your tuple.                                                   | ✓(14) <b>STDPRTCT</b><br>ADD <i>your new</i> (EXT)PRTNM.<br>POS on it.<br>SUB into subtable STDPRT.                               |
| ✓(4) <b>CUSTSTN</b><br>Verify only your tuples                                                       | ✓(15) <b>STDPRT</b><br>ADD only the new tuples                                                                                    |
| ✓(5) <b>FNPACONT</b><br>ADD your FNPA- POS on <i>your</i> FNPA.                                      | ✓(16) <b>LCASCRCN</b><br>POS on <i>your</i> NPALOCNM.<br>SUB into subtable LCASCR.                                                |
| ✓(6) <b>RTEREF</b><br>ADD only the new tuples                                                        | ✓(17) <b>LCASCR</b><br>ADD your tuples.                                                                                           |
| ✓(7) <b>FNPACODE</b><br>ADD your tuples.<br>RET from subtable FNPACODE.<br>SUB into subtable RTEREF. | ✓(18) <b>CLSVSCRC</b><br>ADD your tuple.<br>POS on it.<br>SUB into subtable CLSVSCR.                                              |
| ✓(8) <b>HNPACONT</b><br>POS on <i>your</i> NPA.<br>SUB into HNPACODE.                                | ✓(19) <b>CLSVSCR</b><br>Add only the new tuples                                                                                   |
| ✓(9) <b>HNPACODE</b><br>ADD your tuples.<br>RET from subtable HNPACODE.<br>SUB into subtable RTEREF. | ✓(20) <b>LINEATTR</b><br>POS on <i>your old</i> LAIDX.<br>CHA the appropriate fields (if needed).<br>ADD <i>your new</i> LAIDX's. |
| ✓(10) <b>RTEREF</b><br>ADD only the new tuples                                                       | (21) <b>IBNXLA</b><br>ADD only the new tuples                                                                                     |
| ✓(11) <b>CODEBLK</b><br>ADD your tuple                                                               |                                                                                                                                   |

---

**Table XLANAME**

- Position on your translator names and add any which may be missing.

|        |    |   |
|--------|----|---|
| CTN 10 | \$ | 9 |
| PTN 10 | \$ | 9 |
| FTN 10 | \$ | 9 |
| OCT 10 | \$ | 9 |
| PTN 31 | \$ | 9 |
| PTN 32 | \$ | 9 |



---

**Table DIGCOL**

- Position on your tuples and verify the information.

|     |       |      |     |   |   |
|-----|-------|------|-----|---|---|
| 0   | DCN10 | 0    | RPT |   |   |
| 113 | DCN10 | 1    | COL | S | 2 |
| *   | DCN10 | STAR | COL | S | 2 |
| #   | DCN10 | OCT  | COL | S | 2 |
| 3   | DCN10 | 3    | COL | L | 4 |

**Table CUSTENG**

- Position on your tuple and verify the information. Customer group type is *public*.

GRP10    60    3    63    Y    N    public    0 \$

**Table NCOS**

- Use your Translator Work Sheet to add needed translators to the appropriate NCOSs. You also need to verify that each NCOS contains the correct information. Remember your options in this table are XLAS and CRL.

|       |   |      |   |   |                                              |
|-------|---|------|---|---|----------------------------------------------|
| GRP10 | 0 | ASDF | 0 | 0 | (XLAS PTN 10 NYLA NDGT)                      |
| GRP10 | 1 |      | 1 | 0 | 0 ( XLAS PTN31 NYLA NDGT)<br>(CRL 1 Blocked) |
| GRP10 | 2 |      | 2 | 0 | 0 (XLAS PTN32 NYLA NDGT)                     |

**Table CUSTHEAD**

- Add your octothorpe translator.
- Vacant treatment number is 0.

GRPI0      CTN10      DCN10  
(VACTRMT 0)(FETXLA FTN10)(OCTXLA OCT 10)

**Table FNPACONT**

- Add the area code(s) that you want to do six digit screening on before it chooses the appropriate trunk group.
- If Foreign Exchange (FX) Trunk Groups will be used, please identify the area code and exchange each FX will be terminating into:

| <u>Terminating NPA</u> | <u>Terminating NXX</u> | <u>FX Trunk Group Name</u> |
|------------------------|------------------------|----------------------------|
| <u>905</u>             | 467                    | FXTRK                      |

905 10 -

**Subtable RTEREF of Table FNPACONT**

- Add the different routes that calls made to FNPA NXXs will use. Refer to the bottom right-hand side of the Routing Work Sheet.

1 (ND FTRK 3 0 N)(S D MCITRK)(SD DODTRK)  
2 (S D MCITRK)(S D DODTRK)

---

**Subtable FNPACODE**

- Add all the NXXs in this FNPA that you plan to let your users dial, and verify the specific route number in subtable RTEREF to use. Refer to the bottom portion of your Routing Work Sheet.

467 467 1 M

924 924 2 M

**Table TOFCNAME**

- Position on your tuples and verify the information.

708      483



---

**Table HNPACONT**

- Position on your Home Area Code (HNPA) of the switch to verify its existence.
- Are there any ambiguous exchanges (NXXs) within the home area code that look like area codes? If yes, how many do you have? \_\_\_\_\_

708      10      5      (0)(0)(0)(0)

**Subtable HNPACODE of Table HNPACONT**

- The information for this subtable can be found on the upper left-hand side of your Routing Work Sheet that you completed. Remember to add FRTE 900.

|     |     |       |      |         |        |
|-----|-----|-------|------|---------|--------|
| 455 | 455 | L RTE | 1    |         |        |
| 905 | 905 | AMB I | Time | L RTE 1 | FUPA 0 |
| 456 | 456 | H RTE | 1    |         |        |
| 900 | 900 | FRTE  | 1    |         |        |
| 516 | 516 | FRTE  | 1    |         |        |
| 483 | 483 | DN    | 708  | 483     |        |

---

**Subtable RTEREF of Table HNPACONT**

- The upper right-hand side of your Routing Work Sheet will assist you in determining which tuples you should position on and verify.

1 (S D DODTRK) 4

**Table CODEBLK**

- Add the digits here that should be blocked. Notice that the key field consists of two subfields. CRLDATA is the same number that you will reference in Table NCOS after specifying the option of CRL.
- The following number needs to be blocked from the following customer group.

| <b>CUSTGRP#</b> | <b>Numbers To Be Blocked</b> |
|-----------------|------------------------------|
| 1               | (516) 458-1212               |

GRP 10 → 516 458 1212 (1) \$

**Table STDPRTCT**

- How many Pretranslator Names (PRTNMs) should you enter here?

Standard Pretranslator Control (STDPRTCT) Names (EXTPRTNM;  
PRTNM): SP10 SP22

SP10 (0) (0)

SP22 (0) (0)

**Subtable STDPRT of Table STDPRTCT**

- You will need to use the STDPRTCT work sheet for assistance. How many subtables will you have to datafill? Route the international calls out on the DODTRK. When using the selector 'S', answer "NONE" to the POSITION prompt. Use MCITRK for common carrier trunk name. Refer to your strategy sheet for additional details.

SP10

|      |      |   |      |   |        |    |    |      |
|------|------|---|------|---|--------|----|----|------|
| 00   | 00   | S | OA   | 0 | MCITRK | 2  | 2  | NONE |
| 010  | 0111 | D | VACT |   |        |    |    |      |
| 0112 | 0119 | S | DD   | 0 | DODTRK | 13 | 18 | NONE |
| 012  | 019  | S | OA   | 0 | DODTRK | 12 | 17 | NONE |
| 02   | 09   | N | OA   | 1 | NA     |    |    |      |
| 1    | 1    | N | DD   | 1 | NA     |    |    |      |
| 2    | 9    | N | NP   | 0 | NA     |    |    |      |

SP22

|    |    |   |      |   |    |  |  |  |
|----|----|---|------|---|----|--|--|--|
| 00 | 01 | D | VACT |   |    |  |  |  |
| 02 | 09 | N | OA   | 1 | NA |  |  |  |
| 1  | 1  | N | DD   | 1 | NA |  |  |  |
| 2  | 9  | N | NP   | 0 | NA |  |  |  |

---

**Table LCASCRCN**

- Position on your tuple and ensure the information is correct.

708 LA10 (0) MANQ N

**Subtable LCASCR**

- Add your tuples and remember to include your *free* NXXs.

483      483

455      455

905      905



**Table CLSVSCRC**

- NCOS 2 users will not be allowed to call the following number via DD.

| <u>Users</u> | <u>Type Call</u> | <u>Numbers to be Blocked</u> |
|--------------|------------------|------------------------------|
| NCOS 2       | DD               | (9)(1) 900XXXXXXX            |

- Refer to your strategy sheet for additional information.

708 CS10 DD 2 N NONE (0)

**Subtable CLSVSCR**

- You need to build this subtable to block the specific digits dialed. Refer to your strategy sheet for additional details.

900 900 D VACT

**Table LINEATTR**

- Remember, this is the table that "points" the call to various other tables like CLSVSCRC. (If not pointing a call there, use "NSCR" for field SCRNL in Table CLSVSCRC. One of your LINEATTR numbers is already in the database but may need modifying. How many LIBEATTR numbers will you need today? Why? Use your Strategy Sheet for Screening Call via STDPRTCT. Use the defaults for all other fields.

Line Attribute (LINEATTR) Index (LAIDX) Numbers: 159, 160, \_\_\_\_.

- Zero minus dialing is allowed.

159 IBN NONE NT NSCR 0 708 SPD LA10 AMEX 0  
NIL NILSFC NILATA 0 NIL NIL 00 \$

160 IBN NONE NT NSCR 0 708 SP22 LA10 AMEX 0  
NIL NILSFC NILATA 0 NIL NIL 00 \$

161 IBN NONE NT CS10 0 708 SP22 LA10 AMEX 0  
NIL NILSFC NILATA 0 NIL NIL 00 \$

**Table IBNXL A**

- Position on your tuples from and make any changes that are needed.
- Refer back to the appropriate column on your Translator Work Sheet to see what tuples need to be entered here.
- Remember to use the following information for selected instructions (EXTN, FEAT, NET, etc.)

**EXTN**

CTN10 12 STAR  
 CTN10 13 OCT  
 CTN10 0 AT 1  
 CTN10 113 AT 63  
 CTN10 3 EXTN YNY 708 483  
 S \$

- SMDR is required for station to station calls.
- Feature transparency (INTRAGRP) is allowed for station to station calls.
- The extension number will be comprised of 5 digits.
- No filler digits.

**ATT**

OCT10 76 ReplN 94551212

- Refer back to the NCOS matrix sheet for ICI assignments.

**REPL**

CTN10 77 ReplN 113

- DIGITS DIALED REPLACED DIGITS  
 77 113
- If a customer translator was used with the digits dialed, then answer **N** to **continue**. If a preliminary translator was used with the digits dialed, then answer **Y** to continue only if the replaced digits can be translated by the customer translator.

**REPL WITH ABBREVIATED DIALING**

- Your customer group will be using abbreviated dialing. If so, please list the codes and associated numbers below:

| <u>Code</u> | <u>Number</u> |
|-------------|---------------|
| #76         | 94551212      |

- Make sure to answer 'N' to continue.

NET

- No account/auth codes last (ACR) will be used.
- Indicate whether all calls or just billable calls should be recorded in SMDR for each access code terminating to the direct outward dial (DOD) network (e.g., 9):

Access Code      SMDR All or Only Billable?

9

All DOD Calls

- Second dial tone will be required.
- NCOS 1 will use code blocking (CRL).
- Feature transparency (INTRAGRP) is not allowed for network calls.
- There are no toll restrictions placed upon the users who dial out on the network.

|        |   |     |           |      |     |     |   |     |      |      |
|--------|---|-----|-----------|------|-----|-----|---|-----|------|------|
| PTN 10 | 9 | NET | N Y N I Y | NOGT | N Y | DOD | N | 159 | NONE | NRRS |
| PTN 31 | 9 | NET | N Y N I Y | NOGT | Y Y | DOD | N | 160 | NONE | NRRS |
| PTN 32 | 9 | NET | N Y N I Y | NOGT | N Y | DOD | N | 161 | NONE | NRRS |

## SERVORD subsystem

You are now ready to go into the SERVORD (Service Order) subsystem to place each phone into service, using the appropriate information. (e.g., options, subgroup, NCOS, etc.)

**Table 2**  
**Table for putting phones into service**

| NCOS | DNs      | Option Assigned to This DN | Subgrp | LENs  |
|------|----------|----------------------------|--------|-------|
| 0    | ___-3556 | DGT                        | 0      | _____ |
| 1    | ___-4442 | DGT                        | 0      | _____ |
| 2    | ___-5443 | DGT                        | 0      | _____ |

## Invoke TRAVERS

Your task is to run TRAVERSs to verify the datafill that you performed. You will now want to test your database to see if you have entered it correctly. Testing will consist of running TRAVERSs. If a TRAVER does not work correctly, troubleshoot it by analyzing the information that the TRAVER gives you. Correct your mistake in the appropriate table, and TRAVER the call again. Table 3 contains your guidelines for the TRAVERSs.

**Table 3**  
Table for verification of datafill

| Condition                                                                                                                  | Allowed? | TRAVER |
|----------------------------------------------------------------------------------------------------------------------------|----------|--------|
| 1 NCOS0 dialing number 4581212 in FRTE 516 via 9+ (OA).<br>TRAVER L <u>483 3556</u> 905164581212 B                         | Yes      |        |
| 2 NCOS1 dialing number 4571212 in FRTE 516 via 9+ (OA).<br>TRAVER L <u>483 4442</u> 905164571212 B                         | Yes      |        |
| 3 NCOS1 dialing a FRTE number via 9+ (DD).<br>TRAVER L <u>483 4442</u> 915164581212 B                                      | No       |        |
| 4 NCOS2 dialing number 4581212 in FRTE 516 via 9+ (DD).<br>TRAVER L <u>483 5443</u> 915164581212 B                         | Yes      |        |
| 5 NCOS2 dialing information the "old way" (77)<br>TRAVER L <u>483 5443</u> 77 B                                            | Yes      |        |
| 6 NCOS0 dialing abbreviated dialing (1376)<br>TRAVER L <u>483 3556</u> 1376 B                                              | Yes      |        |
| 7 NCOS0 dialing a number (2331010) in Bonn (228), West Germany (49) via DD.<br>TRAVER L <u>483 3556</u> 9011492282331010 B | Yes      |        |
| 8 NCOS1 dialing the same international number via DD.<br>TRAVER L <u>483 4442</u> 9011492282331010 B (STDPRT)              | No       |        |
| 9 NCOS0 dialing the same international number via OA.<br>TRAVER L <u>483 3556</u> 901492282331010 B                        | Yes      |        |
| 10 NCOS1 dialing a "1-900" number via 9+ (DD).<br>TRAVER L <u>483 4442</u> 919005551212 B                                  | Yes      |        |
| 11 NCOS2 calling a "1-900" number.<br>TRAVER L <u>483 5443</u> 919005551212 B (CLSVSCRC)                                   | No       |        |





# Code Blocking The Repl Software.

## Code Blocking

| Table    | IBMXLA   |            |         | Code Restr Level                         |      |
|----------|----------|------------|---------|------------------------------------------|------|
| PG 5-146 | (TRSEL)  | (DG COLNM) | (*CRL*) | (NET - Type)                             |      |
|          | CIM19NET | NDGT       |         | ↓<br>(Points TO TABLE NCOS NCOSOPTN CRL) | Down |

| Table    | NCOS    |      |                          | Code Restr Level                         |         |
|----------|---------|------|--------------------------|------------------------------------------|---------|
| PG 5-146 | CUSTGRP | NCOS | Options                  | (CRL) (CRLACT)                           |         |
| USE 1    | GRP1    | 0    | (NCOSOPTN)<br>CRL(0-157) | 1                                        | Blocked |
|          | GRP1    | 1    | CRL(0-15)                | 2                                        | Allowed |
|          | GRP1    | 2    | \$                       | (Points TO TABLE CodeBlock)<br>(CRLDATA) |         |

## Table CodeBLK

| PG | 6-146 (Key) | CRL Key | (Customer) | NUMBER | CRLDATA    |
|----|-------------|---------|------------|--------|------------|
|    |             |         | GRP1       | 804467 | (1) \$     |
|    |             |         | GRP1       | 804631 | (1) \$     |
|    |             |         | GRP1       | 405498 | (1) (2) \$ |



Code Blocking, REPL Sector.

Blocking with Pretranslators.

Pg 23-146 Table STDPRTCT.

| SPN | 1 | 0 | 0 | N  | OA | NA. |
|-----|---|---|---|----|----|-----|
|     | 1 | 1 | M | DD | NA |     |
|     | 2 | 9 | N | NP | NA |     |

LINEATR - STS, PRTRM, LCNAME

NCOS 1  
Table STDPRTCT

SPN 2

|   |   |             |    |   |     |
|---|---|-------------|----|---|-----|
| 0 | 0 | N           | OA | 1 | NA  |
| 1 | 1 | D<br>Direct | DD | 1 | NA  |
| 2 | 9 | N           | NP | 0 | NA. |

Pg 24-146



PS  
24-146

Table NCOS

GRP1 1 0 0 NCOS1 (XLAS PTN1 NYLA NdgT)

GRP1 0 0 0 NCOS 0 (XLAS PTN2 NYLA ~~NDGT~~)

Table IBNYLA

PTN1 9 Net NN 1 Y NdgT N Y DOD N 31  
NONE

PTN2 9 Net N N 1 Y NDGT N Y DOD N 30  
NONE

Table LINCATK

PS 24-146

30 IBN NONE NT NSCR 0 804 SPN2 LASZ NONE N  
0 NIL MILLATA 0 NIL NIL

31 IBN NONE NT NSCR 0 804 SPN1 LASZ NONE N  
0 NIL MILLATA 0 NIL NIL

SubTable STDPRCT

| SPN1      |   |   |   |      |   |    | SPN2 |   |    |    |    |    |
|-----------|---|---|---|------|---|----|------|---|----|----|----|----|
| PS 24-146 | 0 | 0 | D | VAET |   | 0  | 0    | N | CA | 1  | NA |    |
|           | 1 | 1 | N | DD   | 1 | NA | 1    | 1 | N  | DD | 1  | NA |
|           | 2 | 9 | N | MP   | 0 | NA | 2    | 9 | N  | NP | 0  | NA |



REPL: IBNXL A Selector

Page 26-146

| <u>Key</u>    | <u>Result</u>   | <u>(Continue)</u> | <u>(Replcode)</u> |
|---------------|-----------------|-------------------|-------------------|
| (Key) CTN1 77 | (TRSEL)<br>Repl | Y                 | 113               |

Abbreviated Dialing

Page 28-146 IBNXL A

| <u>Key</u>        | <u>Result.</u>  | <u>(Continue)</u> | <u>(Replcode)</u> |
|-------------------|-----------------|-------------------|-------------------|
| Customer A CTN 76 | (TRSEL)<br>Repl | N                 | 94551212          |
| OCT XLA. OCT1 76  | Repl            | N                 | 94551212          |





Pg 64-146 Class of Service Screening (Type of call, digits Dialed)<sup>2</sup>

Table CLSVSCR

Pg 66-146 NPA sc Typ

|              |                 |                    |
|--------------|-----------------|--------------------|
| <u>(STS)</u> | <u>(SCRNCL)</u> | <u>(Type call)</u> |
| 214          | CSS2            | DD                 |

NORSLTS

|                                 |
|---------------------------------|
| <u>TMT / OFRT</u>               |
| <u>(scrnsc1)</u> <u>(Treat)</u> |

D VACT

0  
↓  
(Don't go to CLS screen)  
Screens call type

|                   |               |                  |
|-------------------|---------------|------------------|
| <u>NPA sc Typ</u> | <u>Scrncl</u> | <u>Type call</u> |
| <u>STS</u>        | <u>CSS2</u>   | <u>DD</u>        |
| 214               |               |                  |

NORSLTS

|                                 |
|---------------------------------|
| <u>TMT / OFRT</u>               |
| <u>(scrnsc1)</u> <u>(Treat)</u> |

N None

2  
(Ignores next field go to Subtable)  
Screens Digs Dialed

D

S

Pg 67-146 Subtable CLSVSCR

|                   |                |
|-------------------|----------------|
| <u>From Digs</u>  | <u>To Digs</u> |
| Up to 18digs. 900 | 900            |

|                                 |
|---------------------------------|
| <u>TMT / OFRT</u>               |
| <u>(scrnsc1)</u> <u>(Treat)</u> |
| D VACT                          |

Table Lineattr

Field 5  
SCRNCL  
CSSI



# COS Screening

pg 70-146 TABLE

NCOS

| CostGRP | NCOS | NCOSNAME | LSC | TRAFSNO | options                      |
|---------|------|----------|-----|---------|------------------------------|
| GRP1    | 1    | NCOS1    | 0   | 0       | XLAS <u>RTM1</u><br>NKLANOGT |
| GRP2    | 2    | NCOS2    | 0   | 0       | XLAS PTM2                    |

## Screening TABLE STDPRCT

\* Access code looks at a call as a NETWORK call 9 access code 01 prefix diggs.\*

\* PREFIX AICE used in 1BNXLA  
PREFIX STDPRCT \*

pg 80-146 Subtable STDPRCT

|                   |                     |                       |
|-------------------|---------------------|-----------------------|
| (Key) → From Digs | To diggs            | PRETRTE               |
| 00 (000 upto 6)   | 00 (999... upto 16) | equal Access operator |
| 0 (000 upto 17)   | 0 (999... upto 17)  | N OA I NA             |

|             |             |                  |
|-------------|-------------|------------------|
| From Digs   | To Digs     | PRETRTE          |
| 00 (000...) | 00 (999...) | To equal Access. |
| 02 (000...) | 09 (999...) | 0+ calls.        |



SubTABLE STOPRT.

INT'L Dialing

pg 85-146

| <u>From Digs</u> | <u>To digs</u> | <u>PRETRIC</u> |    |   |         |    |    |     |
|------------------|----------------|----------------|----|---|---------|----|----|-----|
| 00 (00...)       | 00(999)        | S              | OA | 0 | mcTRIC  | 2  | 2  | now |
| 010 (0...)       | 0111(9...)     | W              |    |   | UACT    |    |    |     |
| 0112 (0...)      | 0119(9...)     | S              | DD |   | DODTRIC | 13 | 18 | now |
| 012(0...)        | 019(9..)       | S              | OA |   | DODTRK  | 12 | 17 | now |

TABLE CLSUSKc

0 in # of results field screens on call type  
2 in # of results field screens on Digs



# Screening Calls Using STOPRTCT

pg 82-144 SubTable STOPRT

| <u>From Digs</u> | <u>To Digs</u> | <u>PRETRTE</u> |           | <u>(CLLI)</u> |
|------------------|----------------|----------------|-----------|---------------|
| 00               | 00             | S              | OA        | MLTRK         |
|                  |                | (mindigs)      | (MAXdigs) | (POS)         |
|                  |                | 2              | 2         | None          |

- \*01 INTL OA\*
- \*011 INTL DD\*
- \*010 INTL ≠ invalid\*
- \*0111 INTL ≠ invalid\*

SubTable STOPRT \*OA, INT, Restricted\*

pg 83-146

| <u>From Digs</u> | <u>To Digs</u> | <u>PRETRTE</u> |      |                |
|------------------|----------------|----------------|------|----------------|
| 00               | 01             | D<br>(Deny)    | VACT | INTL & OA Deny |
| 02               | 09             | N              | OA   | 1 NA           |
| 1                | 1              | DD             | 1    | NA             |
| 2                | 9              | NP             | 0    | NA             |





Trust  
Advisors  
Co

1000000  
1000000  
1000000

**Sign-off**

Colleague

&gt; Instructor

**100326**

---

# Trunk usage and attendant consoles

---

## Why this lesson is important

This lesson presents material on two important facets related to translations: **trunk usage** and **attendant consoles**.

At heavy traffic periods during the day, outgoing calls often can not complete because there is a shortage of available inexpensive outgoing trunks. Northern Telecom has a trunk queueing package that utilizes trunks more effectively and economically.

The attendant console provides a centralized location for the management and extension of calls to subscriber stations. A single operator at an attendant console can keep track of large numbers of all types of telephone situations.

## Objective

Given a logged on terminal, site specific information, and appropriate documentation:

- datafill tables appropriate to intraswitch dialing, network DOD dialing, 6-digit screening, 0-minus dialing, code blocking, abbreviated dialing, the REPL selector, international dialing, class of service screening, screening with pretranslators, CBQ, OHQ, and attendant consoles.
- invoke TRAVERs to verify datafill; and
- analyze and explain tuple and table interaction to classmates and/or instructor; if any TRAVER is unsuccessful, identify and correct the datafill error and run the TRAVER again.

**What to do**

1. Read Lesson 100326: Trunk usage and attendant consoles.
2. Work through the lesson including all of the practices.
3. There is no skill check for this lesson; your completed practices will serve as your skill checks; be prepared to explain the TRAVERs to your instructor or to the class. **At the end of this lesson, you will be presented with an opportunity to create a totally new customer database which includes the addition of another NCOS.**
4. Have the instructor sign off on this lesson; upon sign-off of this lesson, you will be ready for your TRAVER analysis skill check.

**What resources to use**

| <b>Resources</b>                            | <b>Resource number</b> |
|---------------------------------------------|------------------------|
| Customer Data Schema                        | NTP 297-1001-451       |
| Meridian Digital Centrex Translations Guide | NTP 297-1001-351       |

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# Routing strategies

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## Introduction to routing strategies

At heavy traffic periods during the day, outgoing calls often are not able to complete because there is a shortage of available **inexpensive** outgoing trunks. To control for this potential problem, several strategies can be used.

- One strategy is to purchase additional inexpensive trunks for subscribers to use.
- Another alternative is to allow your subscribers to overflow to more expensive trunks if these trunks are not busy.
- A third, more cost-effective method, is to have the switch, when processing a call and finding that all the inexpensive trunks are busy, pause a few seconds. During this slight pause, inexpensive trunks might become available for the call, thus saving the caller's department money without a noticeable loss in grade of service.

Northern Telecom has designed several features that will assist you in utilizing trunks more effectively and economically. One of these features is a Trunk Queuing Feature Package (NTX105) consisting of the following routing strategies:

- Automatic Route Selection,
- Off-Hook Queuing,
- Call Back Queuing,
- and Expensive Route Warning Tone.

### **Automatic Route Selection (ARS)**

The ARS feature automatically searches for available trunks in a customer-definable manner. The least expensive trunks can be specified and searched before expensive trunks.

### **Off-Hook Queuing (OHQ)**

When calls can't be completed economically due to all inexpensive trunks being busy, the Off-Hook Queuing feature allows the caller to momentarily wait off-hook for a defined period of time until an inexpensive trunk becomes available; at that time, the call will be completed. The user can automatically enter the OHQ instead of proceeding to more expensive routes or immediately receiving a busy tone.

### **Call Back Queuing (CBQ)**

If all the inexpensive trunks remain busy even after off-hook queuing, it's possible for certain users to continue to wait for an inexpensive trunk by activating the Call Back Queuing (CBQ) feature. The CBQ feature monitors busy trunks until they become available. Once a trunk becomes available, CBQ calls the user back via the Ring Again feature to automatically complete the call.

### **Expensive Route Warning Tone (ERWT)**

If the customer desires, a special tone can be given to certain callers to warn them that their call is about to be completed over an expensive trunk. This warning tone gives them a chance to either hang up, activate the CBQ feature (providing they were not already in queue), or let the call complete on the expensive trunk.

3 Short Tones to 440Hz

## Practice 1: Routing strategies

### Instructions:

Use the information presented in this section to answer the following questions. Compare your answers with those found in the Practice 1 Feedback.

1. Which phrase below best describes the following Trunk Queuing feature: **ARS**?
  - a. If all cheap trunks are busy, pause for x seconds to see if a trunk becomes available.
  - b. If all cheap trunks are busy, activate Ring Again.
  - c. Available trunks are searched based on a customer-definable manner; least expensive trunks can be specified and searched before expensive trunks.
  - d. If an expensive trunk is about to be selected, give the subscriber a warning tone
  
2. Which phrase below best describes the following Trunk Queuing feature: **OHQ**?
  - a. If all cheap trunks are busy, pause for x seconds to see if a trunk becomes available.
  - b. If all cheap trunks are busy, activate Ring Again.
  - c. Cheap trunks are searched before expensive trunks.
  - d. If an expensive trunk is about to be selected, give the subscriber a warning tone.



3. Which phrase below best describes the following Trunk Queuing feature: **CBQ**?
- a. If all cheap trunks are busy, pause for x seconds to see if a trunk becomes available.
  - b. If all cheap trunks are busy, activate Ring Again
  - c. Cheap trunks are searched before expensive trunks.
  - d. If an expensive trunk is about to be selected, give the subscriber a warning tone.
4. Which phrase below best describes the following Trunk Queuing feature: **ERWT**?
- a. If all cheap trunks are busy, pause for x seconds to see if a trunk becomes available.
  - b. If all cheap are busy, activate Ring Again.
  - c. Cheap trunks are searched before expensive trunks.
  - d. If an expensive trunk is about to be selected, give the subscriber a warning tone.



---

**Please turn the page for Practice 1 Feedback...**



## Practice 1 Feedback

1. c
2. a
3. b
4. d

---

# Automatic Route Selection (ARS)

---

## Introduction to ARS

With this feature, **trunk route tuples in routing data tables are automatically searched for an idle outgoing trunk**. In dealing with outgoing trunking translations, you have been accustomed to defining trunk routes through either Tables HNPACONT.RTEREF or FNPACONT.RTEREF. A more powerful table for trunk route selection, in terms of flexibility, is Table IBNRTE. This route table holds a list of routes each of which is identified by a route reference index number.

When an idle outgoing trunk is not available in the first element, the system advances to the next element in the trunk route list. When the end of the trunk route list is reached and an idle outgoing trunk is not found, the system indicates to the software (controlling the call originator) that an idle outgoing trunk is not available.

A route list element can also contain an index number identifying another route list. In this case, the elements of the new route list are searched according to the preceding rules. This process (going from one route list to another) is called **route list chaining**. In the following table samples, the last routing element is T (Table), followed by the table name (IBNRTE) and its tuple number (1) to which the call is to proceed. **It is not recommended that more than four route lists be chained in this fashion, due to the real-time costs of chaining.**

**Trunk route list in Table IBNRTE**

**Table HNPACONT.RTEREF**

| RTE | RTELIST |        |              |
|-----|---------|--------|--------------|
| 1   | T       | IBNRTE | 1            |
| 2   | T       | IBNRTE | <del>2</del> |
| 3   | T       | IBNRTE | <del>2</del> |

**Table FNPACONT.RTEREF**

| RTE | RTELIST |        |   |
|-----|---------|--------|---|
| 4   | T       | IBNRTE | 2 |
| 5   | T       | IBNRTE | 1 |

**Table IBNRTE**

| RTE             | RTELIST   |     |     |     |     |            |
|-----------------|-----------|-----|-----|-----|-----|------------|
|                 | IBNRTESEL | OHQ | CBQ | EXP | MBG | CLLI       |
| (KEY) → RTE → 2 | S         | N   | N   | N   | N   | OUTWATS1   |
|                 | S         | N   | N   | N   | N   | OUTWATS2   |
|                 | S         | N   | N   | N   | N   | GRP4DOD    |
|                 | S         | N   | N   | N   | N   | GRP5DOD    |
|                 | S         | N   | N   | N   | N   | GRP1CLS50G |
|                 | S         | N   | N   | N   | N   | GRP2CLS52W |
|                 | S         | N   | N   | N   | N   | COTRK1     |

↑ 3  
 UP to 8 RTE Elements,  
 TIC MAX 4 IBNRTE Together,

→ RTE  
 3

## Practice 2: Automatic route selection (ARS)

### Instructions:

Obtain NTP 297-1001-451, and read about the tables discussed in this section or use the information presented in this section to answer the following questions. Compare your answers with those found in the Practice 2 Feedback.

1. The ARS feature searching of idle trunks in a route list allows the
  - a. continuous searching of idle trunks in a route list
  - b. ability to use trunk routes economically
  - c. both 1 and 2 are correct
  
2. What data table offers the largest variety of routing options?
  - a. HNPACONT .RTEREF
  - b. FNPACONT .RTEREF
  - c. TOFCNAME
  - d. IBNRTE
  
3. How is a call routed or indexed to Table IBNRTE?
  - a. When either HNPACONT/FNPACONT .RTEREF reaches overflow status.
  - b. All outgoing calls automatically route through Table IBNRTE
  - c. Via the "T" selector in any routing table
  - d. Both 1 and 2 are correct
  
4. Assume a call "chains" through three (3) route lists in Table IBNRTE. What is the MAXIMUM number of trunk route ELEMENTS that the call could conceivably search for idle circuits?
  - a. 22
  - b. 23
  - c. 24



## Practice 2 Feedback

1. b
2. d
3. c
4. a

---

# Off-Hook Queuing

---

## Introduction to Off-Hook Queuing (OHQ)

With this feature, **a call can wait off-hook for an idle trunk when an inexpensive outgoing trunk is not available.** If a trunk becomes idle while the call is waiting, the call leaves the queue and terminates on the trunk. If the call is still queued when the OHQ time period expires, the call leaves the queue and the system searches the remaining (expensive) route list elements for an idle trunk on which to place the call.

## OHQ prerequisites

The following conditions are required for the OHQ feature:

- The originator's NCOS must have the OHQ feature assigned in Table NCOS.
- The outgoing trunk group being used must have the OHQ feature assigned to it in Table IBNRTE.
- The route selector QH (Queue Head) and its secondary prompt OHQWT (Off-Hook Queue Waiting Time) must be specified in the route list in Table IBNRTE to indicate how long (in seconds) the trunks to the left of the QH should be monitored before examining the trunks to the right of the QH.

## OHQ activation

The following contains examples of the contents of Tables NCOS and IBNRTE as they relate to OHQ. Off-Hook Queuing includes two controlling options in Table NCOS:

- OHQ priority level. To improve the usage of incoming trunks that may be tandeming through the switch, two different levels of OHQ are provided: priority 0 and priority 1.
  - Priority 1: incoming trunks will have priority over stations
  - Priority 0: stations will have priority
- Notification to the user of OHQ activation. A NCOS user can receive one of the following OHQ notifications:
  - Silence (SILENCE in subfield OHQNOTICE of Table NCOS)
  - Tone (TONE\_OHQ in subfield OHQNOTICE of Table NCOS OHQT in field CLLI of Table CLLI), or
  - Announcement (ANNCEMENT in subfield OHQNOTICE of Table NCOS, and OHQA in field OPTIONS of Table CUSTHEAD). An announcement may be more suitable than a tone for users who are not accustomed to the different types of tones provided by the Meridian 1 Options 111-211.



## Tables NCOS and IBNRTE and OHQ

Table NCOS is used to assign OHQ to a group of users in a certain NCOS. In order to monitor trunks in OHQ, Table IBNRTE must be datafilled with a Y in the subfield OHQ for each trunk group to which the OHQ feature should be applied.

### Table NCOS

| <u>CUSTGRP</u> | <u>NCOS</u> | <u>OPTIONS</u>      |
|----------------|-------------|---------------------|
| GRP1           | 0           | (OHQ 0 TONE_OHQ) \$ |

### Table IBNRTE

| <u>RTE</u> | <u>RTELIST</u> |     |       |
|------------|----------------|-----|-------|
|            | IBNRTESEL      | OHQ | CLLI  |
| 1          | S              | Y   | FX1   |
|            | S              | Y   | WATS1 |
|            | S              | Y   | MCI1  |
|            | QH 60          |     |       |
|            | S              | N   | DOD1  |
|            | \$             |     |       |

## Queue head (QH)

As mentioned earlier, in order for OHQ to work, an additional entry must be added to Table IBNRTE. This entry is the special route selector of **queue head (QH)**. The queue head serves two purposes for the OHQ feature.

- First, it indicates at what point in the route list the switch is to begin looking back at the busy trunks and determine if they can be queued against by a call.
- The QH also contains datafilled information (subfield OHQWT) specifying the length of the OHQ waiting time (2 through 90 seconds).

Even though the queue head does not contain the name of a trunk group on which calls can be terminated, it is considered as one of the elements of the route list.

There are two versions of OHQ: **basic OHQ** and **discretionary OHQ**.

### Basic OHQ

Basic OHQ provides the capability to divide a route list into only two levels of cost by allowing a **single queue head per route list**.

### Discretionary OHQ

Discretionary OHQ allows the customer to specify **up to four queue heads in a route list**. This provides the capability to have the list segregated into four levels of cost via these extra queue heads in Table IBNRTE.

The caller receives OHQ notification tone (or announcement) no more than once in a single call. After timing out of the initial queue and encountering a second queue head, the caller is not given OHQ tone (or announcement) again. Thus, the caller is not made aware that discretionary OHQ is being used to complete the call.

At each queue head, calls that are in OHQ are queued against all previously searched routes that allow OHQ. Thus, the initial routes, which should be least expensive, are queued against for the total time period that a call is in queue.

Look at the sample tuple that follows. Assume that all of the circuits in trunk groups FX1 and WATS1 are busy. Upon encountering them, your subscriber would enter the off-hook queue until one trunk circuit from either of these elements becomes idle or 60 seconds elapse. If the queuing time expires first, the system will search the next element, MCI1, for an idle circuit. If it's busy, DOD1 is searched. What happens if DOD1 is busy? Since the next element is a QH, OHQ will continue for an additional 45 seconds monitoring any trunks previous to this QH that are flagged Y for OHQ. In the example, all trunks will be monitored for this 45 second period. If any trunk within any of these groups becomes idle, the user will route out on it. If timeout occurs and there are no idle trunks, the user receives GNCT treatment.

**Table IBNRTE**

| <u>RTE</u> | <u>RTELIST</u> |          |     |       |
|------------|----------------|----------|-----|-------|
|            |                | IBNRTSEL | OHQ | CLLI  |
| 1          | S              |          | Y   | FX1   |
|            | S              |          | Y   | WATS1 |
|            | QH 60          |          |     |       |
|            | S              |          | Y   | MCI1  |
|            | S              |          | Y   | DOD1  |
|            | QH 45          |          |     | \$    |

**OHQ TRAVERS**

The following TRAVER shows NCOS 0 translating to the four trunk groups in Table IBNRTE. Suppose the first three trunk groups are busy. What happens?

**TRAVER 1**

```

TRAVER L 2373556 915124671212 B
TABLE IBNLINES
HOST 00 1 00 04 DT STN 2373556 GRP1 0 0 214 (CWT) (3WC) (CWI) $
TABLE NCOS
GRP1 0 0 0 NCOS_0 (XLAS PTN2 NXLA NDGT) OHQ 0 TONE_OHQ $
TABLE CUSTHEAD: CUSTGRP, PRELIMXLA, CUSTXLA
FEATXLA, VCTRMT, AND DIGCOL
GRP1 NXLA CTN1 FTN1 0 DCN1
TABLE DIGCOL
→ DCN1 9 POTS Y
TABLE IBNXLA: XLANAME PTN2
→ PTN2 9 NET N N N 1 N NDGT N N DOD Y 2 NONE
TABLE LINEATTR
→ 2 IBN NONE NT CSS1 0 214 SPN1 LAS1 AMRX N 0 NIL NILLATA 0 NIL NIL
TABLE STDPRTCT
→ SPN1 (1)
SUBTABLE STDPRT
1 1 N DD 1 NA
TABLE HNPACONT
214 21 0 (8) (1) (0)
SUBTABLE HNPACODE
512 512 FNPA 0
TABLE FNPACONT
512 21 - (8) (0) (8)
SUBTABLE FNPACODE
467 467 1 Y
SUBTABLE RTEREF
1 T IBNRTE 15
TABLE IBNRTE
15 S Y FX1
S Y WATS1
S Y MCI1
QH 10
S N DOD1
EXIT TABLE IBNRTE
EXIT TABLE RTEREF
EXIT TABLE FNPACONT
TABLE LCASCRN
214 LAS1 (3) MAND N

```

SUBTABLE LCASCR  
TUPLE NOT FOUND. DEFAULT IS NON-LOCAL  
TABLE PFXTREAT  
MAND DD N DD UNDT  
TABLE CLSVSCRC  
KEY NOT FOUND  
DEFAULT IS TO LEAVE XLA RESULT UNCHANGED

+++ TRAVER: SUCCESSFUL CALL TRACE +++  
DIGIT TRANSLATION ROUTES

1 FX1  
2 WATS1  
3 MCI1  
4 DOD1

TREATMENT ROUTES. TREATMENT IS: (GNCT)  
1 ANNMEM1 *General NO circuit Available*  
2 IDLE

- The caller gets an OHQ tone, goes into off-hook queue priority level 0 for 10 seconds (QH 10), and monitors FX1, WATS1 and MCI1. The caller is allowed to off-hook queue on all three trunk groups in this case because of following three table entries:
  - OHQ was assigned to the originator in Table NCOS
  - Y (Yes) was assigned in subfield OHQ to each trunk group in Table IBNRTE
  - the special route selector of QH appeared after the three trunk groups (setting the OHQ waiting timer)

If DOD1 is all circuits busy, the call is GNCT.

**TRAVER 2**

The following TRAVER also describes an OHQ situation. In this example, however, the caller **could** OHQ on the fourth trunk group DOD1. Why? Because . . .

- OHQ is in Table NCOS
- QH = Y for DOD1 in Table IBNRTE
- a second queue head is in the route list for Table IBNRTE

```

TRAVER L 2373556 915164671212 B
TABLE IBNLINES
HOST 00 1 00 04 DT STN 2373556 GRP1 0 0 214 (CWT)(3WC)(CWI) $
TABLE NCOS
GRP1 0 0 0 NCOS0 (XLAS PTN2 NXLA NDGT) (OHQ 0 TONE_OHQ) $
TABLE CUSTHEAD: CUSTGRP, PRELIMXLA, CUSTXLA, FEATXLA, VCTRMT,
AND DIGCOL
GRP1 NXLA CTN1 FTN1 0 DCN1
TABLE DIGCOL
DCN1 9 POTS Y
TABLE IBNXLA: XLANAME PTN2
PTN2 9 NET N N N 1 N NDGT N N DOD Y 2 NONE
TABLE LINEATTR
2 IBN NONE NT CSS1 0 214 SPN1 LAS1 AMRX N 0 NIL
NILLATA 0 NIL NIL
TABLE STDPRTCT
SPN1 (1)
SUBTABLE STDPRT
1 1 N DD 1 NA
TABLE HNPACONT
214 21 0 (8) (1) (0)
SUBTABLE HNPA
516 516 FNPA 0
TABLE FNPACONT
512 21 - (8) (0) (8)
SUBTABLE FNPACODE
467 467 1 Y
SUBTABLE RTEREF
1 T IBNRTE 15

```

## TABLE IBNRTE

|                      |                                       |
|----------------------|---------------------------------------|
| 15 S Y ... FX1       |                                       |
| S Y ... WATS1        | TUPLE NOT FOUND. DEFAULT IS NON-LOCAL |
| S Y ... MCI1         | TABLE PFXTREAT                        |
| QH 10                | MAND DD N DD UNDT                     |
| S Y ... DOD1         | +++ TRAVER: SUCCESSFUL CALL TRACE +++ |
| <b>QH 10</b>         | <b>DIGIT TRANSLATION ROUTES</b>       |
| EXIT TABLE IBNRTE    | 1 FX1                                 |
| EXIT TABLE RTEREF    | 2 WATS1                               |
| EXIT TABLE HNPACONT  | 3 MCI14                               |
| TABLE LCASCRN        | 4 DOD1                                |
| 214 LAS1 ( 3) MAND N |                                       |
| SUBTABLE LCASCR      |                                       |

**Tables to set up OHQ**

**Table NCOS**

| <u>CUSTGRP</u> | <u>NCOS</u> | <u>NCOSNAME</u> | <u>LSC</u> | <u>TRAFSNO</u> | <u>OPTIONS</u>      |
|----------------|-------------|-----------------|------------|----------------|---------------------|
| GRP1           | 0           | NCOS0           | 0          | 0              | (OHQ 0 TONE_OHQ) \$ |
| GRP1           | 1           | NCOS1           | 0          | 0              | (OHQ 0 ANNCMENT) \$ |
| GRP1           | 2           | NCOS2           | 0          | 0              | \$                  |

**Table IBNRTE**

RTE RTELIST

100 (S Y N N FXTRK) (S Y N N MCITRK) (QH 10)

(S N N N DODTRK) \$

**Table CUSTHEAD**

| <u>CUSTNAME</u> | <u>CUSTXLA</u> | <u>DGCOLNM</u> | <u>OPTIONS</u>    |
|-----------------|----------------|----------------|-------------------|
| GRP1            | CTN1           | DCN1           | (OHQA ANNMEM1) \$ |

*QH can be from 2-90 seconds*



The following chart summarizes the tables and prompts used in off-hook queuing.

**Table 1**

**Off-hook queuing tables**

| TABLE    | PROMPT    | MEANING                                                                                           | PARAMETERS                                                                |
|----------|-----------|---------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------|
| NCOS     | NCOSOPTN  | NCOS Options                                                                                      | OHQ, etc.                                                                 |
|          | OHQPRIO   | Queue priority for OHQ                                                                            | 0 - for stations<br>1 - for trunks                                        |
|          | OHQNOTICE | Type of notice given to caller                                                                    | Tone (TONE_OHQ);<br>Announcement (ANNOUNCEMENT);<br><br>Silence (SILENCE) |
| IBNRTE   | OHQ       | Is trunk group eligible for OHQ?                                                                  | Y = Yes<br>N = No                                                         |
|          | IBNRTSEL  | Selector for this specified element in this IBN route (tuple).                                    | QH = Stop & monitor trunks that are eligible for OHQ.                     |
|          | OHQWT     | Off-Hook Queue Waiting Time: how long should switch monitor eligible trunks in OHQ at this point? | 2-90 (seconds)                                                            |
| CUSTHEAD | OPTION    | Option(s) assigned on a customer-group basis.                                                     | OHQA (Off-Hook Queue Announcement)                                        |
|          | ANNCLLI   | What is the announcement CLLI name to be used in OHQ?                                             | (Examples:<br>ANN1, ANN2, etc .                                           |



### Practice 3: Off-hook queuing

**Instructions:**

Obtain NTP 297-1001-451, and read about the tables discussed in this section or use the information presented in this section to answer the following questions. Compare your answers with those found in the Practice 3 Feedback.



1.

```
TRAVER L 2373556 915124671212 B
TABLE IBNLINES
HOST 00 1 00 04 DT STN 2373556 GRP1 0 0 214 (CWT) (3WC) (CWI) $
TABLE NCOS
GRP1 0 0 0 NCOS_0 (XLAS PTN2 NXLA NDGT) $
.....
TABLE HNPACONT
214 21 0 (8) (1) (0)
. SUBTABLE HNPACODE
. 512 512 FNPA 0
TABLE FNPACONT
512 21 - (8) (1) (8)
. SUBTABLE FNPACODE
. 467 467 1 Y
. SUBTABLE RTEREF
. 1 T IBNRTE 15
. TABLE IBNRTE
. . 15 S Y ... FX1
. . S Y ... WATS1
. . S Y ... MCI1
. . QH J0
. . S N ... DOD1
TABLE LCASCRN
214 LAS1 (3) MAND N
. SUBTABLE LCASCR
. TUPLE NOT FOUND. DEFAULT IS NON_LOCAL.
TABLE PFXTREAT
MAND DD N DD UNDT
+++ TRAVER: SUCCESSFUL CALL TRACE +++
DIGIT TRANSLATION ROUTES
1 FX1 TREATMENT ROUTES. TREATMENT IS: GNCT
2 WATS1 1 ANNMEM1
3 MCI1 2 IDLE
4 DOD1
```

For this TRAVER, assume that FX1, WATS1, and MCI1 are busy. What happens to the call?

1. It OHQs for 10 seconds on the three trunks.
2. It looks for an idle circuit in DOD1.
3. It receives GNCT treatment.

500363  
071791

2.

```

TRAVER L 2373556 915124671212 B
TABLE IBNLINES
HOST 00 1 00 04 DT STN 2373556 GRP1 0 0 214 (CWT) (3WC) (CWI) $
TABLE NCOS
GRP1 0 0 0 NCOS_0 (XLAS PTN2 NXLA NDGT) (OHQ 0 TONE_OHQ) $

```

```

.....
TABLE HNPACONT

```

```

214 21 0 (8) (1) (
0) . SUBTABLE HNPACODE
512 512 FNPA 0

```

```

TABLE FNPACONT

```

```

512 21 - (8) (1) (8)
. SUBTABLE FNPACODE
467 467 1 Y
. SUBTABLE RTEREF

```

```

1 T IBNRTE 15
TABLE IBNRTE

```

```

. . . 15 S Y ...FX1
. . . S Y ...WATS1
. . . S Y ...MCI1
. . . QH 10
. . . S N ...DOD1

```

```

TABLE LCASCRN

```

```

214 LAS1 (3) MAND N
. SUBTABLE LCASCR

```

```

. TUPLE NOT FOUND. DEFAULT IS NON_LOCAL.

```

```

TABLE PFXTREAT

```

```

MAND DD N DD UNDT
+++ TRAVER: SUCCESSFUL CALL TRACE +++
DIGIT TRANSLATION ROUTES

```

```

1 FX1 TREATMENT ROUTES. TREATMENT IS: GNCT
2 WATS1 1 ANNMEM1
3 MCI1 2 IDLE
4 DOD1

```

For this TRAVER, assume that FX1, WATS1, and MCI1 are busy. What happens to the call?

- a. It OHQs for 10 seconds on the three trunks.
- b. It looks for an idle circuit in DOD1.
- c. It receives GNCT treatment.
- d. None of the above.

500364  
071891

3.

TRAVEL 2373556 915124671212 B  
 TABLE IBNLINES  
 HOST 00 1 00 04 DT STN 2373556 GRP1 0 0 214 (CWT) (3WC) (CWI) \$  
 TABLE NCOS  
 GRP1 0 0 0 NCOS\_0 (XLAS PTN2 NXLA NDGT) ( OHQ 0 TONE\_OHQ) \$

.....  
 TABLE HNPACONT  
 214 21 0 (8) (1) (0)  
 . SUBTABLE HNPACODE  
 512 512 FNPA 0

TABLE FNPACONT  
 512 21 - (8) (1) (8)  
 . SUBTABLE FNPACODE  
 467 467 1 Y  
 . SUBTABLE RTEREF

1 T IBNRTE 15  
 TABLE IBNRTE  
 .. 15 S Y ... FX1  
 .. S Y ... WATS1  
 .. S Y ... MCI1  
 .. QH 10  
 .. S N ... DOD1

TABLE LCASCRCN  
 214 LAS1 (3) MAND N  
 . SUBTABLE LCASCR  
 . TUPLE NOT FOUND. DEFAULT IS  
 NON\_LOCAL.

TABLE PFXTREAT  
 MAND DD N DD UNDT  
 +++ TRAVEL: SUCCESSFUL CALL TRACE +++  
 DIGIT TRANSLATION ROUTES  
 1 FX1 TREATMENT ROUTES. TREATMENT IS: GNCT  
 2 WATS1 1 ANNMEM1  
 3 MCI1 2 IDLE  
 4 DOD1

For this TRAVEL, assume that ALL trunk groups are busy for the duration of the call. What happens to the call?

- It goes into OHQ for 10 seconds against FX1, WATS1, and MCI1.
- After OHQing against FX1, WATS1, and MCI1, it then OHQs against FX1, WATS1, MCI1, and DOD1.
- It OHQs against DOD1, then receives a GNCT treatment.
- None of the above.

500365  
 071891

4.

TRAVEL 2373556 915124671212 B  
 TABLE IBNLINES  
 HOST 00 1 00 04 DT STN 2373556 GRP1 0 0 214 (CWT) (3WC) (CWI) \$  
 TABLE NCOS  
 GRP1 0 0 0 NCOS\_0 (XLAS PTN2 NXLA NDGT) ( OHQ 0 TONE\_OHQ) \$  
 .....

TABLE HNPACONT  
 214 21 0 (8) (1) (0)  
 . SUBTABLE HNPACODE  
 512 512 FNPA 0

TABLE FNPACONT  
 512 21 - (8) (1) (8)  
 . SUBTABLE FNPACODE  
 467 467 1 Y  
 . SUBTABLE RTEREF  
 1 T IBNRTE 15  
 . TABLE IBNRTE  
 . . 15  S Y ... FX1  
 . .  S Y ... WATS1  
 . .  S Y ... MCI1  
 . . QH 10  
 . . S N ... DOD1  
 . . QH 10

For this TRAVEL assume that ALL trunk groups are busy for the call's duration. Which trunk groups are OHQ'd against?

- a. FX1, WATS1, MCI1, and DOD1
- b. FX1, WATS1, and DOD1
- c. FX1, and WATS1
- d. FX1, WATS1, and MCI1

500366  
 071891

5.

| TABLE: IBNRTE<br>IBNRTESEL |        | OHQ | CLLI  |
|----------------------------|--------|-----|-------|
| 1                          | S      | N   | FX2   |
|                            | S      | Y   | MCI1  |
|                            | -QH 20 |     |       |
|                            | S      | N   | WATS4 |

Which Trunk(s) is(are) considered expensive?

- a. FX2, MCI1
- b. WATS4
- c. Neither, there's no QH after WATS4

500367  
071891



6.

| TABLE: IBNRTE |       | OHQ | CLLI  |
|---------------|-------|-----|-------|
| IBNRTESEL     |       |     |       |
| 1             | S     | N   | FX2   |
|               | S     | Y   | MCI1  |
|               | QH 20 |     |       |
|               | S     | Y   | WATS4 |

This call's NCOS has Option 1 and OHQ. Assume ALL trunks remain busy through the call's duration. The call OHQs on MCI1 for 20 seconds,

- then OHQs WATS4.
- checks WATS4 for idle trunks, then receives GNCT treatment.
- then gets GNCT treatment.

500369  
071891

### **Practice 3 Feedback**

1. b
2. a
3. d
4. d
5. b
6. c

---

# Call Back Queuing (CBQ)

---

## Introduction to Call Back Queuing (CBQ)

Another feature that the Meridian 1 Options 111-211 can offer users is Call-Back Queuing (CBQ). **The use of the CBQ feature minimizes the need for and use of expensive trunk groups. With CBQ, a subscriber encountering an all-trunks-busy condition has the option of going back on-hook but still being notified by the switch when a trunk becomes idle, then being automatically connected to the called number.**

## Feature activation/deactivation

When the call is routed through a route list and a trunk in that list is not available, the calling station will receive a GNCT treatment (T60). If applicable, the calling station can activate CBQ as follows:

- flash the hook switch
- hear a distinctive dial tone
- dial the CBQ feature code (RAG)
- hear confirmation tone
- go on-hook

The calling station can delete a CBQ request by going off-hook (or hookswitch flashing) and dialing the CBQ deactivation code. **A line cannot activate CBQ, unless it has the RAG feature.** Tandeming incoming trunks cannot utilize the CBQ feature to queue on busy outgoing trunks; CBQ is only for stations.

After CBQ has been activated, the switch monitors eligible busy trunks for a circuit to become idle.

---

### Before activating the CBQ feature

Initially, you might think that you would have to build separate route lists in Table IBNRTE -- one listing **only** cheap trunks for restricted callers to use, and another listing **both** cheap and expensive trunks for more privileged callers to use. Two such route lists are shown in Figure 1, where tuple 10 represents a list of only cheap trunks (e.g., FX1, WATS1, MCI1), while tuple 20 represents a list of both cheap and expensive (DOD1) trunks.

With a certain feature package, it's possible to have both kinds of callers use the same tuple in IBNRTE. With this special feature, a special tuple could be created so that, even though different kinds of callers would be using the same tuple, the restricted callers still would be permitted to only use the cheap trunks. The privileged callers would be allowed, however, to use both the cheap and expensive routes. An example of such a tuple is tuple 15 in Figure 1.

The Meridian 1 Options 111-211 is informed of which trunk groups are cheap and which are expensive by your element entries in Table IBNRTE. Specifically, an entry of QH under the IBNRTSEL field indicates the element immediately following the QH is a more expensive route.

You can specify whether only cheap trunks or both cheap and expensive routes can be used by a particular NCOS before activation of CBQ. Specifically, after an entry of CBQ under NCOSOPTN in Table NCOS, a prompt (CBQOPTS) requests which option (1 or 2) the originator will be assigned:

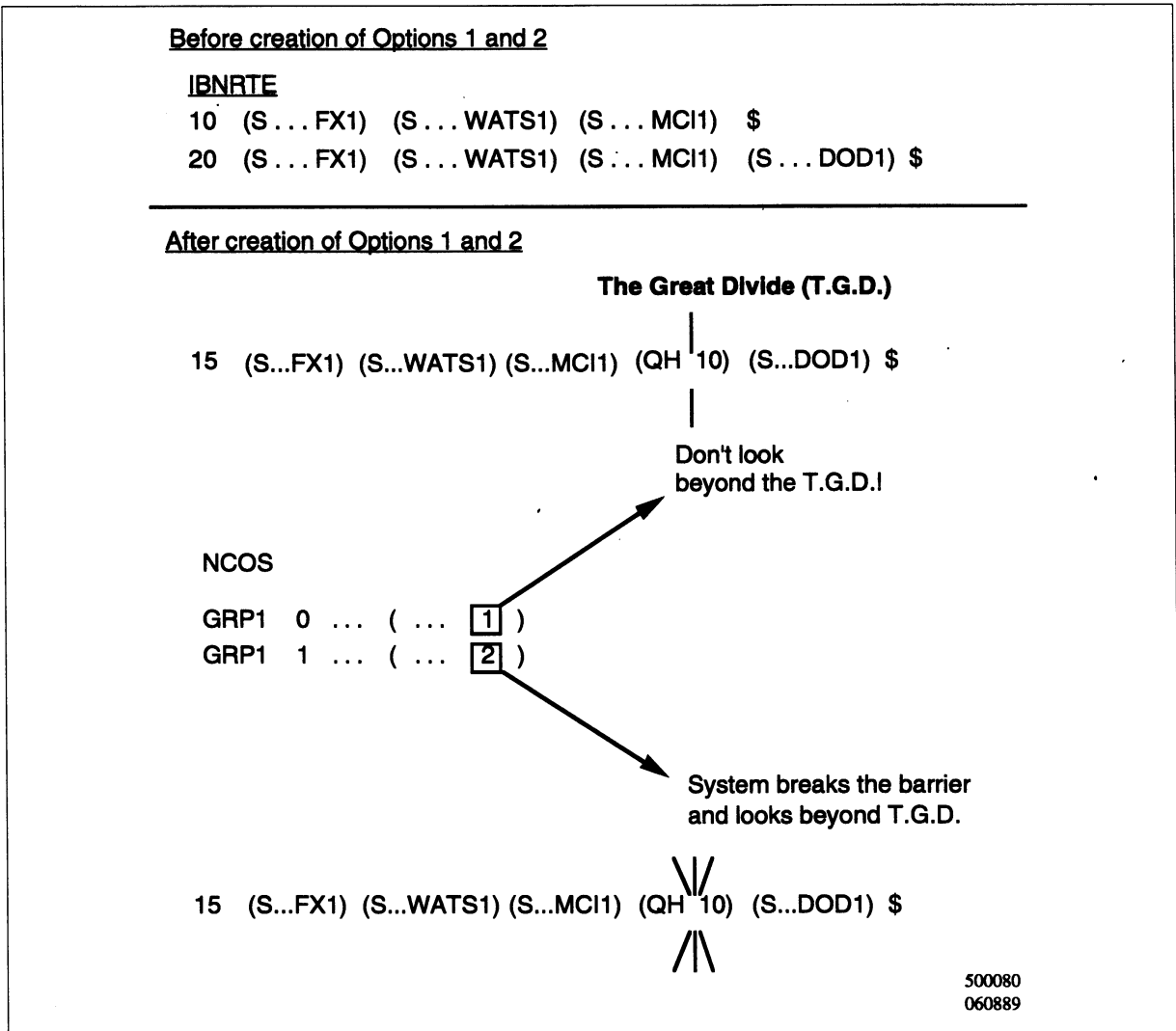
- 1, if only cheap routes are to be used (this is Option 1 CBQ)
- 2, if both cheap and expensive routes are to be used (this is Option 2 CBQ)

**Option 1**

When Option 1 (refer to Figure 1) is assigned to a caller's NCOS, it limits the user to using only cheap trunks in a route list, even though there also may be expensive trunks listed in the route list (in Table IBNRTE) that he is using. A cheap trunk is any trunk that is listed in a tuple in Table IBNRTE before the appearance of its first QH. In the example in the following chart, trunk groups FX1, WATS1, and MCI1 are all considered to be cheap trunk groups since they are listed before the first (in this case, the only) QH in this tuple. Trunk group DOD1 is considered expensive since it follows the first QH. The first QH that appears in any tuple in Table IBNRTE has informally been labeled, The Great Divide, since it divides the cheap from the expensive trunks.

**Figure 1**

**The effects of Options 1 and 2**



---

**Note: Discretionary OHQ is not used for calls placed by Option-One callers. After an Option-One call times out of the initial queue head, the call is given no circuit treatment.**

### **Option 2**

Assume that there are two NCOSs in your customer group: NCOS 0 and NCOS 1 (refer to Figure 1). NCOS 0 is restricted from using any expensive trunks, but NCOS 1 is not restricted from using either cheap or expensive trunks. You can let both NCOS 0 and 1 use the same tuple in Table IBNRTE by assigning NCOS 0 Option 1 and assigning Option 2 to NCOS 1. When a caller in NCOS 0 uses tuple 15, even though four trunk groups are listed, he/she can only use those that appear before the first QH. If all the circuits in the cheap (the first three) trunk groups are busy, he/she will receive a GNCT treatment, even if the circuits on the expensive trunk group (DOD1) are idle and available for use. When a caller, however, in NCOS 1 uses tuple 15, he/she can use any of the trunk groups listed (regardless of where the QH appears). If all the circuits in the cheap (the first three) trunk groups are busy, (after going into off-hook queue for a few seconds), he/she can use the available circuits in the expensive trunk group DOD1.

### **Initially after activating the CBQ feature**

Remember that after initially activating the CBQ feature, only cheap trunks with a Y under the CBQ field in IBNRTE will be monitored. Cheap trunks are defined as those appearing **before** the first QH selector in Table IBNRTE.

**After CBQ has been activated an extended period of time**

The philosophy behind this part of the CBQ feature is that after a particular user has waited long enough in the CBQ for an inexpensive trunk group to become available, it then might be permissible to allow the user to route over an expensive outgoing trunk. In other words, you can specify whether both cheap and expensive trunks can eventually be monitored in queue, or if the NCOS is permanently restricted to monitoring only cheap trunks. Again, you enter the CBQ option in Table NCOS, followed by one of two entries for the CBQRA field:

- N, if this NCOS is permanently restricted to monitoring only cheap routes
- Y, if both cheap and expensive routes eventually can be monitored after the time (in minutes), specified in field CBQRAT of Table CUSTSTN, has expired. Also, Table IBNRTE must have answered Y to CBQ for those trunks after the QH.

**CBQ prerequisites**

The conditions that are required for the CBQ feature to be used are as follows:

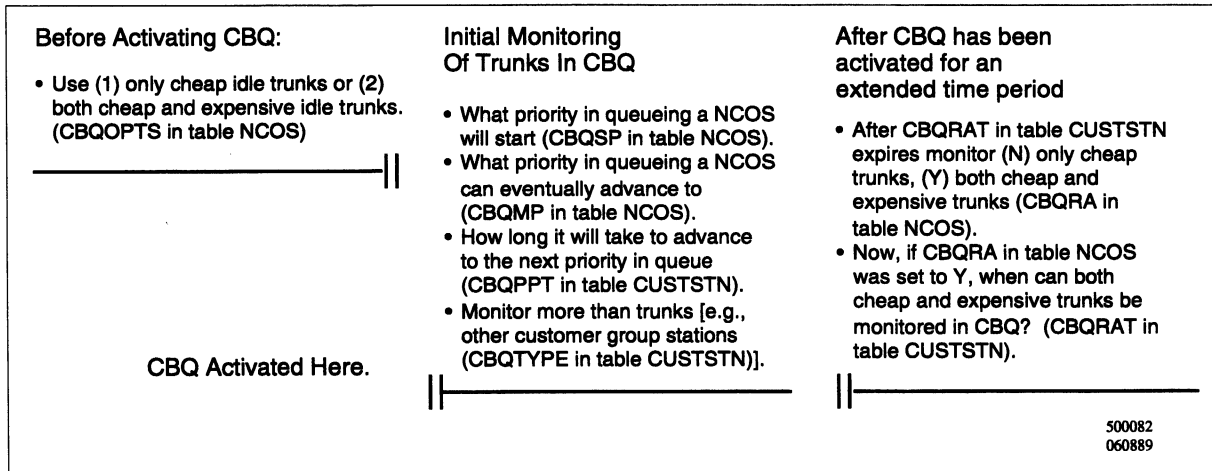
- The originating station's NCOS must have the CBQ feature assigned in Table NCOS.
- The trunk group being used must have the CBQ feature assigned to it in Table IBNRTE.
- Cheap trunks must be separate from expensive trunks via a QH in the tuple in Table IBNRTE.
- The station user, when completing the dialing of the number, must have received GNCT (T60/busy).
- The station user must have the RAG feature assigned to his/her telephone and must activate CBQ by dialing the RAG activation code.



There are additional controls of the CBQ feature in Table NCOS. This table includes the CBQ priorities and options that are assigned to the particular NCOS heading. Figure 2 summarizes these points for you.

**Figure 2**

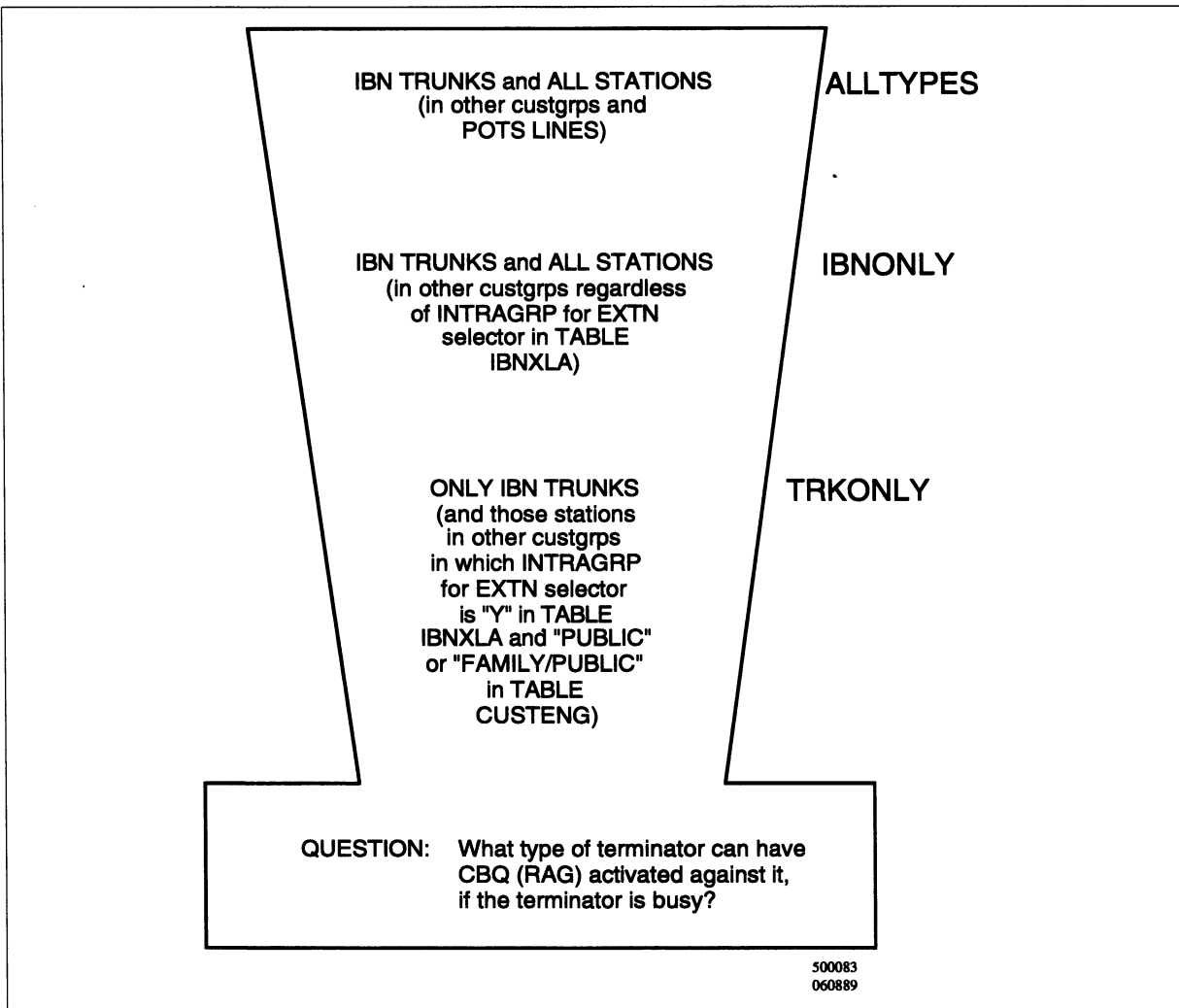
**Selective uses (Table NCOS) of trunk groups in IBNRTE**



There are two more subfields in Table CUSTSTN for CBQ. The first one, CBQNUM (CBQ Number), is not presently used by the switch but must be datafilled with a 1 to satisfy table control. The other subfield (CBQTYPES) determines the kind of terminator that can have CBQ (RAG) activated against it. This option is set up in Table CUSTSTN by entering (under the CBQTYPE subfield) (refer to Figure 2):

- TRKONLY, for IBN trunks only,
- IBNONLY, for IBN trunks and other customer group stations, or
- ALLTYPES, for IBN trunks and customer group stations, and POTS lines.

**Figure 3**  
**CBQTYPE in CUSTSTN**



In the sample tuple below, notice the type of terminator that can have CBQ (RAG) activated against it.

**Table CUSTSTN**

CUSTNAME OPTNAME OPTIONS

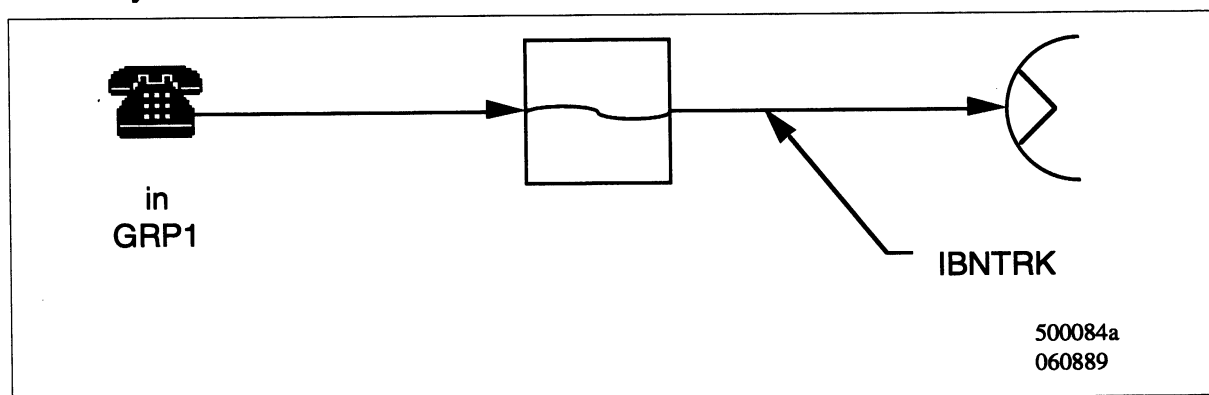
|      |     |     |        |        |        |           |
|------|-----|-----|--------|--------|--------|-----------|
| GRP1 | CBQ | CBQ | CBQPPT | CBQRAT | CBQNUM | CBQTYPES) |
|      |     | 2   | 15     | 1      |        | TRKONLY)  |

There are conditions on the terminator type options that are offered by the CBQTYPE field in Table CUSTSTN. They are described below and on the following pages.

- TRKONLY -- (refer to Figure 4) CBQ to queuing on only IBN trunks and IBN stations that are outside of the caller's own customer group, provided subfield INTRAGRP = Y for the EXTN selector in Table IBNXLA. As the following figure shows, the caller in customer group GRP1 with the TRKONLY option can activate CBQ on the busy IBN trunk group IBNTRK.

**Figure 4**

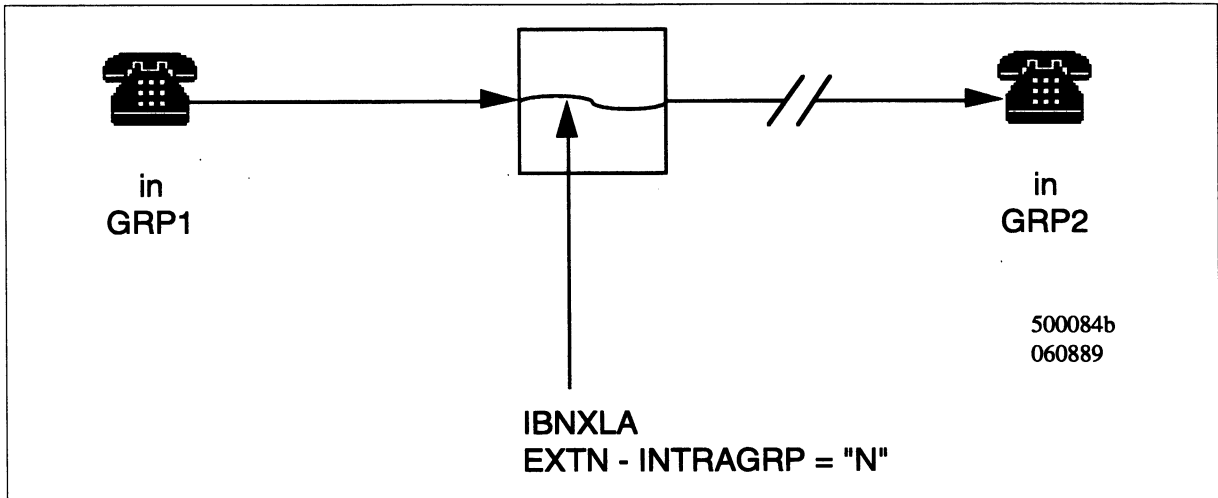
**Trunk only**



- In Figure 5, CBQ cannot be activated on the busy line because INTRAGRP = N for the EXTN selector in Table IBNXLA.

Figure 5

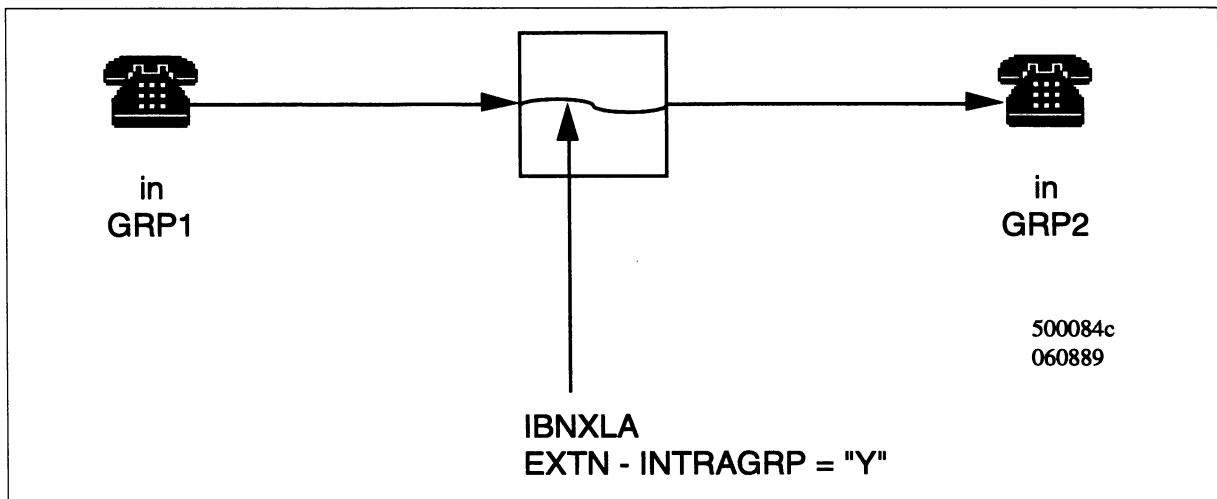
Trunk only, IBNXLA's intragroup=N (EXTN)



- In Figure 6, CBQ can be activated on the busy line because INTRAGRP = Y for EXTN (and provided Table CUSTENG is datafilled with PUBLIC domain).

Figure 6

Trunk only, IBNXLA's intragroup=Y (EXTN)



## CBQ priorities

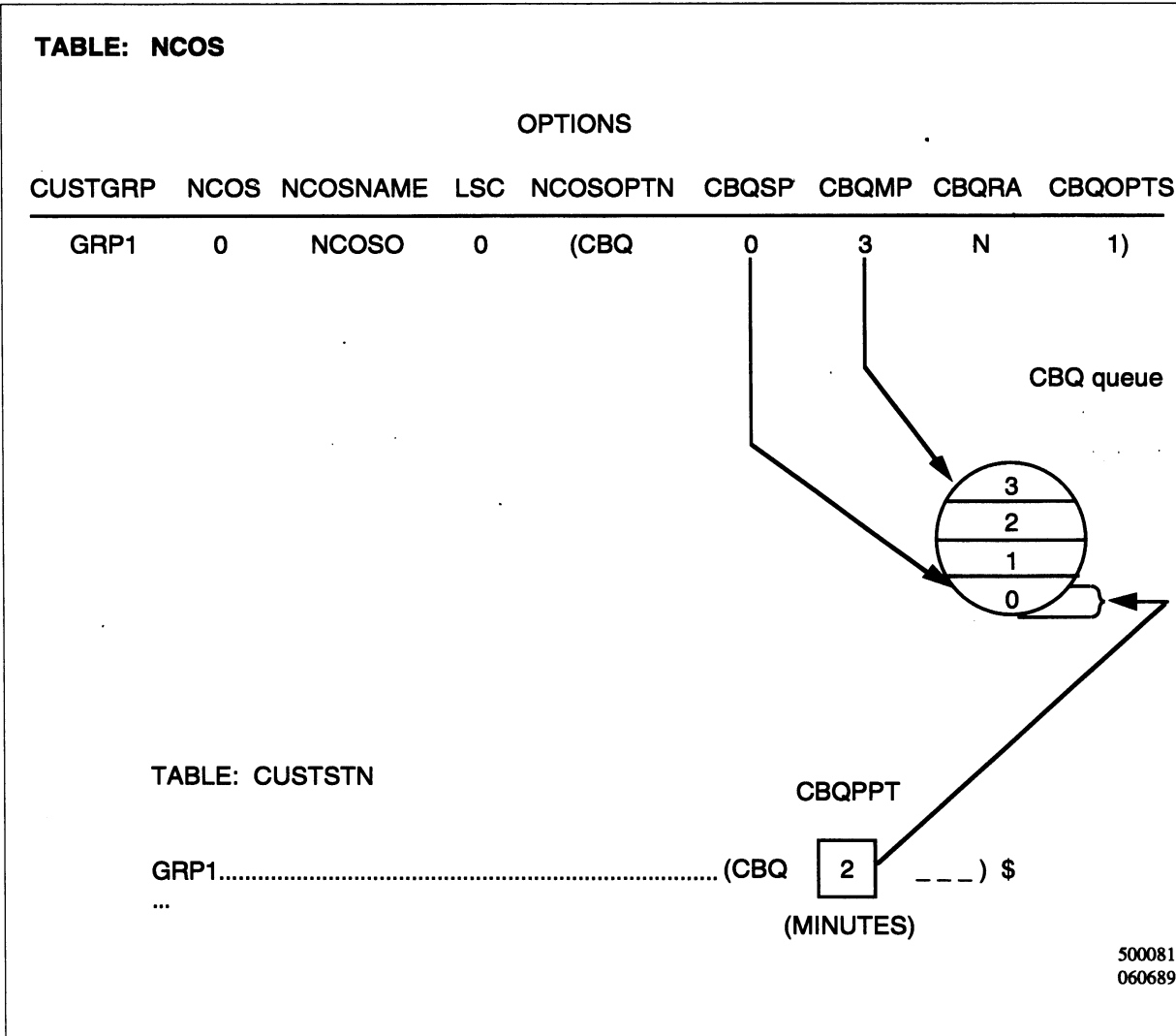
A call that goes into **CBQ** is typed according to its priority (0-3), where the highest = 3 under the CBQSP subfield in Table NCOS. A queued call can be promoted to a maximum priority (0-3) designated by the CBQMP subfield. As the following diagram on the next page shows, the call is promoted after it times out in each priority. This timeout is defined for a customer group in Table CUSTSTN, subfield CBQPPT (Priority Promotion Timer). It is specified in minutes. In the tuple that follows, notice this subfield has been set to 2 minutes (CBQPPT = 2). This timer can be set from 1-15 minutes or 0, which indicates no promotion for any NCOS user within the specified customer group.

**Table CUSTSTN**

| <u>CUSTNAME</u> | <u>OPTNAME</u> | <u>OPTIONS</u>                 |
|-----------------|----------------|--------------------------------|
|                 |                | (CBQPPT CBQRAT CBQNUM CBQTYPE) |
| GRP1            | CBQ CBQ        | 2 15 1 ALLTYPES                |

Once a call reaches its ultimate priority, it will not be served by an idle trunk until those calls with higher priorities have been served first (refer to Figure 7).

**Figure 7**  
**CBQ priority advancement**



## Tables to set up CBQ

An important principle to remember with CBQ is that when CBQ is activated, only cheap trunks are **initially** monitored in the queue. Cheap trunks are distinguished from expensive ones by the position of the first QH in Table IBNRTE. The first three elements in this tuple are considered to be cheap trunk groups because they are placed before the first QH.

**Table NCOS**

| <u>CUSTGRP</u> | <u>NCOS</u> | <u>NCOSNAME</u> | <u>LSC</u> | <u>TRAFSNO</u> | <u>OPTIONS</u>         |
|----------------|-------------|-----------------|------------|----------------|------------------------|
|                |             |                 |            |                | CBQSP CBQMP CBQRA OPTS |
| GRP1           | 0           | NCOS0           | 0          | 0              | (CBQ 2 3 Y 2) \$       |
| GRP1           | 1           | NCOS1           | 0          | 0              | (CBQ 1 2 N 1) \$       |
| GRP1           | 2           | NCOS2           | 0          | 0              | (CBQ 1 1 N 1) \$       |

**Table IBNRTE**

| <u>RTE</u> | <u>IBNRTESEL</u> | <u>OHQ</u> | <u>CBQ</u> | <u>EXP</u> | <u>CLLI</u> |
|------------|------------------|------------|------------|------------|-------------|
| 1          | S                | N          | Y          | N          | FX1         |
|            | S                | N          | Y          | N          | WATS1       |
|            | S                | N          | Y          | N          | MCI1        |
|            | QH 60            |            |            |            |             |
|            | S                | N          | N          | N          | DOD1 \$     |

**Table CUSTSTN**

| <u>CUSTNAME</u> | <u>OPTIONS</u>                 |
|-----------------|--------------------------------|
| GRP1            | (CBQ 2 15 (CBQTYPES) ALLTYPES) |
| GRP1            | (RAGRECTO) (RAGCANTO)          |
| GRP1            | RAGTIM 18 20                   |

*Handwritten notes:*  
 Priority/Rate (CBQPPT), RAdoTime (CBQRAT), CBQ number (CBQNUM), Always (CBQTYPES), IBN TRK (ALLTYPES)

If the first three trunk groups are busy for a caller with Option 1, the caller immediately receives GNCT treatment since he cannot initially use the more expensive trunk group DOD1 even if its circuits are idle. Now, the caller can activate CBQ by dialing the RAG feature digits. The system will monitor these three elements until one has a trunk circuit that becomes idle. At that time, the caller will be called back and will wait for the call to complete (at the distant end). If the trunk circuits between the caller's Meridian 1 Options 111-211 and the distant end are busy, the caller is out of luck. **CBQ (and OHQ) does not work beyond the caller's site.**

If, however, the same first three elements are busy for a caller with Option 2, the switch first will look to see if the more expensive trunk group (DOD1) is available before giving the user the GNCT treatment. If DOD1 is idle, the call will go out on that trunk. If it is busy, then the user receives GNCT and can activate RAG. In queue, the switch monitors only cheap trunks (i.e., those before the first QH) that have been flagged Y to CBQ. In the example, FX1, WATS1 and MCI1 would be monitored.

**Note: If a route list (tuple) in IBNRTE includes no expensive trunks, the last element must be a QH.**

Assume a user with Option 2 encounters all the circuits in trunk group DOD1 busy. If the user activates RAG, which trunks are initially monitored in queue? Only FX1, WATS1 and MCI1 trunks, not the DOD1 trunks. Therefore, even though the caller was initially allowed to access expensive trunks that were idle, the caller is limited to monitoring only the cheap trunk groups once he has activated CBQ. Will the caller ever be permitted to go out on the expensive DOD1 trunk after activating RAG? The answer depends on the entry for CBQRA (route advance) in Table NCOS. If this subfield is datafilled with a Y (Yes), the NCOS will be allowed to eventually route advance to the expensive trunks, only after serving a predefined amount of time in CBQ, monitoring only those trunks before the first QH (cheap trunks). This time is defined in Table CUSTSTN with the CBQRAT (Route Advance Timer) field. Possible entries in this subfield of Table CUSTSTN include:

- 0, which restricts all NCOSs within this customer group from being able to route advance to the expensive routes. These NCOSs will infinitely monitor those trunks before the first QH.
- 1-15, which represents the number of minutes a call within this customer group will remain in queue monitoring trunks prior to the first QH. After this specified time, the call will route advance and look at expensive trunks that have the CBQ flag set to Y.



Referring back to the previous tables, you'll see that any user who has the route advance option in Table NCOS (NCOS 0), will be allowed to route advance to the expensive routes (DOD1) after 15 minutes in the queue monitoring the (inexpensive) trunks flagged with Y previous to the first QH (FX1, WATS1 and MCI1).

## **CBQ Review**

The criteria by which a particular NCOS selects an outgoing trunk group can be categorized in three distinct time periods:

- before the user activates the CBQ feature, (Option 1 or Option 2 in Table NCOS)
- initially after the CBQ feature has been activated (via Y to CBQ trunks before the QH in Table IBNRTE)
- after the CBQ feature has been activated for an extended period of time (via CBQRA = Y in Table NCOS and the time specified in subfield CBQRAT in Table CUSTSTN).

The following table summarizes the tables and prompts used in call-back queuing.

**Table 2**

**CBQ table and prompt summary**

| <u>TABLE</u> | <u>PROMPT</u> | <u>MEANING</u>                                                                      | <u>PARAMETERS</u>                                                 |
|--------------|---------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------|
| NCOS         | NCOSOPTN      | NCOS Options                                                                        | CBQ, etc.                                                         |
|              | CBQSP         | CBQ starting queue priority                                                         | 0 - lowest<br>3 - highest                                         |
|              | CBQMP         | CBQ maximum queue priority                                                          | 0 - lowest<br>3 - highest                                         |
|              | CBQRA         | Monitoring expensive trunks after CBQRAT expires <u>during</u> CBQ                  | Y - Yes<br>N - No                                                 |
|              | CBQOPTS       | Selecting cheap or expensive trunks <u>before</u> CBQ.                              | 1 - cheap idle trunks<br>2 - both cheap and expensive idle trunks |
| IBNRTE       | CBQ           | Is trunk group eligible for CBQ?                                                    | Y = Yes<br>N = No                                                 |
|              | IBNRTSEL      | "Selector" for <u>this specific element</u> in this IBN route (tuple).              | QH = End of cheap trunks.                                         |
|              | OHQWT         | "Off-Hook Queue Waiting Time": Not applicable to CBQ but must be datafilled for OHQ | 2-90 (seconds)                                                    |

---

|         |         |                                                                   |                                  |
|---------|---------|-------------------------------------------------------------------|----------------------------------|
| CUSTSTN | OPTNAME | Option name                                                       | any valid options                |
|         | OPTION  | Option(s) that need operating parameters to be defined.           | CBQ, etc.                        |
|         | CBQPPT  | CBQ Priority Promotion Timer                                      | 0-Infinite<br>1-15-minutes       |
|         | CBQRAT  | Time after which both cheap/expensive routes are monitored in CBQ | 0-Infinite<br>1-15-minutes       |
|         | CBQNUM  | Not presently used                                                | Use "1" Always                   |
|         | CBQTYPE | Trunk Types monitored while in CBQ                                | TRKONLY,<br>IBNONLY,<br>ALLTYPES |

## Sample CBQ TRAVER

The following TRAVER is for a call which is allowed to check DOD1 (prior to going into CBQ) when the previous three trunk groups are busy. Why? Because CBQOPTS = 2 in Table NCOS. If all four trunk groups are busy, the caller can activate CBQ (using the RAG feature) and check both cheap and expensive trunk groups (CBQRA = Y) after timing out in the cheap trunk queue. Notice that all four trunk groups are eligible for this caller and are displayed at the bottom of the TRAVER.

```

TRAVER L 2454205 915124671212 B
TABLE IBNLINES
HOST 01 1 00 04 DT STN 2454205 GRP1 0 0 804 (CWT)(3WC)(CWI)(RAG) $
TABLE NCOS
→ GRP1 0 0 0 NCOS_0 (XLAS PTN1 NXLA NDGT) (CBQ 0 2 Y 2) $
→ TABLE CUSTHEAD: CUSTGRP, PRELIMXLA, CUSTXLA, FEATXLA, VACTRMT,
AND DIGCOL GRP1 NXLA CTN1 FTN1 0 DCN1
TABLE DIGCOL
DCN1 9 POTS Y
→ TABLE IBNXLA: XLANAME PTN1
PTN1 9 NET N Y N 1 N NDGT N N DOD Y 2 NONE
TABLE LINEATTR
→ 2 IBN NONE NT CSS1 0 214 SPN1 LAS1 AMRX N 0 NIL
NILLATA 0 NIL NIL
→ TABLE STDPRTCT
SPN1 (1)
→ SUBTABLE STDPRT
1 1 N DD 1 NA
→ TABLE HNPACONT
214 21 0 (8) (1) (0)
→ SUBTABLE HNPACODE
512 512 FNPA 0
→ TABLE FNPACONT
512 21 - (8) (0) (5)
→ SUBTABLE FNPACODE
467 467 1 Y
→ SUBTABLE RTEREF
1 T IBNRTE 15
→ TABLE IBNRTE
15 S N Y ... FX1
S N Y ... WATS1
S N Y ... MCI1
QH 10
S N N ... DOD1
EXIT TABLE IBNRTE
EXIT TABLE RTEREF
EXIT TABLE FNPACONT

```

---

TABLE LCASCRCN  
214 LAS1 ( 3) MAND N  
SUBTABLE LCASCR  
TUPLE NOT FOUND. DEFAULT IS NON-LOCAL  
TABLE PFXTREAT  
MAND DD N DD UNDT  
TABLE CLSVSCRC  
KEY NOT FOUND  
DEFAULT IS TO LEAVE XLA RESULT UNCHANGED  
+++ TRAVER: SUCCESSFUL CALL TRACE +++



## Practice 4: Call back queueing

### Instructions:

Obtain NTP 297-1001-451, and read about the tables discussed in this section or use the information presented in this section to answer the following questions. Compare your answers with those found in the Practice 4 Feedback.

1.

TRAVER L 2454205 915124671212 B  
 TABLE IBNLINES  
 HOST 00 1 00 04 DT STN 2454205 GRP1 0 1 214 (CWT) (3WC) (CWI) \$  
 TABLE NCOS CBQSP CBQMP CBQRA CBQOPTS  
 GRP1 1 00 NCOS\_1 ( XLAS PTN2 NXLA NDGT) (CBQ 0 2 N 1 )\$

.....  
 TABLE FNPACONT  
 512 21 - (8) (0) (5)  
 . SUBTABLE FNPACODE  
 467 467 1 Y  
 . SUBTABLE RTEREF  
 1 T IBNRTE 15  
 . TABLE IBNRTE  
 15 S N Y ... FX1  
 . S N Y ... WATS1  
 . S N N ... MCI1  
 . QH10  
 . S N N ... DOD1  
 +++ TRAVER: SUCCESSFUL CALL TRACE +++

DIGIT TRANSLATION ROUTES  
 1 FX1  
 2 WATS1  
 3 MCI1  
 4 DOD1

| TABLE: CUSTSTN |        | OPTIONS |        |            |  |
|----------------|--------|---------|--------|------------|--|
| CUSTNAME       | CBQPPT | CBQRAT  | CBQNUM | CBQTY      |  |
| GRP1           | (CBQ 2 | 15      | 1      | ALL TYPES) |  |

If all cheap and expensive trunks are busy, what happens to the call if the caller wishes to use CBQ?

- The call first checks DOD1, then CBQs against FX1, WATS1, and MCI1.
- The call CBQs against FX1, WATS1, and MCI1.
- The call CBQs against FX1 and WATS1.
- None of the above.

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071891



2.

```

TRAVEL 2454205 915124671212 B
TABLE IBNLINES
HOST 00 1 00 04 DT STN 2454205 GRP1 0 1 214 (CWT) (3WC) (CWI) (RAG)$
TABLE NCOS CBQSP CBQMP CBQRA CBQOPTS
GRP1 1 0 0 NCOS_1 (XLAS PTN2 NXLA NDGT) (CBQ 0 2 N 1)$
.....
TABLE FNPACONT
512 21 - (8) (0) (5)
. SUBTABLE FNPACODE
467 467 1 Y
. SUBTABLE RTEREF
1 T IBNRTE 15
TABLE IBNRTE
15 S N ... FX1 ✓
. S N ... WATS1 ✓
. S N N ... MCI1
. QH10
. S N N ... DOD1
+++ TRAVEL: SUCCESSFUL CALL TRACE
DIGIT TRANSLATION ROUTES
1 FX1
2 WATS1
3 MCI1
4 DOD1

```

If all cheap and expensive trunks are busy, what happens to the call if the caller wishes to use CBQ?

- a. The call first checks DOD1, then CBQs against FX1, WATS1, and MCI1.
- b. The call CBQs against FX1, WATS1, and MCI1.
- c. The call CBQs against FX1 and WATS1.
- d. None of the above.

```

TABLE: CUSTSTN
CUSTNAME OPTIONS
CBQPPT CBQRAT CBQNUM CBQTY
GRP1 (CBQ 2 15 1 ALL TYPES)

```

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3.

```

TRAVER L 2454205 915124671212 B
TABLE IBNLINES
HOST 00 1 00 04 DT STN 2454205 GRP1 0 1 214 (CWT) (3WC) (CWI) (RAG) $
TABLE NCOS CBQSP CBQMP CBQRA CBQOPTS
GRP1 1 0 0 NCOS_1 (XLAS PTN2 NXLA NDGT) (CBQ 0 2 N 2)$

```

```

.....
TABLE FNPACONT
512 21 - (8) (0) (5)
. SUBTABLE FNPACODE
467 467 1 Y
. SUBTABLE RTEREF
. 1 T IBNRTE 15
. TABLE IBNRTE
. . 15 S N Y ... FX1
. . S N Y ... WATS1
. . S N N ... MCI1
. . QH 10
. . S N N ... DOD1

```

```

+++ TRAVER: SUCCESSFUL CALL TRACE
DIGIT TRANSLATION ROUTES
1 FX1
2 WATS1
3 MCI1
4 DOD1

```

```

TABLE: CUSTSTN
CUSTNAME OPTIONS
CBQPPT CBQRAT CBQNUM CBQTY
GRP1 (CBQ 2 15 1 ALL TYPES)

```

Assume all cheap trunks are busy.  
What happens next to this call.

- The call receives GNCT.
- The call CBQs against FX1 and WATS1.
- The call searches DOD1 for idle circuits.
- None of the above.

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4.

```

TRAVEL 2454205 915124671212 B
TABLE IBNLINES
HOST 00 1 00 04 DT STN 2454205 GRP1 0 1 214 (CWT) (3WC) (CWI) (BAG)S
TABLE NCOS CBQSP CBQMP CBQRA CBQOPTS
GRP1 1 0 0 NCOS_1 (XLAS PTN2 NXLA NDGT) (CBQ 0 2 2 2)S

```

```

.....
TABLE FNPACONT

```

```

512 21 - (8) (0) (5)

```

```

. SUBTABLE FNPACODE

```

```

467 467 1 Y

```

```

. SUBTABLE RTEREF

```

```

. 1 T IBNRTE 15

```

```

. TABLE IBNRTE

```

```

.. 15 S N Y ... FX1

```

```

.. S N Y ... WATS1

```

```

.. S N N ... MCI1

```

```

.. QH 10

```

```

.. S N N ... DOD1

```

```

+++ TRAVEL: SUCCESSFUL CALL TRACE

```

```

DIGIT TRANSLATION ROUTES

```

```

1 FX1

```

```

2 WATS1

```

```

3 MCI1

```

```

4 DOD1

```

```

TABLE: CUSTSTN

```

```

CUSTNAME OPTIONS:

```

| CUSTNAME | CBQPPT | CBQRAT | CBQNUM | CBQTY      |
|----------|--------|--------|--------|------------|
| GRP1     | (CBQ 2 | 15     | 1      | ALL TYPES) |

Assume this call CBQs against cheap trunks for 15 minutes and no trunk becomes idle. What happens?

- The call receives GNCT then CBQs against FX1, WATS1, and MCI1.
- The call CBQs against DOD1 and FX1 and WATS1.
- The call searches DOD1 and FX1 and WATS1.
- None of the above.

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5.

```

TRAVER L 2454205 915124671212 B
TABLE IBNLINES
HOST 00 1 00 04 DT STN 2454205 GRP1 0 1 214 (CWT) (3WC) (CWI) (RAG) $
TABLE NCOS CBQSP CBQMP CBQRA CBQOPTS
GRP1 1 0 0 NCOS_1 (XLAS PTN2 NXLA NDGT) (CBQ 0 2 N 2) $
.....
TABLE FNPACONT
512 21 - (8) (0) (5)
. SUBTABLE FNPACODE
467 467 1 Y
. SUBTABLE RTEREF
. 1 T IBNRTE 15
. TABLE IBNRTE
.. 15 S N Y ... FX1
.. S N Y ... WATS1
.. S N N ... MCI1
.. QH 10
.. S N Y ... DOD1
+++ TRAVER: SUCCESSFUL CALL TRACE +++
DIGIT TRANSLATION ROUTES
1 FX1
2 WATS1
3 MCI1
4 DOD1

TABLE: CUSTSTN
CUSTNAME OPTIONS
CBQPPT CBQRAT CBQNUM CBQTY
GRP1 (CBQ 2 15 1 ALLTYPES)

```

How would you modify the datafill to allow DOD1 to be eventually CBQ'd against?

- a. Change the NCOS's subfield CBQRA from "N" to "Y"
- b. Add a QH after DOD1
- c. Both a and b
- d. none of the above

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## Practice 4 Feedback

1. d
2. c
3. c
4. d
5. d

---

# Expensive Route Warning Tone (ERWT)

---

## Introduction to Expensive Route Warning Tone (ERWT)

**Expensive Route Warning Tone (ERWT) provides a warning tone (to the caller) to indicate that the caller is about to be routed over an expensive route.** The tone is three bursts of 440 Hz. After hearing the tone, the caller has the following three options:

- to refuse to use the expensive route by going on-hook,
- to wait out the predetermined, customer-definable delay and allow the call to terminate on the expensive route, or
- to activate CBQ so that inexpensive trunks could be monitored for availability.

### ERWT prerequisites

The following conditions are required for ERWT to work for a subscriber:

- the subscriber's station must have the ERWT option assigned in Table NCOS
- the trunk group being used must be identified as an expensive trunk by a Y entered under the EXP subfield in Table IBNRTE, and
- the subscriber must not have been in either OHQ or CBQ

Three tables are used in setting up ERWT. These tables are:

- Table NCOS, which assigns the option of ERWT to the class of service that is to receive the expensive route tone
- Table IBNRTE, in which you flag (EXP) those trunks that should provide the expensive route tone to the user prior to seizing a circuit in that trunk group
- Table CUSTHEAD, in which the expensive route delay timer can be set via option ERDT (Expensive Route Delay Timer) from 0-10 seconds (default = 6 sec.)

### Tables that set up ERWT

Analyze the following tables. If a caller in NCOS 0 is routed to tuple 10 in Table IBNRTE and the first three trunks are busy, will the user receive the ERWT before routing out on the DOD1 trunk? Yes, because DOD1 is flagged expensive (EXP = Y) and this NCOS has the ERWT option in Table NCOS. When a user receives the ERWT, he/she can select one of the following three alternatives:

- wait for the ERDT timeout in Table CUSTHEAD and be routed out on this expensive trunk,
- refuse to use this Expensive route and go on-hook, or
- activate CBQ, if allowed.

Would a NCOS 1 user receive the tone under the same conditions mentioned above? No, because this NCOS does not have the ERWT option in Table NCOS; therefore, this call would automatically route out on the DOD1 trunk with the user hearing no tone.

#### Table NCOS

| CUSTGRP | NCOS | OPTIONS   |
|---------|------|-----------|
| GRP1    | 0    | (ERWT) \$ |
| GRP1    | 1    | \$        |

#### Table IBNRTE

| RTE | IBNRTESEL | OHQ | CBQ | EXP | CLLI    |
|-----|-----------|-----|-----|-----|---------|
| 10  | S         | N   | N   | N   | FX1     |
|     | S         | N   | N   | N   | WATS1   |
|     | S         | N   | N   | N   | MCI1    |
|     | S         | N   | N   | Y   | DOD1 \$ |

#### Table CUSTHEAD

| CUSTNAME | CUSTXLA | OPTIONS      |
|----------|---------|--------------|
| GRP1     | CTN1    | (ERDT 10) \$ |

**Table 3****Expensive route warning tone tables**

| <u>TABLE</u> | <u>PROMPT</u> | <u>MEANING</u>                                                                   | <u>PARAMETERS</u>                        |
|--------------|---------------|----------------------------------------------------------------------------------|------------------------------------------|
| NCOS         | NCOSOPTN      | NCOS Options                                                                     | ERWT, etc.                               |
| IBNRTE       | EXP           | Should an expensive route warning tone be given before this trunk group is used? | Y = Yes<br>N = No                        |
| CUSTHEAD     | OPTION        | Option(s) assigned on a customer-group basis.                                    | ERDT ("Expensive Route Delay Time") etc. |
|              | ERDTTIME      | Expensive Route Delay Time <i>AFTER TONE</i>                                     | 0 = No Delay<br>1 - 10 (Seconds)         |

**ERWT TRAVER**

The following TRAVER expands upon the ERWT concept. Notice in this TRAVER, the user's NCOS includes the ERWT option. If trunk group DOD1 is selected, the caller will receive ERWT tone. Why? DOD1 is flagged expensive (EXP = Y).

```

TRAVER L 2454206 915124671212 B
TABLE IBNLINES
HOST 00 1 00 04 DT STN 2454206 GRP1 0 0 214 (CWT)
(3WC) (CWI) $
TABLE NCOS
GRP1 0 0 0 NCOS_0 (XLAS PTN2 NXLA NDGT)(ERWT)
TABLE CUSTHEAD: CUSTGRP, PRELIMXLA, CUSTXLA,
FEATXLA, VACTRMT, AND DIGCOL
GRP1 NXLA CTN1 FTN1 0 DCN1
TABLE DIGCOL
DCN1 9 POTS Y
TABLE IBNXLA: XLANAME PTN2
PTN2 9 NET N N 1 N NDGT N DOD N 2 NONE
TABLE LINEATTR
2 IBN NONE NT CSS1 0 214 SPN1 LAS1 AMRX N 0
NIL NILATA 0 NIL
TABLE STDPRTCT
SPN1 (1)
SUBTABLE STDPRT
1 1 N DD 1 NA
SUBTABLE AMAPRT
KEY NOT FOUND
DEFAULT VALUE IS: NONE N
TABLE HNPACONT
214 21 0 (8) (1) (0)
SUBTABLE HNPACODE
512 512 FNPA 0
TABLE FNPACONT
512 21 - (8) (0) (5)
. SUBTABLE FNPACODE
. 467 467 2 Y
. SUBTABLE RTEREF
. 2 T IBNRTE 15
.
. TABLE IBNRTE
. . 15 S N N N FX1
. . S N N N WATS1
. . S N N N MCI1
. . S N N Y DOD1
. . EXIT TABLE IBNRTE

```



---

```
. EXIT TABLE RTEREF
EXIT TABLE FNPACONT
TABLE LCASCRCN
214 LAS1 (3) MAND N
. SUBTABLE LCASCR
. NO TUPLE FOUND; DEFAULT IS NON-LOCAL
TABLE PFXTREAT
MAND DD N DD UNDT
TABLE CLSVSCRC
KEY NOT FOUND
DEFAULT IS TO LEAVE XLA RESULT UNCHANGED

+++ TRAVER: SUCCESSFUL CALL TRACE +++
```

## Practice 5: Expensive route warning tone (ERWT)

### Instructions:

Obtain NTP 297-1001-451, and read about the tables discussed in this section or use the information presented in this section to answer the following questions. Compare your answers with those found in the Practice 5 Feedback.

1. Which data table assigns the ERWT option to a caller (station)?
  - a. CUSTHEAD
  - b. CUSTSTN
  - c. IBNLINES
  - d. NCOS
  
2. Besides requiring ERWT to be assigned to a caller's NCOS, what else must the switch "see" to activate ERWT for a call?
  - a. The expensive trunk must have EXP = Y
  - b. There must be a QH in the route list containing the selected trunk
  - c. The call must have received GNCT
  - d. All of the above
  - e. Answers 1 and 3
  
3. Where do you datafill the delay time between receipt of ERWT and actual seizing of the expensive trunk?
  - a. Subfield ERWT in Table TONES
  - b. Subfield ERWT in Table NCOS
  - c. Subfield ERDT in Table CUSTSTN
  - d. Subfield ERDT in Table CUSTHEAD



4.

```

TRAVER L 2454206 915124671212 B
TABLE IBNLINES
HOST 00 1 00 04 DT STN 2454206 GRP1 0 1 214 (CWT) (3WC) (CWI) (RAG) $
TABLE NCOS
GRP1 1 0 0 NCOS_1 (XLAS PTN2 NXLA NDGT) (ERWT)
TABLE CUSTHEAD: CUSTGRP, PRELIMXLA, CUSTXLA, FEATXLA, VACTRMT, AND
DIGCOL
GRP1 NXLA CTN1 FTN1 0 DCN1
TABLE IBNXLA: XLANAME PTN2
PTN2 9 NET N N N1 N NDGT N N DOD Y 2 NONE
TABLE LINEATR
2 IBN NONE NT CSS1 0 214 SPN1 LAS1 AMRX N 0 NIL NILLATA 0 NIL NIL
TABLE HNPACONT
214 21 0 (8) (1) (0)
. SUBTABLE HNPACODE
512 512 FNPA 0
TABLE FNPACONT
512 21 - (8) (0) (5)
. SUBTABLE HNPACODE
467 457 2 Y
. SUBTABLE RTEREF
2 T IBNRTE 15
. TABLE IBNRTE
. . 15 S N N N FX1
. . S N N N WATS1
. . S N N N MCH
. . S N N Y DOD1
+++ TRAVER: SUCCESSFUL CALL TRACE +++

```

If FX1, WATS1, and MCI1 are busy, what happens when the call looks at DOD1 and finds it (DOD1) has an idle circuit?

- The call cannot use DOD1 because the call's NCOS doesn't have Option 2 CBQ.
- The call receives ERWT; the caller can hang up or wait for seizure of a DOD1 circuit.
- The call receives ERWT and has the choice to CBQ against DOD1.

500375  
071891

## Practice 5 Feedback

1. d
2. a
3. d
4. b

# Prefix digit reinsertion

## Introduction to prefix digit reinsertion

An OA or DD call must translate through Table STDPRTCT before exiting the Meridian 1 Options 111-211 site. As you may recall, Table STDPRTCT identifies the call type (OA, DD, NP) and deletes the 0 or 1 prefix digit so that further screening can take place (in HNPACONT, etc.) on the remaining digits of the dialed number.

When the call is ready to exit the Meridian 1 Options 111-211 site, the deleted digit 0 or 1 must be prefixed or reinserted prior to the outpulsing of the call's digits to the distant office. Digit reinsertion is necessary because receiving central offices might not be equipped to process incoming toll calls without prefix digits. The presence of prefix digits is important especially for billing purposes.

## Prefixing the digit 1

The prefix digit of 1 indicates that the call is a direct dial call. The following table shows Table IBNRTE holding a tuple whose route selector N indicates that **prefixing or deletion of digits is to occur**. **If the N selector is used in Table IBNRTE, the call will be routed to a table called DIGMAN (Digit Manipulation)**. The correct tuple number that calls should use in Table DIGMAN is referenced in Table IBNRTE directly **after the trunk group name (in subfield DMI - Digit Manipulation Index)**.

Table IBNRTE

| RTE | RTELIST                                                                           |
|-----|-----------------------------------------------------------------------------------|
| 1   | (S Y Y N N DODTRK) (QH 45) \$                                                     |
| 2   | (N Y Y N N DODTRK <u>1</u> ) (QH 45) \$                                           |
| 3   | (N Y Y N N FXTRK <u>2</u> ) (N Y Y N MCITRK 1) (QH 45)<br>(N N Y Y N DODTRK 1) \$ |
| 4   | (N Y Y N N MCITRK 1) (QH 45) (N N Y Y DODTRK 1) \$                                |

TABLE Digman

→ DMIkey

1

→ 2

DMIDATA

( ENCI ) \$

( Rem 3 ) \$

**Table IBNRTE**

Table IBNRTE is comprised of two fields: RTE and RTELIST; field and subfield descriptions for selector **S** and **N** are as follows (for other selectors, refer to 297-1001-451):

- RTE -- route reference number;
- RTELIST -- comprised of the following subfields:
  - OHQ -- off-hook queuing; enter Y or N;
  - CBQ -- call back queuing; enter Y or N;
  - EXP -- expensive route and expensive route warning tone; enter Y or N;
  - MBQ -- multiwitch business group; enter Y if the trunk group is capable of handling MBG service; otherwise, enter N (routing will remain the same); and
  - CLLI -- alphanumeric CLLI name.

---

**Table DIGMAN**

**Table DIGMAN can be used for removing digits.** In the following sample table, tuple 2 removes (REM) three digits and is referenced from Table DIGMAN when calls are dialed with an area code but are routed over FX trunks. INC (included digits) is used to add additional digits to the digit string

**Table DIGMAN**

| <u>DMIKEY</u> | <u>DMIDATA</u> |
|---------------|----------------|
| 1             | (INC 1) \$     |
| 2             | (REM 3) \$     |

**TRAVER for prefixing the digit 1**

The following TRAVER represents the application of prefixing the digit 1. Notice that in Table IBNRTE if routing element N is used for this call, then prefixing of the digit 1 in Table DIGMAN is to be performed.

```

TRAVER 9333556 914561234 B
TABLE IBNLINES
HOST 00 0 14 16 DT STN 9333556 GRP12 0 0 205 $
TABLE NCOS
GRP12 0 0 0 NCOS_0 (ERWT) $
TABLE CUSTHEAD: PRELIMXLA, CUSTXLA, FEATXLA, VACTRMT, AND
DIGCOL
NXLA CTN12 FTN32 0 DCN12
TABLE DIGCOL
DCN12 9 POTS Y
NCOS PRELIM XLA name is NIL. Go to next XLA name.
CUST PRELIM XLA name is NIL. Go to next XLA name.
TABLE IBNXLA: XLANAME CTN12
CTN12 9 NET N N 1 Y NDGT N DOD N 32 NONE
TABLE DIGCOL
NDGT specified: digits collected individually
TABLE LINEATTR
32 IBN NONE NT CS12 0 205 SP12 LA12 AMRX N 0 NIL
NILLATA 0 NIL
TABLE STDPRTCT
SP12 (1)
 SUBTABLE STDPRT
 1 1 N DD 1 NA
TABLE HNPACONT
205 20 0 (3) (1) (0)
 SUBTABLE HNPACODE
 456 456 HRTE 3
 SUBTABLE RTEREF
 3 T IBNRTE 29
TABLE IBNRTE
29 N N N N DODTRK 12
TABLE DIGMAN
12 (INC 1)
 EXIT TABLE IBNRTE
 EXIT TABLE RTEREF
 EXIT TABLE HNPACONT
TABLE LCASCRCN
205 LA12 (2) MAND N
SUBTABLE LCASCR
TUPLE NOT FOUND.
DEFAULT IS NON-LOCAL

```



TABLE PFXTREAT  
MAND DD N DD UNDT  
TABLE CLSVSCRC  
KEY NOT FOUND  
DEFAULT IS TO LEAVE XLA RESULT UNCHANGED

+++ TRAVER: SUCCESSFUL CALL TRACE +++

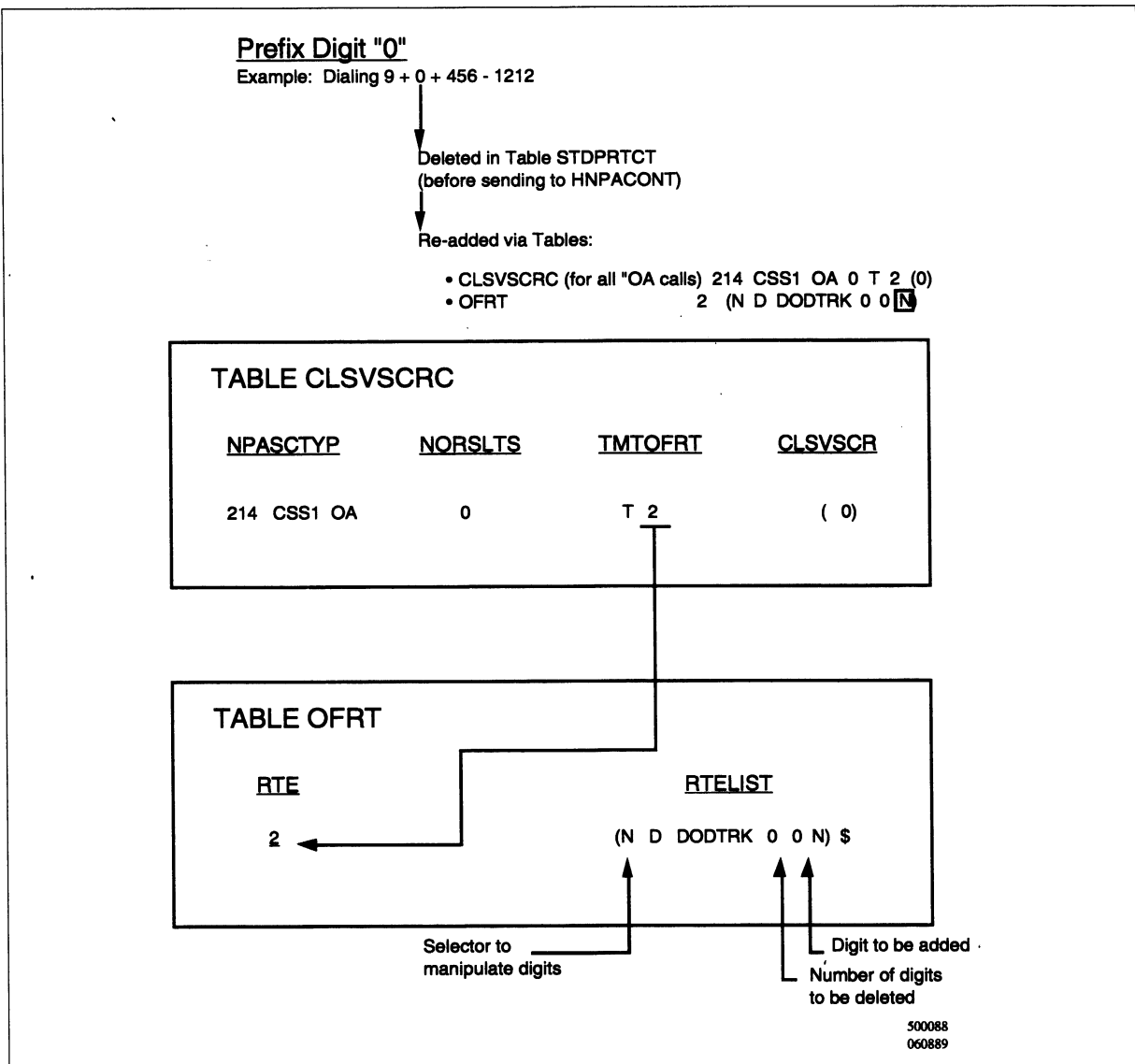
DIGIT TRANSLATION ROUTES  
1 DODTRK 14561234

## Prefixing the digit 0

A call with a 0 prefix indicates an operator-assisted call. As Figure 8 shows, Table CLSVSCRC indicates that all (NORSLTS = 0) OA calls should be routed to (T) Table OFRT and look for route reference index 2. Table OFRT's tuple number 2 contains a route selector (N), indicating that some form of digit prefixing or deletion is to take place.

Figure 8

### Prefixing the digit '0'



**TRAVER for prefixing the digit 0**

The following TRAVER involves the prefixing of the 0 digit. Notice the relationship between the class of service screening name, CS12, in Table LINEATTR and the table to which CS12 points, CLSVSCRC. The TRAVER concludes with a listing of the called telephone number to which the 0 has been reinserted.

```

TRAVER 9333556 904561234 B
TABLE IBNLINES
HOST 00 0 14 16 DT STN 9333556 GRP12 0 0 205 $
TABLE NCOS
GRP12 0 0 0 NCOS_0 (ERWT) $
TABLE CUSTHEAD: PRELIMXLA,CUSTXLA,FEATXLA,VACTRMT, AND DIGCOL
GRP12 NXLA CTN12 FTN32 0 DCN12
TABLE DIGCOL
DCN12 9 POTS Y
TABLE IBNXLA: XLANAME CTN12
CTN12 9 NET N N 1 Y NDGT N DOD N 32 NONE
TABLE DIGCOL
NDGT specified: digits collected individually
TABLE LINEATTR
32 IBN NONE NT CS12 0 205 SP12 LA12 AMRX N 0 NIL NILLATA 0 NIL
TABLE STDPRTCT
SP12 (1)
 SUBTABLE STDPRT
 04 09 N OA 1 NA
TABLE HNPACONT
205 20 0 (3) (1) (0)
 SUBTABLE HNPACODE
 456 456 HRTE 4
 SUBTABLE RTEREF
 4 S D
EXIT TABLE RTEREF
EXIT TABLE HNPACONT
TABLE LCASCRCN
205 LA12 (2) MAND N
SUBTABLE LCASCR
TUPLE NOT FOUND.
DEFAULT IS NON-LOCAL
TABLE PFXTREAT
MAND OA N OA UNDT
DODTRK
TABLE CLSVSCRC
205 CS12 OA 0 T 15 (0)
TABLE OFRT
15 N D DODTRK 0 0 N
EXIT TABLE OFRT
++TRAVER: SUCCESSFUL CALL TRACE++
DIGIT TRANSLATION ROUTES
1 DODTRK 04561234

```

*Do not delete*

*Delete 0*

*Add 0*

# Attendant console

---

## Introduction to attendant console

An attendant console is equipped with a standard 12-button touchpad, 6 loop keys and 42 key/lamp positions that can be used to either receive different types of incoming calls or to activate various features (refer to Figure 9). All calls that are routed to the console are assigned a code. This code is used both to identify the type of call coming in and to select which console key it should be routed to. This code (which is a number from 0-255) is called an **incoming call identification (ICI) code**. ICIs will be discussed in more detail later.

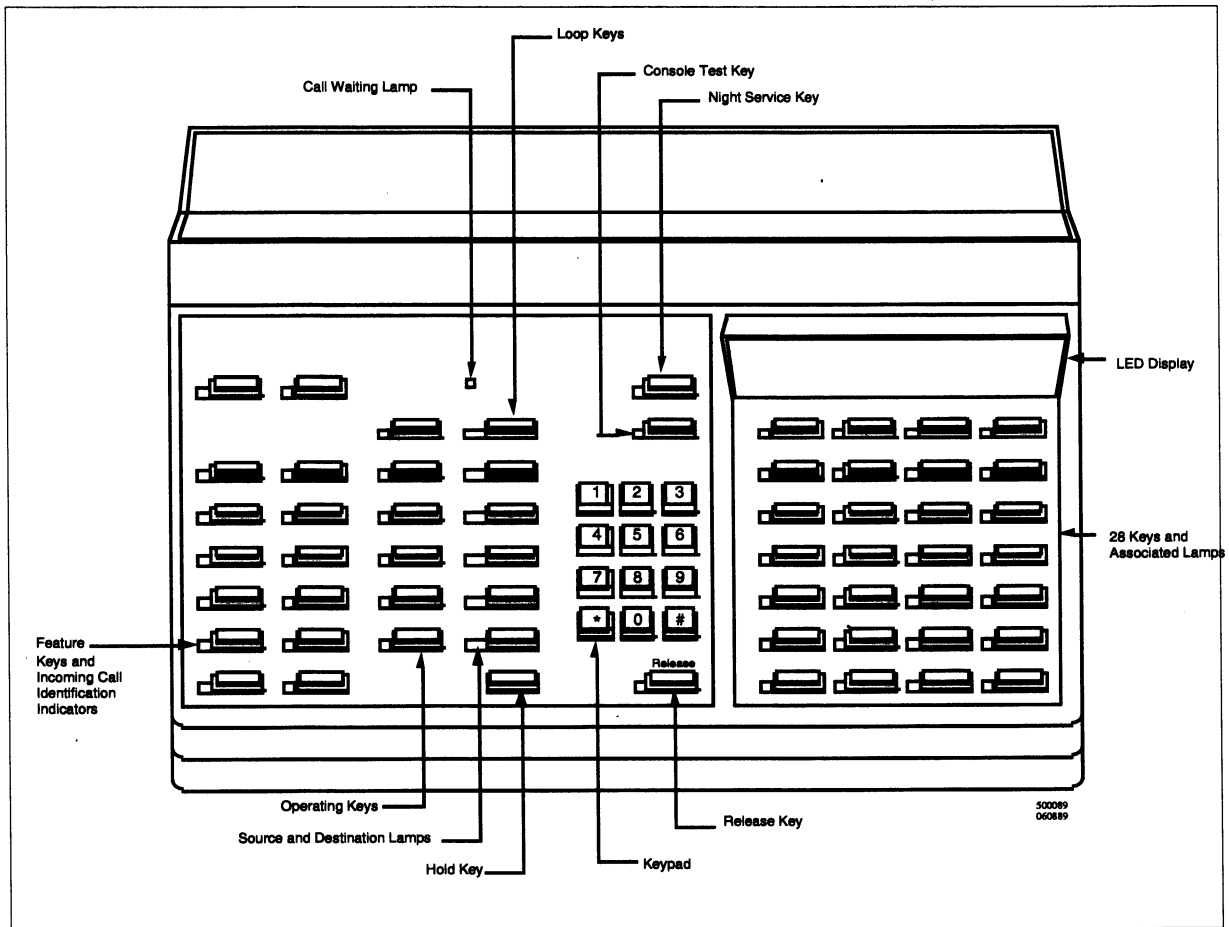
An attendant is alerted to an incoming call by an audible buzzer and by one or more lamps lighting, flashing, or winking. Depending on the key the attendant depresses, the calls can be answered either:

- in the order that they are received, or
- by the type of incoming calls (ICI) they are

A maximum of 255 attendant consoles can be supported by a Meridian 1 Options 111-211. Attendant consoles can all serve one large customer group, or one or more consoles can be assigned to associated customer groups in the same Meridian 1 Options 111-211.

Attendant consoles can receive station-to-attendant calls from either all phones in their customer group or only certain phones. This discrimination feature is accomplished by assigning a one-digit number called a subgroup number to both consoles and stations.

**Figure 9**  
**Attendant console**



When a station places a station-to-attendant call, that call is routed to the console (or group of consoles) with the **same subgroup number assigned to it as the phone**. If all consoles can receive calls from all stations in their customer group, then the subgroup number assigned to all consoles and stations must be the same ("0"). However, if you have consoles at remote site to handle all station-to-attendant calls from those remote stations, then the subgroup number assigned to those consoles and stations should match but be different than the subgroup number you used at the main customer site. A customer group can be divided into a maximum of eight subgroups (numbered 0-7).

**Each console is assigned three line cards. One card transmits keyboard information from the console to the CPU. Another card receives information from the CPU to the console. The third card is used for voice.** This single card supports six voice lines, made possible by interconnecting all six line pairs to the line card. This is referred to as "virtual looping"

**A virtual loop is used to hold the call while it is being processed by the attendant.** Once the call has been processed, or extended, the call is released from the loop. A call also can be held on a loop while new calls are answered and extended.

## Practice 6: Attendant console

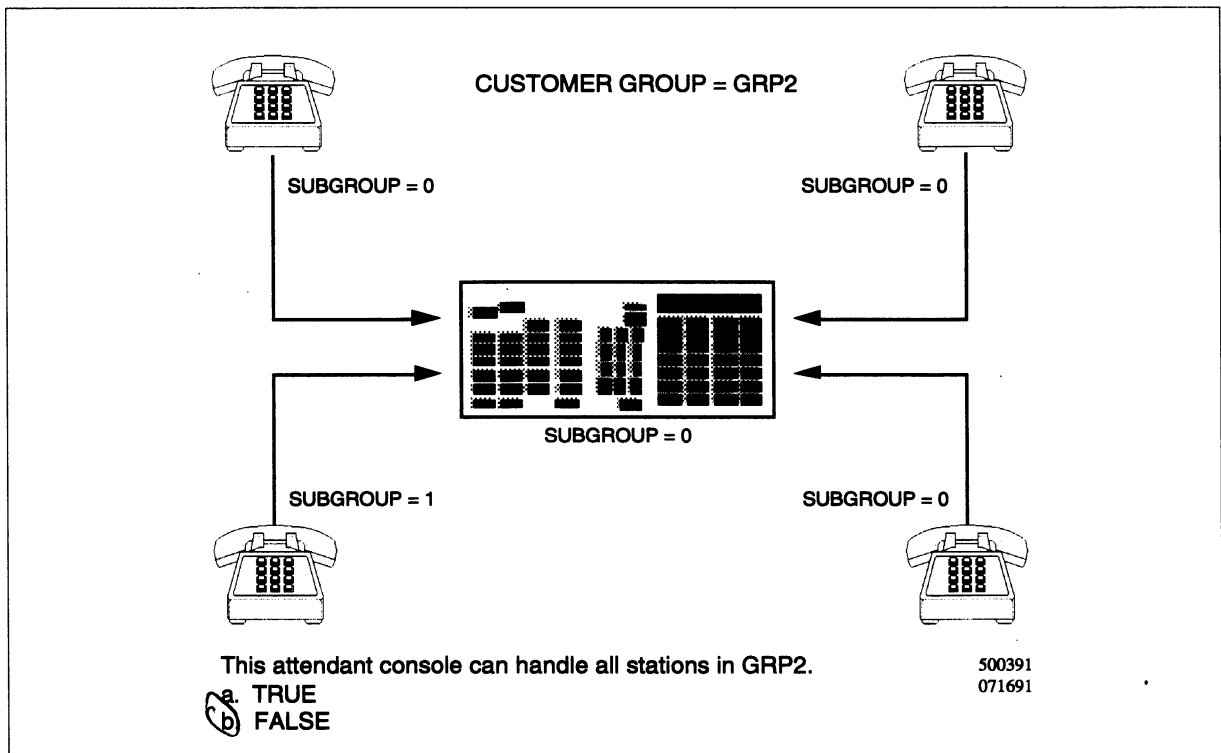
### Instructions:

Use the information presented in this section to answer the following questions. Compare your answers with those found in the Practice 6 Feedback.

1. What is the attendant console's function?
  - a. Processing and extending calls
  - b. Managing billing information
  - c. Switch maintenance
  
2. What feature(s) alert(s) an attendant to a call incoming to an attendant console?
  - a. KLD
  - b. Buzzing
  - c. Lamps lighting/flashing/blinking
  - d. All of the above



3.





---

**Practice 8 Feedback**

1. a
2. d
3. b, not in same subgroup

## **Attendant console data tables**

The following tables are involved in adding an attendant console to a customer group:

- Table CLI
- Table CUSTENG
- Table CUSTCONS
- Table SUBGRP
- Table DNROUTE
- Table LNINV
- Table IBNLINES
- Table ATTCONS
- Table ICIDATA
- Table FNMAP

**Table CLLI**

Every attendant console is assigned a name which is listed in Table CLLI.

| <u>CLLI</u> | <u>ADNUM</u> | <u>TRKGRPSIZ</u> | <u>ADMININF</u>   |
|-------------|--------------|------------------|-------------------|
| CONS1       | 1            | 1                | IBN_GRP1_ATT_CONS |

- **CLLI** (Common Language Location Identifier). The name of the console is entered into this field. It can be up to 16 characters long.
- **TRKGRPSIZ** (Trunk Group Size). Since console is not a part of a trunk group, this field is not applicable. Simply input a "1" in this field.
- **ADNUM** (Administrative Trunk Group Number). This field will associate the Trunk Group Name with a UNIQUE number that can be used by downstream processors for SMDR purposes. The field range is from 0-2047; however, number 0 is usually avoided since some downstream processors do not accept zero as an identifier.
- **ADMINF** (Administrative Information). As this field's name implies, this field is only for your administrative information. It is not used by the switch.

**Table CUSTENG**

Table CUSTENG (Customer Engineering) confirms a customer group's availability to be equipped with attendant consoles. A tuple assigning a console to a customer group would resemble the one below:

**Table CUSTENG**

| <u>CUSTNAME</u> | <u>NONCOS</u>  | <u>NOIBNTMT</u> | <u>CONSOLES</u> | <u>DOMAIN</u> |
|-----------------|----------------|-----------------|-----------------|---------------|
| GRP1            | 25             | 10              | Y               | PRIVATE       |
| <u>GROUPID</u>  | <u>OPTIONS</u> |                 |                 |               |
| 0               | \$             |                 |                 |               |

The Y entry allows attendant consoles to be assigned to GRP1.

## Table CUSTCONS

This table contains a tuple for every customer group which has a Y in the CONSOLES field of Table CUSTENG. CUSTCONS assigns certain options to all consoles on a customer group basis.

### Table CUSTCONS

| CUSTNAME | OPTIONS                                                                                                                                                    |
|----------|------------------------------------------------------------------------------------------------------------------------------------------------------------|
| GRP1     | (SGRPNUM 1) (FLASHTHR 255) (ICINUM 229)<br>(CWNATIM 30) (LPKEY 6) (PEGLA 15)<br>(NDSCTIM 30) (ACCPKTIM 60) (SEC N)<br>(ACO 30 CAMPON 15 N) (HLDRECTO 60)\$ |

Following are brief descriptions of some options that can be added to all the consoles in the customer group at once. There are more options that can be assigned to all your consoles on a customer group basis. Although they are not specified here, they are described in 297-1001-451.

- **SGRPNUM** (Number of Attendant Subgroups). A subgroup is a way of grouping certain phones to be serviced by only certain attendant consoles. This subfield states the number of groupings that this customer group will have.
- **FLASHTHR** (Flashing Threshold). This subfield determines the amount of time (from 0-255 in 4 second increments) that a call, coming into an incoming call identification (ICI) key, will wait before it makes the *ICI key lamp flash*.
- **ICINUM** (Incoming Call Identification (ICI) codes Number). This subfield specifies the maximum number of incoming call identification codes that eventually will be used for the console in your customer group. *max 229*
- **CWNATIM** (Call Waiting/No Answer Time Out). This subfield specifies the amount of time (from 0-240 in 1 second intervals) that will elapse before a call, that meets the conditions stated below, will return to the attendant console:
  - the call has been extended to a station by the attendant console
  - one of the two following conditions happen:
    - 1) the called party ignores this incoming call waiting notification
    - 2) the called party does not answer the ringing (No Answer)
  - If set to 0, such calls will never return to the console. The default value of this subfield is 30 seconds.

- **LPKEY (Loop Keys)**. This subfield specifies the number of loop keys that will be equipped for all consoles in this customer group. The default value is 6 keys. USE 6
- **PEGLA (Peg Late Answers)**. If a call is answered by an attendant after waiting in queue longer than the time specified in this subfield, an OM peg count will be incremented. These increments are 4 seconds in length.
- **NDSCTIM (No Disconnect Timeout)**. Occasionally, the attendant will extend calls to trunks that won't automatically be returned to idle when the far-end party has hung up. The NDSCTIM option specifies the time in seconds that these trunks automatically return to idle under certain circumstances. This time can range from 12 to 60 seconds, the default is 30 seconds.
- **ACCPKTIM (Attendant Call Park Recall Timer)**. This option specifies the amount of seconds that the attendant console can park a call. The range is from 0 to 240 seconds with a default value of 60 seconds. When 0 is used, the time is infinite. This option only applies if Table CUSTHEAD has the CPK option assigned to the customer group.
- **SEC (Secrecy)**. This option allows the attendant console to speak privately with either the calling or called party. N refers to whether LOCKOUT is set for the consoles in the customer group. If LOCKOUT is set to N, the attendant may re-enter a call held on a loop key. If LOCKOUT is set to Y, the attendant cannot re-enter a call held on a loop key. The attendant may be allowed back in the call when one of the parties flashes the switchhook/3WC key.
- **ACO (Attendant Camp-On)**. This option permits attendant extended calls to busy stations to be placed in a waiting (camped-on) condition. When the called station is idle, it is automatically rung and connected to the waiting call.
- **ACORECTO (Attendant Recall Timeout)**. This category of the feature designates a timer from 0 to 60 seconds after which a camped-on call will return to the attendant queue. When 0 is used, the call is never recalled.

- **CAMPON (Camp On).** This portion of the feature refers to the flash type, either **CAMPON** or **FEATURES**. **CAMPON FLASH** indicates the busy set can flash and connect; **FEATURES FLASH** indicates the busy set cannot flash and connect. Fifteen represents a timing parameter for the **ACO\_TONE\_DURATION**. The range is 0-15, the number placed in this field indicates how frequently the busy set will hear a **CAMP-ON** tone at every 100 millisecond intervals. When **N** is used in the **ANNMUSIC** prompt, the caller will not hear an announcement or music. When **Y** is selected, the prompt, **AUDIOGRP**, will appear. The audio group will index into Table Audio to determine the appropriate announcement or music **CLLI** to use.
- **HLDRECTO (Attendant Console Call Hold Recall Timeout).** This option provides a renotification to the attendant when a call has been held longer than a predetermined time limit. The range is 0 to 240 seconds. When 0 is used, there is no notification.

## Table SUBGRP

Table SUBGRP defines certain parameters and options about the console that must be specified on a subgroup basis, rather than on a customer group basis like Table CUSTCONS did. There must be one tuple in this table for each subgroup in your customer group. The number of tuples that can be entered here with a particular customer group name in the key field is governed by the datafill for option SGRPNUM in Table CUSTCONS. A tuple in SUBGRP would look like this:

### Table SUBGRP

| SGRPKEY   |            | SNPA DN  |          | CQOVTRMT  |
|-----------|------------|----------|----------|-----------|
| (CUSTGRP) | (SUBGRPNO) |          |          |           |
| GRP1      | 0          | 214      | 2374000  | 7         |
| COFLTHR   | CQDIVTHR   | STNEXTLN | MINDIGSR | OPTIONS   |
| 5         | 6          | 5        | 5        | EMALTONES |

Below is a brief discussion of the individual fields:

- **SGRPKEY (Subgroup Key).** The key field identifies the specific subgroup that this tuple will be describing. It is comprised of the two subfields listed below:
  - **CUSTGRP (Customer Group).** This part of the key field identifies the customer group of this particular subgroup.
  - **SUBGRPNO (Subgroup Number).** This part of the key field identifies the specific subgroup in the customer group that the tuple will describe. Remember, **there can be as many as eight subgroups (0-7) in one customer group.** However, if there is only one, it will always be numbered 0.
- **SNPA DN (Serving NPA and Directory Number).** This field contains a number that will be used as a reference for Station Message Detail Recording (SMDR). This field consists of two parts:
  - **SNPA (Serving Numbering Plan Area).** This part of the field is the area code of the number that all console calls are recorded (billed) under in SMDR reports.
  - **DN (Directory Number).** This part of the field is the actual seven-digit directory number that all console calls are recorded (billed) under in SMDR reports.
- **CQOVTRMT (Call Queue Overflow Treatment).** This field is the tuple number (treatment) in Table IBNTREAT to which a call is to proceed if the attendant call queue is already full.

- CQFLTHR (Call Queue Flashing Threshold). This field specifies the amount of time that a call must wait in queue before the call queue lamp (at the top center of the console) will begin to flash.
- CQDIVTHR (Call Queue Diversion Threshold). This field is used to limit the number of calls that can be in queue at any one time. An involved formula (which uses this field as only one of its variables) determines the maximum number of calls. A description of the formula may be found in the NTP that describes this table.
- STNEXTLN (Station Extension Length). The value specified in this field determines the number of digits that will be displayed in the attendant's Key Lamp Display (to identify the calling party), when an extension calls the attendant.
- MINDIGSR (Minimum digits Received). When the attendant console dials a number, the switch does not use Table DIGCOL to determine the number of digits that the peripheral processor should collect. Instead, it uses the value in this field for everything the console dials, regardless of the leading digit. *Minimum 5 Digits*
- Options. In another table (ICIDATA), it's possible to identify certain incoming calls to the attendant as emergency calls. These emergency calls can be routed to a specific key/lamp on the console.

### Table DNROUTE

Table DNROUTE lists information for writeable directory numbers (DN) in the switch such as a DN that identifies a route rather than a line equipment number (LEN). Table DNROUTE replaces Table WRDN.

### Table DNROUTE

| <u>AREACODE</u> | <u>OFCCODE</u> | <u>STNCODE</u> | <u>DNRESULT</u> |      |   |    |   |  |
|-----------------|----------------|----------------|-----------------|------|---|----|---|--|
| 214             | 237            | 8000           | M               | GRP1 | 0 | 51 | N |  |



---

Following are brief explanations of the fields:

- AREACODE (0 to 9999999; 1 to 7 digits). The area code identifies a major geographical area served by the switch. If office parameter ACTICE\_DN\_SYSTEM in Table OFCENG is set to North America (NA), the area code must be three digits long.
- OFCCODE (0 to 9999999; 0 to 7 digits). The office code is a subregion of the area code. If office parameter ACTICE\_DN\_SYSTEM in Table OFCENG is set to North America (NA), the area code must be three digits long. The office code name must be specified in TOFCNAME.
- STNCODE (0 to 99999999; up to 8 digits). The station code identifies a unique station within the terminating office (TOFC). If office parameter ACTICE\_DN\_SYSTEM in Table OFCENG is set to North America (NA), the area code must be one or four digits long. If one digit is entered, it is treated as a D-digit represents the fourth digit in the format ABC-DEFG.
- DNRESULT. Dependent on different directory number selectors D, MEM, MM, SYN, T, FEAT. **This course focuses upon the M selector** (refer to 297-1001-451 for details on the other selectors).
  - DNSEL (Directory Number Selector). When M is used, the following subfields CUSTGRP, SUBGRP, ICI, and LDN\_OM\_REPORT must be datafilled.
  - CUSTGRP (Customer Group). Since a Meridian 1 Options 111-211 can have many customer groups with consoles, this subfield identifies which customer group belongs to these consoles.
  - SUBGRP (Subgroup Number). As we discussed earlier, each customer group can be divided into smaller subgroups with different attendant consoles serving each. This subfield identifies which customer group belongs to these consoles.
  - ICI (Incoming Call Identification Code). Each incoming call to the attendant console was given an incoming call identification (ICI) code to help identify and route the call to the correct key/lamp on the console. This subfield assigns the DN in the key field to a specific ICI code.
  - LDN\_OM\_REPORT. Listed directory number report; enter Y to indicate whether the listed DN is monitored by the operational measurement (OM) file. Otherwise, enter N

**Table LNINV**

This table is an inventory of line equipment numbers (LENs). Each Console is assigned three line cards, **two for signaling and one for voice**. To datafill a new attendant console, you must go to Table LNINV to find three consecutive line cards (LENs) assigned to card code (field two) 6X17 and whose status (field four) is HASU (hardware assigned, software unassigned). Several example tuples appear below:

**Table LNINV**

| <u>LEN</u> | <u>CODE</u> | <u>PADGRP</u> | <u>STATUS</u> | <u>GND</u> | <u>BNV</u> | <u>MNO</u> |
|------------|-------------|---------------|---------------|------------|------------|------------|
| 00 0 02 02 | 6X17AC      | STDLN         | HASU          | N          | NL         | N          |
| 00 0 02 03 | 6X17AC      | STDLN         | HASU          | N          | NL         | N          |
| 00 0 02 04 | 6X17AC      | STDLN         | HASU          | N          | NL         | N          |

Recall that Practice 3 from Lesson DMS010, Use Table Editor, teaches you how to obtain HASU LENs.

## Table IBNLINES

Table IBNLINES is used by the switch to determine several things about an originating station. This is the first table that the CPU accesses to determine the customer group and NCOS of the originator. Table IBNLINES also contains information about line cards that are assigned to attendant consoles. To put a line into service, you use the SERVORD subsystem, which automatically creates a tuple in Table IBNLINES for the station line card. However, SERVORD cannot be used to place a console into service. Instead, three tuples must be manually created in Table IBNLINES (one tuple for each of the three line cards that the console will use). The kind of information that this table stores about line cards used by consoles is different from those used by stations. Below is an example of the three line card assignments for one attendant console. A brief discussion of each field follows the example.

### Table IBNLINES

| <u>LEN</u> |   |    |    | <u>RESULT</u>  |                  |                 |                |                   |
|------------|---|----|----|----------------|------------------|-----------------|----------------|-------------------|
|            |   |    |    | <u>(DNNUM)</u> | <u>(SIGTYPE)</u> | <u>(FORMAT)</u> | <u>(ACNUM)</u> | <u>(CARDTYPE)</u> |
| 00         | 0 | 02 | 02 | 0              | DP               | AC              | 255            | NIL_CARD_TYPE     |
| 00         | 0 | 02 | 03 | 0              | DP               | AC              | 255            | NIL_CARD_TYPE     |
| 00         | 0 | 02 | 04 | 0              | DP               | AC              | 255            | NIL_CARD_TYPE     |

- **LEN** (Line Equipment Number). The LEN number for each line card must be entered into this key field. Remember, three line cards (and thus three tuples) must be entered here for each console.
- **RESULT**. This field is to describe more information about each line card. The exact information is described in the subfields described below.
  - **SIGNTYPE** (Signal Type). This subfield specifies the type of pulsing (dial pulse or Digitone) that the CPU should expect from this line card. For attendant consoles, the signal type should be **dial pulse** (DP).
  - **FORMAT**. This subfield specifies whether the LEN is utilized by a station (STN) or an attendant console (AC). The correct entry here should be AC.

- ACNUM. The maximum number of consoles that one Meridian 1 Options 111-211 can have is 255. This subfield identifies which console a LEN is assigned to by the number (0-254) that's been assigned to a console. Since this number has not yet been assigned to the console, simply enter 255 here. This is a dummy number. **When Table ATTCONS is datafilled, a number will be assigned to the console and this subfield will automatically be updated by the switch.**
- CARDTYPE (Card Type). This field identifies the function of the cards. As you will remember, one console card is used for voice, another for incoming signals, and another for outgoing signals. When first placing the console into service, simply put **NIL\_CARD\_TYPE** for all three LENSs. **The function of the LENSs are also specified in Table ATTCONS later, which automatically updates this subfield to reflect the correct function (e.g., TALKLEN; INLEN; or OUTLEN).**

## Table ATTCONS

As you can see from the example below, Table ATTCONS contains much of the same information about consoles (e.g., customer group name, NCOS, subgroup number) that Table IBNLINES contains about stations. Remember, when a console places a call, the CPU uses this table (instead of Table IBNLINES) to obtain the necessary initial information about the originating console to be able to process its call.

### Table ATTCONS

| <u>CONSOLE</u>  | <u>CUSTNAME</u> | <u>SUBGRP</u> | <u>NCOS</u>    | <u>CDR</u> |
|-----------------|-----------------|---------------|----------------|------------|
| CONS1           | GRP1            | 0             | 3              | Y          |
| <u>CARDCODE</u> | <u>INLEN</u>    | <u>OUTLEN</u> | <u>TALKLEN</u> |            |
| 4X08AB          | 00 0 02 02      | 00 0 02 03    | 00 0 02 04     |            |
| <u>INSV</u>     | <u>OPTION</u>   |               |                |            |
| Y               | BUZZ SHORT      |               |                |            |

- **CONSOLE.** The key field in this table is the name of the console. The CPU uses this name (key field) as a point of reference when the console originates a call. Contrast this to the CPU using a LEN as a point of reference in Table IBNLINES when a station originates a call.
- **CUSTNAME (Customer Name).** As you assigned a customer group name to a station in Table IBNLINES, you must assign this particular console to a customer group.
- **SUBGRP (Subgroup Number).** A subgroup number assigns stations to certain groups of attendant consoles. This field identifies the subgroup number (0-7) that is assigned to a particular console.
- **NCOS (Network Class of Service).** This field assigns a Network Class of Service that is used to determine the dialing privileges or restrictions of this console.
- **CDR (Call Detail Recording).** Just as you can assign the feature SMDR to a station, you can assign SMDR to a console by inputting Y (Yes) in this field. If you want SMDR to record only certain kinds of calls, input N (No) here and say Y (Yes) to the particular types of calls in the tuples that permit those calls in Table IBNXLA.

- **CARDCODE** (Card Code). The console can be set up to receive data at 300 or 1200 baud, depending on the type of microchip it has in it. This field reflects the Product Engineering Code (PEC) of that chip. A cardcode of 4X08AA receives data at 300 baud, while 4X08AB receives data at 1200 baud.
- **INLEN** (Incoming to Switch Line Card). This field shows the physical location of the line card that will send signals from the console's keyboard to the CPU. The physical location of a card in an ELCM consists of the frame number (0-99), the unit number (0-1), the line subgroup number (0-19), and the circuit or card number (0-31).
- **OUTLEN** (Outgoing from Switch Line Card). This field shows the physical location of the line card that will transmit signals (information) from the switch to the console.
- **TALKLEN** (Talking Circuit Line Card). This field shows the physical location of the line card that will transmit and receive voice.
- **INSV** (Inservice Status). This field determines the inservice status of the console after a cold restart or reload. If you wish it to automatically be brought back into service, even if it was offline initially, input Y (Yes). Enter N (No) for consoles that are to remain offline after cold restarts and reloads.
- **OPTION**: There are two possible options that can be added to a console in this field. One is the option of sending this console an audible tone or buzz for an incoming call. The second option is having the attendant's Key Lamp Display (KLD) show its messages in a language other than English (e.g., French). These options are further defined below:
  - **BUZZ**: This option can be added to the option field if an audible tone or buzz is wanted to alert the console of an incoming call. To further refine this option, one of the following entries can be specified after BUZZ is specified as an option:
    - **SHORT**: This entry sends one short buzz message to the console.
    - **LONG**: This entry sends repeated timed buzz messages to the console.
    - **TONE**: This entry sends no buzz message to the console but instead sends an alert tone to the headset.
    - **BOTH**: This entry sends both one short buzz message to the console and an alert tone to the headset.
    - **LANG** (Language). If you wish the console's Key Lamp Display to display its messages in a language other than English, you can add the option of LANG followed by one of the seven languages that can be defined in Table ACLANG. If you want the KLD to display in English, simply input a \$ instead of LANG.

## Table ICIDATA

Each call sent to the attendant console is routed there after an (ICI) code has been attached to it. This code lights up a particular key/lamp on the console faceplate and displays a message in the attendant's Key Lamp Display (KLD).

Table ICIDATA is the table that assigns the message that the attendant will see in the KLD when she/he answers a call that's been assigned a particular ICI code. This table also allows you to assign several kinds of options (night service treatments, emergency indicators, etc.) to these codes on an individual basis.

Following, are several examples of ICIDATA tuples and descriptions of the field headings.

Table ICIDATA

| <u>KEY</u>       |                  | <u>NAME</u> | <u>OPTIONS</u> |        |       |    |
|------------------|------------------|-------------|----------------|--------|-------|----|
| <u>(CUSTGRP)</u> | <u>(ICICODE)</u> |             |                |        |       |    |
| GRP1             | 1                | DIALO       | NSDIGS         | 75542  |       | \$ |
| GRP1             | 2                | NOANSRC     | \$             |        |       |    |
| GRP1             | 4                | CWAITRC     | \$             |        |       |    |
| GRP1             | 8                | INTECPT     | \$             |        |       |    |
| GRP1             | 25               | DIRECT      | \$             |        |       |    |
| GRP1             | 28               | ALERT       | EMERG          | NSDIGS | 75542 | \$ |
| GRP1             | 51               | LDN         | ATTPRG         | NSDIGS | 75542 | \$ |
| GRP1             | 63               | INFO        | ATTPRG         |        |       | \$ |

- **KEY (ICIDATA Key).** The key field of this table is comprised of two subfields, described below:
  - **CUSTGRP (Customer Group Name).** The incoming call identification codes are assigned names (field two) and options (field three) on a customer group basis. Thus, this part of the key field identifies the customer group to which the ICI code belongs.
  - **ICICODE (Incoming Call Identification Code).** This part of the key field lists the ICI code that this tuple will focus on. The number of codes that can be here is determined by your earlier entry in the option ICINUM in Table CUSTCONS. The switch takes the number in ICINUM and adds it to the 26 codes already prereserved by NTI, to determine the total number of ICI codes that can be specified for this customer group. If you are using any of the 26 prereserved ICIs, you must still add them to this table.

- **NAME (KLD Name).** This field assigns a name that will appear on the console's KLD, anytime the attendant answers a call assigned to this code. When the attendant answers a call assigned to code 1 in the example above, the message DIALO will appear in the KLD. When the attendant answers a call assigned to code 63, the message INFO can be read on the KLD. Remember that Northern Telecom has taken the first 26 incoming call identification (ICI) code (0-25) and already assigned certain kinds of calls to them. The names of these codes should reflect that assignment. A list of these codes and their suggested names can be found at the front of the NTP that describes Table ICIDATA.
  - **OPTIONS:** Several kinds of options can be assigned to an individual ICI code. Below is a brief description of some of these options.
  - **EMERG (Emergency ICI).** This option allows all attendants in a customer group to be alerted with an audible tone (also refer to option EMAL in Table SUBGRP) any time a call comes in on an ICI that has this option assigned to its code.
  - **NSDIGS (Night Service Digits).** This option allows you to specify (from the VDU) a number to which night incoming calls should be routed. (Night Service is used when there are no attendants on duty.) If you specify this option, then the system will prompt you for **digits**. You may then specify a number (up to 18 digits long) to which the call should be routed.
  - **ATTPRG (Attendant-Programmable Night Service).** This option allows the attendants to program certain ICI codes with special night-service routes. Any attendant can program an ICI code that has been assigned this option if that console has a Night Service Program Key. When all the consoles are in a night-service state, then incoming calls to a particular ICI code will be routed to the number that the attendant specified for that code. Night service is invoked on a customer group basis, not a subgroup basis.
- If an individual ICI code (in Table ICIDATA) does not have night service digits assigned to it, incoming calls to that ICI will receive BUSY treatment in Table TMTCNTL.
- **DIRECT (Directory Number is directed to a particular console).** This option allows a station to directly call a particular console. This is the alternative to the user dialing 0 and being routed to any console in the customer group which is not in a call processing mode.

**Table DNROUTE**

214 237 8001 T OFRT 40

**Table OFRT**

| <u>RTE</u> | <u>RTESEL</u> | <u>CONNTYPE</u> | <u>CLLI</u> |
|------------|---------------|-----------------|-------------|
| 40         | S             | D               | CONS1       |



## Table FNMAP

Two fields comprise Table FNMAP: KEY and RESULT. Below are examples of various FNMAP tuples and a brief discussion of the fields.

### Table FNMAP

| <u>KEY</u>       |                | <u>RESULT</u>   |              |               |
|------------------|----------------|-----------------|--------------|---------------|
| <u>(CONSCLI)</u> | <u>(ACKEY)</u> | <u>(KEYSEL)</u> | <u>(ICI)</u> | <u>(SPFN)</u> |
| Key-CONS1 →      | 3              | ICICODE         | 51           |               |
| CONS1            | 4              | SPECL           |              | PARK          |
| CONS1            | 5              | SPECL           |              | UNPK          |
| CONS1            | 9              | ICICODE         | 25           |               |
| CONS1            | 15             | SPECL           |              | TRBL          |
| CONS1            | 16             | SPECL           |              | WC            |

- **KEY:** As its name implies, this is the key field of the tuple and consists of the following two subfields:
  - **CONSCLI** (Console CLI). The first part of the key field is name of the console that this tuple is mapping. Remember, this table assigns the functions of keys on an individual console basis.
  - **ACKEY** (Attendant Console Key). The second part of the key field specifies the particular console key that this tuple is mapping. The numbers of the keys that are assignable are 2-43.
- **RESULT** This field defines how the key specified in the first field will be used. It consists of the following subfield.
- **KEYSEL** (Key Selector). In this part of the second field, you can specify whether the key activates features. If it is used to receive incoming calls, then input ICICODE. It will prompt you for the specific ICI code that should be assigned to this key. If, however, it is to be used to activate features, then input SPECL. It will ask you for the name of the special function (SPFN) or feature that's to be assigned to this key.

As its names implies, Table FNMAP maps out the function of each of the 42 assignable keys/lamps on the attendant console. Each of these keys can be used for one of four purposes:

1. To receive incoming calls. Incoming calls are not directly assigned to a key. Instead, they are assigned to ICI codes, which are, in turn, assigned to various keys. The routing of calls to keys on the console can be represented as follows:

An Incoming Call -->ICI Code --> Console Key.

Table FNMAP is used to specify which ICI code should be routed to which console key.

2. To activate certain features. Attendants can press their keys not only to answer various types of incoming calls, but also to activate certain features. Some of these features are common features that also can be assigned to stations via SERVORD (e.g., Call Park), but most of the features are unique to the console (e.g., Busy Verification, Line, Time, etc.). There is a complete listing of these in the NTP 451 series).
3. To identify a particular trouble. A feature which is unique to the Attendant Console is the TROUBLE CODE Feature. This feature is assigned to a feature key in Table FNMAP. A set of trouble codes, defined by the customer through the datafill, allows the attendant to classify the problem in the most appropriate category. This TROUBLE CODE feature is activated when the attendant depresses the Trouble Code Key and dials the appropriate Trouble Code. There can be up to 100 codes specified to represent various troubles.

Once this key has been assigned, Table TRBLCODE must be datafilled to list these codes and identify the condition that they represent. Following is an example of the TRBLCODE Table.

#### **Table TRBLCODE**

| <u>Code</u> | <u>Message</u>   | <u>Alarm</u> |
|-------------|------------------|--------------|
| 00          | Malicious Call   | MJ           |
| 01          | Weak Destination | NA           |
| 02          | Weak Source      | NA           |
| 03          | Call Dropped     | MN           |
| 50          | Bomb Threat      | CR           |

- 
4. To establish a wild card key. Still another feature unique to the attendant console is the WILD CARD feature. This feature is assigned through FNMAP to one key. As there are only 42 assignable keys to each console, this feature is used to preserve those Special Function Keys. Most features which are normally available through the use of a feature key can be evoked through the WILD CARD Key. The Wild Card Key can have up to 100 access codes. Depressing the Wild Card Key and dialing the appropriate access code, the attendant can utilize the same key for many features.

Once this key has been assigned, Table WCKCODES must be datafilled to list these access codes and identify the feature that they represent. The following is an example of the WCKCODES Table.

**Table WCKCODE**

| <u>CUSTCLLI</u> | <u>TABIDX</u> | <u>WCSPFN</u> |
|-----------------|---------------|---------------|
| GRP1            | 18            | BVL           |
| GRP1            | 19            | BVT           |

## Datafilling tables for attendant consoles

The following steps are involved in datafilling these tables. NTP documentation advises that you follow the steps listed.

1. Enter Table CLLI  
Add attendant console name
2. Enter Table CUSTENG  
Confirm that CONSOLE Field is set to Y (Yes)
3. Enter Table CUSTCONS  
Add Customer Group Name and applicable options (including enough ICINUMS)
4. Enter Table SUBGRP  
Add Billing DN and other parameters for the console in this subgroup
5. Enter Table DNROUTE  
Add Listed DN for your attendant console
6. Enter Table LNINV  
Try to find three consecutive LENS that are HASUs. When obtaining LENSs from Table LNINV, try to select consecutive LENS or LENS in the same line subgroup (LSG).
7. Enter Table IBNLINES  
Using DMOs, reserve 3 LENSs for an attendant console. Designate the LENSs as NIL\_CARD\_TYPE. Tuple entries for the three attendant console LENSs should be entered in this way:

| <u>LEN</u>         | <u>RESULT</u>                          |
|--------------------|----------------------------------------|
|                    | SIGTYPE    FORMAT    ACNUM    CARDTYPE |
| HOST 00 0 02 02 DP | AC            255        NIL_CARD_TYPE |
| HOST 00 0 02 03 DP | AC            255        NIL_CARD_TYPE |
| HOST 00 0 02 04 DP | AC            255        NIL_CARD_TYPE |

8. Enter Table ATTCONS

Add attendant console name, state what customer group, subgroup, and NCOS it belongs to, and three LENS' functions.

9. Enter Table ICIDATA

Assign names and options to ICI codes.

10. Enter Table FNMAP

Assign KEY/Lamps to be used either to receive ICI codes or to activate special features.

**Basic datafill for adding an attendant console in an existing subgroup**

- 1 Enter Table CLLI  
Add Attendant Console Name
- 2 Enter Table LNINV  
Find 3 HASU 6X17 LENSs (consecutive, if possible)
- 3 Enter Table IBNLINES  
Designate three LENSs with a FORMAT of A.C. (Attendant Console)  
and a CARDTYPE of NIL\_CARD\_TYPE
- 4 Enter Table ATTCONS  
Add Attendant Console Name, state what customer group, subgroup,  
and NCOS it belongs to and its three LENSs' functions.
- 5 Enter Table FNMAP  
Assign KEYS/Lamps to be used to either received ICI codes or to  
activate special features

**Tables used to set up attendant console**

The following tables shows sample tuples associated with an attendant console.

**Table CLLI**

| <u>CLLI</u> | <u>ADNUM</u> | <u>TRKGRSIZ</u> | <u>ADMININF</u>   |
|-------------|--------------|-----------------|-------------------|
| CONS1 24    |              | 10              | IBN_GRP1_ATT_CONS |

**Table CUSTENG**

| <u>CUSTNAME</u> | <u>NONCOS</u>  | <u>NOIBNTMT</u> | <u>CONSOLES</u> | <u>DOMAIN</u> |
|-----------------|----------------|-----------------|-----------------|---------------|
| GRP1            | 25             | 10              | Y               | PRIVATE       |
| <u>GROUPID</u>  | <u>OPTIONS</u> |                 |                 |               |
| 0               | \$             |                 |                 |               |

**Table CUSTCONS**

| <u>CUSTNAME</u> | <u>OPTIONS</u>                                                                                |
|-----------------|-----------------------------------------------------------------------------------------------|
| GRP1            | (SGRPNUM 1) (FLASHTHR 255)<br>(ICINUM 229) (CWNATIM 30)<br>(LPKEY 6) (PEGLA 15)(NDSCTIM 30)\$ |

**Table SUBGRP**

| <u>SGRPKEY</u>  | <u>SNPA</u>     | <u>DN</u>      | <u>CQCVRMT</u> | <u>COFLTHR</u> | <u>CODIVTHR</u> |
|-----------------|-----------------|----------------|----------------|----------------|-----------------|
| GRP1 0          | 214             | 2374000        | 7              | 5              | 6               |
| <u>STNEXTLN</u> | <u>MINDIGSR</u> | <u>OPTIONS</u> |                |                |                 |
| 5               | 5               | EMALTONE \$    |                |                |                 |

**Table DNROUTE**

|     |     |      |   |      |   |    |   |
|-----|-----|------|---|------|---|----|---|
| 214 | 237 | 4000 | M | GRP1 | 0 | 51 | N |
|-----|-----|------|---|------|---|----|---|

**Table LNINV**

| <u>LEN</u>      | <u>CARDCODE</u> | <u>PADGRP</u> | <u>STATUS</u>   |
|-----------------|-----------------|---------------|-----------------|
| HOST 00 0 02 02 | 6X17AB          | STD LN        | WORKING         |
| HOST 00 0 02 03 | 6X17AB          | STD LN        | WORKING         |
| HOST 00 0 02 04 | 6X17AB          | STD LN        | WORKING         |
| <u>GND</u>      | <u>BMV</u>      | <u>MNO</u>    | <u>CARDINFO</u> |
| N               | NL              | N             | NIL             |
| N               | NL              | N             | NIL             |
| N               | NL              | N             | NIL             |

**Table IBNLINES**

| <u>LEN</u>              | <u>RESULT</u> |
|-------------------------|---------------|
| HOST 00 0 02 02 DP AC 0 | INC_SIG_CARD  |
| HOST 00 0 02 03 DP AC 0 | OUT_SIG_CARD  |
| HOST 00 0 02 04 DP AC 0 | VOICE_CARD    |

**Table ATTCONS**

| <u>CONSOLE</u>  | <u>CUSTNAME</u> | <u>SUBGRP</u>   | <u>NCOS</u> | <u>CDR</u> | <u>CARDCODE</u> |
|-----------------|-----------------|-----------------|-------------|------------|-----------------|
| CONS1           | GRP1            | 0               | 3           | Y          | 4X08AB          |
| <u>INLEN</u>    | <u>OUTLEN</u>   | <u>TALKLEN</u>  |             |            |                 |
| HOST 00 0 02 02 | HOST 00 0 02 03 | HOST 00 0 02 04 |             |            |                 |
| <u>INSV</u>     | <u>OPTIONS</u>  |                 |             |            |                 |
| Y               | BUZZ SHORT \$   |                 |             |            |                 |

**Table ICIDATA**

| <u>KEY</u> | <u>NAME</u> | <u>OPTIONS</u> |
|------------|-------------|----------------|
| GRP1 1     | DIALO       | NSDIGS 55542   |
| GRP1 51    | LDN         | \$             |

**Table FNMAP**

| <u>KEY</u> | <u>RESULT</u> |
|------------|---------------|
| CONS1 2    | ICICODE 1     |
| CONS1 3    | ICICODE 51    |
| CONS1 4    | SPECL PARK    |
| CONS1 11   | SPECL UNPK    |



**TRAVER for an attendant console that dials a station**

The following TRAVER shows an example of an attendant console calling a station.

```

TRAVER C CONS1 78930 T
TABLE ATTCONS
CONS1 GRP1 0 3 Y 4X08AB HOST 00 0 02 02 HOST 00 0 02 03 HOST 00 0
02 04 Y $
TABLE NCOS
GRP1 3 0 0 NCOS3 $
TABLE CUSTHEAD: CUSTGRP, PRELIMXLA, CUSTXLA, FEATXLA,
VACTRMT, DIGCOL
GRP1 NXLA CTN1 FTN1 0 DCN1
TABLE DIGCOL
DCN1 7 COL L 4
NCOS PRELIM XLA name is NIL. Go to next XLA name.
CUST PRELIM XLA name is NIL. Go to next XLA name.
TABLE IBNXLA: XLANAME CTN1
CTN1 7 EXTN Y Y 214 237 5 $
TABLE TOFCNAME
214 237
TABLE DN
214 237 8930 L HOST 00 0 00 28

```

+++ TRAVER: SUCCESSFUL CALL TRACE +++



## Practice 7: Attendant console

### Instructions:

Obtain 297-1001-451 to research the tables discussed in this section or use the information presented in this section to answer the following questions. Compare your answers with those found in the Practice 7 Feedback.

1. How many line cards are required to support the attendant console?

3 6x17AC

2. When datafilling the setup for a console, in what table do you locate available line cards that are to be used to support the attendant console?

- a. LNINV-
- b. IBNLINES
- c. LENLINES
- d. LENTAB

3. When setting up a new attendant console, why must you datafill Table CLI?

- a. To legitimize the console name
- b. To assign a trunk group to the console
- c. To allow line cards to be attached to the console
- d. To allow the use of the console name in Table IBNLINES

4. How many attendant consoles can the Meridian SL-100 support?

- a. 143
- b. 144
- c. 255
- d. 256



5. A call to an attendant console is always routed to any available console having the same \_\_\_\_\_ as the calling station.
- a. subgroup number
  - b. customer group name
  - c. console name
  - d. directory number
6. Once a console extends a call to a station, the console \_\_\_\_\_.
- a. remains connected to the call, but cannot interrupt the conversation.
  - b. continues to list the call's ICI on its KLD.
  - c. is released from the connection.
7. Complete the following analogy: Table IBNLINES is to stations as Table \_\_\_\_\_ is to \_\_\_\_\_.
- a. LNINV / lines
  - b. ATTCONS / attendant consoles
  - c. CUSTCONS / subgroups
  - d. CUSTENG / customer groups
8. Which table contains a tuple for EVERY customer group that has consoles enabled in Table CUSTENG?
- a. ATTCONS
  - b. CONSENG
  - c. CUSTCONS
  - d. DNROUTE
9. A(n) \_\_\_\_\_ can have as many as eight subgroups assigned to it.
- a. console CLI
  - b. Meridian 1 (Options 111,211)
  - c. attendant console
  - d. customer group

10. For Table CUSTCONS, what happens when you are datafilling a new console and you elect to skip over the Number of Attendant Subgroups prompt?

- Don't*
- a. The entry defaults to "0".
  - b. The entry defaults to "1".
  - c. The entry defaults to the number of subgroups.
  - d. You can't skip this subfield.

11. For a given tuple in Table CUSTCONS, Subfield FLASHTHR has an entry of 15. What is this value equivalent to?

- a. 15 seconds
- b. 30 seconds
- c. 60 seconds
- d. 90 seconds

12. What is Table DNROUTE's role in supporting the attendant console?

- a. It assigns LENS to each customer group.
- b. It lists write-only data for ICIs.
- c. It enables consoles for customer groups.
- d. It lists the DN for each console subgroup.

13. An incoming call is routed to a respective console after \_\_\_\_\_

- a. the switch determines the call's features.
- b. an ICI code has been assigned to the call.
- c. the console has located its subgroup number.
- d. the console exhausts its incoming call queue.

14.

TABLE: ICIDATA

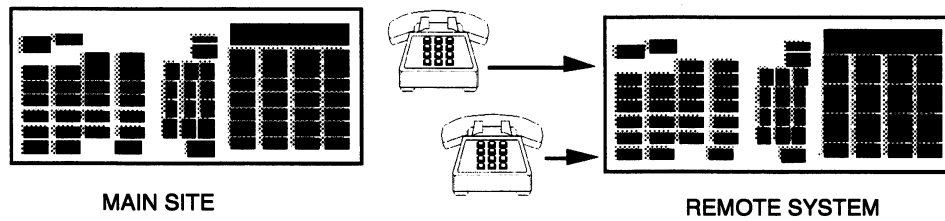
| GRP1 | KEY | NAME  | OPTIONS         |
|------|-----|-------|-----------------|
|      | 1   | DIAL0 | NSDIGS 75542 \$ |

What does the tuple above instruct the switch to do?

- a. When a subscriber dials "1", the call goes to Night Service extension 75542.
- b. When a subscriber dials "1", display a "DIAL 0" in the console's KLD.
- c. Calls assigned ICICODE 1 will display "DIAL 0", then go to extension 75542.
- d. Calls assigned ICICODE 1 will display a "DIAL 0" in the console's KLD.

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080691

15.



Given: You have two consoles: one at your main site, one at a remote site. Both consoles belong to the same customer group.

Question: How do you ensure that phones at the remote site will be able to dial only the console at the remote site?

- a. Assign each console to a separate subgroup number.
- b. Hardware the remote phones to the remote site console.
- c. Assign the remote phones to a new customer group.
- d. Change the remote site console's DN.

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071691

### Practice 7 Feedback

- |    |   |     |   |
|----|---|-----|---|
| 1. | 3 | 9.  | d |
| 2. | a | 10. | a |
| 3. | a | 11. | c |
| 4. | c | 12. | d |
| 5. | a | 13. | b |
| 6. | c | 14. | d |
| 7. | b | 15. | a |
| 8. | c |     |   |



## Practice 8: Creating a new customer group

### Situation:

Congratulations! You have been promoted to the senior database technician at your job site. You have been given the responsibility of creating a new customer group for the system. Your supervisor has provided information about the new customer group, and advised you that the database must be finished by the end of the working day. You need to provide him with a hard copy of the TRAVERS which will support the database having the following functions: attendant consoles, abbreviated dialing, ambiguous codes, octothorpe translators, 6-digit screening, prefixing digits, CBQ, OHQ, ERWT, and codeblocking. Your supervisor (instructor) will be checking the TRAVERS over very carefully.

### Instructions:

Your task is to correctly datafill the appropriate tables to support off-hook queueing, call back queueing, expensive route warning tones, attendant consoles, as well as code blocking, a REPL selector, abbreviated dialing, network dialing, six-digit screening, zero minus dialing, and intraswitch dialing in a Meridian 1 Options 111-211. **Note: This practice adds an additional NCOS.**

- Complete Strategy Sheets for Translators, Screening, and Routing.
  - Translator Strategy Sheet. Look at your dialing plan in the Database Questionnaire (especially the NCOS matrix) and plan your strategy for using translators on the Translator Strategy Sheet.
  - Strategy Sheet for Screening
  - Routing Strategy Sheet. Plan how different NXXs and NPAs should be coded and then routed out of the switch via Table HNPACONT and its subtables.
- **Fill out one form for each table** that is listed on the following pages using the appropriate NTPs and information provided as references.



Figure 10  
NCOS matrix

| NCOS MATRIX |           | CUSTOMER GROUP NAME: GRP <u>10</u> |        |                 |         |               |               |              |                |      |               |                 |            |              |               |               |             |                  |                    |            |            |           |                 |            |         |         |              |              |              |                |            |                        |
|-------------|-----------|------------------------------------|--------|-----------------|---------|---------------|---------------|--------------|----------------|------|---------------|-----------------|------------|--------------|---------------|---------------|-------------|------------------|--------------------|------------|------------|-----------|-----------------|------------|---------|---------|--------------|--------------|--------------|----------------|------------|------------------------|
|             |           | POSSIBLE DIALING PATTERNS          |        |                 |         |               |               | FEATURE INFO |                |      |               |                 |            | QUEUING INFO |               |               |             |                  |                    |            |            |           |                 |            |         |         |              |              |              |                |            |                        |
| NCOS NUMBER | STN - STN | DIAL O (ATT)                       | (CI=1) | DIAL 113 (INFO) | (CI=63) | 9+00 OPERATOR | 9+01 OVERSEAS | (OA)         | 9+011 OVERSEAS | (DD) | 9+0+10 DIGITS | 9+1+7/10 DIGITS | 9+7 DIGITS | 9+1+900      | * EQUIV. (12) | # EQUIV. (13) | ABBREVIATED | DIALING #76, #77 | CALL PARK RETRIEVE | (PRKR) #79 | RING AGAIN | (RAG) *76 | CALL PARK STORE | (PRKS) *79 | OHQ Y/N | CBO Y/N | CBO SP (0-3) | CBO MP (0-3) | CBO RA (Y/N) | CBO OPTS (1-2) | ERWT (Y/N) | ADDITIONAL INFORMATION |
| 0           |           | X                                  | X      | X               | X       | X             | X             | X            | X              | X    | X             | X               | X          | X            | X             | X             | X           | X                | X                  | X          | X          | X         | X               | X          | Y       | Y       | 3            | 3            | Y            | 2              | N          |                        |
| 1           |           | X                                  | X      | X               | X       | X             | X             | X            | X              | X    | X             | X               | X          | X            | X             | X             | X           | X                | X                  | X          | X          | X         | X               | X          | Y       | Y       | 2            | 3            | Y            | 1              | Y          |                        |
| 2           |           | X                                  | X      | X               | X       | X             | X             | X            | X              | X    | X             | X               | X          | X            | X             | X             | X           | X                | X                  | X          | X          | X         | X               | X          | N       | Y       | 0            | 0            | N            | 1              | Y          |                        |
| 3           |           | X                                  | X      | X               | X       | X             | X             | X            | X              | X    | X             | X               | X          | X            | X             | X             | X           | X                | X                  | X          | X          | X         | X               | X          | Y       | Y       | 2            | 3            | Y            | 2              | Y          |                        |

} NCOS

300054  
042790

STDPRT  
PTN  
CodeBIK

**Figure 11**  
**Translator strategy sheet**

| Who (majority or specific NCOS) gets what dialing privileges or restrictions: |       | Translator name (CTN_, PTN_, FTN_) you will use in Table IBNXLA to give it to them. | In Table IBNXLA:<br>(1) What digit(s) will this translator focus on?<br>(2) What will be the "instructions" (i.e., TRSEL). e.g., EXTN, ATT, TRMT, NET, etc. ? | What table tells me who "owns" this translator name? |
|-------------------------------------------------------------------------------|-------|-------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------|
| Who?                                                                          | What? | FTN 79<br>OCT 79                                                                    | FEAT<br>FEAT                                                                                                                                                  | Tuple entered <input checked="" type="checkbox"/>    |
| Majority                                                                      |       | CTN 3                                                                               | EXTN                                                                                                                                                          | Table NCOS                                           |
|                                                                               |       | CTN 0                                                                               | ATT ICI 1                                                                                                                                                     |                                                      |
|                                                                               |       | CTN 113                                                                             | ATT ICI 63 INFO                                                                                                                                               |                                                      |
|                                                                               |       | CTN 9                                                                               | NET                                                                                                                                                           |                                                      |
|                                                                               |       | CTN 12                                                                              | STAR                                                                                                                                                          |                                                      |
|                                                                               |       | CNT 13                                                                              | OCT                                                                                                                                                           |                                                      |
|                                                                               |       | OCT 76                                                                              | RDL                                                                                                                                                           |                                                      |
|                                                                               |       | OCT 77                                                                              | REDL                                                                                                                                                          |                                                      |
| Only NCOS 0                                                                   |       | FTN 76                                                                              | FEAT                                                                                                                                                          |                                                      |
|                                                                               |       | PTN10 0                                                                             |                                                                                                                                                               |                                                      |
| Only NCOS 1                                                                   |       | PTN31 9                                                                             | NET                                                                                                                                                           |                                                      |
|                                                                               |       |                                                                                     |                                                                                                                                                               |                                                      |
| Only NCOS 2                                                                   |       | PTN32 113                                                                           | TRMT VAET                                                                                                                                                     |                                                      |
|                                                                               |       | PTN 32 9                                                                            | NET                                                                                                                                                           |                                                      |
| Only NCOS 3                                                                   |       | PTN10 3                                                                             |                                                                                                                                                               |                                                      |
|                                                                               |       |                                                                                     |                                                                                                                                                               |                                                      |

500015b  
011591

Figure 12  
Strategy sheet for screening calls

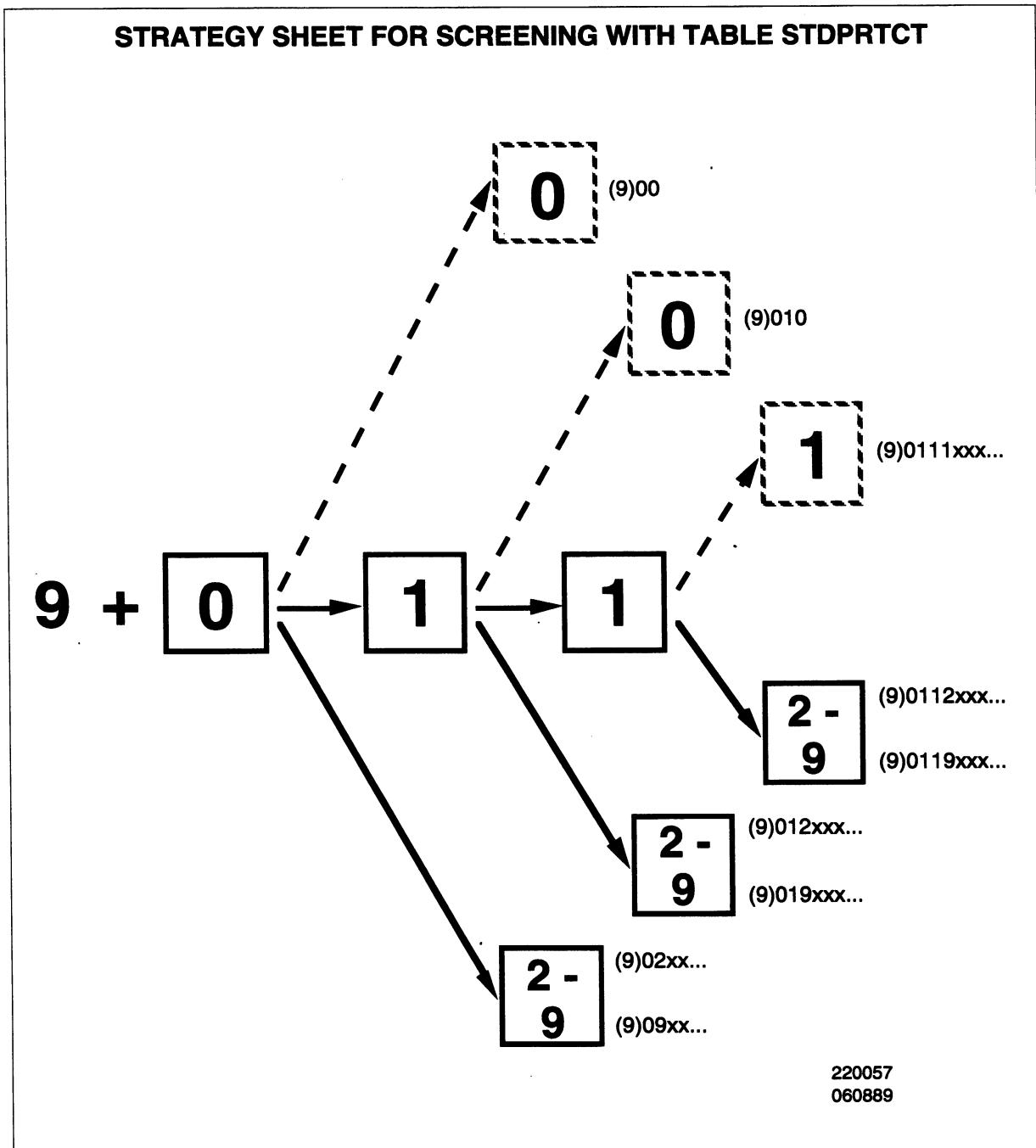


Figure 13  
Strategy sheet for screening calls

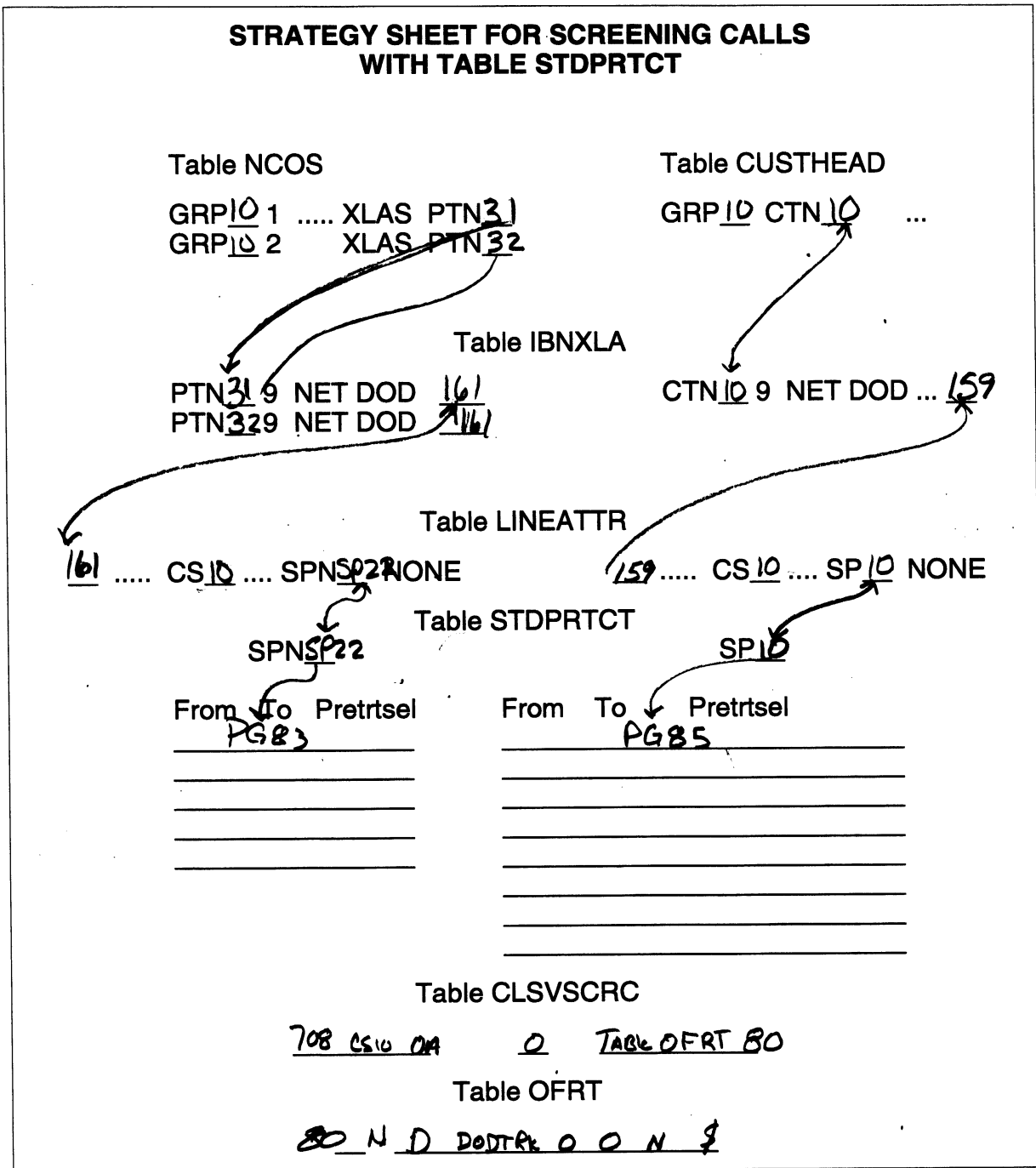


Figure 14  
Trunking diagram

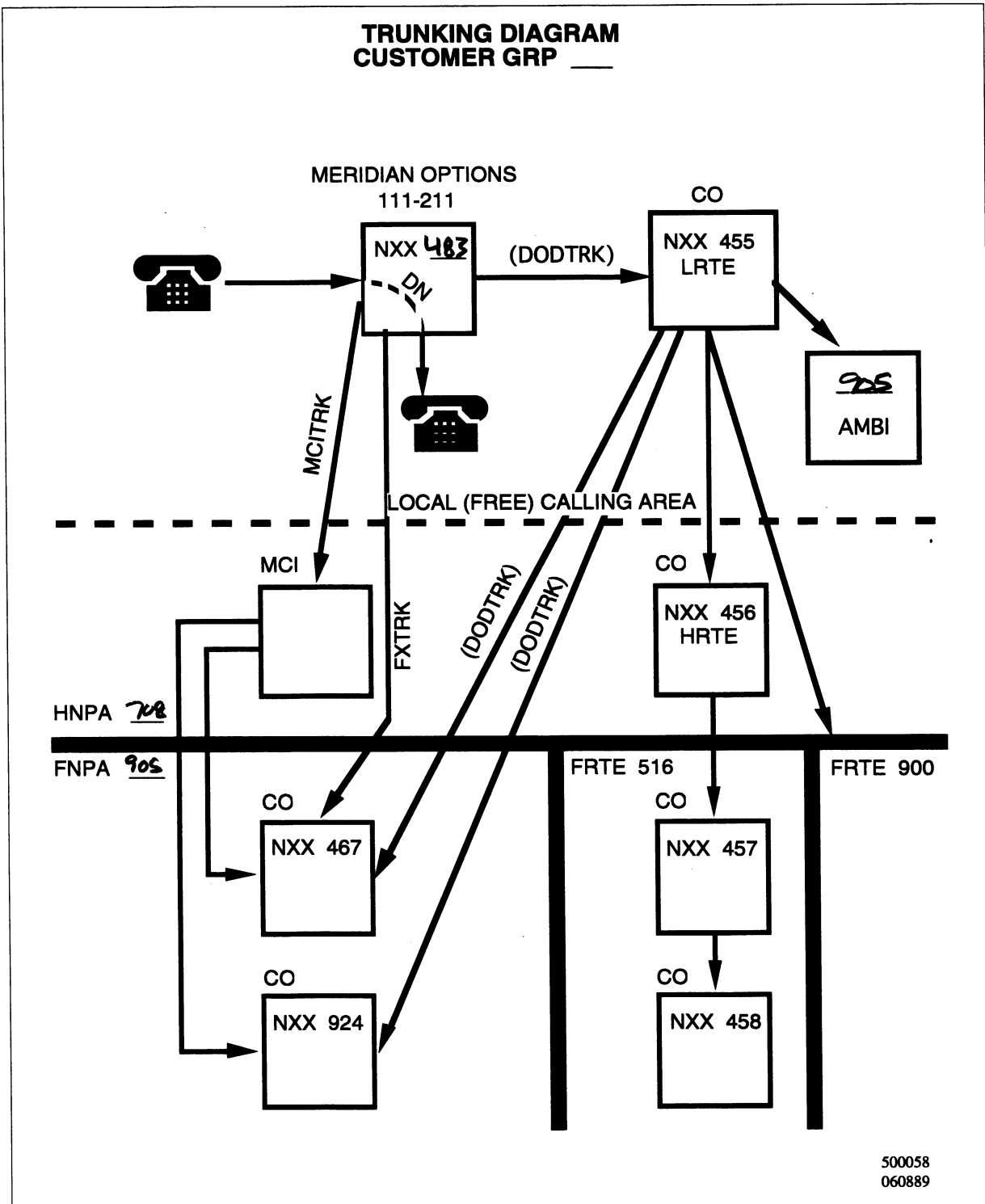


Figure 15  
Routing worksheet

## ROUTING WORK SHEET

Table HNPACONT  
Position 208  
Subtable HNPACODE

List of all the:  
- NPA's in the U.S.  
- NXX's in your NPA

| 'FROM' Field | 'TO' Field |
|--------------|------------|
| <u>455</u>   | <u>455</u> |
| <u>905</u>   | <u>905</u> |
| <u>456</u>   | <u>456</u> |
| <u>900</u>   | <u>900</u> |
| <u>516</u>   | <u>516</u> |
| <u>483</u>   | <u>483</u> |

LATE  
AMBI 1 TIM LATE 63ENPA 0  
HATE } RTZ  
FATE }  
FATE }  
DN 708 483 9

Subtable RTEREF

| Route #  | How to route call out of the switch: |
|----------|--------------------------------------|
| <u>1</u> | <u>1 T I BN RTE 63</u>               |
| <u>2</u> | <u>2 T I BN RTE 64</u>               |

Table FNPACONT  
Position 905  
Subtable FNPACODE

NXX's in this FNPA

| 'FROM' Field | 'TO' Field |
|--------------|------------|
| <u>467</u>   | <u>467</u> |
| <u>924</u>   | <u>924</u> |

Subtable RTEREF

|          |                             |
|----------|-----------------------------|
| <u>1</u> | <u>( T I BN RTE 65 ) \$</u> |
| <u>2</u> | <u>( T I BN RTE 66 ) \$</u> |

Table IBNRTE

Trunk Groups used to route calls out of the switch:

| Route #   | Trunk Groups                                                                         |
|-----------|--------------------------------------------------------------------------------------|
| <u>63</u> | <u>( S N DOD TRK ) (GH45) \$</u>                                                     |
| <u>64</u> | <u>( N Book DOD TRK 19 ) (GH45) \$</u>                                               |
| <u>65</u> | <u>( N Y Y N N FARK 20 ) ( N Y Y N MGTLS 19 ) (GH45) ( N N Y Y N DOD TRK 19 ) \$</u> |
| <u>66</u> | <u>( N Y Y N MGTLS 19 ) (GH45) ( N N Y Y DOD TRK 19 ) \$</u>                         |

Table DIGMAN

How should digits be manipulated:

|           |                   |
|-----------|-------------------|
| <u>19</u> | <u>( ENCL 1 )</u> |
| <u>20</u> | <u>( Rem 3 )</u>  |

500053  
060789

**Table 4**  
**Tables in order of datafill**

|                           |                         |
|---------------------------|-------------------------|
| ✓(1) XL ANAME             | ✓(18) CLSVSCRC          |
| ✓(2) DIGCOL               | ✓(19) STDPRTCT          |
| ✓(3) CUSTENG              | ✓(20) (subtable) STDPRT |
| ✓(4) CODEBLK              | ✓(21) LCASCRN           |
| ✓(5) NCOS                 | ✓(22) (subtable) LCASCR |
| ✓(6) CUSTHEAD             | ✓(23) LINEATTR          |
| ✓(7) CUSTSTN              | ✓(24) IBNTREAT          |
| ✓(8) DIGMAN               | ✓(25) CLLI              |
| ✓(9) IBNRTE               | ✓(26) CUSTENG           |
| ✓(10) FNPACONT            | ✓(27) CUSTCONS          |
| ✓(11) (subtable) RTEREF   | ✓(28) SUBGRP            |
| ✓(12) (subtable) FNPACODE | ✓(29) DNROUTE           |
| ✓(13) HNPACONT            | ✓(30) IBNLINES          |
| ✓(14) TOFCNAME            | ✓(31) ATTCONS           |
| ✓(15) (subtable) HNPACODE | ✓(32) ICIDATA           |
| ✓(16) (subtable) RTEREF   | ✓(33) FNMAP             |
| ✓(17) OFRT                | (34) IBNXLA             |



---

**Table XLANAME**

- Customer Translator Name (CUSTXLA): CTN10
- Preliminary Translator Names (PRELMXLA): PTN10, PTW31
- Feature Translator Names (FETXLA; FEATXLA): FTN10
- Octothorpe Translator Name (OCTXLA): OCT10

**Table DIGCOL**

- Digit Collection Name (DATNAME; DGCOLNM): DCN10
- LEADING DIGIT ASSIGNMENT - Identify how each leading digit will be used by writing in a brief statement next to each digit (e.g., 0=attendant, 2=stations, 9=DOD network calls). If a leading digit will not be used, leave blank. Identify whether the \* or # will be used to precede feature activation codes.

| LEADING DIGITS | ASSIGNMENT                                                 | DIGITS DIALED                     |
|----------------|------------------------------------------------------------|-----------------------------------|
| 0              | <u>Att</u>                                                 | <u>0</u>                          |
| 1              | <u>Info. * Equiv.# Equiv.</u>                              | <u>113, 12xx, 13xx</u>            |
| 9              | <u>DOD Network</u>                                         | <u>9+</u>                         |
| *              | <u>Precedes Feat. Codes</u>                                | <u>*76, *79</u>                   |
| #              | <u>Abbrev. Dialing, and</u><br><u>Precedes Feat. Codes</u> | <u>#76, #77, or</u><br><u>#79</u> |

- Second dial tone will be required after the leading digit of 9 which uses the POTS selector.

---

**Table CUSTENG**

- Intragroup calling allows certain features to be activated across different customer groups. These features will automatically be considered intragroup if the Customer Group Type allows for cross customer group calling. Please specify the Customer Group Type (Public, Private, or Family) of your customer group.

**Customer Group Name**

**Customer Group Type**

GRP 10

Public

- Determine how many IBNTREATments you will define today (e.g., VACTRMT, ATTENDANT QUEUE OVERFLOW).

**Table CODEBLK**

- Add the digits here that should be blocked. Notice that the key field consists of two subfields. CRLDATA is the same number that you will reference in table NCOS after specifying the option of CRL.
- Special numbers should be blocked from one or more NCOSs.

| <u>NCOS#</u> | <u>Numbers To Be Blocked</u> |
|--------------|------------------------------|
| 1            | 900                          |
| GRP10        | 900 (1) \$                   |

### Table NCOS

- OHQ will be assigned to a NCOS with station priority.
- If using OHQ, a tone should be given to a station while in the OHQ state.
- Use your Translator Work Sheet to add translators and CRL (code restriction levels) to the appropriate NCOSs that must restrict number 900.

NCOS 0  
 GRP10 0 0 0 0 (XLAS PTN10 FTN10 NOGT)  
 (OHQ 0 TONE\_OHQ)  
 (CBQ 3 3 Y 2)

NCOS 1  
 GRP10 1 1 0 0 (XLAS PTN 32 FTN10 NOGT)  
 (OHQ 0 TONE\_OHQ)  
 (CBQ 2 3 Y 1)(ERWT)  
 (CRL 1 Blocked)

NCOS 2  
 GRP10 2 2 0 0 (XLAS PTN32 FTN10 NOGT)  
 (CBQ 0 0 N 1)(ERWT)

NCOS 3  
 GRP10 3 3 0 0 (XLAS PTN10 FTN10 NOGT)  
 (OHQ 0 TONE\_OHQ)  
 (CBQ 2 3 Y 2)(ERWT)

**Table CUSTHEAD**

- The CPK feature has options that needs to be added to this table. Verify the details listed in this tuple.
  - The parked call should be provided with silence.
  - Enter the AUDIOGRP 'AUDIO1' to be used.
  - Enter 85 for the maximum number of calls that can be parked at one time.
- Add your octothorpe translator.
- Vacant treatment is 0.
- For Expensive Route Delay Timer (ERDT), enter 6 for the amount of delay time.

GRP10 CTN10 DEN10 NIL  
(VACTRMT 0) (EYTRCOS 0) (FETILA FTN10) (CCTILA CTN10)  
(CPK NBS) (ERDT 6)

**Table CUSTSTN**

- Call Park (CPARK) allows a station user to put a call on hold and be free to originate or receive another call. The parked call can be retrieved from any station. If a station uses the call park feature to park a call against its own directory number, enter 30 secs for the time a station can park the call before it will recall the station (2-240 secs., 60=default, 0=infinite).
- Call Back Queuing (CBQ) - Stations are assigned a queuing priority number form 0-3 by NCOS. (0 is the lowest priority.) This number will determine which station has a higher priority for receiving the first idle trunk to become available. Enter 1 minute for the time after which a station waiting in queue will be bumped up to the next higher priority level (1-15 minutes, 0=never).
- If a station's NCOS has the route advance option (CBQRA=Y), enter 4 minutes for the time that a station should be limited to call back queuing only on inexpensive routes. After this timer expires, the station will route advance and be served by both inexpensive and expensive routes (1-15 minutes, 0=never).
- Ring Again Timer (RAGTIM) defines the time that ringing will be applied when ring again is activated. The system will prompt for Ring Again Recall Timeout (RAGRECTO) and Ring Again Cancellation Timeout (RAGCANTO). Input 18 for RAGRECTO and 30 for RAGCANTO.

GRP10 CPARK 30

GRP10 CBQ CBQ 0 0 50 AllTypes

GRP10 RAGTIM RAGTIM 18 30

**Table DIGMAN**

- Use your Routing Work Sheet to help you complete this table.

19 ( INC 1 )

20 ( REM 3 )



**Table IBNRTE**

- Remember to use your team's assigned tuple numbers.
- Refer back to Routing Worksheet for assistance plus use the information below to assign the queuing options per trunk group per tuple.
- Which trunk groups can be monitored in *OHQ*?
- If less expensive routes can be queued on, then queue only on the less expensive routes (i.e., not DODTRK). If no less expensive routes are given, then do queue on DODTRK.
- All trunk groups can be selected for CBQ.
- An expensive route warning tone (ERWT) will be used to indicate to the station users that an expensive route has been selected to terminate on prior to queuing. Indicate that DODTRK can be queued on to be flagged expensive.
- The call should wait 45 seconds in the off-hook queue initially (0-60 seconds).

63 (S Y N N N DODTRK) (QH 45) \$

64 (N Y N N N DODTRK 19) (QH 45) \$

65 (N Y Y N N FYTRK 20) (N Y Y N N MC2TRK 19)  
(QH 45) (N N Y Y N DODTRK 19)

66 (N Y Y N N MC1TRK 19) (QH 45) (N N Y Y N DODTRK 19)

**Table FNPACONT**

- Use the Routing Sheet.
- If Foreign Exchange (FX) Trunk Groups will be used, please identify the area code and exchange each FX will be terminating into:

| <u>Terminating NPA</u> | <u>Terminating NXXFX</u> | <u>Trunk Group Name</u> |
|------------------------|--------------------------|-------------------------|
| <u>902</u>             | 467                      | FXTRK                   |
| <del>925</del>         | <del>925</del>           |                         |

---

**Subtable RTEREF of Table FNPACONT**

- Use the Routing Sheet to help you complete this table.

RTEREF 1 (T IBNATE 65)\$  
2 (T IBNATE 66)\$

**Subtable FNPACODE**

- Use the Routing Sheet to help you complete this table.



**Table HPNACONT**

- Verify the existence of your Home Area Code (HNPA) of the switch.
- There is 1 ambiguous exchange (NXXs) within the home area code that look like area codes.

**Table TOFCNAME**


*OK*

- Verify your Terminating Office Code (NXX) of the switch.

708 483

---

**Subtable HNPACODE of Table HNPACONT**

- 
- Use your Routing Sheet to complete this table.
  - List the ambiguous exchanges (NXXs) within the home area code that look like area codes.

**Subtable RTEREF of Table HNPACONT**

- Refer to your Routing Sheet to complete this table.

1 ( T      I B N R T E 6 3 )  
2 ( T      I B N R T E 6 4 )



---

**Table OFRT**

- Remember to use your team's assigned tuple number.
- This is the table that CLSVSCRC will point to so we can ADD on the "zero" for all calls.
- Remember, this will be the only tuple which you need to build. All other OFRT tuples that you will be pointing to (e.g., Attendant Queue full, Night Service for UCD, etc.) are already datafilled.

80 ( N D DODFRK 0 C N )

**Table CLSVSCRC**

— Screen for all OA calls and send them to your assigned tuple in Table OFRT.

708 CS10 OA 0 T OFRT 80 (0)

---

**Table STDPRTCT**

- Remember you need two standard pretranslators - do you remember why? Refer back to strategy sheet for Screening Calls via Table STDPRTCT.
  - Standard Pretranslator Control (STDPRTCT) Names (EXTPRTNM; PRTNM): SPN~~SP10~~ SP~~SP12~~

OK

OK ✓

**Subtable STDPRT of Table STDPRTCT**

- Use the STRATEGY SHEET in this work project to obtain details about screening calls for national and international dialing. For each type, identify the access code and quantity of digits that will be dialed. Also identify the quantity of digits to be outpulsed to the distant end switch. Be sure to identify if the digit 0 or 1 will need to be outpulsed on a toll call.



**Table LCASCRCN**

- Remember you are making it MANDatory for users to dial in prefix digits.

**Subtable LCASCR**



List all of your free (local) numbers in this table.

OK

**Table LINEATTR**

- Today you are using two LINEATTRs . . . do you remember why? Refer to the Strategy Sheet for Screening Calls via Table STDPRTCT for help.

169 IBN NONE NTES-10 0708 SP10 LA10

**Table IBNTREAT**

- An announcement treatment should be given to all calls that are not identified in Table IBNXLA via any translator. The CLLI name is BLDNANN.
- Remember today, that if the attendant console queue is full that those callers will be routed here. Be sure to build a tuple here that will point to OFRT 99 so these callers receive fast busy. (**OFRT 99 is already datafilled in the system**).

GRP10 0 N S BLDNANN  
GRP10 1 Y T OFRT99



---

**Table CUSTCONS**

- Here you should list certain options dealing with attendant consoles on a per customer group basis.
- Your customer group will have 1 subgroup (SUBGRP 0).
- An Incoming Call Identification (ICI) key will flash on the console when an incoming caller waits longer than 40 sec (0-225 units in 4 sec. increments, 0=infinite).
- The maximum number of ICIs that may be defined later by the customer is 229.
- The attendant answer delay peg count is required. The time after which a peg count is registered whenever an attendant answers a call and the call has waited longer than the time specified is 48 secs (1- 15 units in 4 sec. increments; 15 units=default).
- The attendant call park recall timer in which a call not retrieved will recall the console after 45 secs. (12-240 secs: 60 secs=default)

GRP10 (Sgrpnum 1) (FlashTHR 10) (ICINum 229) (Pegla 12)  
 ( AccPktim 45 ) \$

**Table SUBGRP**

- In this table you may list other options dealing with attendant consoles on a per subgroup basis.
- What directory numbers do you want all console originated calls to be recorded under on SMDR reports?
- The Fast Busy (T120) (OFRT 99) treatment should be given to incoming calls when all attendant queue registers are busy. (Remember this points to an IBNTREAT Tuple number).
- A call wait in queue 36 seconds before the call queue lamp (at the top of the console) begins to flash (0-225 units in 4 sec. increments, 0-infinite).
- Enter 0 for the diversion threshold used to determine how many calls will be allowed in the Attendant Queue Register during any 100 second interval (0-255 units in 4 sec. increments, 0=infinite). Remember, the higher the diversion threshold, the higher the number of calls allowed in Queue.
- 5 digits should display on the LCD display for extension calls.
- 5 is the minimum amount of dialed digits required by attendant.

GRP10 0 708 4833000 19 0 S S \$

**Table CLLI**

- Give each individual console (you only have one in this work project) a specific name in this table.

Console Name (CLLI) CONS 10ADNUM 66TRKGRSIZ 1

CONS 10 66 1 IDN - GRPIO - ATT - CONS

**Table IBNLINES**

- Ask your instructor for the three LENs for your group. Enter the LEN for each of the three line cards assigned to the console.
- Remember to enter NIL\_CARD\_TYPE in the CARDTYPE field. These will update after datafilling TABLE ATTCONS.

|   |   |   |    |    |    |   |               |
|---|---|---|----|----|----|---|---------------|
| 0 | 0 | 2 | 18 | DP | AC | 0 | NIL-CARD-TYPE |
| 0 | 0 | 2 | 19 | DP | AC | 1 | NIL-CARD-TYPE |
| 0 | 0 | 2 | 21 | DP | AC | 0 | NIL-CARD-TYPE |

**Table ATTCONS**

- Here you can list the LENS and certain options that are assigned to a specific console.

| <u>CONSOLE</u> | <u>CUSTGRP</u> | <u>SUBGRP</u> | <u>NCOS</u> |
|----------------|----------------|---------------|-------------|
| CONS__         | GRP__          | 0             | 3           |

- SMDR (CDR) should be recorded for the consoles.
- The console will operate at 1200 baud rate.
- After a system restart, the console should return to inservice (INSV).
- There should be no options assigned to this console.

|         |        |   |   |      |        |   |      |          |
|---------|--------|---|---|------|--------|---|------|----------|
|         |        | 0 | 3 | K1   | 4V08BA |   |      |          |
| Cons 10 | GRP 10 | 0 | 0 | 2 18 | 0      | 0 | 2 19 | 0 0 2 21 |
|         |        | Y |   |      |        |   |      |          |

**Table ICIDATA**

- In this table, you may assign a KLD display name to each Incoming Call Identification (ICI) code that will be routed to attendant consoles on a customer group basis.
- Incoming Call Identification Codes (ICIs) provide a visual indication; you can prioritize the answering of all incoming calls.
- There are a total of 225 different ICIs that can be used to visually indicate to the attendant the kind of incoming calls being received. Of these, the first 26 ICIs (0-25) are hard coded by Northern Telecom and cannot be changed by the customer. The remaining 229 ICIs (26-255) can be defined by the customer. Below is a list containing the hard-coded ICIs that will identify various types of incoming calls to the console if they are assigned to separate keys on the console.

| <u>ICI#</u> | <u>KLD Reads</u> | <u>DESCRIPTION</u>                                                                  |
|-------------|------------------|-------------------------------------------------------------------------------------|
| 1           | DIALO            | All calls to the Att. via user dialing access code O.                               |
| 2           | NOANSRC          | All calls extended by the Att. to a station and not answered in the specified time. |
| 3           | CMPONRC          | All calls camped-on by the Att. and not answered in the specified time.             |
| 4           | CWAITRC          | All calls call-waited by the Att. and not answered in the specified time.           |
|             | ...              | ...                                                                                 |
| 8           | INTECPT          | All calls receiving the intercept treatment.                                        |
|             | ...              | ...                                                                                 |

- If you plan to route incoming calls to the console via assigning them to ICI numbers other than the first 26 (0-25), please identify them below with the 1-7 character name to be displayed on the console and a brief description of each ICI:

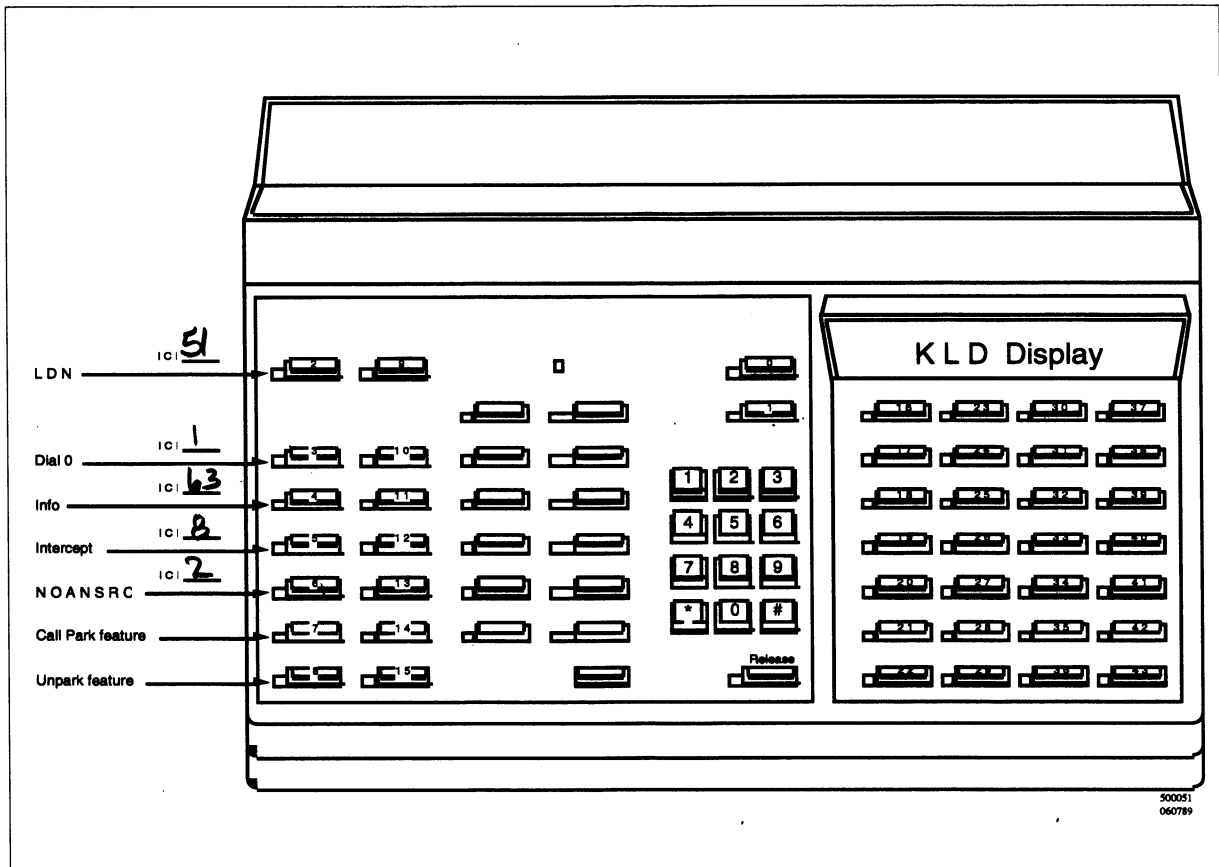
| <u>ICI#</u> | <u>KLD Reads</u> | <u>DESCRIPTION</u>                                              |
|-------------|------------------|-----------------------------------------------------------------|
| 63          | INFO             | Calls from users dialing the access code for information (113). |
| 51          | LDN              | Calls from outside, dialing the listed directory number (LDN).  |
| ....        | ....             | .....                                                           |

|       |    |          |             |
|-------|----|----------|-------------|
| GRPIO | 63 | INFO     | (ATT PRG)\$ |
| GRPIO | 51 | LDN      | (ATT PRG)\$ |
| GRPIO | 1  | DIALO    | \$          |
| GRPIO | 2  | NOANSER  | \$          |
| GRPIO | 3  | COMPONRE | \$          |
| GRPIO | 4  | CWAITRE  | \$          |
| GRPIO | 8  | INTcept  | \$          |

**Table FNMAP**

- Use the drawing of your attendant console faceplate to assign various keys of a particular console to specific types of incoming calls (ICIs) or to activate specific features.

**Figure 16**  
**Attendant console**



|         |   |             |
|---------|---|-------------|
| CONS 10 | 2 | ICI code 51 |
| CONS 10 | 3 | ICI code 1  |
| CONS 10 | 4 | ICI code 63 |
| CONS 10 | 5 | ICI code 8  |
| CONS 10 | 6 | ICI code 6  |



**Table DNROUTE**

- Enter your listed directory number (LDN) in this table.
- Each attendant subgroup has a listed (published) directory number (*LDN*) which users can dial from outside the system to reach the attendant. List the directory number, customer group, subgroup and ICI that is assigned to it.

| <u>LDN</u>   | <u>CUSTGRP</u> | <u>SUBGRP</u> | <u>ICI</u> |
|--------------|----------------|---------------|------------|
| NPA-NXX-3000 | GRP_           | 0             | 51         |

708 483 3000 M GRP10 0 51

**Table IBNXL A**

- Refer back to the last column on your Translator Work Sheet to see what tuples need to be entered here.
- Remember to use the following information for selected instructions (EXTN, FEAT, NET, etc.).

└ **EXTN**

- SMDR is not required for station to station calls.
- Feature transparency (INTRAGRP) is allowed for station to station calls.
- Extension number will be 5 digits in length.
- No filler digits are needed.

**FEAT**

- Below is a list of features to be datafilled today. Be careful of the type of translator to use (e.g., FTN vs. OCT)

FEATURE CODE

|      |            |        |    |     |      |
|------|------------|--------|----|-----|------|
| RAG  | <u>*76</u> | FTN 10 | 76 | NNN | RAG  |
| PRKS | <u>*79</u> | FTN 10 | 79 | NNN | PRKS |
| PRKR | <u>#79</u> | OCT 10 | 79 | NNN | PRKR |

- Account/auth codes (ACR) will not be used.
- SMDR is not required for feature calls.

**STAR and OCT**

- ✓ If there are rotary sets, use the following equivalents.

\* = 12

# = 13

**REPL**

- Your customer group will be using abbreviated dialing. The codes and associated numbers are below:

| <u>Code</u> | <u>Number</u>                             |
|-------------|-------------------------------------------|
| #76         | 94551212 OCT10 76 REPL N 94551212         |
| #77         | 915164571212 OCT10 77 REPL N 915164571212 |

- Make sure to answer 'N' to continue.

**ATT**

- Refer to the NCOS MATRIX SHEET in work project for ICI assignments.

**NET**

- Account/auth codes (ACR) will not be used.
- Indicate whether all calls or just billable calls should be recorded in SMDR for each access code terminating to the direct outward dial (DOD) network (e.g., 9):

| <b>Access Code</b> | <b>SMDR All or Only Billable?</b> |
|--------------------|-----------------------------------|
|--------------------|-----------------------------------|

|   |               |
|---|---------------|
| 9 | Billable Only |
|---|---------------|

- Second dial tone will be required.
- Code blocking (CRL) will be used to block certain numbers
- Feature transparency (INTRAGRP) is not allowed for network calls.
- There are no toll restrictions placed upon the users who dial out on the network.

**SERVORD subsystem**

You are now ready to go into the SERVORD (Service Order) subsystem to place each phone into service, using the appropriate information (e.g., options, subgroup, NCOS, etc.) listed in Table 5.

**Table 5**  
**Table for putting phones into service**

| NCOS | DNs      | Options Assigned to This DN | Subgrp | LENs  |
|------|----------|-----------------------------|--------|-------|
| 0    | ___-3556 | DGT, PRK                    | 0      | _____ |
| 1    | ___-4442 | DGT, PRK                    | 0      | _____ |
| 2    | ___-5443 | DGT, PRK                    | 0      | _____ |

## Invoke TRAVERS

You will now want to test your database to see if you have entered it correctly. Testing will consist of running TRAVERS. If a TRAVER does not work correctly, troubleshoot it by analyzing the information that the traver gives you. Correct your mistake in the appropriate table and TRAVER the call again. Refer to Table 6 to verify your datafill.

**Table 6**  
**Table for verification of datafill**

| Condition                                                                                                | Allowed? | TRAVER |
|----------------------------------------------------------------------------------------------------------|----------|--------|
| 1 NCOS0 dialing the LDN directory number via 9+ dialing.<br>TRAVER L <u>483 3556</u> <u>9 483 3000</u> B | Yes      | X      |
| 2 NCOS0 parking a call.<br>TRAVER L <u>483 3556</u> ___ '1279' ___ B                                     | Yes      | X      |
| 3 NCOS1 unparking <b>the same call</b> .<br>TRAVER L <u>483 4442</u> ___ '1379' ___ B                    | Yes      | X      |
| 4 NCOS1 using abbreviated dialing to call 4551212.<br>TRAVER L <u>483 4442</u> ___ '1376' ___ B          | Yes      | X      |
| 5 NCOS1 activating Ring Again from a Rotary Phone.<br>TRAVER L <u>483 4442</u> ___ '1276' ___ B          | Yes      | X      |
| 6 NCOS2 dialing information.<br>TRAVER L <u>483 5443</u> ___ '113' ___ B                                 | No       | X      |
| * 7 NCOS2 dialing 4671212 in your FNPA via 9+ (DD) dialing.<br>TRAVER L <u>483 5443 91 905 4671212</u> B | Yes      | X      |
| 8 NCOS2 dialing the same number via 9+ (OA) dialing.<br>TRAVER L <u>483 5443 90 905 4671212</u> B        | Yes      | X      |
| 9 Your attendant console calling NCOS1 via 5-digit dialing.<br>TRAVER C <u>Cons 10</u> <u>33556</u> B    | Yes      | X      |
| 10 NCOS1 dialing 9+1+900+555-1212<br>TRAVER L <u>483 4442</u> _____ B                                    | No       | X      |
| 11 NCOS0 dialing 9+1+900+555-1212<br>TRAVER L <u>483 3556</u> _____ B                                    | Yes      | X      |



# Trunk USAGE and ATT Consols.

pg 9-156 ARS. Automatic Route Selection

TABLE FNPA CONT. RTE REF

| pg 10-156 | <u>RTE</u> | <u>RTE LIST</u> |
|-----------|------------|-----------------|
|           | 1          | T IBNRTE 1      |
|           | 2          | T IBNRTE 2      |
|           | 3          | T IBNRTE 3      |

TABLE FNPA CONT. RTE REF

pg 10-156

| <u>RTE</u> | <u>RTE LIST</u> |
|------------|-----------------|
| 4          | T IBNRTE 2      |
| 5          | T IBNRTE 1      |

TABLE IBNRTE

pg 10-156

| RTE       | RTE LIST | IBNRTESEL | OHQ | CBQ | EXP | MBSG            | CLLI            |
|-----------|----------|-----------|-----|-----|-----|-----------------|-----------------|
| (Key) → 2 | S        | S         | N   | N   | N   | N<br>(always N) | OUTWAYS 1       |
|           | S        | S         | N   | N   | N   | N               | OUTWAYS 2       |
|           | S        | S         | N   | N   | N   | N               | GRPH DOD        |
|           | S        | S         | N   | N   | N   | N               | GRPS DOD To T-3 |





# Trunk USAGE & ATT Console

pg 13-15b OHQ - OFF Hook Queuing

## TABLE NCOS

pg 15-15b CUST GRP NCOS options  
 GRP10 0 (OHQ 0 Tone - OHQ) \$

## pg 15-15b Table INWRITE

|                                                                                                   | <u>RTE</u> | <u>RTLIST</u> |       |
|---------------------------------------------------------------------------------------------------|------------|---------------|-------|
|                                                                                                   |            | ISN RTSEL     | OHQ   |
| Inexpensive Routes                                                                                | 1          | S             | Y     |
|                                                                                                   |            | S             | Y     |
|                                                                                                   |            | S             | Y     |
|                                                                                                   |            |               | CLLI  |
|                                                                                                   |            |               | FXI   |
|                                                                                                   |            |               | WATS1 |
|                                                                                                   |            |               | MCI1  |
| QH60 → Divides inexpensive Routes from expensive Routes<br>(Overhead) (Elimin) * 3 QH for RTLIST* |            |               |       |
| Expensive Routes                                                                                  |            | S             | N     |
|                                                                                                   |            | \$            |       |
|                                                                                                   |            |               | DOO1  |



Trunk Usage & ATT Consoles.  
(OHQ) Priority level.

Pg 14-15b PRI 0 Stations have priority over trks.

PRI 1 - Trunks have Priority over Stations.

Pg 22-15b Tables To Datafil For OHQ  
Pg 23-15b.

NCOS

IBNRTE

Custhead.

Pg 33-15b Callback Queing (CBQ) Must have RAG on LRI and K-Sel lines  
is Only For Stations

3 Stages of CBQ

Pg 35-15b 1. What happens Before CBQ Activation?

Pg 37-15b 2. What happens During CBQ Activation?

Pg 38-15b 3. What happens AFTER CBQ Activation?

Pg 35-15b CBQ OPT

OPT 1 Cheap RT Only Datafil in Table NCOS

OPT 2 Cheap & Expensive DATAFIL in TABLE NCOS



\* Trunk USAGE & ATT Console.

\* See Also. Pg 38-156 CBO Prerequisites. \* \* Pg 47-156 CBO Overview \*

Pg 41-156 TABLE CUSTSTN.

| CUSTNAME | OPTNAME | Options                                                                                                                                |
|----------|---------|----------------------------------------------------------------------------------------------------------------------------------------|
| GRP1     | CBO CBO | CBO PPT 2    CBO RAT 15    CBO Num 1    CBO Types TRK only<br>(Starting Priority for CBO 0-3)    (How long you stay at one level 0-15) |

(Pg 45-156) TABLES TO SET UP CBO  
 (Pg 48-156)  
 (Pg 49-156)

1. NCOS

| <u>CUSTGRP</u> | <u>NCOS</u> | <u>NCOSNAME</u> | <u>LSC</u> | <u>TRAFSNO</u> | <u>Options</u>                                        |
|----------------|-------------|-----------------|------------|----------------|-------------------------------------------------------|
|                |             |                 |            |                | <u>CBO SP</u> <u>CBO MP</u> <u>CBO RA</u> <u>opt.</u> |
| GRP10          | 0           | NCOS0           | 0          | 0              | (CBO 2 3 Y 2) \$                                      |

IGNRTE

| <u>RTE</u> | <u>IGNRTESEL</u> | <u>OH 0</u> | <u>CBO</u> | <u>EXP</u> | <u>CLL1</u> |
|------------|------------------|-------------|------------|------------|-------------|
| 1          | S                | N           | Y          | N          | FX1         |
|            | S                | N           | Y          | N          | WATS1       |

CUSTSTN

| CUST NAME | Options                                                       |
|-----------|---------------------------------------------------------------|
|           | <u>CBO PPT</u> <u>CBO RAT</u> <u>CBO Num</u> <u>CBO Types</u> |
| GRP10     | (CBO 2    15    1    All Types)                               |

GRP10                      RAGCUTO                      RAGCUTO

GRP10                      RAGTIM                      18                      20



# Trunk Usage & ATT Consider

pg 59-156 Expensive Route Warning Tone (ERWT)

pg 59-156 ERWT Prerequisites

pg 60-159 TABLE NCOB  
61 Assign ERWT IN OPTIONS

pg 60-159 TABLE IGNORE  
61 Assign NORY IN EXP

pg 60-159 TABLE Continue.  
61 Assign ERDT IN OPTIONS

## pg 67-156 Prefix digit Reinsertion

pg 67-156 TABLE IGNORE

IF Relat dig is N Routes to  
TABLE. Digman

pg 69-156 1 Dm1key  
(INCL) S  
include  
1-Digs

2 (Rem 3)  
Removed 3 Digs





## Trunk Usage of ATT Console.

pg 74-156 Attendant Console

(ICI) Incoming Call Identifier.

Assign Consoles to Subgroups - up to 8 SubGroups

Each Console Uses 3 Line Cards

Card 1 Transmits Keyboard INFO

Card 2 Rec info From the CPU TO the Console

Card 3 Used For Voice. Supports 6 Voice Lines.

pg 80-156 Tables. included in ATT Console

CLLE

CUSTeng

Custcons

Subgrp

DN Route

LNINu

INlines

ATTcons

ICI DATA

FNMAP

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ATT console

pg 81-156 Table CLLI

|             |              |                  |                                      |
|-------------|--------------|------------------|--------------------------------------|
| <u>CLLI</u> | <u>Adnum</u> | <u>TRKGRPSiz</u> | <u>AdmininF</u>                      |
| Cons1       | 1            | 1<br>(always 1)  | IBNL-GRP1-ATT-Cons<br>(upto 18 char) |

pg 81-156 Table CustENG

|                 |                |                 |                 |               |
|-----------------|----------------|-----------------|-----------------|---------------|
| <u>CUSTNAME</u> | <u>NONCONS</u> | <u>NOIBNTMT</u> | <u>Consoles</u> | <u>Domain</u> |
| GRP10           | 25             | 10              | Y               | private       |

|                |                |
|----------------|----------------|
| <u>GroupID</u> | <u>OPTIONS</u> |
| 0              | \$             |

pg 82-156 Table CustCons  
83-

|                 |                                                                                                                                                               |
|-----------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <u>CUSTNAME</u> | <u>Options</u>                                                                                                                                                |
| GRP1            | (SGRPNUM 1) (FLASHTHR 255) (ICINUM 229)<br>(CWNATIM 30) (LPKEY 6) (Pegla 15)<br>(Ndsctim 30) (ACCPKTim 60) (Sec N)<br>(ACO 30 Camp ON 15 N) (HLDirecto 60) \$ |

pg 85-156 Table SubGRP

|                            |                          |                             |
|----------------------------|--------------------------|-----------------------------|
| (Key Field) <u>SGRPLY</u>  | <u>SNPA DN</u>           | <u>CQUTRMT</u>              |
| ( <u>CUSTGRP</u> )<br>GRP1 | ( <u>SUBGRPNO</u> )<br>0 | 214 2314000                 |
| <u>CQFLTHR</u><br>5        | <u>CQDIVTHR</u><br>6     | 7                           |
| <u>STNETLN</u><br>5        | <u>mindigSR</u><br>5     | <u>OPTS</u><br>EmailTone \$ |
|                            |                          | (minimum 5)                 |



# ATT Console

pg 86-156 TABLE DNROUTE

| <u>Area code</u> | <u>Ofc code</u> | <u>STN code</u> | <u>DN Result</u>                                               |
|------------------|-----------------|-----------------|----------------------------------------------------------------|
| 214              | 237             | 8000            | (M)(GRPI)(O)(S)(N)<br>↓ (ERP) (SUKHATI) (On Report)<br>(USE M) |

pg 88-156 TABLE LXINU

| <u>LEN</u> | <u>Code</u> | <u>Radgrp</u> | <u>STATUS</u> | <u>Grnd</u> | <u>BNU</u> | <u>MNO</u> |
|------------|-------------|---------------|---------------|-------------|------------|------------|
| 0 0 2 2    | 6X17AC      | STOLN         | HASH          | N           | NL         | N          |
| 0 0 2 3    | 6X17AC      | STOLN         | HASH          | N           | NL         | N          |
| 0 0 2 4    | 6X17AC      | STOLN         | HASH          | N           | NL         | N          |

pg 89-156 TABLE IDNLINES

| <u>LEN</u> | <u>Result</u> |                |               |              |                 |
|------------|---------------|----------------|---------------|--------------|-----------------|
|            | <u>Drum</u>   | <u>Sigtype</u> | <u>Format</u> | <u>Acnum</u> | <u>CardType</u> |
| 0 0 2 0    | 0             | DP             | AC            | 255          | Nil-CARD_Type   |
| 0 0 2 3    | 0             | DP             | AC            | 255          | Nil-CARD_Type   |
| 0 0 2 4    | 0             | DP             | AC            | 255          | Nil-CARD_Type   |



ATT Console

pg 91-156 Table ATTCONS

| (Key F) → Console | CUSTNAME | Subgrp      | NCOS | CDR           | Cardcode                                   | INLEN | OUTLEN |
|-------------------|----------|-------------|------|---------------|--------------------------------------------|-------|--------|
| Cons1             | GRP1     | 0           | 3    | Y             | 4X08AB<br>(Recursive Data<br>at 1200 Baud) | 0022  | 0023   |
| <u>TALKLEN</u>    |          | <u>INSU</u> |      | <u>OPTION</u> |                                            |       |        |
| 0 0 2 4           |          | Y           |      | BUZZ SHORT    |                                            |       |        |

pg 93-156 Table ICI DATA

| (Key) → | KEY<br>(CustGRP) → | ICI code | NAME     | Options |        |       |
|---------|--------------------|----------|----------|---------|--------|-------|
|         | GRP1               | 1        | Dial 0   | NSDigs  | 75542  | \$    |
|         | GRP1               | 2        | NOANSWER | \$      |        |       |
|         | GRP1               | 4        | CWAITREL | \$      |        |       |
|         | GRP1               | 8        | INTCAP   | \$      |        |       |
|         | GRP1               | 25       | Direct   | \$      |        |       |
|         | GRP1               | 28       | Alert    | Emerg   | NSDigs | 75542 |
|         | GRP1               | 51       | LOW      | ATPRG   | NSDigs | 75542 |
|         | GRP1               | 63       | INFO     | ATPRG   |        |       |

pg 95-156 TABLE RNMAP

| Key → | Console<br>(CONSCLI) | ACKey | Result<br>(Key SFC) | (ICI) | (SPFN) |
|-------|----------------------|-------|---------------------|-------|--------|
|       | Cons1                | 3     | ICI code            | 51    |        |
|       | Cons1                | 4     | Spec L              |       | PARK   |
|       | Cons1                | 5     | Spec L              |       | UNPARK |
|       | Cons1                | 9     | ICI code            | 25    |        |
|       | Cons1                | 15    | Spec L              |       | TRBL   |
|       | Cons1                | 16    | Spec L              |       | WIC    |

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# ATT Console

Pg 96-156 Table TRBL code up to 100 Codes

| Code | message          | ALARM |
|------|------------------|-------|
| 00   | malicious call   | MJ    |
| 01   | Weak Destination | NA    |
| 02   | Weak Source      | NA    |
| 03   | Call dropped     | MN    |
| 50   | Bomb Threat      | CR.   |

Pg 97-156 Table WICK code

| CUST CLCI | TAMFOX | WCS PFM |
|-----------|--------|---------|
| GRP1      | 19     | BUL     |
| GRP1      | 19     | BVT     |

Pg 98-156 \* DATA Fill TABLES For ATT Console \*

PS 101-156 \* Example Data Fill For ATT Console \*  
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# Appendix A

## Sample Customer Database Questionnaire

The following pages contain pages of a sample customer database questionnaire. Use these when you are not sure where table information originates. If you have any questions about any of the tables, refer to NTP 297-1001-451.





### Customer Group Information Base

Family Name \_\_\_\_\_

Family Type \_\_\_\_\_

Customer Group Name see info sheet

Customer Group Identification Number (G0119) φ

Maximum Number of Network Class of Services 3

Maximum No. of IBN Treatments 63

Attendant Consoles (Circle One)  Yes  No

Customer Group Type Public



**Translation Input Base**

| Table   | Field/Subfield | Value                         | Default |
|---------|----------------|-------------------------------|---------|
| CUSTFAM | FAMNAME        | 1-16 characters               |         |
| CUSTENG | DOMAIN         | PRIVATE, PUBLIC,<br>or FAMILY |         |
| CUSTENG | CUSTNAME       | 1-16 characters               |         |
| CUSTENG | GROUPID        | 0-4095                        |         |
| CUSTENG | NONCOS         | 1-256                         |         |
| CUSTENG | NOIBNTMT       | 0-63                          |         |
| CUSTENG | CONSOLES       | N or Y                        |         |
| CUSTENG | DOMAIN         | PRIVATE, PUBLIC<br>or FAMILY  |         |

### Customer Group Information Options

|                          |                                          |                       |
|--------------------------|------------------------------------------|-----------------------|
| <input type="checkbox"/> | Conferencing                             |                       |
|                          | No. of 6 Port Conf. Circuits<br>Required | _____                 |
| <input type="checkbox"/> | Voice Message Exchange Index             | _____                 |
| <input type="checkbox"/> | Customer Translator Name                 | <u>see info sheet</u> |
| <input type="checkbox"/> | Digit Collection Name                    | <u>see info sheet</u> |
| <input type="checkbox"/> | Account Code Capability                  |                       |
|                          | No. of Digits In Code                    | _____                 |
|                          | Interdigit Timeout                       | Y or N                |
|                          | Account Code Validation                  | Y or N                |
|                          | Account Code Screening Index             | _____                 |
| <input type="checkbox"/> | Authorization Codes                      |                       |
|                          | Partition Name                           | _____                 |
|                          | Security Digits                          | Y or N                |
|                          | Comb Auth/Acct Code                      | Y or N                |
|                          | Type of Codes (F2781)                    | IBN or CFRA           |
|                          | Length of Codes                          | _____                 |

### Translation Input Options

| Table Name | Field/Subfield | Value                | Default |
|------------|----------------|----------------------|---------|
| CUSTENG    | OPTION         | CONF6C               | ALL     |
|            | MAX_NO_CNF6C   | 0-2046               |         |
| CUSTENG    | OPTION         | VMX                  |         |
|            | VMXINDX        | 1-255                |         |
| CUSTHEAD   | CUSTXLA        | 1-8 characters       |         |
| CUSTHEAD   | DIGCOLM        | 1-8 characters       |         |
| CUSTHEAD   | OPTION         | ACCT                 |         |
|            | DIGINACC       | 2-14                 |         |
|            | NOTIMOUT       | N or Y               |         |
|            | ACCTVAL        | Y or N               |         |
| CUSTHEAD   | OPTION         | AUTH                 |         |
|            | PARTNM         | Alphanumeric         |         |
|            | SECRECY        | N or Y               |         |
|            | COMB           | N or Y               |         |
| AUTHPART   | FORMAT         | IBN, CFRA, or EXEMPT |         |
|            | LENGTH         | 2-10                 |         |

**Customer Group Information Options (cont.)**

|                          |                                           |        |
|--------------------------|-------------------------------------------|--------|
| <input type="checkbox"/> | Loudspeaker Paging Answerback (G0086)     |        |
|                          | Call Park Time Out                        | _____  |
|                          | Maximum Number Simultaneous LPA Requests  | _____  |
| <input type="checkbox"/> | Virtual Facility Group Look Ahead (G0080) |        |
| <input type="checkbox"/> | AUTH/ACCT Entered Last Announcement       | Y or N |
|                          | Announcement CLLI                         | _____  |

**Translation Input Options (cont.)**

| Table    | Field/Subfield | Value                      | Default |
|----------|----------------|----------------------------|---------|
| CUSTHEAD | OPTION         | LPA                        |         |
|          | LPACPTO        | 10-60                      |         |
|          | LPAMAX         | 0-99                       |         |
| CUSTHEAD | OPTION         | VFGLA                      |         |
| CUSTHEAD | OPTION         | ACR                        |         |
|          | AUAC           | ACCT, AUTH<br>ARS or AUARS |         |
|          | FLEXINO        | 0-63                       |         |
|          | OPTION         | ACRANN                     | TONE    |
|          | ANNCLLI        | Alphanumeric               |         |

### Customer Group Information Options (cont.)



Call Park

Announcement/Music/Silence (Circle one)

Maximum No. of Calls Parked Simultaneously

Recall Timeout (STA)

Recall Timeout (ATT)



Cut-Through Dialing

Cut-Through Timeout

Cut-Through Pause



DISA Feature Announcement Code

Announcement CLLI



Expensive Route Delay Time



Emergency Stand Alone Prefix Translator

If Yes, Translator Name



External NCOS Number

(Required with DISA if an Authorization Code is not to be Entered)

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### Translation Input Options (cont.)

| Table    | Field/Subfield | Value              | Default |
|----------|----------------|--------------------|---------|
| CUSTHEAD | OPTION         | CPK                |         |
|          | ANNMUSIC       | Y or N             |         |
|          | AUDIOGRP       | AUDIO1 to AUDIO512 | RINGING |
|          | CPKMAXNO       | 0-32,767           | 100     |
| CUSTSTN  | OPTION         | CPARK              |         |
|          | CPKRECTO       | 0-240              | 60 s    |
| CUSTCONS | OPTIONS        | ACCPKTIM           |         |
|          | ACCPKTO        | 0-240              | 60 s    |
| CUSTHEAD | OPTION         | CUTIMOUT           |         |
|          | TIMEOUT        | 5-10               | 4 s     |
|          | OPTION         | CUTPAUSE           |         |
|          | PAUTIME        | 1-7                | 3 s     |
| CUSTHEAD | OPTION         | DISAFAC            |         |
|          | ANNCLLI        | Alphanumeric       |         |
| CUSTHEAD | OPTION         | ERDT               |         |
|          | ERDTTIME       | 0-10               | 6 s     |
| CUSTHEAD | OPTION         | ESAPXLA            |         |
|          | XLANAME        | Alphanumeric       |         |
| CUSTHEAD | OPTION         | EXTNCOS            |         |
|          | EXTNCOS        | 0-255              | 0       |

**Customer Group Information Options (cont.)**

|                                     |                                                                           |                       |
|-------------------------------------|---------------------------------------------------------------------------|-----------------------|
| <input type="checkbox"/>            | Intergroup Line Screening Code Checking                                   |                       |
| <input type="checkbox"/>            | Attendant Queue With Music                                                |                       |
|                                     | Announcement                                                              | Y or N                |
|                                     | Announcement CLLI                                                         | _____                 |
|                                     | Music                                                                     | Y or N                |
|                                     | Music CLLI                                                                | _____                 |
|                                     | Threshold                                                                 | _____                 |
| <input type="checkbox"/>            | Off-Hook Queuing Announcement                                             |                       |
|                                     | Announcement CLLI                                                         | _____                 |
| <input type="checkbox"/>            | Super Conference                                                          |                       |
| <input type="checkbox"/>            | Time of Day Network Class of Service                                      | _____                 |
| <input checked="" type="checkbox"/> | Treatment For Vacant Codes                                                |                       |
|                                     | Defined Treatment (CLLI, Tone, ANNC)                                      | <u>VACT - ANNC</u>    |
| <input checked="" type="checkbox"/> | Feature Translator (required only when an access code begins with a star) |                       |
|                                     | Translator Name                                                           | <u>see info sheet</u> |



### Translation Input Options (cont.)

| Table    | Field/Subfield     | Value                          | Default |
|----------|--------------------|--------------------------------|---------|
| CUSTHEAD | OPTION             | LSCCHECK                       |         |
| CUSTHEAD | OPTION<br>AUDIOGRP | MHOLD<br>AUDIO1 TO<br>AUDIO512 | RINGING |
| CUSTHEAD | MOPTH              | 0-127                          |         |
| CUSTHEAD | OPTION<br>ANNCLLI  | OHQA<br>Alphanumeric           |         |
| CUSTHEAD | OPTION             | SUPERCNF                       |         |
| CUSTHEAD | OPTION<br>TODNAME  | TODNCOS<br>1-8 characters      |         |
| CUSTHEAD | OPTION<br>VACTRMT  | VACTRMT<br>0-63                | 0       |
| CUSTHEAD | OPTION<br>XLANAME  | FETXLA<br>Alphanumeric         |         |

**Customer Group Information Options (cont.)**



Octothorpe Translator (Required only when an access code begins with an octothorpe [#])

Translator Name

see info sheet



Attendant Calls to a Station with CFB

Override Campon

\_\_\_\_\_



Attendant Calls to a Station with CFD

\_\_\_\_\_



Attendant Call Hold with Music

Announcement

Y or N

Announcement CLLI

\_\_\_\_\_

Music

Y or N

Music CLLI

\_\_\_\_\_

Silence

Y or N



Attendant Call Hold Recall

Hold Recall Total

\_\_\_\_\_

**Translation Input Options (cont.)**

| Table    | Field/Subfield     | Value                           | Default |
|----------|--------------------|---------------------------------|---------|
| CUSTHEAD | OPTION<br>XLANAME  | OCTXLA<br>Alphanumeric          |         |
| CUSTCONS | OPTION<br>CFBOVCO  | ACCFB<br>Y or N                 |         |
| CUSTCONS | OPTION             | ACCFD                           |         |
| CUSTCONS | OPTION<br>AUDIOGRP | ACHOLD<br>AUDIO1 to<br>AUDIO512 | SILENCE |
| CUSTCONS | OPTION<br>HLDRECTO | HLDRECTO<br>0-240               |         |

**Customer Group Information Options (cont.)**

|                          |                                      |                                 |
|--------------------------|--------------------------------------|---------------------------------|
| <input type="checkbox"/> | <b>Attendant Camp-On</b>             |                                 |
|                          | Recall                               | Y or N                          |
|                          | Number of Seconds                    | _____                           |
|                          | To Answer Camp on                    | Switchhook, or<br>No Switchhook |
|                          | Tone Duration                        | _____                           |
|                          | Camp On with Music                   | Y or N                          |
|                          | Music CLLI                           | _____                           |
|                          | Camp On with Announcement            | Y or N                          |
|                          | Announcement CLLI                    | _____                           |
| <input type="checkbox"/> | <b>Attendant Error Announcement</b>  |                                 |
|                          | Announcement CLLI                    | _____                           |
| <input type="checkbox"/> | <b>Call Waiting/No Answer Recall</b> |                                 |
|                          | Number of Seconds (if other than 30) | _____                           |

### Translation Input Options (cont.)

| Table    | Field/Subfield | Value                         | Default |
|----------|----------------|-------------------------------|---------|
| CUSTCONS | OPTION         | ACO                           |         |
|          | ACORECTO       | 0-60                          |         |
|          | FLASH          | CAMPON or<br>FEATURES         |         |
|          | DURATION       | 0-15<br>(in 100-ms intervals) |         |
|          | ANNMUSIC       | Y or N                        | N       |
|          | AUDIOGRP       | AUDIO1 to<br>AUDIO512         |         |
| CUSTCONS | OPTION         | ANN                           |         |
| CUSTCONS | OPTION         | CWNATIM                       |         |
|          | CWNATO         | 0-240                         | 30 s    |

### Customer Group Information Options (cont.)

Incoming Call Type Flash Timeout  
Number of Seconds \_\_\_\_\_

Number of Additional Incoming Call Types  
to Attendant \_\_\_\_\_

Attendant Immediate Release

Less than 6 Attendant Number of Loop Keys  
If less than 6, How Many \_\_\_\_\_

Night Service Double Key Depression

No Disconnect Timeout  
Number of Seconds \_\_\_\_\_

Attendant Answer Delay Peg Count  
Answer Time \_\_\_\_\_

**Translation Input Options (cont.)**

| Table    | Field/Subfield     | Value             | Default |
|----------|--------------------|-------------------|---------|
| CUSTCONS | OPTION<br>ICIFLTHR | FLASHTHR<br>0-255 |         |
| CUSTCONS | OPTION<br>NOICIS   | ICINUM<br>1-229   |         |
| CUSTCONS | OPTION             | IMMREL            |         |
| CUSTCONS | OPTION<br>NOACLPKY | LPKEY<br>2-6      | 6       |
| CUSTCONS | OPTION             | NS2KEY            |         |
| CUSTCONS | OPTION<br>NDSCTO   | NDSCTIM<br>12-60  | 30 s    |
| CUSTCONS | OPTION<br>ANSTIME  | PEGLA<br>1-15     |         |

### Customer Group Information Options (cont.)

- Secrecy  
Lockout (Circle one) Y or N
  
- Number of Attendant Subgroups (If more than one is needed) \_\_\_\_\_
  
- Time and Date (12-hour Clock)
  
- Business Sets, Message Centers set up in Customer Group
  
- Variable Speed Calling  
List Type (Circle one) L6 or L8
  
- Ambiguous Digit 0
  
- End-to-end Signaling via Speed Call



**Translation Input Options (cont.)**

| Table    | Field/Subfield     | Value              | Default |
|----------|--------------------|--------------------|---------|
| CUSTCONS | OPTION<br>LOCKOUT  | SEC<br>Y or N      |         |
| CUSTCONS | OPTION<br>NOSGRPS  | SGRPNUM<br>1-8     | 1       |
| CUSTCONS | OPTION             | TIM12              |         |
| CUSTSTN  | OPTNAME            | MCGROUP            |         |
| CUSTSTN  | OPTION<br>LISTTYPE | AMBISC<br>L6 or L8 |         |
| CUSTSTN  | OPTION             | AMBZERO            |         |
| CUSTSTN  | OPTION<br>SCTIME   | SCPAUSE<br>1-7     |         |

**Customer Group Information Options (cont.)**

|                          |                                                             |        |
|--------------------------|-------------------------------------------------------------|--------|
| <input type="checkbox"/> | Call Back Queuing                                           |        |
|                          | Priority Promotion Timer (No. of Mins.)                     | _____  |
|                          | Call Back Queuing Route Advance Timer                       | _____  |
|                          | Number of Enqueued (Enter a One)                            | _____  |
|                          | Call Back Queue Type                                        | _____  |
| <input type="checkbox"/> | Call Request Retrieve/Keyset Short Hunt Interaction Control |        |
| <input type="checkbox"/> | Call Forwarding Don't Answer                                |        |
|                          | Timeout (If other than 30 seconds)                          | _____  |
| <input type="checkbox"/> | Call Forwarding of Call Waiting Calls                       |        |
|                          | Announcement or Music                                       | Y or N |
|                          | Audio Group                                                 | _____  |
|                          | Maximum Number of Ringbacks                                 | _____  |
|                          | Ring Cycles                                                 | _____  |
|                          | Tones                                                       | Y or N |
|                          | Recall Ringing Pattern                                      | _____  |
|                          | Cancel existing queued ACB requests                         | Y or N |
| <input type="checkbox"/> | Call Hold with Audio                                        |        |
|                          | Announcement                                                | Y or N |
|                          | Announcement CLLI                                           | _____  |
|                          | Music                                                       | Y or N |
|                          | Music CLLI                                                  | _____  |

### Customer Group Information Options (cont.)

| Table   | Field/Subfield | Value                               | Default |
|---------|----------------|-------------------------------------|---------|
| CUSTSTN | OPTION         | CBQ                                 |         |
|         | CBQPPT         | 0-15                                |         |
|         | CBQRAT         | 0-15                                |         |
|         | CBQNUM         | 1-2000                              |         |
|         | CBQTYPE        | TRKONLY,<br>IBNONLY, or<br>ALLTYPES |         |
| CUSTSTN | OPTION         | CRRNOKSH                            |         |
| CUSTSTN | OPTION         | CFDATIM                             |         |
|         | CFDATO         | 12-325                              | 30 s    |
| CUSTSTN | OPTION         | CFCW                                |         |
|         | ANNMUSIC       | Y or N                              |         |
|         | AUDIOGRP       | AUDIO1 to<br>AUDIO512               |         |
|         | RINGAPPL       | 1-12                                |         |
|         | RINGCYCL       | 2-7                                 |         |
|         | TONES          | Y or N                              |         |
|         | RINGPTRN       | ACBARRP, RAGRP                      |         |
|         | CNCLACT        | Y or N                              |         |
|         | ACTLEVEL       | ONELEVEL, TWOLEVEL                  |         |
| CUSTSTN | OPTION         | CHD                                 |         |
|         | AUDIOGRP       | AUDIO1 to<br>AUDIO512               | SILENCE |

**Customer Group Information Options (cont.)**

Call Hold with Audio for Business Sets

Announcement Y or N

Announcement CLLI \_\_\_\_\_

Music Y or N

Music CLLI \_\_\_\_\_

Station Camp On for Business Sets

Announcement or Music Y or N

Audio Group \_\_\_\_\_

Maximum Number of Ringbacks \_\_\_\_\_

Ring Cycles \_\_\_\_\_

Tones Y or N

Recall Ringing Pattern \_\_\_\_\_

Cancel existing queued ACB requests Y or N

Call Forwarding Remote Access

Number of Digits in base stations extension \_\_\_\_\_

Number of PIN entry attempts allowed \_\_\_\_\_

No of feature access code attempts allowed \_\_\_\_\_

No of forward DN entry attempts allowed \_\_\_\_\_

Call Forwarding Validation (Choose one)

Terminating Validation? Y or N

or Routing Validation? Y or N

*\*Option is necessary only if terminating validation is desired.*

Call Forwarding Intergroup Ringsplash

### Translation Input Options (cont.)

| Table   | Field/Subfield                                                             | Value                                                                         | Default |
|---------|----------------------------------------------------------------------------|-------------------------------------------------------------------------------|---------|
| CUSTSTN | OPTION<br>AUDIOGRP                                                         | KSMOH<br>AUDIO1 to<br>AUDIO512                                                | SILENCE |
| CUSTSTN | OPTION<br>ANNMUSIC<br>AUDIOGRP                                             | MBSCAMPO<br>Y or N<br>AUDIO1 to<br>AUDIO512                                   |         |
| CUSTSTN | OPTION<br>RINGAPPL<br>RINGCYCL<br>TONES<br>RINGPTRN<br>CNCLACT<br>ACTLEVEL | AR<br>1-12<br>2-7<br>Y OR N<br>ACBARRP, RAGRP<br>Y or N<br>ONELEVEL, TWOLEVEL |         |
| CUSTSTN | OPTION<br>NUMDIGS<br>PINRETRY<br>ACCRETRY<br>FDNRETRY                      | CFRA<br>1-10<br>1-7<br>1-7<br>1-7                                             |         |
| CUSTSTN | OPTION<br>TERMOPTN                                                         | CFWVAL<br>Y (Terminating)<br>N (Routing)                                      |         |
| CUSTSTN | OPTION<br>RINGCFI                                                          | CFXFEAT<br>N or Y                                                             | N       |

**Customer Group Information Options (cont.)**

Call Forwarding Option

**Personal Call Screening**

|                                      |        |
|--------------------------------------|--------|
| Call Forwarding Universal/Intragroup | Y or N |
| Call Forward Busy                    | Y or N |
| Call Forward Don't Answer            | Y or N |

**Multiple Call Forwarding**

|                                   |        |
|-----------------------------------|--------|
| Call Forward Universal/Intragroup | Y or N |
| Call Forward Busy                 | Y or N |
| Call Forward Don't Answer         | Y or N |
| Call Forward to Trunks            | Y or N |
| Busy Treatment                    | Y or N |

Call Forwarding Optional Lines

Maximum Number of Call Forwarding Links \_\_\_\_\_

Message Waiting Between Customer Groups

Calling Number Delivery Blocking (AG1550)

**Translation Input Options (cont.)**

| Table   | Field/Subfield | Value   | Default |
|---------|----------------|---------|---------|
| CUSTSTN | OPTION         | CFXOPT  |         |
|         | PCSCFA         | Y or N  | N       |
|         | PCSCFB         | Y or N  | Y       |
|         | PCSCFD         | Y or N  | Y       |
|         | MULTICFA       | Y or N  | N       |
|         | MULTICFB       | Y or N  | Y       |
|         | MULTICFD       | Y or N  | Y       |
|         | CFXTRK         | Y or N  | N       |
|         | BUSYTRMT       | Y or N  |         |
| CUSTSTN | OPTION         | CFXOL   |         |
|         | MAXLINK        | 1-5     | 5       |
| CUSTSTN | OPTION         | CRINTER |         |
| CUSTSTN | OPTION         | CNDB    |         |

**Customer Group Information Options (cont.)**

**Permanent Hold**

    Holding Time \_\_\_\_\_

    Hold Reminder Y or N

    Hold Recall Y or N

    Announcement Y or N

        Announcement CLLI \_\_\_\_\_

    Music Y or N

        Music CLLI \_\_\_\_\_

    Silence Y or N

        CLLI \_\_\_\_\_

**Call Transfer (Customer Group)**

*Specify Type:*

        Call Transfer Incoming \_\_\_\_\_

        Call Transfer Outgoing \_\_\_\_\_

        Call Transfer Intragroup \_\_\_\_\_

        Call Transfer All \_\_\_\_\_

        Attendant Call Transfer with Flash \_\_\_\_\_

        No Call Transfer, Except to the Attendant \_\_\_\_\_

        Custom \_\_\_\_\_

*If Custom, Complete:*

        Originating Intergroup \_\_\_\_\_

        Originating Intragroup \_\_\_\_\_

        Terminating Intergroup \_\_\_\_\_

        Terminating Intragroup \_\_\_\_\_

    Recall Y or N

    If Yes, Recall Time \_\_\_\_\_

**Call Transfer Warning Tone**



### Translation Input Options (cont.)

| Table   | Field/Subfield             | Value                                                       | Default |  |
|---------|----------------------------|-------------------------------------------------------------|---------|--|
| CUSTSTN | OPTION                     | PHOLD                                                       |         |  |
|         | HLDTIME                    | 12-1023                                                     | 60 s    |  |
|         | PHOLDOPT                   | HLDREM, HLDRCCL                                             |         |  |
|         | ANNMUSIC                   | Y or N                                                      |         |  |
|         | AUDIOGRP                   | AUDIO1 to<br>AUDIO 512                                      | RINGING |  |
| CUSTSTN | OPTION                     | CXFER                                                       |         |  |
|         | CXTYPE                     | CTINC,<br>CTOUT,<br>CTALL,<br>ATTRCLF,<br>NCT, or<br>CUSTOM | CTINTRA |  |
|         | <i>If Custom Complete:</i> |                                                             |         |  |
|         | ORGINTER                   | AC, INTRA, INTER,<br>TRATER, or NOCXFER                     |         |  |
|         | ORGINTRA                   | AC, INTRA, INTER,<br>TRATER, or NOCXFER                     |         |  |
|         | TRMINTER                   | AC, INTRA, INTER,<br>TRATER, or NOCXFER                     |         |  |
|         | TRMINTRA                   | AC, INTRA, INTER,<br>TRATER, or NOCXFER                     |         |  |
|         | XFERRCL                    | Y or N                                                      |         |  |
|         | XRCLTIM                    | 12-20                                                       |         |  |
|         | CUSTSTN                    | OPTION                                                      | CTW     |  |

**Customer Group Information Options (cont.)**

Call Transfer Enhanced

All IBN Trunks

Y or N

Call Transfer for IBN Trunks

\_\_\_\_\_

IBN Trunks Dependent on Trunk Group Type

Y or N

Call Transfer Type

\_\_\_\_\_

Call Transfer Type

\_\_\_\_\_

Call Transfer Type

\_\_\_\_\_

Call Transfer Type

\_\_\_\_\_

Call Transfer Type

\_\_\_\_\_

All POTS Trunks

Y or N

Call Transfer for POTS Trunks

\_\_\_\_\_

POTS Trunks Dependent On Call Transfer Type

Call Transfer Type

\_\_\_\_\_

Call Transfer Type

\_\_\_\_\_

Call Transfer Type

\_\_\_\_\_

### Translation Input Options (cont.)

| Table   | Field/Subfield | Value                   | Default |
|---------|----------------|-------------------------|---------|
| CUSTSTN | OPTION         | CXFERSUP                |         |
|         | IBNTKSEL       | ALLIBN                  |         |
|         | ALLTRKS        | ALLOW, CONF,<br>or DENY |         |
|         | IBNTKSEL       | IBNTRKS, ALLIBN         |         |
|         | ADSCNDSC       | ALLOW, CONF,<br>or DENY |         |
|         | ADSCDSC        | ALLOW, CONF,<br>or DENY |         |
|         | ANSNDSC        | ALLOW, CONF,<br>or DENY |         |
|         | ANSDSC         | ALLOW, CONF,<br>or DENY |         |
|         | FANSFANS       | ALLOW, CONF,<br>or DENY |         |
|         | POTSTKSEL      | ALL POTS                |         |
|         | ALLTRK         | ALLOW, CONF,<br>or DENY |         |
|         | POTSTKSEL      | POTSTRKS, ALLPOTS       |         |
|         | ADSCRV         | ALLOW, CONF,<br>or DENY |         |
|         | ANSRV          | ALLOW, CONF,<br>or DENY |         |
|         | WKNDSC         | ALLOW, CONF,<br>or DENY |         |

**Customer Group Information Options (cont.)**

*Call Transfer Enhanced (cont)*

|                    |       |
|--------------------|-------|
| Call Transfer Type | _____ |
| Call Transfer Type | _____ |
| Call Transfer Tone | _____ |
| Call Transfer Tone | _____ |

|                                            |        |
|--------------------------------------------|--------|
| <input type="checkbox"/> Dial Call Waiting |        |
| Announcement                               | Y or N |
| Announcement CLLI                          | _____  |
| Music                                      | Y or N |
| Music CLLI                                 | _____  |

|                                                   |        |
|---------------------------------------------------|--------|
| <input type="checkbox"/> Call Waiting Originating |        |
| Announcement                                      | Y or N |
| Announcement CLLI                                 | _____  |
| Music                                             | Y or N |
| Music CLLI                                        | _____  |

|                                                        |       |
|--------------------------------------------------------|-------|
| <input type="checkbox"/> Directed Call Pickup Barge-In |       |
| Tone (used only when a tone is not desired)            | _____ |

|                                                        |  |
|--------------------------------------------------------|--|
| <input type="checkbox"/> Distinctive Call Waiting Tone |  |
|--------------------------------------------------------|--|

### Translation Input Options (cont.)

| Table   | Field/Subfield | Value                   | Default |
|---------|----------------|-------------------------|---------|
|         | WKDSC          | ALLOW, CONF,<br>or DENY |         |
|         | WKRV           | ALLOW, CONF,<br>or DENY |         |
|         | WKWK           | ALLOW, CONF,<br>or DENY |         |
|         | CXFERTON       | Y or N                  | N       |
| CUSTSTN | OPTION         | CWD                     |         |
|         | ANNMUSIC       | Y or N                  |         |
|         | AUDIOGRP       | AUDIO1 to<br>AUDIO512   | RINGING |
| CUSTSTN | OPTION         | CWO                     |         |
|         | ANNMUSIC       | Y or N                  |         |
|         | AUDIOGRP       | AUDIO1 to<br>AUDIO512   | RINGING |
| CUSTSTN | OPTION         | DCBITONE                |         |
|         | DCBITONE       | Y or N                  | Y       |
| CUSTSTN | OPTION         | DISTCWTN                |         |

**Customer Group Information Options (cont.)**

|                          |                                                 |        |
|--------------------------|-------------------------------------------------|--------|
| <input type="checkbox"/> | Display (for MDC Business Set)                  |        |
|                          | Number of Digits Displayed for Intragroup Calls | _____  |
| <input type="checkbox"/> | Group Intercom No Call Forwarding               | _____  |
| <input type="checkbox"/> | Group Intercom Page                             | _____  |
| <input type="checkbox"/> | Name Display                                    | _____  |
| <input type="checkbox"/> | Reason Display                                  | _____  |
| <input type="checkbox"/> | Distinctive Ringing (AF2303)                    |        |
|                          | For Intragroup Calls                            | Y or N |
|                          | If Yes, Distinctive Ringing Type                | _____  |
|                          | For Intergroup Calls                            | Y or N |
|                          | If Yes, Distinctive Ringing Type                | _____  |
|                          | For Incoming IBN Trunk (Circle One)             | Y or N |
|                          | If Yes, Distinctive Ringing Type                | _____  |
|                          | For GIC Calls                                   | Y or N |
|                          | If Yes, Distinctive Ringing Type                | _____  |
|                          | Recall                                          | Y or N |
|                          | If Yes, Distinctive Ringing Type                | _____  |
|                          | Uniform Call Distribution                       | Y or N |
|                          | If Yes, Distinctive Ringing Type                | _____  |
|                          | For Remainder of Calls                          | Y or N |
|                          | If Yes, Distinctive Ringing Type                | _____  |
|                          | For Automatic Call Distribution                 | Y or N |
|                          | If Yes, Distinctive Ringing Type                | _____  |

**Note:** Bell Canada Ringing Codes are 1,2,3,4,5. See *Customer Data Schema, 297-1001-451*, for a description of the distinctive ringing types.

### Translation Input Options (cont.)

| Table    | Field/Subfield | Value           | Default |
|----------|----------------|-----------------|---------|
| CUSTSTN  | OPTION         | DISPDIGS        | 7       |
|          | NUMODIGS       | 1-12            |         |
| CUSTSTN  | OPTION         | GICNOCFW        |         |
| CUSTSTN  | OPTION         | GICPAGE         |         |
| CUSTSTN  | OPTION         | NAMEDISP        |         |
| CUSTSTN  | OPTION         | READISP         |         |
| CUSTSTN  | OPTION         | DRING           |         |
|          | INTRNL         | Y or N          |         |
|          | DRINGTYP       | 1-8             |         |
|          | EXTRNL         | Y or N          |         |
|          | DRINGTYP       | 1-8             |         |
|          | TRKS           | NO, SEL, or ALL |         |
|          | DRINGTYP       | 1-8             |         |
|          | GIC            | Y or N          |         |
|          | DRINGTYP       | 1-8             |         |
|          | RECALL         | Y or N          |         |
|          | DRINGTYP       | 1-8             |         |
|          | UCD            | Y or N          |         |
|          | DRINGTYP       | 1-8             |         |
|          | REST           | Y or N          |         |
|          | DRINGTYP       | 1-8             |         |
|          | ACD            | Y or N          |         |
| DRINGTYP | 1-8            |                 |         |

### Customer Group Information Options (cont.)

- Do Not Disturb**  
Number of Groups Required \_\_\_\_\_
  
- Make Set Busy**  
Type Treatment for External Calls \_\_\_\_\_  
Treatment Defined (CLLI, Tone, or Annc.) \_\_\_\_\_
  
- Customer Group With No Consoles (REDIRECT)**  
Customer Group \_\_\_\_\_  
Subgroup Number \_\_\_\_\_
  
- Business Sets, Ring Again Recall will recall if phone is idle.**



**Translation Input Options (cont.)**

| Table   | Field/Subfield | Value        | Default |
|---------|----------------|--------------|---------|
| CUSTSTN | OPTION         | DND          |         |
|         | NUMGRPS        | 1-63         |         |
| CUSTSTN | OPTION         | MSB          |         |
|         | MSBTRMT        | 0-63         |         |
| CUSTSTN | OPTION         | REDIRECT     |         |
|         | CUSTNAME       | Alphanumeric |         |
|         | SUBGROUP       | 0-7          |         |
| CUSTSTN | OPTION         | RAGRCOPT     |         |

### Customer Group Information Options (cont.)

|                                     |                                                                    |                   |
|-------------------------------------|--------------------------------------------------------------------|-------------------|
| <input checked="" type="checkbox"/> | Ring Again Timer                                                   |                   |
|                                     | Number of Seconds (RAG Recall Timer)                               | <u>12 seconds</u> |
|                                     | Cancellation Timer (AD2851)                                        | <u>Ø</u>          |
| <input type="checkbox"/>            | Auto Display Timer (MDC Business Sets)                             |                   |
|                                     | Enter timer period in seconds                                      | _____             |
| <input type="checkbox"/>            | Trunk Answer From Any Station                                      |                   |
| <input type="checkbox"/>            | Inspect Activate Timer                                             |                   |
|                                     | Enter time period in one second intervals                          | _____             |
| <input type="checkbox"/>            | Inspect Display Timer                                              |                   |
|                                     | Enter time period in one second intervals                          | _____             |
| <input type="checkbox"/>            | Executive Busy Override on Multiple Appearance<br>Directory Number |                   |

**Translation Input Options (cont.)**

| Table   | Field/Subfield                 | Value                  | Default |
|---------|--------------------------------|------------------------|---------|
| CUSTSTN | OPTION<br>RAGRECTO<br>RAGCANTO | RAGTIM<br>0-32<br>0-30 | 8 s     |
| CUSTSTN | OPTION<br>DISPTIMER            | AUTODISP<br>2-10       | 5 s     |
| CUSTSTN | OPTION                         | TAFAS                  |         |
| CUSTSTN | OPTION<br>ACTIMER              | INSPACT<br>5-60        | 10      |
| CUSTSTN | OPTION<br>DISPTIMER            | INSPDISP<br>2-30       | 5       |
| CUSTSTN | OPTION                         | EBOM                   |         |

### Customer Group Information Options (cont.)

Automatic Call Back (ACB)

|                                     |        |
|-------------------------------------|--------|
| Maximum Number of Ringbacks         | _____  |
| Ring Cycles                         | _____  |
| Tones                               | Y or N |
| Recall Ringing Pattern              | _____  |
| Cancel Existing Queued ACB Requests | Y or N |

Automatic Recall (AR)

|                                    |            |
|------------------------------------|------------|
| Maximum Number of Ringbacks        | _____      |
| Ring Cycles                        | _____      |
| Tones                              | Y or N     |
| Recall Ringing Pattern             | _____      |
| Cancel Existing Queued AR Requests | Y or N     |
| Level of Activation                | One or Two |

AMA Customer Group Identification

**Translation Input Options (cont.)**

| Table   | Field/Subfield | Value              | Default |
|---------|----------------|--------------------|---------|
| CUSTSTN | OPTION         | ACB                |         |
|         | RINGAPPL       | 1-12               |         |
|         | RINGCYCL       | 2-7                |         |
|         | TONES          | Y or N             |         |
|         | RINGPTRN       | ACBARRP, RAGRP     |         |
|         | CNCLACT        | Y or N             |         |
| CUSTSTN | OPTION         | AR                 |         |
|         | TONES          | Y or N             |         |
|         | RINGAPPL       | 1-12               |         |
|         | RINGCYCL       | 2-7                |         |
|         | RINGPTRN       | ACBARRP, RAGRP     |         |
|         | CNCLACT        | Y or N             |         |
|         | ACTLEVEL       | ONELEVEL, TWOLEVEL |         |
| CUSTSMR | OPTION         | AMACUST            |         |

### Customer Group Information Options (cont.)

Answer Timing For No Answer  
Trunks (SMDR) Number of Seconds \_\_\_\_\_

Derived SMDR

SMDR Report For Incoming/Outgoing, Tie Trunks, FX, Line Calls

Networked SMDR Extension Record

SMDR: Record Digits as Outpulsed by DMS

SMDR: Record No Answer Calls

SMDR: Call Data Type  
SMDR Call data type for their own  
SMDR File \_\_\_\_\_

Message Detail Recording Revenue Accounting Office  
Business Identification Number \_\_\_\_\_

**Translation Input Options (cont.)**

| Table    | Field/Subfield     | Value                   | Default |
|----------|--------------------|-------------------------|---------|
| CUSTSMDR | OPTION<br>ANSTIMAL | ANSTIM<br>0-31          | 15 s    |
| CUSTSMDR | OPTION             | DERVSMDR                |         |
| CUSTSMDR | OPTION             | NERVE                   |         |
| CUSTSMDR | OPTION             | NETWORK                 |         |
| CUSTSMDR | OPTION             | RAO                     |         |
| CUSTSMDR | OPTION             | RNA                     |         |
| CUSTSMDR | OPTION<br>SMDRDT   | SMDRCDT<br>Alphanumeric |         |
| CUSTSMDR | OPTION             | MDRRAO                  |         |

### Customer Group Information Options (cont.)

|                          |                                               |               |
|--------------------------|-----------------------------------------------|---------------|
| <input type="checkbox"/> | Station Origination Restrictions              |               |
| <input type="checkbox"/> | Station Origination Restrictions List (G0087) |               |
|                          | Customer Group Name                           | _____         |
|                          | Number of SOR Groups                          | _____         |
|                          | Exception List                                | _____         |
| <input type="checkbox"/> | Preset Conference (AF2014)                    |               |
|                          | Preset Conference Number                      | _____         |
|                          | Conferee Number                               | _____         |
|                          | Directory Number of Conferee                  | _____         |
|                          | Conference Class                              | D, P, C, or A |
|                          | Conferee Type                                 | IBN           |
|                          | Customer Group                                | _____         |
|                          | Network Class of Service Number               | _____         |
|                          | Originator Control                            | Y or N        |
|                          | Conference Add Ons                            | Y or N        |
|                          | DID Origination Allowed                       | Y or N        |
|                          | Emergency Conference                          | Y or N        |
|                          | Audio Tone Detector Required                  | Y or N        |
|                          | Immediate Start                               | Y or N        |
|                          | Present Conference Notification Type          | _____         |
|                          | If announcement, announcement CLLI            |               |
|                          | Conferee 1                                    | _____         |
|                          | Conferee 2                                    | _____         |
|                          | Conferee 3                                    | _____         |
|                          | Conferee 4                                    | _____         |
|                          | Conferee 5                                    | _____         |
|                          | Conferee 6                                    | _____         |



### Translation Input Options (cont.)

| Table    | Field/Subfield | Value           | Default |
|----------|----------------|-----------------|---------|
| CUSTSTN  | OPTION         | SOR             |         |
| SORLIST  | CUSTNAME       | Alphanumeric    |         |
|          | NUMGRPS        | 1-64            |         |
|          | EXCPTLST       | Up to 11 digits |         |
| PRECONF  | PRECONF        | 0-63            |         |
|          | CONFREE        | 0-49            |         |
|          | CONFADDR       | Numeric         |         |
|          | CLASS          | D, P, C, or A   |         |
|          | CONFTYPE       | IBN             |         |
|          | CUSTGRP        | Alphanumeric    |         |
|          | NCOS           | 0-255           |         |
|          | ORIGCONT       | Y or N          |         |
|          | ADDON          | Y or N          |         |
|          | DIDORIG        | Y or N          |         |
|          | EMERG          | Y or N          |         |
|          | ATDREQ         | Y or N          |         |
| IMMSTART | Y or N         |                 |         |

Ref. NTP 297-2001-451

NETWORK CLASS OF SERVICE (NCOs)

| CUSTOMER GROUP NAME:                                                                                                 |                                                        | PAGE                      |                         | OF            |     |                                                                          |           |           |                       |                       |               |                       |                       |                              |                                    |                                    |                                  |                                  |                            |                            |                            |                              |                              |                        |                                     |                                                   |                                                   |                              |                              |                           |  |  |  |
|----------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------|---------------------------|-------------------------|---------------|-----|--------------------------------------------------------------------------|-----------|-----------|-----------------------|-----------------------|---------------|-----------------------|-----------------------|------------------------------|------------------------------------|------------------------------------|----------------------------------|----------------------------------|----------------------------|----------------------------|----------------------------|------------------------------|------------------------------|------------------------|-------------------------------------|---------------------------------------------------|---------------------------------------------------|------------------------------|------------------------------|---------------------------|--|--|--|
| Enter a checkmark under the appropriate column to indicate access is allowed. Maximum of 256 NCOs per customer group |                                                        |                           |                         |               |     |                                                                          |           |           |                       |                       |               |                       |                       |                              |                                    |                                    |                                  |                                  |                            |                            |                            |                              |                              |                        |                                     |                                                   |                                                   |                              |                              |                           |  |  |  |
| Trans-<br>lations<br>Input                                                                                           | NCOs<br>INPUT<br>(1-6 alpha-<br>numeric<br>characters) | LSC<br>9)-31)             | NCOs Options (NCOsOPTN) |               |     | Preliminary<br>Translator<br>Name<br><br>(If<br>Using<br>XLAS<br>Option) |           |           |                       |                       |               |                       |                       |                              |                                    |                                    |                                  |                                  |                            |                            |                            |                              |                              |                        |                                     |                                                   |                                                   |                              |                              |                           |  |  |  |
|                                                                                                                      |                                                        |                           | Station to Station      | Local Calling | DDD |                                                                          | Attendant | FX        | Tie Lines             | ESN / Private Network | Outwards Band | Outwards Band         | Network Speed Calling | PIC / Override Choice        | Code Restr. Level Enter 1-15       | Code Restr. B = Block<br>A = Allow | Acct. / Auth. Code Last          | Chg. Att. NCOs #<br>Enter NCOs # | Call Back queuing (CBQ)    | CBQ Start Pro.<br>Max Pro. | CBQ Route Advance (Y or N) | CBQ Option * Enter 1 or 2    | Expensive Route Warning Tone | ERWT                   | Off-hook queuing (OHQ)              | OHQ priority 0=Lines,<br>1 = Trunks               | OHQ Notice<br>T = Tone<br>A = ANNC<br>S = Silence | OHQ                          | TRAF SNO<br>10 or 10-<br>127 | Traffic<br>Sep.<br>Number |  |  |  |
| NCOs<br>Number<br>(0-255)                                                                                            | NCOs<br>Name                                           | Line<br>Screening<br>Code | Station to Station      | Local Calling | DDD | Attendant                                                                | FX        | Tie Lines | ESN / Private Network | Outwards Band         | Outwards Band | Network Speed Calling | PIC / Override Choice | Code Restr. Level Enter 1-15 | Code Restr. B = Block<br>A = Allow | Acct. / Auth. Code Last            | Chg. Att. NCOs #<br>Enter NCOs # | Call Back queuing (CBQ)          | CBQ Start Pro.<br>Max Pro. | CBQ Route Advance (Y or N) | CBQ Option * Enter 1 or 2  | Expensive Route Warning Tone | ERWT                         | Off-hook queuing (OHQ) | OHQ priority 0=Lines,<br>1 = Trunks | OHQ Notice<br>T = Tone<br>A = ANNC<br>S = Silence | OHQ                                               | TRAF SNO<br>10 or 10-<br>127 | Traffic<br>Sep.<br>Number    |                           |  |  |  |
| Access<br>code                                                                                                       |                                                        |                           |                         |               |     |                                                                          |           |           |                       |                       |               |                       |                       |                              |                                    |                                    |                                  |                                  |                            |                            |                            |                              |                              |                        |                                     |                                                   |                                                   |                              |                              |                           |  |  |  |
|                                                                                                                      |                                                        |                           |                         |               |     |                                                                          |           |           |                       |                       |               |                       |                       |                              |                                    |                                    |                                  |                                  |                            |                            |                            |                              |                              |                        |                                     |                                                   |                                                   |                              |                              |                           |  |  |  |
|                                                                                                                      |                                                        |                           |                         |               |     |                                                                          |           |           |                       |                       |               |                       |                       |                              |                                    |                                    |                                  |                                  |                            |                            |                            |                              |                              |                        |                                     |                                                   |                                                   |                              |                              |                           |  |  |  |
|                                                                                                                      |                                                        |                           |                         |               |     |                                                                          |           |           |                       |                       |               |                       |                       |                              |                                    |                                    |                                  |                                  |                            |                            |                            |                              |                              |                        |                                     |                                                   |                                                   |                              |                              |                           |  |  |  |

\*If searching inexpensive routes only, enter 1. Inexpensive and expensive routes, enter 2.

**CODE RESTRICTION LEVEL**

**REF. NTP 297-2001-451**

**CUSTOMER GROUP**

see info sheet

Enter codes to be allowed or blocked for each level. Where code restriction is applicable, enter the CRL number in Table NCOS (Network Class of Service). Up to 15 CRLs are available, with each code containing up to 18 digits.

CRL# 1

Circle one: Allow/Block

900, 976

CRL# \_\_\_\_\_

Circle one: Allow/Block

CRL# \_\_\_\_\_

Circle one: Allow/Block

### Network/Feature Access Codes Customer Group Information

| Access Code | ACR Y/N | SMDR Y/N | Feature/Network Type                                                                                       |
|-------------|---------|----------|------------------------------------------------------------------------------------------------------------|
| _____       | _____   | _____    | Attendant Access                                                                                           |
| _____       | _____   | _____    | Access to Attendant<br>in Other Customer Group<br>or Subgroup<br>Customer Grp _____<br>Subgrp Number _____ |
| _____       | _____   | _____    | Account Code Entry                                                                                         |
| _____       | _____   | _____    | Authorization Code Entry                                                                                   |
| _____       | _____   | _____    | Code Calling Activate                                                                                      |
| _____       | _____   | _____    | Code Calling Pickup                                                                                        |
| _____       | _____   | _____    | Call Forwarding Program                                                                                    |
| _____       | _____   | _____    | Call Forwarding Cancel                                                                                     |
| _____       | _____   | _____    | Station Controller Conf.                                                                                   |
| _____       | _____   | _____    | Conference Release                                                                                         |
| _____       | _____   | _____    | Call Pickup                                                                                                |
| _____       | _____   | _____    | Directed Call Pickup                                                                                       |
| _____       | _____   | _____    | Call Park                                                                                                  |
| _____       | _____   | _____    | Directed Call Park                                                                                         |
| _____       | _____   | _____    | Call Park Retrieve                                                                                         |
| _____       | _____   | _____    | Executive Busy Override                                                                                    |
| _____       | _____   | _____    | Privacy                                                                                                    |

**Network/Feature Access Codes  
Translation Input**

| Table  | Field/Subfield | Value                                                                                              | Default |
|--------|----------------|----------------------------------------------------------------------------------------------------|---------|
| IBNXLA | XLANAME        | Alphanumeric                                                                                       |         |
|        | DGLIDX         | Numeric                                                                                            |         |
|        | TRSEL          | See <i>Customer Data Schema</i> ,<br>297-1001-451, for available<br>features and required entries. |         |

**Network/Feature Access Codes  
Customer Group Information (cont.)**

| Access Code | ACR Y/N | SMDR Y/N | Feature/Network Type                   |
|-------------|---------|----------|----------------------------------------|
| _____       | _____   | _____    | Permanent Hold                         |
| _____       | _____   | _____    | MADN Hold Activation                   |
| _____       | _____   | _____    | MADN Hold Cancellation                 |
| _____       | _____   | _____    | Call Hold                              |
| _____       | _____   | _____    | Meet Me Conference Lock                |
| _____       | _____   | _____    | Meet Me Conference Unlock              |
| _____       | _____   | _____    | Privacy Release Activation             |
| _____       | _____   | _____    | Privacy Release Cancel                 |
| _____       | _____   | _____    | Ring Again                             |
| _____       | _____   | _____    | Speed Calling Programming Long List    |
| _____       | _____   | _____    | Speed Calling Programming Short List   |
| _____       | _____   | _____    | Speed Call Via Access Code             |
| _____       | _____   | _____    | Trunk Answer From Any Station          |
| _____       | _____   | _____    | Dial Call Waiting                      |
| _____       | _____   | _____    | Uniform Call Distribution Activation   |
| _____       | _____   | _____    | Uniform Call Distribution Deactivation |
| _____       | _____   | _____    | Data Looparound                        |

**Network/Feature Access Codes  
Translation Input (cont.)**

| Table  | Field/Subfield | Value                                                                                              | Default |
|--------|----------------|----------------------------------------------------------------------------------------------------|---------|
| IBNXLA | XLANAME        | Alphanumeric                                                                                       |         |
|        | DGLIDX         | Numeric                                                                                            |         |
|        | TRSEL          | See <i>Customer Data Schema</i> ,<br>297-1001-451, for available<br>features and required entries. |         |

**Network/Feature Access Codes  
Customer Group Information (cont.)**

| Access Code | ACR Y/N | SMDR Y/N | Feature/Network Type                             |
|-------------|---------|----------|--------------------------------------------------|
| _____       | _____   | _____    | Trunk Verification From Designated Station       |
| _____       | _____   | _____    | Last Number Redial                               |
| _____       | _____   | _____    | Make Set Busy Activation                         |
| _____       | _____   | _____    | Make Set Busy Deactivation                       |
| _____       | _____   | _____    | Call Request Activation                          |
| _____       | _____   | _____    | Call Request Retrieval                           |
| _____       | _____   | _____    | Call Request Delete All                          |
| _____       | _____   | _____    | Call Request Delete Specific                     |
| _____       | _____   | _____    | Network Speed Calling<br>Second Dial Tone Y or N |
| _____       | _____   | _____    | Meridian Asynchronous Data Option                |
| _____       | _____   | _____    | Cancel Call Waiting                              |
| _____       | _____   | _____    | Direct Outward Dialing                           |
|             |         |          | Second Dial Tone           Y or N                |
|             |         |          | Intragroup                 Y or N                |
|             |         |          | SMDRB                     Y or N                 |
| _____       | _____   | _____    | Electronic Switching Network                     |
|             |         |          | Second Dial Tone           Y or N                |
|             |         |          | Intragroup                 Y or N                |
|             |         |          | SMDRB                     Y or N                 |



**Network/Feature Access Codes  
Translation Input (cont.)**

| Table  | Field/Subfield | Value                                                                                              | Default |
|--------|----------------|----------------------------------------------------------------------------------------------------|---------|
| IBNXLA | XLANAME        | Alphanumeric                                                                                       |         |
|        | DGLIDX         | Numeric                                                                                            |         |
|        | TRSEL          | See <i>Customer Data Schema</i> ,<br>297-1001-451, for available<br>features and required entries. |         |

**Network/Feature Access Codes  
Customer Group Information (cont.)**

| Access Code | ACR<br>Y/N | SMDR<br>Y/N | Feature/Network Type                                                                                                                                   |
|-------------|------------|-------------|--------------------------------------------------------------------------------------------------------------------------------------------------------|
| _____       | _____      | _____       | Private Network<br>Second Dial Tone <input checked="" type="radio"/> Y or N<br>Intragroup Y or N                                                       |
| _____       | _____      | _____       | OUTWATS<br>Second Dial Tone <input checked="" type="radio"/> Y or N<br>Intragroup Y or N                                                               |
| _____       | _____      | _____       | Automatic Route Selection (ARS)                                                                                                                        |
| <u>5</u>    | _____      | _____       | Tie Trunk<br>Second Dial Tone <input checked="" type="radio"/> Y or N                                                                                  |
| _____       | _____      | _____       | Prefix NRS Outbound<br>Second Dial Tone Y or N                                                                                                         |
| <u>12</u>   | _____      | _____       | Star Equivalent (for 500 sets)                                                                                                                         |
| <u>13</u>   | _____      | _____       | Octothorpe Equivalent (for 500 Sets)                                                                                                                   |
| <u>5</u>    | <u>N</u>   | <u>N</u>    | Extension Number Range<br>Intragroup <input checked="" type="radio"/> Y or N<br>Central Office Code <u>see info sheet</u><br>Number of Digits <u>5</u> |
| _____       | _____      | _____       | Group Intercom Via Access Code                                                                                                                         |

**Network/Feature Access Codes  
Translation Input (cont.)**

| Table  | Field/Subfield | Value                                                                                              | Default |
|--------|----------------|----------------------------------------------------------------------------------------------------|---------|
| IBNXLA | XLANAME        | Alphanumeric                                                                                       |         |
|        | DGLIDX         | Numeric                                                                                            |         |
|        | TRSEL          | See <i>Customer Data Schema</i> ,<br>297-1001-451, for available<br>features and required entries. |         |

**Network/Feature Access Codes  
Customer Group Information (cont.)**

| Access Code | ACR Y/N | SMDR Y/N | Feature/Network Type                               |
|-------------|---------|----------|----------------------------------------------------|
| _____       | _____   | _____    | Station Origination Restrictions                   |
| _____       | _____   | _____    | Loudspeaker Paging                                 |
| _____       | _____   | _____    | Loudspeaker Paging Answerback Activation           |
| _____       | _____   | _____    | Loudspeaker Paging Answerback Access               |
| _____       | _____   | _____    | Automatic Call Distribution Not Ready Activation   |
| _____       | _____   | _____    | Automatic Call Distribution Not Ready Deactivation |
| _____       | _____   | _____    | Automatic Call Distribution Login Activation       |
| _____       | _____   | _____    | Automatic Call Distribution Login Deactivation     |
| _____       | _____   | _____    | Voice Messaging Exchange                           |
| _____       | _____   | _____    | Regular Direct Inward System Access                |
| _____       | _____   | _____    | Call Forwarding Busy Programming (CFBP)            |
| _____       | _____   | _____    | Call Forwarding Busy Cancellation (CFBC)           |
| _____       | _____   | _____    | Call Forwarding Busy Internal Programming (CFBIP)  |
| _____       | _____   | _____    | Call Forwarding Busy Internal Cancellation (CFBIC) |
| _____       | _____   | _____    | Call Forwarding Busy External Programming (CFBEP)  |
| _____       | _____   | _____    | Call Forwarding Busy External Cancellation (CFBEC) |

**Network/Feature Access Codes  
Translation Input (cont.)**

| Table  | Field/Subfield | Value                                                                                              | Default |
|--------|----------------|----------------------------------------------------------------------------------------------------|---------|
| IBNXLA | XLANAME        | Alphanumeric                                                                                       |         |
|        | DGLIDX         | Numeric                                                                                            |         |
|        | TRSEL          | See <i>Customer Data Schema</i> ,<br>297-1001-451, for available<br>features and required entries. |         |

**Network/Feature Access Codes  
Customer Group Information (cont.)**

| Access Code | ACR<br>Y/N | SMDR<br>Y/N | Feature/Network Type                                       |
|-------------|------------|-------------|------------------------------------------------------------|
| _____       | _____      | _____       | Call Forwarding Don't Answer Internal Programming (CFDIP)  |
| _____       | _____      | _____       | Call Forwarding Don't Answer Internal Cancellation (CFDIC) |
| _____       | _____      | _____       | Call Forwarding Don't Answer External Programming (CFDEP)  |
| _____       | _____      | _____       | Call Forwarding Don't Answer Programming (CFDP)            |
| _____       | _____      | _____       | Call Forwarding Don't Answer Cancellation (CFDC)           |
| _____       | _____      | _____       | Call Forwarding Don't Answer External Cancellation (CFDEC) |
| _____       | _____      | _____       | Call Forwarding Remote Access (CFRA)                       |
| _____       | _____      | _____       | Program Call Forward per Key (CFKP)                        |
| _____       | _____      | _____       | Cancel Call Forward per Key (CFKC)                         |
| _____       | _____      | _____       | Malicious Call Hold                                        |
| _____       | _____      | _____       | Warm Line                                                  |

**Network/Feature Access Codes  
Translation Input (cont.)**

| Table  | Field/Subfield | Value                                                                                              | Default |
|--------|----------------|----------------------------------------------------------------------------------------------------|---------|
| IBNXLA | XLANAME        | Alphanumeric                                                                                       |         |
|        | DGLIDX         | Numeric                                                                                            |         |
|        | TRSEL          | See <i>Customer Data Schema</i> ,<br>297-1001-451, for available<br>features and required entries. |         |

### List of Assignable Features (500/2500 Set)

| Acronym  | Feature name                                     | Additional information required                                                                                           |
|----------|--------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------|
| ACD      | Automatic Call Distribution                      | Automatic Call Distribution Group<br>Automatic Call Distribution Subgroup<br>Position Identification Number (if required) |
| AMATEST  | Automatic Message Accounting Test                |                                                                                                                           |
| AUL      | Automatic Line                                   | 1-15 Digit Number to be Stored                                                                                            |
| CBE      | Prevents Forwarding Busy External Calls          | 1-11 Digit Intragroup Number Calls are Forwarded to                                                                       |
| CBI      | Prevents Forwarding Busy Internal Calls          | 1-11 Digit Intragroup Number Calls are Forwarded to                                                                       |
| CCW      | Cancel Call Waiting                              | Access Code                                                                                                               |
| CBU      | Call Forward Busy Unrestricted                   | 1-11 Digit Number Calls are Forwarded to                                                                                  |
| CDC      | Customer Data Change                             | 1-11 Digit Intragroup Number Calls are Forwarded to                                                                       |
| CDE      | Prevents Forwarding Don't Answer                 | 1-11 Digit Intragroup Number Calls are Forwarded to                                                                       |
| CDI      | Call Forwarding Don't Answer Internal Calls      | 1-11 Digit Intragroup Number Calls are Forwarded to                                                                       |
| CDU      | Call Forward Don't Answer Unrestricted           | 1-11 Digit Intragroup Number Calls are Forwarded to                                                                       |
| CFB      | Call Forward Busy of External Calls              | 1-11 Digit Intragroup Number Calls are Forwarded to                                                                       |
| CFD      | Call Forwarding Don't Answer                     | 1-11 Digit Intragroup Number Calls are Forwarded to                                                                       |
| CFDVT    | Call Forward Don't Answer                        | 12-60 s                                                                                                                   |
| CFF      | Call Forward Fixed                               |                                                                                                                           |
| CFI      | Call Forwarding Intragroup                       |                                                                                                                           |
| CFRA     | Call Forward Remote Access                       |                                                                                                                           |
| CFRAAUTH | Call Forwarding Remote Access Authorization Code | 2-10 Digit Authorization Code or PIN Code                                                                                 |
| CFS      | Call Forward Simultaneous                        |                                                                                                                           |
| CFU      | Call Forwarding Universal                        |                                                                                                                           |
| CHD      | Call Hold                                        |                                                                                                                           |
| CLI      | Calling Line Identification                      |                                                                                                                           |
| CLF      | Calling Line Identification with Flash           |                                                                                                                           |



### List of Assignable Features (500/2500 Set) (cont.)

| Acronym | Feature name                        | Additional information required                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|---------|-------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| CNF     | Flexible Station Control Conference | <p><i>Types of conference:</i></p> <p>A. 6-PARTY Conference (C06)<br/>           B. 10-PARTY Conference (C10)<br/>           C. 14-PARTY Conference (C14)<br/>           D. 18-PARTY Conference (C18)<br/>           E. 22-PARTY Conference (C22)<br/>           F. 26-PARTY Conference (C26)<br/>           G. 30-PARTY Conference (C30)</p>                                                                                                                                                                                                                                                                                                                                                                     |
| CPU     | Call Pickup                         | Line Equipment Number (LEN) of CPU Group                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| CTD     | Carrier Toll Denied                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| CWD     | Dial Call Waiting                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| CWI     | Call Waiting Intragroup             | Must Assign Call Waiting (CWT) Also                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| CWO     | Call Waiting Origination            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| CWT     | Call Waiting                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| CWX     | Call Waiting Exempt                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| CXR     | Call Transfer                       | <p><i>Types of Call Transfer:</i></p> <p>Call Transfer Incoming (CTINC)<br/>           Call Transfer Outgoing (CTOUT)<br/>           Call Transfer Intragroup (CTINTRA)<br/>           Call Transfer All (CTALL)<br/>           Attendant Call Transfer with Flash (ATTRCLF)<br/>           No Call Transfer (NCT) Custom Call Transfer (CUSTOM)</p> <p><i>If custom, specify type for each:</i></p> <p>A. Originating Intergroup (AC, INTRA, INTER, TRATER, or NOCXFER)<br/>           B. Originating Intragroup (AC, INTRA, INTER, TRATER, or NOCXFER)<br/>           C. Terminating (AC, INTRA, INTER, TRATER, or NOCXFER)<br/>           D. Terminating Intragroup (AC, INTRA, INTER, TRATER, or NOCXFER)</p> |
| DCF     | Denied Call Forwarding              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| DDN     | Dialable Directory Number Non-AMA   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |

**List of Assignable Features (500/2500 Set) (cont.)**

| Acronym  | Feature name                                     | Additional information required                                                                                                                                                     |
|----------|--------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| DDNAMA   | Dialable Directory Number AMA                    | Activation Code                                                                                                                                                                     |
| DIN      | Denied Incoming                                  | Terminating Restriction Code<br>Alternate Terminating Restriction Code                                                                                                              |
| DOR      | Denied Originating Service                       |                                                                                                                                                                                     |
| DTM      | Denied Terminating                               |                                                                                                                                                                                     |
| DCBI     | Directed Call Pick-up Barge-In                   |                                                                                                                                                                                     |
| DCBX     | Directed Call Pick-Up Barge-In Exempt            |                                                                                                                                                                                     |
| DCPK     | Directed Call Park                               |                                                                                                                                                                                     |
| DCPU     | Directed Call Pick-Up Non Barge-In               |                                                                                                                                                                                     |
| DCPX     | Directed Call Pick-Up Non Barge-In Exempt        |                                                                                                                                                                                     |
| DNH      | Directory Number Hunt                            | Pilot Number                                                                                                                                                                        |
| DLH      | Distributed Line Hunt                            | Pilot Number                                                                                                                                                                        |
| DND      | Do Not Disturb                                   |                                                                                                                                                                                     |
| EBO      | Executive Busy Override                          |                                                                                                                                                                                     |
| EBX      | Executive Busy Override Exempt                   |                                                                                                                                                                                     |
| ELN      | Essential Line Service                           |                                                                                                                                                                                     |
| EMW      | Executive Message Waiting                        |                                                                                                                                                                                     |
| EXCFBDN  | Call Forwarding Busy External Directory Number   |                                                                                                                                                                                     |
| FRO      | Fire Reporting System                            | Trunk Module Type (MTM, RSM, RMM)<br>Trunk Module Number (0-255)<br>Trunk Module Circuit Number (0-23)<br>Signal Distributor Point (0-6)<br>State of Signal Distributor Point (0-1) |
| GIC      | Group Intercom                                   | Intercom Group Name<br>Member Number (0-9, 00-99, 000-999, 0000-9999)<br>SMDR (Y, N)                                                                                                |
| HLD      | Permanent Hold                                   |                                                                                                                                                                                     |
| IECFB    | Internal External Call Forward Busy DENY         |                                                                                                                                                                                     |
| IECFBCBU | Internal External Call Forward Busy Unrestricted |                                                                                                                                                                                     |

**List of Assignable Features (500/2500 Set) (cont.)**

| Acronym  | Feature name                                                | Additional information required                                                                                                                                                                                          |
|----------|-------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| IECFD    | Internal External Call Forward<br>Don't Answer DENY         |                                                                                                                                                                                                                          |
| IECFDCDU | Internal External Call Forward<br>Don't Answer Unrestricted |                                                                                                                                                                                                                          |
| INCFBDN  | Internal Call Forwarding<br>Busy Directory Number           |                                                                                                                                                                                                                          |
| INCFDDN  | Internal Call Forwarding Don't<br>Answer Directory Number   |                                                                                                                                                                                                                          |
| IRR      | Inhibit Ring Reminder                                       |                                                                                                                                                                                                                          |
| LNR      | Last Number Redial                                          |                                                                                                                                                                                                                          |
| MDN      | Multiple Appearance Directory<br>Number                     | Single Call Arrangement (SCA)<br>Multiple Call Arrangement (MCA)                                                                                                                                                         |
| MLH      | Multiple Line Hunt                                          | Pilot Number                                                                                                                                                                                                             |
| MSB      | Make Set Busy All Calls                                     |                                                                                                                                                                                                                          |
| MSBI     | Make Set Busy Intragroup                                    |                                                                                                                                                                                                                          |
| MWT      | Message Waiting                                             | Notification Type:<br>Stutter Dial Tone (STD)<br>Message Waiting Lamp (MWL)<br>MWL Allowed to Originate Call<br>Request (Y, N)<br>Allowed to Receive Call Request<br>(Y, N)                                              |
| NDC      | No Double Connection                                        |                                                                                                                                                                                                                          |
| PIC      | Primary Interlata Carrier                                   |                                                                                                                                                                                                                          |
| PRK      | Call Park                                                   |                                                                                                                                                                                                                          |
| PRL      | Privacy Release                                             |                                                                                                                                                                                                                          |
| PRV      | Privacy                                                     |                                                                                                                                                                                                                          |
| RAG      | Ring Again                                                  |                                                                                                                                                                                                                          |
| RMB      | Random Make Busy                                            | Trunk Module Type (MTM, RSM, RMM)<br>Trunk Module Number (0-255)<br>Trunk Module Circuit Number (0-23)                                                                                                                   |
| RMP      | Remote Meter Pulsing                                        | Number of Surcharge Pulses (0-15)<br>Trunk Module Type (MTM, RSM, RMM)<br>Trunk Module Number (0-255)<br>Trunk Module Circuit Number (0-23)<br>Signal Distributor Point (0-6)<br>State of Signal Distributor Point (0-1) |

**List of Assignable Features (500/2500 Set) (cont.)**

| Acronym | Feature name                                | Additional information required                                                                                                                                                  |
|---------|---------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| SCL     | Speed Calling—Long                          | List Types:<br>30 Numbers (L30)<br>50 Numbers (L50)<br>70 Numbers (L70)                                                                                                          |
| SCS     | Speed Calling—Short                         | Speed Call Controller's LEN<br>Allowed Access to Toll Numbers (Y, N)                                                                                                             |
| SCU     | Speed Calling—User                          |                                                                                                                                                                                  |
| SEC     | Security                                    | 1 TO 7 Digit Security Code                                                                                                                                                       |
| SHU     | Stop Hunt                                   | Trunk Module Type (MTM, RSM, RMM)<br>Trunk Module Number (0-255)<br>Trunk Module Circuit Number (0-23)<br>Scan Point (0-6)<br>Normal State (0 is OFF or OPEN, 1 is ON or CLOSED) |
| SMDR    | Station Message Detail Recording            |                                                                                                                                                                                  |
| SLU     | Subscriber Line Usage                       |                                                                                                                                                                                  |
| SOR     | Station Origination Restrictions            | Station Origination Restrictions Controller's LEN Restriction Level                                                                                                              |
| SORC    | Station Origination Restrictions Controller | Restriction Level                                                                                                                                                                |
| SPB     | Special Billing                             | Directory Number                                                                                                                                                                 |
| STRD    | Short Timed Release Disconnect              |                                                                                                                                                                                  |
| TBO     | Terminating Billing Option                  | Call Code<br>Service Feature Code                                                                                                                                                |
| UCD     | Uniform Call Distribution                   |                                                                                                                                                                                  |
| WML     | Warm Line                                   | Data Feature (WML)<br>Customer Modify (Y, N)<br>Activate (Y, N)<br>Directory Number (1-18 digits)<br>Timeout (1-20)                                                              |
| 3WC     | Three-Way Conference                        |                                                                                                                                                                                  |
| 3WCPUB  | Three-Way Calling Public                    |                                                                                                                                                                                  |

### MDC Feature Assignment Table (Data) (PSET) (M5009) (M5209)

| Customer Group:     |      |             |      |  | Subset Features: CFU, CFI, CFB, CFD, CPU, CWT, CWI, KSH<br>KEYLIST INFO: Subset features will require a KEYLIST showing the actual number assigned to the KEY associated with the DNs the feature will affect. |             |  | S. O. Number |          |
|---------------------|------|-------------|------|--|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|--|--------------|----------|
| User Name/Location: |      |             |      |  |                                                                                                                                                                                                                |             |  |              |          |
| LEN:                |      |             |      |  | MDN Info                                                                                                                                                                                                       |             |  |              |          |
|                     |      |             |      |  | S<br>C<br>A                                                                                                                                                                                                    | M<br>C<br>A |  | Prim<br>Y/N  |          |
| Key                 | Lamp | Ring<br>Y/N | NCOS |  |                                                                                                                                                                                                                |             |  |              | Key List |
| 9                   | N    |             |      |  |                                                                                                                                                                                                                |             |  |              |          |
| 8                   | Y    |             |      |  |                                                                                                                                                                                                                |             |  |              |          |
| 7                   | Y    |             |      |  |                                                                                                                                                                                                                |             |  |              |          |
| 6                   | Y    |             |      |  |                                                                                                                                                                                                                |             |  |              |          |
| 5                   | Y    |             |      |  |                                                                                                                                                                                                                |             |  |              |          |
| 4                   | Y    |             |      |  |                                                                                                                                                                                                                |             |  |              |          |
| 3                   | Y    |             |      |  |                                                                                                                                                                                                                |             |  |              |          |
| 2                   | Y    |             |      |  |                                                                                                                                                                                                                |             |  |              |          |
| 1                   | Y    |             |      |  |                                                                                                                                                                                                                |             |  |              |          |

Features to be activated by an access code must be assigned to Key 1. Some may require a key list.

|                                 | Key 1 | Key List | Add. Info |
|---------------------------------|-------|----------|-----------|
| F<br>E<br>A<br>T<br>U<br>R<br>E |       |          |           |
|                                 |       |          |           |
|                                 |       |          |           |
|                                 |       |          |           |
|                                 |       |          |           |
|                                 |       |          |           |
|                                 |       |          |           |
|                                 |       |          |           |
|                                 |       |          |           |
|                                 |       |          |           |

Subgroup No.: \_\_\_\_\_ Display: Y/N Speakerphone: Y/N

Additional Module: \_\_\_\_\_ 1st(S1) \_\_\_\_\_ 2nd(S2) \_\_\_\_\_ 3rd(S3) \_\_\_\_\_ M536

### MDC Feature Assignment Table (M5112) (M5312)

| Customer Group:     |      |             |      | Subset Features: CFU, CFI, CFB, CFD, CPU, CWT, CWI, KSH<br>KEYLIST INFO: Subset features will require a KEYLIST showing the actual number assigned to the KEY associated with the DNs the feature will affect. |  |  |  | S. O. Number |             |          |  |           |  |
|---------------------|------|-------------|------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|--|--------------|-------------|----------|--|-----------|--|
| User Name/Location: |      |             |      |                                                                                                                                                                                                                |  |  |  | MDN Info     |             | Key List |  | Add. Info |  |
| LEN:                |      |             |      |                                                                                                                                                                                                                |  |  |  | S<br>C<br>A  | M<br>C<br>A |          |  |           |  |
| Key                 | Lamp | Ring<br>Y/N | NCOS |                                                                                                                                                                                                                |  |  |  |              |             |          |  |           |  |
| 10                  | Y    |             |      |                                                                                                                                                                                                                |  |  |  |              |             |          |  |           |  |
| 9                   | Y    |             |      |                                                                                                                                                                                                                |  |  |  |              |             |          |  |           |  |
| 8                   | Y    |             |      |                                                                                                                                                                                                                |  |  |  |              |             |          |  |           |  |
| 7                   | Y    |             |      |                                                                                                                                                                                                                |  |  |  |              |             |          |  |           |  |
| 6                   | Y    |             |      |                                                                                                                                                                                                                |  |  |  |              |             |          |  |           |  |
| 5                   | Y    |             |      |                                                                                                                                                                                                                |  |  |  |              |             |          |  |           |  |
| 4                   | Y    |             |      |                                                                                                                                                                                                                |  |  |  |              |             |          |  |           |  |
| 3                   | Y    |             |      |                                                                                                                                                                                                                |  |  |  |              |             |          |  |           |  |
| 2                   | Y    |             |      |                                                                                                                                                                                                                |  |  |  |              |             |          |  |           |  |
| 1                   | Y    |             |      |                                                                                                                                                                                                                |  |  |  |              |             |          |  |           |  |

Features to be activated by an access code must be assigned to Key 1. Some may require a key list.

|                                 | Key 1 | Key List | Add. Info |
|---------------------------------|-------|----------|-----------|
| F<br>E<br>A<br>T<br>U<br>R<br>E |       |          |           |
|                                 |       |          |           |
|                                 |       |          |           |
|                                 |       |          |           |
|                                 |       |          |           |
|                                 |       |          |           |
|                                 |       |          |           |
|                                 |       |          |           |
|                                 |       |          |           |
|                                 |       |          |           |

Subgroup No.: \_\_\_\_\_ Speakerphone: Y

Additional Module: \_\_\_\_\_ M536

### MDC Feature Assignment Table (M518)

| Customer Group:     |      |             |      | <b>Subset Features:</b><br>KEYLIST INFO: Subset features will require a KEYLIST showing the actual number assigned to the KEY associated with the DNs the feature will affect. |             |                |               |              |                |              |             |          | S. O. Number |
|---------------------|------|-------------|------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|----------------|---------------|--------------|----------------|--------------|-------------|----------|--------------|
| User Name/Location: |      |             |      | MDN Info                                                                                                                                                                       |             |                |               |              |                |              |             |          |              |
| LEN:                |      |             |      |                                                                                                                                                                                |             |                |               |              |                |              |             |          |              |
| Key                 | Lamp | Ring<br>Y/N | NCOS | Prim<br>Y/N                                                                                                                                                                    | M<br>C<br>A | Denial<br>Trmt | Bridg-<br>ing | Cont<br>Size | Bridge<br>Tone | Init<br>Stat | PRL<br>Mode | Key List | Add. Info    |
| 29                  | Y    |             |      |                                                                                                                                                                                |             |                |               |              |                |              |             |          |              |
| 28                  | Y    |             |      |                                                                                                                                                                                |             |                |               |              |                |              |             |          |              |
| 27                  | Y    |             |      |                                                                                                                                                                                |             |                |               |              |                |              |             |          |              |
| 26                  | Y    |             |      |                                                                                                                                                                                |             |                |               |              |                |              |             |          |              |
| 25                  | Y    |             |      |                                                                                                                                                                                |             |                |               |              |                |              |             |          |              |
| 24                  | Y    |             |      |                                                                                                                                                                                |             |                |               |              |                |              |             |          |              |
| 23                  | Y    |             |      |                                                                                                                                                                                |             |                |               |              |                |              |             |          |              |
| 22                  | Y    |             |      |                                                                                                                                                                                |             |                |               |              |                |              |             |          |              |
| 21                  | Y    |             |      |                                                                                                                                                                                |             |                |               |              |                |              |             |          |              |
| 20                  | Y    |             |      |                                                                                                                                                                                |             |                |               |              |                |              |             |          |              |
| 19                  | Y    |             |      |                                                                                                                                                                                |             |                |               |              |                |              |             |          |              |
| 18                  | Y    |             |      |                                                                                                                                                                                |             |                |               |              |                |              |             |          |              |
| 17                  | Y    |             |      |                                                                                                                                                                                |             |                |               |              |                |              |             |          |              |
| 16                  | Y    |             |      |                                                                                                                                                                                |             |                |               |              |                |              |             |          |              |
| 15                  | Y    |             |      |                                                                                                                                                                                |             |                |               |              |                |              |             |          |              |
| 14                  | Y    |             |      |                                                                                                                                                                                |             |                |               |              |                |              |             |          |              |
| 13                  | Y    |             |      |                                                                                                                                                                                |             |                |               |              |                |              |             |          |              |
| 12                  | Y    |             |      |                                                                                                                                                                                |             |                |               |              |                |              |             |          |              |

### MDC Feature Assignment Table (M518)

| Customer Group:     |      |          |      |          |       |             |          |           |             | <b>Subset Features:</b><br>KEYLIST INFO: Subset features will require a KEYLIST showing the actual number assigned to the KEY associated with the DNs the feature will affect. |          |          | S. O. Number |  |  |
|---------------------|------|----------|------|----------|-------|-------------|----------|-----------|-------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|----------|--------------|--|--|
| User Name/Location: |      |          |      |          |       |             |          |           |             |                                                                                                                                                                                |          |          |              |  |  |
| LEN:                |      |          |      | MDN Info |       |             |          |           |             |                                                                                                                                                                                |          |          |              |  |  |
| Key                 | Lamp | Ring Y/N | NCOS | Prim Y/N | M C A | Denial Trmt | Bridging | Cont Size | Bridge Tone | Init Stat                                                                                                                                                                      | PRL Mode | Key List | Add. Info    |  |  |
| 47                  | Y    |          |      |          |       |             |          |           |             |                                                                                                                                                                                |          |          |              |  |  |
| 46                  | Y    |          |      |          |       |             |          |           |             |                                                                                                                                                                                |          |          |              |  |  |
| 45                  | Y    |          |      |          |       |             |          |           |             |                                                                                                                                                                                |          |          |              |  |  |
| 44                  | Y    |          |      |          |       |             |          |           |             |                                                                                                                                                                                |          |          |              |  |  |
| 43                  | Y    |          |      |          |       |             |          |           |             |                                                                                                                                                                                |          |          |              |  |  |
| 42                  | Y    |          |      |          |       |             |          |           |             |                                                                                                                                                                                |          |          |              |  |  |
| 41                  | Y    |          |      |          |       |             |          |           |             |                                                                                                                                                                                |          |          |              |  |  |
| 40                  | Y    |          |      |          |       |             |          |           |             |                                                                                                                                                                                |          |          |              |  |  |
| 39                  | Y    |          |      |          |       |             |          |           |             |                                                                                                                                                                                |          |          |              |  |  |
| 38                  | Y    |          |      |          |       |             |          |           |             |                                                                                                                                                                                |          |          |              |  |  |
| 37                  | Y    |          |      |          |       |             |          |           |             |                                                                                                                                                                                |          |          |              |  |  |
| 36                  | Y    |          |      |          |       |             |          |           |             |                                                                                                                                                                                |          |          |              |  |  |
| 35                  | Y    |          |      |          |       |             |          |           |             |                                                                                                                                                                                |          |          |              |  |  |
| 34                  | Y    |          |      |          |       |             |          |           |             |                                                                                                                                                                                |          |          |              |  |  |
| 33                  | Y    |          |      |          |       |             |          |           |             |                                                                                                                                                                                |          |          |              |  |  |
| 32                  | Y    |          |      |          |       |             |          |           |             |                                                                                                                                                                                |          |          |              |  |  |
| 31                  | Y    |          |      |          |       |             |          |           |             |                                                                                                                                                                                |          |          |              |  |  |
| 30                  | Y    |          |      |          |       |             |          |           |             |                                                                                                                                                                                |          |          |              |  |  |



### MDC Feature Assignment Table (M518)

Customer Group:

**Subset Features:**  
KEYLIST INFO: Subset features will require a KEYLIST showing the actual number assigned to the KEY associated with the DNs the feature will affect.

S. O. Number

User Name/Location:

MDN Info

LEN:

| Key | Lamp | Ring Y/N | NCOS | Prim Y/N | M C A | Denial Trmt | Bridg- ing | Conf Size | Bridge Tone | Init Stat | PRL Mode | Key List | Add. Info |
|-----|------|----------|------|----------|-------|-------------|------------|-----------|-------------|-----------|----------|----------|-----------|
| 65  | Y    |          |      |          |       |             |            |           |             |           |          |          |           |
| 64  | Y    |          |      |          |       |             |            |           |             |           |          |          |           |
| 63  | Y    |          |      |          |       |             |            |           |             |           |          |          |           |
| 62  | Y    |          |      |          |       |             |            |           |             |           |          |          |           |
| 61  | Y    |          |      |          |       |             |            |           |             |           |          |          |           |
| 60  | Y    |          |      |          |       |             |            |           |             |           |          |          |           |
| 59  | Y    |          |      |          |       |             |            |           |             |           |          |          |           |
| 58  | Y    |          |      |          |       |             |            |           |             |           |          |          |           |
| 57  | Y    |          |      |          |       |             |            |           |             |           |          |          |           |
| 56  | Y    |          |      |          |       |             |            |           |             |           |          |          |           |
| 55  | Y    |          |      |          |       |             |            |           |             |           |          |          |           |
| 54  | Y    |          |      |          |       |             |            |           |             |           |          |          |           |
| 53  | Y    |          |      |          |       |             |            |           |             |           |          |          |           |
| 52  | Y    |          |      |          |       |             |            |           |             |           |          |          |           |
| 51  | Y    |          |      |          |       |             |            |           |             |           |          |          |           |
| 50  | Y    |          |      |          |       |             |            |           |             |           |          |          |           |
| 49  | Y    |          |      |          |       |             |            |           |             |           |          |          |           |
| 48  | Y    |          |      |          |       |             |            |           |             |           |          |          |           |

### MDC Feature Assignment Table (M536)

| Customer Group:     |      |          |      | <div style="border: 1px solid black; padding: 2px; margin-bottom: 5px;"> <b>Subset Features:</b><br/>                 KEYLIST INFO: Subset features will require a KEYLIST showing the actual number assigned to the KEY associated with the DNs the feature will affect.             </div> |       |             |          |           |             |           |          |          | S. O. Number |
|---------------------|------|----------|------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|-------------|----------|-----------|-------------|-----------|----------|----------|--------------|
| User Name/Location: |      |          |      | MDN Info                                                                                                                                                                                                                                                                                     |       |             |          |           |             |           |          |          |              |
| LEN:                |      |          |      |                                                                                                                                                                                                                                                                                              |       |             |          |           |             |           |          |          |              |
| Key                 | Lamp | Ring Y/N | NCOS | Prim Y/N                                                                                                                                                                                                                                                                                     | M C A | Denial Trmt | Bridging | Cont Size | Bridge Tone | Init Stat | PRL Mode | Key List | Add. Info    |
| 65                  | Y    |          |      |                                                                                                                                                                                                                                                                                              |       |             |          |           |             |           |          |          |              |
| 64                  | Y    |          |      |                                                                                                                                                                                                                                                                                              |       |             |          |           |             |           |          |          |              |
| 63                  | Y    |          |      |                                                                                                                                                                                                                                                                                              |       |             |          |           |             |           |          |          |              |
| 62                  | Y    |          |      |                                                                                                                                                                                                                                                                                              |       |             |          |           |             |           |          |          |              |
| 61                  | Y    |          |      |                                                                                                                                                                                                                                                                                              |       |             |          |           |             |           |          |          |              |
| 60                  | Y    |          |      |                                                                                                                                                                                                                                                                                              |       |             |          |           |             |           |          |          |              |
| 59                  | Y    |          |      |                                                                                                                                                                                                                                                                                              |       |             |          |           |             |           |          |          |              |
| 58                  | Y    |          |      |                                                                                                                                                                                                                                                                                              |       |             |          |           |             |           |          |          |              |
| 57                  | Y    |          |      |                                                                                                                                                                                                                                                                                              |       |             |          |           |             |           |          |          |              |
| 56                  | Y    |          |      |                                                                                                                                                                                                                                                                                              |       |             |          |           |             |           |          |          |              |
| 55                  | Y    |          |      |                                                                                                                                                                                                                                                                                              |       |             |          |           |             |           |          |          |              |
| 54                  | Y    |          |      |                                                                                                                                                                                                                                                                                              |       |             |          |           |             |           |          |          |              |
| 53                  | Y    |          |      |                                                                                                                                                                                                                                                                                              |       |             |          |           |             |           |          |          |              |
| 52                  | Y    |          |      |                                                                                                                                                                                                                                                                                              |       |             |          |           |             |           |          |          |              |
| 51                  | Y    |          |      |                                                                                                                                                                                                                                                                                              |       |             |          |           |             |           |          |          |              |
| 50                  | Y    |          |      |                                                                                                                                                                                                                                                                                              |       |             |          |           |             |           |          |          |              |
| 49                  | Y    |          |      |                                                                                                                                                                                                                                                                                              |       |             |          |           |             |           |          |          |              |
| 48                  | Y    |          |      |                                                                                                                                                                                                                                                                                              |       |             |          |           |             |           |          |          |              |
| 47                  | Y    |          |      |                                                                                                                                                                                                                                                                                              |       |             |          |           |             |           |          |          |              |
| 46                  | Y    |          |      |                                                                                                                                                                                                                                                                                              |       |             |          |           |             |           |          |          |              |
| 45                  | Y    |          |      |                                                                                                                                                                                                                                                                                              |       |             |          |           |             |           |          |          |              |
| 44                  | Y    |          |      |                                                                                                                                                                                                                                                                                              |       |             |          |           |             |           |          |          |              |
| 43                  | Y    |          |      |                                                                                                                                                                                                                                                                                              |       |             |          |           |             |           |          |          |              |
| 42                  | Y    |          |      |                                                                                                                                                                                                                                                                                              |       |             |          |           |             |           |          |          |              |
| 41                  | Y    |          |      |                                                                                                                                                                                                                                                                                              |       |             |          |           |             |           |          |          |              |
| 40                  | Y    |          |      |                                                                                                                                                                                                                                                                                              |       |             |          |           |             |           |          |          |              |
| 39                  | Y    |          |      |                                                                                                                                                                                                                                                                                              |       |             |          |           |             |           |          |          |              |
| 38                  | Y    |          |      |                                                                                                                                                                                                                                                                                              |       |             |          |           |             |           |          |          |              |
| 37                  | Y    |          |      |                                                                                                                                                                                                                                                                                              |       |             |          |           |             |           |          |          |              |
| 36                  | Y    |          |      |                                                                                                                                                                                                                                                                                              |       |             |          |           |             |           |          |          |              |
| 35                  | Y    |          |      |                                                                                                                                                                                                                                                                                              |       |             |          |           |             |           |          |          |              |
| 34                  | Y    |          |      |                                                                                                                                                                                                                                                                                              |       |             |          |           |             |           |          |          |              |
| 33                  | Y    |          |      |                                                                                                                                                                                                                                                                                              |       |             |          |           |             |           |          |          |              |
| 32                  | Y    |          |      |                                                                                                                                                                                                                                                                                              |       |             |          |           |             |           |          |          |              |
| 31                  | Y    |          |      |                                                                                                                                                                                                                                                                                              |       |             |          |           |             |           |          |          |              |
| 30                  | Y    |          |      |                                                                                                                                                                                                                                                                                              |       |             |          |           |             |           |          |          |              |

| <b>List of Assignable Features (MDC Business Set)</b> |                                   |          |      |             |                                                                                                                                              |
|-------------------------------------------------------|-----------------------------------|----------|------|-------------|----------------------------------------------------------------------------------------------------------------------------------------------|
| Acronym                                               | Feature name                      | Ded. key | Lamp | Code access | Additional information required                                                                                                              |
| AAB                                                   | Automatic Answerback              |          |      |             | Must assign to key number 1;<br>Must have Handsfree Module                                                                                   |
| AFC                                                   | Additional Functional Calls       |          |      |             |                                                                                                                                              |
| AMATEST                                               | Automatic Message Accounting Test |          |      |             | Must be assigned to the originator                                                                                                           |
| AUD                                                   | Automatic Dial                    | X        | X    |             |                                                                                                                                              |
| AUTODISP                                              | Auto Display                      |          |      |             | Must assign to key number 1                                                                                                                  |
| AUL                                                   | Automatic Line                    | X        | X    |             | Must assign to key with Directory Number                                                                                                     |
| CBE                                                   | Call Forwarding Busy External     |          |      |             | Must Keylist DNs.<br>External Calls Assigned;<br>1 to 11 Digit DN Calls<br><br>Forwarded to;<br><br>If MADN, Must Assign at Primary Location |
| CBI                                                   | Call Forwarding Busy Internal     |          |      |             | Must Keylist DNs Assigned;<br>1 to 11 Digit DN Calls forwarded to;<br><br>If MADN, must assign at primary location.                          |
| CBU                                                   | Call Forwarding Busy Unrestricted | X        | X    |             | Must Keylist DNs Assigned;<br>1 to 11 Digit DN Calls forwarded to;<br><br>If MADN, must assign at primary location.                          |
| CCV                                                   | Call Covering                     |          |      | X           | Primary member must have EMW assigned.                                                                                                       |

| <b>List of Assignable Features (MDC Business Set) (cont.)</b> |                                              |          |      |             |                                                                                                                 |
|---------------------------------------------------------------|----------------------------------------------|----------|------|-------------|-----------------------------------------------------------------------------------------------------------------|
| Acronym                                                       | Feature name                                 | Ded. key | Lamp | Code access | Additional information required                                                                                 |
| CCW                                                           | Cancel Call Waiting                          |          |      | X           |                                                                                                                 |
| CDC                                                           | Customer Data Change                         |          |      |             |                                                                                                                 |
| CDE                                                           | Call Forwarding Don't Answer External Calls  |          |      |             | Must Keylist DNs Assigned;<br>1 to 11 Digit DN Calls forwarded to;<br>If MADN, must assign at primary location. |
| CDI                                                           | Call Forward Don't Answer Internal Calls     |          |      |             | Must Keylist DNs Assigned;<br>1-11 Digit DN Calls forwarded to;<br>If MADN, must assign at primary location.    |
| CDU                                                           | Call Forward Don't Answer Unrestricted Calls | X        | X    |             | Must Keylist DNs Assigned;<br>1-11 Digit DN Calls forwarded to;<br>If MADN, must assign at primary location.    |
| CFB                                                           | Call Forwarding Busy                         |          |      |             | Must Keylist DNs Assigned;<br>1-11 Digit DN Calls forwarded to;<br>If MADN, must assign to primary location.    |
| CFD                                                           | Call Forwarding Don't Answer                 |          |      |             | Must Keylist DNs Assigned;<br>1-11 Digit DN Calls forwarded to;<br>If MADN, must assign at primary location.    |
| CFDVT                                                         | Call Forward Don't Answer Variable Timing    | X        | X    |             | 16-60 s                                                                                                         |

| <b>List of Assignable Features (MDC Business Set) (cont.)</b> |                                                  |          |      |             |                                                                                                                                   |
|---------------------------------------------------------------|--------------------------------------------------|----------|------|-------------|-----------------------------------------------------------------------------------------------------------------------------------|
| Acronym                                                       | Feature name                                     | Ded. key | Lamp | Code access | Additional information required                                                                                                   |
| CCF                                                           | Call Forwarding Fixed                            | X        | X    | X           | Must Keylist DNs Assigned;<br>If MADN, must assign to primary location.                                                           |
| CFK                                                           | Call Forward per Key                             | X        |      |             |                                                                                                                                   |
| CFRA                                                          | Call Forwarding Remote Access                    |          |      |             |                                                                                                                                   |
| CFRAAUTH                                                      | Call Forwarding Remote Access Authorization Code |          |      | X           | 2-10 Digit Authorization Code or PIN Code                                                                                         |
| CFI                                                           | Call Forwarding Intragroup                       | X        | X    | X           | Must Keylist DNs Assigned;<br>If MADN, must assign to primary location.                                                           |
| CFS                                                           | Call Forward Simultaneous                        | X        | X    |             | Must Keylist DNs Assigned;<br>If MADN, must assign to primary location.                                                           |
| CFU                                                           | Call Forwarding Universal                        | X        | X    | X           | Must Keylist DNs Assigned;<br>If MADN, must assign to primary location.                                                           |
| CFUIF                                                         | Call Forwarding Universal Intragroup Fixed       |          |      |             | Must have separate keylist<br>Variations of Call Forwarding:<br>A. Universal<br>B. Intragroup<br>C. Fixed<br>D. Universal per Key |
| CIF                                                           | Controlled Interflow for ACD Group               | X        | X    |             | Must be assigned to Supervisors Set                                                                                               |
| CLI                                                           | Calling Line Identification                      | X        | X    |             | Must Assign to Key with Directory Number                                                                                          |

### List of Assignable Features (MDC Business Set) (cont.)

| Acronym | Feature name                           | Ded. key | Lamp | Code access | Additional information required                                                                                                                                                                                                                     |
|---------|----------------------------------------|----------|------|-------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| CNF     | Flexible Station Controlled Conference | X        | X    | X           | Types of Conference:<br>A. 6-Party Conference (C06)<br>B. 10-Party Conference (C10)<br>C. 14-Party Conference (C14)<br>D. 18-Party Conference (C18)<br>E. 22-Party Conference (C22)<br>F. 26-Party Conference (C26)<br>G. 30-Party Conference (C30) |
| CPU     | Call Pickup                            | X        |      | X           | Must Keylist DNs assigned;<br>Specify lowest LEN assigned to group of station forming the CPU group.                                                                                                                                                |
| CTD     | Carrier Toll Denied                    |          |      |             |                                                                                                                                                                                                                                                     |
| CWD     | Dial Call Waiting                      |          |      |             |                                                                                                                                                                                                                                                     |
| CWI     | Call Waiting Intragroup                | X        | X    |             | Must Keylist DNs assigned;<br>Requires Call Waiting (CWT)<br>If MADN, must assign to primary location                                                                                                                                               |
| CWO     | Call Waiting Originate                 | X        |      |             | Must be DN Key                                                                                                                                                                                                                                      |
| CWT     | Call Waiting                           | X        | X    |             | Must Keylist DNs Exempt Assigned;<br>If MADN, must assign to primary location.                                                                                                                                                                      |
| CWX     | Call Waiting Exempt                    |          |      |             |                                                                                                                                                                                                                                                     |

### List of Assignable Features (MDC Business Set) (cont.)

| Acronym | Feature name                          | Ded. key | Lamp | Code access | Additional information required                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|---------|---------------------------------------|----------|------|-------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| CXR     | Call Transfer                         | X        | X    | X           | <p>Types of Call Transfer:</p> <p>Call Transfer Incoming (CTINC)<br/> Call Transfer Outgoing (CTOUT)<br/> Call Transfer Intragroup (CCTIN-TRA)<br/> Call Transfer All (CTALL)<br/> Attendant Call Transfer with Flash (ATTRCLT)<br/> No Call Transfer (NCT)<br/> Custom Call Transfer (CUSTOM)</p> <p>If Custom, Specify Type for Each</p> <p>A. Originating Intergroup (AC, INTRA, INTER, TRATOR, or NOCXFER)<br/> B. Originating Intragroup (AC, INTRA, INTER, TRATER, or NOCXFER)<br/> C. Terminating Intergroup (AC, INTRA, INTER, TRATER, or NOCXFER)<br/> D. Terminating Intragroup (AC, INTRA, INTER, TRATER, or NOCXFER)</p> |
| DCBI    | Directed Call Pick-up Barge-In        |          |      | X           | Must assign to Key 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| DCBX    | Directed Call Pick-up Barge-In Exempt |          |      | X           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| DCF     | Denied Call Forwarding                |          |      |             | Must keylist DNs assigned;<br>If MADN, must assign to primary location                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |

### List of Assignable Features (MDC Business Set) (cont.)

| Acronym | Feature name                              | Ded. key | Lamp | Code access | Additional information required                                                                                    |
|---------|-------------------------------------------|----------|------|-------------|--------------------------------------------------------------------------------------------------------------------|
| DCPK    | Directed Call Park                        |          | X    | X           |                                                                                                                    |
| DCPU    | Directed Call Pick-Up Non Barge-In        |          |      | X           | Must assign to Key 1                                                                                               |
| DCPX    | Directed Call Pick-Up Non Barge-In Exempt |          |      |             |                                                                                                                    |
| DIN     | Denied Incoming                           |          |      |             | Terminating Restriction Code;<br>Alternate Terminating Restriction Code                                            |
| DLH     | Distributed Line Hunting                  | X        | X    |             | Pilot DN                                                                                                           |
| DND     | Do Not Disturb                            |          |      |             |                                                                                                                    |
| DNH     | Directory Number Hunting                  | X        | X    |             | Pilot DN                                                                                                           |
| DOR     | Denied Originating Service                | X        | X    |             | Must assign to key with Directory Number                                                                           |
| DQT     | Display Queue Threshold for ACD           |          |      |             | Key no. 1 assigned as primary Directory Number or INCALLS key. If supervisor set, key no. 1 assigned SUPR as well. |
| DTM     | Denied Terminating Service                | X        | X    |             | Must assign to key with Directory Number                                                                           |
| EBO     | Executive Busy Override                   | X        |      | X           |                                                                                                                    |
| EBX     | Executive Busy Override Exempt            |          |      | X           | Must assign to key with Directory Number                                                                           |
| ELN     | Essential Line Service                    | X        | X    |             | Must Assign to Key with Directory Number                                                                           |



| <b>List of Assignable Features (MDC Business Set) (cont.)</b> |                                                          |          |      |             |                                                                                                  |
|---------------------------------------------------------------|----------------------------------------------------------|----------|------|-------------|--------------------------------------------------------------------------------------------------|
| Acronym                                                       | Feature name                                             | Ded. key | Lamp | Code access | Additional information required                                                                  |
| EMW                                                           | Executive Message Waiting                                | X        | X    | X           | Assign to Directory Number Key.                                                                  |
| EXCFBDN                                                       | Call Forwarding Busy External Directory Number           |          |      |             |                                                                                                  |
| EXCFDDN                                                       | Call Forwarding Don't Answer External Directory Number   |          |      |             |                                                                                                  |
| GIAC                                                          | Group Intercom All Call                                  | X        |      |             | Assign to a Group Intercom Key Group Number (0-4095) Initiate GIAC feature (Y, N)                |
| GIC                                                           | Group Intercom                                           | X        | X    |             | Intercom Group Name Member Number (0-9, 00-99, 000-999, 0000-9999) SMDR (Y, N) Ignore MSB (Y, N) |
| ICM                                                           | Intercom                                                 | X        | X    |             |                                                                                                  |
| IECFB                                                         | Internal External Call Forward Busy DENY                 |          |      |             |                                                                                                  |
| IECFBCBU                                                      | Internal External Call Forward Busy Unrestricted         |          |      |             |                                                                                                  |
| IECFD                                                         | Internal External Call Forward Don't Answer DENY         |          |      |             |                                                                                                  |
| IECFDCDU                                                      | Internal External Call Forward Don't Answer Unrestricted |          |      |             |                                                                                                  |
| INCFBDN                                                       | Call Forwarding Busy Internal Directory Number           |          |      |             |                                                                                                  |

### List of Assignable Features (MDC Business Set) (cont.)

| Acronym | Feature name                                           | Ded. key | Lamp | Code access | Additional information required           |
|---------|--------------------------------------------------------|----------|------|-------------|-------------------------------------------|
| INCFDDN | Call Forwarding Don't Answer Internal Directory Number |          |      |             |                                           |
| INSPECT | Inspect                                                | X        | X    |             |                                           |
| IRR     | Inhibit Ring Reminder                                  |          |      |             | Assign each DN key have IRR               |
| LNR     | Last Number Redial                                     |          |      | X           | Must assign to key with Directory Number  |
| LNRA    | Last Number Redial Associated with Set                 |          |      | X           |                                           |
| LOB     | Line of Business                                       | X        |      | X           |                                           |
| LVM     | Leave Message                                          | X        | X    |             |                                           |
| MCH     | Malicious Call Hold                                    | X        |      | X           |                                           |
| MSB     | Make Set Busy                                          | X        | X    | X           | Make Set Busy Intragroup calls only (Y/N) |
| MBSCAMP | Station Camp-On Meridian Bus. Set                      | X        | X    |             |                                           |
| MSBI    | Make Set Busy Intragroup                               | X        | X    | X           |                                           |
| MLH     | Multi-Line Hunting                                     | X        | X    |             | Pilot DN                                  |
| MWIDC   | Message Waiting Indicator                              | X        | X    |             |                                           |
| MWQRY   | Message Waiting Query                                  | X        | X    |             |                                           |

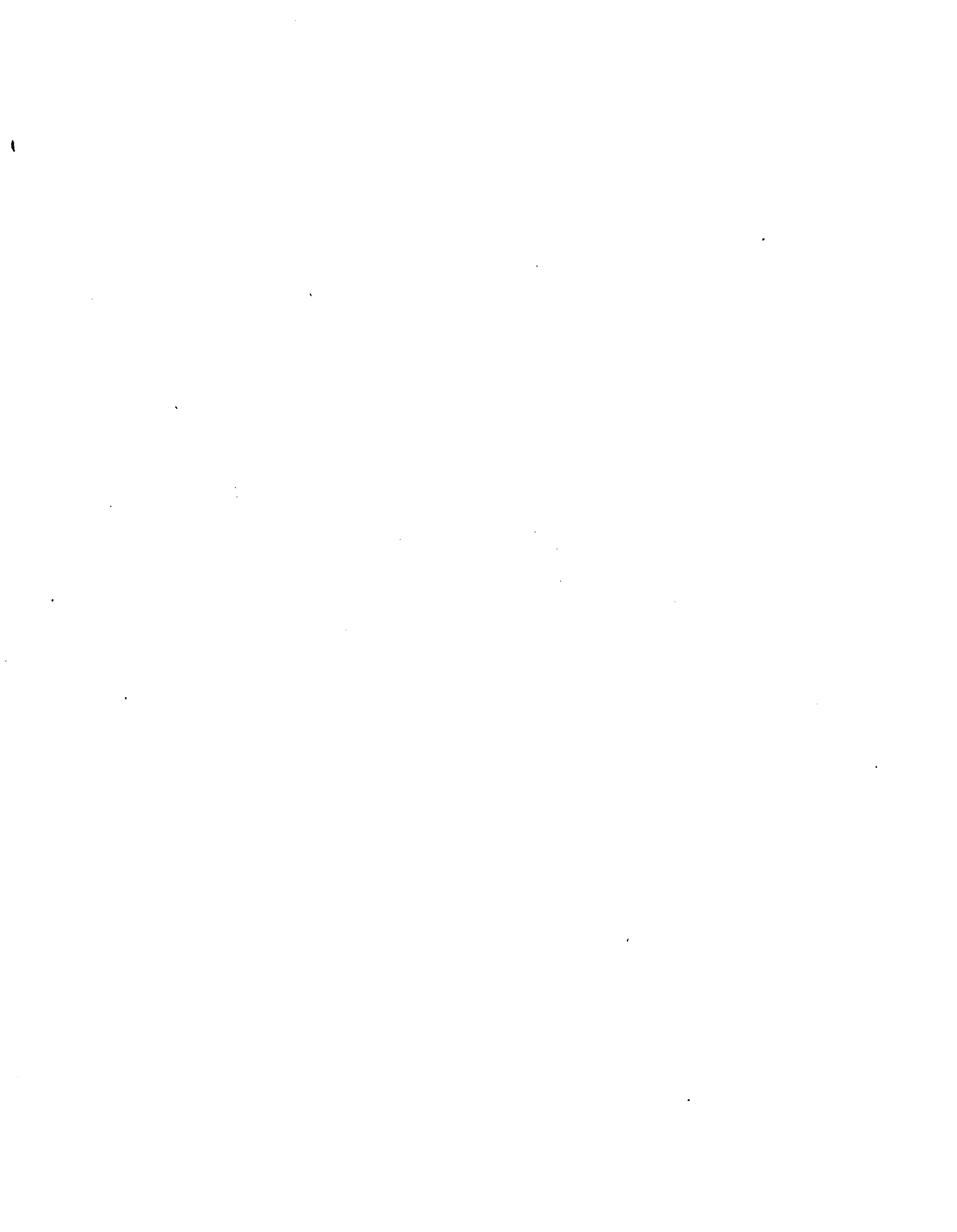
### List of Assignable Features (MDC Business Set) (cont.)

| Acronym | Feature name                                     | Ded. key | Lamp | Code access | Additional information required                                                                                                |
|---------|--------------------------------------------------|----------|------|-------------|--------------------------------------------------------------------------------------------------------------------------------|
| MWT     | Message Waiting                                  |          | X    | X           | Message Indication only applies to Key 1;<br>Allowed to originate call request (Y/N);<br>Allowed to receive call request (Y/N) |
| NDC     | No Double Connection                             | X        | X    |             | Must assign to key with Directory Number                                                                                       |
| OLS     | Originating Line Select (Idle or No Line Select) | X        |      |             | Must assign to optkey 1                                                                                                        |
| PBL     | Private Business Line                            | X        | X    |             | Must assign to key with Directory Number                                                                                       |
| PIC     | Primary Interlata Carrier                        |          |      |             |                                                                                                                                |
| PRL     | Privacy Release                                  | X        |      | X           |                                                                                                                                |
| PRK     | Call Park                                        | X        | X    | X           |                                                                                                                                |
| PRV     | Privacy                                          | X        |      | X           |                                                                                                                                |
| QBS     | Query Busy Station                               | X        | X    |             |                                                                                                                                |
| QCK     | Quick Conference Key                             | X        |      |             |                                                                                                                                |
| QTD     | Query Time & Date                                |          | X    |             | Assigned only to Business Sets with display feature                                                                            |
| RAG     | Ring Again                                       | X        |      |             |                                                                                                                                |

| <b>List of Assignable Features (MDC Business Set) (cont.)</b> |                        |          |      |             |                                                                                                                                                                                                         |
|---------------------------------------------------------------|------------------------|----------|------|-------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Acronym                                                       | Feature name           | Ded. key | Lamp | Code access | Additional information required                                                                                                                                                                         |
| REASDSP                                                       | Reason Display         |          |      |             | Name of the set of display messages to be displayed                                                                                                                                                     |
| RMB                                                           | Random Make Busy       | X        | X    |             | Must assign to key with Directory Number<br>Trunk Module Type (MTM, RSM, RMM)<br>Trunk Module Number (0-255)<br>Trunk Module Circuit Number (0-23)<br>Scan PT. (0-6);<br>Normal State of Scan Pt. (0-1) |
| SCL                                                           | Speed Calling Long     | X        | X    | X           | List Types:<br>30 Numbers (L30)<br>50 Numbers (L50)<br>70 Numbers (L70)                                                                                                                                 |
| SCS                                                           | Speed Calling Short    | X        | X    | X           |                                                                                                                                                                                                         |
| SCU                                                           | Speed Calling User     | X        | X    | X           |                                                                                                                                                                                                         |
| SEC                                                           | Security Code          | X        | X    |             | Must assign to key with Directory Number<br>1 to 7 digit security code<br>Must assign Directed Call Park                                                                                                |
| SFC                                                           | Single Functional Call |          |      |             | Assign one Directory Number to PDN key.                                                                                                                                                                 |

| <b>List of Assignable Features (MDC Business Set) (cont.)</b> |                                               |          |      |             |                                                                                                                                                                                                         |
|---------------------------------------------------------------|-----------------------------------------------|----------|------|-------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Acronym                                                       | Feature name                                  | Ded. key | Lamp | Code access | Additional information required                                                                                                                                                                         |
| SHU                                                           | Stop Hunt                                     | X        | X    |             | Must assign to key with Directory Number<br>Trunk Module Type (MTM, RSM, RMM)<br>Trunk Module Number (0-255)<br>Trunk Module Circuit Number (0-23)<br>Scan PT. (0-6);<br>Normal State of Scan Pt. (0-1) |
| SLU                                                           | Subscriber Line Usage Study                   |          |      |             |                                                                                                                                                                                                         |
| SMDR                                                          | Station Message Detail Recording              |          |      |             |                                                                                                                                                                                                         |
| SOR                                                           | Station Origination Restrictions              |          |      |             | Key number of DN appearance<br>LEN feature assigned<br>SOR Group DN belongs                                                                                                                             |
| SORC                                                          | Station Origination Restrictions Controller   |          |      |             | Restriction Level                                                                                                                                                                                       |
| SPB                                                           | Special Billing                               | X        | X    |             | Must assign to key with Code Directory Number                                                                                                                                                           |
| TBO                                                           | Terminating Billing Option                    | X        |      | X           | If MADN, must assign to primary location.                                                                                                                                                               |
| TLS                                                           | Terminating Line Select (No line or incoming) |          |      |             | Must assign to optkey 1                                                                                                                                                                                 |
| WML                                                           | Warm Line                                     |          |      |             | Assign to DN key                                                                                                                                                                                        |
| 3WC                                                           | Three-Way Call                                | X        | X    |             |                                                                                                                                                                                                         |





## Attendant Console Information Customer Group Information

Complete for Each Attendant Subgroup

Subgroup Number

ϕ

Serving Area Code

see info sheet

Billing Directory Number

see info sheet

Treatment when Attendant Queue Registers are Busy

T12ϕ

Call Waiting Lamp Flash Threshold (Number of Seconds)

36 seconds

Call Queue Divert Threshold (Number of Seconds)

ϕ

*Calculate Using the Following Formula:*

No. of Calls Allowed in Queue = No. of Available Consoles X Diversion Threshold  
Weighted Average Service Time

Station Extension Length

5

Minimum Digits Dialed by Attendant

5

Options

EMALTONE, FORCING, QSTATUS

*Complete the following if providing statuses for the call queue:*

Signal Distribution Group Number

\_\_\_\_\_

Signal Distribution Point Number

\_\_\_\_\_

Signal Distribution Group Number for the Maximum Calls Threshold

\_\_\_\_\_

Signal Distribution Point Number for the Maximum Calls Threshold

\_\_\_\_\_

Maximum Number of Calls Allowed in the Subgroup Call Queue

\_\_\_\_\_



### Attendant Console Information Translation Input

| Table  | Field/Subfield | Value                        | Default |
|--------|----------------|------------------------------|---------|
| SUBGRP | SUBGRPNO       | 0-7                          |         |
|        | SNPA           | Numeric                      |         |
|        | DN             | Numeric                      |         |
|        | CQOVTRMT       | 0-63                         |         |
|        | CQFLTHR        | 0-255<br>(in 4-s increments) |         |
|        | CQDIVTHR       | 0-255<br>(in 4-s increments) |         |
|        | STNEXTLN       | 1-7                          |         |
|        | MINDIGSR       | 1-7                          |         |
|        | OPTION         | EMALSTONE                    |         |
|        | FLSDGRP        | 0-511                        |         |
|        | FLSDPT         | 0-6                          |         |
|        | MAXSDGRP       | 0-511                        |         |
|        | MAXSDPT        | 0-6                          |         |
|        | CQMAXTHR       | 0-4095                       |         |

### Attendant Console Information Customer Group Information (cont.)

Complete for Each Attendant Subgroup

Console Name

see info sheet

Customer Group Name

see info sheet

Subgroup Number

∅

Network Class of Service

see info sheet

SMDR for Attendant Console Calls

Y or N

Attendant Console Type:

300 Baud

1200 Baud

300 Baud, A-law PCM format

Return to Service After Warm SWACT

Y or N

Options

none

Login/Logout Required for each Attendant

Three-digit Logon ID

\_\_\_\_\_

Customer Group Screening

Y or N

OM Reports for Listed Directory Numbers on an Individual Console Basis. Maximum of 7 LDNs can have 'Y'.

### Attendant Console Information Translation Input (cont.)

| Table   | Field/Subfield | Value                                                              | Default |
|---------|----------------|--------------------------------------------------------------------|---------|
| ATTCONS | CONSOLE        | Alphanumeric                                                       |         |
|         | CUSTNAME       | Alphanumeric                                                       |         |
|         | SUBGRP         | 0-7                                                                |         |
|         | NCOS           | 0-255                                                              |         |
|         | CDR            | Y or N                                                             |         |
|         | CARDCODE       | 4X08AA (300 Baud)<br>4X08AB (1200 Baud)<br>4X08BA (300 Baud - PCM) |         |
|         | INSV           | Y or N                                                             |         |
|         | OPTION         | BUZZ, LANG, SPR                                                    |         |
| ACLOGID | LOGINID        | 0001-9999                                                          |         |
|         | CUSTSEL        | Y or N                                                             |         |
| DNROUTE | LDN_OM_REPORT  | Y or N                                                             |         |

## Attendant Console Incoming Call Identifiers Customer Group Information

Complete the following key assignments for Each Attendant Console:

Console Name see info sheet

| Key   | Call Type                              | ICI Code            |
|-------|----------------------------------------|---------------------|
| _____ | Attendant                              | <u>1</u>            |
| _____ | Don't Answer Recalls                   | <u>2</u>            |
| _____ | Campon Recall                          | <u>3</u>            |
| _____ | Call Waiting Recall                    | <u>4</u>            |
| _____ | Call Forward to Attendant              | <u>5</u>            |
| _____ | Call Forward Don't Answer to Attendant | <u>6</u>            |
| _____ | Call Forward Busy to Attendant         | <u>7</u>            |
| _____ | Intercept                              | <u>8</u>            |
| _____ | Serial                                 | _____ <i>etc...</i> |
| _____ | Conference Call Recall                 | _____               |
| _____ | Do Not Disturb                         | _____               |
| _____ | Direct Inward System Access (DISA)     | _____               |
| _____ | Message Waiting Indirect               | _____               |
| _____ | Message Waiting Direct                 | _____               |
| _____ | Direct ICI                             | _____               |
|       | DN _____                               |                     |
| _____ | Listed Directory Number                | _____               |
|       | DN _____                               |                     |
| _____ | Listed Directory Number                | _____               |
|       | DN _____                               |                     |
| _____ | Listed Directory Number                | _____               |
|       | DN _____                               |                     |
| _____ | Additional Incoming Call Types         | _____               |
| _____ | Additional Incoming Call Types         | _____               |
| _____ | Additional Incoming Call Types         | _____               |
| _____ | Additional Incoming Call Types         | _____               |

**Attendant Console Incoming Call Identifiers  
Translation Input**

| Table | Field/Subfield | Value | Default |
|-------|----------------|-------|---------|
| FNMAP | ICICODE        | 0-254 |         |

### Attendant Console Special Functions Customer Group Information

| Key   | Special Function                              |        |
|-------|-----------------------------------------------|--------|
| _____ | Account Code Entry                            |        |
| _____ | Aggregate Trunk Access Control                |        |
| _____ | *Attendant Autodial                           |        |
|       | Attendant Programmable                        | Y or N |
|       | Autodial Number                               | _____  |
| _____ | Attendant Console End-to-End Signalling       |        |
|       | Authorization Code Entry                      |        |
| _____ | Authorization Code Validation                 |        |
| _____ | Busy Verification Line                        |        |
|       | *Attendant Preempt                            | Y or N |
| _____ | Busy Verification Trunk                       |        |
|       | Attendant Preempt                             | Y or N |
|       | *Busy Verification Trunks Audible             | Y or N |
| _____ | Attendant Activate/Deactivate Call Forwarding |        |
| _____ | Attendant Conference                          |        |
| _____ | Display Queued ICI Calls                      |        |
| _____ | Do Not Disturb                                |        |
| _____ | Flexible Console Alerting                     |        |
| _____ | Flexible Display Language                     |        |

*\* Can Have More Than One Key Assigned This Feature*

**Attendant Console Special Functions  
Translation Input**

| Table | Field/Subfield | Value |
|-------|----------------|-------|
| FNMAP | SPFN           | ACC   |
|       | SPFN           | ATAC  |
|       | SPFN           | AUTOD |
|       | SPFN           | ACEES |
|       | SPFN           | AUTH  |
|       | SPFN           | AUVAL |
|       | SPFN           | BVL   |
|       | SPFN           | BVT   |
|       | SPFN           | CFS   |
|       | SPFN           | CONF  |
|       | SPFN           | DQC   |
|       | SPFN           | DND   |
|       | SPFN           | BUZZ  |
|       | SPFN           | LANG  |

**Attendant Console Special Functions  
Customer Group Information (cont.)**

| Key   | Special Function                                 | Y or N |
|-------|--------------------------------------------------|--------|
| _____ | Global Virtual Facility Group Access Control     |        |
| _____ | Global Virtual Facility Group Busy               |        |
| _____ | Group Trunk Access Control                       |        |
| _____ | Group Trunk Group Busy                           |        |
| _____ | Incoming Call Identification                     |        |
| _____ | Key and Lamp Display                             |        |
| _____ | Login/Logout                                     |        |
| _____ | Message Waiting                                  |        |
| _____ | Name Display                                     |        |
| _____ | Night Service Programming                        |        |
| _____ | Call Park                                        |        |
| _____ | Unpark                                           |        |
| _____ | Position Busy                                    |        |
| _____ | Private Virtual Network (PVN) Authorization Code |        |
| _____ | PVN Calling Number Attendant Access              |        |
| _____ | PVN Remote Access Call Attendant                 |        |
| _____ | Serial Calling                                   |        |
| _____ | Recall                                           |        |
| _____ | Station Origination Restriction Control          |        |
| _____ | Speed Call 10 Numbers                            |        |
| _____ | Speed Call 30 Minutes                            |        |
| _____ | Speed Call 50 Numbers                            |        |



### Attendant Console Special Functions Translation Input (cont.)

| Table | Field/Subfield | Value    | Default |
|-------|----------------|----------|---------|
| FNMAP | SPFN           | GVAC     |         |
|       | SPFN           | GVGB     |         |
|       | SPFN           | GTAC     |         |
|       | SPFN           | GTGB     |         |
|       | SPFN           | ICICODE  |         |
|       | SPFN           | DSPC     |         |
|       | SPFN           | LOGIN    |         |
|       | SPFN           | MSGIND   |         |
|       | SPFN           | NAME     |         |
|       | SPFN           | NSPRG    |         |
|       | SPFN           | PARK     |         |
|       | SPFN           | UNPK     |         |
|       | SPFN           | POS      |         |
|       | SPFN           | PVNAUTH  |         |
|       | SPFN           | PVNRMAC  |         |
|       | SPFN           | PVNSRCDN |         |
|       | SPFN           | SERIAL   |         |
|       | SPFN           | SORC     |         |
| SPFN  | SC10           |          |         |
| SPFN  | SC30           |          |         |
| SPFN  | SC50           |          |         |

### Attendant Console Special Functions Customer Group Information (cont.)

|            |                                              |               |
|------------|----------------------------------------------|---------------|
| <b>Key</b> | <b>Special Function</b>                      |               |
| _____      | Speed Call 70 Numbers                        |               |
| _____      | Speed Call User                              |               |
| _____      | Att. Console Name of Controller              |               |
|            | CLLI Name                                    | _____         |
| _____      | Time                                         |               |
|            | <b>Trouble Code</b>                          |               |
| _____      | Code _____                                   | Message _____ |
| _____      | Code _____                                   | Message _____ |
| _____      | Code _____                                   | Message _____ |
| _____      | Code _____                                   | Message _____ |
| _____      | <b>Trunk Access Control</b>                  |               |
|            | Trunk Group Name                             | _____         |
| _____      | <b>Trunk Group Busy</b>                      |               |
|            | Trunk Group Name                             | _____         |
| _____      | <b>Virtual Facility Group Access Control</b> |               |
|            | VFG Name                                     | _____         |
| _____      | <b>Virtual Facility Group Busy</b>           |               |
|            | VFG Name                                     | _____         |

### Attendant Console Special Functions Translation Input (cont.)

| Table    | Field/Subfield | Value | Default |
|----------|----------------|-------|---------|
| FNMAP    | SPFN           | SC70  |         |
|          | SPFN           | SCU   |         |
|          | SPFN           | TIME  |         |
|          | SPFN           | TRBL  |         |
| TRBLCODE | CODE           | --    |         |
|          | MESSAGE        | --    |         |
|          | CODE           | --    |         |
|          | MESSAGE        | --    |         |
|          | CODE           | --    |         |
|          | MESSAGE        | --    |         |
|          | CODE           | --    |         |
|          | MESSAGE        | --    |         |
| FNMAP    | TAC            | --    |         |
|          | TGB            | --    |         |
|          | VAC            | --    |         |
|          | VGB            | --    |         |

**Attendant Console Special Functions  
Customer Group Information (cont.)**

Key

Special Function

\_\_\_\_\_

Wild Card

Code

Special Function

\_\_\_\_\_

\_\_\_\_\_

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### Attendant Console Special Functions Translation Input (cont.)

| Table    | Field/Subfield | Value | Default |
|----------|----------------|-------|---------|
| FNMAP    | SPFN           | WC    |         |
| WCKCODES | TABIDX         | --    |         |
|          | WCSPFN         | --    |         |
|          | TABIDX         | --    |         |
|          | WCSPFN         | --    |         |
|          | TABIDX         | --    |         |
|          | WCSPFN         | --    |         |
|          | TABIDX         | --    |         |
|          | WCSPFN         | --    |         |
|          | TABIDX         | --    |         |
|          | WCSPFN         | --    |         |
|          | TABIDX         | --    |         |
|          | WCSPFN         | --    |         |
|          | TABIDX         | --    |         |
|          | WCSPFN         | --    |         |
|          | TABIDX         | --    |         |
|          | WCSPFN         | --    |         |

### Uniform Call Distribution Information Customer Group Information

Complete 1 Form for Each UCD Group Required

UCD Group Name \_\_\_\_\_

UCD Ringing Threshold \_\_\_\_\_

Threshold Route \_\_\_\_\_

    Please Define Route \_\_\_\_\_

Night Service Route \_\_\_\_\_

    Please Define Route \_\_\_\_\_

Priority Promotion Timeout \_\_\_\_\_

Maximum Number of Positions \_\_\_\_\_

Delayed Billing (Y or N) \_\_\_\_\_

Default Priority \_\_\_\_\_

Release Count \_\_\_\_\_

Maximum Wait Time \_\_\_\_\_

Maximum Call Queue Size \_\_\_\_\_

### Uniform Call Distribution Information Translation Input

| Table  | Field/Subfield            | Value                  | Default |
|--------|---------------------------|------------------------|---------|
| UCDGRP | UCDNAME                   | Alphanumeric           |         |
|        | UCDRNGTH                  | 0-63                   |         |
|        | THROUTE<br>TABID<br>INDEX | OFRT, IBNRTE<br>1-1023 |         |
|        | NSROUTE<br>TABID<br>INDEX | OFRT, IBNRTE<br>1-1023 |         |
|        | PRIORPRO                  | 0-255                  |         |
|        | MAXPOS                    | 0-1023                 |         |
|        | DBG                       | Y or N                 |         |
|        | DEFPRIO                   | 0-3                    |         |
|        | RLSCNT                    | 0-31                   |         |
|        | MAXWAIT                   | 0-1800                 |         |
|        | MAXCQSIZ                  | 0-511                  |         |

### Uniform Call Distribution Group Options Customer Group Information

Announcement/Music Y or N  
If Yes, Number of Seconds for the Incoming  
Caller Waits Before Receiving \_\_\_\_\_

Queue Status Lamps Y or N  
If Yes, Please assign appropriate SD points  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Simplified Message Desk Interface  
Link Name \_\_\_\_\_  
Desk Number \_\_\_\_\_  
Messaging Class of Services  
(Maximum of 4 different names) \_\_\_\_\_

Terminating Billing Option  
Call Code \_\_\_\_\_  
Service Feature Code Present Y or N  
Service Feature Value \_\_\_\_\_



### Uniform Call Distribution Group Options Translation Input

| Table  | Field/Subfield | Value               | Default |
|--------|----------------|---------------------|---------|
| UCDGRP | OPTION         | AUDIO               |         |
|        | RANTH          | 0, 6-63             |         |
|        | ANNMUSIC       | Y or N              |         |
|        | AUDIOGRP       | AUDIO1 to AUDIO512  |         |
|        | OPTION         | QSL                 |         |
|        | SDGRPNO1       | 0-511               |         |
|        | SDPOINT1       | 0-6                 |         |
|        | SDGRPNO2       | 0-511               |         |
|        | SDPOINT2       | 0-6                 |         |
|        | SDGRPNO3       | 0-511               |         |
|        | SDPOINT3       | 0-6                 |         |
|        | OPTION         | UCD_SMDI            |         |
|        | SMDI_LINK      | Alphanumeric        |         |
|        | SMDI_DESK_NO   | 1-63                |         |
|        | MCOS_LIST      | CLASSA to<br>CLASSP |         |
|        | OPTION         | TBO                 |         |
|        | CALLCODE       | 800-999             |         |
|        | SFPRSNT        | Y or N              |         |
|        | SFVAL          | 800-999             |         |

**Uniform Call Distribution Group Options  
Customer Group Information (cont.)**

UCD Directory Number(s)

Priority Level

Primary: \_\_\_\_\_

\_\_\_\_\_

Supplementary: (0) \_\_\_\_\_

\_\_\_\_\_

Supplementary: (1) \_\_\_\_\_

\_\_\_\_\_

Supplementary: (2) \_\_\_\_\_

\_\_\_\_\_

Supplementary: (3) \_\_\_\_\_

\_\_\_\_\_

**Uniform Call Distribution Group Options  
Translation Input (cont.)**

| Table   | Field/Subfield | Value        | Default |
|---------|----------------|--------------|---------|
| DNROUTE | SVGNPA         | Numeric      |         |
|         | NNX            | Numeric      |         |
|         | DEFGDIGS       | Numeric      |         |
|         | DNSEL          | FEAT         |         |
|         | FEAT           | UCD          |         |
|         | UCDGRP         | Alphanumeric |         |
|         | DNTYPE         | PRIM, SUPP   |         |
|         | TOLLPRIOR      | 0-3          |         |
|         | MEMNO          | 0-3          |         |
|         | DNPRIO         | 0-3          |         |

## HUNT GROUPS

Customer Group \_\_\_\_\_

Hunt Group Pilot Number \_\_\_\_\_

Hunt Group Type (Circle One)      Directory Number (DNH)  
Distributed Line Hunt (DLH)  
Multiline (MLH)

Options:

Customer Group      Circular or Sequential  
Customer Group      Announcement (LOR)  
Directory Number (LOD)

---

Hunt Group Pilot Number \_\_\_\_\_

Hunt Group Type (Circle One)      Directory Number (DNH)  
Distributed Line Hunt (DLH)  
Multiline (MLH)

Options:

Customer Group      Circular or Sequential  
Customer Group      Announcement (LOR)  
Directory Number (LOD)

**Associated Member Numbers/Line Equipment (LEN) Numbers**

|       |       |
|-------|-------|
| _____ | _____ |
| _____ | _____ |
| _____ | _____ |
| _____ | _____ |
| _____ | _____ |
| _____ | _____ |
| _____ | _____ |
| _____ | _____ |

**Associated Member Numbers/Line Equipment (LEN) Numbers**

|       |       |
|-------|-------|
| _____ | _____ |
| _____ | _____ |
| _____ | _____ |
| _____ | _____ |
| _____ | _____ |
| _____ | _____ |
| _____ | _____ |
| _____ | _____ |









# Appendix B

## Sample Input Forms

The following pages contain sample customer data schema input forms. Use these when you are not sure what type of information is requested during your practices. If you have any questions about any of the tables, refer to NTP 297-1001-451.



















PRACTICE 297-1001-454  
 TABLE NCOS  
 BCS 33-34 (A101)

DIGITAL MULTIPLEX SYSTEM  
 Network Class Of Service  
 Table Record

FORM CODE 220AB  
 7 8  
 7 0

PAGE 01

OFFICE EXAMPLE

DATE ISSUED

ORIGINATOR

| C | O | M | A | N | D | CUSTGRP | NCOS | NCOSNAME | LSC | T | R | A | F | S | N | D |   |
|---|---|---|---|---|---|---------|------|----------|-----|---|---|---|---|---|---|---|---|
| 0 | 0 | 0 | 0 | 0 | 1 | 1       | 1    | 1        | 1   | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 1 | 2 | 3 | 4 | 5 | 6 | 7       | 8    | 9        | 0   | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| 9 | 0 | 1 | 2 | 3 | 4 | 5       | 6    | 7        | 8   | 9 | 0 | 1 | 2 | 3 | 4 | 5 | 6 |
| 6 | 6 | 6 | 6 | 6 | 6 | 6       | 6    | 6        | 6   | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 |

OPTIONS

|   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| 9 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 | 1 | 2 | 3 | 4 | 5 | 6 |
| 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 |

5. NCOSONLY

XLAS.PXDEMOS NXLA.NDGT

CAL 1 ALLOWED

6. NCAGTY

XLAS.PXDEMOS NXLA.NDGT

CAL 2 ALLOWED

7. LOGOK

XLAS.PXDEMOS NXLA.NDGT

8. WATLSC 1

XLAS.PXDEMOS NXLA.NDGT

9. SHIPNG 2

XLAS.PXDEMOS NXLA.NDGT











































PRACTICE 297-1001-454  
 TABLE DIGCOL  
 BCS 30-34 (ACO1)

DIGITAL MULTIPLEX SYSTEM  
 IBN Digit Collection Table Record

FORM CODE 2201A  
 7 8  
 7 0

OFFICE EXAMPLE

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ORIGINATOR \_\_\_\_\_

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| COMMAND                         |                                 | TABLE NAME            |                 |                  |                                           |             |             |             |             |             |             |             |  |  |  |
|---------------------------------|---------------------------------|-----------------------|-----------------|------------------|-------------------------------------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|--|--|--|
| 0 0 0                           | 0 0 0 0 0 1 1 1                 | 1 2 3                 | 5 6 7 8 9 0 1 2 |                  |                                           |             |             |             |             |             |             |             |  |  |  |
| T A B                           | D I G C O L                     |                       |                 |                  |                                           |             |             |             |             |             |             |             |  |  |  |
| C<br>O<br>M<br>M<br>A<br>N<br>D | DGKEY                           |                       | DGDATA          |                  |                                           |             |             |             |             |             |             |             |  |  |  |
|                                 | D<br>A<br>T<br>N<br>A<br>M<br>E | D<br>I<br>G<br>I<br>T | DGCOLSEL        | M<br>O<br>D<br>E | N<br>U<br>M<br>B<br>E<br>R<br>S           |             |             |             |             |             |             |             |  |  |  |
|                                 |                                 |                       | COL             |                  |                                           |             |             |             |             |             |             |             |  |  |  |
|                                 |                                 |                       | POTS            | U<br>N<br>I<br>T |                                           |             |             |             |             |             |             |             |  |  |  |
|                                 |                                 |                       | RPT             |                  |                                           |             |             |             |             |             |             |             |  |  |  |
| RES                             |                                 |                       |                 |                  |                                           |             |             |             |             |             |             |             |  |  |  |
| 0 0 0                           | 0 0 0 0 0 1 1 1                 | 1 1 1 1               | 1 2 2 2         | 2 2 2            | 2 2 3 3 3                                 | 3 3 3 3 3 3 | 3 3 3 3 3 4 | 4 4 4 4 4 4 | 4 4 4 4 4 4 | 4 4 4 4 4 4 | 4 4 4 4 4 4 | 4 4 4 4 4 4 |  |  |  |
| 1 2 3                           | 5 6 7 8 9 0 1 2                 | 4 5 6 7               | 9 0 1 2         | 4 5 6            | 8 9 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 |             |             |             |             |             |             |             |  |  |  |
| <b>INP</b>                      | <u>DCDEMO</u>                   | <u>1</u>              | <u>COL</u>      | <u>S</u>         | <u>1</u>                                  |             |             |             |             |             |             |             |  |  |  |
|                                 |                                 | <u>2</u>              | <u>POTS</u>     | <u>N</u>         |                                           |             |             |             |             |             |             |             |  |  |  |
|                                 |                                 | <u>3</u>              | <u>COL</u>      | <u>S</u>         | <u>3</u>                                  |             |             |             |             |             |             |             |  |  |  |
|                                 |                                 | <u>4</u>              | <u>POTS</u>     | <u>N</u>         |                                           |             |             |             |             |             |             |             |  |  |  |
|                                 |                                 | <u>5</u>              | <u>COL</u>      | <u>S</u>         | <u>3</u>                                  |             |             |             |             |             |             |             |  |  |  |
|                                 |                                 | <u>6</u>              | <u>COL</u>      | <u>S</u>         | <u>3</u>                                  |             |             |             |             |             |             |             |  |  |  |
|                                 |                                 | <u>7</u>              | <u>COL</u>      | <u>S</u>         | <u>1</u>                                  |             |             |             |             |             |             |             |  |  |  |
|                                 |                                 | <u>8</u>              | <u>COL</u>      | <u>S</u>         | <u>1</u>                                  |             |             |             |             |             |             |             |  |  |  |
|                                 |                                 | <u>9</u>              | <u>POTS</u>     | <u>N</u>         |                                           |             |             |             |             |             |             |             |  |  |  |
|                                 |                                 | <u>0</u>              | <u>RPT</u>      |                  |                                           |             |             |             |             |             |             |             |  |  |  |
|                                 |                                 | <u>STAR</u>           | <u>COL</u>      | <u>S</u>         | <u>2</u>                                  |             |             |             |             |             |             |             |  |  |  |
|                                 |                                 | <u>OCT</u>            | <u>COL</u>      | <u>S</u>         | <u>2</u>                                  |             |             |             |             |             |             |             |  |  |  |
|                                 | <u>MVPDC</u>                    | <u>STAR</u>           | <u>COL</u>      | <u>S</u>         | <u>2</u>                                  |             |             |             |             |             |             |             |  |  |  |
|                                 |                                 |                       |                 |                  |                                           |             |             |             |             |             |             |             |  |  |  |
| <b>QUI</b>                      |                                 |                       |                 |                  |                                           |             |             |             |             |             |             |             |  |  |  |

PRACTICE 297-1001-454  
 TABLE IBNTREAT  
 BCS 30-34 (ACO1)

DIGITAL MULTIPLEX SYSTEM  
 IBN Treatment Table Record

FORM CODE 2215A  
 7 8  
 7 0

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| COM                             | TABLE NAME                      | COM=COMMAND                          |             |                                             |                    |     |  |  |  |  |  |  |  |  |  |
|---------------------------------|---------------------------------|--------------------------------------|-------------|---------------------------------------------|--------------------|-----|--|--|--|--|--|--|--|--|--|
| 0 0 0                           | 0 0 0 0 0 1 1 1                 |                                      |             |                                             |                    |     |  |  |  |  |  |  |  |  |  |
| 1 2 3                           | 5 6 7 8 9 0 1 2                 |                                      |             |                                             |                    |     |  |  |  |  |  |  |  |  |  |
| T A B                           | I B N T R E A T                 |                                      |             |                                             |                    |     |  |  |  |  |  |  |  |  |  |
| C<br>O<br>M<br>M<br>A<br>N<br>D | IBNTKEY                         |                                      |             | ITDATA                                      |                    |     |  |  |  |  |  |  |  |  |  |
|                                 | CUSTGRP                         | I<br>B<br>N<br>T<br>R<br>T<br>M<br>T | L<br>O<br>G | RTESEL                                      |                    |     |  |  |  |  |  |  |  |  |  |
|                                 |                                 |                                      |             | C                                           | ICI                |     |  |  |  |  |  |  |  |  |  |
|                                 |                                 |                                      |             | T                                           | TABID              | KEY |  |  |  |  |  |  |  |  |  |
|                                 |                                 |                                      |             | S                                           | CLLI               |     |  |  |  |  |  |  |  |  |  |
|                                 |                                 |                                      |             | T R M T                                     | TRMTID             |     |  |  |  |  |  |  |  |  |  |
| 0 0 0                           | 0 0 0 0 0 1 1 1 1 1 1 1 1 1 2   | 2 2 2                                | 2 2 2 3     | 3 3 3 3 3 3 3 3 4 4 4 4 4 4 4 4 4 4 5 5 5 5 |                    |     |  |  |  |  |  |  |  |  |  |
| 1 2 3                           | 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 | 2 3 5                                | 7 8 9 0     | 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1 2 3 |                    |     |  |  |  |  |  |  |  |  |  |
| <b>I.NP</b>                     |                                 |                                      |             |                                             |                    |     |  |  |  |  |  |  |  |  |  |
|                                 | <b>IBN.DEMO</b>                 | <b>1</b>                             | <b>Y</b>    | <b>S</b>                                    | <b>V.ACT.A.N.C</b> |     |  |  |  |  |  |  |  |  |  |
|                                 |                                 | <b>2</b>                             | <b>Y</b>    | <b>T</b>                                    | <b>IBNRTE.56</b>   |     |  |  |  |  |  |  |  |  |  |
|                                 |                                 | <b>3</b>                             | <b>Y</b>    | <b>C</b>                                    | <b>30</b>          |     |  |  |  |  |  |  |  |  |  |
|                                 |                                 | <b>4</b>                             | <b>Y</b>    | <b>T</b>                                    | <b>TRMTUNOW</b>    |     |  |  |  |  |  |  |  |  |  |
|                                 |                                 | <b>5</b>                             | <b>Y</b>    | <b>S</b>                                    | <b>T60</b>         |     |  |  |  |  |  |  |  |  |  |
|                                 |                                 | <b>6</b>                             | <b>Y</b>    | <b>C</b>                                    | <b>27</b>          |     |  |  |  |  |  |  |  |  |  |
|                                 |                                 | <b>7</b>                             | <b>Y</b>    | <b>S</b>                                    | <b>INV.EA</b>      |     |  |  |  |  |  |  |  |  |  |
|                                 |                                 | <b>8</b>                             | <b>Y</b>    | <b>C</b>                                    | <b>31</b>          |     |  |  |  |  |  |  |  |  |  |
| <b>QUI</b>                      |                                 |                                      |             |                                             |                    |     |  |  |  |  |  |  |  |  |  |





DIGITAL MULTIPLEX SYSTEM  
 IBN Route Table Record

OFFICE EXAMPLE

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ORIGINATOR                     

DATE ISSUED                     

|                                                  |            |             |            |                 |            |                                 |
|--------------------------------------------------|------------|-------------|------------|-----------------|------------|---------------------------------|
| 0000011111                                       | 2222222222 | 3333333333  | 4444444444 | 5555555555      | 6666666666 | 6                               |
| 1235678901                                       | 2345678901 | 3456789012  | 4567890123 | 5678901234      | 6789012345 | 679                             |
| ALLWAYS                                          |            |             |            |                 |            |                                 |
| SITE                                             |            | TODNAME     |            | TIMES           |            | ST                              |
| COSMAP                                           |            | COSMAP      |            | CALLCHR         |            | SK 6 = SKIPNUM                  |
| RND                                              |            | 1 = PERCENT |            | 2 = CONDITION   |            | T                               |
| PREC                                             |            | VALUE       |            | SNPA            |            | IAUNAME INDEX                   |
| PDR                                              |            | RRR         |            | MER             |            |                                 |
| SNPA                                             |            | RD          |            | NRR             |            |                                 |
| OR                                               |            | Q H 1       |            | 1 = OHMT        |            |                                 |
| NOT                                              |            | A C 2       |            | CUSTNAME        |            | 3 ICI 2 = OVERRIDE 3 = SUBGROUP |
| RTE                                              |            | I W 4       |            | NNX             |            | VFG DMI 4 = LINEATTR            |
|                                                  |            | NIL         |            | INS             |            | 5 = TREATMT                     |
|                                                  |            | ARS         |            | N C O S L I S T |            | 5 TABID KEY                     |
| C O M M A N D                                    |            |             |            |                 |            |                                 |
| I N P                                            |            |             |            |                 |            |                                 |
| 53 S . . . M . N . N . N . D E M O . C O N S I   |            |             |            |                 |            |                                 |
| 54 S . . . M . N . N . N . D E M O . C O N S I   |            |             |            |                 |            |                                 |
| 55 S . . . M . N . N . N . L A B . A C C O N S I |            |             |            |                 |            |                                 |



PRACTICE 297-1001-454  
TABLE IBNRTE2  
BCS 34 (AKO1)

OFFICE **EXAMPLE**

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DATE ISSUED \_\_\_\_\_

ORIGINATOR \_\_\_\_\_

00000111  
12356789012

Use forms 2433A-C for tables

IBNRTE2, IBNRTE3, IBNRTE4

| SNPA | NXX | 4 | DMT | 4 = EXP | 3 = SUBGRP | OPTION |
|------|-----|---|-----|---------|------------|--------|
| DN   |     |   |     |         |            |        |
| T    |     |   |     |         |            |        |
| RX   |     |   |     |         |            |        |
| OW   |     |   |     |         |            |        |
| S    |     |   |     |         |            |        |
| N    |     |   |     |         |            |        |
| VFG  |     |   |     |         |            |        |
| L    |     |   |     |         |            |        |
| I    |     |   |     |         |            |        |
| N    |     |   |     |         |            |        |
| E    |     |   |     |         |            |        |

| C | U | N | I | M | A | K | K |
|---|---|---|---|---|---|---|---|
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1 | 2 | 3 | 5 | 6 | 7 | 8 | 9 |
| 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 1 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| 2 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| 3 | 4 | 4 | 4 | 4 | 4 | 4 | 4 |
| 4 | 5 | 5 | 5 | 5 | 5 | 5 | 5 |
| 5 | 6 | 6 | 6 | 6 | 6 | 6 | 6 |
| 6 | 7 | 7 | 7 | 7 | 7 | 7 | 7 |
| 7 | 8 | 8 | 8 | 8 | 8 | 8 | 8 |
| 8 | 9 | 9 | 9 | 9 | 9 | 9 | 9 |
| 9 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

AUDIBLE\_RING

JAPAN\_DID

PRIM\_ANS\_SIG\_TIMER



DIGITAL MULTIPLEX SYSTEM  
IBN Route Table Record

FORM CODE 2433A  
7 0

PRACTICE 297 1001 454  
TABLE IBNRTE3  
BCS 34 (AK01)

OFFICE **EXAMPLE**

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Use forms 2433A-C for tables

| IBNRTE      | SNPA | NXX | 4 | DMT | 4 = EXP |
|-------------|------|-----|---|-----|---------|
| 000000111   |      |     |   |     |         |
| 12356789012 |      |     |   |     |         |
| C           |      |     |   |     |         |
| D           |      |     |   |     |         |
| N           |      |     |   |     |         |
| I           |      |     |   |     |         |
| M           |      |     |   |     |         |
| A           |      |     |   |     |         |
| R           |      |     |   |     |         |
| K           |      |     |   |     |         |

| T | TABID | KEY | 3 = SUBGRP | OPTION |
|---|-------|-----|------------|--------|
| R | X     |     |            |        |
| C |       |     |            |        |
| D |       |     |            |        |
| N |       |     |            |        |
| I |       |     |            |        |
| M |       |     |            |        |
| A |       |     |            |        |
| R |       |     |            |        |
| K |       |     |            |        |

| COM | MAND | RTE | SNPA | NXX | 4 | DMT | 4 = EXP |
|-----|------|-----|------|-----|---|-----|---------|
| 0   | 0    | 0   | 0    | 0   | 0 | 0   | 0       |
| 1   | 2    | 3   | 5    | 6   | 7 | 8   | 9       |
| 0   | 0    | 0   | 0    | 0   | 0 | 0   | 0       |
| 1   | 2    | 3   | 5    | 6   | 7 | 8   | 9       |
| C   |      |     |      |     |   |     |         |
| D   |      |     |      |     |   |     |         |
| N   |      |     |      |     |   |     |         |
| I   |      |     |      |     |   |     |         |
| M   |      |     |      |     |   |     |         |
| A   |      |     |      |     |   |     |         |
| R   |      |     |      |     |   |     |         |
| K   |      |     |      |     |   |     |         |

| Z | D | O | N | E | T | S | V | CLLI | DMT |
|---|---|---|---|---|---|---|---|------|-----|
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0    | 0   |
| 1 | 2 | 3 | 5 | 6 | 7 | 8 | 9 | 0    | 1   |
| C |   |   |   |   |   |   |   |      |     |
| D |   |   |   |   |   |   |   |      |     |
| N |   |   |   |   |   |   |   |      |     |
| I |   |   |   |   |   |   |   |      |     |
| M |   |   |   |   |   |   |   |      |     |
| A |   |   |   |   |   |   |   |      |     |
| R |   |   |   |   |   |   |   |      |     |
| K |   |   |   |   |   |   |   |      |     |

| V | F | G | DMT | AUDIBLE_RING | PRIM_ANS_SIG_TIMER |
|---|---|---|-----|--------------|--------------------|
| 0 | 0 | 0 | 0   | 0            | 0                  |
| 1 | 2 | 3 | 5   | 6            | 7                  |
| 0 | 0 | 0 | 0   | 0            | 0                  |
| 1 | 2 | 3 | 5   | 6            | 7                  |
| C |   |   |     |              |                    |
| D |   |   |     |              |                    |
| N |   |   |     |              |                    |
| I |   |   |     |              |                    |
| M |   |   |     |              |                    |
| A |   |   |     |              |                    |
| R |   |   |     |              |                    |
| K |   |   |     |              |                    |









DIGITAL MULTIPLEX SYSTEM  
Business Set And Data-Unit  
Line Assignment Table Record

FURN CODE 2274A  
7 B  
7 O

PRACTICAL 297-1001-454  
TABLE KSETLINE  
BCS 32-34 (AJ01)

OFFICE EXAMPLE

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ORIGINATOR

0000000111  
12356789012

T A B K S E T L I N E

| FOR MAT |   |           |   |             |   |             |   |               |   | DNRESULT      |   |                 |   |                 |   |                 |   |           |   |             |   |             |   |                 |   |   |   |   |
|---------|---|-----------|---|-------------|---|-------------|---|---------------|---|---------------|---|-----------------|---|-----------------|---|-----------------|---|-----------|---|-------------|---|-------------|---|-----------------|---|---|---|---|
| K E Y   |   | S M D R   |   | I C M G R P |   | M E M B E R |   | C U S T G R P |   | I N C A L L S |   | A C D G R O U P |   | A C D G R O U P |   | A C D G R O U P |   | P O S I D |   | S U B G R P |   | S N C O D S |   | C O N T M A R K |   |   |   |   |
| L E N   |   | L T N U M |   | D N         |   | D N         |   | D N           |   | I N C A L L S |   | A C D G R O U P |   | A C D G R O U P |   | A C D G R O U P |   | P O S I D |   | S U B G R P |   | S N C O D S |   | C O N T M A R K |   |   |   |   |
| S       | I | T         | A | F           | U | N           | I | R             | A | M             | E | 8               | 9 | D               | N | D               | N | D         | N | D           | N | D           | N | D               | N | D |   |   |
| 0       | 0 | 0         | 0 | 0           | 1 | 1           | 1 | 1             | 1 | 1             | 1 | 1               | 1 | 1               | 1 | 1               | 1 | 1         | 1 | 1           | 1 | 1           | 1 | 1               | 1 | 1 |   |   |
| 1       | 2 | 3         | 5 | 6           | 7 | 8           | 9 | 0             | 1 | 2             | 3 | 4               | 5 | 6               | 7 | 8               | 9 | 0         | 1 | 2           | 3 | 4           | 5 | 6               | 7 | 8 | 9 |   |
| 2       | 2 | 2         | 2 | 2           | 2 | 2           | 2 | 2             | 2 | 2             | 2 | 2               | 2 | 2               | 2 | 2               | 2 | 2         | 2 | 2           | 2 | 2           | 2 | 2               | 2 | 2 | 2 |   |
| 3       | 5 | 6         | 7 | 8           | 9 | 1           | 2 | 3             | 4 | 5             | 6 | 7               | 8 | 9               | 0 | 1               | 2 | 3         | 4 | 5           | 6 | 7           | 8 | 9               | 0 | 1 | 2 | 3 |
| 4       | 5 | 6         | 7 | 8           | 9 | 0           | 1 | 2             | 3 | 4             | 5 | 6               | 7 | 8               | 9 | 0               | 1 | 2         | 3 | 4           | 5 | 6           | 7 | 8               | 9 | 0 | 1 | 2 |
| 5       | 6 | 7         | 8 | 9           | 0 | 1           | 2 | 3             | 4 | 5             | 6 | 7               | 8 | 9               | 0 | 1               | 2 | 3         | 4 | 5           | 6 | 7           | 8 | 9               | 0 | 1 | 2 | 3 |
| 6       | 7 | 8         | 9 | 0           | 1 | 2           | 3 | 4             | 5 | 6             | 7 | 8               | 9 | 0               | 1 | 2               | 3 | 4         | 5 | 6           | 7 | 8           | 9 | 0               | 1 | 2 | 3 | 4 |
| 7       | 8 | 9         | 0 | 1           | 2 | 3           | 4 | 5             | 6 | 7             | 8 | 9               | 0 | 1               | 2 | 3               | 4 | 5         | 6 | 7           | 8 | 9           | 0 | 1               | 2 | 3 | 4 | 5 |
| 8       | 9 | 0         | 1 | 2           | 3 | 4           | 5 | 6             | 7 | 8             | 9 | 0               | 1 | 2               | 3 | 4               | 5 | 6         | 7 | 8           | 9 | 0           | 1 | 2               | 3 | 4 | 5 | 6 |
| 9       | 0 | 1         | 2 | 3           | 4 | 5           | 6 | 7             | 8 | 9             | 0 | 1               | 2 | 3               | 4 | 5               | 6 | 7         | 8 | 9           | 0 | 1           | 2 | 3               | 4 | 5 | 6 | 7 |
| 0       | 0 | 0         | 0 | 0           | 1 | 1           | 1 | 1             | 1 | 1             | 1 | 1               | 1 | 1               | 1 | 1               | 1 | 1         | 1 | 1           | 1 | 1           | 1 | 1               | 1 | 1 | 1 | 1 |
| 1       | 2 | 3         | 5 | 6           | 7 | 8           | 9 | 0             | 1 | 2             | 3 | 4               | 5 | 6               | 7 | 8               | 9 | 0         | 1 | 2           | 3 | 4           | 5 | 6               | 7 | 8 | 9 | 0 |
| 2       | 2 | 2         | 2 | 2           | 2 | 2           | 2 | 2             | 2 | 2             | 2 | 2               | 2 | 2               | 2 | 2               | 2 | 2         | 2 | 2           | 2 | 2           | 2 | 2               | 2 | 2 | 2 | 2 |
| 3       | 5 | 6         | 7 | 8           | 9 | 0           | 1 | 2             | 3 | 4             | 5 | 6               | 7 | 8               | 9 | 0               | 1 | 2         | 3 | 4           | 5 | 6           | 7 | 8               | 9 | 0 | 1 | 2 |
| 4       | 5 | 6         | 7 | 8           | 9 | 0           | 1 | 2             | 3 | 4             | 5 | 6               | 7 | 8               | 9 | 0               | 1 | 2         | 3 | 4           | 5 | 6           | 7 | 8               | 9 | 0 | 1 | 2 |
| 5       | 6 | 7         | 8 | 9           | 0 | 1           | 2 | 3             | 4 | 5             | 6 | 7               | 8 | 9               | 0 | 1               | 2 | 3         | 4 | 5           | 6 | 7           | 8 | 9               | 0 | 1 | 2 | 3 |
| 6       | 7 | 8         | 9 | 0           | 1 | 2           | 3 | 4             | 5 | 6             | 7 | 8               | 9 | 0               | 1 | 2               | 3 | 4         | 5 | 6           | 7 | 8           | 9 | 0               | 1 | 2 | 3 | 4 |
| 7       | 8 | 9         | 0 | 1           | 2 | 3           | 4 | 5             | 6 | 7             | 8 | 9               | 0 | 1               | 2 | 3               | 4 | 5         | 6 | 7           | 8 | 9           | 0 | 1               | 2 | 3 | 4 | 5 |
| 8       | 9 | 0         | 1 | 2           | 3 | 4           | 5 | 6             | 7 | 8             | 9 | 0               | 1 | 2               | 3 | 4               | 5 | 6         | 7 | 8           | 9 | 0           | 1 | 2               | 3 | 4 | 5 | 6 |
| 9       | 0 | 1         | 2 | 3           | 4 | 5           | 6 | 7             | 8 | 9             | 0 | 1               | 2 | 3               | 4 | 5               | 6 | 7         | 8 | 9           | 0 | 1           | 2 | 3               | 4 | 5 | 6 | 7 |
| 0       | 0 | 0         | 0 | 0           | 1 | 1           | 1 | 1             | 1 | 1             | 1 | 1               | 1 | 1               | 1 | 1               | 1 | 1         | 1 | 1           | 1 | 1           | 1 | 1               | 1 | 1 | 1 | 1 |
| 1       | 2 | 3         | 5 | 6           | 7 | 8           | 9 | 0             | 1 | 2             | 3 | 4               | 5 | 6               | 7 | 8               | 9 | 0         | 1 | 2           | 3 | 4           | 5 | 6               | 7 | 8 | 9 | 0 |
| 2       | 2 | 2         | 2 | 2           | 2 | 2           | 2 | 2             | 2 | 2             | 2 | 2               | 2 | 2               | 2 | 2               | 2 | 2         | 2 | 2           | 2 | 2           | 2 | 2               | 2 | 2 | 2 | 2 |
| 3       | 5 | 6         | 7 | 8           | 9 | 0           | 1 | 2             | 3 | 4             | 5 | 6               | 7 | 8               | 9 | 0               | 1 | 2         | 3 | 4           | 5 | 6           | 7 | 8               | 9 | 0 | 1 | 2 |
| 4       | 5 | 6         | 7 | 8           | 9 | 0           | 1 | 2             | 3 | 4             | 5 | 6               | 7 | 8               | 9 | 0               | 1 | 2         | 3 | 4           | 5 | 6           | 7 | 8               | 9 | 0 | 1 | 2 |
| 5       | 6 | 7         | 8 | 9           | 0 | 1           | 2 | 3             | 4 | 5             | 6 | 7               | 8 | 9               | 0 | 1               | 2 | 3         | 4 | 5           | 6 | 7           | 8 | 9               | 0 | 1 | 2 | 3 |
| 6       | 7 | 8         | 9 | 0           | 1 | 2           | 3 | 4             | 5 | 6             | 7 | 8               | 9 | 0               | 1 | 2               | 3 | 4         | 5 | 6           | 7 | 8           | 9 | 0               | 1 | 2 | 3 | 4 |
| 7       | 8 | 9         | 0 | 1           | 2 | 3           | 4 | 5             | 6 | 7             | 8 | 9               | 0 | 1               | 2 | 3               | 4 | 5         | 6 | 7           | 8 | 9           | 0 | 1               | 2 | 3 | 4 | 5 |
| 8       | 9 | 0         | 1 | 2           | 3 | 4           | 5 | 6             | 7 | 8             | 9 | 0               | 1 | 2               | 3 | 4               | 5 | 6         | 7 | 8           | 9 | 0           | 1 | 2               | 3 | 4 | 5 | 6 |
| 9       | 0 | 1         | 2 | 3           | 4 | 5           | 6 | 7             | 8 | 9             | 0 | 1               | 2 | 3               | 4 | 5               | 6 | 7         | 8 | 9           | 0 | 1           | 2 | 3               | 4 | 5 | 6 | 7 |
| 0       | 0 | 0         | 0 | 0           | 1 | 1           | 1 | 1             | 1 | 1             | 1 | 1               | 1 | 1               | 1 | 1               | 1 | 1         | 1 | 1           | 1 | 1           | 1 | 1               | 1 | 1 | 1 | 1 |
| 1       | 2 | 3         | 5 | 6           | 7 | 8           | 9 | 0             | 1 | 2             | 3 | 4               | 5 | 6               | 7 | 8               | 9 | 0         | 1 | 2           | 3 | 4           | 5 | 6               | 7 | 8 | 9 | 0 |
| 2       | 2 | 2         | 2 | 2           | 2 | 2           | 2 | 2             | 2 | 2             | 2 | 2               | 2 | 2               | 2 | 2               | 2 | 2         | 2 | 2           | 2 | 2           | 2 | 2               | 2 | 2 | 2 | 2 |
| 3       | 5 | 6         | 7 | 8           | 9 | 0           | 1 | 2             | 3 | 4             | 5 | 6               | 7 | 8               | 9 | 0               | 1 | 2         | 3 | 4           | 5 | 6           | 7 | 8               | 9 | 0 | 1 | 2 |
| 4       | 5 | 6         | 7 | 8           | 9 | 0           | 1 | 2             | 3 | 4             | 5 | 6               | 7 | 8               | 9 | 0               | 1 | 2         | 3 | 4           | 5 | 6           | 7 | 8               | 9 | 0 | 1 | 2 |
| 5       | 6 | 7         | 8 | 9           | 0 | 1           | 2 | 3             | 4 | 5             | 6 | 7               | 8 | 9               | 0 | 1               | 2 | 3         | 4 | 5           | 6 | 7           | 8 | 9               | 0 | 1 | 2 | 3 |
| 6       | 7 | 8         | 9 | 0           | 1 | 2           | 3 | 4             | 5 | 6             | 7 | 8               | 9 | 0               | 1 | 2               | 3 | 4         | 5 | 6           | 7 | 8           | 9 | 0               | 1 | 2 | 3 | 4 |
| 7       | 8 | 9         | 0 | 1           | 2 | 3           | 4 | 5             | 6 | 7             | 8 | 9               | 0 | 1               | 2 | 3               | 4 | 5         | 6 | 7           | 8 | 9           | 0 | 1               | 2 | 3 | 4 | 5 |
| 8       | 9 | 0         | 1 | 2           | 3 | 4           | 5 | 6             | 7 | 8             | 9 | 0               | 1 | 2               | 3 | 4               | 5 | 6         | 7 | 8           | 9 | 0           | 1 | 2               | 3 | 4 | 5 | 6 |
| 9       | 0 | 1         | 2 | 3           | 4 | 5           | 6 | 7             | 8 | 9             | 0 | 1               | 2 | 3               | 4 | 5               | 6 | 7         | 8 | 9           | 0 | 1           | 2 | 3               | 4 | 5 | 6 | 7 |
| 0       | 0 | 0         | 0 | 0           | 1 | 1           | 1 | 1             | 1 | 1             | 1 | 1               | 1 | 1               | 1 | 1               | 1 | 1         | 1 | 1           | 1 | 1           | 1 | 1               | 1 | 1 | 1 | 1 |
| 1       | 2 | 3         | 5 | 6           | 7 | 8           | 9 | 0             | 1 | 2             | 3 | 4               | 5 | 6               | 7 | 8               | 9 | 0         | 1 | 2           | 3 | 4           | 5 | 6               | 7 | 8 | 9 | 0 |
| 2       | 2 | 2         | 2 | 2           | 2 | 2           | 2 | 2             | 2 | 2             | 2 | 2               | 2 | 2               | 2 | 2               | 2 | 2         | 2 | 2           | 2 | 2           | 2 | 2               | 2 | 2 | 2 | 2 |
| 3       | 5 | 6         | 7 | 8           | 9 | 0           | 1 | 2             | 3 | 4             | 5 | 6               | 7 | 8               | 9 | 0               | 1 | 2         | 3 | 4           | 5 | 6           | 7 | 8               | 9 | 0 | 1 | 2 |
| 4       | 5 | 6         | 7 | 8           | 9 | 0           | 1 | 2             | 3 | 4             | 5 | 6               | 7 | 8               | 9 | 0               | 1 | 2         | 3 | 4           | 5 | 6           | 7 | 8               | 9 | 0 | 1 | 2 |
| 5       | 6 | 7         | 8 | 9           | 0 | 1           | 2 | 3             | 4 | 5             | 6 | 7               | 8 | 9               | 0 | 1               | 2 | 3         | 4 | 5           | 6 | 7           | 8 | 9               | 0 | 1 | 2 | 3 |
| 6       | 7 | 8         | 9 | 0           | 1 | 2           | 3 | 4             | 5 | 6             | 7 | 8               | 9 | 0               | 1 | 2               | 3 | 4         | 5 | 6           | 7 | 8           | 9 | 0               | 1 | 2 | 3 | 4 |
| 7       | 8 | 9         | 0 | 1           | 2 | 3           | 4 | 5             | 6 | 7             | 8 | 9               | 0 | 1               | 2 | 3               | 4 | 5         | 6 | 7           | 8 | 9           | 0 | 1               | 2 | 3 | 4 | 5 |
| 8       | 9 | 0         | 1 | 2           | 3 | 4           | 5 | 6             | 7 | 8             | 9 | 0               | 1 | 2               | 3 | 4               | 5 | 6         | 7 | 8           | 9 | 0           | 1 | 2               | 3 | 4 | 5 | 6 |
| 9       | 0 | 1         | 2 | 3           | 4 | 5           | 6 | 7             | 8 | 9             | 0 | 1               | 2 | 3               | 4 | 5               | 6 | 7         | 8 | 9           | 0 | 1           | 2 | 3               | 4 | 5 | 6 | 7 |
| 0       | 0 | 0         | 0 | 0           | 1 | 1           | 1 | 1             | 1 | 1             | 1 | 1               | 1 | 1               | 1 | 1               | 1 | 1         | 1 | 1           | 1 | 1           | 1 | 1               | 1 | 1 | 1 | 1 |
| 1       | 2 | 3         | 5 | 6           | 7 | 8           | 9 | 0             | 1 | 2             | 3 | 4               | 5 | 6               | 7 | 8               | 9 | 0         | 1 | 2           | 3 | 4           | 5 | 6               | 7 | 8 | 9 | 0 |
| 2       | 2 | 2         | 2 | 2           | 2 | 2           | 2 | 2             | 2 | 2             | 2 | 2               | 2 | 2               | 2 | 2               | 2 | 2         | 2 | 2           | 2 | 2           | 2 | 2               | 2 | 2 | 2 | 2 |
| 3       | 5 | 6         | 7 | 8           | 9 | 0           | 1 | 2             | 3 | 4             | 5 | 6               | 7 | 8               | 9 | 0               | 1 | 2         | 3 | 4           | 5 | 6           | 7 | 8               | 9 | 0 | 1 | 2 |
| 4       | 5 | 6         | 7 | 8           | 9 | 0           | 1 | 2             | 3 | 4             | 5 | 6               | 7 | 8               | 9 | 0               | 1 | 2         | 3 | 4           | 5 | 6           | 7 | 8               | 9 | 0 | 1 | 2 |
| 5       | 6 | 7         | 8 | 9           | 0 | 1           | 2 | 3             | 4 | 5             | 6 | 7               | 8 | 9               | 0 | 1               | 2 | 3         | 4 | 5           | 6 | 7           | 8 | 9               | 0 | 1 | 2 | 3 |
| 6       | 7 | 8         | 9 | 0           | 1 | 2           | 3 | 4             | 5 | 6             | 7 | 8               | 9 | 0               | 1 | 2               | 3 | 4         | 5 | 6           | 7 | 8           | 9 | 0               | 1 | 2 | 3 | 4 |
| 7       | 8 | 9         | 0 | 1           | 2 | 3           | 4 | 5             | 6 | 7             | 8 | 9               | 0 | 1               | 2 | 3               | 4 | 5         | 6 | 7           | 8 | 9           | 0 | 1               | 2 | 3 | 4 | 5 |
| 8       | 9 | 0         | 1 | 2           | 3 | 4           | 5 | 6             | 7 | 8             | 9 | 0               | 1 | 2               | 3 | 4               | 5 | 6         | 7 | 8           | 9 | 0           | 1 | 2               | 3 | 4 | 5 | 6 |
| 9       | 0 | 1         | 2 | 3           | 4 | 5           | 6 | 7             | 8 | 9             | 0 | 1               | 2 | 3               | 4 | 5               | 6 | 7         | 8 | 9           | 0 | 1           | 2 | 3               | 4 | 5 | 6 | 7 |
| 0       | 0 | 0         | 0 | 0           | 1 | 1           | 1 | 1             | 1 | 1             | 1 | 1               | 1 | 1               | 1 | 1               | 1 | 1         | 1 | 1           | 1 | 1           | 1 | 1               | 1 | 1 | 1 | 1 |
| 1       | 2 | 3         | 5 | 6           | 7 | 8           | 9 | 0             | 1 | 2             | 3 | 4               | 5 | 6               | 7 | 8               | 9 | 0         | 1 | 2           | 3 | 4           | 5 | 6               | 7 | 8 | 9 | 0 |
| 2       | 2 | 2         |   |             |   |             |   |               |   |               |   |                 |   |                 |   |                 |   |           |   |             |   |             |   |                 |   |   |   |   |

DIGITAL MULTIPLEX SYSTEM

IBN Line Assignment Table Record

TABLE 32-34 (AG01)

EXAMPLE

DATE TYPED

ORIGINATOR

| C<br>O<br>M<br>M<br>A<br>N<br>D | S<br>I<br>T<br>E | L<br>E<br>N |   | I<br>D<br>E<br>N<br>T<br>I<br>F<br>I<br>C<br>A<br>T<br>O<br>R |   | C<br>I<br>R<br>C<br>U<br>I<br>T |   | D<br>I<br>S<br>T<br>R<br>I<br>B<br>U<br>T<br>I<br>O<br>N |   | S<br>I<br>G<br>N<br>A<br>L |    | S<br>T<br>N<br>I<br>D<br>E<br>N<br>T<br>I<br>F<br>I<br>C<br>A<br>T<br>O<br>R |    | R<br>E<br>S<br>U<br>L<br>T | I<br>N<br>V<br>A<br>R | I<br>N<br>I<br>T<br>I<br>A<br>L<br>I<br>D<br>X | C<br>U<br>S<br>T<br>O<br>M<br>E<br>R<br>G<br>R<br>O<br>U<br>P | M<br>A<br>R<br>K |    |
|---------------------------------|------------------|-------------|---|---------------------------------------------------------------|---|---------------------------------|---|----------------------------------------------------------|---|----------------------------|----|------------------------------------------------------------------------------|----|----------------------------|-----------------------|------------------------------------------------|---------------------------------------------------------------|------------------|----|
|                                 |                  | 1           | 2 | 3                                                             | 4 | 5                               | 6 | 7                                                        | 8 | 9                          | 10 | 11                                                                           | 12 |                            |                       |                                                |                                                               |                  | 13 |
| 000                             |                  |             |   |                                                               |   |                                 |   |                                                          |   |                            |    |                                                                              |    |                            |                       |                                                |                                                               |                  |    |
| 123                             |                  |             |   |                                                               |   |                                 |   |                                                          |   |                            |    |                                                                              |    |                            |                       |                                                |                                                               |                  |    |
|                                 |                  |             |   |                                                               |   |                                 |   |                                                          |   |                            |    |                                                                              |    |                            |                       |                                                |                                                               |                  |    |
|                                 |                  |             |   |                                                               |   |                                 |   |                                                          |   |                            |    |                                                                              |    |                            |                       |                                                |                                                               |                  |    |
|                                 |                  |             |   |                                                               |   |                                 |   |                                                          |   |                            |    |                                                                              |    |                            |                       |                                                |                                                               |                  |    |
|                                 |                  |             |   |                                                               |   |                                 |   |                                                          |   |                            |    |                                                                              |    |                            |                       |                                                |                                                               |                  |    |
|                                 |                  |             |   |                                                               |   |                                 |   |                                                          |   |                            |    |                                                                              |    |                            |                       |                                                |                                                               |                  |    |
|                                 |                  |             |   |                                                               |   |                                 |   |                                                          |   |                            |    |                                                                              |    |                            |                       |                                                |                                                               |                  |    |
|                                 |                  |             |   |                                                               |   |                                 |   |                                                          |   |                            |    |                                                                              |    |                            |                       |                                                |                                                               |                  |    |
|                                 |                  |             |   |                                                               |   |                                 |   |                                                          |   |                            |    |                                                                              |    |                            |                       |                                                |                                                               |                  |    |
|                                 |                  |             |   |                                                               |   |                                 |   |                                                          |   |                            |    |                                                                              |    |                            |                       |                                                |                                                               |                  |    |
|                                 |                  |             |   |                                                               |   |                                 |   |                                                          |   |                            |    |                                                                              |    |                            |                       |                                                |                                                               |                  |    |
|                                 |                  |             |   |                                                               |   |                                 |   |                                                          |   |                            |    |                                                                              |    |                            |                       |                                                |                                                               |                  |    |
|                                 |                  |             |   |                                                               |   |                                 |   |                                                          |   |                            |    |                                                                              |    |                            |                       |                                                |                                                               |                  |    |

DIGITAL MULTIPLEX SYSTEM  
IBN Line Assignment Table Return  
Format SIN and MDN

PRACTICE 297-1001-454  
TABLE IBN LINES  
BCS 32-34 (AG01)

OFFICE EXAMPLE

PAGE 01

DATE 11/11/00

ORIGINATOR

| C<br>O<br>M<br>M<br>A<br>N<br>D | S<br>I<br>T<br>E | L<br>E<br>N | U<br>N<br>I<br>T | D<br>O<br>P<br>A<br>L<br>W<br>E<br>S<br>R<br>G | C<br>I<br>R<br>C<br>U<br>I<br>T | D<br>I<br>R<br>E<br>C<br>T<br>I<br>O<br>N | S<br>I<br>G<br>N<br>A<br>L<br>T<br>Y<br>P<br>E | R<br>E<br>S<br>U<br>L<br>T      |          | I<br>N<br>V<br>A<br>R | I<br>N<br>A<br>L<br>I<br>D<br>X | C<br>U<br>S<br>T<br>O<br>M<br>E<br>R<br>N<br>O | M<br>A<br>R<br>K                        |     |     |     |     |     |     |     |     |     |     |     |     |
|---------------------------------|------------------|-------------|------------------|------------------------------------------------|---------------------------------|-------------------------------------------|------------------------------------------------|---------------------------------|----------|-----------------------|---------------------------------|------------------------------------------------|-----------------------------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
|                                 |                  |             |                  |                                                |                                 |                                           |                                                | 3-PRIMARY                       | 4-SUBGRP |                       |                                 |                                                |                                         |     |     |     |     |     |     |     |     |     |     |     |     |
| SNPA                            | 1                | 2           | 3                | 1-MONTYP                                       | 2-RING                          | 3-PRIMARY                                 | 4-SUBGRP                                       | O<br>P<br>T<br>I<br>O<br>N<br>S |          |                       |                                 |                                                |                                         |     |     |     |     |     |     |     |     |     |     |     |     |
| 000                             | 000              | 111         | 111              | 111                                            | 222                             | 222                                       | 222                                            | 333                             | 333      | 333                   | 333                             | 333                                            | 333                                     | 444 | 444 | 444 | 444 | 555 | 555 | 555 | 555 | 666 | 666 | 666 |     |
| 123                             | 567              | 890         | 123              | 456                                            | 789                             | 012                                       | 345                                            | 678                             | 901      | 234                   | 567                             | 890                                            | 123                                     | 456 | 789 | 012 | 345 | 678 | 901 | 234 | 567 | 890 | 123 | 456 | 789 |
|                                 |                  |             |                  |                                                |                                 |                                           |                                                |                                 |          |                       |                                 |                                                | P2 1 97 19 0 DT STN IBN 3626732 IANDEMO |     |     |     |     |     |     |     |     |     |     |     |     |
|                                 |                  |             |                  |                                                |                                 |                                           |                                                |                                 |          |                       |                                 |                                                | 919 U.C.D                               |     |     |     |     |     |     |     |     |     |     |     |     |
|                                 |                  |             |                  |                                                |                                 |                                           |                                                |                                 |          |                       |                                 |                                                | GHI                                     |     |     |     |     |     |     |     |     |     |     |     |     |



PRACTICE 297 1001-454  
TABLE KSETLINE  
BCS 32-34 (AU01)

OFFICE EXAMPLE

ORIGINATOR

| KSETKEY   |           | FOR MAT |       | DNRESUI 1 |       |        | CONT MARK |       |       |        |         |       |       |       |       |
|-----------|-----------|---------|-------|-----------|-------|--------|-----------|-------|-------|--------|---------|-------|-------|-------|-------|
| LEN       | UNIT      | GIC     | DN    | MDN       | ACD   | ICMGRP | MEMBER    | SMUR  | DN    | ACDGRP | CUSTGRP | UBGRP | NCOS  | SP    | A     |
| 00001111  | 1111      | 2222    | 2222  | 3333      | 3333  | 3333   | 3333      | 4444  | 4444  | 4444   | 4444    | 5555  | 5555  | 5555  | 5555  |
| 00001111  | 1111      | 2222    | 2222  | 3333      | 3333  | 3333   | 3333      | 4444  | 4444  | 4444   | 4444    | 5555  | 5555  | 5555  | 5555  |
| 567890123 | 567890123 | 12456   | 12456 | 78901     | 78901 | 78901  | 78901     | 23456 | 23456 | 23456  | 23456   | 78901 | 23456 | 78901 | 23456 |
|           | 02        | 107     | 15    | 1         | DN    |        |           |       |       |        |         |       |       |       | 9.19  |
|           |           |         |       |           |       |        |           |       |       |        |         |       |       |       |       |
|           | 02        | 107     | 15    | 2         | DN    |        |           |       |       |        |         |       |       |       | 9.19  |
|           |           |         |       |           |       |        |           |       |       |        |         |       |       |       |       |
|           | 02        | 107     | 15    | 4         | GIC   |        |           |       |       |        |         |       |       |       | 9.19  |
|           | 02        | 107     | 16    | 1         | MDN   |        |           |       |       |        |         |       |       |       | 9.19  |
|           |           |         |       |           |       |        |           |       |       |        |         |       |       |       |       |
|           | 02        | 107     | 16    | 4         | GIC   |        |           |       |       |        |         |       |       |       | 9.19  |
|           | 02        | 107     | 16    | 1         | MDN   |        |           |       |       |        |         |       |       |       | 9.19  |
|           |           |         |       |           |       |        |           |       |       |        |         |       |       |       |       |
|           |           |         |       |           |       |        |           |       |       |        |         |       |       |       |       |

- 1=PRIMARY
- 2=FORCING
- 3=ACDSGRP
- 4=IDNUM
- 5=MSBOVRD
- 6=DIFFINC
- 7=IGNORMSB
- 8=DRAWER, LSG.
- 9=CIRCUIT, SLOT

848











DIGITAL MULTIPLEX SYSTEM  
 Directory Number Route Table Record

OFFICE EXAMPLE PAGE 01

DATE ISSUED

- 1= CONTINMARK
  - 2= SYNLAT
  - 3= AUTOVON
  - 4= PCNFNO
  - 5= SUBGROUP
  - 6= DIDORG
  - 7= LINEATTR
  - 8= SMDR
  - 9= TRUNK
  - 10= NCDS
  - 11= TIMEOUT
  - 12= PINLENGTH
  - 13= BROADCASTNO
  - 14= CONF
- A= AUTIREU
  - B= SMORTO
  - C= SMDFROM
  - D= INTRAGRP
  - E= TOLLPRIO
  - F= MEMNO
  - G= DNPRI0
  - H= CONF
  - I= LDN\_DM\_REPORT

| C | DNRT SUI T | M | T | TUPLID | CUSTGRP | T O F R T | A | B | I | D | O | F | R | 4 | K | E | Y | ICI | I |
|---|------------|---|---|--------|---------|-----------|---|---|---|---|---|---|---|---|---|---|---|-----|---|
| 0 | 0          | 0 | 0 | 1      | 1       | 1         | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1   | 1 |
| 1 | 2          | 3 | 4 | 5      | 6       | 7         | 8 | 9 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9   | 0 |

|     |             |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
|-----|-------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0   | 0           | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 1   | 2           | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 |
| IMP | 9.1.9.3.6.2 | T |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
|     | 5.1.1.1     | T |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
|     |             |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
|     |             |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
|     | 9.1.9.3.6.2 | T |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
|     | 5.1.2.3     | T |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
|     |             |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
|     | 9.1.9.3.6.2 | T |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
|     | 5.4.5.4     | T |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
|     |             |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
|     |             |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |





















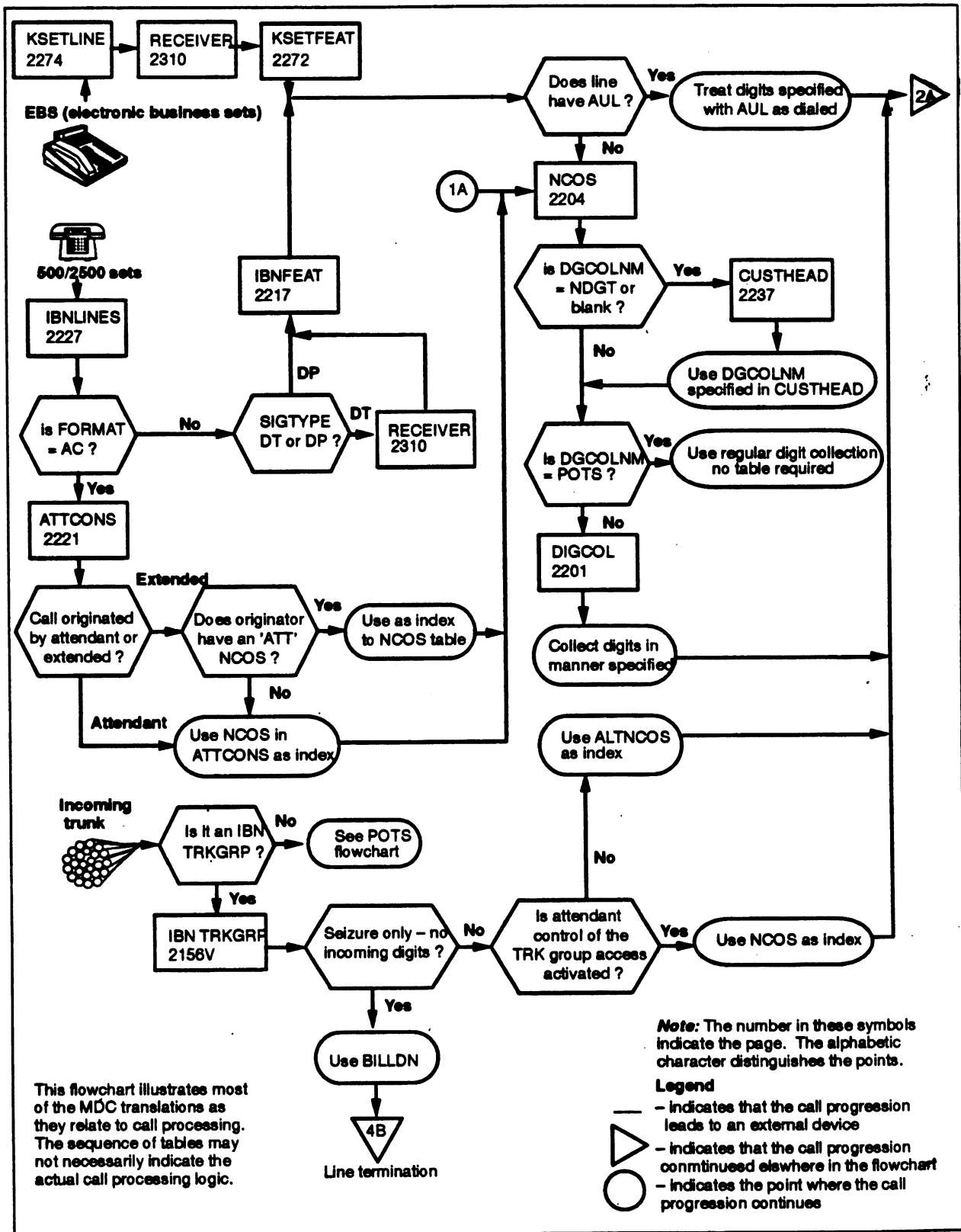


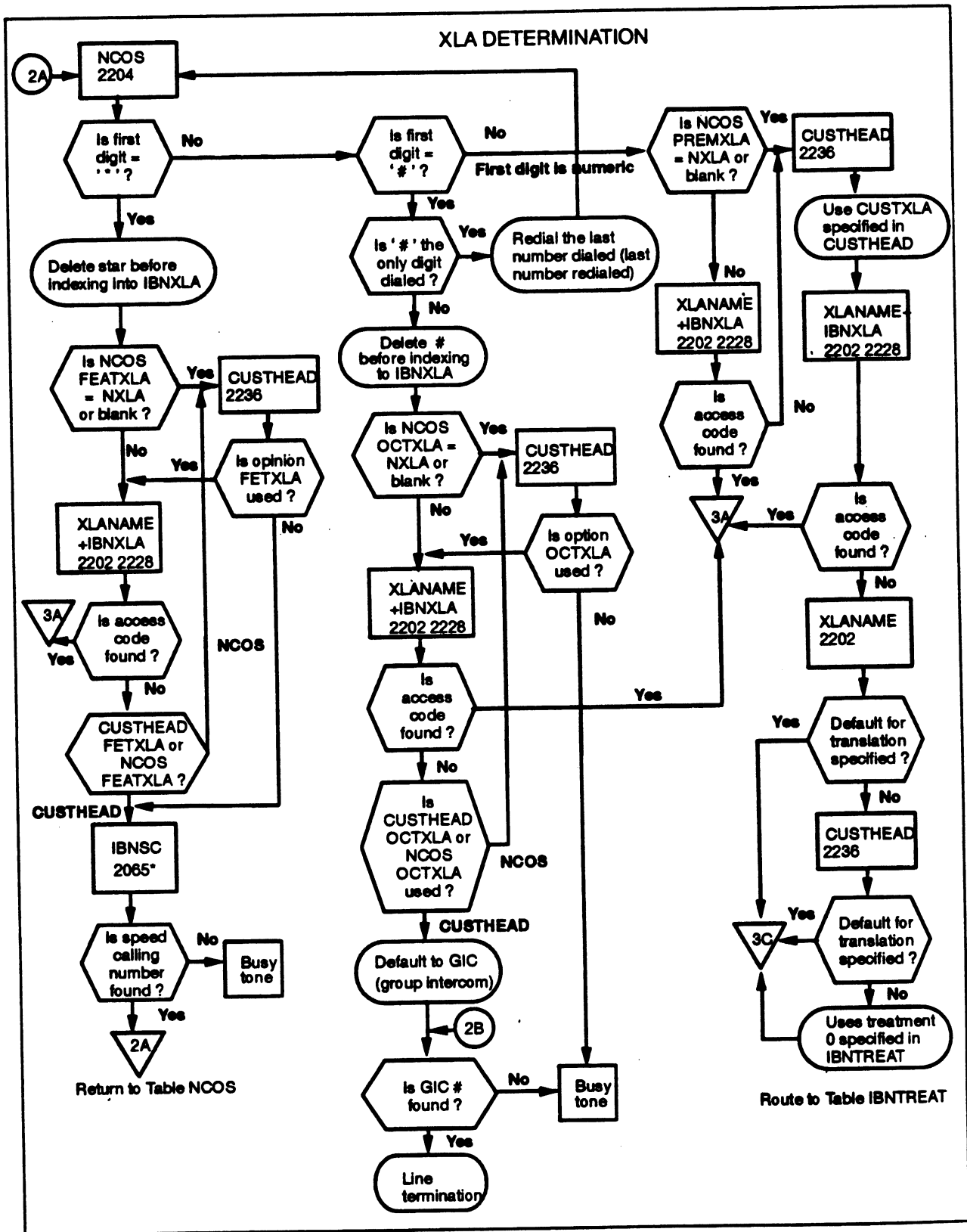
# Appendix C

## Translations Flowchart

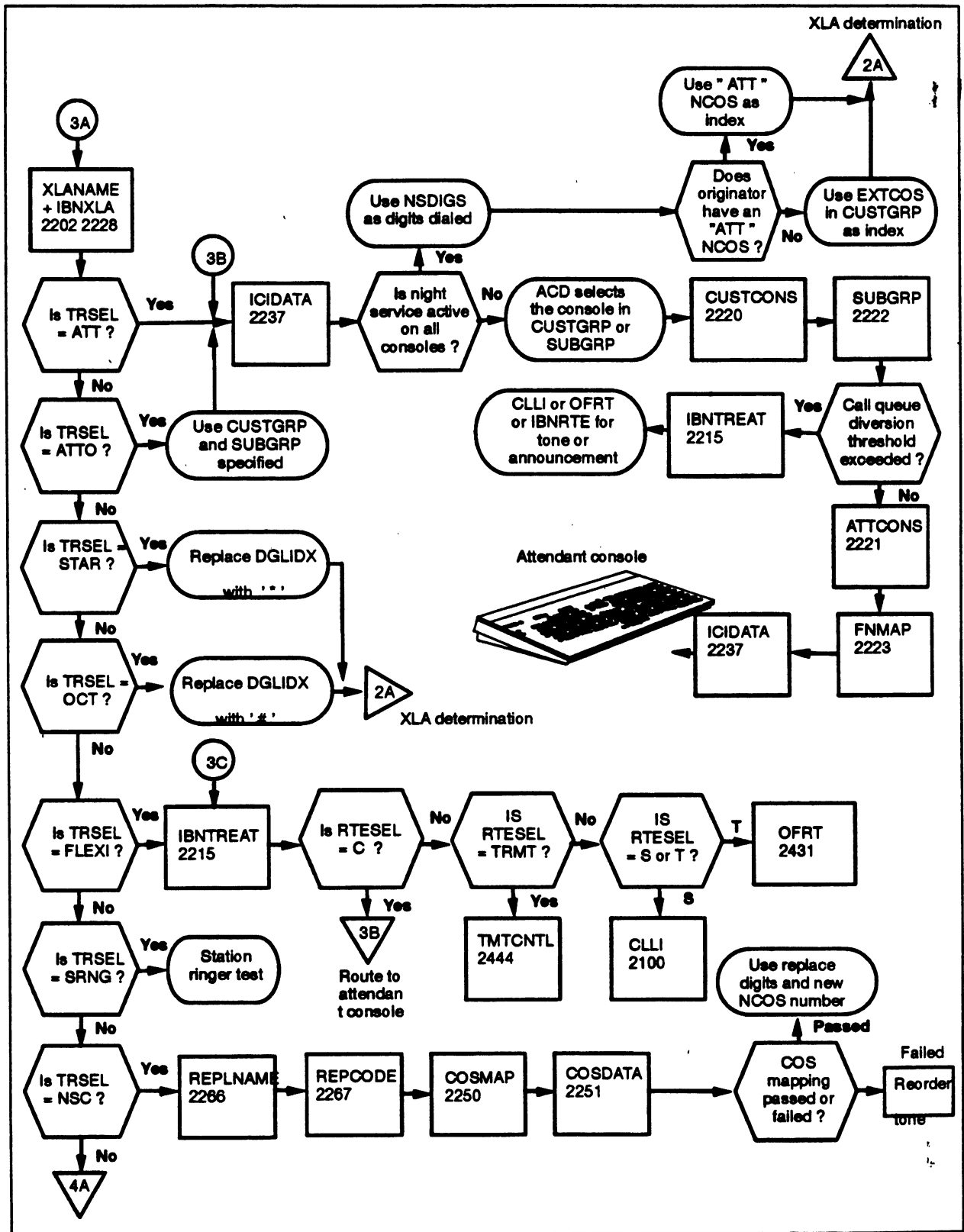
The following pages contain flowcharts that show translations as they relate to call processing. The sequence may not indicate the actual call processing logic; however, the charts are meant to help you visualize in what order the tables are utilized during various types of calls. These pages can be found in NTP 297-2001-351.

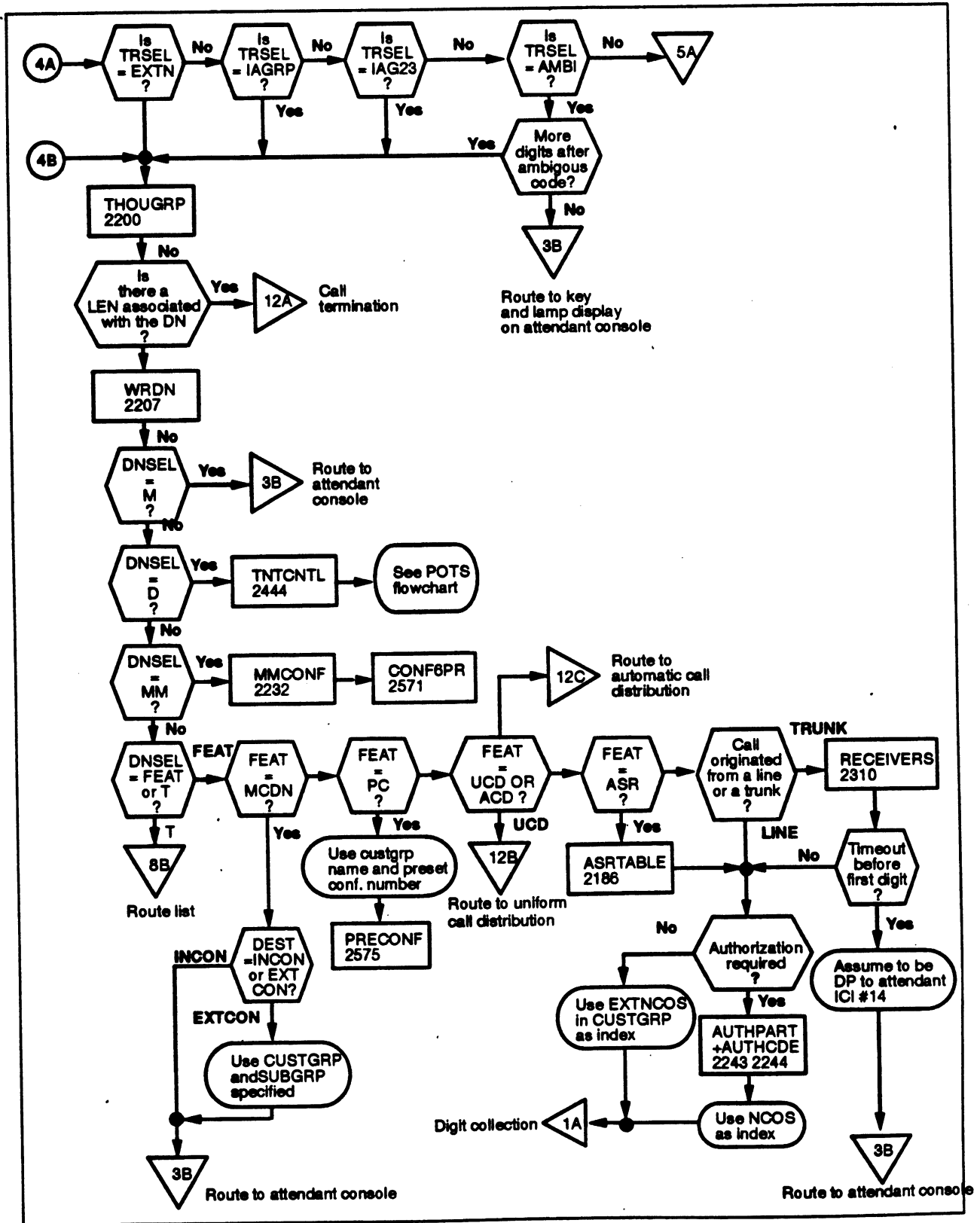


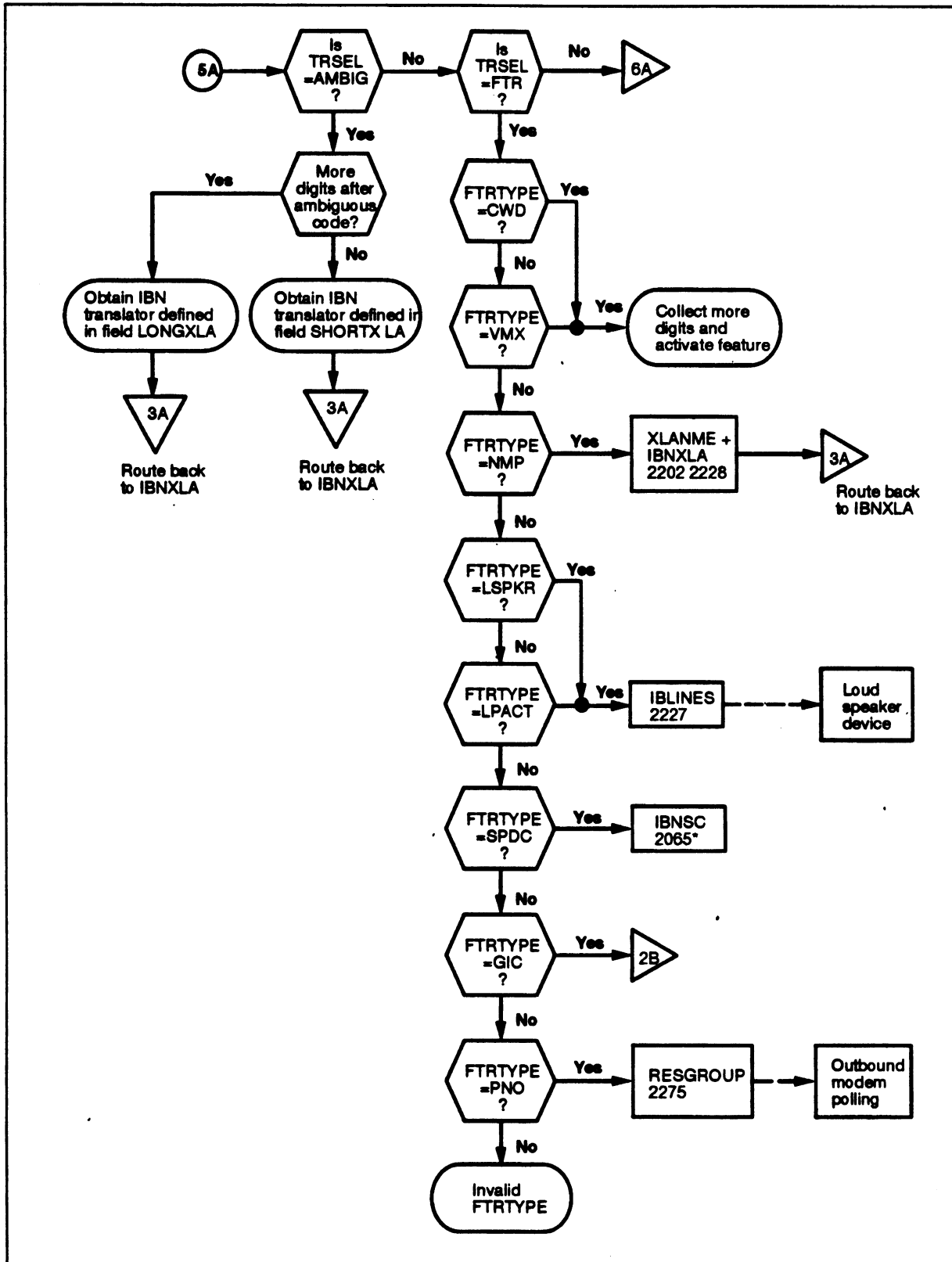




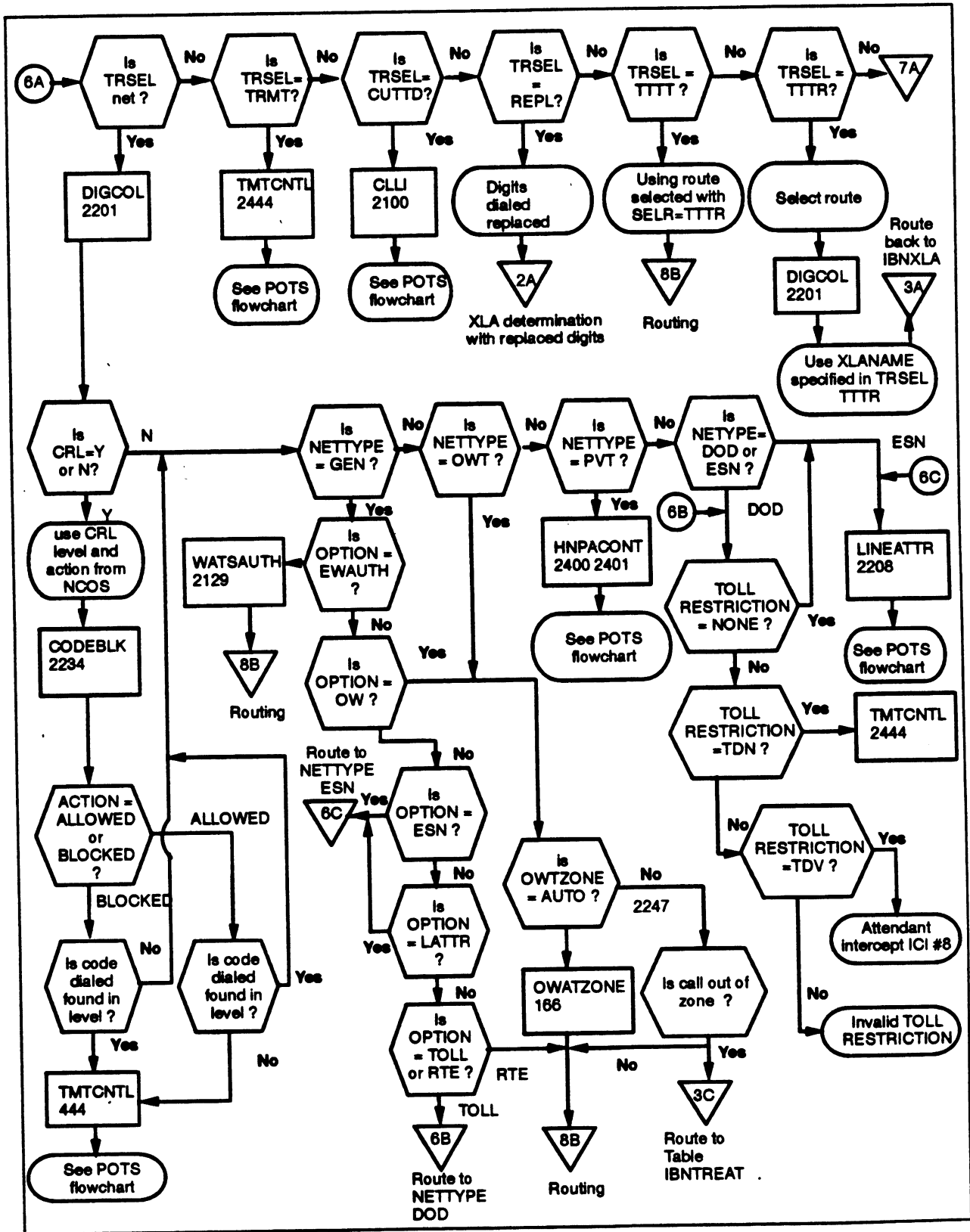


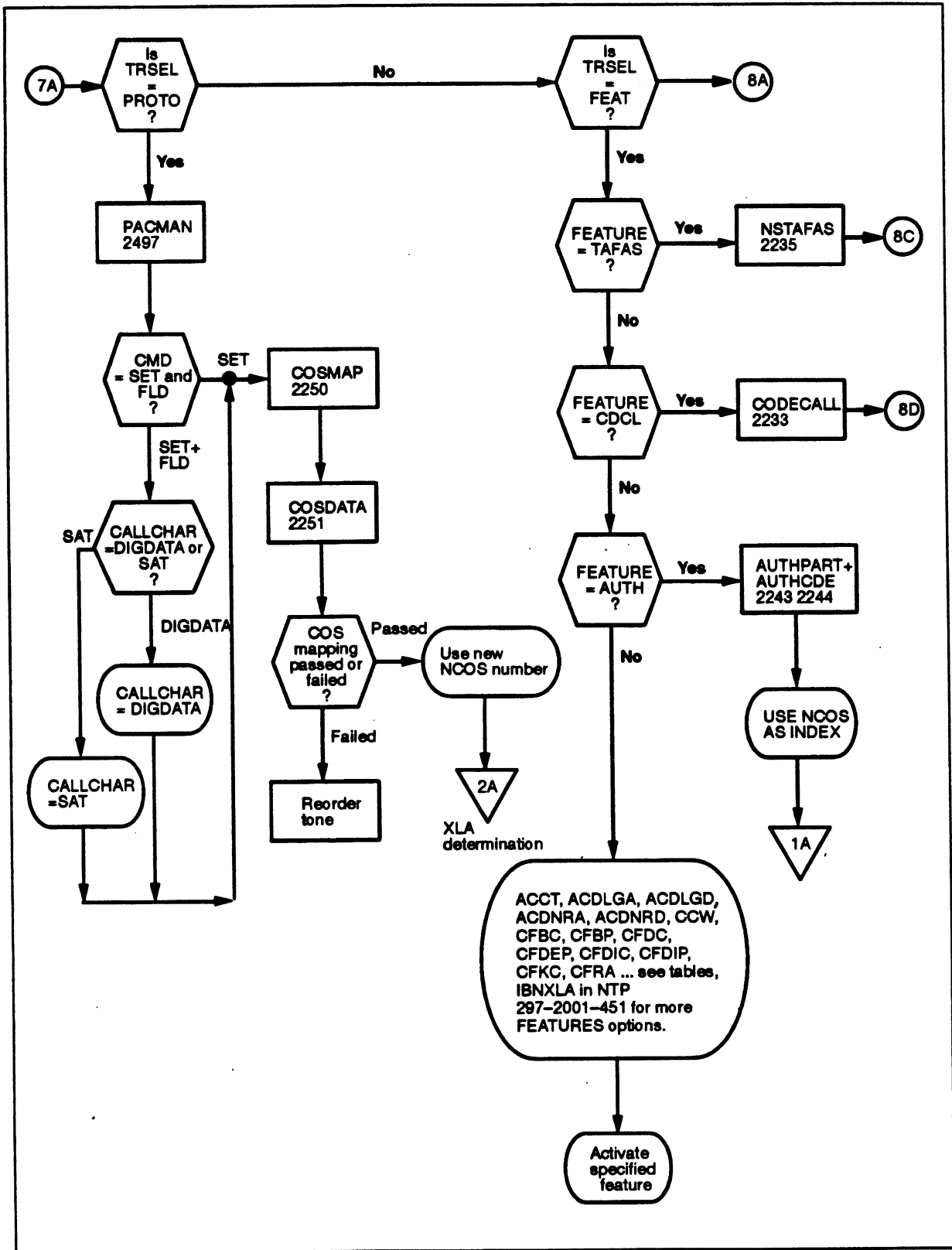




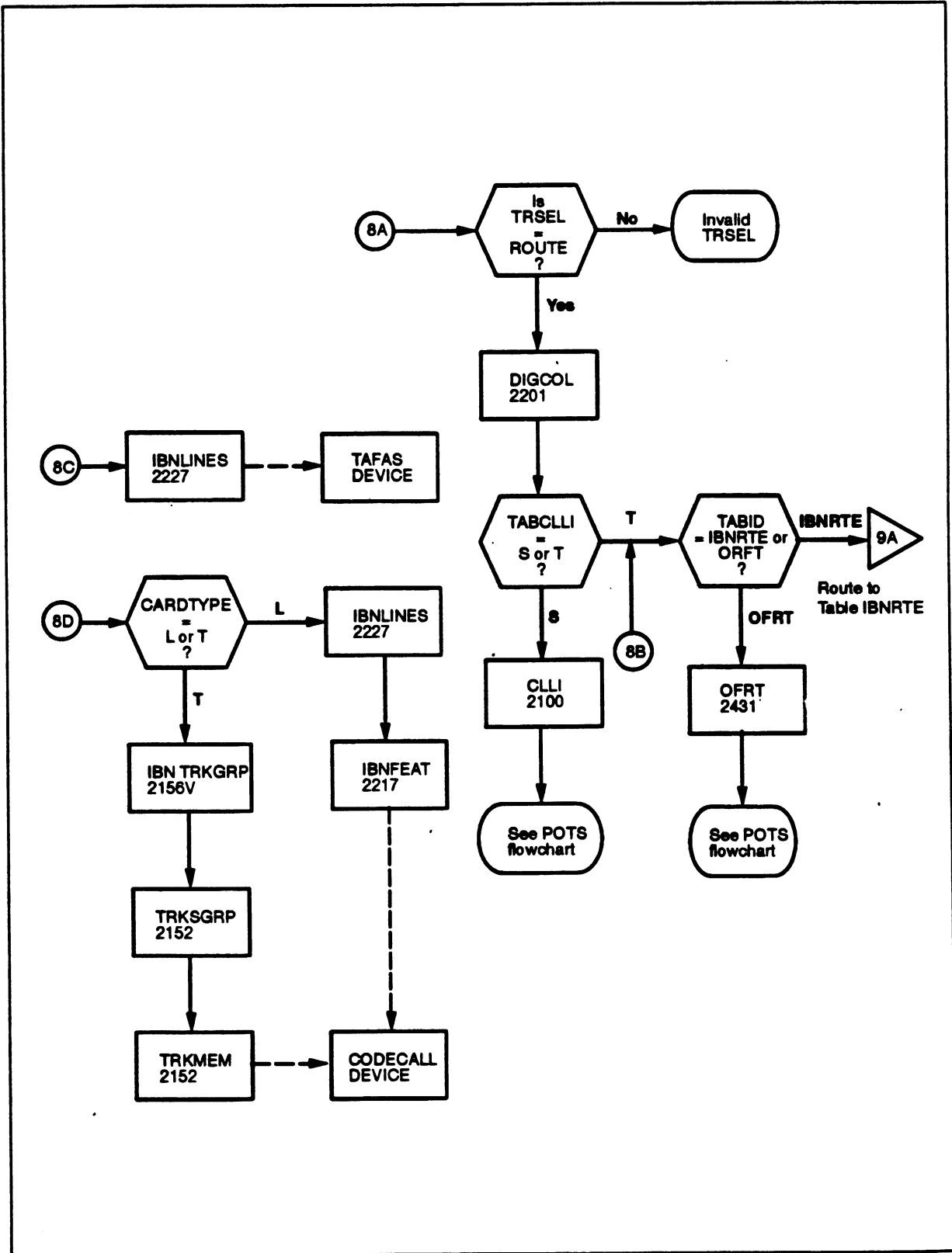


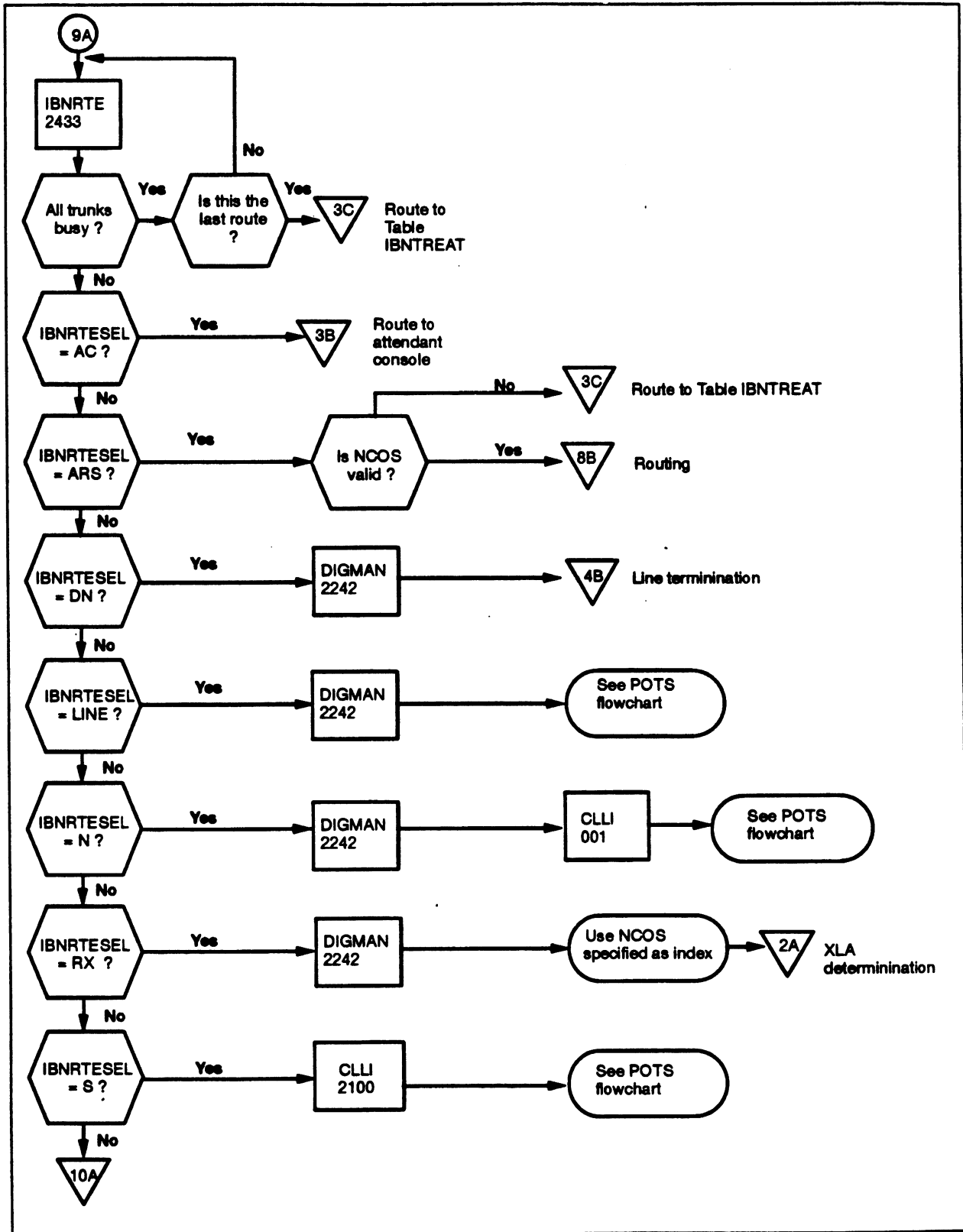
2-42 MDC translations flowchart



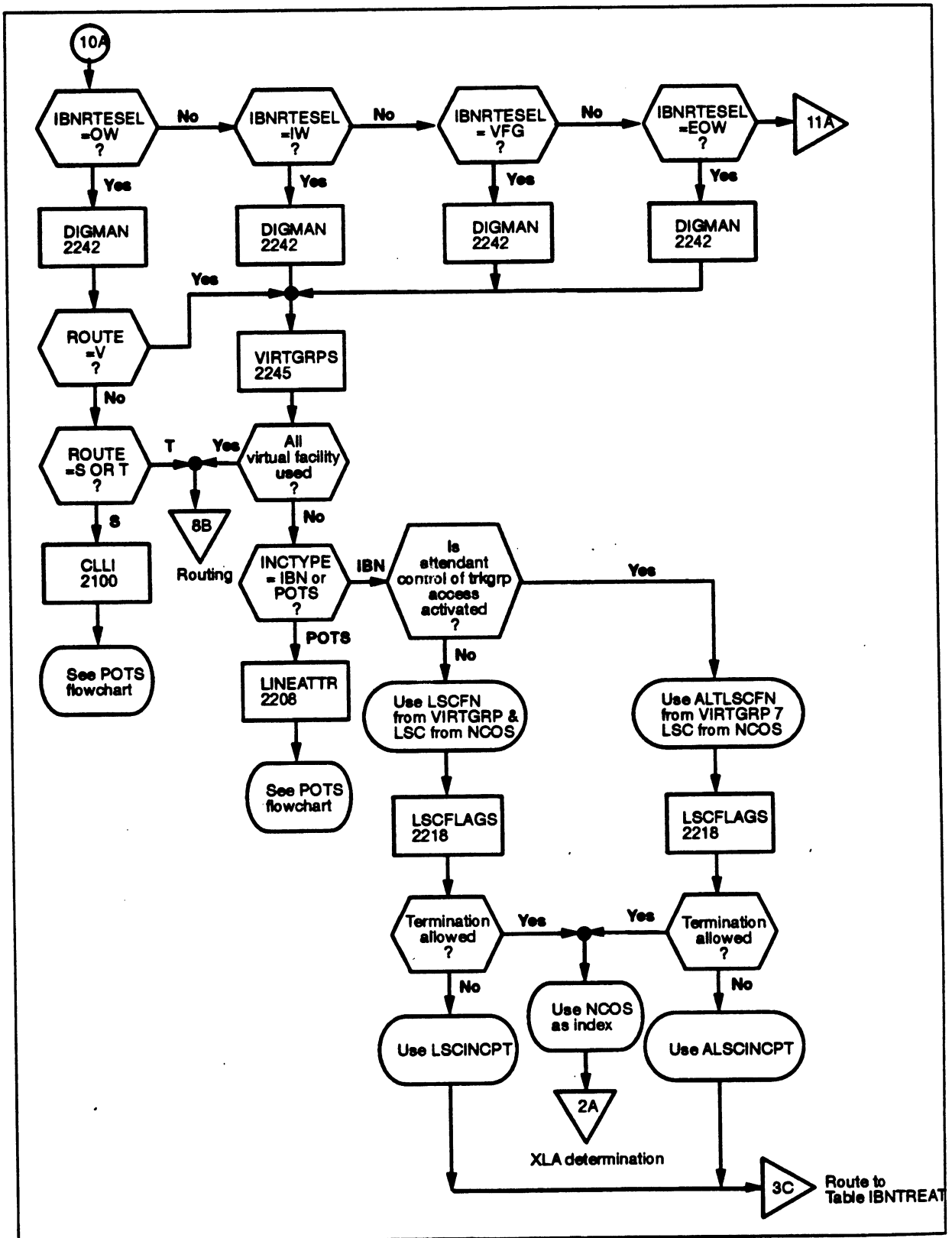


2-44 MDC translations flowchart

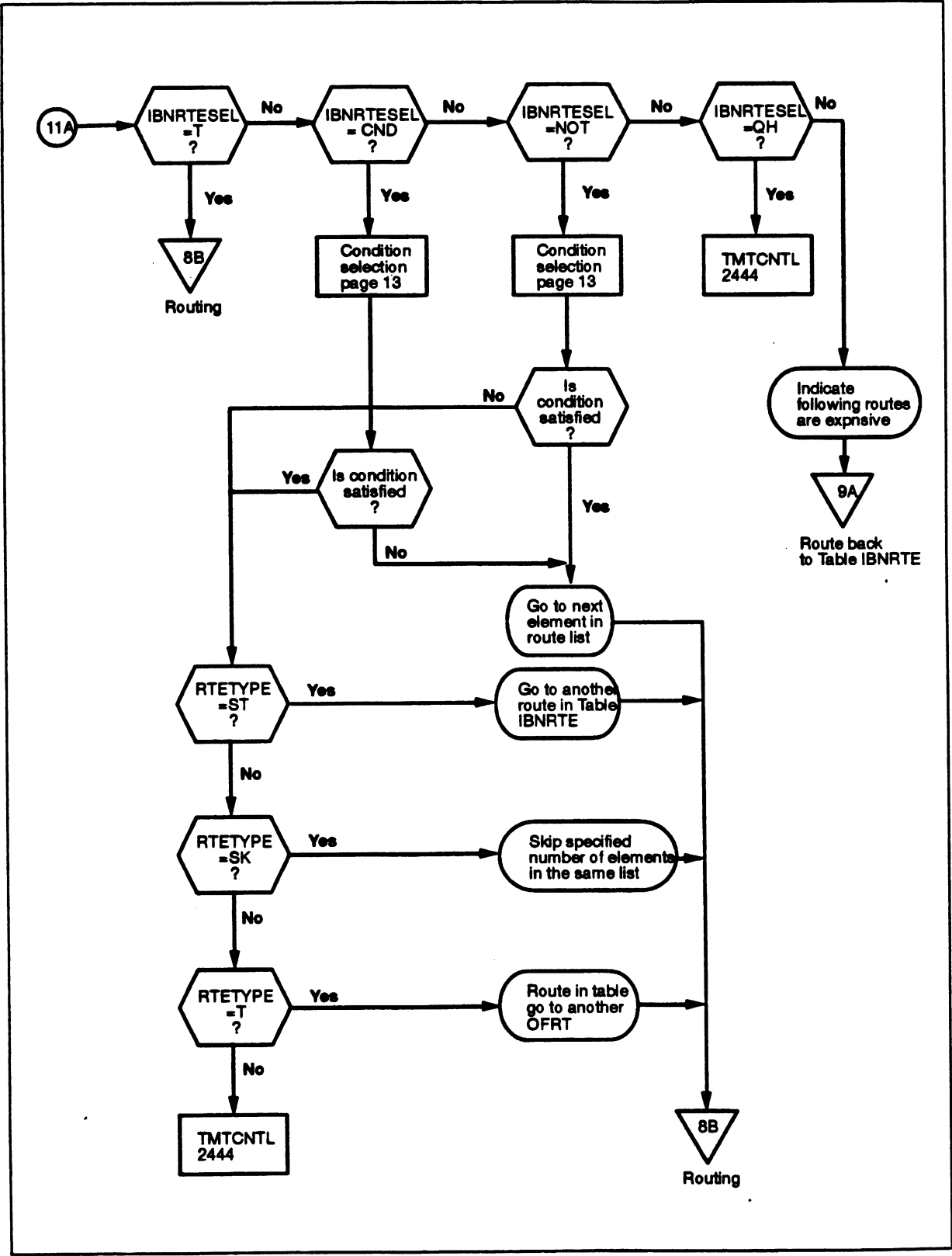




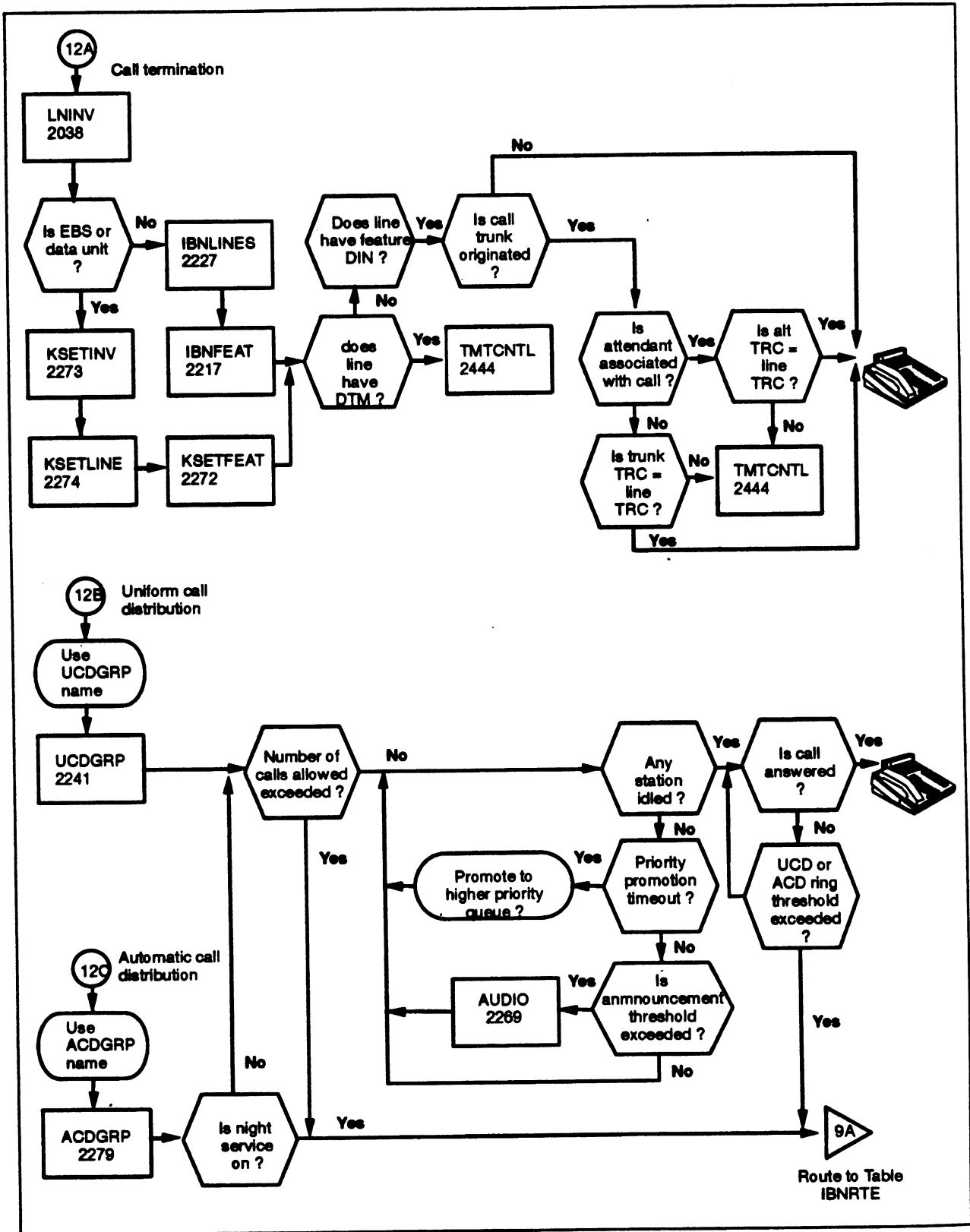
2-46 MDC translations flowchart

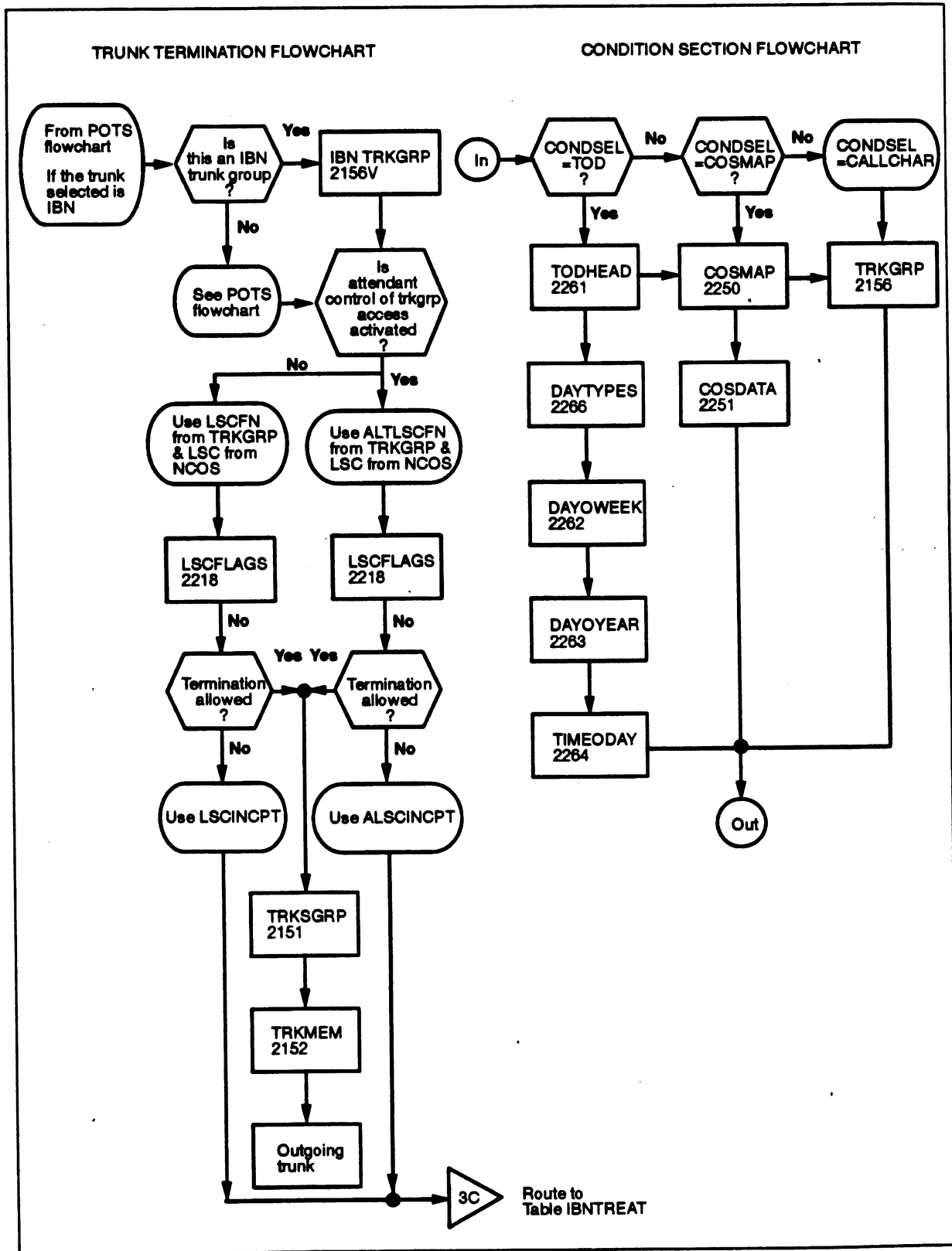






2-48 MDC translations flowchart







## Cust GRPS

TABLE CUSTENG - (Eng Param Birth Cert)

CustHEAD - (Defines Group options)

CustSTN - (Feature Requirements)

CustSMOR - (What to capture format # of Digits)

## TRANSROTORS

TABLE XLANAME - (Birth Cert)

CustHEAD - (CustXLA, FctXLA, OCTXLA, DGCNM, VACTRMT)

NCOS - (PRLMXLA)

IBNXLA - (Definition Table)

