DIRECTORY ASSISTANCE CHARGING

NO. 2 ELECTRONIC SWITCHING SYSTEM

FEATURE DEFINITION AND DESCRIPTION

1. DEFINITION

1.01 Directory assistance charging (DAC) is a plan whereby the customer's station may be charged for calls to directory assistance (information).

1.02 In the past, calls to directory assistance were allowed without charge to the customer. The DAC feature provides a means of distributing the costs of providing this service based on usage.

1.03 The usage information may be recorded for a No. 2 Electronic Switching System (ESS) using local automatic message accounting (LAMA), centralized AMA (CAMA), or a traffic service position system (TSPS) office.

1.04 The user usually dials 411 for access to local directory assistance and 555-1212 (with appropriate access codes) for long distance directory assistance. The DAC feature may be implemented for local and home area directory assistance regardless of the number of digits required for dialing directory assistance.

1.05 DAC may be applied to any main station. Calls to directory assistance from coin stations are not charged. On prepay coin stations the coin is returned upon disconnect. Calls to directory assistance by 4- and 8-party lines must be routed to a CAMA or TSPS operator for billing.

1.06 The DAC feature may be implemented in any No. 2 ESS office that has either Issue 4 of the LO-1 generic program or any issue of the EF-1 generic program. No new hardware is required to implement this feature. However, if CAMA or TSPS recording is required for DAC, the traffic load on the CAMA or TSPS trunks may increase to the point where additional trunk circuits are required.

2. DESCRIPTION

A. Customer (User) Perspective

2.01 When a customer dials the directory assistance code, a connection is set up to the directory assistance bureau. If the call is being placed from a 4- or 8-party station, the caller will be connected to an operator for identification. After the caller provides the directory number of the station being called from, a connection is established to the directory assistance bureau.

2.02 If the call is being placed from a dial tone first coin station, no coin deposit is required for directory assistance calls. For directory assistance calls from prepay coin stations, the coin deposit is returned upon disconnect.

B. System Implementation

Using Local AMA Equipment

2.03 Calls to directory assistance are directed by means of the 3-digit translator and the route index (RI) to a trunk group terminating at a directory assistance bureau. Calls to long distance directory assistance may be routed to a directory assistance bureau in the normal manner; however, translation changes can be made to permit charging for these calls in the same manner as for other 7-digit toll or message rate calls.

2.04 If charging is to be done on a directory assistance call, an initial entry is made on the AMA tape after completion of dialing. The entry is a nine character-pair entry. An example of this entry stored on the AMA tape is as follows:

WX

30

78

90

00

06

82

23

77

where: WX = entry identifier

      30 = type of entry for DAC

     789 = call identity index

       0 = 1st information digit

       0 = 2nd information digit

       0 = service feature

       0 = service feature

 682-2377 = telephone number of calling party

2.05 For the No. 2 ESS to record the progress of the call for billing purposes, answer supervision must be returned upon answer by the directory assistance bureau. Answer supervision may be returned on answer or optionally by key control at the directory assistance bureau. In either case, modification may be required at the directory assistance bureau since most bureaus are not presently arranged to return answer. When answer is detected at the No. 2 ESS, an answer entry is made on the AMA tape. If no answer supervision is returned, no answer entry is made and the call cannot be billed. When the call is disconnected, a disconnect entry is made. The processing of the AMA tape is an operating company responsibility. Changes may be required to the local program to recognize the new DAC type of entry code and process the DAC entry.

Using Centralized AMA Equipment

2.06 In non-LAMA offices, calls can be routed to the directory assistance bureau via a CAMA office for charging purposes. Modifications are required to CAMA offices for properly recording charge information. Separate trunk groups are required for coin and noncoin calls as described in 11.03. Noncoin calls would be routed via the CAMA office, and coin calls would be routed directly to the directory assistance bureau.

Using the Traffic Service Position System

2.07 Arrangements are available for recording directory assistance calls on TSPS equipment. Some modifications are required in TSPS offices to properly record charging information. The directory assistance calls are routed to the directory assistance bureau via the TSPS over a separate trunk group arranged to delete the 3-digit dialed code. For single and 2-party customers, automatic number identification (ANI) information is forwarded to the TSPS office for recording. For multiparty customers an operator identifies the calling party, keys in the identification, and then completes the call to the directory assistance bureau.

2.08 If coin and noncoin are completed over the same trunk group to a TSPS, it is necessary to screen out the coin calls at the accounting office. Thus, it is desirable that separate trunk groups be used for coin and noncoin calls, with the coin calls being routed directly to the directory assistance bureau.

3. FEATURE FLOW DIAGRAM

3.01 Figure 1 is a graphical representation of the discussion in Part 2. It illustrates the sequence of actions that occur when the DAC feature is activated.

4. INTERACTIONS

4.01 This feature requires that coin and noncoin calls to a CAMA or TSPS office use separate trunk groups. No special interactions exist other than this one.

ATTRIBUTES

5. STATION/SYSTEM

5.01 DAC is provided on a system basis. It is activated by defining a charge entry with the appropriate entry code on the charge information table [office data administration (ODA) input Form 2302] and equipping the office with a directory assistance bureau trunk group. Answer supervision must be returned on the trunk group before charging can take place.

CUSTOMER DIALS DA CODE

3 DIGIT TRANSLATION

DA CALLS TO BE CHARGED

NO → PROCESS AS A FREE CALL

YES

LAMA OFFICE

NO → COIN LINE

NO → TO DA BUREAU OVER NON-COIN TRUNK VIA A CAMA OR TSPS OFFICE

YES

COIN LINE

YES →

NO

SELECT NON-COIN ROUTE INDEX AND TRUNK TO DA BUREAU

INITIAL CHARGE ENTRY MADE ON AMA TAPE ENTRY TYPE = 30

ESTABLISH CONNECTION TO DA BUREAU AND APPLY RINGING

UPON ANSWER, ANSWER SUPERVISION IS RETURNED TO NO. 2 ESS

ANSWER ENTRY MADE ON AMA TAPE

DISCONNECT ENTRY MADE ON AMA TAPE WHEN DISCONNECT IS DETECTED

SELECT COIN ROUTE INDEX AND TRUNK TO DA BUREAU

ESTABLISH CONNECTION BETWEEN LINE AND TRUNK TO DA BUREAU

CHARGING INFORMATION RECORDED BY CAMA OR TSPS OFFICE

LEGEND:

AMA - AUTOMATIC MESSAGE ACCOUNTING

LAMA - LOCAL AMA

CAMA - CENTRALIZED AMA

TSPS - TRAFFIC SERVICE POSITION SYSTEM
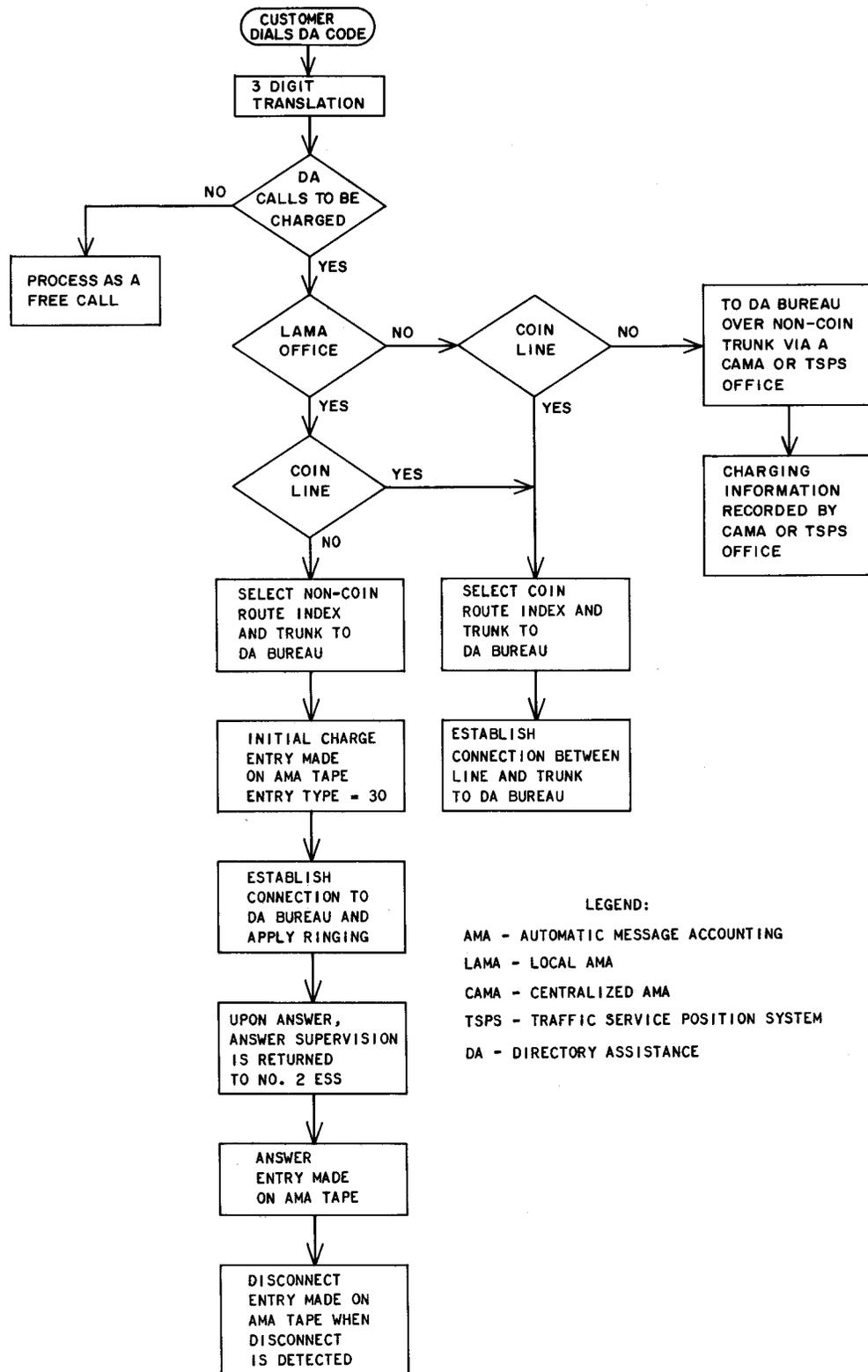
DA - DIRECTORY ASSISTANCE

Fig. 1—Sequence of Actions when Directory Assistance is Dialed in No. 2 ESS with DAC

5.02 DAC can be provided on an office code basis. To do this requires that the charged and noncharged office codes be in different rate areas (different zone index) or a new line class code be created for one of them if they are in the same rate area.

6. LIMITATIONS

6.01 No special limitations must be observed for this feature.

7. RESTRICTION CAPABILITY

7.01 No special provisions have been made to restrict DAC.

8. COST DAiA

A. Real Time

8.01 When the DAC featu.re is activated, all calls to the directory assistance bureau must be counted as AMA :alls on the processor capacity worksheets [refer to Traffic Facilities Practices, Division D, Section 12f (4)]. Each call using the DAC feature requires an additional 5.8×10^{-4} percent of real time or 20.9 milliseconds.

B. Translation

8.02 No increase in translator space is needed to implement DAC in a LAMA office. A non-LAMA office using a CAMA or TSPS office for charging DAC calls will require additional trunk group translation to separate coin and noncoin traffic as follows:

      Program Store — 8 words per trunk group in the trunk group translator.

                   — 1 word per group member for the trunk circuit list.

                   — 2 words per circuit for the scan point universal subtranslator.

      Call Store — 4 words per trunk group.

INCORPORATION INTO SYSTEM

9. PLANNING

9.01 No unusual planning activities are associated with this feature. All activities for incorporation of DAC should be coordinated with all departments involved. Normal schedules should be observed for ODA changes. If DAC is expected to be added in the near future, an ODA run can be made to make it possible to add the feature by recent change. Refer to 11.02 for this procedure.

9.02 Modifications may be required to the telephone company program for processing the AMA tape. Changes may be necessary to allow the program to recognize and process the DAC entry.

10. HARDWARE ENGINEERING

10.01 The DAC feature can be used with either a loop (SD-2H103-02 or SD-2H144-01) or E&M (SD-2H112-01) type trunk. Refer to J-2H031A, Section G for information and recommendations concerning circuit compatibility and various information desks. Some modification may be required at the directory assistance bureau to enable it to return answer supervision.

11. SOFTWARE ENGINEERING

A. Local AMA

11.01 To incorporate the DAC feature into a LAMA office, an ODA run is required to define a new charge index in the charge index information table and to define any new trunk groups for DAC. To accomplish this, the following input forms must be prepared and submitted to the WECo Regional Center:

> *ESS 2300 Three- and Six-Digit Translation Table*—This table must define a code group for the directory assistance 3-digit code. (If seven digits are used for directory assistance, then the code is treated like any other AMA billed call.)

> • *ESS 2304 Code Group Translation Tables*—The new code group used for DAC is defined on the 2304 (05) form. Enter the direct route index and a new zone index which will be used to define the treatment for a DAC call on form 2301.

• **ESS 2301 (04) Rate and Route Table**—This table specifies the charge index (CI) and route index (RI) treatment for each class of line. Coin lines should be assigned a different CI than noncoin since coin is not charged for directory assistance.

• **ESS 2303 Route Index Expansion Table**—This form defines the route index. In a LAMA office, this is the same trunk group that is used for directory assistance calls prior to DAC.

• **ESS 2302 Charge Information Table**—The new charge index (CI) specified for directory assistance charging on the 2301 form is defined on this form. ENTRY TYPE = 30 must be indicated for the directory assistance CI. This CI is included in the AMA tape entry to indicate that the call is a directory assistance call and that it will be bulk billed.

• **ESS 2202 (06) Trunk Group Table**—This table defines the features of the trunk groups. The trunk group features are specified in ESS 2204 (05).

• **ESS 2204 (05) Trunk Feature Table**—This table defines trunk group features. Since charging is initiated by answer supervision, the no-answer column must be left unchecked.

Future Implementation of the DAC Feature

11.02 It is possible to plan for future addition of the DAC feature. To do this, all ESS forms must be submitted to WECo except form 2300, and an ODA run made to define a new code group. Later when the feature is to be implemented, a new code index expansion must be created via the following input message:

A RC:NCG:aaa bbb!

Following this message the following message must be inputted to change the direct route index for the directory assistance code.

A RC: CRI aaa bbb ccc!

The last step is to assign the directory assistance code to the newly created code index expansion by the following input message:

A RC: DIG aaa bbb ccc ddd!

ESS forms 2300-R and 2304-R should be marked to indicate the change.

B. DAC Traffic Routed to CAMA Office

11.03 In non-LAMA offices, directory assistance calls from noncoin lines may be routed over a CAMA trunk group to a CAMA office. A separate non-CAMA trunk group should be established for coin calls routing directly to the directory assistance bureau to eliminate screening of coin calls at the accounting office.

11.04 The following ODA input forms must be provided to WECo with the indicated new information:

• ESS 2300—New code group (not required if recent change is to be used to identify the code group).

• ESS 2304—Specify direct RI and zone index

• ESS 2301—Specify CI and RI

• ESS 2302—Specify entry type = 001

• ESS 2303—Specify trunk group number.

• ESS 2202—Trunk group definition

• ESS 2204—Specify CAMA-ANI feature and type of outpulsing.

C. DAC Traffic Routed to TSPS Office

11.05 If directory assistance charging is to be recorded at a TSPS office, a new nonpulsing trunk group to the TSPS office must be provided. All noncoin directory assistance calls will be routed over the new trunk group. Coin calls must be routed over another trunk group directly to the directory assistance bureau. The following forms must be submitted to WECo with the indicated information:

• ESS 2300—new code group (not required if recent change message is used)

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- ESS 2304—specify direct RI and zone index

- ESS 2301—specify CI and RI

- ESS 2302—specify entry type = 001

- ESS 2303—specify trunk group number and that three digits are to be deleted.

- ESS 2202—trunk group definition

- ESS 2204—specify TSPS trunk.

12. COMPATIBILITY

12.01 Refer to J2H031A—Trunk and Service Circuit Engineering Specification for compatibility information concerning the SD-2H103, SD-2H144, and SD-2H112 trunks specified for use with this feature.

13. OFFICE DATA

13.01 All of the ODA output forms which result from initiating the DAC feature are retained as part of the office records.

> *Note:* If the recent change message was used to implement the DAC feature, the 2300-R form must be marked to indicate the change.

13.02 After the ODA run to activate DAC is completed, the translation data associated with DAC becomes a part of the office data base stored in the translation area of program store. Figure 2 illustrates the translators affected by activation of DAC and their relationship to each other.

14. GROWTH/RETROFIT PROCEDURES

14.01 This feature has no special growth or retrofit requirements other than the necessity of an ODA run to define a new code group for directory assistance. Following the ODA run, the new translations must be installed according to Section 232-124-301.

15. TESTING

15.01 No special testing is required for the DAC feature other than placement of a test call to ensure that directory assistance calls are properly recorded. The trunks assigned to DAC may be

tested by using the appropriate BSPs. Refer to the current issue of Section 232-001-011 for test requirements for these trunks.

ADMINISTRATION

16. MEASUREMENTS

16.01 Standard trunk group measurements (peg, usage, overflow) are provided for the directory bureau trunk group.

17. RECORD KEEPING

17.01 No record keeping is required for DAC except that ODA forms are retained as part of the office records.

18. CHARGING

18.01 Charging is done for DAC calls as described in Part 2 of this section.

AVAILABILITY

19. NEW INSTALLATIONS

19.01 The DAC feature is available for application with the EF-1 or Issue 4 of the LO-1 generic program.

20. GROWTH/RETROFIT

20.01 The DAC feature may be retrofitted into any office with the EF-1 or Issue 4 of the LO-1 generic program.

SUPPLEMENTARY INFORMATION

21. GLOSSARY

21.01 The following list identifies terms used in this section that may be unfamiliar to the reader.

- *Automatic Message Accounting (AMA):* A mechanized system used to record charging information in telephone switching systems.

- *Centralized Automatic Message Accounting (CAMA):* AMA recording equipment located in a centrally located office and records charging information for more than one local office.
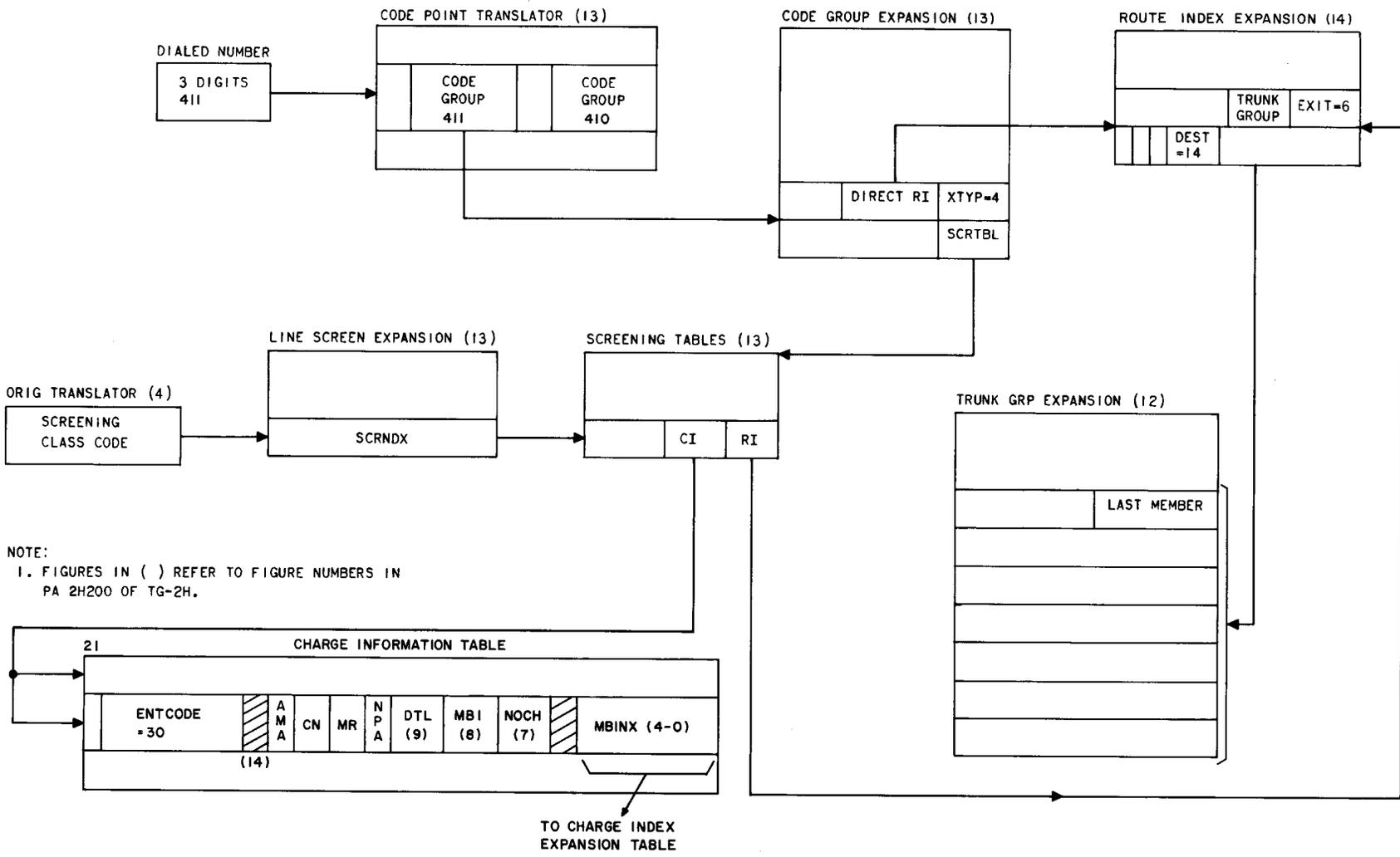
DIALED NUMBER

```
3 DIGITS
411
```

CODE POINT TRANSLATOR (13)

| CODE GROUP 411 | | CODE GROUP 410 |

CODE GROUP EXPANSION (13)

| DIRECT RI | XTYP=4 |
| | SCRTBL |

ROUTE INDEX EXPANSION (14)

| | | DEST =14 | TRUNK GROUP | EXIT=6 |

ORIG TRANSLATOR (4)

```
SCREENING
CLASS CODE
```

LINE SCREEN EXPANSION (13)

SCRNDX

SCREENING TABLES (13)

| | CI | RI |

TRUNK GRP EXPANSION (12)

| | LAST MEMBER |

NOTE:
1. FIGURES IN ( ) REFER TO FIGURE NUMBERS IN
PA 2H200 OF TG-2H.

21   CHARGE INFORMATION TABLE

| ENTCODE =30 | | A M A | CN | MR | N P A | DTL (9) | MBI (8) | NOCH (7) | | MBINX (4-0) |

(14)

TO CHARGE INDEX
EXPANSION TABLE

Fig. 2—Translation of DAC Code

- *Charge Index (CI):* A code in the 3-digit translator that indicates or points to information concerning the type of charging to be done on a particular call.

- *Local Automatic Message Accounting (LAMA):* AMA recording equipment is located in the office it serves.

- *Route Index (RI):* A code in the 3-digit translator that indicates what route a call will take (e.g., which trunk group, trunk, etc.) through a No. 2 ESS office.

- *Traffic Service Position System (TSPS):* An electronic stored program control system in a central location that provides operator and charging functions for associated offices.

22. REASONS FOR REISSUE

22.01 This is the initial issue of this section.

23. REFERENCES

23.01 The following documents may be referred to for supplementary information concerning the DAC feature:

- GL 73-07-108— *Charging For Directory Assistance*

- Bell System Practices:

  Section 232-112-101— *Automatic Message Accounting Description*

  Section 232-112-301— *Automatic Message Accounting Tape Loading and Unloading Procedures*

- J2H031A— *Trunk and Service Circuit Engineering Specification*

- Traffic Facilities Practices, Division D, Section 12f(4)

- Translation Guide, TG-2H

- PD-2H113—Automatic Message Accounting Program