

**NO. 1A AUTOMATIC MESSAGE ACCOUNTING RECORDING CENTER**  
**INTRODUCTION TO NONGENERIC PARAMETER DATA (NPD)**  
**AND INSTRUCTIONS FOR PREPARATION OF NPD FORMS FOR GENERICS 3 AND 4**

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**1. GENERAL**

**1.01** This section provides instructions for preparation of Nongeneric Parameter Data (NPD) forms for the No. 1A Automatic Message Accounting Recording Center (AMARC)—Generics 3 and 4.

**1.02** This section is reissued to include Generic 4. Since this reissue is a general revision, no revision arrows have been used to denote significant changes.

**2. NONGENERIC PARAMETER DATA**

**2.01** A generic program controls the operation of an AMARC. This program is identical in all systems equipped with a particular generic issue. The generic program requires certain information which uniquely identifies a particular AMARC and the remote offices it serves. This information is called nongeneric parameter data.

**2.02** The NPD provide the following:

- (a) Unique identification of an AMARC and the entities it serves.
- (b) Information needed to determine the types of translations or data expansion required for the billing data transmitted from each entity.
- (c) Information needed for expansion of data received from call data accumulator (CDA), billing data transmitter (BDT), No. 3 Electronic Switching System (No. 3 ESS), and call data transmitter (CDT) entities.
- (d) Information needed to determine the call format required for each call record.

**2.03** The NPD are compiled by the telephone company on NPD forms and then entered into tables in AMARC memory via input/output (I/O)

terminal messages. The I/O message associated with each form is specified on the form. For Generic 3, a detailed description of each I/O message is provided in the Input/Output Manual. For Generic 4, input messages are described in the Input Manual; output messages are described in the Output Manual/Trouble Reference Guide (OM/TRG).

**3. NPD FORMS**

**3.01** The NPD forms support a specific generic number. New generic programs are developed periodically. A new program usually provides new features and may affect the NPD required to describe an AMARC and its remote offices. This section is current only for NPD of Generics 3 and 4 of the No. 1A AMARC. For Generic 2 of the No. 1A AMARC, reference should be made to Sections 201-900-070 through 201-900-084.

**3.02** For BDT, CDA, CDT, Electronic Translation System (ETS), Voice Storage System (VSS), and No. 3 ESS sensors, there is no difference between the NPD required for Generic 3 and the NPD required for Generic 4. Except for a required change in the baud rate associated with the flexports used for the system consoles, the changes to NPD that are associated with Generic 4 apply only to an AMARC serving a No. 2B ESS or a No. 5 ESS. In the form instructions provided in this section, where a form entry or a value for an entry applies only to a No. 2B ESS or a No. 5 ESS, notation is made of this application. Forms 0223 and 0308 are new with Generic 4 and apply only to No. 2B ESS and No. 5 ESS.

**Note:** Form 0101, No. 1A AMARC Entity Identification, is revised with Issue 2 of this section. Three columns of this form have been combined to reduce the number of pages of this form that may be required for an AMARC. Issue 2 of Section 201-900-031 provides a reproducible copy of the revised Form 0101. The revised form should be used whenever this form is prepared for a new AMARC or for a change to the NPD of an existing AMARC with either Generic 3 or 4.

**3.03** The NPD forms are grouped into number series according to the type of NPD compiled. The following specifies the types of NPD compiled on each of the form groups and identifies the part number that provides instructions for preparation of the forms in each group:

- (a) **Common Parameters — Series 0100:** The NPD entered on these forms describe the

entire AMARC—remote offices configuration. Part 5 provides instructions for preparation of these forms.

- (b) **Entity Parameters — Series 0200:** The NPD entered on these forms are unique to each entity. Part 6 provides instructions for preparation of these forms.

- (c) **Channel Parameters — Series 0300:** The NPD entered on these forms provide information unique to the individual channels of the AMARC. Part 7 provides instructions for preparation of these forms.

- (d) **Special Number Parameters — Series 0400:** The NPD entered on Forms 0400 (CDA and No. 3 ESS entities) and 0401 (CDT entities) identify originating telephone numbers that require special call formatting treatment. The NPD entered on Form 0402 identify, for a CDT entity, the called telephone number destinations of trunks for which trunk audit failure reports should be suppressed. Part 8 provides instructions for preparation of these forms.

- (e) **Other No. 1A AMARC Administrative Records — Series 0500:** These forms affect NPD and AMARC administration but do not provide NPD. Part 9 provides instructions for preparation of these forms.

**3.04** Prior to preparation of the NPD forms, the user should read the sections that describe the translations that AMARC performs for the sensors from which the particular AMARC will receive billing data. The following sections provide these descriptions:

SECTION	TITLE
201-900-036	No. 5 Electronic Tandem Switching and Voice Storage System Translations for Generics 3 and 4
201-900-034	No. 3 Electronic Switching System Sensor Translations for Generics 3 and 4
201-900-032	Call Data Accumulator (CDA) Translations for Generics 3 and 4
201-900-033	Billing Data Transmitter (BDT) Translations for Generics 3 and 4

SECTION	TITLE
201-900-035	Call Data Transmitter (CDT) Translations for Generics 3 and 4
201-900-037	No. 2B and No. 5 Electronic Switching Systems Translations for Generic 4

**3.05** In addition to providing descriptions of translations, these sections provide special considerations for preparation of some of the NPD forms associated with the translations.

**3.06** Figure 1 is a typical NPD form. The numbered items on the left of the figure correspond to the encircled numbers on the form.

**3.07** The application for each form, ie, whether it should be completed for all entities or just for entities equipped with a particular type of sensor or a particular feature is included in the explanation for that form provided in this section.

**3.08** Table A specifies the forms required for each sensor type; for example, the forms which must be completed for each BDT entity.

**3.09** The information required for each form must be obtained from many sources, such as a traffic order (see Note 1), a master record (see Note 2), the customer telephone number directory, the equipment engineer, the accounting center, the rates department, or the central office. Table B lists probable information sources for each form.

**Note 1:** A traffic order is the document written by the network switching engineer requesting the provision of new or changed features/equipment for an entity.

**Note 2:** A master record is the office record in which pages from traffic orders are filed. Each time a new order is written, it is filed in front of the master record. When the work requested by the order is completed, the pages of the order are filed in the master record according to subject. Older pages in the record that discuss the same features/equipment are then removed.

NUMBER	ITEM	DESCRIPTION
①	EFFECTIVE DATE	The data base will require frequent updating due to growth or changes in the AMARC remote offices configuration. The translation sections referenced in paragraph 3.04 discuss the effects these changes have on the NPD. The effective date must be entered on the form. This is to assure the user of the timeliness of the information shown on the form.
②	ISSUE DATE	This is the date on which the form is sent by the data base administrator to the craft person responsible for changing the NPD stored in AMARC memory.
③	REVISION NO.	This number is 0 for the initial issue of a particular form and is incremented by one each time a change(s) is made and the form is reissued.
④	AMARC	In order to distinguish the records of several AMARCs located in one center, the AMARC identification number should be entered.
⑤	ENTITY	This entry appears only on those forms which are entity related. The entity name or other identifying information such as Common Language Location Identification (CLLI) should be entered.
⑥	PAGE	This entry appears only on those forms which may require several copies per AMARC or per entity. The page number and total number of pages should be shown on each copy of such a form.

The above entries are not included in the explanations of the forms. These entries are self-explanatory.

⑦	INPUT MESSAGE ENTRIES	This portion of the form is used to record the actual entries needed for the input message associated with the form. Each of these entries corresponds to a parameter in the NPD table associated with the form. The entries marked with lowercase letters in parentheses (bbb) are required for the message. Those that are not marked serve as an aid to the preparer of the form.
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This portion of each form is explained in detail in the instructions for preparation of a particular form.

⑧	INPUT MESSAGE	This is the input message which enters the information specified on the form into the data base. The lowercase letters (data fields) in the message correspond to those marking the entries on the form. When the craft person uses the input message, the appropriate form entry is substituted.
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The input messages are not discussed in the explanations of the forms. These messages are explained in the Input/Output Manual.

⑨	DUMP MESSAGE	This is the dump message which verifies the information entered into the data base. A sample dump message output is included in the instructions for preparation of each form.
⑩	PREPARED BY	The name and telephone number of the preparer of the form should be entered.

Fig. 1—Sample NPD Form (Sheet 1 of 2)



TABLE A

FORM	SENSOR					
	ETS/VSS	BDT	CDA	CDT	NO. 3 ESS	NO. 2B/NO. 5 ESS
0100	✓	✓	✓	✓	✓	✓
0101	✓	✓	✓	✓	✓	✓
0102*	✓	✓	✓	✓	✓	✓
0103	✓	✓	✓	✓	✓	✓
0104	✓	✓	✓	✓	✓	✓
0105	✓	✓	✓	✓		✓
0106	✓	✓	✓	✓	✓	✓
0107	✓	✓	✓	✓	✓	✓
0200		✓				
0201			✓			
0202		✓				
0203		✓	✓	✓	✓	
0204		✓				
0205			If entity has theoretical office codes.			
0206			If entity has theoretical office codes.			
0207			✓			
0208			✓			
0209		✓				
0210		✓				
0211				✓		
0212				If entity requires such translations.		

\* Required if one or both processor clocks drift from the true time.

TABLE A (Contd)

FORM	SENSOR					
	ETS/VSS	BDT	CDA	CDT	NO. 3 ESS	NO. 2B/NO. 5 ESS
0213A				✓		
0213B				If required for 10D local dialing.		
0214				✓		
0215				✓		
0216				If dedicated trunks are provided.		
0217				✓		
0218				If 7D local dialing across NPAs permitted.		
0219				✓		
0220				✓		
0221				If 10D local dialing across NPAs permitted.		
0222		✓				
0223						✓
0300	✓	✓	✓	✓	✓	
0301			✓			
0302		✓				
0303			✓			
0304					✓	
0305					✓	
0306				✓		
0307				✓		
0308						✓
0400			✓		✓	

TABLE A (Contd)

FORM	SENSOR					
	ETS/VSS	BDT	CDA	CDT	NO. 3 ESS	NO. 2B/NO. 5 ESS
0401				✓		
0402				✓		

TABLE B

FORM	INFORMATION SOURCE
0100	Traffic Order Equipment Order Usage Sensitive Pricing Program
0101	Traffic Order Equipment Order Master Record Accounting Department
0102	Section 201-900-305
0103	Traffic Order Equipment Order
0104	Traffic Order Equipment Order
0105	Traffic Order Equipment Order SD-5P006
0106	Traffic Order Equipment Order
0107	Accounting Department
0200	Office record associating each BDT recorder port with a central office recorder (refer to Form 0203).
0201	7970 drawing for entity
0202	Accounting Department
0203	Master Record
0204	Accounting Department

TABLE B (Contd)

FORM	INFORMATION SOURCE
0205	Master Record
0206	Master Record
0207	Traffic Schematic Customer Telephone Directory Master Record
0208	Traffic Schematic Customer Telephone Directory Master Record Rates Department
0209	Accounting Department
0210	Traffic Schematic Customer Telephone Directory Master Record Rates Department
0211	Accounting Department
0212	Accounting Department
0213	Master Record
0214	Traffic Schematic Customer Telephone Directory Master Record Rates Department
0215	Traffic Schematic Customer Telephone Directory Master Record Rates Department Accounting Department
0216	Trunk Records
0217	Traffic Order Equipment Order
0218	Traffic Schematic Customer Telephone Directory Master Record

TABLE B (Contd)

FORM	INFORMATION SOURCE
0219	Traffic Schematic Customer Telephone Directory Master Record Rates Department Accounting Department
0220	Traffic Schematic Customer Telephone Directory Master Record
0221	Traffic Schematic Customer Telephone Directory Master Record
0222	Accounting Department
0223	Traffic Engineer
0300	Traffic Order Master Record SD-5P006
0301	402 drawing for entity
0302	Office record showing assigned call identify indexes for each central office recorder. Office record associating each BDT recorder port with a central office recorder.
0303	Local procedure for assigning telephone number for each CDA channel monitor.
0304	Office record giving highest equipped junctor for entity.
0305	Office record showing 6-digit Western Electric base and control number assigned to entity.
0306	Traffic Order Equipment Order
0307	Traffic Order Equipment Order
0308	Traffic Engineer
0400	Commerical Department Marketing Department Security Department
0401	Commerical Department Marketing Department
0402	Central Office

**3.10** The NPD entered into memory via the input message associated with an NPD form can be verified by the use of a dump input message. The dump message associated with each NPD form is specified on the form. A detailed description of each dump input message is provided in the Input Manual.

**3.11** The instructions provided in this section for each NPD form include samples of the following:

(a) Sample of prepared form (series 0100 through 0500)

(b) Sample output which would result from entering into memory the sample form data and then entering the appropriate dump input message.

**3.12** The sample prepared form immediately follows the last page of the text that contains the instructions for preparation of the form and precedes the instructions for interpretation of the sample dump message output.

**3.13** The sample dump message output is included within the text that provides instructions for interpretation of the output.

**3.14** A reproducible copy of each NPD form is provided in Section 201-900-031.

#### **4. DUMP MESSAGES**

**4.01** The NPD forms serve as the principle administrative records for an AMARC. These forms provide a record of the NPD stored in AMARC core memory.

**4.02** Each time an input message is used to enter NPD into a table in memory, the dump input message associated with the table must be used to verify that the NPD was properly entered.

**4.03** The Input Manual (IM) discusses the dump input message for each NPD table. The discussion of each dump message defines the data fields of the message, ie, what data must be entered when requesting the dump. The dump messages are filed in the manual alphabetically by dump message along with the other input messages.

**4.04** The Generic 3 Output Manual (OM) or the Generic 4 OM/TRG discusses the output message which results from each dump message.

**4.05** Figure 2 is a page from the Generic 3 OM. This page discusses the output message for the dump message **DUMP MEM NPD CDN**. The numbered items on the left of the figure correspond to the encircled numbers on the OM page. The information provided in the Generic 4 OM/TRG is similar.

NUMBER	ITEM	DESCRIPTION
①	DUMP MESSAGE	The dump message is identified in top right corner of the page.
②	PART 1, OUTPUT MESSAGE FORMAT	This portion of the OM page specifies the format used for the particular output message. The first line represents the beginning of the message. This line identifies the NPD table which is being dumped. The following lines define the format in which the data will be dumped. Data are displayed in lines of words. Each word (cbbb, for example) is composed of four or six digits. A word is composed of one or more data fields identified by lower case letters), each representing one or more parameters in the NPD table.
③	PART 2, EXPLANATION OF MESSAGE	This portion provides a brief explanation of the output that results from the dump message. When data to be entered into the NPD table are specified through an input message, the AMARC converts the data to Binary Coded Decimals (BCDs) or octal values before entry to the table. Part 2 of the output message discussion specifies whether the particular NPD table is dumped in BCDs or octal values and provides other instructions needed to interpret the dumped data.
④	PART 3, EXPLANATION OF VARIABLE FIELD	This portion defines the table parameter(s) represented by each data field and provides additional interpretation instructions. For example, for this dump message, it is noted that the called NPA compressed codes are implied by the position in the table and that the entry for code 0 is in the tenth position in the table for BDT entities, but is in the first position for CDT entities.
⑤	PART 4	Not used for dump output messages.
⑥	PART 5, REFERENCES	This portion provides references to other information related to the dump output message. This includes program references, the dump input message, and the RC (recent change) input message which enters data into the NPD table.

Fig. 2—Sample Generic 3 Output Manual Page (Sheet 1 of 2)

## ① DUMP MEM NPD CDN

1. OUTPUT MESSAGE FORMAT ②

```
M tt yz DUMP MEM NPD CDN aaa
  yz cbbb cbbb --- cbbb
  yz EOD
```

2. EXPLANATION OF MESSAGE ③

This message is printed in response to the DUMP MEM NPD CDN message which requests a BCD dump of the Called NPA table for the given switching entity. Table entries are made with the RC ENT CDN message. The called NPA compressed code is implied by the position in the table. For entities other than CDT, table entries begin with 1 and the entry for compressed code 0 is in the tenth table position corresponding to a lifted zero (octal 1010). For CDT entities, table entries begin with 0. A maximum of 10 called NPA codes may exist.

3. EXPLANATION OF VARIABLE FIELD ④

aaa = entity number (0-137 octal)

bbb = called NPA (which may include NCDs represented by \* in any or all of the three positions)

c = not used

EOD = end of message

4. ACTION TO BE TAKEN ⑤

None

5. REFERENCES ⑥

Utility program (UTILTY)

Nongeneric Parameter Data program (NPDATA)

SYM.REF = UTILTY.DMPMEM/DMPNPD/DMPCDN

= NPDATA.NPDUMP

IM messages DUMP MEM NPD CDN, RC ENT CDN, RC ENT NXX,  
DUMP MEM NPD NXX

OM message DUMP MEM NPD NXX

BSP 201-900-327

Fig. 2—Sample Generic 3 Output Manual Page (Sheet 2 of 2)

**4.06** The dumped data for some NPD tables require interpretation and/or numerical conversion before comparison with the data on the associated NPD form. For example, data are specified for an NPD table through an input message. Some data in input messages are specified as decimal values. The AMARC converts the decimal values to binary coded decimals (BCDs) or octal values before entry into the table. When octal values are dumped, the data must be converted to binary values; then each binary bit must be interpreted before comparison can be made with the data compiled on the associated NPD form. When a table containing BCDs is dumped, numerical conversion is not necessary.

**4.07** The instructions provided in this section for each NPD form include a sample output which would result from entering into memory the sample form data and then entering the appropriate dump input message. The instructions also outline the interpretation and/or numerical conversion tasks required to compare the dumped data with the form data.

**4.08** These instructions are not intended as a replacement for the OM or the OM/TRG which provides specific instructions for each dump message output. These instructions are provided as an aid for determining and performing the interpretation and/or numerical conversion tasks required for comparison of dumped data with form data.

**4.09** Data from NPD tables that are dumped in BCDs require no numerical conversion before comparison with the associated form data.

**4.10** Data from NPD tables that are dumped in octal values require conversion from octal to binary and from binary to 3-digit octal values before the data can be compared with the form data. Octal NPD tables are dumped in 6-digit words. Each of these words must be converted by the user into a 16-bit binary word. The 16-bit binary word is composed of two bytes. The right byte is composed of bits 0 through 7; the left byte is composed of bits 8 through 15. Bits within a word are numbered 0 through 15 from right to left.

**4.11** There are differences between Generic 3 and Generic 4 in the dumped data for many dump messages. Where there are differences, separate instructions for interpretation of the dumped data are

provided for each generic. The formats of dump message outputs that have been revised for Generic 4 are designed to closely correspond to the NPD forms used to input the data. As a result, the outputs are generally self-explanatory with the aid of the Volume 2 of the OM/TRG descriptions. For this reason, the descriptions of Generic 4 dump outputs that are provided in this document do not include sample output.

## **5. PREPARATION OF NPD FORMS THAT SPECIFY COMMON PARAMETERS—NPD FORM SERIES 0100**

**5.01** The following paragraphs provide instructions for preparation of the 0100 series of NPD forms which are used to record common parameter data. Common parameters provide information which serves the following purposes:

- (a) Uniquely identifies the AMARC
- (b) Assigns an identifying number to each entity served by the AMARC
- (c) Allows the AMARC to determine the call processing translations it must perform for each entity
- (d) Provides a means to correct AMARC clock inaccuracies
- (e) Identifies the communications multiplexers, flexports, and automatic calling units equipped in the AMARC
- (f) Identifies channels equipped as dial backup channels in the AMARC
- (g) Specifies the expiration period for an automatic message accounting (AMA) billing tape

**5.02** All of the 0100 NPD forms, with the exception of Form 0102, are required for an AMARC. Form 0102 is required only if one or both processor clocks drift from the true time.

### **FORM 0100 — NO. 1A AMARC IDENTIFICATION**

#### **A. General**

**5.03** Data from Form 0100 are entered into the Identification Table, which contains the three common parameters. Although they all reside in the same table, each parameter is entered into the table

by a separate input message. All entries to the table, however, can be verified by input message **DUMP MEM NPD IDT**.

**5.04** One Form 0100 is prepared for each No. 1A AMARC System.

**5.05** Figure 3 is a sample Form 0100. The following paragraphs describe the entries to be made on the form.

#### **B. Form Entries**

##### **Identification Number**

**5.06** Enter the 6-digit identification number which uniquely identifies the AMARC. This number is included in the label which is placed on the magnetic tape before it is sent to the accounting center. This number also is specified in the **Recording Office Identification** data field of each AMA call record formatted by the AMARC. The identification number is assigned by the equipment engineer according to numbering rules prescribed by the accounting department. Any 6-digit decimal number is a valid entry.

##### **Input Format**

**5.07** This form entry defines the input format of the entries served by this AMARC. Valid entries are 0 through 2.

**5.08** A single entry entity is one served by an ETS or a VSS sensor. These sensors transmit formatted call records to the AMARC. The AMARC reformats the call records to conform to current AMA standards but performs no translations to or expansion of the data for a particular call.

**5.09** The No. 2B ESS, No. 5 ESS, CDT, No. 3 ESS, CDA, and BDT sensors are multiple entry sensors. These sensors transmit billing data for a particular call in two or three messages. The AMARC must combine the data associated with one call, perform translations with the data, and assemble the expanded data into an AMA call record.

**5.10** If this AMARC serves only BDT entities or only No. 2B ESS/No. 5 ESS entities, the **RC MR** input message does not apply and the **Input Format** entry should be left blank.

**5.11** The **Input Format** values are as follows:

INPUT FORMAT	DEFINITION
0	Single entry entities are served by this AMARC, but no CDA (see Note), CDT, or No. 3 ESS entities are served.
1	The CDA (see Note), CDT, or No. 3 ESS entities are served by this AMARC, but no single entry entities are served.
2	The CDA (see Note), CDT, No. 3 ESS, and single entry entities are served by this AMARC.

**Note:** All CDA entities must charge their customers according to the multimessage unit (MMU) rate plan. This charging plan allows charging for message rate calls to be based on time of day, distance called, and duration of call.

**5.12** Earlier generic issues of the No. 1A AMARC program allowed CDA entities to charge their customers according to the single message unit (SMU) rate plan. This charging plan required that all message rate calls be charged at the same rate.

**5.13** The **Input Format** value is not affected when BDT and/or No. 2B ESS/No. 5 ESS entities are mixed with any other sensor types.

##### **Detailed Billing Option**

**5.14** This form entry identifies the detailed billing option desired. This option applies only to message rate calls from No. 3 ESS and CDA entities. The following are detailed billing options:

- (a) **Maximum 1%:** When this option is specified, No. 3 ESS and CDA calls from telephone numbers not listed in the Special Number Table (SPN) (see Form 0400) are formatted as bulk billed. A call from a telephone number listed in the SPN Table receives the formatting treatment specified for the number in the SPN Table. A maximum of 400 telephone numbers may be entered

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into the SPN Table for the AMARC. Actually, this option allows a maximum of these 400 calling numbers to receive detail billing treatment.

(b) **MBI Greater Than 1:** When this option is specified, the CDA and No. 3 ESS calls for which a message billing index (MBI) value greater than 1 has been determined are formatted as detailed billed.

(c) **100% Detail Billed:** When this option is specified, all recordable CDA and No. 3 ESS calls are formatted as detailed billed.

**5.15** Additional information about the use of the detailed billing option and the SPN Table during the determination by the AMARC of the call format to use for a particular call is provided in the translation section for CDA and for No. 3 ESS . Sec-

tion 201-900-032 gives information on the CDA and Section 201-900-034 gives information on the No. 3 ESS.

**5.16** The value to be entered on Form 0100 for each detailed billing option is as follows:

ENTRY	DETAILED BILLED OPTION
0	Maximum 1%
1	MBI Greater Than
2	100% Detail Billed

**5.17** The detailed billing option desired must be determined as a basic part of the Usage Sensitive Pricing (USP) program by the telephone company.

NO. 1A AMARC 0100

EFFECTIVE DATE 6-6-80

NO. 1A AMARC 216200

ISSUE DATE 6-1-80

REVISION NO. -

NO. 1A AMARC IDENTIFICATION

IDENTIFICATION NUMBER (ID) (aaaaaa) 333303

INPUT FORMAT (MR) (a) 2

DETAILED BILLING OPTION (DB) (a) 2

INPUT MESSAGES:

RC ID aaaaaa!

RC MR a!

RC DB a!

DUMP MESSAGE: DUMP MEM NPD IDT

PREPARED BY J. Doe  
TELEPHONE ABC - XXXX

Fig. 3—Sample Form No. 1A AMARC 0100 — No. 1A AMARC Identification

C. Generic 3 Dump Message Interpretation

AMARC. Figure 4 is the **DUMP MEM NPD IDT** output for the data on the sample Form 0100.

5.18 The message **DUMP MEM NPD IDT** results in an octal dump of the Identification Table for the

```
DUMP MEM NPD IDT!PF
M 11 00 DUMP MEM NPD IDT
11 00 031463 000003 040000 000404 000002
11 00 EOD
```

Fig. 4—Sample Generic 3 **DUMP MEM NPD IDT**

5.19 The following paragraphs describe the steps that must be performed to convert the dumped data to values that can be compared with the form data.

5.20 **Convert Octal to Binary:** Convert the 6-digit octal value for each word to a 16-bit binary word (see Note). Each value except the leftmost octal digit is converted to a 3-digit binary number. The leftmost octal value is used as a 1-digit binary number. Table C illustrates the conversion to binary.

**Note:** Word **cccccc** specifies the octal number of 32-word blocks of memory provided for the AMARC. This word does not correspond to any Form 0100 data. The AMARC determines this value and enters it into the Identification Table. The octal value of this word can be converted to decimal by any method of octal to decimal computation.

TABLE C

aaaaaa

OCTAL	0	3				1			4			6			3	
BIT NUMBER	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
BINARY	0	0	1	1	0	0	1	1	0	0	1	1	0	0	1	1

bbbbbb

OCTAL	0	0				0			0			0			3	
BIT NUMBER	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
BINARY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1

cccccc

Conversion to binary not required.

dddddd

OCTAL	0	0				0			4			0			4	
BIT NUMBER	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
BINARY	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0

eeeeee

OCTAL	0	0				0			0			0			2	
BIT NUMBER	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
BINARY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0

5.21 **Interpret Bits:** Each 16-bit binary word is next sectioned into groups of bits that represent input data values, as defined in the OM. Each group of bits is then converted to the octal value rep-

resented by the binary value of the group. Table D illustrates the conversions.

TABLE D

aaaaaa

BINARY	0	0	1	1	0	0	1	1	0	0	1	1	0	0	1	1
BIT NUMBER	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
OCTAL	3				3				3				3			

bbbbbb

BINARY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
BIT NUMBER	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
OCTAL	X	X	X	X	X	X	X	X	0				3			

cccccc

5.22 Conversion from octal to decimal is required. Octal value 40000 represents decimal value 16384 as shown in Table E.

TABLE E

dddddd

BINARY	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0
BIT NUMBER	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
OCTAL	X	X	X	X	X	X	X	1	X	X	X	X	0	1	X	0

eeeeee

BINARY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
BIT NUMBER	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
OCTAL	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	2

5.23 The following dumped data can now be interpreted as follows:

- (a) Words **aaaaaa** and **bbbbbb** indicate that the AMARC identification number is 333303.
- (b) Word **cccccc** indicates that the AMARC is equipped with 16384 blocks of memory with each block containing 32 words.
- (c) Word **dddddd** indicates that the AMARC serves some double entry entities and some single entry entities.
- (d) Word **eeeeee** indicates that the Detailed Billing option for the No. 3 ESS and CDA entities served by the AMARC is 100% Detailed Billed.

**D. Generic 4 Dump Message Interpretation**

5.24 The message **DUMP MEM NPD IDT** results in a dump of the No. 1A AMARC Identification Table and the data of the last recent change update.

5.25 The format of the output for **DUMP MEM NPD IDT** and an explanation of the values associated with each variable field is provided in Volume 2 of the OM/TRG.

5.26 Numerical conversion of the dumped data, for example, conversion from octal to decimal, is

not required in order to compare the dumped data with data on NPD Form 0100.

**FORM 0101 — NO. 1A AMARC ENTITY IDENTIFICATION**

**A. General**

5.27 Form 0101 assigns to each entity a number by which it will be identified in all entity-related tables. Data from Form 0101 are entered into the Entity Table. The AMARC uses this table to determine what type of translation or call processing is required for data received from a specific entity number.

5.28 Form 0101 is revised with Issue 2 of this section. Three columns of this form have been combined in order to reduce the number of pages of this form that may be required for an AMARC. Issue 2 of Section 201-900-031 provides a reproducible copy of the revised Form 0101. The revised form should be used when this form is prepared for a new AMARC or for a change to the NPD of an existing AMARC with either Generic 3 or 4. The following instructions apply to the revised Form 0101.

5.29 Form 0101 is prepared for each AMARC. Because of the number of entities that may be assigned, the form is a three-page form. Three pages would be used if any of entity numbers 100 through 137 (octal) are assigned.

5.30 Figure 5 is a sample Form 0101. Sheet 1 of Fig. 5 shows the entries for CDA, CDT, BDT,

No. 3 ESS, and No. 5 ETS entities. Sheet 2 of Fig. 5 shows entries for No. 2B ESS and No. 5 ESS entities which can be served only by a No. 1A AMARC, Generic 4.

**B. Form Entries**

**Entity Name**

**5.31** Enter the name of the entity to be designated by each entity number. A Common Language Location Identification (CLLI) code provides a unique identification of an entity and may be used as an entity name. This form entry is for telephone company use only and is not entered into AMARC memory.

**Entity Number**

**5.32** A list of entity numbers 000 through 137 (octal) may be assigned. Entity numbers do **not** have to be assigned sequentially.

**Input Format**

**5.33** Enter the value which identifies the input entry format of the entity. Values are as follows:

ENTRY	INPUT FORMAT
1	Single Entry format (VSS, ETS)
2	Double Entry format (CDA)
3	BDT format
4	No. 3 ESS format
5	CDT format
7	No. 2B ESS or No. 5 ESS format.

**Sensor Identification**

**5.34** Enter a 6-digit decimal number which uniquely identifies this sensor entity within the Revenue Accounting Office (RAO) that will process the magnetic tape. Valid entries are 000000 through 999999 (decimal). The Numbering Plan Area-Office Code (NPA-NXX) of the office could be used. This assignment should be coordinated with the accounting department. For No. 2B ESS or No. 5 ESS,

this assignment, which also requires entry into the ESS data base, must be coordinated with ESS personnel.

**Sensor Parameter**

**5.35** This parameter has a unique meaning for CDA, No. 3 ESS, CDT, No. 2B ESS, and No. 5 ESS entities. The following paragraphs describe the meaning of each of these entities. This parameter does not apply to ETS, VSS, or BDT entities.

**5.36 Theoretical Codes (Field d for CDA only):** For a CDA entity with an Automatic Number Identification (ANI)-B, specify whether the entity has any theoretical office codes. Enter **0** if the entity does not have theoretical codes; enter **1** if it does.

**5.37** In ANI-B step-by-step offices, a theoretical Central Office Code (COC) can be superimposed on a physical office code and used to identify certain customers for billing purposes. If the CDA entity has theoretical codes, the AMARC must perform additional translations to determine the calling COC. These translations are described in Section 201-900-032.

**5.38 Channels Per Entity (Field d for No. 3 ESS only):** For a No. 3 ESS entity, specify the number of dedicated data channels provided for the entity. At present, two dedicated channels must be provided at all times for each No. 3 ESS entity. Therefore, enter **2** for this parameter since a **1** indicates one dedicated channel.

**5.39** When two dedicated data channels are provided for a No. 3 ESS entity, one is used as a dedicated backup channel in case of a failure on the primary.

**5.40 Controllers Per Entity (Field d for CDT only):** For a CDT entity, specify the number of CDT controllers provided for the entity. Two configurations of CDT entities are available: a single controller and a dual controller. Enter **1** for a single controller CDT entity; enter **2** for a dual controller CDT entity.

**5.41 No. 2B ESS, No. 5 ESS Subtype (Field d for No. 2B ESS, No. 5 ESS):** This use of field "d" applies only to Generic 4. Enter **2** if this entity is a No. 2B ESS; enter **5** if this entity is a No. 5 ESS.

**5.42 Special Dialing Indicator:** This parameter applies only to CDT entities. For each CDT entity, enter the value from Table F that identifies which of the following special dialing patterns are allowed for this entity:

- 7-digit local dialing across NPA boundaries (see Note)
- 10-digit local dialing across NPA boundaries
- 1 plus dialing only for nonlocal calls.

**Note:** If 7-digit local dialing across NPA boundaries is allowed and an allowed 7-digit NXX in a foreign NPA is duplicated in the home NPA, the only permissible indicator values are 5 and 7. These values indicate that 1 plus dialing is allowed only on nonlocal calls. In addition to this requirement, it is required that the duplicate NXX in the home NPA be reached only by dialing 1 plus seven digits.

TABLE F

INDICATOR VALUE	7-DIGIT LOCAL DIALING ACROSS NPA BOUNDARIES		10-DIGIT LOCAL DIALING ACROSS NPA BOUNDARIES		1+DIALING ONLY NONLOCAL	
	YES	NO	YES	NO	YES	NO
0		✓		✓		✓
1		✓		✓	✓	
2		✓	✓			✓
3		✓	✓		✓	
4	✓			✓		✓
5	✓			✓	✓	
6	✓		✓			✓
7	✓		✓		✓	

NO. 1A AMARC 0101 (REVISED 2/82)

NO. 1A AMARC 216200

EFFECTIVE DATE 2-10-82

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REVISION NO. -

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NO. 1A AMARC ENTITY IDENTIFICATION

ENTITY NAME	(aaa) ENTITY NUMBER	(b) INPUT FORMAT	(ccccc) SENSOR IDENTIFICATION	(d) SENSOR PARAMETER	(e) SPECIAL DIALING INDICATOR (CDT)
THOR 0H44 246	00	4	123333	2	-
SALM 0H33 335	01	5	123334	2	7
GRRD 0H54 546	02	5	123016	2	1
STBO 0H62 626	03	3	123017	-	-
NILS 0H65 655	04	2	123003	0	-
KENT 0H67 67F	05	5	125991	2	1
L RTP 0H75 75F	06	3	125023	-	-
	07				
YNTW 0H89 897	10	4	220011	2	-
REYN 0H91 747	11	2	256502	0	-
CUYF 0H29 297	12	5	123012	2	1
LITH 0H81 837	13	2	256555	1	-
	14				
	15				
	16				
	17				
	20				
	21				
	22				
	23				
	24				
	25				
COLN 0H23 237	26	1	145145	-	-
	27				
	30				
	31				
	32				
	33				
	34				
	35				
	36				
PPTS 0H43 430	37	5	123037	2	1

INPUT MESSAGE: RC ENT aaa b cccccc d e!

DUMP MESSAGE: DUMP MEM NPD ENT  
DUMP MEM NPD SID (GENERIC 3 ONLY)

PREPARED BY J. Doe  
TELEPHONE ABC-XXXX

Fig. 5—Sample Form No. 1A AMARC 0101 — No. 1A AMARC Entity Identification  
(Sheet 1 of 2)

NO. 1A AMARC 0101 (REVISED 2/82)

NO. 1A AMARC 216023

EFFECTIVE DATE 3-1-82

ISSUE DATE 2-12-82

REVISION NO. -

PAGE 1 OF 1

NO. 1A AMARC ENTITY IDENTIFICATION

ENTITY NAME	(aaa) ENTITY NUMBER	(b) INPUT FORMAT	(cccccc) SENSOR IDENTIFICATION	(d) SENSOR PARAMETER	(e) SPECIAL DIALING INDICATOR (CDT)
CLEVOH93932	00	7	201932	5	-
SOMROH63632	01	7	221221	2	-
	02				
	03				
	04				
	05				
	06				
	07				
	10				
	11				
	12				
	13				
	14				
	15				
	16				
	17				
	20				
	21				
	22				
	23				
	24				
	25				
	26				
	27				
	30				
	31				
	32				
	33				
	34				
	35				
	36				
	37				

INPUT MESSAGE: RC ENT aaa b ccccc d e!

DUMP MESSAGE: DUMP MEM NPD ENT  
DUMP MEM NPD SID (GENERIC 3 ONLY)

PREPARED BY J. Doe  
TELEPHONE ABC-XXXX

Fig. 5—Sample Form No. 1A AMARC 0101 — No. 1A AMARC Entity Identification  
(Sheet 2 of 2)

### C. Generic 3 Dump Message Interpretation

5.43 There are two dump messages associated with Form 0101: **DUMP MEM NPD ENT** and **DUMP MEM NPD SID**.

### DUMP MEM NPD ENT

5.44 The use of this dump message results in an octal dump of the entire Entity Table. Figure 6 is the **DUMP MEM NPD ENT** output for the data on the sample Form 0101 provided in Sheet 1 of Fig. 5.

```

DUMP MEM NPD ENT!PF
M 25 00 DUMP MEM NPD ENT
25 00 172604 001625 112402 000003 001204 003225 000000 000000 000000
25 00 000000 000000 000001 000000 000000 000000 112400 000000 000000
25 00 000000 000000 112625 000000 000000 000000 000000 000000 000000
25 00 000000 000000 000000 000000 000000 000000 000000 000000 000000
25 00 000000 000000 000000 000000 000000 000000 000000 000000 000000
25 00 000000 000000 000000
25 00 EOD

```

Fig. 6—Sample Generic 3 DUMP MEM NPD ENT

5.45 The following paragraphs describe the steps that must be performed to convert the data for the first word into values that can be compared with the form entries for entities 000 and 001.

5.46 **Convert Octal to Binary:** Convert the 6-digit octal value for word **aaaaaa** to a 16-bit

binary word. Each value, except the leftmost octal digit, is converted to a 3-digit binary number. The leftmost octal value is used as a 1-digit binary number. Word **aaaaaa** is converted as illustrated in Table G.

TABLE G

OCTAL	1	7				2			6			0			4	
BIT NUMBER	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
BINARY	1	1	1	1	0	1	0	1	1	0	0	0	0	1	0	0

**5.47 Interpret Bits:** The 16-bit binary word is next sectioned into two bytes, containing bits 0 through 7 and bits 8 through 15. Each byte is then sectioned into groups of bits that represent input data values, as defined in the OM. Each group of bits

is then converted to the octal value represented by the binary value of the group. This conversion for **aaaaaa** is illustrated in Table H.

TABLE H

	ENTITY 1								ENTITY 0							
BINARY	1	1	1	1	0	1	0	1	1	0	0	0	0	1	0	0
BIT NUMBER	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
OCTAL	1	1	1	1	X	5		1	X	X	X	X	4			

**5.48** The interpretation of word **aaaaaa** is as follows:

- (a) Entity 000 is a No. 3 ESS entity with two dedicated channels.
- (b) Entity 001 is a CDT entity with the following characteristics:
  - The 1 plus dialing is always nonlocal.
  - The 10-digit local dialing across NPA boundaries is allowed.
  - The 7-digit local dialing across NPA boundaries is allowed.
  - This CDT has two controllers.

#### DUMP MEM NPD SID

**5.49** The use of this dump message results in an octal dump of the entry in the Sensor Identification Table for the entity specified in the dump input message. Figure 7 is the **DUMP MEM NPD SID**

output for the Sensor Identification Number specified for entity 012 on the sample Form 0101.

```
DUMP MEM NPD SID 012!PF
M 20 00 DUMP MEM NPD SID 012
20 00 011031 011060
20 00 E00
```

**Fig. 7—Sample Generic 3 DUMP MEM NPD SID**

**5.50** The following paragraphs describe the steps that must be performed to convert the data to values that can be compared with the form entry.

**5.51 Convert Octal to Binary:** Convert the 6-digit octal value for each word to a 16-bit binary word. Each digit, except the leftmost octal digit, is converted to a 3-digit binary number. The leftmost octal value is used as a 1-digit binary number. The two words are converted as illustrated in Table I.

TABLE I

bbbbbb

OCTAL	0	1			1			0			3			1		
BIT NUMBER	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
BINARY	1	0	0	1	0	0	1	0	0	0	0	1	1	0	0	1

cccccc

OCTAL	0	1			1			0			6			0		
BIT NUMBER	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
BINARY	0	0	0	1	0	0	1	0	0	0	1	1	0	0	0	0

**5.52 Interpret Bits:** The 16-bit binary words are next sectioned into groups of bits that represent input data values, as defined in the OM. Each group of bits is then converted to the octal value rep-

resented by the binary value of the group. These conversions are illustrated in Table J.

TABLE J

bbbbbb

BINARY	1	0	0	1	0	0	1	0	0	0	0	1	1	0	0	1
BIT NUMBER	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
OCTAL	1				2				X	X	X	X	X	X	X	X

cccccc

BINARY	0	0	0	1	0	0	1	0	0	0	1	1	0	0	0	0
BIT NUMBER	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
OCTAL	1				2				3				0			

**5.53** The interpretation of words **bbbbbb** and **cccccc** identifies that the Sensor Identification number is 123012.

#### D. Generic 4 Dump Message Interpretation

**5.54** The message **DUMP MEM NPD ENT** results in a dump of data from the Entity Table and the Sensor Identification Table. If the dump input message specifies an entity number (field **aaa**), the output is only the data for the specified entity. If the input message specifies a sensor type (field **c...c**), the output is the Entity Table and the Sensor Identifica-

tion Table entries for each entity of the specified sensor type. If **ALL** is specified for field **c...c**, the entire Entity Table with the Sensor Identification Table entry for each entity is output.

**5.55** The dump output begins by identifying the entity number or sensor type (or **ALL**) for which data were requested. The output next prints the column headings **ENT NO.**, **SENSOR ID**, and **TYPE**. Volume 2 of the OM/TRG describes the output format. The information shown in the **TYPE** output column corresponds to the information entered on Form

0101 in the **Input Format**, **Sensor Parameter**, and **Special Dialing Indicator** columns.

5.56 The data for the **Input Format**, **Sensor Parameter**, and **Special Dialing Indicator** columns of Form 0101 are entered on the form and specified in the **RC ENT** input message as numerical codes. The data for the **TYPE** column of the dump message output are output as the translation of the form codes used in the **RC ENT** input message. For example, for a **CDT** entity that has two controllers and that specifies a **YES** value for each of the special dialing indicators, the form entries affecting the output **TYPE** column are as follows:

- **Input Format** equals 5
- **Sensor Parameter** equals 2
- **Special Dialing Indicator** equals 7

The output **TYPE** column entry is as follows:

**CDT-2CONT-7D & 10D ACROSS NPA LOC**

5.57 To compare the dumped data with the form data, refer to the form instructions for translation of the numerical codes used on the form for the **Input Format** and the **Sensor Parameter** columns. The output data corresponding to the form **Special Dialing Indicator** column can be compared as follows:

FORM ENTRY	OUTPUT
0	1+7D LOC
1	NO ACROSS NPA LOC, NO 1+7D LOC
2	10D ACROSS NPA & 1+7D LOC
3	10D ACROSS NPA LOC
4	7D ACROSS NPA & 1+7D LOC
5	7D ACROSS NPA LOC
6	7D & 10D ACROSS NPA & 1+7D LOC

**FORM ENTRY**

**OUTPUT**

7

7D & 10D ACROSS NPA LOC

5.58 For an entity number for which no data were specified on Form 0101, the output shows **NOT EQUIPPED**, in place of the **SENSOR ID** and **TYPE** data. Value **UNEQP** can be specified for field **c...c** of the **DUMP MEM NPD ENT** input message, resulting in a printout of only the unassigned entity numbers.

**FORM 0102 — NO. 1A AMARC CLOCK COMPENSATION**

**A. General**

5.59 Form 0102 assigns a correction factor to one or both of the AMARC real-time clocks. Data provided on Form 0102 are entered into one of the Clock Compensation Tables. The AMARC uses these tables to apply correction to the inaccurate clock(s) during the course of each day.

5.60 One Form 0102 is required if one or both processor clocks drift from the true time.

**B. Form Entries**

5.61 Figure 8 is a sample Form 0102. The following paragraphs describe the entries to be made on the form.

**Processor Number**

5.62 Enter the number of the processor which requires a correction to its clock. Valid entries are 0 or 1.

**Compensation**

5.63 Enter the signed compensation value in number of 1/10 second intervals for a 24-hour period. This value can range from -200 to +200, which corresponds to a clock ranging from 20 seconds fast to 20 seconds slow during a 24-hour period.

NO. 1A AMARC 0102

NO. 1A AMARC 216 200

EFFECTIVE DATE 6-6-80

ISSUE DATE 6-1-80

REVISION NO. -

NO. 1A AMARC CLOCK COMPENSATION

(a) PROCESSOR NUMBER	(bccc) COMPENSATION
0	+100
1	+050

INPUT MESSAGE: RC CLK COMP a bccc!

DUMP MESSAGE: DUMP MEM NPD CLK!

PREPARED BY J. Doe  
 TELEPHONE ABC-XXXX

Fig. 8—Sample Form No. 1A AMARC 0102 — No. 1A AMARC Clock Compensation

**C. Dump Message Interpretation**

5.64 The message **DUMP MEM NPD CLK** results in a decimal dump of the clock compensation for each processor. Since this is a decimal dump, the

dumped data can be compared easily with the form data.

5.65 Figure 9 is the **DUMP MEM NPD CLK** output for the sample Form 0102 data.

```
DUMP MEM NPD CLK!PF
M 22 00 DUMP MEM NPD CLK
22 00 CORRECTION FACTOR FOR CU 0 = + 100
22 00 CORRECTION FACTOR FOR CU 1 = + 050
```

**Fig. 9—Sample DUMP MEM NPD CLK**

**FORM 0103 — NO. 1A AMARC MULTIPLEXERS EQUIPPED**

**A. General**

5.66 Form 0103 identifies the data communications multiplexers provided in the AMARC System. Data from Form 0103 are entered into the Multiplexer Table. The AMARC uses this table to determine which data communications equipment is physically present in the system when data channels are equipped.

5.67 One Form 0103 is prepared for each No. 1A AMARC.

5.68 Figure 10 is a sample Form 0103. The following paragraphs describe the entries to be made on the form.

**B. Form Entries**

**Multiplexer Number**

5.69 A list of 12 multiplexer numbers, 00 through 13 (octal), may be equipped.

**Equipped**

5.70 Enter "YES" in this column if this multiplexer is to be equipped; the **RC MPX aa EQP** input message should be entered for multiplexer aa.

5.71 Each multiplexer can accommodate up to eight data channels. Although multiplexers do not have to be equipped sequentially, a particular multiplexer must be equipped before channels associated with it are equipped. A multiplexer may be unequipped only after the associated channel(s) have been unequipped.

NO. 1A AMARC 0103  
 NO. 1A AMARC 216200

EFFECTIVE DATE 6-6-80  
 ISSUE DATE 6-1-80  
 REVISION NO. -

NO. 1A AMARC MULTIPLEXERS EQUIPPED

(aa) MULTIPLEXER NUMBER	EQUIPPED
00	YES
01	YES
02	YES
03	YES
04	YES
05	YES
06	YES
07	YES
10	YES
11	YES
12	YES
13	YES

INPUT MESSAGE: RC MPX aa EQP!  
 DUMP MESSAGE: DUMP MEM NPD MPX

PREPARED BY J. Doe  
 TELEPHONE ABC-XXXX

Fig. 10—Sample Form No. 1A AMARC 0103 — No. 1A AMARC Multiplexers Equipped

C. Dump Message Interpretation

5.72 The message **DUMP MEM NPD MPX** results in an octal dump of the Multiplexer Table for the AMARC. Figure 11 is the **DUMP MEM NPD MPX** output

for the data on sample Form 0103. The multiplexer number is implied by the position of the data in the table.

```
DUMP MEM NPD MPX!PF
M 13 00 DUMP MEM NPD MPX
13 00 040501 040501 040501 040501 040501 040501
13 00 EOD
```

Fig. 11—Sample DUMP MEM NPD MPX

5.73 The following paragraphs describe the steps that must be performed to convert the data for the word **aaaaaa** into values that can be compared with the form entries for multiplexers 0 and 1.

binary word. Each value, except the leftmost octal digit, is converted to a 3-digit binary number. The leftmost octal value is used as a 1-digit binary number. Word **aaaaaa** is converted as illustrated in Table K.

5.74 **Convert Octal to Binary:** Convert the 6-digit octal value for word **aaaaaa** to a 16-bit

TABLE K

OCTAL	0	4			0			5			0			1		
BIT NUMBER	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
BINARY	0	1	0	0	0	0	0	1	0	1	0	0	0	0	0	1

**5.75 Interpret Bits:** The 16-bit binary word is next sectioned into two bytes; one contains bits 0 through 7 and the other bits 8 through 15. The only significant bits within each byte are bits 0 and 6 in the rightmost byte and bits 8 and 14 in the leftmost byte.

**5.76** In this sample, word **aaaaaa** indicates that multiplexer 0 is equipped and multiplexer 1 is equipped.

**FORM 0104 — NO. 1A AMARC AUTOMATIC CALLING UNITS EQUIPPED**

**A. General**

**5.77** Form 0104 identifies the Automatic Calling Units (ACUs) which are provided in the AMARC. Data from Form 0104 are entered into the ACU Table. The AMARC uses this table to determine which ACUs are equipped and are available for use with dial backup channels. An ACU is needed each time a dialup data link is established upon failure of a primary channel.

**5.78** One Form 0104 is prepared for each No. 1A AMARC.

**5.79** Figure 12 is a sample Form 0104. The following paragraphs describe the entries to be made on the form.

**B. Form Entries**

**ACU Number**

**5.80** A list of the 16 ACU numbers 0 through 17 (octal) may be equipped.

**Equipped**

**5.81** Enter "YES" in this column if this ACU is to be equipped; the **RC ACU aa EQP** input message should be entered.

**5.82** Each ACU is associated with a dial backup channel on a one-to-one basis via the **RC DLP EQP** input message (see Form 0105). An ACU may not be unequipped unless any dial backup channel associated with it has first been unequipped.

NO. 1A AMARC 0104

NO. 1A AMARC 216200

NO. 1A AMARC  
AUTOMATIC CALLING  
UNITS EQUIPPED

EFFECTIVE DATE 6-6-80

ISSUE DATE 6-1-80

REVISION NO. -

(aa) ACU NUMBER	EQUIPPED
00	YES
01	YES
02	YES
03	YES
04	YES
05	YES
06	YES
07	YES
10	YES
11	YES
12	YES
13	YES
14	YES
15	YES
16	YES
17	YES

INPUT MESSAGE: RC ACU aa EQP!

DUMP MESSAGE: DUMP MEM NPD ACU

PREPARED BY J. Doe  
TELEPHONE ABC-XXXX

Fig. 12—Sample Form No. 1A AMARC 0104 — No. 1A AMARC Automatic Calling Units Equipped

**C. Generic 3 Dump Message Interpretation**

Unit Table. Figure 13 is the **DUMP MEM NPD ACU** output for the data on sample Form 0104.

**5.83** The message **DUMP MEM NPD ACU** results in an octal dump of the entire Automatic Calling

```
DUMP MEM NPD ACU!PF
M 20 00 DUMP MEM NPD ACU
20 00 042104 040100 040100 040100 042104 042104 040100 040100
20 00 EOD
```

**Fig. 13—Sample Generic 3 DUMP MEM NPD ACU**

**5.84** The following paragraphs describe the steps that must be performed to convert word **aaaaaa** into values that can be compared with the form entries for ACU 0 and 1.

binary word. Each value, except the leftmost octal digit, is converted to a 3-digit binary number. The leftmost octal value is used as a 1-digit binary number. Word **aaaaaa** is converted as illustrated in Table L.

**5.85** *Convert Octal to Binary:* Convert the 6-digit octal value for field **aaaaaa** to a 16-bit

**TABLE L**

<b>OCTAL</b>	0	4			2			1			0			4		
<b>BIT NUMBER</b>	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
<b>BINARY</b>	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0

**5.86 Interpret Bits:** The 16-bit binary word is next sectioned into two bytes, containing bits 0 through 7 and bits 8 through 15, since one byte represents the data for the ACU. Each byte is then sectioned into groups of bits that represent input data

values, as defined in the OM. Each group of bits is then converted to the octal value represented by the binary value of the group. This conversion for **aaaaaa** is illustrated in Table M.

TABLE M

	ACU 1								ACU 0							
BINARY	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0
BIT NUMBER	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
OCTAL	X	1	X	X	X	1	X	X	X	1	X	X	X	1	X	X

**5.87** The interpretation of word **aaaaaa** is as follows:

- (a) The ACU 0 is equipped and has one associated data set.
- (b) The ACU 1 is equipped and has one associated data set.

**D. Generic 4 Dump Message Interpretation**

**5.88** The message **DUMP MEM NPD ACU** results in a dump of the Automatic Calling Unit Table.

**5.89** The output for **DUMP MEM NPD ACU** begins by printing column headings which correspond with Form 0104. The output then fills in each column with the appropriate data for each ACU.

**5.90** Numerical conversion of the dumped data, for example, conversion from octal to binary, is not required in order to compare the dumped data with data on NPD Form 0104. An explanation of the values associated with each dump message column heading is provided in Volume 2 of the OM/TRG.

**FORM 0105 — NO. 1A AMARC DIAL BACKUP CHANNELS EQUIPPED**

**A. General**

**5.91** Form 0105 specifies the channels in the AMARC System to be equipped as dial backup data links for ETS, CDA, CDT, BDT, No. 2B ESS, and No. 5 ESS primary channels. Data from Form 0105 are entered into the Channel Table, the Maximum Dial Backup Data Channel Table, and the Dial Backup Data Channel Hunt Table. The AMARC uses these tables to switch a primary channel to dial backup in the event of a failure on the primary data link.

**5.92** For Generic 3, up to 16 channels may be equipped as dial backups. For Generic 4, this maximum also applies, but with the added restriction that a maximum of 12 of these may be synchronous types. An asynchronous type is used for CDA, CDT, BDT, No. 3 ESS, No. 5 ETS, and VSS entities. A synchronous type is used for No. 2B ESS and No. 5 ESS entities.

**5.93** For a Generic 4 AMARC that serves No. 2B ESS or No. 5 ESS entities, the assignment of

dedicated channels and dial backup channels must follow an assignment plan provided by Table A of SD-5P006, sheet B11B. These assignments are discussed in the instructions for Form 0300, No. 1A AMARC Channels Equipped.

**5.94** When a channel is equipped as a dial backup, a note should be made on Form 0300, No. 1A AMARC Channels Equipped, so that an attempt is not made to equip the same channel as a nondialup channel.

**5.95** The multiplexer on which the dial backup resides and the ACU associated with the backup must be equipped via the **RC MPX EQP** and the **RC ACU EQP** input messages, respectively, before the dial backup may be equipped via the **RC DLP EQP** message.

**5.96** No entries should be made on Form 0105 for a dedicated dial backup channel for a No. 3 ESS entity or a secondary dial backup channel for a No. 2B ESS or a No. 5 ESS entity. Such a channel is equipped automatically by the AMARC when the **RC CHL EQP** input message for the associated primary channel assigned to the ESS entity is entered.

**5.97** One Form 0105 is prepared for an AMARC.

**5.98** Figure 14 is a sample Form 0105. Sheet 1 of Fig. 14 shows form entries for asynchronous dial backup channels (those used with CDA, CDT, BDT, No. 3 ESS, No. 5 ETS, and VSS entities). Sheet 2 shows form entries for synchronous dial backup channels; those are dedicated to No. 2B ESS or No. 5

ESS entities. The following paragraphs describe the entries to be made on the form.

## B. Form Entries

### AMARC Channel

**5.99** List the 3-digit octal numbers of up to 16 channels to be equipped as dial backups. The **aa** portion of the number is the DZ11B multiplexer number. Valid entries are 00 through 13 (octal). The **b** portion of the number is the port of the multiplexer. Valid entries are 0 through 7.

### Data Set Type

**5.100** Specify the type of data set to be used on this dialup channel. For Generic 3, either the asynchronous, half-duplex 202S-type or the asynchronous, full duplex 212A-type may be specified. For Generic 4, either the 2024 synchronous type or the 2048 synchronous type may be specified for a No. 2B ESS or a No. 5 ESS entity. The requirements for other sensor types are the same as for Generic 3.

### ACU Number

**5.101** Specify the number of the automatic calling unit associated with the dialup data channel. For this issue of the AMARC generic program, only one dial backup data channel may be associated with an automatic call unit. Valid entries are 00 through 17 (octal).





**C. Dump Message Interpretation**

**5.102** Entries in the Channel Table are dumped via the **DUMP MEM NPD CHL** input message. The dump message interpretation for this message is found in this section in the instructions for Form 0300. The sample dump output includes the entry in the Channel Table for channel 000, which is specified as a dialup on sample Form 0105 provided in Sheet 1 of Fig. 14.

**FORM 0106 — NO. 1A AMARC FLEXPORTE EQUIPPED**

**5.103** Data from Form 0106 are used to equip flexport multiplexer 1, to equip flexports on multiplexers 0 and 1, and to define characteristics of equipped flexports. Flexports are used for communication with and control of the processors.

**5.104** Before the **RC FLXPRT EQP** input message for a particular flexport is allowed, the appropriate flexport multiplexer (DZ11B multiplexer) 0 or 1, must have been equipped. Multiplexer 0 and flexports 0 and 1, which provide system controls, are equipped automatically. Flexports 2 through 7 may also be equipped for multiplexer 0 by the use of the **RC FLXPRT EQP** message. Multiplexer 1, which must be provided for each processor if more than eight flexports are desired, must be equipped by the use of the **RC FLMPX EQP** input message. Flexports 0 through 7 may be equipped for multiplexer 1.

**5.105** Flexport 0 of multiplexer 0 is system console 0. It is used for all active processor messages. Flexport 1 of multiplexer 0 is system console 1. It is used for other nonactive messages regardless of processor status.

**5.106** A flexport may be connected to a local terminal or a remote terminal. A flexport is connected to a local terminal through a null modem and static filter circuits which are provided as part of each processor interface cabinet. A flexport is connected to a remote terminal through a data set.

**5.107** Additional information about the flexport configuration is located in Section 201-900-103.

**5.108** One Form 0106 is required for an AMARC.

**5.109** Figure 15 is a sample Form 0106. The following paragraphs describe the entries to be made on the form.

**5.110** Generic 4 requires the system consoles (flexports 0 and 1 of multiplexer 0) to operate at 1200-baud capacity. When an existing AMARC is upgraded to Generic 4, the NPD conversion routine **automatically** changes the baud rate associated in NPD with these two flexports to 1200. If the baud rate associated with any other flexport is to be changed when converting to Generic 4, a revised copy of Form 0106 **must** be prepared to reflect this change. The **RC FLXPRT EQP** message must be entered for each flexport (other than flexports 0 and 1 on multiplexer 0) for which the baud rate is to be changed.

**B. Form Entries****Equip Flexport Multiplexer 1**

**5.111** Enter "YES" if flexport multiplexer 1 is to be equipped.

**Flexport**

**5.112** Enter the 2-digit octal number that identifies the DZ11B multiplexer and the port of the multiplexer to be equipped. The **a** portion of the number is the multiplexer number. Valid entries are 0 and 1. The **b** portion of the number is the port number. Valid entries for **b** are 2 through 7 for **a** value 0, and 0 through 7 for **a** value 1.

**Parameter Indicator**

**5.113** This entry describes operating characteristics of this flexport. The values for each parameter are described in the following:

(a) **Parameter c, AMACC (Automatic Message Accounting Control Center) Interface:** Enter 1 if capability to interface with an AMACC is enabled. Enter 0 if this capability is disabled.

(b) **Parameter d, Dialup Interface:** Enter 1 if capability to interface with a dialup is enabled. Enter 0 if this capability is disabled.

(c) **Parameter e, Active/Nonactive Status:** Enter 1 if this flexport communicates with the active processor. Enter 0 if this flexport is used for nonactive messages.



Data Set Speed

5.114 Enter **LO** if the speed of the data set associated with the flexport is 300 baud. Enter **HI** if the speed of the data set is 1200 baud. For Generic 4, **HI** must be entered for flexports 0 and 1 on multiplexer 0.

C. Generic 3 Dump Message Interpretation

5.115 The message **DUMP MEM NPD FLX** results in an octal dump of the Flexport Multiplexer and the Flexport Status Tables. Figure 16 is the **DUMP MEM NPD FLX** output for the data on sample Form 0106. The flexport number is implied by the position of the data in the table, beginning with flexport 00.

```
DUMP MEM NPD FLX!PF
M 23 00 DUMP MEM NPD FLX
23 00 000003 000013 000011 000000 000000 000000 000000 000063 000000
23 00 000000 000000 000000 000000 000061 000000 000000 000000
23 00 EOD
```

Fig. 16—Sample Generic 3 DUMP MEM NPD FLX

5.116 The following paragraphs describe the steps that must be performed to convert the data for word **bbbbba** and the first **dddcc** word to data that can be compared with the form data.

nary word. Each value, except the leftmost octal digit is converted to a 3-digit binary number. The leftmost octal value is used as a 1-digit binary number. These words are converted to binary as illustrated in Table N.

5.117 **Convert Octal to Binary:** Convert the 6-digit octal value for each word to a 16-bit bi-

TABLE N

bbbbba

OCTAL	0	0			0			0			0			3			
BIT NUMBER	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0	
BINARY	X	X	X	X	X	X	X	X	X	X	X	X	X	X	0	1	1

dddcc

OCTAL	0	0			0			0			1		3			
BIT NUMBER	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
BINARY	X	X	X	X	X	X	X	X	X	X	0	0	1	0	1	1

**5.118 Interpret Bits:** Interpret each bit of the binary values according to the definitions provided in the OM.

**5.119** Word **bbbbba** and the first **ddddcc** word are interpreted as follows:

- (a) Word **bbbbba** indicates that both flexport multiplexers, 0 and 1, are equipped.
- (b) Word **ddddcc** indicates that flexport 00 is equipped and has the following characteristics:
  - Used for communication with the active processor
  - Capability to interface with AMACC is disabled
  - Data set speed is 300 baud
  - Capability to interface with a dialup is disabled.

#### D. Generic 4 Dump Message Interpretation

**5.120** The message **DUMP MEM NPD FLX** results in a dump of the Flexport Multiplexer and the Flexport Status Tables. The output begins by printing the **EQPD** or **NOT EQPD** status for multiplexer 0 and multiplexer 1. Next, the output prints column headings corresponding to the various characteristics associated with a flexport. Volume 2 of the OM/TRG describes the values for each column heading. The following paragraphs describe the correspondence between the Form 0106 columns and the **DUMP MEM NPD FLX** output.

**5.121** Multiplexer 0 is always equipped for an AMARC; there is no Form 0106 entry to indicate the status of this multiplexer. At the top of the form, the entry **Equip Flexport Multiplexer 1** shows **yes** if multiplexer 1 is to be equipped.

**5.122** For each of the 16 flexports that may be equipped on multiplexer 0 and 1, the **EQPD STAT** column of the output shows **EQPD**, if the flexport is equipped, or **---**, if the flexport is not equipped. Form 0106 does not specify any data of a flexport that is not to be equipped.

**5.123** The 3 digits of the **Parameter Indicator** column on Form 0106 correspond to the data in the **AMACC STAT**, **DLP STAT**, and **ACTIVE STAT** columns of

the output, respectively. For the first digit of the form column, **1** equals **ENABLE** or **0** equals **---** (disable) in the output column **AMACC STAT**. For the second digit of the form column, **1** equals **ENABLE** or **0** equals **---** (disable) in the output column **DLP STAT**. For the third digit of the form column, **1** equals **ACTIVE** or **0** equals **---** (nonactive) in the output column **ACTIVE STAT**.

**5.124** The form column **Data Set Speed** corresponds to the **DS SPEED** column of the output. A form value of **LO** equals an output value of **300**; a form value of **HI** equals an output value of **1200**. If this dump is for an AMARC that has just converted from Generic 3 to Generic 4, the baud rate has been changed automatically to **1200** for flexports 0 and 1 of multiplexer 0, regardless of whether or not a revised Form 0106 has been prepared.

#### FORM 0107 — NO. 1A AMARC EXPIRATION PERIOD

##### A. General

**5.125** This form is used to enter into AMARC memory the AMA tape expiration period, ie, the number of days which must pass before a tape, on which AMA data have been recorded, is permitted to be reused. This expiration period must take into account the number of days required for tape transportation, tape processing, and data retention.

**5.126** The No. 1A AMARC—Generic 3 and Generic 4 uses tapes that have not been degaussed. The RAO must preformat a tape before sending it to the AMARC for reuse. A tape which has not been degaussed contains a creation date of the tape. When a tape that has not been degaussed is mounted, the AMARC uses the expiration period specified in memory to compare the creation date of the tape with the AMARC clock date. If the expiration period has not been met, the tape is rejected.

**5.127** The use of the expiration period eliminates the possibility of accidentally remounting an AMA tape on which AMA data have been recorded recently.

**5.128** One copy of Form 0107 is prepared for an AMARC.

**5.129** Figure 17 is a sample Form 0107. The following paragraphs describe the entries to be made on the form.

SECTION 201-900-030

NO. 1A AMARC 0107

NO. 1A AMARC 216200

EFFECTIVE DATE 6-6-80  
ISSUE DATE 6-1-80  
REVISION NO. -

NO. 1A AMARC EXPIRATION PERIOD

(aaaa) EXPIRATION PERIOD
4467

INPUT MESSAGE: RC EXP aaaa!  
DUMP MESSAGE: DUMP MEM NPD EXP

PREPARED BY J. Doe  
TELEPHONE ABC-XXXX

Fig. 17—Sample Form No. 1A AMARC 0107 — No. 1A AMARC Expiration Period

**B. Form Entries**

**Expiration Period**

**5.130** Enter the number of days which must pass before a tape, on which AMA data have been recorded, is permitted to be reused. Valid entries are 0000 through 9999 (decimal).

**C. Dump Message Interpretation**

**5.131** The message **DUMP MEM NPD EXP** results in an octal dump of the expiration period for the AMA billing tapes written by the AMARC. Figure 18 is the **DUMP MEM NPD EXP** output for the data on sample Form 0107.

**5.132** The dumped octal value can be read into an octal to decimal conversion table, converted to decimal on a calculator, or can be converted manually according to the instructions in the following paragraphs.

**5.133 *Convert Octal to Binary:*** Convert the 6-digit octal value to a 16-bit binary word. Each value, except the leftmost octal digit, is converted to a 3-digit binary number. The leftmost octal value is used as a 1-digit binary number. The octal value is converted to binary as illustrated in Table O.

```
DUMP MEM NPD EXP!PF
M 26 01 DUMP MEM NPD EXP
    26 01 010563
    26 01 EOD
```

**Fig. 18—Sample DUMP MEM NPD EXP**

**TABLE O**

<b>OCTAL</b>	0	1	0	5	6	3										
<b>BIT NUMBER</b>	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
<b>BINARY</b>	0	0	0	1	0	0	0	1	0	1	1	1	0	0	1	1

**5.134 *Convert Binary to Decimal:*** Convert the 16-digit binary word to a decimal value by adding the decimal values of the individual digits.

- 1
- 2
- 16
- 32
- 64
- 256
- 4096
- 4467

**6. PREPARATION OF NPD FORMS THAT SPECIFY ENTITY PARAMETERS—NPD FORM SERIES 0200**

**6.01** The following paragraphs provide instructions for preparation of the 0200 series of NPD forms which are used to record entity parameters. Entity parameters provide information needed by the AMARC to translate and expand the billing data received from BDT, CDA, CDT and No. 3 ESS entities.

**6.02** Some of the Entity Parameter forms must be prepared for each entity equipped with a specific sensor. Other forms must be prepared only for each entity with a particular feature. The instructions for each form specify the application of the form. In addition, Table A specifies the NPD forms required for each sensor type.

**6.03** The AMARC reformats billing data received from ETS and VSS entities, but does not perform any translations with the data. The ETS and VSS entities, therefore, do not require preparation of any of the Entity Parameter forms.

**6.04** The AMARC does not perform any translations with the data received from a No. 2B ESS or No. 5 ESS entity. Entity Parameter Form 0223, Modules Equipped, is required for these entities, however. This form allows AMARC to determine whether the Call Assembly Index (CAI) received from a No. 2B ESS or No. 5 ESS entity is valid.

**6.05** An entity is defined by the following statements:

- (a) A step-by-step (CDA) entity is an aggregate of switching equipment sharing an intermediate or common distributing frame in which all customers follow uniform dial routing rules and receive uniform billing treatment.
- (b) A crossbar entity (BDT, CDT, ETS) is a marker group.
- (c) A No. 3 ESS, No. 2B ESS, or No. 5 ESS entity is equivalent to an ESS office.
- (d) A VSS entity is equivalent to a VSS office.

**FORM 0200 — BDT RECORDER PORTS**

**A. General**

**6.06** Data from Form 0200 are entered into the Recorder Port Table for the specified BDT entity. This table designates for each recorder port (the BDT interface to the regular recorder in the central office) the number of the Calling Office Index (COI) Translation Table to be used by the AMARC to determine the calling central office code.

**6.07** On all BDT calls, the central office code portion of the calling telephone number is transmitted to the AMARC as a 2-digit code, the COI. The AMARC translates the COI to the calling numbering plan area (NPA) and central office code before recording the call details on magnetic tape. This translation is accomplished through the appropriate COI Translation Table.

**6.08** Each BDT serves a maximum of ten regular recorders which interface to the BDT through a recorder port. Each regular recorder may receive calls from a different set of COIs. Therefore, there must be a COI Translation Table associated with each recorder port. This association is made through the Recorder Port Table.

**6.09** This form is prepared only for BDT entities. One Form 0200 is prepared for each BDT entity. An entity may be served by a maximum of three BDTs. The form accommodates three BDTs.

**6.10** Figure 19 is a sample Form 0200. The following paragraphs describe the entries to be made on the form.

**B. Form Entries**

**Entity Number**

**6.11** Enter the entity number as assigned on Form 0101. Valid entries are 000 through 137 (octal).

**BDT Number, BDT Recorder Port**

**6.12** These columns list the ten recorder ports of each BDT. Each recorder port is listed separately to allow association with an individual COI Translation Table, when required. More than one recorder port may use the same COI Translation Table, but each recorder port COI Translation Table specification must be entered separately in the Recorder Port Table. (This table is called the BDT Block Table in some documentation.)

**COI Translation Table**

**6.13** Enter the number of the COI Translation Table to be used to translate the COIs received on calls from the particular recorder port. Valid entries are 0 through 26 (decimal). In the example

shown in Fig. 19 for BDT 0, recorders 0, 1, and 8 use the same COI Translation Table (00). Similarly, recorders 2 and 9 use the same COI Translation Table (01).

**6.14** Before this portion of Form 0200 is completed, two other forms should be completed:

- (a) Office Record Form 0501 that specifies the assignment of each regular recorder to a BDT recorder port.
- (b) Form 0202 that constructs one COI Translation Table for a BDT entity. The COI Translation Tables required for an entity should be structured on Form 0202 before the table numbers are entered on Form 0200. This will allow determi-

nation of whether some recorders (recorder ports) can use the same COI Translation Table.

**6.15** Some COIs require special translation to a calling NXX that is based on the type of call. If a COI requires special translation for a common control switching arrangement (CCSA), wide area telephone service (WATS), or teletypewriter exchange service (TWX) call, Form 0209 must be prepared to specify the special COI translation. The special COI Translation Table must be identified by the same number as assigned to the regular COI Translation Table, since the Recorder Port Table does not allow specification of two translation table numbers for a recorder port.

NO. 1A AMARC 0200  
 NO. 1A AMARC 216 200  
 ENTITY LRTP OH95 75F

EFFECTIVE DATE 6-6-80  
 ISSUE DATE 6-1-80  
 REVISION NO. -

BDT RECORDER PORTS  
 (aaa) ENTITY NUMBER 006

(b) BDT	(c) RECORDER PORT	(dd) COI TRANSLATION TABLE
0	1	00
	2	01
	3	-
	4	-
	5	-
	6	-
	7	-
	8	00
	9	01
	0	00
1	1	02
	2	02
	3	-
	4	-
	5	-
	6	-
	7	-
	8	02
	9	02
	0	02
2	1	-
	2	-
	3	-
	4	-
	5	-
	6	-
	7	-
	8	-
	9	-
	0	-

INPUT MESSAGE: RC ENT aaa RCDR b c dd!  
 DUMP MESSAGE: DUMP MEM NPD RDR

PREPARED BY J. Doe  
 TELEPHONE ABC-XXXX

Fig. 19—Sample Form No. 1A AMARC 0200 — BDT Recorder Ports

### C. Generic 3 Dump Message Interpretation

**6.16** The message **DUMP MEM NPD RDR** results in an octal dump of the Recorder Port Table for the entity specified in the dump input message. Figure 20 is the **DUMP MEM NPD RDR** output for the data on sample Form 0200.

**6.17** The recorder port number and the BDT number associated with each dumped word are implied by the position of the dumped data. The first word **bbbbbb** contains data for recorder ports 1 and

2 of BDT 0; the first word **ffffff** contains data for recorder ports 9 and 10 (0) of BDT 0. The second group of words **bbbbbb** through **ffffff** contains data for BDT 1, and the third group of words contains data for BDT 2.

**6.18** The following paragraphs describe the steps that must be performed to convert the data for the second word **eeeeee** into values that can be compared with sample Form 0200.

```
DUMP MEM NPD RDR 006!PF
```

```
M 20 00 DUMP MEM NPD RDR 006
```

```
20 00 001001 000000 000000 000401 001002 000403 000000 000000 001400
```

```
20 00 001403 000000 000000 000000 000000 000000
```

```
20 00 EOD
```

**Fig. 20—Sample Generic 3 DUMP MEM NPD RDR**

**6.19 Convert Octal to Binary:** Convert the 6-digit octal value for each word to a 16-bit binary word. Each value, except the leftmost octal digit, is converted to a 3-digit binary number. The

leftmost octal value is used as a 1-digit binary number. Word **eeeeee** is converted to binary as illustrated in Table P.

**TABLE P**

OCTAL	0	0			1			4			0			0		
BIT NUMBER	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
BINARY	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0

**6.20 Interpret Bits:** The 16-bit binary word is next sectioned into bytes. Each byte is converted to a 3-digit octal value, as illustrated in Table Q. Bits 0 through 2 represent one octal digit, bits 3 through 5 represent another octal digit, and bits 6

and 7 represent another octal digit. Bits 8 through 15, the second byte, are translated to octal digits in the same manner.

TABLE Q

	BYTE								BYTE							
BINARY	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0
BIT NUMBER	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
OCTAL	0		0		3		0		0		0		0			

**6.21 Convert Octal to Decimal:** Each 3-digit octal value is next converted to decimal. Table R is an octal to decimal conversion table. Bits 0 through 7, the first byte, are octal value 000 or decimal value 0. This byte shows that recorder port 7 of BDT 1 is not equipped. Bits 8 through 15, the second byte, are octal value 003 or decimal value 3. The OM states that the dumped data specify the COI Translation Table number plus 1. This byte shows that recorder port 8 of BDT 1 is associated with COI Translation Table 02.

#### D. Generic 4 Dump Message Interpretation

**6.22** The message **DUMP MEM NPD RDR** results in a dump of the Recorder Port Table for each equipped BDT for a specified BDT entity. The output includes data for the table for each BDT below (having a lower BDT number) the highest-numbered BDT equipped, regardless of whether a lower-numbered BDT has any recorder ports equipped. For example, if BDTs 0 and 2 are equipped for a specified BDT entity, the Recorder Port Table for BDT 1 is also output although no recorder ports are equipped for that BDT.

**6.23** The message **DUMP MEM NPD RDR** output begins by identifying the BDT entity requested. This is followed by the Recorder Port Table data for each BDT equipped for the entity or for the highest numbered BDT equipped and all lower-numbered BDTs. For each of the ten recorder ports that may be equipped on a BDT, the data provided is either the COI Translation Table number associated with that

recorder port or \*\* (not equipped). Volume 2 of the OM/TRG describes the format of the output. The output is easily compared with the Form 0200 entry for the identified BDT and recorder port.

#### FORM 0201 — CENTRAL OFFICE CODES—CDA ENTITIES

##### A. General

**6.24** Data from Form 0201 are entered into the COI Translation Table for the specified CDA entity. This table is used by the AMARC in translating the calling telephone number. One COI Translation Table is constructed for each CDA entity.

**6.25** A COI Translation Table translates a single-digit COC (Central Office Code) Index, which represents a 3-digit COC in a CDA entity. For convenience, the COC Index is hereafter referred to as the COI (Calling Office Index). The AMARC receives the COI and the 4 digits of the line number when call details are transmitted. The AMARC must translate the COI to determine the calling telephone number.

**6.26** One Form 0201 is prepared for each CDA entity.

**6.27** Figure 21 is a sample Form 0201. The following paragraphs describe the entries to be made on the form.

**B. Form Entries****Entity Number**

**6.28** Enter the entity number as assigned on Form 0101. Valid entries are 000 through 137 (octal).

**COC Index**

**6.29** List all COIs (COC Indexes) for the entity. There must be one COI for each COC in the entity. Valid entries are 0 through 9 (decimal). The form indicates that four characters should be entered since the same input message is used for BDT COI Translation Tables. Leading zeros will be assumed when a single character is typed for the **bbcc** entry of the **RC ENT COC** input message.

**Calling NXX**

**6.30** For each COI, enter the physical central office code (or other 3-digit code used in place of a central office code—but not a theoretical code) which is represented by the COI. Valid entries are 001 through 999 (decimal).

**Rate Center**

**6.31** Enter the rate center of the NXX represented by the COI. Valid entries are 0 and 1.

**6.32** A rate center is defined as a group of calling and called central office codes where the rate structure is identical for all calling central office codes in the group. Each CDA entity may have two rate centers which are designated arbitrarily as 0 and 1.

**6.33** A Message Billing Index Table (see Form 0208) must be constructed for each rate center. This allows customers in the same entity but different rate centers to be charged different rates for a

call to the same NXX. In determining which Message Billing Index Table to use for a CDA call, the AMARC uses the **Rate Center** value for the COI along with data from the following NPD tables:

- Entity Table (Form 0101)
- Channel Table (Form 0300)
- Theoretical Code Hundreds Table (Form 0206)
- Theoretical Office Code Table (Form 0205).

**6.34** The master record for an entity will make note if there is more than one rate center and will designate the calling central office codes within each rate center.

**Physical/Theoretical Indication**

**6.35** Enter **0** if the COI cannot be translated to a theoretical office code; enter **1** if it can.

**6.36** The Entity Table (see Form 0101) specifies whether a CDA entity has any theoretical office codes. The **Physical/Theoretical Indication** in the COI Translation Table specifies for each COI within the entity whether translation to a theoretical office code is possible. If theoretical translation is possible, the AMARC accesses the Theoretical Code Hundreds Table (see Form 0206) and the Theoretical Office Code Table (see Form 0205) before translating the COI to the **Calling NXX** specified in the COI Translation Table.

**6.37** Any theoretical office codes in an office will be shown in the master record.

TABLE R

	0	1	2	3	4	5	6	7
0000	0000	0001	0002	0003	0004	0005	0006	0007
0010	0008	0009	0010	0011	0012	0013	0014	0015
0020	0016	0017	0018	0019	0020	0021	0022	0023
0030	0024	0025	0026	0027	0028	0029	0030	0031
0040	0032	0033	0034	0035	0036	0037	0038	0039
0050	0040	0041	0042	0043	0044	0045	0046	0047
0060	0048	0049	0050	0051	0052	0053	0054	0055
0070	0056	0057	0058	0059	0060	0061	0062	0063
0100	0064	0065	0066	0067	0068	0069	0070	0071
0110	0072	0073	0074	0075	0076	0077	0078	0079
0120	0080	0081	0082	0083	0084	0085	0086	0087
0130	0088	0089	0090	0091	0092	0093	0094	0095
0140	0096	0097	0098	0099	0100	0101	0102	0103
0150	0104	0105	0106	0107	0108	0109	0110	0111
0160	0112	0113	0114	0115	0116	0117	0118	0119
0170	0120	0121	0122	0123	0124	0125	0126	0127
0200	0128	0129	0130	0131	0132	0133	0134	0135
0210	0136	0137	0138	0139	0140	0141	0142	0143
0220	0144	0145	0146	0147	0148	0149	0150	0151
0230	0152	0153	0154	0155	0156	0157	0158	0159
0240	0160	0161	0162	0163	0164	0165	0166	0167
0250	0168	0169	0170	0171	0172	0173	0174	0175
0260	0176	0177	0178	0179	0180	0181	0182	0183
0270	0184	0185	0186	0187	0188	0189	0190	0191
0300	0192	0193	0194	0195	0196	0197	0198	0199
0310	0200	0201	0202	0203	0204	0205	0206	0207
0320	0208	0209	0210	0211	0212	0213	0214	0215
0330	0216	0217	0218	0219	0220	0221	0222	0223
0340	0224	0225	0226	0227	0228	0229	0230	0231
0350	0232	0233	0234	0235	0236	0237	0238	0239
0360	0240	0241	0242	0243	0244	0245	0246	0247
0370	0248	0249	0250	0251	0252	0253	0254	0255

OCTAL	DECIMAL
0000	0000
To	To
0377	0255

TABLE R (Contd)

	0	1	2	3	4	5	6	7
0400	0256	0257	0258	0259	0260	0261	0262	0263
0410	0264	0265	0266	0267	0268	0269	0270	0271
0420	0272	0273	0274	0275	0276	0277	0278	0279
0430	0280	0281	0282	0283	0284	0285	0286	0287
0440	0288	0289	0290	0291	0292	0293	0294	0295
0450	0296	0297	0298	0299	0300	0301	0302	0303
0460	0304	0305	0306	0307	0308	0309	0310	0311
0470	0312	0313	0314	0315	0316	0317	0318	0319
0500	0320	0321	0322	0323	0324	0325	0326	0327
0510	0328	0329	0330	0331	0332	0333	0334	0335
0520	0336	0337	0338	0339	0340	0341	0342	0343
0530	0344	0345	0346	0347	0348	0349	0350	0351
0540	0352	0353	0354	0355	0356	0357	0358	0359
0550	0360	0361	0362	0363	0364	0365	0366	0367
0560	0368	0369	0370	0371	0372	0373	0374	0375
0570	0376	0377	0378	0379	0380	0381	0382	0383
0600	0384	0385	0386	0387	0388	0389	0390	0391
0610	0392	0393	0394	0395	0396	0397	0398	0399
0620	0400	0401	0402	0403	0404	0405	0406	0407
0630	0408	0409	0410	0411	0412	0413	0414	0415
0640	0416	0417	0418	0419	0420	0421	0422	0423
0650	0424	0425	0426	0427	0428	0429	0430	0431
0660	0432	0433	0434	0435	0436	0437	0438	0439
0670	0440	0441	0442	0443	0444	0445	0446	0447
0700	0448	0449	0450	0451	0452	0453	0454	0455
0710	0456	0457	0458	0459	0460	0461	0462	0463
0720	0464	0465	0466	0467	0468	0469	0470	0471
0730	0472	0473	0474	0475	0476	0477	0478	0479
0740	0480	0481	0482	0483	0484	0485	0486	0487
0750	0488	0489	0490	0491	0492	0493	0494	0495
0760	0496	0497	0498	0499	0500	0501	0502	0503
0770	0504	0505	0506	0507	0508	0509	0510	0511

OCTAL	DECIMAL
0400	0256
To	To
0777	0511



**C. Generic 3 Dump Message Interpretation**

**6.38** The message **DUMP MEM NPD COC** results in an octal dump of a COI Translation Table for the entity specified in the dump input message. This dump message applies to CDA, BDT, and CDT entities. The dump message explanation for BDT entities is provided in the instructions for Form 0202. The dump message explanation for CDT entities is provided in the instructions for Form 0211.

**6.39** A CDA entity has only one COI Translation Table. Figure 22 is the **DUMP MEM NPD COC** output for the data on sample Form 0201. Beginning with COI 1, the COI number is implied by the position

of the data in the table. Data for COI 0 is in the tenth position in the table.

**6.40** The following paragraphs describe the steps that must be performed to convert dumped words **cccccc** and **dddddd** to values that can be compared with the Form 0201 entries for COI 1.

**6.41 Convert Octal to Binary:** Convert the 6-digit octal words to 16-bit binary words. Each value of the octal word, except the leftmost octal digit, is converted to a 3-digit binary number. The leftmost octal value is used as a 1-digit binary number. These words are converted to binary as illustrated in Table S.

```
DUMP MEM NPD COC 004!PF
M 12 01 DUMP MEM NPD COC 004
12 01 001605 000000 000000 000000 000000 000000 000000 000000 000000
12 01 000000 000000 000000 000000 000000 000000
12 01 EOD
```

**Fig. 22—Sample Generic 3 DUMP MEM NPD COC for CDA Entity**

**TABLE S**

cccccc																
OCTAL	0	0			0			6			0			5		
BIT NUMBER	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
BINARY	0	0	0	0	0	0	1	1	1	0	0	0	0	1	0	1
dddddd																
OCTAL	0	0			0			0			0			0		
BIT NUMBER	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
BINARY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

**6.42 Interpret Bits:** Each 16-bit binary word is next sectioned into groups of bits that represent input data values, as defined in the OM. Each group of bits is then converted to the octal value rep-

resented by the binary value of the group. These conversions are illustrated in Table T.

TABLE T

**cccccc**

BINARY	0	0	0	0	0	0	1	1	1	0	0	0	0	1	0	1
BIT NUMBER	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
OCTAL	X	X	X	X	3			8			5					

**dddddd**

BINARY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
BIT NUMBER	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
OCTAL	0				0			0	0	X	X	X	X	X	X	X

**6.43** Words **cccccc** and **dddddd** can now be interpreted as follows:

- (a) Word **cccccc** indicates that COI 1 is to be translated to NXX-583.
- (b) Word **dddddd** indicates that this is a physical central office code and that the rate center that applies to calls from this COI is 0. If this COI is used, bits 8 through 15 of this word provide translation information for COI 1.

**D. Generic 4 Dump Message Interpretation**

**6.44** The message **DUMP MEM NPD COC** results in a dump of either an entire COI Translation Table for the entity specified in the dump input message or of the data for a single COI in that table. This depends on whether a COI is specified in the message. This dump message applies to CDA, BDT, and CDT entities. The dump message explanation for a BDT entity is provided in the instructions for Form 0202. The dump message explanation for a CDT entity is provided in the instructions for Form 0211.

**6.45** A CDA entity has only one COI Translation Table, Table OO. When field **cc** is included in the **DUMP MEM NPD COC** input message, only the data for the COI specified are output. When field **cc** is

omitted from the message, the data for COIs 0 through 9 in Table OO are output.

**6.46** The output for **DUMP MEM NPD COC** begins by identifying the COI Translation Table number and entity requested. Next, the output prints column headings that apply to the sensor type of the specified entity. The output then fills in each column with the appropriate value for the entity, COI Translation Table and/or COI specified in the input message. For an unequipped COI, eg, a COI for which no data were specified on Form 0201, the output shows **NOT EQUIPPED**.

**6.47** Numerical conversion of the dumped data, for example, conversion from octal to binary, is not required in order to compare the dumped data with the data on NPD Form 0201. An explanation of the values associated with each dump message column heading is provided in Volume 2 of the OM/TRG.

**6.48** Note that for a CDA entity, the dump message output includes a **CGN NPA DNDX** heading. This column does not correspond to a Form 0201 column. For a CDA entity, the value in this column is always 0.

**FORM 0202 — CENTRAL OFFICE CODES—BDT ENTITIES**

**A. General**

**6.49** Data from Form 0202 are entered into a Calling Office Index (COI) Translation Table for the specified BDT entity. This table is used by the AMARC along with the Special COI Translation Table (see Form 0209) in translating the calling telephone number.

**6.50** A COI Translation Table translates the COI, the 2-digit code which represents a 3-digit central office code in a BDT entity. The AMARC receives the COI and the 4 digits of the line number when call details are transmitted. The AMARC must translate the COI to determine the calling telephone number.

**6.51** Up to 30 COIs may be assigned in an entity. A BDT entity may have as many as 27 regular recorders. Each of these recorders may receive calls marked with a different group of COIs. A COI Translation Table must be associated with each regular recorder to define the COIs which are transmitted by that recorder to the AMARC. Multiple recorders may be associated with a particular translation table. The Recorder Port Table constructed for each BDT entity (see Form 0200) specifies the number of the COI Translation Table to be used for translating the COIs received from each recorder port.

**6.52** Form 0202 constructs one COI Translation Table. One copy is prepared for each COI Translation Table required for a BDT entity. A maximum of 27 tables may be provided for an entity.

**6.53** The information required for a COI Translation Table should be obtained from the accounting center.

**6.54** Figure 23 is a sample Form 0202. The following paragraphs describe the entries to be made on the form.

**B. Form Entries**

**Entity Number**

**6.55** Enter the entity number as assigned on Form 0101. Valid entries are 000 through 137 (octal).

**COI Translation Table Number**

**6.56** Enter the number which will identify this table. This number is an arbitrary assignment. Valid entries are 00 through 26 (decimal).

**COI**

**6.57** List all COIs *presently* assigned in the entity. Up to 30 COIs may be in use. Valid entries are 00 through 29 (decimal).

**Calling NXX**

**6.58** For each COI, enter the 3-digit calling central office code (or other 3-digit code used in place of a central office code) which is represented by the COI. Valid entries are 001 through 999 (decimal).

**6.59** This **Calling NXX** may not be used on a call if the originating class of service is TWX, WATS, or CCSA. The explanation provided in subsequent paragraphs for each Call Format Treatment Type describes how the call NXX is determined.

**Calling NPA Index**

**6.60** Enter the index which represents the calling NPA of the COI in the Calling NPA Table (see Form 0203). Valid entries are 0 through 9 (decimal).

**Call Format Treatment Type**

**6.61** Enter the value from Table U which identifies the call record format treatment to be applied to a call on which this COI is transmitted.

**TABLE U**

CALL FORMAT TREATMENT TYPE	CALL RECORDS FORMAT TREATMENT
0	Normal (COI and MBI)
1	WATS
2	TWX
3	Local recording requirement *
4	Left-shift CCSA

\* Call Format Treatment Type 3 is *not* available with Generic 3 or Generic 4.

**6.62** The following paragraphs describe the application of each of these treatment types.

**6.63 *Call Format Treatment Type 0:*** This treatment type applies when a single COI is used for a mixture of plain old telephone service (POTS), TWX, WATS, and CCSA (but not left-shift CCSA) customers, where each of these services requires a different calling NXX. For a COI with left-shift CCSA customers, treatment type 4 must be specified.

**6.64** With treatment type 0, the calling NXX is determined as a function of the Message Billing Index (MBI) translation, with the exception of WATS AFR (automatic flexible routing) (see paragraph 6.76) calls. The MBI translation determines the AMA Call Type format to be applied to the call.

**6.65** During the MBI translation, the Special MBI Table (see Form 0210) for the entity is accessed with the MBI transmitted on the call. If there is a translation for the MBI in the Special MBI Table, the AMA Call Type determined from that table is used in formatting the call. If there is no translation for the MBI in the Special MBI Table, the Call Type is determined according to standard MBI translations. Section 201-900-033 defines the standard MBI translations for BDT calls.

**6.66** If the AMA Call Type is Detailed Billed, Message Rate (Call Type 001), Bulk Billed, Message Rate (002), or Station Paid Toll (006), the **Calling NXX** specified in the regular COI Translation Table (Form 0202) is used in the call record.

**6.67** If the AMA Call Type is Dial Teletypewriter Exchange (DTWX) Station Paid (020), the AMARC checks whether a special DTWX calling NXX is provided for the COI (see Note). If a special DTWX calling NXX is provided, it is used in the AMA call record. If one is not provided, the **Calling NXX** for the COI from Form 0202 is used.

**Note:** If a COI requires a special TWX, WATS, or CCSA calling NXX translation, Form 0209 must be prepared to enter the translation into a Special COI Translation Table. The Special COI Translation Table must be assigned the same table numbers as the number of the regular COI Translation Table in which the COI is translated. When a Special COI Translation

Table is constructed, the AMARC sets flags in the same-numbered regular COI Translation Table. A flag is set for each COI that has a special calling NXX translation in the Special COI Translation Table.

**6.68** If the AMA Call Type is WATS Station Number (030) or WATS Billing Number (068), the AMARC checks whether a special WATS calling NXX is provided for the COI. If a special WATS calling NXX is provided, it is used in the AMA call record. If one is not provided, the **Calling NXX** for the COI on Form 0202 is used.

**6.69** If the AMA Call Type is CCSA Sampled (021), the AMARC checks whether a special CCSA calling NXX is provided for the COI. If a special CCSA calling NXX is provided, it is used in the AMA call record. If one is not provided, the **Calling NXX** for the COI on Form 0202 is used.

**6.70 *Call Format Treatment Type 1:*** This treatment type applies when a COI is dedicated to WATS. All calls with this treatment type, with the exception of WATS AFR calls (see paragraph 6.76), are formatted as AMA Call Type WATS Billing Number (068).

**6.71** As a part of the Call Type 068 formatting routine, AMARC checks whether a special WATS calling NXX is provided for the COI in a Special COI Translation Table. The WATS calling NXX must be specified on Form 0202 as the COI translation. It may also be specified on Form 0209, but this is not necessary, since the COI is dedicated to that calling NXX. If a WATS calling NXX is provided, the WATS calling NXX from the Special COI Translation Table is used in the AMA call record. If one is not provided, the **Calling NXX** for the COI on Form 0202 is used.

**6.72 *Call Format Treatment Type 2:*** This treatment type applies when a COI is dedicated to TWX. All calls with this treatment type, with the exception of WATS AFR calls (see paragraph 6.76), are formatted as AMA Call type DTWX Station Paid (020).

**6.73** As a part of the Call Type 020 formatting routine, AMARC checks whether a special TWX calling NXX is provided for the COI in a Special COI Translation Table. The TWX calling NXX must be

specified on Form 0202 as the COI Translation. It may also be specified on Form 0209, but this is not necessary, since the COI is dedicated to that calling NXX. If a TWX calling NXX is provided, the TWX calling NXX from the Special COI Translation Table is used in the AMA call record. If one is not provided, the **Calling NXX** for the COI on Form 0202 is used.

**6.74 Call Format Treatment Type 4:** This treatment type applies when a COI is used for left-shift CCSA calls. The COI may be used for a mixture of POTS, TWX, WATS and CCSA customers, as explained for Call Format Treatment Type 0.

**6.75** With treatment type 4, the calling NXX is determined as a function of the MBI translation exactly as explained for treatment type 0 with the exception of CCSA calls. When the AMA Call Type

determined from the MBI translation is CCSA Sampled, the calling NXX is formed by "left shifting" the calling line number three places. The thousands, hundreds, and tens digits become the calling NXX. The original units digit becomes the modified thousands digit of the calling line number. The hundreds, tens, and units digits of the calling line number are filled with zeros.

**6.76 WATS AFR Calls:** The WATS AFR calls require formatting as AMA Call Type WATS AFR (030), per Comptroller Letter M284A. A WATS AFR call is identified by a CCI (Call Class Index) of 6 or 8. When the AMARC receives a BDT call with CCI 6 or 8, the Call Format Treatment Type specified for the COI on Form 0202 is disregarded and the call is formatted as Call Type WATS AFR.



**C. Generic 3 Dump Message Interpretation**

**6.77** The message **DUMP MEM NPD COC** results in an octal dump of a COI Translation Table for the entity specified in the dump input message. This dump message applies to CDA, BDT, and CDT entities. The dump message explanation for CDA entities is provided in the instructions for Form 0201. The dump message explanation for CDT entities is provided in the instructions for Form 0211.

**6.78** A BDT entity may have up to 27 COI Translation Tables. For a BDT entity, the table dumped is the one specified in the dump input message. Figure 24 is the **DUMP MEM NPD COC** output for the data on sample Form 0202. The COI number is implied by the position of the data in the table, beginning with COI 1. Data for COI 0 are in the tenth position in the table; for COI 10, data are in the twentieth position, and for COI 20, data are in the thirtieth position.

```
DUMP MEM NPD COC 003 00!PF
M 10 01 DUMP MEM NPD COC 003 00
10 01 003470 043400 000005 003465 102400 000003 000550 031000 000007
10 01 003507 041400 000005 004166 064000 000010 000430 000000 000000
10 01 000000 000000 000000 000000 000000 000000 000000 000000 000000
10 01 000000 000000 000000 003421 010401 001010 004421 000004 000000
10 01 000000 000000 000000 000000 000000 000000 000000 000000 000000
10 01 EOD
```

**Fig. 24—Sample Generic 3 DUMP MEM NPD COC for BDT Entity**

**6.79** The following paragraphs describe the steps that must be performed to convert the dumped words **cccccc**, **dddddd** and **eeeeee** to values that can be compared with the Form 0202 data for COI Translation Table 00 for COIs 01 and 02.

value of the octal word, except the leftmost octal digit, is converted to a 3-digit binary number. The leftmost octal value is used as a 1-digit binary number. These words are converted to binary as illustrated in Table V.

**6.80** **Convert Octal to Binary:** Convert each 6-digit octal value to a 16-bit binary word. Each

TABLE V

cccccc

OCTAL	0	0			3			4			7			0		
BIT NUMBER	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
BINARY	0	0	0	0	0	1	1	1	0	0	1	1	1	0	0	0

dddddd

OCTAL	0	4			3			4			0			0		
BIT NUMBER	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
BINARY	0	1	0	0	0	1	1	1	0	0	0	0	0	0	0	0

eeeeee

OCTAL	0	0			0			0			0			5		
BIT NUMBER	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
BINARY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0

**6.81 Interpret Bits:** Each 16-bit binary word is next sectioned into groups of bits that represent input data values as defined in the OM. Each group of bits is then converted to the octal value rep-

resented by the binary value of the group. These conversions are illustrated in Table W.

TABLE W

cccccc

BINARY	0	0	0	0	0	1	1	1	0	0	1	1	1	0	0	0
BIT NUMBER	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
OCTAL	0				7			3			8					

dddddd

BINARY	0	1	0	0	0	1	1	1	0	0	0	0	0	0	0	0
BIT NUMBER	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
OCTAL	4				7			X X 0			0					

eeeeee

BINARY	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
BIT NUMBER	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
OCTAL	X	X	0				0			5						

**6.82** Words **cccccc**, **dddddd** and **eeeeee** can now be interpreted as follows:

(a) The word **cccccc** indicates that COI 01 is to be translated to NXX 837 and that the calling NPA index for this COI is 0.

(b) The word **dddddd** indicates the following:

(1) COI 01

(a) Receives normal call formatting treatment

(b) There is no Special COI Translation Table entry that corresponds to this COI for this COI Translation Table. This data value does not correspond to a Form 0202 entry. This data value is determined by the AMARC based on the use of the **RC ENT SPCOC** input message (Form 0209) for the entity.

(2) COI 02

(a) The first two digits of the NXX to which this COI is to be translated are 74.

(c) The word **eeeeee** indicates the following:

(1) The third digit of the NXX for COI 02 is 5 (745).

(2) The COI 02 receives normal call formatting treatment.

(3) There is no Special COI Translation Table entry that corresponds to this COI for this COI Translation Table.

#### D. Generic 4 Dump Message Interpretation

**6.83** The message **DUMP MEM NPD COC** results in a dump of either an entire COI Translation Table for the entity specified in the input message or of the data for a single COI in that table. This depends on whether a COI is specified in the message. This dump message applies to CDA, BDT, and CDT entities. The dump message explanation for a CDA entity is provided in the instructions for Form 0201. The dump message explanation for a CDT entity is provided in the instructions for Form 0211.

**6.84** A BDT entity may have up to 27 COI Translation Tables. For a BDT entity, the table

dumped is the one specified in the dump input message. When field **cc** is included in the input message, only the data for the COI specified are output. When field **cc** is omitted from the message, the data for COIs 0 through 9 in the specified translation table are output.

**6.85** The output for **DUMP MEM NPD COC** begins by identifying the COI Translation Table number and the entity requested. Next, the output prints column headings that apply to the sensor type of the specified entity. The output then fills in each column with the appropriate value for the entity, COI Translation Table, and/or COI specified in the input message. For an unequipped COI, eg, a COI for which no data were specified on Form 0202, the output shows **NOT EQUIPPED**.

**6.86** Numerical conversion of the dumped data, for example, conversion from octal to binary, is not required in order to compare the dumped data with the data on NPD Form 0202. An explanation of the values associated with each dump message column heading is provided in Volume 2 of the OM/TRG.

**6.87** Note that for a BDT entity, the dump message output differs from the Form 0202 format in that the **CGN NPA INDX** output column precedes the **CGN NXX** output column. Also, the output includes an **SPCOC** column for which there is no corresponding Form 0202 column. For each COI this output column shows whether there is a special COI Translation Table entry that corresponds to that COI and COI Translation Table. The **SPCOC** value is determined by the AMARC based on the use of the **RC ENT SPOC** input message (Form 0209) for the entity.

#### FORM 0203 — CALLING NPA—CDA, CDT, BDT, NO. 3 ESS ENTITIES

##### A. General

**6.88** The information from Form 0203 is entered into the Calling NPA Table for the CDT, CDA, BDT, or No. 3 ESS entity. The table constructed for each CDA entity defines the home NPA. The table constructed for each BDT, CDT, or No. 3 ESS entity designates an index to represent each of up to ten calling NPAs.

**6.89** Form 0203 is prepared for each CDA, BDT, CDT, or No. 3 ESS entity.

**6.90** The input message **RC ENT CGN** is accepted for ETS and VSS entities. However, it has no

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meaning since ETS and VSS entities send assembled call records to the AMARC.

**6.91** Figure 25 is a sample Form 0203. The following paragraphs describe the entries to be made on the form.

**B. Form Entries**

**Entity Number**

**6.92** Enter the entity number as assigned on Form 0101. Valid entries are 000 through 137 (octal).

**Calling NPA Index**

**6.93** Each index represents a possible calling NPA for the entity. For CDA, CDT, and BDT entities, this index is not part of existing billing data. For No. 3 ESS entities, this index is transmitted as part of the billing record. Valid entries are 0 through 9 (decimal). For BDT and CDT entities, this index must

be consistent with the values assigned in the COI Translation Table for the entity (BDT Form 0202, CDT Form 0211). There is no COI Translation Table for a No. 3 ESS entity. A Calling NPA Index is not entered on Form 0201 for a CDA entity.

**6.94** For BDT, CDT, or No. 3 ESS, enter up to ten indexes, as required. For CDAs, only one calling NPA (the home NPA) can be specified. Enter 0 for CDAs. If there is more than one calling NPA for an entity, it will be noted in the master record.

**Calling NPA**

**6.95** List all possible calling NPAs (or 3-digit codes used in place of a calling NPA) for the entity. Valid entries are 000 through 999 (decimal). For BDT, CDT, or No. 3 ESS, enter up to ten calling NPAs arbitrarily by assigning each NPA to an index. For CDAs, enter only the home NPA as index 0.



**C. Generic 3 Dump Message Interpretation**

**6.96** The message **DUMP MEM NPD CGN** results in a BCD dump of the Calling NPA Table for the entity specified in the dump input message. Since this is a BCD dump, numerical conversion of the dumped data is not required for comparison with the form data.

```
DUMP MEM NPD CGN 010!PF
M 07 00 DUMP MEM NPD CGN 010
07 00 0614 0000 0000 0000 0000 0000 0000 0000 0000 0000
07 00 EOD
```

**Fig. 26—Sample Generic 3 DUMP MEM NPD CGN**

**D. Generic 4 Dump Message Interpretation**

**6.98** The message **DUMP MEM NPD CGN** results in a dump of data from the Calling NPA Table for the entity specified in the input message.

**6.99** The format of the output message for **DUMP MEM NPD CGN** and an explanation of the values associated with each variable field are provided in Volume 2 of the OM/TRG.

**6.100** Numerical conversion of the dumped data is not required in order to compare the dumped data with data on NPD Form 0203.

**FORM 0204 — CALLED NPA—BDT ENTITIES**

**A. General**

**6.101** Data from Form 0204 are entered into the Called NPA Table for the specified BDT entity. This table is used to translate the 1-digit compressed code received from a BDT to the called NPA.

**6.102** Form 0204 is prepared only for BDT entities. One copy is prepared for each BDT entity.

**6.103** Figure 27 is a sample Form 0204. The information for this form should be obtained from the accounting center. The following paragraphs describe the entries to be made on the form.

**B. Form Entries**

**Entity Number**

**6.104** Enter the entity number as assigned on Form 0101. Valid entries are 000 through 137 (octal).

**6.97** Figure 26 is the dump message output for a No. 3 ESS entity, entity 010. The Calling NPA Index is implied by the position of the NPA in the table. The first dumped word contains the NPA translation for index 0. The tenth word contains the NPA for index 9.

**Compressed Called NPA**

**6.105** Enter up to ten compressed NPAs which are presently used by the office. Each compressed code represents an NPA which is frequently called by customers in the entity. Valid entries are 0 through 9 (decimal).

**Called NPA**

**6.106** For each compressed code, enter the called NPA (or other 3-digit code used in place of an NPA) which is represented by the compressed NPA (see Note). Valid entries are 000 through 999 (decimal).

**Note:** When the called telephone number is included in a call record, AMARC records it as a 10-digit number. If only seven digits were dialed, AMARC fills the Terminating NPA data field of the call record with the translation for Compressed Called NPA 0. This should be taken into consideration when preparing Form 0204.

**6.107** Noncheck Dummy (NCD) characters may be used for all or any of the **Called NPA** digits. An NCD is entered on the form as an asterisk (\*). The use of NCDs for the called NPA, however, causes additional processing tasks for the RAO when processing the AMA tape.

NO. 1A AMARC 0204  
 NO. 1A AMARC 216200  
 ENTITY STBO 0462 626

EFFECTIVE DATE 6-6-80  
 ISSUE DATE 6-1-80  
 REVISION NO. -

**CALLED NPA  
 BDT ENTITIES**

(aaa) ENTITY NUMBER 003

(b) COMPRESSED CALLED NPA	(ccc) CALLED NPA
0	406
1	307
2	208
3	509
4	503
5	702
6	801
7	602
8	505
9	806

INPUT MESSAGE: RC ENT aaa CDN b ccc!  
 DUMP MESSAGE: DUMP MEM NPD CDN

PREPARED BY J. Doe  
 TELEPHONE ABC-XXXX

Fig. 27—Sample Form No. 1A AMARC 0204 — Called NPA—BDT Entities

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**C. Generic 3 Dump Message Interpretation**

**6.108** The called NPA compressed code translations are dumped with the **DUMP MEM NPD CDN** message. This message results in a BCD dump of the Called NPA Table for the entity specified in the dump input message. Since this is a BCD dump, numerical conversion of the dumped data is not required for comparison with the form data.

**6.109** The message **DUMP MEM NPD CDN** applies to BDT and CDT entities. The dump message

```
DUMP MEM NPD CDN 003!PF  
M 07 00 DUMP MEM NPD CDN 003  
07 00 0307 0208 0509 0503 0702 0801 0602 0505 0806 0406  
07 00 EOD
```

**Fig. 28—Sample Generic 3 DUMP MEM NPD CDN**

**D. Generic 4 Dump Message Interpretation**

**6.111** The message **DUMP MEM NPD CDN** results in a dump of data from the Called NPA Table for the BDT entity specified in the input message.

**6.112** The format of the output message for **DUMP MEM NPD CDN** and an explanation of the values associated with each variable field are provided in Volume 2 of the OM/TRG.

**6.113** Numerical conversion of the dumped data is not required in order to compare the dumped data with data on NPD Form 0204.

**FORM 0205 — THEORETICAL OFFICE CODES—CDA ENTITIES**

**A. General**

**6.114** Data from Form 0205 are entered into the Theoretical Office Code Table for the specified CDA entity. This table designates an index to represent each of up to three theoretical codes in an entity. This table provides translation of the index to rate center, theoretical NPA, and theoretical NXX.

explanation for CDT entities is provided in the instructions for Form 0220.

**6.110** Figure 28 is the dump message output for sample Form 0204. The called NPA compressed code is implied by the position of the NPA in the table. For BDT entities, the NPA translations for codes 1 through 9 are specified in words 1 through 9, respectively. The translation for code 0 is specified in the tenth word.

**6.115** The AMARC accesses the theoretical Office Code Translation Table using the Theoretical Office Code Index as a pointer. This index is obtained from the Theoretical Code Hundreds Table (see Form 0206), based on the COI and line number transmitted on the call.

**6.116** Form 0205 is prepared only for CDA entities which have theoretical office codes. One copy is prepared for each of these CDA entities.

**6.117** Figure 29 is a sample Form 0205. The information for this form is found in the master record for the entity. The following paragraphs describe the entries to be made on the form.

**B. Form Entries**

**Entity Number**

**6.118** Enter the entity number as assigned on Form 0101. Valid entries are 000 through 137 (octal).

**Theoretical Office Code Index**

**6.119** Enter index numbers 1, 2, and 3 as required for the entity.

NO. 1A AMARC 0205  
 NO. 1A AMARC 216 200  
 ENTITY LITH OH81 837

EFFECTIVE DATE 6-6-80  
 ISSUE DATE 6-1-80  
 REVISION NO. -

**THEORETICAL OFFICE CODES  
 CDA ENTITIES**

(aaa) ENTITY NUMBER 013

(b) THEORETICAL OFFICE CODE INDEX	(c) RATE CENTER	(ddddd) THEORETICAL NPA NXX
<u>1</u>	<u>0</u>	<u>614 232</u>

INPUT MESSAGE: RC ENT aaa TC bc dddde!

DUMP MESSAGE: DUMP MEM NPD TOC

PREPARED BY J. Doe  
 TELEPHONE ABC-XXXX

Fig. 29—Sample Form No. 1A AMARC 0205 — Theoretical Office Codes— CDA Entities

**Rate Center**

**6.120** Enter the rate center of the theoretical code represented by each index. Valid entries are 0 and 1.

**Theoretical NPA NXX**

**6.121** Enter the theoretical NPA and NXX which are to be represented by each index. Valid entries are 000 through 999 (decimal) for NPA and 001 through 999 (decimal) for NXX.

**C. Generic 3 Dump Message Interpretation**

**6.122** The message **DUMP MEM NPD TOC** results in a BCD dump of the Theoretical Office Code Table for the entity specified in the dump input message. Since this is a BCD dump, numerical conversion is not required to compare the dumped data with the form data.

**6.123** Figure 30 is the **DUMP MEM NPD TOC** output for the sample Form 0205.

```
DUMP MEM NPD TOC 013!PF

M 18 01 DUMP MEM NPD TOC 013

18 01 0614 0232 0000 0000 0000 0000

18 01 EOD
```

**Fig. 30—Sample Generic 3 DUMP MEM NPD TOC**

**D. Generic 4 Dump Message Interpretation**

**6.124** The message **DUMP MEM NPD TOC** results in a dump of data from the Theoretical Office Code Table for the entity specified in the input message.

**6.125** The output for **DUMP MEM NPD TOC** begins by identifying this table type and the entity requested. Next, column headings, which correspond on a one-for-one basis with Form 0205, are printed. The output then fills in each column with the appropriate value for the entity.

**6.126** Numerical conversion of the dumped data is not required in order to compare the dumped data with data on NPD Form 0205. An explanation of the values associated with each dump message column headings is provided in Volume 2 of the OM/TRG.

**FORM 0206 — THEORETICAL CODE THOUSANDS AND HUNDREDS DIGITS—CDA ENTITIES**

**A. General**

**6.127** Data from Form 0206 are entered into the Theoretical Code Hundreds Table for the specified CDA entity. This table lists the COIs in the entity which require translation to a theoretical office code and provides the information needed by the AMARC to perform this translation.

**6.128** The AMARC accesses the Theoretical Code Hundreds Table as a result of data in the Channel Table (see Form 0300) and in the COI Translation Table (see Form 0201) having indicated that a theoretical translation was possible for the COI transmitted on the call.

**6.129** Form 0206 is prepared only for CDA entities which have theoretical office codes. One copy is prepared for each of these CDA entities.

**6.130** Figure 31 is a sample Form 0206. The information for this form is found in the master



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record for the entity. The following paragraphs describe the entries to be made on the form.

**B. Form Entries**

**Entity Number**

**6.131** Enter the entity number as assigned on Form 0101. Valid entries are 000 through 137 (octal).

**COC Index**

**6.132** Enter each COI (COC Index) which may require translation to a theoretical code. These entries must be consistent with Form 0201 which specified for each COI of the entity whether a theoretical translation was possible. Valid entries are 0 through 9 (decimal).

**Thousands Digit**

**6.133** For each COI, enter a line number thousands digit which may require translation of a theoretical office code. Valid entries are 0 through 9 (decimal).

**Hundreds Digits**

**6.134** For each thousands digit, enter the hundreds digit(s), which require(s) translation of the COI to a theoretical office code. Up to ten hundreds digits may be specified. Valid entries are 0 through 9 (decimal). If theoretical translation is required for

all line numbers with the specified thousands digit, all ten hundreds digits must be entered.

**C. Generic 3 Dump Message Interpretation**

**6.135** The message **DUMP MEM NPD TCH** results in an octal dump of the Theoretical Code Hundreds Table for the entity specified in the dump input message. Figure 32 is the **DUMP MEM NPD TCH** output for the data specified on sample Form 0206.

**6.136** The hundreds and thousands digits are implied by the position in the table. The entry for hundreds digit 0 is in the tenth position for a thousands digit. The entries for thousands digit 0 are in the tenth set of thousands digit positions in the table.

**6.137** The following paragraph describes the steps that must be performed to convert words **ccccbb**, **ffffff**, and **cggggg** to values that can be compared with the form entries. All other words are all zeros which indicate that at the thousands and hundreds digits associated with those words do not require theoretical translation.

**6.138** *Convert Octal to Binary:* Convert the 6-digit octal value for each of these words to a 16-bit binary word. Each value, except the leftmost octal digit, is converted to a 3-digit binary number. The leftmost octal digit is used as a 1-digit binary number. These words are converted as illustrated in Table X.

DUMP MEM NPD TCH 013!PF

M 18 01 DUMP MEM NPD TCH 013

```

18 01 000001 000000 000000 000000 000001 010000 000000 000000 000000
18 01 000000 000000 000000 000000 000000 000000 000000 000000 000000
18 01 000000 000000 000000 000000 000000 000000 000000 000000 000000
18 01 000000 000000 000000 000000 000000 000000 000000 000000 000000
18 01 000000 000000 000000 000000 000000 000000 000000 000000 000000
18 01 000000 000000 000000 000000 000000 000000 000000 000000 000000
18 01 000000 000000 000000 000000 000000 000000 000000 000000 000000
18 01 000000 000000 000000 000000 000000 000000 000000 000000 000000
18 01 000000 000000 000000
18 01 EOD
    
```

Fig. 32—Sample Generic 3 DUMP MEM NPD TCH

TABLE X

ccccbb

OCTAL	0	0	0	0	0	1										
BIT NUMBER	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
BINARY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1

cfffff

OCTAL	0	0	0	0	0	1										
BIT NUMBER	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
BINARY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1

cggggg

OCTAL	0	1	0	0	0	0										
BIT NUMBER	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
BINARY	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0

**6.139 Interpret Bits:** Each 16-bit binary word is next sectioned into groups of bits that represent input data values as defined in the OM. Each group of bits is then converted to the octal value rep-

resented by the binary value of the group. These conversions are illustrated in Table Y.

TABLE Y

ccccbb

BINARY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
BIT NUMBER	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
OCTAL	X	X	X	X	X	X	X	X	X	X	X	X	1			

cfffff

BINARY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
BIT NUMBER	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
OCTAL	X	0			0			0			0			1		

cggggg

BINARY	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
BIT NUMBER	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
OCTAL	X	1			0			0			0			0		

**6.140** The dumped data are interpreted as follows:

- Word **ccccbb** indicates that these translations are for COI 1.
- Word **cfffff** indicates that hundreds digit 1 for thousands digit 2 for COI 1 requires the theoretical translation specified for theoretical office code index 1 (in the Theoretical Office Code Table).
- Word **cggggg** indicates that hundreds digit 0 for thousands digit 2 for COI 1 requires the theoretical translation specified for theoretical office code index 1.

#### D. Generic 4 Dump Message Interpretation

**6.141** The message **DUMP MEM NPD TCH** results in a dump of the Theoretical Office Code Hundreds Group Table. If a theoretical office code (field **f**) is included in the dump input message, the dumped data are the table entries for the physical office indicated in the specified entity. If a theoretical office

code is not included in the input message, the dumped data are the table entries for each of the physical offices in the specified entity.

**6.142** The output for **DUMP MEM NPD TCH** begins by identifying this table type, the entity requested, and the theoretical office code, if specified. Next, column headings are printed, which correspond with Form 0206. Note that the dumped message output differs from the Form 0206 format in that the Theoretical Office Code Index output column precedes the Hundreds Digit output column. The output then fills in each column with the appropriate value for the entity.

**6.143** Numerical conversion of the dumped data, for example, conversion from octal to binary, is not required in order to compare the dumped data with data on NPD Form 0206. An explanation of the value associated with each dump message column heading is provided in Volume 2 of the OM/TRG.

**FORM 0207 — DIGIT RECONSTRUCTION — CDA ENTITIES****A. General**

**6.144** Data from Form 0207 are entered into the Digit Reconstruction Table (DRT) for the specified CDA entity. This table is used by the AMARC to reconstruct called central office codes on calls from CDA entities which allow local call completion with less than seven digits or whose digit absorption feature absorbs 1, 2, or 3 digits of the 7-digit called number.

**6.145** The AMARC makes no attempt to reconstruct a 7-digit number when a special 3-digit code is dialed.

**6.146** Form 0207 is prepared for each CDA entity which has digit absorbing selectors. Several copies of the form may be required for one entity.

**6.147** Figure 33 is a sample Form 0207. The information for this form is determined from the traffic schematic and the master record for the entity. The following paragraphs describe the entries to be made on the form.

**B. Form Entries****Entity Number**

**6.148** Enter the entity number as assigned on Form 0101. Valid entries are 000 through 137 (octal).

**Dialed Prefix**

**6.149** List each shortened central office code which will be accepted by the step-by-step equipment. Enter each code with a dash in place of any digit that is not dialed. For example, if a customer can dial 8 for the central office code 438,—8 would be entered. Exactly three characters must be entered with at least one dash. Three dashes are a valid entry.

**Reconstructed Central Office Code**

**6.150** Enter the appropriate central office code for each dialed prefix. Valid entries are 200 through 999 (decimal).

**C. Generic 3 Dump Message Interpretation**

**6.151** The message **DUMP MEM NPD DRT** results in a BCD dump of the Digit Reconstruction Table for the entity specified in the dump input message. Note that shortened codes such as -66, 6-6, and 66- all appear the same to AMARC and are output as 66-. Since this is a BCD dump, numerical conversion of the dumped data is not required for comparison with the form data.



**6.152** Figure 34 is the dump message output for sample Form 0207.

```
DUMP MEM NPD DRT 004!PF
M 58 01 DUMP MEM NPD DRT 004
58 01 0020 8680
58 01 EOD
```

**Fig. 34—Sample Generic 3 DUMP MEM NPD DRT**

#### **D. Generic 4 Dump Message Interpretation**

**6.153** The message **DUMP MEM NPD DRT** results in a dump of data from the Digit Reconstruction Table for the specified CDA entity.

**6.154** The format of the output message for **DUMP MEM NPD DRT** and an explanation of the values associated with each variable field are provided in Volume 2 of the OM/TRG.

**6.155** Numerical conversion of the dumped data is not required in order to compare the dumped data with the data on NPD Form 0207.

#### **FORM 0208 — MESSAGE BILLING INDEX — CDA ENTITIES**

##### **A. General**

**6.156** Data from Form 0208 are entered into the Message Billing Index Table(s) for the specified CDA entity. This table is used by the AMARC to determine an MBI value for each completed call received from the entity, except calls to 411 (Directory Assistance). The MBI value is determined by the rate center of the calling number and the central office code of the called number.

**6.157** The MBI value is a key to the charging rate to be applied to a call. The MBI value sometimes determines the call record format to be used for a call. If the detailed billing option chosen for the AMARC (Form 0100) was to detail bill all calls with an MBI value greater than 1, the MBI value determines the call record format, unless the calling number is listed in the Special Number Table (see Form 0400).

**6.158** A maximum of four MBI Tables may be provided for an entity. An entity may have two rate centers (each with an associated MBI Table) for regular customers and two rate centers (each with an associated MBI Table) for 1SR customers. The 1SR is an originating class of service which allows the customer to dial some NXXs in the local dialing area as flat rate calls and other NXXs in the local dialing area as measured rate calls.

**6.159** If an entity has 1SR service, this must be indicated in the Channel Table (see Form 0300).

**6.160** The AMARC determines which MBI Table to use for a call from data in the following NPD tables:

- Channel Table (Form 0300)
- COI Translation Table (Form 0201)
- Entity Table (Form 0101)
- Theoretical Code Hundreds Table (Form 0206)
- Theoretical Office Code Table (Form 0205).

**6.161** Form 0208 is prepared only for CDA entities.

**6.162** Figure 35 is a sample Form 0208. The information for this form is obtained from the rates department. The following paragraphs describe the entries to be made on the form.



**B. Form Entries****Entity Number**

**6.163** Enter the entity number, as assigned on Form 0101. Valid entries are 000 through 137 (octal).

**Rate Center**

**6.164** Enter the rate center for which the MBI value applies. Valid entries are 0, 1, 2, and 3, where 0 and 1 are regular rate centers and 2 and 3 correspond to 1SR rate centers 0 and 1.

**Called Prefix**

**6.165** List every 3-digit code which can be dialed locally by customers in the entity. Valid entries are 200 through 999.

**6.166** The master record for an entity lists all central office codes which can be dialed as a local call. The customer telephone directory also contains the information.

**6.167** Special 3-digit codes such as 611 and 911 should be listed on Form 0208. It is not necessary to list code 411 because the AMARC does not determine an MBI when the called number is 411.

**MBI**

**6.168** Enter the MBI value which applies to a customer calling from the specified rate center within the entity to the called code. Valid entries are 1 through 9 (decimal). The MBI values must be determined according to the telephone company tariffs for message rate calls. The rate department is the source of information for determining MBI values. The MBI values must be communicated to the accounting center.

**6.169** If an entity has 1SR service, MBI 9 must be specified *only* for a **Called Prefix** that represents a call that is not to be recorded. When AMARC determines an MBI of 9 on a call from a 1SR entity, the call is not recorded.

**C. Dump Message Interpretation**

**6.170** The message **DUMP MEM NPD MBI** results in a BCD dump of the MBI Tables for the entity specified in the dump input message. An entity may have up to four MBI tables. All tables associated with the particular entity are printed in a single, continuous format. Since this is a BCD dump, numerical conversion of the dumped data is not required for comparison with the form data. Figure 36 is the dump message output for CDA entity 004.

```
DUMP MEM NPD MBI 004!PF
```

```
M 11 00 DUMP MEM NPD MBI 004
```

```
11 00 2351 2361 2463 2474 2489 5741 5831 6841 7273 7311
```

```
11 00 EOD
```

**Fig. 36—Sample DUMP MEM NPD MBI**

**FORM 0209 — SPECIAL COI TRANSLATIONS—BDT ENTITIES**

**A. General**

**6.171** Data from Form 0209 are entered into a Special Calling Office Index Translation Table for the specified BDT entity. This table is used by the AMARC, along with the regular COI Translation Table (see Form 0202), in determining the calling telephone number. Up to 27 Special COI Translation Tables may be provided for a BDT entity—each corresponding to a regular COI Translation Table.

**6.172** A Special COI Translation Table is required when a COI is used for a mixture of POTS, WATS, TWX, and CCSA customers, and each type of service requires a different calling NXX. The POTS calling NXX is specified on Form 0202. The special calling NXXs are specified on Form 0209.

**6.173** The AMARC accesses a Special COI Translation Table when *all* of the following conditions exist:

- (a) Call Format Treatment Type (Form 0202) is 0, 1, or 2.
- (b) Flag for the COI indicates that there is a special calling NXX for the COI in the Special COI Translation Table with the same table number as the regular COI Translation Table (Form 0202).
- (c) The AMA Call Type determined from MBI Translation is one of the following:
  - DTWX Station Paid (020)

- WATS AFR (030) or WATS Station Number (007)
- WATS Billing Number (068)
- CCSA Sampled (021).

**6.174** With the existence of the preceding conditions, if a special calling NXX is found for the appropriate class of service (TWX or WATS), that calling NXX is used in the AMA call record. If one is not found, the calling NXX for the COI from Form 0202 is used.

**6.175** If the Call Format Treatment Type is 4, the AMARC accesses a Special COI Translation Table, under the same conditions as listed previously; the exception is a CCSA Sampled (Call Type 021) call. If both Call Type 021 and Call Format Treatment Type 4 apply to a call, a check is not made for a special CCSA calling NXX.

**6.176** Form 0209 constructs one Special COI Translation Table. One copy is prepared for each Special COI Translation Table required for a BDT entity.

**6.177** Figure 37 is a sample Form 0209. The information required for a Special COI Translation Table should be obtained from the accounting center. The following paragraphs describe the entries to be made on the form.



**B. Form Entries**

**Entity Number**

**6.178** Enter the entity number as assigned on Form 0101. Valid entries are 000 through 137 (octal).

**Special COI Translation Table**

**6.179** Enter the number which will identify this table. Valid entries are 00 through 26 (decimal).

**6.180** This number must be the same as the regular COI Translation Table number. When the data from Form 0209 are entered into a Special COI Translation Table, the AMARC sets flags in the same-numbered regular COI Translation Table to indicate that special calling NXX translations are provided. A flag is set for each COI listed in the Special COI Translation Table.

**COI**

**6.181** List all COIs *presently* assigned in the entity that require special translation. Up to 30 COIs may be in use. Valid entries are 00 through 29 (decimal).

**CCSA, TWX or WATS**

**6.182** Enter the type of service that requires translating the COI to the special **Calling NXX**. The AMARC determines the type of call (service) that applies to a call (POTS, CCSA, TWX, or WATS) from AMA data from the BDT such as the CCI (Call Class Index) or the MBI. The type of call has already been determined by the time the AMARC accesses the COI Translation Table.

**Calling NXX**

**6.183** Enter the 3-digit calling central office code (or other 3-digit code used in place of a central office code) which is represented by the special translation of the COI. Valid entries are 001 through 999 (decimal).

**C. Generic 3 Dump Message Interpretation**

**6.184** The message **DUMP MEM NPD SPC** results in a BCD dump of a Special Calling Office Index Translation Table for the BDT entity specified in the dump input message. Since this is a BCD dump, numerical conversion of the dumped data is not required for comparison with the form data.

**6.185** Figure 38 is the dump message output for sample Form 0209.

DUMP MEM NPD SPC 003!PF

M 49 01 DUMP MEM NPD SPC 003

```

49 01 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000
49 01 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000
49 01 0000 0000 0000 2230 0000 0000 0000 0000 0000 0000 0000 0000
49 01 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000
49 01 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000
49 01 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000
49 01 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000
49 01 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000
49 01 0000 0000 0000 0000 0000 0000 0000
49 01 EOD

```

Fig. 38—Sample Generic 3 DUMP MEM NPD SPC

**6.186** The translations for each COI are contained in three words of data. The COI value is implied by the position of the data in the table with the first three words specifying the translations for COI 01. Translations for COI 00 are contained in the tenth set of three words; translations for COI 10 are contained in the twentieth set of three words, and translations for COI 20 are contained in the thirtieth set of three words.

#### D. Generic 4 Dump Message Interpretation

**6.187** The message **DUMP MEM NPD SPC** results in the dump of a Special Calling Office Index Translation Table for the BDT entity specified in the input message. If a COC index number (field **cc**) is included in the dump input message, the dumped data are the table entries for the specified COC. If a COC index number is not included in the input message, the dumped data are all table entries for the special COI translation table specified.

**6.188** The format of the output message for **DUMP MEM NPD SPC** and an explanation of the values associated with each variable field are provided in Volume 2 of the OM/TRG.

**6.189** Numerical conversion of the dumped data is not required in order to compare the dumped data with data on NPD Form 0209.

#### FORM 0210 — SPECIAL MESSAGE BILLING INDEX—BDT ENTITIES

##### A. General

**6.190** Data from this form are entered into the Special Message Billing Index Table for the specified BDT entity. On 4- or 5-line initial entry calls, this table allows the AMARC to perform custom MBI translations on a per-entity basis. These translations relate the MBI transmitted from the BDT to a code for the AMA Call Type to be used in formatting the call record.

**6.191** This Special MBI Table is used only on COI translation calls which yield a call format treatment type of 0 or 4 (see NPD Form 0202). Calls with treatment types of 1 or 2 are formatted automatically as WATS or TWX, respectively, and the MBIs are not translated. Call format treatment type 3 is not used with No. 1A AMARC — Generic 3 or Generic 4.

**6.192** For treatment types 0 and 4, the AMARC accesses the Special MBI Table for the entity, if provided, with the MBI transmitted on the call. If there is a translation for the MBI in that table, the AMA Call Type determined from that table is used in formatting the call record. If there is no translation for the MBI in the Special MBI Table, the Call Type is determined according to standard MBI translations. Section 201-900-033 defines the standard MBI translations.

**6.193** Form 0210 is prepared only for BDT entities which transmit 4- or 5-line initial entries and require special MBI translations. One copy of the form is needed for an entity.

**6.194** Figure 39 is a sample Form 0210. The information for this form is obtained from the accounting department. The following paragraphs describe the entries to be made on the form.

**B. Form Entries**

**Entity Number**

**6.195** Enter the entity number as assigned on Form 0101. Valid entries are 000 through 137 (octal).

**Special MBI**

**6.196** Enter the special MBI. Valid entries are 00 through 29 (decimal).



## Call Type

**6.197** Enter the **Code for Call Type** value from Table Z which identifies the AMA Call Type that is to be used to format the call record for a call on which the MBI was transmitted. Valid entries are 0 through 35 (decimal), but only those listed in the Table Z are assigned.

## C. Dump Generic 3 Message Interpretation

**6.198** The message **DUMP MEM NPD SPM** results in a decimal dump of the Special MBI Table for the entity specified in the dump input message. Since this is a decimal dump, numerical conversion of the dumped data is not required for comparison with the form data. Figure 40 is the dump message output for sample Form 0210.

TABLE Z

CODE FOR CALL TYPE	DEFINITION	AMA CALL TYPE
1	Station Paid	006
7	WATS Station Billing Number, WATS Type = FBD	007
8	DTWX	020
9	CCSA	021
11	WATS Billing Number, WATS Type = FBD	068
16	Bulk Bill	002
17	WATS Station Billing Number, WATS Type = MT	007
21	WATS Billing Number, WATS Type = MT	068
22	Detail Bill	001
25	WATS AFR	030
30	Directory Assistance	009

DUMP MEM NPD SPM 003!PF

M 55 01 DUMP MEM NPD SPM 003

55 01 2500 0900 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000

55 01 0000 0000 0000

55 01 EOD

Fig. 40—Sample Generic 3 DUMP MEM NPD SPM

**6.199** The **Code for Call Type** for each MBI is contained in one byte (2 decimal digits) of the table. The MBI value is implied by the position of the data in the table beginning with MBI 0. The **Code for Call Type** for MBI 0 is specified in the right 2 digits of the first word.

#### D. Generic 4 Dump Message Interpretation

**6.200** The message **DUMP MEM NPD SPM** results in a dump of data from the Special MBI Table for the entity specified in the input message.

**6.201** The output for **DUMP MEM NPD SPM** begins by identifying this table type and the BDT entity requested. Next, column headings, which correspond on a one-for-one basis with Form 0210, are printed. The output then fills in each column with the appropriate value for the entity.

**6.202** Numerical conversion of the dumped data is not required in order to compare the dumped data with data on NPD Form 0210. An explanation of the values associated with each dump message column headings is provided in Volume 2 of the OM/TRG.

#### FORM 0211 — CENTRAL OFFICE CODES—CDT ENTITIES

##### A. General

**6.203** Data from Form 0211 are entered into the Calling Office Index (COI) Translation Table

for the specified entity. This table is used by the AMARC, along with the Message Billing Class To Calling NXX Table (see Form 0212), in translating the calling telephone number. Only one COI Translation Table may be provided for a CDT entity.

**6.204** On all CDT calls, the central office code portion of the calling telephone number is transmitted to the AMARC as a 2-digit code, the COI. The AMARC translates the COI to the calling NPA and central office code before recording the call details on magnetic tape. This translation is accomplished through the COI Translation Table for the entity.

**6.205** This form is prepared only for CDT entities. One copy must be prepared for each CDT entity.

**6.206** Figure 41 is a sample Form 0211. The following paragraphs describe the entries to be made on the form.

##### B. Form Entries

###### Entity Number

**6.207** Enter the entity number as assigned on Form 0101. Valid entries are 000 through 137 (octal).



**COI**

**6.208** List all COIs *presently* assigned in the entity. There must be one COI for each calling NXX in the entity. Valid entries are 00 through 29 (decimal). Form 0211 indicates that four characters should be entered. This is because the same input message is used for BDT COI Translation Tables. Leading zeros will be assumed when a single character is typed for the **bbcc** field of the **RC ENT COC** input message.

**Calling NXX**

**6.209** Enter the physical central office code (or other 3-digit code used in place of a physical central office code) which is represented by this COI. Valid entries are 001 through 999 (decimal).

**6.210** As an example of a code used in place of a central office code, an entity that requires WATS-Billing Number rather than WATS-Station Number billing for WATS calls may have COIs that represent WATS billing number codes. The 3 digits of such a code typically identify the serving area, the WATS band, and whether the WATS customer has full business day or measured time service.

**6.211** The calling NXX translation may be based on the COI and the message billing class determined for the call, if desired. An example of when this might be desired is when a *single* COI is used for *all* WATS billing number codes. The AMARC can translate the COI to one of many different WATS billing number codes, based on the message billing class determined for the originating line class transmitted on the call.

**6.212** When a single COI must be translated to one of multiple calling NXXs, based on the message billing class determined for the call, the following form entries are required:

- (a) **Form 0211:** Enter the **Entity Number**, the **COI**, one of the **Calling NXXs** represented by the COI (see Note), the **Calling NPA Index**, and a **1** for the **Nonstandard COI** indication.

**Note:** A **Calling NXX** must be entered to satisfy the input message requirements. This NXX, however, is not used as a default value when a **Calling NXX** translation for the COI has not been specified for a particular message billing class

on Form 0212. All possible translations for the COI *must* be specified on Form 0212, once the value of 1 is specified for the **Nonstandard COI** indication on Form 0211.

- (b) **Form 0212:** For each **Message Billing Class**, enter the appropriate **Calling NXX** (or 3-digit number). Thus, for a FLAT (flat rate billing class) message billing class, COI 03 could be translated to 223; while for a WBNM (WATS billing number, measured time class), the same COI could be translated to 014.

**Calling NPA Index**

**6.213** Enter the index which represents the calling NPA for this COI in the Calling NPA Table (see Form 0203). Valid entries are 0 through 9 (decimal).

**Nonstandard COI**

**6.214** Enter the value from the following which specifies the type of COI translation required for this COI:

ENTRY	DEFINITION
0	Standard translation using only the COI Translation Table data is required.
1	Special translation, based on the message billing class of the call is required. This translation uses the Message Billing Class To Calling NXX Table (see Form 0212).
2	Left-shift CCSA translation is required. When this translation is specified, the NXX is found by left shifting the calling telephone number three places. The thousands, hundreds, and tens digits of the transmitted calling number become the calling NXX. The units digit of the original number becomes the thousands digit of the calling line number. Zeros are used for the hundreds, tens, and units digits of the line number.

**C. Dump Generic 3 Message Interpretation**

**6.215** The message **DUMP MEM NPD COC** results in an octal dump of a COI Translation Table for the entity specified in the dump input message. This dump message applies to CDA, BDT, and CDT entities. The dump message explanation for CDA entities is provided in the instructions for Form 0201. The dump message explanation for BDT entities is provided in the instructions for Form 0202.

**6.216** A CDT entity has only one COI Translation Table. Figure 42 is the **DUMP MEM NPD COC** output for the data on sample Form 0211. The COI number is implied by the position of the data in the table, beginning with COI 0.

**6.217** The following paragraphs describe the steps that must be performed to convert dumped words **cccccc** and **dddddd** to values that can be compared with Form 0211 entries for COI 0.

**6.218 *Convert Octal to Binary:*** Convert the 6-digit octal value for each word to a 16-bit binary word. Each value, except the leftmost octal digit, is converted to a 3-digit binary number. The leftmost octal value is used as a 1-digit binary number. These words are converted to binary as illustrated in Table AA.

DUMP MEM NPD COC 012!PF

M 24 00 DUMP MEM NPD COC 012

```

24 00 004140 000000 004141 000000 004142 000000 004143 000020 004144
24 00 000000 000000 000000 000000 000000 000000 000000 000000 000000
24 00 000000 000000 000000 000000 000000 000000 000000 000000 000000
24 00 000000 000000 000000 000000 000000 000000 000000 000000 000000
24 00 000000 000000 000000 000000 000000 000000 000000 000000 000000
24 00 000000 000000 000000 000000 000000 000000 000000 000000 000000
24 00 000000 000000 000000 000000 000000 000000
24 00 EOD

```

**Fig. 42—Sample Generic 3 DUMP MEM NPD COC for CDT Entity**

TABLE AA

cccccc																
OCTAL	0	0			4			1			4			0		
BIT NUMBER	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
BINARY	0	0	0	0	1	0	0	0	0	1	1	0	0	0	0	0

  

dddddd																
OCTAL	0	0			0			0			0			0		
BIT NUMBER	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
BINARY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

6.219 **Interpret Bits:** Each 16-bit binary word is next sectioned into groups of bits that represent input data values as defined in the OM. Each group of bits is then converted to the octal value rep-

resented by the binary value of the group. These conversions are illustrated in Table BB.

TABLE BB

cccccc																
BINARY	0	0	0	0	1	0	0	0	0	1	1	0	0	0	0	0
BIT NUMBER	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
OCTAL	X	X	X	X	8			6			0					

  

dddddd																
BINARY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
BIT NUMBER	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
OCTAL	X	X	X	X	X	X	X	X	X	X	0	0				

6.220 Words **cccccc** and **dddddd** can now be interpreted as follows:

- (a) Word **cccccc** indicates that COI 0 is to be translated to NXX 860.
- (b) Word **dddddd** indicates that COI 0 is to be translated to Calling NPA Index 0 and that special calling NXX translation is not required for this COI.

**D. Generic 4 Dump Message Interpretation**

6.221 The message **DUMP MEM NPD COC** results in a dump of either an entire COI Translation Table for the entity specified in the dump input message or of the data for a single COI in that table, de-

pending on whether a COI is specified in the message. This dump message applies to CDA, BDT, and CDT entities. The dump message explanation for a CDA entity is provided in the instructions for Form 0201. The dump message explanation for a BDT entity is provided in the instructions for Form 0202.

6.222 A CDT entity has only one COI Translation Table, Table 00. When field **cc** is included in the **DUMP MEM NPD COC** input message, only the data for the COI specified are output. When field **cc** is omitted from the message, the data for COIs 0 through 9 in Table 00 are output.

6.223 The output for **DUMP MEM NPD COC** begins by identifying the COI Translation Table number and entity requested. Next, the output prints col-

umn headings that apply to the sensor type of the specified entity. The output then fills in each column with the appropriate value for the entity, COI Translation Table, and/or COI specified in the input message. For an unequipped COI, eg, a COI for which no data were specified on Form 0211, the output shows **NOT EQUIPPED**.

**6.224** Numerical conversion of the dumped data, for example, conversion from octal to binary, is not required in order to compare the dumped data with the data on NPD Form 0211. An explanation of the values associated with each dump message column heading is provided in Volume 2 of the OM/TRG.

**6.225** Note that for a CDT entity, the dump message output differs from the Form 0211 format in that the **CGN NPA INDX** output column precedes the **CGN NXX** output column.

**FORM 0212 — SPECIAL COI TRANSLATIONS—CDT ENTITIES**

**A. General**

**6.226** Data from Form 0212 are entered into the Message Billing Class (MBC) To Calling NXX Table for the specified entity. This table is used to determine the calling NXX when the COI Translation Table for the entity (see Form 0211) specifies that translation of the COI received on the call must be based on the MBC. This type of COI translation allows a single COI to be translated to multiple calling NXXs.

**6.227** The MBC for a call is obtained by the AMARC from the Originating Line Class To Message Billing Class Table for the entity (see Form 0213A).

**6.228** Form 0212 is prepared only for CDT entities that require this type of COI translation. One copy of the form is required for each such entity.

**6.229** Figure 43 is a sample Form 0212. The following paragraphs describe the entries to be made on the form.

**B. Form Entries**

**Entity Number**

**6.230** Enter the entity number as assigned on Form 0101. Valid entries are 000 through 137 (octal).

**Message Billing Class**

**6.231** List the four-character codes from the following which identify MBCs that apply to the specified entity.

MBC	TREATMENT TYPE	FORMAT TREATMENT
	FLAT	Flat rate billing class
	MESS	Message rate billing class
	COIN	Coin zone billing class
	DTWX	Dialed TWX billing class
	CCSA	Common control switching arrangement
	WAFR	WATS automatic flexible routing
	WBNF	WATS billing number, full business day
	WBNM	WATS billing number, measured time
	WSFX	WATS station billing number, full business day, band X where X may be 1 through 9.
	WSMX	WATS station billing number, measured time, band X where X may be 1 through 9.

**Calling NXX or 3-Digit Number**

**6.232** Enter the physical central office code (or other 3-digit code used in place of a central office code) to which each MBC is to be translated. Valid entries are 001 through 999 (decimal).



**C. Generic 3 Dump Message Interpretation**

**6.233** The message **DUMP MEM NPD MBC** results in a BCD dump of the Message Billing Class To Calling NXX Table for the entity specified in the dump input message. Since this is a BCD dump, numerical conversion of the dumped data is not required for comparison with the form data.

```
DUMP MEM NPD MBC 012!PF
```

```
M 17 01 DUMP MEM NPD MBC 012
```

```
17 01 0000 0601 0600 0605 0617 0650 0651 0635 0645 0646 0000 0000
```

```
17 01 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0747 0000
```

```
17 01 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000
```

```
17 01 E00
```

**Fig. 44—Sample Generic 3 DUMP MEM NPD MBC**

**D. Generic 4 Dump Message Interpretation**

**6.235** The message **DUMP MEM NPD MBC** results in a dump of data from the Message Billing Class To Calling NXX Table for the CDT entity specified in the input message.

**6.236** The format of the output message for **DUMP MEM NPD MBC** and an explanation of the values associated with each variable field are provided in Volume 2 of the OM/TRG.

**6.237** Numerical conversion of the dumped data is not required for comparison of the dumped data with data on NPD Form 0212.

**FORM 0213A — ORIGINATING LINE CLASS—CDT ENTITIES****A. General**

**6.238** Data from Form 0213A are entered into the Originating Line Class (OLC) To Message Billing Class Table for the specified entity. This table is used to determine the MBC for a call based on the

**6.234** Figure 44 is the dump message output for the sample Form 0212. The message billing class associated with the dumped calling NXX is implied by the position of the data in the table. The OM defines the message billing class associated with each position in the table.

OLC received from the CDT. For MBCs FLAT, MESS, COIN, CCSA, and WAFR, a Message Rate Billing Table or Flat Rate Billing Table number and table type must be specified in the Originating Line Class To Message Billing Class Table. A billing table should not be specified for other MBCs.

**6.239** The OLC for a line originating a call is obtained by the CDT from marker scan points. The OLC is the line link frame vertical file class of service for the originating equipment location of the line.

**6.240** This form is prepared only for CDT entities. Several copies of the form may be required for a particular CDT entity.

**6.241** This form is not used for a Secondary Originating Line Class Translation Table, which may be referenced from the Ten-Digit Local Dialing Table (Form 0221). Form 0213B is used for a Secondary Originating Line Class Translation Table.

**6.242** Figure 45 is a sample Form 0213A. The following paragraphs describe the entries to be made on the form.



**B. Form Entries**

**Entity Number**

**6.243** Enter the entity number as assigned on Form 0101. Valid entries are 000 through 137 (octal).

**Originating Line Class**

**6.244** List the OLCs 00 through 99 (decimal) that apply to the specified entity (see Note).

*Note:* Where coin traffic is *not* billed via AMARC, the OLC that corresponds to the COIN message billing class still must be assigned. The Billing Rate Table assigned for the COIN MBC, however, may be any existing Flat Rate Billing Table since table contents will not be used.

**Message Billing Class**

**6.245** For each OLC, enter the four-character code from the following that represents the MBC that applies to that OLC.

MBC TREATMENT TYPE	FORMAT TREATMENT
FLAT	Flat rate billing class
MESS	Message rate billing class
COIN	Coin zone billing class
DTWX	Dialed TWX billing class
CCSA	Common control switching arrangement
WAFR	WATS automatic flexible routing
WBNF	WATS billing number, full business day
WBNM	WATS billing number, measured time

MBC TREATMENT TYPE	FORMAT TREATMENT
WSFX	WATS station billing number, full business day, band X where X may be 1 through 9.
WSMX	WATS station billing number, measured time, band X where X may be 1 through 9.

**Billing Table**

**6.246** For each OLC with an MBC translation of FLAT, MESS, COIN, CCSA, or WAFR, enter the number of the Flat Rate Billing Table (see Form 0214) or the Message Rate Billing Table (see Form 0215) to be used to determine:

- (a) Whether a call to a specific NXX is local or nonlocal for the OLC, if Flat Rate Billing Table.
- (b) Billing rate indicator for a specific called NXX for the OLC, if Message Rate Billing Table.

*Note:* Valid entries for the Billing Table are 0 through 31 (decimal).

**6.247** For all other OLC-MBC translations, leave this entry blank.

**Flat or Message**

**6.248** Enter **F** if the billing table referenced is a Flat Rate Billing Table. Enter **M** if the billing table referenced is a Message Rate Billing Table. If the Billing Table entry is blank, also leave this entry blank.

**Subscriber Line Usage (SLU)**

**6.249** Enter **S** if calls from this OLC are to be flagged for SLU studies. Leave this column blank for each OLC that is not to be flagged for SLU studies.

**C. Generic 3 Dump Message Interpretation**

**6.250** The message **DUMP MEM NPD OLC** results in an octal dump of the Originating Line Class To Message Billing Class Table for the CDT entity specified in the dump input message. Figure 46 is the **DUMP MEM NPD OLC** output for the data specified on sample Form 0213A.

**6.251** The following paragraphs describe the steps that must be performed to convert the first

word to values that can be compared with Form 0213A entries. The originating line class is implied by the position of the data in the table.

**6.252 Convert Octal to Binary:** Convert the 6-digit octal value for the first word to a 16-word binary word. Each value, except the leftmost octal digit, is converted to a 3-digit binary number. The leftmost octal digit is used as a 1-digit binary number. The first dumped word is converted as illustrated in Table CC.

DUMP MEM NPD OLC 001!PF

M 19 00 DUMP MEM NPD OLC 001

```

19 00 141002 120101 120001 040102 000000 020003 040002 040002 000000
19 00 000000 040002 000000 000000 000000 000000 000000 000000 000004
19 00 000000 000004 000000 000000 000000 000000 000000 000000 000000
19 00 000000 000000 000000 000000 000000 000000 000000 000000 000007
19 00 000000 000000 000000 000000 000000 000000 000000 000000 000000
19 00 000010 000011 000026 000000 000000 040005 040006 040005 040005
19 00 040005 040005 000000 000000 000000 000000 000000 000000 000000
19 00 000000 000000 000000 000000 000000 000000 000000 000000 000000
19 00 000000 000000 000000 000000 000000 000000 000000 000000 000000
19 00 000000 000000 000000 000000 000000 000000 000000 000000 000000
19 00 000000 000000 000000 000000 000000 000000 000000 000000 000000
19 00 000000
19 00 EOD

```

**Fig. 46—Sample Generic 3 DUMP MEM NPD OLC for Originating Line Class Table**

TABLE CC

OCTAL	1	4				1	0				0	2				
BIT NUMBER	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
BINARY	1	1	0	0	0	0	1	0	0	0	0	0	0	0	1	0

**6.253 Interpret Bits:** The 16-bit binary word is next sectioned into groups of bits that represent input data values as defined in the OM. Bits 0 through 5 contain the **Message Billing Class** for the OLC. Bits 6 through 12 contain the rate table number.

Bits 13 and 14 define the rate table type. Bit 15 specifies whether an SLU study is in effect for the OLC. These conversion are illustrated in Table DD.

TABLE DD

BINARY	1	1	0	0	0	0	1	0	0	0	0	0	0	0	1	0
BIT NUMBER	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
OCTAL	1	2		0	1			0			0			2		

**6.254** Interpretation of these groups of bits is as follows:

(a) **Bits 0 through 5:** Bits 0 through 2 represent one octal digit and bits 3 through 5 represent a second octal digit. The octal value determined from these bits is compared with the list of octal values in the OM to learn the MBC associated with OLC 00. The MBC is entered on Form 0213A as a 4-character code. The form codes are easily compared with the OM translations. The OLC 00 has an MBC of message rate.

(b) **Bits 6 through 12:** Bits 6 through 8 represent one octal digit, bits 9 through 11 a second octal digit, and bit 12 represents the third octal digit of an octal value that must be converted to decimal to learn the rate table associated with this OLC. Octal value 010 converts to decimal value 08. Bits 6 through 12 show that OLC 00 is associated with rate Table 08.

(c) **Bits 13 through 14:** These bits are converted to octal 0, 1, or 2 to learn the rate table type for Table 08. Bits 13 through 14 contain octal value 2. Table 08 is a message rate billing table.

(d) **Bit 15:** This bit is 1 if an SLU study is in effect. An SLU study is in effect for OLC 00.

#### D. Generic 4 Dump Message Interpretation

**6.255** The message **DUMP MEM NPD OLC** results in a dump of either the Originating Line Class to Message Billing Class Table for the CDT entity specified in the dump input message or of the data for a Secondary Originating Line Class Translation Table. The type of data dumped depends on whether a Secondary Originating Line Class Translation Table (field *cc*) is included in the input message. Refer to the instructions for Form 0213B for an explanation of the output for a Secondary Originating Line Class Translation Table.

**6.256** The output for **DUMP MEM NPD OLC** for an Originating Line Class To Message Billing Class Table begins by identifying this table type and the entity requested. Next, column headings, which correspond on a one-for-one basis with Form 0213A, are printed. The output then fills in the data for each OLC. For an OLC for which no data were specified on Form 0213A, the output shows dashes in all columns.

**6.257** Numerical conversion of the dumped data, for example, conversion from octal to binary, is not required in order to compare the dumped data with the data on NPD Form 0213A. An explanation of the values associated with each dump message col-

umn heading is provided in Volume 2 of the OM/TRG.

**FORM 0213B — SECONDARY ORIGINATING LINE CLASS—CDT ENTITIES**

**A. General**

**6.258** Data from Form 0213B are entered into the specified Secondary Originating Line Class Table for the specified entity. This table defines the billing table (Form 0214 or 0215) to be used for a 10-digit local call to a particular NPA and is based on the OLC received from the CDT. A Secondary Originating Line Class Table is used only when the billing table must be determined as a function of the OLC.

**6.259** Form 0221 (Ten-Digit Local Dialing Table) defines the billing tables that are to be used to determine the billing information for calls to NPAs that can be dialed as a local call on a 10-digit basis. If **all** 10-digit local calls to a particular NPA are to receive flat rate treatment or message rate treatment, Form 0221 specifies the number of the appropriate Flat or Message Rate Billing Table. If the billing table for a particular NPA must be determined as a function of the OLC, Form 0221 specifies the number of the Secondary Originating Line Class Table to be used.

**6.260** Form 0213B is prepared only for CDT entities that allow 10-digit local dialing and that require the billing table determination for some NPAs to be based on the OLC. Several copies of the form may be required for one Secondary Originating Line Class Table. A maximum of four of these tables may be provided for a CDT entity.

**6.261** Data from this form will not be accepted unless Form 0101 indicated that 10-digit local

dialing across NPA boundaries is allowed for this entity.

**6.262** Figure 47 is a sample Form 0213B. The following paragraphs describe the entries to be made on the form.

**B. Form Entries**

**Entity Number**

**6.263** Enter the entity number as assigned on Form 0101. Valid entries are 000 through 137 (octal).

**Table Number**

**6.264** Enter the number to be used to identify this Secondary Originating Line Class Table. Valid entries are 1 through 4.

**Originating Line Class**

**6.265** List all OLCs that are allowed to call, on a local 10-digit basis, the NPA(s) linked to this table from the Ten-Digit Local Dialing Table (Form 0221). Valid entries are 00 through 99.

**Billing Table Number**

**6.266** For each OLC, enter the number of the billing table (Form 0214 or 0215) that is to be used to determine billing information for calls to the NPA. Valid entries are 00 through 31 (decimal).

**Flat or Message**

**6.267** Enter **F** if the billing table referenced in the previous column is a Flat Rate Billing Table. Enter **M** if the table is a Message Rate Billing Table.



**C. Generic 3 Dump Message Interpretation**

**6.268** If the number of a Secondary Originating LineClassTable is included in the **DUMP MEM NPD OLC** input message, the use of this message re-

sults in an octal dump of that table for the entity specified in the message. Figure 48 is the **DUMP MEM NPD OLC** output for sample Form 0213B.

```
DUMP MEM NPD OLC 1 2!PF
M 03 00 DUMP MEM NPD OLC 1 2
03 00 002402 003001 000400 001002 000000 000002 000000 000000 000000
03 00 000000 000000 000000 000000 000000 000000 000000 000000 000000
03 00 000000 000000 000000 000000 000000 000000 000000 000000 000000
03 00 000000 000000 000000 000000 000000 000000 000000 000000 000000
03 00 000000 000000 000000 000000 000000 000000 000000 000000 000000
03 00 000000 000000 000000 000000 000000
03 00 EOD
```

**Fig. 48—Sample Generic 3 DUMP MEM NPD OLC for Secondary Originating Line Class Translation Table**

**6.269** The following paragraphs describe the steps that must be performed to convert the first word to values that can be compared with the sample form.

binary word. Each value, except the leftmost octal digit, is converted to a 3-digit binary number. The leftmost octal digit is used as a 1-digit binary number. The first word is converted as illustrated in Table EE.

**6.270** **Convert Octal to Binary:** Convert the 6-digit octal value of the first word to a 16-bit

**TABLE EE**

OCTAL	0	0	2	4	0	2										
BIT NUMBER	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
BINARY	0	0	0	0	0	1	0	1	0	0	0	0	0	0	1	0

**6.271** **Interpret Bits:** The 16-bit binary word is next sectioned into groups of bits that represent input data values, as defined in the OM. Each

group of bits is then converted to the octal value represented by the binary value of the group. These conversions are illustrated in Table FF.

TABLE FF

BINARY	0	0	0	0	0	1	0	1	0	0	0	0	0	0	1	0
BIT NUMBER	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
OCTAL	1					1		0					2			

6.272 Interpretation of this first word, which provides the billing table to be used for OLCs 00 and 01, is as follows:

- (a) For OLC 00, Message Rate Billing Table 00 is to be used.
- (b) For OLC 01, Flat Rate Billing Table 01 is to be used.

**D. Generic 4 Dump Message Interpretation**

6.273 The message **DUMP MEM NPD OLC** results in a dump of either the Originating Line Class To Message Billing Class Table for the CDT entity specified in the dump input message or of the data for a Secondary Originating Line Class Translation Table. The type of data dumped depends on whether a Secondary Originating Line Class Translation Table (field *cc*) is included in the input message. Refer to the instructions for Form 0213A for an explanation of the output for an Originating Line Class To Message Billing Class Table.

6.274 The output for **DUMP MEM NPD OLC** for a Secondary Originating Line Class Translation Table begins by identifying this table type, the table number, and the entity requested. Next, column headings, which correspond on a one-for-one basis with Form 0213B, are printed. The output then fills in the data for each OLC. For an OLC for which no data were specified on Form 0213B, the output shows dashes in all columns.

6.275 Numerical conversion of the dumped data, for example, conversion from octal to binary, is not required in order to compare the dumped data with data on NPD Form 0213B. An explanation of the

values associated with each dump message column heading is provided in Volume 2 of the OM/TRG.

**FORM 0214 — FLAT RATE BILLING TABLE—CDT ENTITIES**

**A. General**

6.276 Data from Form 0214 are entered into the specified Flat Rate Billing Table for the specified entity. This table is used to determine whether calls to a particular NXX are to be treated as local or nonlocal calls. Up to 32 of these tables may be equipped for an entity.

6.277 The AMARC determines which Flat Rate Billing Table or Message Rate Billing Table to use for a call based on the OLC transmitted by the CDT for the call. The Originating Line Class To Message Billing Class Table for the entity (see Form 0213A) specifies the billing table to be used for each OLC that requires the use of a billing table.

6.278 The billing table referenced for a particular OLC is used on both 7-digit calls and 1 plus 7-digit calls, since some entities may allow 1 plus dialing of local calls.

6.279 In an entity that allows 10-digit local dialing across NPA boundaries, this billing table may be used for 10-digit local calls. In this case, the Flat Rate Billing Table is referenced from the Ten-Digit Local Dialing Table (Form 0221) for the entity or from a Secondary Originating Line Class Translation Table (Form 0213B) for the entity.

6.280 A Flat Rate Billing Table may be accessed from any OLC that translates to an MBC that has flat rate treatment on local calls. This in-

cludes MBCs FLAT (flat rate), COIN (coin zone), WAFR (WATS automatic flexible routing), and CCSA (common control switching arrangement).

**6.281** A separate Flat Rate Billing Table and/or Message Rate Billing Table, ie, Form 0214 and/or Form 0215, must be provided for each group of OLCs within the specified entity that have different treatment of called NXX codes. More than one OLC may be associated with a billing table. For example, if a WATS-AFR customer has the same treatment on calls that are advanced to the regular network trunks as a message rate customer, they can share a common billing table.

**6.282** Form 0214 is prepared only for CDT entities. Several copies of the form may be required for each Flat Rate Billing Table required for the specified entity.

**6.283** Figure 49 is a sample Form 0214. The following paragraphs describe the entries to be made on the form.

#### B. Form Entries

##### Entity Number

**6.284** Enter the entity number as assigned on Form 0101. Valid entries are 000 through 137 (octal).

##### Flat Rate Table Number

**6.285** Enter the number to be used to identify this Flat Rate Billing Table. Valid entries are 0 through 31 (decimal).

##### Called NXX

**6.286** List all called NXXs, which can be dialed as a **local** call, including those dialed with a 1 prefix, by customers with the OLCs associated with this billing table. Valid entries are 001 through 999 (decimal).

##### Local or Nonlocal

**6.287** For each called NXX, enter **L** to indicate that the NXX represents a local call.

**6.288** Any NXX not listed on Form 0214 and therefore not specifically entered into the table by the **RC ENT FLT** input message will appear in the table to be a nonlocal NXX.

**6.289** If desired, all **nonlocal** NXXs that can be dialed from the OLCs associated with this billing table as a 7-digit or a 1 plus 7-digit call may also be listed in the **Called NXX** column. For each of these NXXs, the **Local or Nonlocal** entry is **N** indicating that the NXX represents a nonlocal call.



**C. Generic 3 Dump Message Interpretation**

**6.290** The message **DUMP MEM NPD FLT** results in an octal dump of all data for a particular Flat Rate Billing Table for the entity specified in the

dump input message. Figure 50 is the **DUMP MEM NPD FLT** output for Flat Rate Billing Table 00 for Entity 012. The sample Form 0214 specifies data for the NXXs in this table.

```

DUMP MEM NPD FLT 012 00!PF
M 10 00 DUMP MEM NPD FLT 012 00
  10 00 000001 000000 000000 000000 000000 000000 000000 000000 000000
  10 00 000000 000000 000000 000000 000000 020000 000000 002000 000000
  10 00 000000 000000 000000 000000 000000 000000 000000 000000 000000
  10 00 000000 000000 000000 000000 000000 000000 000000 000000 000000
  10 00 000000 000000 000000 000000 000000 000000 000000 000000 000000
  10 00 000000 000000 000000 000000 000000 000000 000000 000000 000000
  10 00 000000 000000 000000 000000 000000 000000 000000 000000 000000
  10 00 000000
  10 00 EOD

```

**Fig. 50—Sample Generic 3 DUMP MEM NPD FLT**

**6.291** The NXX is implied by the position of the data in the table, with each bit of a word specifying the local/nonlocal indicator for an NXX. Bit 0 of the first word **dddddd**, which corresponds to NXX 000, is not used. The following paragraphs describe the numerical conversions that must be performed to compare the encircled value on Fig. 50 with the data for NXX 221 on sample Form 0214.

**6.292 Convert Octal to Binary:** Convert the 6-digit octal value to a 16-bit binary word. Each value, except the leftmost octal digit, is converted to a 3-digit binary number. The leftmost octal value is used as a 1-digit binary number. Octal value 020000 is converted to binary as illustrated in Table GG.

TABLE GG

OCTAL	0	2				0				0				0			
BIT NUMBER	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0	
BINARY	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	

**6.293 Interpret Bits:** Each dumped word is interpreted bit-by-bit, with each bit defining the local/nonlocal indicator for one NXX. The encircled value on Fig. 50 defines the local/nonlocal indicators for NXXs 208 (bit 0) through 223 (bit 15). A value of 0 for a particular bit indicates that a call to the corresponding NXX is a nonlocal call. A value of 1 indicates that the NXX is a local call.

**6.294** Using the binary conversion for the octal value 020000, this word is interpreted as follows:

- The NXXs 208 through 220 are nonlocal.
- An NXX 221 is local.
- The NXXs 222 and 223 are nonlocal.

**6.295** No data were specified on Form 0214 for NXXs 208 through 220, 222, and 223. These could be invalid NXXs or could be valid nonlocal NXXs. Any NXX not specifically entered with the **RC ENT FLT** input message will be entered into the billing table with a nonlocal indication.

**D. Generic 4 Dump Message**

**6.296** The message **DUMP MEM NPD FLT** results in a dump of either an entire Flat Rate Billing Table for the entity specified in the dump input message or of the entry in the table for a single NXX specified in the input message. The entry for a single NXX is output when the input message includes an NXX (field **fff**).

**6.297** When an entire Flat Rate Billing Table is requested, the dump output begins by identifying the entity number and table number requested. Next, the digits 0 through 9 representing the units digits of NXXs are printed as column headings. The output next prints 100 rows of table data. At the beginning of each row an NXX row index, identifying the hundreds and tens digits of NXXs for which the

row provides data, is printed. Within a row, an **L** or an **N** is shown in each NXX position, identifying whether that NXX is a local or nonlocal call. Volume 2 of the *OM/TRG* describes the output format.

**6.298** For example, consider the following row of data:

	0	1	2	3	4	5	6	7	8	9
280	N	N	N	N	L	N	L	L	L	N

**Note:** This row of data shows the following NXXs are nonlocal: 280, 281, 282, 283, 285, and 289. The following NXXs are local: 284, 286, 287, and 288. Note that any NXX not listed on Form 0214, and therefore not specifically entered into the table by the **RC ENT FLT** input message, appears in the output as a nonlocal call. The dumped data are easily compared with the form data.

**6.299** When the Flat Rate Billing Table entry for a single NXX is requested, the output begins by identifying the entity number, table number, and NXX requested. This is followed by a statement as to whether that NXX is a local or nonlocal NXX.

**FORM 0215 — MESSAGE RATE BILLING TABLE—CDT ENTITIES**

**A. General**

**6.300** Data from Form 0215 are entered into the specified Message Rate Billing Table for the specified entity. This table is used to determine the billing rate indicator (see Form 0219) to be applied to calls to a particular NXX. Up to 32 of these tables may be equipped for an entity.

**6.301** The AMARC determines which Flat Rate Billing Table or Message Rate Billing Table to use for a call based on the OLC transmitted by the CDT for the call. The Originating Line Class To Mes-

sage Billing Class Table for the entity (see Form 0213A) specifies the billing table to be used for each OLC that requires the use of a billing table.

**6.302** A Message Rate Billing Table may be accessed from any OLC that translates to an MBC that has message rate treatment on local calls. This includes MBCs MESS (message rate), COIN (coin zone), WAFR (WATS automatic flexible routing), and CCSA (common control switching arrangement).

**6.303** The billing table referenced for a particular OLC is used on both 7-digit calls and 1 plus 7-digit calls, since some entities may allow 1 plus dialing of local calls.

**6.304** In an entity that allows 10-digit local dialing across NPA boundaries, this billing table may be used for 10-digit local calls. In this case, the Message Rate Billing Table is referenced from the Ten-Digit Local Dialing Table (Form 0221) for the entity or from a Secondary Originating Line Class Translation Table (Form 0213B) for the entity.

**6.305** A separate Flat Rate Billing Table and/or Message Rate Billing Table, ie, Form 0214 and/or Form 0215, must be provided for each group of OLCs within the specified entity that have different treatment of called NXX codes. More than one OLC may be associated with a billing table. For example, if a WATS-AFR customer has the same treatment on calls that are advanced to the regular network trunks as a message rate customer, they can share a common billing table.

**6.306** Form 0215 is prepared only for CDT entities. Several copies of the form may be required for each Message Rate Billing Table required for the specified entity.

**6.307** For ease in preparing Form 0219, which translates billing rate indicators (BRI), Form 0219 for a particular entity should be prepared in conjunction with Forms 0215 prepared for the entity.

**6.308** Figure 51 is a sample Form 0215. The following paragraphs describe the entries to be made on the form.

## B. Form Entries

### Entity Number

**6.309** Enter the entity number as assigned on Form 0101. Valid entries are 000 through 137 (octal).

### Message Rate Table Number

**6.310** Enter the number to be used to identify this Message Rate Billing Table. Valid entries are 0 through 31 (decimal).

### Called NXX

**6.311** List all called NXXs which can be dialed as a **local** or **nonlocal** call with or without a 1 prefix by customers with the OLCs associated with this billing table. Valid entries are 001 through 999 (decimal).

### Billing Rate Indicator

**6.312** For each called NXX, enter the BRI that represents the appropriate local/nonlocal, bulk/detailed billed characteristics for a call to that NXX from the OLCs associated with this rate table. For local calls, the BRI determined for a call is used as the MBI (Message Billing Index) in the call record. The BRI values should be coordinated with the accounting center. Existing MBI values for local calls typically are used for BRIs. Valid entries are 00 through 15 (decimal).

**6.313** The BRIs are translated via data from Form 0219. Generically, BRI 00 is defined as a non-local call treatment and may not be used otherwise. Generically, BRI 15 is defined as a flat rate call treatment and may not be used otherwise. Form 0215 may be used for BRIs 00 and 15, but only for NXXs that require their generically defined call treatments. Data may not be specified on Form 0219 for BRI 0 or BRI 15.

**6.314** The application of BRI 15 is for OLCs that are allowed to call some NXXs in their local dialing area as flat rate calls while other NXXs in their local dialing area are measured rate calls.



**C. Generic 3 Dump Message Interpretation**

**6.315** The message **DUMP MEM NPD MSG** results in an octal dump of the following data for the CDT entity specified in the dump input message:

- (a) All data for a particular Message Rate Billing Table (Form 0215).
- (b) Local/nonlocal call treatment indicator and bulk/detailed billing indicator for each BRI

associated with the particular Message Rate Billing Table (BRI translations—Form 0219).

**6.316** Figure 52 is the **DUMP MEM NPD MSG** output for Message Rate Billing Table 0 for Entity 001. The sample Form 0215 specifies data for the NXXs in this table. The sample Form 0219 includes the translations for all BRIs associated with Message Rate Billing Table 0.

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```
DUMP MEM NPD MSG 001 00!PF
M 13 00 DUMP MEM NPD MSG 001 00
13 00 000001 000000 000000 000000 000000 000000 000000 000000 000000
13 00 000000 000000 000000 000000 000000 000000 000000 000000 000000
13 00 000000 000000 000000 000000 000000 000000 000000 000000 000000
13 00 000000 000000 000000 000000 000000 000000 000000 000000 000000
13 00 000000 000000 000000 000000 000000 000000 000000 000000 000000
13 00 000000 000000 000000 000000 000000 000000 000000 000000 000000
13 00 000000 000000 007420 000000 020000 000000 000000 000000 000000
13 00 000400 000060 000000 000020 000000 030000 000000 001400 000060
13 00 010000 000000 000000 000000 000000 000000 000000 000000 000000
13 00 000000 000000 000000 000000 000000 000000 000001 000000 000000
13 00 000000 000000 000000 000000 000000 000000 000000 000000 000000
13 00 000000 000000 000000 000000 000000 000000 000000 000000 000000
13 00 000000 000000 000400 000000 000000 000000 000000 000000 000000
13 00 000000 000000 000000 000000 000000 000000 000000 000000 000000
13 00 000000 000000 000000 000000 000000 000000 000000 000000 000000
13 00 000020 000000 000000 000000 000000 000000 000000 000000 000000
13 00 000000 000000 000000 000000 000000 000000 000000 000000 000000
13 00 000000 000000 000000 000000 000000 000000 000000 000000 000000
13 00 000000 000000 000000 000000 000000 000000 000000 000000 000000
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13 00 000000 000000 000000 000000 000000 000000 000000 000000 000000
13 00 000000 000000 000000 000000 000000 000000 000000 000000 000000
13 00 000000 000000 000000 000000 000000 000000 000000 000000 000000
13 00 000000 000000 000000 000000 000000 000000 000000 000000 000000
13 00 000001 000000 000000 000000 000000 000000 000000 000000 000000
13 00 000000 000000 000000 000000 000000 000000 000000 000000 001010
13 00 000010
13 00 EOD
```

Fig. 52—Sample Generic 3 DUMP MEM NPD MSG

6.317 The NXX is implied by the position of the data in the table and begins with NXX 001. The last two dumped words contain the BRI translations.

**Form 0215 Comparison**

6.318 The following paragraphs describe the steps that must be performed to convert encircled

value 000060 to the BRIs for NXXs 252, 253, 254, and 255 for comparison with the sample Form 0215 data.

6.319 **Convert Octal to Binary:** Convert the 6-digit octal value to a 16-bit binary word. Each value, except the leftmost octal digit, is converted to a 3-digit binary number. The leftmost octal value is used as a 1-digit binary number. Octal value 000060 is converted to binary as illustrated in Table HH.

**TABLE HH**

OCTAL	0	0	0	0	6	0										
BIT NUMBER	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
BINARY	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0

6.320 **Interpret Bits:** The 16-bit binary word is next sectioned into groups of bits that represent input data values as defined in the OM. Each group of bits is then converted to the octal value represented by the binary value of the group. These conversions are illustrated in Table II.

resented by the binary value of the group. These conversions are illustrated in Table II.

**TABLE II**

BINARY	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0
BIT NUMBER	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
OCTAL	0			0			3			0						

6.321 The interpretation of this word is as follows:

**Form 0219 Comparison**

- The BRI for NXX 252 is 0.
- The BRI for NXX 253 is 3.
- The BRI for NXX 254 is 0.
- The BRI for NXX 255 is 0.

**Note:** No data were specified on Form 0215 for NXXs 252, 254, or 255. These could be invalid NXXs or could be valid nonlocal NXXs. Any NXX not specifically entered with the **RC ENT MSG** input message will be entered into the billing table with a BRI of 0.

6.322 Word **eeeeee** in the dumped data is interpreted bit-by-bit, with bits 0 through 14 corresponding to the local/nonlocal call treatment indicators for BRIs 0 through 14, respectively. Bit 15 is not used, since BRI 15 is defined generically to indicate flat rate call treatment. A local/nonlocal call treatment indicator does not apply to BRI 15. Generically, BRI 0 is defined to indicate a nonlocal call treatment and is always set to 0. The following steps must be performed to convert the octal value of **eeeeee** to values that can be compared with sample Form 0219 data for Message Rate Billing Table 0 for these BRIs.

**6.323 Convert Octal to Binary:** Convert the 6-digit octal value to a 16-bit binary word. Each value, except the leftmost octal digit, is converted to a 3-digit binary number. The leftmost octal

value is used as a 1-digit binary number. Octal value 001010 is converted to binary as illustrated in Table JJ.

TABLE JJ

OCTAL	0	0			1			0			1			0		
BIT NUMBER	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
BINARY	X	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0

**6.324 Interpret Bits:** For each bit, a value of 0 indicates that the corresponding BRI represents nonlocal call treatment. A value of 1 indicates that the corresponding BRI represents local call treatment.

steps must be performed to convert the octal value of **fffff** to values that can be compared with sample Form 0219 data for Message Rate Billing Table 0 for these BRIs.

**6.325** Word **fffff** in the dumped data is interpreted bit-by-bit as is word **eeeee**. Bits 0 and 15, which correspond to BRIs 0 and 15, are not used. Generically, BRI 0 is defined to indicate nonlocal call treatment, which always receives detailed billing. Generically, BRI 15 is defined to indicate flat rate call treatment; therefore, a call to an NXX assigned BRI 15 does not require a call record. The following

**6.326 Convert Octal to Binary:** Convert the 6-digit octal value to a 16-bit binary word. Each value, except the leftmost octal digit, is converted to a 3-digit binary number. The leftmost octal value is used as a 1-digit binary number. Octal value 000010 is converted to binary as illustrated in Table KK.

TABLE KK

OCTAL	0	0			0			0			1			0		
BIT NUMBER	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
BINARY	X	0	0	0	0	0	0	0	0	0	0	0	1	0	0	X

**6.327 Interpret Bits:** For each bit, a value of 0 indicates that the corresponding BRI represents detailed billing treatment. A value of 1 indicates that the corresponding BRI represents bulk billing treatment.

input message or of the entry in the table for a single NXX specified in the input message. The entry for a single NXX is output when the input message includes an NXX (field **fff**). The dumped data include the translations for all BRIs associated with the Message Rate Billing Table or for the BRI associated with the NXX entry requested.

**D. Generic 4 Dump Message Interpretation**

**6.328** The message **DUMP MEM MPD MSG** results in an dump of either an entire Message Rate Billing Table for the entity specified in the dump

**6.329** When an entire Message Rate Billing Table is requested, the dump output begins by identifying the entity number and table number request-

ed. Next, the digits 0 through 9, representing the units digits of NXXs, are printed as column headings. The output next prints 100 rows of table data. At the beginning of each row an NXX row index identifying the hundreds and tens digits of NXXs for which the row provides data is printed. Within a row for each NXX position, the following data are shown:

- (a) The **BRI** associated with the NXX.
- (b) The **L**, **N**, or **F** identifying whether this BRI requires local, nonlocal, or flat rate call treatment. The **F** is used only for BRI 15.
- (c) The **D** or **B** identifying whether a call receiving this BRI should be detail billed or bulk billed. If the local/nonlocal indicator is **F**, the detail/bulk billing indicator does not apply to a call to the NXX, and this indicator is blank.

**6.330** The format of the data for an NXX is **dd/ef**, where field **dd** provides the **BRI**; field **e** identifies **L**, **N**, or **F**; and field **f** identifies **D** or **B** (or is blank). For example, data **01/LD** means that BRI 01 is associated with the NXX. A call to that NXX should receive local call treatment, and the call should be detail billed. Note that the data for any NXX not listed on form 0219, and therefore not specifically entered into the table by the **RC ENT MSG** input message, appear as **00/ND**.

**6.331** Compare the BRI in the dumped data for an NXX with the **Billing Rate Indicator** Form 0219 entry for the NXX. Compare the **L** or **D** and the **D** or **B** dumped data for the NXX with the Form 0215 entries for the BRI. Form 0215 does not contain entries for BRI 00 or BRI 15. Generically, BRI 00 is defined to indicate a nonlocal call treatment and BRI 15 is generically defined to indicate flat rate call treatment.

**6.332** When the Message Rate Billing Table entry for a single NXX is requested, the output begins by identifying the entity number, table number, and NXX requested. This is followed by a statement identifying the local/nonlocal/flat rate and detail/bulk billing status of a call to the NXX and identifying the BRI associated with the NXX.

#### **FORM 0216 — DEDICATED TRUNK TABLE—CDT ENTITIES**

##### **A. General**

**6.333** Data from Form 0216 are entered into the Dedicated Trunk Table for the specified CDT

entity. This table is accessed by the AMARC when the OLC (see Form 0213A) for a call translates to an MBC of CCSA (common control switching arrangement) or WAFR (WATS automatic flexible routing). The table is used to determine whether a dedicated CCSA or WATS trunk was used for the call.

**6.334** For CCSA and WATS-AFR calls, either dedicated or regular network trunks may be used, depending on the availability of the dedicated trunks. If a dedicated CCSA or WATS trunk is used, a CCSA or WATS call format and charging rate apply to the call. If a regular network trunk is used, the special call format and rate do not apply.

**6.335** Form 0216 is prepared only for CDT entities. This form is not required if the entity does not have any dedicated trunks. Several copies of the form may be required for an entity.

**6.336** Within a marker group, a CDT may process only local traffic or both toll and local traffic. Each CCSA or WATS trunk that is equipped for CDT requires an entry on Form 0216. Trunks not specifically entered into the Dedicated Trunk Table by the **RC ENT DTK** input message will appear in the table to be nondedicated trunks. Nondedicated trunks do not require entries on Form 0216.

**6.337** The trunk link frame numbers specified on this form must be in agreement with the highest numbered trunk link frame equipped that is specified on Form 0217.

**6.338** Figure 53 is a sample Form 0216. The following paragraphs describe the entries to be made on the form.

##### **B. Form Entries**

###### **Entity Number**

**6.339** Enter the entity number as assigned on Form 0101. Valid entries are 000 through 137 (octal).

###### **Trunk Link Frame**

**6.340** Enter the trunk link frame number for this trunk. Valid entries are 00 through 29 (decimal).

###### **Trunk Number**

**6.341** Enter the trunk number. Valid entries are 00 through 95 (decimal).

**Special Treatment**

**6.342** For each trunk, enter the appropriate 4-character code from the table below that represents the special treatment that applies to that trunk.

TREATMENT TYPE	FORMAT TREATMENT
CCSA	Common control switching arrangement
WSF0	WATS, full business day, band 0
WSF1	WATS, full business day, band 1
WSF2	WATS, full business day, band 2
WSF3	WATS, full business day, band 3
WSF4	WATS, full business day, band 4
WSF5	WATS, full business day, band 5
WSF6	WATS, full business day, band 6
WSF7	WATS, full business day, band 7

**TREATMENT TYPE****FORMAT TREATMENT**

WSF8	WATS, full business day, band 8
WSF9	WATS, full business day, band 9
WSM0	WATS, measured time, band 0
WSM1	WATS, measured time, band 1
WSM2	WATS, measured time, band 2
WSM3	WATS, measured time, band 3
WSM4	WATS, measured time, band 4
WSM5	WATS, measured time, band 5
WSM6	WATS, measured time, band 6
WSM7	WATS, measured time, band 7
WSM8	WATS, measured time, band 8
WSM9	WATS, measured time, band 9



C. Generic 3 Dump Message Interpretation

6.343 The message **DUMP MEM NPD DTK** results in an octal dump of the entries for all trunks of one trunk link frame contained in the Dedicated Trunk Table for the entity and the trunk link frame specified in the dump input message. Figure 54 is the **DUMP MEM NPD DTK** output for the data specified on sample Form 0216.

6.344 The trunk number is implied by the position in the table beginning with trunk 0. The following paragraphs describe the steps that must be performed to convert the data for the first word to values that can be compared with the form entries for the specified trunk link frame (01).

```
DUMP MEM NPD DTK 001 01!PF
M 09 00 DUMP MEM NPD DTK 001 01
09 00 020000 000012 010400 000000 000200 000000 000120 000000 000000
09 00 000000 000000 000000 000000 000000 000000 000000 000000 000000
09 00 000000 000000 000000 000000 000000 000000
09 00 EOD
```

Fig. 54—Sample Generic 3 DUMP MEM NPD DTK

6.345 **Convert Octal to Binary:** Convert the 6-digit octal value for the first word to a 16-bit binary word. Each value, except the leftmost octal digit, is converted to a 3-digit binary number. The

leftmost octal digit is used as a 1-digit binary number. The first dumped word is converted as illustrated in Table LL.

TABLE LL

OCTAL	0	2			0			0			0			0		
BIT NUMBER	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
BINARY	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0

**6.346 Interpret Bits:** The 16-bit binary word is next sectioned into groups of bits that represent input data values, as defined in the OM. Each group of bits is then converted to the octal value rep-

resented by the binary value of the group. These conversions are illustrated in Table MM.

TABLE MM

BINARY	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
BIT NUMBER	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
OCTAL	2			0				0			0					

**6.347** The interpretation of the first dumped word is as follows:

- Trunk 0 on TLF 01 is not dedicated.
- Trunk 1 on TLF 01 is not dedicated.
- Trunk 2 on TLF 01 is not dedicated.
- Trunk 3 on TLF 01 is dedicated to WATS, full business day, band 1.

#### D. Generic 4 Dump Message Interpretation

**6.348** The message **DUMP MEM NPD DTK** results in a dump of data from the Dedicated Trunk Table for the entity and the trunk link frame specified in the input message. If a trunk number (field **cc**) is included in the dump input message, the dumped data are the table entries for the specified trunk. If a trunk number is not included in the input message, the dumped data are all table entries for the specified trunk link frame.

**6.349** The output for **DUMP MEM NPD DTK** begins by identifying the trunk link frame number and the entity requested. The trunk link frame number is the first column on Form 0216. Next, the output prints column headings that correspond to the other two columns on the form. For a trunk that is not dedicated, ie, no data were specified on Form 0216, the output shows dashes in the **SPECIAL TREATMENT** column.

**6.350** Numerical conversion of the dumped data, for example, conversion from octal to binary is not required in order to compare the dumped data with data on NPD Form 0216. An explanation of the values associated with each dump message column heading is provided in Volume 2 of the OM/TRG.

#### FORM 0217 — TRUNK LINK FRAME TABLE—CDT ENTITIES

##### A. General

**6.351** Form 0217 is used to specify the highest numbered trunk link frame equipped for CDT, ie, scanned by CDT, for each CDT entity. The AMARC uses this data in conjunction with the data from Form 0307 to equip call record registers for the entity. A call record register is a temporary storage area in AMARC memory for storage of billing data. Form 0307 is used to equip trunk scan board columns on a CDT controller served by a specified channel.

**6.352** This form is prepared only for CDT entities. The highest numbered trunk link frame equipped for each CDT entity served by the AMARC may be entered on the same copy of Form 0217. Several copies of the form may be required, if the AMARC serves many CDTs.

**6.353** Figure 55 is a sample Form 0217. The following paragraphs describe the entries to be made on the form.



**B. Form Entries****Entity Number**

**6.354** Enter the entity number, as assigned on Form 0101. Valid entries are 000 through 137 (octal).

**Highest TLF Equipped**

**6.355** Enter the highest numbered trunk link frame equipped for CDT for the specified entity. Valid entries are 00 through 29 (decimal).

**C. Dump Generic 3 Message Interpretation**

**6.356** The message **DUMP MEM NPD TLF** results in an octal dump of the entry in the Highest Num-

bered Equipped Trunk Link Frame Table for the entity specified in the dump input message. Figure 56 is the **DUMP MEM NPD TLF** output for the data specified on Form 0217 for CDT entity 001.

```
DUMP MEM NPD TLF 001!PF
```

```
M 22 00 DUMP MEM NPD TLF 001
```

```
22 00 011031
```

```
22 00 EOD
```

**Fig. 56—Sample Generic 3 DUMP MEM NPD TLF**

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- 6.357** The **cccc** portion of word **ccccbb** is not used, although it may be a nonzero value.
- 6.358** The **bb** portion of word **ccccbb** is the number of the highest numbered equipped trunk link frame for the entity plus 1. This is dumped as an octal value. The dumped value must be read into an octal to decimal conversion table (see Table R in this section). The **bb** portion of the sample dumped data is 31. This octal value represents decimal value 25. The highest numbered equipped trunk link frame for entity 001 then is 24.

**D. Generic 4 Dump Message Interpretation**

- 6.359** The message **DUMP MEM NPD TLF** results in a dump of the Highest Numbered Equipped Trunk Link Frame Table for the CDT entity specified in the input message.
- 6.360** The format of the output for **DUMP MEM NPD TLF** and an explanation of the values associated with each variable field is provided in Volume 2 of the OM/TRG.
- 6.361** Numerical conversion of the dumped data, for example, conversion from octal to decimal, is not required in order to compare the dumped data with data on NPD Form 0217.

**FORM 0218 — CALLED NXX TO CALLED NPA INDEX—  
CDT ENTITIES**

**A. General**

- 6.362** The data from Form 0218 are entered into the Called NXX To Called NPA Index Table for the specified entity. This table is used to translate a called NXX which is located in an NPA other than the home NPA to a called NPA index, when the NPA is not required to be dialed. The NPA index is then translated, via the Called NPA Table (see Form

0220), to a 3-digit NPA to enable recording of the called number as NPA-NXX-Line Number.

- 6.363** This form is prepared only for CDT entities that allow 7-digit local dialing across NPA boundaries. Several copies of the form may be required for a particular CDT entity.

- 6.364** Data from this form will not be accepted unless Form 0101 indicated that 7-digit local dialing across NPA boundaries is allowed for this entity.

- 6.365** The NPA index assignments on Form 0218 must be in agreement with Form 0220.

- 6.366** Figure 57 is a sample Form 0218. The following paragraphs describe the entries to be made on the form.

**B. Form Entries**

**Entity Number**

- 6.367** Enter the entity number, as assigned on Form 0101. Valid entries are 000 through 137 (octal).

**Called NXX**

- 6.368** Enter each NXX that is located outside of the home NPA that can be dialed as a 7-digit local call. The NXXs in the home NPA should **not** be listed. Valid entries are 001 through 999 (decimal).

**NPA Index**

- 6.369** For each called NXX, enter the NPA index that represents the appropriate called NPA in the Called NPA Table for the specified entity. Valid entries are 0 through 9 (decimal). Index 0 must be used for the home NPA, other index assignments are arbitrary.



**C. Dump Message Interpretation**

**6.370** The message **DUMP MEM NPD NXX** results in an octal dump of either the entire Called NXX To Called NPA Index Table for the entity specified in the dump input message or of the entry in the table for a single called NXX. When an NXX is specified in the input message (field **nxx**), only the data for that NXX are dumped. Figure 58 is the dump message output for sample Form 0218.

**6.371** Each dumped word contains the NPA Index for each of three NXXs. The NXX is implied by the position of the data in the table. The encircled word on Figure 58 contains the NPA Indexes for NXXs 260 through 263.

**6.372** The following paragraphs describe the steps that must be performed to convert the data for the encircled word to values that can be compared with the form entries.

**6.373 Convert Octal to Binary:** Convert the 6-digit octal value for the encircled word to a 16-bit binary word. Each value, except the leftmost octal digit, is converted to a 3-digit binary number. The leftmost octal value is used as a 1-digit binary number. The encircled word is converted as illustrated in Table NN.

**TABLE NN**

OCTAL	0	0	0	0	4	0										
BIT NUMBER	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
BINARY	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0

**6.374 Interpret Bits:** The 16-bit binary word is next sectioned into groups of bits that represent input data values, as defined in the OM. Each

group of bits is then converted to the octal value represented by the binary value of the group. These conversions are illustrated in Table OO.

**TABLE OO**

BINARY	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
BIT NUMBER	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
OCTAL	0			0			2			0						



**6.375** Interpretation of this word is as follows:

- (a) The Called NPA Index for Called NXX 260 is 0. Since no data are specified on Form 0218 for NXX 260, this NXX is not one that is in another NPA and is not one that can be dialed as a 7-digit local call.
- (b) The Called NPA Index for Called NXX 261 is 2.
- (c) The Called NPA Index for Called NXX 262 is 0.
- (d) The Called NPA Index for Called NXX 263 is 0.

**FORM 0219 — BILLING RATE INDICATOR—CDT ENTITIES****A. General**

**6.376** Data from Form 0219 are used to translate the billing rate indicators (BRIs) specified in the Message Rate Billing Tables (see Form 0215) for the specified entity. A BRI is translated to a local or nonlocal call treatment and the bulk billed or detailed billed call treatment. These call treatment requirements are applied to a call to an NXX for which the BRI was specified in a billing table. The value of the BRI determined for a local call is included in the AMA call record as the MBI.

**6.377** This form is prepared only for CDT entities. At least one copy of the form is required for each CDT entity.

**6.378** For ease in preparing Form 0219 for an entity, it should be prepared in conjunction with the Form(s) 0215 prepared for the entity. As each BRI is assigned on a Form 0215, the appropriate entries associating the BRI with the particular Message Rate Billing Table and translating the BRI to billing data should be entered on Form 0219.

**6.379** Figure 59 is a sample Form 0219. The following paragraphs describe the entries to be made on the form.

**B. Form Entries****Entity Number**

**6.380** Enter the entity number as assigned on Form 0101 to which these BRI translations apply. Valid entries are 000 through 137 (octal).

**Message Rate Billing Table**

**6.381** Enter the number of the Message Rate Billing Table to which this BRI translation applies. Valid entries are 0 through 31 (decimal).

**Billing Rate Indicator**

**6.382** Enter the BRI for this translation. Generically BRI 0 is defined as a nonlocal call treatment and may not be used otherwise. Generically BRI 15 is defined as a flat rate call treatment and may not be used otherwise. Data *may not* be specified on Form 0219 for BRI 0 or BRI 15. Valid BRI entries are 01 through 14 (decimal).

**6.383** The application of BRI 15 is for OLCs that are allowed to call some NXXs in their local dialing area as flat rate calls while other NXXs in their local dialing area are measured rate calls.

**Local or Nonlocal**

**6.384** Enter **L** if a call receiving this BRI should be given local call treatment. Enter **N** if a call receiving this BRI should be given nonlocal call treatment.

**Bulk or Detailed Billed**

**6.385** If **L** was entered in the previous column, this column must indicate whether a call receiving this BRI should be bulk billed or detailed billed. Enter **B** if it should be bulk billed. Enter **D** if it should be detailed billed.

**6.386** If **N** was entered in the previous column, this column should be left blank. Nonlocal calls are defined generically to require detailed billing.



**C. Dump Message Interpretation**

**6.387** The translations for BRIs are dumped with the **DUMP MEM NPD MSG** message. This dump message results in an octal dump of the following data for the CDT entity specified in the dump input message:

- (a) All data for a particular Message Rate Billing Table (Form 0215).
- (b) Local/nonlocal call treatment indicator and bulk/detailed billing indicator for each BRI associated with the particular Message Rate Billing Table (BRI translations—Form 0219).

**6.388** The explanation for interpretation of the data dumped by the **DUMP MEM NPD MSG** message, including comparison with Form 0219 data, is provided in the instructions for Form 0215.

**FORM 0220 — CALLED NPA TABLE—CDT ENTITIES****A. General**

**6.389** Data from Form 0220 are entered into the Called NPA Table for the specified entity. When called number details are needed for a CDT call record, AMARC always records the number as a 10-digit number. This table is used to determine the called NPA for a 7-digit call.

**6.390** If 7-digit local dialing across NPA boundaries is not allowed for the entity, this table provides only one translation, that of called NPA Index 0 to the home NPA.

**6.391** If 7-digit local dialing across NPA boundaries is allowed for the entity, this table provides the Index 0 to home NPA translation and provides the NPA translation for each Called NPA Index specified in the Called NPA Table for the enti-

ty. Form 0218 provides data for the Called NXX to Called NPA Table. The Index translations on Form 0220 must be coordinated with the Index assignments on Form 0218.

**6.392** One copy of Form 0220 is required for each CDT entity. Figure 60 is a sample Form 0220. The following paragraphs describe the entries to made on the form.

**B. Form Entries****Entity Number**

**6.393** Enter the entity number as assigned on Form 0101. Valid entries are 000 through 137 (octal).

**Called NPA Index**

**6.394** List Index 0 and the indexes assigned on Form 0218. Valid entries are 0 through 9 (decimal). Index 0 must represent the home NPA. All other assignments are arbitrary.

**Called NPA**

**6.395** For each called NPA index, enter the 3-digit NPA translation. An NPA or a 3-digit code used in place of an NPA may be specified. The home NPA must be entered as the translation for index 0. All other assignments are arbitrary. Valid entries are 000 through 999 (decimal).

**6.396** Noncheck Dummy (NCD) characters may be used for all or any of the **Called NPA** digits. An NCD is entered on the form as an asterisk (\*). The use of NCDs for the called NPA, however, causes additional processing tasks for the RAO when processing the AMA tape.

NO. 1A AMARC 0220  
 NO. 1A AMARC 216200  
 ENTITY SALM 0433 335

EFFECTIVE DATE 6-6-80  
 ISSUE DATE 6-1-80  
 REVISION NO. -

**CALLED NPA TABLE  
 CDT ENTITIES**

(aaa) ENTITY NUMBER 001

(b) CALLED NPA INDEX	(ccc) CALLED NPA
0	614
1	611
2	612

INPUT MESSAGE: RC ENT aaa CDN b ccc!  
 DUMP MESSAGE: DUMP MEM NPD CDN

PREPARED BY J. Doe  
 TELEPHONE ABC-XXXX

Fig. 60—Sample Form No. 1A AMARC 0220 — Called NPA—CDT Entities

**C. Generic 3 Dump Message Interpretation**

**6.397** The called NPA index translations are dumped with the **DUMP MEM NPD CDN** message. This message results in a BCD dump of the called NPA Table for the entity specified in the dump input message. Since this is a BCD dump, numerical conversion of the dumped data is not required for comparison with the form data.

**6.398** The message **DUMP MEM NPD CDN** applies to BDT and CDT entities. The dump message

```
DUMP MEM NPD CDN 001!PF
M 19 01 DUMP MEM NPD CDN 001
19 01 0614 0611 0612 0000 0000 0000 0000 0000 0000 0000
19 01 EOD
```

**Fig. 61—Sample Generic 3 DUMP MEM NPD CDN**

**D. Generic 4 Dump Message Interpretation**

**6.400** The message **DUMP MEM NPD CDN** results in a dump of data from the Called NPA Table for the CDT entity specified in the input message.

**6.401** The format of the output message for **DUMP MEM NPD CDN** and an explanation of the values associated with each variable field are provided in Volume 2 of the OM/TRG.

**6.402** Numerical conversion of the dumped data is not required in order to compare the dumped data with data on NPD Form 0204.

**FORM 0221 — TEN-DIGIT LOCAL DIALING—CDT ENTITIES****A. General**

**6.403** The data from Form 0221 are entered into the Ten-Digit Local Dialing Table for the specified entity. This table is used to determine which NPAs can be reached on a local basis by dialing ten digits. This table also is used to identify the Flat Rate Billing Table (Form 0214) or Message Rate Bill-

ing Table (Form 0215) that is to be used to determine the billing information for local calls to this NPA.

**6.399** Figure 61 is the dump message output for sample Form 0220. The called NPA index is implied by the position of the NPA in the table. For CDT entities, the NPA translations for codes 0 through 9 are specified in words 1 through 10, respectively.

ing Table (Form 0215) that is to be used to determine the billing information for local calls to this NPA.

**6.404** If all 10-digit local calls to a particular NPA are to receive flat rate treatment or message rate treatment, the Form 0221 entry for that NPA specifies the number of the appropriate billing table. If the billing table for a particular NPA must be determined as a function of the originating line class (OLC), the Form 0221 entry for that NPA specifies the number of a Secondary Originating Line Class Table.

**6.405** This form is prepared only for CDT entities that allow 10-digit local dialing across NPA boundaries. One copy of the form is required for each CDT entity that allows this type of dialing.

**6.406** Data from this form will not be accepted unless Form 0101 indicated that 10-digit local dialing across NPA boundaries is allowed for this entity.

**6.407** Figure 62 is a sample Form 0221. The following paragraphs describe the entries to be made on the form.



**B. Form Entries**

**Entity Number**

**6.408** Enter the entity number as assigned on Form 0101. Valid entries are 000 through 137 (octal).

**Called NPA**

**6.409** List all called NPAs which can be reached on a local basis by dialing ten digits. Valid entries are 001 through 999 (decimal). A maximum of eight NPAs may be listed.

**Billing Table**

**6.410** For each called NPA, enter the Flat Rate Billing Table or Message Rate Billing Table that is to be used to determine the billing information for local calls to that NPA. Valid entries are 0 through 31 (decimal).

**Table Type or Indicator**

**6.411** If the billing table to be used for all local 10-digit calls to a particular NPA is a Flat Rate

Billing Table, enter **F** for that NPA. If the billing table to be used for all local 10-digit calls to a particular NPA is a Message Rate Billing Table, enter **M** for that NPA. If the billing table to be used for a local 10-digit call to a particular NPA must be determined based on the OLC, enter **I** for that NPA. An **I** entry indicates that a Secondary Originating Line Class Table must be used to determine the Flat or Message Rate Billing Table number.

**Table**

**6.412** For each called NPA, enter the number of the Flat Rate Billing Table, Message Rate Billing Table or Secondary Originating Line Class Table that is to be used to determine billing information for 10-digit local calls to that NPA. Valid entries for billing tables are 00 through 31 (decimal). Valid entries for Secondary Originating Line Class tables are 1 through 4.

**C. Generic 3 Dump Message Interpretation**

**6.413** The message **DUMP MEM NPD TDL** results in an octal dump of the Ten-Digit Local Dialing Table for the entity specified in the input message. Figure 63 is the dump message output for the sample Form 0221.

```
DUMP MEM NPD TDL 001!PF
M 20 01 DUMP MEM NPD TDL 001
  20 01 001422 000401 001025 002600 001002 004600 000000 000000 000000
  20 01 000000 000000 000000 000000 000000 000000 000000
  20 01 EOD
```

**Fig. 63—Sample Generic 3 DUMP MEM NPD TDL**

**6.414** The following paragraphs describe the steps that must be performed to convert the first four word values that can be compared to the form entries. The translations for each called NPA are contained in two data words.

Each value, except the leftmost octal digit, is converted to a 3-digit binary number. The leftmost octal value is used as a 1-digit number. The dumped words are converted to binary as illustrated in Table PP.

**6.415** *Convert Octal to Binary:* Convert the 6-digit octal value for each word to a 16-bit bi-

TABLE PP

FIRST WORD ccbbbb

OCTAL	0	0	1	4	2	2										
BIT NUMBER	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
BINARY	0	0	0	0	0	0	1	1	0	0	0	1	0	0	1	0

FIRST WORD ffeddd

OCTAL	0	0	0	4	0	1										
BIT NUMBER	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
BINARY	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1

SECOND WORD ccbbbb

OCTAL	0	0	1	0	2	5										
BIT NUMBER	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
BINARY	0	0	0	0	0	0	1	0	0	0	0	1	0	1	0	1

SECOND WORD ffeddd

OCTAL	0	0	2	6	0	0										
BIT NUMBER	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
BINARY	0	0	0	0	0	1	0	1	1	0	0	0	0	0	0	0

**6.416** *Interpret Bits:* Each 16-bit binary word is next sectioned into groups of bits that represent input data values, as defined in the OM. Each group of bits is then converted to the octal value rep-

resented by the binary value of the group. The conversions for the dumped words are illustrated in Table QQ.

TABLE QQ

FIRST WORD **ccbbbb**

BINARY	0	0	0	0	0	0	1	1	0	0	0	1	0	0	1	0
BIT NUMBER	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
OCTAL	X	X	X	X	3			1			2					

FIRST WORD **ffeddd**

BINARY	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
BIT NUMBER	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
OCTAL	X	X	X	X	X	X	X	2		1						

SECOND WORD **ccbbbb**

BINARY	0	0	0	0	0	0	1	0	0	0	0	1	0	1	0	1
BIT NUMBER	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
OCTAL	X	X	X	X	2			1			5					

SECOND WORD **ffeddd**

BINARY	0	0	0	0	0	1	0	1	1	0	0	0	0	0	0	0
BIT NUMBER	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
OCTAL	X	X	X	X	2		3		0							

6.417 The following is an interpretation of these words:

(a) First word **ccbbbb**, **ffeddd**

- (1) Word **ccbbbb** indicates that NPA 312 can be reached on a local basis by dialing ten digits.
- (2) Word **ffeddd** indicates that calls to this NPA must use Billing Rate Table 1, which is a Message Rate Billing Table.

(b) Second word **ccbbbb**, **ffeddd**

- (1) Word **ccbbbb** indicates that NPA 215 can be reached on a local basis by dialing ten digits.

- (2) Word **ffeddd** indicates that calls to this NPA must use Secondary Originating Line Class Translation Table 2.

**D. Generic 4 Dump Message Interpretation**

6.418 The message **DUMP MEM NPD TDL** results in a dump of the Ten-Digit Local Dialing Translation Table for the CDT entity specified in the input message.

6.419 The format of the output message for **DUMP MEM NPD TDL** and an explanation of the values associated with each variable field are provided in Volume 2 of the OM/TRG.

6.420 Numerical conversion of the dumped data, for example conversion from octal to binary

is not required in order to compare the dumped data with data on NPD Form 0221.

**FORM 0222 — CALL CLASS INDEXES 6 AND 8—BDT ENTITIES**

**A. General**

**6.421** This form allows specification of the WATS Type, Full Business Day or Measured Time, to be associated with Call Class Index (CCI) 6 and with CCI 8 for the specified BDT entity. When Full Business Day is specified for CCI 6 or 8, each call record for which that CCI value has been transmitted by the BDT will have a value of 1 in the **WATS Indicator** data field. When Measured Time is specified, each call record for the CCI will have a value of 2 in the **WATS Indicator** data field.

**6.422** This form is prepared only for BDT entities. Specification of these data for an entity is optional. If these data are not entered for a particular BDT entity, the **WATS Type** for both CCI 6 and 8 will default to Full Business Day. Several copies of Form 0222 may be required for an AMARC.

**6.423** Figure 64 is a sample Form 0222. The following paragraphs describe the entries to be made on the form.

**B. Form Entries**

**Entity Number**

**6.424** List all BDT entity numbers as assigned on Form 0101. Valid entries are 000 through 137 (octal).

**CCI 6 WATS Type**

**6.425** For each entity number, enter **F** if CCI 6 identifies a Full Business Day WATS call or enter **M** if CCI 6 identifies a Measured Time WATS call.

**CCI 8 WATS Type**

**6.426** For each entity number, enter **F** if CCI 8 identifies a Full Business Day WATS call or enter **M** if CCI 8 identifies a Measured Time WATS call.



**C. Generic 3 Dump Message Interpretation**

**6.427** The message **DUMP MEM NPD CCI** results in an octal dump of the Call Class Index (CCI) Characterization Table for the entity specified in the input message. Figure 65 is the dump message output for sample Form 0222 entries for entity 003.

**6.428** The following paragraphs describe the steps that must be performed to convert the data to values that can be compared with the form entries.

```
DUMP MEM NPD CCI 003!PF
M 06 00 DUMP MEM NPD CCI 003
06 00 011000
06 00 EOD
```

**Fig. 65—Sample Generic 3 DUMP MEM NPD CCI**

**TABLE RR**

OCTAL	0	1	1	0	0	0										
BIT NUMBER	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
BINARY	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0

**6.430 Interpret Bits:** Bits 0, 1 and 2 are the only significant bits in this word. Bits 3 through 15 are not used, although they may be nonzero, as in this example. Interpretation of this dumped data is as follows:

- (a) The CCI 6 identifies a WATS full business day call.
- (b) The CCI 8 identifies a WATS full business day call.

**D. Generic 4 Dump Message Interpretation**

**6.431** The message **DUMP MEM NPD CCI** results in a dump of the Call Class Index (CCI) Charac-

**6.429 Convert Octal to Binary:** Convert the 6-digit octal value for the first word to a 16-bit binary word. Each value, except the leftmost octal digit, is converted to a 3-digit binary number. The leftmost octal digit is used as a 1-digit binary number. The dumped data are converted as illustrated in Table RR.

terization Table for the BDT entity specified in the input message.

**6.432** The format of the output message for **DUMP MEM NPD CCI** and an explanation of the values associated with each variable field are provided in Volume 2 of the OM/TRG.

**6.433** Numerical conversion of the dumped data, for example, conversion from octal to binary is not required in order to compare the dumped data with data on NPD Form 0222.

**FORM 0223 — MODULES EQUIPPED — NO. 2B ESS, NO. 5 ESS ENTITIES**

**A. General**

**6.434** Data from Form 0223 are entered into the Modules Equipped Table for No. 2B ESS and No. 5 ESS entities. This table is used by the AMARC to determine whether the module field of the Call Assembly Index (CAI) passed from an ESS is valid. Each table entry provides a pointer to the group of call record registers allocated to the ESS entity associated with that entry.

**6.435** For a No. 5 ESS, the module field of a CAI represents an Interface Module (IM) in the ESS office. An entry must be made on Form 0223 for each IM equipped in the office. Interface modules are not necessarily equipped sequentially. No entry should be made on Form 0223 for an unequipped module, unless the form is a revision to change the status of an equipped module to unequipped.

**6.436** For a No. 2B ESS, the module field of a CAI does not correspond to an ESS equipment unit. The ESS sends a Virtual Equipment Number (VEN) to AMARC for use as a CAI. The traffic engineer identifies the highest-numbered VEN that AMARC will receive from a particular No. 2B ESS. Using the highest-numbered VEN as the highest-numbered module equipped, an entry must be made on Form 0223 for module 0 through that highest-numbered module. Some of the lower-numbered modules (VENs) may not actually be in use, but the traffic engineer cannot identify those that are not in use.

**6.437** Several copies of Form 0223 may be needed to record all modules equipped for a No. 2B ESS or a No. 5 ESS entity.

**6.438** Figure 66 is a sample Form 0223 for a No. 5 ESS entity. The following paragraphs describe the entries to be made on the form.

**B. Form Entries**

**Entity Number**

**6.439** Enter the entity number as assigned on Form 0101. Valid entries are 000 through 137 (octal).

**Module Number**

**6.440** List all module numbers to be equipped for the ESS entity. Valid entries are 1 through 126 (decimal) for a No. 5 ESS or 0 through 255 (decimal) for a No. 2B ESS. This form may also be used to change the status from equipped to unequipped for the module number specified.

**Equipped**

**6.441** For each module number, enter **EQP** if the module is to be equipped, or **UNEQP** if the module is to be unequipped.

**C. Dump Message Interpretation**

**6.442** The message **DUMP MEM NPD MOD** results in a dump of the Modules Equipped Table entry for the entity specified in the dump input message. The output begins by identifying the entity number requested and the ESS type (No. 2B ESS or No. 5 ESS) of that entity. Next, the output prints the status of each module; showing **EQPD**, if the module is equipped, or ---, if the module is unequipped.

**6.443** The dumped data can be compared easily to the data on Form 0223. Volume 2 of the OM/TRG describes the format of the output for **DUMP MEM NPD MOD**.

NO. 1A AMARC 0223  
 NO. 1A AMARC 216023  
 ENTITY CLEV OH93 932

EFFECTIVE DATE 3-1-82  
 ISSUE DATE 2-12-82  
 REVISION NO. -  
 PAGE 1 OF 6

MODULES EQUIPPED  
 NO. 2B ESS, NO. 5 ESS ENTITIES  
 (aaa) ENTITY NUMBER 00

(bbb) MODULE NUMBER	(c...c) EQP/UNEQP
0	EQP
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	
11	
12	
13	
14	
15	
20	
21	
22	
23	
24	
25	
26	
27	
28	
29	
30	
31	
32	
33	↓

INPUT MESSAGE: RC ENT aaa MOD bbb c...c!  
 DUMP MESSAGE: DUMP MEM NPD MOD

Fig. 66—Sample Form No. 1A AMARC 0223 — Modules Equipped — No. 2B ESS, No. 5 ESS Entities

## 7. PREPARATION OF NPD FORMS THAT SPECIFY CHANNEL PARAMETERS—NPD FORM SERIES 0300

**7.01** The following paragraphs provide instructions for preparation of the 0300 series of NPD forms, which are used to record channel parameters. Channel parameters provide information unique to the individual channels of an AMARC, such as the number of the entity assigned to the channel. Channel parameters include the dial sequence required to reach the appropriate data set at the remote office and establish a dialup data link when a dedicated channel is out of service.

**7.02** Form 0300 is required for every AMARC. The other 0300 forms are required only when the AMARC serves entities equipped with a particular sensor. The form instructions include their application.

### FORM 0300 — NO. 1A AMARC CHANNELS EQUIPPED

#### A. General

**7.03** Data from Form 0300 are entered into the Channel Table for the AMARC. For each equipped channel, this table specifies the following: entity number assigned, local channel number designation, and the dial sequence required to reach the dialup data set (except for No. 3 ESS channel). Information is also entered into the Channel Table from Form 0105 (Dial Backup Channels Equipped), via the **RC DLP EQP** input message.

**7.04** The multiplexer on which a channel resides must be equipped via the **RC MPX EQP** input message (see Form 0103) before the channel can be equipped via the **RC CHL EQP** message. When a dial backup channel assignment is entered on Form 0105, a note should be made on Form 0300 to avoid attempting to equip the channel as a non-dialup channel. No other entries should be made on Form 0300 for a dial backup channel.

**7.05** One Form 0300 is prepared for an AMARC.

**7.06** Figure 67 is a sample Form 0300. Sheet 1 of Fig. 67 shows form entries for CDA, BDT, No. 3 ESS, and No. 5 ETS channels. Sheet 2 of Fig. 67 shows form entries for No. 2B ESS and No. 5 ESS channels. The following paragraphs describe the entries to be made on the form.

## B. Channel Assignments

**7.07** The following paragraphs describe special channel assignment requirements for BDT, CDT, No. 3 ESS, and No. 2B ESS/No. 5 ESS entities. There are no special requirements for CDA, No. 5 ETS, or VSS entities.

**Note:** The assignment of dedicated and dial backup channels for a No. 2B ESS or No. 5 ESS entity must be made according to an engineered plan. As a result, when channel assignments are being determined for any entity served by an AMARC that will serve the No. 2B ESS or No. 5 ESS entities, this assignment plan must be taken into consideration. The channel assignment plan is described in later paragraphs under the heading No. 2B ESS, No. 5 ESS Entity.

### BDT Entity

**7.08** Two channels must be provided for each BDT of a BDT entity and these must be sequentially numbered channels. It is **not** permissible to separate these channels by a dial backup channel.

### CDT Entity

**7.09** The primary channels assigned to the controller(s) of a CDT entity do not have to be sequentially numbered channels provided only one channel is assigned to a controller. If two channels are assigned to a controller, the channels **must be** sequentially numbered, with the lower-numbered channel assigned to primary 0. It is **not** permissible to separate these channels by a dial backup channel.

**7.10** If a CDT controller is equipped initially with a single primary channel but growth to a second primary channel for the controller is anticipated, the next consecutive channel should be left unequipped to accommodate the growth. If the next consecutive channel is not left unequipped and a second primary channel is then required for the controller, the first primary channel must be unequipped and then reequipped where two consecutive unequipped channels are available.

### No. 3 ESS Entity

**7.11** One primary and one dedicated dial backup channel must be provided for each No. 3 ESS

NO. 1A AMARC 0300

NO. 1A AMARC 216 200

EFFECTIVE DATE 6-6-80

ISSUE DATE 6-1-80

REVISION NO. -

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NO. 1A AMARC CHANNELS EQUIPPED

(aab) AMARC CHANNEL NO.	ENTITY NAME	(ccc) ENTITY NUMBER	(dd) LOCAL CHANNEL	(tttt) DIALUP DATA SET TYPE	(eee...e) DIAL SEQUENCE REQUIRED TO REACH DIALUP DATA SET	(f) ISR
000	Dialup					
001	THOR OH44 246	000	-	-	-	-
002						
003						
004	PPTS OH43 430	037	00	212A	9868 48 01	-
005	PPTS OH43 430	037	01	212A	9868 48 01	-
006	STBO OH62 626	003	00	202S	9868 3000	-
007	STBO OH62 626	003	01	202S	9868 3003	-
010	SALM OH33 335	001	00	212A	9868 4800	-
011	SALM OH33 335	001	01	212A	9868 4800	-
012	STBO OH62 626	003	10	202S	9868 3006	-
013	STBO OH62 626	003	11	202S	9868 3068	-
014	PPTS OH43 430	037	10	212A	9868 4802	-
015	PPTS OH43 430	037	11	212A	9868 4802	-
016	NLS OH65 655	004	00	202S	9868 3624	0
017						
020	Dialup					
021	GRRD OH54 546	002	00	212A	9868 3634	0
022	GRRD OH54 546	002	01	212A	9868 3644	0
023						
024						
025						
026						
027	LRTP OH75 75F	006	10	202S	9868 3078	-
030	LRTP OH75 75F	006	11	202S	9868 3088	-
031						
032	NLS OH65 655	004	00	202S	9868 3626	0
033	YNTW OH89 897	010	-	-	-	-
034						
035	NLS OH65 655	004	00	202S	9868 3627	0
036	REYN OH91 747	011	00	202S	9868 3824	0
037	BLK OH86 863	051	10	212A	9868 0624	0

INPUT MESSAGE: RC CHL aab EQP ccc dd tttt e...e f!  
DUMP MESSAGE: DUMP MEM NPD CHL

PREPARED BY J. Doe  
TELEPHONE ABC-XXXX

Fig. 67—Sample Form No. 1A AMARC 0300 — No. 1A AMARC Channels Equipped  
(Sheet 1 of 2)

NO. 1A AMARC 0300  
 NO. 1A AMARC 216023

EFFECTIVE DATE 3-1-82  
 ISSUE DATE 2-12-82  
 REVISION NO. -  
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NO. 1A AMARC CHANNELS EQUIPPED

(aab) AMARC CHANNEL NO.	ENTITY NAME	(ccc) ENTITY NUMBER	(dd) LOCAL CHANNEL	(tttt) DIALUP DATA SET TYPE	(eee...e) DIAL SEQUENCE REQUIRED TO REACH DIALUP DATA SET	(f) ISR
000	CLEV OH93 932	00	00	2048	193 200 21	-
001						
002	SOMR OH63 632	01	00	2048	163 299 20	-
003						
004						
005						
006						
007						
010						
011						
012						
013						
014						
015						
016						
017						
020						
021						
022						
023						
024						
025						
026						
027						
030						
031						
032						
033						
034						
035						
036						
037						

INPUT MESSAGE: RC CHL aab EQP ccc dd tttt e...e f!  
 DUMP MESSAGE: DUMP MEM NPD CHL

PREPARED BY J. Doe  
 TELEPHONE ABC-XXXX

Fig. 67—Sample Form No. 1A AMARC 0300 — No. 1A AMARC Channels Equipped  
 (Sheet 2 of 2)

and these must be sequentially numbered channels. It is **not** permissible to separate these channels by a dial backup channel.

**7.12** When a primary channel for a No. 3 ESS entity is equipped, via the **RC CHL EQP** input message, the AMARC automatically equips the next consecutive channel as the dedicated dial backup for that entity. Entries should not be made on Form 0105 or Form 0300 for a No. 3 ESS dedicated dial backup channel.

#### **No. 2B ESS, No. 5 ESS Entity**

**7.13** A No. 2B ESS/No. 5 ESS entity requires one primary (or dedicated) synchronous channel and one dial backup synchronous channel. All other sensor types require asynchronous channels. The AMARC DZ11B multiplexers provide 96 asynchronous ports. One synchronous channel requires two asynchronous ports. Therefore, a maximum of 48 synchronous channels, including dial backups, can be served by an AMARC. This maximum applies to ESS channels operating at 2400 baud. For ESS channels operating at 4800 baud, a maximum of 36 synchronous channels can be served.

**7.14** For a No. 2B ESS/No. 5 ESS entity, two multiplexer ports are required for the primary data link and the dial backup data link. The dedicated data link and the dial backup data link each require an Automatic Protocol Converter (APC) to allow communication between the AMARC and the ESS.

**7.15** Channel number assignments for a No. 2B ESS or No. 5 ESS entity **must** be made according to the fixed assignments of APC numbers to AMARC channel (multiplexer and port number) numbers that are specified in Table A of SD-5P006, sheet B11B. This table provides an assignment plan for each of the following three characteristics that may apply to the AMARC:

- (a) The AMARC is a new AMARC — Option ZB.
- (b) The AMARC is an existing AMARC, with sequential channel assignments, that is upgrading to Generic 4 — Option ZC.
- (c) The AMARC is an existing AMARC, with distributed channel assignments, that is upgrading to Generic 4 — Option ZD.

**7.16** The assignments specified in this table must be followed exactly. If, in an existing AMARC,

the channel numbers designated for the APC numbers to be associated with a new No. 2B ESS/No. 5 ESS entity are already assigned, new channel assignments must be made to the presently assigned entities.

**7.17** Table A of SD-5P006, sheet B11B provides for the assignment of all AMARC channels to an APC number. If any No. 2B ESS or No. 5 ESS entities are planned for an AMARC, the assignment of channel numbers to other sensor types should be carefully determined, using Table A, so that a minimum of channel reassignments are required when a No. 2B ESS/No. 5 ESS entity is added. The reassignment of a channel number for an entity affects several NPD tables and thus requires the use of several **RC** input messages.

**7.18** The dedicated data link and the dial backup data link each require a sequentially numbered, even-odd pair of multiplexer ports (channels) on the same multiplexer. The even-numbered port must be the lower of the two channel numbers and is referred to as the primary dedicated channel or the primary dial backup channel. The lower-numbered port of the even-odd pair is referred to as the secondary dedicated channel or the secondary dial backup channel. The secondary channels are actually just the second port required for a synchronous channel; a secondary channel is not a second data link.

**7.19** When the primary dedicated channel for a No. 2B ESS/No. 5 ESS entity is equipped, through the **RC CHL EQP** message, the next higher-numbered channel is automatically equipped as the secondary dedicated channel. Entries to Form 0300 should be made for the primary dedicated channel only.

**7.20** When the primary dial backup channel for a No. 2B ESS/No. 5 ESS entity is equipped, through the **RC DLP EQP** message, the next higher-numbered channel is automatically equipped as the secondary dial backup channel. No entry should be made on Form 0300 for the primary or the secondary dial backup channel. Entries should be made on Form 0105 for the primary dial backup channel only.

**7.21** The No. 2B ESS/No. 5 ESS entities can be mixed with other sensor types on one, 8-port, DZ11B multiplexer provided the following constraints are simultaneously satisfied:

- (a) Even-odd pair requirements for the No. 2B ESS/No. 5 ESS channels

- (b) Maximum of three 4800-baud APCs (see Note) on the multiplexer or four 2400-baud APCs.

**Note:** Specification of the dialup data set type (2024 or 2048) on Form 0300 also specifies the synchronous baud rate of the primary dedicated channel: 2400 baud with the 2024 type or 4800 baud with the 2048 type.

**C. Form Entries**

**AMARC Channel Numbers**

**7.22** This is a list of 3-digit octal numbers that identify AMARC channels which may be assigned. The **aa** portion of the number is the DZ11B multiplexer number. The **b** portion of the number is the port on the multiplexer.

**Entity Name**

**7.23** Enter the name or CLLI (Common Language Location Identification) code of the entity assigned to this channel. This form entry is for telephone company use only, it is not entered into AMARC memory.

**Entity Number**

**7.24** Enter the entity number, as assigned on Form 0101. Valid entries are 000 through 137 (octal).

**Local Channel**

**7.25** Enter the number which is used by the local (remote) office to identify the channel. For example, AMARC channel 007 may be the first channel for an ETS entity and identified as channel 01 by personnel at the ETS. Valid entries for the **Local Channel** are 00 through 05. The following paragraphs define local channel numbers for each type of sensor:

- (a) **CDA, No. 2B ESS or No. 5 ESS:** A local channel number has no meaning for these sensors. The **dd** field of the **RC CHL EQP** input message for a channel assigned to one of these sensors, however, must be included. Enter 00 as the Local Channel number for each CDA, No. 2B ESS, or No. 5 ESS channel.
- (b) **No. 3 ESS:** A local channel number has no meaning for a No. 3 ESS. The **dd** field of the **RC CHL EQP** input message for a No. 3 ESS channel

must be omitted. The Local Channel number must be left blank for each No. 3 ESS channel.

(c) **ETS and VSS:** Whenever the AMARC establishes a dialup data channel for an ETS or VSS entity, the AMARC will send a message to the entity which includes the identification of the channel being removed from service. The channel is identified by its local channel number. Valid local channel numbers for ETS and VSS entities are 01 through 05.

(d) **CDT:** The local channel number is the CDT controller number (0, 1) followed by the primary channel number (0, 1). If two primary channels are assigned to one controller in an entity, the lower-numbered channel must be local channel 00 for controller 0 or local channel 10 for controller 1.

(e) **BDT:** The local channel number is the BDT number (0, 1) followed by the encoder number (0, 1). The BDT channels equipped for the same entity and BDT but with different encoders, must be equipped on two consecutive channels, with the lower-numbered channel equipped for encoder 0.

**Dialup Data Set Type**

**7.26** Enter the type of data set to be used in establishing a dial backup data link in the event of a failure on this channel. Valid entries are 202S, 212A, 2024, and 2048. This field should be left blank for No. 3 ESS channels. Each No. 3 ESS channel has a dedicated dial backup channel.

**Dial Sequence Required to Reach Dialup Data Set**

**7.27** Enter the dial sequence (up to 13 digits) which the AMARC must use to reach the appropriate remote office dialup data set to establish a dialup channel when the specified ETS, VSS, CDA, BDT, No. 2B ESS, No. 5 ESS, or CDT channel fails. This sequence must follow local dialing rules for a call placed from the AMARC location to the remote office. This field should be left blank for No. 3 ESS channels.

**7.28** When a dedicated channel from an ETS, CDT, VSS, CDA, No. 2B ESS, No. 5 ESS, or BDT entity to the AMARC fails, a backup channel is established automatically by the AMARC by dialing the dial sequence required to reach the appropriate data

set of the entity. Once the dialup connection is established, data transmission continues as if a dedicated channel was being used.

**7.29** The AMARC may be equipped with up to 16 dial backup data sets. Each data set at the AMARC is capable of dialing any telephone number through the Direct Distance Dialing (DDD) network. Dial backup data channels are equipped by the **RC DLP EQP** input message.

**7.30** The responsibility for the assignment of the telephone number for the dial sequence belongs to Network. A local procedure for making this assignment must be devised by each telephone company. The following paragraphs discuss the telephone number assignment requirements for each type of sensor:

- (a) **CDA:** A unique telephone number assignment is required for each CDA channel.
- (b) **BDT:** A unique telephone number assignment is required for each BDT channel.
- (c) **ETS and VSS:** A unique telephone number assignment is required for each ETS or VSS entity. The same dial sequence is entered for all channels of a particular ETS or VSS entity.

(d) **CDT:** A unique telephone number assignment is required for each CDT controller in a CDT entity. The same dial sequence is entered for each channel associated with a particular controller in a CDT entity.

(e) **No. 2B ESS and No. 5 ESS:** Two dialup data sets and two telephone numbers must be assigned for an ESS entity. The numbers assigned to the two data sets associated with a particular entity must be consecutive. On Form 0300, enter only the lower of the two numbers. This number **cannot** end with 9.

#### 1SR

**7.31** An 1SR is the originating class of service that allows customers to call some NXXs in the local dialing area at a flat rate and other NXXs in the local dialing area at a measured rate.

**7.32** This entry applies only to CDA entities. Enter **0** if 1SR service is not affected by the entity. Enter **1** if 1SR service is offered. This entry should be left blank for entities not served by a CDA.

**D. Generic 3 Dump Message Interpretation**

**7.33** The message **DUMP MEM NPD CHL** results in an octal dump of the entry in the Channel Table for the channel specified in the dump input message. Figures 68, 69, 70, and 71 are the **DUMP MEM NPD CHL** output for channels 001 (No. 3 ESS), 015 (CDT), 016 (CDA), and 000 (dial backup), respectively, as assigned on the Form 0300 provided on Sheet 1 of Fig. 67. The output includes data specified on the following NPD Forms:

- Form 0105: Data for dialup channels

```
DUMP MEM NPD CHL 001!PF
M 19 01 DUMP MEM NPD CHL 001
19 01 100000 100000 000000 121441 000032 000000 000000 000000
19 01 EOD
```

**Fig. 68—Sample Generic 3 DUMP MEM NPD CHL for No. 3 ESS Channel**

**7.35** The following paragraphs describe the steps that must be performed to convert the dumped data for channel 001 to values that can be compared with Forms 0300 and 0305.

**7.36 Convert Octal to Binary:** Convert the 6-digit octal value for each word to a 16-bit binary word. Each value, except the leftmost octal dig-

- Form 0300: Data for nondialup channels
- Form 0305: Terminal identification numbers for No. 3 ESS channels
- Form 0306: Terminal identification numbers for CDT channels.

**No. 3 ESS Channel**

**7.34** Figure 68 is the dumped data for No. 3 ESS channel 001.

it, is converted to a 3-digit binary number. The leftmost octal value is used as a 1-digit binary number. The words for channel 001 are converted as illustrated in Table SS.

**Note:** Words *lllll*, *mmmmmm*, and *nnnnnn* are not used for a No. 3 ESS channel.

TABLE SS

dddddd

BINARY	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
BIT NUMBER	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
OCTAL	1	0	X	X	X	X	X	X	X	X	X	X	X	X	X	X

ffffff

BINARY	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
BIT NUMBER	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
OCTAL	1	0	X	X	X	X	X	X	0			0			0	

hhhhh

BINARY	1	0	1	0	0	0	1	1	0	0	1	0	0	0	0	1
BIT NUMBER	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
OCTAL			6				3				2				1	

kkkkkk

BINARY	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0
BIT NUMBER	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
OCTAL	X	X	X	X	X	X	X	X			1				6	

**7.37 Interpret Bits:** The 16-bit binary words are next sectioned into groups of bits that represent input data values, as defined in the OM. Each group of bits is then converted to the octal value rep-

resented by the binary value of the group. These conversions are illustrated in Table TT.

TABLE TT

dddddd

OCTAL	1	0			0			0			0			0		
BIT NUMBER	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
BINARY	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

ffffff

OCTAL	1	0			0			0			0			0		
BIT NUMBER	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
BINARY	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

hhhhh

OCTAL	1	2			1			4			4			1		
BIT NUMBER	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
BINARY	1	0	1	0	0	0	1	1	0	0	1	0	0	0	0	1

kkkkkk

OCTAL	0	0			0			0			3			2		
BIT NUMBER	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
BINARY	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0

7.38 Word **gggggg** is not used for a No. 3 ESS channel.

(2) This is a primary channel.

7.39 The interpretation of the words for channel 001 is as follows:

(3) This is a No. 3 ESS channel.

(a) Word **dddddd** indicates:

- (1) This is a primary channel.
- (2) This channel is equipped.

(c) Words **hhhhh** and **kkkkk** indicate that the termination identification number assigned to this No. 3 ESS is 123661. This number was entered into the Channel Table via the **RC CHL TID** input message using data from Form 0305.

(b) Word **ffffff** indicates:

- (1) This channel is assigned to entity 000 (octal).

**CDT Channel**

7.40 Figure 69 is the dumped data for CDT channel 015.

DUMP MEM NPD CHL 015!PF

M 07 00 DUMP MEM NPD CHL 015

07 00 100020 001437 004000 064230 001110 000000 021401 000000

07 00 EOD

**Fig. 69—Sample Generic 3 DUMP MEM NPD CHL for CDT Channel**

**7.41** The words for channel 015 are converted to values to compare with Forms 0300 and 0306 similarly.

**7.42** *Convert Octal to Binary:* Conversion is illustrated in Table UU.

TABLE UU

dddddd

OCTAL	1	0			0			0			2			0		
BIT NUMBER	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
BINARY	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0

ffffff

OCTAL	0	0			1			4			3			7		
BIT NUMBER	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
BINARY	0	0	0	0	0	0	1	1	0	0	0	1	1	1	1	1

999999

OCTAL	0	0			4			0			0			0		
BIT NUMBER	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
BINARY	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0

hhhhhh

OCTAL	0	6			4			2			3			0		
BIT NUMBER	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
BINARY	0	1	1	0	1	0	0	0	1	0	0	1	1	0	0	0

kkkkkk

OCTAL	0	0			1			1			1			0		
BIT NUMBER	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
BINARY	0	0	0	0	0	0	1	0	0	1	0	0	1	0	0	0

mmmmmm

OCTAL	0	2			1			4			0			1		
BIT NUMBER	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
BINARY	0	0	1	0	0	0	1	1	0	0	0	0	0	0	0	1

7.43 Word **lllll** is not used in this example because there are only eight digits in the dial sequence required to reach the dialup data set.

7.44 Word **nnnnnn** is not used for CDT channels.

7.45 **Interpret Bits:** Conversion is illustrated in Table VV.

TABLE VV

dddddd

BINARY	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
BIT NUMBER	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
OCTAL	1	0	X	X	X	X	X	X	X		1		X	X	X	X

ffffff

BINARY	0	0	0	0	0	0	1	1	0	0	0	1	1	1	1	1
BIT NUMBER	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
OCTAL	X	X	X	X	X	X	1	1	0			3			7	

999999

BINARY	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
BIT NUMBER	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
OCTAL					8				X	X	X	X	X	X	X	X

hhhhhh

BINARY	0	1	1	0	1	0	0	0	1	0	0	1	1	0	0	0
BIT NUMBER	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
OCTAL			6			8				9				8		

kkkkkk

BINARY	0	0	0	0	0	0	1	0	0	1	0	0	1	0	0	0
BIT NUMBER	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
OCTAL			0			2				4				8		

111111

BINARY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
BIT NUMBER	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
OCTAL			0			0				0				0		

mmmmmm

BINARY	0	0	1	0	0	0	1	1	0	0	0	0	0	0	0	1
BIT NUMBER	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
OCTAL			2			3			X	X	X	X		1		

**SECTION 201-900-030**

**7.46** The interpretation of the words for channel 015 is as follows:

(a) Word **dddddd** indicates:

- (1) An asynchronous, full duplex dial backup channel is required for the channel.
- (2) This is a primary channel.
- (3) This channel is equipped.

(b) Word **fffff** indicates:

- (1) The entity number assigned to this channel is 037 (octal).
- (2) This is primary channel 1 for controller number 1 of the CDT assigned to this channel.

(c) Word **gggggg** specifies that there are eight digits in the dial sequence required to reach the dialup data set. This value is determined by the AMARC from the **Dial Sequence Required To Reach Dialup Data Set** form entry.

(d) Word **hhhhh**, **kkkkk**, and **lllll** specify that the dial sequence required to reach the dialup data set is 98684802.

(e) Word **mmmmm** specifies that the terminal identification number assigned to this CDT is 123. This number was entered into the Channel Table via the **RC CHL TID** input message, using data from Form 0306.

**CDA Channel**

**7.47** Figure 70 is the dumped data for CDA channel 016.

```
DUMP MEM NPD CHL 016!PF
```

```
M 07 00 DUMP MEM NPD CHL 016
```

```
07 00 100000 000004 004000 064230 022066 000000 000000 000000
```

```
07 00 EOD
```

**Fig. 70—Sample Generic 3 DUMP MEM NPD CHL for CDA Channel**

**7.48** The words for channel 016 are converted to values to compare with Form 0300 similarly.

**7.49** *Convert Octal to Binary:* Conversion is illustrated in Table WW.

TABLE WW

dddddd

OCTAL	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
BIT NUMBER	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
BINARY	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

ffffff

OCTAL	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	
BIT NUMBER	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
BINARY	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0

999999

OCTAL	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	
BIT NUMBER	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
BINARY	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0

hhhhhh

OCTAL	0	6	4	2	3	0	0	0	0	0	0	0	0	0	0	
BIT NUMBER	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
BINARY	0	1	1	0	1	0	0	0	1	0	0	1	1	0	0	0

kkkkkk

OCTAL	0	2	2	0	6	6	0	0	0	0	0	0	0	0	0	
BIT NUMBER	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
BINARY	0	0	1	0	0	1	0	0	0	0	1	1	0	1	1	0

7.50 Word **lllll** is not used in this example because there are only eight digits in the dial sequence required to reach the dialup data set. Words **mmmmmm** and **nnnnnn** are not used for a CDA channel.

7.51 **Interpret Bits:** Conversion is illustrated in Table XX.

TABLE XX

**dddddd**

BINARY	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
BIT NUMBER	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
OCTAL	1	0	X	X	X	X	X	X	X	0		X	X	X	0	

**ffffff**

BINARY	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
BIT NUMBER	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
OCTAL	0						0	0	4							

**999999**

BINARY	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
BIT NUMBER	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
OCTAL	8						X	X	X	X	X	X	X	X	X	X

**hhhhhh**

BINARY	0	1	1	0	1	0	0	0	1	0	0	1	1	0	0	0
BIT NUMBER	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
OCTAL	6			8				9			8					

**kkkkkk**

BINARY	0	0	1	0	0	1	0	0	0	0	1	1	0	1	1	0
BIT NUMBER	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
OCTAL	2			4				3			6					

7.52 The following is an interpretation of the words for channel 016:

(a) Word **dddddd** indicates:

- (1) The CDA entity assigned to channel 016 does not offer 1SR service.
- (2) An asynchronous, half duplex dial backup channel is required for the channel.
- (3) This is a primary channel.
- (4) This channel is equipped.

(b) Word **ffffff** indicates:

(1) The entity number assigned to this channel is 004 (octal).

(2) This is local channel number 0 for the CDA.

(c) Word **gggggg** indicates that there are eight digits required to reach the dialup data set.

(d) Word **hhhhhh**, **kkkkkk**, and **llllll** specify that the dial sequence required to reach the dialup data set is 98683624.

**Dial Backup Channel**

7.53 Figure 71 is the dumped data for dial backup channel 000 as assigned on the sample Form 0105 provided on Sheet 1 of Figure 14.

```
DUMP MEM NPD CHL 000!PF
M 08 00 DUMP MEM NPD CHL 000
08 00 140000 000140 000000 000000 000000 000000 000000 000000
08 00 EOD
```

**Fig. 71—Sample Generic 3 DUMP MEM NPD CHL for Dial Backup Channel**

**7.54** The words for channel 000 are converted to values to compare with Form 0105 similarly.

**7.55** *Convert Octal to Binary:* Conversion is illustrated in Table YY.

**TABLE YY**

**dddddd**

<b>OCTAL</b>	1	4				0				0						
<b>BIT NUMBER</b>	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
<b>BINARY</b>	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0

**ffffff**

<b>OCTAL</b>	0	0				1				4				0			
<b>BIT NUMBER</b>	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0	
<b>BINARY</b>	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	

**7.56** Words **gggggg**, **hhhhh**, **kkkkk**, **lllll**, **mmmmm**, and **nnnnn** are not used for a dial backup channel.

**7.57** *Interpret Bits:* Conversion is illustrated in Table ZZ.

TABLE ZZ

dddddd

BINARY	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	
BIT NUMBER	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
OCTAL	1	1	X	X	0		0		X		0		X	X	X	X

ffffff

BINARY	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0
BIT NUMBER	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
OCTAL	X	X	X	X	X	X	X		1			4			0	

7.58 The following is an interpretation of the words for channel 000:

(a) Word **dddddd** indicates:

- (1) The 202S data set is provided for this dial backup channel.
- (2) The ACU with which this channel is associated is 00.
- (3) This is a dial backup channel.
- (4) This channel is equipped.

(a) Word **ffffff** is always 140 (octal) for a dial backup channel.

#### E. Generic 4 Dump Message Interpretation

7.59 The message **DUMP MEM NPD CHL** results in a dump of data from the Channel Table. If the dump input message specifies a channel number (field **aab**), the output is only the data for the specified channel. If the input message specifies a sensor type (field **c...c**), the output is the Channel Table entry for each channel assigned to an entity of the specified sensor type. If **ALL** is specified for field **c...c**, the entire Channel Table is output.

7.60 The output for the Channel Table includes data specified on the following NPD forms:

- Form 0101: **Input Format** entry for the entity number assigned to each channel
- Form 0105: Data for dial backup channels
- Form 0300: Data for nondialup channels

- Form 0305: Terminal identification numbers for No. 3 ESS channels

- Form 0306: Terminal identification numbers for CDT channels.

7.61 For a channel for which no data were specified on either Form 0105 or Form 0300, the output shows **NOT EQUIPPED** in place of all data except the **CHL NO.** Value **UNEQP** can be specified for field **c...c** of the **DUMP MEM NPD CHL** input message that results in a printout of only the unassigned channel numbers.

7.62 When a channel number or a sensor type other than **ALL** or **UNEQP** is specified in the input message, the output begins by identifying the channel number or sensor type for which data were requested. The output next prints the column headings that apply to the sensor type specified or the sensor type of the channel specified. The following paragraphs discuss the comparison between NPD form entries and the output for the various sensor types. The OM/TRG shows the output formats.

#### No. 3 ESS Channel

7.63 The data for the primary channel or the dedicated backup channel may be requested. The last column of the output identifies whether the channel is the primary or the backup channel. Neither Form 0105 nor Form 0300 contains entries for the dedicated backup channel. The **TYPE** output column can be compared with the **Input Format** column on Form 0101 for the entity number assigned to the channel. The **ENT NO.** output column corresponds to the **Entity Number** column on Form 0300. The **TID** out-

put column can be compared with the **Terminal ID Number** column on Form 0305 for the channel.

#### CDT Channel

**7.64** The **TYPE** output column can be compared with the **Input Format** column on Form 0101 for the entity number assigned to the channel. The **ENT NO.**, **DLP DS**, and **DIAL SEQ** output columns correspond on a one-for-one basis with columns on Form 0300. The **CNTNO** output column identifies the controller number to which the channel is assigned. This information can be compared with the first digit of the **Local Channel** column on Form 0300 for the channel. The **PRINO** output column identifies the channel as primary channel 0 or 1 for the CDT entity. This information can be compared with the second digit of the **Local Channel** column on Form 0300. The **TID** output column can be compared with the **Terminal Identification** column on Form 0306 for the channel.

#### BDT Channel

**7.65** The **TYPE** output column can be compared with the **Input Format** column on Form 0101 for the entity number assigned to the channel. The **ENT NO.**, **DLP DS**, and **DIAL SEQ** output columns correspond on a one-for-one basis with columns on Form 0300. The **BDT** output column identifies the BDT number assigned to the channel. This information can be compared to the first digit of the **Local Channel** column on Form 0300. The **ENCD** output column identifies the encoder associated with the channel. This information can be compared to the second digit of the **Local Channel** column on Form 0300.

#### CDA, No. 5 ETS, VSS Channel

**7.66** The **TYPE** output column can be compared with the **Input Format** column on Form 0101 for the entity number assigned to the channel. The **ENT NO.**, **DLP DS**, **DIAL SEQ**, and **LCN** output columns correspond on a one-for-one basis with columns on Form 0300.

#### No. 2B ESS, No. 5 ESS Channel

**7.67** The **TYPE** output column can be compared with the **Input Format** column on Form 0101 for the entity number assigned to the channel. The **ENT NO.**, **DLP DS**, and **DIAL SEQ** output columns correspond on a one-for-one basis with columns on Form 0300.

**7.68** The data for the primary or the secondary dedicated channel may be requested. The last

column of the output identifies whether the channel is the primary or the secondary dedicated channel. No entries are made on Form 0300 for the secondary dedicated channel. The only differences in output for these two channels are that the secondary channel is identified as the secondary and the **DIAL SEQ** is the next higher consecutive number from that specified for the primary dedicated channel.

#### ALL Sensor Type

**7.69** When **ALL** is specified as the sensor type, the output begins by identifying **ALL** as the sensor type. Next the headings **CHL NO.**, **TYPE**, **ENT NO.**, **DLP DS**, and **DIAL SEQ**, which are common to all sensor types, are printed. Headings that are unique to a particular sensor type, such as **BDT** and **ENCD** for a BDT channel, are not shown on this output. The data corresponding to these unique sensor type headings are output, but the headings are not shown. If it is desirable to see the headings for a specific sensor type, it is necessary to obtain the **DUMP MEM NPD CHL** output for a specific channel or for all channels of the specific sensor type.

#### Dial Backup Channel

**7.70** The output for a dial backup channel is a statement identifying the following information:

- The 2025, 212A, 2024, or 2048 data set used with the channel
- Whether the channel is a primary or secondary (No. 2B ESS, No. 5 ESS only) backup
- Automatic calling unit to which channel is assigned.

**7.71** The output for a primary backup channel can be compared with the Form 0105 entries for the channel. No entries are made on Form 0105 for a secondary backup channel assigned to a No. 2B ESS or No. 5 ESS entity. Note that a No. 3 ESS dedicated backup channel is not treated as a primary backup channel. The output for a No. 3 ESS dedicated backup channel is the same as a No. 3 ESS dedicated primary channel, except that the channel is identified as the **BACKUP** channel.

**FORM 0301 — LAST EQUIPPED SCAN PORT—CDA MULTIPLEXERS**

**A. General**

**7.72** Data from Form 0301 are entered into the Equipped Scan Port Table for the AMARC. For channels assigned to CDA entities, this table specifies the number of the last equipped scan port for each CDA multiplexer. The Equipped Scan Port Table also contains entries for channels assigned to BDT (see Form 0302), No. 3 ESS (Form 0304), and CDT (Forms 0217 and 0307) entities.

**7.73** In a CDA entity, each scan port is dedicated to a line finder in the step-by-step office. Each scan port has a dedicated Call Record Register (CRR) in AMARC memory. A CRR is an area of memory used for temporary storage of billing data while a call associated with the corresponding line finder is in progress. The AMARC assigns CRRs to a CDA channel based on the data from Form 0301.

**7.74** Entries to Form 0301 are made only for channels assigned to CDA entities. Several copies of Form 0301 may be required for an AMARC.

**7.75** Figure 72 is a sample Form 0301. The following paragraphs describe the entries to be made on the form.

**B. Form Entries**

**AMARC Channel**

**7.76** Enter the 3-digit octal number that identifies the DZ11B multiplexer and port assignment of this channel. The **aa** portion of the number is the multiplexer number. Valid entries are 00 through 13 (octal). The **b** portion of the number is the port on the multiplexer. Valid entries are 0 through 7.

**Octal Address of Last Equipped Input Scan Port, CDA MPX 0**

**7.77** Enter the octal address of the highest-numbered scan port which is equipped on CDA multiplexer 0. Valid entries are 000 through 377 (octal). This information is determined from the CDA drawing. The T-402, Assignment Chart For Line Finders and First Selectors To Call Data Accumulator Equipment, is issued for the step-by-step office. This drawing associates each line finder with the octal address of its dedicated scan port.

**Octal Address of Last Equipped Input Scan Port, CDA MPX 1**

**7.78** Enter the octal address of the highest-numbered scan port which is equipped on CDA multiplexer 1. Valid entries are 000 through 377 (octal). This information is determined from the T-402 CDA drawing for the step-by-step office.



## C. Generic 3 Dump Message Interpretation

**7.79** The message **DUMP MEM NPD ESP** results in an octal dump of the entire Equipped Scan Port Table for the AMARC. This table contains entries for each CDA, BDT, No. 3 ESS, and CDT channel. Figure 73 is the **DUMP MEM NPD ESP** output for the data on sample Forms 0301, 0302, 0304, and 0307. The following explanation of dumped data applies to CDA channels. An explanation of the dumped data for channels assigned to other types of sensors may be found in the instructions for the appropriate NPD form, as specified in the following:

- For BDT, use Form 0302.
- For No. 3 ESS, use Form 0304.
- For CDT, use Form 0307.

**7.80** The data for each channel in the Equipped Scan Port Table are contained in five bytes. Five dumped words contain the data for two channels: an odd-numbered channel and an even-numbered channel. The printout begins with data for channel 000. The first five words of the printout contain data for channels 000 and 001. The use of the bytes within these words is illustrated in Table AAA.

TABLE AAA

WORD	LEFT BYTE	RIGHT BYTE
First word	Second byte of data for Channel 0	First byte of data for Channel 0
Second word	Fourth byte of data for Channel 0	Third byte of data for Channel 0
Third word	First byte of data for Channel 0	Fifth byte of data for Channel 0
Fourth word	Third byte of data for Channel 1	Second byte of data for Channel 1
Fifth word	Fifth byte of data for Channel 1	Fourth byte of data for Channel 1

**7.81** The use of the bytes within each group of five dumped words follows this pattern for one even-numbered and one odd-numbered channel.

**7.82** The encircled words on Fig. 73 are the dumped data for channels 016 and 017. Channel 016 is a CDA channel. The first two bytes for Channel 016 specify the octal values of the highest equipped scan ports for CDA multiplexers 0 and 1.



7.83 The following paragraphs describe the steps that must be performed to compare the dumped data with the values specified on Form 0301.

7.84 **Convert Octal to Binary:** Convert the 6-digit octal value for each word to a 16-bit binary

word. Each value, except the leftmost octal digit, is converted to a 3-digit binary number. The leftmost octal digit is used as a 1-digit binary number. The encircled words on Fig. 73 are converted to binary as illustrated in Table BBB.

TABLE BBB

OCTAL	1	7			7			7			7			7		
BIT NUMBER	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
BINARY	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1

7.85 The second through the fifth words are all zeros. This is because the third through the fifth bytes for a CDA channel are not used and channel 017 is not assigned.

7.86 **Interpret Bits:** The 16-bit binary word is next sectioned into bytes. Each byte is con-

verted to a 3-digit octal value as illustrated in Table CCC. Bits 0 through 2 represent one octal digit, bits 3 through 5 represent another octal digit, and bits 6 and 7 represent another octal digit. Bits 8 through 15, the second byte, are translated to octal digits in the same manner.

TABLE CCC

	2ND BYTE								1ST BYTE							
BINARY	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
BIT NUMBER	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
OCTAL	3				7				7				3			

7.87 The highest equipped scan port number for each CDA multiplexer was specified on Form 0301 as an octal value, and therefore, conversion to decimal values is not required.

**D. Generic 4 Dump Message Interpretation**

7.88 The message **DUMP MEM NPD ESP** results in a dump of data from the Equipped Scan Port Table. If the dump input message specifies a channel number (field **aab**), the output is only the data for the specified channel. If the input message specifies a sensor type (field **c...c**), the output is the Equipped Scan Port Table entry for each channel assigned to the specified sensor type.

7.89 The message **DUMP MEM NPD ESP** applies to all sensor types. An explanation of the dumped data for a channel assigned to a CDA entity follows. An explanation of the dumped data for another type of sensor may be found in the instructions for the appropriate NPD form, as specified in the following.

- For BDT, use Form 0302.
- For No. 3 ESS, use Form 0304.
- For CDT, use Form 0307.
- For No. 2B ESS and No. 5 ESS, use Form 0308.

**7.90** Note that while **SGL** is a valid input for field **c...c** and a channel assigned to a No. 5 ETS or a VSS is a valid input for field **aab**, the output specifies only the entity number assigned to a channel for one of these sensor types. One scan port is automatically equipped for channel assigned to one of these sensor types, when the **RC CHL EQP** input message is entered.

**7.91** The output begins by identifying the channel number or sensor type specified in the input message. Next, the output prints column headings that apply to the sensor type specified or to the sensor type of the entity assigned to the channel number specified. The output then fills in each column with the appropriate value for each channel identified in the **AMARC CHANNEL** output column. No data is output for an unassigned channel. For a dial backup channel, the output identifies the channel as a 202S, 212A, 2024, or 2048 dialup channel and provides no other data for the channel.

**7.92** The output formats are shown in Volume 2 of the OM/TRG.

**7.93** Numerical conversion of the dumped data, for example, conversion from octal to binary, is not required in order to compare the dumped data with the data on NPD Form 0301. The output for a CDA channel specifies the octal value of the highest equipped scan port for multiplexer 0 and for multiplexer 1, the same as the form. The output includes the entity number assigned to the channel, which is not part of the form data. The AMARC determines this information from the Channel Table entry for the channel.

#### **FORM 0302 — HIGHEST EQUIPPED TRUNK NUMBER— BDT RECORDER PORT**

##### **A. General**

**7.94** Data from Form 0302 are entered into the Equipped Scan Port Table for the AMARC. For channels assigned to BDT entities, this table specifies the Call Identity Index (CII) of the highest equipped trunk number for each BDT recorder port. The Equipped Scan Port Table also contains entries for channels assigned to CDA (see Form 0301), No. 3 ESS (Form 0304), and CDT (Forms 0217 and 0307) entities.

**7.95** In a BDT entity, each CII or trunk in the No. 5 crossbar office has a dedicated Call Record Register (CRR) in AMARC memory. A CRR is an area of memory used for temporary storage of billing data while a call associated with the corresponding trunk is in progress. The AMARC assigns CRRs to a BDT channel based on the data from Form 0302.

**7.96** Entries to Form 0302 are made only for channels assigned to BDT entities. For each channel assigned to a BDT, Form 0302 specifies the highest trunk number or CII for each of the five recorder ports normally assigned to that channel. Several copies of Form 0302 may be required for an AMARC.

**7.97** Figure 74 is a sample Form 0302. The following paragraphs describe the entries to be made on the form.

##### **B. Form Entries**

###### **AMARC Channel**

**7.98** Enter the 3-digit octal number that identifies the DZ11B multiplexer and port assignment of this channel. The **aa** portion of the number is the multiplexer number. Valid entries are 00 through 13 (octal). The **b** portion of the number is the port on the multiplexer. Valid entries are 0 through 7.

###### **BDT**

**7.99** Enter the BDT number assigned to the channel. Valid entries are 0 through 2.

###### **Recorder Port**

**7.100** Enter 1 through 5 for the first channel of the BDT; enter 6 through 9, or 0 for the second channel.

###### **Highest Equipped Trunk Number**

**7.101** For each recorder port, enter the units digit only of the highest equipped trunk number. Valid entries are 0 through 9 (decimal). A value of 9 equips the maximum number of trunks which is 100.

NO. 1A AMARC 0302  
 NO. 1A AMARC 216 200  
 ENTITY \_\_\_\_\_

EFFECTIVE DATE 6-6-80  
 ISSUE DATE 6-1-80  
 REVISION NO. \_\_\_\_\_  
 PAGE 1 OF 1

HIGHEST EQUIPPED TRUNK NUMBER  
 BDT RECORDER PORT

(aab) AMARC CHANNEL	BDT	(ccc) RECORDER PORT	(ddd) HIGHEST EQUIPPED TRUNK NUMBER
006	0	1	9
006	0	2	9
006	0	3	9
006	0	4	9
006	0	5	9
007	0	6	9
007	0	7	9
007	0	8	9
007	0	9	9
007	0	0	9
012	1	1	9
012	1	2	9
012	1	3	9
012	1	4	9
012	1	5	9
013	1	6	9
013	1	7	9
013	1	8	9
013	1	9	9
013	1	0	9
027	1	1	9
027	1	2	9
027	1	3	9
027	1	4	9
027	1	5	9
030	1	6	9
030	1	7	9
030	1	8	9
030	1	9	9
030	1	0	9

INPUT MESSAGE: RC CHL aab ESP ccc ddd!  
 DUMP MESSAGE: DUMP MEM NPD ESP

PREPARED BY J. Doe  
 TELEPHONE ABC-XXXX

Fig. 74—Sample Form No. 1A AMARC 0302 — Highest Equipped Trunk Number—  
 BDT Recorder Port

### C. Generic 3 Dump Message Interpretation

**7.102** The message **DUMP MEM NPD ESP** results in an octal dump of the entire Equipped Scan Port Table for the AMARC. This table contains entries for each CDA, BDT, No. 3 ESS and CDT channel. Figure 75 is the **DUMP MEM NPD ESP** output for the data on sample Forms 0301, 0302, 0304, and 0307. The following explanation of dumped data applies to BDT channels. An explanation of the dumped data for channels assigned to other types of sensors may be found in the instructions for the appropriate NPD form, as specified in the following:

- For CDA, use Form 0301.
- For No. 3 ESS, use Form 0304.
- For CDT, use Form 0307.

**7.103** The data for each channel in the Equipped Scan Port Table are contained in five bytes. Five dumped words contain the data for two channels: an odd-numbered channel and an even-numbered channel. The printout begins with data for channel 000. The first five words of the printout contain data for channels 000 and 001. The use of the bytes within these words is illustrated in Table DDD.

**TABLE DDD**

WORD	LEFT BYTE	RIGHT BYTE
First word	Second byte of data for Channel 0	First byte of data for Channel 0
Second word	Fourth byte of data for Channel 0	Third byte of data for Channel 0
Third word	First byte of data for Channel 0	Fifth byte of data for Channel 0
Fourth word	Third byte of data for Channel 1	Second byte of data for Channel 1
Fifth word	Fifth byte of data for Channel 1	Fourth byte of data for Channel 1

**7.104** The use of the bytes within each group of five dumped words follows this pattern for one even-numbered and one odd-numbered channel.

**7.105** The encircled words on Fig. 75 are the dumped data for BDT channels 006 and 007 which are assigned to the same BDT for entity 003. The five words associated with these channels specify the highest numbered equipped CII units digit for

each of ten recorder ports of the BDT. The recorder port data are always dumped in the order 1 through 10, regardless of which channel number was specified for a particular recorder port. For example, the CII units digit for recorder port 0 (10) may be specified with channel 006 in the input message **RC CHL EQP**. The dumped data for recorder port 10 will still be in the left byte of the last word associated with channel 007.



**7.106** The following paragraphs describe the steps that must be performed to compare the dumped data with the values specified on Form 0302.

**7.107 Convert Octal to Binary:** Convert the 6-digit octal value for each word to a 16-bit bi-

nary word. Each value, except the leftmost octal digit, is converted to a 3-digit binary number. The leftmost octal digit is used as a 1-digit binary number. The encircled words on Fig. 75 are converted to binary as illustrated in Table EEE.

**TABLE EEE**

OCTAL	0	6			2			1			4			4		
BIT NUMBER	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
BINARY	0	1	1	0	0	1	0	0	0	1	1	0	0	1	0	0

OCTAL	0	0			0			4			0			1		
BIT NUMBER	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
BINARY	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1

OCTAL	0	0			0			4			0			1		
BIT NUMBER	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
BINARY	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1

OCTAL	0	6			2			0			0			1		
BIT NUMBER	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
BINARY	0	1	1	0	0	1	0	0	0	0	0	0	0	0	0	1

OCTAL	0	6			2			1			4			4		
BIT NUMBER	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
BINARY	0	1	1	0	0	1	0	0	0	1	1	0	0	1	0	0

**7.108 Interpret Bits:** The 16-bit binary words are next sectioned into bytes. Each byte is converted to a 3-digit octal value. Bits 0 through 2 represent one octal digit, bits 3 through 5 represent the second octal digit and bits 6 and 7 represent the

third octal digit. Bits 8 through 15, the second byte, are translated to octal digits in the same manner. The binary values are converted to octal values as illustrated in Table FFF.

TABLE FFF

BINARY	0	1	1	0	0	1	0	0	0	1	1	0	0	1	0	0		
BIT NUMBER	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0		
OCTAL	1			4			4			1			4			4		

BYTE

BYTE

BINARY	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1		
BIT NUMBER	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0		
OCTAL	0			0			1			0			0			1		

BYTE

BYTE

BINARY	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1		
BIT NUMBER	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0		
OCTAL	0			0			1			0			0			1		

BYTE

BYTE

BINARY	0	1	1	0	0	1	0	0	0	0	0	0	0	0	0	1		
BIT NUMBER	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0		
OCTAL	1			4			4			0			0			1		

BYTE

BYTE

BINARY	0	1	1	0	0	1	0	0	0	1	1	0	0	1	0	0		
BIT NUMBER	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0		
OCTAL	1			4			4			1			4			4		

BYTE

BYTE

**7.109 Convert Octal to Decimal:** Each 3-digit octal value is next read into an octal to deci-

mal conversion table (see Table R in this section). The conversions are illustrated in Table GGG.

TABLE GGG

	LEFT BYTE	RIGHT BYTE
OCTAL	144	144
DECIMAL	100	100

	LEFT BYTE	RIGHT BYTE
OCTAL	1	1
DECIMAL	1	1

	LEFT BYTE	RIGHT BYTE
OCTAL	1	1
DECIMAL	1	1

	LEFT BYTE	RIGHT BYTE
OCTAL	144	1
DECIMAL	100	1

	LEFT BYTE	RIGHT BYTE
OCTAL	144	144
DECIMAL	100	100

7.110 The data provided in each byte is interpreted as follows:

- (a) The first word indicates that the highest numbered equipped CII units digit for recorder port 1 (right byte) is 9 and for recorder port 2 (left byte) is 9. When 9 is specified on Form 0302, 100 CII's are automatically equipped.
- (b) The second word indicates that the highest numbered equipped CII units digit for recorder port 3 (right byte) is 1 and for recorder port 4 (left byte) is 1. No data were specified on Form 0302 for these recorder ports. The units digit 1, however, is equipped automatically for each recorder port when the **RC CHL EQP** input message (Form 0300) is entered for a BDT channel.
- (c) The third word indicates that the highest numbered equipped CII units digit for re-

recorder port 5 (right byte) is 1 and for recorder port 6 (left byte) is 1.

- (d) The fourth word indicates that the highest numbered equipped CII units digit for recorder port 7 (right byte) is 1 and for recorder port 8 (left byte) is 9.
- (e) The fifth word indicates that the highest numbered equipped CII units digit for recorder port 9 (right byte) is 9 and for recorder port 10 (left byte) is 9.

#### D. Generic 4 Dump Message Interpretation

7.111 The message **DUMP MEM NPD ESP** results in a dump of data from the Equipped Scan Port Table. If the dump input message specifies a channel number (field **cab**), the output is only the data for the

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specified channel. If the input message specifies a sensor type (field **c...c**), the output is the Equipped Scan Port Table entry for each channel assigned to the specified sensor type.

**7.112** The message **DUMP MEM NPD ESP** applies to all sensor types. An explanation of the dumped data for a channel assigned to a BDT entity follows. An explanation of the dumped data for another type of sensor may be found in the instructions for the appropriate NPD form, as specified in the following:

- For CDA, use Form 0301.
- For No. 3 ESS, use Form 0304.
- For CDT, used Form 0307.
- For No. 2B ESS and No. 5 ESS, use Form 0308.

**7.113** Note that while **SGL** is a valid input for field **c...c** and a channel assigned to a No. 5 ETS or a VSS is a valid input for field **aab**, the output specifies only the entity number assigned to a channel for one of these sensor types. One scan port is automatically equipped for a channel assigned to one of these sensor types, when the **RC CHL EQP** input message is entered.

**7.114** The output begins by identifying the channel number or sensor type specified in the input message. Next, the output prints column headings that apply to the sensor type specified or to the sensor type of the entity assigned to the channel number specified. The output then fills in each column with the appropriate value for each channel identified in the **AMARC CHANNEL** output column. No data is output for an unassigned channel. For a dial backup channel, the output identifies the channel as a 202S, 212A, 2024, or 2048 dialup channel and provides no other data for the channel.

**7.115** The output formats are shown in Volume 2 of the OM/TRG.

**7.116** Numerical conversion of the dumped data, for example, conversion from octal to binary, is not required in order to compare the dumped data

with the data on NPD Form 0302. The output includes the entity number assigned to the channel, which is not part of the form data. The AMARC determines this information from the Channel Table entry for the channel. With this one exception, there is a one-to-one correspondence between the columns of the form and the columns of the output.

### FORM 0303 — CHANNEL MONITOR LINE NUMBERS— CDA ENTITIES

#### A. General

**7.117** Data from Form 0303 are entered into the Channel Monitor Table for the AMARC. For each channel assigned to a CDA entity, this table specifies the telephone number which will be used by the channel monitor equipment of the CDA as a calling telephone number for the test calls it makes to the AMARC.

**7.118** Once every 20 minutes, the CDA generates a test call on each CDA multiplexer of each channel. An answer and disconnect message is sent to the AMARC. This test call verifies to the AMARC that the CDA is functioning. If the CDA fails to make the test call, an alarm is sent to the remote office. The channel monitor is the piece of CDA equipment which generates the test call. A telephone number must be assigned to the monitor and entered in the NPD to enable the AMARC to recognize the call as a test.

**7.119** One telephone number is used by the channel monitor for all channels of a CDA entity. No line equipment is needed and the responsibility for the telephone number assignment for each CDA entity belongs to Network.

**7.120** If the incorrect telephone number is entered, a **REPT CHL TBL MON** message will be printed at the AMARC when a channel monitor test call is received from a different number.

**7.121** One Form 0303 is prepared for an AMARC. No entries should be made on this form for channels which are not assigned to a CDA entity.

**7.122** Figure 76 is a sample Form 0303. The following paragraphs describe the entries to be made on the form.



**B. Form Entries****AMARC Channel**

**7.123** Enter the 3-digit octal number that identifies the DZ11B multiplexer and port assignment of this channel. The **aa** portion of the number is the multiplexer number. Valid entries are 00 through 13 (octal). The **b** portion of the number is the port on the multiplexer. Valid entries are 0 through 7.

**Channel Monitor Line Number**

**7.124** For each CDA channel, enter the 4-digit line number of the telephone number which will be used to identify the test calls placed by the channel monitor of the CDA entity assigned to the channel. Valid entries are 0000 through 9999 (decimal).

**C. Dump Message Interpretation**

**7.125** The message **DUMP MEM NPD MON** results in a BCD dump of the Channel Monitor Line Number Table for the AMARC. Since this is a BCD dump, numerical conversion of the dumped data is not required for comparison with the form data.

**7.126** Figure 77 is the dump message output for sample Form 0303. The channel number associated with each line number is implied by the position of the data in the table. The dumped data begins with Channel 000.

**FORM 0304 — HIGHEST EQUIPPED JUNCTOR—  
NO. 3 ESS****A. General**

**7.127** Data from Form 0304 are entered into the Equipped Scan Port Table for the AMARC. For primary channels assigned to No. 3 ESS entities,

this table specifies the highest equipped junctor number for the channel. The Equipped Scan Port Table also contains entries for channels assigned to CDA (see Form 0301), BDT (Form 0302), and CDT (Forms 0217 and 0307) entities.

**7.128** In a No. 3 ESS entity, each junctor in the No. 3 ESS office has a dedicated Call Record Register (CRR) in AMARC memory. A CRR is an area of memory used for temporary storage of billing data while a call associated with the corresponding junctor is in progress. The AMARC assigns CRRs to a No. 3 ESS channel based on the data from Form 0304.

**7.129** Entries to Form 0304 are made only for primary channels assigned to No. 3 ESS entities. Several copies of Form 0304 may be required for an AMARC.

**7.130** Figure 78 is a sample Form 0304. The following paragraphs describe the entries to be made on the form.

**B. Form Entries****AMARC Channel Number**

**7.131** Enter the 3-digit octal number that identifies the DZ11B multiplexer and port assignment of this channel. The **aa** portion of the number is the multiplexer number. Valid entries are 00 through 13 (octal). The **b** portion of the number is the port on the multiplexer. Valid entries are 0 through 7.

**Highest Equipped Junctor Number**

**7.132** Enter the highest equipped junctor number for the entity associated with this channel. Valid entries are 1 through 480 (decimal).

DUMP MEM NPD MON!PF

M 28 01 DUMP MEM NPD MON

```
28 01 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000
28 01 0000 0000 0000 0000 2303 0000 0000 0000 0000 0000 0000 0000
28 01 0000 0000 0000 0000 0000 0000 0000 0000 2303 0000 0000 2303
28 01 1489 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000
28 01 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000
28 01 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000
28 01 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000
28 01 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000
28 01 EOD
```

Fig. 77—Sample DUMP MEM NPD MON



### C. Generic 3 Dump Message Interpretation

**7.133** The message **DUMP MEM NPD ESP** results in an octal dump of the entire Equipped Scan Port Table for the AMARC. This table contains entries for each CDA, BDT, No. 3 ESS, and CDT channel. Figure 79 is the **DUMP MEM NPD ESP** output for the data on sample Forms 0301, 0302, 0304, and 0307. The following explanation of dumped data applies to No. 3 ESS channels. An explanation of the dumped data for channels assigned to other types of sensors may be found in the instructions for the appropriate NPD form, as specified in the following:

- For CDA, use Form 0301.

- For BDT, use Form 0302.

- For CDT, use Form 0307.

**7.134** The data for each channel in the Equipped Scan Port Table are contained in five bytes. Five dumped words contain the data for two channels, an odd-numbered channel and an even-numbered channel. The printout begins with data for Channel 000. The first five words of the printout contain data for Channels 000 and 001. The use of the bytes within these words is illustrated in Table HHH.

TABLE HHH

WORD	LEFT BYTE	RIGHT BYTE
First word	Second byte of data for Channel 0	First byte of data for Channel 0
Second word	Fourth byte of data for Channel 0	Third byte of data for Channel 0
Third word	First byte of data for Channel 1	Fifth byte of data for Channel 0
Fourth word	Third byte of data for Channel 1	Second byte of data for Channel 1
Fifth word	Fifth byte of data for Channel 1	Fourth byte of data for Channel 1

**7.135** The use of the bytes within each group of five dumped words follows this pattern for one even-numbered and one odd-numbered channel.

**7.136** The encircled words on Fig. 79 contain the dumped data for No. 3 ESS channel 001. The five bytes of data associated with a No. 3 ESS channel

specify the highest numbered junctor for the first Call Record Register (CRR) page in memory and for the second CRR page. The first CRR page accommodates junctors 1 through 256. The second CRR page accommodates junctors 257 through 480.

DUMP MEM NPD ESP!PF

M 25 00 DUMP MEM NPD ESP

25 00 000000 000000 002400 000000 000000 000000 000000 000000 000000  
25 00 000000 000032 001400 000000 000000 000000 062144 000401 000401  
25 00 062001 062144 125252 003052 000005 000000 000000 062144 062144  
25 00 062144 062144 062144 000112 002000 000000 000000 000000 177777  
25 00 000000 000000 000000 000000 000000 000000 125000 125252 003006  
25 00 000000 000000 000000 000000 000000 000000 000000 000000 000000  
25 00 000000 000000 000000 062000 000544 000401 000401 062144 000144  
25 00 000000 000000 177777 000000 002400 000000 000000 000000 000000  
25 00 177400 000377 000000 177777 000000 052400 052525 003006 000000  
25 00 000000 125000 000052 000406 000000 000000 125000 000052 000406  
25 00 000000 000000 000000 000000 000000 000000 000000 000000 000000  
25 00 000000 000000 000000 000000 000000 000000 000000 000000 000000  
25 00 000000 000000 000000 000000 000000 000000 000000 000000 000000  
25 00 000000 000000 000000 000000 000000 000000 000000 000000 001252  
25 00 002400 000000 000000 000000 001252 002400 000000 000000 000000  
25 00 000000 000000 000000 000000 000000 000000 000000 000000 000000  
25 00 000000 000000 000000 000000 000000 000000 000000 000000 000000  
25 00 000000 000000 000000 000000 000000 000000 000000 000000 000000  
25 00 000000 000000 000000 000000 000000 000400 000000 000000 000001  
25 00 000000 000000 000000 000000 000000 000000 000000 000000 000000  
25 00 000000 000000 000000 000000 000000 000000 000000 000000 000000  
25 00 000000 000000 000000 000000 000000 000000 000000 000000 000000  
25 00 000000 000000 000000 000000 000000 000000 000000 000000 000000  
25 00 000000 000000 000000 000000 000000 000000 000000 000000 000000  
25 00 000000 000000 000000 000000 000000 000000 000000 000000 000000  
25 00 000000 000000 000000 000000 000000 000000 000000 000000 000000  
25 00 000000 000000 000000 000000 000000 000000 000000 000000 000000  
26 00 EOD

Fig. 79—Sample Generic 3 DUMP MEM NPD ESP for No. 3 ESS Channel

7.137 The following paragraphs describe the steps that must be performed to compare the dumped data with values specified on Form 0304.

7.138 **Convert Octal to Binary:** Convert the 6-digit octal value for each word to a 16-bit bi-

nary word. Each value, except the leftmost octal digit, is converted to a 3-digit binary number. The leftmost octal digit is used as a 1-digit binary number. The encircled words on Fig. 79 are converted to binary as illustrated in Table III.

TABLE III

OCTAL	0	0	2	4	0	0										
BIT NUMBER	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
BINARY	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0

7.139 The second and third words for channel 001 are all zeros. The second byte for a No. 3 ESS channel contains data only if more than 256 junctors are provided. The third, fourth, and fifth bytes for a No. 3 ESS channel are not used and are always zeros.

Each byte is converted to a 3-digit octal value. Bits 0 through 2 represent one octal digit, bits 3 through 5 represent the second octal digit, and bits 6 and 7 represent the third octal digit. Bits 8 through 15, the second byte, are translated to octal digits in the same manner. The binary values are converted to octal values as illustrated in Table JJJ.

7.140 **Convert Binary to Octal:** The 16-bit binary words are next sectioned into bytes.

TABLE JJJ

BINARY	0	0	0	0	0	1	0	1								
BIT NUMBER	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
OCTAL	0			0			5									

FIRST BYTE FOR CHANNEL 1

FIFTH BYTE FOR CHANNEL 0

7.141 The second and third words are not used in this example.

mal conversion table (see Table R in this section). The decimal values are then interpreted as illustrated in Table KKK.

7.142 **Convert Octal to Decimal:** Each 3-digit octal value is next read into an octal to deci-

TABLE KKK

	LEFT BYTE	RIGHT BYTE
OCTAL	5	X
DECIMAL	5	X

7.143 These data indicate that the highest numbered junctor for the first CRR page is 5.

**D. Generic 4 Dump Message Interpretation**

7.144 The message **DUMP MEM NPD ESP** results in a dump of data from the Equipped Scan Port Table. If the dump input message specifies a channel number (field **aab**), the output is only the data for the specified channel. If the input message specifies a sensor type (field **c...c**), the output is the Equipped Scan Port Table entry for each channel assigned to the specified sensor type.

7.145 The message **DUMP MEM NPD ESP** applies to all sensor types. An explanation of the dumped data for a channel assigned to a No. 3 ESS entity follows. An explanation of the dumped data for another type of sensor may be found in the instructions for the appropriate NPD form, as specified in the following.

- For BDT, use Form 0302.
- For CDA, use Form 0301.
- For CDT, use Form 0307.
- For No. 2B ESS and No. 5 ESS, use Form 0308.

7.146 Note that while **SGL** is a valid input for field **c...c** and a channel assigned to a No. 5 ETS or a VSS is a valid input for field **aab**, the output specifies only the entity number assigned to a channel for one of these sensor types. One scan port is automatically equipped for a channel assigned to one of these sensor types, when the **RC CHL EQP** input message is entered.

7.147 The output begins by identifying the channel number or sensor type specified in the input message. Next, the output prints column headings that apply to the sensor type specified or to the sensor type of the entity assigned to the channel number specified. The output then fills in each column with the appropriate value for each channel identified in the **AMARC CHANNEL** output column.

7.148 The output formats are shown in Volume 2 of the OM/TRG.

7.149 For a dial backup channel, the output identifies the channel as a 202S, 212A, 2024, or 2048

dialup channel and provides no other data for the channel. No data is output for an unassigned channel. For the dedicated backup channel assigned to a No. 3 ESS entity, the output shows **NO JUNCTORS EQPD ON BACKUP CHL**, in place of the highest equipped junctor data.

7.150 Numerical conversion of the dumped data, for example, conversion from octal to binary, is not required in order to compare the dumped data with the data on NPD Form 0304. The output for a No. 3 ESS primary channel specifies the highest equipped junctor number associated with that channel which is the same as the form. The output includes the entity number assigned to the channel, which is not part of the form data. The AMARC determines this information from the Channel Table entry for the channel.

**FORM 0305 — TERMINAL IDENTIFICATION—NO. 3 ESS**

**A. General**

7.151 Data from Form 0305 are entered into the Channel Table for the AMARC. For channels assigned to No. 3 ESS, the terminal identification serves as a means for the No. 3 ESS to identify itself to the connecting AMARC for data link security purposes.

7.152 Each No. 3 ESS entity is served by two dedicated data channels from the AMARC—a primary and a backup. During normal operation, the primary is used exclusively for all data communication. In the event of a failure on the primary, a switch is made to the dedicated backup channel by both the No. 3 ESS entity and the AMARC.

7.153 The terminal identification is used in the handshaking that is part of the initialization of communications on the primary data channel and part of the switching to backup procedure upon failure of the primary.

7.154 Entries to Form 0305 are made only for primary channels assigned to No. 3 ESS entities. Several copies of Form 0305 may be required for an AMARC.

7.155 Figure 80 is a sample Form 0305. The following paragraphs describe the entries to be made on the form.



**B. Form Entries**

**AMARC Channel Number**

**7.156** Enter the 3-digit octal number that identifies the DZ11B multiplexer and port assignment of this channel. The **aa** portion of the number is the multiplexer number. Valid entries are 00 through 13 (octal). The **b** portion of the number is the port on the multiplexer. Valid entries are 0 through 7.

**Terminal ID Number**

**7.157** Enter the 6-digit Western Electric base and control number given to the No. 3 ESS entity associated with this channel. Valid entries are 000000 through 999999 (decimal).

**C. Dump Message Interpretation**

**7.158** The terminal identification number for a No. 3 ESS channel is entered into the Channel Table. Entries in the Channel Table are dumped via the **DUMP MEM NPD CHL** input message. The dump message interpretation for this message is found in this section in the instructions for Form 0300.

**7.159** The sample dump output for Form 0300 includes the entry in the Channel Table for Channel 001 which is a No. 3 ESS channel.

**FORM 0306 — TERMINAL IDENTIFICATION—CDT ENTITIES**

**A. General**

**7.160** Data from Form 0306 are entered into the Channel Table for the AMARC. The terminal identification number for a CDT serves as a means for the CDT to identify itself to the connecting AMARC for data link security purposes.

**7.161** Note 412 of SD-28130 refers to the CDT terminal identification number as the CDT Sensor Identification number.

**7.162** Entries to Form 0306 are made only for primary channels for CDT entities. Several copies of Form 0306 may be required for an AMARC.

**7.163** Figure 81 is a sample Form 0306. The following paragraphs describe the entries to be made on the form.

**B. Form Entries**

**Channel**

**7.164** Enter the 3-digit octal number that identifies the DZ11B multiplexer and port assignment of this channel. The **aa** portion of the number is the multiplexer number. Valid entries are 00 through 13 (octal). The **b** portion of the number is the port on the multiplexer. Valid entries are 0 through 7.

**Terminal Identification**

**7.165** Enter three digits that uniquely identify the CDT assigned to this channel. Valid entries are 000 through 199 (decimal).

**C. Dump Message Interpretation**

**7.166** The terminal identification number for a CDT channel is entered into the Channel Table. Entries in the Channel Table are dumped via the **DUMP MEM NPD CHL** input message. The dump message interpretation for this message is found in this section in the instructions for Form 0300.

**7.167** The sample dump output for Form 0300 includes the entry in the Channel Table for Channel 015 which is a CDT channel.



**FORM 0307 — TRUNK SCAN BOARD COLUMNS—CDT CHANNELS**

**A. General**

**7.168** Data from Form 0307 are used to equip trunk scan board columns on a CDT controller served by the specified channel. The AMARC uses these data, in conjunction with the data from Form 0217, to equip call record registers (CRR) for the entity.

**7.169** Entries to Form 0307 are made only for channels that serve CDT entities. For a CDT controller with two channels, entries may be made only for the first primary channel, primary 0. Several copies of Form 0307 may be required for an AMARC.

**7.170** Figure 82 is a sample Form 0307. The following paragraphs describe the entries to be made on the form.

**B. Form Entries**

**Channel**

**7.171** Enter the 3-digit octal number that identifies the DZ11B multiplexer and port assign-

ment of this channel. The **aa** portion of the number is the multiplexer number. Valid entries are 00 through 13 (octal). The **b** portion of the number is the port on the multiplexer. Valid entries are 0 through 7.

**Trunk Scan Board Column**

**7.172** Enter the trunk scan board column to be equipped for this CDT channel. Valid entries are 0 through 11 (decimal).

**Column Usage Status**

**7.173** Enter **S** (Simplex Scan) if the scan points on this trunk scan board column require scanning by only one CDT controller. Enter **D** (Duplex Scan) if the CDT served by this channel is equipped with two controllers **and** the scan points on this trunk scan board column require scanning by both controllers.

**7.174** Duplex-scanned trunks in dual controller CDT entities require assignment by the AMARC of two CRRs; one is dedicated to each controller.

NO. 1A AMARC 0307

NO. 1A AMARC 216200EFFECTIVE DATE 6-6-80ISSUE DATE 6-1-80REVISION NO. -PAGE 1 OF 2TRUNK SCAN BOARD COLUMNS  
CDT CHANNELS

(aab) CHANNEL	(cc) TRUNK SCAN BOARD COLUMN	(d) COLUMN USAGE STATUS
004	00	D
004	01	D
004	02	S
010	00	D
010	01	D
010	02	D
010	03	D
010	04	D
010	05	D
010	06	D
010	07	D
010	08	D
010	09	D
010	10	D
014	00	D
014	01	D
014	03	S
021	00	D
021	01	D
021	02	D
021	03	D
021	04	D
021	05	D
021	06	D
021	07	D
021	08	D
021	09	D
021	10	D
021	11	D
037	00	S

INPUT MESSAGE: RC CHL aab COL cc d!

DUMP MESSAGE: DUMP MEM NPD ESP

PREPARED BY J. DoeTELEPHONE ABC-XXXXFig. 82—Sample Form No. 1A AMARC 0307 — Trunk Scan Board Columns—CDT  
Channels

## C. Generic 3 Dump Message Interpretation

7.175 The message **DUMP MEM NPD EST** results in an octal dump of the entire Equipped Scan Port Table for the AMARC. This table contains entries for each CDA, BDT, No. 3 ESS, and CDT channel. Figure 83 is the **DUMP MEM NPD ESP** output for the data on sample Forms 0301, 0302, 0304, and 0307. The following explanation of dumped data applies to CDT channels. An explanation of the dumped data for channels assigned to other types of sensors may be found in the instructions for the appropriate NPD form, as specified in the following.

- For CDA, use Form 0301.

- For BDT, use Form 0302
- For No. 3 ESS, use Form 0304.

7.176 The data for each channel in the Equipped Scan Port Table are contained in five bytes. Five dumped words contain the data for two channels, an odd-numbered channel and an even-numbered channel. The printout begins with data for Channel 000. The first five words of the printout contain data for Channels 000 and 001. The use of the bytes within these words is illustrated in Table LLL.

TABLE LLL

WORD	LEFT BYTE	RIGHT BYTE
First word	Second byte of data for Channel 0	First byte of data for Channel 0
Second word	Fourth byte of data for Channel 0	Third byte of data for Channel 0
Third word	First byte of data for Channel 1	Fifth byte of data for Channel 0
Fourth word	Third byte of data for Channel 1	Second byte of data for Channel 1
Fifth word	Fifth byte of data for Channel 1	Fourth byte of data for Channel 1

7.177 The use of the bytes within each group of five dumped words follows this pattern for one even-numbered and one odd-numbered channel.

7.178 The encircled words on Figure 83 contain the dumped data for CDT Channels 010 and 011 which are assigned to entity 001. The five words associated with these channels specify the status of each

of the 12 trunk scan board columns on the controller served by the channel. The **RC CHL COL** input message, which is used to enter these data into the Equipped Scan Port Table for the AMARC, is used only with primary Channel 0 for the CDT. In this example, Channel 010 is the primary Channel 0. The bytes associated with primary Channel 1 (Channel 011) are not used and are always zeros.



**SECTION 201-900-030**

**7.179** The following paragraphs describe the steps that must be performed to compare the dumped data with values specified on Form 0307.

**7.180** *Convert Octal to Binary:* Convert the 6-digit octal value for each word to a 16-bit bi-

nary word. Each value, except the leftmost octal digit, is converted to a 3-digit binary number. The leftmost octal digit is used as a 1-digit binary number. The encircled words on Fig. 83 are converted to binary as illustrated in Table MMM.

**TABLE MMM**

OCTAL	1	2			5			2			5			2		
BIT NUMBER	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
BINARY	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0

OCTAL	0	0			3			0			5			2		
BIT NUMBER	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
BINARY	0	0	0	0	0	1	1	0	0	0	1	0	1	0	1	0

OCTAL	0	0			0			0			0			5		
BIT NUMBER	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
BINARY	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1

**7.181** The fourth and fifth words of this group are not used, since they are associated with Channel 1 for the CDT, and are all zeros.

**7.182** *Interpret Bits:* Two bits are used to define the status of each trunk scan board column. The 16-bit binary word is next sectioned into bytes

and then divided into groups of bits as defined in the OM to represent data input values.

**7.183** The three words containing data for channel 010 are sectioned into bytes and divided into groups of bits as illustrated in Table NNN.

TABLE NNN

		2ND BYTE							1ST BYTE								
BIT NUMBER		15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
BINARY		1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0
		7		6		5		4		3		2		1		0	

  

		4TH BYTE							3RD BYTE								
BIT NUMBER		15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
BINARY		0	0	0	0	0	1	1	0	0	0	1	0	1	0	1	0
													11	10	9	8	

  

		1ST BYTE CHANNEL 011							5TH BYTE CHANNEL 010								
BIT NUMBER		15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
BINARY		X	X	X	X	X	X	X	X	0	0	0	0	0	1	0	1

7.184 The data provided in each byte is interpreted as follows:

- The first byte indicates that trunk scan board columns 0 through 3 are equipped for duplex scanning.
- The second byte indicates that trunk scan board columns 4 through 7 are equipped for duplex scanning.
- The third byte indicates that trunk scan board columns 8 through 10 are equipped for duplex scanning and column 11 is not equipped.
- The fourth byte must be converted from binary to octal and decremented by 1. These data indicate that the highest numbered equipped column in the range of columns 0 through 5 is 5.
- The fifth byte must be converted from binary to octal and incremented by 5. These data indicate that the highest numbered equipped column in the range of columns 6 through 11 is 10.

#### D. Generic 4 Dump Message Interpretation

7.185 The message **DUMP MEM NPD ESP** results in a dump of data from the Equipped Scan Port Table. If the dump input message specifies a channel number (field **aab**), the output is only the data for the specified channel. If the input message specifies a sensor type (field **c...c**), the output is the Equipped Scan Port Table entry for each channel assigned to the specified sensor type.

7.186 The message **DUMP MEM NPD ESP** applies to all sensor types. An explanation of the dumped data for channels assigned to CDT entities follows. An explanation of the dumped data for another type of sensor may be found in the instructions for the appropriate NPD form, as specified in the following.

- For BDT, use Form 0302.
- For No. 3 ESS, use Form 0304.
- For CDA, use Form 0301.

- For No. 2B ESS and No. 5 ESS, use Form 0308.

**7.187** Note that while **SGL** is a valid input for field **c...c** and a channel assigned to a No. 5 ETS or a VSS is a valid input for field **cab**, the output specifies only the entity number assigned to a channel for one of these sensor types. One scan port is automatically equipped for a channel assigned to one of these sensor types, when the **RC CHL EQP** input message is entered.

**7.188** The output begins by identifying the channel number or sensor type specified in the input message. Next, the output prints column headings that apply to the sensor type specified or to the sensor type of the entity assigned to the channel number specified. The output then fills in each column with the appropriate value for each channel identified in the **AMARC CHANNEL** output column.

**7.189** The output formats are shown in Volume 2 of the OM/TRG.

**7.190** For a dial back channel, the output identifies the channel as a 202S, 212A, 2024, or 2048 dialup channel and provides no other data for the channel. Data is not output for an unassigned channel. For the second primary channel, primary 1, assigned to a CDT entity, the output shows **NO TRK SCN BRD COL EQP ON PRI1 CHL**, in place of the trunk scan board column status data.

**7.191** Numerical conversion of the dumped data, for example, conversion from octal to binary, is not required in order to compare the dumped data with the data on NPD Form 0307. The output for a CDT primary 0 channel specifies the status for each trunk scan board column on a CDT controller served by that channel, the same as the form. The output includes the entity number assigned to the channel, which is not part of the form data. The AMARC determines this information from the Channel Table entry for the channel.

## FORM 0308 — CALL RECORD REGISTERS EQUIPPED — NO. 2B ESS, NO. 5 ESS CHANNELS

### A. General

**7.192** Data from Form 0308 are entered into the Call Record Registers Equipped Table for No. 2B ESS and No. 5 ESS channels. This table provides AMARC with the number of CRRs equipped for an ESS channel. When the **RC CHL CRR** message is entered for a channel, it results in allocation of CRRs for the specified channel in AMARC memory.

**7.193** The traffic engineer uses an engineering formula provided in Section 201-900-612 to determine the number of CRRs required for a particular ESS. The **RC CHL CRR** message requires that the number of CRRs to be allocated be entered as the number of groups of 124 CRRs each. To determine the number of groups to be allocated, divide the engineered figure by 124 and round up to the next higher number.

**7.194** Figure 84 is a sample Form 0308. The following paragraphs describe the entries to be made on the form.

### B. Form Entries

#### Channel Number

**7.195** Enter the 3-digit octal number that identifies the DZ11B multiplexer and port assignment of this channel. The **aa** portion of the number is the multiplexer number. Valid entries are 00 through 13 (octal). The **b** portion of the number is the port on the multiplexer. Valid entries are 0 through 7. Entries should be made only for the primary dedicated channel for each No. 2B ESS or No. 5 ESS entity.

#### Groups of CRRs Allocated

**7.196** For each channel, enter the number of groups of 124 CRRs each to be allocated for the entity assigned to the channel. Valid entries are 0 through 32 (decimal).



## C. Dump Message Interpretation

**7.197** The message **DUMP MEM NPD ESP** results in a dump of data from the Equipped Scan Port Table. If the dump input message specifies a channel number (field **aab**), the output is only the data for the specified channel. If the input message specifies a sensor type (field **c...c**), the output is the Equipped Scan Port Table entry for each channel assigned to the specified sensor type.

**7.198** The message **DUMP MEM NPD ESP** applies to all sensor types. An explanation of the dumped data for a channel assigned to a No. 2B ESS or No. 5 ESS entity follows. An explanation of the dumped data for another type of sensor may be found in the instructions for the appropriate NPD form, as specified in the following.

- For BDT, use Form 0302.
- For No. 3 ESS, use Form 0304.
- For CDT, use Form 0307.
- For CDA, use Form 0301.

**7.199** Note that while **SGL** is a valid input for field **c...c** and a channel assigned to a No. 5 ETS or a VSS is a valid input for field **aab**, the output specifies only the entity number assigned to a channel for one of these sensor types. One scan port is automatically equipped for a channel assigned to one of these sensor types when the **RC CHL EQP** input message is entered.

**7.200** The output begins by identifying the channel number or sensor type specified in the input message. Next, the output prints column headings that apply to the sensor type specified or to the sensor type of the entity assigned to the channel number specified. The output then fills in each column with the appropriate value for each channel identified in the **AMARC CHANNEL** output column. No data is output for an unassigned channel.

**7.201** The output formats are shown in Volume 2 of the OM/TRG.

**7.202** For the secondary dedicated channel assigned to a No. 2B ESS or a No. 5 ESS entity, the output shows **NO CRR's EQPD ON SECONDARY ESS CHL** in place of the number of CRR groups equipped data.

**7.203** For a primary dial backup channel assigned to a No. 2B ESS or a No. 5 ESS entity, the output identifies the channel as a 2024 or 2048 dialup channel. For a secondary dial backup channel assigned to a No. 2B ESS or a No. 5 ESS entity, the output identifies the channel as a 2024 or 2048 secondary dial backup channel.

**7.204** The dumped data are easily compared with the Form 0308 data. The output for a No. 2B ESS or a No. 5 ESS primary dedicated channel specifies the number of groups of 124 CRRs each allocated for that channel, the same as the form. In addition, the output includes the highest equipped module number associated with the channel. There is no Form 0308 column that provides this information. The AMARC determines this information from the Modules Equipped Table entry for the entity assigned to the channel. The output also includes the entity assigned to the channel, for which there is no form data. The AMARC determines this information from the Channel Table entry for the channel.

## 8. PREPARATION OF NPD FORMS THAT SPECIFY SPECIAL NUMBER PARAMETERS—NPD FORM SERIES 0400

**8.01** The following paragraphs provide instructions for preparation of the 0400 series of NPD forms. These forms are used to identify originating or terminating telephone numbers whose calls require special treatment by the AMARC. Special Number Parameter forms and their uses are as follows:

- (a) **Form 0400:** This form is used to list CDA and No. 3 ESS originating telephone numbers that require special call formatting treatment.
- (b) **Form 0401:** This form is used to list CDT originating telephone numbers that are complaint observed and whose calls require identification of the complaint observing in associated call records.
- (c) **Form 0402:** This form is used to list the called (terminating) telephone number destinations of trunks for which trunk audit failure reports should be suppressed because of the unusual answering patterns of the telephone numbers.

**8.02** In the event of an AMARC system failure that requires the reloading of NPD using an NPD

tape, the telephone numbers specified on these forms may require manual reentry. The telephone numbers specified on the 0400 series of NPD forms are subject to frequent change. As a result, the special numbers (Forms 0400, 0401 and 0402) yielded from an NPD tape may not be current at the time of the system failure.

#### **FORM 0400 — SPECIAL NUMBER TABLE—CDA AND NO. 3 ESS ENTITIES**

##### **A. General**

**8.03** Data from Form 0400 are entered into the Special Number Table (SPN) for the AMARC. This table lists up to 400 telephone numbers in CDA and No. 3 ESS entities that require special call formatting treatment. Calls from these telephone numbers will be formatted as Detailed Billed, Message Rate (Call Type 001).

**8.04** Requests to enter a telephone number into the SPN Table may be received from various departments, such as, commercial, marketing, or security. Local procedures must be devised for the transfer of requests from various departments to the AMARC. The data base administrator for the AMARC should be the coordinator of these requests. The responsibilities of the data base administrator are discussed in AMARC Administrative Section 201-900-010.

**8.05** Form 0400 is prepared for all No. 3 ESS and CDA entities served by an AMARC. Several copies of the form may be required.

**8.06** Figure 85 is a sample Form 0400. The following paragraphs describe the entries to be made on the form.

##### **B. Form Entries**

###### **NPA of SPN**

**8.07** Enter the NPA of the calling telephone number which is to receive special call formatting

treatment. Valid entries are 201 through 999 (decimal).

###### **NXX of SPN**

**8.08** Enter the 3-digit central office code of the calling telephone number. Valid entries are 000 through 999 (decimal).

###### **Line Number of SPN**

**8.09** Enter the 4-digit line number of the calling telephone number. Valid entries are 0000 through 9999 (decimal).

###### **Call Format Required**

**8.10** Enter the value which corresponds to the special call formatting treatment required for all calls from the telephone number. The following specifies the value for each format treatment.

<b>SPN TABLE</b>	
<b>TREATMENT TYPE</b>	<b>FORMAT TREATMENT</b>
0	Complaint observing
1	Detail billing
2	Hotel/motel/hospital (CDA only)
3	Hotel/motel/hospital with complaint observing (CDA only).

##### **C. Generic 3 Dump Message Interpretation**

**8.11** The message **DUMP MEM NPD SPN** results in a BCD dump of the Special Number Table for the AMARC. Since this is a BCD dump, numerical conversion of the dumped data is not required for comparison with the form data.



- 8.12 Figure 86 is the dump message output for sample Form 0400 data.

```
DUMP MEM NPD SPN!PF

M 30 01 DUMP MEM NPD SPN

30 01 6141 0868 2041

30 01 EOD
```

Fig. 86—Sample Generic 3 DUMP MEM NPD SPN

#### D. Generic 4 Dump Message Interpretation

- 8.13 The message DUMP MEM NPD SPN results in a dump of the Special Number Table for the AMARC.

- 8.14 The format of the output for DUMP MEM NPD SPN and an explanation of the values associated with each variable field is provided in Volume 2 of the OM/TRG.

- 8.15 Numerical conversion of the dumped data is not required for comparison with the data on NPD Form 0400.

#### FORM 0401 — COMPLAINT OBSERVED NUMBER TABLE—CDT ENTITIES

##### A. General

- 8.16 Data from Form 0401 are entered into the Complaint Observed Number Table for the specified CDT entity. Any call originated by a telephone number specified in this table will be formatted as Detailed Billed, Message Rate (Call Type 001). The value of 1 in the second digit of the **Study Indicator** data field in the call record will identify the call as complaint observed.

- 8.17 Requests to enter a telephone number into the Complaint Observed Number Table may be received from various departments. Local procedures must be devised for the transfer of requests from var-

ious departments to the AMARC. The data base administrator for the AMARC should be the coordinator of these requests. The responsibilities of the data base administrator are discussed in AMARC Administrative Section 201-900-010.

- 8.18 Form 0401 is prepared only for CDT entities. A maximum of 50 numbers may be specified for an entity. A maximum of two copies of Form 0401 will be required for a CDT entity.

- 8.19 Figure 87 is a sample Form 0401. The following paragraphs describe the entries to be made on the form.

##### B. Form Entries

###### Entity Number

- 8.20 Enter the entity number, as assigned on Form 0101. Valid entries are 000 through 137 (octal).

###### Calling NPA

- 8.21 Enter the calling NPA of the telephone number which is to be Complaint Observed. Valid entries are 001 through 999 (decimal).

###### Calling NXX

- 8.22 Enter the calling NXX of this telephone number. Valid entries are 001 through 999 (decimal).

###### Calling Line Number

- 8.23 Enter the 4-digit line number of the telephone number. Valid entries are 0000 through 9999 (decimal).

###### Add or Delete

- 8.24 Enter **A** if this telephone number is to be added to the Complaint Observed Number Table. Enter **D** if this telephone number is to be deleted from the table.





## FORM 0402 — TRUNK AUDIT TABLE—CDT ENTITIES

## A. General

**8.27** Data from Form 0402 are entered into the Trunk Audit Table for the specified entity. This table identifies the called telephone number destinations of trunks for which trunk audit failure reports should be suppressed because of the unusual answering patterns of the telephone numbers. Telephone numbers are entered into this table rather than trunk numbers because the trunk numbers probably are changed more frequently.

**8.28** The AMARC audits trunk operation in the CDT entity by performing various timing analyses on the supervisory states of the trunks. The supervisory states of a trunk are defined by scanning the S1 and CS leads. The following trunk audit failure reports issued by AMARC are affected by entries in the Trunk Audit Table:

- (a) **Never Answered Trunk Audit:** This audit report is issued if, for a given trunk, the circuit answer time (CS lead high) interval is less than 2 seconds for 32 consecutive calls.
- (b) **Always Answered Trunk Audit:** This audit report is issued if, for a given trunk, the called party answer supervision (CS high) interval is greater than or equal to 2 seconds for 32 consecutive calls.
- (c) **Short Holding Time Trunk Audit:** This audit report is issued if, for a given trunk, the called party answer supervision interval is greater than or equal to 200 milliseconds, but less than 15 seconds for eight consecutive calls.

**8.29** At the time a trunk audit failure is detected, the appropriate failure report is issued, ie, printed on a teletype associated with the AMARC. A report is not issued if the called telephone number destination of the audited trunk is contained in the Trunk Audit Table for the CDT entity.

**8.30** Examples of called telephone numbers for which these trunk audit failure reports should be suppressed are those numbers assigned to the following:

- (a) Trunk-side announcement machines, such as weather, time, and temperature
- (b) Operator routes, such as Directory Assistance.

**8.31** Form 0402 is prepared only for CDT entities. One copy of the form accommodates data for 32 called telephone numbers, the maximum number of telephone numbers that may be entered into the Trunk Audit Table for an entity.

**8.32** The NCD (noncheck dummy) characters may be entered for any of the called telephone number digits. Use of NCDs should be for a complete field within the called number, eg, NPA, NXX, or line number, if any digit in that field is an NCD. An NCD is indicated on the form by an asterisk. Operator route 411, for example, would be specified on Form 0402 as **bbb = \*\*\***, **ccc = 411**, **dddd = \*\*\*\***.

**8.33** Figure 89 is a sample Form 0402. The following paragraphs describe the entries to be made on the form.

## B. Form Entries

## Entity Number

**8.34** Enter the entity number, as assigned on Form 0101. Valid entries are 000 through 137 (octal).

## Called NPA

**8.35** Enter the NPA of the called telephone number destination of each trunk for which trunk audit failure reports should be suppressed. Valid entries are 001 through 999 (decimal).

## Called NXX

**8.36** Enter the NXX of the called telephone number. Valid entries are 001 through 999 (decimal).

## Called Line Number

**8.37** Enter the line number of the called telephone number. Valid entries are 0000 through 9999 (decimal).

## Add or Delete

**8.38** Enter **A** if this telephone number is to be added to the Trunk Audit Table for the entity. Enter **D** if this telephone number is to be deleted from the table.



**SECTION 201-900-030**

**C. Generic 3 Dump Message Interpretation**

**8.39** The message **DUMP MEM NPD AUD** results in a BCD dump of the Trunk Audit Table for the CDT entity specified in the dump input message. Since this is a BCD dump, numerical conversion of

the dumped data is not required for comparison with the form entries.

**8.40** Figure 90 is the dump message output for the sample Form 0402.

```
DUMP MEM NPD AUD C01!PF
M 33 01 DUMP MEM NPD AUD 001
33 01 0000 0411 0000 0614 0868 4519 0000 0000 0000 0000 0000 0000
33 01 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000
33 01 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000
33 01 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000
33 01 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000
33 01 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000
33 01 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000
33 01 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000
33 01 E00
```

**Fig. 90—Sample Generic 3 DUMP MEM NPD AUD**

**8.41** For Generic 4, the dump message interpretation is the same as given previously for Generic 3. The telephone numbers, however, are dumped in the order lowest to highest, with 0 occupying the tenth position and \* occupying the eleventh position (1 through 9, 0, X). The output for the sample Form 0402 for Generic 4 then would print the 614-868-4519 entry before the \*\*\*-411-\*\*\*\* entry.

**D. Generic 4 Dump Message Interpretation**

**8.42** The message **DUMP MEM NPD AUD** results in a dump of data from the Trunk Audit table for the CDT entity specified in the input message.

**8.43** The format of the output for **DUMP MEM NPD AUD** is provided in Volume 2 of the OM/TRG.

**8.44** Numerical conversion of the dumped data is not required in order to compare the dumped data with data on NPD Form 0402.

**9. PREPARATION OF OTHER NO. 1A AMARC ADMINISTRATIVE RECORDS—NPD FORM SERIES 0500**

**9.01** The following paragraphs provide instructions for preparation of the 0500 series of NPD forms. These forms are used only for administration

of No. 1A AMARC and do not provide any NPD. Data from these forms are not entered into AMARC memory.

**9.02** Form 0500, NPD Change Request Log, is used to log NPD changes which are required and have been communicated to the craft person responsible for implementing the change.

**9.03** Form 0501, Assignment of Recorders to BDT Recorder Ports, is used to record the association of each regular recorder in a BDT entity to a recorder port of a BDT.

#### **FORM 0500 — NPD CHANGE REQUEST LOG**

##### **A. General**

**9.04** There are many changes to the characteristics of the AMARC remote offices configurations which require changes to the NPD stored in AMARC memory. These changes, such as the addition of line finders to a step-by-step office served by a Call Data Accumulator (CDA), and their effect on NPD are discussed in the translation section for each sensor.

**9.05** The data base administrator is responsible for making the required changes to the administrative records of an AMARC for all NPD changes. The administrator is also responsible for communicating the NPD changes to be made to the central office maintenance craft person who will input the changes. The NPD changes may require preparation of new NPD forms or may require revisions on existing forms.

**9.06** When new NPD forms are required, the new forms will be prepared by the data base administrator. The effective date shown on the forms will be the date on which the configuration of the AMARC-remote offices will change and on which the NPD must be changed. The issue date is the date on which the form was sent to the craft person.

**9.07** When changes to existing NPD forms are required, the data base administrator will prepare a revised form and indicate the appropriate revision number. The initial issue of a form should be revision zero (0). The effective date shown on the forms will be changed to the date on which the configuration of the AMARC-remote offices will change and on which the NPD must be changed.

**9.08** The data base administrator will send a copy of each new or revised NPD form to the craft person in advance of the effective date. Notation of all NPD changes requested will be made on AMARC Form 0500. Figure 91 is a sample Form 0500.

**9.09** When the effective date arrives, the craft person will use the appropriate input messages and implement the NPD changes.

**9.10** When the NPD changes have been made, the craft person will return the copy of each new or revised NPD form as verification that each required change was made. The date on which verification was received will be entered by the administrator on AMARC Form 0500.

##### **B. Form Entries**

###### **NPD Form**

**9.11** The NPD form affected by the change is noted.

###### **Change Requested**

**9.12** The change that must be made to the NPD is stated briefly. The change is documented on the affected NPD form.

###### **Effective Date**

**9.13** This entry is the date on which the change must be made to NPD. This date is shown on the changed or new NPD form.

###### **Issue Date**

**9.14** This entry is the date on which a copy of the changed or new NPD form was sent to the central office maintenance craft person.

###### **Revision Number**

**9.15** This entry is the revision number of the changed or new NPD form sent to the central office maintenance craft person.

###### **Verification Received**

**9.16** This entry is the date on which the copy of the changed or new NPD form was returned to the data base administrator as verification that the required change to NPD was made.



**FORM 0501 — ASSIGNMENT OF RECORDERS TO BDT RECORDER PORTS****A. General**

**9.17** One BDT has ten recorder ports, each of which interfaces with a recorder in the office. One emergency recorder is also connected to a BDT. The BDT has two encoders; each is capable of receiving billing data from ten recorders. All regular recorders and the emergency recorder served by a BDT are wired to both encoders.

**9.18** For each regular recorder, one encoder is designated as the primary encoder and the other as the secondary encoder. This designation, which is manually controllable by a switch, denotes the functions an encoder performs for a particular recorder. In the event of a service failure in one encoder, all recorders are automatically switched to the working encoder.

**9.19** In a multi-BDT entity, the full capacity of the BDTs should be utilized; ie, ten recorders should not be assigned to one BDT and only three to a second BDT.

**9.20** The assignment of each regular recorder to a BDT recorder port is recorded on No. 1A AMARC 0501. Figure 92 is a sample No. 1A AMARC 0501. One copy of this form should be prepared for each BDT entity. A copy of this form should be kept by the data base administrator and by the remote office.

**9.21** This form should be prepared before No. 1A AMARC 0200, an NPD form which associates

a Central Office Index (COI) Translation Table with each recorder port of a BDT. Instructions for preparing AMARC 0200 are found in this section. The following paragraphs describe the entries to be made on Form 0501.

**B. Form Entries****Entity Number**

**9.22** Enter the entity number, as assigned on Form 0101. Valid entries are 000 through 137 (octal).

**BDT, Recorder Port**

**9.23** These columns list the BDT numbers and recorder port numbers which may be equipped for an entity.

**Encoder Setting**

**9.24** For each recorder port, enter the number of the encoder that is designated as the primary encoder for the regular recorder assigned to the port. Valid entries are 0 and 1.

**Regular Recorder**

**9.25** Enter the number of the regular recorder associated with this recorder port.

**Recorder Group**

**9.26** Enter the recorder group to which the regular recorder associated with this recorder port is assigned.

NO. 1A AMARC 0501

NO. 1A AMARC 216200

EFFECTIVE DATE 6-6-80

ISSUE DATE 6-1-80

REVISION NO. -

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ASSIGNMENT OF RECORDERS TO BDT RECORDER PORTS

ENTITY NUMBER 003

BDT	RECORDER PORT	ENCODER SETTING	REGULAR RECORDER	RECORDER GROUP
0	1	0	0	00
	2	0	5	00
	3	0	1	00
	4	0	2	00
	5	0	6	01
	6	1	3	01
	7	1	4	01
	8	1	8	01
	9	1	9	02
	0	1	7	02
1	1	0	11	02
	2	0	12	02
	3	0	13	03
	4	0	14	03
	5	0	15	03
	6	1	16	03
	7	1	17	04
	8	1	18	04
	9	1	19	04
	0	1	20	04
2	1			
	2			
	3			
	4			
	5			
	6			
	7			
	8			
	9			
	0			

PREPARED BY J. Doe  
 TELEPHONE ABC-XXXX

Fig. 92—Sample Form No. 1A AMARC 0501 — Assignment of Recorders to BDT Recorder Ports