

**NO. 1A AUTOMATIC MESSAGE ACCOUNTING RECORDING CENTER (AMARC)
BILLING DATA TRANSMITTER (BDT) TRANSLATIONS FOR
GENERIC 3 AND 4**

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6. DETERMINATION OF CALLED NPA	13	1.01 This section describes the translations performed by a No. 1A Automatic Message Accounting Recording Center (AMARC) on billing data transmitted by a billing data transmitter (BDT). This section also makes note of special considerations for preparation of some of the nongeneric parameter data (NPD) forms containing data used for these translations. It also outlines NPD form changes that are necessitated by growth, addition, or removal of BDT entities.	
7. OVERVIEW OF CALL RECORD FORMATTING	13	1.02 Revision arrows have been used to emphasize significant changes. The following are the specific reasons for this reissue:	
GENERAL	13	(a) To add paragraph 1.04 relative to generic issue.	
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- (b) To add Generic 4 information.
- (c) To add call type 033, directory assistance.
- (d) To revise the meaning of the **Answer** call record data field.
- (e) To add unanswered call recording information.
- (f) To revise call formatting information.
- (g) To add special considerations for preparation of NPD form 0210.

1.03 The title for each figure includes a number in parentheses that identifies the paragraph in which the figure is referenced.

1.04 ♦When any information in this section applies to a particular AMARC generic, it will be so noted.♦

2. GENERAL DESCRIPTION OF BDT

2.01 The BDT replaces the paper tape perforator in automatic message accounting (AMA) or centralized AMA (CAMA) offices using paper tape operation. ♦With the BDT, each recorder in the office passes call data♦ to a BDT encoder through the recorder port associated with the recorder.

2.02 One BDT has ten recorder ports and each interfaces with a recorder in the office. One emergency recorder is also connected to a BDT. The BDT has two encoders and 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. 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. Each recorder, and thus each recorder port, serves a maximum of 100 trunks. Each trunk connected to a recorder is identified by a call identity index (CII). Each BDT message transmitted to the AMARC includes the number of the recorder port which transmitted the call and the CII of the trunk used on the call.

2.03 For BDT, AMARC records billing information for local and toll calls from single and 2-party

lines. Unanswered call recording is provided by the use of the **ALW ATT** (allow attempts) input message at the AMARC. ♦When this message is in effect, AMARC records unanswered calls transmitted by all sensors. Each BDT call record recorded while **ALW ATT** is in effect contains a value of 2 for BCD character 2 in the **Study Indicator** data field.♦

2.04 Refer to Section 201-901-101 for a complete description of the BDT. Refer to Section 201-900-103 for a description of the No. 1A AMARC, ♦Generic 3. Refer to Section 201-900-104 for a description of the No. 1A AMARC, Generic 4.♦

3. CALL RECORD REGISTERS FOR BDT RECORDER PORTS

GENERAL

3.01 A BDT entity may be served by three BDTs (one BDT per ten regular recorders). Each BDT has ten recorder ports, each of which interfaces with a recorder at the remote office. A BDT has two encoders, each of which is capable of receiving data from ten recorders. All recorders served by a BDT are connected to both encoders. For each recorder, one encoder is designated as the primary encoder and the other as the secondary encoder.

3.02 During normal operation, each encoder serves as the primary encoder for approximately half of the recorders served by the BDT. The AMARC assumes that recorder ports 1 through 5 transmit data through encoder 0 which is assigned to the first channel of the BDT and that recorder ports 6 through 9 and 0 transmit data through encoder 1 over the second channel. Each trunk or CII on a regular recorder is associated with a call record register (CRR) in AMARC memory. The CRR is a temporary storage area. Each BDT message received by the AMARC is loaded into the appropriate CRR when it is received.

SPECIAL CONSIDERATIONS FOR PREPARATION OF NPD FORM 0302 (EQUIPPED SCAN PORT TABLE)

3.03 For each channel assigned to a BDT, NPD form 0302 specifies the highest equipped trunk number or CII on each of five recorder ports. Based on the input value of the highest equipped trunk number, the AMARC assigns one CRR on a dedicated basis per scan port or trunk. The CRR is used for assembly of multiple entry call data into the desired single entry format. The CRR size is gener-

ally 7.5 words per BDT trunk. Care should be taken to avoid wasting memory in determining the highest scan port.

3.04 The data from form 0302 are entered into the Equipped Scan Port Table.

3.05 Each message (initial entry, answer, and disconnect) transmitted to the AMARC by a BDT, includes the number of the BDT recorder port that transmitted the message and the CII of the trunk used on the call. All call data are stored in the CRR associated with the recorder port and the CII.

3.06 Every midnight, the AMARC scans the call record registers to determine those CIIs that were not used in the previous 24-hour period. At 30 minutes past midnight every day, these unused CIIs are printed at the AMARC with the message **REPT CHL UNUSED TRUNKS**. A maximum of 16 trunks will be reported.

3.07 The reporting of a CII via this message may indicate trouble at the remote office because each CII thus reported equates to a trunk which was not used in the previous 24-hour period. The AMARC personnel must report this information to the remote office for investigation. The remote office must keep an office record form which associates each regular recorder in the entity to a BDT recorder port. This office record, AMARC form 0501, is discussed in Section 201-900-030. An existing central office record designates the trunk assigned to each terminal point (CII) of each regular recorder. The remote office must use these office records to determine the actual trunks which were not used in the previous 24-hour period.

3.08 The highest equipped trunk number (CII) for each recorder port must be determined from these two office records.

3.09 Generally, all CIIs (00 through 99) on a regular recorder will not be assigned. All unassigned CIIs will appear to the AMARC as unused during each 24-hour period. The CIIs which are not assigned must be identified in NPD to prevent the reporting of those CIIs with the **REPT CHL UNUSED TRUNKS** message. The purpose of form 0302 is to specify the highest equipped trunk number (CII) for each BDT recorder port. Should any lower numbered trunk numbers not be equipped, they will be reported by AMARC as not used. Form 0302 information is

entered into the Equipped Scan Port Table, from which the AMARC identifies the CIIs which are not to be checked for use.

3.10 Form 0302 must be prepared accurately to prevent the reporting of unassigned addresses through the **REPT CHL UNUSED TRUNKS** message.

4. AMARC CALL PROCESSING OF BDT BILLING DATA

4.01 When the AMARC receives billing data, the data are loaded into the Input Assembly Table (IAT) associated with the transmitting channel. An IAT provides temporary storage for billing data transmitted through a specific channel.

4.02 While the billing data are in the IAT, the input entry format of the entity assigned to the channel through which the data were transmitted is determined.

4.03 The AMARC receives billing data from several different sensors. There are differences in the method of operations of the various sensors. As a result, the billing data received from the various sensors require different amounts of processing. When billing data are received, the AMARC determines the functions or translations to perform based on the method of operation of the sensor transmitting the data. The method of operation is identified by the input entry format of the entity from which the billing data were received.

4.04 For Generic 3, the input entry format of an entity is determined by the following process.

(a) The AMARC accesses the Channel Table to determine the entity number assigned to the transmitting channel. The Channel Table specifies data associated with each channel, such as the entity assigned to the channel.

(b) The AMARC accesses the Entity Identification Table to determine the input entry format of that entity. The Entity Identification Table contains data that uniquely describe each entity, and includes the input entry format of the sensor with which the entity is equipped.

4.05 For Generic 4, the input entry format of an entity is included in the Channel Table entry for each channel associated with the entity. To determine the input entry format of billing data, the

AMARC accesses the Channel Table entry for the channel over which the data were transmitted.♦

4.06 When any billing data are received by the AMARC, they are loaded into the IAT associated with the channel that transmitted the data. While the data are in the IAT, the input entry format of the data is determined. For triple entry BDT data, the billing data are loaded into the recorder buffer area of the CRR page for the channel.

4.07 The recorder buffer area is portioned into areas for five recorder ports. Lines of data from all five recorder ports are intermixed in the data transmitted by a channel. The AMARC first gathers the lines for each recorder port together in the area of the buffer for each recorder. Then the lines are assembled into initial entry, answer message, and disconnect message. When an initial entry message or an answer is assembled, it is loaded into the CRR associated with the recorder port and the CII included in the message.

4.08 To complete the required translation for BDT billing data, the AMARC must reference the NPD tables contained in memory. Data from NPD forms are used to build these tables. Section 201-900-030 contains information on the NPD forms and their preparation.

4.09 When a disconnect message is assembled, the AMARC removes the initial entry and answer message from the CRR and moves the call record to the tape output register (TOR). The disconnect time is added to the call record as the call record is moved to the TOR.

4.10 Call records are temporarily stored in the TOR and then unloaded by order of disconnect time into ♦a local buffer.♦ As the call record is moved from the TOR to the ♦buffer,♦ the following translations are performed by the AMARC:

- (a) Determination of the numbering plan area (NPA) and expanded (3-digit) central office code of the calling party. This translation is explained in Part 5 of this section.
- (b) Determination of the called NPA, when required. This translation is explained in Part 6 of this section.
- (c) Determination of the call format treatment type to see if the call receives special handling.

This translation is explained in Part 7 of this section.

4.11 The expanded data from the local buffer are then placed into the tape output buffer (TOB) in a format acceptable for the call type and for tape drive input. When a TOB becomes full (which may imply processing more than one call), it is written on magnetic tape.

4.12 The upper chart of Table A illustrates the initial entry lines AMARC receives from BDT and the use AMARC assumes for digits A through F of each line. In this chart, the line identifiers P4 through P1 are listed along the side and the digit identifiers A through F are shown across the top. For each line, this chart identifies the use AMARC assumes for each digit of that line. For example, in line P2, AMARC assumes that the data in the B digit position is the Calling Office Index (COI) Units Digit.

4.13 The Note for Table A shows for each type of initial entry (2 line, 4 line, or 5 line), the lines (P4 through P1) that AMARC assumes are included.

4.14 Table B illustrates the interpretation AMARC makes of the data contained in the A through F digits of each initial entry line. The information contained in each column of Table B is as follows:

- (a) **Line No. :** Identifies the initial entry line number, with the type of initial entry that uses that line identified in parentheses.
- (b) **Digits:** For each line, lists the digit positions that contain data.
- (c) **Definition:** For each digit position or digit group, names the data contained therein.
- (d) **Data:** Specifies the type of data contained in each digit position or digit group.
- (e) **AMARC Interpretation:** For each digit position or digit group, defines the expansion or "interpretation" AMARC makes of the data contained therein. For example for line P4, if the value 8 is received in the digit F position, which is the Calling Class Index, AMARC interprets this value as identification of a WATS call. "None" is specified in this column when AMARC makes no interpretation of the data contained in the corresponding digit position. Here the data are passed

TABLE A

LINE INITIAL ENTRY (LIE)						
LINE NUMBER (NOTE)	A	B	C	D	E	F
P4	0	Called Line Number				Calling Class Index
P3	0	Compressed Called NPA	Calling Number Identification	Called NXX		
P5	0	No. of IDDD Digits Dialed	11th IDDD Digit	Called NPA		
P2	0	COI Units Digit	Calling Line Number			
P1	2	Entry Structure Index	MBI (message billing index) Units Digit	MBI/COI Tens Digit	Call Identity Index	

Note: The following are lines contained in 2-line initial entry (LIE), 4 LIE, or 5 LIE.

- (a) P2 and P1 in 2 line.
- (b) P4, P3, P2, and P1 in 4 line.
- (c) P4, P3, P5, P2, and P1 in 5 line.

to the local buffer without any expansion or interpretation.

(f) **AMA Call Record Data Field Entry:** For each digit position or digit group, identifies the call record data field entry that reflects the data

contained in that position. For example for value 8 in the F position of line P4, this column of Table B shows that the AMA call record will contain a value of 00 in the **Service Feature** data field.

TABLE B (NOTE)

LINE NUMBER	DIGITS	DEFINITION	DATA	AMARC INTERPRETATION	AMA CALL RECORD DATA FIELD ENTRY
P4 (4 & 5 LIE)	B-E	Called line number	Thousands, hundreds, tens, units digits of called line number	None	Line number portion of Terminating Number .
	F	Calling class index (CCI)	0 1 2 3 4 5 6 7 8 Other	Other Coin Hotel/motel PICTUREPHONE® vi- sual telephone service Coin PICTUREPHONE visual telephone service Hotel/Motel PICTUREPHONE visual telephone service WATS* DATAPHONE® 50 data communications service WATS* Error	Value for Service Feature equals: 00 01 02 03 04 05 00 07 00 Literal CCI Value for WATS Indicator equals: 0—If call type determined by AMARC translations is mes- sage rate (call types 001, 002). 1—If CCI=6 or 8 and the CCI is defined in the CCI Charac- terization Table as a full business day call. 2—If CCI=6 or 8 and is defined in the CCI Characterization Table as a measured time call.

Note: See footnotes on final sheet of Table B.

TABLE B (NOTE) (Contd)

LINE NUMBER	DIGITS	DEFINITION	DATA	AMARC INTERPRETATION	AMA CALL RECORD DATA FIELD ENTRY
P3 (4 & 5 (LIE))	B	Compressed Called NPA	Single-digit compressed called NPA; 0, if 5 LIE.	Expanded to 3-digit called NPA, using Called NPA Table (form 0204) for the entity.	Terminating NPA.
	C	Calling Number Identification	1	Not operator dialed, not operator identified (ONI)	Value for Operator Action equals: 0
			4	Not operator dialed, operator identified (ANI)	2
			2†	Not operator dialed, operator identified because of a number identification trouble (NIT)	4
7†			Not operator dialed, operator identified because of an identification failure (IF)	6	
		Other	Error	NCD (noncheck dummy)	
D – F	Called NXX	Called NXX	None	Called NXX portion of Terminating Number .	
P5 (5 LIE)	B	Number of IDDD digits dialed	1	7-digit overseas number	Value for Overseas Indicator equals: 3
			2	8-digit overseas number	4
			3	9-digit overseas number	5
			4	10-digit overseas number	6
			5	11-digit overseas number	7
			Other	Error — Treat as if 11-digit overseas number	7

Note: See footnotes on final sheet of Table B.

TABLE B (NOTE) (Contd)

LINE NUMBER	DIGITS	DEFINITION	DATA	AMARC INTERPRETATION	AMA CALL RECORD DATA FIELD ENTRY
P5 (Contd)	C	11th IDDD digit (if dialed)	Final digit of 11-digit overseas number	Terminating NPA and Terminating Number data fields are right justified on 11-digit overseas num- ber, so that the last digit of Terminating Number is the final IDDD digit.	Last digit of Terminating Num- ber .
	D-F	Full called NPA	3-digit called NPA	None	Terminating NPA
P2 (2, 4, & 5 LIE)	B	COI units digit	COI units digit	This COI units digit and COI tens digit (encoded with MBI as D digit of P1) are expanded to a calling NPA and a calling NXX, using COI Transla- tion Table (form 0202) and Calling NPA Table (form 0203) for entity.	Expanded COI tens and units data are used for Originating NPA and Originating Number .
	C-F	Calling line number	Thousands, hundreds, tens, units digits of calling line number	None	Line number portion of Originat- ing Number .

Note: See footnotes on final sheet of Table B.

TABLE B (NOTE) (Contd)

LINE NUMBER	DIGITS	DEFINITION	DATA	AMARC INTERPRETATION	AMA CALL RECORD DATA FIELD ENTRY																																	
P1 (2, 4, & 5 LIE)	A	2	2	None	None.																																	
	B	Entry structure index	1	2-LIE, nonservice observed	Service Observed Traffic Sampled equals: 0 (Not service observed, not traffic sampled) if call type determined by AMARC translations is not CCSA (021). 2 (Not service observed, traffic sampled) if call type is CCSA. 1 (Service observed, not traffic sampled), if call type is not CCSA (021). 3 (Service observed, traffic sampled), if call type is CCSA. Error message at AMARC, no tape entry.																																	
			3	4-LIE, nonservice observed																																		
			5	5-LIE, nonservice observed																																		
4 6			4-LIE, service observed 5-LIE, service observed																																			
		0,2,7,9	Error																																			
C	MBI units digit	MBI units digit	None	Units digit of the WATS band or MBI portion of WATS Band Or Type Indicator .																																		
D	Encoded MBI tens and COI tens			<table border="0"> <tr> <td></td> <td>MBI TENS</td> <td>COI TENS‡</td> </tr> <tr> <td>0</td> <td>0</td> <td>0</td> </tr> <tr> <td>1</td> <td>1</td> <td>0</td> </tr> <tr> <td>2</td> <td>2</td> <td>0</td> </tr> <tr> <td>3</td> <td>0</td> <td>1</td> </tr> <tr> <td>4</td> <td>1</td> <td>1</td> </tr> <tr> <td>5</td> <td>2</td> <td>1</td> </tr> <tr> <td>6</td> <td>0</td> <td>2</td> </tr> <tr> <td>7</td> <td>1</td> <td>2</td> </tr> <tr> <td>8</td> <td>2</td> <td>2</td> </tr> <tr> <td>9</td> <td>Error</td> <td></td> </tr> </table>		MBI TENS	COI TENS‡	0	0	0	1	1	0	2	2	0	3	0	1	4	1	1	5	2	1	6	0	2	7	1	2	8	2	2	9	Error		The MBI tens is used as the tens digit of the WATS band or MBI portion of WATS Band Or Type Indicator . Expanded COI tens and units data are used for the Originating NPA and Originating Number . If digit 9 is received, an error message is output at AMARC, and no tape entry is made.
	MBI TENS	COI TENS‡																																				
0	0	0																																				
1	1	0																																				
2	2	0																																				
3	0	1																																				
4	1	1																																				
5	2	1																																				
6	0	2																																				
7	1	2																																				
8	2	2																																				
9	Error																																					

Note: See footnotes on final sheet of Table B.

TABLE B (Contd)

LINE NUMBER	DIGITS	DEFINITION	DATA	AMARC INTERPRETATION	AMA CALL RECORD DATA FIELD ENTRY														
P1 (Contd)	E - F	Call identity index (CII)	CII (00-99) for trunk in recorder	None	<p>The CII or trunk number is included in the Trunk Network Number (TNN). The layout of data in this data field is as follows:</p> <table border="1"> <thead> <tr> <th>BCD CHARS</th> <th>MEANING</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>0 (padding)</td> </tr> <tr> <td>2-3</td> <td>Entity number</td> </tr> <tr> <td>4</td> <td>BDT number</td> </tr> <tr> <td>5</td> <td>Recorder number</td> </tr> <tr> <td>6-7</td> <td>CII</td> </tr> <tr> <td>8</td> <td>Sign (hex C)</td> </tr> </tbody> </table> <p>The Entity number and BDT number are determined by AMARC from the Channel Table (form 0300) entry for the channel over which the data were transmitted.</p>	BCD CHARS	MEANING	1	0 (padding)	2-3	Entity number	4	BDT number	5	Recorder number	6-7	CII	8	Sign (hex C)
BCD CHARS	MEANING																		
1	0 (padding)																		
2-3	Entity number																		
4	BDT number																		
5	Recorder number																		
6-7	CII																		
8	Sign (hex C)																		

* The CCIs 6 and 8 also affect the **WATS Indicator** data field. The AMARC determines whether a WATS AFR call is a full business day or a measured time call from the CCI Characterization Table (form 0222) for the entity.

† If office has been modified.

‡ The COI tens digit and the COI units digit (P2, B digit) are expanded to a calling NPA and a calling NXX, using the COI Translation Table (form 0202) and the Calling NPA Table (form 0203) for the entity.

4.15 The following list identifies special AMARC/BDT formatting conditions:

- (a) **Trunk Network Number Data Field:**
The **Trunk Network Number** data field appears in all BDT call records.
- (b) **Single Time Line Call:** This type of call is identified by a value of 3 for BCD character 1 in the **Timing Indicator** data field.
- (c) **Timed Released Disconnect Call:** This type of call is identified by a value of 1 for BCD character 1 in the **Timing Indicator** data field.
- (d) **Attempt (Unanswered Call) Recording:**
The following data fields identify an unanswered call (an attempt) recorded during a Network Completion Study:
 - (1) **Connect Date** and **Connect Time** report the time of the first initial entry received for a trunk.
 - (2) **Elapsed Time** equals 0.
 - (3) **Circuit Date** and **Circuit Time** report the time the next initial entry seized the trunk.
 - (4) **Study Indicator** has value of 2 for second BCD character.
- (e) **IDDD Call:** The overseas number is right justified within the **Terminating NPA** and **Terminating Number** data fields.
- (f) **Fraud:** A fraud indication is not provided with No. 1A AMARC, Generic 3 and later.

5. DETERMINATION OF CALLING TELEPHONE NUMBER

GENERAL

5.01 The calling telephone number is transmitted to the AMARC as a 2-digit calling office index (COI) and a 4-digit line number. These data are translated into a call format treatment type, NPA, and 7-digit telephone number. The call format treatment type information is used by the AMARC in determining whether special handling is needed for this call, as explained in Part 7 of this section.

NPD TABLES USED FOR THIS TRANSLATION

5.02 The following NPD tables are used for this translation. The NPD form on which data for

each table are compiled by the telephone company is specified in parentheses following the table name.

- (a) **Channel Table (0300):** This table specifies whether or not the channel is equipped and whether or not it is equipped as a dial backup. For channels that are not dial backup channels, this table identifies the entity to which it is assigned and provides the information needed to establish a backup channel in the event the channel would be out of service. The table contains the following data:
 - Entity number
 - Local channel number
 - Type of dial backup channel required
 - Number of digits in dial sequence
 - BDT number and encoder number
 - Dial sequence.
- (b) **BDT Block Table (0200):** This table associates each recorder port of each BDT serving an entity with a Calling Office Index (COI) Translation Table. The BDT block table contains the following data:
 - Recorder port
 - COI Translation Table number.
- (c) **COI Translation Table (0202):** This table enables the AMARC to translate the COI received to calling number information. This table contains the following data:
 - COI
 - Calling NXX
 - Calling NPA index
 - Call format treatment type
 - Special COI flag (this flag is set by AMARC as noted in paragraph 5.08).
- (d) **Special COI Translation Table (0209):**
This table enables the AMARC to translate

the COI received for special services to calling number information. This table contains the following data:

- COI
- Special calling NXX
- Special service type.

(e) **Calling NPA Table (0203):** This table associates an index with each calling NPA of an entity. Up to ten NPAs may be defined for a BDT entity. This form contains the calling NPA index and calling NPA.

TRANSLATION OF CALLING TELEPHONE NUMBER DATA

5.03 Using the channel number as a pointer, the AMARC determines from the Channel Table which BDT serving the entity is assigned to the channel that transmitted the billing data. The local channel number contained in the Channel Table parameters for an individual channel is a combination of the BDT number and encoder number.

5.04 The billing data include the number of the recorder port which transmitted the data. Using the BDT number and recorder port number as a pointer, the AMARC next indexes the entity BDT Block Table. The BDT Block Table specifies the COI Translation Table Index for each BDT recorder port. The index directs the AMARC to the COI Translation Table which must be used to translate the COIs transmitted by that recorder port.

5.05 Using the COI Translation Table Index as a pointer, AMARC generates a pointer to the appropriate COI Translation Table in the entity COI Block Table. The COI Translation Table provides the calling central office code (COC) or number exchange (NXX) to be used for each COI. In addition, there are three other COI Translation Table fields associated with a COI that may affect the calling telephone number translation: Call Format Treatment Type, Calling NPA Index, and Special COI.

5.06 The value of the Call Format Treatment Type for a COI may be any of the following:

- (a) **Type 0:** This treatment type applies when no special treatment is needed for this COI.
- (b) **Type 1:** This treatment applies when a COI is dedicated to wide area telephone service (WATS).

(c) **Type 2:** This treatment applies when a COI is dedicated to dial teletypewriter exchange (DTWX).

(d) **Type 4:** This treatment applies when a COI is used for, but not necessarily dedicated to, left-shift CCSA (common control switching arrangement) calls.

5.07 For each COI, a special COI flag identifies whether there is a special COC translation for that COI. The special translation for a COI is located in a group of Special COI Translation Tables. Each special COC is dedicated to a special class of service: WATS, DTWX, or CCSA. A special COC translation is used only when the call type determined for a call on which the associated COI was received corresponds to the special class of service for that COC.

5.08 The special COI flag in a COI Translation Table does not correspond to a form 0202 entry. This flag is set by AMARC when form 0209 data are entered into a Special COI Translation Table, through the input message **RC ENT SPCOC**.

5.09 For calls on which the call format treatment type is 0, 1, or 2, if the call type determined for the call is WATS (007, 030, 068), DTWX (020), or CCSA sampling (021), AMARC checks whether there is a special COC translation for WATS, DTWX, or CCSA. If there is a special COC translation for the corresponding class of service, that calling NXX is used instead of the calling NXX specified for the COI in the COI Translation Table. This translation is not performed, however, for a left-shift CCSA call. If there is no special COC, or the call is left-shift CCSA, the calling NXX from the COI Translation Table is used to form the calling number.

5.10 If the call format treatment type is 4, the AMARC marks the call as left-shift CCSA. If the call type determined later for the call is CCSA sampling (021), the calling NXX is formed by left shifting the calling line number transmitted on the call. If the call type is not CCSA sampling, the calling NXX specified for the COI in the COI Translation Table is used to form the calling number.

5.11 When left-shifting is performed, the thousands, hundreds, and tens digits of the calling line number become the calling NXX. The units digit becomes the modified thousands digit of the calling line number. The hundreds, tens, and units digits of

the calling line numbers are filled with zeros. This left-shifted number is used in the **Originating Number** data field of the call record.

5.12 The calling telephone number determination actually is not performed by AMARC until after the call type that applies to a particular call has been determined. Part 7 provides an overview of call record formatting, including the determination of a calling telephone number.♦

5.13 Using the calling NPA index as a pointer, the AMARC consults the Calling NPA Table for the entity and translates the index into the calling NPA. Translation of the calling number is complete.

6. ♦DETERMINATION OF CALLED NPA

6.01 When the called number is required for a call record, AMARC always records it as a 10-digit number. When the BDT transmits a 10-digit called number, AMARC records the first three digits in the **Terminating NPA** data field and the remaining seven digits in the **Terminating Number** data field. For calls on which the BDT transmits seven digits, AMARC must determine the called NPA.♦

6.02 With BDT operation, as with paper tape operation, a 1-digit compressed code is transmitted on some calls instead of a 3-digit called NPA. The AMARC translates the compressed code received on a call to a 3-digit NPA or code used in place of an NPA before recording the call details.

6.03 This translation is accomplished through the Called NPA Table for an entity. The NPD form 0204 contains data for this table. This table defines up to ten compressed codes for an entity. The NPAs that are not frequently called by customers in an entity are not represented by a compressed code but are transmitted as three digits.

6.04 ♦On a 7-digit call, the BDT transmits the dialed seven digits without an NPA. The AMARC then uses the translation for compressed called NPA 0, as specified in the Called NPA Table for the entity, as the NPA for the call. Typically, the home NPA (HNPA) has been specified by the telephone company as the translation for compressed called NPA 0. The call record for a 7-digit call shows a value of 1 in the **Overseas Indicator** data field. This value indicates that the NPA contained in the **Terminating NPA** data field was not dialed.♦

7. ♦OVERVIEW OF CALL RECORD FORMATTING♦

GENERAL

7.01 The next update of Comptroller's Letter M284A will define the call details that are to be included in call records for various call types. It will also specify the format of the call record for each call type. Every call record formatted by any automatic recording system must conform to a call format defined in the comptroller's letter. The AMARC determines the appropriate call type for each BDT call and formats accordingly, conforming to the comptroller's letter.

NPD TABLES AND FORMS USED FOR DETERMINING THE CALL TYPE

7.02 This translation uses the following NPD tables. ♦The NPD Form on which data for each table are compiled by the telephone company is specified in parentheses following the table name.♦

(a) **AMARC Identification Table (NPD Form 0100)**: This table contains the data which uniquely identify a particular No. 1A AMARC and describe the general types of billing data which will be transmitted by the remote offices. This table contains the following data:

- (1) Input entry format
- (2) Detailed billing option.

(b) **Special MBI Table (Form 0210)**: This table defines any special MBI/call type associations that are used locally.

AMA CALL RECORD FORMATS

7.03 The AMARC formats a BDT call as one of the following call type call codes:

- 001—Detailed Message Rate (MR), Timed
- 002—Message Rate (MR), Timed
- 006—Station Paid
- 007—WATS, Station Billing Number
- 009—Directory Assistance (411)
- 020—DTWX

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- 021—CCSA
- 030—WATS AFR
- 033—Directory Assistance (555-XXXX for Generic 3 or 555-1212 for Generic 4)
- 068—WATS, Billing Number.

7.04 For each call type call code, there are two structure code options: one for answered calls and one for unanswered calls during a network completion study. Table C lists the structure codes for the call type call codes.

TABLE C

CALL TYPE	CALL TYPE CALL CODE	STRUCTURE CODE	OPTION
CCSA	021	10001 10002	If the call is answered. If the call is unanswered while ALW ATT is in effect for the AMARC (Network Completion Study).
Detailed Message Rate (MR), Timed	001	10020 10021	If the call is answered. If the call is unanswered while ALW ATT is in effect for the AMARC (Network Completion Study).
Directory Assistance (411)	009	10028 10068	If the call is answered. If the call is unanswered while ALW ATT is in effect for the AMARC (Network Completion Study).
DTWX	020	10001 10002	If the call is answered. If the call is unanswered while ALW ATT is in effect for the AMARC (Network Completion Study).
Message Rate (MR), Timed	002	10015 10016	If the call is answered. If the call is unanswered while ALW ATT is in effect for the AMARC (Network Completion Study).
Station Paid	006	10001 10002	If the call is answered. If the call is unanswered while ALW ATT is in effect for the AMARC (Network Completion Study).
WATS	068	10077 10078	If the call is answered. If the call is unanswered while ALW ATT is in effect for the AMARC (Network Completion Study).
WATS AFR	030	10020 10021	If the call is answered. If the call is unanswered while ALW ATT is in effect for the AMARC (Network Completion Study).
Directory Assistance (555-XXXX for Generic 3 or 555-1212 for Generic 4)	033	10028 10068	If the call is answered. If the call is unanswered while ALW ATT is in effect for the AMARC (Network Completion Study).
WATS Station Billing Number	007	10020 10021	If the call is answered. If the call is unanswered while ALW ATT is in effect for the AMARC (Network Completion Study).

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7.05 ♦Table D indicates by a check the data fields that may be included in the call record for each structure code. Each data field is described in subsequent paragraphs.

TABLE D

DATA FIELDS AA OR BB	CALL TYPE CODE 001 DETAILED MESSAGE RATE (MR), TIMED		CALL TYPE CODE 002 MESSAGE RATE (MR), TIMED		CALL TYPE CODE 006 STATION PAID		CALL TYPE CODE 007 WATS, STATION BILLING NUMBER		CALL TYPE CODE 009 DIRECTORY ASSISTANCE	
	10020	10021	10015	10016	10001	10002	10020	10021	10028	10068
Call Type Code	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Sensor Type	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Sensor Identification	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Recording Office Type	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Recording Office Identification	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Connect Date	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Timing Indicator	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Study Indicator	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Answer	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Service Observed Traffic Sampled	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Operator Action	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Service Feature	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Originating NPA	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Originating Number	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Overseas Indicator	✓	✓			✓	✓	✓	✓		
Terminating NPA	✓	✓			✓	✓	✓	✓		
Terminating Number	✓	✓			✓	✓	✓	✓		
Connect Time	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Elapsed Time	✓	✓	✓	✓	✓	✓	✓	✓		
Trunk Network Number	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Circuit Time		✓		✓		✓		✓		✓
Call Status										
WATS Indicator	✓	✓	✓	✓			✓	✓		
WATS Band or Type	✓	✓	✓	✓			✓	✓		
WATS Administration										

TABLE D (Contd)

DATA FIELDS AA OR BB	CALL TYPE CODE 020 DTWX		CALL TYPE CODE 021 CCSA		CALL TYPE CODE 030 WATS AFR		CALL TYPE CODE 033 DIRECTORY ASSISTANCE		CALL TYPE CODE 068 WATS BILLING NUMBER	
	10001	10002	10001	10002	10020	10021	10028	10068	10077	10078
STRUCTURE CODE										
Call Type Code	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Sensor Type	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Sensor Identification	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Recording Office Type	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Recording Office Identification	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Connect Date	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Timing Indicator	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Study Indicator	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Answer	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Service Observed Traffic Sampled	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Operator Action	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Service Feature	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Originating NPA	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Originating Number	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Overseas Indicator	✓	✓	✓	✓	✓	✓			✓	✓
Terminating NPA	✓	✓	✓	✓	✓	✓			✓	✓
Terminating Number	✓	✓	✓	✓	✓	✓			✓	✓
Connect Time	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Elapsed Time	✓	✓	✓	✓	✓	✓			✓	✓
Trunk Network Number	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Circuit Time		✓		✓		✓		✓		✓
Call Status										
WATS Indicator					✓	✓			✓	✓
WATS Band or Type					✓	✓				
WATS Administration										

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7.06 AA or AB: Value AA indicates start of record. Value AB indicates start of record and that the "SIGN" value for one of the data fields was a hexadecimal D. Hexadecimal D indicates that one of the digits received from the BDT for the data field was mutilated or was an NCD (noncheck dummy).

Note: ♦The AMARC converts the mutilated digit to a hexadecimal F before recording. Only the mutilated digit is converted.♦

7.07 For a BDT, a hexadecimal D in the "SIGN" position for any of the following data fields results in an AB value for the start of record entry.

- (a) Originating number
- (b) Terminating number.

7.08 A hexadecimal C in the "SIGN" position for a data field indicates that all data for the field are valid.

7.09 Structure Code: The structure codes define the optional data fields for a call type call code that are included in a particular call record. The structure codes are defined in Table E.

TABLE E

BCD CHARS	STRUCTURE CODE	MEANING
1-5	10001, 10015, 10020, 10028, or 10077	The call is answered.
	10002, 10016, 10021, 10068, or 10078	The call is unanswered and recorded while ALW ATT is in effect for the AMARC.
6	SIGN (hex C)	

7.10 Call Type Code: This field defines the type format used for the call record (see Table F).

TABLE F

BCD CHARS	CALL CODE	MEANING
1-3	001	Detailed Message Rate, Timed, MBI
	002	Message Rate, Timed, MBI
	006	Station Paid
	007	WATS, Station Billing Number
	009	Directory Assistance (411)
	020	DTWX
	021	CCSA Sampling
	030	WATS AFR
	033	Directory Assistance (555-XXXX for Generic 3, or 555-1212 for Generic 4)
	068	WATS, Billing Number
4	SIGN (hex C)	

7.11 Sensor Type: This field identifies the type sensor from which the call originated (see Table G).

TABLE G

BCD CHARS	SENSOR TYPE	SENSOR
1-3	017	BDT
4	SIGN (hex C)	

7.12 Sensor Identification: This field contains the 6-digit code that identifies the sensor entity (see Table H).

TABLE H

BCD CHARS	SENSOR IDENTIFICATION
1	Padding (0)
2-7	Identifying code
8	SIGN (hex C)

7.13 Recording Office Type: This field identifies the type system that recorded the call record (see Table I).

TABLE I

BCD CHARS	RECORDING OFFICE TYPE	RECORDING OFFICE
1-3	018	No. 1A AMARC
4	SIGN (hex C)	

7.14 Recording Office Identification: For No. 1A AMARC, this field specifies the 6-digit identification number assigned by the telephone company to the recording AMARC. This number is included on the label that is placed on the magnetic tape before it is sent to the accounting center (see Table J).

TABLE J

BCD CHARS	RECORDING OFFICE IDENTIFICATION
1	Padding (0)
2-7	Identifying code
8	SIGN (hex C)

7.15 Connect Date: This field identifies the last digit of the year, two digits for the month, and two digits for the day (see Table K).

TABLE K

BCD CHARS	MEANING
1	Last digit of year
2-3	Month
4-5	Day
6	SIGN (hex C)

7.16 Timing Indicator: This field identifies special timing conditions applied to the call (see Table L).

TABLE L

BCD CHARS	MEANING
1	0 = Not used 1 = Timed release disconnect 3 = Single time line
2	0 = Not used 4 = UMCD (not at disconnect, no short supervisory transition)
3	0 = Not used 4 = Old type long duration call
4	0 = Not used 1 = Charge guard (Generic 4 only)
5	0 = Not used
6	SIGN (hex C)

7.17 Study Indicator: This field identifies various study conditions that applied to the call (see Table M).

TABLE M

BCD CHARS	MEANING
1	0 = Unused
2	0 = Unused 2 = Network Completion
3	0 = Unused
4	0 = Unused 1 = Test call
5	0 = Unused
6	0 = Unused
7	0 = Unused
8	SIGN (hex C)

TABLE O

BCD CHARS	MEANING
1	0 = Not service observed, not traffic sampled 1 = Service observed, not traffic sampled 2 = Not service observed, traffic sampled 3 = Service observed, traffic sampled
2	SIGN (hex C)

7.18 Answer: ♦ A value of 0 indicates that the call was answered and was greater than the minimum chargeable duration (MCD) (2 seconds). A value of 1 indicates either that the call was unanswered or that the call was answered but is less than MCD (see Table N).♦

7.20 ♦ Operator Action: This field defines conditions by which the called and calling numbers were obtained. For BDT, all values of this field indicate "not operator dialed." This refers to the fact that the called number was dialed by the customer and not by an operator. Each value of the field represents a different condition regarding operator identification or automatic number identification of the calling number (see Table P).♦

TABLE N

BCD CHARS	MEANING
1	0 = Answer 1 = Unanswered
2	SIGN (hex C)

TABLE P

BCD CHARS	MEANING
1	0 = Not operator dialed, not operator identified (ONI) 2 = Not operator dialed, operator identified (ANI) 4 = Not operator dialed, operator identified because of a number identification trouble (NIT) 6 = Not operator dialed, operator identified because of an identification failure (IF)
2	SIGN (hex C)

7.19 Service Observed, Traffic Sampled: This field identifies service observing and traffic sampling conditions that applied to the call (see Table O).

7.21 **Service Feature:** This field identifies special services that apply to the call (see Table Q).

TABLE Q

BCD CHARS	MEANING
1	Padding (0)
2-3	00 = Other 01 = Coin 02 = Hotel/motel 03 = PICTUREPHONE visual telephone service 04 = Coin PICTUREPHONE visual telephone service 05 = Hotel/motel PICTUREPHONE visual telephone service 06 = WATS service 07 = DATAPHONE 50 data communications service 08 = WATS service
4	SIGN (hex C)

7.22 **Originating NPA:** This field identifies the NPA of the line that originated the call (see Table R).

TABLE R

BCD CHARS	MEANING
1-3	NPA
4	SIGN (hex C)

7.23 **Originating Number:** This field identifies the 7-digit telephone number of the line that originated the call (see Table S).

TABLE S

BCD CHARS	MEANING
1-3	NXX
4-7	4-digit number
8	SIGN (hex C)

7.24 **Overseas Indicator:** For an overseas call, this field identifies the number of digits dialed. For a nonoverseas call, this field indicates whether the NPA recorded in the **Terminating NPA** data field was dialed. A value of 1 means that the **Terminating NPA** field was filled by AMARC with the translation for compressed called NPA code 0, as specified in the Called NPA Table (NPD form 0204) for the entity. This field is filled by AMARC on all 7-digit calls. See Table T for definitions of the values in this field.

TABLE T

BCD CHARS	MEANING
1	0 = Not an overseas call (NPA dialed) 1 = Not an overseas call (NPA not dialed) 3 = 7-digit overseas number 4 = 8-digit overseas number 5 = 9-digit overseas number 6 = 10-digit overseas number 7 = 11-digit overseas number
2	SIGN (hex C)

7.25 Terminating NPA: This field either provides additional overseas indicators or identifies the NPA in which the call terminated (see Table U).

TABLE U

BCD CHARS	MEANING
1-2	Overseas expander positions*
3-5	NPA
6	SIGN (hex C)

* For BDT, always a zero since a maximum of 11 digits can be dialed on an IDDD call.

7.26 Terminating Number: This field identifies the 7-digit number to which the call terminated (see Table V).

TABLE V

BCD CHARS	MEANING
1-3	NXX
4-7	4-digit number
8	SIGN (hex C)

7.27 Connect Time: This field identifies the hours, minutes, seconds, and tenths of seconds at which answer occurred (see Table W).

TABLE W

BCD CHARS	MEANING
1-2	Hours
3-4	Minutes
5-6	Seconds
7	Tenths of seconds
8	SIGN (hex C)

7.28 Elapsed Time: This field identifies the duration of the call in minutes, seconds, and tenths of seconds (see Table X).♦

TABLE X

BCD CHARS	MEANING
1	Padding (0)
2-6	Minutes
7-8	Seconds
9	Tenths of seconds
10	SIGN (hex C)

Note: On attempts, zeros are recorded for minutes, seconds, and tenths of seconds.

7.29 ♦Circuit Date: This field identifies the last digit of the year, two digits for the month, and two digits for the day (see Table Y).♦

TABLE YA

BCD CHARS	MEANING
1	Last digit of year
2-3	Month
4-5	Day
6	SIGN (hex C)

7.30 Circuit Time: This field identifies the circuit release time for unanswered calls in hours, minutes, seconds, and tenths of seconds (see Table Z).

TABLE Z

BCD CHARS	MEANING
1-2	Hours
3-4	Minutes
5-6	Seconds
7	Tenths of seconds
8	SIGN (hex C)

7.31 Trunk Network Number (TNN): This field identifies the TNN which consists of entity, BDT, recorder, and CII numbers (see Table AA).

TABLE AA

BCD CHARS	MEANING
1	Padding (0)
2-3	Entity number
4	BDT number
5	Recorder number
6-7	CII
8	SIGN (hex C)

7.32 WATS Indicator: This field indicates whether the WATS call is measured time or full business day service (see Table BB).

TABLE BB

BCD CHARS	MEANING
1	0 = MR call 1 = Full business day 2 = Measured time
2	SIGN (hex C)

7.33 WATS Band or Type: This field indicates the WATS band or MBI (see Table CC).

TABLE CC

BCD CHARS	MEANING
1-3	WATS band or type indicator (MBI)
4	SIGN (hex C)

CALL FORMAT TRANSLATION

7.34 Figure 1 illustrates how the AMARC determines the call format for a particular 4- or 5-line initial entry BDT call. The call formatting translation begins with the AMARC determining whether the initial message is a 2-, 4-, or 5-line entry.

A. 2-Line Initial Entry

7.35 If it is a 2-line initial entry, the AMARC looks at the MBI (see Note) transmitted on the call.

Note: This MBI is the MBI normally transmitted on a call with paper tape operation.

7.36 If the MBI is 16, the call is a directory assistance call, and the call is formatted as call type 009.

7.37 For all other MBI values, the call is formatted as call type 002, message rate timed, with the literal MBI as received by the BDT.

B. 4- or 5-Line Initial Entry

7.38 When the billing data contains a 4- or 5-line initial entry, the AMARC first looks at the CCI (see Note) digit transmitted on the call.

Note: The CCI (call class index) is normally transmitted on calls with paper tape operation.

CCI Digit 6 or 8

7.39 If the CCI digit is 6 or 8, signifying a WATS AFR (automatic flexible routing) call, the call type format used is 030, WATS AFR.

7.40 From the CCI Characterization Table for the entity, AMARC determines whether the CCI digit 6 or 8 transmitted on the call identifies a full business day or a measured time WATS customer. This information is recorded in the **WATS Indicator** data field of the call record.

7.41 The literal MBI, as received from the BDT, is recorded in the **WATS Band or Type** data field of the call record.

7.42 For call type 030, to determine the calling number, AMARC first checks the appropriate

COI Translation Table to learn whether the special COI flag is set for the COI transmitted on the call. If the flag is set, AMARC accesses the appropriate Special COI Translation Table to obtain the special COC to be used for the WATS class of service. If a special COC is provided, it is used to form the number entered into the **Originating Number** data field. If a special COC for WATS is not provided, the calling NXX specified for the transmitted COI in the COI Translation Table is used to form the **Originating Number**.

CCT Digit Not 6 or 8

7.43 If the CCI digit is not 6 or 8, AMARC looks at the MBI transmitted on the call. If the MBI is 00, the call is marked as a test call. A value of 1 will be shown for BCD character 4 of the **Study Indicator** data field of the call record.

7.44 For MBI 00 as well as all other MBI values, AMARC next checks the COI Translation Table entry for the COI transmitted to determine the call format treatment required for the call.

7.45 **Call Format Treatment 0:** When the call format treatment is 0, the call type is determined by the MBI transmitted on the call.

7.46 The AMARC accesses the Special MBI Table for the entity, using the MBI transmitted as an index. This table defines any nonstandard MBI/call type associations used within the entity. An entry in this table specifies an MBI value (0 through 29) and the call type that is to be used for formatting a call on which that MBI is transmitted. Table DD lists the call types that may be associated with an MBI through the use of the Special MBI Table. For each call type, Table DD provides the code that is used on NPD form 0210 to request that call type. [See Special Considerations for Preparation of NPD Form 0210(Special MBI Table)(paragraph 7.62)for instructions on utilizing this table.]

7.47 The Special MBI Table could, for example, specify that within the entity associated with the table, MBI 02 identifies a WATS billing number (call type 068) call for a customer with measured time WATS service. With the standard use of MBIs, this MBI would produce a call type 001 (detailed message rate, MBI) call format.

7.48 If the MBI transmitted on the call is listed in the Special MBI Table for the entity, the call

TABLE DD

CALL TYPE REQUIRED	EXPLANATION	FORM 0210 CODE
006	Station Paid Toll	01
007	WATS Station Billing Number, Full Business Day	07
020	DTWX	08
021	CCSA Sampling	09
068	WATS Billing Number, Full Business Day	11
002	Message Rate Timed	16
007	WATS Station Billing Number, Measured Time	17
068	WATS Billing Number, Measured Time	21
001	Detailed Message Rate, Timed	22
030	WATS AFR	25
009	Directory Assistance (411)	30*
033	Directory Assistance (555-XXXX, Generic 3 or 555-1212, Generic 4)	30*

* When code 30 is specified for an MBI, the call type (009 or 033) is determined by the called number. Call type 009 is used on 411 calls; call type 033 is used on 555-XXXX calls, if Generic 3, and on 555-1212 calls, if Generic 4.

type is determined by the table entry. If the MBI is associated with code 30, the called digits are also examined to determine the call type. If the called digits are 411, call type 009 is used. With Generic 3, if the called digits are 555-XXXX, call type 033 is used. With Generic 4, if the called digits are 555-1212, call type 033 is used.

7.49 If the MBI transmitted on the call is not listed in the Special MBI Table, AMARC uses a table of standard MBI/call type associations to determine the call type. Table EE shows these associations.

7.50 Once the call type has been determined based on the MBI translation, the AMARC determines the calling number to be entered in the call record.

7.51 If the call type is any of the following, AMARC accesses the appropriate COI Translation Table and uses the calling NXX entry for the transmitted COI to form the calling number:

- 001—Detailed Message Rate, Timed, MBI
- 002—Message Rate, Timed, MBI

TABLE EE

MBI	CALL TYPE	EXPLANATION
00	006	Station Paid call type with value 1 (test call) for BCD character 4 of Study Indicator data field
01-07	001	Detailed Message Rate, Timed with literal MBI in WATS Band Or Type data field
08	020	DTWX
09	006	Station Paid
10	021	CCSA Sampling
11-18	001	Detailed Message Rate, Timed with literal MBI in WATS Band Or Type data field
19	006	Station Paid
20-29	001	Detailed Message Rate, Timed with literal MBI in WATS Band Or Type data field

- 006—Station Paid
- 009—Directory Assistance (411)
- 033—Directory Assistance (555-XXXX Generic 3, or 555-1212 Generic 4).

7.52 If the call type determined for the call is any of the following, AMARC determines whether a special COC is provided for the corresponding class of service (WATS, TWX, or CCSA):

- 007—WATS, Station Billing Number
- 020—DTWX
- 021—CCSA Sampling (except left-shift CCSA)
- 030—WATS AFR
- 068—WATS Billing Number

7.53 If a special COC translation is provided, it is used to form the calling number. If a special COC translation is not provided, the calling NXX for

the transmitted COI as specified in the COI Translation Table is used.

7.54 Call type 021 requires special treatment for a call marked as left-shift CCSA. A call is marked as left-shift CCSA only when the call format treatment is 4.

7.55 For call types 001, 002, 007, and 030, the literal MBI, as received from the BDT, is recorded in the **WATS Band or Type** data field of the call record. For call type 030, the value for the **WATS Indicator** data field is determined by the CCI value.

7.56 The Special MBI Table entry for an MBI used for call type 007 or 068 includes specification of whether the calling customer has full business day or measured time WATS service. The type of WATS service is identified in the **WATS Indicator** data field of the call record.

7.57 Call Format Treatment 1: When the call format treatment specified for the COI is 1, the call type is 068, WATS, billing number. The AMARC determines whether a special COC is provided for WATS and determines the **Originating**

Number data field entry. The **WATS Indicator** data field value is 1, signifying full business day service.

7.58 Call Format Treatment 2: When the call format treatment specified for the COI is 2, the call type is 020, DTWX. The AMARC determines whether a special COC is provided for DTWX and determines the **Originating Number** data field entry.

7.59 Call Format Treatment 4: When the call format treatment is 4, the call is marked as left-shift CCSA. The call type is determined by the MBI transmitted on the call, as explained for call format treatment 0. Except for call type 021, CCSA sampling, the values for the various data fields are explained for call format treatment 0.

7.60 If the call type is 021, AMARC forms the calling number by "left shifting" the calling line number received from the BDT and filling the hundreds, tens, and units digits of the modified calling number with zeros.

SPECIAL CONSIDERATIONS FOR PREPARATION OF NPD FORM 0210 (SPECIAL MBI TABLE)

7.61 Standard MBI/call type associations, as defined in Table EE, provide the telephone company with only four call type formats:

- Detailed Message Rate, Timed, MBI (call Type 001)
- Station Paid (006)
- DTWX (020)
- CCSA Sampling (021).

7.62 Through the use of nonstandard MBIs, AMARC can provide these four call type formats plus six more:

- Message Rate, Timed, MBI (002)
- WATS Station Billing Number (007)
- Directory Assistance [009 (411 calls)]
- WATS AFR (030)
- Directory Assistance [033 (555-XXXX calls, if Generic 3, or 555-1212 calls, if Generic 4)]
- WATS Billing Number (068).

7.63 While the use of nonstandard MBIs is not new to No. 5 Crossbar, the use of such an MBI to specify the call format to be used for a call record, as provided by BDT/AMARC, is new. In order to use nonstandard MBIs to define call formats, appropriate wiring changes must be made in the No. 5 Crossbar office and an NPD form 0210 must be prepared.

7.64 An NPD Form 0210 allows the telephone company to define nonstandard MBI/call type associations. On this form the telephone company lists all MBIs that are not used according to the standard MBI/call type associations defined in Table EE. For each of these nonstandard MBIs, the telephone company specifies a code that identifies the call type to be used by AMARC when formatting a call on which the MBI is transmitted. The data on form 0210 are entered into the Special MBI Table for the entity.

7.65 Table DD lists the call types that AMARC can provide through the use of nonstandard MBIs. The code that must be specified on form 0210 to associate that call type with a particular MBI is identified on Table DD.

7.66 For call types 068 (WATS, billing number) and 007 (WATS, station number billing), two codes each are listed in Table DD. The two codes for each call type allow the use of two MBIs for each of those call types: one for full business day WATS service and one for measured time.

7.67 Code 30 produces a directory assistance format, either call type 009 or 033, depending on the number called. If the called digits are 411, AMARC formats the call as call type 009. Call type 033 is used for 555-XXXX calls, if Generic 3, or for 555-1212 calls, if Generic 4.

7.68 In addition to the use of nonstandard MBIs to request a particular call type, AMARC provides for the association of a COI with the DTWX call type (020) or the WATS billing number call type (068). Such an association is made by the telephone company through the call format treatment type entry on NPD form 0202 (COI Translation Table) for the particular COI. When call format treatment 1 (call type 20) or 2 (call type 068) is encountered by the AMARC when performing the billing data translations for a call, the special MBI translation is not performed.¶

8. ADMINISTRATIVE CONSIDERATIONS FOR GROWTH, ADDITION, OR REMOVAL OF BDT ENTITIES

affect NPD. Table FF outlines the consequences that result from these changes. The following paragraphs explain the layout of the table.

FORMS REQUIRED FOR GROWTH, ADDITION, OR REMOVAL

8.01 Growth in an existing BDT entity or the addition of a new BDT entity to an AMARC configuration may require reexamination of the capability of the AMARC to continue to serve the remote offices in its present configuration. Such changes may also

8.02 Change: This column lists the usual changes which may be made to an existing BDT entity.

8.03 NPD Forms: This column lists the NPD forms which may be affected by the change. For example, suppose an existing BDT entity estab-

TABLE FF

CHANGE	NPD FORMS	NOTES
CHANGES TO AN EXISTING BDT ENTITY		
Add BDT and associated channels	0200, 0202, 0300, 0302	
Add trunk	0302	
Remove trunk	0302	Will only affect Form 0302 if the trunk that was removed was the highest equipped trunk number (CII) for the recorder port. If this is not the situation, input message RMV TRK should be used to remove this CII from memory. If it is not removed, this unassigned CII will be reported daily with the message REPT CHL UNUSED TRUNKS .
Add new central office code	0200, 0202, 0203, 0209	This central office code might be a locally dialable call for some CDA entities served by the AMARC. If so, it may need to be listed in their MBI Tables (Forms 0208, 0210) and Digit Reconstruction Tables (Form 0207). In a multi-AMARC area, tables for CDA entities served by other AMARCs may be affected.
Change call type for a COI	0202	
Change called NPAs represented by compressed codes	0204	
ADDITION OF BDT ENTITY		
Add BDT entity to AMARC	0100	Revised form to include new BDT entity data.
	0105, 0300	Revised form to include new channel assignments and dial backup channels.

TABLE FF (Contd)

CHANGE	NPD FORMS	NOTES
ADDITION OF BDT ENTITY (Contd)		
Each recorder port of new BDT entity	0200	Required form to indicate each recorder port of new BDT entity.
New entity COIs	0202	Required form to indicate new entity COIs.
New calling NPAs	0203	Required form to indicate new calling NPAs.
Compressed NPAs	0204	Required form to indicate compressed NPAs.
New entity special COIs	0209	Required form to indicate new entity special COIs.
REMOVAL OF BDT ENTITY AND ASSOCIATED CHANNELS		
Remove BDT entity and associated channels.	Same forms as listed for addition of BDT entity.	

lished a new central office code (COC). Forms 0200, 0202, 0203, and 0209 may be affected.

8.04 Notes: This column contains any special considerations related to NPD that must be made as a result of the specified change.

CHANNEL ASSIGNMENTS FOR BDT ENTITIES

8.05 The BDT channels are equipped in pairs, each pair being composed of BDT channels on the same entity and BDT but equipped with encoders 0 and 1. Within this BDT pair (usually referred to as "brother" channels), the channels must be equipped sequentially. Brother channels may not be separated by any intervening channels, not even a dialup channel.

8.06 Any equipped channel may be equipped as a BDT channel provided at least one recorder has been equipped on the entity on which this particular channel is being equipped, and depending on whether the channel is being equipped with encoder 0 or 1.

8.07 If the channel is being equipped with encoder 0, the next lower-numbered channel must not

be a BDT equipped with encoder 0. Additionally, the next higher-numbered channel must be unequipped and the multiplexer on which this next channel resides must be equipped. This makes the next higher-numbered channel available for equipping as a brother channel.

8.08 If the channel is being equipped with encoder 1, the next lower-numbered channel must be equipped on the same entity and BDT but with encoder 0. Also the next higher-numbered channel must not be a BDT channel equipped with encoder 1.

8.09 Equipped BDT brother channels must be unequipped in reverse sequential order; the higher-numbered channel equipped with encoder 1 unequipped before the lower-numbered channel equipped with encoder 0. However, the lower-numbered channel with encoder 0 may be unequipped if its brother channel has not yet been equipped.

8.10 ♦For AMARC Generic 4, channel assignments for No. 2B ESS and No. 5 ESS entities must conform to an engineered plan. As a result, if an AMARC serves No. 2B ESS or No. 5 ESS entities, this assignment plan must be taken into consideration when assigning a channel to any entity. Instructions

SECTION 201-900-033

for form 0300 in Section 201-900-030 describe these channel assignment requirements.♦

8.11 The following two conditions must be satisfied before a nondialup channel may be equipped:

(a) The multiplexer on which the channel is being equipped must be equipped in the Multiplexer Table (via NPD form 0103).

(b) The entity for which the channel is being equipped must be marked as equipped in the Entity Table (via NPD form 0101).

8.12 The following two conditions must be satisfied before a nondialup channel may be unequipped:

(a) The channel must be marked as equipped in the Channel Table.

(b) The channel must not be equipped as a dialup in the Channel Table.

ENTITY ASSIGNMENTS FOR BDT ENTITIES

8.13 Any unequipped entity may be equipped for a BDT entity provided sufficient memory is available for the additional data required.

8.14 Any equipped entity may be unequipped provided no channels are equipped for the entity.

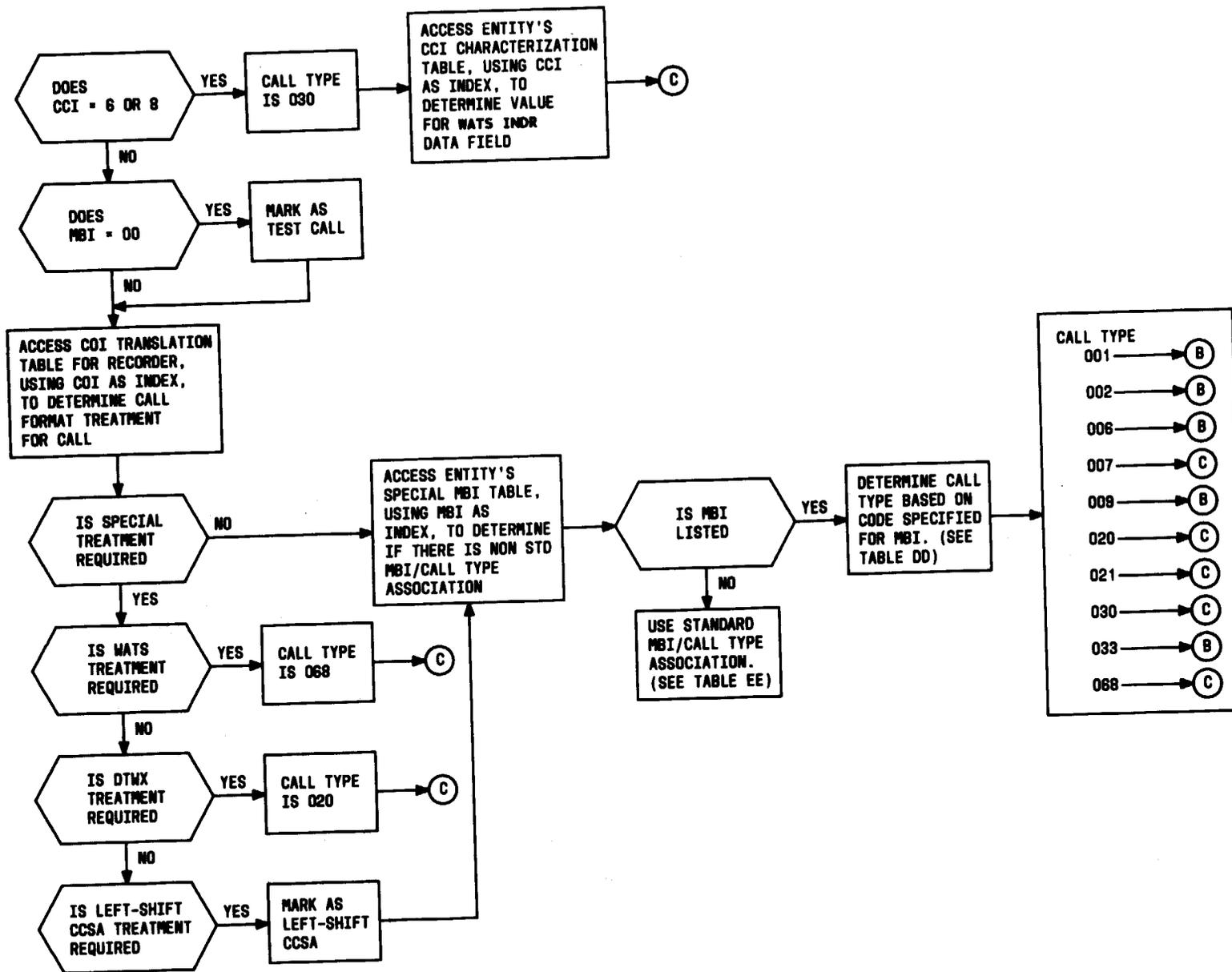


Fig. 1—Call Formatting Overview For A Call With 4- or 5-Line Initial Entry (Sheet 1 of 2) (7.34)

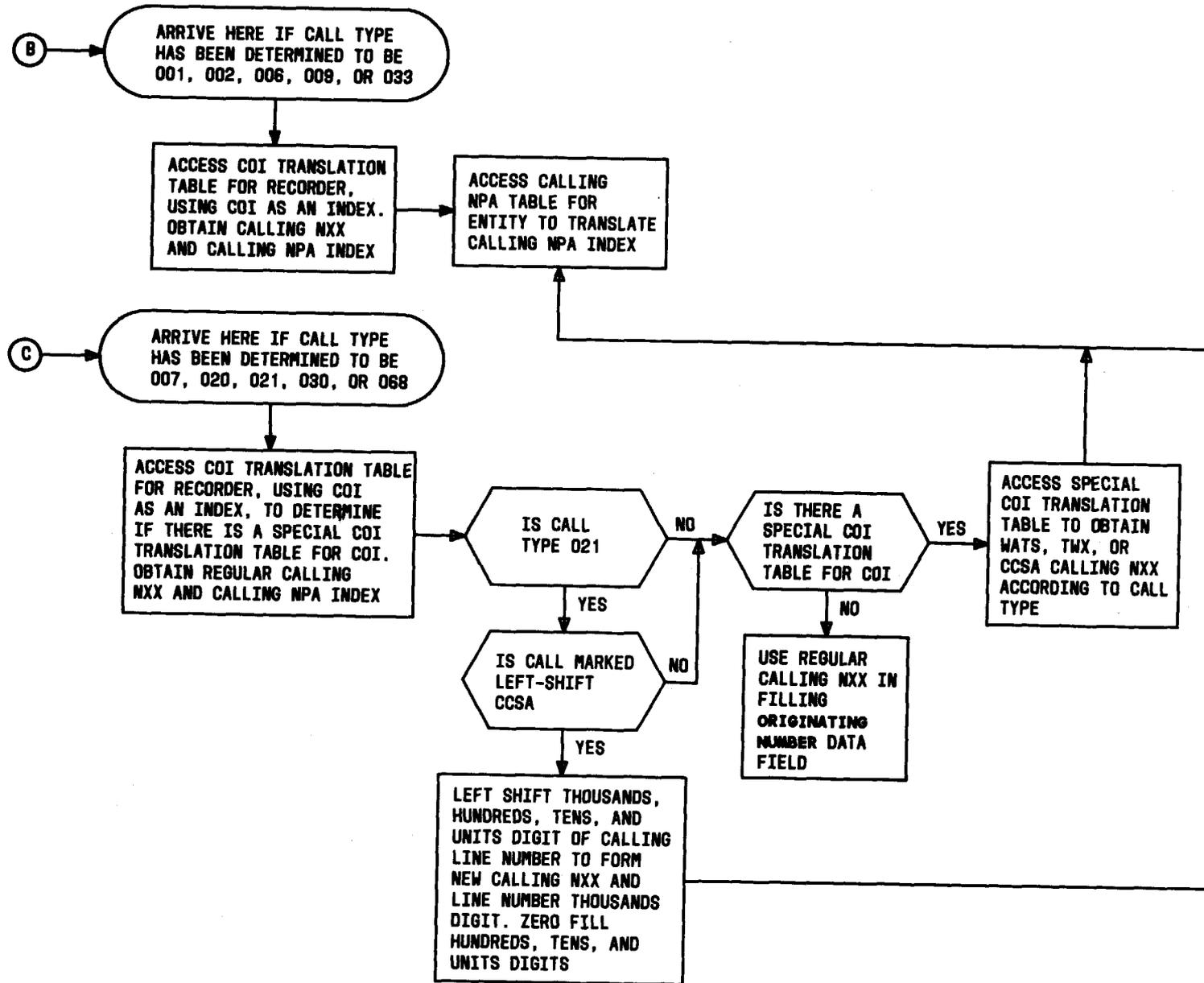


Fig. 1—Call Formatting Overview For A Call With 4- or 5-Line Initial Entry (Sheet 2 of 2)