297-2071-119

DMS-100 Family

North American DMS-100

Station Message Detail Recording Reference Guide

DMSCCM12 Standard 19.03 October 2000

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DMS-100 Family

North American DMS-100

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- modified value of range for record ID K in Chapter 1.

May 2000

DMSCCM12 Standard 19.02

- added a note to Chapter 1 in the section about the origination identification field.

October 1999

DMSCCM12 Standard 19.01

- modified the paragraph on disk recording facilities in Chapter 2
- modified the paragraph title Magnetic tape recording facilities to Magnetic tape or digital audio tape in Chapter 2.
- removed the paragraph on activating station-specific authorization codes (pre-BCS25) in Chapter 3.

May 1999

CCM11 Standard 18.01

- modified the version issue
- modified the Nortel Networks logo and confidentiality statement

May 1999

DMSCCM11 Standard 17.05

- modified "Identifying data tables affected by SMDR" to include a note about table datafill order in Chapter 3.
- modified table datafill order for activating SMDR at the switch in Chapter 3.

April 1999

DMSCCM10 Standard 17.04

- modified the Originating feature codes and Termination feature codes tables in Chapter 1 to include Code 11 (B) for Per Use Billing.

January 1999

DMSCCM10 Standard 17.03

- modified the AMADUMP HEX example for a D1-D4 call record in Chapter 4 to reflect variations between D1-D2 and D3-D4 call records. The D1-D2 call record example remains the same. The D3 and D4 call record is changed to reflect a 30-digit Called Number field.

October 1998

DMSCCM10 Standard 17.02

- modified references to Advanced Maintenance Guide
- removed parameter AMA_EQUIPPED from table OFCOPT, Chapter 3

October 1998

DMSCCM10 Standard 17.01

- expanded description of called party disconnect event for Japan

August 1998

DMSCCM09 Standard 16.05

- modified description of Warm restart entry adjustments

April 1998

DMSCCM09 Standard 16.04

- updated DF09 field descriptions

April 1998

DMSCCM09 Standard 16.03

- corrected the origination identification definition for ORIGTYPE 3

March 1998

DMSCCM09 Standard 16.02

- corrected the description of the Called Party Disconnect event
- added examples of SMDR records for a call that receives treatment
- added history for prior release

February 1998

DMSCCM09 Standard 16.01

- corrected the SMDR call record illustration for a call with an ICC extension record
- increased the C1C1 DE record size to 43 bytes
- corrected upper limit for parameter CRS_PRU_POOL3_SIZE

February 1998

DMSCCM09 Standard 15.03

- corrected office parameter provisioning values

February 1998

DMSCCM09 Standard 15.02

- added engineering and editing comments

January 1998

DMSCCM09 Preliminary 15.01

- added information relevant to the Station Message Detail Recording (SMDR) Per Use Billing feature (DF09 extension record) for the Meridian SL-100 (MSL-100) PBX

November 1997

DMSCCM08 Standard 14.01

- added clarification on D6 records and 131 calls
- added AU2343 feature work for ABSK market (extension records DF05, DF06, and DF07)

September 1996

DMSCCM06 Standard 13.02

- corrected the table of contents to include the index
- corrected the headers and footers to include the updated release level

September 1996

DMSCCM06 Standard 13.01

- added PERSONAL field to DE independent common carrier extension record
- added ACCIND field to DE independent common carrier extension record

March 1996

DMSCCM04 Standard 12.03

- added the following treatment codes to the "Treatment codes for ICC extension records" reference table in chapter 1:
  - 115 ESNF
  - 192 RFCS
  - 193 RFCD
  - 194 RFCE
  - 195 EROR
  - 196 ERTR
  - 197 ERTO
  - 199 ESNF
  - 201 Q33A
  - 202 Q33B

August 1995

DMSCCM04 Standard 12.02

- added International 15 Digit-Dialing for Business Services feature which increases the maximum number of digits from 12 to 15 for an international number:
  - increased the number of bytes for call records D3, D4 and D5 in the SMDR data group block and call block structure (non-emergency rotation) figure in chapter 1
  - increased the number of called digits from 12 to 18 and the number of digits outpulsed from 23 to 29 in the SMDR call and extension record format figure in chapter 1
  - increased the maximum number to 30 digits for record codes D3 and D4 in the Called number field subsection in chapter 1
  - increased the number of digits outpulsed and digits missing from 23 to 29 in the D5 extension record data fields table in chapter 1

  - — increased the number of digits outpulsed in the SMDR call record example in chapter 1
  - — increased the number of bytes in the D5 extension record byte structure figure in chapter 2
  - — updated the DF01 extension record byte structure figure in chapter 2
  - — increased the number of digits outpulsed to 29 in the AMADUMP HEX example for a D5 extension record figures in chapter 4
- updated the explanation of data field CLBKANS in the DE extension record fields table in chapter 1
- increased the number of bytes in the DE extension record byte structure figure in chapter 2
- updated the number of bytes for call extension records DF01, DF02, DF03 and DF04 in the SMDR data group block and call block structure (non-emergency rotation) figure in chapter 1
- updated or added descriptions for the following call extension records throughout chapters 1 and 3:
  - — DF01
  - — DF02
  - — DF03
  - — DF04
- added tables AUDPRGM, CFX, HUNTGRP, IBNSC, KSETFEAT, REPLCODE and RESFEAT to the Data tables for SMDR datafill table in chapter 3

June 1995

DMSCCM04 Standard 12.01

- added AJ1897, VPN Indicator in SMDR
  - — increased the value of information digit 1 from between 0 and 7 to between 0 and hexadecimal F
  - — added the VPN on-net status to information digit 1
  - — included Calling Line Identification (CLI) information in the ORIGTYPE and ORIGID fields
- added AR1049, NCCI#7 V2 Fold In
  - — included the CSNUM field in the DE call extension record
  - — included the NOCRG field in the DE call extension record
  - — added the user-to-user information (UUI) call extension record (DF02)
- added AR1344, Notification of Time and Charge
  - — included the NTCCRG field in the DE call extension record
- added AR1347, Push Button Call
  - — included the CLBKANS field in the DE call extension record

October 1994

DMSCCM03 Standard 11.01 New release

March 1994

BCS36 Standard 10.03

- added AN0739
  - — Extension record DF03 information added to chapters 1 and 3
  - — Table OFCENG updated in the Office parameters for SMDR datafill table in chapter 3
  - — SMDR datafill summary table updated in chapter 3

December 1993

BCS36 Standard 10.02

- Notes added to chapter 3

October 1993

BCS36 Preliminary 10.01

- added AR0482
  - — Tables IBNRTE updated in the Data tables for SMDR datafill table in chapter 3
  - — Tables DNSCRN and NETNAMES and universal translations tables added to the Data tables for SMDR datafill table in chapter 3

March 1993

BCS35 Standard 09.01

- added AE1124, Global EBAF AMA
- added AN0181, SMDR Architecture Revision
- added NC0301, SMDR Allocation for Inbound Toll Calls
- added BK05083, SMDR SUBRU Provisioning
- added BK02060, New Provisioning Formulas for AMA Office Parms

March 1993

BCS34 Standard 08.02

- added NC0301, SMDR Allocation for Inbound Toll Calls

July 1992

BCS34 Standard 08.01

- added ANI_IN_SMDR enhancements
- added NCCI#7 Billing on DMS-100

October 1991

BCS33 Standard 07.01

- Tables DN, WRDN, and THOUGRP have been replaced by tables DNINV, DNROUTE, and TOFCNAME

September 1991

BCS32 Standard 06.02

- added information on SMDRB through virtual facility group (VFG) from a Meridian Digital Centrex (MDC) line
- added information on 11th and 12th digits of TERMID in SMDR
- added information on SMDR warm and cold restarts

March 1991

BCS32 Standard 06.01

- added information on DD extension record

September 1990

BCS31 Standard 05.01

- added information to the DB Meridian SuperNode extension record for feature TCAP Interface for ANI-Based Routing. AD3098 adds two new codes (6 and 7) to the description field
- added information to the DC PIN/TCN extension record for feature NSS-DBCP Travel Card Number Validation. AD2856 adds two new codes (6 and 7) to the description field
- changed information in the section "Activating FGD on MDC”
- changed information in the section "Activating FGD on an SL-100 switch”

Contents

Station Message Detail Recording Reference Guide

About this document

When to use this document

Station Message Detail Recording (SMDR) records MDC-originated billable and nonbillable calls. SMDR uses Automatic Message Accounting (AMA) commands to collect data. The data is recorded onto a data storage device. This document provides a description of SMDR, planning and engineering information, and administration and datafill.

How to check the version and issue of this document

The version and issue of the document are indicated by numbers, for example, 01.01.

The first two digits indicate the version. The version number increases each time the document is updated to support a new software release. For example, the first release of a document is 01.01. In the *next* software release cycle, the first release of the same document is 02.01.

The second two digits indicate the issue. The issue number increases each time the document is revised but rereleased in the *same* software release cycle. For example, the second release of a document in the same software release cycle is 01.02.

More than one version of this document may exist. To determine whether you have the document that applies to the software in your office, check the release information in *DMS-10 and DMS-100 Cancellation Cross-Reference Directory*, 297-8991-002.

References in this document

The following documents are referred to in this document:

- *Alarm and Performance Monitoring Procedures*
- *Bellcore Format Automatic Message Accounting Reference Guide*, 297-1001-830
- *Commands Reference Manual*, 297-1001-822
- *Input/Output Devices Maintenance Guide*, 297-1001-590

- *Log Report Reference Manual*
- *Magnetic Tape Reference Manual*, 297-1001-118
- *Meridian SL-100 Features and Service Description*, 555-4001-105
- *Office Parameters Reference Manual*
- *Operational Measurements Reference Manual*
- *Recovery Procedures*
- *Routine Maintenance Procedures*
- *Translations Guide*
- *Trouble Locating and Clearing Procedures*

What precautionary messages mean

The types of precautionary messages used in Northern Telecom (Nortel) documents include danger, warning, and caution messages. Danger, warning, and caution messages indicate possible risks.

Examples of the precautionary messages follow.

DANGER
Possibility of personal injury

DANGER
Risk of electrocution
Do not open the front panel of the inverter unless fuses F1, F2, and F3 have been removed. The inverter contains high-voltage lines. Until the fuses are removed, the high-voltage lines are active, and you risk being electrocuted.

WARNING
Possibility of equipment damage

DANGER
Damage to the backplane connector pins
Align the card before seating it, to avoid bending the backplane connector pins. Use light thumb pressure to align the card with the connectors. Next, use the levers on the card to seat the card into the connectors.

CAUTION
Possibility of service interruption or degradation

CAUTION
Possible loss of service
Before continuing, confirm that you are removing the card from the inactive unit of the peripheral module. Subscriber service will be lost if you remove a card from the active unit.

How commands, parameters, and responses are represented

Commands, parameters, and responses in this document conform to the following conventions.

Input prompt (>)

An input prompt (>) indicates that the information that follows is a command:

```
>BSY
```

Commands and fixed parameters

Commands and fixed parameters that are entered at a MAP terminal are shown in uppercase letters:

```
>BSY CTRL
```

Variables

Variables are shown in lowercase letters:

```
>BSY CTRL ctrl_no
```

The letters or numbers that the variable represents must be entered. Each variable is explained in a list that follows the command string.

Responses

Responses correspond to the MAP display and are shown in a different type:

```
FP 3 Busy CTRL 0: Command request has been submitted.
FP 3 Busy CTRL 0: Command passed.
```

The following excerpt from a procedure shows the command syntax used in this document:

1 Manually busy the CTRL on the inactive plane by typing

>BSY CTRL ctrl_no

and pressing the Enter key.

where

ctrl_no
is the number of the CTRL (0 or 1)

Example of a MAP response:

```
FP 3 Busy CTRL 0: Command request has been submitted.
FP 3 Busy CTRL 0: Command passed.
```

1 SMDR service description

This chapter describes the Station Message Detail Recording (SMDR) system in detail. This description includes the following information:

- purpose of SMDR
- structure of the SMDR files
- definition of the SMDR general, specific, and extension call records

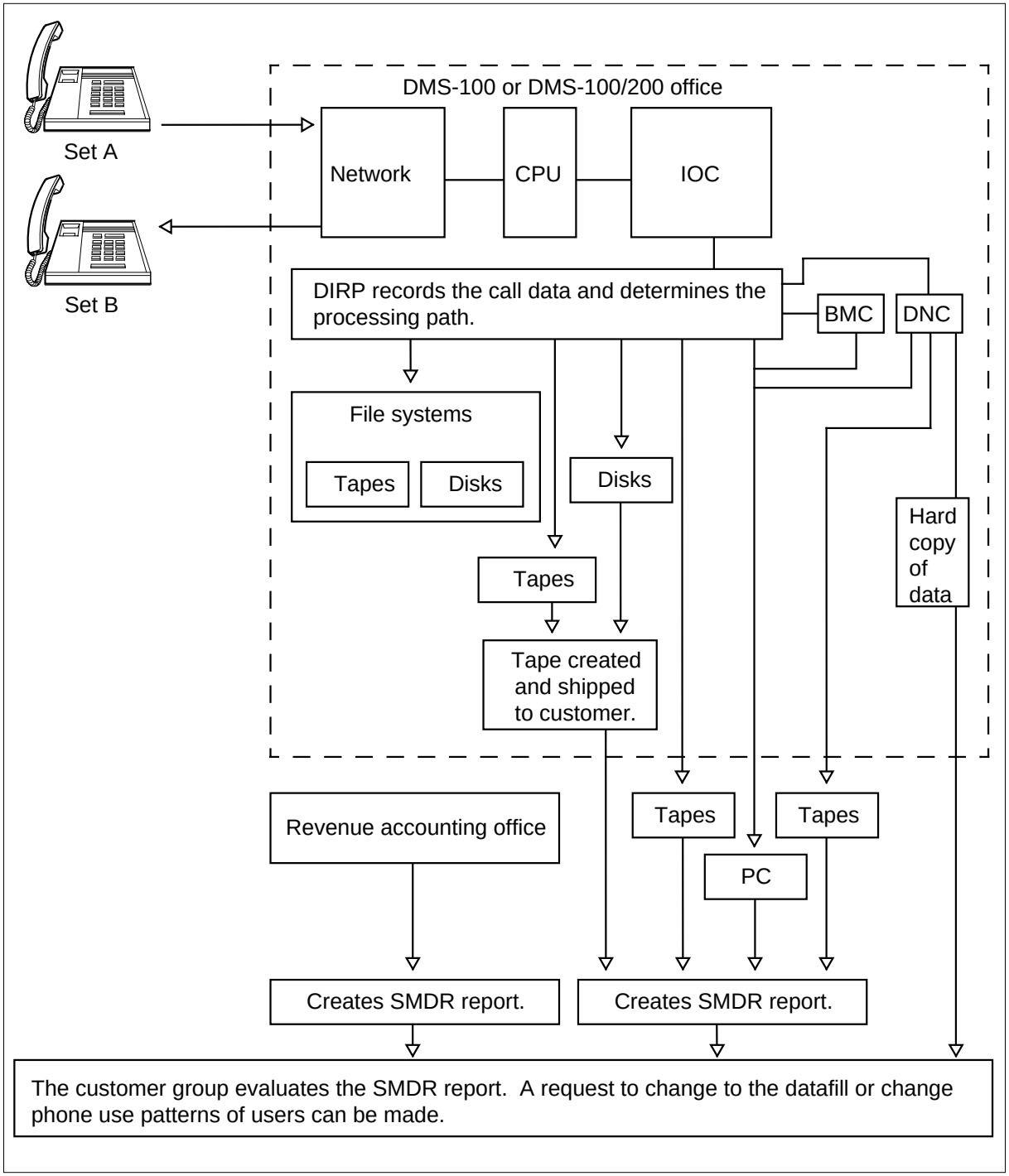
Purpose of SMDR

The SMDR system provides the facilities for recording Meridian Digital Centrex (MDC)-originated billable and nonbillable calls on a customer group basis. The SMDR system uses the Automatic Message Accounting (AMA) subsystem to collect the call data and record it automatically on a data storage device. The data storage device (magnetic tape or disk) is controlled by the Device Independent Recording Package (DIRP) subsystem.

The AMA subsystem collects call data for billable calls. SMDR collects call data for all calls depending on the user's needs. The data collected can be used for customer group billing departments and determining user calling habits and patterns.

"Setting up the recording facilities" describes how the data is recorded. "Activating SMDR at the switch" describes how to activate SMDR. The following figure illustrates an overall perspective of SMDR use and shows the various ways call data can be retrieved by the customer.

Figure 1-1 Overview of SMDR use



SMDR file structures

SMDR data is recorded in DIRP files. The data in the files is grouped into data blocks. There are two types of data blocks.

- call blocks
- data group blocks

Each data block

- is 2048 bytes in length.
- does not allow records to span data blocks. Every SMDR record has a specified length. Depending on the types of SMDR records and their individual length, the number of bytes filled with data for a data block can be up to a maximum of 2048 bytes. Bytes not filled with specific SMDR record data are padded with the hexadecimal (HEX) character A equivalent. A record that cannot be put into one data block is filed into the next data block.
- has a header record. The header record identifies the data block and the type of data recorded in the block. The two types of data block header records are as follows:
  - — Call blocks contain a C1C1 header record.
  - — Data group blocks contain a C2C2 header record.
- has one or more records with SMDR-specific data recorded after the header record. The records in each data block depend on the type of data block being recorded (either data group blocks or call blocks).

Note: This scheme of blocked records does not follow the International Business Machines (IBM) format of an OS/360 fixed or variable blocked file. To the program, each 2048-byte block appears as one record. The downstream process must break down each block because the operating system cannot do so. *Magnetic Tape Reference Manual*, 297-1001-118, describes the recording format characteristics for magnetic tape.

Call block

A call block is a block of data that contains recorded information about call events. The C1C1 header record is the first record in a call block. All the call

records are recorded in binary coded decimal (BCD) format. The following table lists the record types that can be recorded in a call block.

Table 1-1 Record codes in a call block (Sheet 1 of 4)

Code	Explanation of record contents
C1C1	C1C1 header record is the first record of every SMDR block of call data. The records in a call block that can follow the C1C1 call block header record are as follows: • call records, which record the type of call that has occurred • file rotation records, which record the type of file rotation that has occurred • restart records, which record the type of system restart that has occurred • clock change entry records, which record when a system clock change has occurred "C1C1 header record" describes the C1C1 call record.
D1	Short format SMDR call record defines the format for a call when 12 or less digits have been dialed. "Record code field" describes the D1 call record.
D2	Short format NERVE call record defines the format for a call when 12 or less than 12 digits have been dialed for a network evaluation, reporting, and verification (NERVE) call. "Record code field" describes the D2 call record.
D3	Long format SMDR call record defines the format of a call when more than 12 digits have been dialed. "Record code field" describes the D3 call record.
D4	Long format NERVE call record defines the format for a call when more than 12 digits have been dialed for a NERVE call. "Record code field" describes the D4 call record.
D5	Digits-as-outpulsed extension call record lists the digits that were outpulsed to complete an SMDR call for calls that terminate on trunks. "D5 digits-as-outpulsed extension record" describes the D5 call record.

Table 1-1 Record codes in a call block (Sheet 2 of 4)

Code	Explanation of record contents
D6	Account or authorization code extension call record Defines the account code and authorization code associated with a call. "D6 account or authorization code extension record" describes the D6 call record.
DA	Networked extension call record Generated when calls are over incoming MDC trunks with integrated services digital network (ISDN) user part (ISUP) trunk signaling. "DA networked extension record" describes the DA call record.
DB	Meridian SuperNode extension call record Generated when incoming calls are over feature group B (FGB) and feature group D (FGD) for each trunk signaling (PTS) trunk. A "database (DB) Meridian SuperNode extension record" describes the DB call record.
DC	PIN/TCN SMDR extension call record Generated when incoming calls are involved with either personal identification numbers (PIN) or travel card numbers (TCN). "Device controller (DC) PIN/TCN extension record" describes the DC call record.
DD	Bearer capability extension record format Defines the bearer capability (BC) of the call originator. "DD bearer capacity" describes the BC call record.
DE	Independent common carrier extension record format Generated on MDC calls to report custom application data. "DE independent common carrier" describes the independent common carrier (ICC) call record. Refer to the *Translations Guide* for the description of the NCCI7 application using the directory assistance (DA) call record.
DF01	Inbound toll call extension record Records how long an inbound toll call was present at each terminating station during a a call transfer call, or how long the controller maintains control of a three-way call. This allows the cost of an incoming toll call to be divided between the station that answered the call and all subsequent stations to which the call was transferred. Refer to "DF inbound toll call extension records" for more information.

Table 1-1 Record codes in a call block (Sheet 3 of 4)

Code	Explanation of record contents
DF02	User-to-user information call extension record Provides billing data on user-to-user information (UUI) parameters. Refer to "DF user-to-user information call extension record" for more information.
DF03	PVN option call extension record Produced for private virtual network (PVN) calls that have option PVN assigned in table CUSTSMDR (Customer Group SMDR Option) and for which valid billing information is returned by the service control point (SCP). See "PVN option call extension record" for more information.
DF04	AIN R0.1 option call extension record Produced for Advanced Intelligent Network (AIN) 0.1 calls that have option AIN01 assigned in table CUSTSMDR and for which valid billing information is returned by the SCP. Refer to "DF AIN R0.1 option call extension record" for more information.
DF05	Carrier charge area information Produced for calls containing a carrier information message parameter. Refer to "Carrier charge area information option call extension record" for more information.
DF06	Charge rate information Produced for calls containing a charge rate information message parameter. Refer to "Charge rate information option call extension record" for more information.
DF07	Additional user type Produced for calls containing an additional user type message parameter. Refer to "Additional user type option call extension record" for more information.
DF09	Per Use Billing option call extension record A usage sensitive extension record produced to store CLASS feature usage information. Generated upon successful completion of the feature activation, as part of an audit process, or as a result of editing a CLASS SLE list. Refer to "DF09 SMDR extension record" for more information.
FA	Incoming non-emergency file rotation record Generated when files are being opened during a normal rotation of files that are recording SMDR data. "File rotation records" describes the FA call record.

Table 1-1 Record codes in a call block (Sheet 4 of 4)

Code	Explanation of record contents
FB	Outgoing non-emergency file rotation record Generates when files are being closed out during a normal rotation of files that are recording SMDR data. "File rotation records" describes the FB call record.
FC	Incoming emergency file rotation record Generates when files are being opened during an emergency rotation of files that are recording SMDR data. "File rotation records" describes the FC call record.
FD	Restart record Generates when a warm or a cold restart occurs. "Start time field" describes the restart record.
FE	Clock change entry record Generates when a change to the system time occurs for the open (active) file. "FE clock change entry record" describes the clock change record.

Data group block

A data group block is a block of data that contains the binary identifications for the following:

- attendant console names as datafilled in table ATTCONS
- customer group names as datafilled in table CUSTHEAD
- virtual facility group names as datafilled in table VIRTGRPS
- trunk group identifiers as datafilled in the ADNUM field in table CLLI

The hexadecimal equivalents of the binary identifications are recorded in the SMDR call records.

The C2C2 header record is the first record in a data group block. The C2C2 header record is recorded in BCD format. All the other data group block

records are recorded in extended BCD interchange code (EBCDIC) format. The following table lists the types of records contained in a data group block.

Table 1-2 Record codes in a data group block

Code	Explanation of record contents
C2C2	C2C2 header record is the first record of every SMDR block of data that contains translator information. If the information is available, translator information is recorded in the following order: • Data group K • Data group C • Data group A • Data group V • A data group (E) terminator record is the last record output in the last data group block of data. "C2C2 header record" describes the C2C2 data group block header record.
A	Data group A translator record contains the HEX identifications of the attendant console names datafilled in table ATTCONS. "Data group translator records" describes the data group translator records.
C	Data group C translator record contains the HEX identifications of the customer group names datafilled in table CUSTHEAD. "Data group translator records" describes the data group translator records.
K	Data group K translator record contains the HEX identifications of the trunk group common language location identifiers (CLLI) datafilled in table TRKGRP. "Data group translator records" describes the data group translator records.
V	Data group V translator record contains the hexadecimal identifications of the virtual facility group (VFG) names datafilled in table VIRTGRPS. "Data group translator records" describes the data group translator records.
E	Data group terminator record denotes the end of a data group record block. "E termination record" describes this record.

File structure during non-emergency rotations

When an SMDR file is opened due to a non-emergency rotation, the data group blocks are listed first. The data group blocks consist of the C2C2 data block header record, the translator records (K, C, A, and V), and the terminator record (E). The terminator record is recorded in the last data group block only.

Following the data block are the call blocks. After the C1C1 header record, the call blocks can consist of these:

- an FA record and any other D1–D4 call records
- an FB record and any other D1–D4 call records
- an FC record and any other D1–D4 call records
- an FD record and any other D1–D4 call records
- an FE record and any other FA, FB, FC, FD, or D1–D4 call records
- one or more D1–D4 records along with the appropriate D5, D6, D7, DA, DB, and DC extension records associated with the D1–D4 records

The following figure illustrates the file structure for the SMDR data group block and call blocks after a non-emergency file rotation.

File structure during emergency rotations

When an SMDR file is opened due to an emergency rotation, the first block is the last call block associated with the previous file. The call block count in the C1C1 header record in the new file is the same as the call block count in the previous file.

The data group blocks are listed after the call block. The block count for the data group blocks in the new file starts at 00000.

During an emergency rotation, there is no FB call record in the outgoing file.

Figure 1-2 SMDR data group block and call block structure (non-emergency rotation)

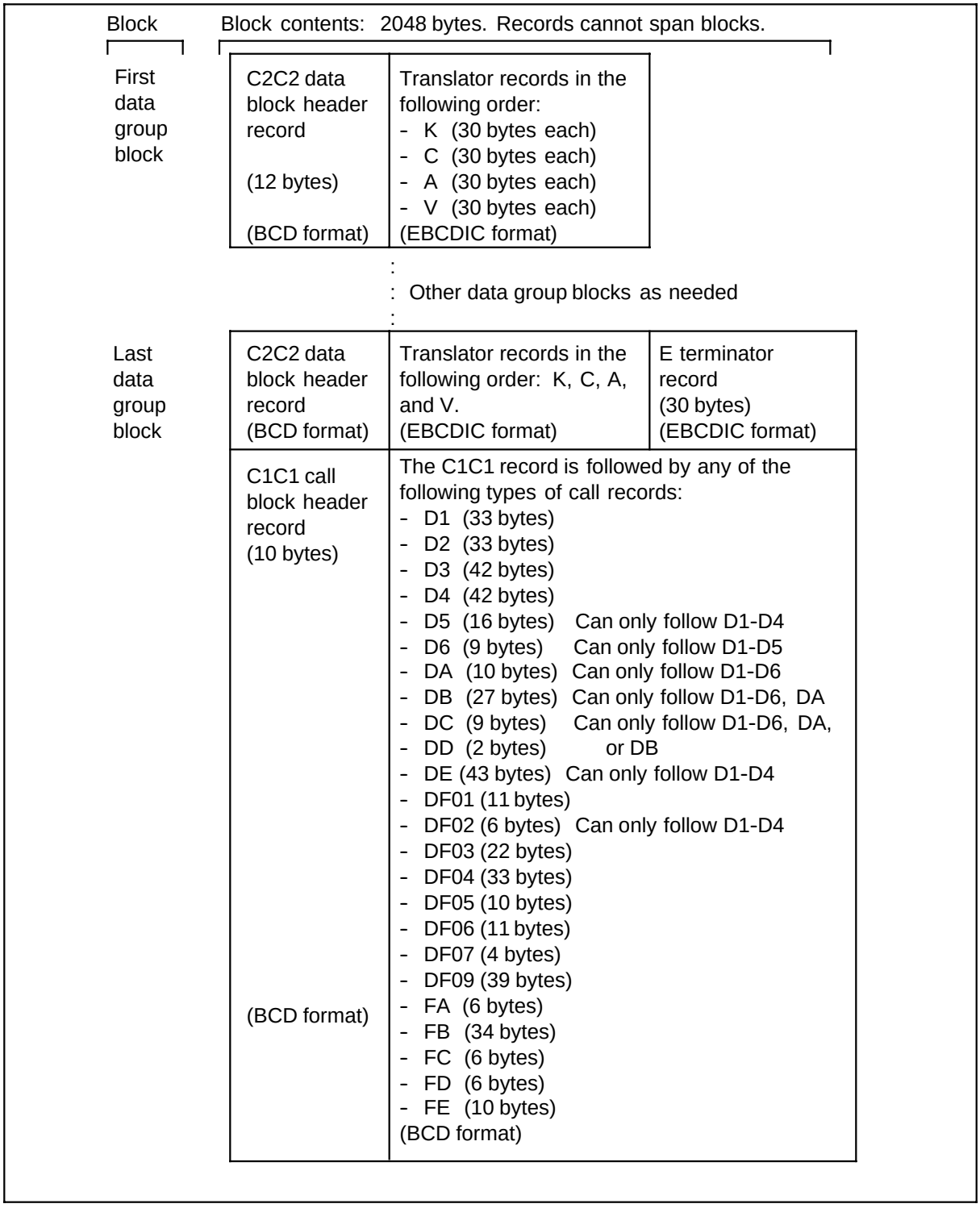
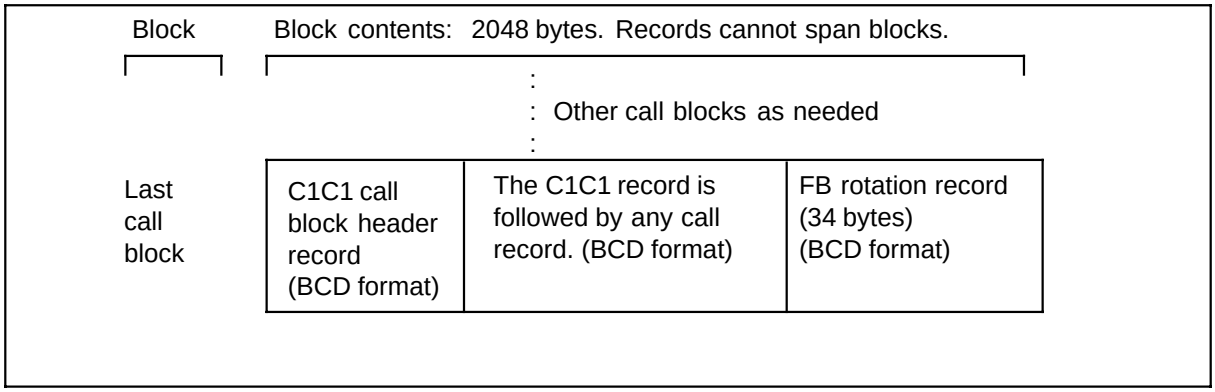


Figure 1-3 SMDR data group block and call block structure (non-emergency rotation) (continued)



General SMDR record types

The general SMDR records define or identify general system information (as opposed to the SMDR call records, which record specific information about each call).

General system information for call blocks is as follows:

- header record for each block of data (see "C1C1 header record")
- system information about the recording of SMDR call data in files (see "File rotation records")
- system information that would affect call start and elapsed times (see "FD restart record" and "FE clock change entry record")

General system information for data group blocks is as follows:

- header record for each block of data. (see "C2C2 header record")
- group identification for each of the following (see "Data group translator records"):
  - — attendant consoles
  - — customer groups
  - — trunk groups
  - — virtual facility groups
- terminating record denoting the end of a data group block (see "E termination record")

C1C1 header record

The C1C1 header record is the first SMDR record of every block of call data written into a file. The records in a call block that can follow the C1C1 call block header record are as follows:

- call records (D1–D6, DA, DB, or DC), which record the type of call that has occurred (see "Defining the SMDR call records")
- file rotation records (FA, FB, or FC), which record the type of file rotation that has occurred (see "File rotation records")
- restart records (FD), which record the type of system restart that has occurred (see "FD restart record")
- clock change entry records (FE), which record when a system clock change has occurred (see "FE clock change entry record")

The first call block in a file contains a C1C1 header record and either an FA or FC file rotation record. An FC record is recorded for emergency rotations. An FA record is recorded for non-emergency rotations. See "SMDR file structures" for information about the sequencing of call and data blocks in an SMDR file.

C1C1 header record structure

The fields and format (in the number of 4-bit nibbles) of the C1C1 header record are as follows:

Record code C1C1 (4)	Day (3)	Hour (2)	Call block count (5)	Office ID (6)

The following figure illustrates a C1C1 record using the AMADUMP utility with the DETAILS option that occurred on January 13th during the 18th hour (after 6 p.m.) in the office identified as 619351. Sequentially, this record was the third record block.

Figure 1-4 C1C1 header record example

```
*CALL BLK HDR ID:C1C1  DAY=013 TIME:  HR=18 CALL BLK CNT:00003
 OFC ID:619351
```

"Interpreting the byte structure of SMDR records" expands the explanation of the C1C1 call block header record byte structure.

C1C1 header record field descriptions

The following table describes the fields of the C1C1 record.

Table 1-3 C1C1 header record field definitions

Field	Definition
Record code	Identifies the record as C1C1
Day	Records the day of the year. The range is from 001 to 366.
Hour	Records the hour of the entry. The range is from 00 to 23.
Call block count	Increments sequentially by one each time a block of call data is written onto an SMDR file. The range is from 00000 to 65535. ***Note:*** Sequential blocks may be interleaved on two or more volumes. After the maximum count of 65535 is reached, the call block count automatically resets to 0 on the next increment. The call block count is not reset during the following activities: • file rotation • warm restart • cold restart For a call processing unit (CPU) switch of activity (SWACT) from an active to inactive state, the call block count is affected as follows: • When both CPUs are synchronized, the count continues sequentially from the last increment. • When both CPUs are not synchronized (as when a cold restart occurs) and a file rotation has occurred, the call block count on the to file could be any number. The data in the last block of the from file could be incomplete following an activity switch. The data in the last block of the from file is not repeated on the to file due to cold restart. The downstream process would detect the fault. See the *Translations Guide* for a description of DIRP and the consequences of file rotations, warm restarts, and cold restarts on files.
Office ID	Records the standard office identification number assigned by the operating company. The identification (ID) number is assigned in the OFFICE_ID_ON_AMA_TAPE office parameter in table OFCENG.

File rotation records

FA, FB, and FC rotation records are entered in the SMDR files whenever a file rotation occurs. A file rotation occurs when the storage of SMDR call information is changed from one file to another file in DIRP.

File rotation record structure

The fields and format (in the number of 4-bit nibbles) of a rotation record are as follows:

Record code (1)	Filler digit 0 (1)	Rotation time					For only an FB record, record call counts. (28)
		Day (3)	Hour (2)	Min (2)	Sec (2)		

The following figure illustrates a file rotation record using the AMADUMP utility with the DETAILS option for an incoming non-emergency that occurred at 6:35:06 p.m. on January 13th.

Figure 1-5 FA file rotation record example

```
*REC  CODE:FA    FILLER:0    DAY=271   TIME:  HR=18   MIN=35   SEC=06
```

"Interpreting the byte structures of SMDR records" expands the explanation of the file rotation record byte structure.

File rotation record field descriptions

The following table describes the fields of a rotation record.

Table 1-4 FA, FB, and FC file rotation record field definitions (Sheet 1 of 2)

Field	Definition
Record code	Identifies the type of file rotation record using a two-digit code as follows: • FA: Incoming non-emergency • FB: Outgoing non-emergency • FC: Incoming emergency. "Non-emergency transfer" and "Emergency transfers" describe the non-emergency and emergency rotation types, respectively. When an FB record code is recorded, additional information may be appended to the FB record. "Total call counts on a file" describes the appended information.

Table 1-4 FA, FB, and FC file rotation record field definitions (Sheet 2 of 2)

Field	Definition
Filler digit	Records a filler character. The value is 0.
Rotation time	Records the time of day of the file rotation as follows: • Day: Range is from 001 to 366. • Hour: Range is from 00 to 23. • Minute: Range is from 00 to 59. • Second: Range is from 00 to 59.

File rotation occurrences

A file rotation to a standby disk or tape unit occurs for the following reasons:

- A request has been made by administrative or maintenance personnel to rotate the file using the DIRP ROTATE command. *Routine Maintenance Procedures* and the *Log Report Reference Manual* describe the ROTATE command.
- A scheduled automatic transfer has occurred. The scheduling of automatic transfers is done in table DIRPSSYS.
- A data transfer-initiated rotate has occurred.
- An emergency situation has arisen.

Types of file and buffer rotation entries

Rotation entries are entered into a buffer each time a rotation occurs. The two types of rotation entries are non-emergency and emergency transfers.

Non-emergency transfers An outgoing transfer entry is made into the buffer prior to the buffer being written into the still active file just before transfer. An incoming transfer entry is made as the first entry of the next buffer load. When the buffer is full, it is written to the newly active file.

Emergency transfers When an emergency transfer occurs, the full buffer is first written onto the first block of the newly active file while the incoming emergency transfer entry information is entered as the last entry of the first block. In the event the first block is full, the transfer entry information becomes the first entry of the second block. In the event of a broken tape, the complete record block in the buffer, at the time of the break, is rewritten on the new tape with a flag to indicate the file rotation.

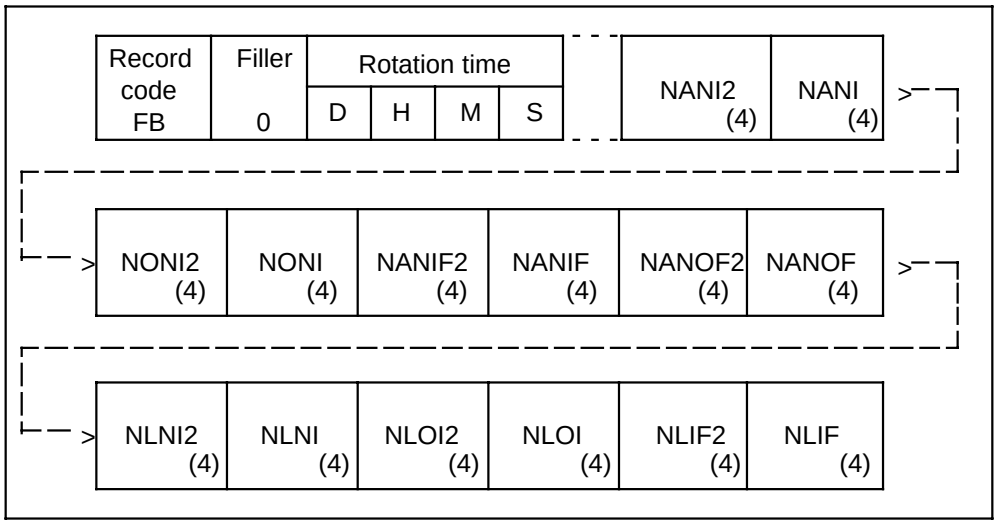
Note: With multiple transfer requests a tape could change status from STANDBY to ACTIVE and back several times, resulting in incoming and outgoing entries being made for each request. Therefore, when an outgoing transfer entry is encountered on an AMA tape in the downstream process,

do not interpret this as the end of the billing information until an end of file (EOF) is encountered.

Total call counts on a file

When a file rotation for an AMA file occurs, a count of the calls on that file is generated. There are 14 separate two-digit counters. For an SMDR stream, all the counts are 0. The counts are appended to the FB rotation record. The count types and format (in the number of 4-bit nibbles) are shown in the following figure.

Figure 1-6 AMA call count extension record



The following figure illustrates an FB file rotation record using the AMADUMP utility with the DETAILS option showing the total call counts appended to the file.

Figure 1-7 FB file rotation record example

```
*REC CODE:FB   FILLER:0   DAY=271   TIME:  HR=21   MIN=58   SEC=01
 NANI2:0   NANI:0   NONI2:0   NONI:0   NANIF2:0   NANIF:0   NANOF2:
 NANOF:0   NLNI2:0   NLNI:0   NLOI2:0   NLOI:0   NLIF2:0   NLIF:0
```

FD restart record

The FD restart record is entered in the active file when a warm or cold restart occurs. The restart record identifies the type of restart and the time the restart occurred.

Restart record structure

The fields and format (in the number of 4-bit nibbles) of a restart record are as follows:

Record code 'FD' (4)	Restart type (1)	Restart time			
		Day (3)	Hour (2)	Min (2)	Sec (2)

The following figure illustrates an example restart record using the AMADUMP utility with the DETAILS option for a warm restart during a call on January 7th at 1:23:45 a.m.

Figure 1-8 FD restart record example

```
*REC CODE:FD RESTART TYPE:0 DAY=007 TIME: HR=01 MIN=23 SEC=45
```

"Interpreting the byte structures of SMDR records" expands the explanation of the restart record byte structure.

Cold restart

A cold restart occurs when system sanity is lost or when a cold restart is initiated manually. All calls that are in progress at the time of the cold restart are terminated. Billing information associated with these calls, as well as any data in the SMDR software buffer, is lost.

If a restart occurs while writing the CLLI translation records, no attempt is made to resume writing these records after restart.

If an SWACT precedes a cold restart, any billing information which is stored in the SMDR buffer that has not been written onto a SMDR file is lost. However, SMDR data written onto the SMDR file on a data storage device prior to a cold restart remains intact.

Warm restart

A warm restart is a level of system initialization that erases all data in temporary store, but allows calls in the talking state to continue. The SMDR data remains intact, and the active file on the data storage device remains active.

"Warm restart entry adjustments" describes call record adjustments that may be necessary after a warm restart.

Note: A call cannot be made during a warm restart.

Restart record field descriptions

The following table describes the fields of the restart record.

Table 1-5 FD restart record field definitions

Field	Definition
Record code	Identifies the restart record using a two-digit code.
Restart Type	Records the type of restart as follows: • 0 = warm restart • 1 = cold restart
Rotation time	Records the time of day of the restart as follows: • Day: Range is from 001 to 366. • Hour: Range is from 00 to 23. • Minute: Range is from 00 to 59. • Second: Range is from 00 to 59.

Warm restart entry adjustments

If a warm restart occurs during the conversation of an answered call, time may be lost. SMDR adjusts the records as discussed below.

Adjustments for a call being disconnected If an answered call is disconnected during a restart, the following fields are recorded.

Table 1-6

Field (event)	Entered adjustment
Information digit 1 (answered)	Y
Information digit 2 called party (CLD) disconnect (DISC)	Y
Elapsed time	000000
Start time	Time that the answer was received

If an unanswered call is disconnected during a restart, the following fields are recorded.

Table 1-7

Field (event)	Entered adjustment
Information digit 1 (answered)	N
Information digit 2 (CLD party DISC)	Y
Elapsed time	000000
Start time	Time that the terminating circuit was seized

Adjustments for a call being answered If a warm restart occurs during the conversation of an answered call, the following fields are recorded.

Note: The conversation time is recorded in the Elapsed time field. The answer time is recorded in the Start time field.

Table 1-8

Field (event)	Entered adjustment
Information digit 1 (answered)	Y
Information digit 2 (CLD party DISC)	Y or N
Elapsed time	numerical
Start time	numerical

If a call is answered during a warm restart, the following fields are recorded.

Note: The time elapsing since the trunk was seized is recorded in the Elapsed time field. The time that the terminating circuit was seized is recorded in the Start time field.

Table 1-9

Field (event)	Entered adjustment
Information digit 1 (answered)	Y
Information digit 2 (CLD party DISC)	Y or N
Elapsed time	numerical
Start time	numerical

Adjustments for a ringing call If a call was ringing before, during, and after the warm restart and is released by the originator after the restart is complete:

- there is no SMDR record if the RNA option is not used.
- if the RNA option is used, the time recorded is the interval from the time of the last digit dialed until the time the originator goes on hook.

If a call was ringing before, during, and after the warm restart and is answered after the restart is complete:

- there are no adjustments to the records.

FE clock change entry record

The FE clock change entry record is entered in the active file when a change to the system time occurs. Changes to system time are initiated manually by operating company personnel.

The system date and time are set at the MAP terminal using the SETDATE and SETTIME command interpreter (CI) level commands.

Clock change record structure

The fields and format (in the number of 4-bit nibbles) of the FE record are as follows:

Record code FE (2)	Old time				New time			
	Day (3)	Hour (2)	Min (2)	Sec (2)	Day (3)	Hour (2)	Min (2)	Sec (2)

The following figure illustrates an example FE record using the AMADUMP utility with the DETAILS option for a change in the system clock that occurred on January 13th.

Figure 1-9 FE clock change entry record example

```
*REC CODE:FE   OLD TIME:  DAY=013  TIME:  HR=18  MIN=35  SEC=06
NEW TIME:  DAY-013  TIME:  HR=19  MIN=01  SEC=00
```

"Interpreting the byte structures of SMDR records" expands the explanation of the clock change entry record byte structure.

Clock change record field descriptions

The following table describes the fields of the FE record.

Table 1-10 FE clock change entry record field definitions

Field	Definition
Record code	Identifies the clock change entry record using a two-digit code.
Old time	Records the old time of day prior to the clock change as follows: • Day: Range is from 001 to 366. • Hour: Range is from 00 to 23. • Minute: Range is from 00 to 59. • Second: Range is from 00 to 59.
New time	Records the new time of day at the clock change as follows: • Day: Range is from 001 to 366. • Hour: Range is from 00 to 23. • Minute: Range is from 00 to 59. • Second: Range is from 00 to 59.

C2C2 header record

The C2C2 header record precedes each data group block. The C2C2 header record is the first record of every SMDR block of data that contains translator information. After the C2C2 header record, the translator information in a data group block records the translator records in the following order:

- data group K translator records for each trunk group CLLI datafilled in table TRKGRP
- data group C translator records for each customer group name datafilled in table CUSTHEAD
- data group A translator records for each attendant console name datafilled in table ATTCONS
- data group V translator records for each virtual facility group datafilled in table VIRTGRPS.

A data group terminator record (E) is the last record output in the last data group block of data.

See "SMDR file structures" for information about the sequencing of call blocks and data blocks in a file.

C2C2 header record structure

The fields and format (in the number of 4-bit nibbles) of the C2C2 header record are as follows:

Record code C2C2 (4)	Day (3)	Hour (2)	Data block count (5)	Office ID (6)	Inter-change format (1)	Record length (3)

The following figure illustrates a C2C2 record using the AMADUMP utility with the DETAILS option that occurred on January 13th during the 18th hour (after 6 p.m.) in the office identified as 619351. Sequentially, the record was the third recorded data block. It was recorded in EBCDIC format and had a logical record length of 30.

Figure 1-10 C2C2 header record example

```
*DATA BLK HDR ID:C2C2 DAY:013 TIME: HR=18 DATA BLK CNT:00003
 OFC ID:619351 INTERCHANGE FORMAT:0 LENGTH:030
```

"Interpreting the byte structures of SMDR records" expands the explanation of the C2C2 record byte structure.

C2C2 record field descriptions

The following table lists and defines (in the number of 4-bit nibbles) the fields of the C2C2 header record.

Table 1-11 C2C2 header record field definitions (Sheet 1 of 2)

Field	Definition
Record code	Identifies the record as C2C2
Day	Records the day of the year. The range is from 001 to 366.
Hour	Records the hour of the entry. The range is from 00 to 23.

Table 1-11 C2C2 header record field definitions (Sheet 2 of 2)

Field	Definition
Data block count	Increments sequentially by one each time a block of data is written onto an SMDR file. The range is from 00000 to 65535. ***Note:*** Sequential blocks may be interleaved on two or more volumes. After the maximum count of 65535 is reached, the data block count automatically resets to 0 on the next increment. The data block count is not reset during the following activities: • file rotation • warm restart • cold restart For a CPU SWACT from an active to inactive state, the block count is affected as follows: • When both CPUs are synchronized, the count continues sequentially from the last increment. • When both CPUs are not synchronized (as when a cold restart occurs) and a file rotation has occurred, the data block count on the to file could be any number. The data in the last block of the from file could be incomplete following SWACT. The data in the last block of the from file is not repeated on the to file due to cold start. The downstream process would detect the fault. The *Translations Guide* describes DIRP and the consequences of file rotations, warm restarts, and cold restarts on files.
Office ID	Records the standard office identification number assigned by the operating company. The office ID number is assigned in the OFFICE_ID_ON_AMA_TAPE office parameter in table OFCENG.
Interchange format	Records the format being used. Currently, the only acceptable value is 0 (for EBCDIC).
Length	Records the logical record length. The range is from 009 to 130.

Data group translator records

The data group translator records a data record indicating the conversion of numerical identifiers to external identifiers. One or more data group translator records are preceded by a C2C2 header record.

Note: These records are not necessarily dumped in sequential order of the group ID. If desired, use the downstream processor.

Data group translator record structure

The fields and format (in bytes) of the data group translator record are as follows:

SP	RSN	SP	Record code	SP	Group ID	SP	Symbolic name (CLLI)
(1)	(5)	(1)	(1)	(1)	(4)	(1)	(16)

The following figure illustrates a data group translator record using the AMADUMP utility and the DETAILS option for attendant console number 4 in the CARIBNTO2W customer group.

Figure 1-11 Data group translator record example

```
*REC CODE:       REC SEQ: 00005   SPACE:
*REC CODE:A   SPACE:       GRPID:0004   SPACE:   CLLI:CARIBNTO2W
```

"Interpreting the byte structures of SMDR records" expands the explanation of the data group translator record byte structure.

Data group translator field descriptions

The following table describes the fields of the data group translator record.

Table 1-12 Data group translator record field definitions (Sheet 1 of 2)

Field	Definition
SP	Records a space.
REC SEQ	Record sequence number (RSN). Increments sequentially by one each time a data group translator record is written into a data group block in an SMDR file. The range is from 00000 to 32767. Currently, the maximum count for one file is 14557.

Table 1-12 Data group translator record field definitions (Sheet 2 of 2)

Field	Definition
Record code	Identifies the type of Identifier translation record using a single-digit code as follows: • A: attendant console name • C: customer group name • K: trunk group CLLI • V: virtual facility group name Identifier translation records (also known as CLLI translator records) translate the symbolic names for the trunk groups, customer groups, attendant consoles and virtual facility groups to hexadecimal digits. The HEX digits are recorded in the call data as binary numbers.
Group ID	Identifies the group number for the type of record identified in the record ID field. The range of the group numbers for each type of record ID is as follows: • A: 0000 to 0255 • C: 0000 to 4094 • K: 0000 to 8191 • V: 0000 to 8191
Symbolic name (CLLI)	Records the name of the item defined by the record code and identified in the group ID field. The symbolic name field is 16 bytes in length, left justified, and padded with spaces as required. The symbolic names are as follows: • 1- to 16-character attendant console name datafilled in table ATTCONS • 1- to 16-character customer group name datafilled in table CUSTHEAD • 1- to 16-character trunk group CLLI datafilled in table TRKGRP • 1- to 16-character virtual facility group name datafilled in table VIRTGRPS

Note: Downstream processing can be immune to dump and restore changes by expressing console CLLI VFG designations in character form, rather than numeric form, when output files are generated. This mapping can be performed through use of the appropriate translation records, such as tables CUSTGRP, ATTCONS, or VIRTGRPS.

Data group E terminator record

The data group terminator record denotes the end of the last data group block on a file. The data group terminator record is also known as an E record. The fields and format (in bytes) of the E record are as follows:

Space (1)	RSN (5)	Space (1)	Record code (1)	Space and padding (22)

The following figure illustrates an E record using the AMADUMP utility with the DETAILS option that ends a C2C2 data block. Sequentially, it is the fifth data block.

Figure 1-12 Data group terminator record example

```
*REC CODE:         REC SEQ: 00005   SPACE:
*REC CODE:E        SPACE:
```

"Interpreting the byte structures of SMDR records" expands the explanation of the E record byte structure. The following table describes the fields of the E record.

Table 1-13 Data group termination record field definitions

Field	Definition
Space	Records a space.
RSN	Record sequence number. Increments sequentially by one each time a termination record is entered into a data group block of an SMDR file. The range of the counts is from 00000 to 32767.
Record code	Identifies the record as E
Padding	Conforms to the length specified for the block in the associated C2C2 block header record with spacers. Currently, the record length is 30 bytes.

Defining the SMDR call records

An SMDR call record, often referred to as a main record, contains information about billable and nonbillable calls generated from MDC customer groups.

The four types of SMDR call records, which are identified by their record code, are as follows:

Table 1-14

Code	Call record type
D1	Short format SMDR call record
D2	Short format NERVE call record
D3	Long format SMDR call record
D4	Long format NERVE call record

"Record code field" describes these call records.

The following figure illustrates an example SMDR call record using the AMADUMP utility and the DETAILS option. Due to space limitations, the fields are not shown exactly as they are displayed or printed.

Figure 1-13 SMDR call record example

```
*REC CODE:D1   CUSTGRP CLLI:008  ORIGTYPE:8  ORIGID:6137224800A
 DATA CALL ID:A  INFO DIGITS:40  CONS NO:FF  SUBGRP:0  TRM TYPE:0
 TERM ID:6137226613A0  RTE INFO:0  DAY=066  TIME:  HR=17  MIN=11
    SEC=11
 ELAPSED TIME=000005  ORIG FC:0  TERM FC:0  CLD NO:26613AAAAAAA
```

In addition to the call record, extension records can be provided. These records contain additional information about the immediately preceding main call record. "Defining the extension call record formats" describes extension call records.

Defining the SMDR call record structure

The following figure illustrates how SMDR call record fields are connected and indicates the format (in the number of 4-bit nibbles) of each field. The fields and formats of the extension records are also shown.

"Interpreting the byte structures of SMDR records" illustrates the byte structures of the SMDR call records.

Figure 1-14 SMDR call and extension record format

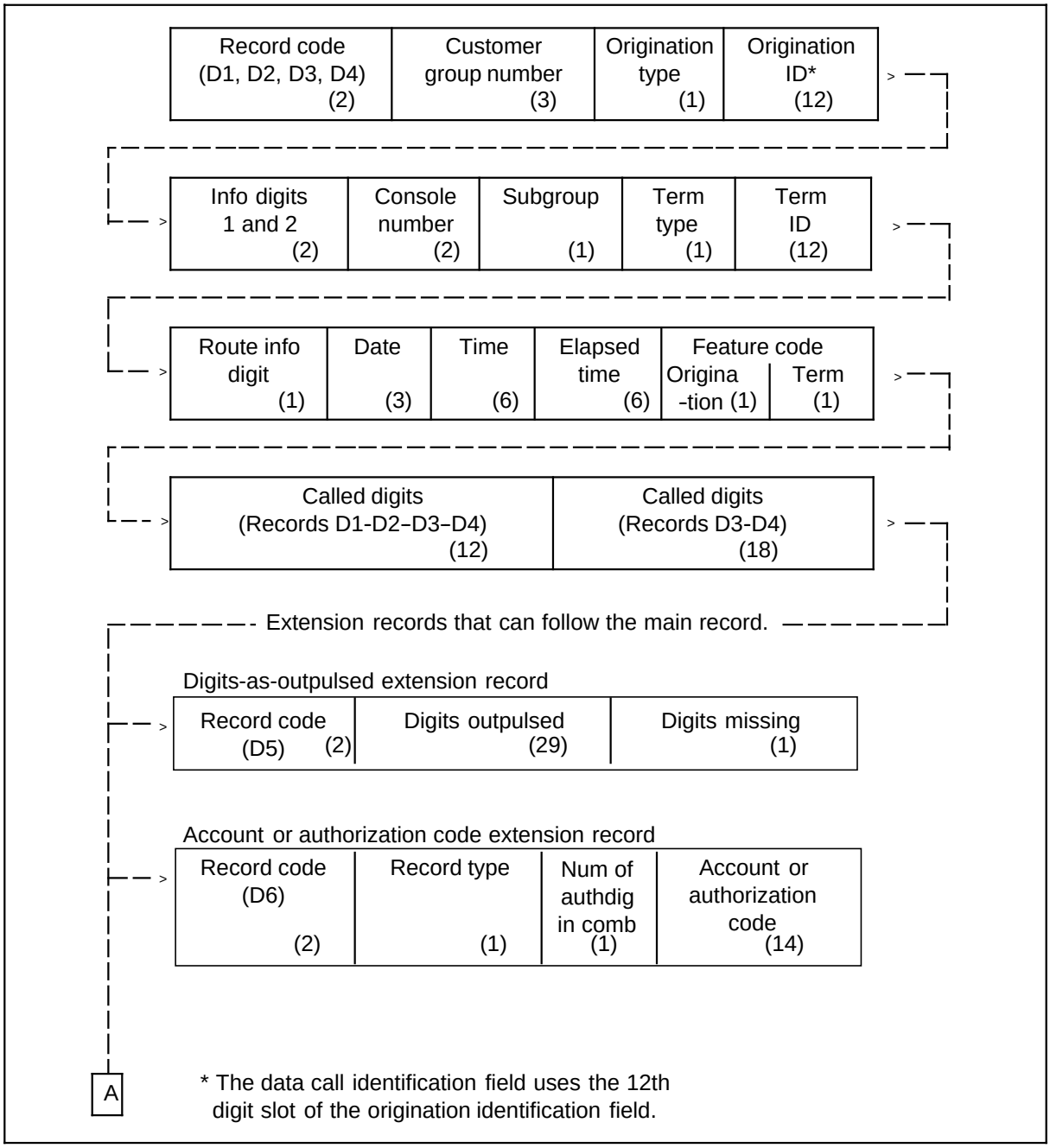
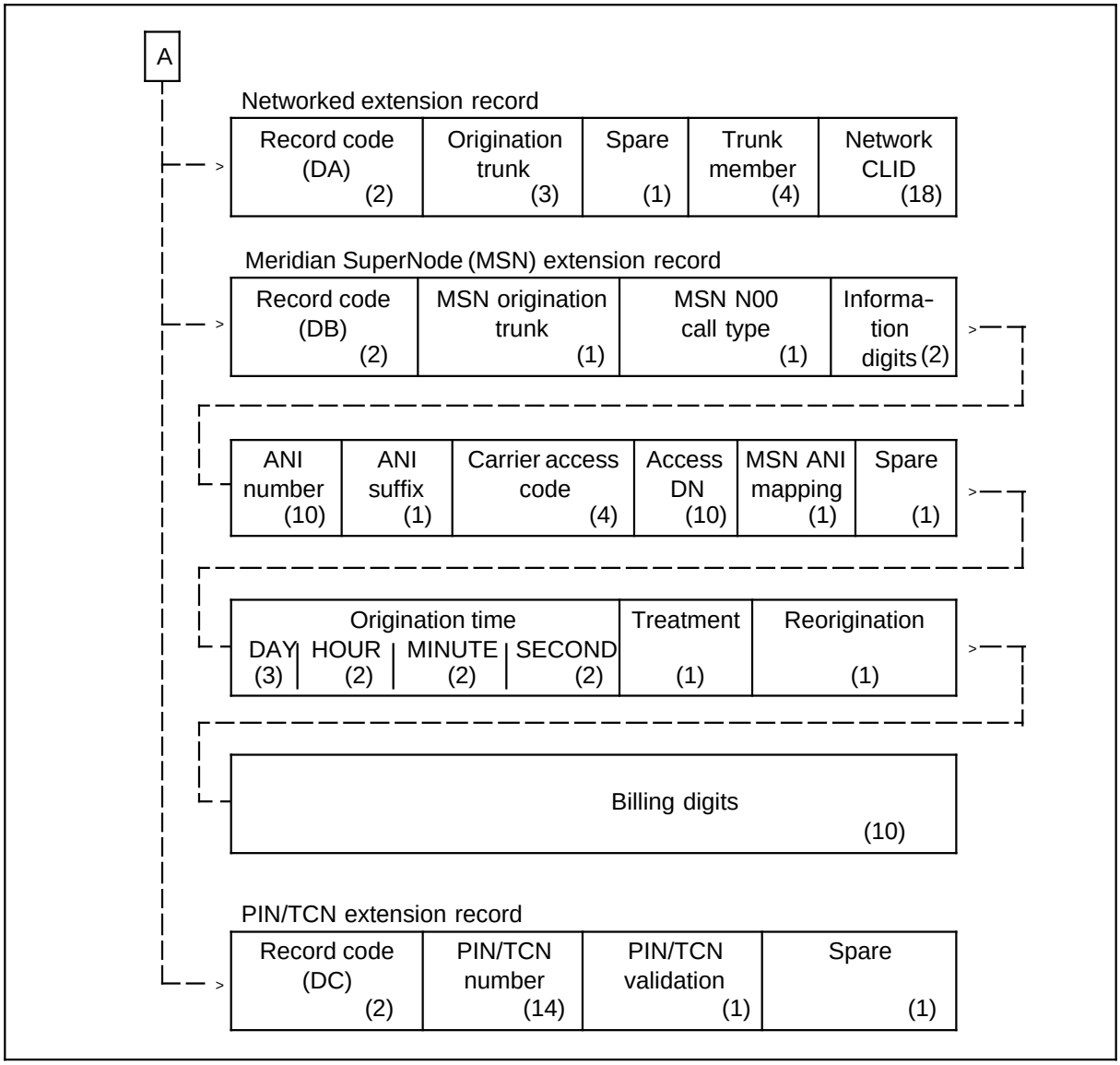


Figure 1-15 SMDR call and extension record format (continued)



Defining the SMDR call record fields

Each main call record is made up of 16 fields. Each field contains specific data about a call. The following table lists the fields of an SMDR call record and indicates where to find information about each field.

Table 1-15 SMDR call record fields (Sheet 1 of 2)

Field ID	Field name	Page reference
REC CODE	Record code	See "Record code field.
CUSTGRP	Customer group	See "Customer group number field.
ORIGTYPE	Origination type	See "Origination type field.
ORIGID	Origination identification	See "Origination identification field.
DATA CALL ID	Data call identification	See "Data call identification field.
INFO DIGITS	Information digits 1 and 2	See "Information digits 1 and 2 field.
CONS NO	Console number	See "Console number field.
SUBGRP	Subgroup	See "Subgroup field.
TRM TYPE	Termination type	See "Termination type field.
TERM ID	Termination identification	See "Termination identification field.
RTE INFO	Route information digit	See "Route information digit field.
DAY	Day of the year	See "Start time field.
TIME	Time. This field contains the following fields: • Hour (HR) • Minute (MIN) • Second (SEC)	See "Start time field.
ELAPSED TIME	Elapsed time	See "Elapsed time field.
ORIG FC	Origination feature code	See "Originating feature code field.

Table 1-15 SMDR call record fields (Sheet 2 of 2)

Field ID	Field name	Page reference
TERM FC	Termination feature code	See "Terminating feature code field.
CLD NO	Called number digits	See "Called number field.

Record code field

The record code (REC CODE) field identifies the call record type and its format using a two character code. The call record types are as follows:

Table 1-16

Code	Called record type
D1	Short format SMDR call record. A short format indicates that 12 or fewer digits have been dialed.
D2	Short format NERVE call record. A short format indicates that 12 or fewer digits have been dialed.
D3	Long format SMDR call record. A long format indicates that more than 12 digits have been dialed.
D4	Long format NERVE call record. A long format indicates that more than 12 digits have been dialed.

The digits dialed by the user are considered the called number. The called number (CLD NO) field lists the digits dialed to reach the number called. "Called number field" describes the called number field.

Using the AMADUMP utility with the DETAILS option, this example highlights the record code field for an SMDR call record.

```
*REC CODE:D1  CUSTGRP CLLI:008  ORIGTYPE:8  ORIGID:6137224800A
 DATA CALL ID:A  INFO DIGITS:40  CONS NO:FF  SUBGRP:0  TRM TYPE:0
 TERM ID:6137226613A0  RTE INFO:0  DAY=066  TIME:  HR=17  MIN=11
    SEC=11
 ELAPSED TIME=000005  ORIG FC:0  TERM FC:0  CLD NO:26613AAAAAAA
```

Customer group number field

The customer group (CUSTGRP CLLI) number field is a three-digit HEX number mapped to the customer group name datafilled in table CUSTENG. The customer group name is called a CLLI for this field.

The C data group translator records in the data group blocks on an SMDR file lists the conversion of the HEX number to the customer name.

Note: If customer groups have been deleted between batch change supplement (BCS), the dump and restore process during BCS insertion can alter the mapping of the customer group names to the HEX number displayed in an SMDR record. The dump and restore process resequences the customer groups to fill the spaces left by the deleted tuples.

Downstream processing can be immune to dump and restore changes by expressing customer group in character form, rather than numeric form, when output files are generated. This mapping can be performed through use of the CUSTGRP translation records.

Using the AMADUMP utility with the DETAILS option, this example highlights the customer group number field for an SMDR call record.

```
*REC CODE:D1   CUSTGRP CLLI:008  ORIGTYPE:8  ORIGID:6137224800A
 DATA CALL ID:A  INFO DIGITS:40  CONS NO:FF  SUBGRP:0  TRM TYPE:0
 TERM ID:6137226613A0  RTE INFO:0  DAY=066  TIME:  HR=17  MIN=11
    SEC=11
 ELAPSED TIME=000005  ORIG FC:0  TERM FC:0  CLD NO:26613AAAAAAA
```

Origination type field

The origination type (ORIGTYPE) field contains a single-digit code defining the call origination type. Using the AMADUMP utility with the DETAILS option, this example highlights the origination type field for an SMDR call record.

```
*REC CODE:D1   CUSTGRP CLLI:008  ORIGTYPE:8  ORIGID:6137224800A
 DATA CALL ID:A  INFO DIGITS:40  CONS NO:FF  SUBGRP:0  TRM TYPE:0
 TERM ID:6137226613A0  RTE INFO:0  DAY=066  TIME:  HR=17  MIN=11
    SEC=11
 ELAPSED TIME=000005  ORIG FC:0  TERM FC:0  CLD NO:26613AAAAAAA
```

The following table lists the call origination types and associated codes, and provides a description of each origination type.

Table 1-17 Call origination types (Sheet 1 of 2)

Code	Origination type	Description
0	Station	Any type of station
1	Station	This value is for a station with the special billing number (SPB) option assigned in table IBNFEAT and the access code assigned in table IBNXLA.
2	Attendant console	When SMDR is available, this value is entered in the ORIGTYPE field when an attendant originates a call. To make SMDR available for the attendant console, the CDR field in table ATTCONS must be datafilled. "Activating SMDR for attendant consoles" describes datafill for attendant consoles.
3	Trunk	When SMDR is available for the trunk, this value is entered in the ORIGTYPE field when a call is originated on this trunk. "Activating SMDR for trunk calls" describes datafill for trunks.
4	DISA_DN	This value is entered when the originator is a direct inward system access (DISA) directory number (DN). "DISA" describes when code 4 is listed as the originator.
5	Virtual facility group	When SMDR is available for a VFG, this value is entered in the ORIGTYPE field when a call originates from a VFG.
6	Six-port conference circuit originator	This value is assigned in the ORIGTYPE field in an SMDR call record for the originator of a call when the Meridian business set (MBS) user establishes a conference call using the conference (CONF) key or the access code. Six-port conference circuits are datafilled in table CONF6PR.

Table 1-17 Call origination types (Sheet 2 of 2)

Code	Origination type	Description
7	FGD_ANI	Up to BCS29, this origination type was only available on SL-100 switches. When SMDR is available for feature group D calls using automatic number identification (ANI), this value is entered in the ORIGTYPE field when a call is made. "Activating FGD on an SL-100 switch" describes the feature activation necessary to generate this origination type. *Meridian SL-100 Features and Service Description*, SL-100 Feature Group D, describes this feature. Feature package NTXJ42AA, AD1313 - Feature Group D on MDC introduces this origination type for the DMS-100 switch. Virtual private network (VPN) standard access
8	AIOD	When the ANI_IN_SMDR office parameter is set to Y (yes) and SMDR is activated for a call over a VFG, the ANI information is recorded in the SMDR call record rather than the VFG name. The ORIGTYPE field has the value 8.
9	unused	Is not applicable
A	unknown	Cannot be determined

Origination identification field

The ORIGID field lists the ID of the originator of a call. The ORIGID data is 11 digits in length. The format of the ORIGID depends on the originator type.

Using the AMADUMP utility with the DETAILS option, this example highlights the origination identification field for an SMDR call record with an automatic identification of outward dialing (AIOD) DN.

Table 1-18

```
*REC CODE:D1   CUSTGRP CLLI:008  ORIGTYPE:8  ORIGID:6137224800A
  DATA CALL ID:A  INFO DIGITS:40  CONS NO:FF  SUBGRP:0  TRM TYPE:0
  TERM ID:6137226613A0   RTE INFO:0   DAY=066   TIME:   HR=17   MIN=11
     SEC=11
  ELAPSED TIME=000005  ORIG FC:0  TERM FC:0  CLD NO:26613AAAAAAA
```

The following table describes the content of the 11 digits for each origination type.

Note 1: If an attendant console extends a call that originated outside the customer group and SMDR is activated for the attendant console (the Activating SMDR for attendant consoles table in chapter 3), the ORIGID field in the SMDR record will reflect that of the originator, not the attendant console. This comment can be associated with an ORIGTYPE of 0, 1 or 3.

Note 2: The ORIGID field will contain only zeroes when an SMDR record is generated for a line with a DN longer than 10 digits.

Table 1-19 Origination identification definitions (Sheet 1 of 2)

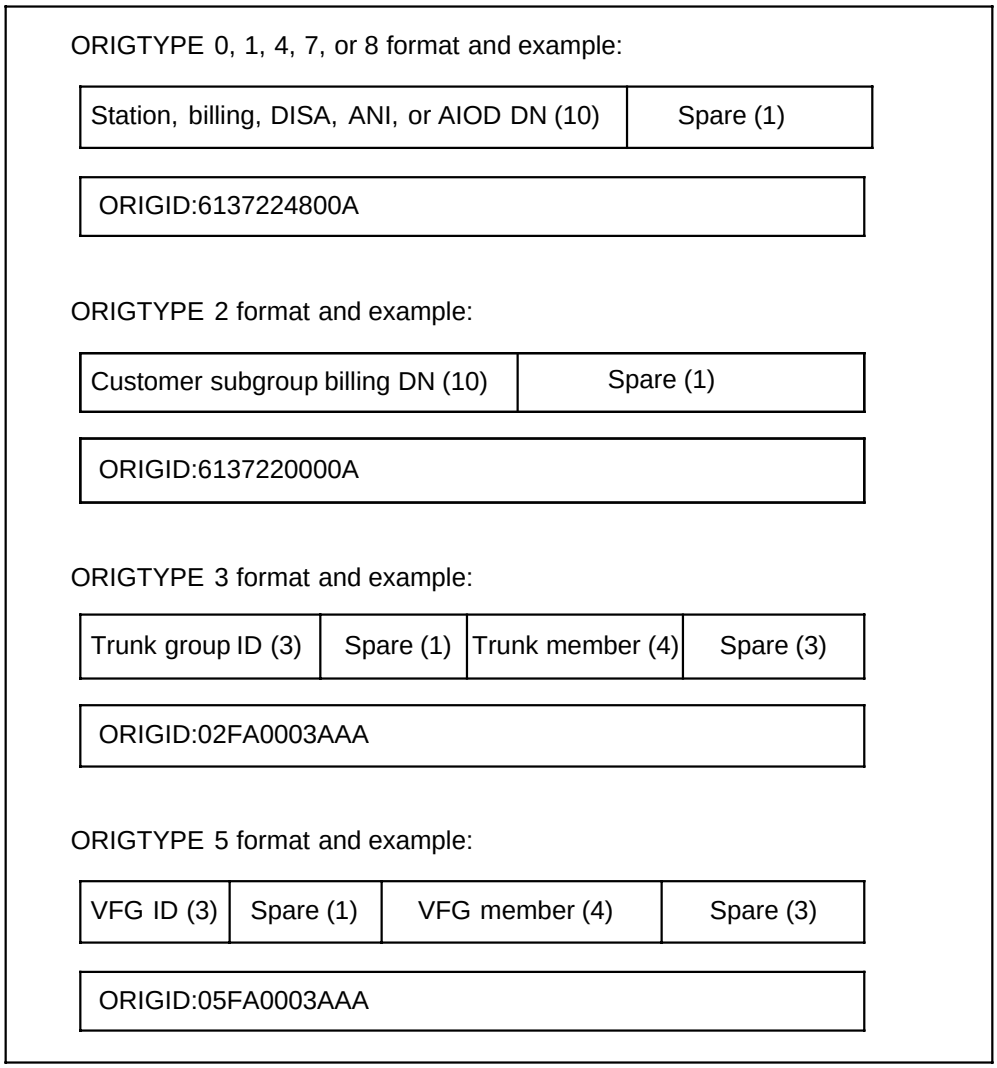
ORIGTYPE	Digit position	Definition
0*	01 — 10	Station billing DN.
	11	Spare. Displayed as the HEX character A.
1*	01 – 10	Station billing DN with SBP.
	11	Spare. Displayed as the HEX character A.
2	01 – 11	Customer subgroup billing DN for attendant originated calls. The subgroup billing DN is datafilled in the SNPADN field of table SUBGRP.
3*	01 – 03	Trunk group ID There can be a maximum of 2047 trunk groups. "Data group translator records" describes the translator records.
	04	Spare. Displayed as the HEX character A.
	05 – 08	Trunk member ID. This is a HEX number.
	09 – 11	Spare. Displayed as the HEX character A.
4	01 – 10	DISA DN. DISA DNs are datafilled in table DNROUTE.
	11	Spare. Displayed as the HEX character A.

Table 1-19 Origination identification definitions (Sheet 2 of 2)

ORIGTYPE	Digit position	Definition
5	01 – 03	Virtual facility group ID There can be a maximum of 8191 VFGs. The VFG name (for example, OWAT2) in table VIRTGRPS is mapped internally within the DMS switch to a HEX number (for example, 05F). For the V translator record in the C2C2 data block, the HEX number (05F) is converted and recorded in its EBCDIC decimal equivalent value (0095). In the ORIGID field, the HEX number (05F) is recorded. "Data group translator records" describes the translator records.
	04	Spare. Displayed as the HEX character A.
	05 – 08	This is the VFG member number as datafilled in the SUBGRP field in table VIRTGRPS.
	09 – 11	Spare. Displayed as the HEX character A.
6	01 – 11	The originator is not determined by the system. All spaces are filled with the character A.
7	01 – 10	Feature group D ANI. *Meridian SL-100 Features and Service Description*, SL-100 Feature Group D, describes the feature which generates this origination identification. Feature Group D on MDC introduces this origination type for the DMS-100 switch.
	11	Spare. Displayed as the HEX character A.
	12	Data call identifier
8	01 – 10	Automatic identification of outward dialing.
	11	Spare. Displayed as the HEX character A.
9	unused	Is not applicable
A	unknown	Cannot be determined

The following figure illustrates the formats (in 4-bit nibbles) and examples of the various origination types determined by the origination data.

Figure 1-16 Origination identification data format examples



Data call identification field

The data call identification (DATA CALL ID) field lists a one-digit code indicating the type of call being made. The types of calls follow:

Table 1-20 Data call identification types (Sheet 1 of 2)

Code	Indicates
0	A voice call
2	A data call for which modem pooling was not used
3	A data call for which modem pooling was used

Table 1-20 Data call identification types (Sheet 2 of 2)

Code	Indicates
A	That this feature (F6686) is inactive This feature is controlled by the DATA_CALL_SMDR office parameter in table OFCVAR.

"Identifying data calls" describes this feature.

Using the AMADUMP utility with the DETAILS option, this example highlights the data call identification field for an SMDR call record.

Table 1-21

```
*REC CODE:D1   CUSTGRP CLLI:008  ORIGTYPE:8  ORIGID:6137224800A
  DATA CALL ID:A  INFO DIGITS:40  CONS NO:FF  SUBGRP:0  TRM TYPE:0
  TERM ID:6137226613A0   RTE INFO:0   DAY=066   TIME:  HR=17   MIN=11
     SEC=11
  ELAPSED TIME=000005  ORIG FC:0  TERM FC:0  CLD NO:26613AAAAAAA
```

Information digits 1 and 2 field

The information digits (INFO DIGITS) field is a two-digit code providing call event information. Depending upon the events that have occurred during the call, a value from 0 to hexadecimal F is entered in the call record for each of the two information digits.

The following two tables illustrate a matrix for determining the information digit value depending upon the events that have occurred.

Table 1-22 Information digit 1 matrix (Sheet 1 of 2)

Info digit 1 value	Service analyzed	ANI fail	Call has been answered	VPN ON-NET
0	N	N	N	N
1	Y	N	N	N
2	N	Y	N	N
3	Y	Y	N	N
4	N	N	Y	N
5	Y	N	Y	N
6	N	Y	Y	N

Table 1-22 Information digit 1 matrix (Sheet 2 of 2)

Info digit 1 value	Service analyzed	ANI fail	Call has been answered	VPN ON-NET
7	Y	Y	Y	N
8	N	N	N	Y
9	Y	N	N	Y
A	N	Y	N	Y
B	Y	Y	N	Y
C	N	N	Y	Y
D	Y	N	Y	Y
E	N	Y	Y	Y
F	Y	Y	Y	Y

Table 1-23 Information digit 2 matrix

Info digit 2 value	Call party disconnect	Attendant extended call
0	N	N
1	Y	N
2	N	Y
3	Y	Y
Note: Values 4 to Hex F are not applicable for information digit 2.		

The format and example of this field is as follows:

Table 1-24

Format	Example		
Digit 1	Digit 2	4	0

This example illustrates the INFO DIGITS field for a call record with a value of 40 for a call with the following attributes:

- The line or trunk on which the call is being made has not had its service analyzed.
- ANI has not failed.
- The call has been answered.
- The calling party has gone on-hook before the called party.
- The call has not been extended by an attendant.

Using the AMADUMP utility with the DETAILS option, this example highlights the information digits field for an SMDR call record.

Table 1-25

```
*REC CODE:D1   CUSTGRP CLLI:008  ORIGTYPE:8  ORIGID:6137224800A
  DATA CALL ID:A  INFO DIGITS:40  CONS NO:FF  SUBGRP:0  TRM TYPE:0
  TERM ID:6137226613A0   RTE INFO:0   DAY=066   TIME:   HR=17   MIN=11
     SEC=11
  ELAPSED TIME=000005  ORIG FC:0  TERM FC:0  CLD NO:26613AAAAAAA
```

INFO DIGITS:40 The following table describes the events.

Table 1-26 Information digits field events description (Sheet 1 of 2)

Event	Description
Service analyzed	The call has been analyzed by the facilities available in the NTX065AA - Service Analysis feature package. Table SAUSERS describes the use of the service analysis features. This table is in the data schema section of the *Translations Guide*.
ANI fail	If used, ANI did not fail.
Call has been answered	The call has been answered.
VPN on-net	The call is a VPN on-net or off-net call: • Y: the call is a VPN on-net call • N: the call is a VPN off-net call, if the call is a VPN call (other information in the SMDR record indicates if the call is a VPN call)

Table 1-26 Information digits field events description (Sheet 2 of 2)

Event	Description
Called party disconnect	This event indicates from which end the call disconnect is recognized first. The two possibilities for this event are as follows: • Y: The called party went on-hook before the calling party, and the called party's timed release disconnect (TRD) timer expired before the calling party went on-hook. • N: The calling party went on-hook before the called party. Except for Japan, if the call is blocked by the switch, there is no terminating side, thus Called Party Disconnect is set to N. For Japan, the switch extends the definition of the called party disconnect bit as follows: • Y: The switch received a backwards release message from the terminating agent before the originating agent released the call. The TRD of the terminating agent expired before the originating agent released the call. • N: The originating agent released the call before the switch received a backwards release message from the terminating agent. ***Note:*** This extended definition applies if, for example, the called party does not answer the call or the switch blocks the call.
Attendant extended call	A call from the originator has been extended to the terminator by an attendant console operator.

Console number field

The console number (CONS NO) field lists the internal HEX number of an attendant console if an attendant has originated a leg of a call either by extending or originating a call. The number of the attendant consoles for each switch is 255.

The attendant console name (for example, CARIBNTO2W) in table ATTCONS is mapped internally within the DMS switch to a HEX number (for example, D5). For the A translator record in the C2C2 data block, the HEX number (D5) is converted and recorded in its EBCDIC decimal equivalent value (0213). In the ORIGID field, the HEX number (D5) is displayed.

"Data group translator records" describes the translator records.

If a call does not involve the attendant console, the value entered is FF.

Using the AMADUMP utility with the DETAILS option, this example highlights the console number field for an SMDR call record.

Table 1-27

```
*REC CODE:D1   CUSTGRP CLLI:008  ORIGTYPE:8  ORIGID:6137224800A
  DATA CALL ID:A  INFO DIGITS:40  CONS NO:FF  SUBGRP:0  TRM TYPE:0
  TERM ID:6137226613A0   RTE INFO:0   DAY=066   TIME:   HR=17   MIN=11
     SEC=11
  ELAPSED TIME=000005  ORIG FC:0  TERM FC:0  CLD NO:26613AAAAAAA
```

Subgroup field

The subgroup (SUBGRP) field defines the subgroup number for a subgroup in a customer group that originated the call record. Table CUSTCONS assigns the number of subgroups in the customer group. There can be up to seven subgroups in a customer group.

Subgroup field example Using the AMADUMP utility with the DETAILS option, this example highlights the subgroup field for an SMDR call record.

Table 1-28

```
*REC CODE:D1   CUSTGRP CLLI:008  ORIGTYPE:8  ORIGID:6137224800A
  DATA CALL ID:A  INFO DIGITS:40  CONS NO:FF  SUBGRP:0  TRM TYPE:0
  TERM ID:6137226613A0   RTE INFO:0   DAY=066   TIME:   HR=17   MIN=11
     SEC=11
  ELAPSED TIME=000005  ORIG FC:0  TERM FC:0  CLD NO:26613AAAAAAA
```

Termination type field

The termination type (TRM TYPE) field lists a single-digit code defining the type of device where the call terminated. When the termination type is unknown, a HEX character A is recorded. The following table describes the call termination types.

Table 1-29 Call termination types (Sheet 1 of 2)

Code	Termination type	Description
0	Station	This value is entered when a call terminates at a station.
2	Attendant console	This value is entered when a call terminates at an attendant console.
3	Trunk	This value is entered when a call terminates on a trunk.

Table 1-29 Call termination types (Sheet 2 of 2)

Code	Termination type	Description
4	DISA DN	This value is entered when a call terminates at a DISA DN. See "DISA" for a description of DISA usage as it applies to SMDR.
5	Virtual facility group	This value is entered when a call terminates on a VFG.
A	unknown	Type of termination was unknown by the system.

Using the AMADUMP utility with the DETAILS option, this example highlights the termination type field for an SMDR call record.

Table 1-30

```
*REC CODE:D1   CUSTGRP CLLI:008  ORIGTYPE:8  ORIGID:6137224800A
 DATA CALL ID:A  INFO DIGITS:40  CONS NO:FF  SUBGRP:0  TRM TYPE:0
 TERM ID:6137226613A0   RTE INFO:0   DAY=066   TIME:   HR=17   MIN=11
    SEC=11
 ELAPSED TIME=000005  ORIG FC:0  TERM FC:0  CLD NO:26613AAAAAAA
```

Termination identification field

The termination identification (TERM ID) field lists a 12-digit code identifying the specific device at which the call terminated. There is a specific format for each of the terminal types identified in the termination type (TRM TYPE) field. The data is entered using BCD digits.

Using the AMADUMP utility with the DETAILS option, this example highlights the Termination Identification field for an SMDR call record that terminates at a station.

Table 1-31

```
*REC CODE:D1   CUSTGRP CLLI:008  ORIGTYPE:8  ORIGID:6137224800A
 DATA CALL ID:A  INFO DIGITS:40  CONS NO:FF  SUBGRP:0  TRM TYPE:0
 TERM ID:6137226613A0   RTE INFO:0   DAY=066   TIME:   HR=17   MIN=11
    SEC=11
 ELAPSED TIME=000005  ORIG FC:0  TERM FC:0  CLD NO:26613AAAAAAA
```

The following table lists and defines the 12 digits for each of the termination types.

Table 1-32 Termination identication definitions

TRM TYPE	Digit position	Definition
0	01 – 10	Station billing DN
	11, 12	0: Electrical answer
2	01 – 10	Spare. Displayed as the HEX character A.
	11, 12	Attendant console number.
3	01 – 03	Trunk group ID. This is a binary number that is converted to CLLI.
	04	Spare. Displayed as the HEX character A.
	05 – 08	Trunk member ID. This is a binary number.
	09 – 11	Spare. Displayed as the HEX character A.
	12	Defines the answer types as follows: • 0: Electrical answer. • 1: Synthetic answer, such as an MDC trunk with field SUPV in table TRKGRP set to NODISC or DISCONLY. This is used with FX0 and 5X25 trunk types only. • 2: Audio tone detector (ATD) voice frequency detected answer. • 3: ATD default answer. This is reported when voice detection was used, but a voice is not detected.
4	01 – 10	DISA DN. The DN is assigned in table DNROUTE.
	11, 12	Spare. Displayed as the HEX character A.
5	01 – 03	VFG ID. This is a number converted to a VFG symbolic name.
	04	Spare. Displayed as the HEX character A.
	05 – 08	VFG member number.
	09 – 12	Spare. Displayed as the HEX character A.

Figure 1-17 Termination identification format examples

TERMTYPE 0 and 4 format and example:

Station billing or DISA DN (10)	Spare (1)

ORIGID:6137224800A

TERMTYPE 2 format and example:

Spare (10)	Attendant console No. (2)

ORIGID:AAAAAAAAAA00

TERMTYPE 3 format and example:

Trunk group ID (3)	Spare (1)	Trunk member (4)	Spare (3)	Answer type (1)

ORIGID:002A0002AAA

TERMTYPE 5 format and example:

VFG ID (3)	Spare (1)	VFG member (4)	Spare (4)

ORIGID:022A0003AAA

Route information digit field

The route information (RTE INFO) digit field lists a one-digit code providing information about call routing events that have occurred during a call.

The following table illustrates the events that determine the route information digit field.

Table 1-33 Route information digits matrix

Event	Has the event occurred?							
Digits missing	N	Y	N	Y	N	Y	N	Y
ARS selected route	N	N	Y	Y	N	N	Y	Y
Expensive route	N	N	N	N	Y	Y	Y	Y
Value entered in this field:	0	1	2	3	4	5	6	7

Using the AMADUMP utility with the DETAILS option, this example highlights the route information digit field for an SMDR call record. This call has no digits missing, has not selected an automatic route selection (ARS) route, and has not selected an expensive route.

Table 1-34

```
*REC CODE:D1   CUSTGRP CLLI:008  ORIGTYPE:8  ORIGID:6137224800A
  DATA CALL ID:A  INFO DIGITS:40  CONS NO:FF  SUBGRP:0  TRM TYPE:0
  TERM ID:6137226613A0  RTE INFO:0  DAY=066  TIME:  HR=17  MIN=11
     SEC=11
  ELAPSED TIME=000005  ORIG FC:0  TERM FC:0  CLD NO:26613AAAAAAA
```

The following table describes the route information digit field events.

Table 1-35 Route information digit field events description

Event	Description
Digits missing	Digits are missing in the called number field.
ARS selected route	Automatic route selection has been used to route a call.
Expensive route	If this event has occurred, an expensive route has been chosen by the system and approved for use by the caller.

Start time field

The start time field lists the date and time for either an answered or unanswered call as follows:

Table 1-36

Type of call	Description
Answered	Enters the date and time of when a valid answer signal was detected. The first digit in the INFO DIGS field would be 4, 5, 6, or 7.
Unanswered	Enters the date and time at which an initial trunk or line seizure occurred. The first digit in the INFO DIGS field would be 0, 1, 2, or 3.

The start time field is actually made up of four subfields: DAY, TIME, MIN, and SEC. Time is obtained from the system clock. To set the system date and time at the MAP terminal, use the SETDATE and SETTIME CI-level commands.

The format (in the number of 4-bit nibbles) of this field is as follows:

Day (3)	Hour (2)	Minute (2)	Second (2)

Using the AMADUMP utility with the DETAILS option, this example highlights the Start Time field for an SMDR call record. This call was answered at 5:11:11 p.m. on the 66th day of the year (March 7th in 1989).

Table 1-37

```
*REC CODE:D1   CUSTGRP CLLI:008  ORIGTYPE:8  ORIGID:6137224800A
  DATA CALL ID:A  INFO DIGITS:40  CONS NO:FF  SUBGRP:0  TRM TYPE:0
  TERM ID:6137226613A0   RTE INFO:0  DAY=066  TIME:  HR=17  MIN=11
     SEC=11
  ELAPSED TIME=000005  ORIG FC:0  TERM FC:0  CLD NO:26613AAAAAAA
```

The following table lists and defines the subfields that make up the start time field.

Table 1-38 Start time field contents

Subfield	Range	Description
DAY	001 – 366	the day the call started
HOUR	00 – 23	the hour the call started
MIN	00 – 59	the minute the call started
SEC	00 – 59	the second the call started

Elapsed time field

The elapsed time field is a six-digit value listing the elapsed time for either an answered or unanswered call as follows:

Table 1-39

Type of call	Description
Answered	Enters the total conversation time between the caller (field ORIGID) and the second party (field TERMID). The total conversation is measured from the ANSWER message to the DISCONNECT message. The first digit in the INFO DIGS field would be 4, 5, 6, or 7.
Unanswered	Enters the total time that the outgoing trunk or line was seized. The first digit in the INFO DIGS field would be 0, 1, 2, or 3.

Time is entered in seconds and is right justified. When required, the field is padded with zeros. The maximum value is 999999 or 11 days, 13 hours, 46 minutes, and 39 seconds. Time is counted by the system clock.

Total conversation time for a call may differ than what is displayed in a call record. For example, if the second digit of the INFO DIGITS field indicates that the call was *attendant extended*, the elapsed time field represents only the duration of the conversation from the time the attendant extended the call.

Using the AMADUMP utility with the DETAILS option, this example highlights the Elapsed Time field for an SMDR call record. This call lasted five seconds.

Table 1-40

```
*REC CODE:D1   CUSTGRP CLLI:008  ORIGTYPE:8  ORIGID:6137224800A
  DATA CALL ID:A  INFO DIGITS:40  CONS NO:FF  SUBGRP:0  TRM TYPE:0
  TERM ID:6137226613A0   RTE INFO:0   DAY=066   TIME:   HR=17   MIN=11
     SEC=11
  ELAPSED TIME=000005  ORIG FC:0  TERM FC:0  CLD NO:26613AAAAAAA
```

Originating feature code field

The originating feature code (ORIG FC) field contains a single-digit code that indicates what feature the originator activated during a call or was activated for that call.

Note: SMDR must be activated for the line or trunk over which the call is being made and the feature is being activated. The following table lists the codes, features, and the datafill necessary to assign the feature at the switch.

Table 1-41 Originating feature codes (Sheet 1 of 2)

Code	Originator feature	Explanation
0	Default	This value is applied when none of the other codes apply.
1	Unused	This value is not applicable.
2	Three-Way Calling	This value is applied to the ORIG FC field of the SMDR call record of the station originating the second leg of a three-way call.
3	Six-Way Conference	This value is applied to the ORIG FC field of the SMDR call record of the station accessing a conference circuit.
	Attendant Conference	This value is entered in the ORIG FC field of the SMDR call record of the originating station.
	Meet-Me Conference	This value is applied to the ORIG FC field of the SMDR call record of the originating station when accessing a Meet-Me Conference DN.

Table 1-41 Originating feature codes (Sheet 2 of 2)

Code	Originator feature	Explanation
4	Call Park Retrieval	This value is applied to the ORIG FC field of the SMDR call record for the originating station that retrieves a call that has been parked.
5	Unused	This value is not applicable.
6	Multiple Answer	This value is applied to the ORIG FC field of the SMDR call record for a call that goes out over a trunk that uses an ATD. "Termination Identification Field" describes ATD usage and recording.
7	Unused	This value is not applicable.
8	Preset Conference	This value is applied to each leg of a preset conference call that generates an SMDR call record.
9	Group Intercom Call	This value is applied to the ORIG FC field of the SMDR call record for the originator of a call that uses the group intercom feature.
11 (B)	Per Use Billing	This value is applied to the ORIG FC and the TERM FC fields of the SMDR call record to indicate that a #DF09 extension record is attached and that this record is a per-use billing record.

Note: Origination feature code 3 appears only when the ORIGTYPE is 6.

Using the AMADUMP utility with the DETAILS option, this example highlights the originating feature code field for an SMDR call record.

Table 1-42

```
*REC CODE:D1   CUSTGRP CLLI:008  ORIGTYPE:8  ORIGID:6137224800A
  DATA CALL ID:A  INFO DIGITS:40  CONS NO:FF  SUBGRP:0  TRM TYPE:0
  TERM ID:6137226613A0   RTE INFO:0   DAY=066   TIME:   HR=17   MIN=11
     SEC=11
  ELAPSED TIME=000005  ORIG FC:0  TERM FC:0  CLD NO:26613AAAAAAA
```

Terminating feature code field

The terminating feature code (TERM FC) field contains the single-digit feature code of the terminator. The following table lists the codes, features, and the datafill necessary to assign the feature at the switch.

Note: SMDR must be activated for the line or trunk over which the call is being made and the feature is being activated.

Table 1-43 Terminating feature codes (Sheet 1 of 2)

Code	Terminating feature	Description
0	Default	When none of the other codes apply.
1	Call Forwarding	Assuming that SMDR is desired for the type of call being made, each call that is forwarded generates two SMDR call records if SMDR is turned on for both call legs. One record is generated for each leg of the call. The first call leg is from the originator to the forwarded station. The second call leg is from the forwarded station to the terminator. The terminator is the station to which the call has been forwarded. Value 1 is entered in the TERM FC field of the SMDR call record for the first call leg. The *Translations Guide* describes the many varieties of call forwarding.
2	Unused	This value is not applicable.
3	Six-Way Conference	See "Six-Way Conference.
	Attendant conference	See "Attendant Conference.
	Meet-Me Conference	See "Meet-Me Conference.
	Meet-Me Conference Large	See "Meet-Me Conference (Large).
	Executive Conference	See "Executive Conference.
4	Unused	This value is not applicable.
5	Call-Back Queuing	See "Call-Back Queuing.
	Ring Again	See "Ring Again.

Table 1-43 Terminating feature codes (Sheet 2 of 2)

Code	Terminating feature	Description
6	Multiple answer	This value is applied to the TERM FC field of the SMDR call record for a call that goes out over a trunk that uses an ATD. "Termination identification field" describes ATD usage and recording.
7	Flexible Station-Controlled Conference	See "Station-Controlled Conference.
8	Preset Conference	This value is applied to the TERM FC field of the SMDR call record for each leg of a preset conference call that generates an SMDR call record.
9	Unused	This value is not applicable.
10	Call Request Retrieval	This value is not applied to an SMDR call record. This value is entered in the AMAB150 log report. The TERM FC field in an SMDR call record for this type of call will have a value of 0.
11 (B)	Per Use Billing	This value is applied to the ORIG FC and the TERM FC fields of the SMDR call record to indicate that a #DF09 extension record is attached and that this record is a per-use billing record.

Using the AMADUMP utility with the DETAILS option, this example highlights the terminating feature code field for an SMDR call record.

Table 1-44

```
*REC CODE:D1   CUSTGRP CLLI:008  ORIGTYPE:8  ORIGID:6137224800A
  DATA CALL ID:A  INFO DIGITS:40  CONS NO:FF  SUBGRP:0  TRM TYPE:0
  TERM ID:6137226613A0   RTE INFO:0   DAY=066   TIME:  HR=17   MIN=11
     SEC=11
  ELAPSED TIME=000005  ORIG FC:0  TERM FC:0  CLD NO:26613AAAAAAA
```

Called number field

The called number (CLD NO) field lists the 12- or 30-digit code defining the digits that were dialed. The format of this field is based on the record code as follows:

Table 1-45

Record code	Called digits format
D1, D2	Short format from one to 12 digits. The data is left left justified and padded with filler digits as required. A filler digit is an "A".
D3, D4	Long format from 13 to 30 digits. The data is left left justified and padded with filler digits as required. A filler digit is an "A".

Using the AMADUMP utility with the DETAILS option, this example highlights the called number field for an SMDR call record.

Table 1-46

```
*REC CODE:D1   CUSTGRP CLLI:008  ORIGTYPE:8  ORIGID:6137224800A
  DATA CALL ID:A  INFO DIGITS:40  CONS NO:FF  SUBGRP:0  TRM TYPE:0
  TERM ID:6137226613A0   RTE INFO:0   DAY=066   TIME:   HR=17   MIN=11
     SEC=11
  ELAPSED TIME=000005  ORIG FC:0  TERM FC:0  CLD NO:26613AAAAAAA
```

Note 1: If a speed-call code (for example, *5) is used to originate a call, the called number associated with *5 will be recorded in the SMDR call record.

Note 2: When the called number is received over an Australian Telephone User Part (ATUP) trunk, the range of values in the called number field includes the hexadecimal digits B, C, D, E, and F.

Defining the extension call record formats

The extension record formats provide additional information about a call. The SMDR extension call records are only provided when they have been properly datafilled. There can be more than one extension call record for each main call record.

The extension record formats follow:

Table 1-47

Record code	Called digits format
D5	Digits-as-outpulsed. See "D5 digits-as-outpulsed extension record.
D6	Account or authorization code. See "D6 account or authorization code extension record.
DA	Meridian SuperNode. See "DA networked extension record.
DB	Networked. See "DB Meridian SuperNode extension record.
DC	PIN/TCN. See "DC PIN/TCN extension record.
DD	Bearer capability (BC). See "DD bearer capability extension record.
DE	Independent common carrier (ICC). See "DE extension record.
DF01	Inbound toll call. See "DF inbound toll call extension record.
DF02	User-to-user information. See "DF user-to-user information call extension record."
DF03	PVN option call extension. See "PVN option call extension record.
DF04	AIN R0.1 option call extension. See "AIN R0.1 option call extension record.
DF05	Carrier charge area information option call extension. See "Carrier charge area information option call extension record.
DF06	Charge rate information option call extension. See "Charge rate information option call extension record.
DF07	Additional user type option call extension. See "Additional user type option call extension record.
DF09	A usage sensitive extension record produced to store CLASS feature usage information. Generated upon successful completion of the feature activation, as part of an audit process, or as a result of editing a CLASS SLE list. Refer to "DF09 SMDR extension record" for more information.

Note: "Interpreting the byte structures of SMDR records" illustrates the byte structures for the SMDR extension call records.

D5 digits-as-outpulsed extension record

The digits-as-outpulsed (DAO) extension record defines the digits that were outpulsed over an outgoing trunk if an outgoing trunk was used. The record code for the DAO extension record is D5. This record is always associated with the most recent main SMDR call record and is always recorded in the same call block in the SMDR file.

See "Activating SMDR at the switch" for the activation sequence.

The following table describes the data fields of the D5 extension record.

Table 1-48 D5 extension record data fields

Data fields	Definition
Record code	Identifies the record as D5
Digits outpulsed	Lists a code of up to 29 digits denoting the outpulsed number. The digits are left justified. If required, the digits are padded with the HEX character A.
Digits missing	Lists a single-digit code indicating the following: • 0: All the digits have been recorded. • 1: More than 29 digits have been outpulsed.

The following example illustrates the portion of the SMDR call record for when the number 8+1+962+212+345+678912345678901234 was called. All the digits that have been outpulsed have been recorded.

Table 1-49

```
*REC CODE:D5   DIGS OUT:8196221234567891234567890123
4 DIGS

MISSING: 0
```

The SMDR call and extension record format figure illustrates a complete SMDR call record.

D6 account or authorization code extension record

The account or authorization code extension record defines the account code and authorization code associated with a call. If both codes are used, two D6 extension records are generated.

A 131 call uses an authcode so the D6 extension record is always produced.

To activate the use of account codes, see "Activating SMDR for account and authorization codes.

The following table describes the fields of the account or authorization code extension record.

Table 1-50 D6 extension record data fields

Data fields	Definition
Record code	Identifies the call record type as D6
Record type	Lists the type of record as follows: • 0: Account code • 1: Authorization code • 2: Combined account and authorization code
Num of authdigs in comb	Lists a value based on the following three scenarios: • If the record type field has the value 2, the value in this field represents the number of authorization code digits in the digits field. In this case, the authorization code digits precede the account code digits. • If the record type field has the value 2 and this field has the value A, the first ten digits of the digits field are the authorization code digits. • If the record type field has a value other than 2, this field has the value A. In this case, the value A means that this field is not used.
Digits	Lists the account or authorization code up to a maximum of 14 digits. The code is left justified and padded with the HEX character A as required.

The following example illustrates the portion of the SMDR call record for a call that used an account code of 14.

Table 1-51

```
*REC CODE:D6    REC TYPE:0    NUM OF AUTHDIGS IN COMB:A
 DIGITS:14AAAAAAAAAAAA
```

The SMDR call and extension record format figure illustrates a complete SMDR call record.

DA networked extension record

The networked extension record is generated for calls over incoming MDC trunks with ISUP trunk signaling. "Recording call data for MDC trunks with ISUP signaling" describes this extension record. The Activating SMDR for ISUP table in chapter 3 describes the steps necessary to activate the SMDR networked (DA) extension record.

The following table describes the fields of the networked extension record.

Table 1-52 DA extension record data fields

Data fields	Definition
Record code	Identifies the call record type as DA
Trunk group ID	Lists the three-digit HEX number which represents the CLLI code of the ISUP MDC trunk group associated with this call record. The trunk group ID should match the trunk group ID from the most recent main (D1, D2, D3, or D4) call record.
Spare	Spare character. Displayed as an A.
Trunk member ID	Lists the four-digit number which represents the trunk member ID associated with this call record. The trunk member ID should match the trunk member ID from the most recent main (D1, D2, D3, or D4) call record.
Network CLID	Lists the 18-digit network calling DN (CLID) from the initial address message (IAM). For calling information less than 18 digits, the number is left-justified and the spare digits are filled with "A"s. If the CLID cannot be found in the IAM, the DA extension call record is still generated. The value in the network CLID field will be 18 zeros. For calling information greater than 18 digits, the network CLID field will be filled with 18 zeros to avoid eroneous caller identification.

This example illustrates the portion of the SMDR DA call record.

Table 1-53

REC CODE:DA	ORIGINATION TRUNK:243	SPARE:A	MEMBER:0002
NETWORK CLD:5196621431AAAAAAAA			

The SMDR call and extension record format figure illustrates a complete SMDR call record.

DB Meridian SuperNode extension record

The Meridian SuperNode (MSN) extension record is generated for incoming calls involving FGB and FGD.

"Activating SMDR for Meridian SuperNode calls" in the "Network and system administration" section describes how to activate this call record.

The following table describes the fields for the MSN extension record.

Table 1-54 DB extension record data fields (Sheet 1 of 4)

Data fields	Definition
Record code	Identifies the call record type as DB
MSN origination type	Identifies the MSN origination call type as follows: • 0: other • 1: FGA (feature group A) • 2: FGB • 3: FGC (feature group C) • 4: FGD • 5: DAT (dedicated access trunk) • 6: FGBABR (feature group B ANI based routing, AD3098) • 7: FGDABR (feature group D ANI based routing, AD3098)
MSN N00 call type	Identifies the type of 700, 800, or 900 call that was in use as follows: • 0: none • 1: universal • 2: INWATS (800) • 3: 700 • 4: 900

Table 1-54 DB extension record data fields (Sheet 2 of 4)

Data fields	Definition
Information digits	Contains two ANI information digits. This field is left justified and padded with the HEX character A as required. The information digit possibilities for FGB calls are as follows: • 00: ANI collected successfully. • 01: ANI will not be received. • 02: ANI will not be received. • 03: ANI collected successfully. • 04: ANI will not be received. • 05: ANI will not be received. The information digit possibilities for FGD calls is 00. There is no ANI effect.
ANI number	Lists a 10-digit ANI number. This field is left justified and padded with the HEX character A as required.
ANI suffix	Indicates the type of equal access call as identified by the ST digit as follows: • 0: No ST digit • 1: Transitional EA - ST3P • 2: Cut through EA - STP • 3: Transitional EA - ST2P • 4: Pure EA - ST • 5: Invalid ST digit.
Carrier access code	If the origination type is FGB, the network access code is a four-digit number. This field is left justified and padded with the HEX character A as required.

Table 1-54 DB extension record data fields (Sheet 3 of 4)

Data fields	Definition
Access directory number	Contains the ten-digit access DN that was actually dialed as follows: • If the call is an INWATS call, the 800 number is recorded. • If the call is universal access, the 800 universal access number is recorded. This is the number that allows cut-through access to a network. After cut-through access is allowed, dial tone is returned. • For all other calls, the DISA DN from the BILLDN field in table TRKGRP is recorded.
MSN ANI mapping	Contains a one-digit identification of whether the incoming MDC FGD PTS trunk with ANI will supply either outgoing MDC ISUP SS7 or outgoing MDC ISDN PRA agents with calling line ID as follows: • 0: Condition not met • 1: Condition met.
Spare	Displayed as the HEX character A.
Origination time	Lists the data and time at which initial trunk seizure occurred in the following subfields: • DAY: Range is from 001 to 366. • HOUR: Range is from 00 to 23. • MINUTE: Range is from 00 to 59. • SECOND: Range is from 00 to 59.

Table 1-54 DB extension record data fields (Sheet 4 of 4)

Data fields	Definition
Treatment	Indicates whether the call has been routed to treatment as follows: • 0: The call was not routed to treatment. • 1: The call was routed to treatment. ***Note 1:*** SMDR call records are not generated for non-Meridian SuperNode calls which terminate to a treatment. However, if an MSN call terminates to a treatment, an SMDR call record is generated. Because there is no terminator, the terminator field in the main SMDR call record is the same as the originator. The main SMDR call record should be ignored. ***Note 2:*** To generate the complete DB MSN extension record for calls terminating at a treatment, the RNA option in table CUSTSMDR should be datafilled against the appropriate customer groups.
Reorigination	Indicates whether the call was reoriginated as follows: • 0: The call was not reoriginated. • 1: The call was reoriginated.
Billing digits	Lists a ten-digit billing number for calls involved with hot line dialing

The following example illustrates the portion of the SMDR call record for a Meridian SuperNode call.

Table 1-55

```
*REC CODE:DB  MSNORIGID:2  N00:0  INFO DIG:01  ANI NUM:2149974596
  ANI SUFFIX:4   CARR ACC:7777   ACC DN:24545AAAAA    ANI MAPPING:0
  SPARE:A  DAY:002 HOUR:02 MINUTE:02 SECOND:19 TRTMT:1  REORIG:0
  BILLDIGS:AAAAAAAAAA
```

The SMDR call and extension record format figure illustrates a complete SMDR call record.

DC PIN/TCN extension record

The PIN/TCN extension record is generated for incoming calls which have used either a PIN or TCN during the call. If the PIN or TCN options have not been assigned in table CUSTSMDR or if the incoming call does not use a PIN or TCN, the DC extension record will not be generated. "Activating the PIN/TCN extension call record" describes how to activate this call record.

The following table describes the fields for the PIN/TCN extension record.

Table 1-56 DC extension record data fields

Data fields	Definition
Record code	Identifies the call record type as DC.
PIN or TCN number	Identifies the PIN or TCN in a 14-digit field. This field is left justified and padded with the HEX character A as required.
Description	Lists a one-digit code that identifies information about the PIN or TCN as follows: • 0: No PIN or TCN was recorded. • 1: A valid PIN was recorded. • 2: An invalid PIN was used and recorded. • 3: A valid TCN was recorded. • 4: An invalid TCN was used and recorded. • 5: The call timed out before the TCN was entered. • 6: Service switching point (SSP) response timeout – the response wait time expired and the call went to RODR treatment. • 7: Signal system error - one of the following conditions occurred: network problem (could not send out the query), response decoding problem, reject response was received from the database control point (DBCP), or the network ID or network class of service (NCOS) in the response was out of range.
Spare	Displayed as the HEX character A.

The following example illustrates the portion of the SMDR call record for a call during which no PIN or TCN was recorded.

Table 1-57

```
*REC CODE:DC   PINORTCN:3333AAAAAAAAAA   DESCRIP:1   SPARE:A
```

The SMDR call and extension record format figure illustrates a complete SMDR call record.

DD bearer capability

The BC extension record defines the BC of the call originator. This record is turned on through the BC option in table CUSTSMDR. The DD bearer

capability call record datafill table in chapter 3 describes how to activate this call record.

Table 1-58 DD extension record data fields

Data fields	Definition
Record code	Identifies the call record type as DD.
BC type	Identifies the BC type. This field contains two hexadecimal digits. BC type is in the range from 0 to 63, decimal. If the BC is decimal 15 or less (HEX 0-F), the left half of the byte is padded with the HEX character A. Thus, AB represents a Bearer Capability of 11. The following BC types are available. • 0: Nil • 1: Speech • 2: 64K data • 3: 64K x.25 • 4: 56K data • 5: Data unit • 6: 64K restricted • 7: 3.1Khz audio • 8: 7Khz audio • 9: Voice data • 10: 64Khz adapted data • 11: 32Khz speech
Bandwidth	Identifies the bandwidth. This field contains two HEX digits. Bandwidth is in the range of 1 to 24, decimal. For values of decimal 15 and less, the left half of the byte is padded with the HEX character A. Thus, decimal 15 is recorded as the HEX character AF and decimal 16 is recorded as the HEX character 1F. Values are interpreted as follows: • 1: Narrow bandwidth • 2-24: Number of 64 Kilobyte per second channels used in the call.

The following example illustrates the portion of the SMDR call record for a call during which a BC was recorded.

Table 1-59

*REC CODE:DD BEARERCAP:A2 BANDWIDTH:A1

The SMDR call and extension record format figure illustrates a complete SMDR call record.

DE independent common carrier

The ICC extension record is generated for MDC calls to report custom application data. This record is turned on through the ICC option in table CUSTSMDR. The DEICC call record selection table in chapter 3 describes how to activate this call record.

Table 1-60 DE extension record fields (Sheet 1 of 5)

Data fields	Explanation
RECCD	Record code DE specifies the ICC extension record.
ORIGTIME	Origination date and time This field contains the date and time of call origination. This field consists of four parts along with their respective ranges: • day (0 to 366) • hour (00 to 23) • minute (00 to 59) • second (00 to 59)
BILLNUM	Billing number This field contains the billing number as recorded by the custom application. The field is left justified and padded with hexadecimal A's. A default value is all hexadecimal A's.
MSGAREA	Message area This field contains the area of origination number as recorded by the NCCI7 application. The field is left justified and padded with hexadecimal A's. A default value is all hexadecimal A's.

Table 1-60 DE extension record fields (Sheet 2 of 5)

Data fields	Explanation
LMNNUM	LMN number This field contains the LMN number as recorded by the NCCI7 application. A default value is all hexadecimal A's.
TRTMTCD	Treatment code This field contains the hexadecimal value of the treatment applied. See the following table for a list of treatment codes. ***Note:*** The table lists the codes by their decimal values.
PAYPHONE	Pay phone This field indicates whether a pay phone was involved in the call as recorded by the custom application. The field is set to one of the following: • 0 – no pay phone or unknown • 1 – originator used pay phone • 2 – terminator used pay phone • 3 – both originator and terminator used pay phone
PERSONAL	Personal This field indicates if the call is originated from and/or terminated on personal subscriber for biling purposes. The field is set to one of the following: • 0 – neither originator nor terminator is PERSONAL subscriber • 1 – originator is PERSONAL subscriber • 2 – terminator is PERSONAL subscriber • 3 – originator and terminator are both PERSONAL subscribers

Table 1-60 DE extension record fields (Sheet 3 of 5)

Data fields	Explanation
MOBILE	Mobile phone This field indicates whether a mobile phone was involved in the call as recorded by the custom application. The field is set to one of the following: • 0 – no mobile phone or unknown • 1 – originator used mobile phone • 2 – terminator used mobile phone • 3 – both originator and terminator used mobile phone
NETID	Network identification This field records the NETID for switch on-net calls based on the value of the CUSTGRP CLLI recorded in the #D1 SMDR billing record. The range of values for the NETID field is 0 to 32767. If the number is less than five digits, it is padded with *A's* to the right of the number. NETID is modified when calls arrive at the DMS-100 switch using the CUSTMOD option in the FEATINO VALIDATE option of universal translations with a CUSTINFO attribute datafilled in table DNSCRN.
NCOS	Network class of service This field records the NCOS associated with the call. The range of values for the NCOS field is 0 to 255. If the number is less than three digits, it is padded with *A's* to the right of the number.
CSNUM	Contract subscriber number This field contains the address information digits from the contract subscriber number optional parameter received in a NCCI#7 Version 2 ISUP IAM message. The address information digits are left justified in the CSNUM field and padded with hexadecimal A's if necessary. The CSNUM field supports a contract subscriber number of 1 to 16 digits, inclusive.

Table 1-60 DE extension record fields (Sheet 4 of 5)

Data fields	Explanation
NTCCRG	NTC charge This field contains the billing data for the Notification of Time and Charge (NTC) feature. The NTCCRG field consists of seven digits. When billing data is provided, the NTCCRG field consists of a right-justified integer and is left-padded with zeros and contains • the charge amount of the original call requesting the NTC service, or • the flat rate fee of the NTC service for the answered NTC callback A default value is all hexadecimal A's.
CLBKANS	Callback answer date and time This field contains the same date and time as contained in field ORIGTIME of the DE call extension record, unless FEATINFO CALLBACK functionality was accessed in universal translations. If FEATINFO CALLBACK was accessed, then this field contains one of the following two values: • If the callback call was not answered, then CLBKANS contains the same date and time as contained in field ORIGTIME. • If the callback call was answered, then CLBKANS contains the date and time corresponding to the receipt of the answer. This field consists of the following four parts along with their ranges: • day (0 to 366) • hour (00 to 23) • minute (00 to 59) • second (00 to 59)

Table 1-60 DE extension record fields (Sheet 5 of 5)

Data fields	Explanation
NOCRG	No charge This field provides a charge indicator for a call. A value of 0 indicates "charge" and a value of 1 indicates "no charge. The NOCRG field contains the value of "no charge" when the charge indicator in the backwards call indicator optional parameter of the ANM messages indicates "No Charge," and when the interworking for the call is one of the folllowing: N call call, • NCCI#7 Version 1 to ANSI7+ • NCCI#7 Version 2 to ANSI7+ • 2W line to ANSI7+ • 4W trunk to ANSI7+ • INS1500 to ANSI7+ • ANSI7+ to ANSI7+
ACCIND	ISDN Access Indicator field. This field is set from the ISDN Access Indicator information that the network provides. The possible values for ACCIND and their meaning are: • 0: Originating access is Unknown and Terminating access is not applicable • 1: Originating and Terminating access are NON_ISDN • 2: Originating access is NON_ISDN and Terminating access is ISDN • 3: Originating access is ISDN and Terminating access is NON_ISDN • 4: Originating and Terminating access are ISDN • 5: Originating access is NON-ISDN and Terminating access is Unknown • 6: Originating access is ISDN and Terminating access is Unknown

The following table defines the treatment codes used in field TRTMTCD of the ICC extension record. The table lists the treatment codes by their decimal values.

Table 1-61 Treatment codes for ICC extension records (Sheet 1 of 3)

Code	Treatment	Code	Treatment	Code	Treatment	Code	Treatment
0	UNDT	1	NOSC	2	PDIL	3	PSIG
4	INAC	5	CNDT	6	VACT	7	MSCA
8	MSLC	9	NBLH	10	NBLN	11	EMR1
12	EMR2	13	UNCA	14	SYFL	15	CQOV
16	HNP1	17	UNDN	18	BLDN	19	BUSY
20	UNOW	21	TDND	22	UNIN	23	SSTO
24	NCRT	25	RODR	26	MANL	27	ORSS
28	TESS	29	OPRT	30	TRBL	31	ANCT
32	PNOH	33	DNTR	34	NECG	35	FECG
36	ORMC	37	TOVD	38	CONF	39	RRPA
40	ORAF	41	TRRF	42	ORAC	43	ORMF
44	SRRR	45	DISC	46	UNPR	47	BLPR
48	EMR3	49	EMR4	50	NOCN	51	PMPT
52	SORD	53	INAU	54	TINV	55	CNOT
56	DCFC	57	PRSC	58	GNCT	59	ATBS
60	MHLD	61	DODT	62	TDBR	63	RSDT
64	PTOF	65	VACS	66	ANTO	67	NMZN
68	FNAL	69	UMOB	70	ERDS	71	STOB
72	STOC	73	EMR5	74	EMR6	75	INOC
76	ANIA	77	CFWV	78	NACK	79	CACE
80	P950	81	N950	82	ILRS	83	NACD
84	DACD	85	ADBF	86	PGTO	87	AIFL
88	FDNZ	89	CCTO	90	CCNV	91	CCNA

Table 1-61 Treatment codes for ICC extension records (Sheet 2 of 3)

Code	Treatment	Code	Treatment	Code	Treatment	Code	Treatment
92	FDER	93	NOSR	94	CGRO	95	VCCT
96	LCAB	97	INCC	98	CONP	99	NINT
100	SVFL	101	NCIX	102	NCII	103	NCTF
104	NONT	105	NCUN	106	ATDT	107	ANBB
108	IVCC	109	SCUN	110	INPD	111	NPAR
112	IDPB	113	CNAC	114	MOC CBTN	115	MOC MCOT MTOC
116	MOC ANFL	117	CHAN	118	CHAF	119	OSVR
120	N00B	121	CFOV	122	ILRR	123	COSX
124	CACB	125	SINT	126	IWUC	127	INBT
128	NC8F	129	FRDR	130	C7AP	131	DTFL
132	BBFS	133	NTRS	134	CREJ	135	UPAB
136	SORE	137	CNAD	138	VPFX	139	CCAP
140	ACPR	141	CCIR	142	ADPA	143	CCDT
144	UCCN	145	CBDN	146	N9DF	147	N9OB
148	N9NS	149	CCCF	150	SCRJ	151	ICNF
152	LECV	153	LCNV	154	CGFL	155	VPFL
156	PTFL	157	SCA	158	NCS0	159	NCS1
160	CHNF	161	BCNI	162	RING	163	JACK
164	ITCF	165	NVIP	166	ACRJ	167	FCNI
168	PERR	169	INVM	170	SONI	171	CDAS
172	CDAF	173	CDDS	174	CDDF	175	AARD
176	ACFD	177	GFNV	178	LBSY	179	TBSY
180	IIEC	181	NOBC	182	NORA	183	PER1
184	PER2	185	PER3	186	PER4	187	PER5
188	CER1	189	WUCR	190	MTBL	191	MWKP

Table 1-61 Treatment codes for ICC extension records (Sheet 3 of 3)

Code	Treatment	Code	Treatment	Code	Treatment	Code	Treatment
192	RFCS	193	RFCD	194	RFCE	195	EROR
196	ERTR	197	ERTO	199	ESNF	201	Q33A
202	Q33B						

The following two examples are SMDR records for calls that received treatment. In some scenarios of calls that receive treatment, the TERMID and TRM TYPE may be populated with "A"s.

The following example is an SMDR record for a call that encountered a busy line (code 13) and received treatment.

```
*REC CODE:D1  CUSTGRPCLLI:1A6   ORIGTYPE:5  ORIGID:006A07F1AAA
 DATACALLID:A   INFODIGS:00  CONSNO:FF  SUBGRP:0  TRM TYPE:A
 TRM ID:AAAAAAAAAAAAA RTEINFO:0  DAY=314 TIME: HR=14  MIN=42  SEC=52
 ELAPSEDTIME=000000   ORIGFC:0   TERM FC:0  CLDNO:01523717667A

*REC CODE:DE  ORIGTIME: DAY=314  HOUR=14  MINUTE=42  SECOND=52
BILLNUM:AAAAAAAAAAAAAAAA MSGAREA:AAAAAAAAA MNCNUM:AAA
TRTMTCD:13
PAYPHONE:0MOBILE:0 NETID:AAAAANCOS:AAACSNUM:AAAAAAAAAAAAAAAA
NTCCRG:AAAAAAA CLBKANS: DAY=314  HOUR=14  MINUTE=42  SECOND=52
NOCRG:0
SPARE:0
```

The following example is an SMDR record for a call that encountered a blank directory number (code 12) and received treatment.

```
*REC CODE:D1  CUSTGRPCLLI:1A6   ORITYPE:5  ORIGID:006A0701AAA
DATACALLID:A   INFODIGS:00  CONSNO:FF   SUBGRP:0  TRM TYPE:A
TRM ID:AAAAAAAAAAAAA RTEINFO:0   DAY=314  TIME: HR=14  MIN=57  SEC=58
ELAPSEDTIME=000000    ORIGFC:0   TERM FC:0  CLDNO:01923718111A

*REC CODE:DE  ORIGTIME: DAY=314  HOUR=14  MINUTE=57  SECOND=58
BILLNUM:AAAAAAAAAAAAAAAAMSGAREA:AAAAAAAAAMNCNUM:AAA
TRTMTCD:12
PAYPHONE:0MOBILE:0 NETID:AAAAANCOS:AAACSNUM:AAAAAAAAAAAAAAAA
NTCCRG:AAAAAAACLBKANS:DAY=314 HOUR=14 MINUTE=57 SECOND=58
NOCRG:0
SPARE:0 '
```

The following example illustrates the portion of the SMDR call record for a call with an ICC record.

```
DE 146 21 38 47 8005657421AAAAA 613AAAAAA  AAA  00 0 1  3AAAA   0AA
AAAAAAAAAAAAAAAA    0000144  146 21 38 47 0 0  6 0
```

The SMDR call and extension record format figure illustrates a complete SMDR call record.

DF01 inbound toll call extension record

The inbound toll call extension record is generated for MDC calls to report how long an inbound toll call was present at each terminating station during a call transfer call and for how long the controller maintained control of a three-way call. The cost of an incoming toll call can then be divided between the station that answered the call and all subsequent stations to which the call was transferred. This record is turned on by datafilling option SMDRITC in table TRKGRP for IBNTI (incoming) or IBNT2 (two-way) trunk groups.

Billing for a terminating DN begins when the station answers the call. Billing continues for the station during the time a call is held at the station plus the time it takes to disconnect the call or transfer the call to another station. Three-way calling calls are billed to the controller of the three-way call. When the controlling party disconnects, billing begins on the called party designated to take control of the three-way call. The DF inbound toll call record datafill table in chapter 3 describes how to activate this call record.

The following table describes the data fields of the DF01 call extension record.

Table 1-62 Call extension record DF01 field descriptions

Data fields	Explanation
FORM_CODE	Identifies the extension record as DF
SMDRITC_CALLID	Lists the identification number associated with the incoming toll call
SMDRITC_DAY SMDRITC_HR SMDRITC_MIN SMDRITC_SEC	Records the time at which billing for a DF extension record stops and billing for the next DF extension record begins

The following example illustrates the portion of the SMDR call record for a call with an DF01 record.

Table 1-63

```
DF  01   123456789   146  21  38  47
```

The SMDR call and extension record format figure illustrates a complete SMDR call record.

DF02 user-to-user information call extension record

The user-to-user information (UUI) call extension record provides billing data on UUI parameters. Extension record DF02 is activated by datafilling the option UUI in table CUSTSMDR. The following table describes the data fields of the DF02 extension record.

Table 1-64 Call extension record DF02 field descriptions (Sheet 1 of 2)

Data fields	Field definition
Record code	Identifies the call record type as DF (2 characters)
Format code	Identifies the format type as 02 (2 characters)
Signaling type	Indicates the type of external signaling • #00 – unknown • #01 – integrated services digital network (ISDN) • #02 – ISDN user part (ISUP)
Note: The number sign # preceding a number indicates the number is in a hexadecimal format	

Table 1-64 Call extension record DF02 field descriptions (Sheet 2 of 2)

Data fields	Field definition
Message type	Indicates the type of message used in the signaling type field. For ISUP signaling, the message type field indicates the following: • #01 – initial address message (IAM) • #06 – address complete message (ACM) • #09 – answer message (ANM) • #0C – release message (REL) • #2C – call progress message (CPG)
Length count	Provides the length of the message parameter/element used in the message type field • #00 – indicates no user data • #01 to #81 inclusive (that is, 1 to 129) - indicates the value from the length field of the user-to-user information element/parameter
Information	Provides a report of how user-to-user parameters are handled • #00 – no information • #01 – request blocked - the outgoing path to the called party does not support the UUI service request • #02 – request delivered - the path to the called party supports the delivery of the UUI service request. The response from the called party, however, did not contain any notification of called party acceptance or rejection of the UUI service request • #03 – explicit rejection - the response from the called party identifies that the path to the called party does not support the delivery of the UUI service request or the called party explicitly rejects the UUI service request. • #04 – request not delivered - the path to the called party does not support the delivery of the UUI service request or the called party is not ISDN
Note: The number sign # preceding a number indicates the number is in a hexadecimal format	

The following example illustrates the portion of the SMDR call record for a call with an DF02 record.

Table 1-65

DF 02 02 01 05 01

DF03 PVN option call extension record

Call extension record DF03 is produced for private virtual network (PVN) calls through option PVN available for customer group datafill in table CUSTSMDR. (This ability is provided by BCS36 patch JDS59.) The PVN option record is a generic extension record with a unique format code to distinguish it from other generic extension records. The SMDR PVN extension record uses a format code of 03. Refer to the *Translations Guide* for more information on extension record DF03.

Call extension record DF03 is not generated if option PVN is not assigned to table CUSTSMDR or the call type is not PVN or the service control point (SCP) response message does not contain valid billing information.

The information put into the extension record is obtained from existing parameters retrieved from the SCP response message that use the transaction capability application part (TCAP) protocol. The following table describes the fields of extension record DF03 and identifies the corresponding SCP response message parameters.

Table 1-66 Call extension record DF03 field descriptions

Data fields	Field definition
Record code	Identifies the call record type as DF (2 characters)
Format code	Identifies the format type as 03 (2 characters)
Alt billing number	Billing number from the SCP response message; billing number parameter (11 characters)
Business customer ID	Business customer identification number from the SCP response message; Business Customer ID parameter (11 characters)
Significant digits in next field	Number of significant digits in the next field (3 characters)
Additional digits dialed	Additional digits dialed from the SCP response message auth code parameter, or PIN parameter (15 characters)

The following example illustrates the portion of the SMDR call record for a call with an DF03 record.

Table 1-67

DF03 2154221234A2084229000A00C913038443355AAA

DF04 AIN R0.1 option call extension record

Call extension record DF04 is produced for AIN 0.1 calls through option PVN for customer group datafill in table CUSTSMDR. The DF extension record is a generic extension record with a unique format code to distinguish it from other generic records. The SMDR AIN 0.1 extension record utilizes a format code of '04'.

The information put into the extension record is obtained from existing parameters retrieved from the SCP response message that use the TCAP protocol. The following table describes the fields of extension record DF04 and identifies the corresponding SCP response message parameters.

Table 1-68 Call extension record DF04 field descriptions

Data fields	Field definition
Record code	Identifies the call record type as DF (2 characters)
Format code	Identifies the format type as 04 (2 characters)
Original calling number	10D ANI or calling line number that originated the call for correlation purposes ***Note:*** As several extension records can be generated for a call either because of sequential triggering or because of multiple AMA Digits Dialed WC parameters, a means of correlating them must be provided as they do not always appear contiguously in the output stream.
Alt billing number	Billing number from the SCP response message parameter; billing number (11 characters)
Business customer ID	Business customer identification number from the SCP response message parameter; Business Customer ID (11 characters)
Significant digits in next field	Number of significant digits in the next field (3 characters)
Additional digits dialed	Additional digits dialed from the SCP response message parameter, auth code parameter, or PIN parameter (27 characters)

The following example illustrates the portion of the SMDR call record for a call with an DF04 record.

Table 1-69

DF04 2154221234 18196221088 555676AAAAA 010 1020218197221234 AAAAAAAAAAA

DF05 carrier charge area information

This extension record stores carrier identification information and charge area information. The carrier identification information is used to identify carriers involved in a call. The associated charge area locates the users or areas of interconnection between each carrier.

This extension record is repeated for each carrier identified in the received carrier information ISUP optional parameters.

The following table provides the fields and field descriptions for extension record DF05.

Table 1-70 Call extension record DF05 field descriptions (Sheet 1 of 2)

Data fields	Field definition
Carrier Type	Carrier type. Records the least significant three bits of the carrier information name for recognized carrier types. This field is one nibble in size and is one of the following values: • 0010 specifies that this field is spare. • 0011 specifies that this DF05 record contains calling carrier information. • 0100 specifies that this DF05 record contains called carrier information. • 0101 specifies that this DF05 record contains selected carrier information. • 0110 specifies that this DF05 record contains access carrier information. • 0111 specifies that this DF05 record contains unknown carrier information.
ATC Value	Access transit carrier value. Records the access transit carrier (ATC) value as received in the optional ISUP carrier information parameter.

Table 1-70 Call extension record DF05 field descriptions (Sheet 2 of 2)

Data fields	Field definition
Msg Direction	Message direction. Specifies the direction of the ISUP message containing the carrier information and charge area parameters. This field can have one of the following values: • 0 specifies that the message was going in the forward direction. • 1 specifies that the message was going in the backward direction.
Deferred CA	Deferred charge area. Specifies if a deferred delivery parameter is received. If the value of this field is 1, a deferred delivery parameter was received in the address complete message (ACM). If a deferred delivery parameter was received, the charge area information was deferred from the ACM to a subsequent backward CHG message. If the value of this field is 0, a deferred delivery indicator was not received in the ACM.
Carrier ID	Carrier identification. Specifies the value of the carrier identification received in the carrier information parameter of the initial address message (IAM) or address complete message (ACM). One DF05 record is generated for each carrier identification record received in the message parameter.
Associated CA	Associated charge area. Specifies the charge area information depending on the value of field Carrier Type in the same extension record. If the value in field Carrier Type is 0011, this field contains calling charge area information. If the value in field Carrier Type is 0100, this field contains called charge area information. If the value in field Carrier Type is 0101 or 0110, this field contains the point-of-interconnect charge area information.

Limitations for call extension record DF05

The following points summarize the limitations for call extension record DF05:

- Valid parameter blocks are those where the name portion is a defined value, and the length is within the limits defined for the parameter's format. Only

carrier subparameter blocks that are valid have their data stored into DF05 records.

- If a multiple number of a valid calling or called data blocks are present in the carrier information parameter, only the first calling or called block data is stored into the DF05 record.
- A maximum of ten DF05 records can be produced for each call. If this limit is exceeded, log SMDR100 is generated.
- If there is no charge area (CA) information sent with the carrier information parameter in the IAM, the Associated CA field is filled with As.
- For selected carriers, if there is no point-of-interconnection (POI)-CA information sent in the carrier information parameter, the Associated CA field is filled with As.
- If the CA information parameter is received without the carrier information parameter, this extension record is generated. The carrier ID field is filled with As and the value in the ATC field is 0.
- The present DF05 record is updated with the latest CA information if a called DF05 record is present when the switch receives
  - — a called charge area parameter or
  - — a subsequent charge area parameter.

This operation is independent of the receipt of a deferred delivery parameter.

- The message area information (MAI) and the charge area information parameters are treated the same in the IAM on the NCCI7v2 protocol. The information in both parameters is recorded the following SMDR billing records:
  - — field MSGAREA in the DE call extension record
  - — field Associated CA in the called carrier's DF05 extension record
- In other NCCI7v2 backward messages where the charge area parameter is valid, if the MAI parameter is received instead of the charge area parameter, the information is recorded as though it were a charge area.
- CA information in forward CHG messages is not recorded in the DF05 record.
- For each carrier block of the carrier information parameter, if the carrier name is Calling or Called, only valid first subsidiary data block is stored. If the first subsidiary has invalid data, DF05 is not generated unless a valid charge area information parameter is received.

- The following limitations apply for each selected or access carrier data block of the carrier information parameter:
  - — The first subsidiary data block must be valid or no DF05 record is generated.
  - — The switch assumes that a corrupt parameter is received if the first subsidiary data block is invalid.
  - — If the first subsidiary data block is valid, the second subsidiary data block is also checked. However, if both subsidiary data blocks have the same subtypes (Carrier ID and Carrier ID, or POI_CA and POI_CA), the first subsidiary data block is stored and second is discarded.
  - — If only the first subsidiary data block has valid data but not the second subsidiary data block, a DF05 record is generated with data from first subsidiary only.
  - — If one valid Carrier ID and one valid POI_CA subsidiary block are received, the sequence of Carrier ID and POI_CA does not matter.
- If multiple DF05 records are produced for a call, the last one the switch receives is processed first. The first one received is processed last.

The following example illustrates the portion of the SMDR call record for a call with an DF05 record.

Table 1-71

DF 05 63 00 4444AA 88888A
DF 05 53 00 3333AA 77777A

DF06 charge rate information

This extension record stores the variable rate charge information for the call. The charge rate information is passed between carriers when the carrier determining the charge rate is not the same carrier as the carrier charging the user.

The charge rate is passed by means of the charge information parameter of the NCCI7v2 ISUP signaling protocol.

This extension record is repeated for each charge info type present in the charge information optional parameter.

The following table provides the fields and field descriptions for extension record DF06.

Table 1-72 Call extension record DF06 field descriptions (Sheet 1 of 2)

Field name	Description
Unit Chg Ind	Unit charge indicator. Stores the value of the Unit Charge Indication field from the charge information parameter. This field is one of the following values: • 0011 specifies that the received value is spare. • 0100 specifies that the unit charge is 100 yen. • 0101 specifies that the unit charge is 10 yen. • 0110 specifies that there is no indication of the unit charge. • 0111 specifies all other received values.
Chg Info Type	Charge information type. Stores the value of the Charge Info Type field from the charge information parameter. This field is one of the following values: • 0011 specifies that the received value is spare. • 0100 specifies that this field contains a flexible billing rate for payphone subscribers. • 0101 specifies that this field contains a flexible billing rate for basic subscribers. • 0110 specifies that there is no flexible billing information. • 0111 specifies all other received values.
Msg Direction	Message direction. Specifies the direction of the ISUP message containing the charge information parameter. This field can have one of the following values: • 0 specifies that the message was going in the forward direction. • 1 specifies that the message was going in the backward direction.

Table 1-72 Call extension record DF06 field descriptions (Sheet 2 of 2)

Field name	Description
Deferred Chg	Deferred charge. Specifies if a deferred delivery parameter is received. If the value of this field is 1, a deferred delivery parameter was received in the address complete message (ACM). If a deferred delivery parameter was received, the charge information was deferred from the ACM to a subsequent backwards CHG message. If the value of this field is 0, a deferred delivery parameter was not received in the ACM.
MNA-L Digs	MNA to L digits. Stores up to 14 charge rate digits. Each digit is converted from the received IA5 character format to binary coded decimal (BCD) format by using the least significant four bits. This field is one nibble in size and is left justified. If less than 14 digits are received, the field is filled with As.

Limitations for call extension record DF06

The following points summarize the limitations for the DF06 call extension record:

- In order to generate DF06, the following conditions must be met:
  - — A charge information type parameter is present with charge rate transfer in the Charge Info Type field.
  - — The charge information parameter must have the following field values:
    - – field Unit Charge Indicator = 100 yen or 10 yen
    - – field Charge Info Type = flexible charge rate payphone or flexible charge rate basic
- Only charge information data blocks that have a valid length have their data stored into DF06 records.
- Multiple copies of extension record DF06 are generated if multiple charge information parameters are received. The maximum of three DF06 records are generated per call. If this limit be exceeded, log SMDR100 is generated.
- IA5 characters are converted to digits by taking the least significant four bits. No checking of the other bits is being done as this is not considered necessary.
- If a deferred delivery parameter is received in the ACM, all subsequent DF06 records are generated with the Deferred Chg field set to 1.

- If a deferred delivery parameter was not received in the original ACM, but a post-ACM carries valid charge information, DF06 records are still generated.
- A blank DF06 record is generated if a deferred delivery parameter is received in the ACM but no subsequent charge information is received for the call. The Deferred Chg field in the blank record is set to 1.
- If the ACM carries valid charge information and a deferred delivery parameter, the DF06 is generated with the Deferred Chg field set to 1.
- If multiple DF06 records are produced for a call, the last one the switch receives is processed first. The first one received is processed last.

The following example illustrates the portion of the SMDR call record for a call with an DF06 record.

Table 1-73

DF 06 45 10 444444444444444
DF 06 44 10 12345678901AAA

DF07 additional user type

This extension record stores the contents of the additional user type parameter received for either the called or calling party. When the information in the forward call indicator, the backward call indicator, and the party category parameters is insufficient, information in the additional user type parameter is used to determine special billing rates for the call.

The following table provides the fields and field descriptions for extension record DF07.

Table 1-74 Call extension record DF07 field descriptions

Field name	Description
Additional User Type Name	Additional user type name. Specifies the additional information from the Additional User Type Name field in the additional user type ISUP parameter. This field is one nibble in size and is one of the following values: • 0010 specifies that this field is spare. • 0011 specifies that the user type is Additional User Type 3 (mobile). • 0100 specifies that the user type is Additional User Type 2 (mobile). • 0101 specifies that the user type is Additional User Type 1 (mobile). • 0110 specifies that the user type is Additional User Type 1 (fixed). • 0111 specifies all other values.
Msg Type Code	Message type code. Stores the ISUP message name that contains the additional user type parameter. This field is one nibble in size and is one of the following values: • 0001 specifies that the IAM contains Additional User Type information. • 0010 specifies that the ACM contains Additional User Type information. • 0011 specifies that the forward CHG message contains Additional User Type information. • 0100 specifies that the backwards CHG message contains Additional User Type information. • 0101 specifies that the ANM contains Additional User Type information.
User Type Value	User type value. Stores the value of the additional user type field for this user type specified in the additional user type parameter.

Limitations for call extension record DF07

The following points summarize the limitations for the DF07 call extention record:

- One of these extension records is generated for each user type found in the additional user type parameter. If more than one additional user type parameter is received for a call, subsequent records are generated.
- A maximum of six DF07 records can be produced for each call. If this limit is exceeded, log SMDR100 is generated.
- If the length of the additional user type parameter is odd, the last byte is ignored.
- The switch generates an extension record DF07 even if the Additional User Type Name is not one of the following user types:
  - — Additional User Type 3 (mobile)
  - — Additional User Type 2 (mobile)
  - — Additional User Type 1 (mobile)
  - — Additional User Type 1 (fixed)
- If multiple DF07 records are produced for a call, the last one the switch receives is processed first. The first one received is processed last.

The following example illustrates the portion of the SMDR call record for a call with an DF07 record.

Table 1-75

DF 07 62 01
DF 07 51 03

DF09 SMDR Per Use Billing for Features option call extension record

The DF09 Per Use Billing for Features option provides MSL-100 PBX CLASS service providers the capability of billing their end users on a per usage basis as opposed to a flat monthly rate. This capability allows MSL-100 PBX CLASS service providers the ability to provide billing services similar to the billing services offered by their local telephone company. This extension record stores usage sensitive information using the same criteria as the per use billing records generated via the bellcore AMA format. The following CLASS features are supported:

- Automatic Call Back (ACB)
- Automatic Recall (AR)
- Bulk Calling Line ID (BCLID)
- Calling Name Delivery (CNAD)

- Calling Number Delivery (CND)
- Calling Number Delivery Blocking (CNDB)
- Customer Originated Trace (COT)
- Deluxe Spontaneous Call Waiting ID (DSCWID)
- Dialable Directory Number (DDN)
- Distinctive Ringing/Call Waiting (DRCW)
- Selective Call Acceptance (SCA)
- Selective Call Forwarding (SCF)
- Selective Call Rejection (SCJ)

An MSLSMDR 100 log can be produced with equivalent information using datafill each time a DF09 extension record is produced.

The following table provides the fields and field descriptions for extension record DF09.

Table 1-76 Call extension record DF09 field descriptions (Sheet 1 of 6)

Field name	Description
Record Code	DF(2 nibbles)
Format Code	#09 (2 nibbles)

Table 1-76 Call extension record DF09 field descriptions (Sheet 2 of 6)

Field name	Description
CLASS Feature Code	This four nibble field indicates the CLASS features activated during the call or the event producing the record. This field has one of the following values: • 0032 AR reactivation - delayed processing • 0033 ACB reactivation - delayed processing • 0034 AR reactivation - busy ringback - not supported • 0035 ACB reactivation - busy ringback - not supported • 0036 AR reactivation - timeout • 0037 ACB reactivation - timeout • 0038 AR reactivation - deactivation • 0039 ACB reactivation - deactivation • 0052 SCF active • 0060 AR immediate processing • 0061 ACB immediate processing • 0062 AR delayed processing • 0063 ACB delayed processing • 0064 AR busy ringback - not supported • 0065 ACB busy ringback - not supported

Table 1-76 Call extension record DF09 field descriptions (Sheet 3 of 6)

Field name	Description
CLASS Feature Code	This four nibble field indicates the CLASS features activated during the call or the event producing the record. This field has one of the following values: • 0066 AR timeout • 0067 ACB timeout • 0068 AR deactivation • 0069 ACB deactivation • 0070 Customer Originated Trace (COT) • 0072 SCRJ active • 0073 DRCW active • 0075 CNDB or CNNB activation • 0076 Single Activation SCF (SASCF) - not supported • 0079 SCA active • 0080 Calling Number Delivery (CND) • 0081 Dialable Directory Number (DDN) • 0082 Calling Name Delivery (CNAMD) • 0084 Bulk Calling Line ID (BCLID) Delivery • 0085 Calling Name Delivery Blocking (CNAB) - not supported • 0087 Calling Name and Number Delivery (CNND) • 0088 Calling Name and Dialable Directory Number • 0089 Deluxe SCWID (DSCWID) Delivery • 0095 AR two-lever act - 1st level completion • 0152 SCF inactive • 0172 SCRJ inactive • 0173 DRCW inactive • 0179 SCA inactive • 0252 SCF inactive - list deleted

Table 1-76 Call extension record DF09 field descriptions (Sheet 4 of 6)

Field name	Description
CLASS Feature Code	This four nibble field indicates the CLASS features activated during the call or the event producing the record. This field has one of the following values: • 0272 SCRJ inactive - list deleted • 0273 DRCW inactive - list deleted • 0279 SCA inactive - list deleted • 0352 SCF active - initial list creation • 0372 SCRJ active - initial list creation • 0373 DRCW active - initial list creation • 0379 SCA active - initial list creation • 0452 SCF inactive - initial list creation • 0472 SCRJ inactive - initial list creation • 0473 DRCW inactive - initial list creation • 0479 SCA inactive - initial list creation • 0552 SCF inactive - session aborted • 0572 SCRJ inactive - session aborted • 0573 DRCW inactive - session aborted • 0579 SCA inactive - session aborted
Bill DN	This is a ten nibble field indicating the DN to bill against.
Event Year	This four nibble field indicates the year the record was generated in four-digit representation.
Event Month	This two nibble field indicates the month the record was generated.
Event Day	This two nibble field indicates the day the record was generated.
Event Hour	This two nibble field indicates the hour the record was generated.
Event Minute	This two nibble field indicates the minute the record was generated.
Event Second	This two nibble field indicates the second the record was generated.

Table 1-76 Call extension record DF09 field descriptions (Sheet 5 of 6)

Field name	Description
Num Avail	For CND or DDN CLASS feature enabled on a phone without CNAMD: This four nibble field indicates the number of times calling number information was available and delivered to the phone. For CND or DDN CLASS feature enabled on a phone with CNAMD: This four nibble field indicates the number of times the caller ID information delivered to the phone included the calling name but not the calling number. For BCLID CLASS feature enabled: this four nibble field indicates the number of times caller ID information was available and delivered to a phone in a BCLID group.
Num Unavail	For CND or DDN CLASS feature enabled on a phone without CNAMD: This four nibble field indicates the number of times calling number information was unavailable or private message was sent to the phone in its place. For CND or DDN CLASS feature enabled on a phone with CNAMD: This four nibble field indicates the number of times the caller ID information delivered to the phone included the calling number but not the calling name. For BCLID CLASS feature enabled: this four nibble field indicates the number of times caller ID information was unavailable and not delivered to a phone in a BCLID group.
Name Avail	For CNAMD CLASS feature enabled on a phone without a number display option: this four nibble field indicates the number of times calling name information was available and delivered to the phone. For CNAMD CLASS feature enabled on a phone with a number display option: this four nibble field indicates the number of times that the caller ID information delivered to the phone included both the calling name and the calling number.

Table 1-76 Call extension record DF09 field descriptions (Sheet 6 of 6)

Field name	Description
Name Unavail	For CNAMD CLASS feature enabled on a phone without a number display option: this four nibble field indicates the number of times calling name information was unavailable or private message was delivered to the phone instead. For CNAMD CLASS feature enabled on a phone with a number display option: this four nibble field indicates the number of times that both the calling name and the calling number information was unavailable and unavailable or private message message was delivered to the phone instead.
Conf Pegs	This four nibble field indicates the number of times a user has used the conference with the DSCWID CLASS feature.
SCF List Size	This four nibble field indicates the current size of the SCF screening list at the time of record generation.
SCA List Size	This four nibble field indicates the current size of the SCA screening list at the time of record generation.
SCRJ List Size	This four nibble field indicates the current size of the SCJ screening list at the time of record generation.
DRCW List Size	This four nibble field indicates the current size of the DRCW screening list at the time of record generation.
Spare Data 1	This four nibble field is supplied for future expansion capability.
Spare Data 2	This four nibble field is supplied for future expansion capability.

The SMDR Per Use Billing extension record (DF09) contains the following information elements:

- a code number indicating the CLASS feature event
- the DN to bill against
- the event date and time
- the Caller ID delivery peg counts
- the DSCWID conferencing peg counts
- the screen list sizes for the CLASS SLE features

The following example illustrates a sample portion of the SMDR call record for a call with a DF09 extension record.

Table 1-77

```
DF  09  0352  2149975250  1998  01  30  15  20  25  0000  0000
0000  0000  0000  0005  0000  0000  0000  0000  0000
```

The following example illustrates the same data shown in the example immediately above with the detailed CALLDUMP output:

Table 1-78

```
*REC CODE:DF FMT  CODE:09 CLASS FEATURE CODE:0352  BILL
DN:21479975250  EVENT YEAR:1998  EVENT MONTH:01  EVENT
DAY:30  EVENT HOUR:15  EVENT MINUTE:20  EVENT SECOND:25
NUM AVAIL:0000   NUM UNAVAIL:0000  NAME AVAIL:0000  NAME
UNAVAIL:0000  CONF PEGS:0000  SCF LIST SIZE:0005  SCA LIST
SIZE:0000  SCRJ LIST SIZE:0000  DRCWLIST SIZE:0000  SPARE
DATA1:0000  SPARE DATA2:0000
```

Limitations for call extension record DF09

The following points summarize the limitations for the DF09 call extention record:

- All translations for the CLASS features supported by this record must be datafilled appropriately.
- The PERUSE option must be added to the appropriate customer group in table CUSTSMDR.
- The SUSP option must be turned on table AMAOPTS.
- The individual CLASS features must have AMA set as the billing type when they are added through SERVORD.
- An audit interval must be set using tuple CIDSUSPAUD in table AMAOPTS for CLASS display features CND, DDN, and CNAMD.
- For the BCLID CLASS feature, the USP option must be set for the appropriate tuple in table BCLIDGRP and an audit interval must be set using tuple BCLID_USPAUD in table AMAOPTS.
- For the DSCWID CLASS feature, an audit interval must be set using tuple DSCWID_CONF_AUDIT in table AMAOPTS.
- For the CND DDN, CNAMD, DSCWID, and BCLID CLASS features, the DF09 record is generated using a periodic audit of every phone that has this option.

- For the SCA, SCF, SCRJ, and DRCW SLE features, the DF09 record is generated using activation/deactivation and through screening list editing. The DF09 record is not generated when incoming calls are processed by these features.
- For every other feature, the DF09 record is generated through feature activation and/or operation.
- DF09 extension records can be access only by using the CALLDUMP utility. The AMADUMP utility is not compatible with this extension record.
- When the SCA feature is used, the DF09 extension record is not generated when a call from the screening list is accepted.
- When the SCF feature is used, the DF09 extension record is not generated when a call from the screening list is forwarded.
- When the SCRJ feature is used, the DF09 extension record is not generated when a call from the screening list is rejected.

2 Planning and engineering

This chapter covers advance information used for long-range planning, short-term planning, procurement, and construction planning.

Describing specific SMDR-related features

This section describes the following SMDR-related features:

- "Recording call data for Meridian SuperNode calls" allows the SMDR MSN (DB) extension call record to be generated.
- "Recording call data for IBN trunks with ISUP signaling" allows the SMDR networked (DA) extension call record to be generated.
- "Identifying data calls" allows a call to be identified as a call carrying digital or analog data or voice.

Recording call data for Meridian SuperNode calls

This feature allows the SMDR MSN (DB) extension call record to be generated for incoming calls over feature group B (FGB) and FGD per-trunk signaling (PTS) trunks. The MSN extension record provides the following information about MSN calls:

- Meridian SuperNode origination types
- Meridian SuperNode call type for 700, 800, or 900 calls
- ANI information digits
- ANI numbers
- Equal access call suffix
- Carrier access code
- Access DN
- MSN ANI mapping
- call origination time
- whether call treatment was necessary

- whether the call had to be originated again
- the billing digits for hotline calls

The MSN extension call record is not generated in the AMAB150 log report.

Section "DB Meridian SuperNode extension record" in chapter "SMDR service description" describes the MSN extension call record. "Activating SMDR for Meridian SuperNode calls" in chapter "Network and system administration" lists the steps necessary to activate the MSN extension call record.

Recording call data for IBN trunks with ISUP signaling

This feature allows the SMDR networked (DA) extension call record to be generated for calls over IBN incoming trunk (IBNTI) groups using ISUP trunk signaling.

When a call is made over the appropriate IBN trunk using ISUP signaling, the DA extension call record is generated and appended to the main SMDR call record for that call. The DA extension call record records the following information:

- IBN trunk group associated with the call
- member of the IBN trunk group associated with the call
- ten-digit network calling DN (CLID) from the initial address message (IAM).

An IAM is an ISUP protocol message sent in the direction of call setup to initiate seizure of an outgoing circuit and to transmit dialed digits and other information related to the routing and handling of a call.

The DA extension call record can be used for analysis of call traffic for several SL-100 switches or DMS-100 switches in a PVN. The network CLID can be used to extract information from the IAM about the routing of the call over the trunks in the PVN.

The DA extension call record is not output as a separate field in the AMAB150 log report. The station DN field of the AMAB150 records the CLID.

"DA networked extension record" describes the format of the DA extension call record. "Activating SMDR for ISUP trunks" lists the steps necessary to activate this feature for SMDR.

Identifying data calls

This feature allows the identification of data calls. This feature allows a call to be identified as a call as carrying digital data, analog data, or voice. The use of modem polling resources is also identified.

Identification of data calls allows call statistics to be generated. The creation of separate tariffs for data calls can then be imposed. The following table lists the various modem pooling charge classifications.

Table 2-1 Modem pooling charge classifications

Term	Definition
Modem pool busy time	MPBT. Time a modem pool member is not available for allocation by the DMS-100 switch.
Modem pool reservation time	MPRT. Time a modem pool member is reserved before it is connected to a call. If billing applies, no charge should be imposed on reservation time.
Modem pool holding time	MPHT. Equal to the call's holding time (recorded in the elapsed time field in the SMDR call record). The holding time is the duration of the physical connection established between two parties.

For an interswitch digital data call, the MPBT equals the MPRT.

For an analog data call, the MPBT equals the MPRT plus the MPHT.

Datapath data calls

Using datapath, the two types of data calls are digital and analog.

Digital data calls

Digital data calls are those calls between two data units (DU) using a digital path.

All digital data calls do not need modem pooling resources; however, a modem pool member must be reserved for each interoffice data call before call termination. If the T-link can handshake with the other end, the reserved modem pool member is released. Data is exchanged end-to-end without using a modem pool member.

Analog data calls

Analog data calls are one of the following:

- Interoffice calls between DUs routed over analog facilities, that is, analog trunks.
- Interoffice or intraoffice calls between a modem and a DU.

For analog data calls to or from a DU, a modem pool member must be reserved and connected into the transmission path. The modem pool member converts the analog voice frequency signals into a digital format, and vice-versa.

ISDN data calls

ISDN data calls are originated from and terminated to the following:

- an ISDN stimulus set with data bearer capability
- a Primary rate interface (PRI) trunk with data bearer capability

For BCS26, ISDN (basic and primary rate) services do not have modem pooling capability; therefore, an ISDN terminal cannot exchange data with an analog modem.

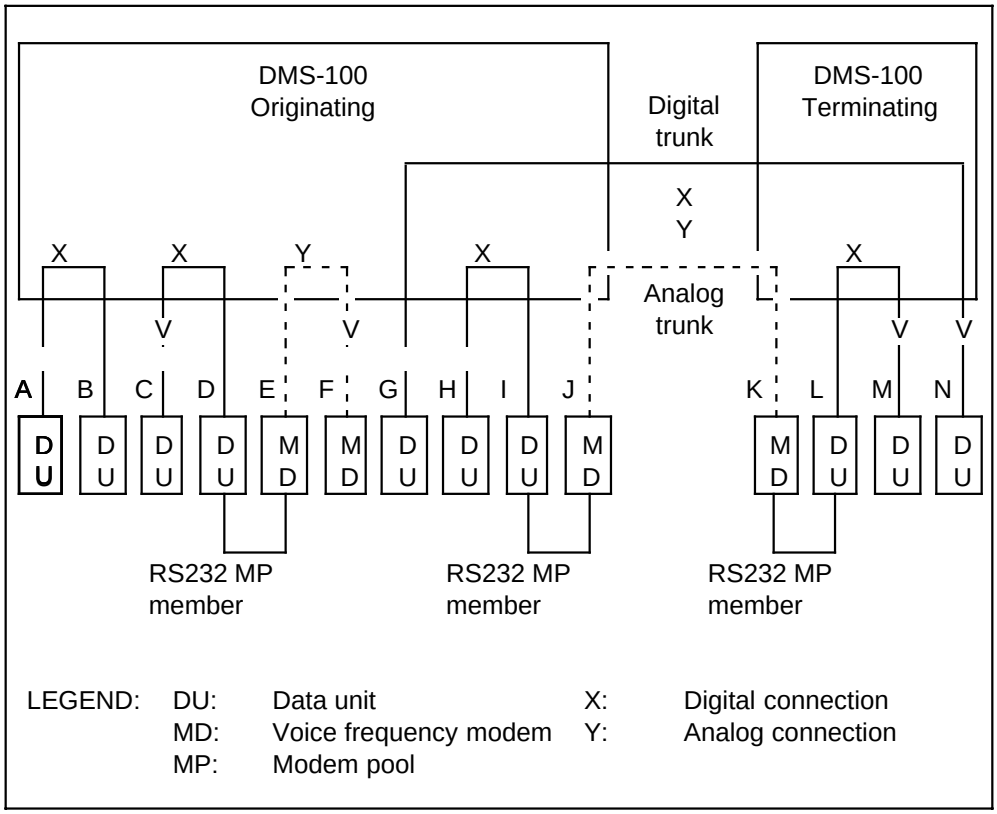
The identification of data calls feature introduced the DATA_CALL_SMDR office parameter.

"Identifying data calls" altered the AMAB150 and AMAB151 log reports to show the DCI digit.

"Activating the data call identification feature" describes how to activate this feature.

The following figure illustrates intraswitched and interswitched data calls and their connections when routed over digital and analog trunks.

Figure 2-1 Data connectivity possibilities



The following table indicates the DCI code that would be displayed in an SMDR call record for each type of connection shown in the preceding figure.

Table 2-2 Data call identification code examples

Call connection	Switching	DCI code	Modem pool used
A-B	Intraswitch	2	none
C-D-E-F	Intraswitch	3	Outbound D-E
F-E-D-C	Intraswitch	3	Inbound E-D
G-N	Originating	2	none
G-N	Terminating	2	none
H-I-J-K-L-M	Originating	3	Outbound I-J
H-I-J-K-L-M	Terminating	3	Inbound K-L

How SMDR records data for MDC features

This section defines how SMDR records information about those MDC features that can have their uses recorded by SMDR. These features and their descriptions follow:

- Attendant Conference
- Call Back Queuing
- DISA
- Executive Conference
- Meet-Me Conference
- Meet-Me Conference (Large)
- Ring Again
- Six-Way Conference
- Station-Controlled Conference

Attendant Conference

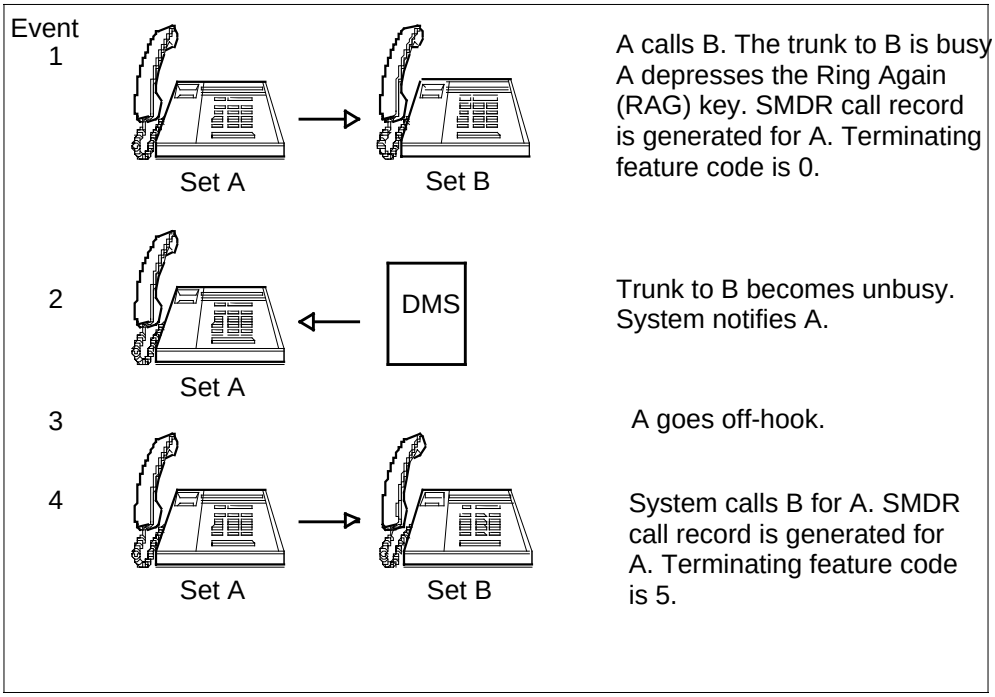
The Attendant Conference feature allows the attendant to establish a conference call upon request using a six-port bridge for each conference call. The Attendant Conference feature in the *Translations Guide* describes this feature and the datafill necessary to activate it.

Call Back Queuing

The Call Back Queuing (CBQ) feature allows a Meridian business set (MBS) station user encountering an all-trunks-busy condition to be notified when a

trunk becomes idle and then be automatically connected to the called number using the CBQ feature.

The following example illustrates call back queuing and the SMDR implications assuming that SMDR is activated for the type of call being made from phone A to phone B.

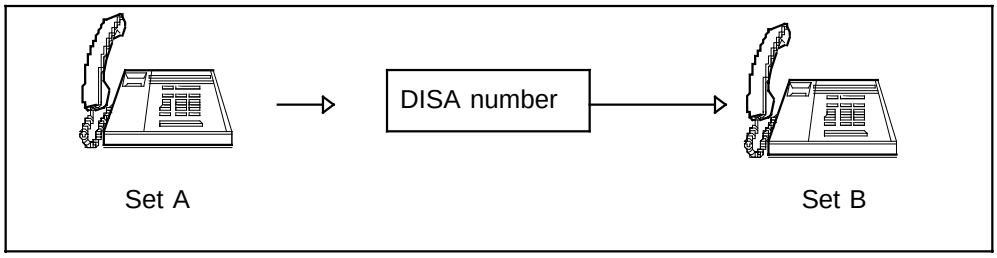


DISA

The DISA feature gives authorized outside callers the capability to dial from switched networks directly into a DMS-100 switch office.

The following figure is used as an example for illustrating the information in the origination type and termination type fields when a DISA number has been dialed.

Figure 2-2 Example DISA usage



When SMDR has been datafilled for the IBN line originating a call, the following four scenarios are possible:

- If the SMDRTO and SMDRFROM fields in table DNROUTE are set to N, only one SMDR call record is generated. In the record, phone A is the originator and phone B is the terminator.
- If the SMDRTO field is set to Y and the SMDRFROM field is set to N, only one record is generated. In the record, phone A is the originator and the DISA number is the terminator.
- If the SMDRTO field is set to N and the SMDRFROM field is set to Y, two SMDR call records are generated. In the first record, phone A is the originator and phone B is the terminator. In the second record, the DISA number is the originator and phone B is the terminator.
- If both the SMDRTO and SMDRFROM fields are set to Y, two SMDR call records are generated. In the first record, phone A is the originator and the DISA number is the terminator. In the second record, the DISA number is the originator and phone B is the terminator.

The Direct Inward System Access feature in the *Translations Guide* describes this feature and lists the datafill necessary to activate it.

Executive Conference

The Executive Conference feature permits up to 150 conferees to participate in a conference call that conference members dial at a specified time in order to hold a conference. This feature is datafilled through tables MMCONF and IBNXLA.

Meet-Me Conference

The Meet-Me Conference feature provides a six-port conference bridge and DN that conference members dial at a specified time to hold a conference. The Meet-Me Conference feature in the *Translations Guide* describes this feature and the datafill necessary to activate it.

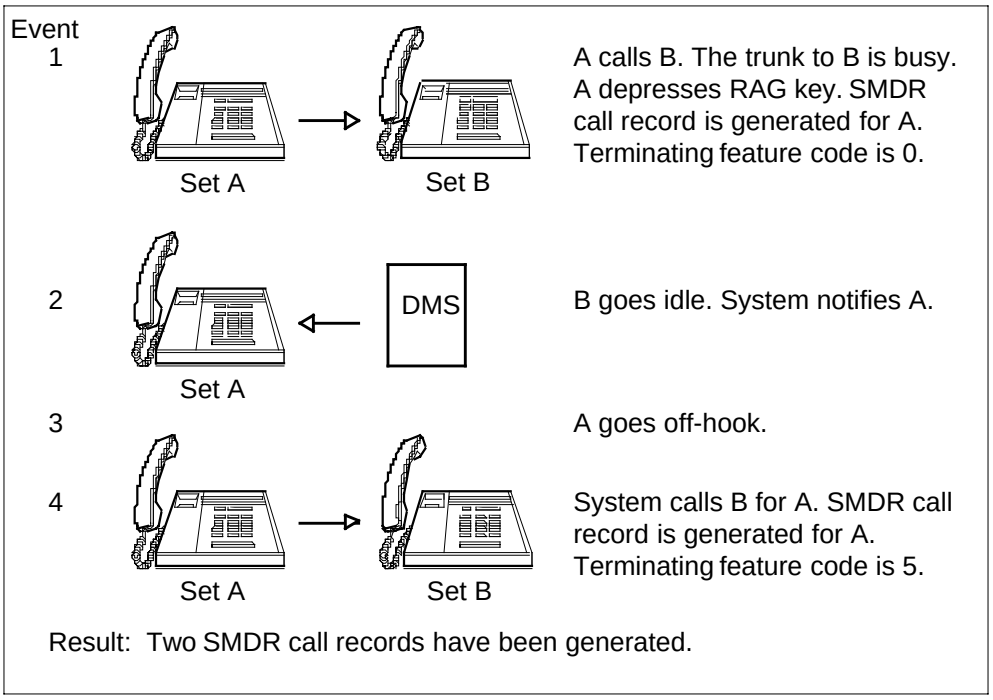
Meet-Me Conference (Large)

The Meet-Me Conference (Large) feature permits up to 30 conferees to participate in a conference call that conference members dial at a specified time to hold a conference.

Ring Again

The Ring Again feature allows a calling party encountering a busy station to be notified when the busy station becomes idle and to be placed automatically in a ring again mode.

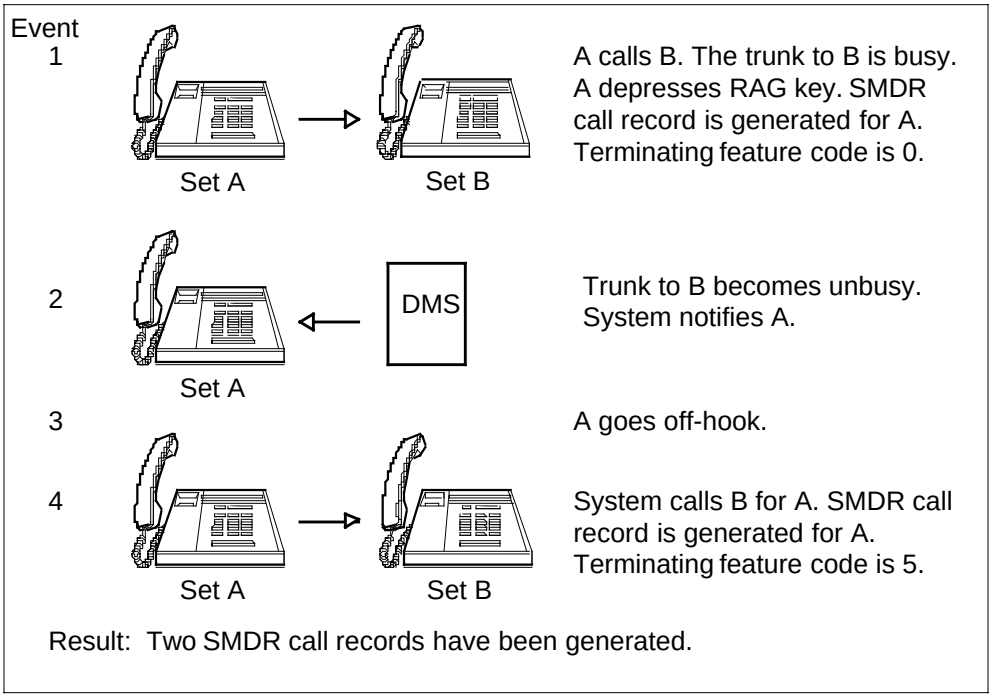
The following example illustrates Ring Again and the SMDR implications assuming that SMDR is activated for the type of call being made from phone A to phone B.



Six-way conference

The MBS Six-Port Conference feature allows a business set to establish a conference call of up to 30 parties by dialing and transferring potential conferees to the conference call.

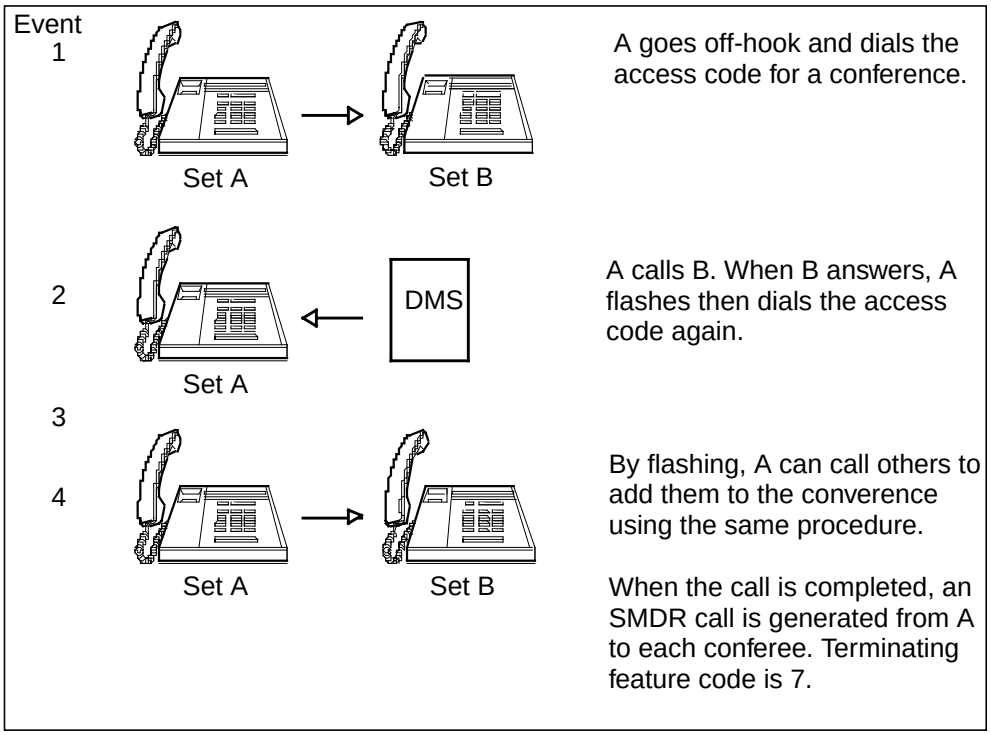
The following example illustrates call-back queuing and the SMDR implications assuming that SMDR is activated for the type of call being made from phone A to phone B.



Station-Controlled Conference

The Station-Controlled Conference feature allows a station to set up a conference call of more than three parties without the assistance of an attendant.

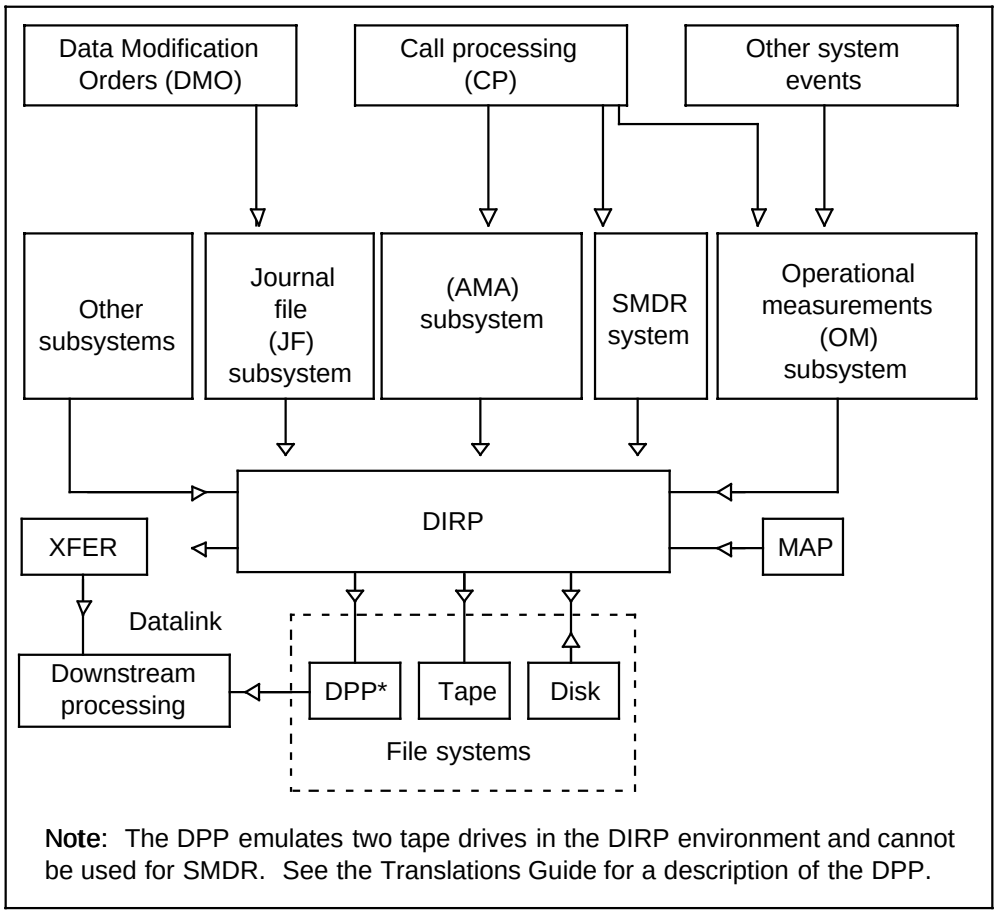
The following example illustrates call-back queuing and the SMDR implications assuming that SMDR is activated for the type of call being made from phone A to phone B.



Setting up the recording facilities

The DIRP subsystem provides the recording facilities for the SMDR system. The recording facilities are disks or magnetic tape. The disks and tapes are known as data storage devices. The following figure illustrates the DIRP recording facilities. Refer to the *Translations Guide* for a description of the DIRP subsystem.

Figure 2-3 DIRP recording facilities block diagram



See the *Translations Guide* for a description of the DPP.

Recording call data

During a call, call processing data is stored in either a call condense block (CCB) or an extension block (EXT). Where the information is stored depends on the type of call that was made.

When the call is finished and disconnected, data in the CCB or EXT is sent to a buffer. In the buffer, the data is formatted into a specific layout based on the data gathered about the call. The layout is made up of fields, records, and data blocks.

The data about a call is stored in specific fields. These fields make up records; the records make up data blocks. A data block is 2048 bytes. Records are not allowed to span blocks. If a record does not fit in the block being written to a data storage device, the record is put into the next block. The flow of data from the buffer to the data storage device is called a stream.

A record is a collection of data transcribed, or in a form suitable for transcription between the DMS-100 switch and a storage medium. The three categories of records are as follows:

Table 2-3

Record code	Called digits format
General	This record code supplies information about data group block and system events. "Defining the general SMDR record types" describes these records.
Call	This record code contains the specific information about a call. In this document, these records are often referred to as the main call records. "Defining the SMDR call records" describes the call records.
Extension	This record code contains additional call information related to the call in the immediately preceding main call record. "Defining the SMDR call records" describes the call extension records.

This buffer is checked periodically. When data is found in the buffer, the data is transferred to a data storage device dedicated for SMDR.

Periodically, the data stored on the storage devices is transmitted to the operating company's downstream data processing center. At this center, data is retrieved for customer analysis of call traffic.

SMDR data specifics

The details of each billable and nonbillable call for each MDC customer group is recorded by SMDR. The details (data) are formatted as specified by the SMDR system. The formats are in the form of call records. These formats are described in this document. See the *Translations Guide* for a description of MDC services and features.

Using the special SMDR recording format described in this document, the AMA system records SMDR data. Even though the AMA system is used to record SMDR data, SMDR operates independently. Because of this independent operation, if an office is equipped with LAMA and SMDR, two records can be generated for each toll call. One record will be in AMA format; the other record will be in SMDR format. *Bellcore Format Automatic Message Accounting Reference Guide*, 297-1001-830, describes the Bellcore AMA format.

"Defining the general SMDR record types" describes the general records used by the SMDR system. "Defining the SMDR call records" describes the unique SMDR call records.

DANGER

Possible loss of SMDR data

If using the Bellcore format for AMA records, do not send SMDR data to the AMA stream. Sending SMDR data to the Bellcore AMA stream may result in problems when copying DIRP as well as a loss of SMDR data. If using the Bellcore format, the SMDR AMA tuple does not appear in table CRSMAP. Instead, ensure that the SMDR tuple appears in table CRSMAP.

Setting up the DIRP recording facilities

The *Translations Guide* describes how to set up the DIRP subsystem that is the recording facility used by SMDR.

The DIRP subsystem uses tables DIRPPOOL and table DIRPSSYS to determine the device type (magnetic tape or disk) available for recording SMDR data and to cause the data to be written to files. The DIRP subsystem also provides the following functions:

- controls the disk and tape recording devices
- provides information about the files
- sets storage device alarms
- generates log reports about significant system events
- allows SMDR file transfer.

Disk recording facilities

Each disk is logically divided into volumes. Volumes have the following attributes:

- There can be up to 32 volumes on each disk.
- Each volume can be a different size.
- The size of a volume is determined by the number of 1K (1 024) sectors.
- Each volume can have a maximum of 65535 1K sectors. This is 65535000 bytes (65 Mbytes). This is the space for data.
- There has to be at least one volume for each disk.
- Volumes grouped together are referred to as a pool.

- A volume is identified by a volume name (VOLNAME) in a pool.
- There are one or more files in each volume.

Depending on the number of volumes and number of files in each volume, the system generally uses less than seven percent of the recording space for overhead. Most of the overhead is incurred in the formatting of the disk.

Logical collections of data are stored in the files. A logical collection of data might be the SMDR records for one day. A file can be any number of data records up to the maximum size of a volume. A file is identified by a file name (FILENAME) on a volume.

When the disk recording facilities of DIRP are used, a maximum of four files can be open simultaneously for input or output.

Magnetic tape or digital audio tape recording facilities

With magnetic tape as the data storage device, a subsystem can have one to four tape drives. Each tape drive represents a single volume. This volume size on a tape is determined by the length of the tape. Data can recorded on the tape until an end-of-tape marker is reached.

Parallel files

A parallel file can be assigned so that each block of data written onto the active file is also written onto the parallel file. This parallel file serves as a backup to the active file. When the parallel file is full, it is rewound and overwritten with new data.

During the rewind, it is possible that some data blocks will not be written onto the parallel file.

Managing the recording facilities

To effectively manage the DIRP recording facilities, the following measures are provided:

- consistent method of labeling tapes
- several methods for providing tape security
- procedures for rotating recording files
- ability to check the status and content of the recording facilities using the MAP facility
- output (log) reports for continuous monitoring of significant system events.

Labeling of tapes

The DMS-100 Family of switches uses and supports only International Business Machines (IBM) standard tape labels. This provides operating

companies with efficient control of tapes at both the data center and the DMS switch locations through the identifier and date information contained within the labels. Tape label checking occurs when a tape is mounted as an AMA reserve.

Magnetic Tape Reference Manual, 297-1001-118, describes the label format.

Providing tape security

The security of the information in the SMDR and AMA files on the tapes is provided by the following checks:

- Expiration data
- Data set name
- Standby tape

Expiration date check Accidental overwriting of a tape file is prevented by the date in the EXPIRATION DATE field in the Header1 (HDR1) data block on the tape.

The file is regarded as expired when today's date is the same as or later than the date given in this field. When this condition is satisfied, the remainder of this volume can be overwritten. The value of this field is the creation date plus an optional value.

Magnetic Tape Reference Manual, 297-1001-118, describes how creation dates and expiration dates are created.

Data set name check All DMS tapes are initialized with a code of up to 17 extended binary-coded decimal interchange code (EBCDIC) characters in the data set identifier (DSI) of the HDR1 label. When a DMS office is first commissioned, the operating company supplies a code of up to 17 EBCDIC characters to be used as the data set name (DSN) of AMA data files. If fewer than 17 characters are used, the DSN appears on the tape left justified and padded with spaces.

The DMS switch reads the IBM standard labels that have previously been recorded on the tape and displays source of their content (DSN, creation date and expiration date) on the MAP terminal or teletype (TTY). The DMS switch then requests confirmation of the MOUNT command. To confirm, the maintenance personnel must type in the DSN that was displayed on the terminal. If anything else is typed in, the MOUNT request is aborted.

Standby tape check Before allowing a tape to be dismounted using the DEMOUNT command, the system checks to make sure that the tape is in a standby mode. A request to demount an active AMA tape using the DEMOUNT command will fail.

Before an active AMA tape can be removed from its tape drive, either the AMA system or the operating company personnel must make the status of the tape standby.

Rotating recording files

Files on which data is being recorded can be rotated depending upon how the operating company wants to store the raw SMDR data. The following table describes the types of rotation and how the files are rotated. "File rotation records" describes the FA, FB, and FC call records which record rotation events.

Table 2-4

Rotation type	Description
Manual	A rotation of files done manually by maintenance or administrative personnel. To manually rotate a file, use the DIRP command ROTATE. *Routine Maintenance Procedures* and *Log Report Reference Manual* describes the ROTATE command.
Scheduled	A rotation of files done automatically by the system based on datafill in table DIRPSSYS. The fields that need to be datafilled are as follows: • SHEDDAYS: indicates user schedules of rotation based on the days of the week. • SHEDBASE: indicates the hour of the day when the rotation cycle begins. • SHEDINCR: indicates the number of hours between rotations.
Emergency	A rotation of files done because of an emergency situation. An emergency includes the failure of an active tape or disk drive, a full file, or a broken tape. "Emergency transfers" describes emergency transfers.
DTR	A automatic rotation of files done when AMA data is being polled from a file by a downstream data processing center. The automatic rotation of a file on a signal from a downstream data processing center is based on datafill in field AUTOFXER of table DIRPSSYS.

Checking the status and contents of the recording facilities

The status and contents of the recording facilities can be checked by using the DIRP MAP level and the AMADUMP facility, respectively.

DIRP MAP terminal level The status of the recording facilities is displayed at the DIRP level menu of the MAP terminal. The DIRP MAP terminal level is accessed through the Input/Output Devices (IOD) MAP terminal level. *Routine Maintenance Procedures* and *Input/Output Devices Maintenance Guide* describe the DIRP MAP terminal level.

AMADUMP utility The AMADUMP utility can display (on a MAP screen) or print (hard-copy printout) the contents of the AMA files produced in a LAMA or CAMA office. The contents is display or dumped in the following formats:

- block-by-block HEX dump of the contents of a file, with the range of blocks optionally specified by the user
- record-by-record HEX dump of AMA call entries, data entries, or header entries within an AMA file. Screening can be optionally specified by the user.
- statistical profiles, in chart format, of the call entries by call record type and call duration

Note 1: The files dumped must not be actively recording.

Note 2: The format used for a dump of SMDR data is NT.

"Using the AMADUMP utility" describes the AMADUMP facility.

Interpreting output reports

During the generation of SMDR call records, the following log reports directly related to SMDR may be generated by the AMA buffer (AMAB) subsystem:

Table 2-5

Report	Description
AMAB150	This report is generated to test or monitor the generation of SMDR records. The information in this output report is basically the same as the information that will be written to the tape or disk file. However, the information in the output report and the format in which data is recorded to the tape or disk file are not the same.
AMAB151	The report is generated when an identification failure occurred when creating an SMDR record for a call by the specified originating (ORIG) terminal.

Log Report Reference Manual describes the log reports in detail.

Collecting SMDR data

The operating company determines the method of filing the recorded SMDR call data. This determination should be made prior to activating SMDR at the switch. This chapter details the methods for filing call data and provides step-by-step procedures for setting up the individual collection methods.

The methods for filing call data are as follows:

- creating separate SMDR output files
- creating separate SMDR output files on a customer group basis

Creating separate SMDR output files

The SMDR call data can be sent to the AMA stream (if the AMA stream is not Bellcore format) or to a unique SMDR stream.

Creating separate SMDR output files for each customer group

The SMDR call data can be sent to the AMA or SMDR stream for each customer group up to a maximum of 12 customer groups. This feature allows large MDC customer groups to process their own data which can be sent to them on tape or over data links.

Evaluating SMDR real time implications

Real time is the actual time during which a physical process transpires. For SMDR, the real time impact on the switch is the time it takes for the central processing unit (CPU) to create and store an SMDR call record. In general terms, the real time impact of SMDR call record generation is .0055 to .0085 seconds (5.5 to 8.5 milliseconds) for each record generated.

The real-time figure is dependent on switch datafill. If extension records are tacked on to the main call record, the real time is increased.

Because of the real-time expenditure, the type of calls and the type of information desired should be carefully thought out. Unnecessary SMDR call record generation impacts switch real-time performance.

Evaluating capacity implications

Using SMDR on a switch affects the capacity of a switch. The following table lists the office parameters that need to be evaluated to ensure system capacity is not adversely affected.

Table 2-6 Office parameters affecting SMDR capacity (Sheet 1 of 2)

Office parameter	Effect
NO_OF_FTR_CONTROL_ BLKS	The number of feature control blocks required should be evaluated based on the SMDR features activated and based on the features activated that trigger information that is entered into an SMDR call record. See *Office Parameters Reference Manual* for the exact formula.
NO_OF_FTR_DATA_BLKS	The number of feature data blocks required should be evaluated based on the SMDR features activated and based on the features activated that trigger information that is entered into an SMDR call record. See *Office Parameters Reference Manual* for the exact formula.
NO_OF_SMDR_REC_UNITS	This office parameter was deleted in BCS35.
CRS_PRU_POOL3_SIZE	The number of primary recording units required should be evaluated when SMDR is activated. This parameter should be reevaluated whenever features for which SMDR is being recorded are changed. See *Office Parameters Reference Manual* for the exact formula for all markets.
CRS_SUBRU_POOL1_SIZE	Extension records are created through the use of this office parameter. The extension records generated from this office parameter are: • D7 Spanish extension record • DC personal identification number (PIN) and travel card number (TCN) extension record • DD (NSS) bearer capability • DF ITC • DF07 additional user type

Table 2-6 Office parameters affecting SMDR capacity (Sheet 2 of 2)

Office parameter	Effect
CRS_SUBRU_POOL2_SIZE	Extension records are created through the use of this office parameter. The extension records generated from this office parameter are: • D5 RAO • D6 Authorization and account code • DF05 carrier charge area information • DF06 charge rate information • DF09 SMDR Per Use Billing
CRS_SUBRU_POOL3_SIZE	Extension records are created through the use of this office parameter. The extension records generated from this office parameter are: • D5 RAO • D6 Authorization and account code • DF05 carrier charge area information • DF06 charge rate information • DF09 SMDR Per Use Billing
CRS_SUBRU_POOL4_SIZE	Extension records are created through the use of this office parameter. The extension records generated from this office parameter are: • DB MSN • DE ICC
NUMCPWAKE	The maximum number of call process wakeups in the system should be evaluated based on the SMDR features activated and based on the features activated that trigger information that is entered into an SMDR call record. See *Office Parameters Reference Manual* for the exact formula.

Interpreting the byte structures of SMDR records

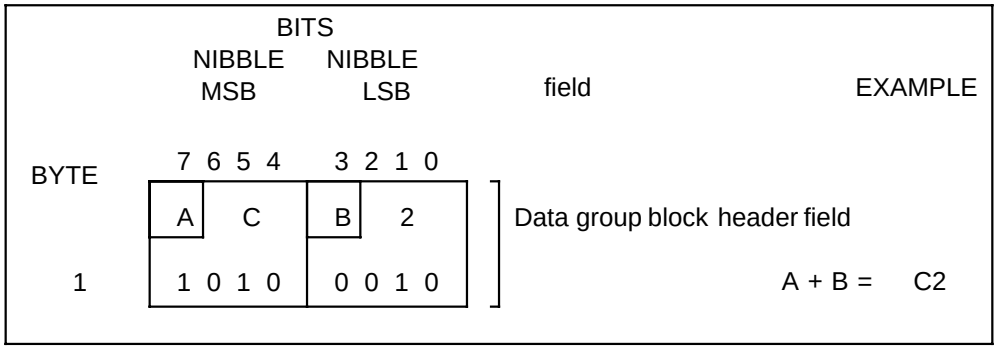
The byte structure for SMDR records is as follows:

- Each byte is composed of eight bits.
- Four bits compose a nibble; therefore, there are two nibbles in each byte.
- The binary code in each nibble is converted into a HEX character.
- When the data stored in each nibble is displayed or printed, the data is displayed or printed as a HEX digit.

The following figure illustrates how the record-byte structures are shown throughout this section as follows:

- The bytes are listed in their order in the SMDR data stream.
- The bits in the bytes are listed from the least significant bit (LSB) to the most significant bit (MSB).
- Each nibble is labeled with a character. For example, the first nibble of the first byte is A; the second nibble of the first byte is B.
- The HEX equivalent of the binary code of each nibble is listed on the same line as the label. For example, in nibble A, the HEX character is C; in nibble B, the HEX character is 2.
- The binary code of each byte is aligned under each of the eight bits labeled 0 (LSB) to 7 (MSB).
- The field that contains the data from the nibbles is listed. The nibbles which create the information in the field are listed.

Figure 2-4 Example of the byte structure for a record



The following table cross-references SMDR record fields with their respective byte structure examples found in the figures that follow.

Table 2-7 Locating byte structures for SMDR records (Sheet 1 of 2)

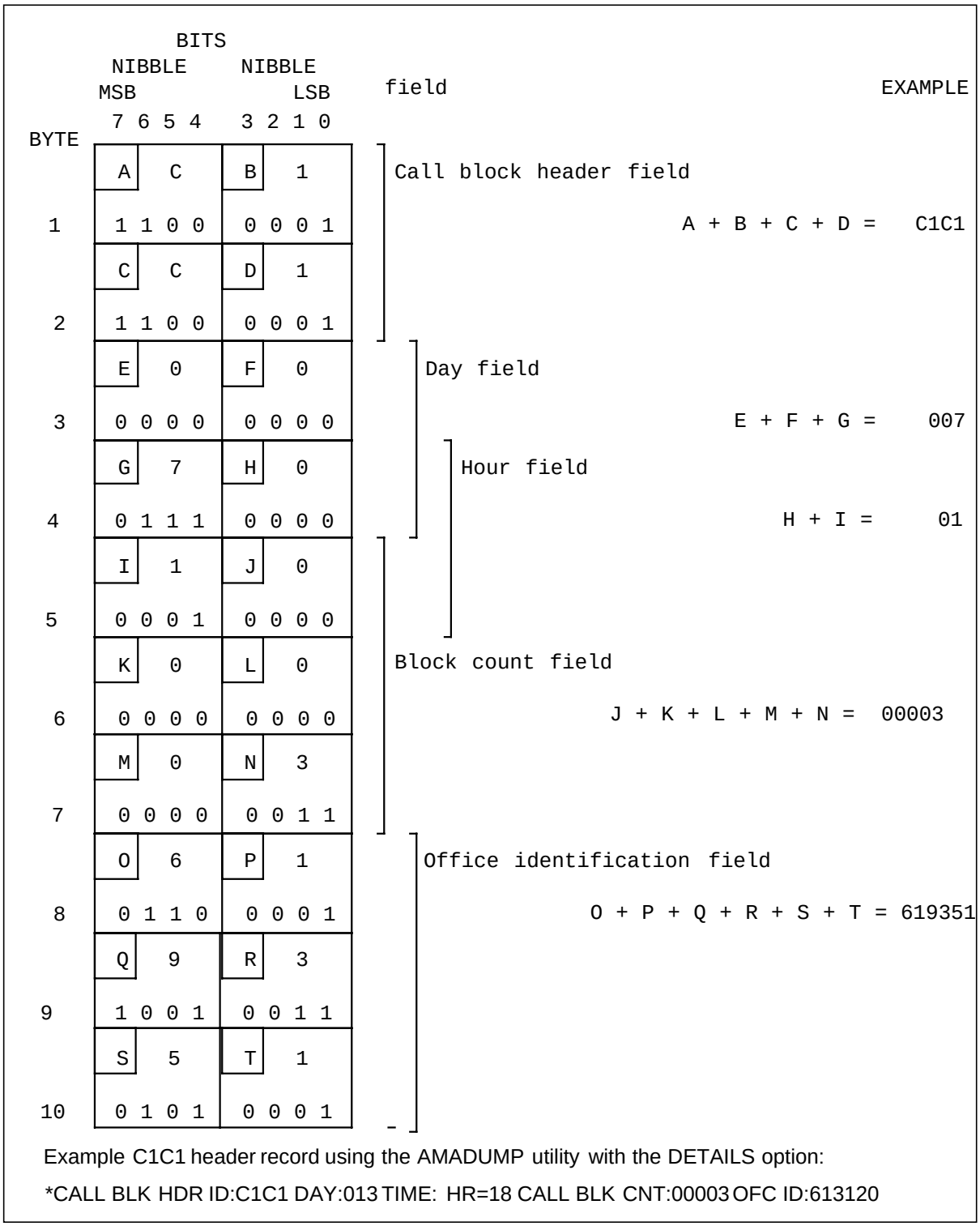
Record field	Byte structure example
C1C1	Figure 2-5
C2C2	Figure 2-6
D1 – D4	Figure 2-8
D5	Figure 2-12
D6	Figure 2-14
DA	Figure 2-15

Table 2-7 Locating byte structures for SMDR records (Sheet 2 of 2)

Record field	Byte structure example
DB	Figure 2-17
DC	Figure 2-20
DD	Figure 2-21
DE	Figure 2-22
DF01	Figure 2-27
DF02	Figure 2-28
DF03	Figure 2-28
DF05	Figure 2-29
DF06	Figure 2-30
DF07	Figure 2-31
DF09	Figure 2-32
E	Figure 2-36
FA, FB, FC	Figure 2-38
FD	Figure 2-40
FE	Figure 2-41
K, A, C, V	Figure 2-42
ORIGID field: TERMTYPEs 0,1,4,7, or 8	Figure 2-45
TERMID field: TERMTYPEs 0 and 4	Figure 2-46
ORIGID field: TERMTYPE 2	Figure 2-47
TERMID field: TERMTYPE 2	Figure 2-48
ORIGID field: TERMTYPE 3	Figure 2-49
TERMID field: TERMTYPE 3	Figure 2-50
ORIGID field: TERMTYPE 5	Figure 2-51
TERMID field: TERMTYPE 5	Figure 2-52

The following figure is an example of the byte structure for the SMDR C1C1 record field.

Figure 2-5 C1C1 record byte structure



Example C1C1 header record using the AMADUMP utility with the DETAILS option:

*CALL BLK HDR ID:C1C1 DAY:013 TIME: HR=18 CALL BLK CNT:00003 OFC ID:613120

The following figure is an example of the byte structure for the SMDR C2C2 record field.

Figure 2-6 C2C2 record byte structure

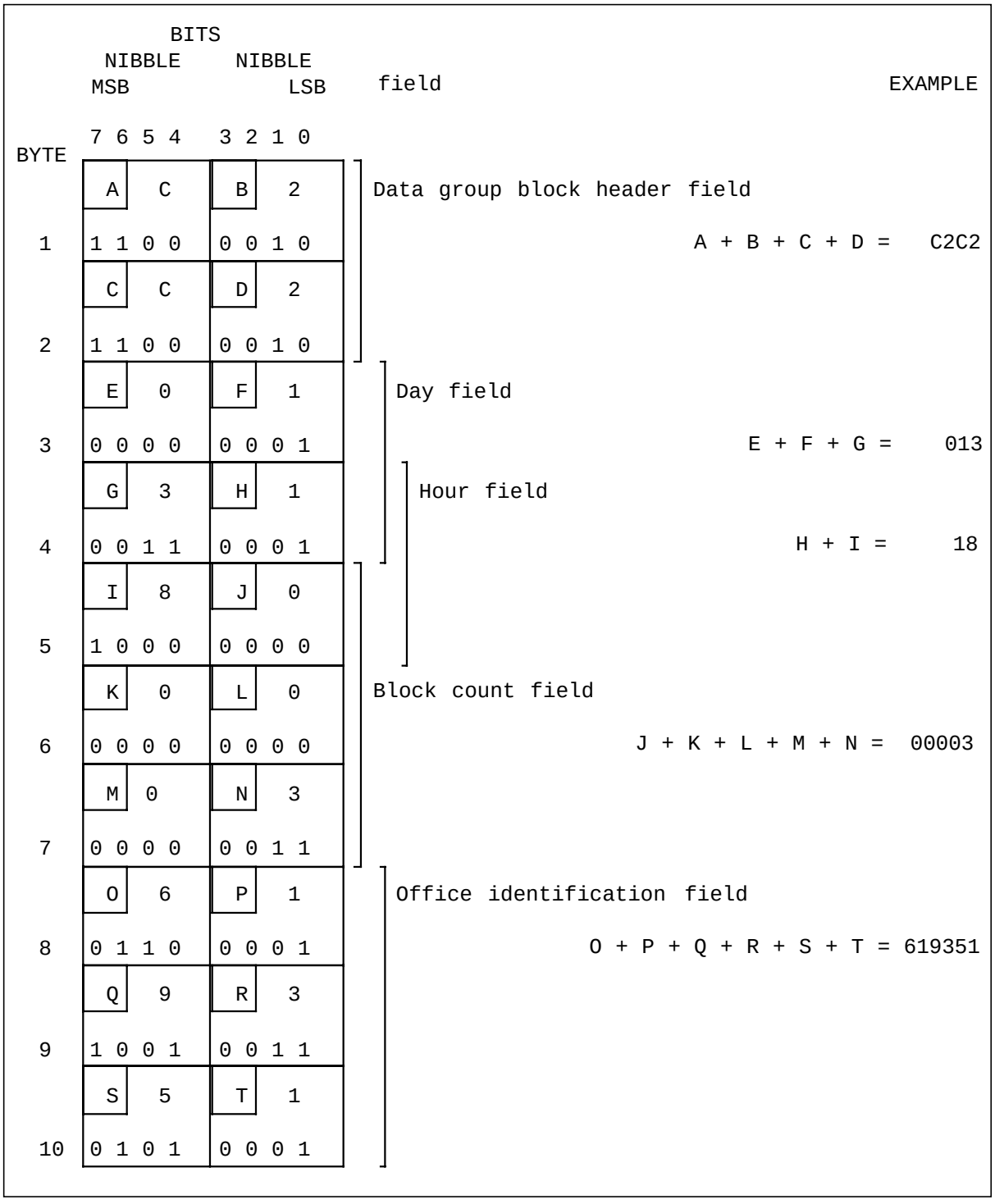
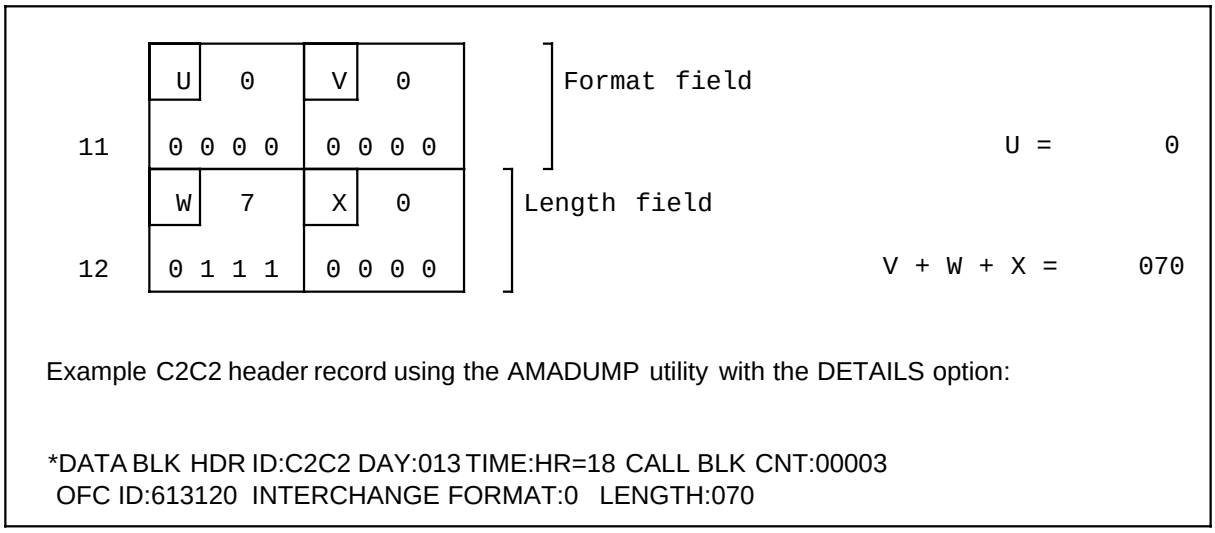
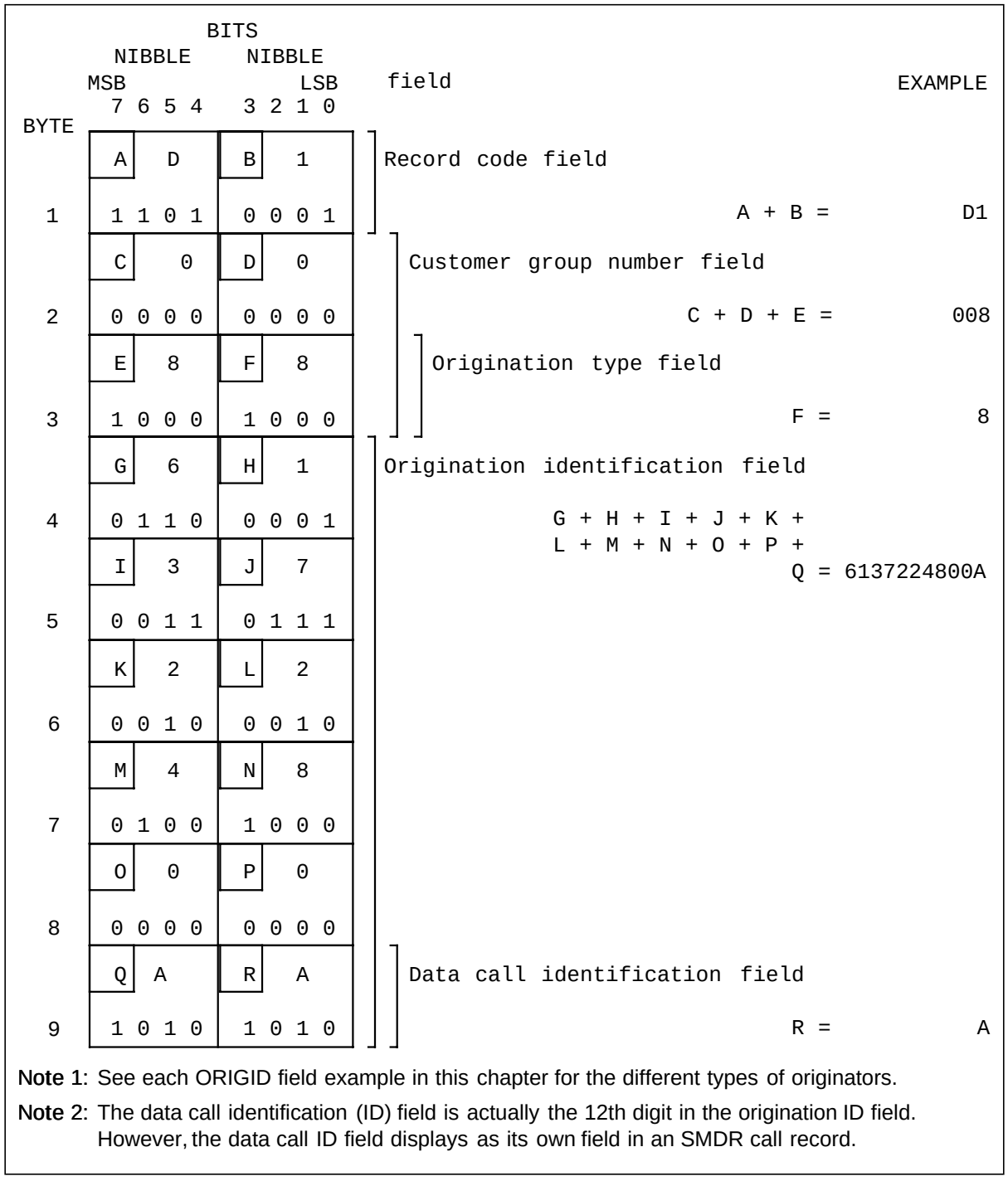


Figure 2-7 C2C2 record byte structure (continued)



The following figure is an example of the byte structure for the SMDR D1-D4 call records.

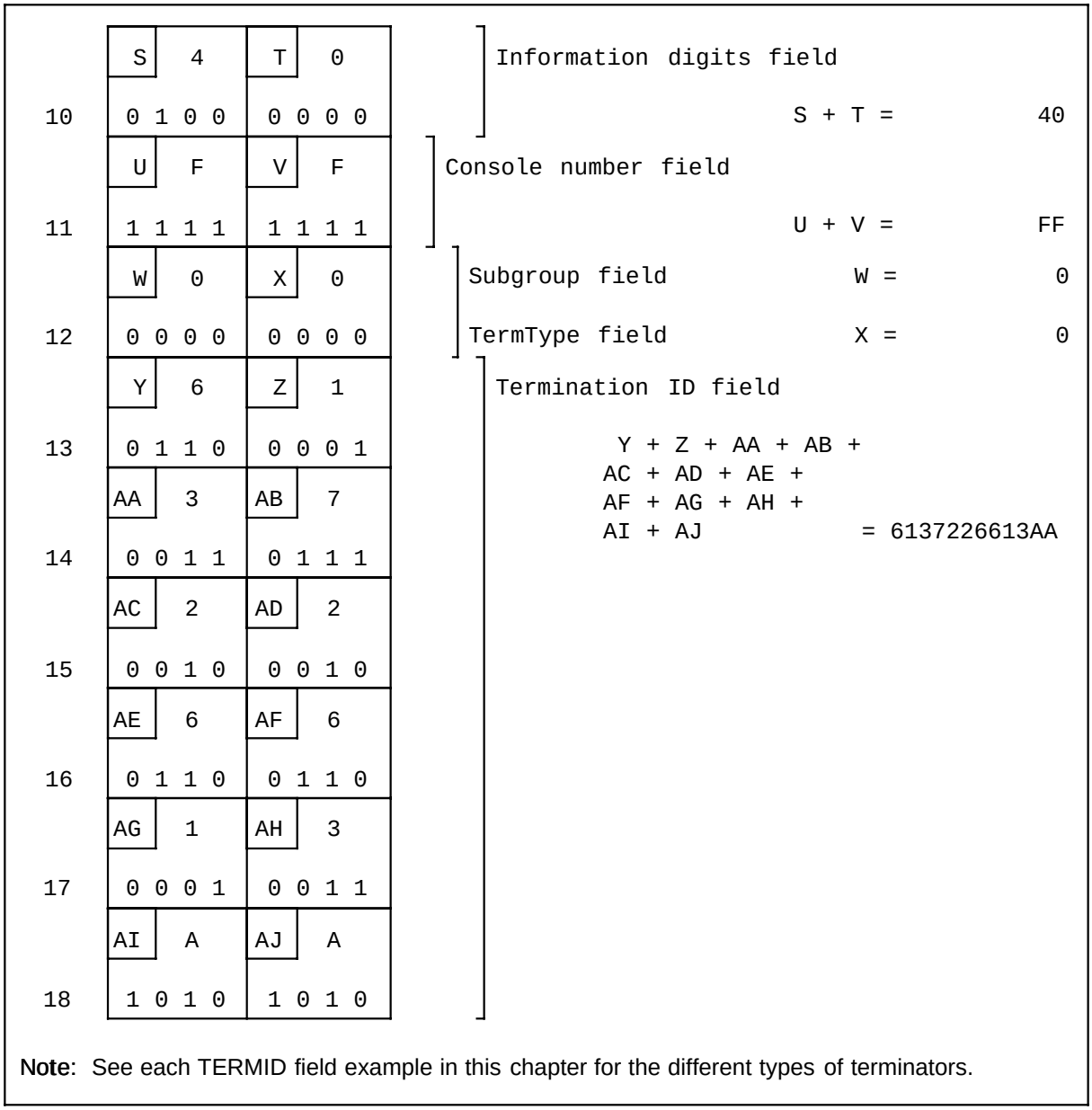
Figure 2-8 D1-D4 main SMDR call records byte structure



Note 1: See each ORIGID field example in this chapter for the different types of originators.

Note 2: The data call identification (ID) field is actually the 12th digit in the origination ID field. However, the data call ID field displays as its own field in an SMDR call record.

Figure 2-9 D1-D4 main SMDR call records byte structure (continued)



Note: See each TERMID field example in this chapter for the different types of terminators.

Figure 2-10 D1-D4 main SMDR call records byte structure (continued)

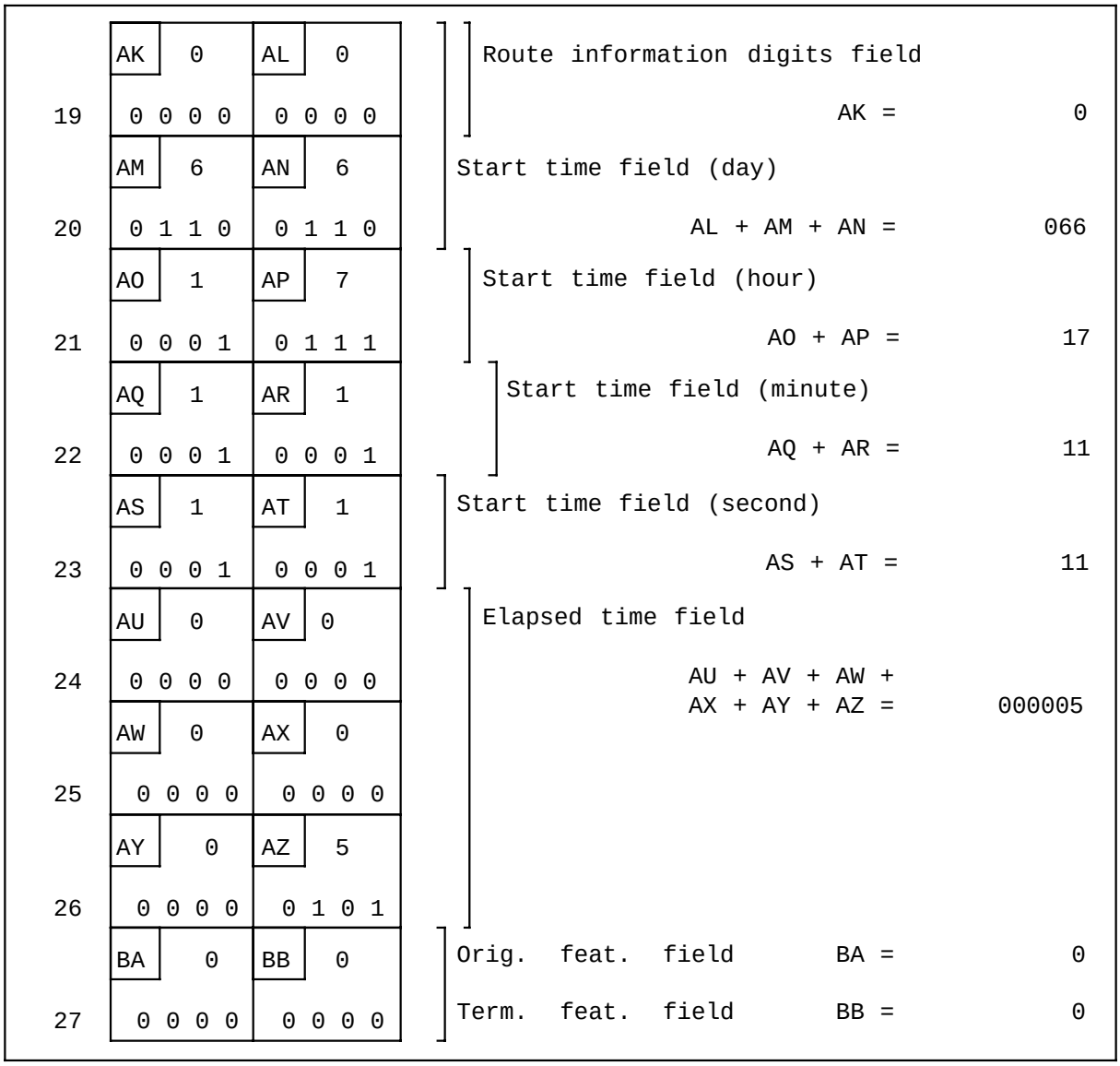
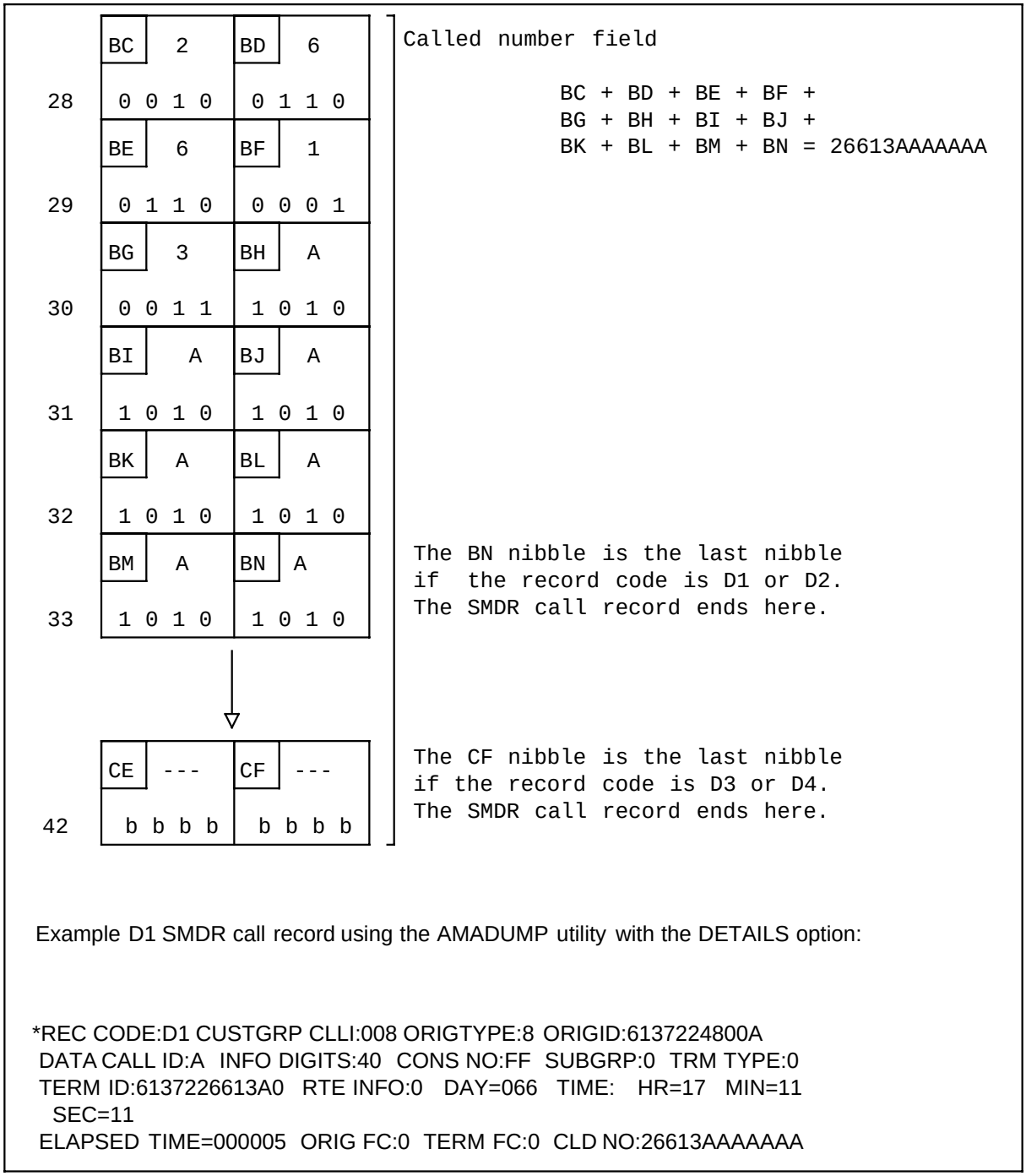


Figure 2-11 D1-D4 main SMDR call records byte structure (continued)



Example D1 SMDR call record using the AMADUMP utility with the DETAILS option:

```
*REC CODE:D1 CUSTGRP CLLI:008 ORIGTYPE:8 ORIGID:6137224800A
 DATA CALL ID:A  INFO DIGITS:40  CONS NO:FF  SUBGRP:0  TRM TYPE:0
 TERM ID:6137226613A0  RTE INFO:0  DAY=066  TIME:  HR=17  MIN=11
   SEC=11
 ELAPSED TIME=000005  ORIG FC:0  TERM FC:0  CLD NO:26613AAAAAAA
```

The following figure is an example of the byte structure for the SMDR D5 extension record.

Figure 2-12 D5 extension record byte structure

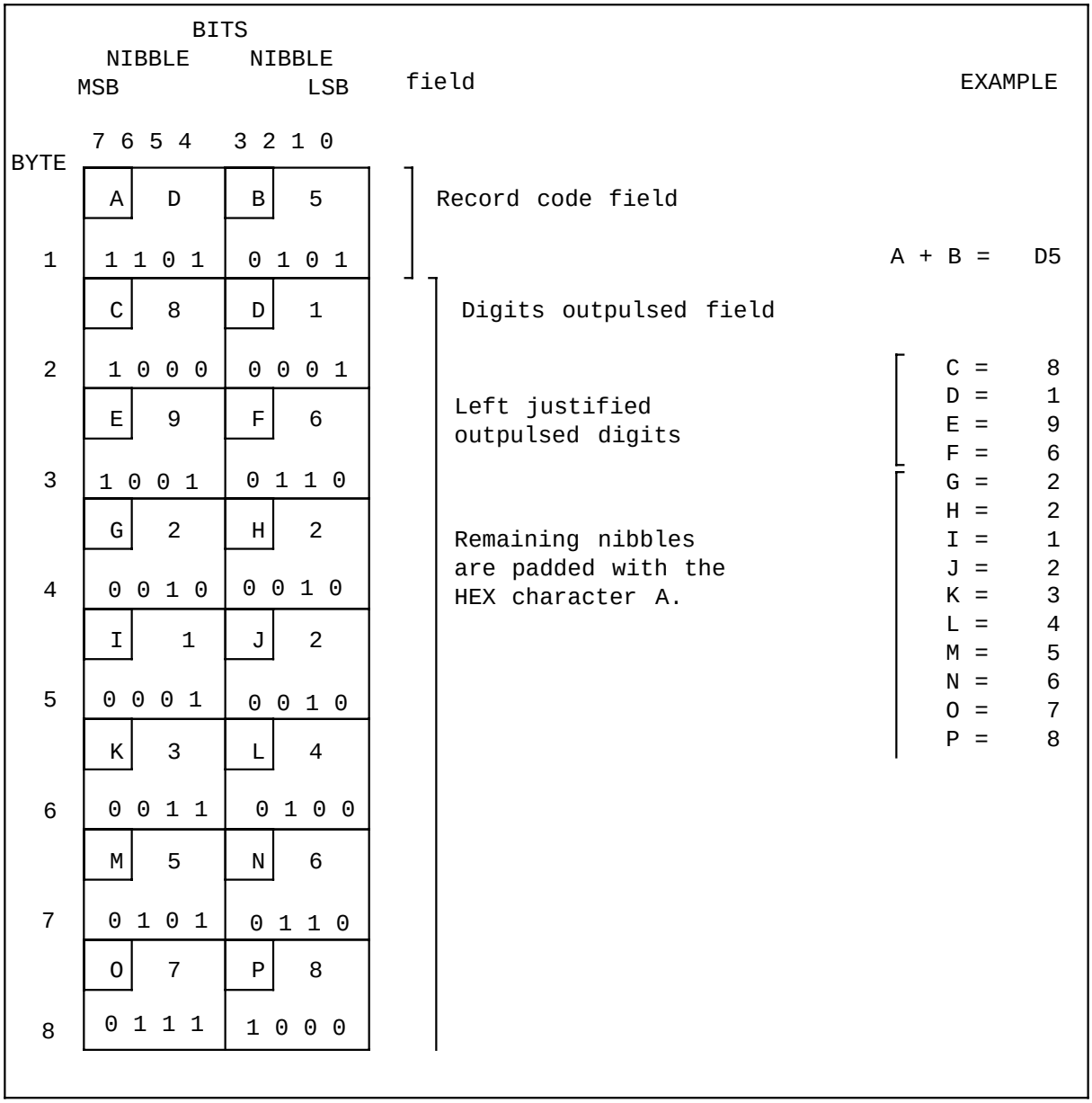
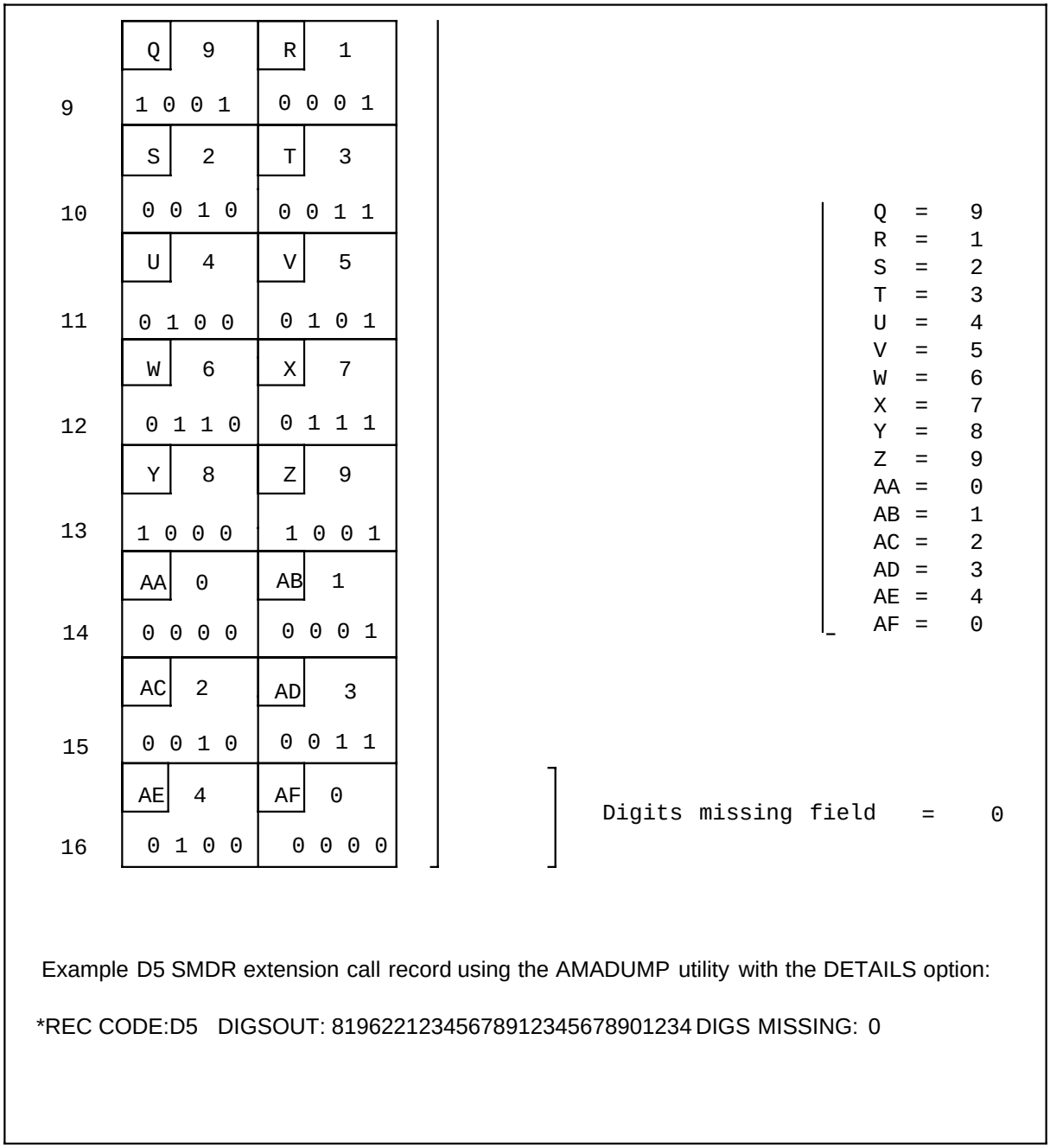
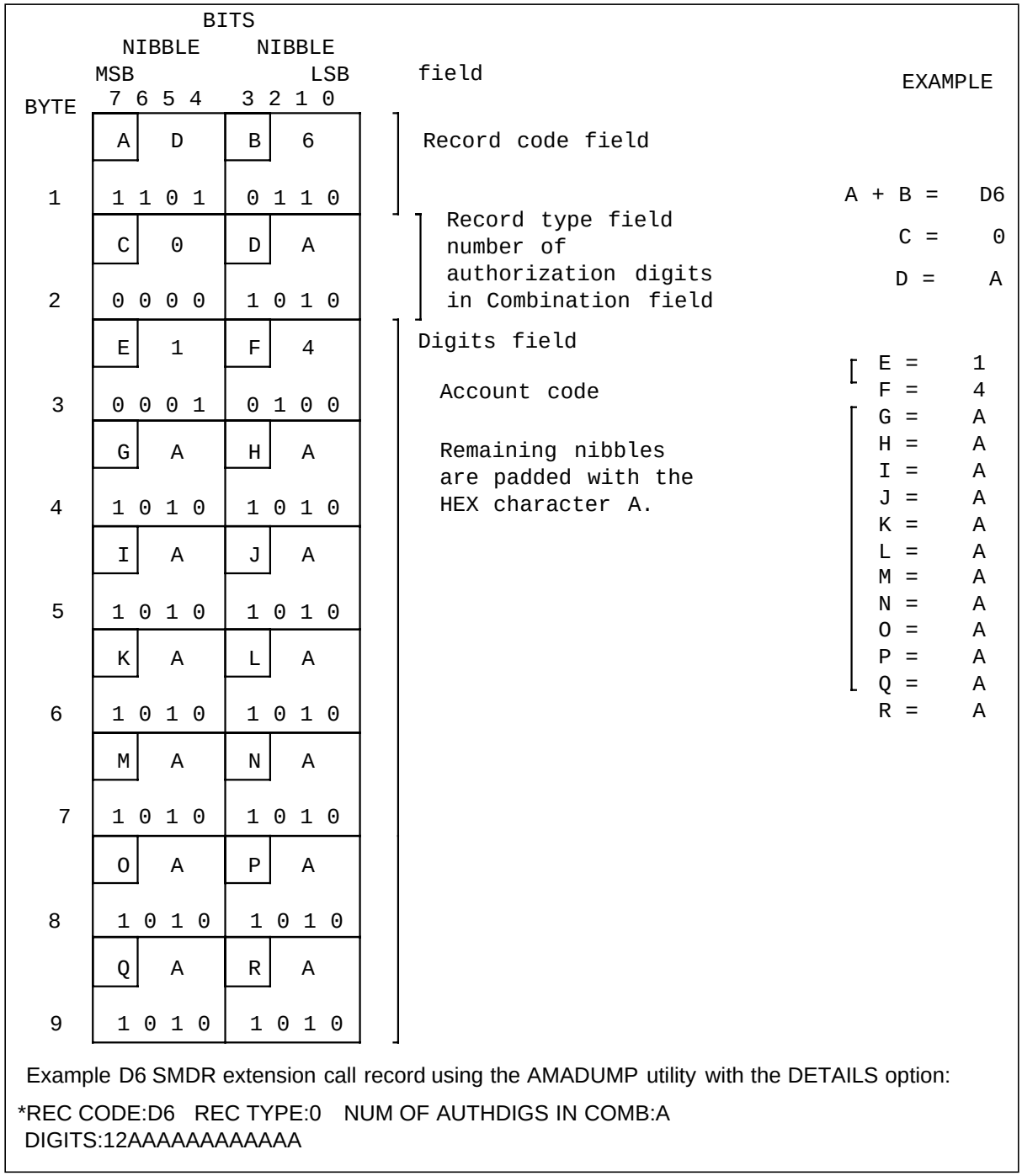


Figure 2-13 D5 extension record byte structure (continued)



The following figure is an example of the byte structure for the SMDR D6 extension record.

Figure 2-14 D6 extension record byte structure



Example D6 SMDR extension call record using the AMADUMP utility with the DETAILS option:

*REC CODE:D6 REC TYPE:0 NUM OF AUTHDIGS IN COMB:A
DIGITS:12AAAAAAAAAAA

Figure 2-15 DA extension record byte structure

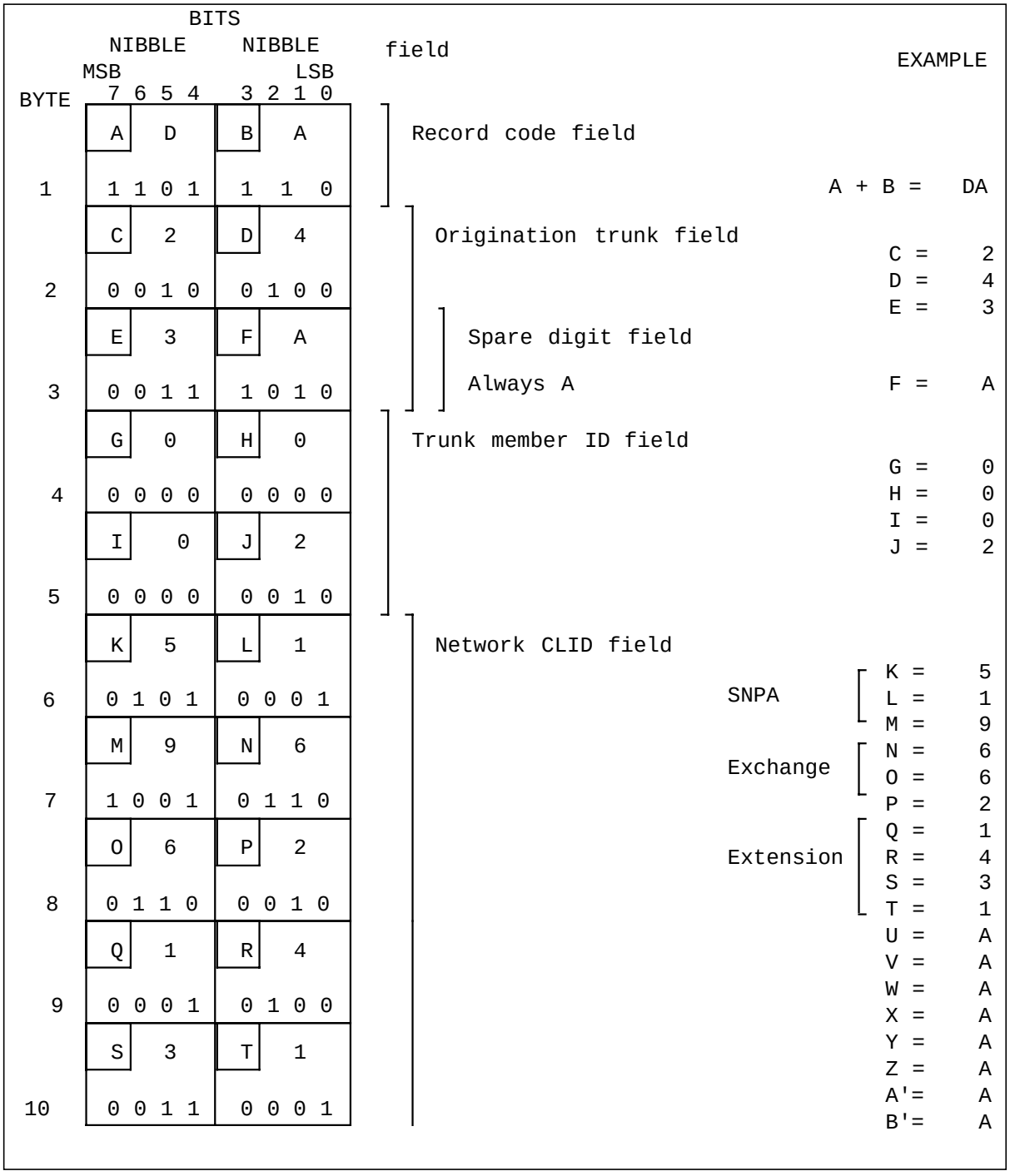
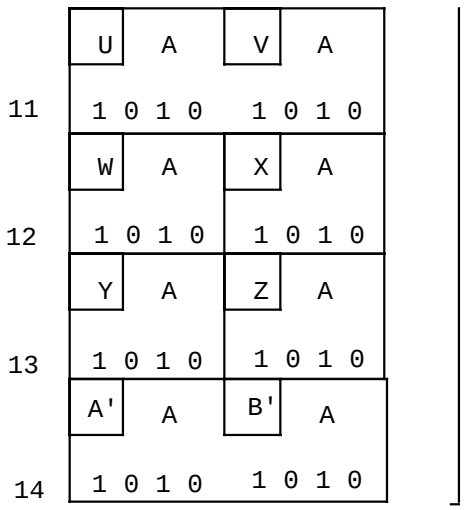


Figure 2-16 DA extension record byte structure (continued)



Network CLID field
(continued)

(Unused bytes filled with A's)

Example DA SMDR extension call record using the AMADUMP utility with the DETAILS option:

*REC CODE:DA ORIGINATION TRUNK:243 SPARE:A MEMBER:0002
NETWORK CLID:5196621431 AAAA AAAA

Figure 2-17 DB extension record byte structure

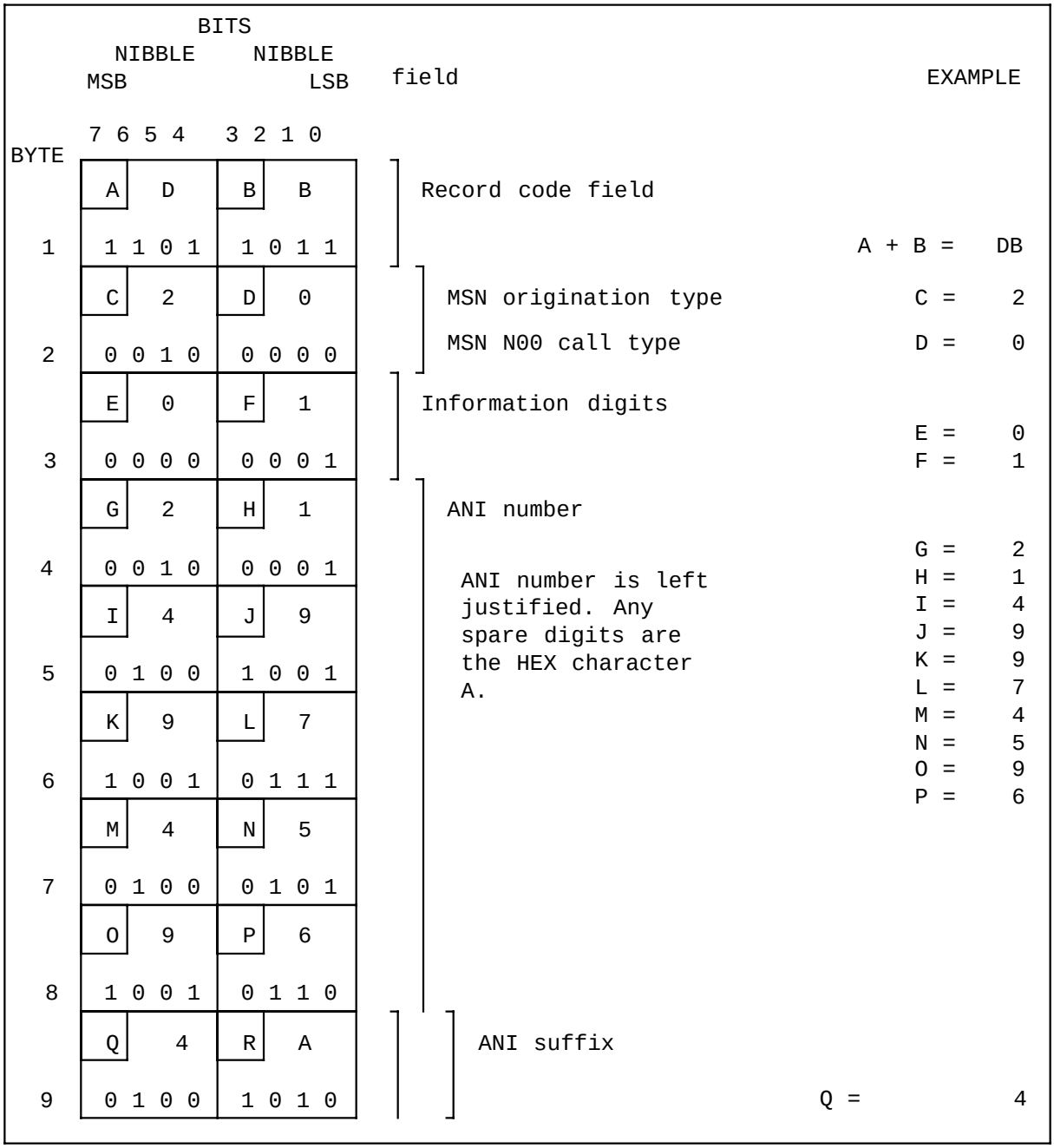


Figure 2-18 DB extension record byte structure (continued)

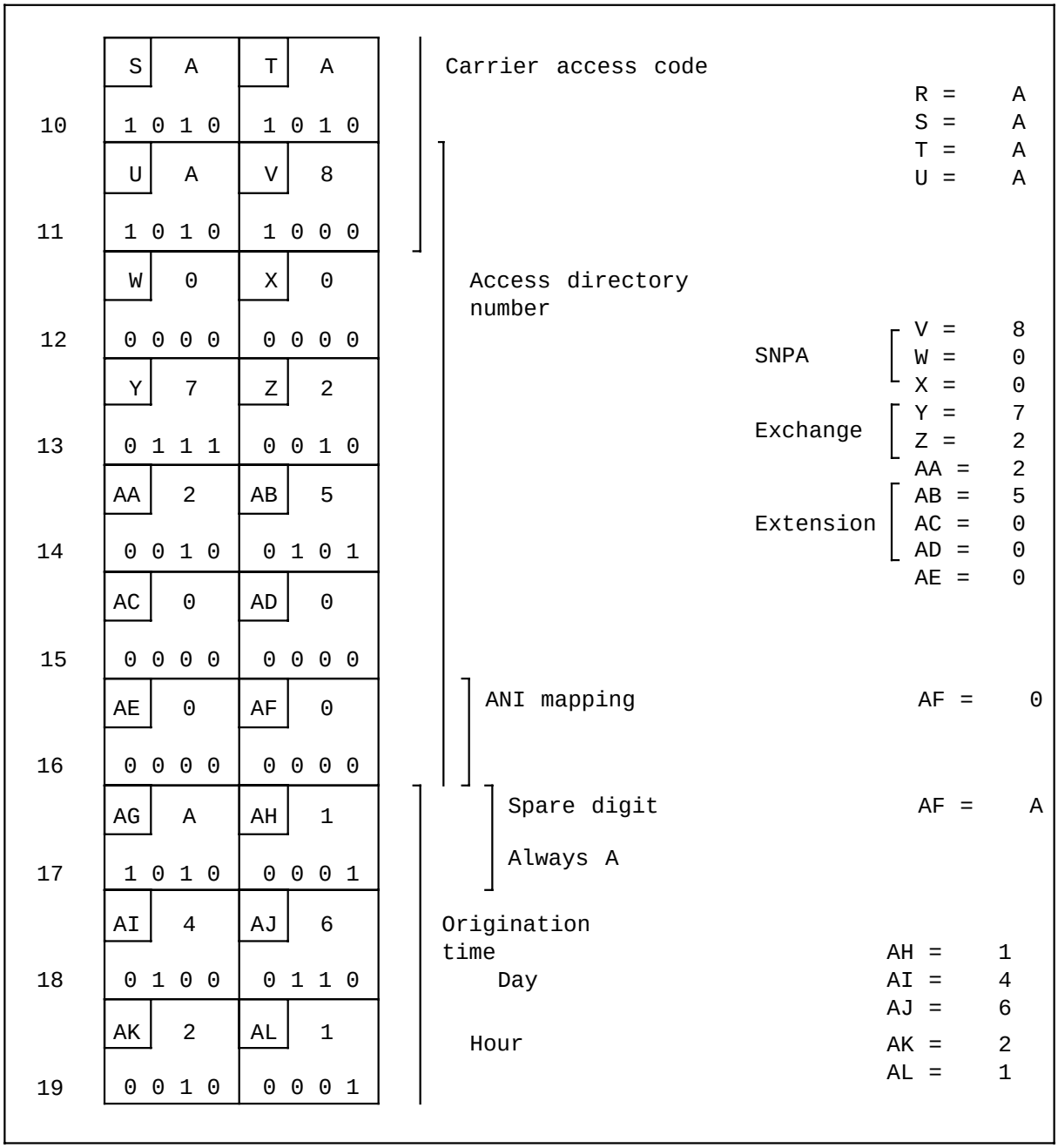
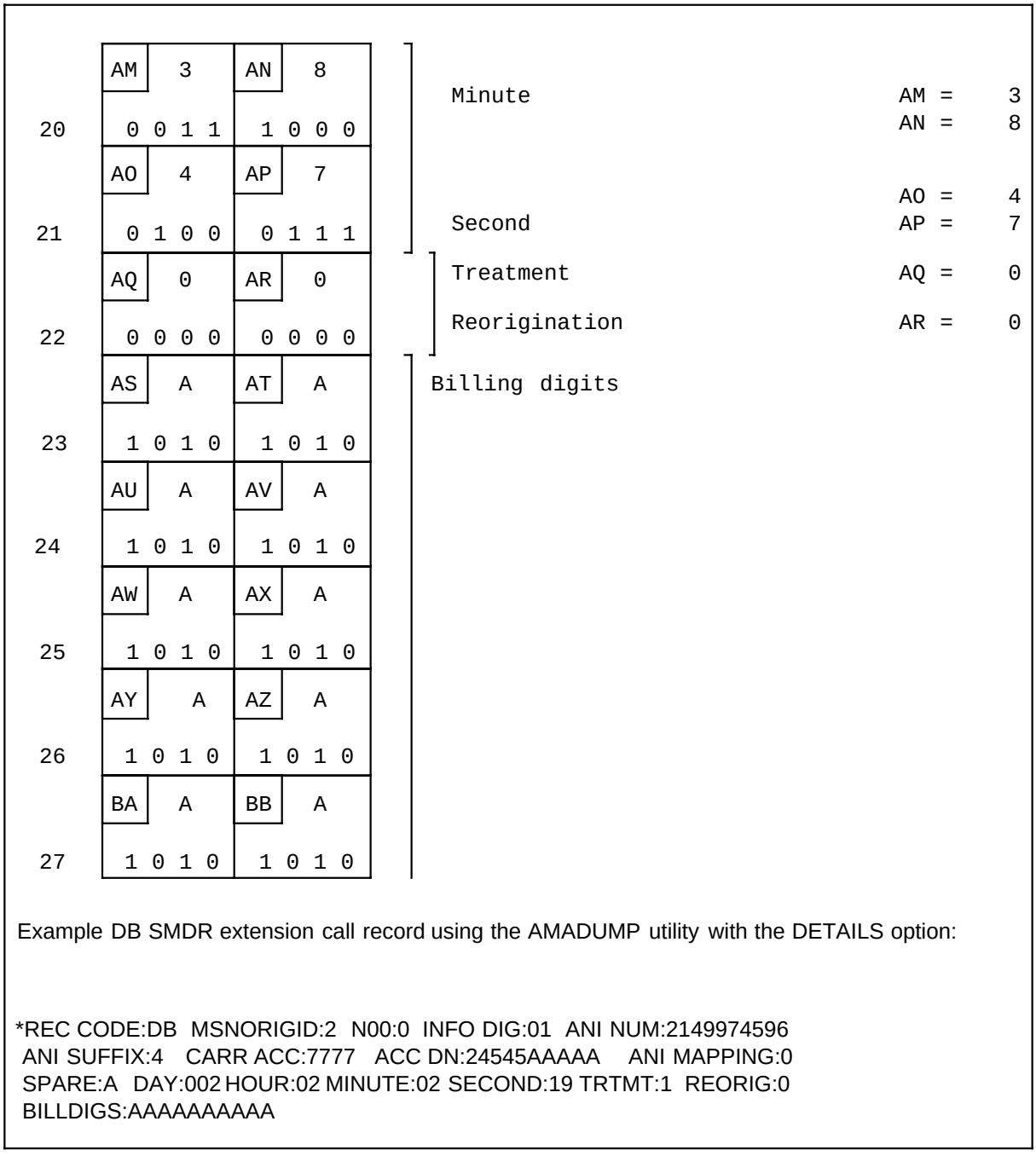


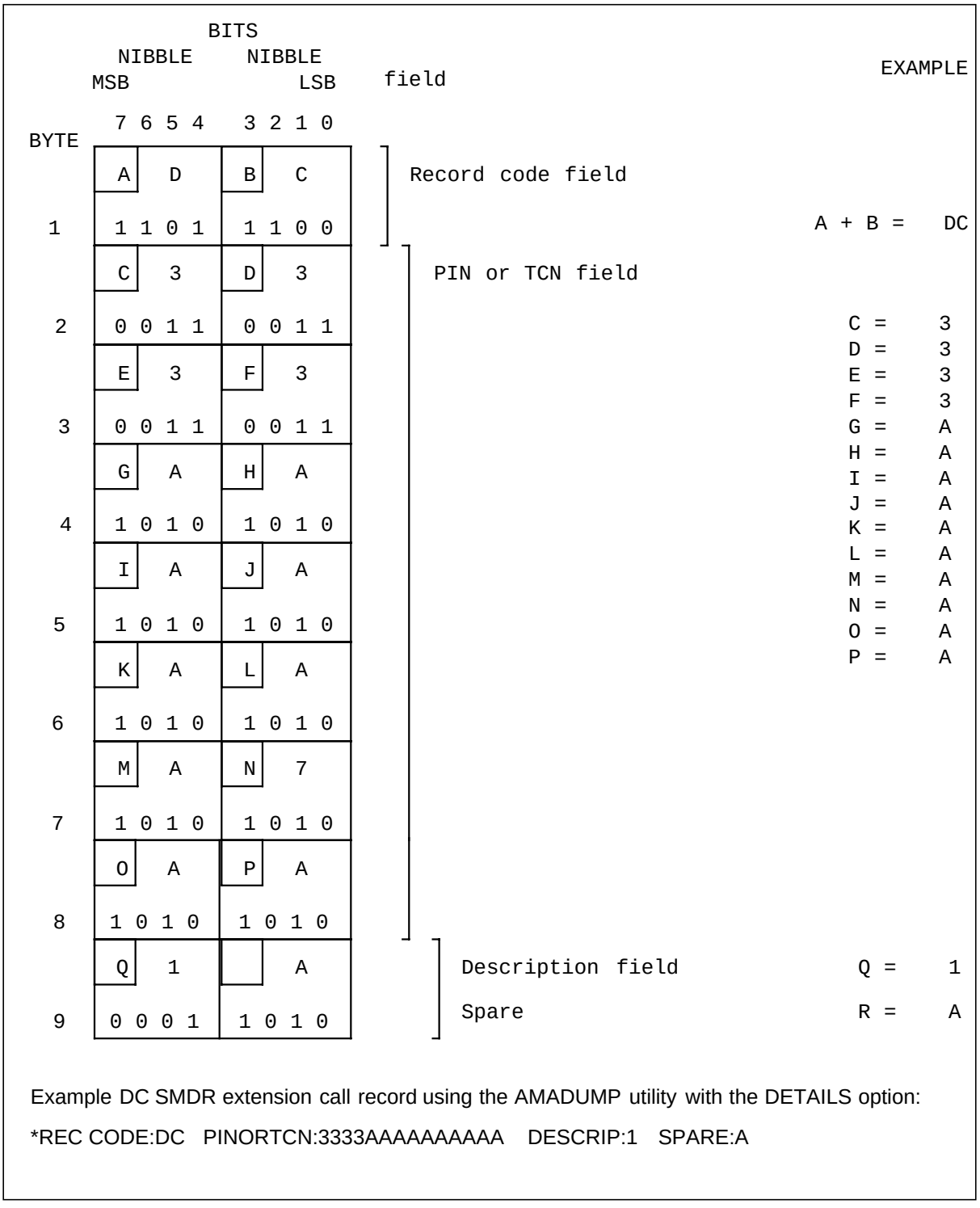
Figure 2-19 DB extension record byte structure (continued)



Example DB SMDR extension call record using the AMADUMP utility with the DETAILS option:

```
*REC CODE:DB  MSNORIGID:2  N00:0  INFO DIG:01  ANI NUM:2149974596
 ANI SUFFIX:4   CARR ACC:7777   ACC DN:24545AAAAA    ANI MAPPING:0
 SPARE:A  DAY:002 HOUR:02 MINUTE:02 SECOND:19 TRTMT:1  REORIG:0
 BILLDIGS:AAAAAAAAAA
```

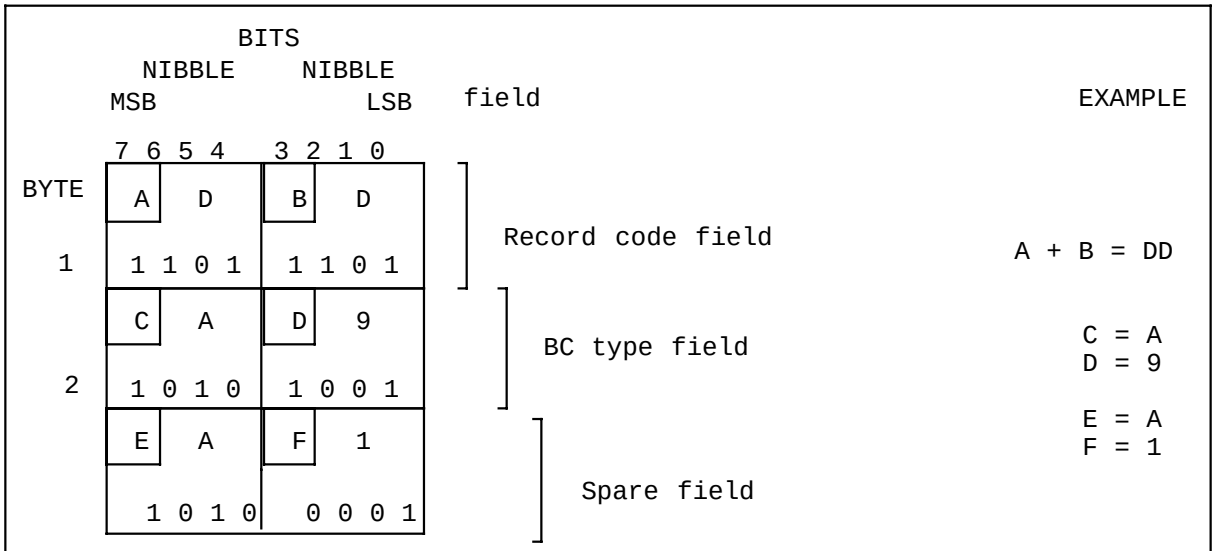
Figure 2-20 DC extension record byte structure



Example DC SMDR extension call record using the AMADUMP utility with the DETAILS option:

*REC CODE:DC PINORTCN:3333AAAAAAAAAA DESCRIP:1 SPARE:A

Figure 2-21 DD extension record byte structure



Example DD SMDR extension call record using the AMADUMP utility with the DETAILS option:

*REC CODEDD BEARER CAPABILITY:A9 BANDWIDTH:A1

Figure 2-22 DE extension record byte structure

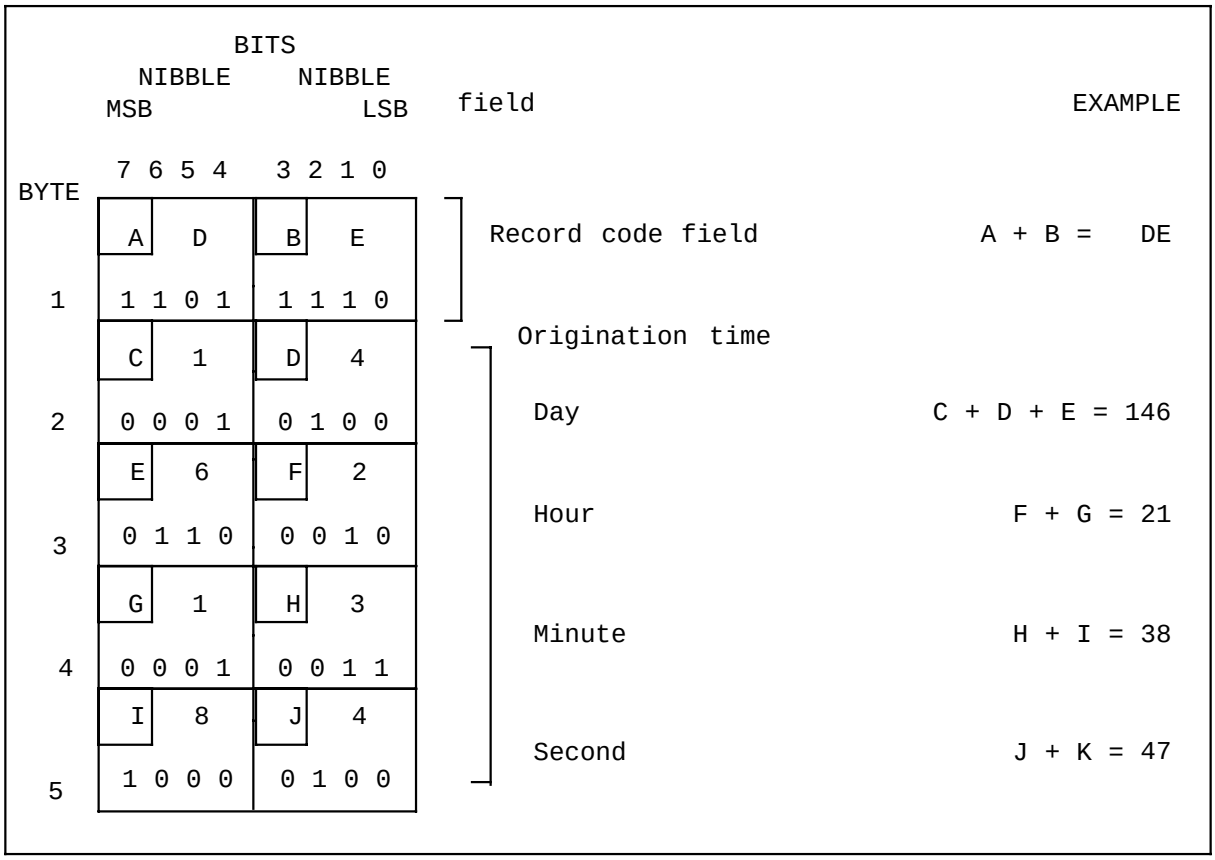


Figure 2-23 DE extension record byte structure (continued)

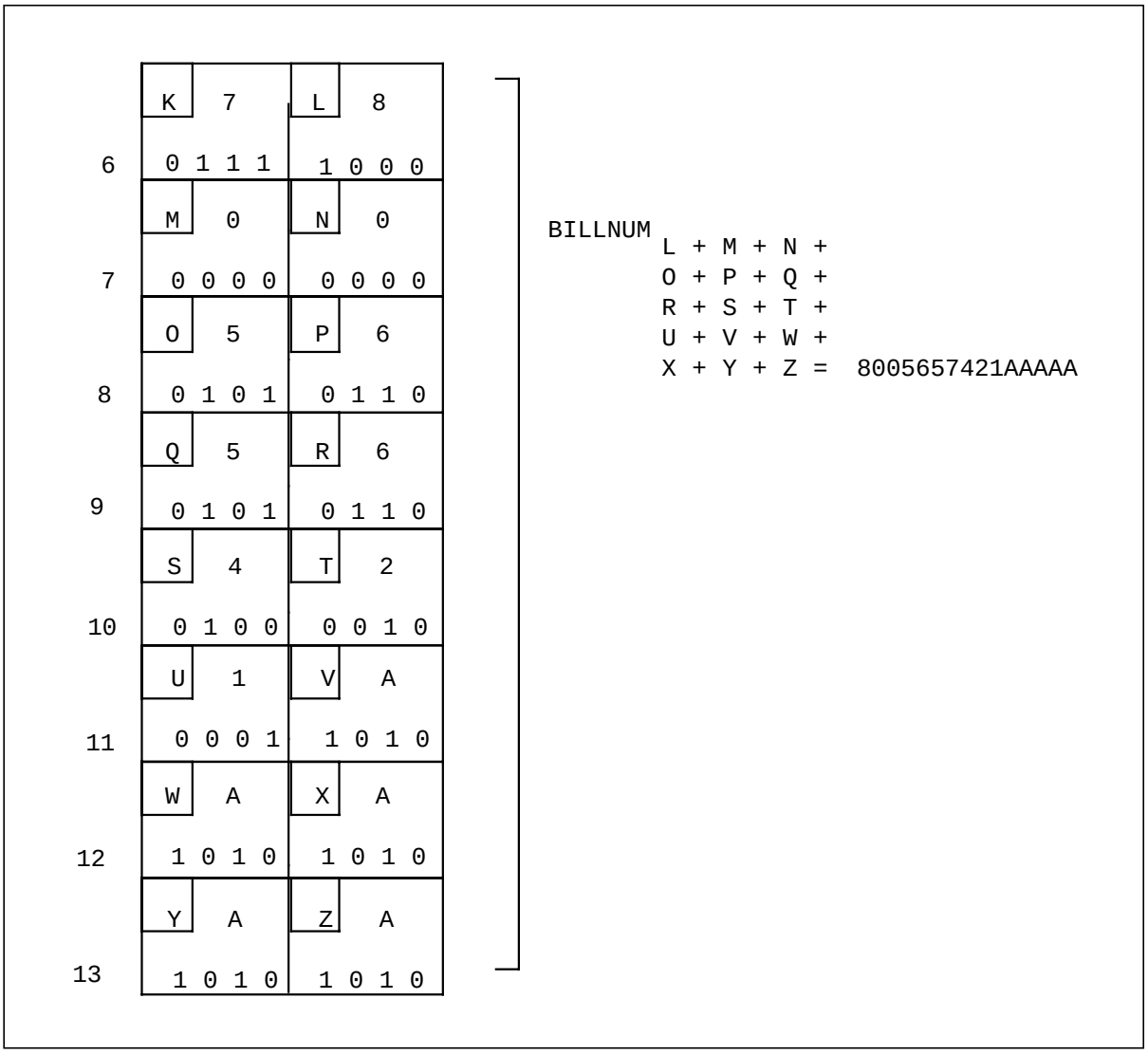


Figure 2-24 DE extension record byte structure (continued)

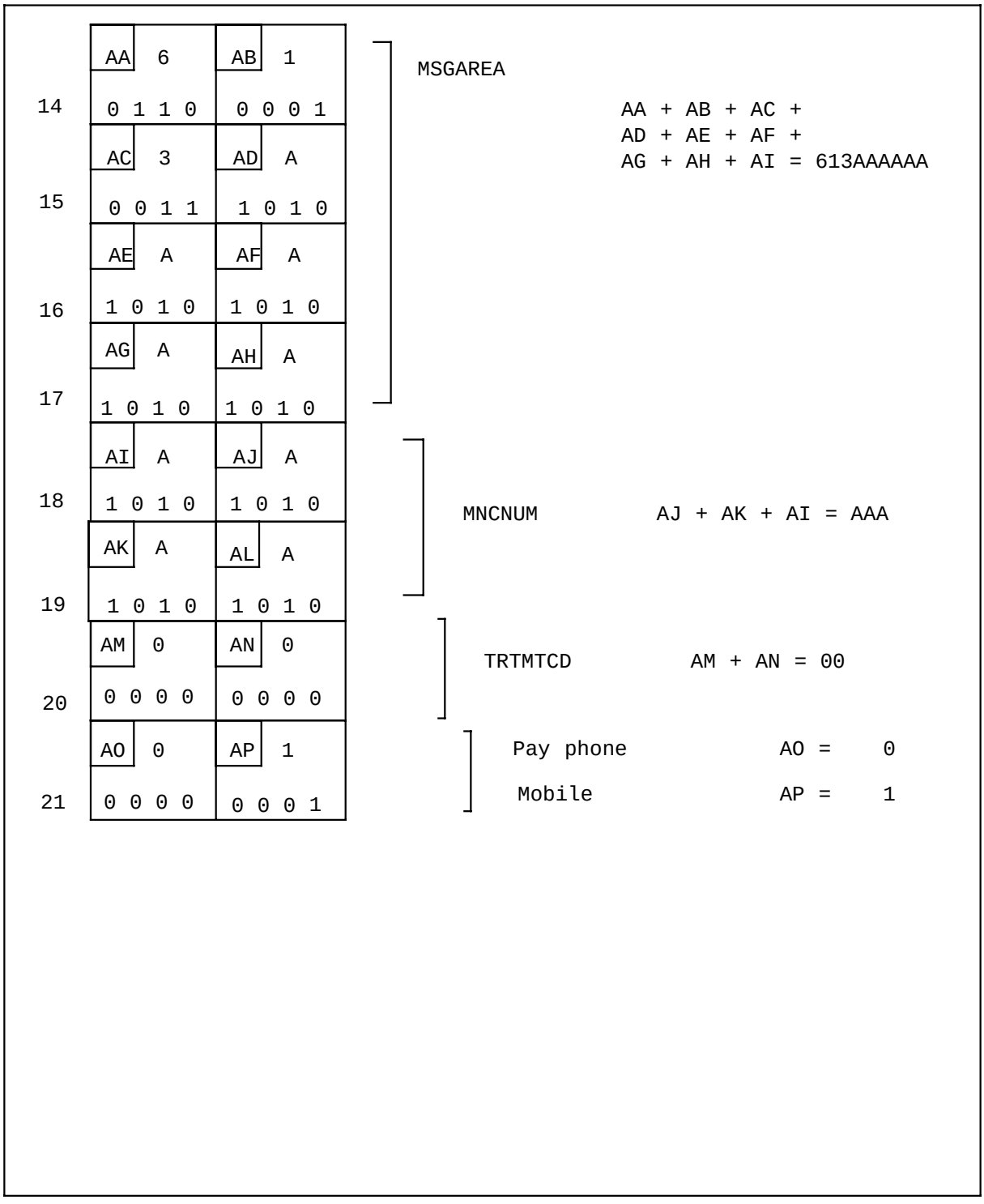


Figure 2-25 DE extension record byte structure (continued)

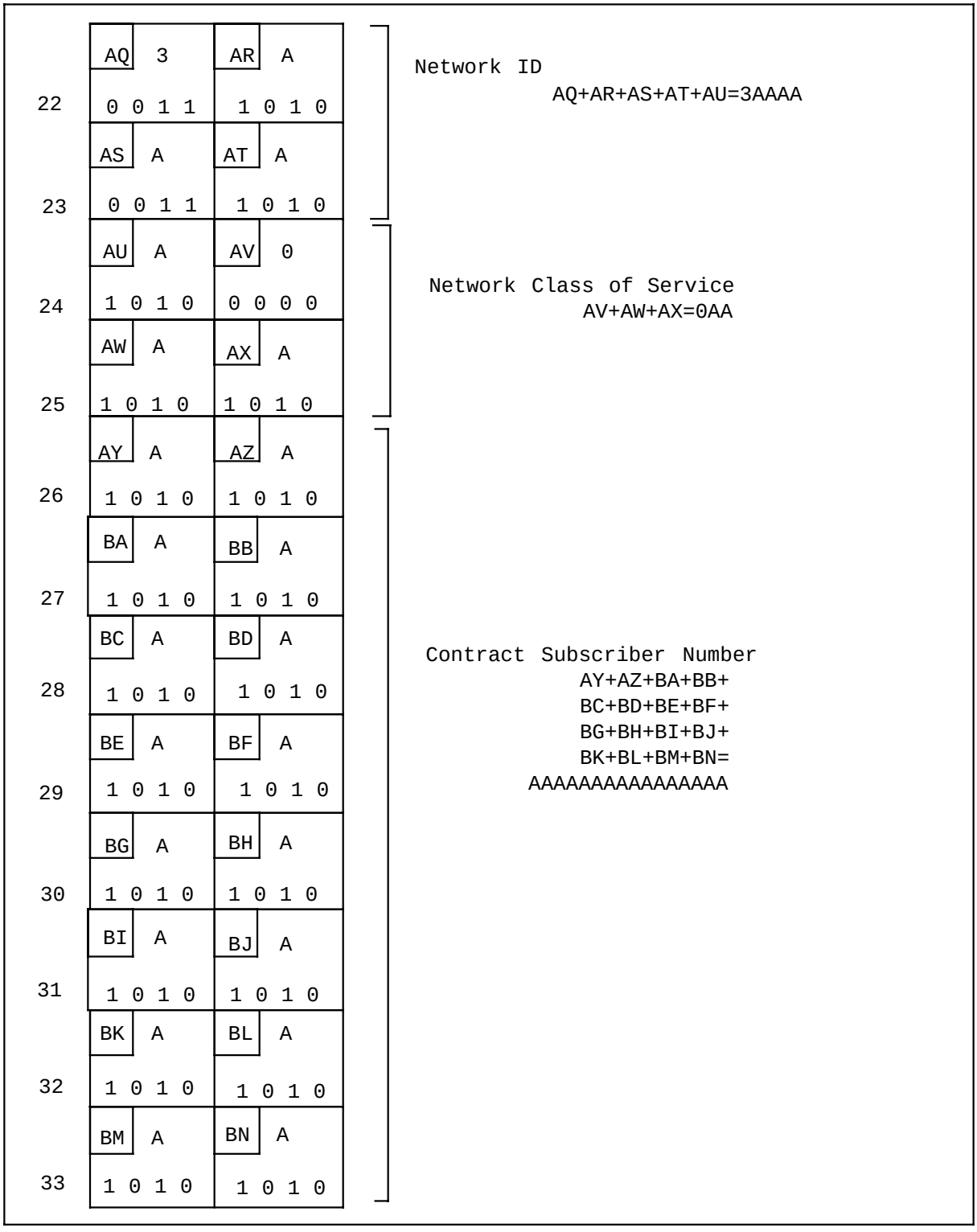


Figure 2-26 DE extension record byte structure (continued)

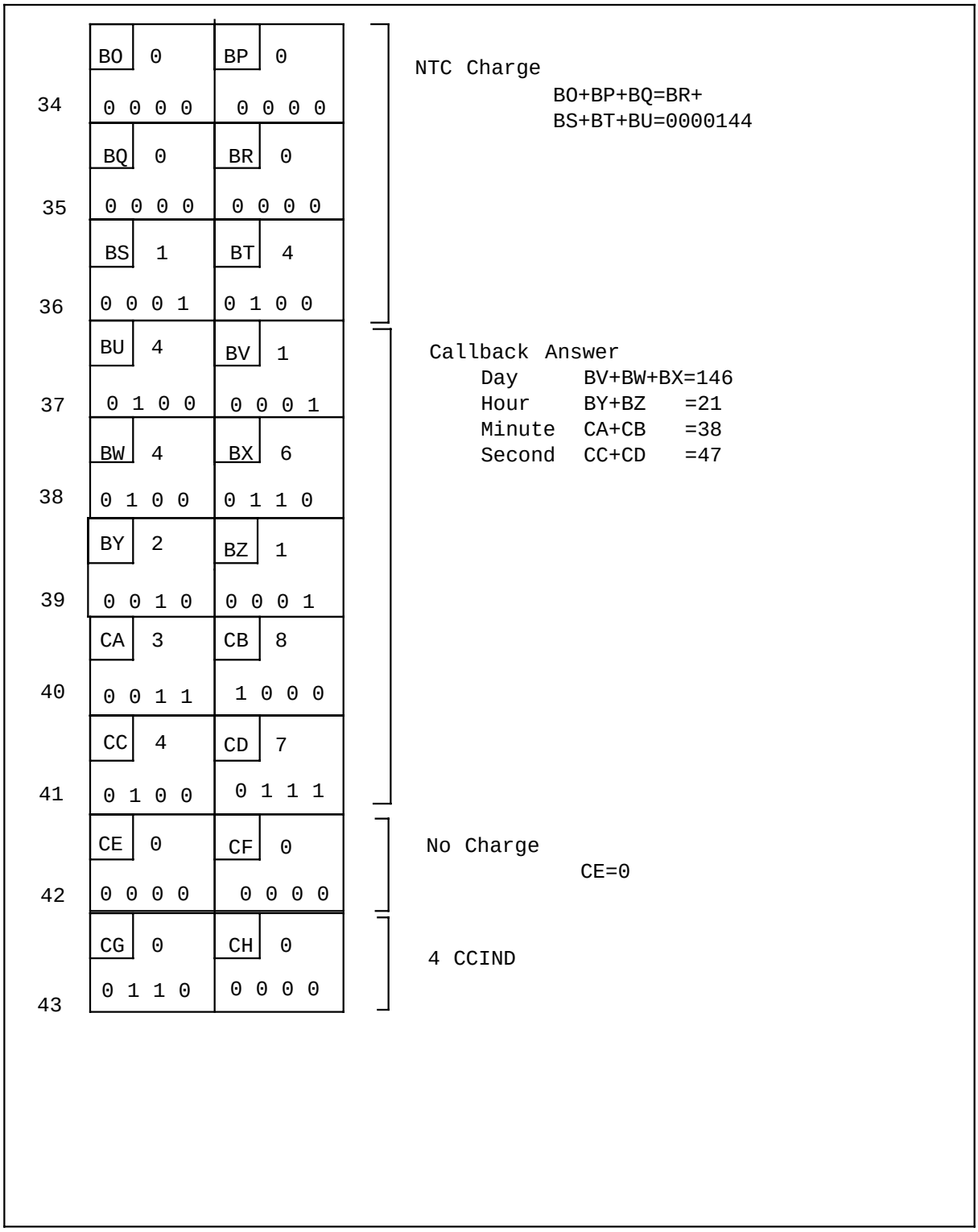


Figure 2-27 DF01 extension record byte structure

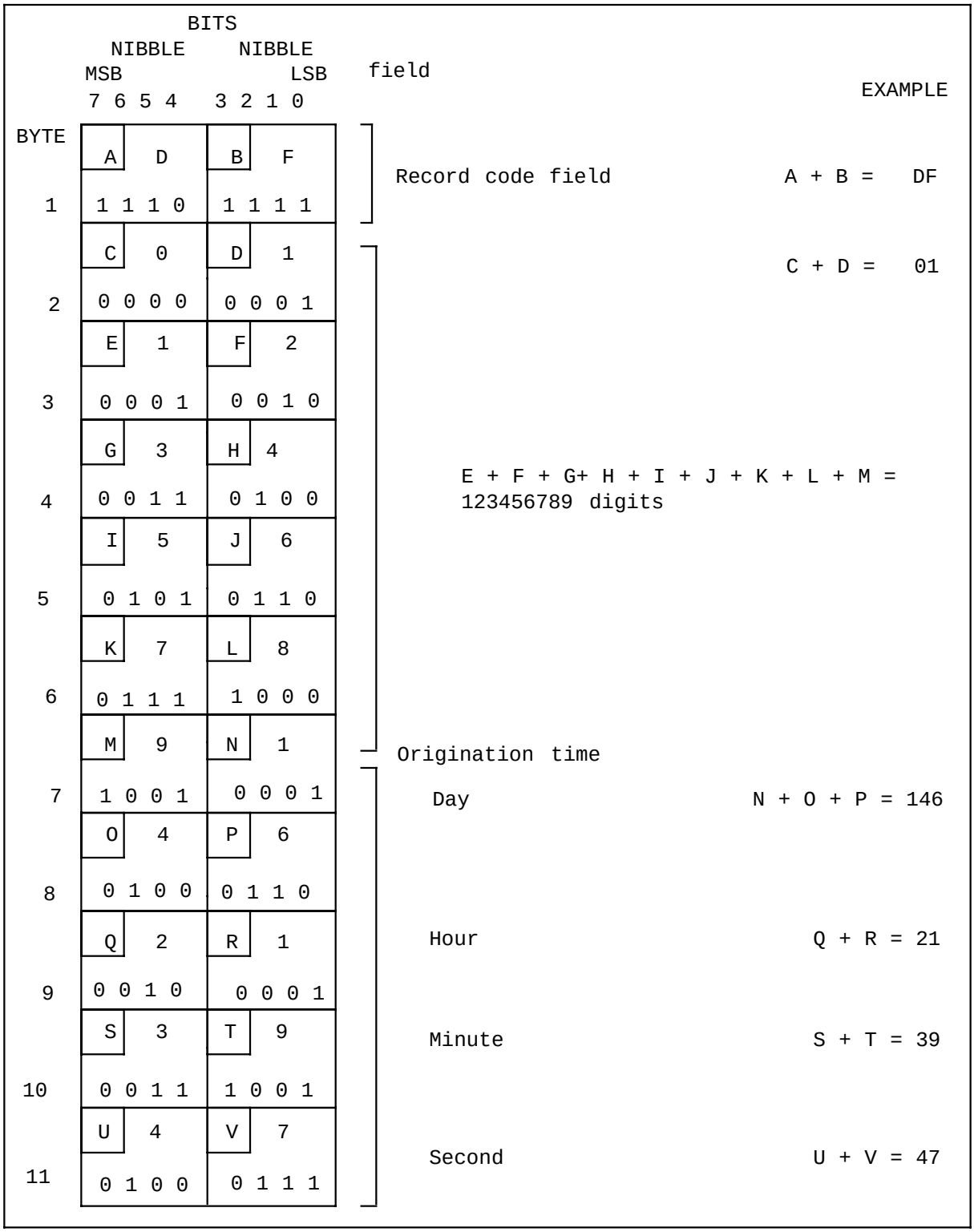


Figure 2-28 DF02 extension record byte structure

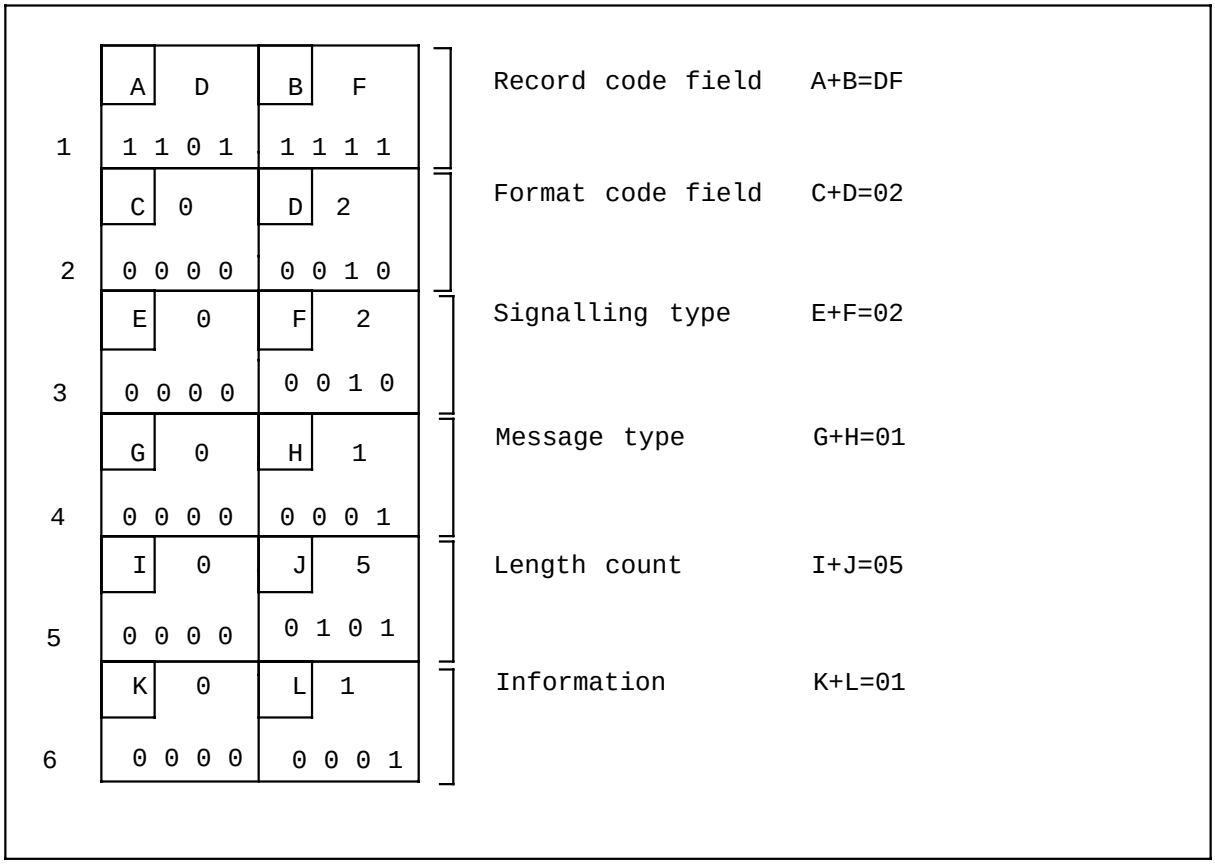


Figure 2-29 DF05 extension record byte structure

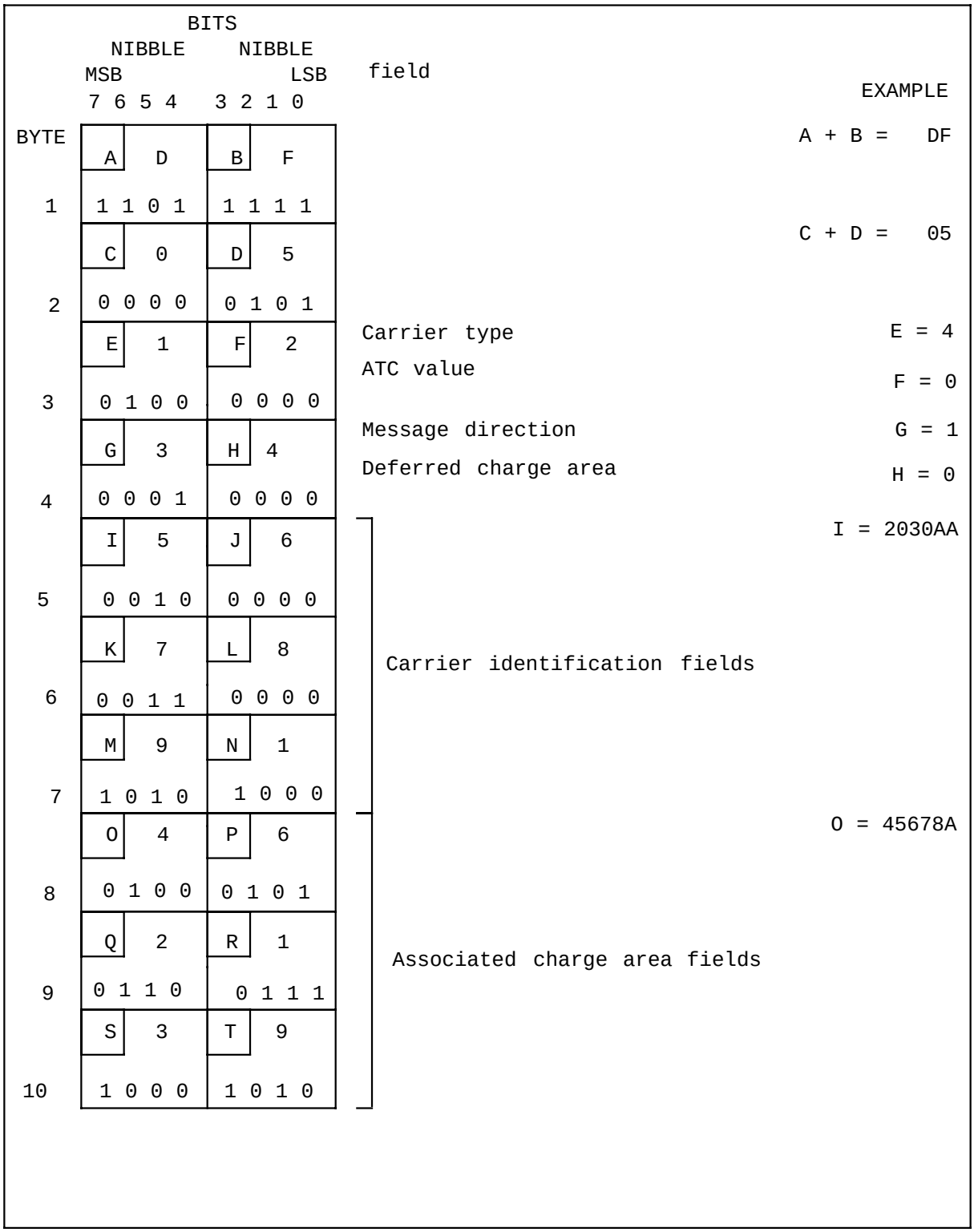


Figure 2-30 DF06 extension record byte structure

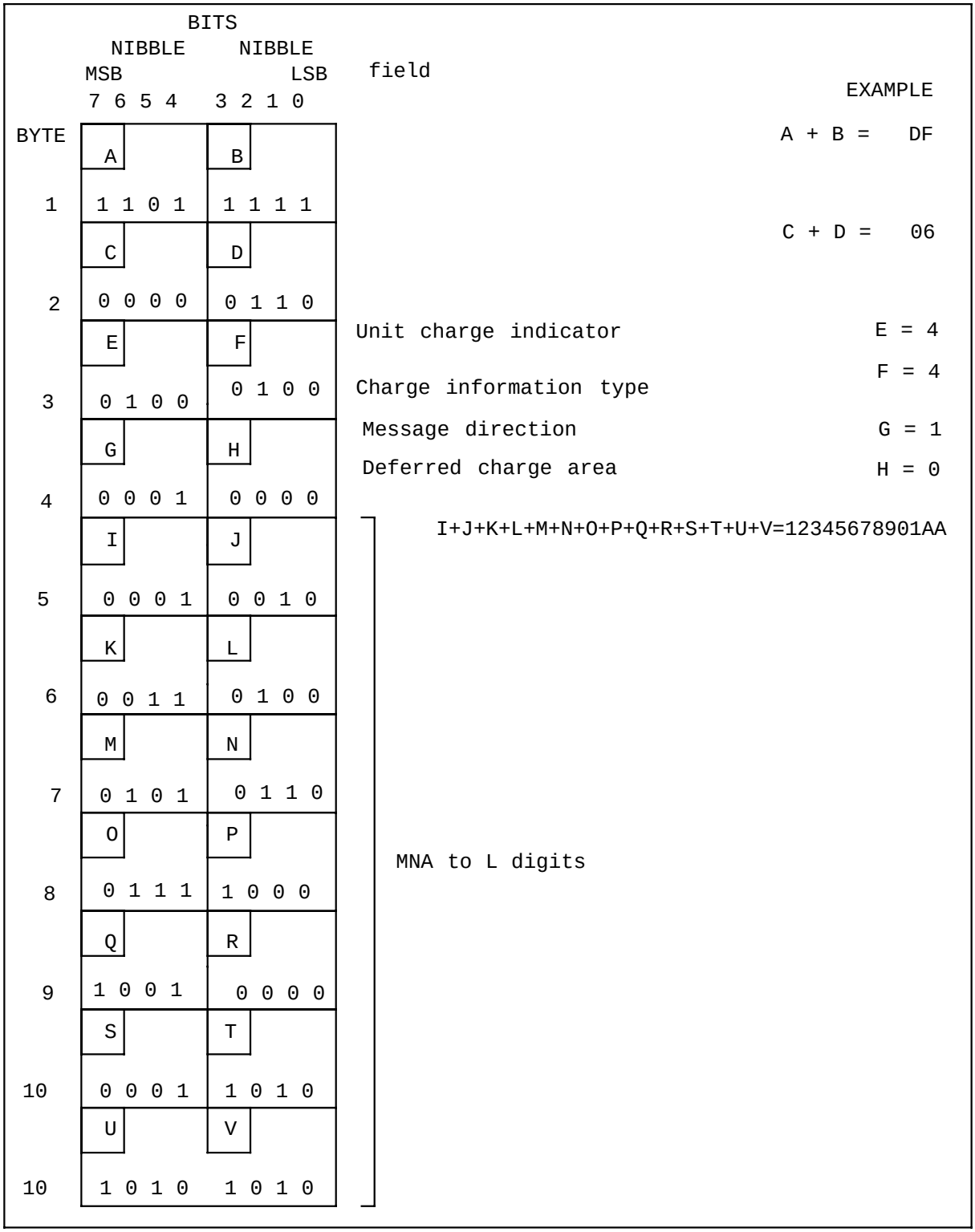
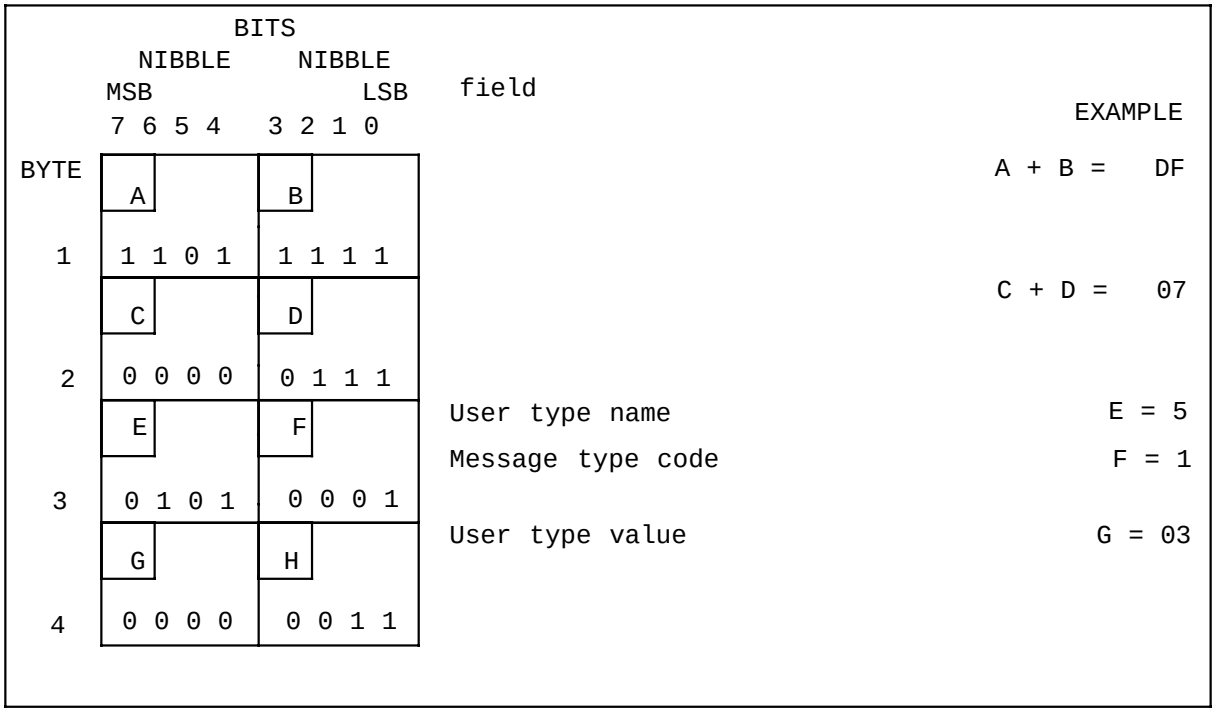


Figure 2-31 DF07 extension record byte structure



The following figure is an example of the byte structure for the SMDR DF09 extension call records.

Figure 2-32 DF09 extension record byte structure

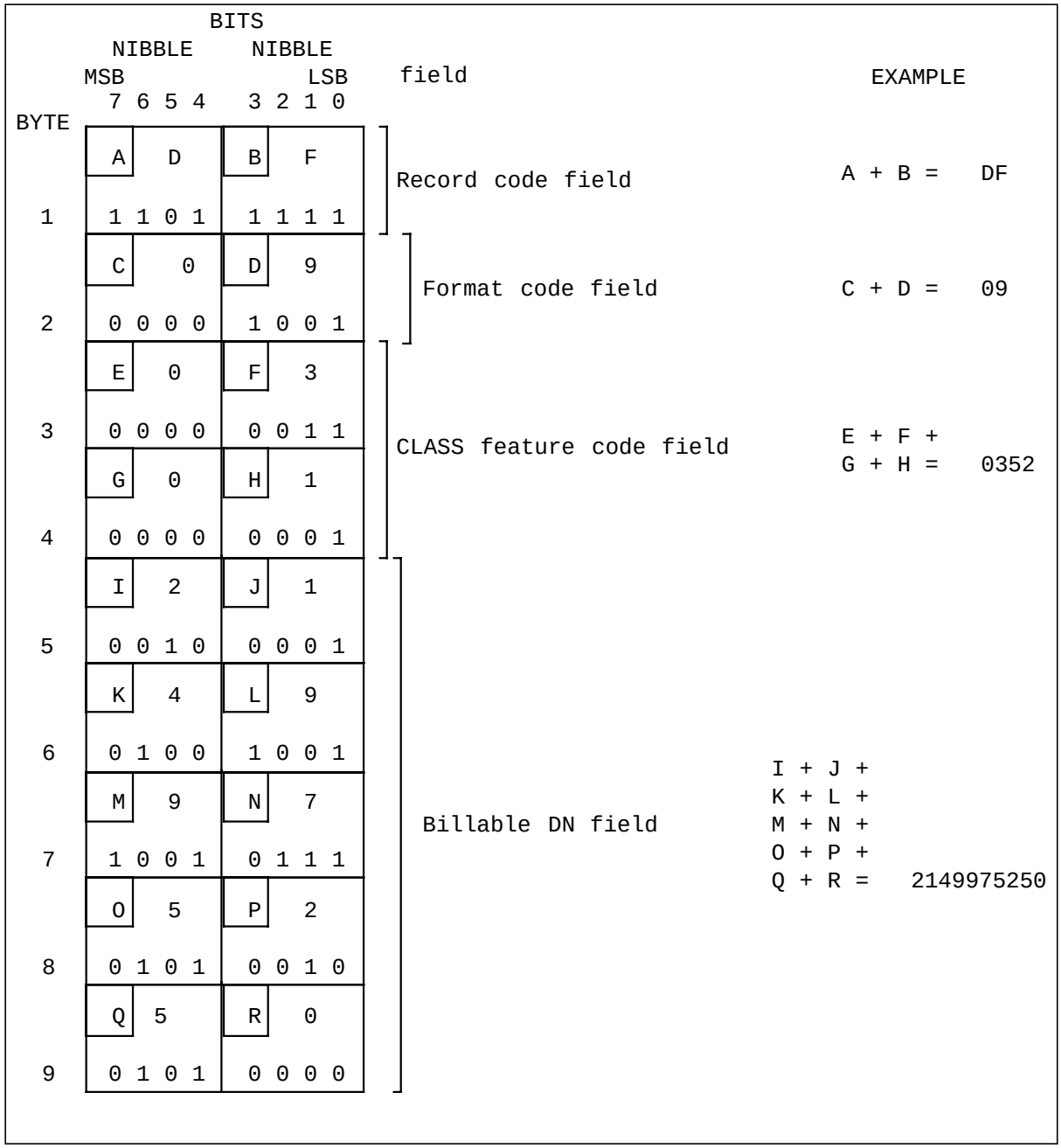


Figure 2-33 DF09 extension record byte structure (continued)

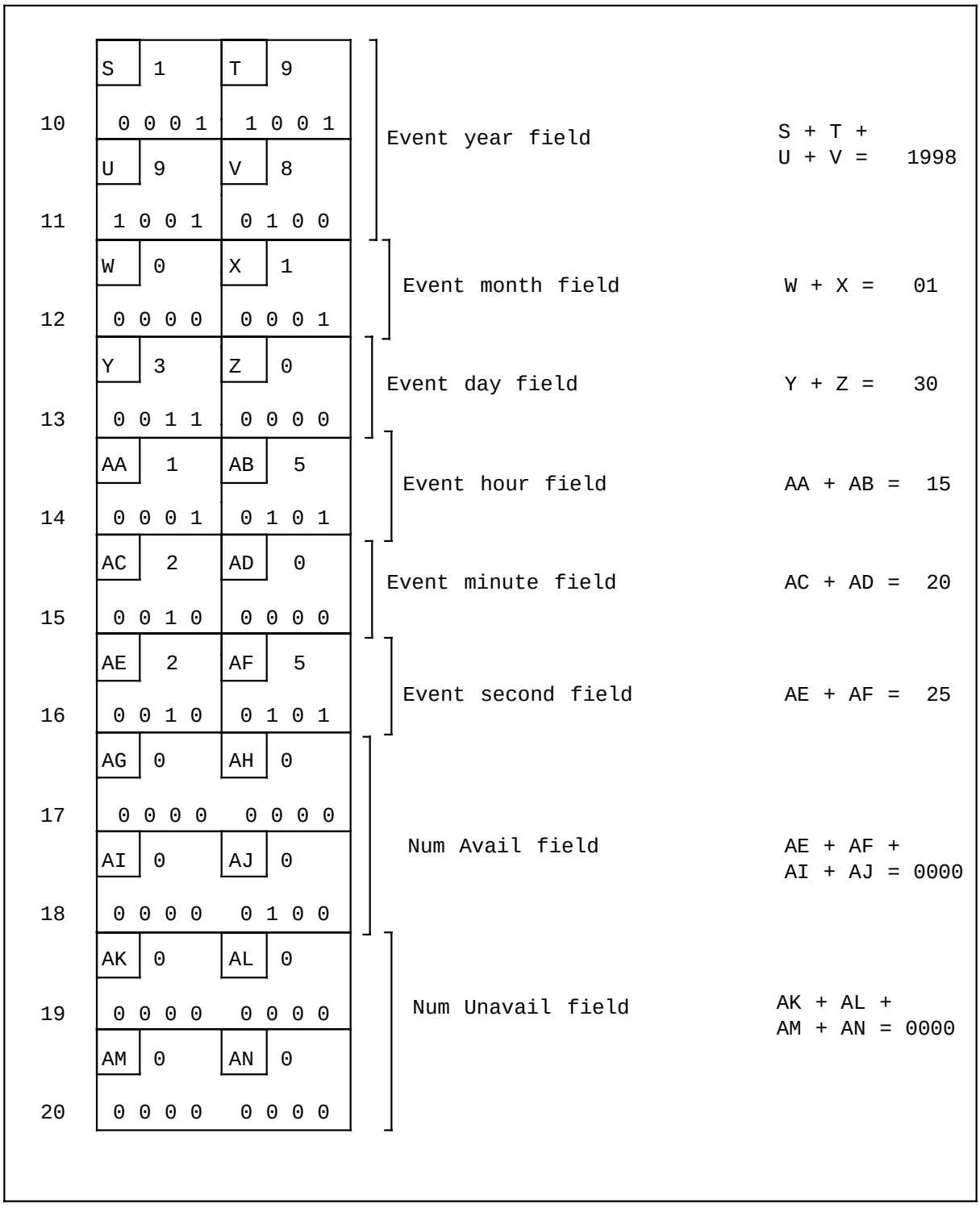


Figure 2-34 DF09 extension record byte structure (continued)

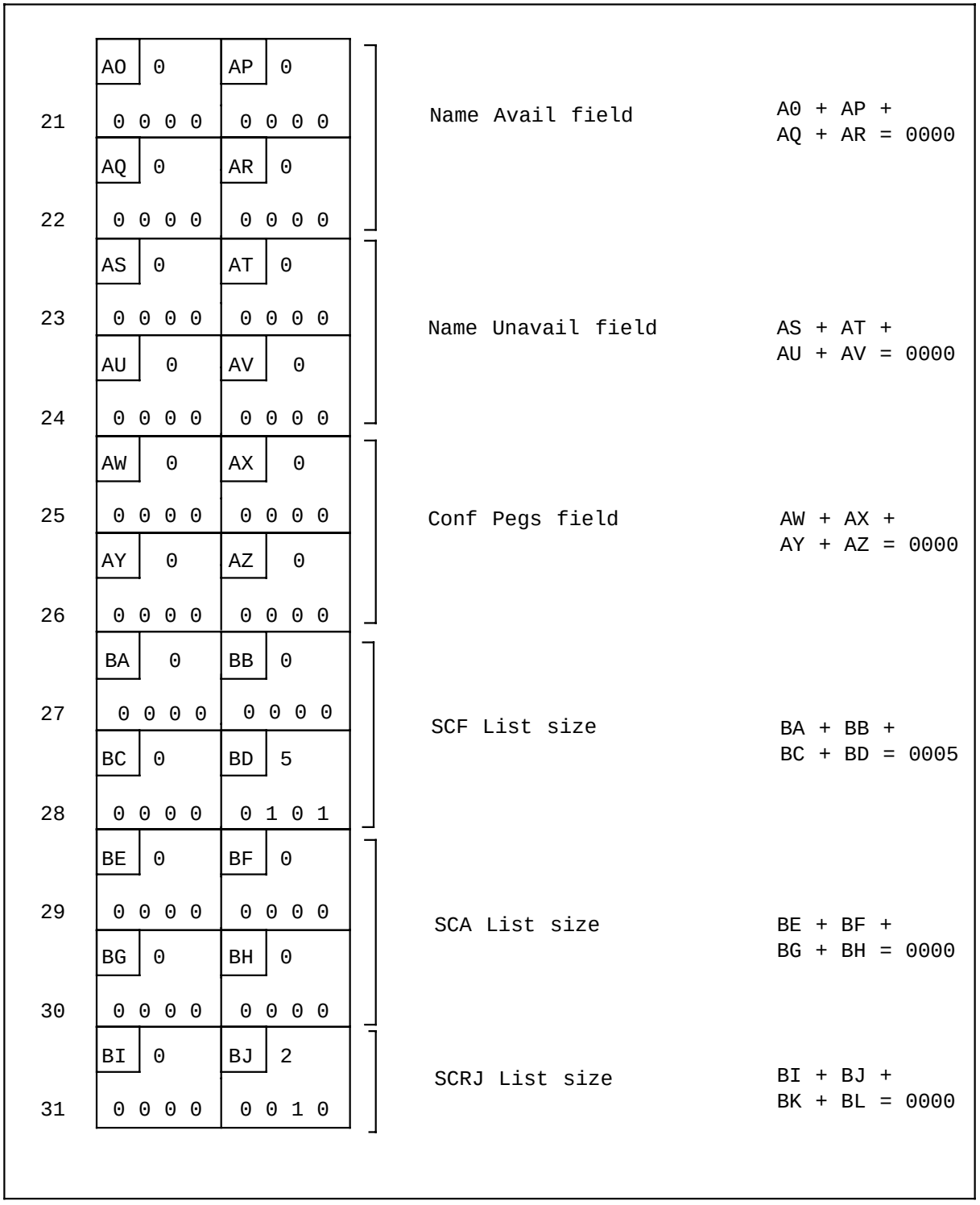
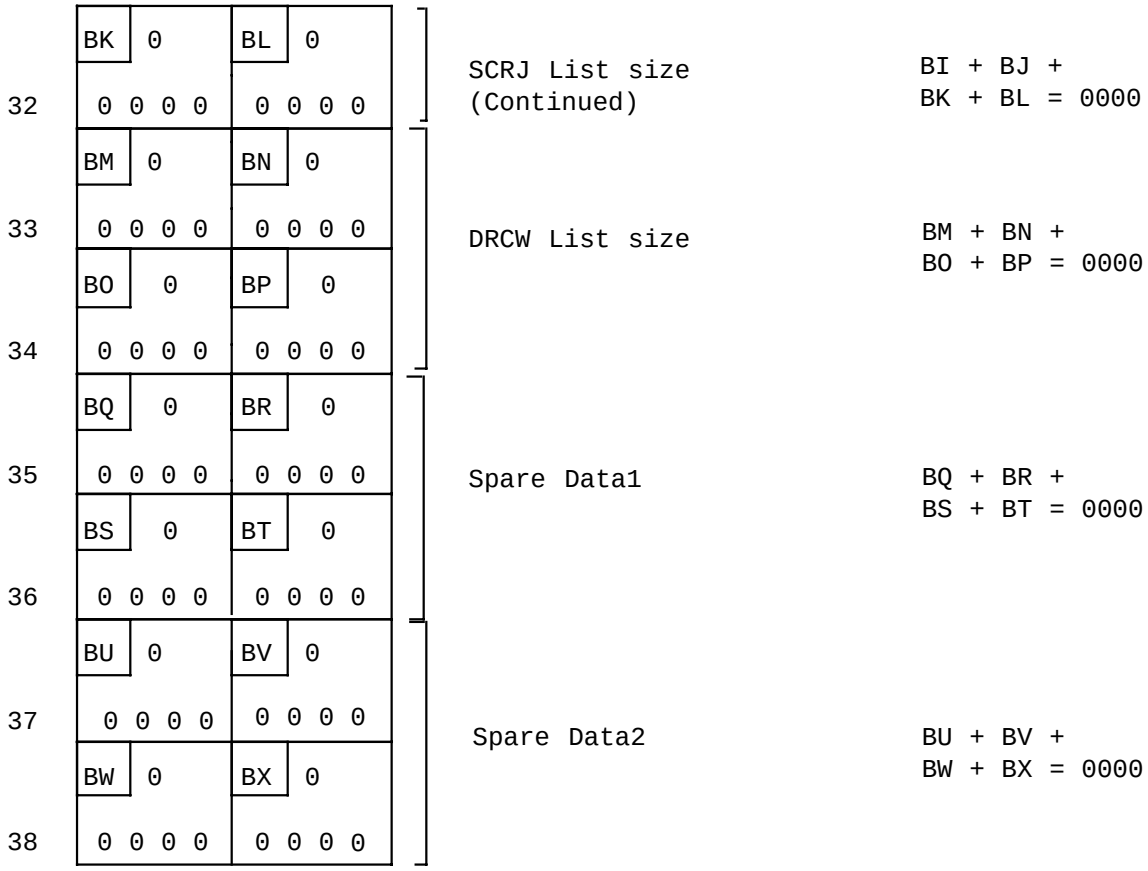


Figure 2-35 DF09 extension record byte structure (continued)



The following example illustrates a sample portion of the SMDR call record for a call with a DF09 extension record.

```
DF 09    0352 2149975250 1998 01 30 15 20 25 0000 0000
         0000 0000 0000 0005 0000 0000 0000 0000 0000
```

The following example illustrates the same data shown in the example immediately above with the detailed CALLDUMP output:

```
*REC CODE:DF FMT CODE:09 CLASS FEATURE CODE:0352 BILL
DN:21479975250 EVENT YEAR:1998 EVENT MONTH:01 EVENT
DAY:30 EVENT HOUR:15 EVENT MINUTE:20 EVENT SECOND:25
NUM AVAIL:0000 NUM UNAVAIL:0000 NAME AVAIL:0000 NAME
UNAVAIL:0000 CONF PEGS:0000 SCF LIST SIZE:0005 SCA LIST
SIZE:0000 SCRJ LIST SIZE:0000 DRCW LIST SIZE:0000 SPARE
DATA1:0000 SPARE DATA2:0000
```

Figure 2-36 E record byte structure

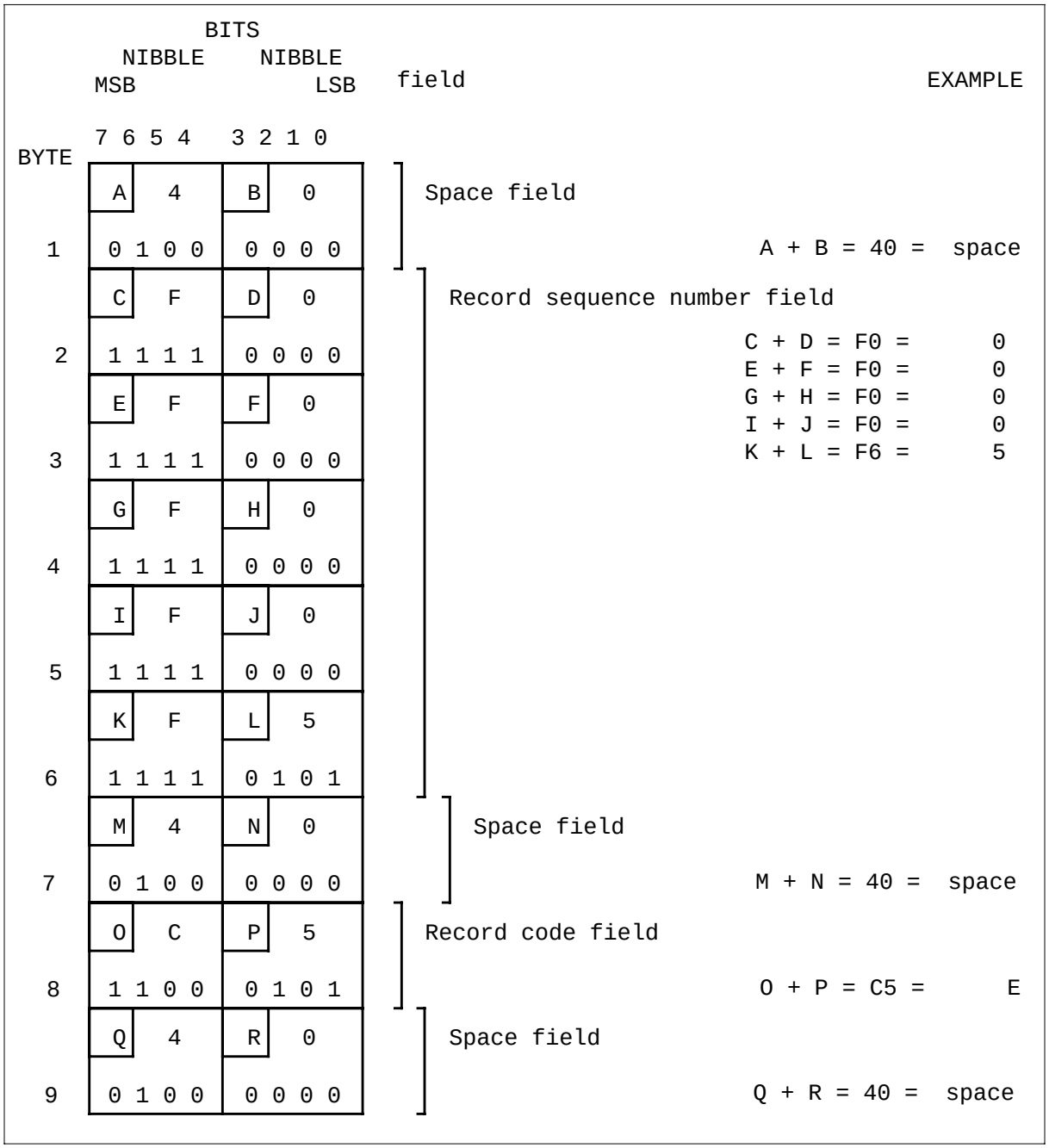
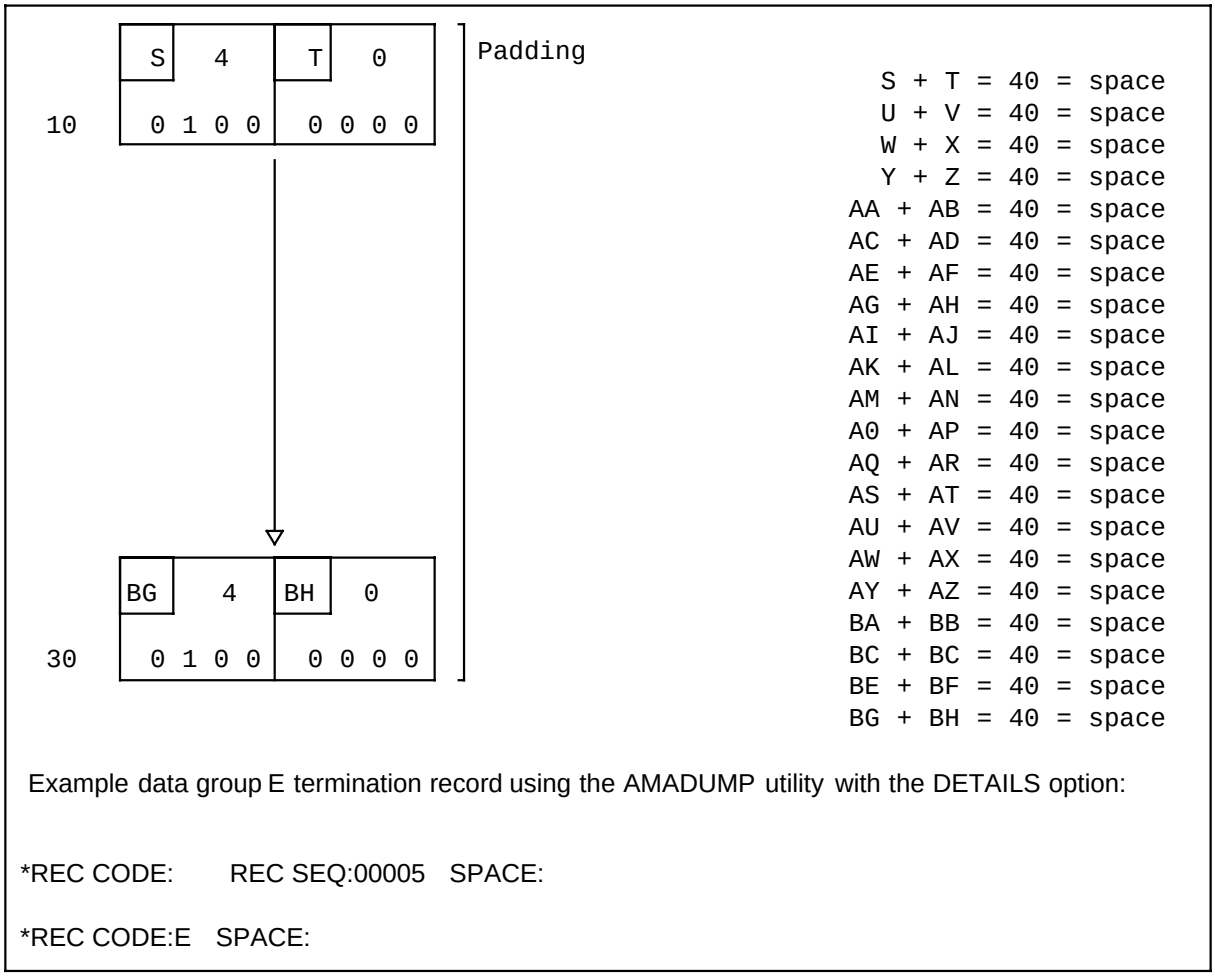


Figure 2-37 E record byte structure (continued)



Example data group E termination record using the AMADUMP utility with the DETAILS option:

*REC CODE: REC SEQ:00005 SPACE:

*REC CODE:E SPACE:

Figure 2-38 FA, FB, and FC records byte structure

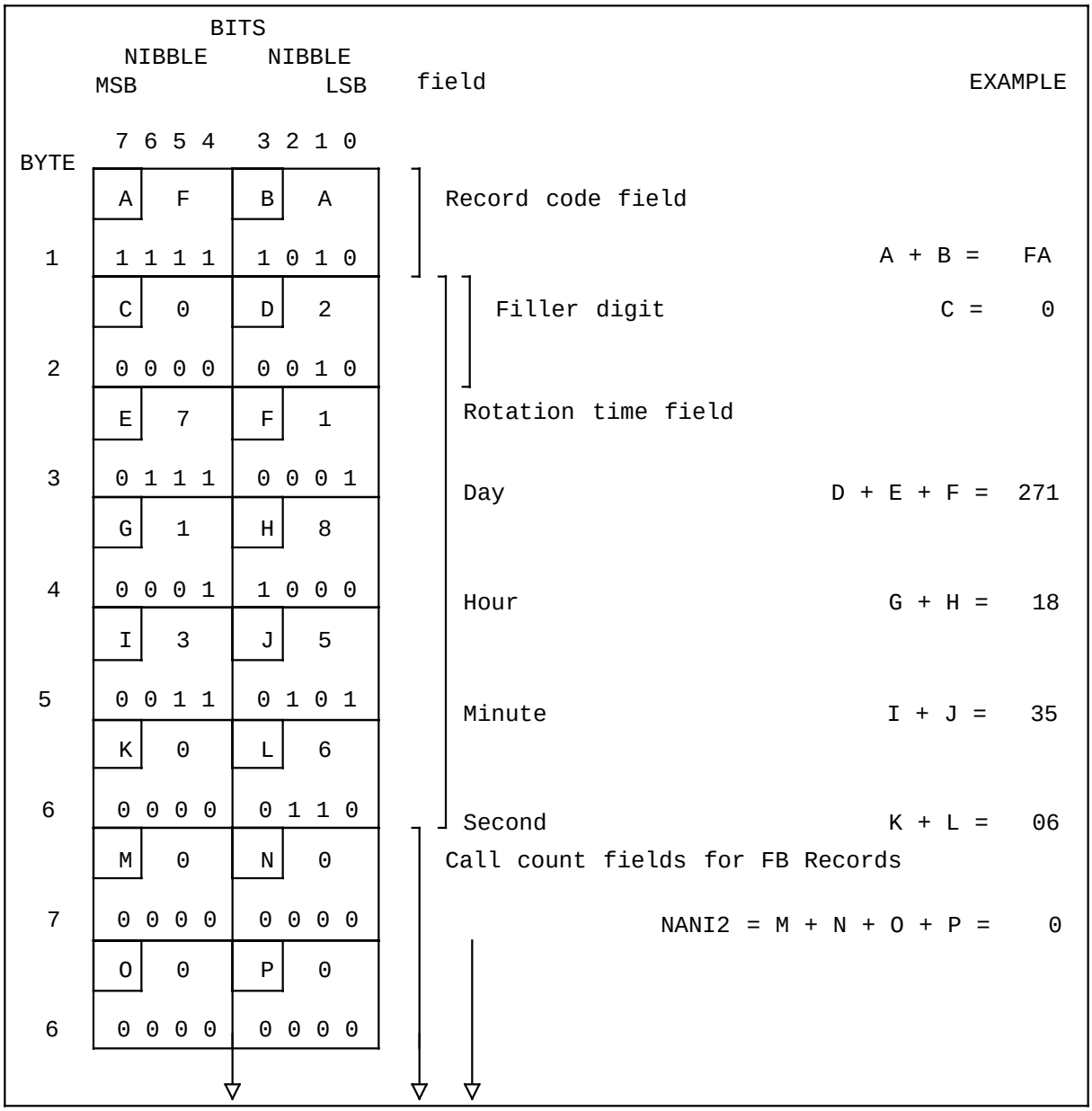
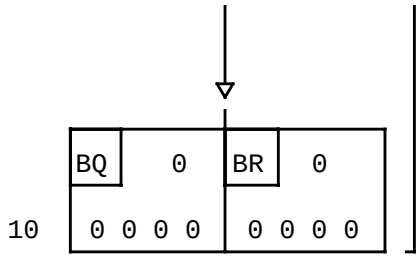


Figure 2-39 FA, FB, and FC records byte structure (continued)



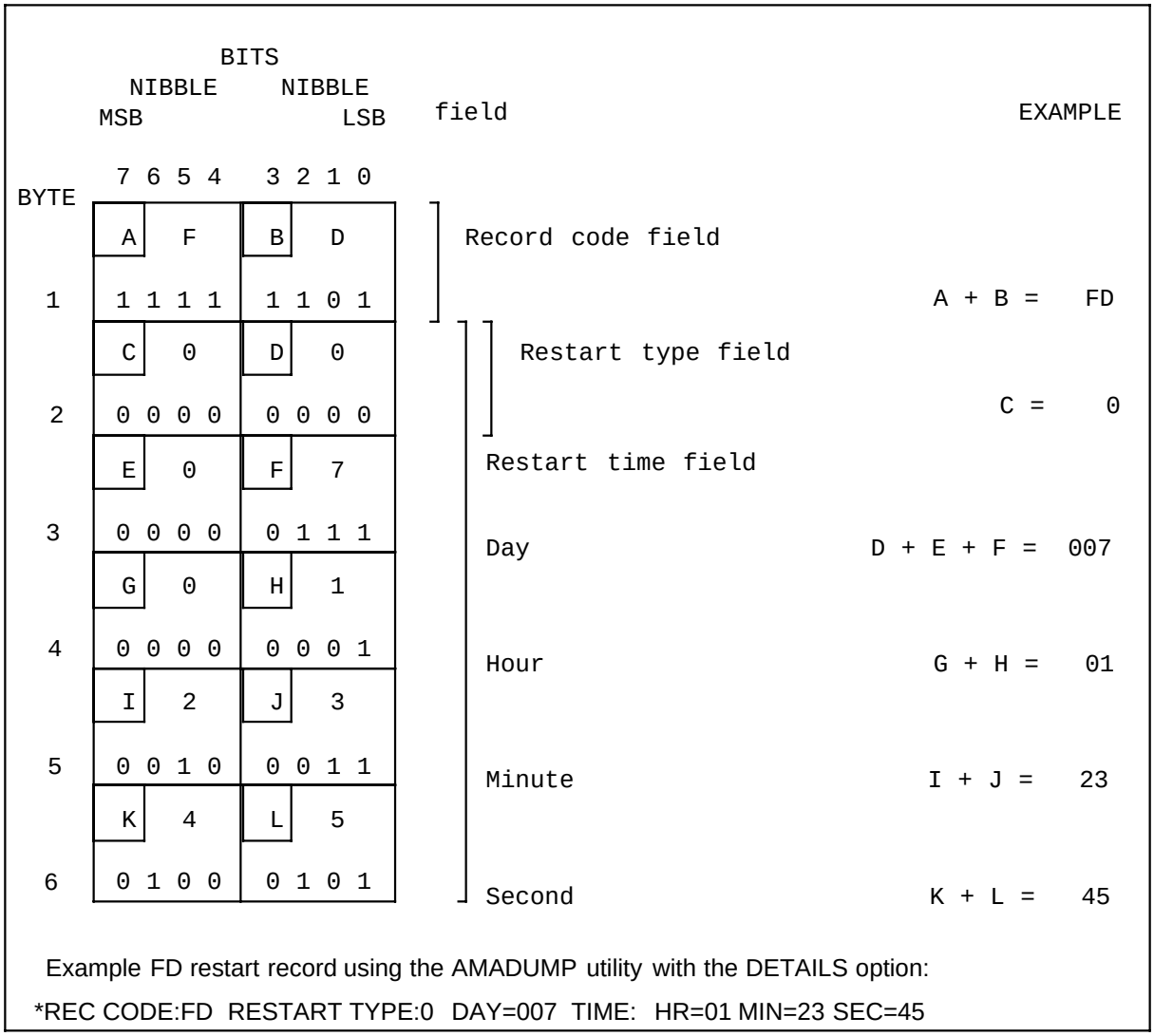

```
NLIF = BO + BP + BQ + BR =   0
```

Note: All call counts are 0 for SMDR call records.

Example FA restart record using the AMADUMP utility with the DETAILS option:

*REC CODE:FA FILLER:0 DAY=271 TIME: HR=18 MIN=35 SEC=06

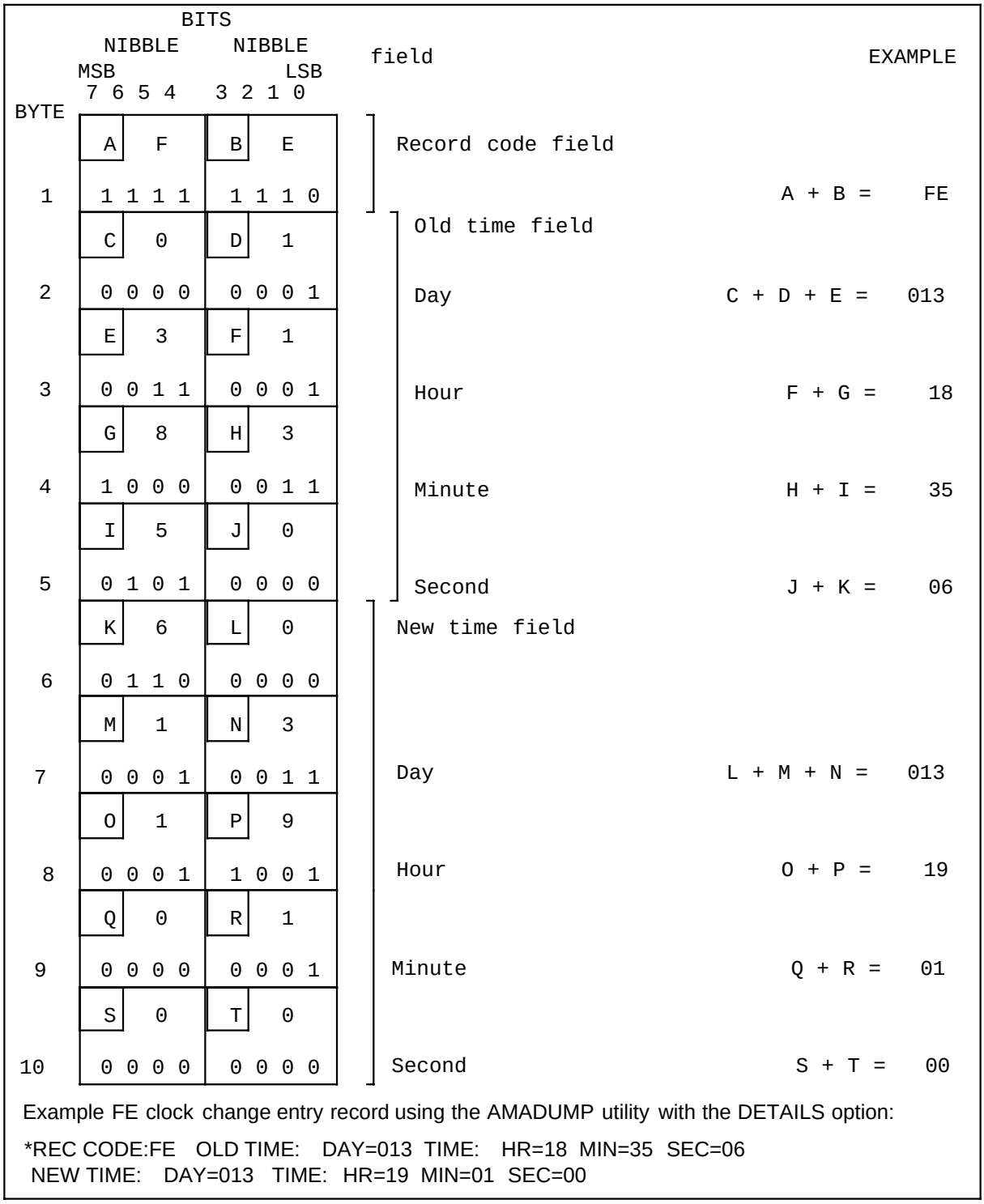
Figure 2-40 FD record byte structure



Example FD restart record using the AMADUMP utility with the DETAILS option:

*REC CODE:FD RESTART TYPE:0 DAY=007 TIME: HR=01 MIN=23 SEC=45

Figure 2-41 FE record byte structure



Example FE clock change entry record using the AMADUMP utility with the DETAILS option:

```
*REC CODE:FE   OLD TIME:   DAY=013  TIME:   HR=18  MIN=35  SEC=06
 NEW TIME:   DAY=013   TIME:  HR=19  MIN=01  SEC=00
```

Figure 2-42 K, A, C, and V records byte structure

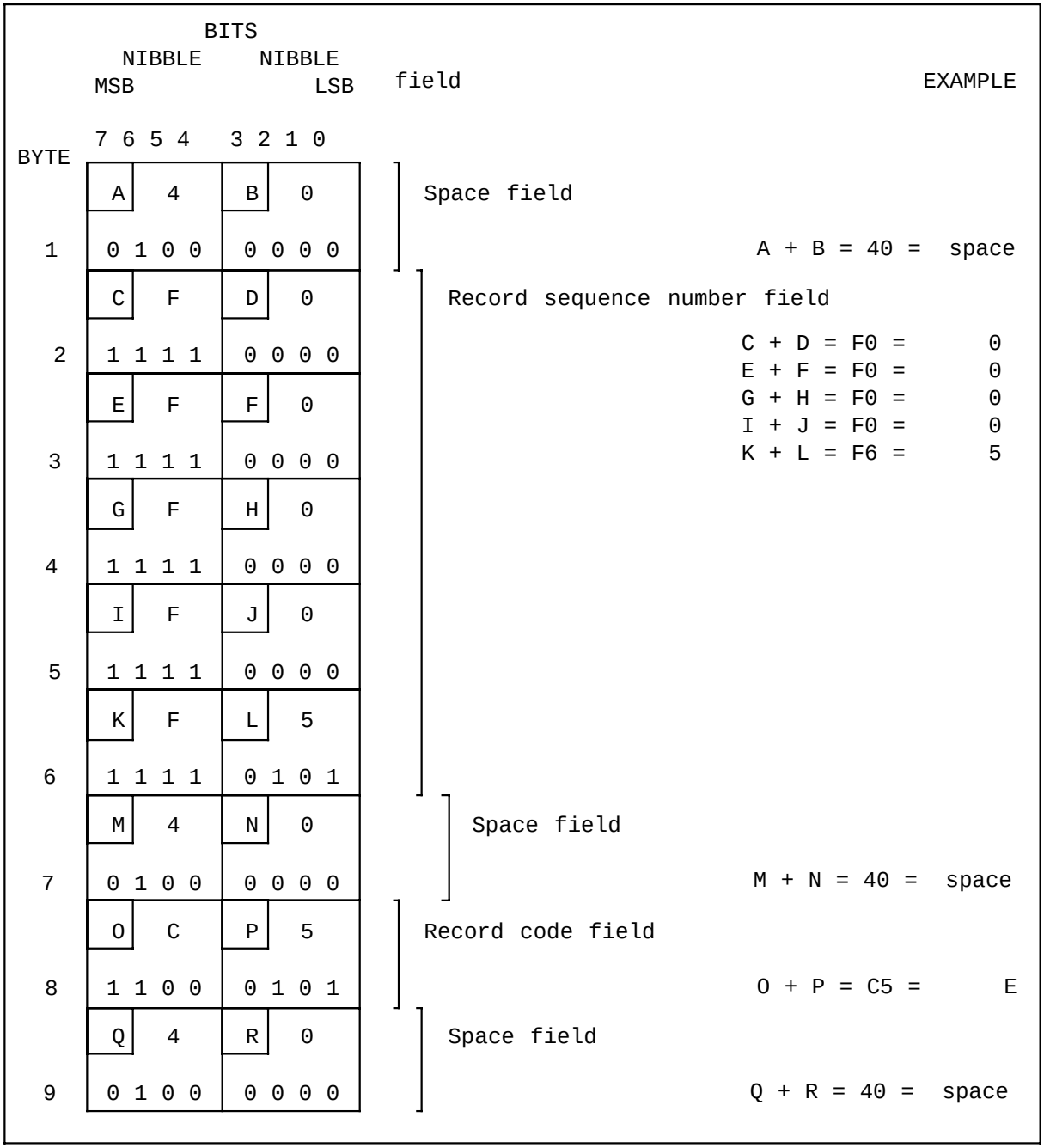
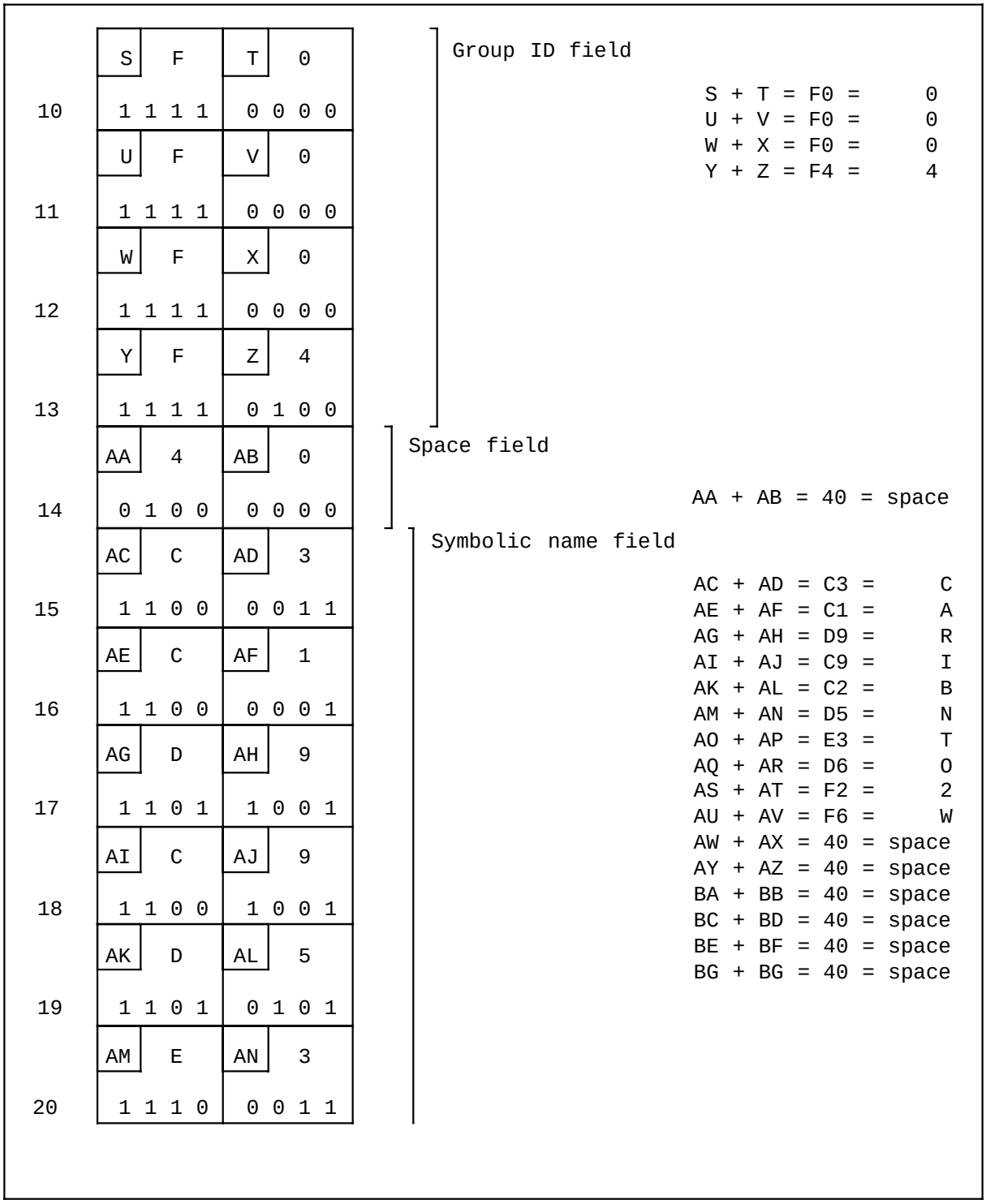


Figure 2-43 K, A, C, and V records byte structure (continued)



	S	F	T	0				
10	1	1	1	1	0	0	0	0
	U	F	V	0				
11	1	1	1	1	0	0	0	0
	W	F	X	0				
12	1	1	1	1	0	0	0	0
	Y	F	Z	4				
13	1	1	1	1	0	1	0	0
	AA	4	AB	0				
14	0	1	0	0	0	0	0	0
	AC	C	AD	3				
15	1	1	0	0	0	0	1	1
	AE	C	AF	1				
16	1	1	0	0	0	0	0	1
	AG	D	AH	9				
17	1	1	0	1	1	0	0	1
	AI	C	AJ	9				
18	1	1	0	0	1	0	0	1
	AK	D	AL	5				
19	1	1	0	1	0	1	0	1
	AM	E	AN	3				
20	1	1	1	0	0	0	1	1

Figure 2-44 K, A, C, and V records byte structure (continued)

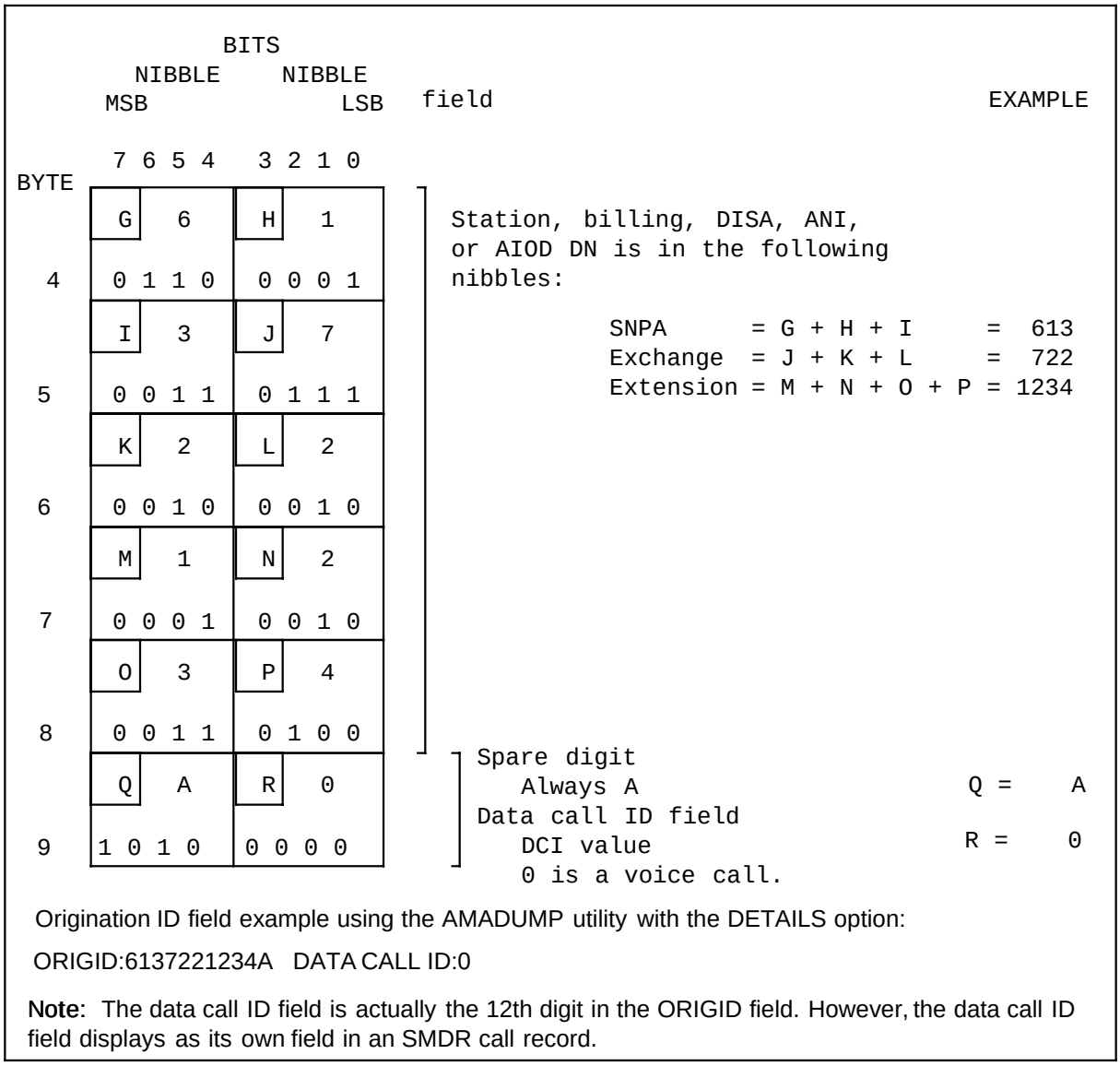
	AO D	AP 6
21	1 1 1 1	0 0 0 0
	AQ F	AR 2
22	1 1 1 1	0 0 0 0
	AS F	AT 6
23	1 1 1 1	0 0 0 0
	AU 4	AV 0
24	1 1 1 1	0 1 0 0
	AW 4	AX 0
25	0 1 0 0	0 0 0 0
	AY 4	AZ 0
26	1 1 0 0	0 0 1 1
	AA 4	AB 0
27	1 1 0 0	0 0 0 1
	AC 4	AD 0
28	1 1 0 1	1 0 0 1
	AE 4	AF 0
29	1 1 0 0	1 0 0 1
	AG 4	AH 0
30	1 1 0 1	0 1 0 1

Example data group translator record using the AMADUMP utility with the DETAILS option:

*REC CODE: REC SEQ:00005 SPACE:

*REC CODE:A SPACE: GRPID:0004 SPACE: CLLI:CARIBNTO2W

Figure 2-45 ORIGID 0, 1, 4, 7, and 8 record byte structure

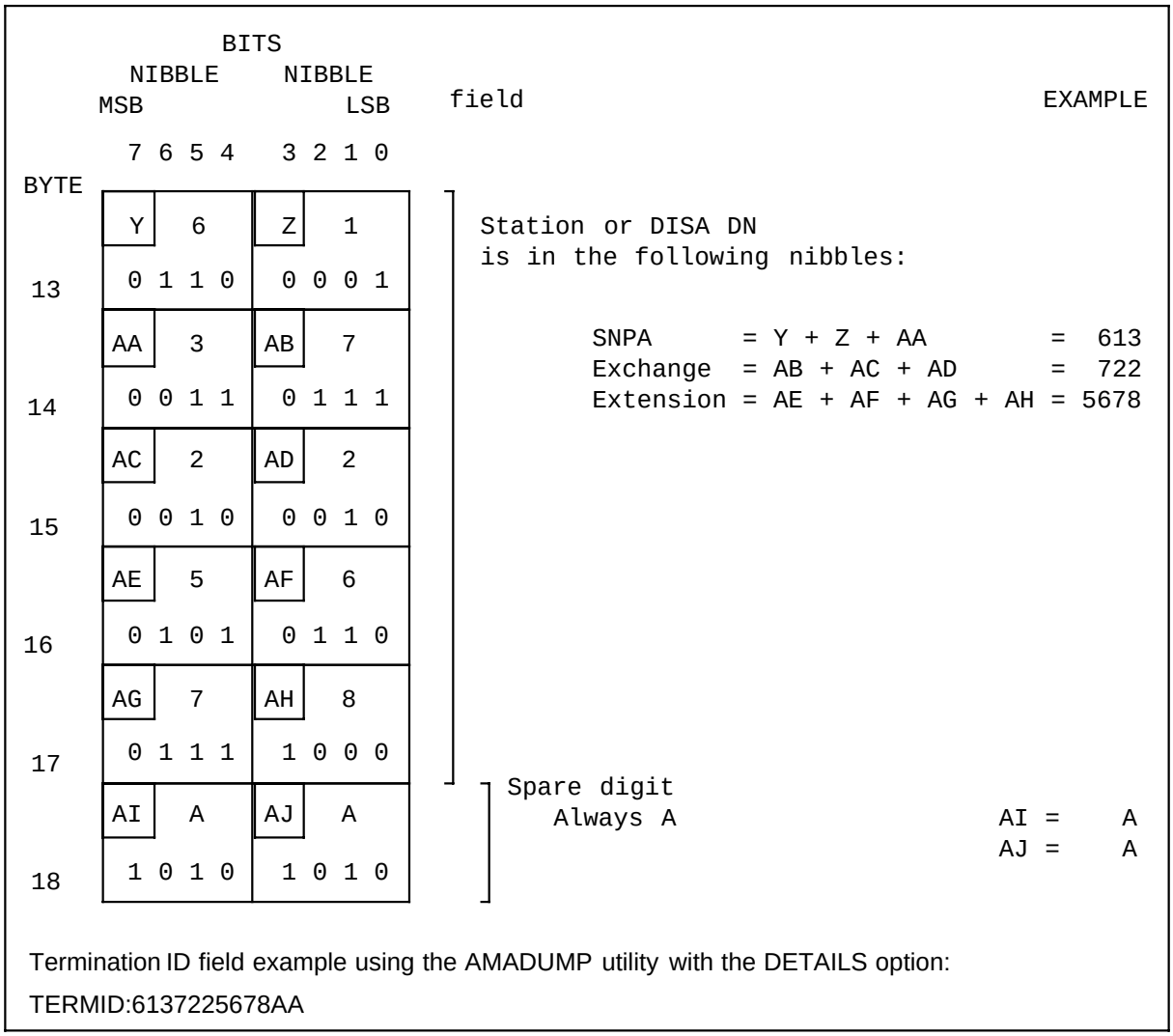


Origination ID field example using the AMADUMP utility with the DETAILS option:

ORIGID:6137221234A DATA CALL ID:0

Note: The data call ID field is actually the 12th digit in the ORIGID field. However, the data call ID field displays as its own field in an SMDR call record.

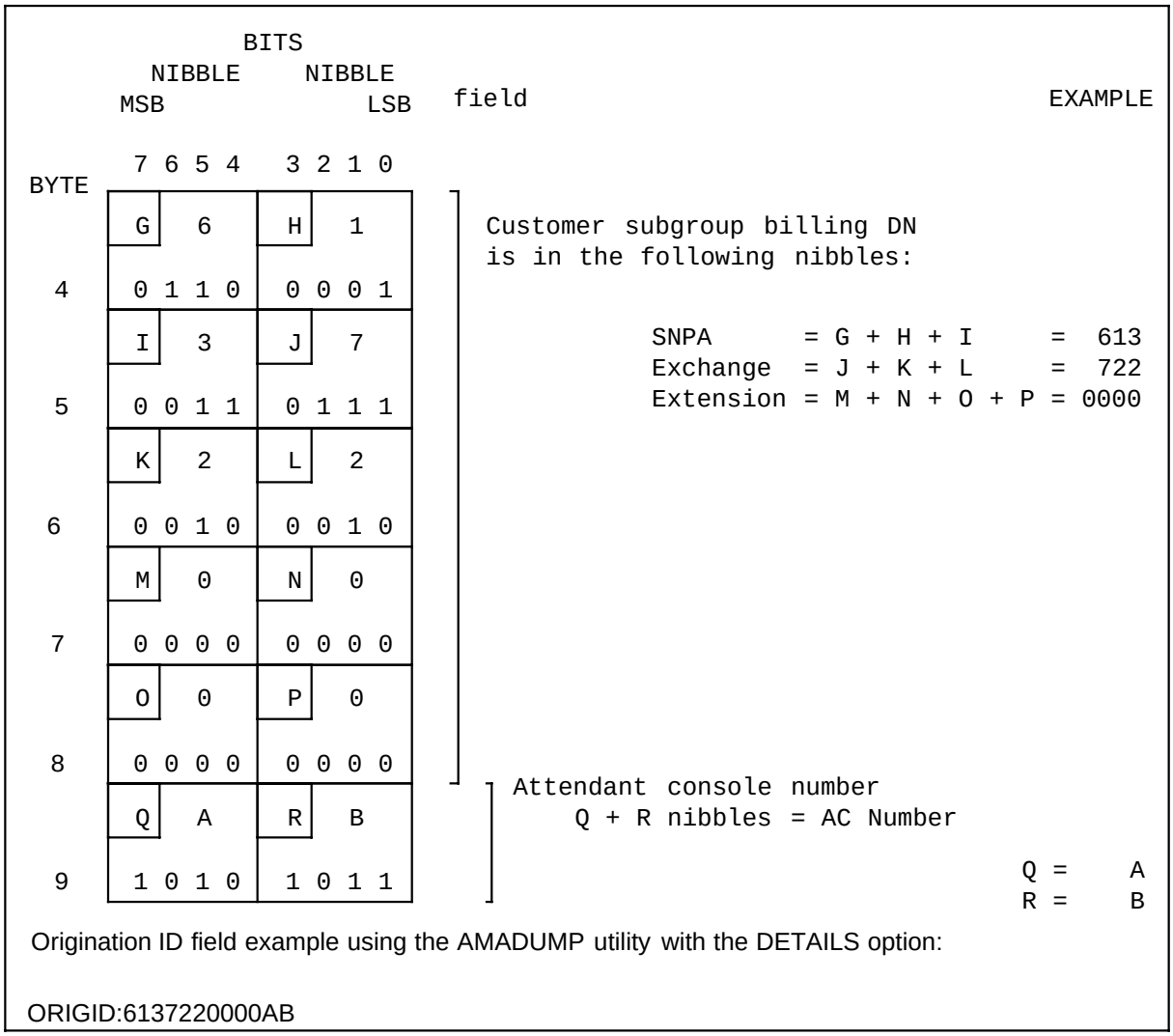
Figure 2-46 TERMID 0 and 4 record byte structure



Termination ID field example using the AMADUMP utility with the DETAILS option:

TERMID:6137225678AA

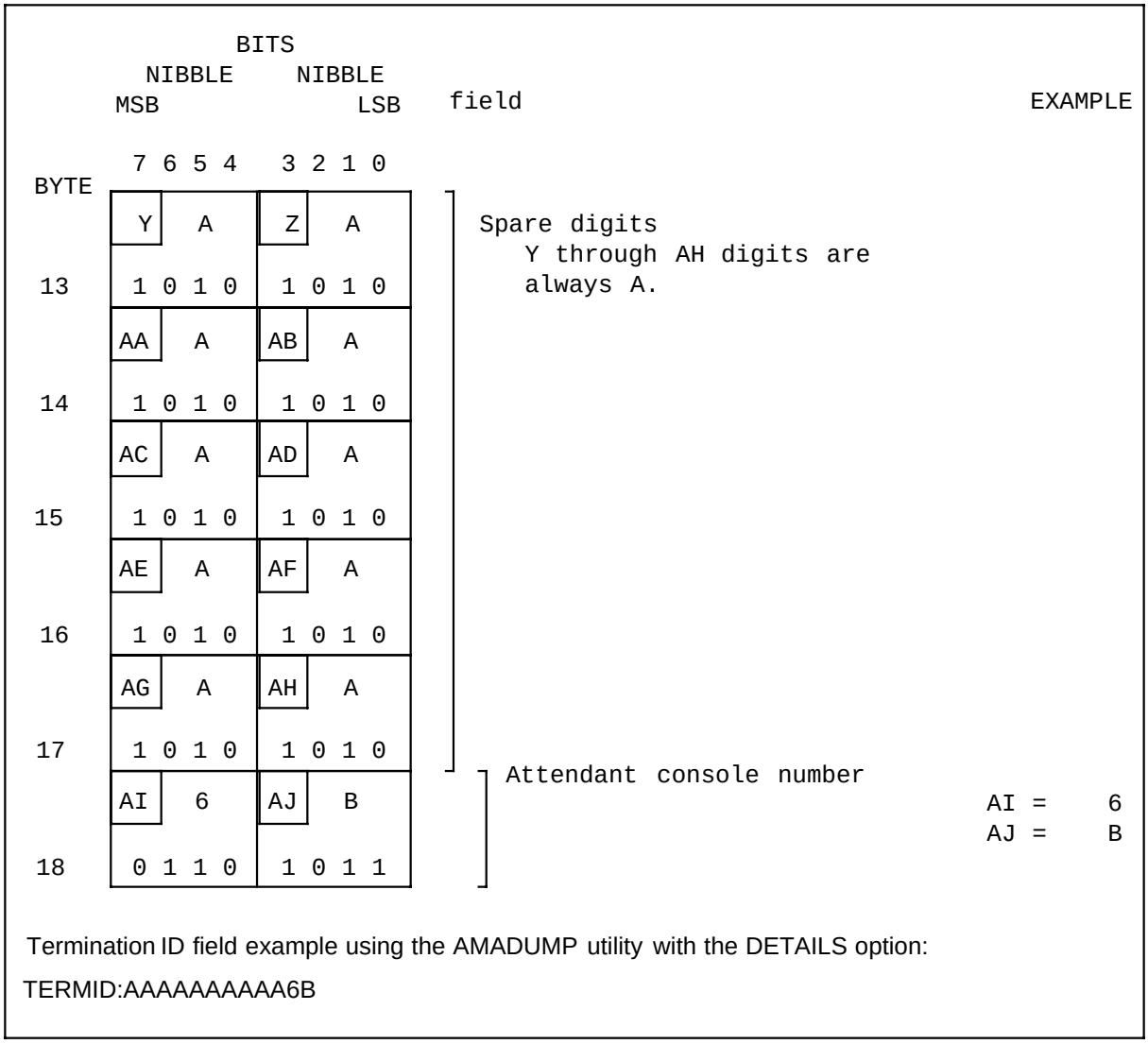
Figure 2-47 ORIGID 2 record byte structure



Origination ID field example using the AMADUMP utility with the DETAILS option:

```
ORIGID:6137220000AB
```

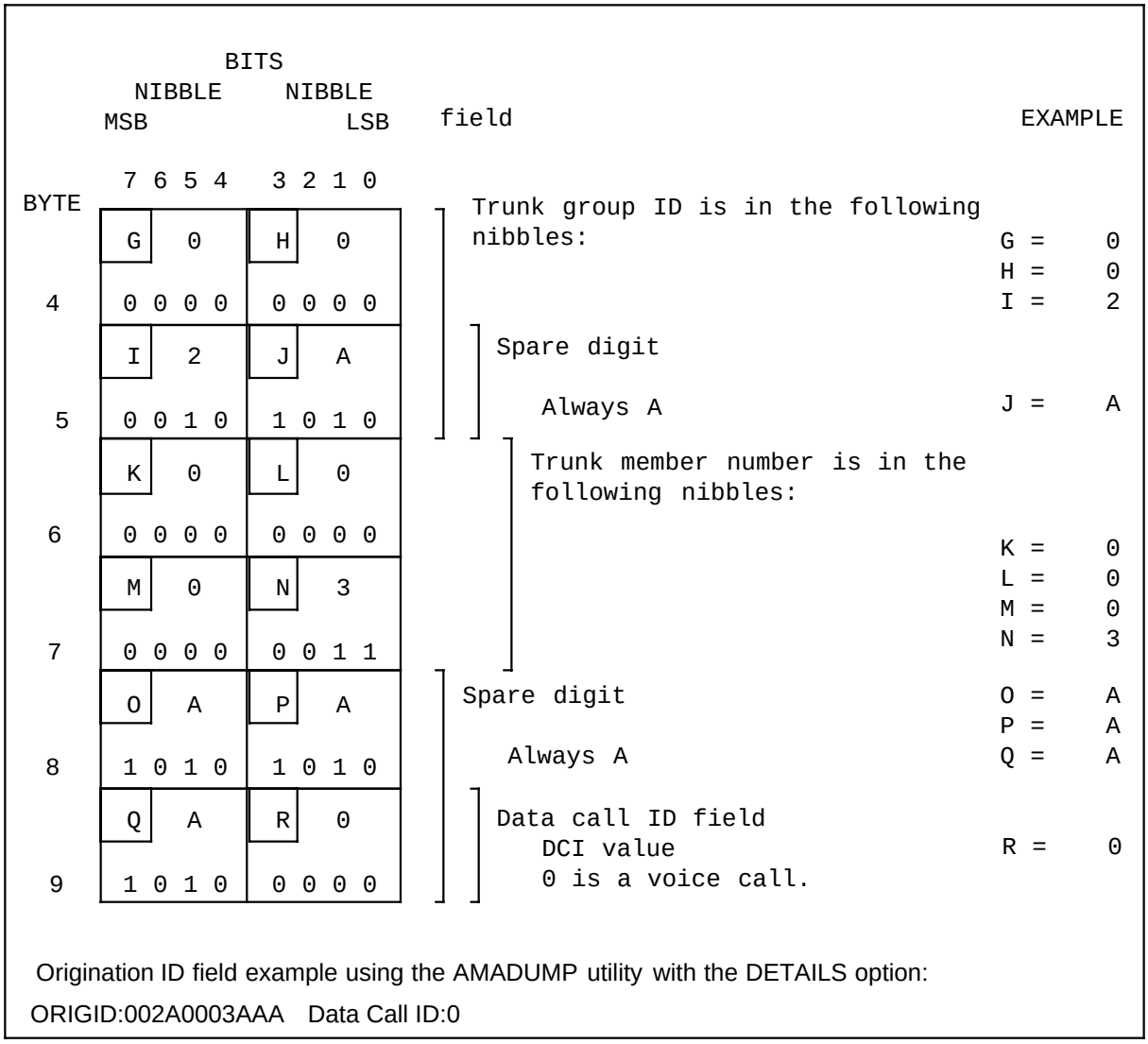
Figure 2-48 TERMID 2 record byte structure



Termination ID field example using the AMADUMP utility with the DETAILS option:

TERMID:AAAAAAAAAA6B

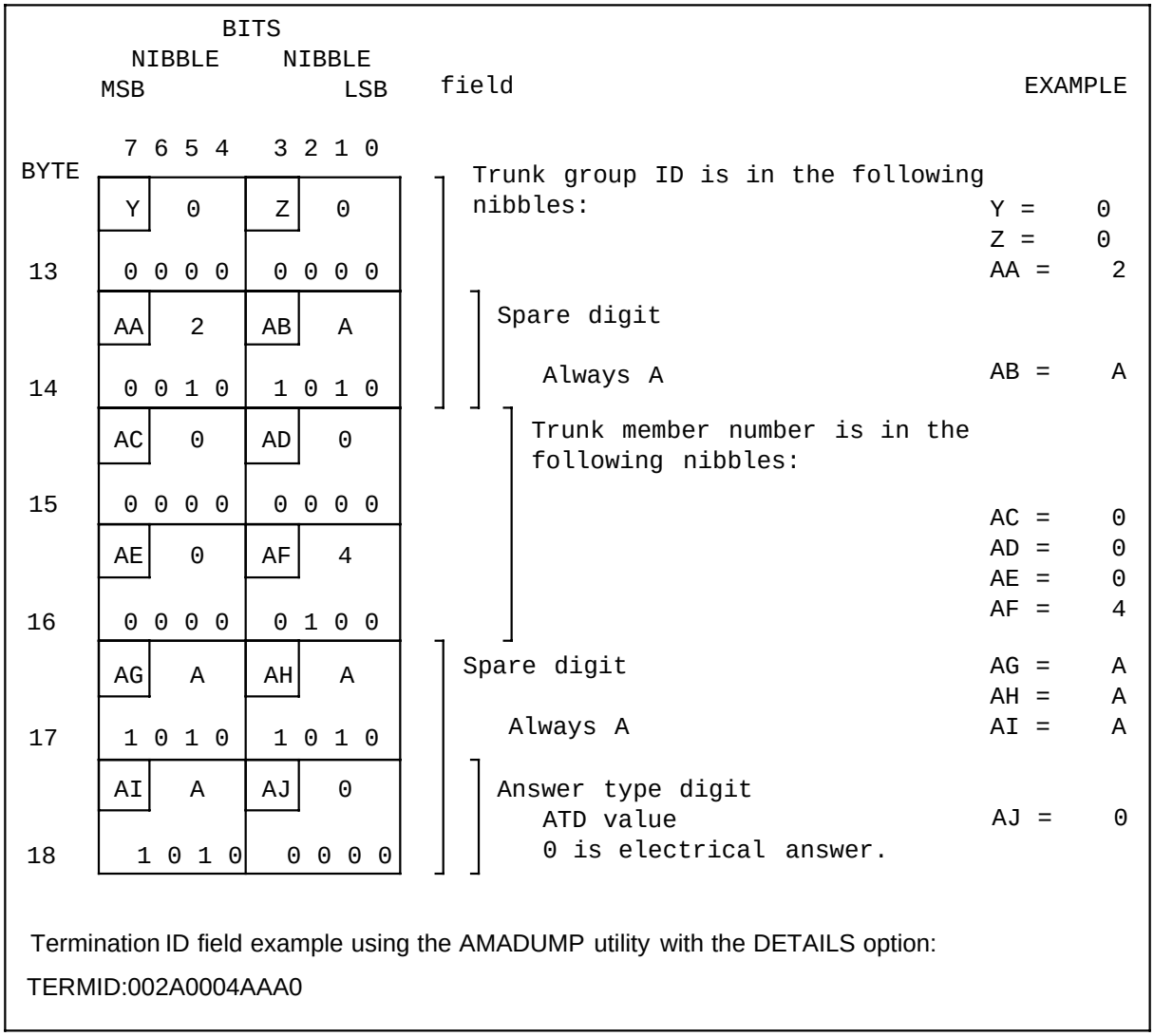
Figure 2-49 ORIGID 3 record byte structure



Origination ID field example using the AMADUMP utility with the DETAILS option:

ORIGID:002A0003AAA Data Call ID:0

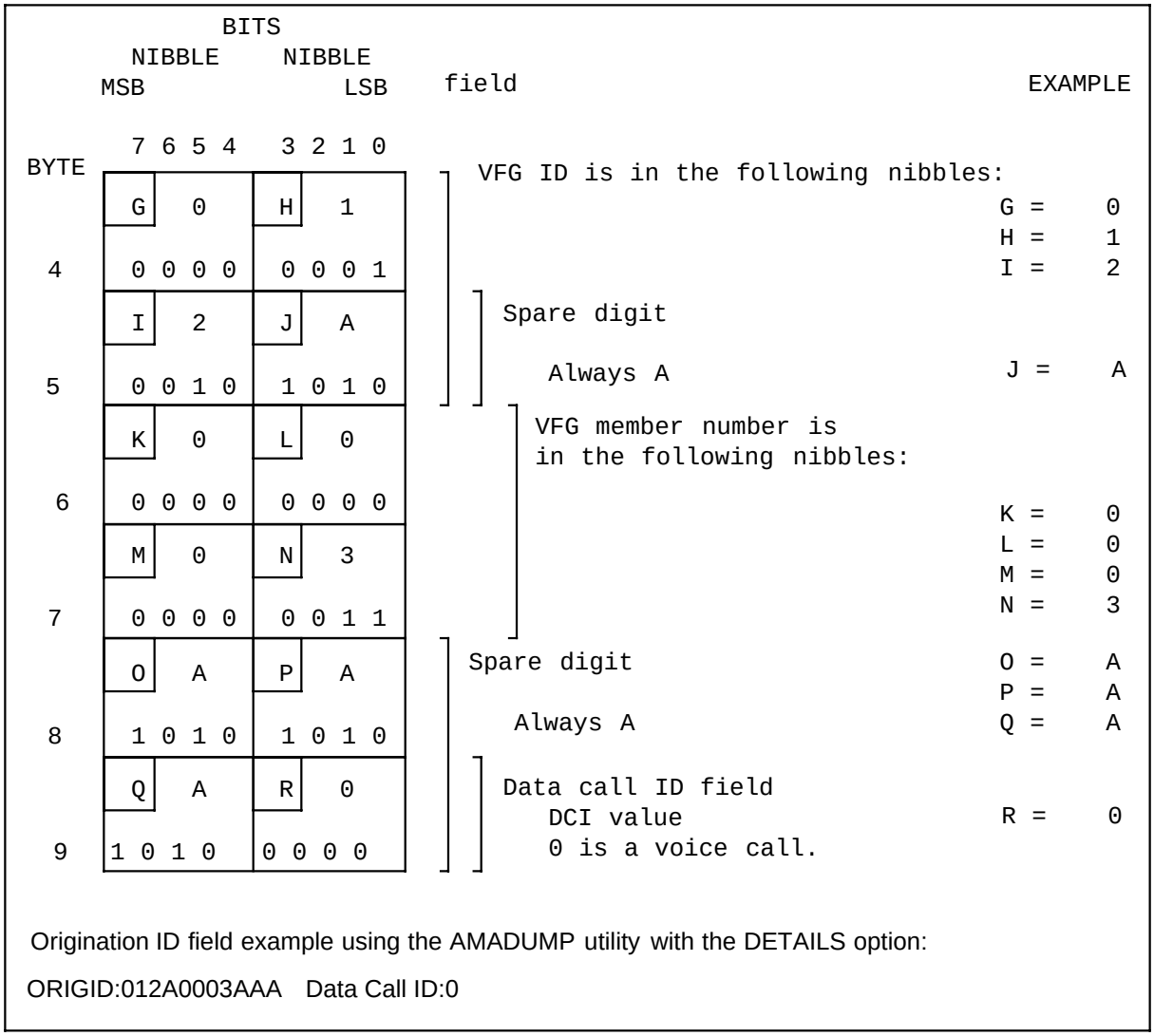
Figure 2-50 TERMID 3 record byte structure



Termination ID field example using the AMADUMP utility with the DETAILS option:

TERMID:002A0004AAA0

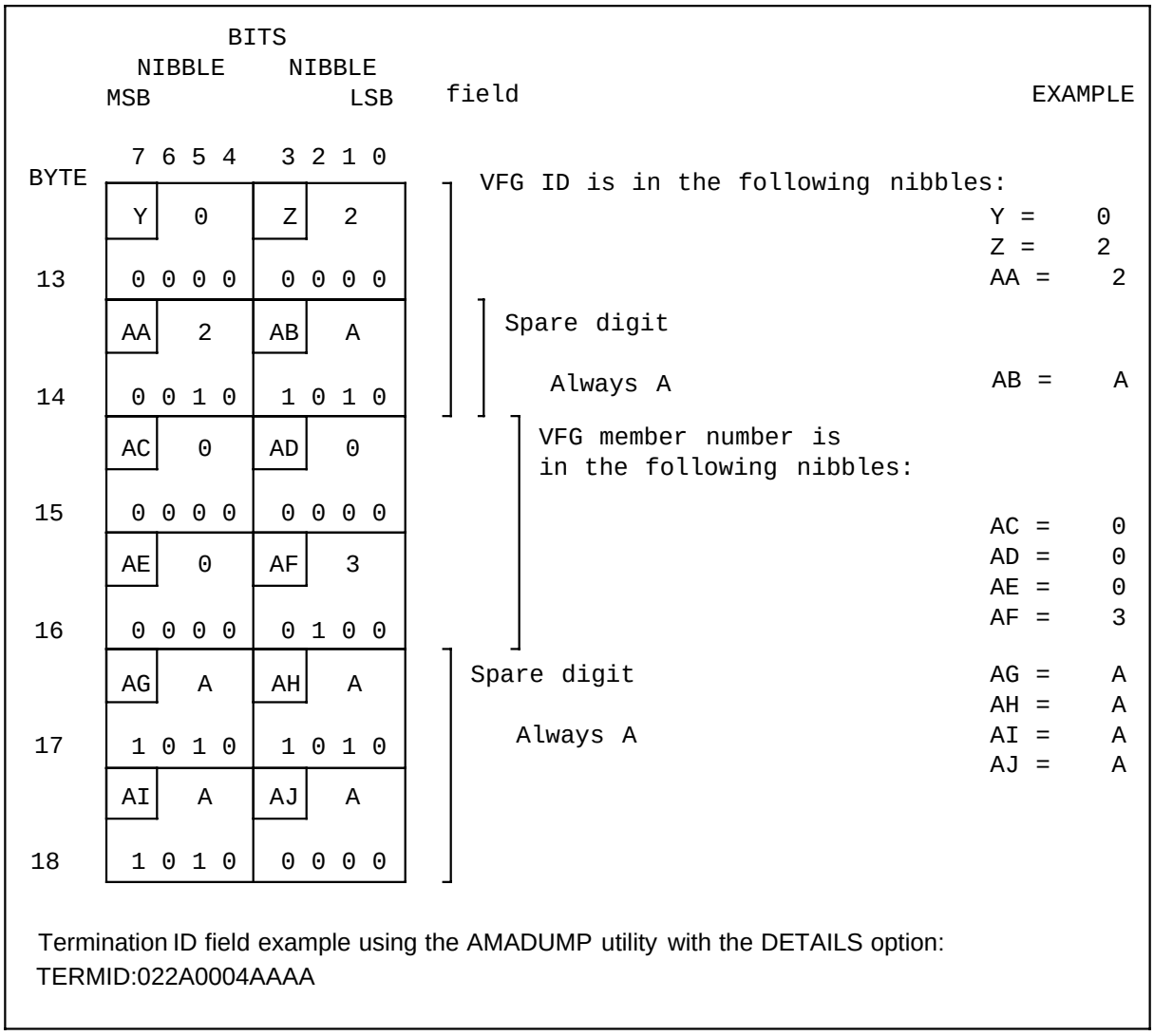
Figure 2-51 ORIGID 5 record byte structure



Origination ID field example using the AMADUMP utility with the DETAILS option:

ORIGID:012A0003AAA Data Call ID:0

Figure 2-52 TERMID 5 record byte structure



Termination ID field example using the AMADUMP utility with the DETAILS option:
TERMID:022A0004AAAA

3 Network and system administration

This chapter details the step-by-step procedures for activating Station Message Detail Recording (SMDR) at the switch. Procedures are provided for the types of call originations and feature activations that can generate SMDR call data records. When SMDR is activated, call records are generated for Integrated Business Network (IBN) station calls and dialed Meridian Digital Centrex (MDC) features.

The following table lists the administrative tasks that can be done to set up, activate, and control SMDR.

Table 3-1 Administrative task matrix (Sheet 1 of 6)

Task	Task identification	What to reference
Base	Setting up basic SMDR and SMDR recording facilities.	Table Setting up the basic SMDR and SMDR recording facilities
1	Activate SMDR for MDC lines (stations).	Table Activating SMDR for MDC station lines
2	Activate SMDR for MDC lines for multiple appearance directory number (MADN) groups.	Table Activating SMDR for MDCto MDC lines
3	Activate SMDR for Meridian business sets (MBS) directory number (DN).	Table Activating SMDR for MBS DNs
4	Activate SMDR for MBSs for MADN groups.	Table Activating SMDR for MADNs on an MBS
5	Activate SMDR for data units on MBSs.	See task 3.
6	Activate SMDR for data units in MADN groups.	Not a valid option.
7	Activate SMDR for MBSs forming a Group Intercom group.	Table Activating SMDR for GIC business sets
8	Activate SMDR for calls over a direct outward dialing (DOD) network.	Table Activating SMDR for DOD networks

Table 3-1 Administrative task matrix (Sheet 2 of 6)

Task	Task identification	What to reference
9	Activate SMDR for calls over an electronic switched network (ESN) Meridian SuperNode network (MSN).	Table Activating SMDR for MSN networks
10	Activate SMDR for calls which route to table CLLI.	Table Activating SMDR for calls routed to table CLLI
11	Activate SMDR for calls which route to table IBNRTE.	Table Activating SMDR for calls routed to table IBNRTE
12	Activate SMDR for calls which route over a tandem tie trunk route (TTTR).	Table Activating SMDR for calls routed over a TTTR
13	Activate SMDR for calls which use ambiguous code dialing version I (AMBI).	Table Activating for calls routed using AMBI
14	Activate SMDR for calls which use extension (EXTN) selectors.	Table Activating SMDR for calls which use EXTN
15	Activate SMDR for calls which use the cut through dialing (CUTTD) selector.	Table Activating CUTTD
16	Activate SMDR for toll calls using the general network selector.	Table Activating SMDR for toll GEN calls
16a	Activate SMDR for calls using other general network selectors.	Table Activating SMDR for non-toll GEN calls
17	Activate SMDR for an MDC line with the Group Intercom feature.	Table Activating SMDR for group intercom on MDC lines
18	Activate SMDR for MBS lines with the Group Intercom feature.	Table Activating SMDR for group intercom on an MBS
19	Activate personal identification number (PIN) and travel card number'" (TCN) extension record for incoming calls.	Table Activating the PIN and TCN extension call record
20	Activate SMDR for attendant consoles.	Table Activating SMDR for attendant consoles
21	Activate SMDR for trunk groups.	Table Activating SMDR for trunk groups
22	Activate SMDR for direct inward system access (DISA) DN.	Table Activating SMDR for DISA calls
23	Activate SMDR for virtual facility groups (VFG).	Table Activating SMDR for VFG calls

Table 3-1 Administrative task matrix (Sheet 3 of 6)

Task	Task identification	What to reference
24	Activate SMDR for the network evaluation, reporting and verification (NERVE) utility.	Table Activating SMDR for NERVE calls
25	Activate SMDR for recording the digits that were outpulsed over a trunk.	Table Activating SMDR for recording outpulsed digits
26	Activate SMDR for account and authorization codes.	Table Activating SMDR for account and authorization codes
27	Activate the network extension record for calls over incoming integrated services digital network user part (ISUP) trunks.	Table Activating SMDR for ISUP
28	Activate the Meridian SuperNode extension record for incoming feature group B (FGB) of feature group D (FGD) for each trunk signaling (PTS) MDC trunk groups.	Table Activating SMDR for Meridian SuperNode calls
29	Activate SMDR for recording unanswered calls.	Table Activating SMDR for unanswered calls
30	Activate the D1 and D3 SMDR call records.	These tasks activate SMDR and record the D1 and D3 record codes: 1, 2, 3, 4, 5, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 16a, 17, 18, 19, 20, 21, 22, 23, 26, 33, 34, 51, 67, 70, 71, 72, and 73.
31	Activate the D2 and D4 SMDR call records.	See task 24.
32	Activate the D5 extension call record.	See task 25.
33	Activate the D6 extension call record.	See task 26.
34	Activate the device controller (DC) extension call record.	See task 19.
35	Not applicable.	Reserved
36	Not applicable.	Reserved
37	Activate the DA extension call record.	See task 27.
38	Activate the database (DB) Extension call record.	See task 28.
39	Create a special billing DN for SMDR records.	Table Creating special billing DN for SMDR records

Table 3-1 Administrative task matrix (Sheet 4 of 6)

Task	Task identification	What to reference
40	Activate the Six-Way Conference feature for a call on an MDC line.	Table Activating the Six-Way Conference feature for MDC lines
41	Activate the Six-Way Conference feature for a call on an MBS line.	Six-Port Conference in the *Translations Guide*
42	Activate the Call Transfer feature for a call on an MBS line.	Three-Way Call/Call Transfer in the *Translations Guide*
43	Activate the Call Forwarding feature for a call on an MDC line.	See the various call forwarding features for MDC lines in the *Translations Guide*.
44	Activate the Call Forwarding feature for a call on an MBS.	See the various call forwarding features for MBSs in the *Translations Guide*.
45	Activate the Meet-Me Conference feature.	Meet-Me Conference in the *Translations Guide*
46	Activate the Meet-Me Conference Large feature.	Meet-Me Conference (Large) in the *Translations Guide*
47	Activate the Executive Conference feature.	Table Activating the Executive Conference feature
48	Activate the Call Park feature for an MDC line.	Station Call Park in the *Translations Guide*
49	Activate the Call Park feature for an MBS.	Call Park in the *Translations Guide*
50	Activate the Callback Queuing feature.	Call Back Queuing in the *Translations Guide*
51	Activate the Ring Again feature.	Ring Again in the *Translations Guide*
52	Activate the Automatic Tone Detector feature.	Table Activating automatic tone detection
53	Activate Flexible Station-Controlled Conference.	Station-Controlled Conference in the *Translations Guide*
54	Activate the Preset Conference feature.	Preset Conference in the *Translations Guide*

Table 3-1 Administrative task matrix (Sheet 5 of 6)

Task	Task identification	What to reference
55	Activate the Call Request Retrieval feature.	Call Retrieval Billing in the *Translations Guide*
56	Identify the data tables affected by SMDR.	Table Data tables for SMDR datafill
57	Identify the office parameters affected by SMDR.	Table Office parameters for SMDR datafill
58	Suppress the dumping of data group records during a file rotation.	Table Suppressing data group record dumps
59	Rotating device independent recording package (DIRP) files.	*Translations Guide*
60	Changing system time.	The SETDATE and SETTIME commands in the *DMS-100 Family Commands Reference Manual*, 297-1001-822
61	Initiating a cold restart.	The RESTART command in the *DMS-100 Family Commands Reference Manual*, 297-1001-822
62	Assigning an office identification (ID) number.	The *Office Parameters Reference Manual*, table OFCENG, office parameter OFFICE_ID_ON_AMA_TAPE
63	Assigning subgroup numbers and information.	See the data schema section of the *Translations Guide*.
64	Activate the Data Call Identification feature for SMDR call records.	Table Data call identification feature datafill
65	Activate service analysis so that it is recorded in an SMDR call record.	See the data schema section of the *Translations Guide*, table SAUSERS.
66	Control of data dumps.	Table controlling data dumps
67	Activate automatic number identification (ANI) information for SMDR call records.	Table Activating ANI information for SMDR call records
68	Create separate output files for SMDR and Automatic Message Accounting (AMA).	Separate Output Files for SMDR and AMA in the *Translations Guide*

Table 3-1 Administrative task matrix (Sheet 6 of 6)

Task	Task identification	What to reference
69	Create separate SMDR output files for each customer group.	Separate Output Files by Customer Group in the *Translations Guide*
70	Activate station-specific authorization codes (pre-BCS25).	Table Activating station- specific authorization codes (pre-BCS25)
71	Activate station-specific authorization codes (BCS25 forward).	Table Activating station- specific authorization codes (BCS25 and up)
72	Activate SMDR for the Last Number Redial feature for a line.	Table Activating the LNR feature for MDC lines
73	Activate SMDR for the Last Number Redial feature for an MBS.	Table Activating the LNR feature for business sets
74	Activate answer timing for no answer trunks.	Table Activating answer timing for no answer trunks
75	Activate SMDR recording for FGD on an SL-100.	Table Activating group-D on SL-100 SMDR datafill
76	Activate SMDR recording for FGD on MDC (DMS-100 switch).	Table Activating group-D MDC SMDR datafill
77	Activate the DD bearer capability extension call record.	Table Activating DD bearer capability call record datafill
78	Activate the DE independent common carrier extension call record.	Table Activating DEICC call record selection
79	Activate the DF01 inbound toll call extension call record.	Table Activating DF01 inbound toll call record datafill
80	Activate the DF05 carrier charge area information call extension record.	Table Activating DF05 carrier charge area information call extension record
81	Activate the DF06 charge rate information call extension record.	Table Activating DF06 charge rate information call extension record
82	Activate the DF07 additional user type call extension record.	Table Activating DF07 additional user type call extension record
83	Activate the DF09 Per Use Billing extension record.	Table Activating DF09 call extension record

Identifying data tables affected by SMDR

The following table lists the tables used by SMDR. The tables are listed in alphabetical order, not datafill order.

Note: For more information on table datafill order, refer to "Activating SMDR at the switch" in this chapter.

Table 3-2 Data tables for SMDR datafill (Sheet 1 of 5)

Table	Description
ATTCONS	Attendant Console. Used to assign specifics about each attendant console in a customer group. If SMDR call record generation is datafilled for an attendant console in the CDR field, an SMDR call record is generated for all calls originating from the attendant console. See the following fields for attendant console-specific information recorded in a call record: • Section "Origination type field • Section "Origination identification field • Section "Termination type field • Section "Termination identification field When an attendant extends a call, the information digits (INFO DIGITS) field contains a 2 or a 3.
AUTHCDE	Authorization Code. Defines each authorization code.
AUTHPRGM	Automatic Dial Key Program. Defines digits datafilled on an automatic dial (AUD) key.
AUTHPART	Authorization Partition. Defines the partition in the authorization code (authcde) database in which the authorization codes for each customer group are stored.
CFX	Call Forwarding. Stores DN information for various flavors of IBN Call Forwarding.
CRSFMT	Call Record Stream Format. Defines the data streams and their formats for call recording.
CRSMAP	Call Record Stream Mapping. Defines the types of call recording data that are routed to the various streams.
CUSTHEAD	MDC Customer Group Head. Lists specific information about customer groups.
CUSTSMDR	Customer Group Station Message Detail Recording. Lists the SMDR options assigned to each of the customer groups.
DIGMAN	Digit Manipulation. Allows customers to create a dialing plan for their private network based on destination codes dialed; therefore, the subscriber can dial a fixed number of digits to reach a called number regardless of the number of digits in the connection.

Table 3-2 Data tables for SMDR datafill (Sheet 2 of 5)

Table	Description
DIRPPOOL	DIRP Pool. Lists the collection (pool) of recording devices allocated to each contributing subsystem. SMDR would be a contributing subsystem. Section "Setting up the recording facilities" describes the recording facilities.
DIRPSSYS	DIRP Subsystem. Defines the operating parameters of each contributing subsystem. SMDR is a contributing subsystem.
FGDANISC	Feature Group D ANI Screening. Defines the FGD set of interconnection rules between local exchange carrier (LEC) access facilities and long distance (LD) carriers.
HUNTGRP	Hunt Group. Contains the data for each hunt group assigned in the switching order.
IBNFEAT	IBN Line Feature. Lists the line features that are assigned to the MDC lines listed in table IBNLINES.
IBNLINES	IBN Lines. Contains the line assignments for each 500 and 2500 set assigned to an MDC, Residential Enhanced Services (RES), and MADN station number. This table also contains the line assignments for the MDC attendant consoles. If SMDR is datafilled as an option for a line, SMDR call records are generated for all calls over this line.
IBNRTE	IBN Route. Lists the route lists, by a route reference index number, for the routing of an MDC call. If the automatic route selector (ARS) selector of table IBNRTE is accessed during a call, the route information (RTE INFO) digits field of an SMDR call record will have a value of either 2, 3, 6, or 7. If during this call, expensive route warning tone (ERWT) is applied to this call, the value of the RTE INFO field is narrowed to either 6 or 7. Section "Route information digit field" describes this field. Selector IBNRX allows the call to retranslate in IBN translations based on the customer group and NCOS associated with the call. The call is given call not allowed (CNAD) treatment if no customer group or NCOS is associated with the call.
IBNSC	IBN Speed Calling List. Stores information for each number of an IBN station, data unit or MBS speed calling list or each number of a data unit or MBS automatic dial list.
IBNXLA	IBN Translations. Stores the data for the digit translation of calls from an MDC station, attendant console, IBN incoming trunk (IBNTI) group, or IBN two-way trunk (IBNT2) group. This is the main table in which SMDR is made available.
KSETFEAT	Business Set and Data Unit Feature. Lists the line features that are assigned to the business sets and data units listed in table KSETLINE.

Table 3-2 Data tables for SMDR datafill (Sheet 3 of 5)

Table	Description
REPLCODE	Replace Code. Replaces one-, two-, or three-digit codes with a sequence of digits.
RESFEAT	Residential Line Feature. Contains the assignment of CLASS features for residential lines.
TRKGRP	Trunk Group. Defines the specifics about the trunk groups associated with a common language location identifier (CLLI). SMDR call records can be generated for only IBNTI and IBNT2 trunks. The generation of SMDR call records is controlled by the CDR and SMDR fields. SMDR call records can be generated for two scenarios as follows: • All incoming calls. These fields must be set as follows: — The CDR field must be set to Y. — The SMDR field must be set to N. • Only incoming calls that are required to have SMDR call records generated based on datafill in table IBNXLA. These fields must be set as follows: — The CDR field must be set to N. — The SMDR field must be set to Y. The Spanish metering reception extension record records data on calls on IBNTO trunks.
VIRTGRPS	Virtual Facility Groups. Provides a mechanism through software resources to eliminate loop-around trunks. SMDR call records can be generated for VFG-originated calls in the following scenarios: • All incoming calls. These fields must be set as follows: — The CDR field must be set to Y. — The SMDR field can be either Y or N. • Only incoming calls that are required to have SMDR call records generated based on the datafill in table IBNXLA. These fields must be set as follows: — The CDR field must be set to N. — The SMDR field must be set to Y. If no SMDR call records are desired, both the CDR and SMDR fields must be set to N.

Table 3-2 Data tables for SMDR datafill (Sheet 4 of 5)

Table	Description
DNROUTE	Directory Number Route. Contains DNs that are not associated with a line equipment number (LEN). Table DNROUTE is datafilled by the operating company with several types of DNs. The only type that affects SMDR is DISA. SMDR call record generation can be datafilled for a DISA number as follows: • If SMDR is required on the leg of the call where the originator accesses DISA, the SMDRTO field is set to Y. The TERMID field of an SMDR call record would be set to 4. See "Termination identification field. • If SMDR call records are generated on the call leg from DISA to the final MDC destination (terminator), the SMDRFROM field is set to Y. The ORIGID field of an SMDR call record would be set to 4. See "Origination identification field."
DNSCRN	Directory Number Screening. Provides information that is used by call processing to perform call screening and call validation on specified directory numbers for the DMS-100 Switch. Domestic subscribers can access virtual private networks through acquiring an NCOS and CUSTGRP. NCOS and CUSTGRP are defined through their DN in table DNSCRN using the CUSTINFO attribute. CUSTINFO combines with option CUSTMOD (customer modification) of the international translations option VALIDATE provided by universal translations. If CUSTMOD screening permits modification as described in international translations, the internal NCOS and CUSTGRP associated with the call are altered to the values found in the CUSTINFO attribute (if present for the DN). The DN used to access table DNSCRN may either be the calling line identification (CLI) or the dialed number.

Table 3-2 Data tables for SMDR datafill (Sheet 5 of 5)

Table	Description
CTCODE, PXCODE, FACODE, OFCCODE, AMCODE, FTCODE, ACCODE, NSCCODE, CCCODE, NNCODE, CTYCODE,	Universal Translations Tables. Provides translations for international call processing. The VALIDATE option in universal translations provides a way to define the screening of calls. The CUSTMOD (customer modification) option allows the end user to alter the internal NCOS and CUSTGRP to new values for a DN based on the contents of the CUSTINFO option in table DNSCRN. With CUSTMOD, an optional screening function is provided by subfield CUSTSCRN. If the CUSTSCRN subfield is set to Y and the caller's DN is not in table DNSCRN, then the call is rejected with a CNAD treatment. If CUSTSCRN is set to Y and the caller's DN is present but does not have the CUSTINFO attribute associated with it in table DNSCRN, then the call is rejected with a CNAD treatment. If the CUSTSCRN is set to Y and screening is successful, then the internal NCOS and CUSTGRP are altered as set in universal translations. If CUSTSCRN is set to N then no screening is performed and the NCOS and CUSTGRP are altered as set in universal translations.
NETNAMES	Internal Logical Network Names. Allows the operating company the ability to datafill station information against a DN. Works together with tables DNGRPS, DNATTRS, NCOS, and IBNXLA. The field NETID in the #DE extension record contains the value of the field EXTNETID in this table.

Identifying office parameters affected by SMDR

The following table describes the office parameters that are datafilled when SMDR is activated at the switch. All the office parameters are described in *Office Parameters Reference Manual*.

Table 3-3 Office parameters for SMDR datafill (Sheet 1 of 4)

Table name	Parameter name	Explanation and action
OFCENG	AMA_FAILURE_FREE_CALL	Provides routing options used to charge toll calls during AMA problems or failures. Default is Y. Activation is immediate.
	NO_OF_FTR_CONTROL_BLKS	Specifies the number of feature control blocks required. Default is 50. Activation is a cold restart.
	NO_OF_FTR_DATA_BLKS	Specifies the number of feature data blocks required. Default is 50. Activation is a cold restart.

Table 3-3 Office parameters for SMDR datafill (Sheet 2 of 4)

Table name	Parameter name	Explanation and action
	CRS_PRU_POOL3_ SIZE	Sets the number of SMDR recording units (extension blocks) required. This parameter replaces parameter NO_OF_SMDR_REC_UNITS in BCS35. Valid entries are from 0 to 131072. Default is 100. A cold restart is only required to activate reductions to this parameter. In any case, the value of this parameter should be no less than the value of the parameter NO_OF_FTR_CONTROL_BLKS set in BCS34 and below. If a switch used in the United States (US) market, an operating company should set the parameter to 100. If the office is MDC stand-alone, (switches with 90% MDC lines) an operating company should set the parameter to 600. For non-US markets using North American translations and having all MDC lines assigned the SMDR option, an operating company should set this parameter to 80% of the value of the parameter NCCBS found in table OFCENG. For non-US markets using North American translations and having not all or none of the MDC lines assigned the SMDR option, an operating company should set this parameter to 30% of the number of MDC lines in customer groups without the MDRRAO feature (from table CUSTSMDR) plus the number of simultaneous calls for all customer groups with the MDRRAO feature which involve a DISA number or the account code feature.
	NUM_CALLREC_ STREAMS	Specifies the number of streams that can be datafilled into table CRSFMT. Default is 1. Activation is immediate.
OFCENG	CRS_SUBRU_POOL1_ SIZE	Stores the information used when the system generates the following extension records: • D7 • DC • DD • DF01 • DF07 The default value is 100. Perform a cold restart when the value of this parameter decreases. Activation is immediate if the value of this parameter increases.

Table 3-3 Office parameters for SMDR datafill (Sheet 3 of 4)

Table name	Parameter name	Explanation and action
	CRS_SUBRU_POOL2_ SIZE	The provisioning of this parameter has changed for applications that did not previously datafill the MDRRAO option in table CUSTSMDR and now datafill the AUTHAMA option in table CUSTSMDR. The default value is 100. Perform a cold restart when the value of this parameter decreases. Activation is immediate if the value of this parameter increases.
OFCENG	CRS_SUBRU_POOL3_ SIZE	Stores the information used when the system generates the following extension records: • D5 RAO • D6 Authorization and account code • DF05 carrier charge area information • DF06 charge rate information • DF09 SMDR Per Use Billing
	NUMCPWAKE	Specifies the maximum number of call process wakeups in the system. Default is 80. Activation is a cold restart.
	UNIQUE_BY_SITE_ NUMBERING	Required if the switching unit has one or more remote peripherals. Specifies whether line module numbering is unique to a site or to the whole switching unit. Default is N. Activation is by a reload.
OFCOPT	ANI_IN_SMDR	Specifies whether the SMDR record has values corresponding to the ANI information rather than the VFG ID shown in the ORIGTYPE and ORIGID fields. Default is N. Activation is immediate.
	SMDR_OFFICE	If SMDR software is in the load and this office parameter is set to Y, SMDR call records will be generated. Default is N. Activation is immediate.
	USINGSITE	Specifies is the site name for remote operations. Default is N. Activation is immediate.
OFCVAR	AMA_FAILURE_ ROUTE_POSITION	Provides AMA failure routing options. Default is AMAFAIL. Activation is immediate.
	DATA_CALL_SMDR	Specifies whether SMDR records data call and resource identification data in the data call identification field of SMDR call records. Default is N. Activation is immediate.

Table 3-3 Office parameters for SMDR datafill (Sheet 4 of 4)

Table name	Parameter name	Explanation and action
OVFCAR	FGD_ANI_SMDR_ REQD	Specifies whether an SMDR record should be generated for incoming FGD MDC trunk calls. This record has an origination type of code 7. The origination ID field contains the ANI of the call originator. This record is in addition to the SMDR record that is generated for the trunk group. Default is N. Activation is immediate.
	SMDR_LOG_REPORT	Specifies whether SMDR billing information is printed in the AMAB150 log report as well as recorded on tape. Default is 0. (Zero means no log reports are generated.) Range is from 0 to 30 000. Activation is immediate.

Activating SMDR at the switch

This section details the steps necessary for activating SMDR at the switch. It also details the steps to activate some of the numerous features that generate certain types of SMDR call information.

The following table lists the general steps necessary to set up the recording facilities for SMDR and the basic datafill necessary to activate SMDR recording for the switch.

Note: The table datafill order to activate SMDR recording for the switch is CRSFMT, DISPOOL, DIRPSSYS, CRSMAP, and CUSTSMDR.

Table 3-4 Setting up the basic SMDR and SMDR recording facilities (Sheet 1 of 6)

Table	Field or subfield name	Required value
N/A	N/A	When datafilling the DIRP facilities, ensure that a copy of the Device Independent Recording Package (DIRP) Translations Guide, 297-1001-356, is available for clarifying the datafill required for tables DIRPPOOL, DIRPSSYS, and DIRPHOLD.
N/A	N/A	If the Recording Data Timer Dump feature in the TIMERDMP field of table CRSFMT is to be used, ensure that feature package NTXA89AA is loaded in the switch.
OFCOPT	PARMNAME	Position on the parameter, SMDR_OFFICE.
	PARM_VAL	Enter Y. Specifies that SMDR call records can be generated.
OFCSTD	PARMNAME	Position on DIRPKILL_IN_EFFECT.
	PARM_VAL	Enter N.

Table 3-4 Setting up the basic SMDR and SMDR recording facilities (Sheet 2 of 6)

Table	Field or subfield name	Required value
OFCENG	PARMNAME	Position on the parameter NO_OF_FTR_CONTROL_BLKS.
	PARM_VAL	If necessary, enter the new value.
	PARMNAME	Position on NO_OF_FTR_DATA_BLKS.
	PARM_VAL	If necessary, enter the new value.
	PARMNAME	Position on parameter, NUMCPWAKE.
	PARM_VAL	If necessary, enter the new value. ***Note:*** These values are based on the recalculation of the office parameter formulas detailed in *Office Parameters Reference Manual*.
	PARMNAME	Position on CRS_PRU_POOL3_SIZE.
	PARM_VAL	Valid entries are from 0 to 4294 967 295. Determines the number of SMDR recording units available.
	PARMNAME	Position on NUM_CALLREC_STREAMS.
	PARM_VAL	Valid entries are from 1 to 15. Specifies the number of streams that can be datafilled into table CRSFMT.
	PARMNAME	Position on AMA_EBCDIC_CONVERT.
	PARM_VAL	Enter N. ***Note:*** If this parameter is set to Y, the C1C1 block header record is sent in extended binary code decimal interchange code (EBCDIC) format.
CRSFMT	KEY	Enter SMDR.
	FORMAT	Enter SMDRFMT. NTFMT is the default value. The format must be SMDRFMT to ensure that different call data types will not be merged into the same stream because doing so can cause severe problems with the downstream processor.
	DATADUMP	Enter Y or N. N is the default value. If a data dump of C2C2 records are required during a rotation, enter Y. "C2C2 header record" describes C2C2 records.

Table 3-4 Setting up the basic SMDR and SMDR recording facilities (Sheet 3 of 6)

Table	Field or subfield name	Required value
	CDRSRCH	Enter NIL_FM. It is the only possible value.
	ALARMS	Enter Y or N. N is the default value. If the SMDR stream requires audible alarms in the case of billing failures, enter Y.
	TIMERDMP	Enter Y or N. N is the default value. To activate the timer dump mechanism, enter Y.
DIRPPOOL	POOLNO	Enter the index number for the recording pool. Valid entries are from 0 to 63. ***Note:*** The default datafill for table DIRPPOOL creates three separate pools of recording devices: 0 for AMA, 1 for operational measurements (OM), and 2 for journal files. If international centralized automatic message accounting (CAMA) billing is available, pool 7 is also created by default.
	POOLNAME	Enter the one- to eight-alphanumeric character name for the SMDR pool. An example might be SMDRPOOL.
	DEVTYPE	Enter the device type for the pool. Valid entries are TAPE, TAPEX, and DISK.
	VOLUME0	Enter the one- to eight-alphanumeric character name or a dollar sign ($) for this volume in the pool. ***Note 1:*** This field is repeated for the 24 possible volumes in a pool. For example, VOLUME1, VOLUME2, VOLUME3 ***Note 2:*** The recommended method of datafilling this field is to enter dollar signs for the volume names, then modify the volume names at the DIRP MAP (maintenance and administration position) level.
DIRPSSYS	SSYSNAME	Enter the one- to four-alphanumeric name for the DIRP subsystem. For example, SMDR.
	READRITE	Enter Y. N is the default value.
	NUMFILES	Enter the number of subsystem files that are to open at any given time. Valid entries are from 1 to 4.

Table 3-4 Setting up the basic SMDR and SMDR recording facilities (Sheet 4 of 6)

Table	Field or subfield name	Required value
	MINFILES	Enter the minimum number of subsystem files that open at one time. Valid entries are from 0 to 3. This field must be at least one less than the NUMFILES field.
	POOLNAME	Enter the name of the SMDR pool from the POOLNAME field in table DIRPPOOL.
	FILENAME	Enter either a 1- to 17-alphanumeric file name or $. If $ is entered, the system supplies the name for the file. ***Note:*** If recording on a disk, enter $ because DIRP overwrites any entry made in this field.
	ALARM0	Enter CR. This value specifies the alarm for when no open files are available.
	ALARM1	Enter CR, MJ, MN, or NA. This value specifies the alarm for when only one open file is available.
	ALARM2	Enter CR, MJ, MN, or NA. This value specifies the alarm for when two open files are available.
	ALARM3	Enter CR, MJ, MN, or NA. This value specifies the alarm for when three open files are available.
	RETPD	Set the retention period for files. Valid entries are from 0 to 32767 days.
	CRETPD	Set the retention period for copied-to files. Valid entries are from 0 to 32767 days.
	PARLPOOL	Enter the 1- to 8-alphanumeric name for the parallel volume.
	PARCONC	Enter Y or N.
	MANDPALM	Enter CR, MJ, MN, or NA.
	FILEDATE	Enter the manner in which the system can change the date on the file.

Table 3-4 Setting up the basic SMDR and SMDR recording facilities (Sheet 5 of 6)

Table	Field or subfield name	Required value
	SHEDDAYS	Enter whether the files should be rotated for each day of the week. The following is an example schedule: • Days of the week: MTWTFSS • Entry for each day: YNYNYNN
	SHEDBASE	Enter the hour in which the first rotation of a file should occur. Valid entries are from 0 to 23.
	SHEDINCR	Enter the increment in which rotations occur.
	ROTACLOS	Enter the method by which a file is automatically closed following the completion of a scheduled or manual rotation. The recommended entry is BOTH.
	AUTOFXER	Valid entries are NONE, NOKEEP, PARTIAL, and FULL.
CRSMAP	KEY	Enter SMDR.
	STREAM	Enter SMDR. ***Note:*** Sending SMDR data to an Bellcore AMA stream can cause problems copying DIRP, loss of SMDR data, and loss of AMA data.
	TIMERVAL	Enter to time in even seconds between timer dumps. Valid entries are from 0 to 32 767. The default value is 0.
CUST SMDR	PERUSE	N/A ***Note:*** PERUSE option is used to enable or disable the DF09 extension record.
	LOGS	N/A ***Note:*** LOGS subfield controls simultaneous logs generation when a DF09 extention record is generated.
DIRPHOLD	HOLDNO	Enter the index value for the file. Valid entries are from 0 to 99.
	SSYSNAME	Enter the one- to four-alphanumeric character name for the DIRP subsystem. For example, SMDR.

Table 3-4 Setting up the basic SMDR and SMDR recording facilities (Sheet 6 of 6)

Table	Field or subfield name	Required value
	FILENAME	Enter the 1- to 17-alphanumeric character name that identifies the name of the file to be transmitted manually.
	VOLSER	Enter the one- to eight-alphanumeric character name that identifies the volume.
	COUNT	Enter the number of logical records contained on the file.
OFCVAR	PARMNAME	Position on SMDR_LOG_REPORT. Specifies whether SMDR billing information is to be printed as well as recorded.
	CHOICE	Valid entries are ALL, ANS_ONLY, and NONE. Specifies that log reports are generated for all calls, only those calls answered, or that no log reports are generated, respectively.
	MAX_DUR	Valid entries are from 0 to 30 000. The default value is 0.
N/A	N/A	If the value of any of the following office parameters have been decreased, perform a cold restart. • NO_OF_FTR_CONTROL_BLKS • NO_OF_FTR_DATA_BLKS • CRS_PRU_POOL3_SIZE • NUMCPWAKE ***Note:*** If the value of any of the above parameters has been increased, no restart is needed.
N/A	N/A	Evaluate the following office parameters to determine if they will impact SMDR recording. • AMA_FAILURE_FREE_CALL in table OFCENG • UNIQUE_BY_SITE_NUMBERING in table OFCENG • USINGSITE in table OFCOPT • AMA_FAILURE_ROUTE_POSITION in table OFCVAR

Activating SMDR for MDC station lines

The following table lists the steps necessary to activate SMDR recording for MDC station lines. See "SMDR datafill summary sheets" for the record codes and fields available when SMDR is activated for MDC lines.

SMDR is a valid option for lines when using the Service Order System (SERVORD).

Table 3-5 Activating SMDR for MDC station lines

Table	Field or subfield name	Required value
N/A	N/A	Ensure that SMDR recording devices and basic SMDR switch requirements have been completed.
IBNLINES	LEN	Position on the desired LEN.
	FORMAT	Enter STN.
	LCC	Enter IBN.
	OPTLIST	Enter SMDR.

Activating SMDR for MDC MADN lines

The following table lists the steps necessary to activate SMDR recording for MADN to MDC lines. See "SMDR datafill summary sheets" for the record codes and fields available when SMDR is activated for MDC lines with the MDN option.

SMDR is a valid option for lines when using SERVORD.

Table 3-6 Activating SMDR for MDC to MDC lines

Table	Field	Required value
N/A	N/A	Ensure that SMDR recording devices and basic SMDR switch requirements have been completed.
IBNLINES	LEN	Position on the desired LEN.
	FORMAT	Enter MDN.
	LCC	Enter IBN.
	OPTLIST	Enter SMDR.

Activating SMDR for MBS DNs

The following table lists the steps necessary to activate SMDR recording for DNs on an MBS. See "SMDR datafill summary sheets" for the record codes and fields available when SMDR is activated for MBSs with the DN option.

SMDR is a valid option for lines when using SERVORD.

Table 3-7 Activating SMDR for MBS DNs

Table	Field	Required value
N/A	N/A	Ensure that SMDR recording devices and basic SMDR switch requirements have been completed.
KSETLINES	LEN	Position on the desired LEN.
	FORMAT	Enter DN.
	OPTLIST	Enter SMDR.

Activating SMDR for MBS MADNs

The following table lists the steps necessary to activate SMDR recording for MADNs on an MBS. See "SMDR datafill summary sheets" for the record codes and fields available when SMDR is activated for MBSs with the MDN option.

SMDR is a valid option for lines when using service orders (SERVORD).

Table 3-8 Activating SMDR for MADNs on an MBS

Table	Field	Required value
N/A	N/A	Ensure that SMDR recording devices and basic SMDR switch requirements have been completed.
KSETLINES	LEN	Position on the desired LEN.
	FORMAT	Enter MDN.
	OPTLIST	Enter SMDR.

Activating SMDR for GIC on an MBS

The following table lists the steps necessary to activate SMDR recording for group intercom (GIC) groups on an MBS. See "SMDR datafill summary sheets" for the record codes and fields available when SMDR is activated for business sets with the GIC option.

SMDR is a valid option for lines when using SERVORD.

Table 3-9 Activating SMDR for GIC business sets

Table	Field or subfield name	Required value
N/A	N/A	Ensure that SMDR recording devices and basic SMDR switch requirements have been completed.
KSETLINES	LEN	Position on the desired LEN.
	FORMAT	Enter GIC.
	OPTLIST	Enter Y.

Activating SMDR for DOD networks

The following table lists the steps necessary to activate SMDR recording for a DOD network. See "SMDR datafill summary sheets" for the record codes and fields available when SMDR is activated for a DOD network.

This task cannot be done using SERVORD.

Table 3-10 Activating SMDR for DOD networks (Sheet 1 of 2)

Table	Field or subfield name	Required value
N/A	N/A	Ensure that SMDR recording devices and basic SMDR switch requirements have been completed.
IBNXLA	KEY	Position on the KEY.
	TRSEL	Enter NET.
	SMDR	Enter Y.
Note: SMDR recording is on a leg basis for each call. If using VFG for routing, refer to Activating SMDR for virtual facility groups.		

Table 3-10 Activating SMDR for DOD networks (Sheet 2 of 2)

Table	Field or subfield name	Required value
	NET_TYPE	Enter DOD.
	SMDRB	Enter Y or N. Y is the default value. To only generate SMDR call records for chargeable calls, enter Y. To generate SMDR call records for all calls, ensure that the SMDR field is set to Y and that the SMDRB fields are set to N. ***Note:*** To ensure that no SMDR call records are generated, set both the SMDR and SMDRB fields to N.
Note: SMDR recording is on a leg basis for each call. If using VFG for routing, refer to Activating SMDR for virtual facility groups.		

Activating SMDR for ESN (MSN) networks

The following table lists the steps necessary to activate SMDR recording for an MSN network. See "SMDR datafill summary sheets" for the record codes and fields available when SMDR is activated for an MSN network.

This task cannot be done using SERVORD.

Table 3-11 Activating SMDR for MSN networks (Sheet 1 of 2)

Table	Field or subfield name	Required value
N/A	N/A	Ensure that SMDR recording devices and basic SMDR switch requirements have been completed.
IBNXLA	KEY	Position on the KEY. The key field is the one- to eight-character translator name and 1- to 18-digit access code.
	TRSEL	Enter NET.
	SMDR	Enter Y.
Note: SMDR recording is on a leg basis for each call. If using VFG for routing, refer to Activating SMDR for virtual facility groups		

Table 3-11 Activating SMDR for MSN networks (Sheet 2 of 2)

Table	Field or subfield name	Required value
	NET_TYPE	Enter ESN.
	SMDRB	Valid entries are Y and N. Y is the default value. To only generate SMDR call records for chargeable calls, enter Y. To generate SMDR call records for all calls, ensure that the SMDR field is set to Y and that the SMDRB fields is set to N. **Note:** To ensure that no SMDR call records are generated, set both the SMDR and SMDRB fields to N.
Note: SMDR recording is on a leg basis for each call. If using VFG for routing, refer to Activating SMDR for virtual facility groups		

Activating SMDR for calls routed to table CLLI

The following table lists the steps necessary to activate SMDR recording for calls routed to table CLLI. See "SMDR datafill summary sheets" for the record codes and fields available when SMDR is activated for calls routed to table CLLI.

This task cannot be done using SERVORD.

Table 3-12 Activating SMDR for calls routed to table CLLI

Table	Field or subfield name	Required value
N/A	N/A	Ensure that SMDR recording devices and basic SMDR switch requirements have been completed.
IBNXLA	KEY	Position on the KEY. The key field is the one- to eight-character translator name and 1- to 18-digit access code.
	TRSEL	Enter ROUTE.
	SMDR	Enter Y.
	ROUTE_SUBSEL	Enter S.

Activating SMDR for calls routed to table IBNRTE

The following table lists the steps necessary to activate SMDR recording for calls routed to table IBNRTE. See "SMDR datafill summary sheets" for the record codes and fields available when SMDR is activated for calls routed to table IBNRTE.

This task cannot be done using SERVORD.

Table 3-13 Activating SMDR for calls routed to table IBNRTE

Table	Field or subfield name	Required value
N/A	N/A	Ensure that SMDR recording devices and basic SMDR switch requirements have been completed.
IBNXLA	KEY	Position on the KEY. The key field is the one- to eight-character translator name and 1- to 18-digit access code.
	TRSEL	Enter ROUTE.
	SMDR	Enter Y.
	ROUTE_SUBSEL	Enter T.

Activating SMDR for calls routed over a TTTR

The following table lists the steps necessary to activate SMDR recording for calls routed over a TTTR. See "SMDR datafill summary sheets" for the record codes and fields available when SMDR is activated for calls routed over a TTTR.

This task cannot be done using SERVORD.

Table 3-14 Activating SMDR for calls routed over a TTTR

Table	Field or subfield name	Required value
N/A	N/A	Ensure that SMDR recording devices and basic SMDR switch requirements have been completed.
IBNXLA	KEY	Position on the KEY. The key field is the one- to eight-character translator name and 1- to 18-digit access code.
	TRSEL	Enter TTTR.
	SMDR	Enter Y.

Activating SMDR for calls routed using AMBI

The following table lists the steps necessary to activate SMDR recording for calls routed using AMBI. See "SMDR datafill summary sheets" for the record codes and fields available when SMDR is activated for calls routed using AMBI.

This task cannot be done using SERVORD.

Table 3-15

Table	Field or subfield name	Required value
N/A	N/A	Ensure that SMDR recording devices and basic SMDR switch requirements have been completed.
IBNXLA	KEY	Position on the KEY. The key field is the one- to eight-character translator name and 1- to 18-digit access code.
	TRSEL	Enter AMBI.
	SMDR	Enter Y.

Activating SMDR for calls which use EXTN selectors

The following table lists the steps necessary to activate SMDR recording for calls which use EXTN selectors. See "SMDR datafill summary sheets" for the

record codes and fields available when SMDR is activated for calls which use EXTN.

This task cannot be done using SERVORD.

Table 3-16 Activating SMDR for calls which use EXTN

Table	Field or subfield name	Required value
N/A	N/A	Ensure that SMDR recording devices and basic SMDR switch requirements have been completed.
IBNXLA	KEY	Position on the KEY. The key field is the one- to eight-character translator name and 1- to 18-digit access code.
	TRSEL	Enter EXTN.
	SMDR	Enter Y.

Activating SMDR for calls which use CUTTD

The following table lists the steps necessary to activate SMDR recording for calls which use the CUTTD selector. See "SMDR datafill summary sheets" for the record codes and fields available when SMDR is activated for calls which use CUTTD.

This task cannot be done using SERVORD.

Table 3-17 Activating SMDR for calls which use CUTTD

Table	Field or subfield name	Required value
N/A	N/A	Ensure that SMDR recording devices and basic SMDR switch requirements have been completed.
IBNXLA	KEY	Position on the KEY. The key field is the one- to eight-character translator name and 1- to 18-digit access code.
	TRSEL	Enter CUTTD.
	SMDR	Enter Y.

Activating SMDR for toll GEN calls

The following table lists the steps necessary to activate SMDR recording for calls which use the general network (GEN) selector. See "SMDR datafill summary sheets" for the record codes and fields available when SMDR is activated for calls using GEN.

This task cannot be done using SERVORD.

Table 3-18 Activating SMDR for toll GEN calls

Table	Field or subfield name	Required value
N/A	N/A	Ensure that SMDR recording devices and basic SMDR switch requirements have been completed.
IBNXLA	KEY	Position on the KEY. The key field is the one- to eight-character translator name and 1- to 18-digit access code.
	TRSEL	Enter NET.
	SMDR	Enter Y.
	NET_TYPE	Enter GEN.
	OPTION	Enter TOLL.
	SMDRB	Valid entries are Y and N. Y is the default value. To generate SMDR call records for chargeable calls only, ensure that the SMDR field is set to N and the SMDRB field is set to Y. To generate SMDR call records for all calls, ensure that the SMDR field is set to Y and that the SMDRB field is set to N. ***Note:*** To ensure that no SMDR call records are generated, set both the SMDR and SMDRB fields to N.
Note: SMDR recording is on a leg basis for each call. If using VFG for routing, refer to Activating SMDR for virtual facility groups		

Activating SMDR for non-toll GEN calls

The following table lists the steps necessary to activate SMDR recording for calls which use GEN selectors which are non-toll. See "SMDR datafill summary sheets" for the record codes and fields available when SMDR is activated for non-toll calls using GEN selector.

This task cannot be done using SERVORD.

Table 3-19 Activating SMDR for non-toll GEN calls

Table	Field or subfield name	Required value
N/A	N/A	Ensure that SMDR recording devices and basic SMDR switch requirements have been completed.
IBNXLA	KEY	Position on the KEY. The key field is the one- to eight-character translator name and 1- to 18-digit access code.
	TRSEL	Enter NET.
	SMDR	Enter Y.
	NET_TYPE	Enter GEN.
	OPTION	Enter one of the following: • EA • ESN • LATTR • LOGNET • OW • PVN • RTE • SPF

Activating SMDR for group intercom on MDC lines

The following table lists the steps necessary to activate SMDR recording for group intercom calls over MDC lines. See "SMDR datafill summary sheets" for the record codes and fields available when SMDR is activated for group intercom calls over MDC lines.

SMDR is a valid option for lines when using SERVORD.

Table 3-20 Activating SMDR for group intercom on MDC lines

Table	Field or subfield name	Required value
N/A	N/A	Ensure that SMDR recording devices and basic SMDR switch requirements have been completed.
IBNFEAT	LEN	Position on the desired LEN.
		The key field is the one- to eight-character translator name and 1- to 18-digit access code.
	DF	Enter GIC.
	FEATURE	Enter GIC.
	ICMGRP	Enter the intercom group name.
	MEMBER_NO	Enter the member number. Valid entries are from 0 to 9999.
	SMDR	Enter Y.

Activating SMDR for group intercom on an MBS

The following table lists the steps necessary to activate SMDR recording for group intercom calls over an MBS. See "SMDR datafill summary sheets" for the record codes and fields available when SMDR is activated for group intercom calls over an MBS.

SMDR is a valid option for lines when using SERVORD.

Table 3-21 Activating SMDR for group intercom on an MBS (Sheet 1 of 2)

Table	Field or subfield name	Required value
N/A	N/A	Ensure that SMDR recording devices and basic SMDR switch requirements have been completed.
KSETFEAT	LEN	Position on the desired LEN.
	KEY	Enter the key for this feature.
	FEAT	Enter ICM.
	FEATURE	Enter ICM.

Table 3-21 Activating SMDR for group intercom on an MBS (Sheet 2 of 2)

Table	Field or subfield name	Required value
	LINKLEN	Enter the LEN.
	KEY	Enter the key.
	DOR	Enter N. SMDR is incompatible with the Denied Origination (DOR) feature.
	SMDR	Enter Y.

Activating the PIN and TCN extension call record

The following table lists the steps necessary to activate the PIN and TCN extension call record. This task activates the DC extension call record.

This task cannot be done using SERVORD.

Table 3-22 Activating the PIN and TCN extension call record

Table	Field or subfield name	Required value
N/A	N/A	Ensure that SMDR recording devices and basic SMDR switch requirements have been completed.
N/A	N/A	Ensure that NTXE75AA is loaded in the switch.
CUSTSMDR	CUSTNAME	Position on the 1- to 16-character customer group name.
	OPTIONS	Enter PIN digits. The DC extension call record will record the use of a PIN.
	OPTIONS	Enter TCN digits. The DC extension call record will record the use of a TCN.

Activating SMDR for attendant consoles

The following table lists the steps necessary to activate SMDR recording for calls originating from attendant consoles. See "SMDR datafill summary

sheets" for the record codes and fields available when SMDR is activated for calls originating from attendant consoles.

This task cannot be done using SERVORD.

Table 3-23 Activating SMDR for attendant consoles

Table	Field or subfield name	Required value
N/A	N/A	Ensure that SMDR recording devices and basic SMDR switch requirements have been done.
N/A	N/A	Ensure that an attendant console has been properly set up.
ATTCONS	CONSOLE	Position on the CLLI assigned to the console.
	CDR	Enter Y.

Activating SMDR for trunk calls

The following table lists the steps necessary to activate SMDR recording for calls originating from a trunk. See "SMDR datafill summary sheets" for the record codes and fields available when SMDR is activated for calls originating from a trunk.

This task cannot be done using SERVORD.

Table 3-24 Activating SMDR for trunk calls (Sheet 1 of 2)

Table	Field or subfield name	Required value
N/A	N/A	Ensure that SMDR recording devices and basic SMDR switch requirements have been done.
N/A	N/A	Ensure that the trunk has been properly set up.
TRKGRP	CLLI	Position on the CLLI of an IBNTI or IBNT2 trunk.
Note: Calls must be routed through MDC translations for SMDR to be generated by turning on SMDR in trunk group data.		

Table 3-24 Activating SMDR for trunk calls (Sheet 2 of 2)

Table	Field or subfield name	Required value
	CDR	Valid entries are Y and N. Enter value as follows: • If all incoming calls are to generate SMDR records, set this field to Y. • If only calls datafilled in table IBNXLA generate SMDR call records, set this field to N.
	SMDR	Valid entries are Y and N. Enter value as follows: • If the CDR field is set to Y, set this field to N. All incoming calls will generate SMDR call records regardless of the SMDR datafill in table IBNXLA and regardless of the datafill for each customer group as long as MDC translations are used. • If the CDR field is set to N, set this field to Y. Only calls datafilled in table IBNXLA with the SMDR field set to Y will generate SMDR call records.
Note: Calls must be routed through MDC translations for SMDR to be generated by turning on SMDR in trunk group data.		

Activating SMDR for DISA DN calls

The following table lists the steps necessary to activate SMDR recording for calls originating from DISA DN calls. See "SMDR datafill summary sheets" for the record codes and fields available when SMDR is activated for calls originating from a DISA DN.

This task cannot be done using SERVORD.

Table 3-25 Activating SMDR for DISA calls

Table	Field or subfield name	Required value
N/A	N/A	Ensure that SMDR recording devices and basic SMDR switch requirements have been done.
DNROUTE	AREACODE	Enter the DN's serving numbering plan area (SNPA) code.
	OFCCODE	Enter the DN's NNX code.
	STNCODE	Enter the DN's DEFG digits.
	DN_SEL	Enter FEAT.
	FEATURE	Enter DISA.
	SMDRTO	Enter Y or N.
	SMDRFROM	Enter Y or N.

"DISA" describes how DISA DN information for a call is entered into an SMDR call record and how to control SMDR for calls going to and from a DISA DN.

Activating SMDR for virtual facility groups

The following table lists the steps necessary to activate SMDR recording for calls originating from VFGs. See "SMDR datafill summary sheets" for the record codes and fields available when SMDR is activated for calls originating from a VFG.

This task cannot be done using SERVORD.

Table 3-26 Activating SMDR for VFG calls (Sheet 1 of 2)

Table	Field or subfield name	Required value
N/A	N/A	Ensure that SMDR recording devices and basic SMDR switch requirements have been completed.
N/A	N/A	Ensure that the VFG has been properly set up.
VIRTGRPS	KEY	Position on the VFG.

Table 3-26 Activating SMDR for VFG calls (Sheet 2 of 2)

Table	Field or subfield name	Required value
	VFGTYPE	Enter SIZE.
	SIZE	Valid entries are from 0 to 2048. Enter the number of simultaneous accesses allowed for this VFG.
	INCTYPE	Enter IBN.
	SMDR	Valid entries are Y and N. Enter a value as follows: • If the CDR field is set to Y, set this field to N. All incoming calls will generate SMDR call records regardless of the SMDR datafill in table IBNXLA and regardless of the datafill for each customer group. • If the CDR field is set to N, set this field to Y. Only calls datafilled in table IBNXLA with the SMDR field set to Y will generate SMDR call records.
	CDR	Valid entries are, Y and N. Enter value as follows: If all incoming calls are to generate SMDR records, set this field to Y. If only the type of calls datafilled in table IBNXLA generate SMDR call records, set this field to N.

SMDR and SMDRB are call billing formats for each leg and must be turned on for each leg of the call requiring billing. If a call routes to an MDC VFG, the operating company has the option to turn on the SMDR and SMDRB for both legs of the call that use MDC translations. However, if an MDC call is routed to a POTS VFG and out, only the first leg of the call can generate an SMDR record when SMDR or SMDRB are on.

The following table shows generation of SMDRB for given call scenarios routing through VFG.

Table 3-27 SMDR calls routed over a VFG

First leg of the call					Second leg of the call			
Call origin	**SMDRB**	**Call type**	**VFG type**	**SMDR record**	**VFG origin**	**Call type**	**SMDRB**	**SMDR record**
IBN	Y	billable	IBN	Y	IBN	billable	Y	Y
IBN	Y	billable	IBN	Y	IBN	nonbillable	Y	N
IBN	Y	nonbillable	IBN	N	IBN	billable	Y	Y
IBN	Y	nonbillable	IBN	N	IBN	nonbillable	Y	N
IBN	Y	billable	POTS	Y	POTS	billable	N/A	N
IBN	Y	billable	POTS	Y	POTS	nonbillable	N/A	N
IBN	Y	nonbillable	POTS	N	POTS	billable	N/A	N
IBN	Y	nonbillable	POTS	N	POTS	nonbillable	N/A	N

Activating SMDR for the NERVE utility

The following table lists the steps necessary to activate SMDR recording for all calls on tie trunk and foreign exchange (FX) lines that are going to be analyzed by the NERVE utility. This task activates the D2 and D4 call records. See "SMDR datafill summary sheets" for the record codes and fields available when SMDR is activated for NERVE calls.

This task cannot be done using SERVORD.

Table 3-28 Activating SMDR for NERVE calls (Sheet 1 of 2)

Table	Field or subfield name	Required value
N/A	N/A	Ensure that SMDR recording devices and basic SMDR switch requirements have been completed.
CUSTSMDR	CUSTNAME	Position on the 1- to 16-character customer group name.
	OPTIONS	Enter NERVE.
TRKGRP	CLLI	Position on the CLLI of an IBNTO OR IBNT2 trunk.

Table 3-28 Activating SMDR for NERVE calls (Sheet 2 of 2)

Table	Field or subfield name	Required value
	CDR	Enter N.
	SMDR	Enter Y.
	OPTION	Enter SPCLBLG.
		Choose one or both the following trunk types to be analyzed by the NERVE utility.
	TDMTT	Enter TDMTT.
	FX	Enter FX.

Activating SMDR for recording outpulsed digits

The following table lists the steps necessary to activate SMDR for recording the digits that are outpulsed over a trunk. This task activates the D5 extension record. See "SMDR datafill summary sheets" for the record codes and fields available when SMDR for recording outpulsed digits.

This task cannot be done using SERVORD.

Table 3-29 Activating SMDR for recording outpulsed digits

Table	Field or subfield name	Required value
N/A	N/A	Ensure that SMDR recording devices and basic SMDR switch requirements have been completed.
N/A	N/A	Ensure that the trunk to be used has SMDR turned on.
		See task 23.
CUSTSMDR	CUSTNAME	Position on the 1-to 16-character customer group name.
	OPTIONS	Enter RAO.

Activating SMDR for account and authorization codes

The following table lists the steps necessary to activate SMDR for recording the account and authorization codes used for a call. This task activates the D6 extension record. See "SMDR datafill summary sheets" for the record codes

and fields available when SMDR is recording the account and authorization codes.

Note: The account codes feature forces an SMDR record to be produced whenever an account code is entered for a call.

This task cannot be done using SERVORD.

Note: "Separate SMDR Output Files by Customer Group" can cause problems when a customer without a defined stream generates SMDR. SMDR records can also be dumped into another customer group's stream.

Table 3-30 Activating SMDR for account and authorization codes

Table	Field or subfield name	Required value
N/A	N/A	Ensure that SMDR recording devices and basic SMDR switch requirements have been completed.
AUTHPART	FORMAT	Enter IBN.
AUTHCDE	FORMAT	Enter IBN.
CUSTHEAD	CUSTNAME	Position on the 1- to 16-character customer group name
	OPTION	Enter ACR.
	AUAC	Enter AUTH. If only account codes are desired, enter ACCT.
IBNXLA	KEY	Position on the KEY.
	TRSEL	Enter FEAT.
	FEATURE	Enter AUTH.
	SMDR	Enter Y.

Activating SMDR for ISUP trunks

The following table lists the steps necessary to activate SMDR for calls over incoming ISUP trunks. This task activates the DA extension record. See “SMDR datafill summary sheets” for the record codes and fields available when SMDR for calls over incoming ISUP trunks.

Feature package NTXA79AA introduced this feature. This feature package provides MDC trunk group types IBNTI and IBNT2 with the capability to use ISUP trunk signaling. Information about the calls using ISUP trunk signaling is contained in the DA extension call record. “DA networked extension record” describes the DA extension call record.

This task cannot be done using SERVORD.

Table 3-31 Activating SMDR for ISUP

Table	Field or subfield name	Required value
N/A	N/A	Ensure that SMDR recording devices and basic SMDR switch requirements have been completed.
N/A	N/A	Ensure that NTXA79AA is loaded in the switch.
N/A	N/A	Ensure that the ISUP trunks have been set up.
CUSTSMDR	CUSTNAME	Position on the 1- to 16-character customer group name.
	OPTIONS	Enter NETWORK.

Activating SMDR for Meridian SuperNode calls

The following table lists the steps necessary to activate SMDR for Meridian SuperNode calls over incoming FGB or FGD PTS MDC trunks. This task activates the DB extension record. See “SMDR datafill summary sheets” for the record codes and fields available when SMDR is activated for Meridian SuperNode calls.

Feature package NTXE75AA introduced this feature which allows various Meridian SuperNode information to be recorded in the SMDR DB extension call record. “DB Meridian SuperNode extension record” describes the DB extension call record.

This task cannot be done using SERVORD.

Table 3-32 Activating SMDR for Meridian SuperNode calls

Table	Field or subfield name	Required value
N/A	N/A	Ensure that SMDR recording devices and basic SMDR switch requirements have been completed.
N/A	N/A	Ensure that NTXE75AA is loaded in the switch.
N/A	N/A	Ensure that the incoming FGB or FGD PTS MDC trunks have been set up.
CUSTSMDR	CUSTNAME	Position on the 1- to 16-character customer group name.
	OPTIONS	Enter MSN.

Activating SMDR for unanswered calls

The following table lists the steps necessary to activate SMDR for recording unanswered calls. See “SMDR datafill summary sheets” for the record codes and fields available when SMDR is activated for recording unanswered calls.

This task cannot be done using SERVORD.

Table 3-33 Activating SMDR for unanswered calls

Table	Field or subfield name	Required value
N/A	N/A	Ensure that SMDR recording devices and basic SMDR switch requirements have been completed.
N/A	N/A	Ensure that SMDR is activated for the type of call origination for which the recording of unanswered calls is desired.
CUSTSMDR	CUSTNAME	Position on the 1- to 16-character customer group name.
	OPTIONS	Enter RNA.

Creating a special billing DN for SMDR records

The following table lists the steps necessary to create a special billing DN (SPB) for SMDR records. See “SMDR datafill summary sheets” for the record codes and fields available when SMDR is activated and is recording the special billing DN.

SPB is a valid option for lines when using SERVORD.

Table 3-34 Creating special billing DN for SMDR records

Table	Field or subfield name	Required value
N/A	N/A	Ensure that SMDR recording devices and basic SMDR switch requirements have been completed.
N/A	N/A	Ensure that SMDR is activated for the type of call origination for which the recording of unanswered calls is desired.
IBNFEAT	LEN	Position on the LEN desired.
	DF	Enter SPB.
	FEATURE	Enter SPB.
	DN	Enter the DN that will be billed for the call.

Activate the MDC lines Six-Way Conference feature

The following table lists the steps necessary to activate the Six-Way Conference feature for MDC lines. See “SMDR datafill summary sheets” for the record codes and fields available when the Six-Way Conference feature is activated for MDC lines.

CNF is a valid option for lines when using SERVORD.

Table 3-35 Activating the Six-Way Conference feature for MDC lines

Table	Field or subfield name	Required value
N/A	N/A	Ensure that SMDR recording devices and basic SMDR switch requirements have been completed.
N/A	N/A	Ensure that SMDR is activated for the type of call origination for which this feature is desired.
IBNFEAT	LEN	Position on the LEN desired.
	DF	Enter CNF.
	FEATURE	Enter CNF.

Activate the Executive Conference feature

The following table lists the steps necessary to activate the Executive Conference feature. See "SMDR datafill summary sheets" for the record codes and fields available when the Executive Conference feature is activated.

This task cannot be done using SERVORD.

Table 3-36 Activating the Executive Conference feature (Sheet 1 of 2)

Table	Field or subfield name	Required value
N/A	N/A	Ensure that SMDR recording devices and basic SMDR switch requirements have been completed.
N/A	N/A	Ensure that SMDR is activated for the type of call origination for which this feature is desired.
IBNXLA	KEY	Position on the desired KEY. The key field is the one- to eight-character translator name and 1- to 18-digit access code.
	TRSEL	Enter FEAT.
	SMDR	Enter Y.

Table 3-36 Activating the Executive Conference feature (Sheet 2 of 2)

Table	Field or subfield name	Required value
	FEATURE	Enter MMLK.
	FEATURE	Enter MMUL.
MMCONF	N/A	Datafill the entire table.

Activate automatic tone detection

The following table lists the steps necessary to activate automatic tone detection. See "SMDR datafill summary sheets" for the record codes and fields available when automatic tone detection is activated.

This task cannot be done using SERVORD.

Table 3-37 Activating automatic tone detection (Sheet 1 of 2)

Table	Field or subfield name	Required value
N/A	N/A	Ensure that an NT5X29 card has been equipped at the switch.
N/A	N/A	Ensure that SMDR recording devices and basic SMDR switch requirements have been completed.
N/A	N/A	Ensure that SMDR is activated for the type of call origination for which this feature is desired.
CLLI	CLLI	Enter RCVRATD. Defines the audio tone detector (ATD) CLLI.
DIGMAN	DMIKEY	Position on digit key 1 to 32 767.
	DMIDATA	Datafill the following DIGCOM subfields as needed. Enter ATD audio tone detection or Enter FLD fields

Table 3-37 Activating automatic tone detection (Sheet 2 of 2)

Table	Field or subfield name	Required value
	ATDTONE	If ATD is entered, datafill subfield ATDTONE with one of the following: • AR: detects ringing from far end. • DT: detects dial tone from intermediate links in a tandem tie trunk network. • GLARE: detects dial tone immediately after the trunk is seized.
	FLD	If FLD is entered, datafill the following subfields: • FIELD: • LCA: local calling area screening. • STS: serving translation system. • SMDR: Set SMDR to Y. • VCDR:
DIGMAN	DIGCOM	Enter ANS. For ATD used to answer on terminating trunks from the far end switching unit for answering supervision generation.
IBNATD	ATDKEY	Position on the desired ATD.
	----	Complete all fields

Suppressing data group record dumps

The following table lists the steps necessary to suppress the dumping of data group records after a file rotation.

This task cannot be done using SERVORD.

Table 3-38 Suppressing data group record dumps

Table	Field or subfield name	Required value
N/A	N/A	Ensure that SMDR recording devices and basic SMDR switch requirements have been completed.
N/A	N/A	Ensure that a STANDBY file is being rotated to be an ACTIVE file.
CRSFMT	KEY	Position on SMDR.
	FORMAT	Enter SMDRFMT.
	DATADUMP	Enter N.

Activating the data call identification feature

Feature package NTX250AA allows datapath and integrated services digital network (ISDN) call data to be inserted in the 12th digit position of the origination identification field of the SMDR call records. The following table lists the steps necessary to activate this feature at the switch.

This task cannot be done using SERVORD.

Table 3-39 Data call identification feature datafill

Table	Field or subfield name	Required value
N/A	N/A	Ensure that SMDR recording devices and basic SMDR switch requirements have been completed.
N/A	N/A	Ensure that NTX250AA is loaded in the switch.
N/A	N/A	Ensure that the datapath or datalan system is set up.
N/A	N/A	Ensure that SMDR is activated for the type of call origination for which the recording of the data call ID is desired.
OFCVAR	PARMNAME	Position on parameter DATA_CALL_SMDR.
	PARM_VAL	Enter Y.

Controlling data dumps

Feature G0120 provides a timing mechanism to control the interval between successive SMDR buffer dumps to DIRP. It does not affect the information stored in an SMDR call record. The following table lists the steps necessary to control the dumping of SMDR data.

This task cannot be done using SERVORD.

Table 3-40 Controlling data dumps

Table	Field or subfield name	Required value
N/A	N/A	Ensure that SMDR recording devices and basic SMDR switch requirements have been completed.
N/A	N/A	Ensure that NTX159AA is loaded in the switch.
CRSFMT	KEY	Position on the appropriate SMDR data stream.
	TIMERDMP	Enter Y. To disable the timer dump feature, enter N.
	TIMERVAL	Valid entries are from 0 to 32 767. The default value is 0.

Activating ANI information for SMDR call records

This feature allows for the replacement of the VFG identification in the SMDR call record with the actual calling station number provided by the AIOD function. The following table lists the fields necessary to activate this feature.

This task cannot be done using SERVORD.

Table 3-41 Activating ANI information for SMDR call record (Sheet 1 of 3)

Table	Field or subfield name	Required value
N/A	N/A	Ensure that SMDR recording devices and basic SMDR switch requirements have been completed.
N/A	N/A	Ensure that NTX174AA is loaded in the switch.

Table 3-41 Activating ANI information for SMDR call record (Sheet 2 of 3)

Table	Field or subfield name	Required value
OFCVAR	PARMNAME	Position on the parameter ANI_IN_SMDR.
	PARM_VAL	Enter Y.
TRKGRP	GRPKEY	Position on the desired IBNTI or IBNT2 trunk group.
	BILLDN	Enter a valid billing number.
	CDR	Valid entries are Y and N. The value entered depends on the SMDR call record desired. Refer to the Data tables for SMDR datafill table for more information about this field for trunk groups.
	SMDR	Enter Y.
	AIOD	Enter Y.
	N/A	Datafill other fields and subfields as desired.
VIRTGRPS	KEY	Position on the desired VFG.
	INCTYPE	Enter IBN. If IBN is entered, datafill the BILLNUM and CUSTNAME subfields.
	BILLNUM	Enter a valid billing number.
	CUSTNAME	Enter the 1- to 16-character customer group name.
	SUBGRP	Enter the subgroup number of the customer group. Valid entries are from 0 to 7.
	TRC	Enter the type of terminating restriction code. Valid entries are from 0 to 7.
	NCOS	Enter the network class of service. Valid entries are from 0 to 255.

Table 3-41 Activating ANI information for SMDR call record (Sheet 3 of 3)

Table	Field or subfield name	Required value
	SMDR	Enter Y.
	N/A	Datafill other fields and subfields as desired.

Activating ANI information from originating CAMA trunks

This feature allows ANI digits from an originating CAMA trunk call to be recorded in the ORIGID field of a SMDR billing record. The following table lists the fields and values necessary to activate this feature.

This task cannot be done using SERVORD.

Table 3-42 Activating ANI information from originating CAMA trunks (Sheet 1 of 2)

Table	Field or subfield name	Required value
N/A	N/A	Ensure that SMDR recording devices and basic SMDR switch requirements have been completed.
N/A	N/A	Ensure that NTX102AA is loaded in the switch.
OFCVAR	PARMNAME	Position on the parameter ANI_IN_SMDR.
	PARM_VAL	Enter Y.
VIRTGRPS	KEY	Position on the desired VFG.
	INCTYPE	Enter IBN. If IBN is entered, datafill the BILLNUM and CUSTNAME subfields.
	BILLNUM	Enter N.
	CUSTNAME	Enter the 1- to 16-character customer group name.
	SUBGRP	Enter the subgroup number of the customer group. Valid entries are from 0 to 7.

Table 3-42 Activating ANI information from originating CAMA trunks (Sheet 2 of 2)

Table	Field or subfield name	Required value
	TRC	Enter the type of terminating restriction code. Valid entries are from 0 to 7.
	NCOS	Enter the network class of service. Valid entries are from 0 to 255.
	SMDR	Enter Y.
	N/A	Datafill other fields or subfields as desired.

Suppressing ANI information for toll AMA records for CAMA trunk calls

Because CAMA trunks to MDC VFG call legs must be marked toll to receive ANI digits, a way to suppress the AMA records for the calls incoming on the CAMA trunks has been provided.

The following table lists the steps to suppress toll AMA records for calls from CAMA trunks.

Table 3-43 Suppressing ANI for toll AMA records for CAMA trunk calls (Sheet 1 of 2)

Table	Field or subfield name	Required value
N/A	N/A	Ensure that SMDR recording devices and basic SMDR switch requirements have been completed.
N/A	N/A	Ensure that NTX102AA is loaded in the switch.
OFCVAR	PARMNAME	Position on the parameter ANI_IN_SMDR.
	PARM_VAL	Enter Y.
TRKGRP	RECORDNP	Enter Y.
STDPRTCT. AMAPRT	CALLCODE	Enter none.

Table 3-43 Suppressing ANI for toll AMA records for CAMA trunk calls (Sheet 2 of 2)

Table	Field or subfield name	Required value
	OVRIDLT	Enter OVERTOLL.
	SFPRSNT	Enter N.

Activating station-specific authorization codes (BCS25 and up)

The following table lists the fields and values necessary to activate station-specific authorization codes which override NCOS restrictions placed on the station during a call. This task activates the D6 extension record. See "SMDR datafill summary sheets" for the record codes and fields available when activating station-specific authorization codes.

This task cannot be done using SERVORD.

Table 3-44 Activating station-specific authorization codes (BCS25 and up)

Table	Field or subfield name	Required value
N/A	N/A	Ensure that SMDR recording devices and basic SMDR switch requirements have been completed.
AUTHPART	FORMAT	Enter IBN.
AUTHCDE	FORMAT	Enter IBN.
CUSTHEAD	CUSTNAME	Position on the 1- to 16-character customer group name.
	OPTION	Enter ACR.
	AUAC	Enter AUTH.
IBNXLA	KEY	Position on the KEY.
	SMDR	Enter Y.
	FEATURE	Enter AUTH.
N/A	N/A	Datafill either table IBNFEAT or KSETFEAT as necessary with the station-specific authorization code (SSAC) feature.

Activating the Last Number Redial feature for MDC lines

The following table lists the fields and values necessary to activate the Last Number Redial (LNR) feature of a 2500 set line. See “SMDR datafill summary sheets” for the record codes and fields available when activating LNR.

This task cannot be done using only SERVORD.

Table 3-45 Activating the LNR feature for MDC lines

Table	Field or subfield name	Required value
N/A	N/A	Ensure that SMDR recording devices and basic SMDR switch requirements have been completed.
IBNXLA	KEY	Position on the KEY.
		The key field is the one- to eight-character translator name and one- to eight-digit access code.
	TRSEL	Enter FEAT.
	SMDR	Enter Y.
	FEATURE	Enter LNR.
IBNLINES	LEN	Position on the LEN.
	FORMAT	Enter STN.
	OPTLIST	Enter LNR.

Activating the Last Number Redial feature for business sets

The following table lists the fields and values necessary to activate the LNR feature on an MBS. See “SMDR datafill summary sheets” for the record codes and fields available when activating the Last Number Redial feature.

This task cannot be done using only SERVORD.

Table 3-46 Activating the LNR feature for business sets

Table	Field or subfield name	Required value
N/A	N/A	Ensure that SMDR recording devices and basic SMDR switch requirements have been completed.
IBNXLA	KEY	Position on the KEY. The key field is the one- to eight-character translator name and one- to eight-digit access code.
	TRSEL	Enter FEAT.
	SMDR	Enter Y.
	FEATURE	Enter LNR.
KSETLINE	LEN	Position on the LEN.
	KEY	Enter the key desired.
	FORMAT	Enter STN.
	OPTLIST	Enter LNR.

Activating answer timing for no answer trunks

The following table lists the steps necessary to activate answer timing for no answer trunks. See “SMDR datafill summary sheets” for the record codes and fields available when activating answer timing for no answer trunks.

This task cannot be done using only SERVORD.

Table 3-47 Activating answer timing for no answer trunks (Sheet 1 of 2)

Table	Field or subfield name	Required value
N/A	N/A	Ensure that SMDR recording devices and basic SMDR switch requirements have been completed.
N/A	N/A	Ensure that the desired no-answer trunk has been datafilled.
CUSTSMDR	CUSTNAME	Enter the desired customer group name.

Table 3-47 Activating answer timing for no answer trunks (Sheet 2 of 2)

Table	Field or subfield name	Required value
	OPTIONS	Enter ANSTIM.
	ANSTIMAL	Valid entries are from 0 to 31. This is the value in one-second intervals before a call on a no answer trunk is considered answered.

Activating FGD on an SL-100 switch

This feature allows the SL-100 switch to accept incoming FGD calls over IBNTI and IBNT2 trunks. This feature allows customers to have access to a virtual access private network (VAPN).

If desired, this feature can be datafilled to produce an optional SMDR record which includes the ANI of the originator of the incoming FGD call. This record is turned on and off through table OFCVAR, parameter FGD_ANI_SMDR_REQD. When this parameter is set to Y, an SMDR record with an origination type of code 7 is produced. The ORIGID field contains the ANI of the originator. This record is produced in addition to the regular SMDR record generated for the trunk group (SMDR set to Y in table TRKGRP).

The following table lists the steps necessary to activate the SMDR records for this feature.

Note: The following table does not contain the complete datafill required to activate the feature.

Table 3-48 Activating group-D on SL-100 SMDR datafill

Table	Field or subfield name	Required value
N/A	N/A	Ensure that SMDR recording devices and basic SMDR switch requirements have been completed.
N/A	N/A	Ensure that NTXA92AA is loaded in the switch.
OFCVAR	PARMNAME	Position on the parameter FGD_ANI_SMDR_REQD.
	PARM_VAL	Enter Y.
TRKGRP	SMDR	Enter Y.

Activating FGD on MDC

FGD on MDC, also known as VAPN, allows the DMS-100 switch to accept an incoming FGD call over an IBNTI or IBNT2 trunk. The FGD call is routed to the DMS-100 switch from an equal access end office (EAEO) or an access tandem (AT). The DMS-100 switch can screen the call based on the ANI and assign it a new customer group and NCOS. This allows an MDC customer with several business sites to have a VAPN without the cost of dedicated trunking.

If desired, this feature can be datafilled to produce an optional SMDR record which includes the ANI of the originator of the incoming FGD call. This record is turned on and off through table OFCVAR, parameter FGD_ANI_SMDR_REQD. When this parameter is set to Y, an SMDR record with an origination type of code 7 is produced. The 7 indicates that the ORIGID field contains the ANI of the originator. This record is produced in addition to the regular SMDR record generated for the trunk group (SMDR set to Y in table TRKGRP).

Refer to *Translations Guide* for a complete description of the VAPN feature.

The following table lists the steps necessary to turn on the SMDR records for this feature. For a description of all the datafill required by the feature, refer to *Translations Guide.*

Table 3-49 Activating group-D MDC SMDR datafill

Table	Field or subfield name	Required value
N/A	N/A	Ensure that SMDR recording devices and basic SMDR switch requirements have been completed.
N/A	N/A	Ensure that NTXJ42AA is loaded in the switch.
OFCVAR	PARMNAME	Position on the parameter FGD_ANI_SMDR_REQD.
	PARM_VAL	Enter Y.
TRKGRP	SMDR	Enter Y.

Activating the DD bearer capability call extension record

The following table lists the steps to activate the DD call extension record., which records the bearer capability of the call originator.

Table 3-50 DD bearer capability call extension record datafill

Table	Field or subfield name	Required value
N/A	N/A	Ensure that SMDR recording devices and basic SMDR switch requirements have been completed.
N/A	N/A	Ensure that NTXE75AA is loaded in the switch.
CUSTSMDR	CUSTNAME	Position on the 1 to 16-character customer name.
	OPTIONS	Enter BC.

Activating the DE independent common carrier call record

The following table lists the steps to activate the DE independent common carrier (DEICC) call record.

Table 3-51 DE ICC call record selection

Table	Field or subfield name	Required value
N/A	N/A	Ensure that SMDR recording devices and basic SMDR switch requirements have been completed.
N/A	N/A	Ensure that NTXH85AA is loaded in the switch.
CUSTSMDR	CUSTNAME	Position on the 1 to 16-character customer name.
	OPTIONS	Enter ICC.

Activating the DF01 inbound toll call extension record

The following table lists the steps to activate the DF inbound toll call extension record.

Table 3-52 DF01 inbound toll call extension record datafill

Table	Field or subfield name	Required value
N/A	N/A	Ensure that SMDR recording devices and basic SMDR switch requirements have been completed.
N/A	N/A	Ensure that feature package NTX103AA is loaded in the switch.
TRKGRP	GRPTYP	Enter IBNTI or IBNT2.
	OPTIONS	Enter SMDIRITC. If this option is datafilled for a trunk group, all calls coming in over that trunk will activate SMDR.

Activating the DF02 user-to-user information call extension record

The following table lists the datafill needed to activate the DF02 user-to-user information (UUI) call extension record.

Table 3-53 DF02 UUI call extension record datafill

Table	Field or subfield name	Required value
CUSTSMDR	OPTION	Assign option UUI to the applicable customer group. If the call contains a user-to-user parameter in an external signaling message and the incoming agent of the call supports UUI billing in SMDR, a DF02 UUI call extension record is produced.

Activating the DF03 PVN option call extension record

The following table lists the datafill needed to activate the DF03 PVN option call extension record.

Table 3-54 DF03 PVN option call extension record datafill

Table	Field or subfield name	Required value
CUSTSMDR	OPTION	Assign option PVN. The call type must be private virtual network (PVN) and the service control point (SCP) response message must contain a billing indicator applicable to the route taken with at least one valid billing parameter.

Activating the DF04 AIN R0.1 option call extension record

The following table lists the datafill needed to activate the DF04 AIN R0.1 option call extension record.

Table 3-55 DF04 AIN R0.1 option call extension record

Table	Field or subfield name	Required value
CUSTSMDR	OPTION	Assign option AIN01 to the applicable customer group, enabling a new extension record to be attached to SMDR records for AIN.01 calls for which the SCP has returned valid billing information.

Activating the DF05 carrier charge area information call extension record

The following table lists the datafill needed to activate the DF05 call extension record.

Table 3-56 DF05 call extension record

Table	Field or subfield name	Required value
CUSTSMDR	OPTION	Assign option CCAI to the applicable customer group. The system produces extension record DF05 when it receives a carrier information parameter. This parameter contains the following information: • carrier identification information—identifies carriers involved in a call. • associated charge area—locates the users or areas of interconnection between each carrier.

Activating the DF06 charge rate information call extension record

The following table lists the datafill needed to activate the DF06 call extension record.

Table 3-57 DF06 call extension record

Table	Field or subfield name	Required value
CUSTSMDR	OPTION	Assign option CRI to the applicable customer group. The system produces extension record DF06 when it receives a charge rate parameter. Charge rate information is passed between carriers when the carrier that determines the charge rate is not the same carrier as the carrier charging the user.

Activating the DF07 additional user type call extension record

The following table lists the datafill needed to activate the DF07 call extension record.

Table 3-58 DF07 call extension record

Table	Field or subfield name	Required value
CUSTSMDR	OPTION	Assign option AUT to the applicable customer group. The system produces extension record DF07 when it receives an additional user type parameter. The system uses the information in this parameter to determine special billing rates for the call.

Activating the DF09 call extension record

The following table lists the datafill needed to activate the DF09 call extension record.

Table 3-59 DF09 call extension record

Table	Field or subfield name	Required value
CUSTSMDR	OPTION	Assign option PERUSE to the applicable customer group to bill against. The system produces extension record DF09 upon successful completion of CLASS feature activation. The system uses the information in this parameter to determine CLASS feature usage for the MSL-100 PBX billing purposes. All translations for CLASS features must be datafilled. ***Note:*** LOGS subfield controls simultaneous logs generation when a DF09 extention record is generated.
AMAOPTS	OPTION	Tuple: SUSP - Set to ON. Tuple: CIDSUSPAUD - Set audit intervals for CLASS display feature. See *Translations* for more information on table AMAOPTS and CIDSUSPAUD option. Tuple: BCLID_USPAUD - Set audit intervals for CLASS feature BCLID. See *Translations* for more information on table AMAOPTS and BCLID_USPAUD option. Tuple: DSCWID_CONF_AUDIT - Set audit intervals for CLASS feature DSCWID. See *Translations* for more information on table AMAOPTS and DSCWID_CONF_AUDIT option. ***Note:*** USP option must be *YES* in table BCLIDGRP to enable record generation for CLASS feature BCLID.

SMDR datafill summary sheets

The following table illustrates the SMDR datafill summary chart. This chart cross-references SMDR datafill with the following information:

- record codes available
- values in the origination and termination type field

- values in the origination and termination feature field
- whether data is recorded in the other fields

The chart legend for the SMDR datafill summary is as follows:

- X = TERM TYPE 0, 2, 4, or 5 can be recorded
- Y = data recorded
- BLANK = not affected

SMDR datafill summary

What to datafill			**What REC codes are available?**									**What field value is recorded?**			
			MAIN		Extension							ORIG	TERM	ORIG	TERM
			D1	D2								TYPE	TYPE	FEAT	FEAT
Table	Field	Value	D3	D4	D5	D6	DE	DD	DA	DB	DC				
IBNLINES	LEN FORMAT OPTIONS	Position on the LEN STN or MDN SMDR	 Y									 O	 X	 O	 O
KSETLINE	LEN FORMAT OPTIONS	Position on the LEN DN or MDN SMDR	 Y									 O	 X	 O	 O
KSETLINE	KSETKEY FORMAT SMDR	Position on key and LEN GIC Y	 Y									 O	 X	 O	 O
ATTCONS	CONSOLE CDR	Position on console Y	 Y									 2	 X	 O	 O
TRKGRP	CLLI CDR SMDR	Position on trunk group Y or N Y or N	 Y Y									 3 3	 X X	 O O	 O O
DNROUTE	DN SMDRTO SMDRFROM	Position on DN Y or N Y or N	 Y Y									 4 4	 X X	 O O	 O O
VIRTGRPS	CONSOLE CDR SMDR	Position on VFG Y or N Y or N	 Y Y									 5 5	 X X	 O O	 O O

—continued—

SMDR datafill summary (continued)

What to datafill			Will data be recorded in these fields?																	
				Info digits									Route digit			Start time				
			DATACALL ID	SERVICE	ANALYZED	ANI FAIL	ANSWERED	CALL DISC	ATTENDANT	EXTENDED	CONSOLE NUM	SUBGRP NUM	ARS	ERWT	SUBGRP NUM	MISSING DGTS	ANSWERED	CALLS	UNANSWERED
CALLS																				
Table	Field	Value																		
IBNLINES	LEN FORMAT OPTIONS	Position on the LEN STN or MDN SMDR				Y	Y	Y									Y		
KSETLINE	LEN FORMAT OPTIONS	Position on the LEN DN or MDN SMDR				Y	Y	Y									Y		
KSETLINE	KSETKEY FORMAT SMDR	Position on key, LEN GIC Y				Y	Y	Y									Y		
ATTCONS	CONSOLE CDR	Position on console Y				Y	Y	Y									Y		
TRKGRP	CLLI CDR SMDR	Position on trunk grp Y or N Y or N				Y Y	Y Y	Y Y									Y		
DNROUTE	DN SMDRTO SMDRFROM	Position on DN Y or N Y or N				Y Y	Y Y	Y Y									Y		
VIRTGRPS	CONSOLE CDR SMDR	Position on VFG Y or N Y or N				Y Y	Y Y	Y Y									Y		

—continued—

SMDR datafill summary (continued)

What to datafill			Will data be recorded in these fields?				
			Elapsed time				
			ANSWERED CALLS	UNANSWERED CALLS	TERM TYPE 3 DIGITS 12	CALLED NUM	Feature names and notes
Table	Field	Value					
IBNLINES	LEN FORMAT OPTIONS	Position on the LEN STN or MDN SMDR	 Y			 Y	 1
KSETLINE	LEN FORMAT OPTIONS	Position on the LEN DN or MDN SMDR	 Y			 Y	 2
KSETLINE	KSETKEY FORMAT SMDR	Position on key, LEN GIC Y	 Y			 Y	 3
ATTCONS	CONSOLE CDR	Position on console Y	 Y			 Y	 4
TRKGRP	CLLI CDR SMDR	Position on trunk group Y or N Y or N	 Y			 Y	 5 5
DNROUTE	DN SMDRTO SMDRFROM	Position on DN Y or N Y or N	 Y			 Y	 6 6
VIRTGRPS	CONSOLE CDR SMDR	Position on VFG Y or N Y or N	 Y			 Y	 7 7

—continued—

SMDR datafill summary (continued)

What to datafill			What REC codes are available?										What field value is recorded?			
			MAIN		Extension								ORIG TYPE	TERM TYPE	ORIG FEAT	TERM FEAT
			D1	D2												
Table	Field	Value	D3	D4	D5	D6	DE	DF	DD	DA	DB	DC				
Account and authorization codes						Y										
CUSTSMDR	OPTIONS	One of: NERVE		Y												
		AUT						Y								
		BC							Y							
		CCAI						Y								
		CRI						Y								
		RAO			Y											
		NETWORK								Y						
		MSN									Y					
		ANSTIM													6	
		RNA					Y									
		SMDRCT														
		PIN										Y				
		PVN						Y								
		TCN										Y				
		ICC					Y									

—continued—

SMDR datafill summary (continued)

What to datafill			**What REC codes are available?**										**What field value is recorded?**			
			MAIN		Extension								ORIG TYPE	TERM TYPE	ORIG FEAT	TERM FEAT
			D1	D2												
Table	Field	Value	D3	D4	D5	D6	DE	DF	DD	DA	DB	DC				
		UUI						Y								
CUSTSMDR	OPTIONS	PERUSE						Y								
Call Back Queuing. See the *Translations Guide*, feature Callback Queuing, for datafill.																5
Call Request Retrieval. See the *Translations Guide*, feature SMDI Call Retrieval Billing, for datafill.																10

—continued—

				Info digits									Route digit			Start time			
			DATACALL ID	SERVICE	ANALYZED	ANI FAIL	ANSWERED	CALL DISC	ATTENDANT	EXTENDED	CONSOLE NUM	SUBGRP NUM	ARS	ERWT	SUBGRP NUM	MISSING DGTS	ANSWERED	CALLS	UNANSWERED
What to datafill			**Will data be recorded in these fields?**																
CALLS																			
Table	Field	Value																	
Account and authorization codes																			
CUSTSMDR	OPTIONS	One of: NERVE																	
		AUT																	
		BC																	
		CCAI																	
		CRI																	
		RAO																	
		NETWORK																	
		MSN																	
		ANSTIM																	
		RNA																Y	
		SMDRCT																	
		PIN																	

—continued—

SMDR datafill summary (continued)

What to datafill		Will data be recorded in these fields?													
			Info digits								Route digit			Start time		
		DATACALL ID	SERVICE	ANALYZED	ANI FAIL	ANSWERED	CALL DISC	ATTENDANT	EXTENDED	CONSOLE NUM	SUBGRP NUM	ARS	ERWT	SUBGRP NUM	MISSING DGTS	ANSWERED	CALLS	UNANSWERED
	TCN																	
	ICC																	
Call Back Queuing. See the *Translations Guide*, feature Call Back Queuing, for datafill.																		
Call Request Retrieval. See the *Translations Guide*, feature SMDI Call Retrieval Billing, for datafill.																		

—continued—

SMDR datafill summary (continued)

What to datafill			Will data be recorded in these fields?				
			Elapsed time				
			ANSWERED CALLS	UNANSWERED CALLS	TERM TYPE 3	DIGITS 12	CALLED NUM	Feature names and notes
Table	Field	Value					
Account and authorization codes							8
CUSTSMDR	OPTIONS	One of: NERVE					
		AUT					
		BC					
		CCAI					
		CRI					
		RAO					
		NETWORK					
		MSN					
		ANSTIM					
		RNA		Y			
		SMDRCT					10
		PIN					
		TCN					
		ICC					
Call Back Queuing. See the *Translations Guide*, feature Call Back Queuing, for datafill.							

Call Request Retrieval. See the Translations Guide, feature SMDI Call Retrieval Billing, for datafill.							
—continued—							

SMDR datafill summary (continued)

What to datafill			**What REC codes are available?**									**What field value is recorded?**			
			MAIN									ORIG	TERM	ORIG	TERM
			D1	D2	Extension							TYPE	TYPE	FEAT	FEAT
Table	Field	Value	D3	D4	D5	D6	DE	DD	DA	DB	DC				
Ring Again. See the *Translations Guide*, feature Ring Again, for datafill.															5
Flexible Station Controlled Conference. See the *Translations Guide*, feature Station-Controlled Conference, for datafill.															7
Preset Conference. See the *Translations Guide*, feature Preset Conference, for datafill.														8	8
Meet-Me Conference. See the *Translations Guide*, feature Meet-Me Conference, for datafill.														3	3
Meet-Me Conference (Large). See the *Translations Guide*, feature Meet-Me Conference (Large), for datafill.														3	3
IBNXLA MMCONF	TRSEL FEAT SMDR	Position on translator MMLK Y (the whole tuple)	Y									0	X	3	3
CLLI DIGMAN IBNATD	CLLI	Position on CLLI												6	6
—continued—															

SMDR datafill summary (continued)

What to datafill?			**Will data be recorded in these fields?**																		
				Info digits									Route digit			Start time			
			DATACALL ID	SERVICE	ANALYZED	ANI FAIL	ANSWERED	CALL DISC	ATTENDANT	EXTENDED	CONSOLE NUM	SUBGRP NUM	ARS	ERWT	SUBGRP NUM	MISSING DGTS	ANSWERED	CALLS	UNANSWERED
CALLS																					
Table	Field	Value																			
Ring Again. See the *Translations Guide*, feature Ring Again, for datafill.																					
Flexible Station-Controlled Conference. See the *Translations Guide*, feature Station-Controlled Conference, for datafill.																					
Preset Conference. See the *Translations Guide*, feature Preset Conference, for datafill.																					
Meet-Me Conference. See the *Translations Guide*, feature Meet-Me Conference, for datafill.																					
Meet-Me Conference (Large). See the *Translations Guide*, Meet-Me Conference (Large), for datafill.																					

—continued—

SMDR datafill summary (continued)

What to datafill?			Will data be recorded in these fields?													
IBNXLA MMCONF	TRSEL FEAT SMDR	Position on translator MMLK Y (the whole tuple)				Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
CLLI DIGMAN IBNATD	CLLI	Position on CLLI															

—continued—

SMDR datafill summary (continued)

What to datafill?			Will data be recorded in these fields?				
			Elapsed time				
			ANSWERED CALLS	UNANSWERED CALLS	TERM TYPE 3	DIGITS 12	CALLED NUM	Feature names and notes
Table	Field	Value					
Ring Again. See the *Translations Guide*, feature Ring Again, for datafill.							
Flexible Station-Controlled Conference. See the *Translations Guide*, feature Station-Controlled Conference, for datafill.							
Preset Conference. See the *Translations Guide*, feature Preset Conference, for datafill.							
Meet-Me Conference. See the *Translations Guide*, feature Meet-Me Conference, for datafill.							
Meet-Me Conference (Large). See the *Translations Guide*, feature Meet-Me Conference (Large), for datafill.							
IBNXLA MMCONF	TRSEL FEAT SMDR	Position on translator MMLK Y (the whole tuple)	Y			Y	Executive conference
CLLI DIGMAN IBNATD	CLLI	Position on CLLI.			Y		11

—continued—

SMDR datafill summary (continued)

What to datafill?			What REC codes are available?									What field value is recorded?			
			MAIN									ORIG	TERM	ORIG	TERM
			D1	D2	Extension							TYPE	TYPE	FEAT	FEAT
Table	Field	Value	D3	D4	D5	D6	DE	DD	DA	DB	DC				
IBNFEAT	DF FEATURE	SPB SPB										1			
		CXR												2	
		CXF												2	
		CNF										6		3	
		PRK												4	
		GIC Y	Y									0	X	9	0
KSETFEAT	FEAT FEATURE	FEATURE 3WC												2	
		CXR												2	
		CFX												2	
		CNF										6		3	7
		PRK												4	
	FEATURE SMDR	ICM Y	Y									0	X	9	0

—continued—

SMDR datafill summary (continued)

What to datafill?			Will data be recorded in these fields?																	
				Info digits										Route digit			Start time			
			DATACALL ID	SERVICE	ANALYZED	ANI FAIL	ANSWERED	CALL DISC	ATTENDANT	EXTENDED	CONSOLE NUM	SUBGRP NUM	ARS	ERWT	SUBGRP NUM	MISSING DGTS	ANSWERED	CALLS	UNANSWERED
CALLS																				
Table	Field	Value																		
IBNFEAT	DF FEATURE	SPB SPB																		
		CXR																		
		CXF																		
		CNF																		
		PRK																		
	FEATURE SMDR	GIC Y				Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y				

—continued—

SMDR datafill summary (continued)

What to datafill?			Will data be recorded in these fields?														
KSETFEAT	FEAT FEATURE	FEATURE 3WC															
		CXR															
		CFX															
		CNF															
		PRK															
	FEATURE SMDR	ICM Y				Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	

—continued—

SMDR datafill summary (continued)

Will data be recorded in these fields?

			Elapsed time				
			ANSWERED CALLS	UNANSWERED CALLS	TERM TYPE 3	DIGITS 12	CALLED NUM	Feature names and notes
Table	Field	Value						
IBNFEAT	DF FEATURE	SPB SPB						Special Billing DN
		CXR						Call Transfer
		CXF						Call Forward
		CNF						6-Way Conference
		PRK						12
		GIC Y	Y					Group Intercom

—continued—

SMDR datafill summary (continued)

Will data be recorded in these fields?							
KSETFEAT	FEAT FEATURE	FEATURE 3WC					3-Way Conference
		CXR					Call Transfer
		CFX					Call Forward
		CNF					6-Way Conference
		PRK					12
	FEATURE SMDR	ICM Y	Y			Y	INTERCOM

—continued—

SMDR datafill summary (continued)

What to datafill			What REC codes are available?									What field value is recorded?			
			MAIN									ORIG	TERM	ORIG	TERM
			D1	D2	Extension							TYPE	TYPE	FEAT	FEAT
Table	Field	Value	D3	D4	D5	D6	DE	DD	DA	DB	DC				
SAUSERS		See the data schema section of *Translations Guide.*													
OFCVAR	PARMNAME PARM_VAL	DATA_CALL_SMDR Y													
		FGD on SL-100/DMS-100										7			
		AIOD for ANI information										8			
OFCENG	PARMNAME PARM_VAL	CRS_PRU_POOL3_SIZE 100 (default)													
IBNXLA ***Note:*** Table IBNXLA must have a feature applied to the call.	TRSEL SMDR FEATURE	FEAT Y ACCT	Y			Y						0	X	0	0
		RAG	Y									0	X	0	5
		LNR	Y									0	X	0	0
		CRR	Y									0	X	0	0
IBNXLA	XLANAME TRSEL SMDR NETTYPE SMDRB	Position on the translator NET Y One of the following: DOD ESN Y or N	Y									0	X	0	0

SMDR datafill summary (continued)

What to datafill			Will data be recorded in these fields?																	
				Info digits									Route digit			Start time				
			DATACALL ID	SERVICE	ANALYZED	ANI FAIL	ANSWERED	CALL DISC	ATTEND ANT	EXTENDED	CONSOLE NUM	SUBGRP NUM	ARS	ERWT	SUBGRP NUM	MISSING DGT	ANSWERED	CALLS	UNANSWERED
CALLS																				
Table	Field	Value																		
SAUSERS		See the data schema section of Translations Guide.		Y																
OFCVAR	PARMNAME PARM_VAL	DATA_CALL_SMDR Y	Y																	
		FGD on SL-100/DMS-100																		
		AIOD for ANI information																		
OFCENG	PARMNAME PARM_VAL	CRS_PRU_POOL3_SIZE 100 (default)	Y																	
IBNXLA ***Note:*** Table IBNXLA must have a feature applied to the call.	TRSEL SMDR FEATURE	FEAT Y ACCT			Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y				
		RAG			Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y				
		LNR			Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y				
		CRR			Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y				

SMDR datafill summary (continued)

What to datafill			Will data be recorded in these fields?													
IBNXLA	XLANAME TRSEL SMDR NETTYPE SMDRB	Position on the translator NET Y One of the following: DOD ESN Y or N			Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y

—continued—

SMDR datafill summary (continued)

What to datafill			Will data be recorded in these fields?				
			Elapsed time				
			ANSWERED CALLS	UNANSWERED CALLS	TERM TYPE 3	DIGITS 12	CALLED NUM	Feature names and notes
Table	Field	Value					
SAUSERS		See the data schema section of *Translations Guide.*					13
OFCVAR	PARMNAME PARM_VAL	DATA_CALL_SMDR Y					
		FGD on SL-100/DMS-100					14
		AIOD for ANI information					15
OFCENG	PARMNAME PARM_VAL	CRS_PRU_POOL3_SIZE 100 (default)					
IBNXLA	TRSEL SMDR FEATURE	FEAT Y ACCT	Y			Y	Account code 17
		RAG	Y			Y	Ring Again
		LNR	Y			Y	18
		CRR	Y			Y	19
IBNXLA ***Note:*** Table IBNXLA must have a feature applied to the call.	XLANAME TRSEL SMDR NETTYPE SMDRB	Position on translator NET Y One of the following: DOD ESN Y or N	Y			Y	19

—continued—

SMDR datafill summary (continued)

What to datafill			What REC codes are available?									What field value is recorded?			
			MAIN									ORIG	TERM	ORIG	TERM
			D1	D2	Extension							TYPE	TYPE	FEAT	FEAT
Table	Field	Value	D3	D4	D5	D6	DE	DD	DA	DB	DC				
IBNXLA	XLANAME TRSEL SMDR	Position on translator One of the following: ROUTE/S to Table CLLI ROUTE/T to Table IBNRTE TTTR AMBI EXTN CUTTD Y	 Y									 0	 X	 0	 0
IBNXLA	XLANAME TRSEL SMDR NETTYPE OPTION SMDRB	Position on translator NET Y GEN EA, ESN, LATTR, LOGNET, OW, PVN, RTE, SPF, TOLL Y or N (TOLL only)	 Y Y									 0 0	 X X	 0 0	 0 0
IBNXLA	XLANAME TRSEL SMDR NETTYPE	Position on translator NET Y One of the following: AVN AVP	 Y Y									 0 0	 X X	 0 0	 0 0

—continued—

SMDR datafill summary (continued)

What to datafill				Will data be recorded in these fields?																			
					Info digits										Route digit			Start time					
				DATACALL ID	SERVICE	ANALYZED	ANI FAIL	ANSWERED	CALL DISC	ATTENDANT	EXTENDED	CONSOLE NUM	SUBGRP NUM	ARS	ERWT	SUBGRP NUM	MISSING DGTS	ANSWERED	CALLS	UNANSWERED			
CALLS																							
Table	Field	Value																					
IBNXLA	XLANAME	Position on translator																					
	TRSEL	One of the following: ROUTE/S to table CLLI ROUTE/T to table IBNRTE TTTR AMBI EXTN CUTTD																					
	SMDR	Y					Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y					
IBNXLA	XLANAME	Position on translator																					
	TRSEL	NET																					
	SMDR	Y																					
	NETTYPE	GEN																					
	OPTION	EA, ESN, LATTR, LOGNET, OW, PVN, RTE, SPF, TOLL					Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y					
	SMDRB	Y or N (TOLL only)					Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y					

—continued—

SMDR datafill summary (continued)

What to datafill			Will data be recorded in these fields?													
IBNXLA	XLANAME TRSEL SMDR NETTYPE	Position on translator NET Y One of the following: AVN AVP				Y Y	Y Y	Y Y	Y Y	Y Y	Y Y	Y Y	Y Y	Y Y	Y Y	Y Y	

—continued—

SMDR datafill summary (continued)

What to datafill			Will data be recorded in these fields?				
			Elapsed time				
			ANSWERED CALLS	UNANSWERED CALLS	TERM TYPE 3 DIGITS 12	CALLED NUM	Feature names and notes
Table	Field	Value					
IBNXLA	XLANAME TRSEL SMDR	Position on translator One of the following: ROUTE/S to table CLLI ROUTE/T to table IBNRTE TTTR AMBI EXTN CUTTD Y	 Y			 Y	
IBNXLA	XLANAME TRSEL SMDR NETTYPE OPTION SMDRB	Position on translator NET Y GEN EA, ESN, LATTR, LOGNET, OW, PVN, RTE, SPF, TOLL Y or N (TOLL only)	 Y Y			 Y Y	 20
IBNXLA	XLANAME TRSEL SMDR NETTYPE	Position on translator NET Y One of the following: AVN AVP	 Y Y			 Y Y	
End							

Note 1: SMDR call records can be generated on an IBN line or MADN group basis.

Note 2: SMDR call records can be generated on an MBS or data-unit basis.

Note 3: SMDR call records can be generated for calls involving members of a Group Intercom group.

Note 4: SMDR call records can be generated for calls originating at an attendant console. See the Data tables for SMDR datafill table in this chapter or table ATTCONS in the data schema section of the *Translations Guide* for attendant console datafill information.

Note 5: SMDR call records can be generated for calls originating at a trunk. See the Data tables for SMDR datafill table in this chapter or table TRKGRP in the data schema section of the *Translations Guide* for trunk group datafill information.

Note 6: SMDR call records can be generated for calls originating or terminating at a DISA number. See the „DISA” section in chapter 2, the Data tables for SMDR datafill table in this chapter, or table DNROUTE in the data schema section of the *Translations Guide* for DISA number datafill information. Field DN is made up of fields AREACODE, OFCCODE, and STNCODE.

Note 7: SMDR call records can be generated for calls originating at a VFG. See the Data tables for SMDR datafill table in this chapter or table VIRTGRPS in the data schema section of the *Translations Guide* for VFG datafill information.

Note 8: For account codes, see the feature Account Code Acceptance and Recording in the *Translations Guide* for datafill. For authorization codes, see the *Translations Guide* for datafill.

Note 9: To generate the complete DB MSN extension record for calls terminating at a treatment, the option record no answer (RNA) in table CUSTSMDR must be datafilled against the appropriate customer group.

Note 10: Allows up to 10 customer groups to each have their own SMDR file on a tape or disk. Additional DIRP datafill required.

Note 11: See table DIGMAN in the data schema section of the *Translations Guide* for datafill information.

Note 12: FIELD FEATURE in table IBNXLA must be datafilled with Call Park Retrieve (PRKR) and Calls Parked (PRKS).

Note 13: Not an MDC or SMDR feature.

Note 14: See Activating group–D on SL–100 SMDR datafill table or Activating group–D MDC SMDR datafill table in this chapter.

Note 15: See Activating ANI information for SMDR call records table in this chapter.

Note 16: An SMDR call record is generated for the account code feature regardless of how the SMDR field is datafilled in table IBNXLA.

Note 17: Last Number Redial feature.

Note 18: Call Request Retrieval feature.

Note 19: SMDR call records can be generated for calls originating over DOD and ESN network types. See Activating SMDR for DOD networks table or Activating SMDR for MSN networks table in this chapter plus table IBNXLA in the data schema section of the *Translations Guide* for DOD and ESN datafill information.

Note 20: SMDR call records can be generated for calls originating over a toll network. See Activating SMDR for toll GEN calls table in this chapter and table IBNXLA in the data schema section of the *Translations Guide* for toll networks datafill information.

Note 21: Not all fields for each table are shown here, only the SMDR-specific fields. In addition, the column heading Field also represents subfields.

4 Operations and maintenance

This chapter includes the procedural and reference material required to keep the Station Message Detail Recording (SMDR) software working.

Scheduled maintenance for SMDR

There is no scheduled maintenance for SMDR; however, there is scheduled maintenance for the Device Independent Recording Package (DIRP) subsystem which records the SMDR data. *Alarm and Performance Monitoring Procedures*, *Routine Maintenance Procedures*, *Trouble Locating and Clearing Procedures*, and *Recovery Procedures* describe the DIRP maintenance procedures.

Corrective maintenance for SMDR

Corrective maintenance for SMDR is performed by datafilling SMDR features as the features are needed.

SMDR maintenance tools

The CALLDUMP and AMADUMP commands are SMDR maintenance tools. They are described in the following paragraphs.

Displaying formatted billing records using CALLDUMP

The CALLDUMP command interpreter (CI) command is a non-menu command which allows the user to display a fully formatted billing record (Automatic Message Accounting [AMA] or SMDR) at the user's terminal. CALLDUMP uses the same display format as the AMADUMP command. The major difference between the two utilities is that CALLDUMP formats billing records directly out of the internal call record buffer. AMADUMP formats billing records from a DIRP file using CALLDUMP relieves the need to set up and record to DIRP.

To use the CALLDUMP command, do the following steps:

1. Make a billable call.
2. Go on-hook.

3. At the CI level of the terminal, type: CALLDUMP SMDR.
4. Press Return.

A billing record, with the output the same as using the AMADUMP CALL DETAILS command, is displayed at the terminal.

Commands Reference Manual, 297-1001-822, describes the CALLDUMP CI command, its additional parameters, and system responses.

Using the DIRP facility

Alarm and Performance Monitoring Procedures, *Routine Maintenance Procedures*, *Trouble Locating and Clearing Procedures*, and *Recovery Procedures* describe the DIRP maintenance procedures. The DIRP facility is used for storing SMDR data.

Using the DIRP MAP level

Routine Maintenance Procedures describes the DIRP MAP level.

Using the AMADUMP utility

The AMADUMP utility provides for the display or hard copy printout (dump) of the contents of SMDR files produced in an Meridian Digital Centrex (MDC) office. AMADUMP uses the following output formats:

- block-by-block hexadecimal (HEX) dump of the contents of a file with the range of blocks optionally specified by the user
- record-by-record dump of SMDR call-entries, data-entries, or header-entries within an SMDR file with screening that may be optionally specified by the user
- statistical profiles, in chart format, of the call entries by call-record type and call-duration.

In BCS26, the AMADUMP utility is resident in the software load. Prior to BCS26, the AMADUMP utility was a non-resident utility provided by feature package NTX181AA. Commands COPY AMAUT2SU$FC, READ AMAUT2SU$FC, COPY NTAMASUB$FC, and READ NTAMASUB$FC are used to load and read the pre-BCS26 nonresident AMADUMP utility.

Note: Tape files being dumped should be on a device not allocated to recording.

The procedure for accessing the AMADUMP subsystem and an example MAP display follow. For more information, refer to *Commands Reference Manual*, 297-1001-822.

Enter the AMADUMP subsystem environment by typing

```
>AMADUMP format filename
```

and pressing the Enter key.

where

format
is the the format initially used to create the SMDR records to be dumped. Current formats are BC, NT, and INTL.

filename
is the name of the SMDR data file of a mounted and listed SMDR tape or disk that is to be dumped.

Figure 4-1 Example MAP display of accessing the AMADUMP subsystem

```
  CI:
>amadump nt amafile
AMADUMP:
>
```

Note: The AMADUMP utility is not a multi-user utility. AMADUMP should only be used by one user at a time.

In the command format used below, the command is given in the left box of the diagram, then the command, parameter, and variable choices are grouped in brackets. For instance, in the AMADUMP command, the user chooses CALL, DATA, HDR, or HEX, and DETAILS with startblk and numblk.

The subcommands syntax is as follows:

- The command name is given in the left part of the figure and the associated parameters are given in the right.
- Parameters shown separately without brackets are required while those shown between square brackets [ ] are optional; vertical stacking of the parameters indicates that a selection may be made.
- Parameters shown in UPPERCASE must be entered as shown, whereas those in lower case are variable and are defined in the text.
- Examples, where used, show user input in lower case following the > symbol, and system responses in upper case following the >>> symbol.

AMADUMP command

The AMADUMP utility subcommands DUMP, FILTER, and QUIT are made available to the user following successful access to the AMADUMP utility. The AMADUMP command causes a dump of the desired SMDR file in the

format as set out by the parameters. Refer to "AMADUMP usage notes" for more information.

AMADUMP	CALL DATA HDR HEX	[DETAILS startblk numblks]

An explanation of each parameter follows:

CALL This parameter causes header entries, control entries, and call entries in the C1C1 call record block to be dumped in American Standard Code for Information Interchange (ASCII), including associated call extension entries if present.

DATA This parameter causes header entries, control entries, and data entries in the C2C2 data blocks to be dumped.

HDR This parameter causes block header entries and control entries to be dumped.

HEX This parameter causes an unformatted hexadecimal dump of block data. This is applicable to all tape formats.

DETAILS This parameter is optional and causes records to be dumped in detailed format; that is, with each dump, the field name of each field will be output as well.

When DETAILS is not specified the records are displayed in simple format, and each field within the record is separated by a space.

Additional information is appended to the end of each record indicating if the call was direct dialing overseas (DDO) and if the call was answered.

startblk This parameter defines the starting block count from the beginning of the file and not the block count as shown in the C1C1 header. The default is the first block. The range for this field is 1 to 32 000.

numblks This parameter defines the number of blocks to be dumped. Default is all blocks. The range for this field is 1 to 32 000.

AMADUMP usage notes

The following notes apply to AMADUMP:

- Call entries printed using the command DUMP CALL or DUMP DATA may be screened on the basis of fields which satisfy certain data patterns

or time constraints. The FILTER command is used for this purpose and must be specified prior to the use of the DUMP command.

- Errors that occur during the DUMP command are presented to the user in the following manner:

```
>>>BAD ENTRY ENCOUNTERED
```

and are preceded by error messages that indicate the exact failure more explicitly.

FILTER command

The FILTER command allows the user to print or display only those SMDR records and associated field values that are needed. Screening is then performed on the call record code and the associated fields that the user specifies. See "FILTER usage notes.

FILTER	ADD [rc] DELETE DISPLAY [ALL] ENABLE DISABLE

where

ADD
adds the data that the user wants to search for to the filter table. The user specifies the call record code to be screened. The FILTER command prompts the user to enter screening values for each field associated with that call record code. The user can enter a binary coded decimal (BCD) value to be screened for, an asterisk (*), a combination of BCD values and asterisks, or a carriage return. All characters following the asterisk are ignored. When all fields being screened on have values, type ALL (in capital letters) following the next prompt. All remaining field values are then filled with asterisks and ignored in the screening process. Up to ten filter entries can be added to the filter table.

DELETE
causes the specified record code to be removed from the filter table

DISPLAY
causes the contents of the record code specified in the filter table to be displayed. This can be used as a means of verification.

rc
represents the call record code. One or more may be entered, each separated by a space.

ALL

- ALL used with ADD

ALL cannot be used as a call record code parameter in the FILTER ADD command. However, ALL is a valid entry for field prompts other than the call record code. It is used when all remaining fields in the call record code are to be ignored and filled with asterisks.

- ALL used with DELETE

  All entries in the filter table are deleted.

- ALL used with DISPLAY

  All entries in the filter table are displayed.

  This command is also used to denote all record codes.

ENABLE
causes filter screening to be activated

DISABLE
causes filter screening to be disabled; however, any rc added to the filter table is retained and may be enabled again.

FILTER usage notes

The following notes apply to FILTER usage:

- The FILTER command can define call record screening by the record code before the DUMP CALL command is used.
- The FILTER command is not supported for the INTL format.

The following are examples:

- To add call record code D5 to the filter table, enter the following command string:

  ```
  >filter add d5
  ```

The following shows the AMADUMP response to the filter add command:

- To display the contents of D5 call record codes in the filter table, enter the following command string:

  ```
  >filter display d5
  ```

  The following shows the AMADUMP response to the filter display command:

  ```
  >>>CALL RECORD CODE:  D5
   >>>FUNCTION COMPLETED
  ```

QUIT command

The QUIT command is used to leave the AMADUMP utility.

Table 4-1

Quit

Interpreting HEX dumps of SMDR records

The command used to create a HEX dump of SMDR records is as follows:

```
>DUMP HEX
```

The following figures illustrate interpretation of HEX dumps of SMDR records using the AMADUMP utility:

- C1C1 header record
- C2C2 header record
- D1-D4 main SMDR record
- D5 extension record
- D6 extension record
- DA extension record
- DB extension record
- DC extension record
- E termination record
- File rotation records

- FD restart record
- FE clock change record
- Data group translator records

Figure 4-2 AMADUMP HEX dump example for a C1C1 record

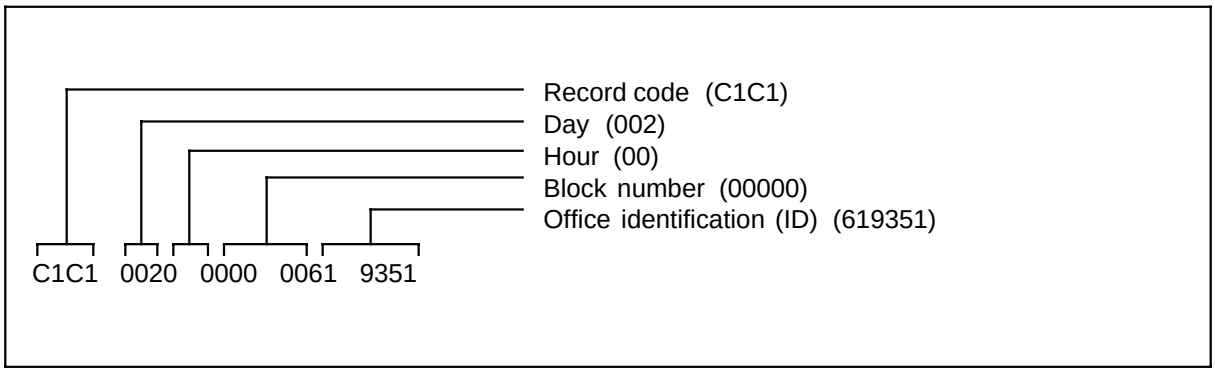


Figure 4-3 AMADUMP HEX dump example for a C2C2 record

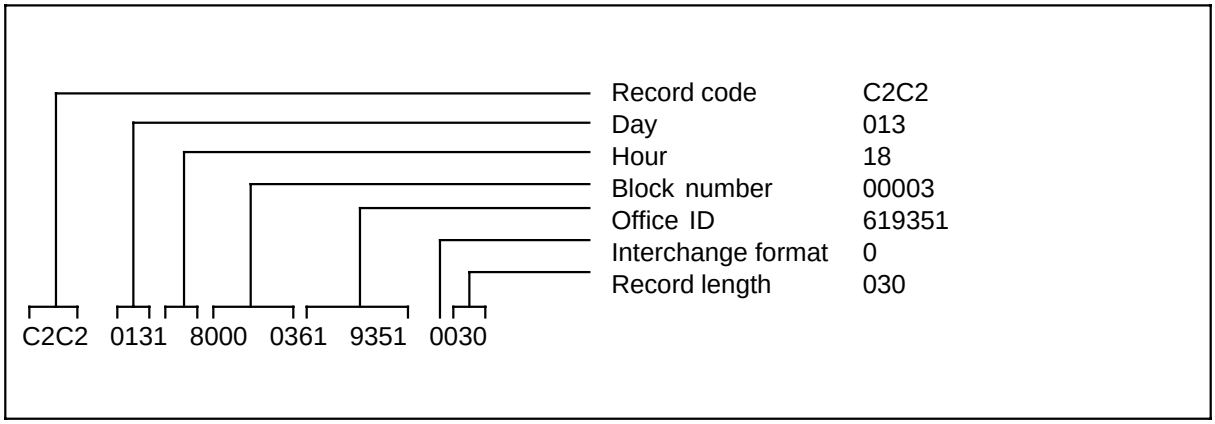


Figure 4-4 AMADUMP HEX dump example for a D1-D2 call record

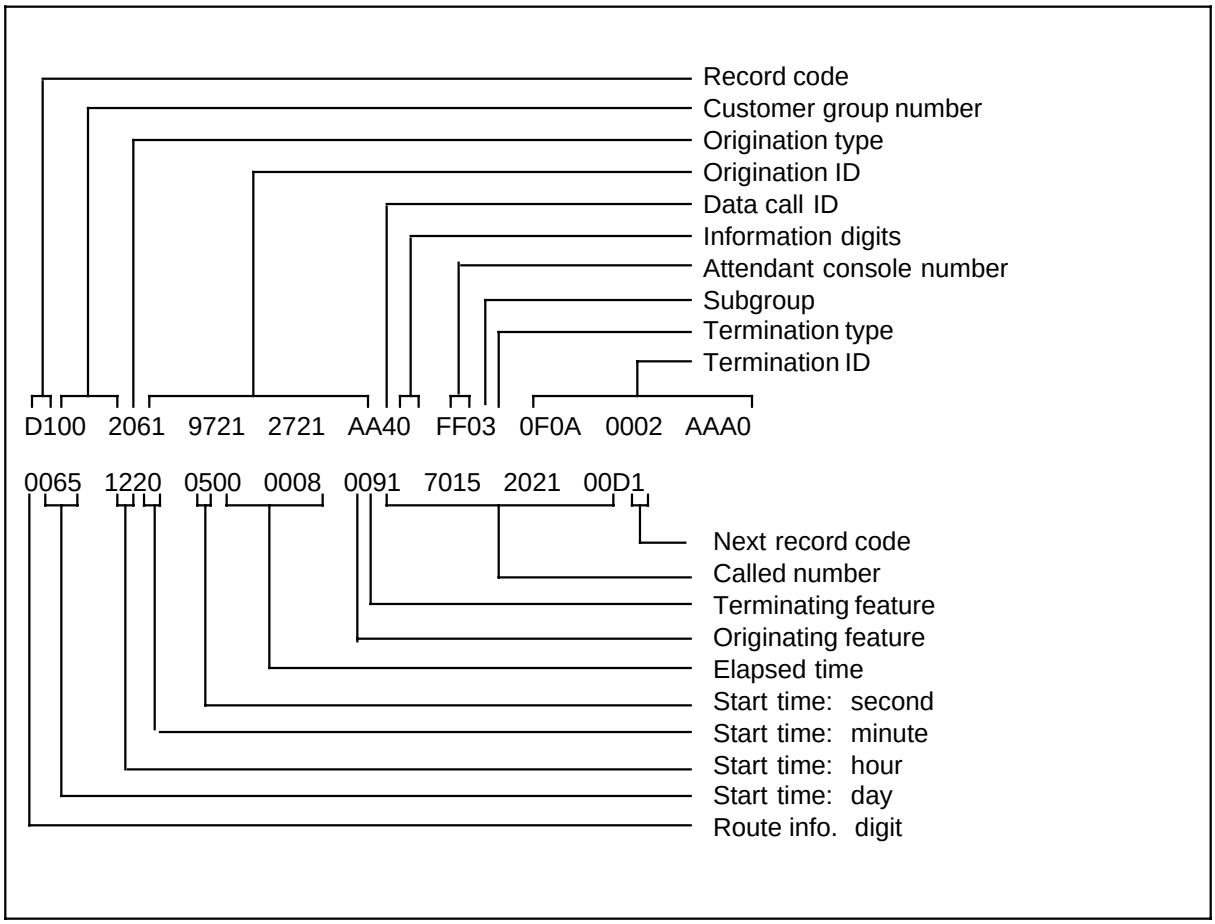


Figure 4-5 AMADUMP HEX dump example for a D3-D4 call record

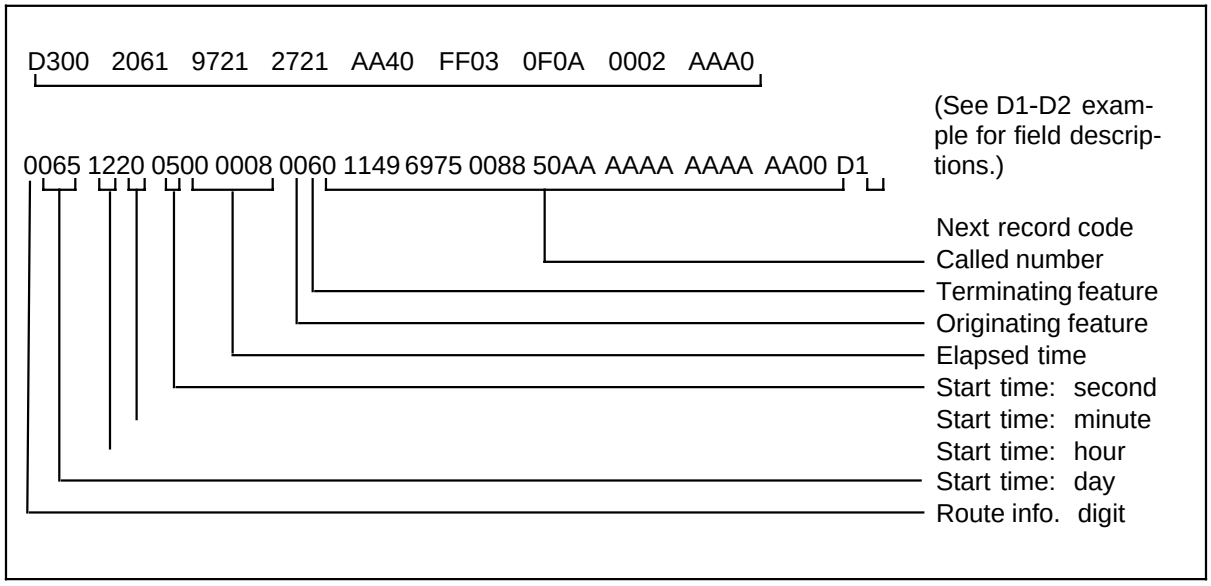


Figure 4-6 AMADUMP HEX dump example for a D5 extension record

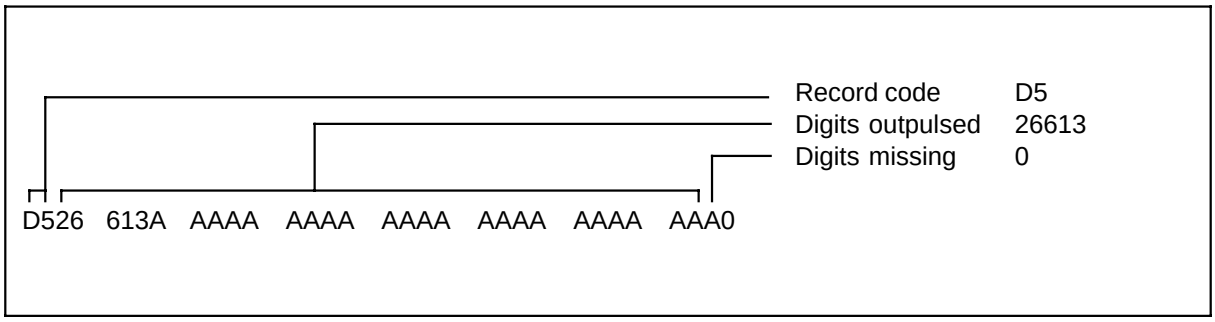


Figure 4-7 AMADUMP HEX dump example for a D6 extension record

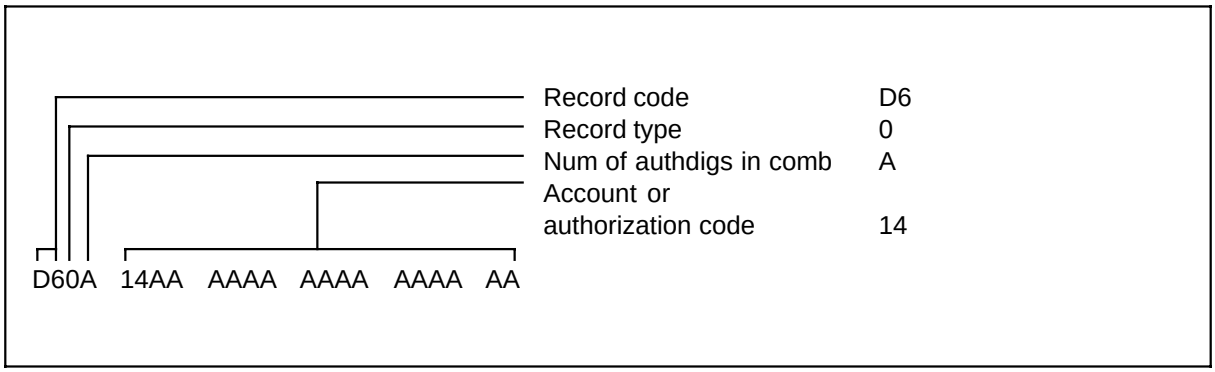


Figure 4-8 AMADUMP HEX dump example for a DA extension record

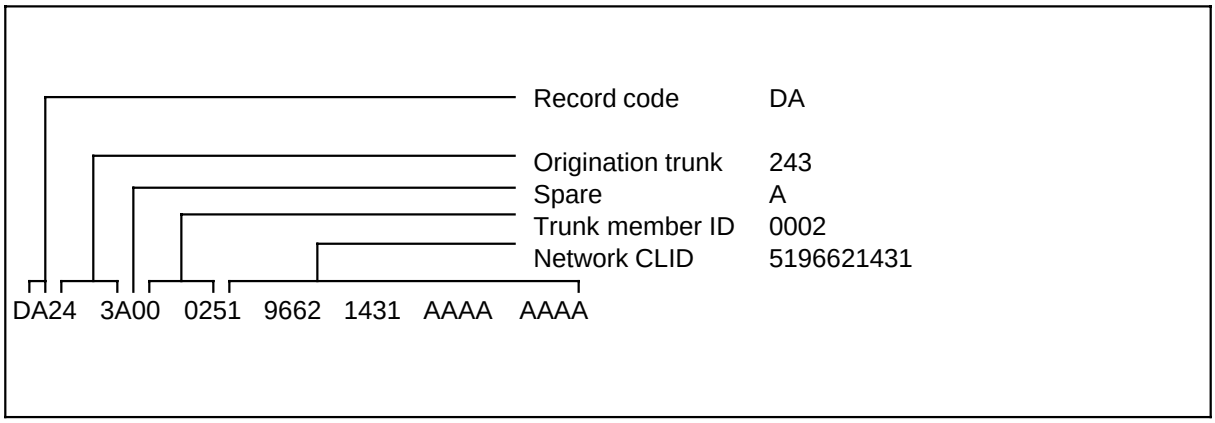


Figure 4-9 AMADUMP HEX dump example for a DB extension record

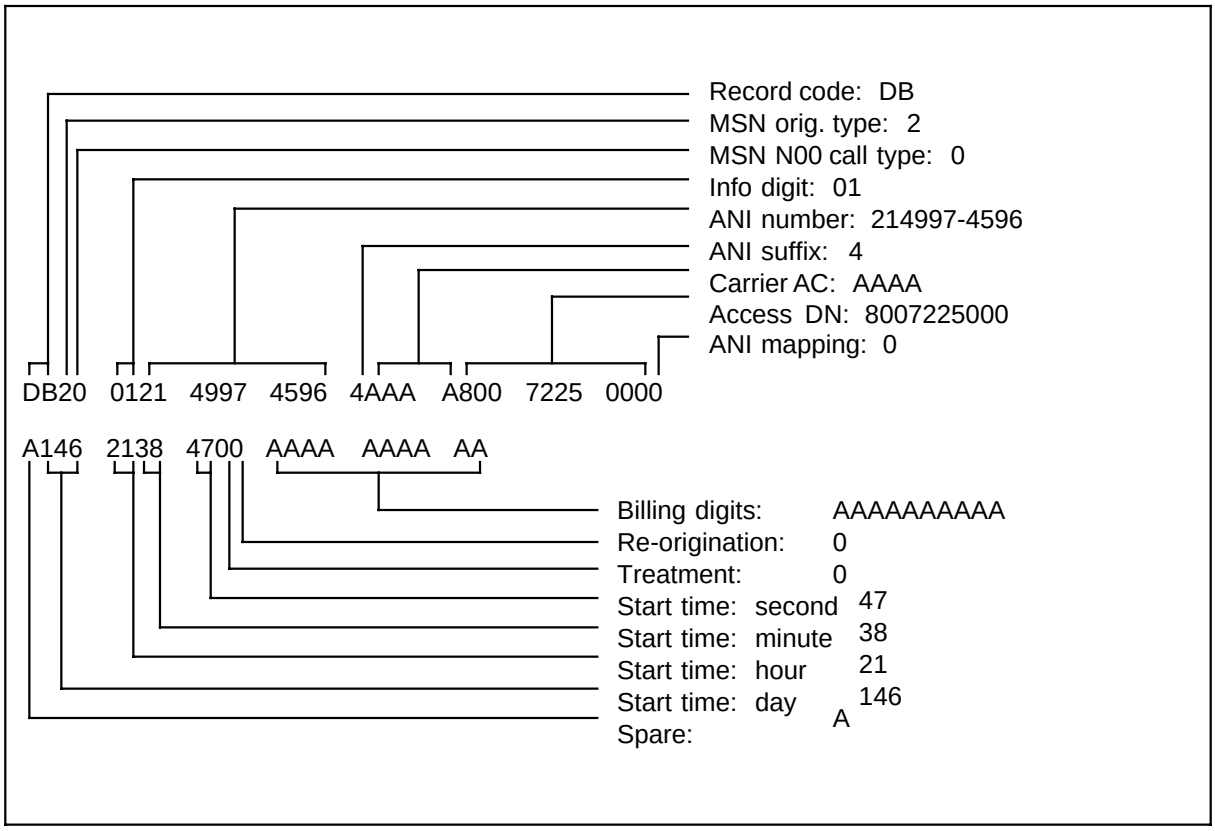


Figure 4-10 AMADUMP HEX dump example for a DC extension record

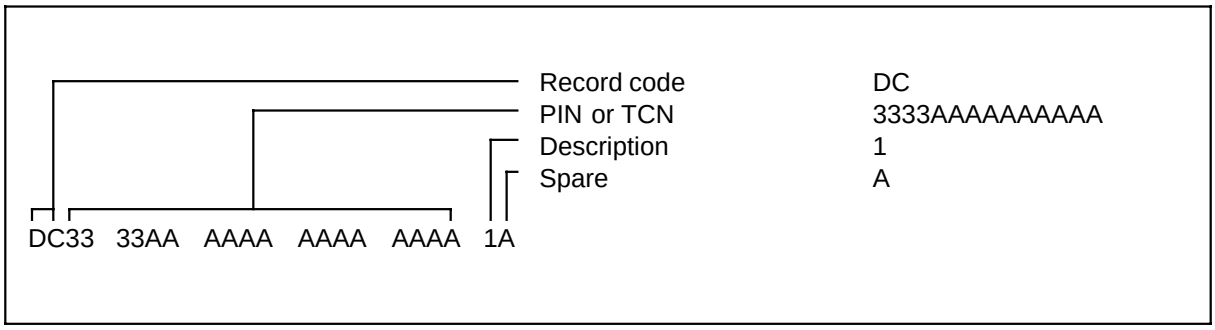


Figure 4-11 AMADUMP HEX dump example for a DC extension record

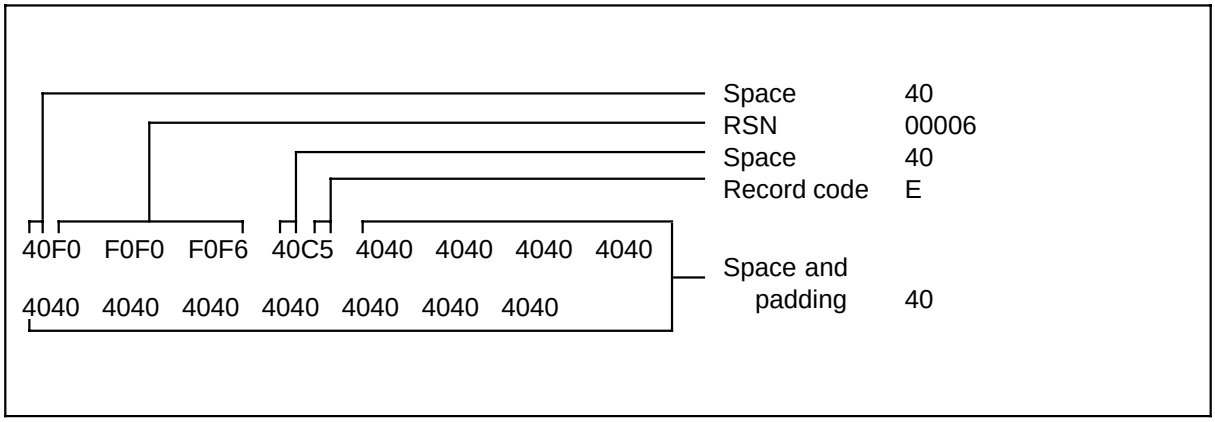


Figure 4-12 AMADUMP HEX dump example for a FA rotation record

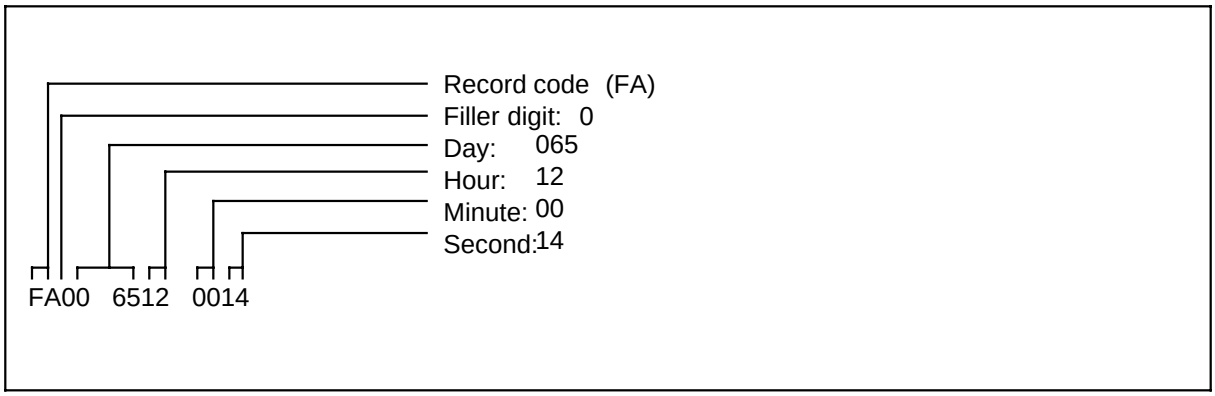


Figure 4-13 AMADUMP HEX dump example for a FD restart record

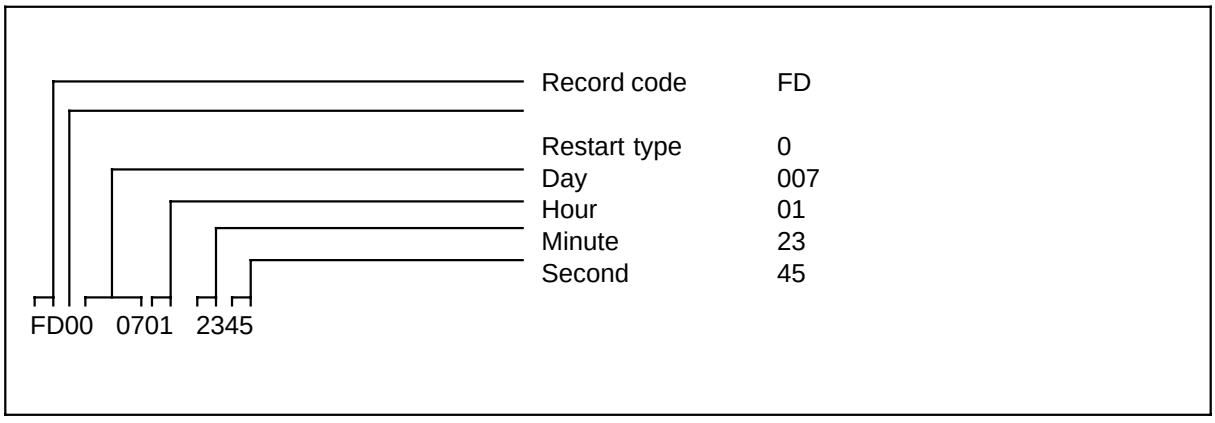


Figure 4-14 AMADUMP HEX dump example for a FE clock change entry record

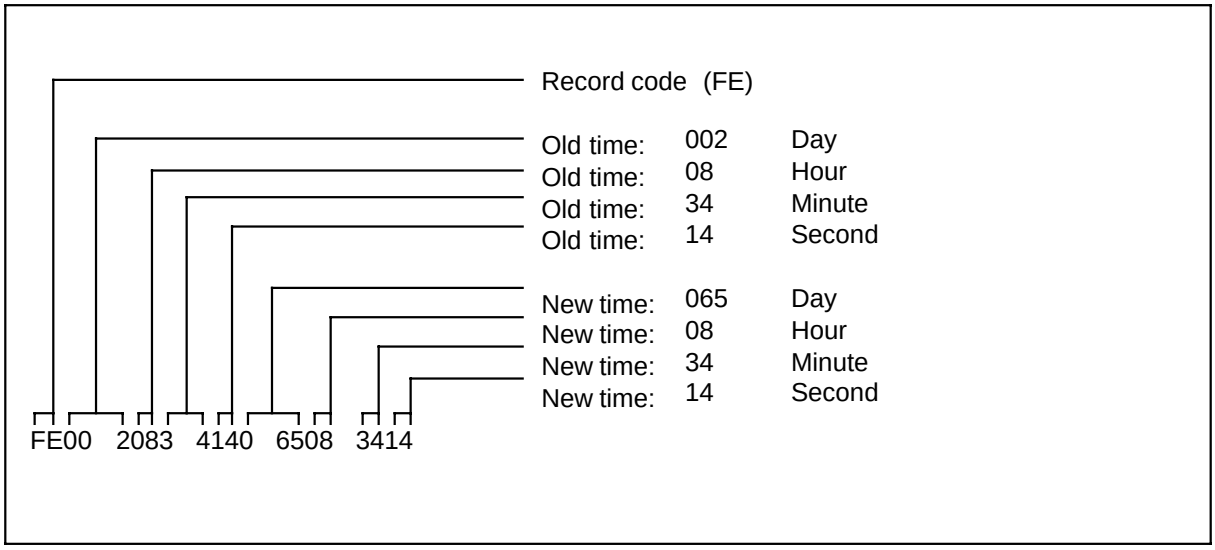
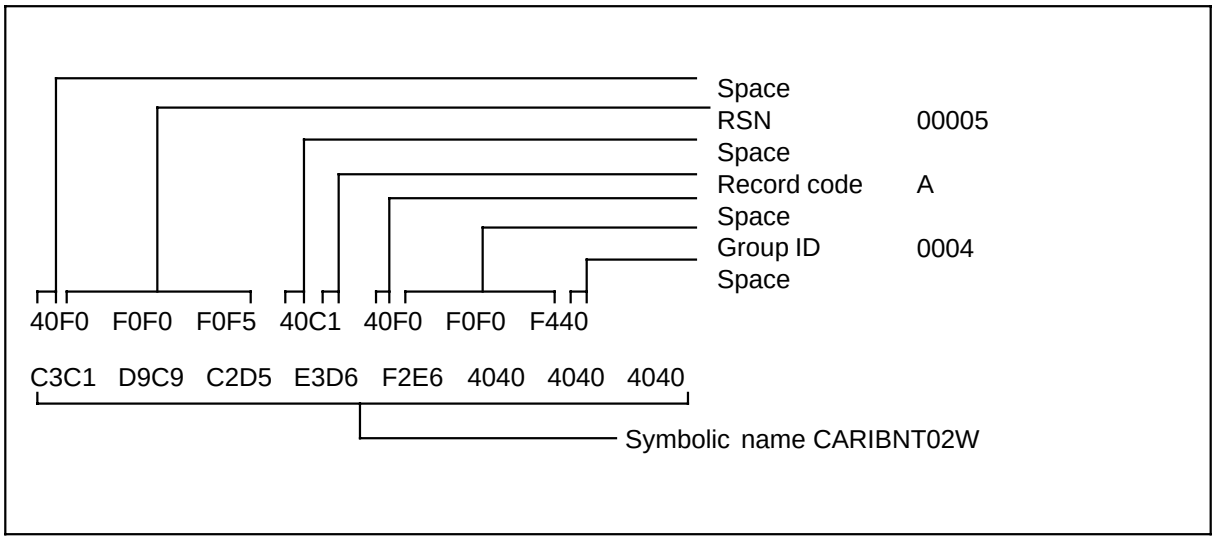


Figure 4-15 AMADUMP HEX dump example for data group translator records



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North American DMS-100

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