UNIVERGE

NEC

NEAX 2000 IPS
INTERNET PROTOCOL SERVER

SMDR/MCI/PMS Interface Specifications

NWA-008866-001
ISSUE 4.0

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INTRODUCTION

PURPOSE

This manual describes the interface specifications for Station Message Detail Recording (SMDR), Message Center Interface (MCI) and Property Management System (PMS) Interface and PMS operation on the NEAX 2000 IPS INTERNET PROTOCOL SERVER.

OUTLINE OF THIS MANUAL

This manual consists of four chapters. The following paragraphs summarize Chapters 1 through 4.

CHAPTER 1 SMDR SPECIFICATIONS

This chapter explains the call information, the SMDR terminal interface and the data transmission format.

CHAPTER 2 MCI SPECIFICATIONS

This chapter explains the line control characteristics of the Message Center Interface (MCI) and the data transmission protocol.

CHAPTER 3 PMS INTERFACE SPECIFICATIONS

This chapter explains the line control characteristics of the Property Message System (PMS) interface and the data transmission protocol.

CHAPTER 4 PMS OPERATION

This chapter explains the operations associated with each PMS feature message. The set of feature messages used can vary from one PMS to another, depending on system applications. For each feature message, general operations and PBX and/or PMS function will be discussed, and function codes and their uses will be defined.

TERMS IN THIS MANUAL

PBX System Designation

PBX system is designated as “PBX” or “system” usually.

When we must draw a clear line between the PBX systems, they are designated as follows.

2000 IPS : NEAX 2000 IPS INTERNET PROTOCOL SERVER

IPS^{DMR} : NEAX IPS^{DMR} INTERNET PROTOCOL $SERVER^{DMR}$

IPS^{DM} : NEAX IPS^{DM} INTERNET PROTOCOL $SERVER^{DM}$

NOTE: *In regard to the China market, we have not released NEAX 2000 IPS INTERNET PROTOCOL SERVER but NEAX 2000 is released.*

REFERENCE MANUAL

During installation, refer also to the manuals below:

Command Manual:
Contains Customer Administration Terminal (CAT) operation, command functions and data required for programming the system, and Resident System Program.

Office Data Programming Manual:
Contains the Customer Specifications Sheets and Office Data Programming Sheets.

Feature Programming Manual:
Contains procedure for programming each business and hotel feature.

Installation Procedure Manual:
Contains the installation procedure for the PBX system.

NEAX IPS^{DM} Hardware Installation Guide:
Contains the general information and installation procedure for the NEAX IPS^{DM} (Internet Protocol Server Distributed Model)/NEAX IPS^{DMR} (Internet Protocol Server Distributed Model Remote) System.

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CHAPTER 1

SMDR SPECIFICATIONS

This chapter explains the call information, the SMDR terminal interface and the data transmission format.

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CALL INFORMATION

Kinds of SMDR Output

The PBX provides the following kinds of SMDR (Station Message Detail Recording) interface, output format and output information.

(1) SMDR Interface
- SMDR with AP00 (PN-AP00-B with AP00 program)
- SMDR with AP00 (PN-AP00-B/PN-AP00-D with MRCA program)
- MP built-in SMDR on RS-232C
- MP built-in SMDR on IP

(2) SMDR Output Format
- Former NEAX 2400 IMS Format
- Extended NEAX 2400 IMS Format
- NEAX 1400 IMS Format

(3) SMDR Output Information
- Call Record for Outgoing Trunk Calls
- Call Record for Incoming Trunk Calls
- Call Record for Station to Station Calls **[Series 3600 software or later] NOTE 1, NOTE 2**

NOTE 1: *Call record for station to station calls is available by using the following SMDR interface.*
- *SMDR with AP00 (PN-AP00-B/PN-AP00-D with MRCA program)*
- *MP built-in SMDR on RS-232C*
- *MP built-in SMDR on IP*

NOTE 2: *Call record for station to station calls is not available in Centralized Billing-CCIS.*

Available Combination between SMDR and SMDR Output Format

(1) For own office (center office)
When sending the call information of own office (center office) to SMDR terminal, the available combination between SMDR and the SMDR output format is as follows.

×: Available –: Not available

SMDR	FORMER NEAX 2400 IMS FORMAT	EXTENDED NEAX 2400 IMS FORMAT	NEAX 1400 IMS FORMAT
SMDR with AP00 (PN-AP00-B with AP00 program)	×	–	×
SMDR with AP00 (PN-AP00-B/PN-AP00-D with MRCA program)	×	× **[Series 3400 software or later] NOTE**	–
MP built-in SMDR on RS-232C	×	× **[Series 3400 software or later]**	–
MP built-in SMDR on IP	× **[Series 3400 software or later]**	× **[Series 3400 software or later]**	–

NOTE: *The extended NEAX 2400 IMS format is available by using SC-3168 MRCA program issue 2 or later.*

The combination patterns of output available at the same time is as shown below.

×: Available –: Not available

SMDR	PATTERN A	PATTERN B	PATTERN C	PATTERN D
SMDR with AP00 (PN-AP00-B with AP00 program)	×	–	×	–
SMDR with AP00 (PN-AP00-B/PN-AP00-D with MRCA program)	–	×	–	×
MP built-in SMDR on RS-232C	×	×	–	–
MP built-in SMDR on IP	–	–	×	×

(2) For center office of Centralized Billing-CCIS
When sending the call information received from local/tandem office to SMDR terminal of center office for Centralized Billing-CCIS, the available combination between SMDR and the SMDR output format is as follows. One type of SMDR is available among the following SMDR in center office.

×: Available –: Not available

SMDR	FORMER NEAX 2400 IMS FORMAT	EXTENDED NEAX 2400 IMS FORMAT
SMDR with AP00 (PN-AP00-B with AP00 program)	×	–
SMDR with AP00 (PN-AP00-B/PN-AP00-D with MRCA program)	×	× **[Series 3400 software or later] NOTE**
MP built-in SMDR on RS-232C	–	–
MP built-in SMDR on IP	× **[Series 3400 software or later]**	× **[Series 3400 software or later]**

NOTE: *The extended NEAX 2400 IMS format is available by using SC-3168 MRCA program issue 2 or later.*

(3) For local office of Centralized Billing-CCIS
When sending the call information of local/tandem office to center office for Centralized Billing-CCIS, the available combination between SMDR and the SMDR output format is as follows.
One type of SMDR is available among the following SMDR in center office.

×: Available –: Not available

SMDR	FORMER NEAX2400 IMS FORMAT	EXTENDED NEAX2400 IMS FORMAT
SMDR with AP00 (AP00 with AP00 program)	×	–
SMDR with AP00 (AP00 with MRCA program)	×	–
MP built-in SMDR on RS-232C	×	× **[Series 3400 software or later]**
MP built-in SMDR on IP	–	–

Summary of SMDR Output Format

The following call information is provided to the SMDR terminal upon completion of each outgoing trunk call, incoming trunk call or station to station call.

(1) Former/Extended NEAX 2400 IMS Format

×: Provided –: Not provided

CALL RECORD DESCRIPTION	OUTGOING TRUNK CALL	INCOMING TRUNK CALL	STATION TO STATION CALL
Type of Record	×	×	×
Outgoing Trunk Information			
Trunk Number (000-255) NOTE 1	×	–	–
Trunk Route Number (00-63)	×	–	–
Incoming Trunk Information			
Trunk Number (000-255) NOTE 1	–	×	–
Trunk Route Number (00-63)	–	×	–
Calling Party Information			
Calling Party Identification	×	–	×
Tenant Number (00-63)	×	–	×
Station Number (Max. 6 digits) NOTE 2	×	–	×
Attendant Number (00-07)	×	–	–
Trunk Route (00-63) + Trunk Number (000-255)	×	–	–
Called Party Information			
Called Party Identification	–	×	–
Tenant Number (00-63)	–	×	–
Station Number (Max. 6 digits) NOTE 2	–	×	–
Attendant Number (00-07)	–	×	–
Time of Start Conversation	×	×	×
Time of Call Completion	×	×	×

Continued on next page

×: Provided –: Not provided

CALL RECORD DESCRIPTION	OUTGOING TRUNK CALL	INCOMING TRUNK CALL	STATION TO STATION CALL
Account Code	×	×	–
Condition Code for Setting Up a Call	×	×	×
Route Advance Information	×	×	–
Called Tenant Number	–	–	×
Called Number (O.G. call: Max. 32 digits, S.S. call: Max. 6 digits)	×	–	×
Call Metering	×	×	–
Calling Office Number on Tandem Call (Max. 4 digits)	×	×	–
Billing Office Number on Tandem Call (Max. 4 digits)	×	×	–
ANI Information (Former: Max. 16 digits/ Extended: Max. 32 digits)	–	×	–
Authorization Code (Max. 10 digits)	×	–	–
Year of Start Conversation	×	×	×
Year of Call Completion	×	×	×
Condition Code for Advice of Charge (AOC)	×	–	–
Advice of Charge (AOC)	×	–	–

NOTE 1: *When providing SMDR with AP00 (AP00 with AP00 program), the Trunk Number (000-254) can be used (Trunk Number 255 cannot be used).*

NOTE 2: *When providing SMDR with AP00 (AP00 with AP00 program), 1 to 5 digits station number is available. When making 5 digits station number, the first digit of station number should be fixed (0-9, *, #) by the command setting (CMD000>71, CMD000>252, CMD001>189).*

(2) NEAX 1400 IMS Format

- Serial Number of SMDR record
- Condition Code
- Calling Party
  - Station Number (Max. 4 digits)

    or

  - Attendant Number (00-07)
- Time of Start Conversation-Month, Day, Hour, Minute, Second
- Call Duration-Hour, Minutes, Seconds
- Access Code, if used. (Max. 2 digits)
- Called Number (Max. 26 digits)
- Trunk Number (000-255)
- Route Number (00-63)
- Account Code (Max. 16 digits)
- Authorization Code/DISA (Remote Access to System) Code (Max. 16 digits)

SMDR TERMINAL INTERFACE

The interface specification of the SMDR terminal is as follows:

- SMDR with AP00/MP built-in SMDR on RS-232C

ITEM	SPECIFICATIONS	
	SMDR with AP00	MP built-in SMDR on RS-232C
Physical Interface	RS-232C	RS-232C
Synchronization	Asynchronous	Asynchronous
Protocol	Non protocol (Free Wheel)	Non protocol (Free Wheel)
Transmission Speed	1200/2400/4800/9600 bps (for PN-AP00-B with AP00 program) **NOTE 1** 300/1200/2400/4800 /9600/19200 bps (for PN-AP00-B/PN-AP00-D with MRCA program)	1200/2400/4800/9600/19200 bps
Stop Bit	1/1.5/2 bits	1/2 bits
I/O Port	No. 0-3 port of AP00-B card	RS port of MP card
Terminal Busy Detecting Method	Data Carrier Detect (DCD) signal ON/OFF (terminal ready/busy)	Data Carrier Detect (DCD) signal ON/OFF (terminal ready/busy)

NOTE 1: *For the port 1 and 3 of AP00-B card with AP00 program, data speed cannot be set to 9600 bps.*

NOTE 2: *Upon confirming that the status of the DCD signal from the SMDR terminal is ON, the system sends out call information to the SMDR terminal.*
When the status of the DCD signal is OFF, the system does not send out call information but temporarily stores the information until the SMDR terminal becomes ready to receive call information, in other words, until the status of the DCD signal changes to ON. If the status of the DCD signal has changed from ON to OFF while transmission of a specific call information is in progress, the next call information is not sent out but stored into the system temporarily. The same applies to CTS and DSR signals.

NOTE 3: *For output to MP built-in SMDR, one message is sent at intervals of one second unidirectionally.*

- MP built-in SMDR on IP

ITEM	SPECIFICATIONS
Physical Layer	Ethernet
Connection Layer	The Ethernet packet format complies with the DIX standard
TCP/IP Protocol	ARP, IP, ICMP, UDP, TCP
Socket Interface	Complies with 4.3 BSD socket interface
Transport Protocol	TCP stream type protocol
Application Port Number	60010 (fixed)
Number of Connection	1
Client/Server	Client : SMDR terminal Server: PBX
Transmission Code	7-bit ASCII code
Quasi-normal Restriction Condition	1. When connection is closed 2. Status monitoring text

NOTE 1: *The MP card in main site communicates with the SMDR terminal. Therefore, in the communication settings at SMDR terminal side, set the IP address to connected to the address specified by office data (CM0B Y=00>00 or CM0B Y=02>03), and application port number shown in the above table.*

NOTE 2: *One message is sent each time a request is received from SMDR terminal.*

DATA TRANSMISSION SEQUENCE FOR ETHERNET INTERFACE

Establishing a connection, outputting billing Information, and releasing a connection are performed between the PBX and the SMDR terminal in the following timings.

(1) Timing to Establish a Connection
A connection is established when a connection request is received from the SMDR terminal.

(2) Timing to Output Billing Information
Billing information is output when a polling request is received from the SMDR terminal connected to LAN.

(3) Timing to Release the Connection
The connection is released when the SMDR terminal does not receive data from the PBX in a predetermined time interval. Also the connection is released when the PBX receives connection release text from the SMDR terminal or does not receive data from the SMDR terminal within a given time interval.

SMDR Identifier General Information

(1) SMDR Identifiers

NEC Proprietary message used for communication between the PBX and the SMDR collection equipment (e.g.AimWorx).

SMDR Header	Direction	Description
Data Request (Identifier: 1)	Client to Server	Sent by the client when it requests the server to send billing data.
Sending Data (Identifier: 2)	Server to Client	Response to a Data Request. This includes the billing data (SMDR Records).
Server Response (Identifier: 3)	Server to Client	Response to a Status Monitoring or a Data Request if there is no billing data to send.
Client Response (Identifier: 4)	Client to Server	Response to a Sending Data. This is an ACK from the client to indicate it received the billing data.
Status Monitoring (Identifier: 5)	Client to Server	Used in monitoring the server status from the client's viewpoint or the client from the server's viewpoint. At the same time, this is used to notify the server of the client status. This is the Heartbeat or Keep Alive message.
Connection Disconnect (Identifier: 6)	Client to Server	Sent from the client to the server to disconnect the connection.

(2) Device Number

One SMDR collection devices may connect to a single PBX. Device Number is fixed at "00".

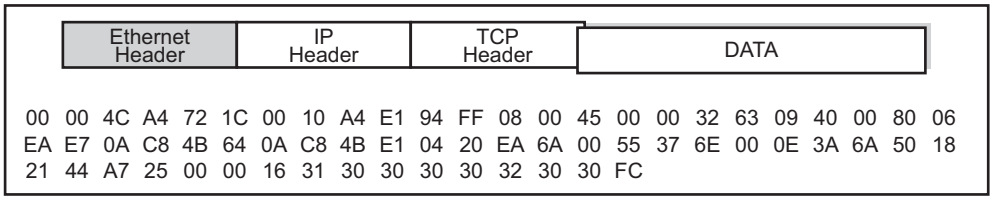
(3) Parity

Either odd, even parity or no parity may be used. Horizontal parity check method is used and default range of odd parity to be calculated will be from the end of SYN to the beginning of Parity.

- Odd Parity: Execute the logic operation XOR per 1 byte in the sequence. On that data, bit reverse is operated.
- Even Parity: Operate the logic operation XOR per 1 byte in the sequence.
- No Parity

SMDR Identifier 1: Data Request

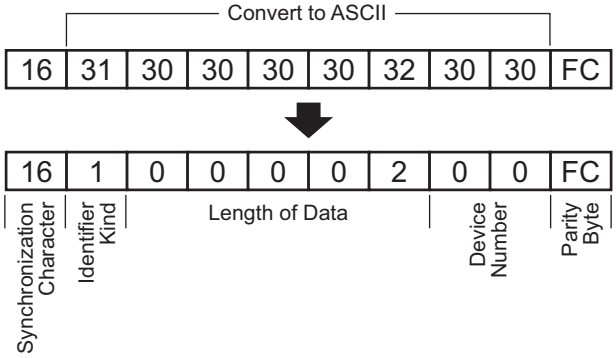
Sample Ethernet frame with Data Request Identifier



The SMDR equipment (e.g. AimWorx) sends the Data Request Identifier to the PBX when it is requesting that billing data is to be sent.

When the SMDR equipment sends a Data Request to a PBX, the PBX will respond with either a Send Data, which includes the billing data, or a Server Response if there is no billing data to be sent.

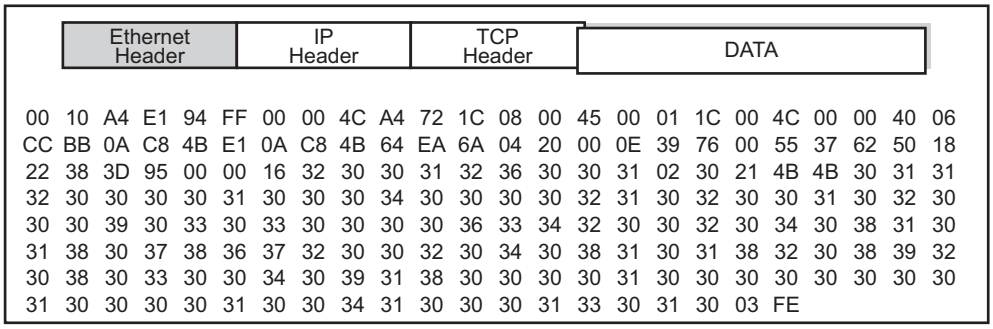
When a Data Request has been sent to a PBX, the PBX must respond within 10 seconds (default timer setting, timer value can be set from 1 to 30 seconds). After 10 seconds, the SMDR equipment will send the Data Request again. The Data Request will be re-sent a predetermined number of times (6?) and if there is still no response from the PBX, the socket will be discarded and the IP connection reset.



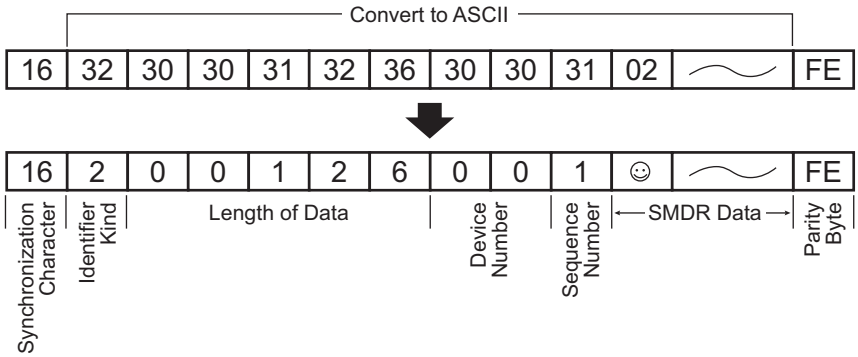
Synchronization Character : Data is fixed at “16”. Used to maintain synchronization.
Identifier Kind : Tells what type of SMDR Identifier is being sent.
Length : How many characters of data are to follow in the SMDR Identifier.
Device Number : Tells which SMDR Device is sending this data. Device Number is fixed at “00”.
Parity Byte : Used for error detection.

SMDR Identifier 2: Sending Data

Sample Ethernet frame with Sending Data Identifier



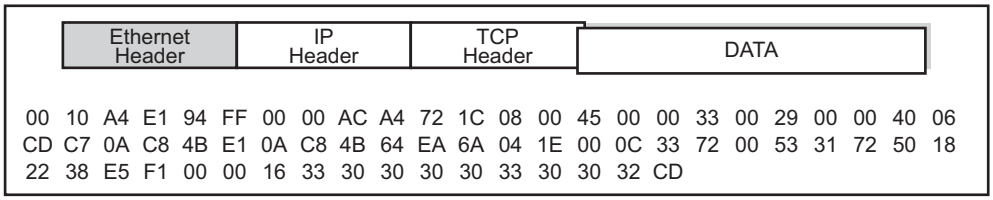
The PBX sends the Sending Data Identifier to the SMDR equipment after a Data Request header has been received. One Call Records will be included in this Identifier.



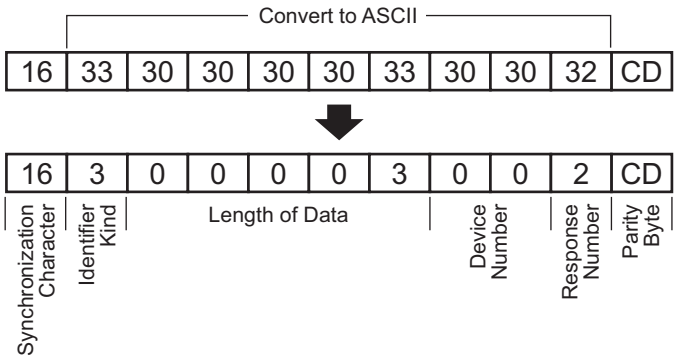
Synchronization Character : Data is fixed at “16”. Used to maintain synchronization.
Identifier Kind : Tells what type of SMDR Identifier is being sent.
Length : How many characters of data are to follow in the SMDR Identifier.
Device Number : Tells which SMDR Device is sending this data. Device Number is fixed at “00”.
Sequence Number : Ranges from 0 to 9. This is used to match acknowledgments to the correct sent messages.
Parity Byte : Used for error detection.

SMDR Identifier 3: Server Response

Sample Ethernet frame with Server Response Identifier



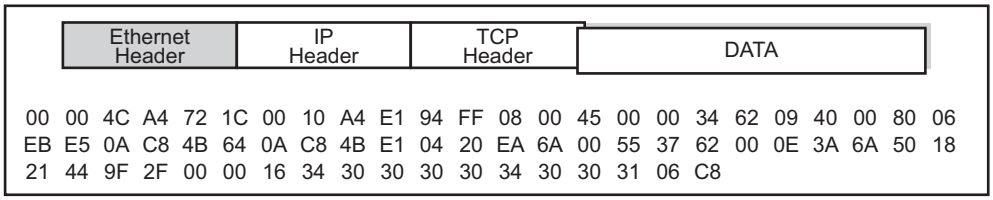
The PBX sends the Server Response Identifier to the SMDR equipment in response to a Data Request Identifier when there are no Call Records to send. This header could also be sent in response to a Status Monitoring Identifier.



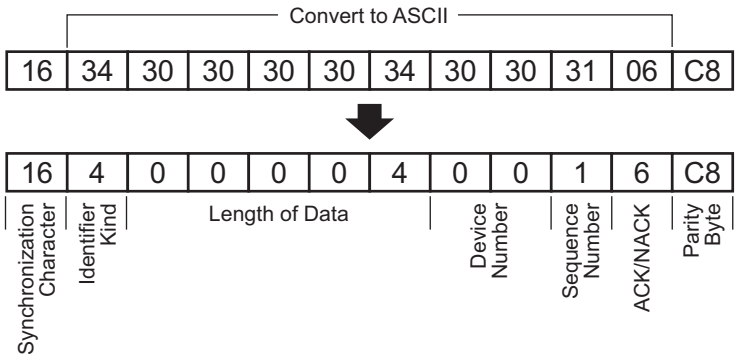
Synchronization Character : Data is fixed at “16”. Used to maintain synchronization.
Identifier Kind : Tells what type of SMDR Identifier is being sent.
Length : How many characters of data are to follow in the SMDR Identifier.
Device Number : Tells which SMDR Device is sending this data. Device Number is fixed at “00”.
Response Number : Indicates what type of response this message is;
1 - Sent in response to a Data Request Identifier when no SMDR records are buffered.
2 - Send in response to a Status Monitoring Identifier.
3 - Parity error in received text.
5 - Error in received text (received illegal data).
Parity Byte : Used for error detection.

SMDR Identifier 4: Client Response

Sample Ethernet frame with Client Response Identifier



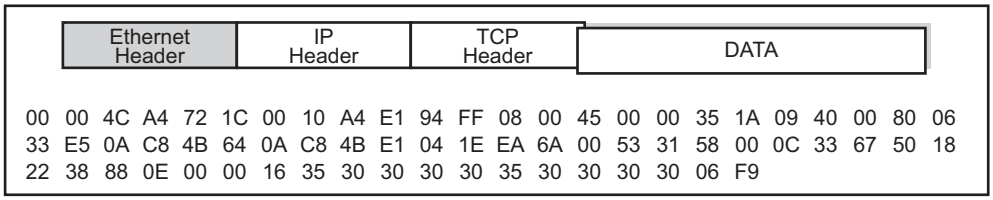
The SMDR equipment sends the Client Response Identifier to the PBX in response to a Sending Data Identifier.



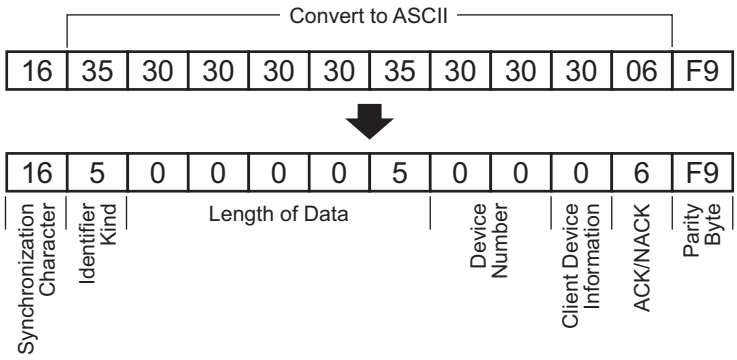
Synchronization Character : Data is fixed at “16”. Used to maintain synchronization.
Identifier Kind : Tells what type of SMDR Identifier is being sent.
Length : How many characters of data are to follow in the SMDR Identifier.
Device Number : Tells which SMDR Device is sending this data. Device Number is fixed at “00”.
Sequence Number : Ranges from 0 to 9. This is used to match acknowledgments to the correct sent messages.
ACK/NACK : Acknowledgment/Negative Acknowledgment.
06hex - Acknowledgment (Parity check shows no trouble)
15hex - Negative Acknowledgment (Parity check shows some error)
Parity Byte : Used for error detection.

SMDR Identifier 5: Status Monitoring

Sample Ethernet frame with Status Monitoring Identifier



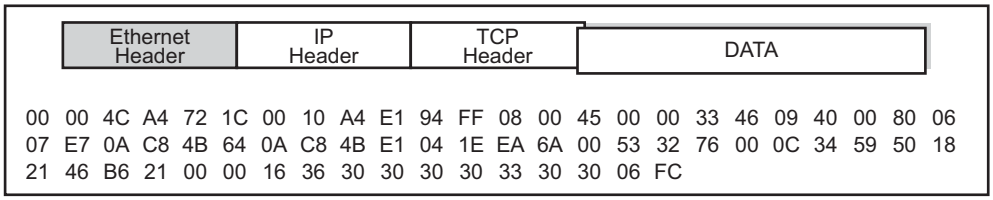
The Status Monitoring Identifier is used to send the PBX status to the SMDR equipment and/or SMDR equipment status to the PBX.



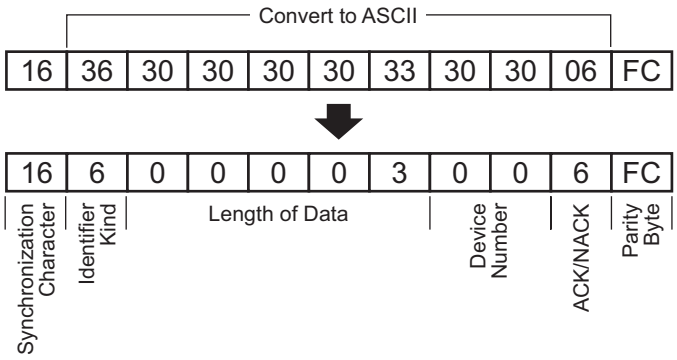
Synchronization Character : Data is fixed at “16”. Used to maintain synchronization.
Identifier Kind : Tells what type of SMDR Identifier is being sent.
Length : How many characters of data are to follow in the SMDR Identifier.
Device Number : Tells which SMDR Device is sending this data. Device Number is fixed at “00”.
Client Device Information (CDI): CDI is fixed at “00” (Normal).
ACK/NACK : Acknowledgment/Negative Acknowledgment.
06hex - Acknowledgment (Parity check shows no trouble)
15hex - Negative Acknowledgment (Parity check shows some error)
Parity Byte : Used for error detection.

SMDR Identifier 6: Connection Disconnect

Sample Ethernet frame with Connection Disconnect Identifier



The SMDR equipment sends the Connection Disconnect Identifier to the PBX to disconnect the connection. In response to this Identifier, the PBX promptly performs processing to disconnect this connection.

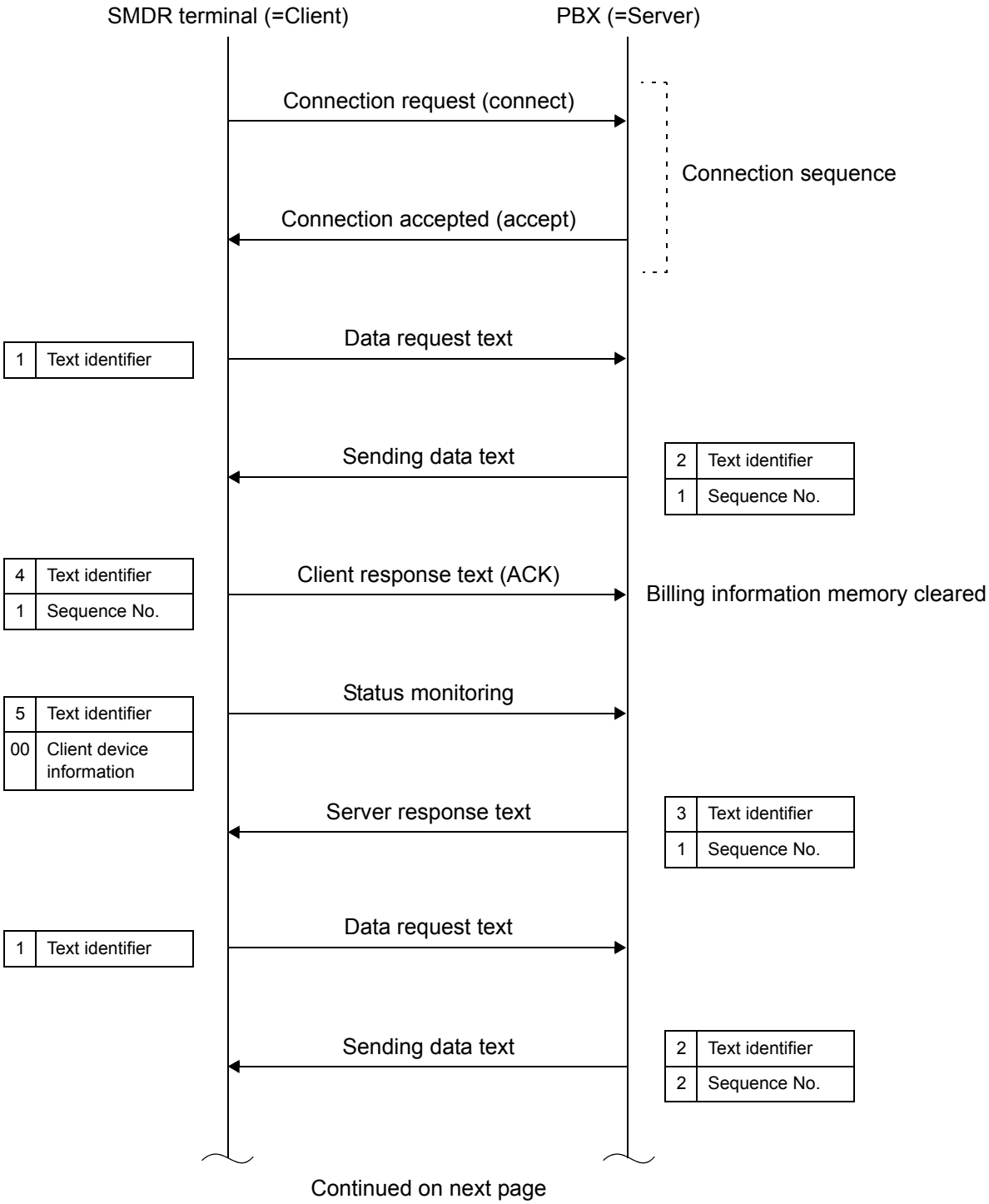


Synchronization Character : Data is fixed at “16”. Used to maintain synchronization.
Identifier Kind : Tells what type of SMDR Identifier is being sent.
Length : How many characters of data are to follow in the SMDR Identifier.
Device Number : Tells which SMDR Device is sending this data. Device Number is fixed at “00”.
ACK/NACK : Acknowledgment/Negative Acknowledgment.
06hex - Acknowledgment (Parity check shows no trouble)
15hex - Negative Acknowledgment (Parity check shows some error)
Parity Byte : Used for error detection.

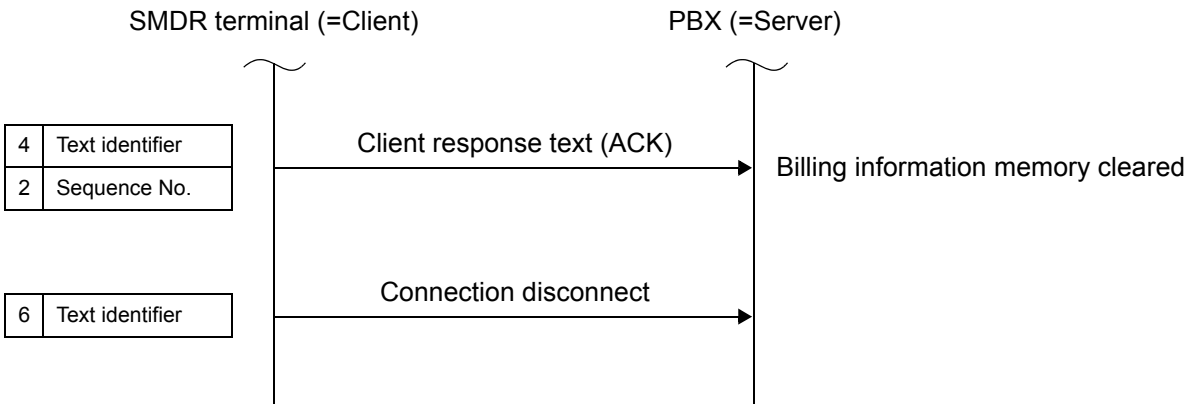
Sequence

The following shows sequences for data exchange between the PBX and the SMDR terminal.

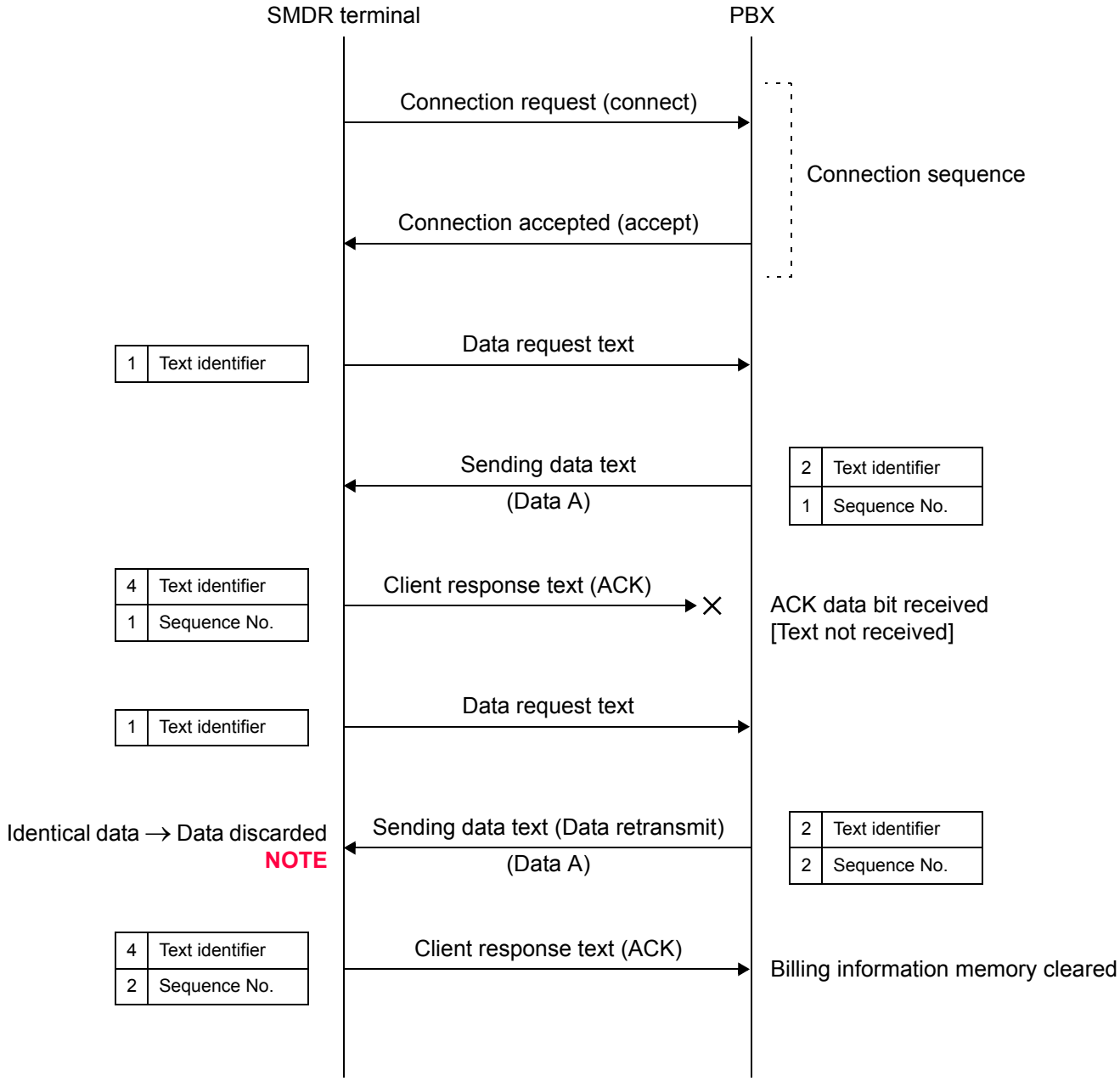
(1) Connection Establishment/Data Reception/Connection Release Sequence (Normal Processing)
Normal processing sequence to be followed when SMDR terminal requests the PBX to send data.



Continued on next page


SMDR terminal (=Client)
PBX (=Server)
4
Text identifier
2
Sequence No.
Client response text (ACK)
Billing information memory cleared
6
Text identifier
Connection disconnect

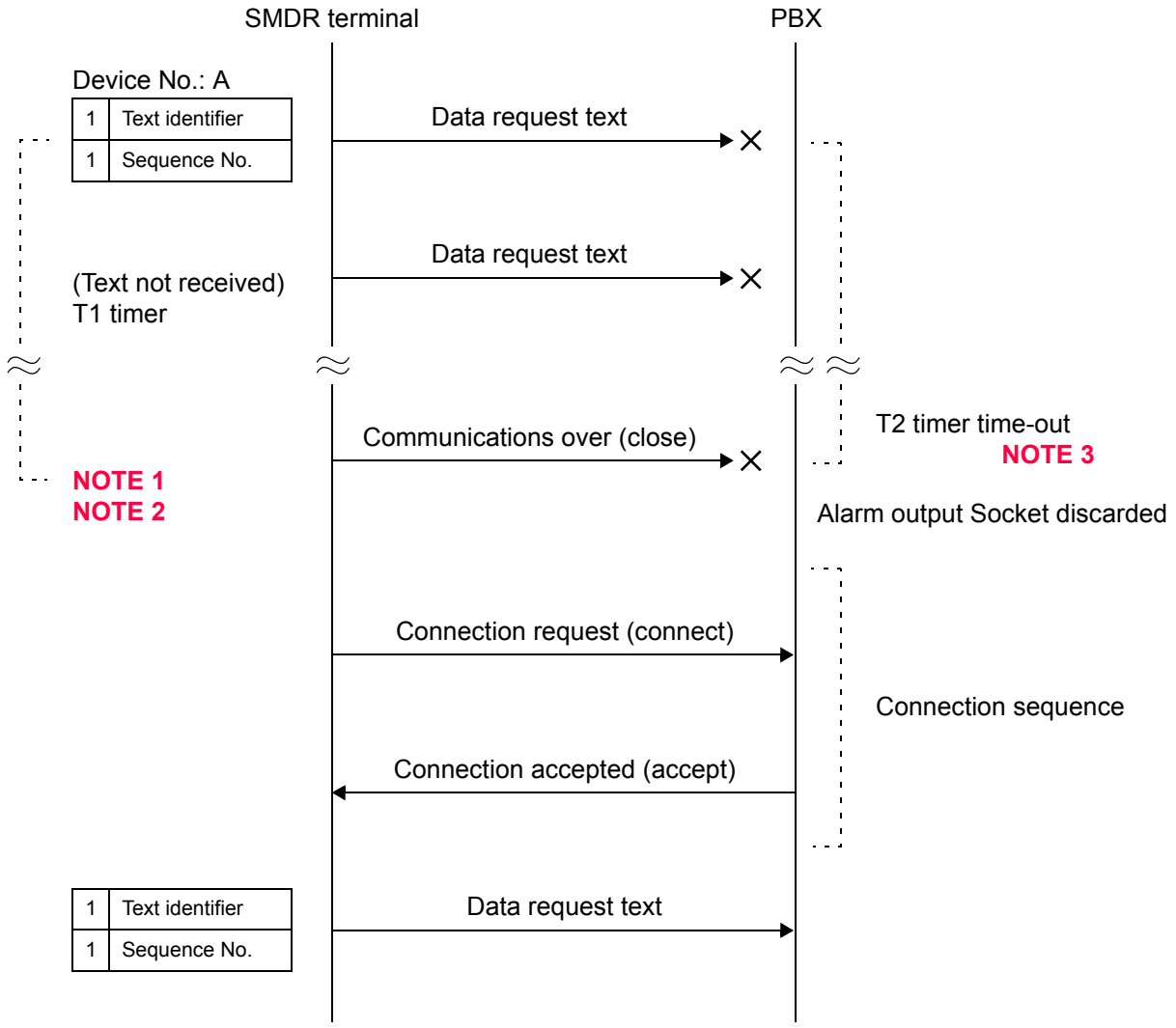
(2) Connection Establishment/Data Reception/Data Re-request (Error Processing)
Error processing sequence to be followed when SMDR terminal requests the PBX to send data and fails to receive data.



NOTE: *To prevent double reception of the same data, SMDR terminal checks the received data whether it is the same data to the preceding one (Doubly received data is discarded).*

(3) Reconnection Sequence

Processing sequence to be followed when the SMDR terminal and the PBX fail to communicate.



NOTE 1: *If the sequence is repeated in a predetermined time, and there is still no response from the PBX, the socket will be discarded or (communications over) processing will be performed.*

NOTE 2: *T1 timer value until the next processing is as follows.*

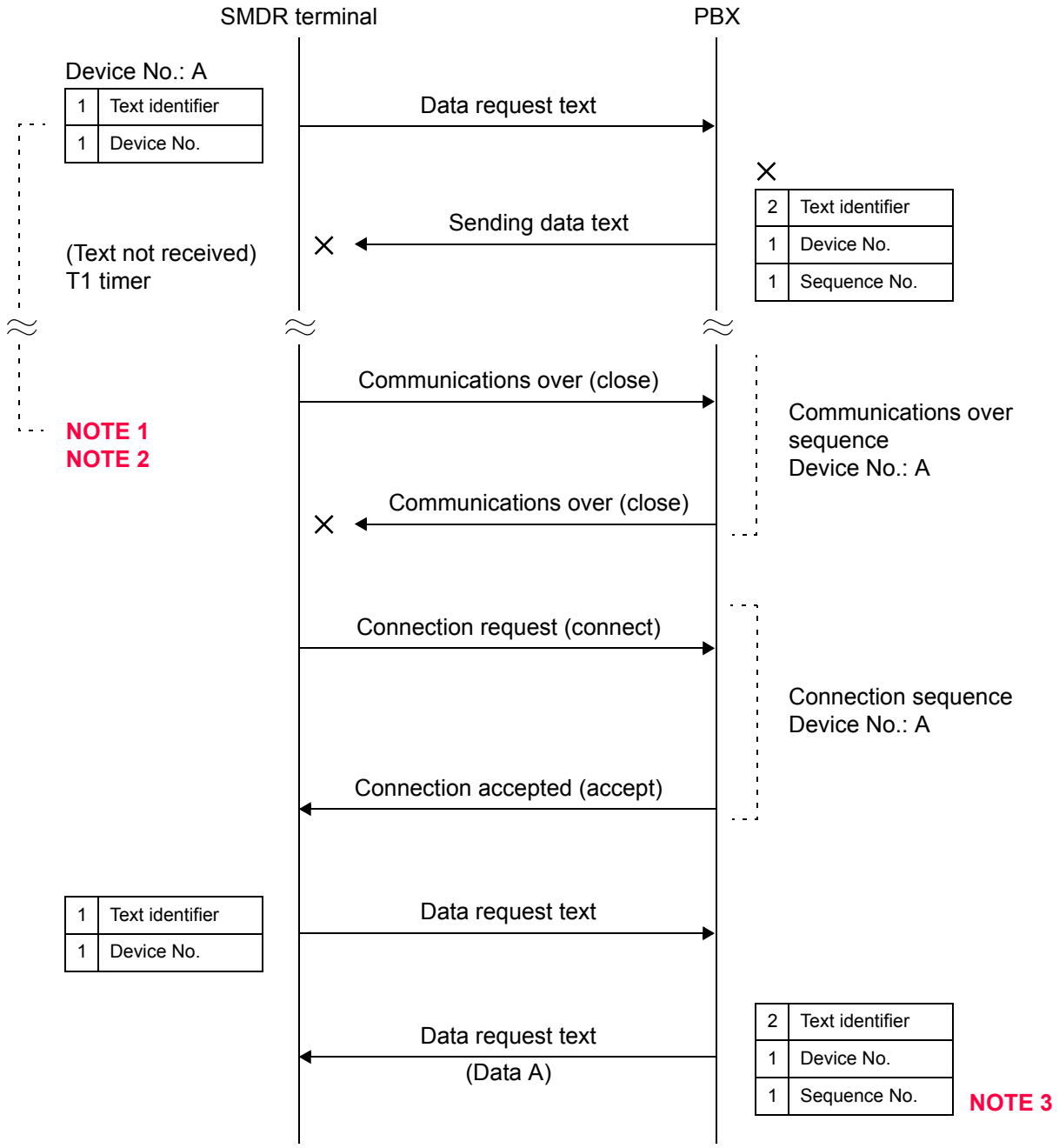
Default value: 10 sec.

Data range : 1 sec. to 30 sec.

NOTE 3: *The T2 timer mentioned above will be cleared when either a "status monitoring text" or "data request text" is received.*

T2 timer value until the next processing is 120 sec. to 180 sec. (Fixed).

When SMDR terminal performs reconnect processing and the PBX retains the previous socket:



NOTE 1: *If the sequence is repeated in a predetermined time, and there is still no response from the PBX, the socket will be discarded or (communications over) processing will be performed.*

NOTE 2: *T1 timer value until the next processing is as follows.*

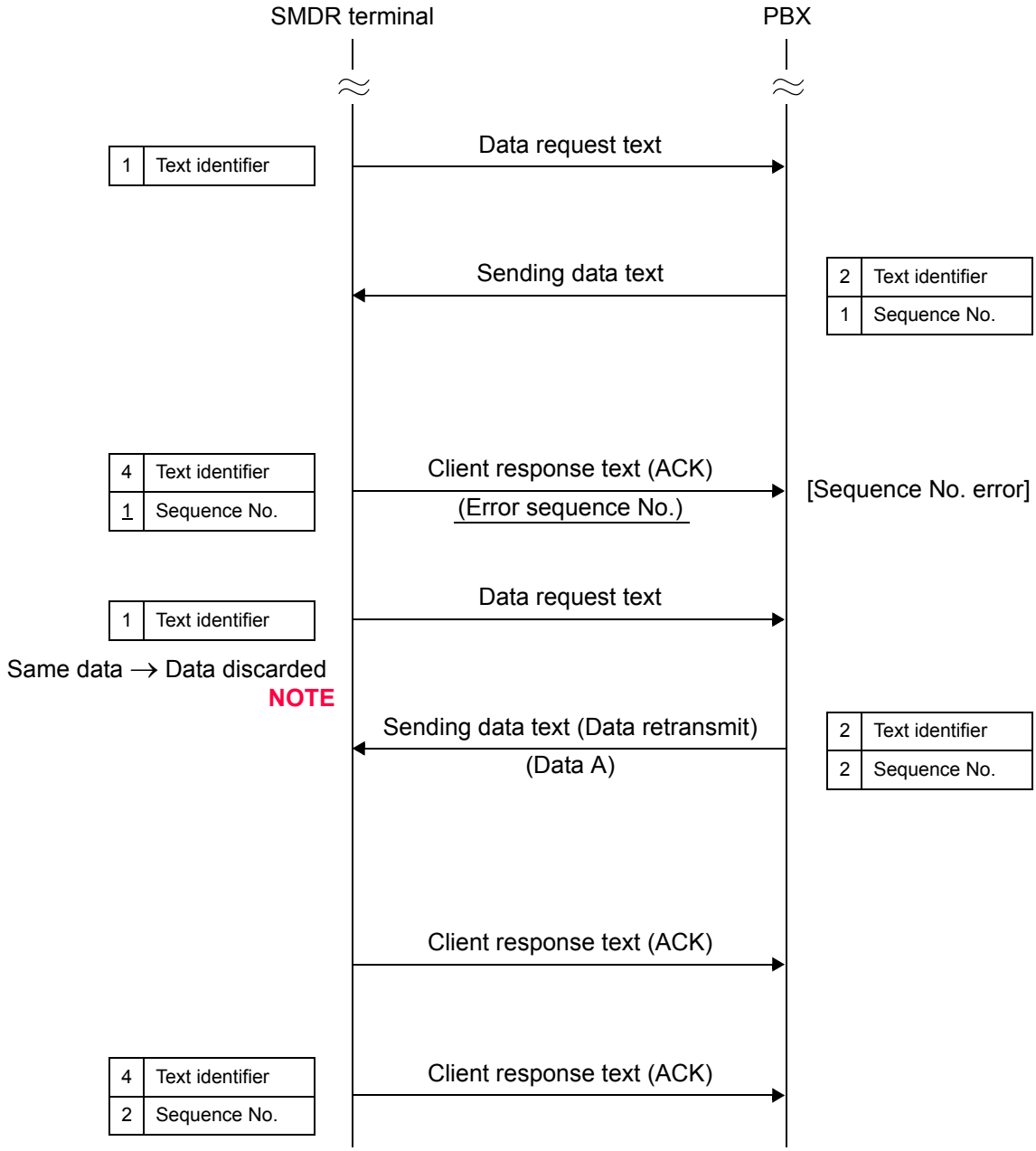
Default value: 10 sec.

Data range : 1 sec. to 30 sec.

NOTE 3: *The socket connected to the same device No. must not exist.*

(4) Sequence Number Error Sequence

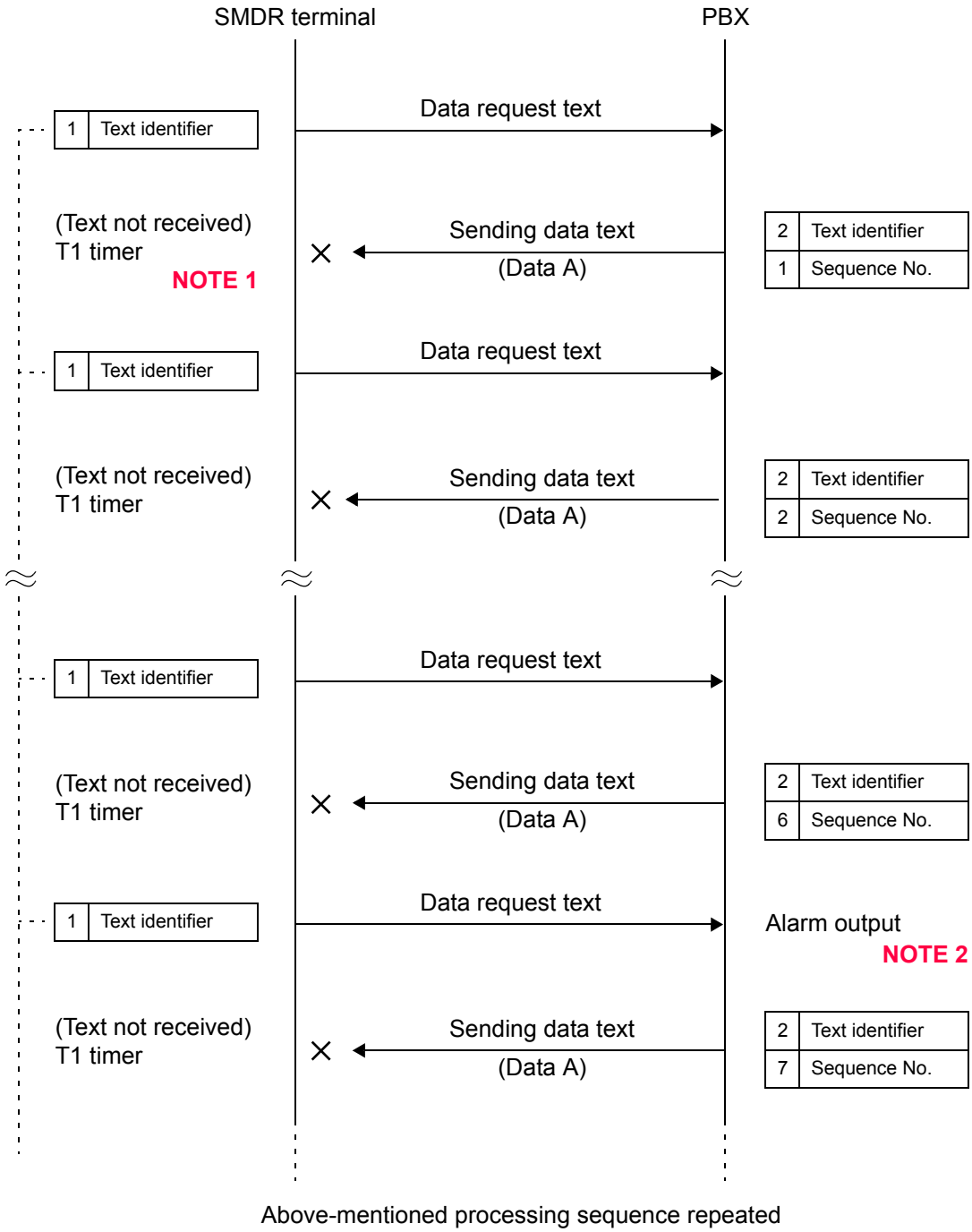
Error processing sequence to be followed when SMDR terminal returns an error sequence number for the data it has received from the PBX.



NOTE: *In the above sequence, SMDR terminal will receive the same data twice.*
To prevent double reception of the same data, SMDR terminal checks the received data whether it is the same data to the preceding one (Doubly received data is discarded).

(5) Server Sent Data Error (Data not Received by Client) Sequence

Processing sequence to be followed when the data sent by PBX to reach SMDR terminal.



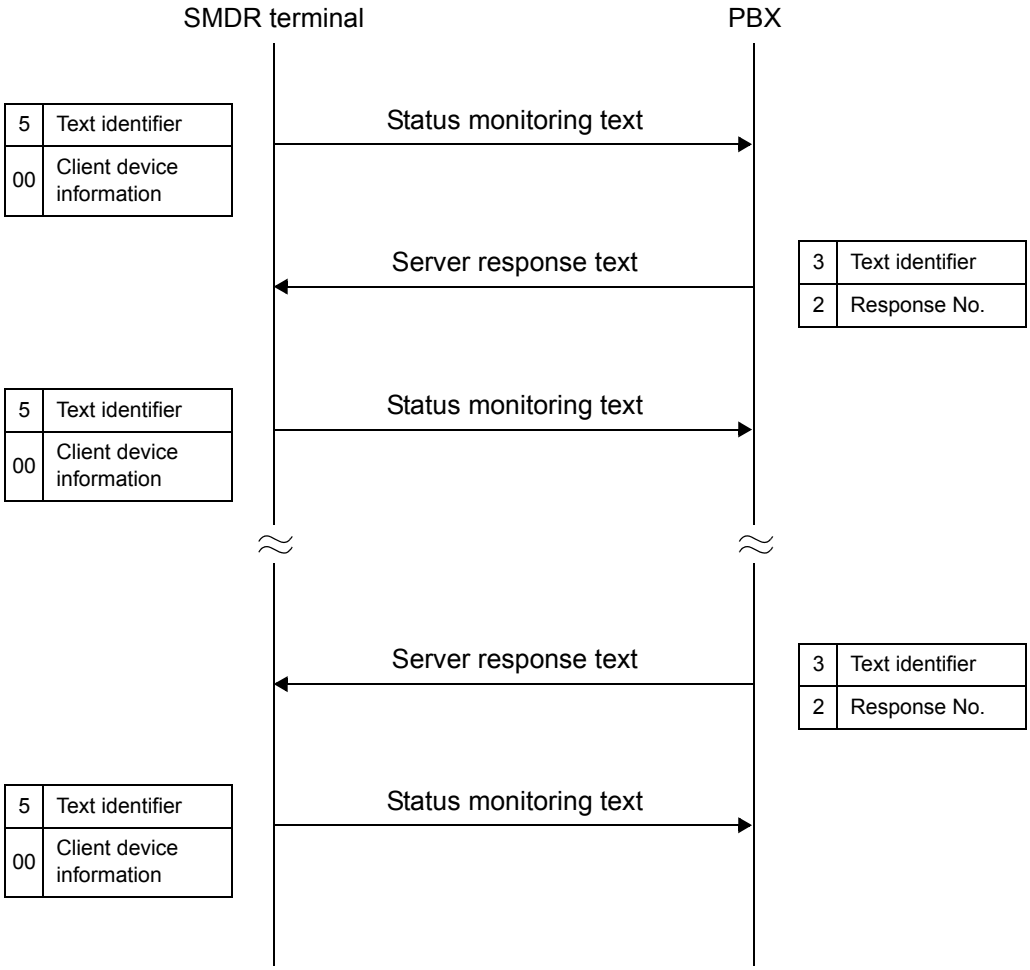
Above-mentioned processing sequence repeated

NOTE 1: *T1 timer value to the next processing is as follows.*
Default value: 10 sec.
Data range : 1 sec. to 30 sec.

NOTE 2: *When the PBX repeats the processing sequence in a predetermined time consecutively, it will output an alarm.*

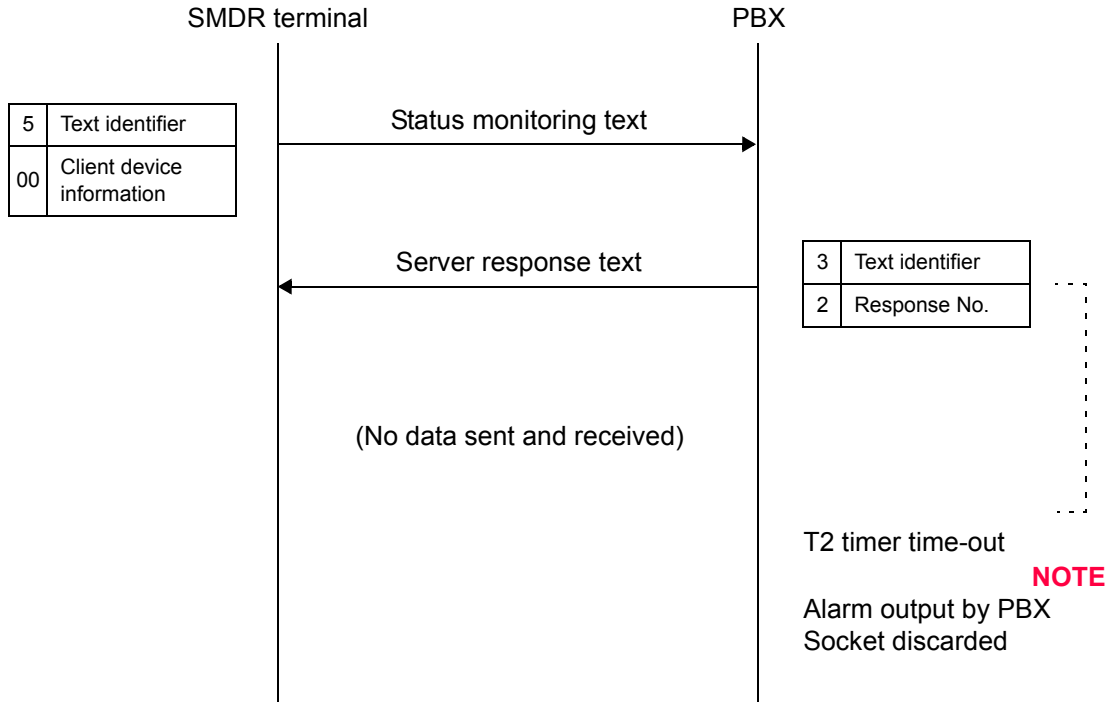
(6) Status Monitoring Sequence (Normal Processing)

Processing sequence to be followed when SMDR terminal does not send a “data request text” to the PBX.



(7) Status Monitoring Sequence (When Client Error is detected)

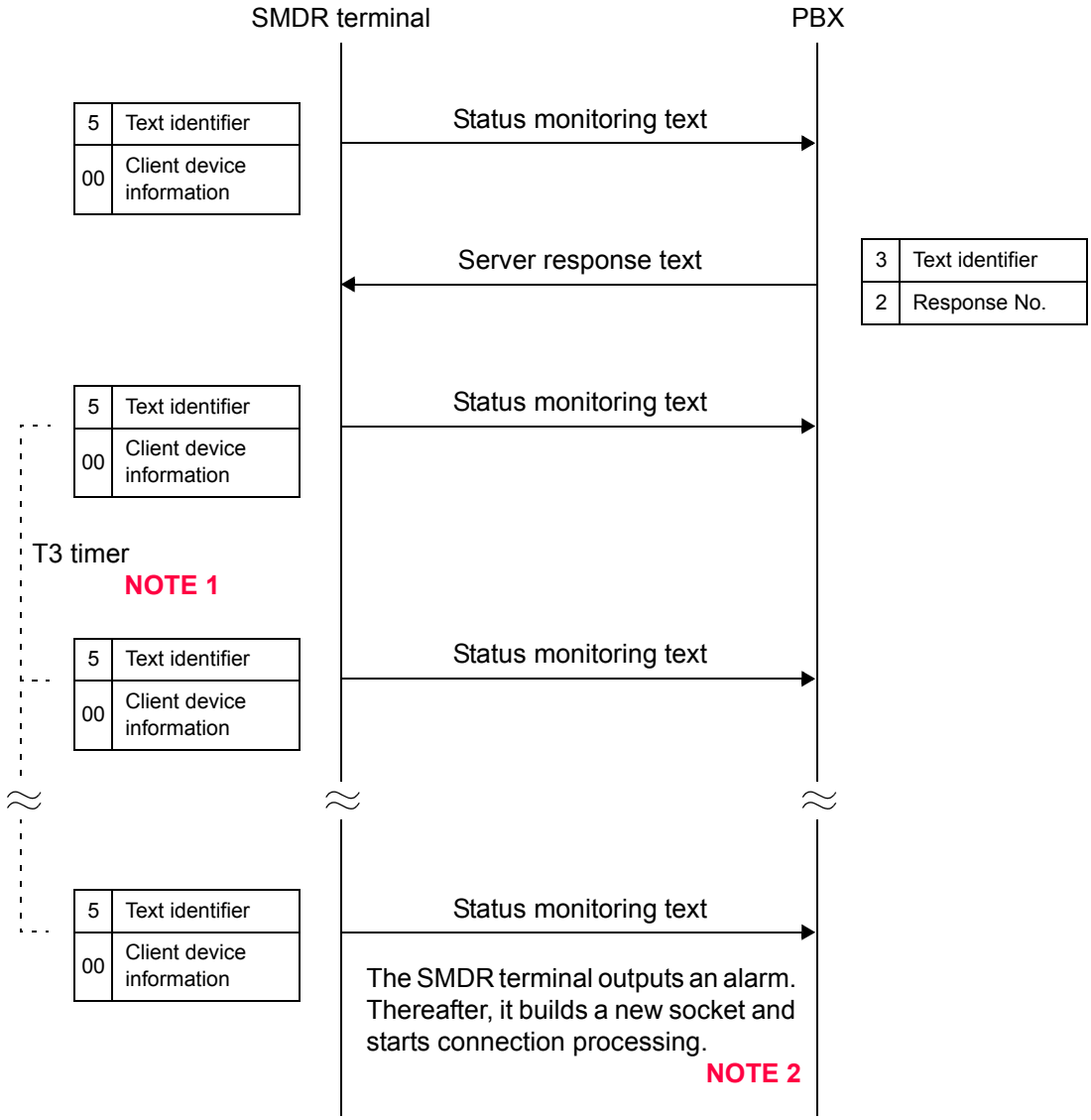
Processing sequence to be followed when the server detects SMDR terminal error during status monitoring.



NOTE: *The T2 timer described above will be cleared when either a "status monitoring text" or "data request text" is received.*

(8) Status Monitoring Sequence (When Server Error is detected)

Processing sequence to be followed when PBX error is detected by the SMDR terminal during status monitoring (when there is no response from the PBX at all).



NOTE 1: *T3 timer value until the next processing is as follows.*

Default value: 10 sec.

Data range : 1 sec. to 30 sec.

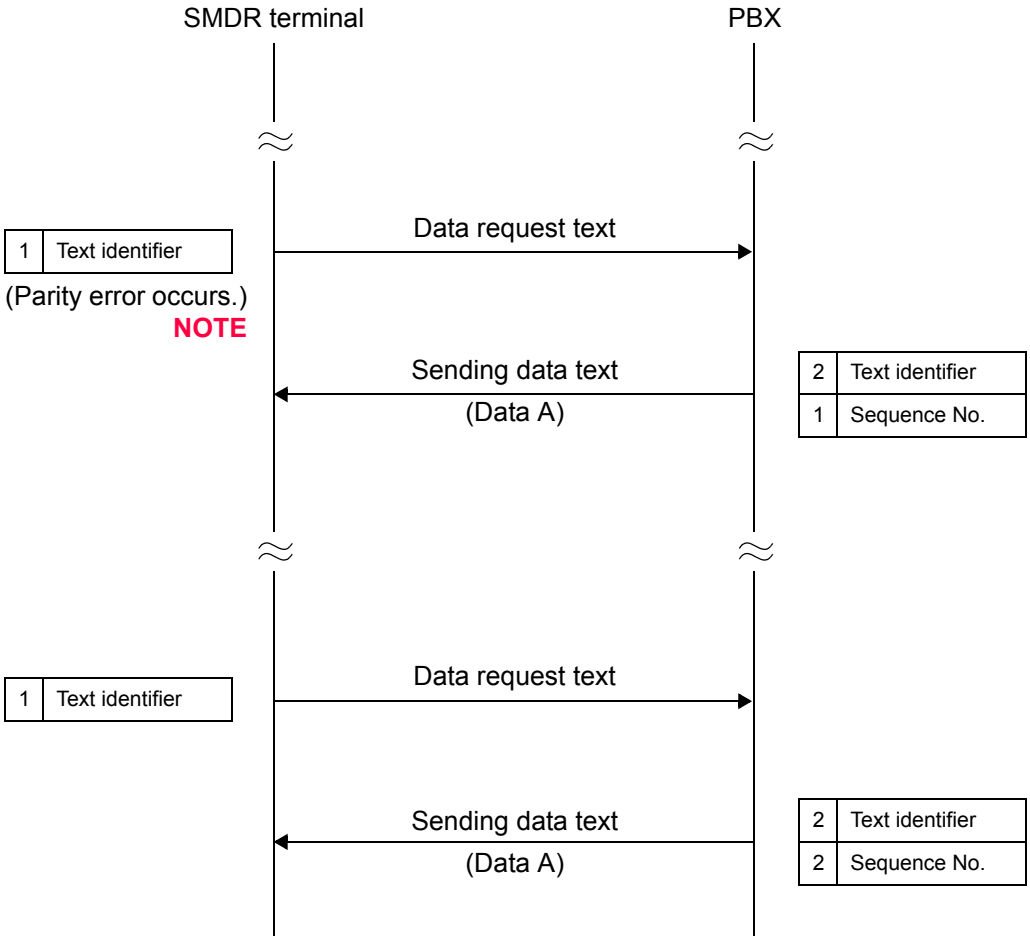
NOTE 2: *When SMDR terminal repeats the processing sequence a predetermined number of times without any response from the PBX, it will discard the existing socket and build a new socket and start connection processing.*

Default value: 6 times

Data range : 1 to 15 times

(9) Parity Error Sequence (Client Side)

Processing sequence to be followed when a parity error occurs in the data SMDR terminal has received from the PBX.



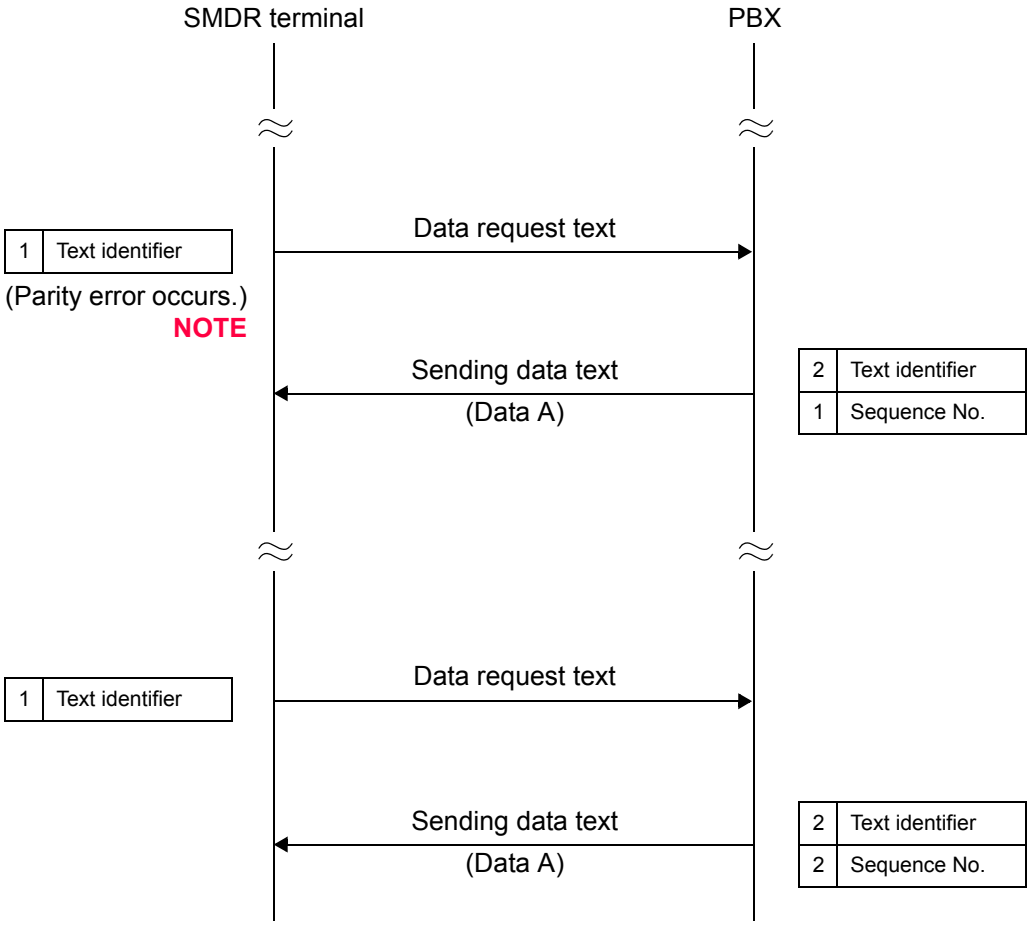
NOTE: *When a parity error occurs a predetermined number of times, the SMDR terminal will output an alarm, discard the existing socket, build a new socket and start connection processing.*

Default value: 6 times

Data range : 1 to 15 times

(10) Parity Error Sequence (Client Side)

Processing sequence to be followed when a parity error occurs in the data SMDR terminal has received from the PBX.



NOTE: *When a parity error occurs a predetermined number of times, the SMDR terminal will output an alarm, discard the existing socket and build a new socket and start connection processing.*

Default value: 6 times

Data range : 1 to 15 times

(11) Parity Error Sequence (Server Side)

Processing sequence to be followed when a parity error occurs in the data PBX has received from the SMDR terminal.

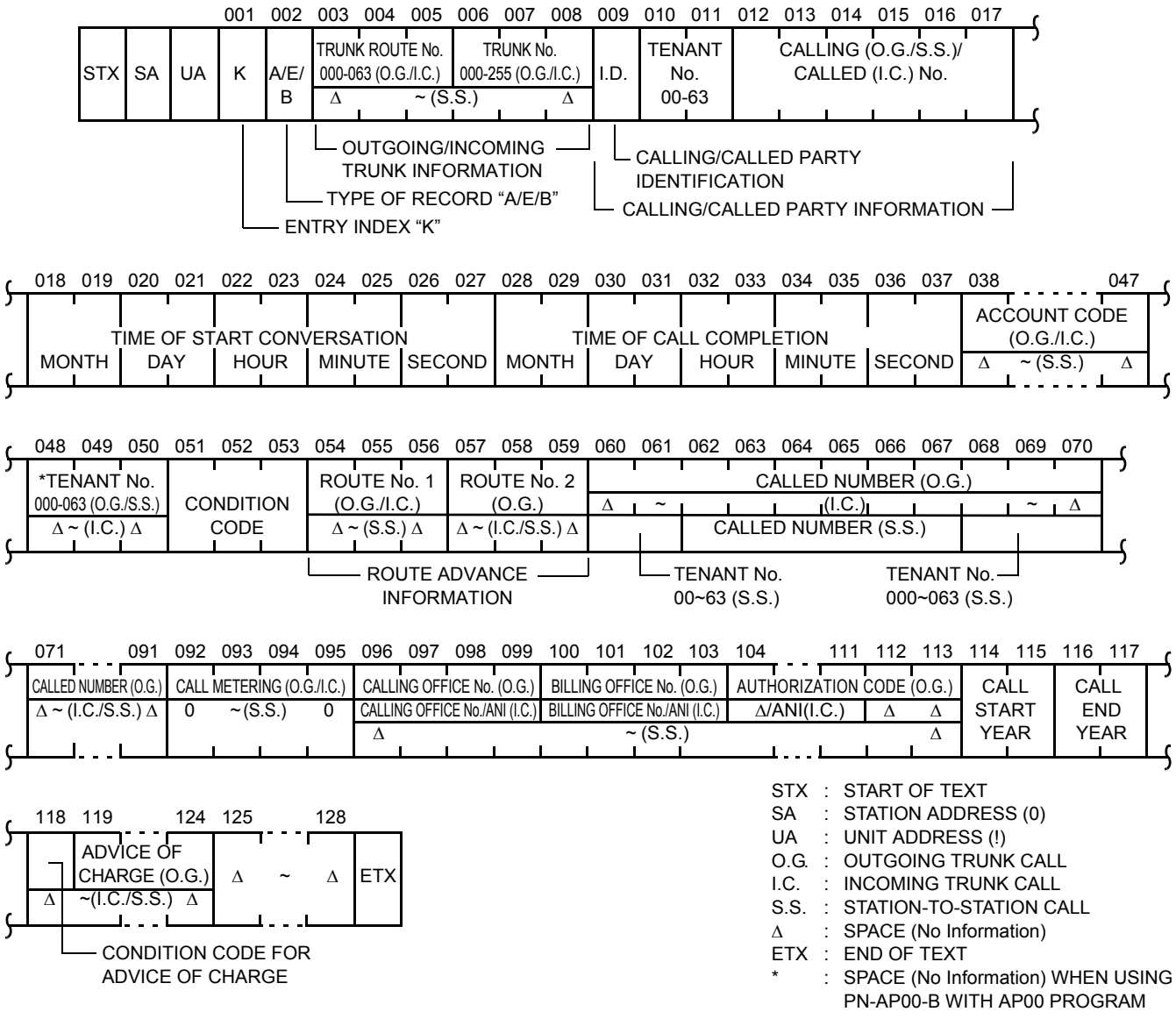
NOTE: *When a parity error occurs a predetermined number of times consecutively, the SMDR terminal will output an alarm and will have a new socket ready.*
After a connection has been established with the new socket, the client will discard the old socket. When a parity error occurs at the PBX side, the SMDR terminal will retransmit the last sent data.

DATA TRANSMISSION FORMAT

This section describes the format for billing information data exchange between the PBX and the SMDR terminal.

Former NEAX 2400 IMS Format

Former NEAX 2400 IMS Format



STX : START OF TEXT
SA : STATION ADDRESS (0)
UA : UNIT ADDRESS (!)
O.G. : OUTGOING TRUNK CALL
I.C. : INCOMING TRUNK CALL
S.S. : STATION-TO-STATION CALL
Δ : SPACE (No Information)
ETX : END OF TEXT
* : SPACE (No Information) WHEN USING PN-AP00-B WITH AP00 PROGRAM

CALL RECORD DESCRIPTION FOR OUTGOING TRUNK CALLS

The elements of a call record for outgoing trunk calls output on a former NEAX 2400 IMS Format are illustrated and described in the following.

Character	
	STX
	SA
	UA
001	ENTRY INDEX “K”
002	TYPE OF RECORD “A”
003	ROUTE No.-HUNDREDS
004	ROUTE No.-TENS
005	ROUTE No.-UNITS
006	TRUNK No.-HUNDREDS
007	TRUNK No.-TENS
008	TRUNK No.-UNITS
009	CALLING PARTY I.D.
010	TENANT No.-TENS
011	TENANT No.-UNITS
012	CALLING No.-1
013	CALLING No.-2
014	CALLING No.-3
015	CALLING No.-4
016	CALLING No.-5
017	CALLING No.-6

CONTINUED ON
NEXT PAGE

START OF TEXT: Indication of start of text.

STATION ADDRESS (0)

UNIT ADDRESS (!)

ENTRY INDEX: “K” indicates that SMDR call record will follow.

TYPE OF RECORD: “A” indicates that the call record is an outgoing call record output on a former NEAX 2400 IMS Format.

OUTGOING TRUNK INFORMATION:

The Outgoing Trunk Information indicates the actual trunk seized on an outgoing call as a route number and trunk number.

All fields would be filled with characters, even if the number of digits of the route number/trunk number is smaller than that of the fields to be filled.
(Route number 01 is expressed as 001)

CALLING PARTY INFORMATION:

The Calling Party Information consists of a maximum of nine characters, indicating the calling party information as follows.

- Calling Party Identification (Character 009)
  0=PBX/Centrex Station
  1=Attendant (Operator)
  2=Trunk Route Number + Trunk Number
- Tenant Number 00-63 (Character 010-011) **NOTE**
  Tenant Number set by CM12 Y=04, if Calling Party Identification is 0
  Tenant Number 01, if Calling Party Identification is 1
  Tenant Number set by CM30 Y=01, if Calling Party Identification is 2
- Calling Number (Character 012-017)
  Station Number, if Calling Party Identification is 0
  Attendant Number, if Calling Party Identification is 1
  Outgoing Trunk Route Number and Trunk Number on Tandem Switching, if Calling Party Identification is 2

  The spaces will follow the Station Number and Attendant Number. When Station Number is 7 digits or more, last 6 digits are output. For Trunk Route Number and Trunk Number, all fields would be filled with characters even if the number of digits is smaller than that of the fields to be filled.
  (Route number 01 is expressed as 001)

NOTE: *When using PN-AP00-B with AP00 program, the tenant number is fixed to “01”.*

Character		
018	MONTH	-TENS
019	MONTH	-UNITS
020	DAY	-TENS
021	DAY	-UNITS
022	HOUR	-TENS
023	HOUR	-UNITS
024	MINUTE	-TENS
025	MINUTE	-UNITS
026	SECOND	-TENS
027	SECOND	-UNITS
028	MONTH	-TENS
029	MONTH	-UNITS
030	DAY	-TENS
031	DAY	-UNITS
032	HOUR	-TENS
033	HOUR	-UNITS
034	MINUTE	-TENS
035	MINUTE	-UNITS
036	SECOND	-TENS
037	SECOND	-UNITS

CONTINUED ON
NEXT PAGE

TIME OF START CONVERSATION:

The Time of Start Conversation indicates when the called party answered a call in terms of months, days, hours, minutes and seconds.

Called party answered time is actually entered 18-24 seconds after the last digit is dialed, assuming no answer signal is given from the Central Office.

TIME OF CALL COMPLETION:

The Time of Call Completion indicates when the trunk is disconnected or a call is transferred in terms of months, days, hours, minutes and seconds.

Character	
038	ACCOUNT CODE-1
039	ACCOUNT CODE-2
040	ACCOUNT CODE-3
041	ACCOUNT CODE-4
042	ACCOUNT CODE-5
043	ACCOUNT CODE-6
044	ACCOUNT CODE-7
045	ACCOUNT CODE-8
046	ACCOUNT CODE-9
047	ACCOUNT CODE-10
048	TENANT No. -HUNDREDS/SPACE
049	TENANT No. -TENS/SPACE
050	TENANT No. -UNITS/SPACE
051	CONDITION CODE-1
052	CONDITION CODE-2
053	CONDITION CODE-3
054	ROUTE NUMBER 1
055	ROUTE NUMBER 1
056	ROUTE NUMBER 1
057	ROUTE NUMBER 2
058	ROUTE NUMBER 2
059	ROUTE NUMBER 2

CONTINUED ON
NEXT PAGE

ACCOUNT CODE:

In case the Account Code provided (Condition Code=020), the Account Code entered by a calling station is shown. Account Code consists of a maximum of ten characters.
The space will follow the Account Code.

TENANT NUMBER:

Tenant number 000-063 is indicated.
These will be identical with the characters 010 and 011. **NOTE**

CONDITION CODE:

The Condition Code consists of three characters, indicating the type of methods used for setting up a call. Individual characters indicate the following information.

- Condition Code-1 (Character 051)
  0=Ordinarily originated call
  1=Transferred call
- Condition Code-2 (Character 052)
  0=A call without Account Code
  2=Account Code has been entered
- Condition Code-3 (Character 053)
  0=Station originated call
  1=Attendant assisted call

ROUTE ADVANCE INFORMATION:

The route number l and 2 fields record the route number actually selected. These will be identical with the route number in the characters 003 through 005 in the outgoing trunk route information characters fields.

NOTE: *When using PN-AP00-B with AP00 program, these tenant number fields are all space.*

Character	
060	CALLED NUMBER-1
061	CALLED NUMBER-2
062	CALLED NUMBER-3
:	:
:	:
090	CALLED NUMBER-31
091	CALLED NUMBER-32
092	CALL METERING-1
093	CALL METERING-2
094	CALL METERING-3
095	CALL METERING-4
096	CALLING OFFICE No.-1
097	CALLING OFFICE No.-2
098	CALLING OFFICE No.-3
099	CALLING OFFICE No.-4
100	BILLING OFFICE No.-1
101	BILLING OFFICE No.-2
102	BILLING OFFICE No.-3
103	BILLING OFFICE No.-4
104	AUTHORIZATION CODE-1
105	AUTHORIZATION CODE-2
106	AUTHORIZATION CODE-3
107	AUTHORIZATION CODE-4
108	AUTHORIZATION CODE-5
109	AUTHORIZATION CODE-6
110	AUTHORIZATION CODE-7
111	AUTHORIZATION CODE-8
112	AUTHORIZATION CODE-9
113	AUTHORIZATION CODE-10

CALLED NUMBER:

The Called Number Information consists of a maximum of 32 characters. The spaces will follow the number.

CALL METERING:

Metering pulse is counted if the metering pulse are provided from the public exchange.

All fields would be filled with characters, even if the number of digits of the Call Metering is smaller than that of the fields to be filled (such as 001).

CALLING OFFICE NUMBER ON TANDEM CALL:

Calling office number on tandem call consists of a maximum of 4 characters.

The space will follow the number.

BILLING OFFICE NUMBER ON TANDEM CALL:

Billing office number on tandem call consists of a maximum of 4 characters.

The space will follow the number.

AUTHORIZATION CODE:

Authorization Code consists of a maximum of ten characters. The spaces will follow the Authorization Code.

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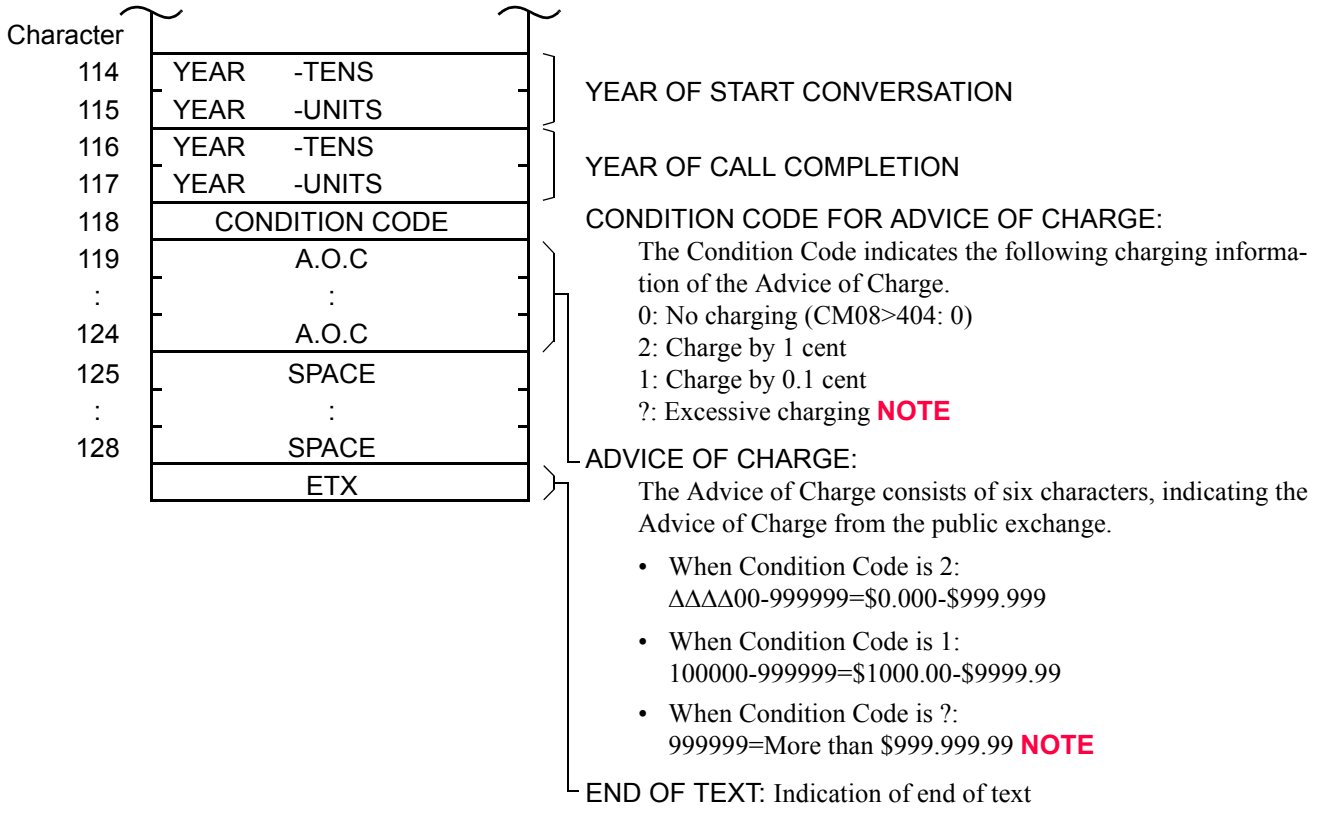
NEXT PAGE



NOTE: *Condition Code "?" is indicated only when PN-AP00-B/PN-AP00-D with MRCA program is mounted in the system.*

CALL RECORD DESCRIPTION FOR INCOMING TRUNK CALLS

The elements of a call record for incoming trunk calls output on a former NEAX 2400 IMS Format are illustrated and described in the following.

Character		
	STX	START OF TEXT: Indication of start of text
	SA	STATION ADDRESS (0)
	UA	UNIT ADDRESS (!)
001	ENTRY INDEX “K”	ENTRY INDEX: “K” indicates that SMDR call record will follow.
002	TYPE OF RECORD “E”	TYPE OF RECORD: “E” indicates that the call record is an incoming call record output on a former NEAX 2400 IMS Format.
003	ROUTE No.-HUNDREDS	INCOMING TRUNK INFORMATION: The Incoming Trunk Information indicates the actual trunk seized on an incoming call as a route number and trunk number. All fields would be filled with characters, even if the number of digits of the route number/trunk number is smaller than that of the fields to be filled. (Route number 01 is expressed as 001)
004	ROUTE No.-TENS	
005	ROUTE No.-UNITS	
006	TRUNK No.-HUNDREDS	
007	TRUNK No.-TENS	
008	TRUNK No.-UNITS	
009	CALLED PARTY I.D.	CALLED PARTY INFORMATION: The Called Party Information consists of a maximum of nine characters, indicating the call destination information as follows.
010	TENANT No.-TENS	
011	TENANT No.-UNITS	
012	CALLED No.-1	
013	CALLED No.-2	
014	CALLED No.-3	
015	CALLED No.-4	
016	CALLED No.-5	
017	CALLED No.-6	

- Called Party Identification (Character 009)
  0=PBX/Centrex Station
  1=Attendant (Operator)
- Tenant Number 00-63 (Character 010-011) **NOTE**
  Tenant Number set by CM12 Y=04, if Calling Party Identification is 0
  Tenant Number 01, if Calling Party Identification is 1
- Called Number (Character 012-017)
  Station Number, if Called Party Identification is 0
  Attendant Number, if Called Party Identification is 1

  The spaces will follow the Station Number and Attendant Number. When Station Number is 7 digits or more, last 6 digits are output.

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NEXT PAGE

NOTE: *When using PN-AP00-B with AP00 program, the tenant number is fixed to “01”.*

Character		
018	MONTH	-TENS
019	MONTH	-UNITS
020	DAY	-TENS
021	DAY	-UNITS
022	HOUR	-TENS
023	HOUR	-UNITS
024	MINUTE	-TENS
025	MINUTE	-UNITS
026	SECOND	-TENS
027	SECOND	-UNITS
028	MONTH	-TENS
029	MONTH	-UNITS
030	DAY	-TENS
031	DAY	-UNITS
032	HOUR	-TENS
033	HOUR	-UNITS
034	MINUTE	-TENS
035	MINUTE	-UNITS
036	SECOND	-TENS
037	SECOND	-UNITS

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NEXT PAGE

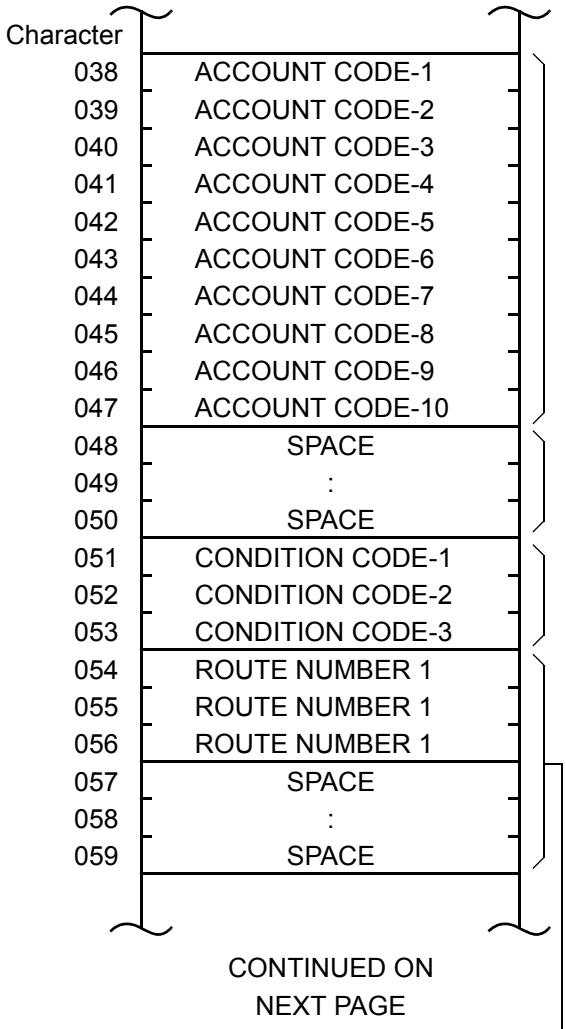
TIME OF START CONVERSATION:

The Time of Start Conversation indicates when the called party answered a call in terms of months, days, hours, minutes and seconds.

Called party answered time is actually entered 18-24 seconds after the last digit is dialed, assuming no answer signal is given from the Central Office.

TIME OF CALL COMPLETION:

The Time of Call Completion indicates when the trunk is disconnected or a call is transferred in terms of months, days, hours, minutes and seconds.



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NEXT PAGE

ACCOUNT CODE:

In case the Account Code provided (Condition Code=020), the Account Code entered by a calling station is shown. Account Code consists of a maximum of ten characters.

NO INFORMATION

CONDITION CODE:

The Condition Code consists of three characters, indicating the type of methods used for setting up a call. Individual characters indicate the following information.

- Condition Code-1 (Character 051)
  0=Ordinarily originated call
  1=Transferred call
- Condition Code-2 (Character 052)
  0=A call without Account Code
  2=Account Code has been entered
- Condition Code-3 (Character 053)
  0=Station originated call
  1=Attendant assisted call

ROUTE ADVANCE INFORAMTION:

The route number 1 fields record the route number actually selected. These will be identical with the route number in the characters 003 through 005 in the incoming trunk route information characters fields.

The route number 2 fields are no information.

- When ANI Information is not provided

Character		
060	SPACE	NO INFORMATION
:	:	
:	:	
:	:	
:	:	
:	:	
091	SPACE	
092	CALL METERING-1	CALL METERING: Metering pulse is counted if the metering pulse are provided from the public exchange. All fields would be filled with characters, even if the number of digits of the Call Metering is smaller than that of the fields to be filled (such as 001).
093	CALL METERING-2	
094	CALL METERING-3	
095	CALL METERING-4	
096	CALL OFFICE No.-1	CALLING OFFICE NUMBER
097	CALL OFFICE No.-2	
098	CALL OFFICE No.-3	
099	CALL OFFICE No.-4	
100	BILLING OFFICE No.-1	BILLING OFFICE NUMBER
101	BILLING OFFICE No.-2	
102	BILLING OFFICE No.-3	
103	BILLING OFFICE No.-4	
104	SPACE	NO INFORMATION
105	:	
106	:	
107	:	
108	:	
109	:	
110	:	
111	:	
112	:	
113	SPACE	
114	YEAR -TENS	YEAR OF START CONVERSATION
115	YEAR -UNITS	
116	YEAR -TENS	YEAR OF CALL COMPLETION
117	YEAR -UNITS	
118	SPACE	NO INFORMATION
:	:	
:	:	
127	:	
128	SPACE	
	ETX	END OF TEXT: Indication of end of text

- When ANI Information is provided

Character		
060	SPACE	NO INFORMATION
:	:	
:	:	
:	:	
:	:	
:	:	
091	SPACE	
092	CALL METERING-1	CALL METERING: Metering pulse is counted if the metering pulse are provided from the public exchange. All fields would be filled with characters, even if the number of digits of the Call Metering is smaller than that of the fields to be filled (such as 001).
093	CALL METERING-2	
094	CALL METERING-3	
095	CALL METERING-4	
096	ANI INFORMATION-1	ANI INFORMATION: ANI Information consists of a maximum of 16 characters. The spaces will follow the ANI Information.
097	ANI INFORMATION-2	
098	ANI INFORMATION-3	
099	ANI INFORMATION-4	
100	ANI INFORMATION-5	
101	ANI INFORMATION-6	
102	ANI INFORMATION-7	
103	ANI INFORMATION-8	
104	ANI INFORMATION-9	
105	ANI INFORMATION-10	
106	ANI INFORMATION-11	
107	ANI INFORMATION-12	
108	ANI INFORMATION-13	
109	ANI INFORMATION-14	
110	ANI INFORMATION-15	
111	ANI INFORMATION-16	
112	SPACE	NO INFORMATION
113	SPACE	
114	YEAR -TENS	YEAR OF START CONVERSATION
115	YEAR -UNITS	
116	YEAR -TENS	YEAR OF CALL COMPLETION
117	YEAR -UNITS	
118	SPACE	NO INFORMATION
:	:	
:	:	
127	:	
128	SPACE	
	ETX	END OF TEXT: Indication of end of text

EXAMPLE OF VARIOUS RECORD IN CALLING PARTY INFORMATION

- Station Number Recording in Calling Party Information

Character	
009	0
010	1
011	1
012	4
013	5
014	6
015	5
016	Δ
017	Δ

Δ: SPACE

EXAMPLE:
Calling Party Identification 0=Station
Tenant Number: 11
Station Number: 4565

This information is generated by the following calls.
Outgoing/Incoming Call from/to a station
Outgoing/Incoming Call from/to a station with an attendant assistance
Transferred Call

- Attendant Number Recording in Calling Party Information

Character	
009	1
010	0
011	1
012	1
013	1
014	Δ
015	Δ
016	Δ
017	Δ

Δ: SPACE

EXAMPLE:
Calling Party Identification 1=Attendant
Tenant Number: 01 (fixed)
Attendant Number: 11

This information is generated by Outgoing/Incoming Call from/to an attendant.

- Trunk Route and Trunk Number Recording in Calling Party Information

Character	
009	2
010	0
011	0
012	0
013	0
014	7
015	0
016	0
017	4

EXAMPLE:
Calling Party Identification 2=Trunk Route + Trunk
Tenant Number: 00
Trunk Route Number: 007
Trunk Number: 004

This information is generated by the following calls.
Direct Tandem Call
Tandem Call with attendant assistance
Trunk to Trunk Connection Call with station assistance

CALL RECORD DESCRIPTION FOR STATION-TO-STATION CALLS
[Series 3600 software or later]

The elements of a call record for station-to-station calls output on a former NEAX 2400 IMS Format are illustrated and described in the following.

Character		
	STX	START OF TEXT: Indication of start of text.
	SA	STATION ADDRESS (0)
	UA	UNIT ADDRESS (!)
001	ENTRY INDEX “K”	ENTRY INDEX: “K” indicates that SMDR call record will follow.
002	TYPE OF RECORD “B”	TYPE OF RECORD: “B” indicates that the call record is an station-to-station call record output on a former NEAX 2400 IMS Format.
003	SPACE	NO INFORMATION
004	:	
005	:	
006	:	
007	:	
008	SPACE	
009	CALLING PARTY I.D.	CALLING PARTY INFORMATION:
010	TENANT No.-TENS	
011	TENANT No.-UNITS	
012	CALLING No.-1	
013	CALLING No.-2	
014	CALLING No.-3	
015	CALLING No.-4	
016	CALLING No.-5	
017	CALLING No.-6	

CONTINUED ON
NEXT PAGE

The Calling Party Information consists of a maximum of nine characters, indicating the calling party information as follows.

- Calling Party Identification (Character 009)
  0=Station
  This indication is fixed to “0”.
- Tenant Number 00-63 (Character 010-011)
  Tenant Number set by CM12 Y=04
- Calling Number (Character 012-017)
  Station Number

  The spaces will follow the Station Number. When Station Number is 7 digits or more, last 6 digits are output.

Character		
018	MONTH	-TENS
019	MONTH	-UNITS
020	DAY	-TENS
021	DAY	-UNITS
022	HOUR	-TENS
023	HOUR	-UNITS
024	MINUTE	-TENS
025	MINUTE	-UNITS
026	SECOND	-TENS
027	SECOND	-UNITS
028	MONTH	-TENS
029	MONTH	-UNITS
030	DAY	-TENS
031	DAY	-UNITS
032	HOUR	-TENS
033	HOUR	-UNITS
034	MINUTE	-TENS
035	MINUTE	-UNITS
036	SECOND	-TENS
037	SECOND	-UNITS
038	SPACE	
:	:	
047	SPACE	
048	TENANT No.-HUNDREDS	
049	TENANT No.-TENS	
050	TENANT No.-UNITS	

TIME OF START CONVERSATION:

The Time of Start Conversation indicates when the called party answered a call in terms of months, days, hours, minutes and seconds.

Called party answered time is actually entered 18-24 seconds after the last digit is dialed, assuming no answer signal is given from the Central Office.

TIME OF CALL COMPLETION:

The Time of Call Completion indicates when the station is disconnected or a call is transferred in terms of months, days, hours, minutes and seconds.

NO INFORMATION

TENANT NUMBER:

Tenant number set similar to Character No. 010-011.
Tenant number of hundreds indication is fixed to “0”.

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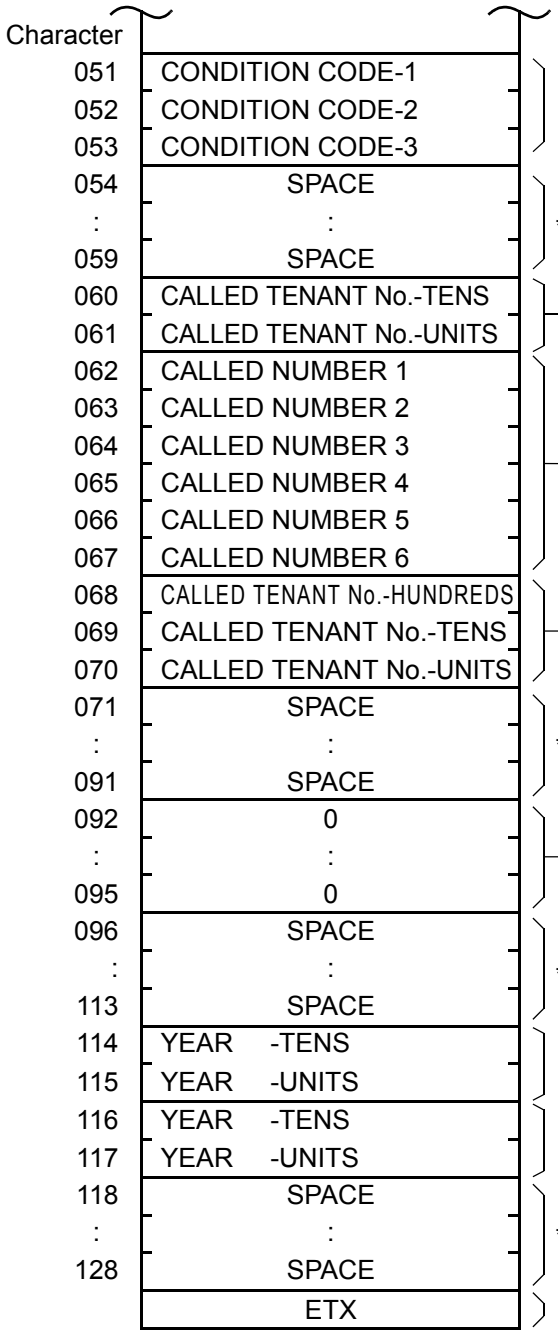


CONDITION CODE:

The Condition Code consists of three characters, indicating the type of methods used for setting up a call. Individual characters indicate the following information.

- Condition Code-1 (Character 051)
  0=Call has not been transferred
  1=Call has been transferred
- Condition Code-2 (Character 052)
  This indication is fixed to “0”.
- Condition Code-3 (Character 053)
  This indication is fixed to “0”.

CALLED TENANT NUMBER:

Tenant Number 00-63
Tenant Number set by CM12 Y=04

CALLED NUMBER:

Station Number

The spaces will follow the Station Number. When Station Number is 7 digits or more, last 6 digits are input.

CALLED TENANT NUMBER:

Tenant number set similar to Character No. 060-061.
Tenant number of hundreds indication is fixed to “0”.

0: This indication is fixed to “0”.

YEAR OF START CONVERSATION

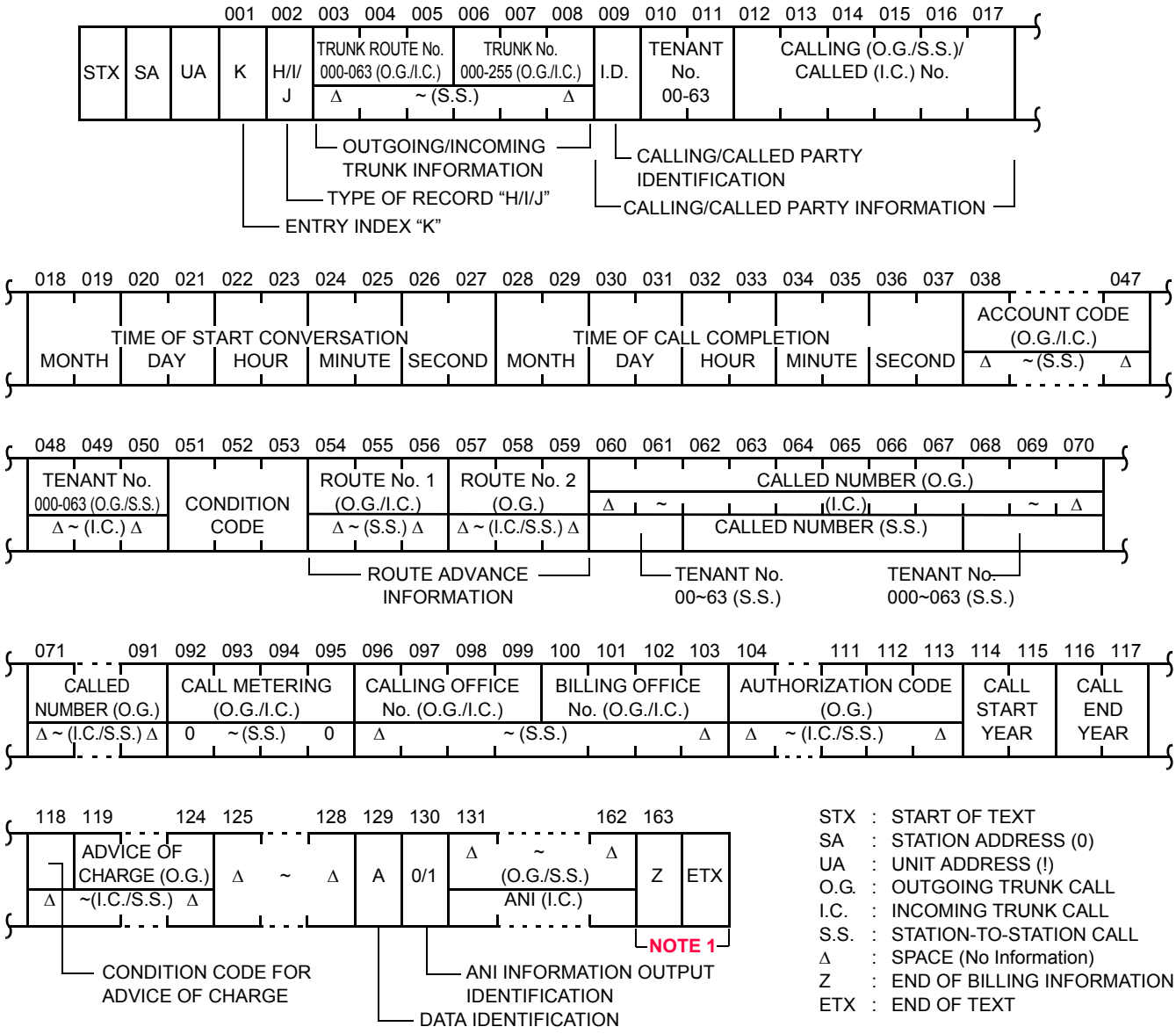
YEAR OF CALL COMPLETION

END OF TEXT: Indication of end of text

*: NO INFORMATION

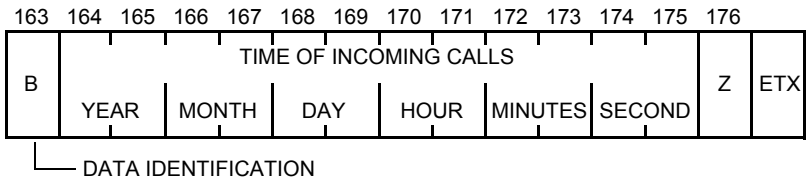
Extended NEAX 2400 IMS Format

Extended NEAX 2400 IMS Format



STX : START OF TEXT
SA : STATION ADDRESS (0)
UA : UNIT ADDRESS (!)
O.G. : OUTGOING TRUNK CALL
I.C. : INCOMING TRUNK CALL
S.S. : STATION-TO-STATION CALL
Δ : SPACE (No Information)
Z : END OF BILLING INFORMATION
ETX : END OF TEXT

NOTE: *When the Time of Incoming Calls is indicated, the output format is as follows.*



CALL RECORD DESCRIPTION FOR OUTGOING TRUNK CALLS

The elements of a call record for outgoing trunk calls output on an extended NEAX 2400 IMS Format are illustrated and described in the following.

Character	
	STX
	SA
	UA
001	ENTRY INDEX “K”
002	TYPE OF RECORD “H”
003	ROUTE No.-HUNDREDS
004	ROUTE No.-TENS
005	ROUTE No.-UNITS
006	TRUNK No.-HUNDREDS
007	TRUNK No.-TENS
008	TRUNK No.-UNITS
009	CALLING PARTY I.D.
010	TENANT No.-TENS
011	TENANT No.-UNITS
012	CALLING No.-1
013	CALLING No.-2
014	CALLING No.-3
015	CALLING No.-4
016	CALLING No.-5
017	CALLING No.-6

CONTINUED ON
NEXT PAGE

START OF TEXT: Indication of start of text.

STATION ADDRESS (0)

UNIT ADDRESS (!)

ENTRY INDEX: “K” indicates that SMDR call record will follow.

TYPE OF RECORD: “H” indicates that the call record is an outgoing call record output on an extended NEAX 2400 IMS Format.

OUTGOING TRUNK INFORMATION:

The Outgoing Trunk Information indicates the actual trunk seized on an outgoing call as a route number and trunk number.

All fields would be filled with characters, even if the number of digits of the route number/trunk number is smaller than that of the fields to be filled.
(Route number 01 is expressed as 001)

CALLING PARTY INFORMATION:

The Calling Party Information consists of a maximum of nine characters, indicating the calling party information as follows.

- Calling Party Identification (Character 009)
  0=PBX/Centrex Station
  1=Attendant (Operator)
  2=Trunk Route Number + Trunk Number
- Tenant Number 00-63 (Character 010-011)
  Tenant Number set by CM12 Y=04, if Calling Party Identification is 0
  Tenant Number 01, if Calling Party Identification is 1
  Tenant Number set by CM30 Y=01, if Calling Party Identification is 2
- Calling Number (Character 012-017)
  Station Number, if Calling Party Identification is 0
  Attendant Number, if Calling Party Identification is 1
  Outgoing Trunk Route Number and Trunk Number on Tandem Switching, if Calling Party Identification is 2

  The spaces will follow the Station Number and Attendant Number. When Station Number is 7 digits or more, last 6 digits are output. For Trunk Route Number and Trunk Number, all fields would be filled with characters even if the number of digits is smaller than that of the fields to be filled.
  (Route number 01 is expressed as 001)

Character		
018	MONTH	-TENS
019	MONTH	-UNITS
020	DAY	-TENS
021	DAY	-UNITS
022	HOUR	-TENS
023	HOUR	-UNITS
024	MINUTE	-TENS
025	MINUTE	-UNITS
026	SECOND	-TENS
027	SECOND	-UNITS
028	MONTH	-TENS
029	MONTH	-UNITS
030	DAY	-TENS
031	DAY	-UNITS
032	HOUR	-TENS
033	HOUR	-UNITS
034	MINUTE	-TENS
035	MINUTE	-UNITS
036	SECOND	-TENS
037	SECOND	-UNITS

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NEXT PAGE

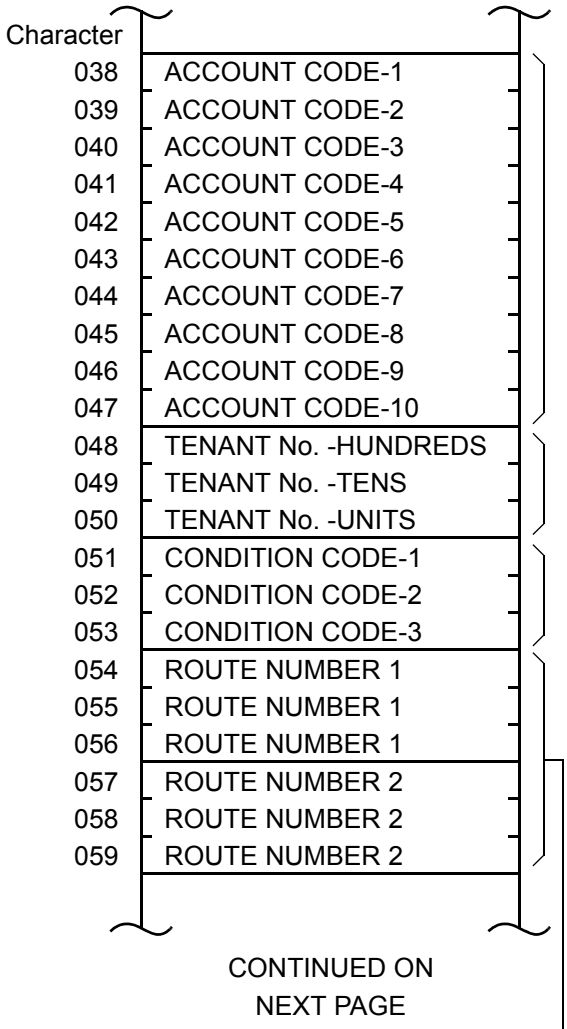
TIME OF START CONVERSATION:

The Time of Start Conversation indicates when the called party answered a call in terms of months, days, hours, minutes and seconds.

Called party answered time is actually entered 18-24 seconds after the last digit is dialed, assuming no answer signal is given from the Central Office.

TIME OF CALL COMPLETION:

The Time of Call Completion indicates when the trunk is disconnected or a call is transferred in terms of months, days, hours, minutes and seconds.



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ACCOUNT CODE:

In case the Account Code provided (Condition Code=020), the Account Code entered by a calling station is shown. Account code consists of a maximum of ten characters.
The space will follow the Account Code.

TENANT NUMBER:

Tenant number 000-063 is indicated. These will be identical with the characters 010 and 011.

CONDITION CODE:

The Condition Code consists of three characters, indicating the type of methods used for setting up a call. Individual characters indicate the following information.

- Condition Code-1 (Character 051)
  0=Ordinarily originated call
  1=Transferred call
- Condition Code-2 (Character 052)
  0=A call without Account Code
  2=Account Code has been entered
- Condition Code-3 (Character 053)
  0=Station originated call
  1=Attendant assisted call

ROUTE ADVANCE INFORMATION:

The route number l and 2 fields record the route number actually selected. These will be identical with the route number in the characters 003 through 005 in the outgoing trunk route information characters fields.

Character	
060	CALLED NUMBER-1
061	CALLED NUMBER-2
062	CALLED NUMBER-3
:	:
:	:
090	CALLED NUMBER-31
091	CALLED NUMBER-32
092	CALL METERING-1
093	CALL METERING-2
094	CALL METERING-3
095	CALL METERING-4
096	CALLING OFFICE No.-1
097	CALLING OFFICE No.-2
098	CALLING OFFICE No.-3
099	CALLING OFFICE No.-4
100	BILLING OFFICE No.-1
101	BILLING OFFICE No.-2
102	BILLING OFFICE No.-3
103	BILLING OFFICE No.-4
104	AUTHORIZATION CODE-1
105	AUTHORIZATION CODE-2
106	AUTHORIZATION CODE-3
107	AUTHORIZATION CODE-4
108	AUTHORIZATION CODE-5
109	AUTHORIZATION CODE-6
110	AUTHORIZATION CODE-7
111	AUTHORIZATION CODE-8
112	AUTHORIZATION CODE-9
113	AUTHORIZATION CODE-10

CALLED NUMBER:

The Called Number Information consists of a maximum of 32 characters. The spaces will follow the number.

CALL METERING:

Metering pulse is counted if the metering pulse are provided from the public exchange.

All fields would be filled with characters, even if the number of digits of the Call Metering is smaller than that of the fields to be filled (such as 001).

CALLING OFFICE NUMBER ON TANDEM CALL:

Calling office number on tandem call consists of a maximum of 4 characters.

The space will follow the number.

BILLING OFFICE NUMBER ON TANDEM CALL:

Billing office number on tandem call consists of a maximum of 4 characters.

The space will follow the number.

AUTHORIZATION CODE:

Authorization Code consists of a maximum of ten characters. The spaces will follow the Authorization Code.

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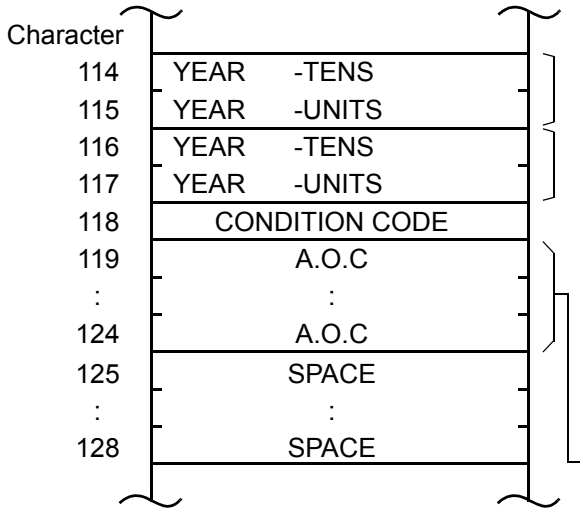
NEXT PAGE



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YEAR OF START CONVERSATION

YEAR OF CALL COMPLETION

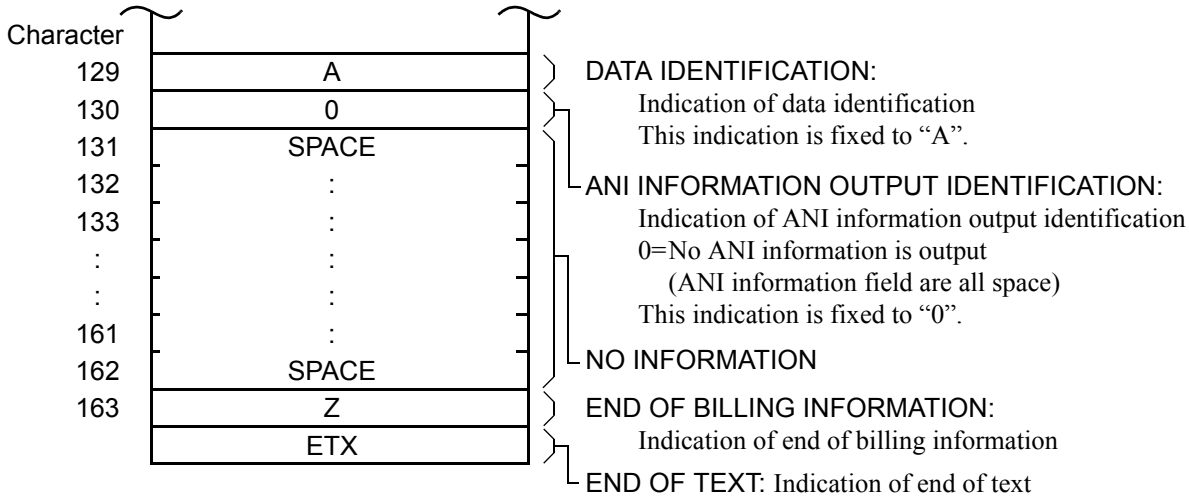
CONDITION CODE FOR ADVICE OF CHARGE:

The Condition Code indicates the following charging information of the Advice of Charge.
0: No charging (CM08>404: 0)
2: Charge by 1 cent
1: Charge by 0.1 cent
?: Excessive charging

ADVICE OF CHARGE:

The Advice of Charge consists of six characters, indicating the Advice of Charge from the public exchange.

- When Condition Code is 2:
  ΔΔΔΔ00-999999=$0.000-$999.999
- When Condition Code is 1:
  100000-999999=$1000.00-$9999.99
- When Condition Code is ?:
  999999=More than $999.999.99


Character
129
130
131
132
133
161
162
163
A
0
SPACE
SPACE
Z
ETX
DATA IDENTIFICATION:
Indication of data identification
This indication is fixed to “A”.
ANI INFORMATION OUTPUT IDENTIFICATION:
Indication of ANI information output identification
0=No ANI information is output
(ANI information field are all space)
This indication is fixed to “0”.
NO INFORMATION
END OF BILLING INFORMATION:
Indication of end of billing information
END OF TEXT: Indication of end of text

CALL RECORD DESCRIPTION FOR INCOMING TRUNK CALLS

The elements of a call record for incoming trunk calls output on an extended NEAX 2400 IMS Format are illustrated and described in the following.

Character	
	STX
	SA
	UA
001	ENTRY INDEX “K”
002	TYPE OF RECORD “I”
003	ROUTE No.-HUNDREDS
004	ROUTE No.-TENS
005	ROUTE No.-UNITS
006	TRUNK No.-HUNDREDS
007	TRUNK No.-TENS
008	TRUNK No.-UNITS
009	CALLED PARTY I.D.
010	TENANT No.-TENS
011	TENANT No.-UNITS
012	CALLED No.-1
013	CALLED No.-2
014	CALLED No.-3
015	CALLED No.-4
016	CALLED No.-5
017	CALLED No.-6

CONTINUED ON
NEXT PAGE

START OF TEXT: Indication of start of text

STATION ADDRESS (0)

UNIT ADDRESS (!)

ENTRY INDEX: “K” indicates that SMDR call record will follow.

TYPE OF RECORD: “I” indicates that the call record is an incoming call record output on an extended NEAX 2400 IMS Format.

INCOMING TRUNK INFORMATION:

The Incoming Trunk Information indicates the actual trunk seized on an incoming call as a route number and trunk number.

All fields would be filled with characters, even if the number of digits of the route number/trunk number is smaller than that of the fields to be filled.
(Route number 01 is expressed as 001)

CALLED PARTY INFORMATION:

The Called Party Information consists of a maximum of nine characters, indicating the call destination information as follows.

- Called Party Identification (Character 009)
  0=PBX/Centrex Station
  1=Attendant (Operator)
- Tenant Number 00-63 (Character 010-011)
  Tenant Number set by CM12 Y=04, if Calling Party Identification is 0
  Tenant Number 01, if Calling Party Identification is 1
- Called Number (Character 012-017)
  Station Number, if Called Party Identification is 0
  Attendant Number, if Called Party Identification is 1

  The spaces will follow the Station Number and Attendant Number. When Station Number is 7 digits or more, last 6 digits are output.

Character		
018	MONTH	-TENS
019	MONTH	-UNITS
020	DAY	-TENS
021	DAY	-UNITS
022	HOUR	-TENS
023	HOUR	-UNITS
024	MINUTE	-TENS
025	MINUTE	-UNITS
026	SECOND	-TENS
027	SECOND	-UNITS
028	MONTH	-TENS
029	MONTH	-UNITS
030	DAY	-TENS
031	DAY	-UNITS
032	HOUR	-TENS
033	HOUR	-UNITS
034	MINUTE	-TENS
035	MINUTE	-UNITS
036	SECOND	-TENS
037	SECOND	-UNITS

CONTINUED ON
NEXT PAGE

TIME OF START CONVERSATION:

The Time of Start Conversation indicates when the called party answered a call in terms of months, days, hours, minutes and seconds.

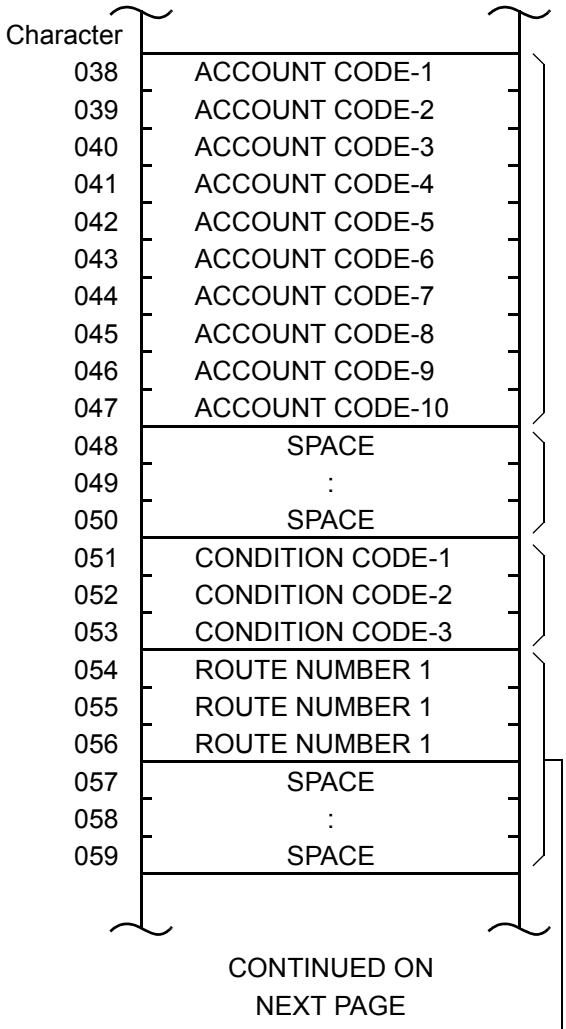
Called party answered time is actually entered 18-24 seconds after the last digit is dialed, assuming no answer signal is given from the Central Office.

The Time of Start Conversation indicates spaces if the incoming call is abandoned.

TIME OF CALL COMPLETION:

The Time of Call Completion indicates when the trunk is disconnected or a call is transferred in terms of months, days, hours, minutes and seconds.

The Time of Call Completion indicates when the trunk is released if the incoming call is abandoned.



CONTINUED ON
NEXT PAGE

ACCOUNT CODE:

In case the Account Code provided (Condition Code=020), the Account Code entered by a calling station is shown. Account code consists of a maximum of ten characters.

NO INFORMATION

CONDITION CODE:

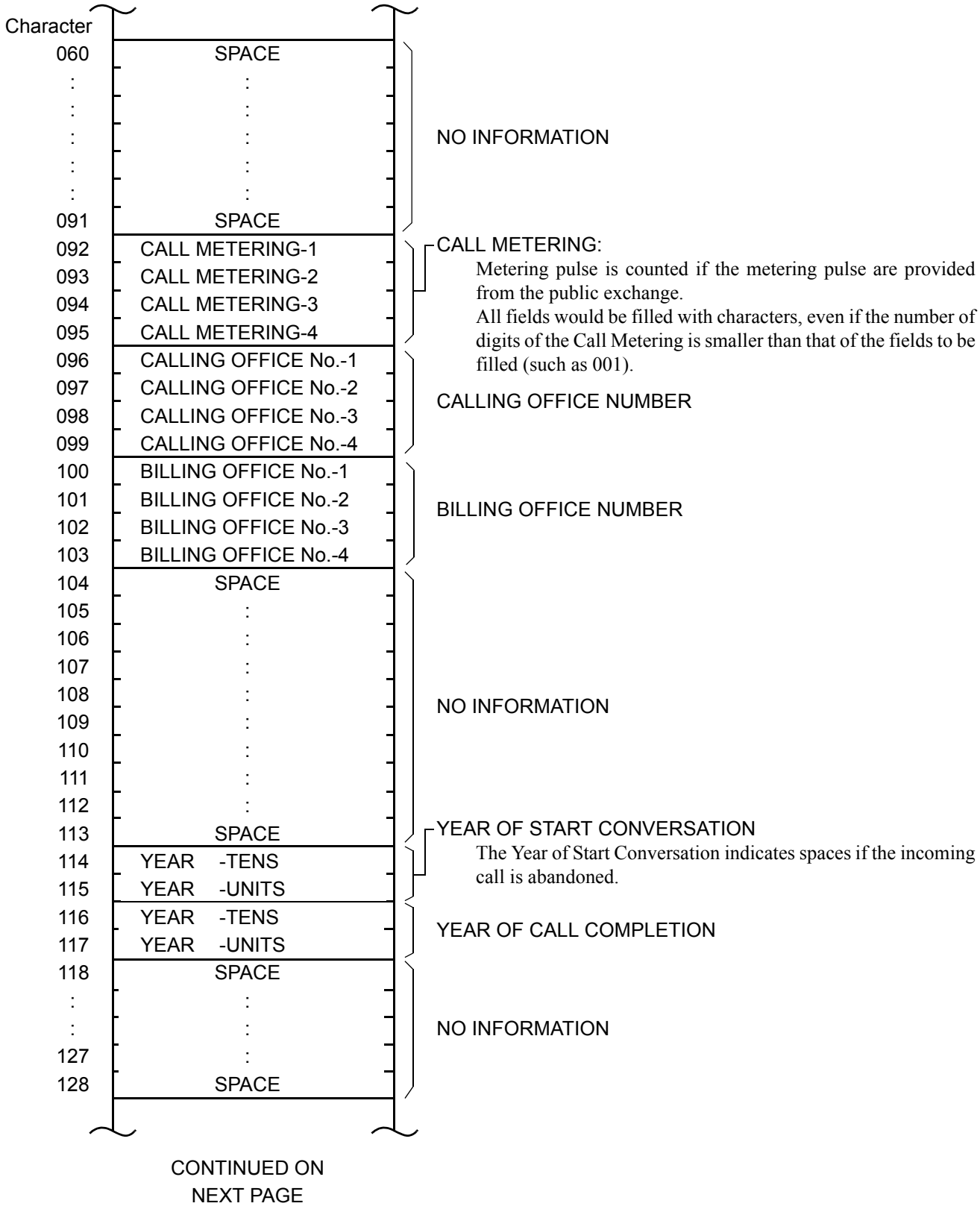
The Condition Code consists of three characters, indicating the type of methods used for setting up a call. Individual characters indicate the following information.

- Condition Code-1 (Character 051)
  0=Ordinarily originated call
  1=Transferred call
  2=Abandoned call
- Condition Code-2 (Character 052)
  0=A call without Account Code
  2=Account Code has been entered
- Condition Code-3 (Character 053)
  0=Station originated call
  1=Attendant assisted call

ROUTE ADVANCE INFORAMTION:

The route number 1 fields record the route number actually selected. These will be identical with the route number in the characters 003 through 005 in the incoming trunk route information characters fields.

The route number 2 fields are no information.



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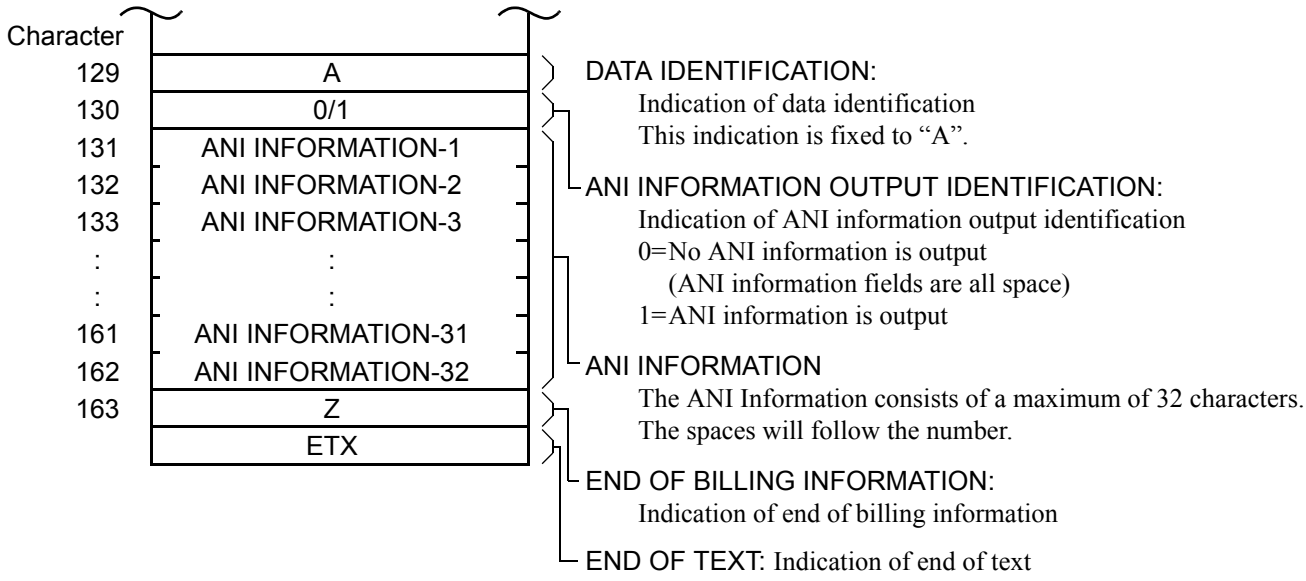
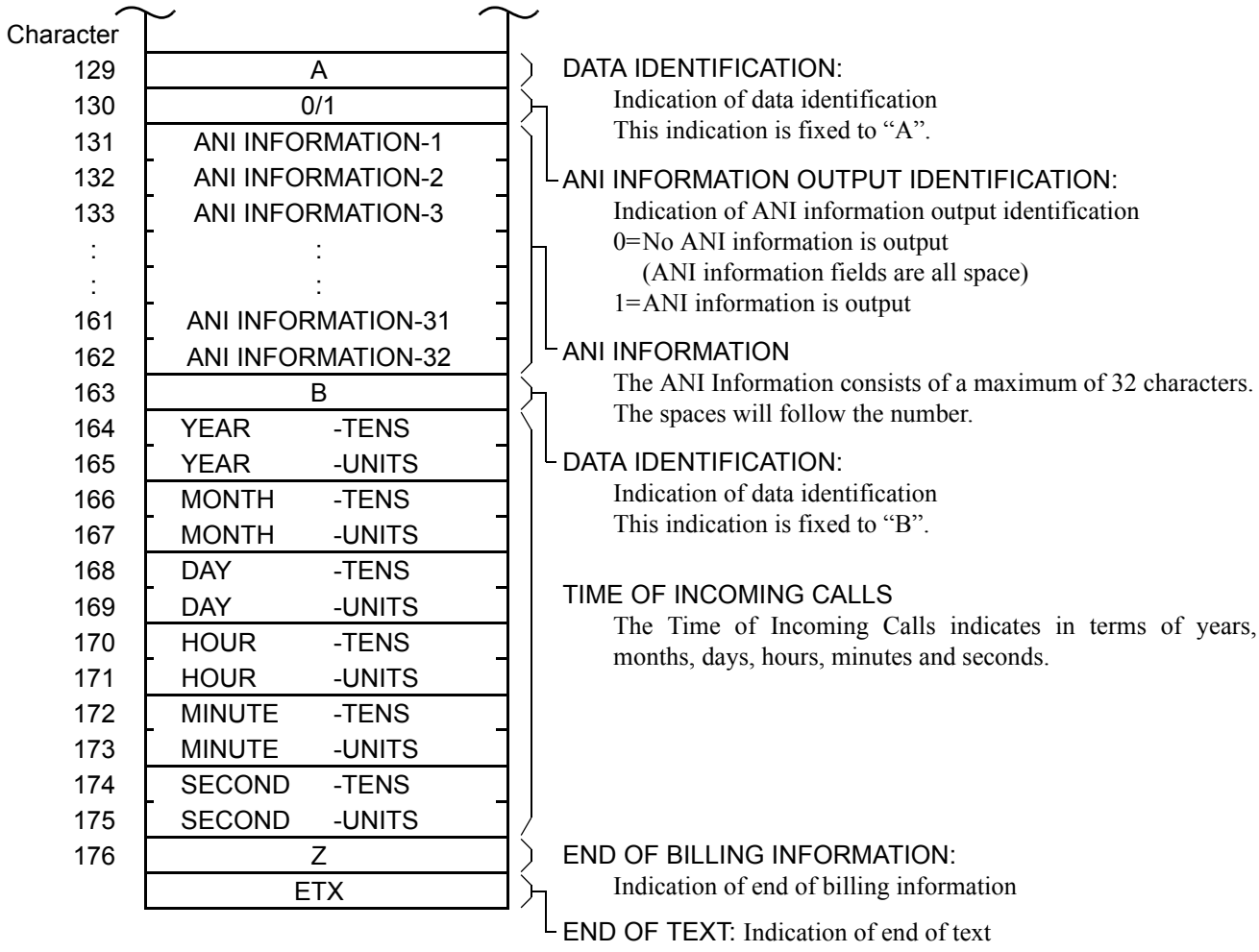
NEXT PAGE

- When the Time of Incoming Calls is not indicated



- When the Time of Incoming Calls is indicated



EXAMPLE OF VARIOUS RECORD IN CALLING PARTY INFORMATION

- Station Number Recording in Calling Party Information

Character	
009	0
010	1
011	1
012	4
013	5
014	6
015	5
016	Δ
017	Δ

Δ: SPACE

EXAMPLE:
Calling Party Identification 0=Station
Tenant Number: 11
Station Number: 4565

This information is generated by the following calls.
Outgoing/Incoming Call from/to a station
Outgoing/Incoming Call from/to a station with an attendant assistance
Transferred Call

- Attendant Number Recording in Calling Party Information

Character	
009	1
010	0
011	1
012	1
013	1
014	Δ
015	Δ
016	Δ
017	Δ

Δ: SPACE

EXAMPLE:
Calling Party Identification 1=Attendant
Tenant Number: 01 (fixed)
Attendant Number: 11

This information is generated by Outgoing/Incoming Call from/to an attendant.

- Trunk Route and Trunk Number Recording in Calling Party Information

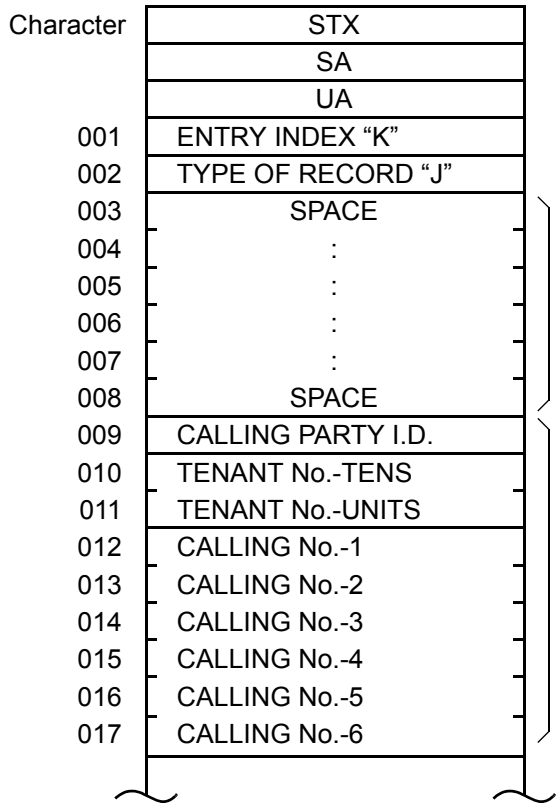
Character	
009	2
010	0
011	0
012	0
013	0
014	7
015	0
016	0
017	4

EXAMPLE:
Calling Party Identification 2=Trunk Route + Trunk
Tenant Number: 00
Trunk Route Number: 007
Trunk Number: 004

This information is generated by the following calls.
Direct Tandem Call
Tandem Call with attendant assistance
Trunk to Trunk Connection Call with station assistance

CALL RECORD DESCRIPTION FOR STATION-TO-STATION CALLS
[Series 3600 software or later]

The elements of a call record for station-to-station calls output on an extended NEAX 2400 IMS Format are illustrated and described in the following.



START OF TEXT: Indication of start of text.

STATION ADDRESS (0)

UNIT ADDRESS (!)

ENTRY INDEX: “K” indicates that SMDR call record will follow.

TYPE OF RECORD: “J” indicates that the call record is an station-to-station call record output on an extended NEAX 2400 IMS Format.

NO INFORMATION

CALLING PARTY INFORMATION:

The Calling Party Information consists of a maximum of nine characters, indicating the calling party information as follows.

- Calling Party Identification (Character 009)
  0=Station
  This indication is fixed to “0”.
- Tenant Number 00-63 (Character 010-011)
  Tenant Number set by CM12 Y=04
- Calling Number (Character 012-017)
  Station Number

  The spaces will follow the Station Number. When Station Number is 7 digits or more, last 6 digits are output.

Character		
018	MONTH	-TENS
019	MONTH	-UNITS
020	DAY	-TENS
021	DAY	-UNITS
022	HOUR	-TENS
023	HOUR	-UNITS
024	MINUTE	-TENS
025	MINUTE	-UNITS
026	SECOND	-TENS
027	SECOND	-UNITS
028	MONTH	-TENS
029	MONTH	-UNITS
030	DAY	-TENS
031	DAY	-UNITS
032	HOUR	-TENS
033	HOUR	-UNITS
034	MINUTE	-TENS
035	MINUTE	-UNITS
036	SECOND	-TENS
037	SECOND	-UNITS
038	SPACE	
:	:	
047	SPACE	
048	TENANT No.-HUNDREDS	
049	TENANT No.-TENS	
050	TENANT No.-UNITS	

TIME OF START CONVERSATION:

The Time of Start Conversation indicates when the called party answered a call in terms of months, days, hours, minutes and seconds.

Called party answered time is actually entered 18-24 seconds after the last digit is dialed, assuming no answer signal is given from the Central Office.

TIME OF CALL COMPLETION:

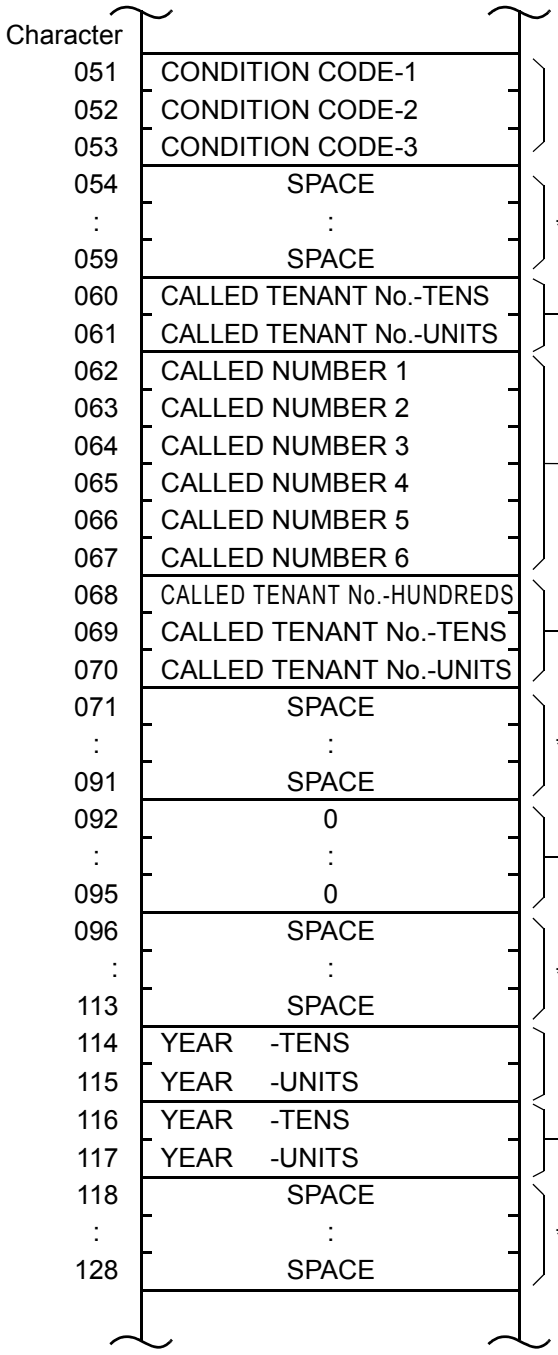
The Time of Call Completion indicates when the station is disconnected or a call is transferred in terms of months, days, hours, minutes and seconds.

NO INFORMATION

TENANT NUMBER:

Tenant number set similar to Character No. 010-011.
Tenant number of hundreds indication is fixed to “0”.

CONTINUED ON
NEXT PAGE



CONDITION CODE:

The Condition Code consists of three characters, indicating the type of methods used for setting up a call. Individual characters indicate the following information.

- Condition Code-1 (Character 051)
  0=Call has not been transferred
  1=Call has been transferred
- Condition Code-2 (Character 052)
  This indication is fixed to “0”
- Condition Code-3 (Character 053)
  This indication is fixed to “0”

CALLED TENANT NUMBER:

Tenant Number 00-63
Tenant Number set by CM12 Y=04

CALLED NUMBER:

Station Number

The spaces will follow the Station Number. When Station Number is 7 digits or more, last 6 digits are input.

CALLED TENANT NUMBER:

Tenant number set similar to Character No. 060-061.
Tenant number of hundreds indication is fixed to “0”.

0: This indication is fixed to “0”.

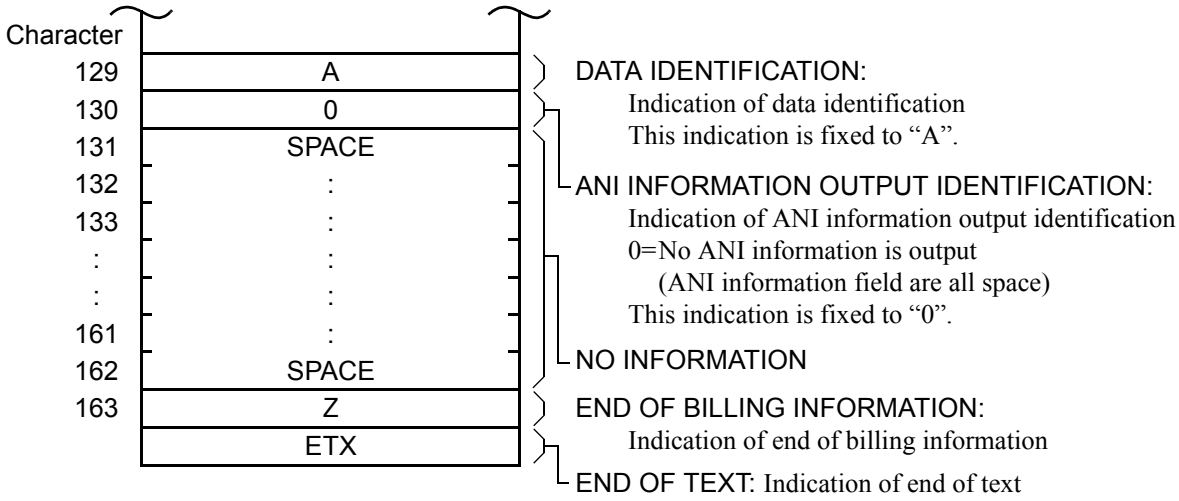
YEAR OF START CONVERSATION

The Year of Start Conversation indicates spaces if the incoming call is abandoned.

YEAR OF CALL COMPLETION

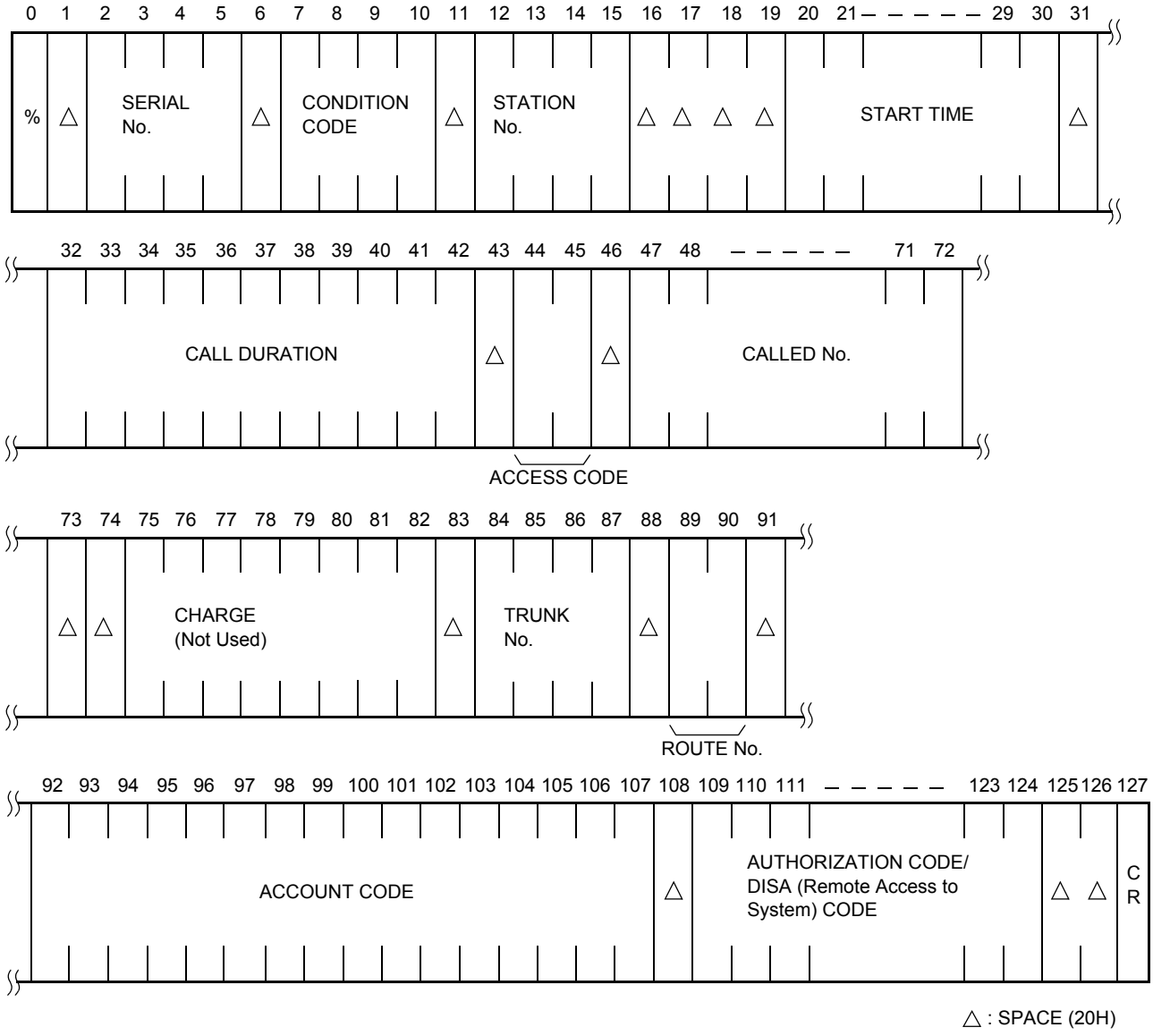
*: NO INFORMATION

CONTINUED ON
NEXT PAGE

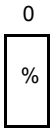

Character
129
130
131
132
133
:
:
161
162
163
A
0
SPACE
:
:
:
:
SPACE
Z
ETX
DATA IDENTIFICATION:
Indication of data identification
This indication is fixed to “A”.
ANI INFORMATION OUTPUT IDENTIFICATION:
Indication of ANI information output identification
0=No ANI information is output
(ANI information field are all space)
This indication is fixed to “0”.
NO INFORMATION
END OF BILLING INFORMATION:
Indication of end of billing information
END OF TEXT: Indication of end of text

NEAX 1400 IMS Format

NEAX 1400 IMS Format

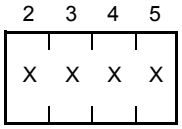


Start Character



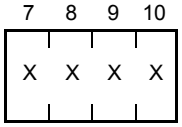
Each call record begins with a start character-% (percent sign).

Serial No.



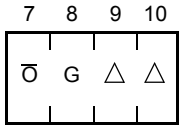
Each call record is provided with a serial number from 0000 to 9999. After 9999, the counter is reset to 0000.

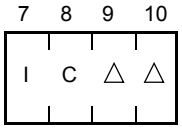
Condition Code

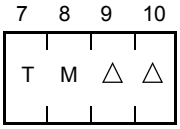


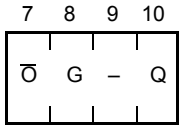
The Condition Code provides the type of call recorded, e.g. Trunk Queuing-Outgoing, IC-Incoming, TM-Tandem, etc.

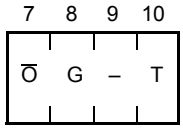
(Example)







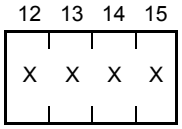




Condition Code

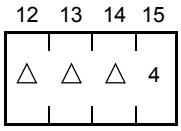
CONDITION CODE				MEANING
7	8	9	10	
O	G			Outgoing Call
I	C			Incoming Call
T	M			Tandem Call
		△	△	Normal IC/OG Call
		—	A	The call transferred by Attendant
		—	T	The call transferred by another station
		—	S	The call transferred by Serial Call
		—	Q	The call originated by Trunk Queuing-Outgoing

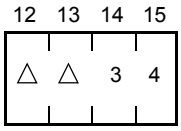
Station No.

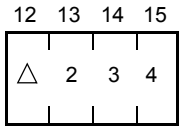


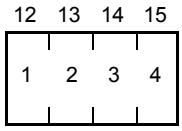
- On station to trunk calls, the station number is provided in this area.
- Valid digits are 0-9, *, and #.
- For station numbers that are less than 4 digits, a space is inserted, as shown below.

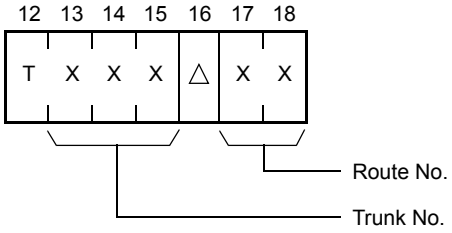
(Example)







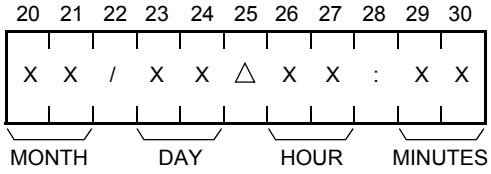




- If both originating and outgoing connections are trunks (tandem switching), then the trunk number and trunk route are provided in 12-18, for the originating trunk (Condition Code: TM △ △)/outgoing trunk (Condition Code: IC △ △).

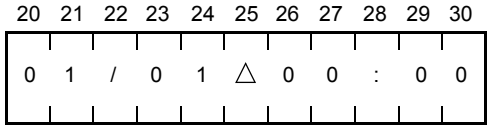
- Character 12 shows a “T”.
- Characters 13-15 show the originating/outgoing trunk number (000-255).
- Character 16 is a space.
- Characters 17 and 18 show the trunk route number (00-63).

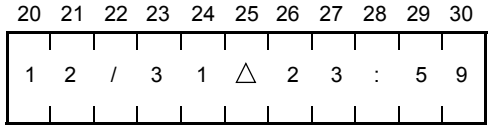
Start Time



- The start time of the call will be provided in characters 20-30. Month, day, hour and minutes are provided. The time is in 24 hour format (00:00 to 23:59) as shown below.

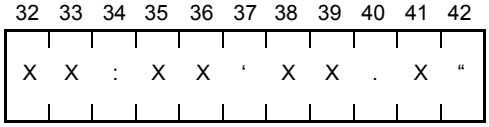
(Example)





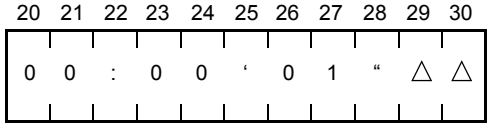
- Character 22 is a slash (/) mark.
- Character 25 is a space.
- Character 28 is a colon (:).

Call Duration

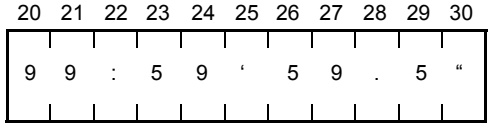


- The call duration is provided in characters 32-42.
- Character 37 is the symbol (’) for minutes.
- Character 42 is the symbol (”) for seconds.
- Duration is provided in hours, minutes and seconds. (Seconds are provided to the nearest 0.5 seconds.)

(Example)

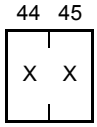


In the case of 1 second (minimum)



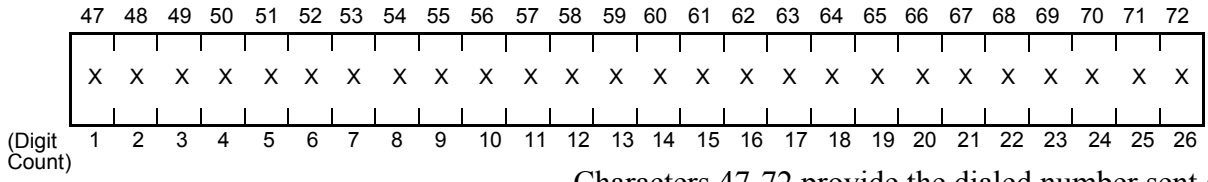
In the case of maximum time (99 hours, 59 minutes and 59.5 seconds.)

Access Code



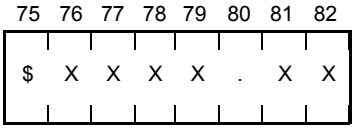
- Characters 44 and 45 provide the dialed trunk access code.
- Single digit access codes are provided in character 44. In this case, 45 is a space.
- Valid digits are 0-9, * and # for both (or either) characters 44 and 45.

Called No.



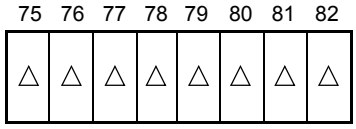
- Characters 47-72 provide the dialed number sent out on the trunk.
- Valid digits are 0-9, * and #.
- Maximum number of digits is 26. The number is displayed from left to right, starting at character 47. For dialed numbers less than 26 digits, spaces are used to fill in, after the number dialed.

Charge

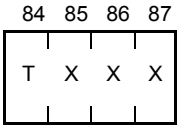


- Characters 75 to 82 are used to provide the charge for the call.
- Normally this area is filled in with spaces, as shown below.

(Example)

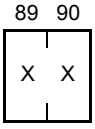


Trunk No.



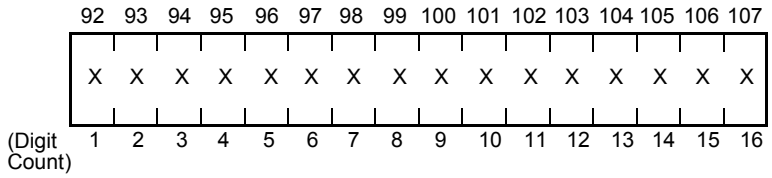
- Characters 84 through 87 are used to provide the numbers of the accessed trunks (T000-T255).
- Character 84 is a “T” for trunk.

Route No.



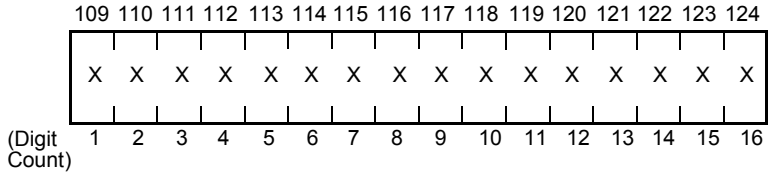
- Characters 89 and 90 provide the trunk route number (00-63) of the accessed trunk.

Account Code



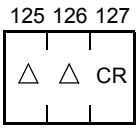
- Characters 92-107 provide the account code, when dialed, up to a maximum of 16 digits. When not dialed, this area is full of spaces.
- The account code is displayed starting from character 92. If less than 16 digits are used, spaces will fill in after the number.
- For the tandem call, this area is full of spaces.

Authorization Code/DISA (Remote Access to System) Code



- Characters 109-124 provide the dialed authorization code/DISA code, up to a maximum of 16 digits.
- The authorization code/DISA code is displayed starting from character 109. If less than 16 digits are used, the remaining character locations are filled in with spaces.

End of Information



- Characters 125-127 terminate information of the call record, by default programming.
- Characters 125 and 126 are spaces (20H). Character 127 is a carriage return (CR). See next page.

The following characters can be changed by CMD001>176.

CMD001>176 2nd Data	73 74	125 126 127	Purpose
0	△ △	△ △ CR	For a printer using 136 characters per line with automatic line feed
1	△ △	△ CR LF	For a printer using 136 characters per line without automatic line feed
2	△ △	CR LF LF	For providing a line space between call records on a 136 character printer
3	△ CR	△ △ CR	For a printer using 80 characters per line with automatic line feed
4	CR LF	△ CR LF	For a printer using 80 characters, without automatic line feed
5	CR LF	CR LF LF	For a printer using 80 characters per line without automatic line feed and providing a line space between call records

"△" =Space
"CR" =Space
"LF" =Space

CHAPTER 2

MCI SPECIFICATIONS

This chapter explains the line control characteristics of the Message Center Interface (MCI) and the data transmission protocol.

LINE CONTROL CHARACTERISTICS 78
DATA TRANSMISSION PROTOCOL 80

LINE CONTROL CHARACTERISTICS

The PBX provides three kinds of MCI (Message Center Interface); MCI with AP00 card (PN-AP00-B with AP00 program), MCI with AP00 card (PN-AP00-B/PN-AP00-D with MRCA program), and MCI with MP card.
The data link hardware consists of an RS-232C serial interface to the PBX.

Line Control Characteristics (MCI with AP00)

ITEM	DESCRIPTION
Data Rate	1200, 2400, 4800, 9600 bps asynchronous, software selectable for PN-AP00-B with AP00 program 300, 1200, 2400, 4800, 9600, 19200 bps asynchronous, software selectable for PN-AP00-B/PN-AP00-D with MRCA program **NOTE:** *For the Port 1 and Port 3 of PN-AP00-B with AP00 program, data speed 9600 bps cannot be set.*
Operating Mode	Half duplex
Electrical Interface Characteristic	EIA RS-232C electrical standard interface
Signal Form	EIA RS-404
Interface Distance	Max. 15 m (49.2 ft.) between PBX and VMS (without modem) **NOTE:** *When modems are used, full duplex asynchronous type modems are required.*
Word Framing	10 bits (1 start, 7 data, 2 stop)
Parity VRC*	No parity, even parity, odd parity; selected by PBX system data
Frame Contents	US ASCII 7-bit codes
Control	Contention
Priority Sequence	Primary station: PBX Secondary station: VMS

*: Vertical Redundancy Check

Line Control Characteristics (MCI with MP)

ITEM	DESCRIPTION
Data Rate	1200, 2400, 4800, 9600 bps asynchronous, software selectable
Operating Mode	Full duplex
Electrical Interface Characteristic	EIA RS-232C electrical standard interface
Signal Form	EIA RS-404
Interface Distance	Max. 15 m (49.2 ft.) between PBX and VMS (without modem) **NOTE:** *When modems are used, full duplex asynchronous type modems are required.*
Word Framing	10 bit (1 start, 7 data, 2 stop)
Parity VRC*	No parity
Frame Contents	US ASCII 7-bit codes
Protocol	Free Wheel
Error control	None
Control	Contention
Priority Sequence	Primary station: PBX Secondary station: VMS

*: Vertical Redundancy Check

DATA TRANSMISSION PROTOCOL

The MCI with AP00 and the MCI with MP have the same data transmission protocol.
The table below shows the transmission control codes used for the data exchange between the PBX and the VMS.

MCI Data Transmission Protocol

CODE	HEXADECIMAL VALUE	DESCRIPTION
SA	31	System Address: ASCII code 31_{16} (digit "1")
UA	21	Unit Address: ASCII code 21_{16} (exclamation point "!")
STX	02	Indication of the start of message text
ETX	03	Indication of the end of message text
EI	4A	Entry Index. Describes the type of message sent

General Message Format

The figure below shows the MCI general message format.

MCI General Message Format

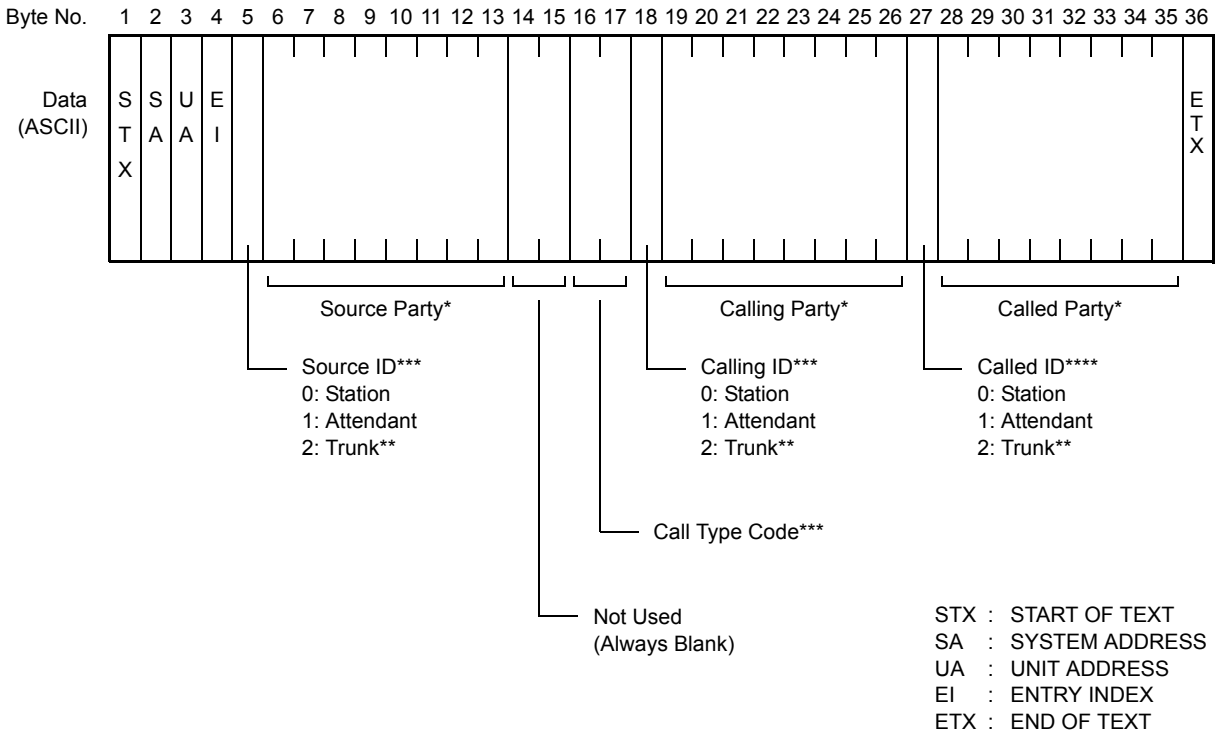
Key: STX Start of Text
SA System Address
UA Unit Address
EI Entry Index
ETX End of Text

Connecting Pattern Message Format (PBX to VMS)

This message format is used to identify the connecting pattern for Message Waiting control.
The data is sent to a VMS when terminating a call to the VMS.
The following figures show the maximum six-digit station number of message format (CMD000>137: 0 for MCI with AP00 [PN-AP00-B with AP00 program], CMDD01>100/101/102/103: 10 or CMDD10>X08: 0 for MCI with AP00 [PN-AP00-B/PN-AP00-D with MRCA program], CM08>708 for MCI with MP) and the maximum eight-digit station number of message format (CMD000>137: 1 for MCI with AP00 [PN-AP00-B with AP00 program], CMDD10>X08: 1 for MCI with AP00 [PN-AP00-B/PN-AP00-D with MRCA program], CM08>708 for MCI with MP).

Connecting Pattern Message Format (PBX to VMS) For Six-Digit Number

- Format without ANI

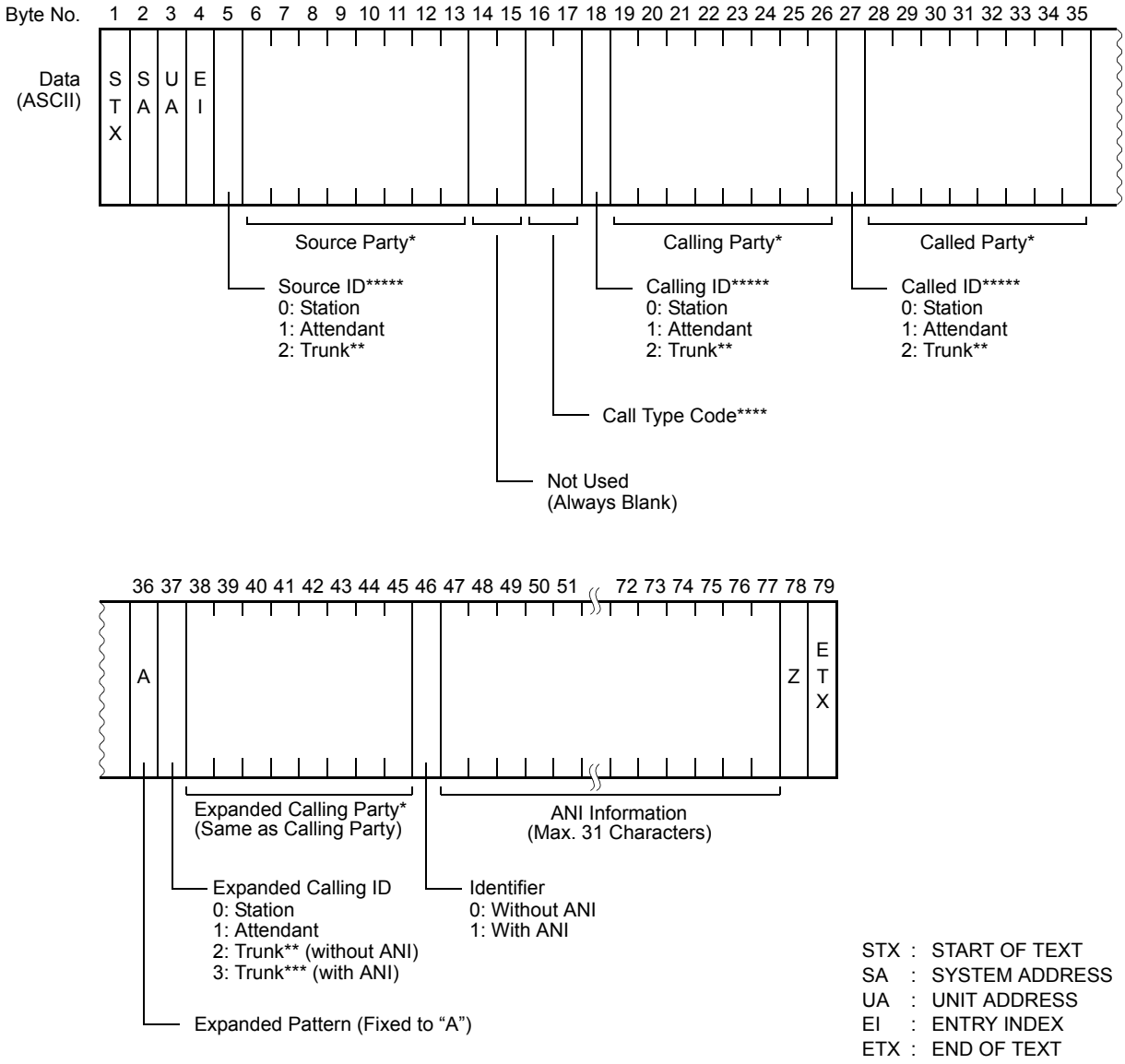


* This contains the station number, trunk number, or attendant number. The information in this field is left-justified.
** Trunk can be COT, DIT, DID.
*** See "Call Type Code". ☞ *Page 85*
**** See "Example of Source ID/Calling ID/Called ID/Expanded Calling ID For Six-Digit Number". ☞ *Page 86*

Continued on next page

Connecting Pattern Message Format (PBX to VMS) For Six-Digit Number

- Format with ANI



* This contains the station number, trunk number, or attendant number. The information in this field is left-justified.

** Trunk can be COT, DIT, DID.

*** Trunk can be ISDN, MFC, Caller ID.

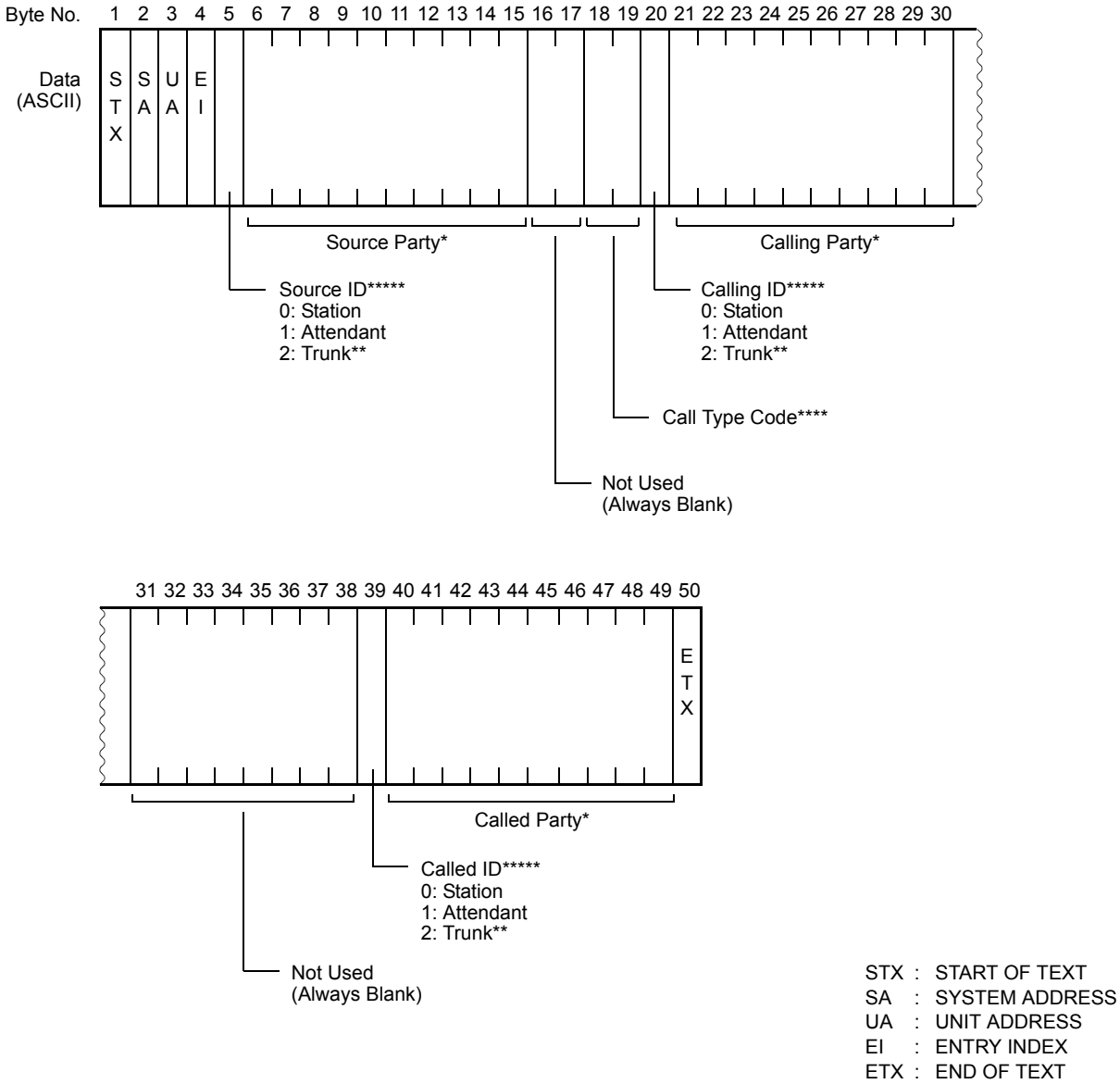
**** See "Call Type Code". ☞ See *Page 85*

***** See "Example of Source ID/Calling ID/Called ID/Expanded Calling ID For Six-Digit Number". ☞ *Page 86*

Continued on next page

Connecting Pattern Message Format (PBX to VMS) For Eight-Digit Number

- Format without ANI



STX : START OF TEXT
SA : SYSTEM ADDRESS
UA : UNIT ADDRESS
EI : ENTRY INDEX
ETX : END OF TEXT

* This contains the station number, trunk number, or attendant number. The information in this field is left-justified.

** Trunk can be COT, DIT, DID.

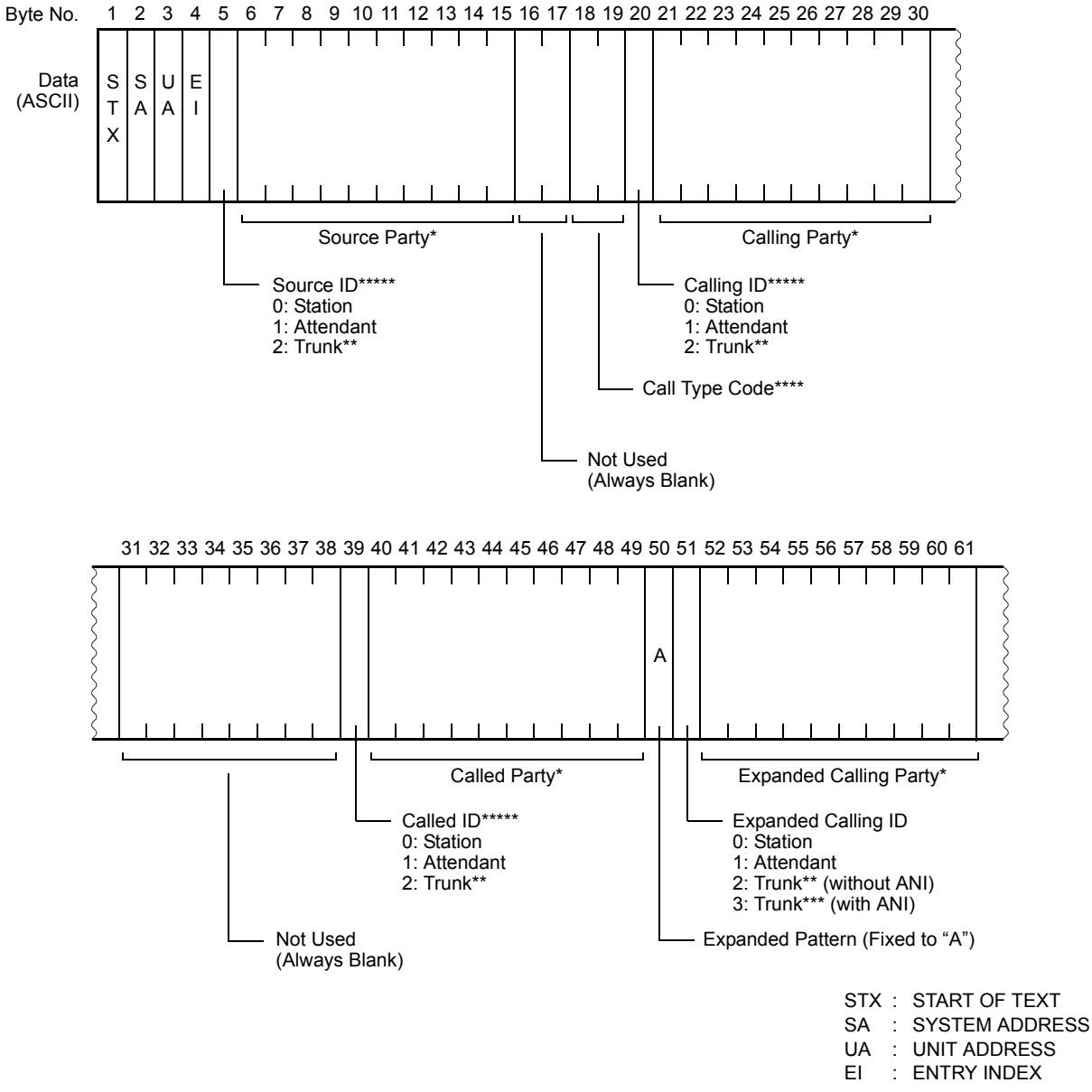
*** See "Call Type Code". ☞ *Page 85*

**** See "Example of Source ID/Calling ID/Called ID/Expanded Calling ID For Eight-Digit Number". ☞ *Page 87*

Continued on next page

Connecting Pattern Message Format (PBX to VMS) For Eight-Digit Number

- Format with ANI



STX : START OF TEXT
SA : SYSTEM ADDRESS
UA : UNIT ADDRESS
EI : ENTRY INDEX

* This contains the station number, trunk number, or attendant number. The information in this field is left-justified.

** Trunk can be COT, DIT, DID.

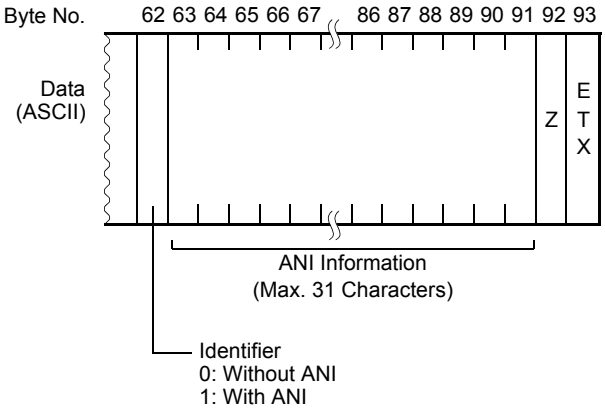
*** See "Call Type Code". ☞ *Page 85*

**** See "Example of Source ID/Calling ID/Called ID/Expanded Calling ID For Eight-Digit Number". ☞ *Page 87*

Continued on next page

Connecting Pattern Message Format (PBX to VMS) For Eight-Digit Number

- Format with ANI



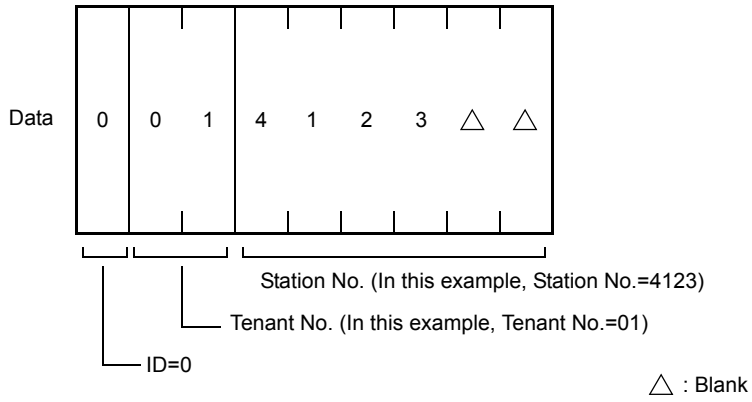
Z : END OF BILLING INFORMATION
ETX : END OF TEXT

Call Type Code

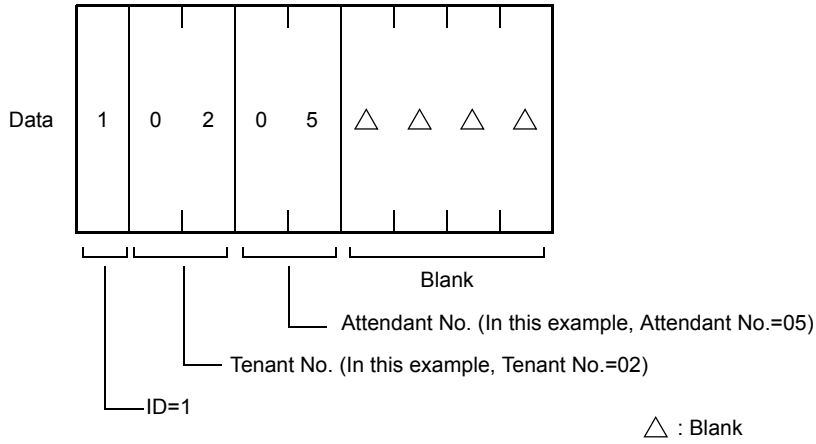
CALL TYPE CODE	CALL TYPE	SOURCE PARTY	CALLING PARTY	CALLED PARTY
39	Stop Message Waiting Data Sending	—	—	—
40	Call Forwarding-Don't Answer (No Answer)	Station	Station/Trunk	Station
41	Call Forwarding-Busy Line	Station	Station/Trunk	Station
42	Call Forwarding-All Calls	Station	Station/Trunk	Station
43	Station/Trunk	Station	Station/Trunk	UCD Pilot
44	Station/Trunk via Attendant	Station	Station/Trunk	Attendant
45	Station/Trunk transferred to UCD Pilot Station	Station	Station/Trunk	Station
66	Start Message Waiting Data Sending	—	—	—

Example of Source ID/Calling ID/Called ID/Expanded Calling ID For Six-Digit Number

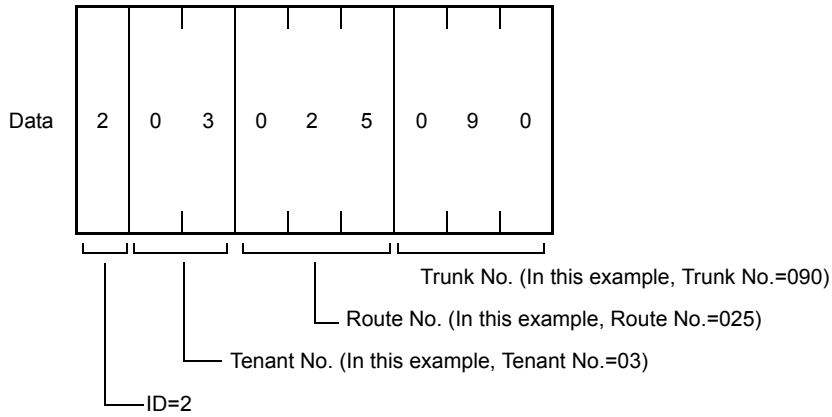
- Source ID/Calling ID/Called ID/Expanded Calling ID: Station



- Source ID/Calling ID/Called ID/Expanded Calling ID: Attendant

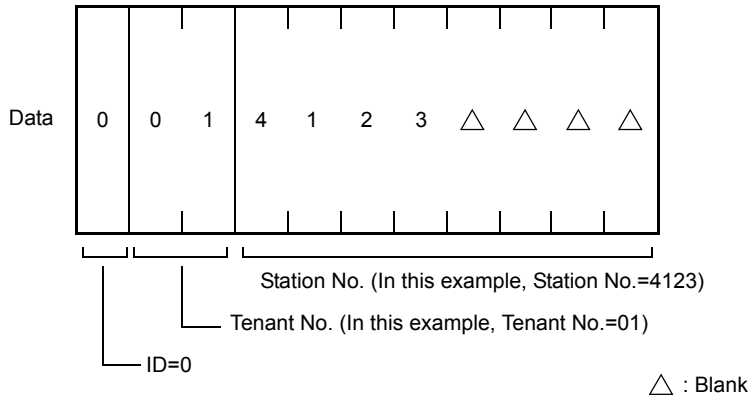


- Source ID/Calling ID/Called ID/Expanded Calling ID: Trunk

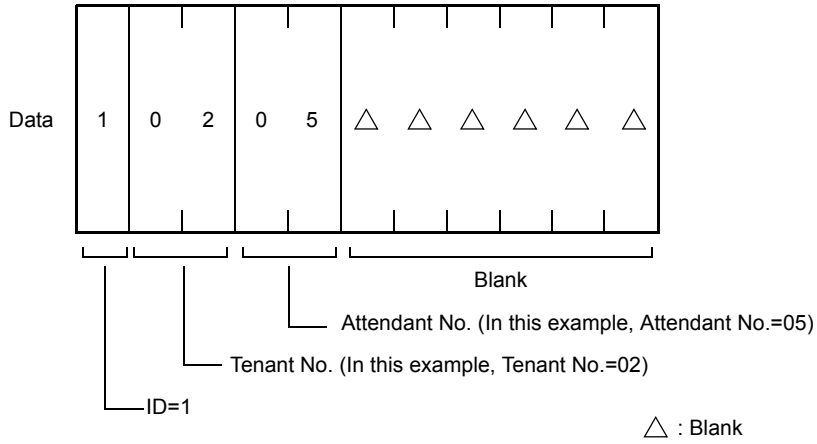


Example of Source ID/Calling ID/Called ID/Expanded Calling ID For Eight-Digit Number

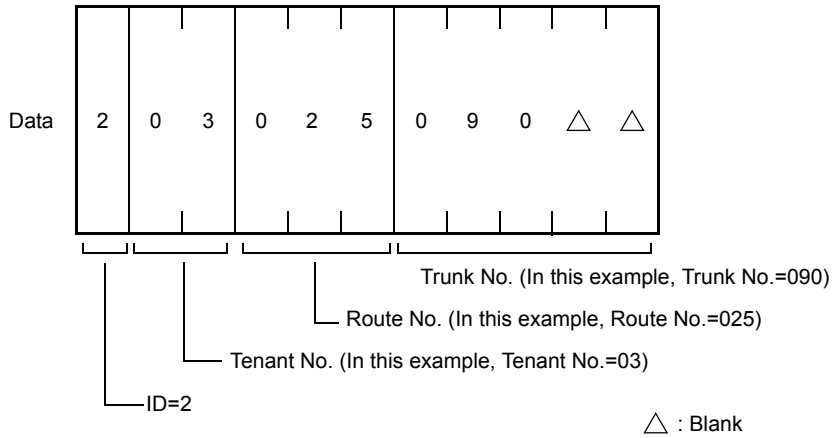
- Source ID/Calling ID/Called ID/Expanded Calling ID: Station



- Source ID/Calling ID/Called ID/Expanded Calling ID: Attendant



- Source ID/Calling ID/Called ID/Expanded Calling ID: Trunk

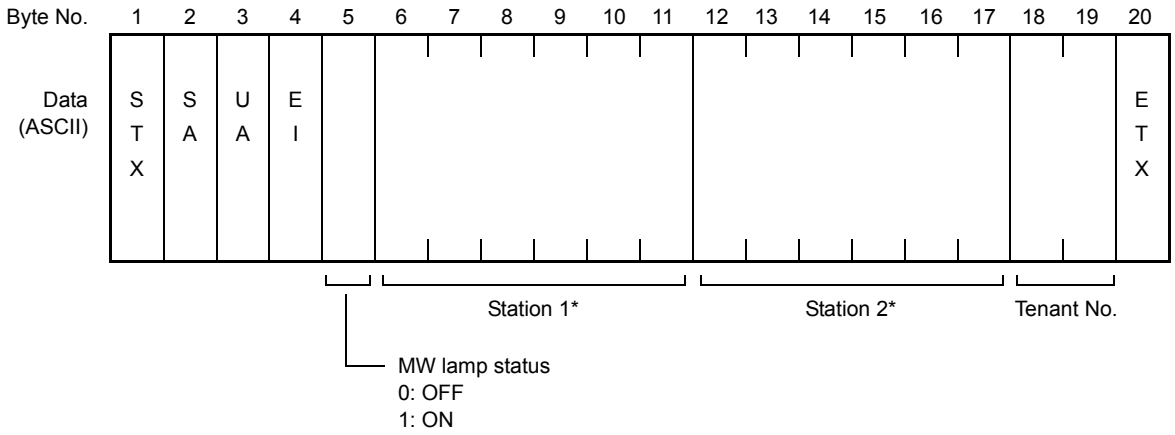


Message Waiting Control Message Format (VMS to PBX)

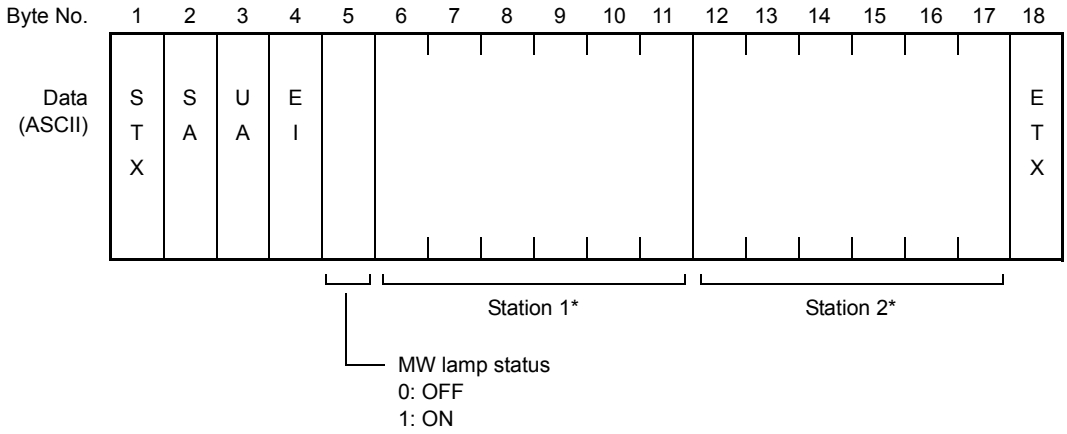
This message format is used to control Message Waiting lamp on a called station from a VMS. The data is sent to the PBX from VMS in the format shown below.

Message Waiting Lamp Control Message Format (VMS to PBX) For Six-Digit Number

- When using Tenant No.:



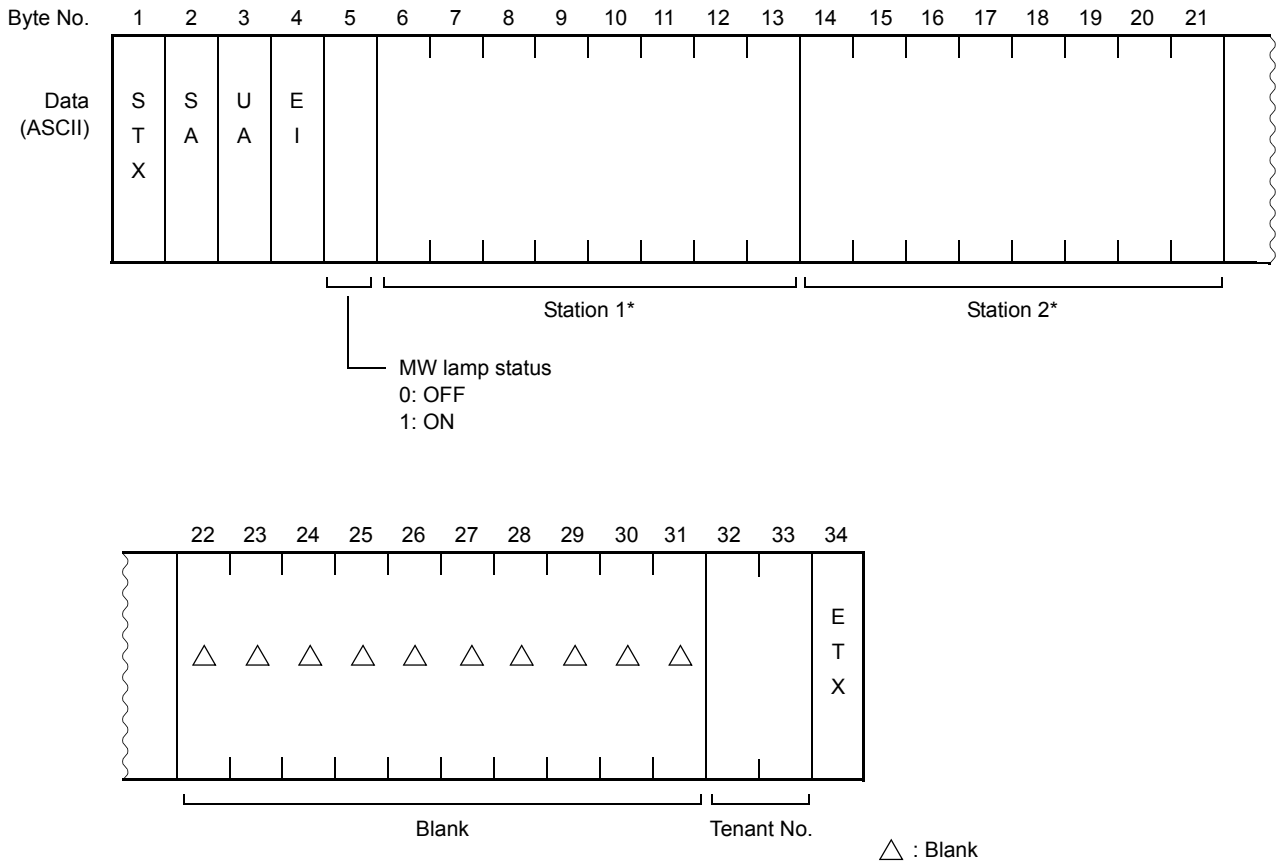
- When not using Tenant No.:



* For details on Station 1 and Station 2, see "Message Waiting Lamp Control Information". ☞ *Page 91*

Message Waiting Lamp Control Message Format (VMS to PBX) For Eight-Digit Number

- When using Tenant No.:

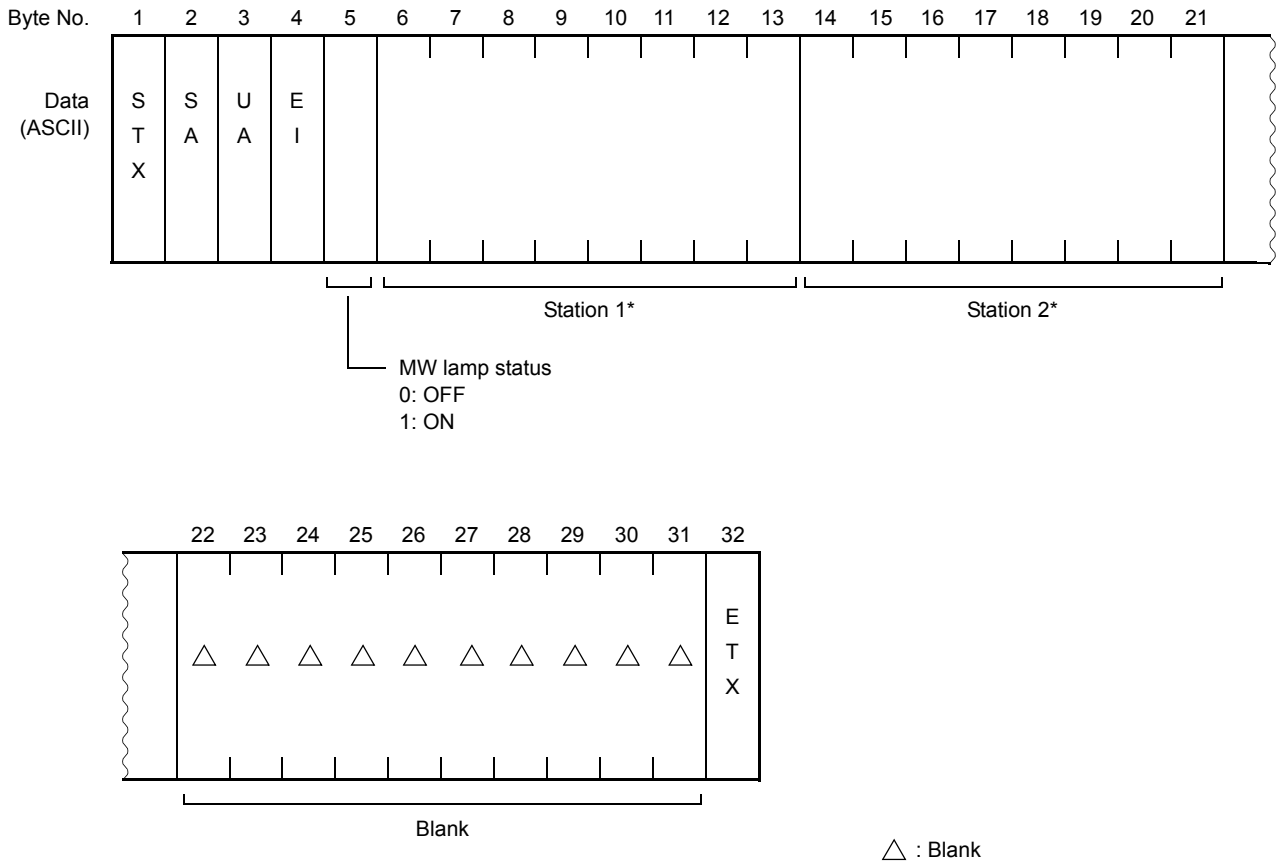


* For details on Station 1 and Station 2, see "Message Waiting Lamp Control Information". ☞ *Page 91*

Continued on next page

Message Waiting Lamp Control Message Format (VMS to PBX) For Eight-Digit Number

- When not using Tenant No.:



* For details on Station 1 and Station 2, see "Message Waiting Lamp Control Information". ☞ *Page 91*

Message Waiting Lamp Control Information

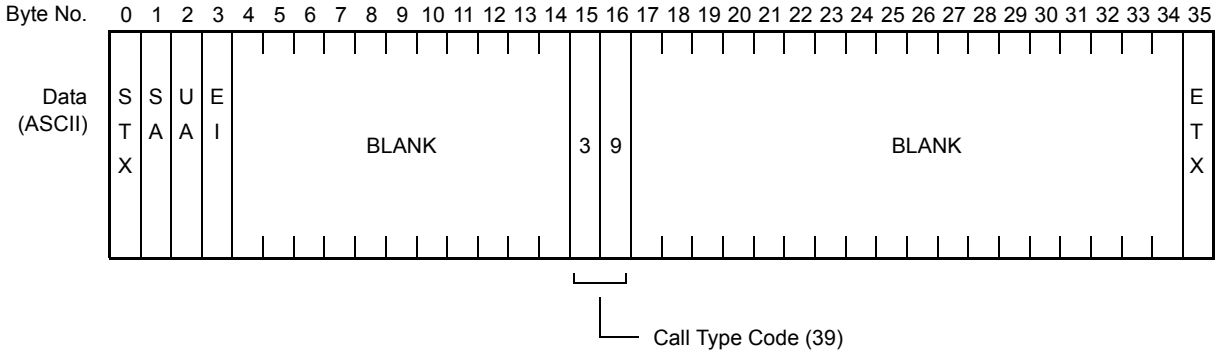
CONDITION	STATION 1 DATA	STATION 2 DATA	DESCRIPTION
1	Station No.	Blank	Station/MW On/Off
2	Station No.	Station No.	No control
3	Blank	Blank	All stations MW On/Off

MCI Stop Message Format (PBX to VMS)

This message format is used to stop receiving a Message Waiting lamp control data from a VMS temporarily.

The data is sent to the VMS in the format shown below when Message Waiting lamp is set or cancelled for all stations in the system.

MCI Stop Message Format (PBX to VMS) For Six/Eight-Digit Number

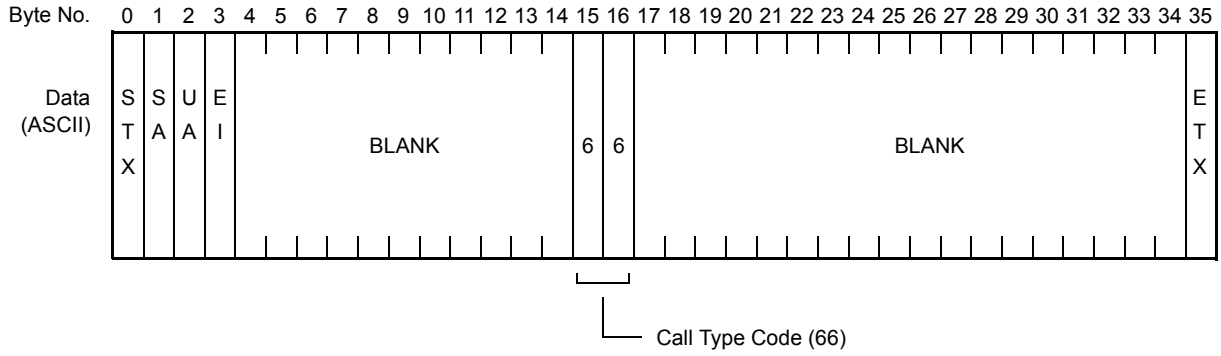


STX : START OF TEXT
SA : SYSTEM ADDRESS
UA : UNIT ADDRESS
EI : ENTRY INDEX
ETX : END OF TEXT

MCI Restart Message Format (PBX to VMS)

This message format is used to restart receiving a Message Waiting lamp control data from a VMS. The data is sent to the VMS in the format shown below when the system is initialized or when Message Waiting lamp is set or cancelled for all stations in the system.

MCI Restart Message Format (PBX to VMS) For Six/Eight-Digit Number



STX : START OF TEXT
SA : SYSTEM ADDRESS
UA : UNIT ADDRESS
EI : ENTRY INDEX
ETX : END OF TEXT

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CHAPTER 3

PMS INTERFACE SPECIFICATIONS

This chapter explains the line control characteristics of the Property Message System (PMS) interface and the data transmission protocol.

LINE CONTROL CHARACTERISTICS 96
DATA TRANSMISSION PROTOCOL 98

LINE CONTROL CHARACTERISTICS

For PMS with AP00 on RS-232C, the data link hardware consists of an RS-232C serial interface to the PBX.
For Built-in PMS on IP, the data link hardware consists of an Ethernet interface to the PBX.

NOTE: *PN-AP00-B/PN-AP00-D with MRCA program is not available for the PMS.*

RS-232C Interface

Line Control Characteristics (PMS with AP00 on RS-232C)

ITEM	DESCRIPTION
Data Rate	1200, 2400, 4800, 9600 bps, asynchronous, software selectable **NOTE:** *For the Port 1 and Port 3, data speed 9600 bps cannot be used.*
Operating Mode	Half duplex
Electrical Interface Characteristic	EIA RS-232C electrical standard interface
Signal Form	EIA RS-404
Interface Distance	Max. 15 m (49.2 ft.) between PBX and PMS (without modem) **NOTE:** *When modems are used, full duplex asynchronous type modems are required.*
Word Framing	10 bits (1 start, 7 data, 1 parity, 1 stop) or 11 bits (1 start, 7 data, 1 parity, 2 stop)
Parity VRC*	No parity, even parity, odd parity; selected by PBX system data
Parity LRC**	Exclusive OR of message text
Frame Contents	US ASCII 7-bit codes
Control	Contention
Priority Sequence	Primary office: PBX Secondary office: PMS

* : Vertical Redundancy Check
**: Longitudinal Redundancy Check

Ethernet Interface

Line Control Characteristics (Built-in PMS on IP)

ITEM	DESCRIPTION
Physical layer	Ethernet
Connection layer	The Ethernet packet format complies with the DIX standard
TCP/IP core protocol	ARP, IP, ICMP, UDP, and TCP
Socket interface	Complies with the 4.3BSD socket interface
Transport Protocol	TCP stream-type protocol
Application Port No.	60050 (fixed)
Number of Connections	1 connection
Client/Server	Server: PBX Client : PMS
Frame Contents	US ASCII 7-bit codes
Pseudo Normal Restriction Condition	1. At connection release 2. Status monitoring text

DATA TRANSMISSION PROTOCOL

This section discusses the protocol for data exchange between the PBX and the PMS. The following control codes are used for data exchange:

RS-232C Interface

(1) Transmission control codes

Transmission Control Codes

CODE	HEXADECIMAL VALUE	DESCRIPTION
SA	31	System Address: ASCII code 31_{16} (digit "1")
UA	21	Unit Address: ASCII code 21_{16} (exclamation point "!")
STX	02	Indication of the start of message text
ETX	03	Indication of the end of message text
ACK	06	Positive acknowledgment of message text or selecting sequence
NAK	15	Negative acknowledgment of message text or selecting sequence
ENQ	05	Request for acknowledgment of message text, or last byte of selecting sequence
EOT	04	Indication of end of transmission or release of the data link by the sender
DLE "<"	10, 3C	Indication of interruption for the receiver to ask the sender for permission to send
DLE "|"	10, 7C	Indication of interruption for the receiver to ask the sender to stop transmission

NOTE: *A chart listing the ASCII codes for these characters is given on next page.*

ASCII Code

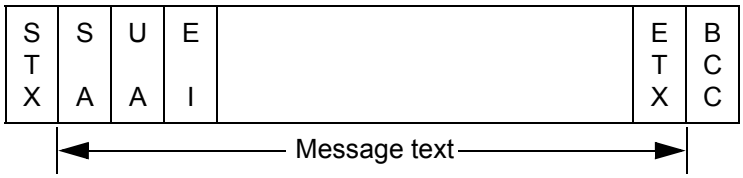
DECIMAL	HEX	CHARACTER
0	00	NUL (null)
1	01	SOH
2	02	STX
3	03	ETX
4	04	EOT
5	05	ENQ
6	06	ACK
7	07	BEL
8	08	BS
9	09	TAB
10	0A	NEW LINE
11	0B	VT
12	0C	FF
13	0D	RETURN
14	0E	SO
15	0F	SI
16	10	DLE
17	11	DC1
18	12	DC2
19	13	DC3
20	14	DC4
21	15	NAK
22	16	SYN
23	17	ETB
24	18	CAN
25	19	EM
26	1A	SUB
27	1B	ESC
28	1C	FS
29	1D	GS
30	1E	RS
31	1F	US
32	20	SP (space)
33	21	!
34	22	“
35	23	#
36	24	$
37	25	%
38	26	&
39	27	’
40	28	(
41	29	)
42	2A	*

DECIMAL	HEX	CHARACTER
43	2B	+
44	2C	,
45	2D	-
46	2E	.
47	2F	/
48	30	0
49	31	1
50	32	2
51	33	3
52	34	4
53	35	5
54	36	6
55	37	7
56	38	8
57	39	9
58	3A	:
59	3B	;
60	3C	<
61	3D	=
62	3E	>
63	3F	?
64	40	@
65	41	A
66	42	B
67	43	C
68	44	D
69	45	E
70	46	F
71	47	G
72	48	H
73	49	I
74	4A	J
75	4B	K
76	4C	L
77	4D	M
78	4E	N
79	4F	O
80	50	P
81	51	Q
82	52	R
83	53	S
84	54	T
85	55	U

DECIMAL	HEX	CHARACTER
86	56	V
87	57	W
88	58	X
89	59	Y
90	5A	Z
91	5B	[
92	5C	\
93	5D	]
94	5E	^
95	5F	_
96	60	`
97	61	a
98	62	b
99	63	c
100	64	d
101	65	e
102	66	f
103	67	g
104	68	h
105	69	i
106	6A	j
107	6B	k
108	6C	l
109	6D	m
110	6E	n
111	6F	o
112	70	p
113	71	q
114	72	r
115	73	s
116	74	t
117	75	u
118	76	v
119	77	w
120	78	x
121	79	y
122	7A	z
123	7B	{
124	7C	Ω
125	7D	}
126	7E	¨
127	7F	DEL (delete)

(2) Message format

PMS Message Format



(a) The text length is variable (128 characters between STX and ETX).

(b) One text comprises one record.

SA	Station Address	'1' (31H) is used.
UA	I/O Unit Address	'!' (21H) is used.
EI	Entry Index	Defined by the PBX. 'L' (4CH) is used for the Hotel version.

(3) Error control method
The Block Check Code (BCC) is computed as follows:

(a) Upon detection of STX, the computation starts. However, STX is excluded.

(b) Upon detection of ETX, the computation ends. Here, ETX is included.

(4) Data transmission sequence

In this exchange protocol, the following communication phases are included:

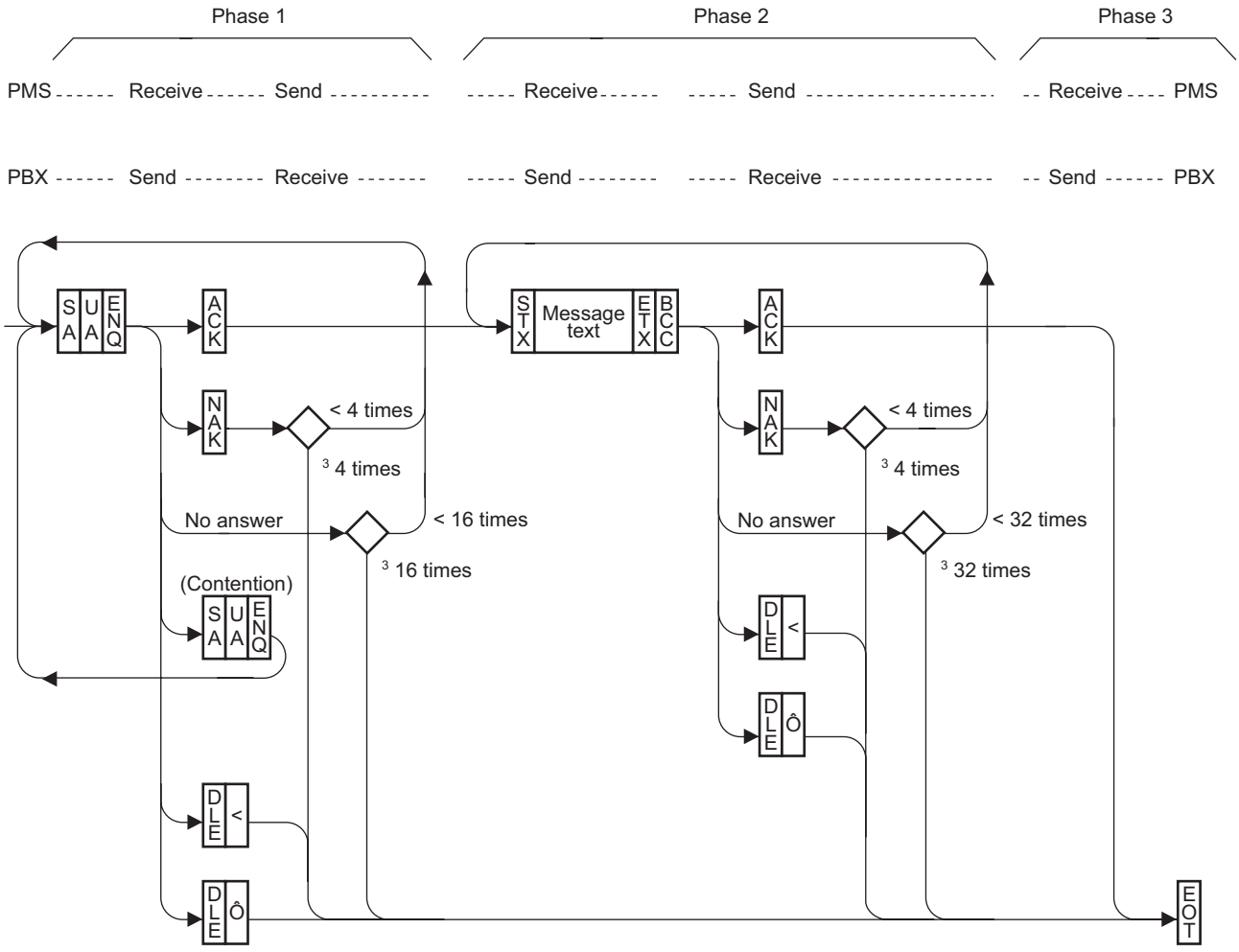
Phase 1 Initiation of the data link

Phase 2 Data transmission

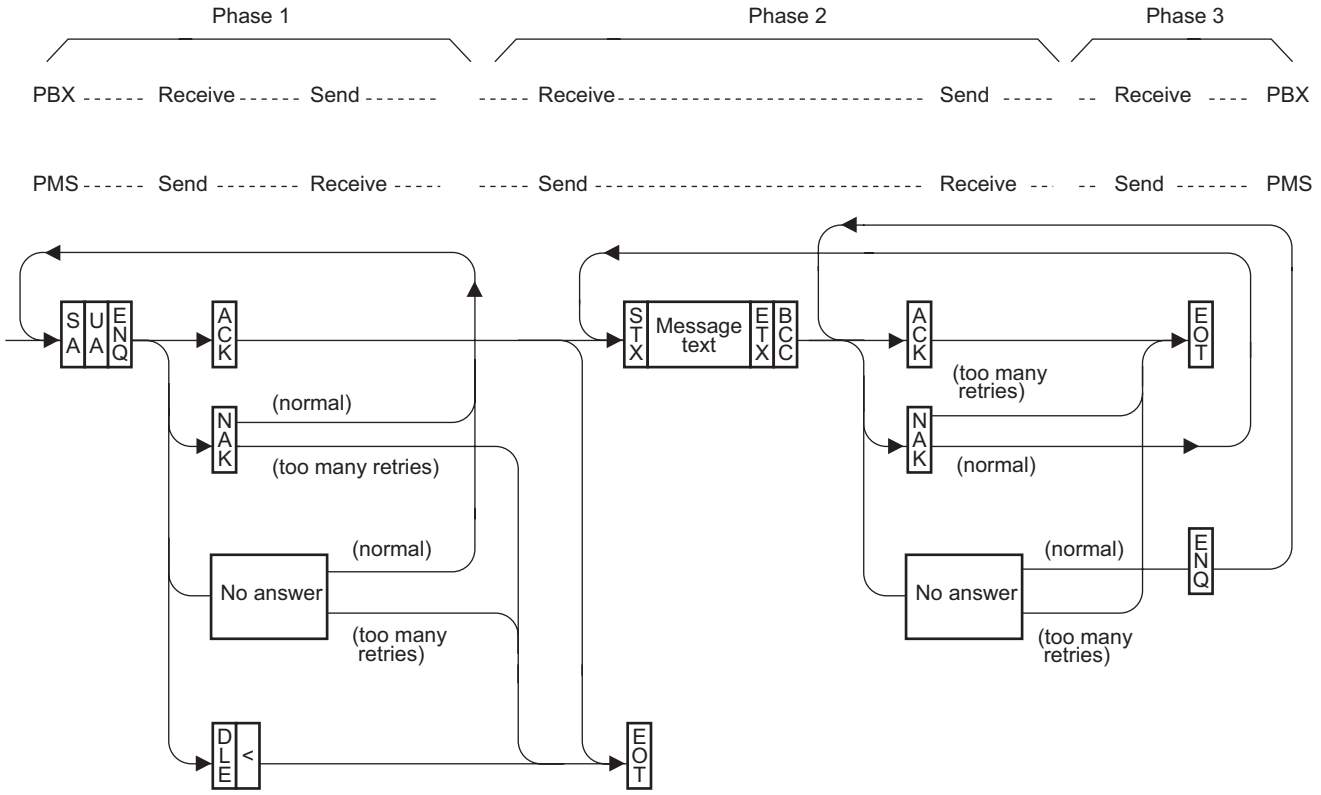
Phase 3 Release of the data link

Figures below show the operation of the protocol. The text on the following pages describes the three phases in detail.

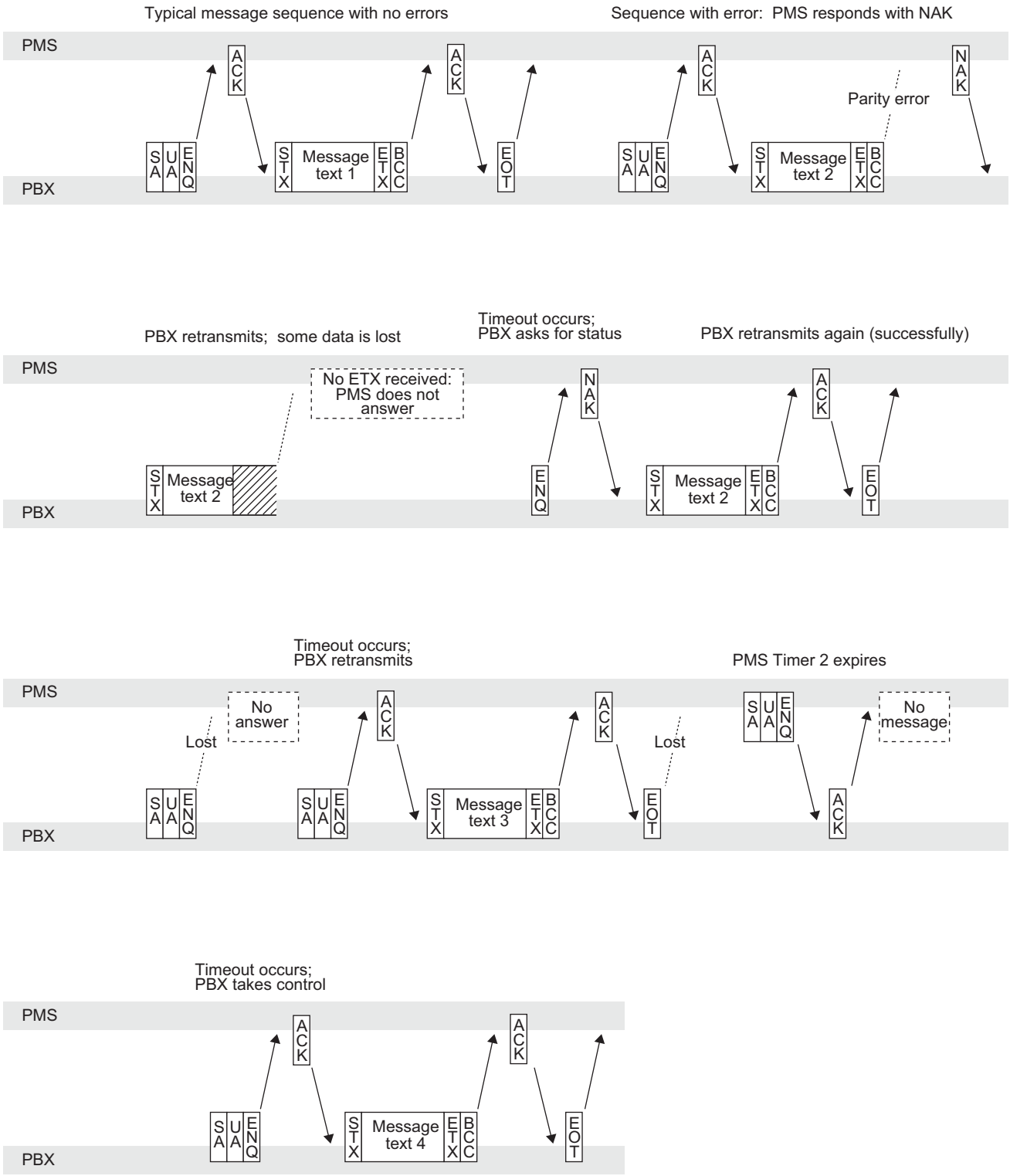
Data Transmission from PBX to PMS



Data Transmission from PMS to PBX



Example of PMS Data Link Protocol



(a) Phase 1: Initiation of the Data Link
For initiating the data link, the following control codes are used.

(i) Transmission of the selecting sequence codes
The sender transmits selecting sequence codes (SA-UA-ENQ) before the message text to ensure that the receiver is available.

(ii) Answer for the selecting sequence codes
- **Positive acknowledgment (ACK).** If the receiver is ready to receive the message text, it transmits the ACK code. When the sender receives the ACK code, it enters Phase 2 to send the message text.
- **Negative acknowledgment (NAK).** If the receiver is not ready or detects a VRC error, it transmits the NAK code. If the sender has received the NAK code four times, it enters Phase 3 to release the data link.
- **Interruption for permission to send (DLE "<").** If the receiver has information for the sender, it transmits the DLE "<" code to ask for permission to send. When the sender receives the DLE "<" code, it enters Phase 3 to release the data link.
- **Selecting sequence codes (SA-UA-ENQ).** If both systems try to initiate the data link at the same time, the PBX has priority. The PMS should return to an idle state and wait for the PBX to send the codes again.
- **No answer.** If the sender does not receive ACK, NAK, or DLE during the Timer 1 interval, it will retransmit the selecting sequence code up to 16 times. If no answer is received after 16 retries, the sender enters Phase 3 to release the data link.

(b) Phase 2: Data Transmission
In Phase 2, the following codes are used:

(i) Transmission of the message text
- The sender transmits the message text, starting with the STX code, and ending with the ETX code followed by the BCC.

(ii) Answer for the message text
- **Positive acknowledgment (ACK).** When the message text is received correctly, the receiver transmits the ACK code. When the ACK code is received, the sender enters Phase 3 to release the data link. If the sender has several messages to send, it can send them successively without entering Phase 3 after each transmission.

- **Negative acknowledgment (NAK).** If the receiver does not receive the message correctly due to VRC or LRC error, or receives a message text with an undefined code, etc., the receiver transmits the NAK code. When the NAK is received, the sender retransmits the same message text up to four times. After four attempts, the sender enters Phase 3 to release the data link.
- **Interruption to stop transmission (DLE "|").** If the receiver is not ready to receive the message text because its buffer is full, it transmits the DLE "|" code to ask the sender to stop the transmission. When the sender receives the DLE "|" code, it enters Phase 3 to release the data link. In this case, the sender should recognize that its last message was not received correctly.
- **Interruption for permission to send (DLE "<").** If the receiver has information for the sender, it transmits the DLE "<" code to ask for permission to send. When the sender receives the DLE "<" code, it enters Phase 3 to release the data link.
- **No answer.** If the sender does not receive ACK, NAK, DLE "<", or DLE "|" during the Timer 1 interval, it sends the ENQ code to request an answer for the previous message. It sends the ENQ code up to 32 times. If no answer is received after 32 attempts, the sender enters Phase 3 to release the data link.

(c) Phase 3: Release of the Data Link

The sender sends the EOT code to release the data link, then goes to Phase 1 when necessary to send another message. If the receiver does not receive the EOT code during the Timer 2 interval, it can begin sending messages.

Timing Considerations

The PBX has a 128-byte buffer for receiving messages from the PMS. It checks for incoming messages every 128 msec. If the PMS sends data faster than the PBX can process it, some data may be lost, resulting in retransmission of messages and a decrease in total message throughput. Two software timers must be used to maintain data transmission. Timer 1 is maintained by the sender. Timer 2 is maintained by the receiver.

Timer 1

This timer begins counting when a selecting sequence code (SA, UA, ENQ), message text (STX ... BCC), or inquiry code (ENQ), is sent; and stops counting when a valid answer (ACK, NAK, DLE "|", or DLE "<") is received. The timer interval is one second. If timeout occurs after transmission of the selecting sequence codes, the codes are retransmitted up to 16 times. If timeout occurs after text or inquiry codes are transmitted, the inquiry code to request an answer is retransmitted up to 32 times.

Timer 2

This timer begins counting upon transmission of a positive acknowledgment code (ACK) for the selecting sequence code or message text, and stops counting upon receiving a message text or valid end code (EOT). The timer interval is 35 seconds. If timeout occurs, the receiver can enter Phase 1 to become the sender.

Ethernet Interface

(1) Transmission control codes

Transmission Control Codes

CONTROL CODE	VALUE IN HEX.	FUNCTION
STX	02	Indicates start of text block.
ETX	03	Indicates end of text block.

(2) Restriction conditions

(a) PMS operates as a client.

(b) When initializing or switching the PBX, note the following:

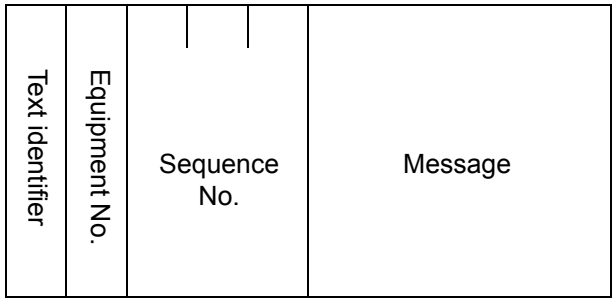
- When the PBX is initialized, the connection is cleared. Therefore, PMS performs periodical status monitoring and if there is a connection abnormality, the automatic connection establishment request from PMS is required.
- When the active/standby system of PBX is switched, the established connection is cleared.
- To re-establish the connection, the ARP cache in PMS must be cleared. PBX has two MAC address for each ACT/SBY system in an IP address, therefore without clearing the ARP cache in PMS the connection establishment to the new ACT system is impossible (because PMS will establish the connection to the old ACT system if the cache is not cleared).

(c) ACK/NAK control is not available.

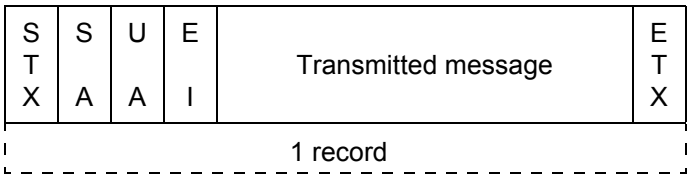
(3) Message format

The data between PBX and PMS is transmitted/received by the message unit. The message consists of the text identifier, equipment number and message as shown below:

<1> Message Header



<2> Message



(4) Basic message composition

Basic Message Composition

ITEM	DATA RANGE NOTE 1	DEFINITION
Text identifier	0 to 9	Identifies the data to be sent/received. 0: Not used 1: PBX received message (PMS→PBX) On receiving this data, PBX sends the result of received data check by "PBX reply message" to PMS within the set time. 2: PBX sent message (PBX→PMS) On receiving this data, PMS sends the result of received data check by "PMS reply message" to PBX within the set time. 3: PBX reply message (PBX→PMS) This data is sent to PMS if PBX receive message or status monitoring message was received at PBX. 4: PMS reply message (PMS→PBX) This data is sent to PBX if PBX sent message was received at PMS. 5: Status monitoring message (PMS→PBX) In case both PMS and PBX do not send process request message, this message is sent from PMS within a minute. On receiving this message PBX performs status monitoring on PMS. 6: Connection release message (PMS←→PBX) This message is sent from PMS/PBX to request connection release. On receiving this message, the received side releases the connection. 7 to 9: Not used
Equipment No.	0 to 9 or 00 to 99 (Default)	The equipment number of PMS connected to PBX. Normally fixed to "0".
Sequence No. NOTE 2	00 to 99 (Default) or 000 to 199	Serial number of the sent data. This number is used to confirm the clearance of the transfer data. Each of PBX and PMS manages individual numbers.

Continued on next page

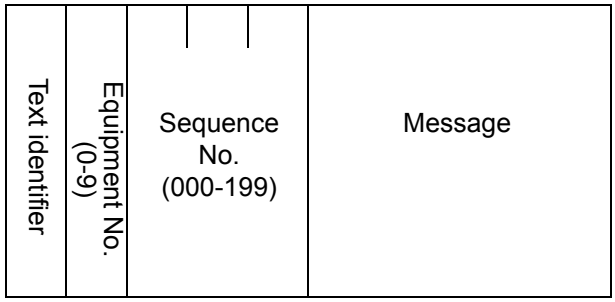
Basic Message Composition

ITEM	DATA RANGE NOTE 1	DEFINITION
Reply No.	0 to 9	Performs reply acknowledgement of the data sent and received. 0: Normal 1: Que registration error 2: Received text error (received invalid text) 3 to 9: Not used
Message		The messages used in the hotel system. A message is sent in parts, each part equivalent to one record. For details on the messages, refer to Chapter 4. ☞ Page 133

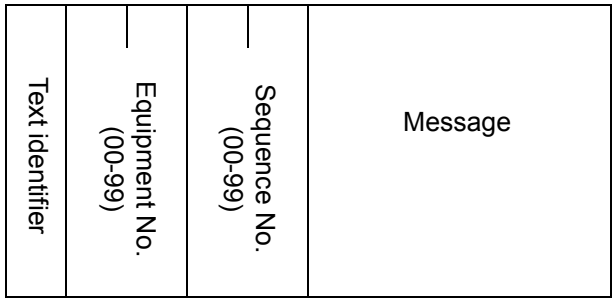
NOTE 1: *Data range is expressed as a numeric value in ASCII code.*

NOTE 2: *Number of digits for sequence number is selectable by system data (CM08>825), and number of digits for equipment number is determined by the sequence number as follows.*

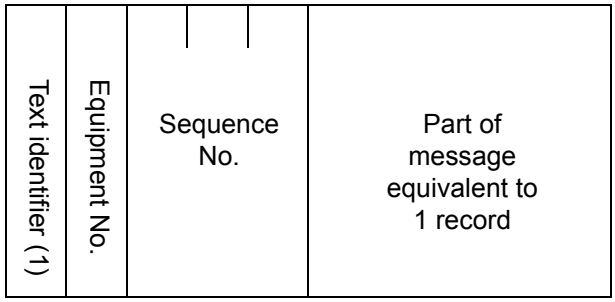
When the 2nd data of CM08>825 is 0 (3 digits):



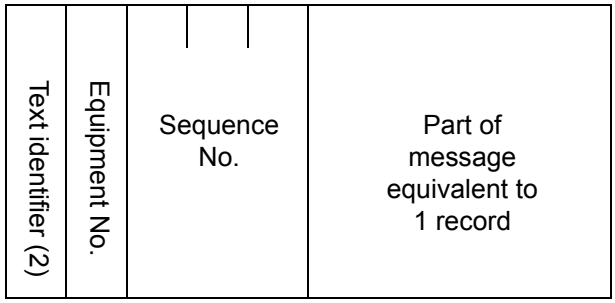
When the 2nd data of CM08>825 is 1 (2 digits):



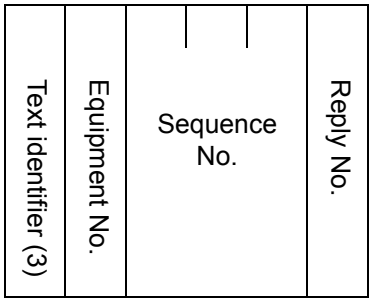
(a) PBX received message
The message sent to request control from PMS:



(b) PBX sent information message
The information message sent to PMS from PBX:

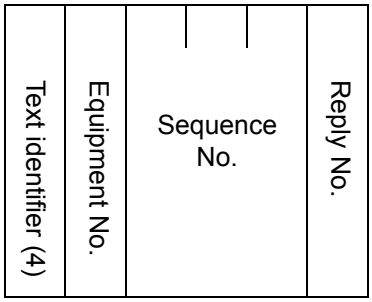


(c) PBX reply message
This message notifies to PMS whether or not the received data was normal at PBX on receiving the text identifier (1) or (5).



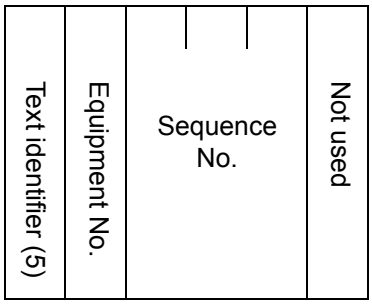
(d) PMS reply message

This message notifies to PBX whether or not the received data was normal at PMS on receiving the text identifier (2).



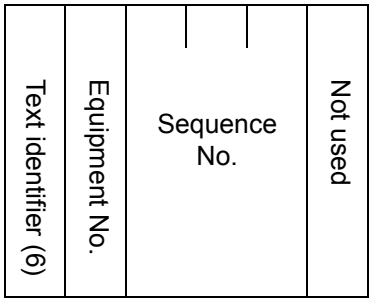
(e) Status monitoring message

This message requests the status monitoring of PBX from PMS and vice versa. The status monitoring notification of PMS is performed at the same time. On receiving this message, PBX side sends the “PBX reply message (3)” to the client.



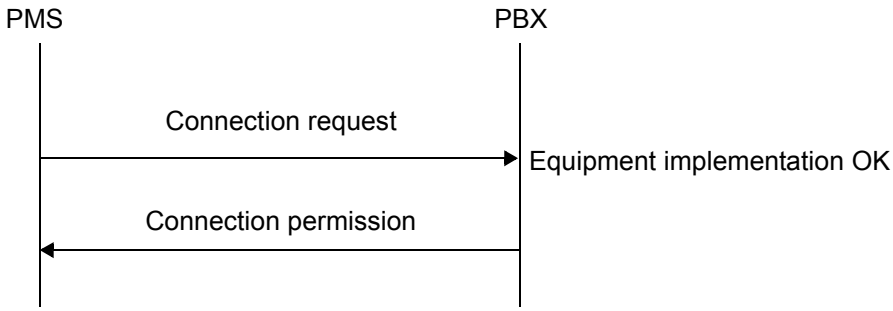
(f) Connection release message

This message requests connection release from PMS side to PBX side and vice versa. On receiving this message, the received party promptly performs connection release processing.

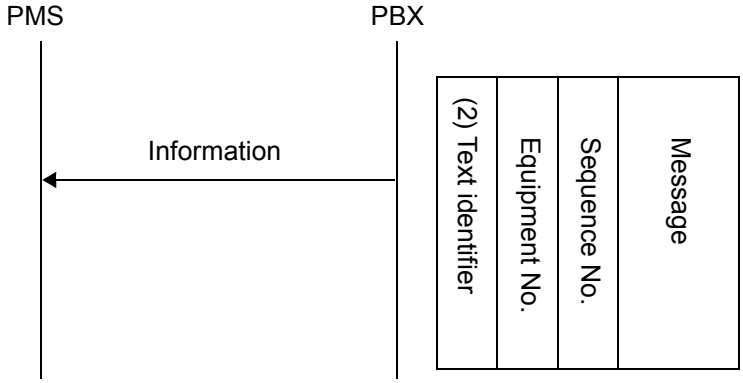


(5) Data transmission sequence

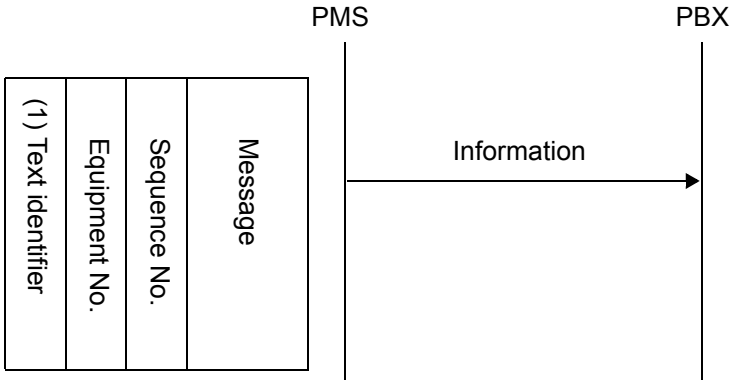
(a) Connection establishment sequence
The sequence of connection establishment request from PMS to PBX is shown below:



(b) Normal process sequence for information sending/receiving
The normal sequence in case PBX sends information to PMS is shown below:

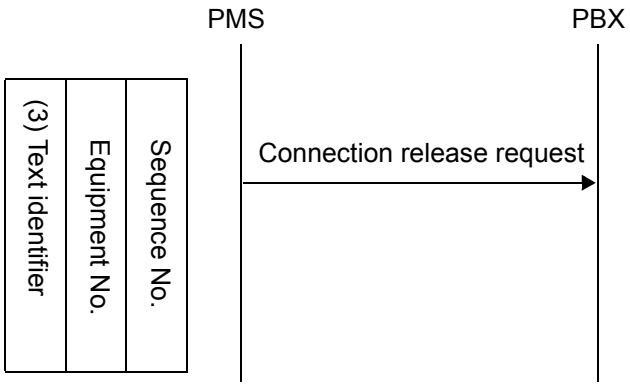


The normal sequence in case PMS sends information to PBX is shown below:

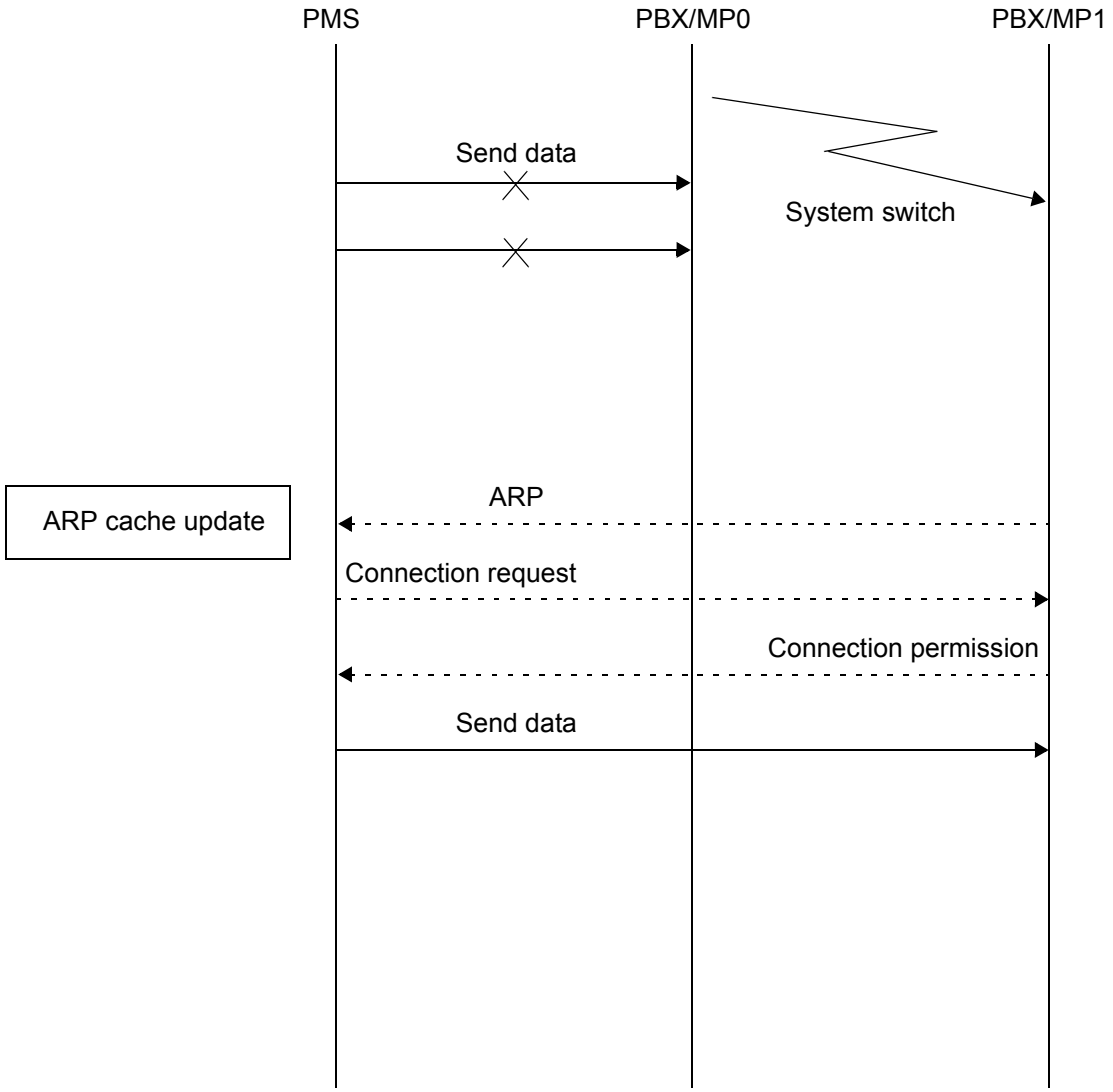


(c) Sequence concerning connection release

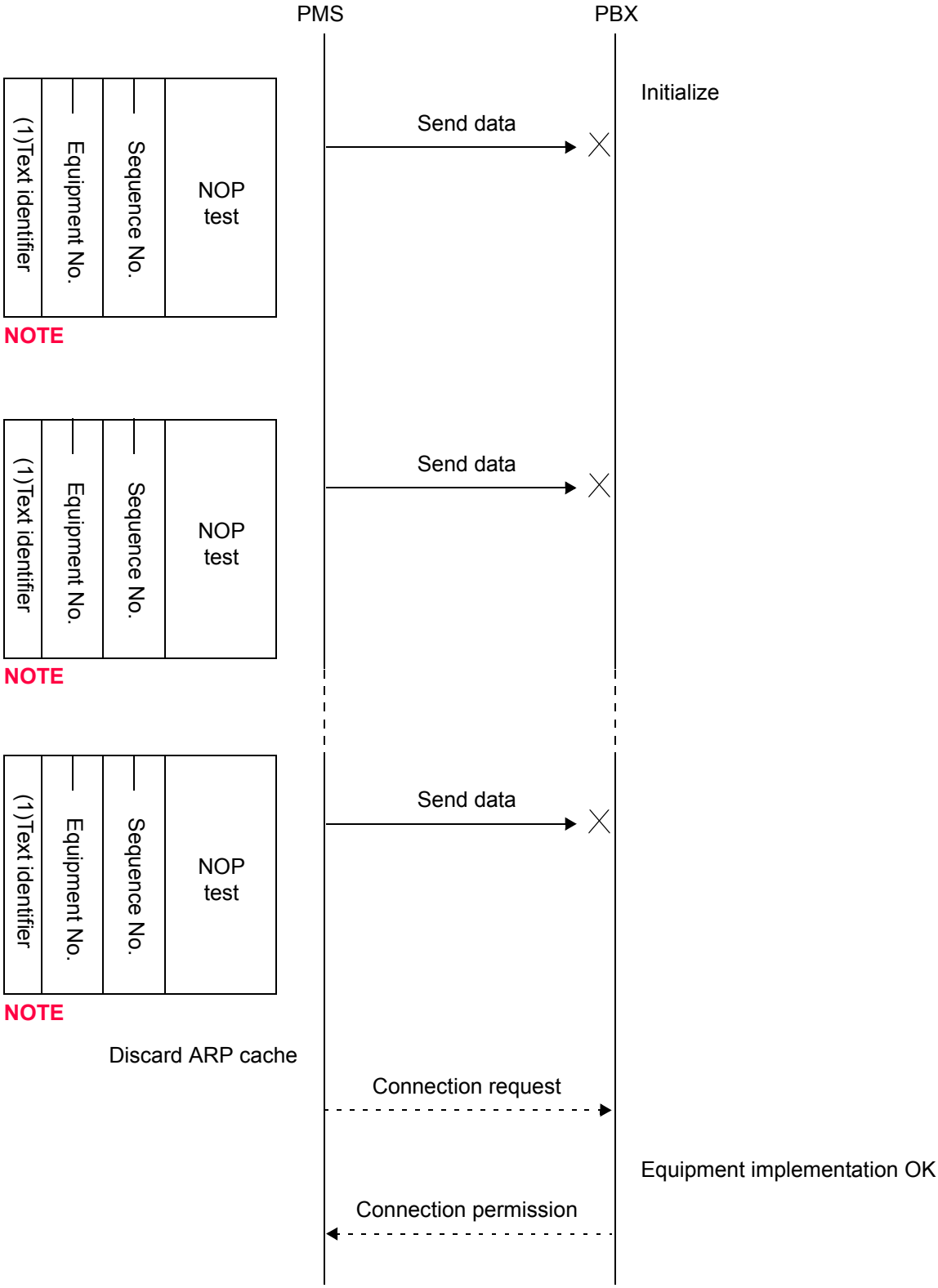
The connection release sequence on request from PMS side is shown below:



(d) Connection sequence when PBX system is switched
The connection sequence on request from PMS side is shown below:



(e) Sequence when PBX system is initialized



NOTE: *NOP test is a hotel service to monitor the line status.*

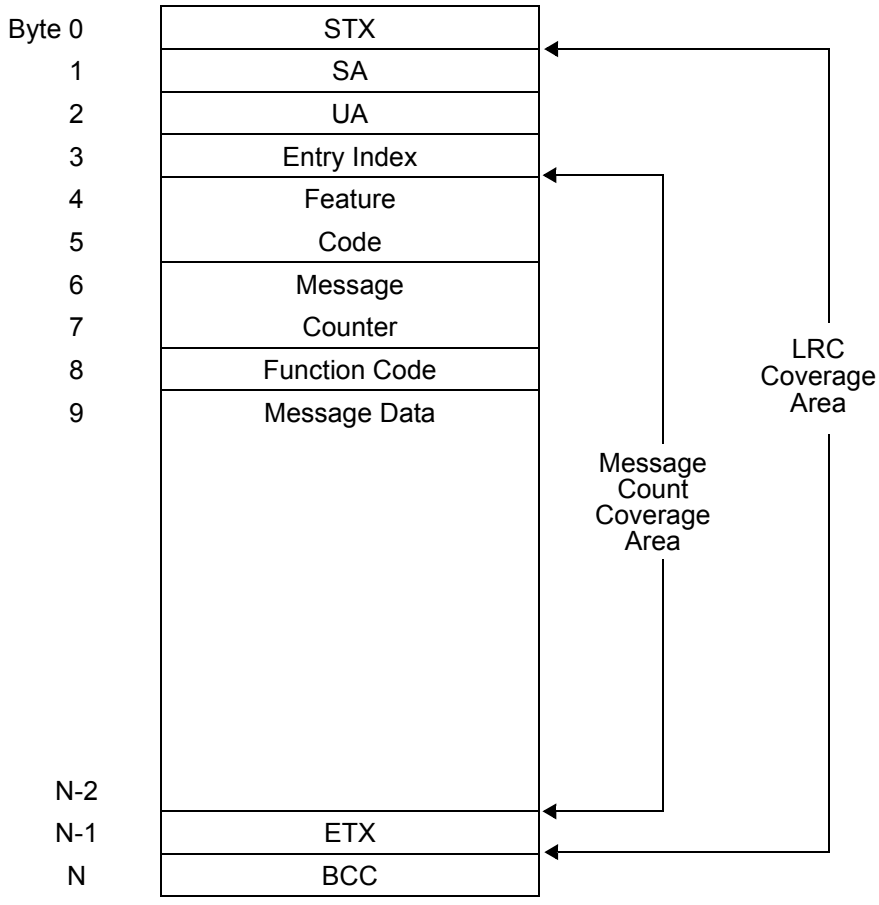
Message Text Format

As noted previously, the general format for a message is:

STX	Message text	ETX	BCC

The message text consists of 7-bit ASCII codes plus 1 parity bit. The first 8 characters immediately following the STX are fixed in format, and indicate the format and length of the remaining bytes, which may vary depending on the message type. The message text format is as shown below.

PMS Message Text Format



- Entry Index
  This character specifies which of the transmitted messages the PBX supplies. For the PMS interface, the ASCII code “L” is always used.

- Feature Code and Violation Code
  The Feature Code consists of two digits that specify possible feature messages, such as “13” for Message Waiting, or “16” for Check In/Out functions.

  When message data from the PMS specifies a station number that does not exist in the PBX, the PBX sends the message data back to the PMS with a Violation Code replacing the Feature Code frames. Also, a Violation Code is sent by the PBX in the following cases:

  - Upon receipt of unused feature codes and function codes
  - Upon receipt of unused restriction level
  - When the Message Counter does not match the number of characters received.

  The Feature Codes and Violation Codes on next page are used:

Feature Code and Violation Code for Each Feature

×: Available –: Not available

FEATURE CODE	VIOLATION CODE	FEATURE	PMS	
			PMS with AP00 on RS-232C	Built-in PMS on IP
11	91	Maid Status (from guest room telephone)	×	×
12	92	Maid Status (from preassigned telephone)	×	×
13	93	Message Waiting	×	×
14	94	Station Message Detail	×	–
15	95	Restriction Control	×	×
16	96	Check In/Out	×	×
17	97	Room Data Image	×	×
19	99	Wake Up	×	×
20	A0	Room Change/Room Swap/ Room Copy	×	×
21	A1	Room Occupancy/Room Data Change	×	–
50	D0	Data Connection Maintenance	–	×
53	D3	Message Waiting	–	×
54	D4	Station Message Detail	–	×
56	D6	Check In/Check Out/Room Change	–	×
57	D7	Room Recovery	–	×
59	D9	Direct Data Entry	×	×
61	E1	Room Data Change	–	×
62	E2	Hotel/Motel DID Number Allocation to Guest Station	–	×
65	E5	Option	–	×
70	F0	Status Inquiry	×	×

- Message Counter
  The Message Counter specifies the number of bytes in the message from the Feature Code through the last data character, inclusive. This counter is checked by the receiver, and if the value does not match the number of bytes received, the receiver discards the data and sends the Violation Code corresponding to the received Feature Code.

- Function Code
  The Function Code specifies the action or process for a feature message.

- Message Data
  The contents of the Message Data vary depending on the feature and function. The types of data that may be present are described below. Note that all numeric data is expressed using the ASCII digits "0" through "9" (codes 30_H through 39_H).

  The available message data is as follows.

Message Data

×: Available –: Not available

MESSAGE DATA	PMS	
	PMS with AP00 on RS-232C	Built-in PMS on IP
Room Station Number (RSN)	×	×
Maid Identification Number	×	×
Message Waiting Status	–	×
Route Number and Trunk Number	×	×
Called Subscriber Number	×	×
Call Start Time	×	–
Call Duration Time	×	–
Call Start Time and Call End Time	–	×
Account Code	–	×
Condition B0, B1, and B2	–	×
Number of Call Metering Pulse/ Bill (Call Metering)	–	×

Continued on next page

Message Data

×: Available –: Not available

MESSAGE DATA	PMS	
	PMS with AP00 on RS-232C	Built-in PMS on IP
Restriction Level	×	×
Language	–	×
Room Occupancy	×	–
Guest Name	×	×
Room Status and Cleaning Status	–	×
VIP Category	–	×
Optional Data A and B	–	×
Vacant/Occupied Status	×	–
Message Waiting Lamp Status	×	–
Reservation	×	–
Maid Status	×	–
Wake Up Result	×	×
Wake Up Time	×	×
Administration/Guest Status	×	×
Room Class	×	–
Wake Up Set	×	×
Numeric Input	×	×
Name Information	–	×

- Room Station Number (RSN)
  This data consists of four digits for the PMS with AP00 on RS-232C and six digits for the Built-in PMS on IP, indicating the room number related to the Feature Code and Function Code. If the Room Station Number is less than four or six digits, spaces are entered in the remaining fields. For example of the PMS with AP00 on RS-232C, if the Room Station Number is 432, the first digit “4” is placed in the first byte of the field, followed by “3”, “2”, and a space.

- Maid Identification Number
  Maid Identification Number is used to identify the calling party in the Maid Status service, and also when PMS manages the start and end of cleaning.
  This number consists of two digits. The numbers in the bytes range from “00” to “99”.

- Message Waiting Status
  This data consists of one digit: “0” for Off, and “1” to “F” for On.

  NOTE: *This data is available for Built-in PMS on IP.*

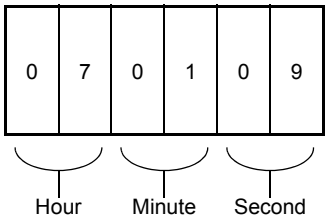
- Route Number and Trunk Number
  These data each consist of three digits. The Route Number ranges from “000” to “063”, and the Trunk Number ranges from “000” to “255”. If the Route or Trunk Number consists of one or two digits, 0 must be placed in the high digit positions.

- Called Subscriber Number
  This data consists of 16 digits for the PMS with AP00 on RS-232C and 32 digits for the Built-in PMS on IP, including the C.O. access code. If the number is less than 16 digits, spaces are entered in the remaining fields just like the Room Station Number.

- Call Start Time
  This data consists of six characters indicating the hour, minute, and second as follows:

  NOTE: *This data is available for PMS with AP00 on RS-232C.*

(Example)



(24-hour format)

Call Start Time: 7:01:09 A.M. (7 hours, 1 minute, 9 seconds)

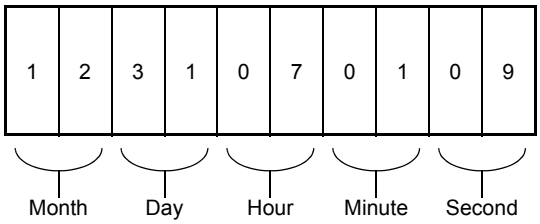
- Call Duration Time
  This data consists of five characters, specifying the duration in seconds. If the duration is less than five digits, unused bytes are filled with ASCII “0” codes. For example, if the duration is 999 seconds, the frame arrangement is “00999”.

  NOTE: *This data is available for PMS with AP00 on RS-232C.*

- Call Start-Time and Call End-Time
  This data consists of ten characters indicating the month, day, hour, minute and second as follows:

  NOTE: *This data is available for Built-in PMS on IP.*

(Example)



(24-hour format)

Call Start Time: December 31, 7:01:09 A.M. (7 hours, 1 minute, 9 seconds)

- Account Code
  This data consists of ten digits. This data is used for a cost accounting or client billing.

  NOTE: *This data is available for Built-in PMS on IP.*

- Condition B0, B1, and B2
  This data consists of one character indicating the following dialed call connection status:

  NOTE: *This data is available for Built-in PMS on IP.*

CODE		MEANING
Condition B0	0	Ordinally originated call
	1	Transferred call
Condition B1	0	A call without Account Code
	2	Accounted code has been entered
Condition B2	0	Station originated call
	1	Attendant assisted call

- Number of Call Metering Pulse/Bill (Call Metering)
  The number of call metering pulses consists of 8 digits. Normally, “0” is set in this field. When the number of call metering pulses is less than 8 digits, set “0” in the higher level digit. For example, when the number of call metering pulses is 83, set as “00000083”:

  NOTE: *This data is available for Built-in PMS on IP.*

- Restriction Level
  This data consists of one digit, indicating the restriction status of the room station number:

RESTRICTION LEVEL	MEANING
0	Cancel Room Cut Off and Do Not Disturb
1	Set Room Cut Off and cancel Do Not Disturb
2-4	Not used
5	Cancel Room Cut Off and set Do Not Disturb
6	Set Room Cut Off and Do Not Disturb

- Language
  This data consists of one digit indicating one of the following languages:
  This data is used for distinguishing between guests from host country and foreign countries, in Guest Room Information Service.

  NOTE: *This data is available for Built-in PMS on IP.*

CODE	MEANING
0	Not specified
1	Japanese
2	English
3	German
4	French
5	Spanish
6	Chinese
7	Russian

- Room Occupancy
  This data consists of one digit whose value indicates two separate status items, as listed below:

  NOTE: *This data is available for PMS with AP00 on RS-232C.*

CODE	VIP	ROOM KEY
1	No	In room
2	Yes	In room
3	No	At front desk
4	Yes	At front desk

- Guest Name
  This data consists of 15 characters for the PMS with AP00 on RS-232C and 16 characters for Built-in PMS on IP. As in the Room Station Number, if the guest name is less than 15 characters, spaces are entered in the remaining fields.

- Room Status and Cleaning Status
  The room status is expressed by a following combination of the Room Status and Cleaning Status.

  NOTE: *This data is available for Built-in PMS on IP.*

ROOM STATUS	CLEANING STATUS	MEANING
0	3	Vacant (ready to be sold)
1	0	Stay (occupied)
1	1	Stay, cleaning in progress
2	0	Stay, departure day
2	1	Stay, departure day, cleaning in progress
0	0	Out (status after check out)
0	1	Out, cleaning in progress
0	2	Out, cleaning end
0	4	Out of order (not ready to be sold, due to repairs in progress)

- VIP category
  This data consists of one digit indicating whether the guest is a VIP or not.

  NOTE: *This data is available for Built-in PMS on IP.*

CODE	MEANING
0	The guest is not a VIP
1	The guest is a VIP

- Optional Data A and B
  Optional Data A and B consist of three characters and five characters respectively. These data are used for information such as VIP rank, language, nationality, complementary code, package code, etc. Each hotel can decide the kinds of data. These data can be displayed on the character displays of D^{term} and the attendant console. For details, refer to Guest Name.

  NOTE: *This data is available for Built-in PMS on IP.*

- Vacant/Occupied Status
  This data consists of one digit: “0” for Vacant, and “1” for Occupied.

  NOTE: *This data is available for PMS with AP00 on RS-232C.*

- Message Waiting Lamps Status
  This data consists of one digit: “0” for Off, and “1” for On.

  NOTE: *This data is available for PMS with AP00 on RS-232C.*

- Reservation
  This data consists of one digit: “0” for Not Reserved, and “1” for Reserved.

  NOTE: *This data is available for PMS with AP00 on RS-232C.*

- Maid Status
  This data consists of one digit, ranging in value from 1 through 8 and indicates the room status. The exact meanings of these codes are determined by the PBX system manager. A sample set of values is listed below:

  NOTE: *This data is available for PMS with AP00 on RS-232C.*

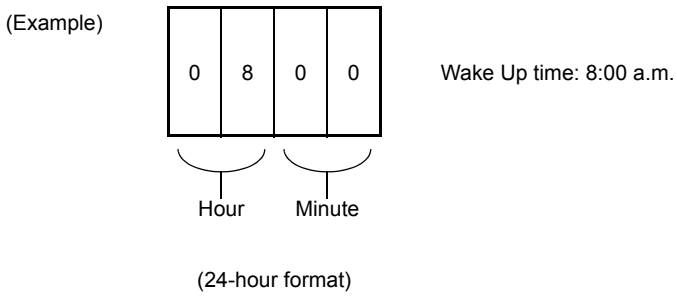
CODE	MEANING
1	Cleaning is necessary for the specified room.
2	The specified room is cleaned.
3	The specified room is ready for reservation.
4	The specified room is out of service.
5	The specified room needs repair.
6	The specified room is repaired.

NOTE: *See the Maid Status (Feature code 11 or 12) in PMS operation for details on the use of this code.* ☞ *Page 136*

- Wake Up Result
  This data consists of one digit indicating the following conditions:

CODE	MEANING
1	Answer
2	Busy
3	No answer
4	Blocked

- Wake Up Time
  This data consists of four digits indicating the Wake Up hour and minute as shown below:



- Administration/Guest Status
  This data consists of one digit: “0” for Administration, or “1” for Guest.

- Room Class
  This data indicates the room class designated at the time of station registration in PBX.

  NOTE: *This data is available for PMS with AP00 on RS-232C.*

- Wake Up Set
  This data consists of one digit, indicating who set the Wake Up call. (See “PMS OPERATION, Wake Up (Feature code 19)”. ☞ *Page 171*)

CODE	MEANING
1	Guest
2	Operator
3	Administration
4	PMS

- Numeric Input
  In Direct Data Entry, this data represents numeric input to indicate the codes and quantities of the goods requested from a guest room station to the PMS. If the number is less than 8 digits, spaces are assigned to the remaining digit positions.

Conditions of LCD Display on Administrative Station

[Series 3400 software required]

(1) Guest Room Information

When an administrative station is called from a guest room station and answered or an administrative station calls a guest room station, the guest room information can be displayed on the LCD of the administrative station. The guest room information displayed on LCD is as follows.

- Administrative station; 16-digit LCD display

(A)	(B)	(C)
(D)		

- Administrative station; 24-digit LCD display

(A)	(B)	(C)
(D)		

(a) PMS information A/VIP display

- PMS information A/VIP display is selectable by system data (CM08>548). This information is displayed with 3 characters in the left side on the upper line of LCD.
- When PMS information A display is selected (CM08>548:0), the language information of the guest received from the PMS at check-in is displayed.
- When VIP display is selected (CM08>548:1), the VIP category; VIP or General, received from the PMS at check-in is displayed.
  → When it is VIP, display "VIP"
  → When it is the general, display "ΔΔΔ" (BLANK)

(b) PMS information B/Language type display

- PMS information B/Language type display is selectable by system data (CM08>548). This information is displayed with maximum 5 characters in the right-side of the above (a) display on the upper line of LCD.
- When PMS information B display is selected (CM08>548:0), the rank information of the guest received from the PMS at check-in is displayed.
- When language type display is selected (CM08>548:1), the type of language that the guest speaks, received from the PMS at check-in is displayed with abbreviation.

→ Table below shows the type of language and its abbreviation.

Language Display List

Δ: BLANK

TYPE No.	TYPE OF LANGUAGE	ABBREVIATION DISPLAY ON LCD (MAX. 5digits)
0	Not specified	ΔΔΔΔΔ
1	Japanese	ΔJPNΔ
2	English	ΔENGΔ
3	German	ΔGERΔ
4	French	ΔFRΔΔ
5	Spanish	ΔSPΔΔ
6	Chinese	ΔCHIΔ
7	Russian	ΔRUSΔ

→ The characters displayed on LCD are fixed to the abbreviation in table above, regardless of the system data setting (CM04 Y=00>00) for the type of language displayed and the type of terminals (16-digit display/24-digit display).

NOTE 1: *When CM08>548: 1 is set, if the VIP information="General"/Language information="Not specified", no information is displayed (BLANK). (Even if the PMS information A and B are received, no information will be displayed.)*

NOTE 2: *When CM08>548: 0 is set, if there is nothing in the PMS information A and B, no information is displayed (BLANK). In addition, if either of the PMS information A or B is received, only the information is displayed. (Even if the VIP information/language information is received, no information will be displayed.)*

(c) Station number of guest room
- This information is displayed in the right side of upper line of LCD (Max. 8 digits).
- The conditions of display are same to that of the conventional Guest Room Station Number

(d) Guest name
- This information is displayed in the right side of middle line of LCD (Max. 16 digits).
- This guest name information (ASCII code) received from the PMS is displayed at check-in.
- The conditions of display are same to that of the conventional Guest Name Display.

(2) Display Image

(a) VIP/Language display
The LCD display image under the following conditions is shown below.

- CM08>548: 1 (VIP/Language display)
- Guest room station number: 2000
- Guest name: ABCDEFGHIJKLMNOP (VIP; English)
- Station number: 3000 (PMS information display: CM13 Y=52: 0)
- Attendant Console (PMS information display: CM08>549:0)

(i) When a call is originated from the guest room station (2000) to the station (3000)
indicates flashing.

Station 3000; 16-digit LCD display

```
VIP ENG      2000
ABCDEFGHIJKLMNOP
```

Station 3000; 24-digit LCD display

```
VIP ENG                2000
        ABCDEFGHIJKLMNOP
PICK
```

⇩ Station 3000 answers.

Station 3000; 16-digit LCD display

```
VIP ENG      2000
ABCDEFGHIJKLMNOP
```

Station 3000; 24-digit LCD display

```
VIP ENG                2000
        ABCDEFGHIJKLMNOP
MIC SYS.
```

(ii) When a call is originated from the guest room station (2000) to the Attendant Console
No information is displayed on LCD (upper line/middle line) at call termination.

⇩ Attendant Console answers.

Display on Attendant Console

```
VIP ENG        2000 |      |10:00 PM TUE 3
ABCDEFGHIJKLMNOP |
MODE PROG
```

(b) PMS information A, B display

The LCD display image under following conditions is shown below.

- CM08>548: 0 (PMS information A, B display)
- Guest room station number: 2000
- Guest name: ABCDEFGHIJKLMNOP
- PMS information A: “VIP”, PMS information B: “NEC”
- Station number: 3000 (PMS information display: CM13 Y=52:0)
- Attendant Console (PMS information display: CM08>549:0)

(i) When a call is originated from the guest room station (2000) to the administrative station (3000)

indicates flashing.

Station 3000; 16-digit LCD display

```
VIP NEC      2000
ABCDEFGHIJKLMNOP
```

Station 3000; 24-digit LCD display

```
VIP NEC                2000
        ABCDEFGHIJKLMNOP
PICK
```

⇩ Station 3000 answers.

Station 3000; 16-digit LCD display

```
VIP NEC      2000
ABCDEFGHIJKLMNOP
```

Station 3000; 24-digit LCD display

```
VIP NEC                2000
        ABCDEFGHIJKLMNOP
MIC SYS.
```

(ii) When a call is originated from the guest room station (2000) to the Attendant Console

No information is displayed on LCD (upper line/middle line) at call termination.

⇩ Attendant Console answers.

Display on Attendant Console

```
VIP NEC        2000 |      |10:00 PM TUE 3
ABCDEFGHIJKLMNOP |
MODE PROG
```

(3) Other Conditions

(a) When calling between administrative station and administrative station, the above (A) and (B) information is not displayed. (The above (C) and (D) information can be displayed.)

(b) When calling between guest room station and guest room station, the above (A) and (B) information is not displayed. (The above (C) and (D) information can be displayed.)

(c) When a call is terminated to an administrative station by the function such as call forwarding and answered, the intermediate station information (intermediated station number/intermediate guest name) and the message information cannot be displayed.
The intermediate station information/"MSG" information is displayed in the right side of LCD, and the position is same to that of VIP/language information display by this feature. Accordingly, either of display has priority.
<Order of priority to display>

- CM13 Y=52: 0 D^{term}, CM08>549: 0 Attendant Console
  High priority; VIP + language display
  (Even if VIP + language is not displayed, "MSG" display and intermediate station display are not available.)
- CM13 Y=52: 1 D^{term}, CM08>549: 1 Attendant Console
  High priority; "MSG" display > Intermediate station display
  (If "MSG" is not displayed, the intermediate station can be displayed.)

(d) The duration to display (C) guest name can be selected by following system data.

- Display for 6 seconds; CM08>120: 1 (6s display), CM08>121: 1 (No continuous display)
- Display for 10 seconds; CM08>120: 0 (10s display), CM08>121: 1 (No continuous display)
- Display continuously till the end of the call; CM08>121: 0 (Continuous display)

CHAPTER 4

PMS OPERATION

This chapter explains the operations associated with each PMS feature message. The set of feature messages used can vary from one PMS to another, depending on system applications. For each feature message, general operations and PBX and/or PMS function will be discussed, and function codes and their uses will be defined.

FEATURE CODE SUMMARY 134
OPERATION OF TEXT 136
PMS MESSAGE SUMMARY 216

FEATURE CODE SUMMARY

The PMS feature codes available are summarized below.

Feature Code Summary

×: Available –: Not available

FEATURE	FEATURE CODE	TYPE OF INFORMATION	PMS	
			PMS with AP00 on RS-232C	Built-in PMS on IP
Maid Status	11	Maid status set up by guest room telephones	×	×
	12	Maid status set up by the Front Desk Terminal	×	×
Message Waiting	13	Message waiting lamp status changes	×	×
Station Message Detail	14	Local/toll call details on completion of calls	×	–
Restriction Control	15	Changes in telephone calling restrictions placed on room station numbers	×	×
Check In/ Check Out	16	Room check in/check out status	×	×
Room Data Image	17	Complete status information for a room	×	×
Wake Up	19	Wake up status	×	×
Room Change/ Room Swap/ Room Copy	20	Room change/room swap status	×	×
Room Occupancy/ Room Data Change	21	Room occupancy/room data changes	×	–
Data Connection Maintenance	50	Batch processing status	–	×
Message Waiting	53	Controlling message waiting lamps	–	×

Continued on next page

Feature Code Summary

×: Available –: Not available

FEATURE	FEATURE CODE	TYPE OF INFORMATION	PMS	
			PMS with AP00 on RS-232C	Built-in PMS on IP
Station Message Detail	54	Station message detail information for each call	–	×
Check In/ Check Out/ Room Change	56	Setting check in/check out and room change	–	×
Room Recovery	57	Room information at system recovery	–	×
Direct Data Entry	59	Data entered from a guest room station	×	×
Room Data Change	61	Room data change information	–	×
Hotel/Motel DID Number Allocation to Guest Station	62	Hotel/Motel DID Number Allocation status to Guest Station	–	×
Administrative Station Name	65	Setting administrative station name	–	×
Status Inquiry	70	Data link maintenance	×	×

OPERATION OF TEXT

Maid Status (Feature code 11 or 12)

The maid status is transmitted to the PMS when an appropriate access code is dialed. Feature code 11 is used when dialed by guest room telephones. Feature code 12 is used when dialed by the Front Desk Terminal.
For the Built-in PMS on IP, there are three function codes as listed below.

For the PMS with AP00 on RS-232C, the function code can range in value from 1 through 8, and indicates the room status that was dialed. The exact meanings of these codes are determined by the property manager. When “support interface” is “RS-232C”, a sample set of values is listed below:

FUNCTION CODE	MESSAGE DIRECTION	TEXT FORMAT	SUPORT INTERFACE	MEANING
1	To PMS	1	RS-232C	Cleaning is necessary for the specified room
		2	IP	Maid Status - Cleaning Start set
2	To PMS	1	RS-232C	The specified room is cleaned
		2	IP	Maid Status - Cleaning End set
3	To PMS	1	RS-232C	The specified room is ready for reservation
		2	IP	Maid Status - Inspection End set
4	To PMS	1	RS-232C	The specified room is out of service
5	To PMS	1	RS-232C	The specified room needs repair
6	To PMS	1	RS-232C	The specified room is repaired

In addition to these six indications, the Maid Status message may be sent by the PBX to signal a Check In or Check Out from the Front Desk Terminal. In this case, the PMS must be programmed to respond to those function codes.

The maid status message is sent to the PMS in accordance with the PBX installation parameter setting for the maid status feature. (The feature must be active in the PBX.)

The following items should also be considered:

- When room change 20.1/56.6 is activated, a 12.1 message is sent for the room specified by the old station number.
- If a 16.2/56.2 or 20.1/56.6 message is activated by the PMS terminal, the Maid Status message will not be sent to the PMS from the PBX.
- When the maid identification code is not used, all bytes for the maid identification code will contain the ASCII space code.
- The PBX will not check whether or not the dialed maid identification code is valid.

Message Data Format

Text Format 1

Byte No.		
0	STX	
1	SA	
2	UA	
3	“L”	Entry index for PMS interface
4	Feature code	High digit: “1” for normal or “9” for violation
5		Low digit: “1” for station, “2” for front desk
6	“1”	Message counter high digit
7	“7”	Message counter low digit
8	“1/2/3/4/5/6”	Function code
9	Station number	
10		
11		
12		
13	**Unused**	Must contain ASCII spaces
14		
15	Maid ID	High digit
16		Low digit
17	**Unused**	
18		Must contain ASCII spaces
19		
20		
21	ETX	
22	BCC	LRC parity check byte

Text Format 2

Byte No.		
0	STX	
1	SA	
2	UA	
3	“L”	Entry index for PMS interface
4	Feature code	High digit: “1” for normal or “9” for violation
5		Low digit: “1” for station, “2” for front desk
6	“1”	Message counter high digit
7	“7”	Message counter low digit
8	“1/2/3”	Function code
9	Station number	
10		
11		
12		
13		
14		
15	Maid ID	
16		
17		
18		
19		
20		
21	ETX	

Message Waiting (Feature code 13, 53)

The Message Waiting feature turns the MW lamp on and off at guest and administration telephones. It operates on commands entered on the Attendant Consoles or Front Desk Terminal, with notification to the PMS; or upon receipt of messages from the PMS. Four function codes are defined.

Feature code 13

FUNCTION CODE	MESSAGE DIRECTION	TEXT FORMAT	SUPPORT INTERFACE	MEANING
1	From PMS	1	RS-232C	Turn on MW lamp for the specified station
2	From PMS	1	RS-232C	Turn off MW lamp for the specified station
3	To PMS	1	RS-232C	The lamp for the specified station has been turned on via Attendant Console or Front Desk Terminal
		2	IP	The lamp for the specified station has been turned on via Attendant Console
4	To PMS	1	RS-232C	The lamp for the specified station has been turned off via Attendant Console or Front Desk Terminal
		2	IP	The lamp for the specified station has been turned off via Attendant Console

Feature code 53

FUNCTION CODE	MESSAGE DIRECTION	TEXT FORMAT	SUPPORT INTERFACE	MEANING
1	From PMS	3	IP	MW lamp for specified room has been turned on/off via PMS control entry
2	To PMS	4	IP	MW lamp for specified room has been turned on via an administrative station or Front Desk Terminal control entry
3	To PMS	4	IP	MW lamp for specified room has been turned off via an administrative station or Front Desk Terminal control entry

The Message Waiting feature messages are sent and/or received based on the PBX installation parameter setting for the Message Waiting communication feature. The possibilities are:

- The feature is active in the PBX with no communication with the PMS.
- The feature is active in the PBX and communication with the PMS is in effect.

With the feature active, the operational considerations are:

- Entry (activate/deactivate) and status display via any assigned Attendant Console or Front Desk Terminal is fully operational at all times.
- The Message Waiting status of each station is stored in PBX memory.
- When a change in Message Waiting status for a station is entered via the Attendant Console or Front Desk Terminal, the lamp will be turned on (13.3) or off (13.4), and a message with the station number indicated is sent to the PMS with AP00 on RS-232C.
- When a change in Message Waiting status for a station is entered via the Attendant Console, the lamp will be turned on (13.3) or off (13.4), and a message with the station number indicated is sent to the Built-in PMS on IP.
- When a change in Message Waiting status for a station is entered via the Front Desk Terminal, the lamp will be turned on (53.2) or off (53.3), and a message with the station number indicated is sent to the Built-in PMS on IP.
- Upon receipt by the PBX of a “turn lamp on” (13.1), “turn lamp off” (13.2) or “turn lamp on/off” (53.1) message, the appropriate lamp status is changed by the PBX.
- When a room Check Out message is received from the PMS, a 16.6 Check Out complete message is sent to the PMS if the room telephone’s lamp is on. The lamp is then reset to the off state. If the room telephone did not have its lamp on, a 16.5 Check Out complete message is sent.

Message Data Format

Text Format 1

Byte No.		
0	STX	
1	SA	
2	UA	
3	“L”	Entry index for PMS interface
4	“1” or “9”	Feature code high digit (normal or violation)
5	“3”	Feature code low digit
6	“1”	Message counter high digit
7	“1”	Message counter low digit
8	“1/2/3/4”	Function code
9	Station number	
10		
11		
12		
13	**Unused**	Must contain ASCII spaces
14		
15	ETX	
16	BCC	LRC parity check byte

Text Format 2

Byte No.		
0	STX	
1	SA	
2	UA	
3	“L”	Entry index for PMS interface
4	“1” or “9”	Feature code high digit (normal or violation)
5	“3”	Feature code low digit
6	“1”	Message counter high digit
7	“1”	Message counter low digit
8	“3/4”	Function code
9	Station number	
10		
11		
12		
13		
14		
15	ETX	

Text Format 3

Byte No.		
0	STX	
1	SA	
2	UA	
3	“L”	Entry index for PMS interface
4	“5” or “D”	Feature code high digit (normal or violation)
5	“3”	Feature code low digit
6	“1”	Message counter high digit
7	“5”	Message counter low digit
8	“1”	Function code
9	Station number	
10		
11		
12		
13		
14		
15	Message waiting status	
16	**Unused**	Must contain ASCII spaces
17		
18		
19	ETX	

Text Format 4

Byte No.		
0	STX	
1	SA	
2	UA	
3	“L”	Entry index for PMS interface
4	“5” or “D”	Feature code high digit (normal or violation)
5	“3”	Feature code low digit
6	“1”	Message counter high digit
7	“1”	Message counter low digit
8	“2/3”	Function code
9	Station number	
10		
11		
12		
13		
14		
15	ETX	

Station Message Detail (Feature code 14, 54)

This feature allows the PBX to send the PMS the detail of local, toll and international calls. The information is sent at the completion of each call. Only one function code is used with this feature:

Feature code 14

FUNCTION CODE	MESSAGE DIRECTION	TEXT FORMAT	SUPPORT INTERFACE	MEANING
2	To PMS	1	RS-232C	Details of station message

Feature code 54

FUNCTION CODE	MESSAGE DIRECTION	TEXT FORMAT	SUPPORT INTERFACE	MEANING
1	To PMS	2	IP	Details of station message

This feature is controlled by the PBX installation parameter setting for the Station Message Detail Recording feature. The feature must be active in the PBX.

When the data link is faulty, the station message details can be automatically printed out on the PBX printer after the completion of each call.

Message Data Format

Text Format 1

Byte No.		
0	STX	
1	SA	
2	UA	
3	“L”	Entry index for PMS interface
4	“1” or “9”	Feature code high digit (normal or violation)
5	“4”	Feature code low digit
6	“5”	Message counter high digit
7	“0”	Message counter low digit
8	“2”	Function code
9	Station number	
10		
11		
12		
13	**Unused**	Must contain ASCII spaces
14		
15	Route number	
16		
17		
18	Trunk number	
19		
20		
21	Called subscriber number	16 digits
22		
23		
24		
25		
26		
27		
28		
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30		
31		
32		
33		
34		
35		
36		

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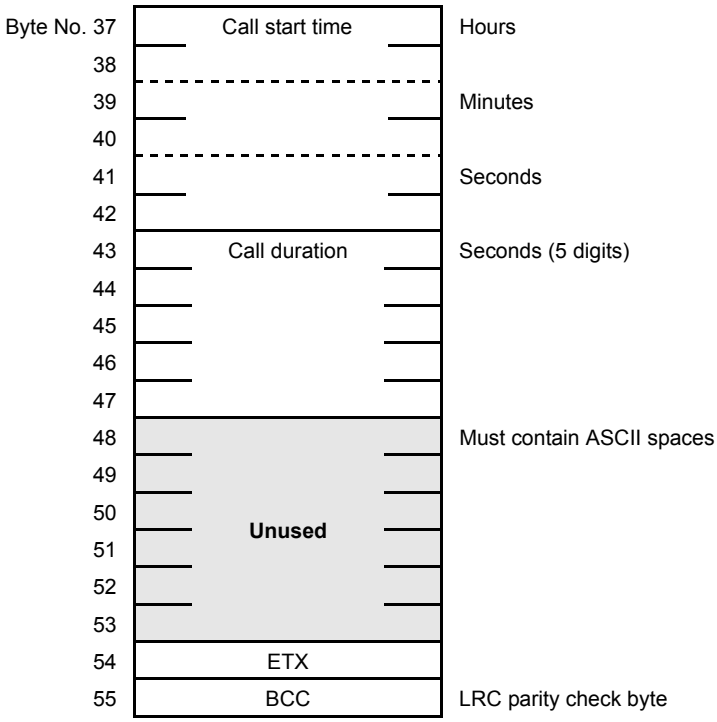

Text Format 2

Byte No.		
0	STX	
1	SA	
2	UA	
3	“L”	Entry index for PMS interface
4	“5” or “D”	Feature code high digit (normal or violation)
5	“4”	Feature code low digit
6	“9”	Message counter high digit
7	“0”	Message counter low digit
8	“1”	Function code
9	Station number	
10		
11		
12		
13		
14		
15	Route number	
16		
17		
18	Trunk number	
19		
20		
21	Call start time (Month)	
22		
23	(Day)	
24		
25	(Hour)	
26		
27	(Minute)	
28		
29	(Second)	
30		
31	Call end time (Month)	
32		
33	(Day)	
34		
35	(Hour)	
36		
37	(Minute)	
38		
39	(Second)	
40		

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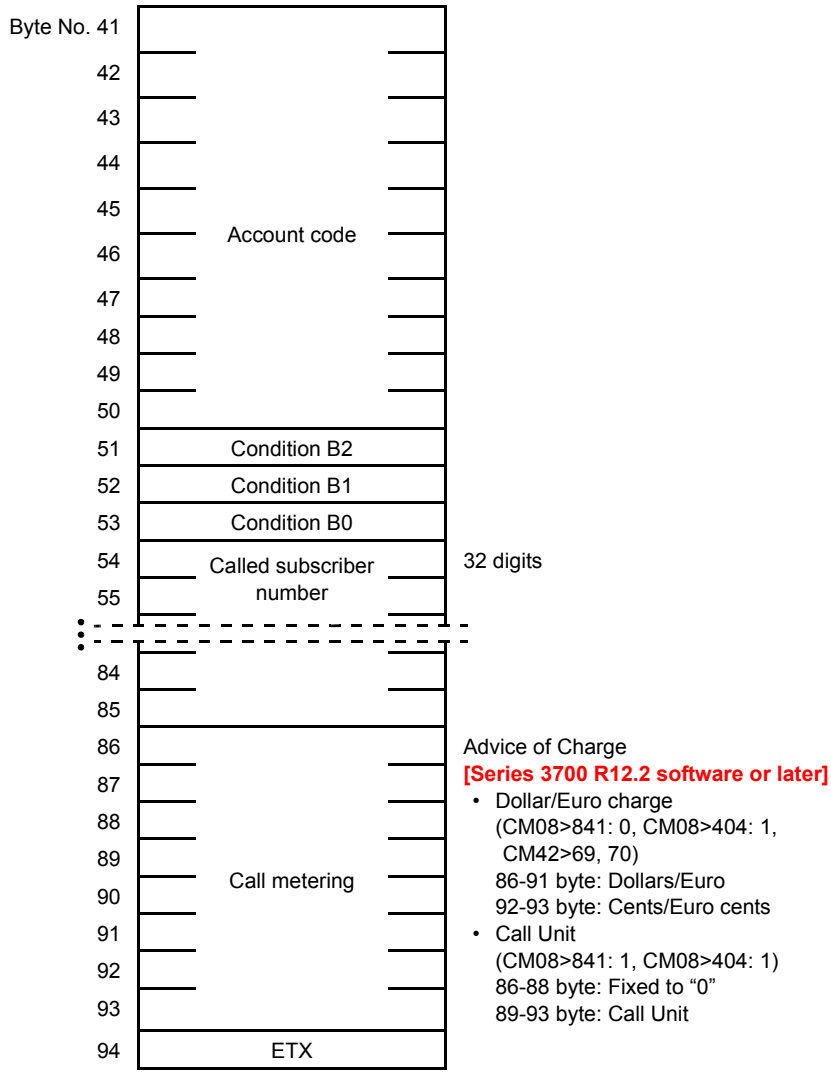


Restriction Control (Feature code 15)

This feature allows a guest telephone line to be restricted via an entry from the Attendant Console or Front Desk Terminal, or upon receipt of feature code 15 from the PMS. This restriction is accomplished using selected origination and/or termination capabilities. Two function codes are available:

FUNCTION CODE	MESSAGE DIRECTION	TEXT FORMAT	SUPPORT INTERFACE	MEANING
1	From PMS	1	RS-232C	Set indicated restriction for specified room station
		2	IP	
2	To PMS	1	RS-232C	Restriction has been set for the specified room station number by the Attendant Console or Front Desk Terminal
		2	IP	

Communication of the Restriction Control message between the PBX and the PMS is dependent on PBX installation parameters. The possibilities are:

- The feature is active in the PBX, but communication with the PMS is not in effect.
- The feature is active in the PBX and communication with the PMS is in effect. In this configuration, the change can be initiated either through the Attendant Console or Front Desk Terminal, with notification to the PMS; or from the PMS via a request to the PBX to impose the specified restriction level.
- When the Restriction Control feature is active, and a change in restriction control for a room telephone is entered via the Attendant Console or Front Desk Terminal, a 15.2 message containing the specified room station number and new restriction level is sent to the PMS.
- When a 15.1 message is received from the PMS, the specified restriction change is implemented on the specified room telephone, overriding any previous restriction.
- Do Not Disturb can be set with disregarding the room status. Do Not Disturb is automatically cancelled by PBX when the room status is changed to “Vacant” or “Out of Order”.

Message Data Format

Text Format 1

Byte No.		
0	STX	
1	SA	
2	UA	
3	"L"	Entry index for PMS interface
4	"1" or "9"	Feature code high digit (normal or violation)
5	"5"	Feature code low digit
6	"1"	Message counter high digit
7	"4"	Message counter low digit
8	"1/2"	Function code
9	Station number	
10		
11		
12		
13	**Unused**	Must contain ASCII spaces
14		
15	Restriction level	
16	**Unused**	Must contain ASCII spaces
17		
18	ETX	
19	BCC	LRC parity check byte

The restriction level codes and corresponding actions are:

LEVEL	ACTION
0	No restriction (Cancel Room Cut Off and Do Not Disturb)
1	Outward restriction: denies all local and toll calling from the room telephone (Set Room Cut Off and cancel Do Not Disturb)
5	Termination restriction: denies all incoming calls to the room telephone (Cancel Room Cut Off and set Do Not Disturb)
6	Both outgoing and incoming restriction (Set Room Cut Off and Do Not Disturb)

When a restriction is in effect, a denied call receives the reorder tone, or is forwarded to the Attendant Console or a preassigned station, according to system programming.

Message Data Format

Text Format 2

Byte No.		
0	STX	
1	SA	
2	UA	
3	“L”	Entry index for PMS interface
4	“1” or “9”	Feature code high digit (normal or violation)
5	“5”	Feature code low digit
6	“1”	Message counter high digit
7	“4”	Message counter low digit
8	“1/2”	Function code
9	Station number	
10		
11		
12		
13		
14		
15	Restriction level	
16	**Unused**	Must contain ASCII spaces
17		
18	ETX	

Check In/Out (Feature code 16, 56)

While this message does not represent a unique feature, it is a rather convenient device for activating a sequence of functions commonly performed when a guest checks in or out of a room. The PBX requires Check In/Out notification from the PMS in order to perform the appropriate internal status changes required for guest rooms: Message Waiting lamp status, Wake Up request, restriction control level, etc. The available function codes are:

Feature code 16

FUNCTION CODE	MESSAGE DIRECTION	TEXT FORMAT	SUPPORT INTERFACE	MEANING
1	From PMS	1	RS-232C	The PBX is to perform the functions associated with Check In for the specified room station number (RSN)
2	From PMS	1	RS-232C	The PBX is to perform the functions associated with Check Out for the specified RSN
5	To PMS	1	RS-232C	Check Out functions have been completed for the specified RSN, and the Message Waiting lamp is off
6	To PMS	1	RS-232C	Check Out functions have been completed for the specified RSN, and the Message Waiting lamp is on
A	From PMS	2	RS-232C	The PBX is to perform the functions associated with Check In for the indicated RSN, including storing Language and Room Occupancy
B	From PMS	3	RS-232C	The PBX is to perform the functions associated with Check In for the indicated RSN, including storing Language, Room Occupancy, and Guest Name
C	To PMS	4	IP	A Check-Out guest room is engaged in a C.O. outgoing call

Feature code 56

FUNCTION CODE	MESSAGE DIRECTION	TEXT FORMAT	SUPPORT INTERFACE	MEANING
1	From PMS	5	IP	Perform Check In functions for the specified room
2	From PMS	6	IP	Perform Check Out functions for the specified room
4	From PMS	7	IP	Cancel Check In functions for the specified room
5	From PMS	8	IP	Cancel Check Out functions for the specified room

The PBX maintains the Vacant or Occupied status for each RSN. This status is activated upon receipt of a Check In or Check Out message from the PMS. Under normal operation, Check In and Check Out is not performed through the Front Desk Terminal, but through the PMS terminals only. The PMS is required to send each Check In/Out to the PBX immediately in order to support the PMS data link and associated PBX operations.

Message Data Format

Text Format 1

Byte No.		
0	STX	
1	SA	
2	UA	
3	“L”	Entry index for PMS interface
4	“1” or “9”	Feature code high digit (normal or violation)
5	“6”	Feature code low digit
6	“1”	Message counter high digit
7	“1”	Message counter low digit
8	“1/2/5/6”	Function code
9	Station number	
10		
11		
12		
13	**Unused**	Must contain ASCII spaces
14		
15	ETX	
16	BCC	LRC parity check byte

Text Format 2

Byte No.		
0	STX	
1	SA	
2	UA	
3	“L”	Entry index for PMS interface
4	“1” or “9”	Feature code high digit (normal or violation)
5	“6”	Feature code low digit
6	“1”	Message counter high digit
7	“3”	Message counter low digit
8	“A”	Function code
9	Station number	
10		
11		
12		
13	**Unused**	Must contain ASCII spaces
14		
15	Language	
16	Room Occupancy	
17	ETX	
18	BCC	LRC parity check byte

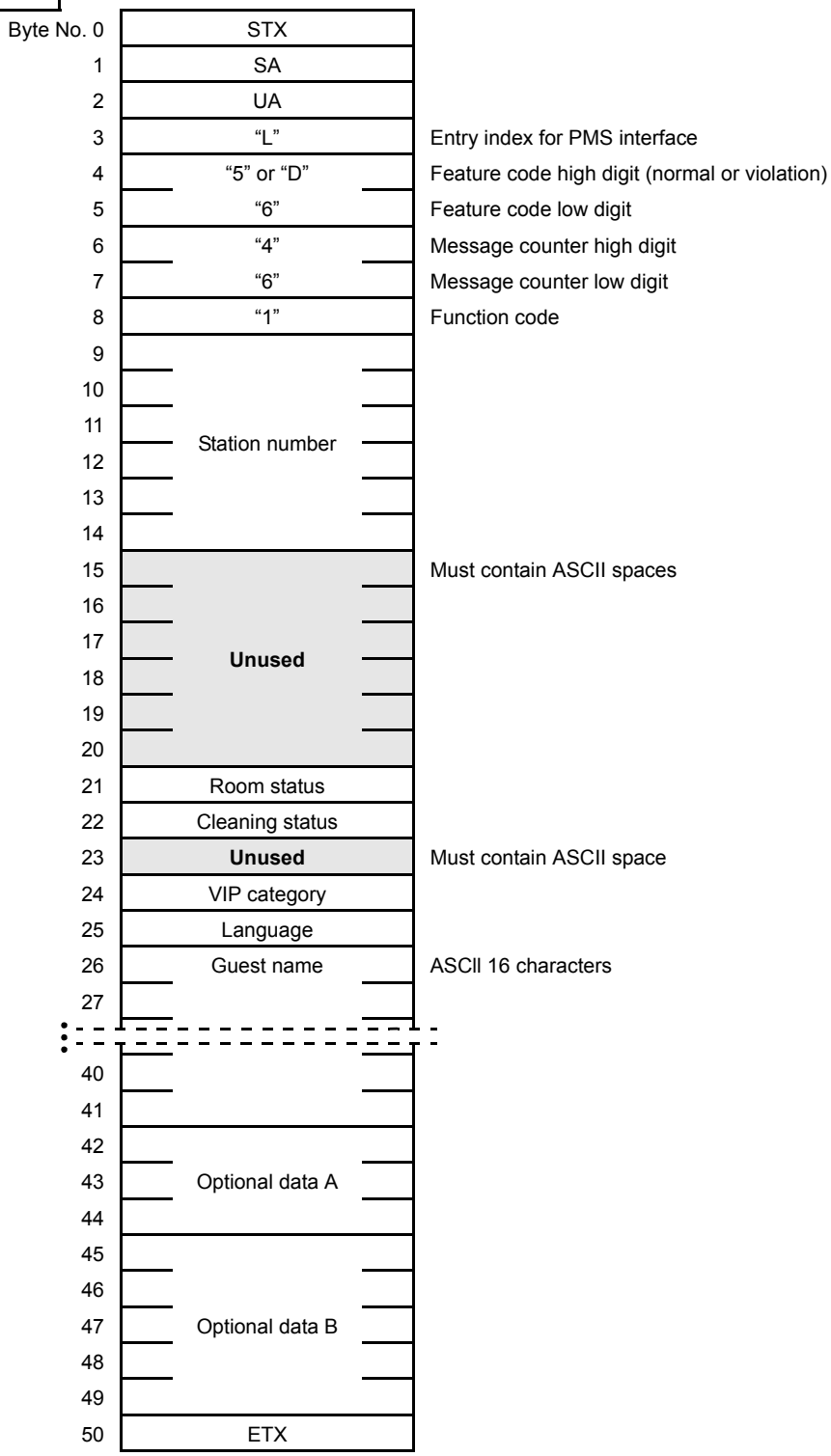
Text Format 3

Byte No.		
0	STX	
1	SA	
2	UA	
3	“L”	Entry index for PMS interface
4	“1” or “9”	Feature code high digit (normal or violation)
5	“6”	Feature code low digit
6	“3”	Message counter high digit
7	“4”	Message counter low digit
8	“B”	Function code
9	Station number	
10		
11		
12		
13	**Unused**	Must contain ASCII spaces
14		
15		
16		
17		
18		
19		
20		
21	Language	
22	Room occupancy	
23	Guest name	ASCII 15 characters
36		
37		
38	ETX	
39	BCC	LRC parity check byte

Text Format 4

Byte No.		
0	STX	
1	SA	
2	UA	
3	"L"	Entry index for PMS interface
4	"1" or "9"	Feature code high digit (normal or violation)
5	"6"	Feature code low digit
6	"1"	Message counter high digit
7	"1"	Message counter low digit
8	"C"	Function code
9	Station number	
10		
11		
12		
13		
14		
15	ETX	

Text Format 5



Text Format 6

Byte No.		
0	STX	
1	SA	
2	UA	
3	“L”	Entry index for PMS interface
4	“5” or “D”	Feature code high digit (normal or violation)
5	“6”	Feature code low digit
6	“1”	Message counter high digit
7	“4”	Message counter low digit
8	“2”	Function code
9	Station number	
10		
11		
12		
13		
14		
15	Room status	
16	Cleaning status	
17	**Unused**	Must contain ASCII space
18	ETX	

Text Format 7

Byte No.		
0	STX	
1	SA	
2	UA	
3	“L”	Entry index for PMS interface
4	“5” or “D”	Feature code high digit (normal or violation)
5	“6”	Feature code low digit
6	“1”	Message counter high digit
7	“1”	Message counter low digit
8	“4”	Function code
9	Station number	
10		
11		
12		
13		
14		
15	ETX	

Text Format 8

Byte No.		
0	STX	
1	SA	
2	UA	
3	“L”	Entry index for PMS interface
4	“5” or “D”	Feature code high digit (normal or violation)
5	“6”	Feature code low digit
6	“2”	Message counter high digit
7	“0”	Message counter low digit
8	“5”	Function code
9	Station number	
10		
11		
12		
13		
14		
15	**Unused**	Must contain ASCII spaces
16		
17		
18		
19		
20		
21	Room status	
22	Cleaning status	
23	**Unused**	Must contain ASCII space
24	ETX	

- Check In
  When the PBX receives a room Check In message (16.1, 16.A, or 16.B/56.1), it sets the status of the room to checked-in. It also takes the following actions:

  - Deactivates controlled outward restriction.
  - Sets Occupied and Cleaned Up, and clears the Reservation.
  - Clears the Wake Up time data, if set, and prints out the Wake Up time on the PBX printer.
  - Stores Language and Room Occupancy information (16.A or 16.B/56.1 only).
  - Stores Guest Name information (16.B/56.1 only).

- Check In Cancellation
  56.4 message is used for cancellation operation when the wrong room was registered as Check In. This processing changes the room status to “Vacant”, and all the room data is cleared.

- Check Out
  When the PBX receives a room Check Out (16.2/56.2) message, it sets the status of the room to checked-out. It also takes the following actions:

  - Turns the Message Waiting lamp off.
  - Clears Reservation.
  - Cancels any current incoming restriction (Do Not Disturb), and activates Controlled Outward Restriction (Room Cut Off).
  - Sets Vacant and To Be Cleaned.
  - Prints out the room status data.
  - Sets Language to “0” and Room Occupancy to “3”.
  - Clears any existing Wake Up entry.
  - Finally, the PBX sends a Check Out Complete message (16.5 or 16.6) to the PMS within 3 seconds after completing the above tasks. It sends the 16.6 message if the Message Waiting lamp for the RSN was on before the Check Out was done, or the 16.5 message if the lamp was off.

- Check Out Cancellation
  56.5 message is used for cancellation operation when a wrong room was registered as Check Out. Check In operation is required again because this message cannot return the room to Check In status when “Vacant” or “Out of Order” was already selected at Check Out.

- Data Link Failure
  When loss of communication with the PMS occurs due to failure of the data link, the PBX still allows Check In/Out functions to be completed via the Front Desk Terminal. Check In and Check Out via the Front Desk Terminal causes the system to perform the functions listed above.

  During the recovery process, a room's occupancy status specified by the PMS in the Room Image Data message (17.3, 17.7, or 17.B) may differ from the PBX status for the room. This indicates that a Check In or Check Out was performed for that room in the PBX.

Room Data Image (Feature code 17)

This message type is used to transfer a set of status items for a specific RSN between the PBX and PMS. Six of the function codes are provided for information exchange regarding the status of the other system, and do not necessarily mean that status changes are to be performed. Six other function codes are provided for the database exchange recovery procedure, and can indicate status changes in either or both systems. The function codes for this message are listed below:

FUNCTION CODE	MESSAGE DIRECTION	TEXT FORMAT	SUPPORT INTERFACE	MEANING
1	From PMS	1	RS-232C	Request to send the data image for the specified room for informational purposes only
2	To PMS	1	RS-232C	Response to function code 1 message
3	From PMS	1	RS-232C	Database status update and/or request for PBX status
4	To PMS	1	RS-232C	Response to function code 3 message
5	From PMS	2	RS-232C	Request to send the data image for the specified room for informational purposes only
6	To PMS	2	RS-232C	Response to function code 5 message
7	From PMS	2	RS-232C	Database status update and/or request for PBX status
8	To PMS	2	RS-232C	Response to function code 7 message
9	From PMS	3	RS-232C	Request to send the data image for the specified room for informational purposes only
A	To PMS	3	RS-232C	Response to function code 9 message
B	From PMS	3	RS-232C	Database status update and/or request for PBX status
C	To PMS	3	RS-232C	Response to function code B message
E	To PMS	5	IP	Deletion of specified stations
F	To PMS	4	RS-232C	Response to 70.8 message, or indication that the data for the specified room has been changed
		6	IP	

Function codes 1, 5, and 9 are used in the information exchange mode. The PMS requests status from the PBX by sending a 17.1, 17.5, or 17.9 message; the PBX responds with the data in a 17.2, 17.6 or 17.A message. The 17.1, 17.5, or 17.9 does not indicate any status change to the PBX.

Function codes 3, 4, 7, 8, B and C are reserved for the database exchange procedure. This procedure is done in the interval between transmission of the 70.3 Start Database Exchange message, and the 70.4 End Database Exchange message. (Both messages are transmitted by the PMS.)

The 70.3 message signals the start of database synchronization. Then, for each room, the PMS sends a 17.3, 17.7, or 17.B message carrying current PMS status data and/or requesting status data. The PBX processes this message and returns a 17.4, 17.8, or 17.C message containing any requested PBX status. When either system receives status from the other, that system updates its status to match the other system. Thus, the exchange synchronizes the two systems' databases for a specific room. After the exchange is complete for all rooms, the PMS sends the 70.4 message signaling the end of the database synchronization procedures.

Function code E, F operate differently from the other message types. Function code E is used when stations have been deleted at the PBX. Function code F is used to exchange Room Class and Administration/Guest status, which generally do not change as often as the other status items. When the PBX receives a 70.8 message, it transmits status data for all rooms to the PMS, in random order, with a series of 17.F messages. The PBX does not transmit an "end" message after the last room image.

The Room Image feature message uses the following item fields:

ITEM	USED WITH TEXT FORMATS
Vacant/occupied	1, 2, 3
Message Waiting lamp	1, 2, 3
Restriction level	1, 2, 3
Room occupancy	2, 3
Reservation	2, 3
Language	2, 3
Maid status	2, 3
Wake Up result	2, 3
Wake Up time	2, 3
Administration/Guest	4, 6
Room class	4

For all Room Image messages, each status item either contains data or is null. A null item in a 17.1, 17.3, 17.5, 17.7, 17.9, or 17.B message indicates a request for the status data for that item from the other system. A null item in the returned 17.2, 17.4, 17.6, 17.8, 17.A, or 17.C message means that either the status update was done, or that no valid status data is available.

Note that a field is reserved in the Room Image message for each status item possible in a data link configuration, even though all feature messages may not be activated. The receiving system ignores any request for status or indicated change for any field for which normal status changes are not communicated. For instance, if the Restriction Control feature message (15.x) is not defined in a particular data link configuration, the restriction control field in the Room Image message is likewise inactive.

Message data Format

Text Format 1

Byte No.		
0	STX	
1	SA	
2	UA	
3	“L”	Entry index for PMS interface
4	“1” or “9”	Feature code high digit (normal or violation)
5	“7”	Feature code low digit
6	“2”	Message counter high digit
7	“8”	Message counter low digit
8	“1/2/3/4”	Function code
9	Station number	
10		
11		
12		
13	**Unused**	Must contain ASCII spaces
14		
15	Vacant/Occupied	
16	MW lamp status	
17	Restriction level	
18	**Unused**	Must contain ASCII spaces
19		
20		
21		
22		
23		
24		
25		
26		
27		
28		
29		
30		
31		
32	ETX	
33	BCC	LRC parity check byte

Text Format 2

Byte No.		
0	STX	
1	SA	
2	UA	
3	“L”	Entry index for PMS interface
4	“1” or “9”	Feature code high digit (normal or violation)
5	“7”	Feature code low digit
6	“2”	Message counter high digit
7	“3”	Message counter low digit
8	“5/6/7/8”	Function code
9	Station number	
10		
11		
12		
13	**Unused**	Must contain ASCII spaces
14		
15	Vacant/Occupied	
16	MW lamp status	
17	Restriction level	
18	Room occupancy	
19	Reservation	
20	Language	
21	Maid status	
22	Wake Up result	
23	Wake Up time (Hour)	
24		
25	(Minute)	
26		
27	ETX	
28	BCC	LRC parity check byte

Text Format 3

Byte No.		
0	STX	
1	SA	
2	UA	
3	“L”	Entry index for PMS interface
4	“1” or “9”	Feature code high digit (normal or violation)
5	“7”	Feature code low digit
6	“3”	Message counter high digit
7	“8”	Message counter low digit
8	“9/A/B/C”	Function code
9	Station number	
10		
11		
12		
13	**Unused**	Must contain ASCII spaces
14		
15	Vacant/Occupied	
16	MW lamp status	
17	Restriction level	
18	Room occupancy	
19	Reservation	
20	Language	
21	Maid status	
22	Wake Up result	
23	Wake Up time (Hour)	
24		
25	(Minute)	
26		
27	**Unused**	Must contain ASCII spaces
28		
⋮		
41		
42	ETX	
43	BCC	LRC parity check byte

Text Format 4

Byte No.		
0	STX	
1	SA	
2	UA	
3	“L”	Entry index for PMS interface
4	“1” or “9”	Feature code high digit (normal or violation)
5	“7”	Feature code low digit
6	“1”	Message counter high digit
7	“3”	Message counter low digit
8	“F”	Function code
9	Station number	
10		
11		
12		
13	**Unused**	Must contain ASCII spaces
14		
15	Administration/Guest	
16	Room class	
17	ETX	
18	BCC	LRC parity check byte

Text Format 5

Byte No.		
0	STX	
1	SA	
2	UA	
3	“L”	Entry index for PMS interface
4	“1” or “9”	Feature code high digit (normal or violation)
5	“7”	Feature code low digit
6	“1”	Message counter high digit
7	“3”	Message counter low digit
8	“E”	Function code
9	Station number	
10		
11		
12		
13		
14		
15	**Unused**	Must contain ASCII spaces
16		
17	ETX	

Text Format 6

Byte No.		
0	STX	
1	SA	
2	UA	
3	“L”	Entry index for PMS interface
4	“1” or “9”	Feature code high digit (normal or violation)
5	“7”	Feature code low digit
6	“1”	Message counter high digit
7	“3”	Message counter low digit
8	“F”	Function code
9	Station number	
10		
11		
12		
13		
14		
15	Administration/Guest	
16	**Unused**	Must contain ASCII space
17	ETX	

Wake Up (Feature code 19)

This feature allows a station to be rung at a desired time. The feature can be activated from the station telephone, from an Attendant Console or Front Desk Terminal, or from the PMS with feature code 19. The following function codes are available:

FUNCTION CODE	MESSAGE DIRECTION	TEXT FORMAT	SUPPORT INTERFACE	MEANING
1	To PMS	1	RS-232C	Set Wake Up for specific telephone set
		4	IP	
2	To PMS	2	RS-232C	Cancel Wake Up for specific telephone set
		5	IP	
3	To PMS	3	RS-232C	Result of Wake Up for specific telephone set
		6	IP	
4	From PMS	1	RS-232C	Set Wake Up for specific telephone set
		4	IP	
5	From PMS	2	RS-232C	Cancel Wake Up for specific telephone set
		5	IP	

The Wake Up feature messages are sent and/or received based upon the PBX installation parameter setting for the Wake Up communication feature. The possibilities are:

- The feature is active in the PBX but communication with the PMS is not in effect.
- The feature is active in the PBX and communication with the PMS is in effect.

With the Wake Up feature active, the operational considerations are:

- Entry (activated) is varied to the station in an occupied state. Entry (deactivated?) is fully operational at all times.
- Entry can be made via the Attendant Console or Front Desk Terminal, or through stations. Status display is available at the Attendant Console or Front Desk Terminal.
- When the PBX receives a 19.4 or 19.5 message, it makes the appropriate Wake Up setting.
- The result of a Wake Up is sent to the PMS with a 19.3 message and printed out on the PBX printer.
- No communication is made on administrative stations.
- Time is set to an accuracy of 1 minute.

- Each guest room station can have only one Wake Up in effect. A new setting will replace any previous setting. Once the Wake Up is performed, the setting is automatically erased.
- A Wake Up call to a busy station is re-executed up to three times at 1-minute intervals. (The number of retries is based on a PBX installation parameter.)
- No more than 32 stations can be set for a Wake Up at one time. If an attempt is made to exceed this number, the system automatically sets the time 5 minutes earlier. The number of times this process is repeated is assigned with system data.
- There is no limit to the number of stations that can be set to the same time in military format for Automatic Wake-Up calling. **[Series 3400 software required]**

Message Data Format

Text Format 1

Byte No.		
0	STX	
1	SA	
2	UA	
3	“L”	Entry index for PMS interface
4	“1” or “9”	Feature code high digit (normal or violation)
5	“9”	Feature code low digit
6	“1”	Message counter high digit
7	“6”	Message counter low digit
8	“1”	Function code
9	Station number	
10		
11		
12		
13	**Unused**	Must contain ASCII spaces
14		
15	Wake Up time (Hour)	
16		
17	(Minute)	
18		
19	Wake Up set	
20	ETX	
21	BCC	LRC parity check byte

Text Format 2

Byte No.		
0	STX	
1	SA	
2	UA	
3	“L”	Entry index for PMS interface
4	“1” or “9”	Feature code high digit (normal or violation)
5	“9”	Feature code low digit
6	“1”	Message counter high digit
7	“6”	Message counter low digit
8	“2/5”	Function code
9	Station number	
10		
11		
12		
13	**Unused**	Must contain ASCII spaces
14		
15	**Unused**	Must contain 0
16		
17		
18		
19	Wake Up set	
20	ETX	
21	BCC	LRC parity check byte

Text Format 3

Byte No.		
0	STX	
1	SA	
2	UA	
3	“L”	Entry index for PMS interface
4	“1” or “9”	Feature code high digit (normal or violation)
5	“9”	Feature code low digit
6	“1”	Message counter high digit
7	“6”	Message counter low digit
8	“3”	Function code
9	Station number	
10		
11		
12		
13	**Unused**	Must contain ASCII spaces
14		
15	Wake Up time (Hour)	
16		
17	(Minute)	
18		
19	Wake Up result	
20	ETX	
21	BCC	LRC parity check byte

Text Format 4

Byte No.		
0	STX	
1	SA	
2	UA	
3	“L”	Entry index for PMS interface
4	“1” or “9”	Feature code high digit (normal or violation)
5	“9”	Feature code low digit
6	“1”	Message counter high digit
7	“6”	Message counter low digit
8	“1/4”	Function code
9	Station number	
10		
11		
12		
13		
14		
15	Wake Up time (Hour)	
16		
17	(Minute)	
18		
19	Wake Up set	
20	ETX	

Text Format 5

Byte No.		
0	STX	
1	SA	
2	UA	
3	“L”	Entry index for PMS interface
4	“1” or “9”	Feature code high digit (normal or violation)
5	“9”	Feature code low digit
6	“1”	Message counter high digit
7	“6”	Message counter low digit
8	“2/5”	Function code
9	Station number	
10		
11		
12		
13		
14		
15	**Unused**	Must contain ASCII spaces
16		
17		
18		
19	Wake Up canceled	
20	ETX	

Text Format 6

Byte No.		
0	STX	
1	SA	
2	UA	
3	“L”	Entry index for PMS interface
4	“1” or “9”	Feature code high digit (normal or violation)
5	“9”	Feature code low digit
6	“1”	Message counter high digit
7	“6”	Message counter low digit
8	“3”	Function code
9	Station number	
10		
11		
12		
13		
14		
15	Wake Up time (Hour)	
16		
17	(Minute)	
18		
19	Wake Up result	
20	ETX	

Room Change/Room Swap/Room Copy (Feature code 20, 56)

This feature provides a convenient service for instant operation of a room status change that does not involve a guest Check Out. Three function codes are available:

Feature code 20

FUNCTION CODE	MESSAGE DIRECTION	TEXT FORMAT	SUPPORT INTERFACE	MEANING
1	From PMS	1	RS-232C	Set room change
2	From PMS	1	RS-232C	Set room swap
		2	IP	
5	From PMS	1	RS-232C	Set room copy
		2	IP	

Feature code 56

FUNCTION CODE	MESSAGE DIRECTION	TEXT FORMAT	SUPPORT INTERFACE	MEANING
6	From PMS	3	IP	Set room change

- Room Change
  Upon receipt of a Room Change message (20.1/56.6), the PBX performs status changes on next page:

SERVICES	OLD ROOM	NEW ROOM
Vacant/occupied	Vacant	Occupied
Maid Status	“1”	(No change)
Room Cut Off	Set	Reset
Do Not Disturb	Reset	Copied from old room
Message Waiting	Reset	Copied from old room
Wake Up	Canceled	Copied from old room
Language	“0”	Copied from old room
Room Occupancy	“3”	Copied from old room
Guest Name	Cleared	Copied from old room
Reservation	Reset	Copied from old room

- Room Swap
  Upon receipt of a Room Swap message (20.2), the PBX exchanges all status data between the two specified rooms.

- Room Copy
  Upon receipt of a Room Copy message (20.5), the PBX copies the status data of the specified old room to the specified new room. The status of the old room is not changed.

Message Data Format

Text Format 1

Byte No.		
0	STX	
1	SA	
2	UA	
3	“L”	Entry index for PMS interface
4	“2” or “A”	Feature code high digit (normal or violation)
5	“0”	Feature code low digit
6	“1”	Message counter high digit
7	“7”	Message counter low digit
8	“1/2/5”	Function code
9	Old/Swap A/Copy S station number	
10		
11		
12		
13	**Unused**	Must contain ASCII spaces
14		
15	New/Swap B/Copy D station number	
16		
17		
18		
19	**Unused**	Must contain ASCII spaces
20		
21	ETX	
22	BCC	LRC parity check byte

Text Format 2

Byte No.		
0	STX	
1	SA	
2	UA	
3	“L”	Entry index for PMS interface
4	“2” or “A”	Feature code high digit (normal or violation)
5	“0”	Feature code low digit
6	“1”	Message counter high digit
7	“7”	Message counter low digit
8	“2/5”	Function code
9	Swap A/Copy S station number	
10		
11		
12		
13		
14		
15	Swap B/Copy D station number	
16		
17		
18		
19		
20		
21	ETX	

Text Format 3

Byte No.		
0	STX	
1	SA	
2	UA	
3	“L”	Entry index for PMS interface
4	“5” or “D”	Feature code high digit (normal or violation)
5	“6”	Feature code low digit
6	“2”	Message counter high digit
7	“3”	Message counter low digit
8	“6”	Function code
9	Old Station number	
10		
11		
12		
13		
14		
15	Room status	
16	Cleaning status	
17	**Unused**	Must contain ASCII space
18	New station number	
19		
20		
21		
22		
23		
24	Room status	
25	Cleaning status	
26	Room key status	
27	ETX	

Room Occupancy/Room Data Change (Feature code 21, 61)

This feature provides a convenient way for the PMS to change room status data in the PBX. The following function codes are available:

Feature code 21

FUNCTION CODE	MESSAGE DIRECTION	TEXT FORMAT	SUPPORT INTERFACE	MEANING
1	From PMS	1	RS-232C	Change VIP, room key, or language status for the specified room
4	From PMS	2	RS-232C	Set reservation status for the specified room
5	From PMS	2	RS-232C	Reset reservation status for the specified room
6	From PMS	3	RS-232C	Change the guest name data

Feature code 61

FUNCTION CODE	MESSAGE DIRECTION	TEXT FORMAT	SUPPORT INTERFACE	MEANING
1	From PMS	4	IP	Change the data for room status, cleaning status, room key status, VIP, or language for specified room
3	From PMS	5	IP	Change the data for cleaning status for specified room
4	From PMS	6	IP	Change the data for room key status for specified room

Message Data Format

Text Format 1

Byte No.		
0	STX	
1	SA	
2	UA	
3	“L”	Entry index for PMS interface
4	“2” or “A”	Feature code high digit (normal or violation)
5	“1”	Feature code low digit
6	“1”	Message counter high digit
7	“3”	Message counter low digit
8	“1”	Function code
9	Station number	
10		
11		
12		
13	**Unused**	Must contain ASCII spaces
14		
15	Language	
16	Room occupancy	
17	ETX	
18	BCC	LRC parity check byte

Text Format 2

Byte No.		
0	STX	
1	SA	
2	UA	
3	“L”	Entry index for PMS interface
4	“2” or “A”	Feature code high digit (normal or violation)
5	“1”	Feature code low digit
6	“1”	Message counter high digit
7	“1”	Message counter low digit
8	“4/5”	Function code
9	Station number	
10		
11		
12		
13	**Unused**	Must contain ASCII spaces
14		
15	ETX	
16	BCC	LRC parity check byte

Text Format 3

Byte No.		
0	STX	
1	SA	
2	UA	
3	“L”	Entry index for PMS interface
4	“2” or “A”	Feature code high digit (normal or violation)
5	“1”	Feature code low digit
6	“2”	Message counter high digit
7	“6”	Message counter low digit
8	“6”	Function code
9	Station number	
10		
11		
12		
13	**Unused**	Must contain ASCII spaces
14		
15	Guest name	ASCII 15 characters
16		
17		
18		
19		
20		
21		
22		
23		
24		
25		
26		
27		
28		
29		
30	ETX	
31	BCC	LRC parity check byte

Text Format 4

Byte No.		
0	STX	
1	SA	
2	UA	
3	“L”	Entry index for PMS interface
4	“6” or “E	Feature code high digit (normal or violation)
5	“1”	Feature code low digit
6	“4”	Message counter high digit
7	“6”	Message counter low digit
8	“1”	Function code
9	Station number	
10		
11		
12		
13		
14		
15	**Unused**	Must contain ASCII spaces
16		
17		
18		
19		
20		
21	Room status	
22	Cleaning status	
23	**Unused**	Must contain ASCII space
24	VIP category	
25	Language	
26	Guest name	ASCII 16 characters
27		
⋮	⋮	
40	Optional data A	
41		
42		
43		
44		
45	Optional data B	
46		
47		
48		
49		
50	ETX	

Text Format 5

Byte No.		
0	STX	
1	SA	
2	UA	
3	“L”	Entry index for PMS interface
4	“6”	Feature code high digit (normal or violation)
5	“1”	Feature code low digit
6	“1”	Message counter high digit
7	“3”	Message counter low digit
8	“3”	Function code
9	Station number	
10		
11		
12		
13		
14		
15	Room status	
16	Cleaning status	
17	ETX	

Text Format 6

Byte No.		
0	STX	
1	SA	
2	UA	
3	“L”	Entry index for PMS interface
4	“6”	Feature code high digit (normal or violation)
5	“1”	Feature code low digit
6	“1”	Message counter high digit
7	“2”	Message counter low digit
8	“4”	Function code
9	Station number	
10		
11		
12		
13		
14		
15	Room key status	
16	ETX	

Data Connection Maintenance (Feature code 50)

[Series 3400 software required]

This feature allows a PMS to report the batch process start and the batch process end to the PBX. The available function codes are:

FUNCTION CODE	MESSAGE DIRECTION	TEXT FORMAT	SUPPORT INTERFACE	MEANING
1	From PMS	–	IP	PMS reports batch process start to PBX
2	From PMS	–	IP	PMS reports batch process end to PBX

Message Data Format

Byte No. 0	STX	
1	SA	
2	UA	
3	“L”	Entry index for PMS interface
4	“5” or “D”	Feature code high digit (normal or violation)
5	“0”	Feature code low digit
6	“0”	Message counter high digit
7	“7”	Message counter low digit
8	“1/2”	Function code
9	**Unused**	Must contain ASCII spaces
10		
11	ETX	

Room Recovery (Feature code 57)

[Series 3400 software required]

This feature allows a PMS to report the data for each room to the PBX during recovery process when recovery has been requested from the PBX by means of 70.2 message or when the PMS activates recovery. The available function codes are:

FUNCTION CODE	MESSAGE DIRECTION	TEXT FORMAT	SUPPORT INTERFACE	MEANING
1	From PMS	1	IP	Send data for all the rooms in recovery processing requested by 70.2 message
5	From PMS	2	IP	Send data for message status information in recovery processing

Data for all the rooms is reported to the PBX by means of 57.1 message. Room status, cleaning status, and other data are set as per the status of Check In and Check Out and are reported.

In recovery processing, the message status information at the PMS is reported to the PBX by means of this message. For details, refer to 53.1 message.

Message Data Format

Text Format 1

Byte No.		
0	STX	
1	SA	
2	UA	
3	“L”	Entry index for PMS interface
4	“5” or “D”	Feature code high digit (normal or violation)
5	“7”	Feature code low digit
6	“4”	Message counter high digit
7	“6”	Message counter low digit
8	“1”	Function code
9	Station number	
10		
11		
12		
13		
14		
15	Group number	
16		
17		
18		
19		
20		
21	Room status	
22	Cleaning status	
23	**Unused**	Must contain ASCII space
24	VIP category	
25	Language	
26	Guest name	ASCII 16 characters
27		
⋮	⋮	
40		
41		
42	Optional data A	
43		
44		
45	Optional data B	
46		
47		
48		
49		
50	ETX	

Text Format 2

Byte No.		
0	STX	
1	SA	
2	UA	
3	“L”	Entry index for PMS interface
4	“5”	Feature code high digit (normal or violation)
5	“7”	Feature code low digit
6	“1”	Message counter high digit
7	“5”	Message counter low digit
8	“5”	Function code
9	Station number	
10		
11		
12		
13		
14		
15	Message waiting status	
16	**Unused**	Must contain ASCII spaces
17		
18		
19	ETX	

Direct Data Entry (Feature code 59)

This feature allows the text to be reported from the PBX to the PMS by dialing a special number from a guest room station to input data to the PMS.

The text is used to indicate the codes and quantities of the goods requested from a guest room.

The following function codes are used with this feature.

FUNCTION CODE	MESSAGE DIRECTION	TEXT FORMAT	SUPPORT INTERFACE	MEANING
1	To PMS	1	RS-232C	Direct Data Entry (Station Number, Numeric Input)
		3	IP	
8	From PMS	2	RS-232C	Direct Data Entry-Negative Answer (Station Number)
		4	IP	
9	From PMS	2	RS-232C	Direct Data Entry-Positive Answer (Station Number)
		4	IP	

After a guest room station dials a special number, the “Direct Data Entry” text (59.1) will be reported from the PBX to the PMS.

The PBX will wait for an answer from the PMS. If there is no answer from the PMS within 30 seconds after the text has been sent, the guest room station will hear a reorder tone.

If the PBX receives a report of the “Direct Data Entry-Negative Answer” (59.8) from the PMS, the PBX will recognize it as data entry error to the PMS or data failure, and the reorder tone connection will be made. When the PBX receives a report of the “Direct Data Entry-Positive Answer” (59.9) from the PMS, the PBX will recognize that the data has been entered normally to the PMS, and the service set tone connection will be made.

Message Data Format

Text Format 1

Byte No.		
0	STX	
1	SA	
2	UA	
3	“L”	Entry index for PMS interface
4	“5”	Feature code high digit
5	“9”	Feature code low digit
6	“4”	Message counter high digit
7	“7”	Message counter low digit
8	“1”	Function code
9	Station number	
10		
11		
12		
13	**Unused**	Must contain ASCII spaces
14		
15	Numeric Input	
16		
17		
18		
19		
20		
21		
22		
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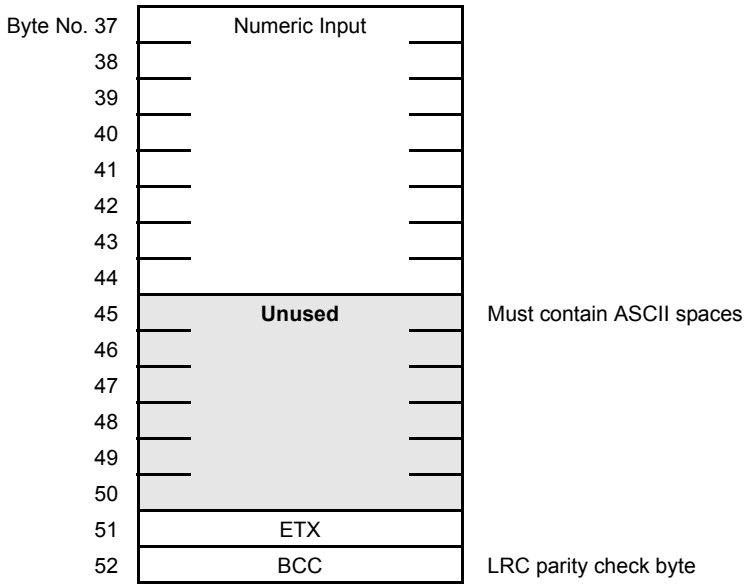

Text Format 2

Byte No.		
0	STX	
1	SA	
2	UA	
3	“L”	Entry index for PMS interface
4	“5”	Feature code high digit
5	“9”	Feature code low digit
6	“1”	Message counter high digit
7	“7”	Message counter low digit
8	“8/9”	Function code
9	Station number	
10		
11		
12		
13	**Unused**	Must contain ASCII spaces
14		
15		
16		
17		
18		
19		
20		
21	ETX	
22	BCC	LRC parity check byte

Text Format 3

Byte No.		
0	STX	
1	SA	
2	UA	
3	“L”	Entry index for PMS interface
4	“5” or “D”	Feature code high digit (normal or violation)
5	“9”	Feature code low digit
6	“4”	Message counter high digit
7	“7”	Message counter low digit
8	“1”	Function code
9	Station number	
10		
11		
12		
13		
14		
15	Numeric Input	
16		
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18		
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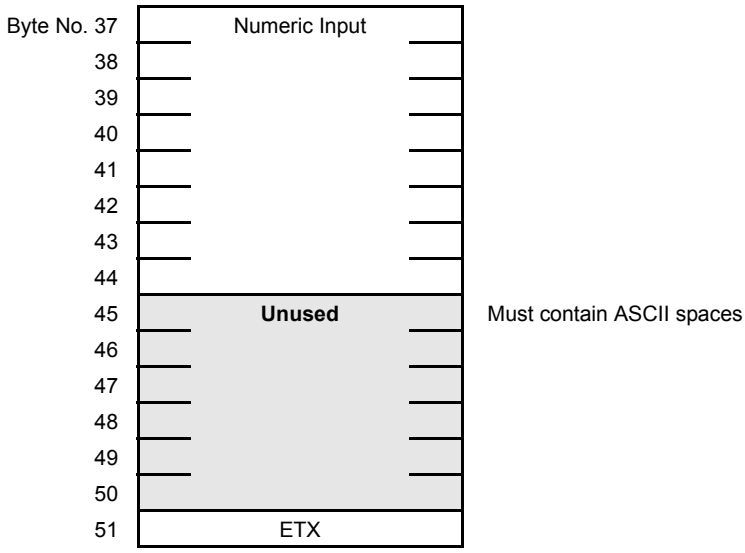

Text Format 4

Byte No.		
0	STX	
1	SA	
2	UA	
3	“L”	Entry index for PMS interface
4	“5” or “D”	Feature code high digit (normal or violation)
5	“9”	Feature code low digit
6	“1”	Message counter high digit
7	“7”	Message counter low digit
8	“8/9”	Function code
9	Station number	
10		
11		
12		
13	**Unused**	Must contain ASCII spaces
14		
15		
16		
17		
18		
19		
20		
21	ETX	

Hotel/Motel DID Number Allocation to Guest Station (Feature code 62)

This feature allows the PBX to set a destination station of a specific DID number to Direct-In Termination for an individual guest room via a request from a PMS.
The available function codes are:

FUNCTION CODE	MESSAGE DIRECTION	TEXT FORMAT	SUPPORT INTERFACE	MEANING
7	From PMS	1	IP	Request for DID number allocation to a guest station
8	From PMS	2	IP	Request for deletion of the assigned DID number to the guest station
9	To PMS	3	IP	Notification of DID number allocation to the guest station
A	To PMS	4	IP	Notification of deletion of the assigned DID number to the guest station

The following items should also be considered:

- Management of the DID number to be assigned to a guest room shall be performed with PMS.
- DID number to be assigned to each station is one.When assigning another station for the station for which the connection is established, new settings will be effective. Also when assigning a DID number which is in use, new settings will be effective, and destination settings for old station will be disabled.
- When registering a DID number with this feature, development table 0 or 1 must be assigned by office data. Note that the number of digits to be assigned for development table 0 is a maximum of four digits and development table 1 is a maximum of eight digits.
- For the DID number which is not assigned a destination station, settings assigned by CM76 Y=01/02/03/04 are effective.
- There is no Day/Night/A/B mode distinction of tenant for the destination station with these data settings.
- A call is not terminated for the room for which Do Not Disturb is set.

Message Data Format

Text Format 1

Byte No.		
0	STX	
1	SA	
2	UA	
3	“L”	Entry index for PMS interface
4	“6”	Feature code high digit
5	“2”	Feature code low digit
6	“2”	Message counter high digit
7	“1”	Message counter low digit
8	“7”	Function code
9	Station number	
10		
11		
12		
13		
14		
15	DID number	
16		
17		
18		
19		
20		
21		
22		
23	“4”	Fix to “4”
24	**Unused**	Must contain ASCII spaces
25	ETX	

Text Format 2

Byte No.		
0	STX	
1	SA	
2	UA	
3	"L"	Entry index for PMS interface
4	"6"	Feature code high digit
5	"2"	Feature code low digit
6	"1"	Message counter high digit
7	"3"	Message counter low digit
8	"8"	Function code
9	Station number	
10		
11		
12		
13		
14		
15	"4"	Fix to "4"
16	**Unused**	Must contain ASCII spaces
17	ETX	

Text Format 3

Byte No.		
0	STX	
1	SA	
2	UA	
3	"L"	Entry index for PMS interface
4	"6"	Feature code high digit
5	"2"	Feature code low digit
6	"2"	Message counter high digit
7	"1"	Message counter low digit
8	"9"	Function code
9	Station number	
10		
11		
12		
13		
14		
15	DID number	
16		
17		
18		
19		
20		
21		
22		
23	"4"	Fix to "4"
24	Response Code	Response Code 0: Service is set (normal response) 1: Input error 2: No DID number exist 3: No register area 4: No station number exist 9: Other errors
25	ETX	

Text Format 4

Byte No.		
0	STX	
1	SA	
2	UA	
3	“L”	Entry index for PMS interface
4	“6”	Feature code high digit
5	“2”	Feature code low digit
6	“1”	Message counter high digit
7	“3”	Message counter low digit
8	“A”	Function code
9	Station number	
10		
11		
12		
13		
14		
15	“4”	Fix to “4”
16	Response Code	Response Code 0: Service is set (normal response) 1: Input error 2: No DID number exist 4: No station number exist 9: Other errors
17	ETX	

Option (Feature code 65)

[Series 3400 software required]

This feature allows a PMS to set name information of an administrative station.
The available function code is:

FUNCTION CODE	MESSAGE DIRECTION	TEXT FORMAT	SUPPORT INTERFACE	MEANING
8	From PMS	–	IP	Set name information of an administrative station

Message Data Format

Byte No.		
0	STX	
1	SA	
2	UA	
3	"L"	Entry index for PMS interface
4	"6" or "E"	Feature code high digit (normal or violation)
5	"5"	Feature code low digit
6	"3"	Message counter high digit
7	"1"	Message counter low digit
8	"8"	Function code
9		
10		
11	Emergency call telephone number	
12		
13		
14		
15	Name information	ASCII 20 characters
16		**NOTE 1:** *When canceling name in formation, specify all spaces.*
17		
18		**NOTE 2:** *NULL character is not allowed.*
19		
20		
21		
22		
23		
24		
25		
26		
27		
28		
29		
30		
31		
32		
33		
34		
35	ETX	

Status Inquiry and Failure Management (Feature code 70)

This feature provides data link maintenance services. The supported functions allow the two systems to maintain a dialog on the state of the data link. No station number or other data is needed. The following function codes are available:

FUNCTION CODE	MESSAGE DIRECTION	TEXT FORMAT	SUPPORT INTERFACE	MEANING
0	To PMS	1	RS-232C	Response to Status Inquiry message Indicates that the PBX has had no changes that were not communicated to the PMS, and has not reinitialized
		1	IP	
2	To PMS	1	RS-232C	Response to Status Inquiry message Indicates the PBX has failed and reinitialized; the PMS requests a database exchange
		1	IP	
3	From PMS	1	RS-232C	Start of database exchange The PMS sends a Room Image message for each room requiring status synchronization
4	From PMS	1	RS-232C	End of database exchange
5	From PMS	1	RS-232C	Request to release the data link for maintenance activity
6	To PMS	1	RS-232C	Confirm release of the data link

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FUNCTION CODE	MESSAGE DIRECTION	TEXT FORMAT	SUPPORT INTERFACE	MEANING
8	From PMS	1	RS-232C	Request all existing data on station number, Administration/Guest and room class
		1	IP	
A	From PMS	1	IP	Request to report the time
B	To PMS	2	IP	Response to function code A message
F	From PMS	1	RS-232C	Status Inquiry ("are you there") message **NOTE:** *The PMS must send this message repeatedly at intervals of 500 ms to 60 seconds, except during a database exchange.*
		1	IP	

These messages allow both systems to determine if the data link is functioning correctly. Either system can recognize a failure (as described below), and can request PBX or initiate (PMS) a database exchange to synchronize both systems' room data. The PMS decides which rooms will be included in the exchange, and which status items for each room will be updated on the PBX.

Message Data Format

Text Format 1

Byte No.		
0	STX	
1	SA	
2	UA	
3	“L”	Entry index for PMS interface
4	“7” or “F”	Feature code high digit (normal or violation)
5	“0”	Feature code low digit
6	“0”	Message counter high digit
7	“7”	Message counter low digit
8	“0/2/3/4/5/6/8/A/F”	Function code
9	**Unused**	Must contain ASCII spaces
10		
11	ETX	
12	BCC	LRC parity check byte

Text Format 2

Byte No.		
0	STX	
1	SA	
2	UA	
3	“L”	Entry index for PMS interface
4	“7” or “F”	Feature code high digit (normal or violation)
5	“0”	Feature code low digit
6	“0”	Message counter high digit
7	“7”	Message counter low digit
8	“B”	Function code
9	Year	
10		
11		
12		
13	Month	
14		
15	Day	
16		
17	Hour	
18		
19	Minute	
20		
21	Second	
22		
23	ETX	

- Recognition of Data Link Failure

  Either system may recognize loss of communication by one or more of the following conditions:

  - Lack of data for more than 60 seconds. The use of the Status Inquiry message and the corresponding response message ensures that each system receives one of these messages at least once every 60 seconds.

  - Excessive protocol errors. Large numbers of events such as NAK message response instead of ACK, or no response to an ENQ, can indicate data link failure.

  - Hardware-controlled signal. Whenever the PBX considers the data link to be “down,” either for maintenance or because of errors, it puts the Data Set Ready signal (interface pin 6) into the Off state.

  - Requested release of the data link for maintenance (70.5) message.

  - Other conditions, such as lack of memory to hold incoming messages, can cause a data link failure that cannot be explicitly communicated to the other system.

- Operation during Data Link Failure

  When a failure occurs, each system is able to hold its outgoing messages for transmission after the data link is restored. In this case, a database exchange may not be required.

  If the data link or PMS becomes unavailable, the PBX continues to support basic telecommunications functions.

- Recovery from Data Link Failure

  If the PMS remains operational during a data link failure, it continues sending 70.F messages. When it receives a response from the PBX, it can begin recovery. If the PMS has failed and restarted, it must not resume sending 70.F messages until recovery and database exchange are completed.

  If the PBX responds to a Status Inquiry with function code 0, it has made no change in room status during the data link failure. If it responds with function code 2, it has failed; the PMS performs a database exchange for all rooms.

- Database Exchange Procedure

  If the PBX recognizes that the data link is restored, and responds to a Status Inquiry with a 70.2 message, it requires a full database exchange with the PMS. In this case, the PBX does not process any messages, except Status Inquiry, until the PMS initiates a database exchange.

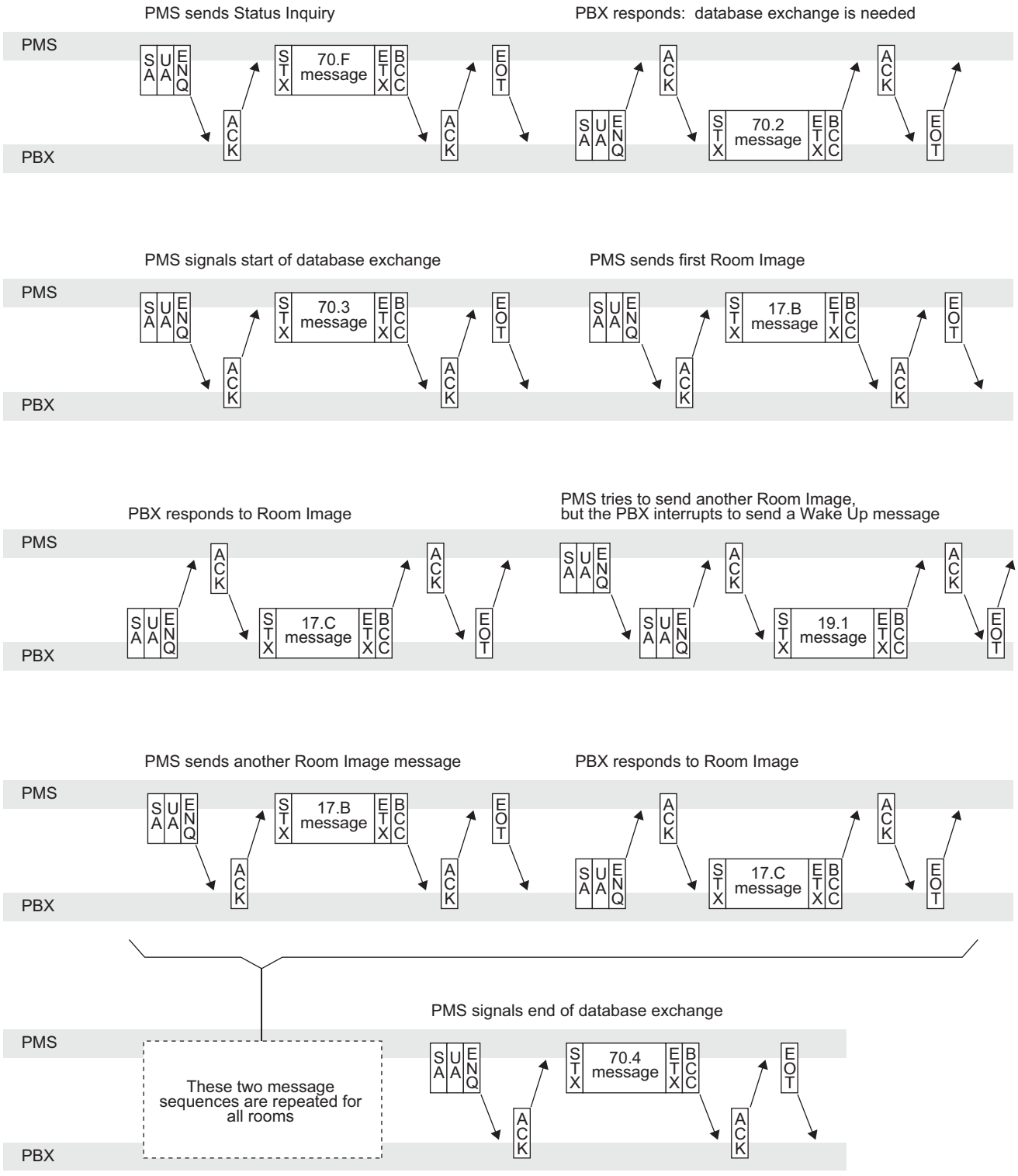
  The PMS starts the exchange by sending a 70.3 message to the PBX. This also informs the PBX that transmission of normal status changes can resume. Next, the PMS transmits a Room Image message (17.3, 17.7, or 17.B) for each room for which synchronization is required. Note that a time delay can be required after each Room Image message to ensure the maximum message rate is not exceeded and to provide time for normal status change messages.

  The PBX processes each Room Image message and sends the corresponding response message (17.4, 17.8, or 17.C). The PMS updates its own status with data from active fields in these responses. Note that the PBX can send new status changes to the PMS during the database exchange. The PMS sends only the most current data to the PBX.

  When the PMS has sent the data for all rooms and processed the responses, it sends a 70.4 message to the PBX. The recovery is not considered to be complete until the PBX receives this message, since the failure to receive it may indicate continuing problems with the data link. The PBX counts the number of database exchanges started by 70.3 but not ended by 70.4. If this occurs too many times, the PBX causes a data link failure by turning off the Data Set Ready signal (interface pin 6) and stopping all communication with the PMS.

The figure below illustrates the example of the database exchange process.

Example of Data Link Recovery



PMS MESSAGE SUMMARY

The following table provides a summary of all messages sent between the PMS and the PBX. The feature codes, function codes, and direction of transmission are given for each message.

PMS with AP00 on RS-232C Message Summary

FEATURE	FEATURE CODE	FUNCTION CODE	TEXT FORMAT	MESSAGE DIRECTION	MEANING
Maid Status	11 or 12	1	1	To PMS	The specified room needs cleaning.
		2		To PMS	The specified room is cleaned.
		3		To PMS	The specified room is ready for reservation.
		4		To PMS	The specified room is out of service.
		5		To PMS	The specified room needs repairs.
		6		To PMS	The specified room is repaired.
Message Waiting	13	1	1	From PMS	Turn on MW lamp for specified room.
		2		From PMS	Turn off MW lamp for specified room.
		3		To PMS	MW lamp for specified room has been turned on via PBX control entry.
		4		To PMS	MW lamp for specified room has been turned off via PBX control entry.
Station Message Detail	14	2	1	To PMS	Time and duration of outgoing local or toll call from the room.
Restriction Control	15	1	1	From PMS	Set restriction for the specified room.
		2		To PMS	Restriction has been set for the specified room by the Attendant Console or Front Desk Terminal.
Check In/ Check Out	16	1	1	From PMS	Perform Check In functions for the specified room.
		2	1	From PMS	Perform Check Out functions for the specified room.
		5	1	To PMS	Check Out functions have been completed for the specified RSN, and the MW lamp was off.
		6	1	To PMS	Check Out functions have been completed for the specified RSN, and the MW lamp was on.
		A	2	From PMS	Perform Check In functions for the specified RSN.
		B	3	From PMS	Perform Check In functions for the specified RSN.

Continued on next page

PMS with AP00 on RS-232C Message Summary

FEATURE	CODE	FUNCTION CODE	TEXT FORMAT	MESSAGE DIRECTION	MEANING
Room Data Image	17	1	1	From PMS	Request to send the data image for the specified room for informational purposes only.
		2		To PMS	Response to function code 1 message.
		3		From PMS	Database update status informed and/or request for PBX status.
		4		To PMS	Database update status response to function code 3 message.
		5	2	From PMS	Request to send the data image for the specified room for informational purposes only.
		6		To PMS	Response to function code 5 message.
		7		From PMS	Database update status informed and/or request for PBX status.
		8		To PMS	Database update status response to function code 7 message.
		9	3	From PMS	Request to send the data image for the specified room for informational purposes only.
		A		To PMS	Response to function code 9 message.
		B		From PMS	Database update status informed and/or request for PBX status.
		C		To PMS	Database update status response to function code B message.
		F	4	To PMS	Response to 70.8 message.
Wake Up	19	1	1	To PMS	Wake Up for specific telephone set.
		2	2	To PMS	Cancel Wake Up for specific telephone set.
		3	3	To PMS	Result of Wake Up for specific telephone set.
		4	1	From PMS	Set Wake Up for specific telephone.
		5	2	From PMS	Cancel Wake Up for the specified RSN.
Room Change/ Room Swap/ Room Copy	20	1	1	From PMS	Set room change.
		2		From PMS	Set room swap.
		5		From PMS	Set room copy.
Room Occupancy Room Data Change	21	1	1	From PMS	Change the data for VIP, room key, or language for specified room.
		4	2	From PMS	Set reservation status for specified room.
		5	2	From PMS	Clear reservation status for specified room.
		6	3	From PMS	Change the guest name for the specified room.

Continued on next page

PMS with AP00 on RS-232C Message Summary

FEATURE	FEATURE CODE	FUNCTION CODE	TEXT FORMAT	MESSAGE DIRECTION	MEANING
Direct Data Entry	59	1	1	To PMS	Direct Data Entry from the guest room station.
		8	2	From PMS	The data from the guest room station has been found abnormal.
		9	2	From PMS	The data from the guest room station has been found normal.
Status Inquiry and Failure Management	70	0	1	To PMS	Acknowledgment of "are you there" message; indicates the PBX has had no status changes that were not sent to the PMS, and has not initialized.
		2		To PMS	Acknowledgment of "are you there" message; indicates that the PBX has failed and the status memory has been initialized. The PMS initiates a database exchange.
		3		From PMS	Start of database exchange; the PMS sends a Room Data Image message for each room requiring status synchronization.
		4		From PMS	End of database exchange.
		5		From PMS	Request for the data link to be released for maintenance activity.
		6		To PMS	Confirmation that the data link is released.
		8		From PMS	Request for all existing data on station number, administration/guest and room class.
		F		From PMS	"Are you there" message; must be issued by PMS at least every 60 sec., and at most every 500 msec.

Built-in PMS on IP via Message Summary

FEATURE	FEATURE CODE	FUNCTION CODE	TEXT FORMAT	MESSAGE DIRECTION	MEANING
Maid Status	11 or 12	1	2	To PMS	Maid Status - Cleaning Start is set from guest room telephones/Front Desk Terminal.
		2		To PMS	Maid Status - Cleaning End is set from guest room telephones/Front Desk Terminal.
		3		To PMS	Maid Status - Inspection End is set from guest room telephones/Front Desk Terminal.
Message Waiting	13	3	2	To PMS	MW lamp for specified room has been turned on via PBX control entry.
		4		To PMS	MW lamp for specified room has been turned off via PBX control entry.
Restriction Control	15	1	2	From PMS	Set restriction for the specified room.
		2		To PMS	Restriction has been set for the specified room by the Attendant Console or Front Desk Terminal.
Check Out	16	C	4	To PMS	A Check-Out guest room is engaged in a C.O. outgoing call.
Room Data Image	17	E	5	To PMS	A specified station is deleted.
		F	6	To PMS	Existing data on station number, administration/ guest and room class response to 70.8 message.
Wake Up	19	1	4	To PMS	Wake Up for specified telephone set.
		2	5	To PMS	Cancel Wake Up for specified telephone set.
		3	6	To PMS	Result of Wake Up for specified telephone set.
		4	4	From PMS	Set Wake Up for specified telephone.
		5	5	From PMS	Cancel Wake Up for the specified RSN.
Room Swap Room Copy	20	2	2	From PMS	Set room swap.
		5		From PMS	Set room copy.
Data Connection Maintenance	50	1	-	From PMS	Batch processing is started.
		2		From PMS	Batch processing is ended.
Message Waiting	53	1	3	From PMS	MW lamp for specified room has been turned on/off via PMS control entry.
		2	4	To PMS	MW lamp for specified room has been turned on via an administrative station or a Front Desk Terminal control entry.
		3		To PMS	MW lamp for specified room has been turned off via an administrative station or a Front Desk Terminal control entry.
Station Message Detail	54	1	2	To PMS	Time and duration of outgoing local or toll call from the room.

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Built-in PMS on IP via Message Summary

FEATURE	FEATURE CODE	FUNCTION CODE	TEXT FORMAT	MESSAGE DIRECTION	MEANING
Check In/ Check Out Room Change	56	1	5	From PMS	Perform Check In functions for the specified room.
		2	6	From PMS	Perform Check Out functions for the specified room.
		4	7	From PMS	Cancel Check In functions for the specified room.
		5	8	From PMS	Cancel Check Out functions for the specified room.
		6	3	From PMS	Set room change.
Room Recovery	57	1	1	From PMS	Send data for all the rooms in recovery processing requested by 70.2 message.
		5	2	From PMS	Send data for message status information in recovery processing.
Direct Data Entry	59	1	3	To PMS	Direct Data Entry from the guest room station.
		8	4	From PMS	The data from the guest room station has been found abnormal.
		9		From PMS	The data from the guest room station has been found normal.
Room Data Change	61	1	4	From PMS	Change the data for room status, cleaning status, room key status, VIP, or language for specified room.
		3	5	From PMS	Change the data for cleaning status for specified room.
		4	6	From PMS	Change the data for room key status for specified room.
Hotel/Motel DID Number Allocation to Guest Station	62	7	1	From PMS	Request for DID number allocation to a guest station.
		8	2	From PMS	Request for deletion of the assigned DID number to the guest station.
		9	3	To PMS	Notification of DID number allocation to the guest station.
		A	4	To PMS	Notification of deletion of the assigned DID number to the guest station.
Option	65	8	-	From PMS	Set name information of an administrative station.

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Built-in PMS on IP via Message Summary

FEATURE	FEATURE CODE	FUNCTION CODE	TEXT FORMAT	MESSAGE DIRECTION	MEANING
Status Inquiry and Failure Management	70	0	1	To PMS	Acknowledgment of "are you there" message; indicates the PBX has had no status changes that were not sent to the PMS, and has not been initialized.
		2		To PMS	Acknowledgment of "are you there" message; indicates that the PBX has failed and the status memory has been initialized. The PMS initiates a database exchange.
		8		From PMS	Request for all existing data on station number, administration/guest and room class.
		A		From PMS	Request to report the time.
		B	2	To PMS	Response to function code A message.
		F	1	From PMS	"Are you there" message; must be issued by PMS at least every 60 sec., and at most every 500 msec.

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