

**ACMOS OPERATIONAL SOFTWARE  
SOFTWARE SUBSYSTEM DESCRIPTION  
2-WIRE NO. 1/1A ELECTRONIC SWITCHING SYSTEM**

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## 1. GENERAL

### A. Introduction

1.01 The Automatic Customer Message Outputting System (ACMOS) software performs the control functions necessary for providing call data to customer owned and maintained hotel/motel property management computer systems. The No. 1/1A Electronic Switching System (ESS) supplies the telephone service for the administrative and guest lines directly from the central office.

1.02 When this section is reissued, the reason for reissue will be given in this paragraph.

1.03 Part 5 of this section provides a defined list of the abbreviations and acronyms as used herein.

### B. Purpose of ACMOS Operating Software

1.04 The ACMOS software provides discrete call data for local guest calls and selected intercom calls and furnishes the following two functions:

- Hotel/Motel Message Unit Reporting (HMMUR)
- ACMOS Calling Line Identification (ACLI)

### C. Scope of Section

1.05 This section provides an introduction to the ACMOS software operating in a No. 1/1A

ESS. Information unique to specified system applications (No. 1 or No. 1A) is so noted.

1.06 This section is based on the 1E4 (No. 1 ESS) and 1AE4 (No. 1A ESS) versions of the generic program.

## 2. FUNCTIONAL DESCRIPTION

### A. Type of Calls

2.01 ACMOS provides discrete call data for two types of calls: local guest calls, and selected intercom calls.

(a) Guest Calls—ACMOS provides the capability to report all completed local message unit calls to the customer for immediate billing (toll calls can be reported separately by using currently available hotel billing procedures).

(b) Selected Intercom Calls—ACMOS provides the capability to identify the calling and called lines on selected intercom calls.

2.02 The messages transmitted to the customer device are shown in Fig. 1. The data is sent over a serial EIA standard RS-232-C interface at a maximum rate of 1200 bits per second. Each word to the customer will consist of one start bit, eight data bits, and two stop bits (one of four options). The data link is full duplex, but customer input is limited to the acknowledgment of the ESS output. The protocol uses ASCII control characters STX, ETX, ACK, NAK, and ENQ. All other data is packed BCD using a modified BCD which prevents occurrences of control characters in the data (NAK is an exception).

2.03 The message format is shown in Fig. 1. TYPE denotes a 2-digit message type. MC is a message count digit which is incremented for each new message to prevent double billing. FEAT indicates the message subtype. LRC is a block check character which is the exclusive-OR of the characters following STX through ETX.

2.04 Within one character period following the receipt of the block check (LRC) character, the customer device must begin sending an acknowledgment (ACK) or negative acknowledgment (NAK) order. If no reply is received, the interface circuit will send ENQ until the customer device replies.

**2.05** The following messages are transmitted for hotel/motel guest dial 9 calls:

(a) Guest message data (initial), shown in Fig. 1, will be sent when a local dial 9 call is answered (office translations will be used to screen out all toll calls which are not routed to a Bell System toll operator). Initial message units are sent within 10 seconds of terminating answer.

(b) Overtime guest message data shown in Fig. 1 sends overtime message units to be charged to the guest phone number at each overtime period.

(c) Backup guest message data shown in Fig. 1 is output after service is restored because of either the data link from No. 1/1A ESS or the customer device going down. The ESS saves the message units associated with the guest lines. Only the data for guest phones which have been used during the outage will be transmitted. The backup message may contain only one guest number, in which case the second guest number will be NULL. This data will be interspersed with other messages.

(d) Backup guest message (count) data shown in Fig. 1 is a count of the extensions transmitted and is sent after the last backup message is sent.

**2.06** For selected intercom calls, a line dials an appropriate access code and a message

identifying the calling and called lines shown in Fig. 1 is loaded into the No. 1/1A ESS output buffer before ringing the terminating line. This message is sent if the line is idle, but it is possible that the ringing connection may not be established because of network blocking, power cross on the terminating line, etc. After selecting the terminating line, No. 1/1A ESS waits 3 to 4 seconds before ringing the terminating line to ensure that the customer device has received the correct identifying message.

#### **B. Hotel/Motel Message Unit Reporting (HMMUR)**

**2.07** Hotel/motel message unit reporting provides the capability for the ESS to send immediate billing data to the customer computer for all guest dial 9 calls. The data sent includes the calling and called numbers, the message units, and the called area code, if any. If overtime charging is to be done, an additional data message including the calling number and the message units is sent at the beginning of each overtime charging interval.

#### **C. ACMOS Calling Line Identification (ACLI)**

**2.08** ACMOS calling line identification (ACLI) provides the facility for the customer to input any data to the customer computer from any station belonging to that business customer that is not restricted from using the feature. This feature identifies selected intercom calls.

FORMAT	NO-OP	SELECTED INTERCOM	GUEST INITIAL	GUEST OVERTIME	GUEST BACKUP	COUNT
STX	STX	STX	STX	STX	STX	STX
TYPE	00	01	02	02	02	02
MC FEAT	MC 0	MC 0	MC 0	MC 1	MC 2	MC 3
DATA	ETX	O <sub>1</sub>	O <sub>1</sub>	O <sub>1</sub>	O <sub>1</sub>	C <sub>1</sub>
.	LRC	O <sub>2</sub>	O <sub>2</sub>	O <sub>2</sub>	O <sub>2</sub>	C <sub>2</sub>
.		O <sub>3</sub>	O <sub>3</sub>	O <sub>3</sub>	O <sub>3</sub>	C <sub>3</sub>
.		O <sub>4</sub>	O <sub>4</sub>	O <sub>4</sub>	O <sub>4</sub>	C <sub>4</sub>
DATA		O <sub>5</sub>	O <sub>5</sub>	O <sub>5</sub>	O <sub>5</sub>	ETX
ETX		NULL	NULL	NULL	M <sub>1</sub>	LRC
LRC		P <sub>1</sub>	A <sub>1</sub>	M <sub>1</sub>	M <sub>2</sub>	
		P <sub>2</sub>	A <sub>2</sub>	M <sub>2</sub>	M <sub>3</sub>	
		ETX	A <sub>3</sub>	ETX	O <sub>1</sub>	
		LRC	NULL	LRC	O <sub>2</sub>	
			T <sub>1</sub>		O <sub>3</sub>	
			T <sub>2</sub>		O <sub>4</sub>	
			T <sub>3</sub>		O <sub>5</sub>	
			T <sub>4</sub>		M <sub>1</sub>	
			T <sub>5</sub>		M <sub>2</sub>	
			T <sub>6</sub>		M <sub>3</sub>	
			T <sub>7</sub>		ETX	
			NULL		LRC	
			M <sub>1</sub>			
			M <sub>2</sub>			
			ETX			
			LRC			

Legend:

- STX = Start of Text
- TYPE = 2-Digit Message Type
- MC = Message Count Digit
- FEAT = Message Subtype
- O<sub>1</sub> - O<sub>5</sub> = Originating Phone Number
- A<sub>1</sub> - A<sub>3</sub> = Terminating Phone Area Code
- T<sub>1</sub> - T<sub>7</sub> = Terminating Phone Number
- M<sub>1</sub> - M<sub>3</sub> = Message Unit Data (M<sub>1</sub> is the most significant digit)
- C<sub>1</sub> - C<sub>4</sub> = Count of Backup Messages Sent
- P<sub>1</sub> - P<sub>2</sub> = 2-Digit Port Number
- NULL = 1111 (BCD)
- ETX = End of Text
- LRC = Block Check Character

Fig. 1—EIA Data Link Messages

### 3. SOFTWARE DATA STRUCTURES

#### A. Translations

##### Hotel/Motel Message Unit Reporting

**3.01** The hotel/motel guest lines must be assigned to a nonhunt multiline group (MLG). This MLG must be assigned a data accumulation group (DAG) number, the call store message unit (CSMU) accumulator option, a data line group (DLG) number, and the ACMOS message unit reporting (AMUR) option. A partial MLG common block for guest lines is shown in Fig. 2. The individual line translations are the same as for hotel/motel lines with only the electronic message unit feature (CSMU).

**3.02** The individual line translations are shown in Fig. 3 and 4. The centrex access treatment (CAT) code in the line equipment number (LEN) auxiliary block can be used to restrict a line from being connected to the customer computer.

**3.03** The charge index expansion table word for the guest lines is shown in Fig. 5. The CHG item must be set for detailed automatic message accounting (AMA) billing because 13-word AMA registers are required for all guest dial 9 calls. Also, if simulated facilities are involved in hotel/motel message unit reporting calls, the IBDN item in the centrex digit interpreter table type 4 word must be set so that billing will be individual rather than to the simulated facilities group DN.

##### ACMOS Calling Line Identification (ACLI)

**3.04** The digit interpreter auxiliary block used for ACLI is shown in Fig. 6. Calls to be identified by calling line are indicated by dialing centrex data type 5 subtype 22 sub-subtype 3. The RESTR item may be used to route or to intercept any customer group station dialing the ACLI access code. The initial offering will be limited to calls to lines associated with a multiline hunt group. The data link group will be in the plus 16 word of the multiline common block and

the ACLI option will be indicated in the multiline group.

**3.05** Figure 7 shows a partial multiline hunting group (MLHG) common block for the ACLI feature. The DN auxiliary block layout for the ACLI feature is the same as that shown in Fig. 4 for the hotel/motel register feature. In this case, the terminal number must equal the customer computer port number and may be any number from 1 through 99. The terminating major class (TMAJ) must be 16 (fully restricted) to route any message network calls to this DN to centrex intercept.

##### Data Link

**3.06** The centrex data link translations are the same as for other nonconsole uses of the centrex data link. The data link type is four. Figure 8 shows a partial data link group auxiliary block, and Fig. 9 shows the unit type 29 auxiliary block for the data link. The unit type 29 member number equals the data link circuit number (DLN). For more detailed information refer to Part 6 (b), References.

#### B. Call Memory

##### Hotel/Motel Message Unit Reporting

**3.07** Figure 10 shows the call store layout for the guest line dial 9 call information which is sent to the customer computer. Figure 11 shows the call store layout for overtime guest line dial 9 call information and for backup guest message information. Figure 12 shows the call store layout for the count of the number of backup messages sent.

**Note:** The call store word for the last display station (unassigned) is used to store a count of the cyclic redundancy check (CRC) failures.

##### ACMOS Calling Line Identification

**3.08** Figure 13 shows the call store layout for ACLI data.

SECTION 231-045-490

WORD NO.	23	22	18	12	9	7	5	0
15	*	**		NDS			DAG	
16	*	SUR	†				DLG	

\* BIT 23 DOES NOT EXIST IN THE TRANSLATION WORD FOR NO.1 ESS.  
IT IS EQUAL TO 0 IN THE NO. 1A ESS.

\*\* CSMU

† AMUR

LEGEND:

- CSMU - CALL STORE MESSAGE UNIT ACCUMULATOR
- NDS - NUMBER OF DISPLAY STATIONS
- DAG - DATA ACCUMULATION GROUP
- AMUR - ACMOS MESSAGE UNIT REPORTING INDICATOR
- DLG - DATA LINK GROUP NUMBER
- SUR - SURCHARGE INDICATOR FOR OUTGOING DIAL 9 CALLS

Fig. 2—Partial Nonhunting MLG Common Block for Hotel/Motel Message Unit Reporting Feature

23	22	18	17	16	15	13	11	10	5	3	0
*	WRDN			DIRECTORY NUMBER							
*		LC W3		SL					OMAJ		LENCL1
*									CAT		LENCL2
*									CTXN		
*			HMR		CS DA						LENCL3

\* BIT 23 DOES NOT EXIST IN THE TRANSLATION WORD FOR NO.1 ESS.  
IT IS EQUAL TO 0 IN THE NO. 1A ESS.

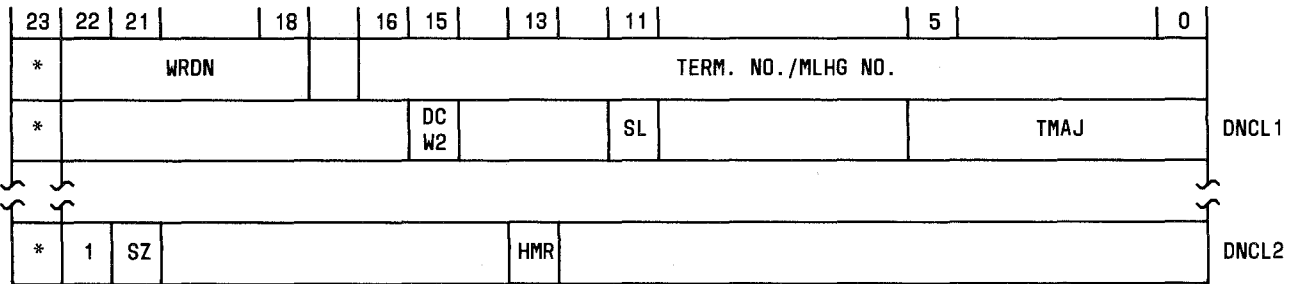
LEGEND:

- LCW3 - LEN CLASS 3 WORD REQUIRED = 1
- SL - SPECIAL LINE = 1
- OMAJ - ORIGINATING MAJOR CLASS
- CAT - CENTREX ASSESS TREATMENT CODE
- CTXN - CENTREX GROUP NUMBER
- CSDA - CALL STORE DATA ACCUMULATOR = 1
- HMR - HOTEL MESSAGE REGISTER = 0

NOTE:

LEN TRANSLATIONS MAY BE ABBREVIATED

Fig. 3—LEN Auxiliary Block for Hotel/Motel Message Unit Reporting Feature



\* BIT 23 DOES NOT EXIST IN THE TRANSLATION WORD FOR NO.1 ESS.  
IT IS EQUAL TO 0 IN NO. 1A ESS.

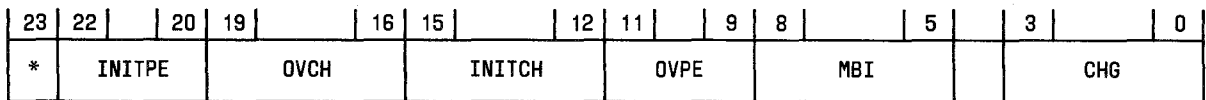
LEGEND:

- DCW2 - DN CLASS 2 WORD REQUIRED = 1
- SL - SPECIAL LINE = 1
- TMAJ - TERMINATING MAJOR CLASS
- SZ - SIZE
- HMR - HOTEL MESSAGE REGISTER = 0

NOTE:

DN TRANSLATIONS MAY BE ABBREVIATED

Fig. 4—DN Auxiliary Block for Hotel/Motel Message Unit Reporting Feature



\* BIT 23 DOES NOT EXIST IN THE TRANSLATION WORD FOR NO.1 ESS.  
IT IS EQUAL TO 0 IN NO. 1A ESS.

LEGEND:

- INITPE - INITIAL PERIOD
- OVCH - OVERTIME CHARGE
- INITCH - INITIAL CHARGE
- OVPE - OVERTIME PERIOD
- MBI - MESSAGE BILLING INDEX
- CHG - CHARGE TYPE

Fig. 5—Charge Index Expansion Table Word for Hotel/Motel Message Unit Reporting Feature

23	22		19	18	17	16		12		9		5	4		0
*	WRDN			†											
*	DTYP = 5		RESTR				SUB-SUBTYPE = 3			SUBTYPE = 22					
*	DN (OF MLHG WITH ACLI)														

\* BIT 23 DOES NOT EXIST IN THE TRANSLATION WORD FOR NO.1 ESS.  
IT IS EQUAL TO 0 IN NO. 1A ESS.

† ACOF (= 0)

Fig. 6—Digit Interpreter Auxiliary Block for the ACLI Feature

WORD 16	23		17		7		0
*	†			DLG			

\* BIT 23 DOES NOT EXIST IN THE TRANSLATION WORD FOR NO.1 ESS.  
IT IS EQUAL TO 0 IN THE NO. 1A ESS.

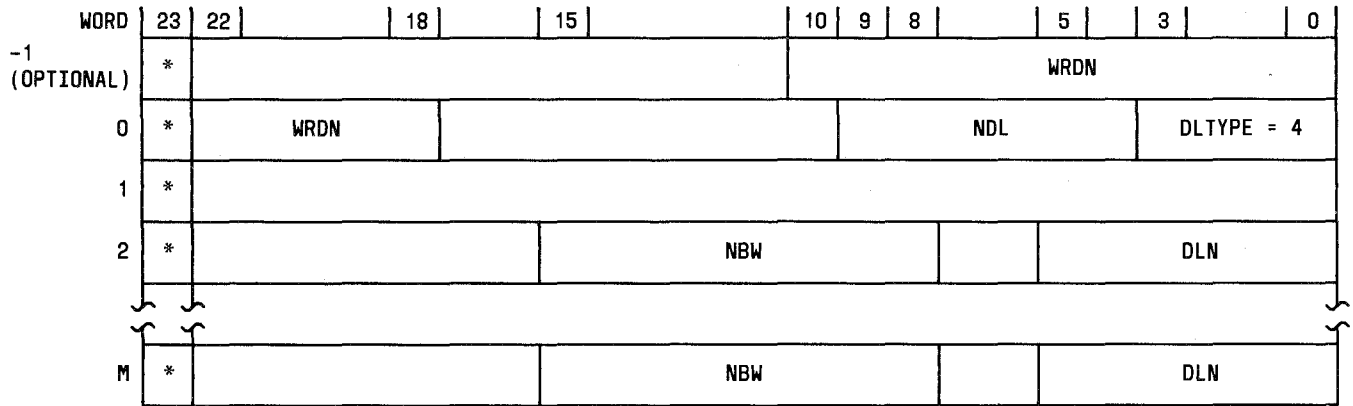
† ACLI (= 1)

NOTE:

DLG NUMBER IS THE SAME AS IN THE MLG  
COMMON BLOCK FOR THE HOTEL/MOTEL FEATURE

Fig. 7—Partial MLHG Common Block for the ACLI Feature





\* BIT 23 DOES NOT EXIST IN THE TRANSLATION WORD FOR NO.1 ESS.  
IT IS EQUAL TO 0 IN THE NO. 1A ESS.

NOTE:  
WORD-1 IS USED IF THE NUMBER OF WORDS IN THE AUXILIARY  
BLOCK IS GREATER THAN 31.

LEGEND:  
WRDN - NO. OF WORDS IN AUXILIARY BLOCK  
DLTYPE - TYPE OF TERMINATION ASSIGNED TO A  
DATA LINK CIRCUIT  
NDL - NUMBER OF DATA LINK CIRCUITS ASSIGNED  
TO THE DATA LINK GROUP  
NBW - NUMBER OF BUFFER WORDS  
DLN - DATA LINK CIRCUIT NUMBER

Fig. 8—Partial Data Link Group Auxiliary Block

WORD	23	19	18	16	15	14	13	8	7	0
0	*	WRDN = 8		QUAN = 2			CPDN			
1	*	QUAN = 1 OR 3		†	MSN-SUP					
2	*	QUAN = 31		MSN-DIR						
3	*	QUAN = 2		MSN-FAST						
4	*	QUAN = 1		MTDN						
5	*	DLTYPE = 4						DLG		
6	*					DAG				
7	*									

† NCC(=1)

\* BIT 23 DOES NOT EXIST IN THE TRANSLATION WORD FOR NO. 1 ESS. IT IS EQUAL TO 0 IN THE NO. 1A ESS

LEGEND:

- WRDN - NUMBER OF WORDS IN AUXILIARY BLOCK
- QUAN - QUANTITY
- CPDN - CENTRAL PULSE DISTRIBUTOR NUMBER
- MSN - MASTER SCANNER POINT
- SUP - SUPERVISORY
- DIR - DIRECTED
- MTDN - MISCELLANEOUS TRUNK SIGNAL DISTRIBUTOR NUMBER
- DLTYPE - DATA LINK TYPE
- DLG - DATA LINK GROUP NUMBER
- DAG - DATA ACCUMULATION GROUP
- NCC - NON-CONSOLE CONTROL UNIT

Fig. 9—Unit Type 29 Auxiliary Block

23	22	21	15	11	7	3	0
*	1	OPCODE = 2		01	02	03	
*	1	CONTINUE = 30	04	05	06	07	
*	1	CONTINUE = 30		AT1	AT2	AT3	
*	1	CONTINUE = 30		T1	T2	T3	
*	1	CONTINUE = 30	T4	T5	T6	T7	
*	1	END = 31			M1	M2	
*	1	CRC = 29	R1	R2	R3	R4	

\* BIT 23 DOES NOT EXIST IN CALL STORE DATA FOR NO. 1 ESS. IT IS EQUAL TO 0 IN THE NO. 1A ESS

LEGEND:

01-07 - ORIGINATING TELEPHONE NUMBER  
 AT1-AT3 - TERMINATING AREA CODE  
 T1-T7 - TERMINATING TELEPHONE NUMBER  
 M1, M2 - MESSAGE UNIT DATA (M1 IS THE MOST SIGNIFICANT DIGIT)  
 R1-R4 - CYCLIC REDUNDANCY CHECK RESULT

Fig. 10—Call Store Layout for Guest Line Data

23	22	21	15	11	7	3	0
*	1	OPCODE = 3	DTPE	01	02	03	
*	1	CONTINUE = 30	04	05	06	07	
*	1	END = 31		M1	M2	M3	
*	1	CRC = 29	R1	R2	R3	R4	

\* BIT 23 DOES NOT EXIST IN CALL STORE DATA FOR NO. 1 ESS. IT IS EQUAL TO 0 IN THE NO. 1A ESS

LEGEND:

DTPE - DATA TYPE (0 FOR BACKUP GUEST MESSAGE DATA, 1 FOR OVERTIME GUEST MESSAGE CHARGE)  
 01-07 - ORIGINATING TELEPHONE NUMBER  
 M1-M3 - MESSAGE UNIT DATA (M1 IS THE MOST SIGNIFICANT DIGIT)  
 R1-R4 - CYCLIC REDUNDANCY CHECK RESULT

Fig. 11—Call Store Layout for Guest Overtime Message Data or Backup Guest Message Data

23	22	21	15	11	7	3	0
*	1	OPCODE = 4	C1	C2	C3	C4	
*	1	CRC = 29	R1	R2	R3	R4	

\* BIT 23 DOES NOT EXIST IN CALL STORE DATA FOR NO. 1 ESS. IT IS EQUAL TO 0 IN NO. 1A ESS

LEGEND:

C1-C4 - COUNT OF NUMBER OF BACKUP MESSAGES SENT  
 R1-R4 - CYCLIC REDUNDANCY CHECK RESULT

Fig. 12—Call Store Layout for Number of Backup Messages Sent

23	22	21	15	11	7	3	0
*	1	OPCODE = 1		01	02	03	
*	1	CONTINUE = 30	04	05	06	07	
*	1	END = 31			P1	P2	
*	1	CRC = 29	R1	R2	R3	R4	

\* BIT 23 DOES NOT EXIST IN CALL STORE DATA FOR NO. 1 ESS. IT IS EQUAL TO 0 IN THE NO. 1A ESS

LEGEND:

01-07 - ORIGINATING TELEPHONE NUMBER  
 P1-P2 - CUSTOMER COMPUTER PORT NUMBER  
 R1-R4 - CYCLIC REDUNDANCY CHECK RESULT

Fig. 13—Call Store Layout for ACLI Data

4. PROGRAM FUNCTIONAL DESCRIPTION

A. Customer Message Outputting Subroutines (CMOS)

4.01 The CMOS program is made up of six routine segments:

- (a) Hotel/Motel Message Unit Initial Charging
- (b) Hotel/Motel Message Unit Overtime Charging
- (c) Block Data Outputting
- (d) Identify Calling Extension
- (e) Prevent Ring Retry

(f) CMCR—CRC Error Detected

4.02 The GLOBAL entry point for segment (a) in 4.01 is referenced as CMOSIC. The global entry point for segment (b) in 4.01 is referenced as CMOSOC. Figure 14 is the flow diagram for segments (a) and (b).

4.03 When a guest line goes off-hook, a LEN translation is performed to identify the originating line directory number (DN); line equipment number class LENCL1, LENCL2, LENCL3; centrex group number (CTXN); and other optional data from an LEN auxiliary block or abbreviated centrex words. The LENCL1 word is checked to see if the special line (SL) item is set to 1. (If the SL item equals 0, normal call processing is continued.)

The LENCL3 word is checked to see if the call store data (CSDA) item is set to 1. (If it is, hotel/motel message unit reporting is indicated.) If the CSDA item is a 1, a DN translation is performed to determine the nonhunt MLG DAG features associated with this line. If the CSMU option is indicated, the hotel/motel item is set in the originating register and the dialed digits are collected. The CTXN obtained from the LEN translation is used to locate the centrex group common block of the originating line group. The centrex common block and the associated centrex digit interpreter tables indicate business customer group features and dial access features (eg, dial 9 and 1-digit dialing).

**4.04** A DN translation is performed, using the collected digits, to obtain the called line's routing. If the call is a message unit call, a hotel/motel call register is seized. The charge type item in the charge index expansion table word is set for detailed billing; as a result, a 13-word AMA register is seized. The calling DN is then placed in the hotel/motel register, and the call is processed.

**4.05** Upon answer, the hotel/motel register is checked to see if it indicates the electronic message register option. If it does, a DN translation is performed using the originating line's DN and yields the MLG number and the terminal number for that line. The MLG number is used to index into the MLG head table to select the originating line MLG common block. The MLG common block provides the DAG number. Each line which has the same data group, as specified by the DAG number, has a unique member number, ie, the MLG terminal number (TERM).

**4.06** When the MLG common block indicates the ACMOS option (the AMUR item equals 1) and the data path to the customer is in service, the data link message is formatted as shown in Fig. 10 and stored in temporary call store. Control is then passed to the data link input/output program which transmits the data to the customer premises over the centrex data link-91A CPS data concentrator path. If overtime charging is to be done, the message shown in Fig. 11 is transmitted at the beginning of each overtime period giving the overtime message units. Figure 15 is a block diagram of the transmission path to the customer computer. See reference (c) in Part 6 for details on data link input/output.

**4.07** If the data link is maintenance busy, indicating an equipment failure in the path, the data is not formatted for transmission and the part of the data containing the message units is stored in dedicated call store. This is done for all guest dial 9 calls while the transmission path is inoperable. Up to 999 message units may be accumulated for each guest extension. If the number of message units exceeds 999, the count is recycled to zero.

**4.08** When the transmission path becomes operable again (data link not maintenance busy), the data which was saved for one guest extension is formatted as shown in Fig. 11 and stored in temporary call store. Control is passed to the data link input/output program, which transmits the data to the customer and returns control to the CMOS program. This procedure is repeated until all saved data has been transmitted. The saved data for each guest extension is erased from dedicated call store when it is formatted for transmission to the customer. After the last of the saved data has been transmitted, the message shown in Fig. 12 is transmitted, giving the count of the number of backup messages sent (one per guest line for which data was saved).

**4.09** The DGLOBAL (deferred) entry point for segment (c) of 4.01 is referenced as CMOS BK. This segment has the function of outputting the backup message data to the customer. See Fig. 16 for the backup data transmission flow diagram.

**4.10** Segment (c) of 4.01 is entered from and exits to the DLLD program which is part of the data link input/output feature. See reference (c) in Part 6.

**4.11** The DGLOBAL entry point for segment (d) of 4.01 is referenced as CMOS\_CI. This segment is entered from the CXOR program and its purpose is to identify the calling centrex extension to the called centrex extension. See Fig. 17.

**4.12** When a hotel/motel line which is not restricted from using the ACLI feature dials the appropriate access code, the centrex digit interpreter translations indicate that the calling number and terminating computer port number should be output over the centrex data link-91A CPS data concentrator path. The digit interpreter auxiliary block (Fig. 6) contains the DN of the MLHG with the ACLI feature. The terminal numbers for the MLHG are

equal to the computer port numbers. If no idle terminal is found, busy tone is returned to the originating line.

**4.13** If an idle terminal is found, the originating telephone number and computer port number (terminal number) are formatted as shown in Fig. 13 and stored in temporary call store. Control is then passed to the data link input/output program, which transmits the data to the customer computer. Upon successful transmission, the computer has the calling number and the port number over which it will receive data.

**4.14** The system places the call on timing for 3 to 4 seconds, then treats the call as if a normal intraoffice idle line had been dialed. This delay is necessary to ensure that the transmitted data reaches the customer computer before the terminating line is rung. After the connection to the computer is made, the hotel/motel employee inputs TOUCH-TONE® information to the customer computer over an intraoffice talking path to the customer premises. The customer must have a data set (or other equipment) per port to convert the TOUCH-TONE information to a form which the customer computer can accept.

**4.15** The global entry point for segment (e) in 4.01 is referenced as CMOS\_NR. This segment inhibits retry ringing on ACMOS calling line identification groups. This is used to avoid the requirement of excessive delays in the setup of ringing. ACLI calls must be delayed 3 to 4 seconds before ringing to ensure that the correct identification message is received by the customer device.

**4.16** The DGLOBAL entry point for segment (f) in 4.01 is referenced as CMCRCE. This segment is entered from the CXKY program and its function is to count the number of cyclic redundancy check (CRC) errors detected.

**4.17** This count is stored in the location associated with the highest display station (NDS) if this display station is equipped. If all of the display stations are equipped, no count is kept.

#### **B. PIDENTs Affected by CMOS**

**4.18** The ACMOS feature interacts with the inquiry response (IRES) and data link input/output response (IRS) and data link input/output (DLIO)

feature packages. Figure 18 shows the particular PIDENT of these packages that are affected by CMOS as well as a list of the common generic PIDENTs with which CMOS interacts.

**4.19** The following PIDENTs/segments within the IRES feature package interact with the ACMOS feature and perform the functions indicated.

- (a) IRAC—Check for ACMOS feature
- (b) IRBA—Update DAG headcell
- (c) RING (IRES segment)—Send new I/O messages on MLG retry
- (d) TRML—Fetch DLG, MLG, and hunt list LEN numbers.

**4.20** The following PIDENTs within the DLIO feature package interact with the ACMOS feature and perform the functions indicated:

- (a) CXKY—Routes input data link orders to the routine that processes ACMOS error messages.
- (b) CXMC—Maintenance control for data links.
- (c) CXMS—Maintenance control for data links.
- (d) DLLD—Buffer, block loading
- (e) SAIO—Builds (audits) call store output buffers and related pointers, and verifies integrity.

**4.21** The following common generic PIDENTs interact with the ACMOS feature and perform the functions indicated:

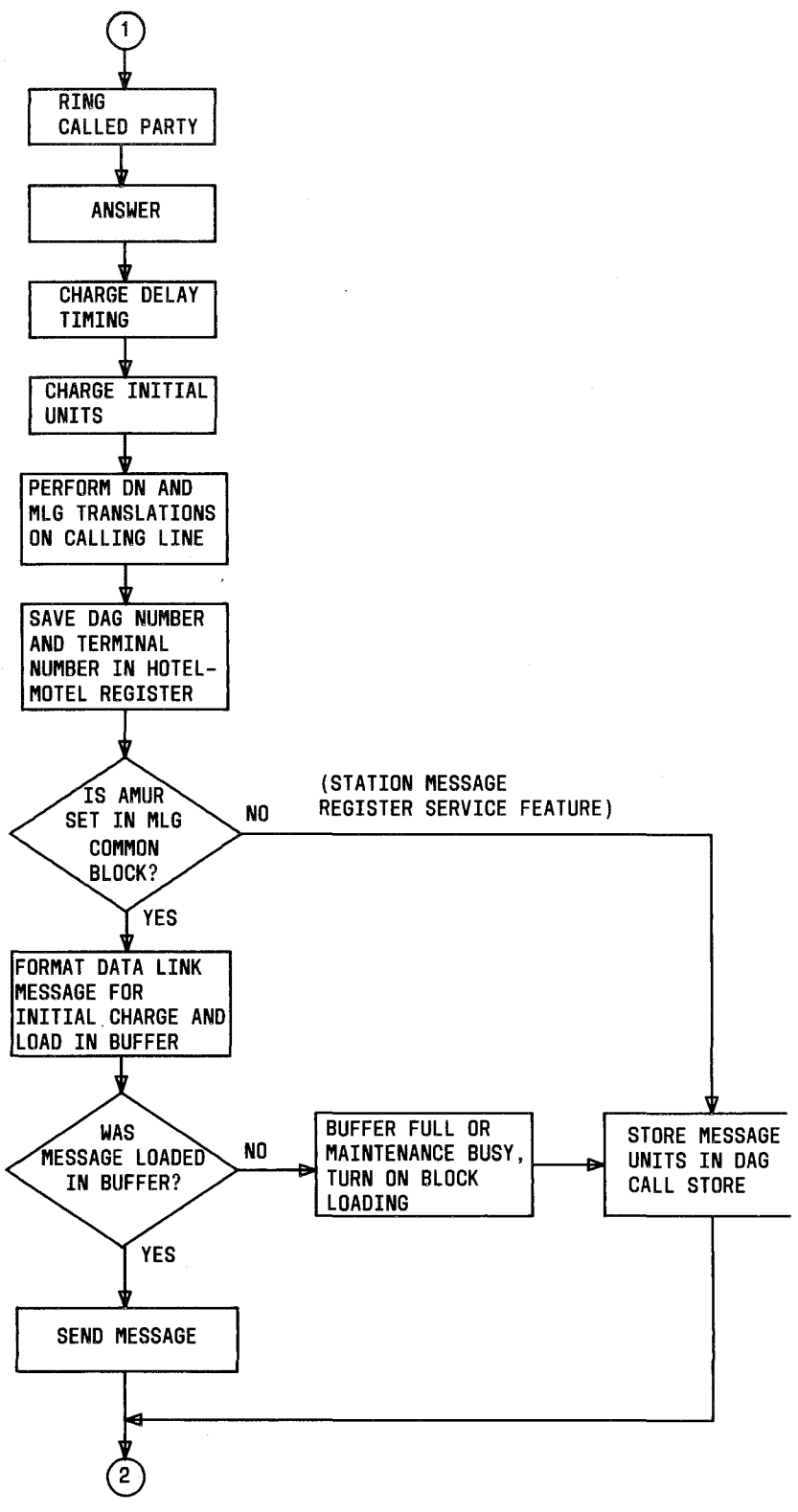
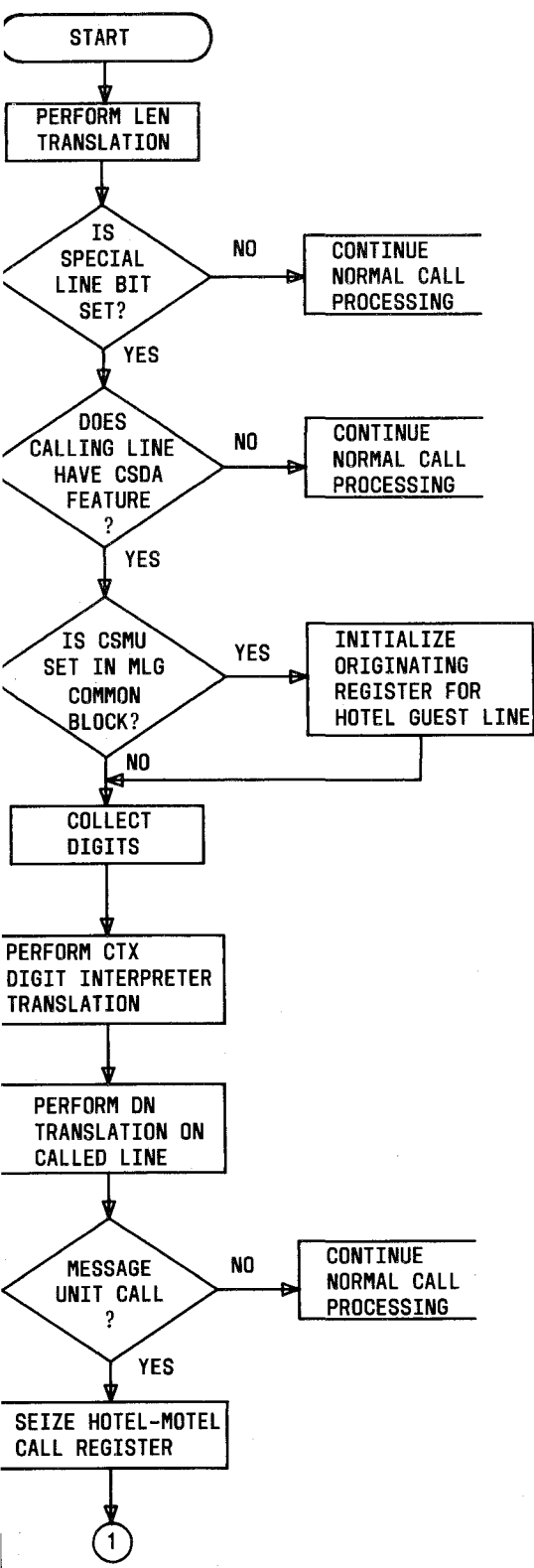
- (a) COPR—Unlink call register
- (b) CXOR—Give busy message
- (c) HMTL—Release register no overtime charging (AMA).
- (d) ORDL—Check ADD ON, give reorder
- (e) SARG—Audit dump
- (f) TRBD—Conversions
- (g) TRBL—DN centrex translations

(h) TRCD—Centrex access code

(j) YAHA—Fetch, release OR

(i) TVBL—Verify

(k) YTTO—Apply audible and supscan.





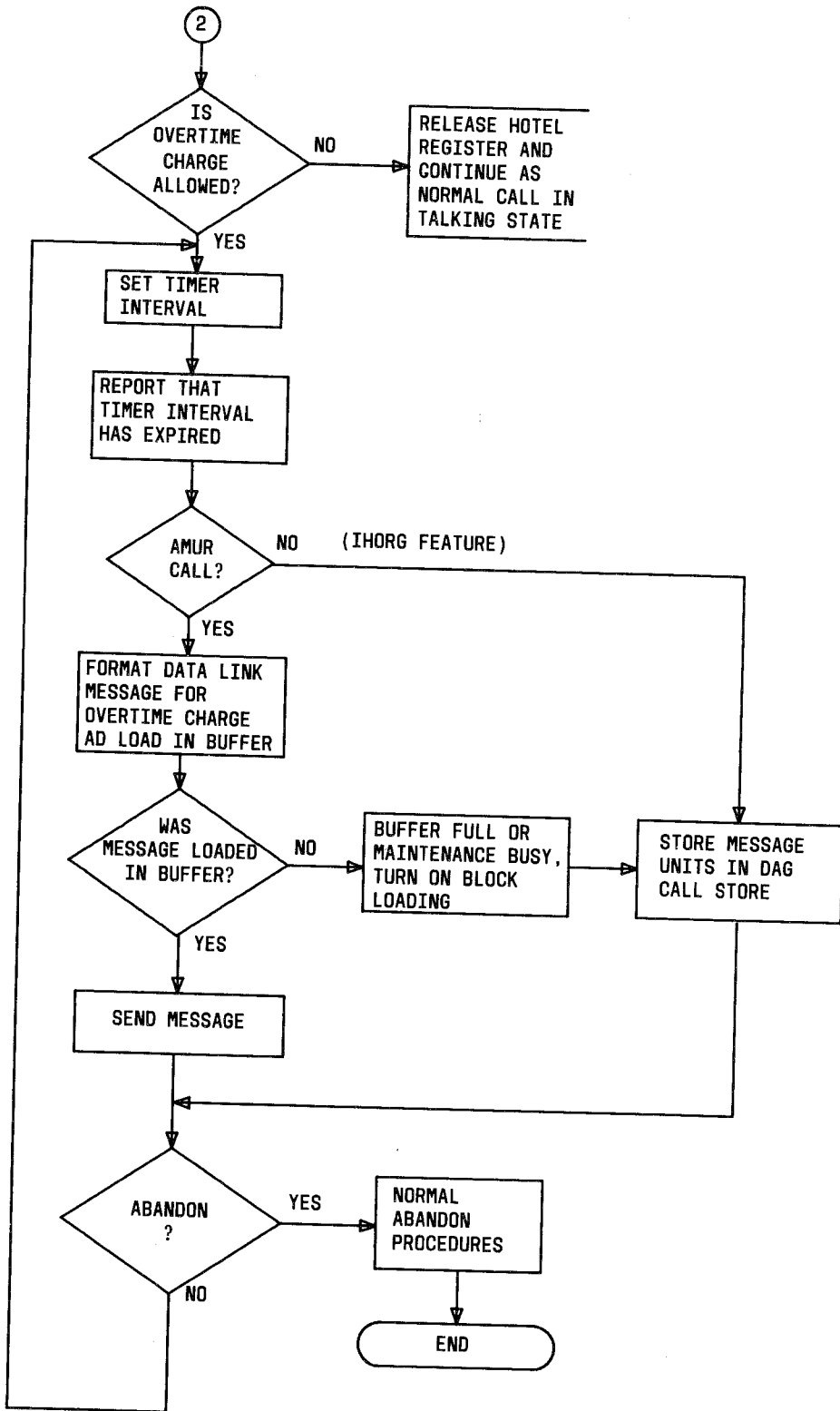


Fig. 14—Hotel Guest Line Message Unit Call (AMUR) Flow Diagram

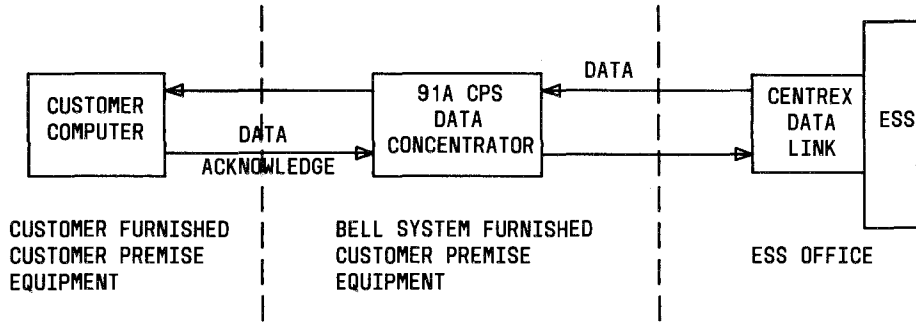
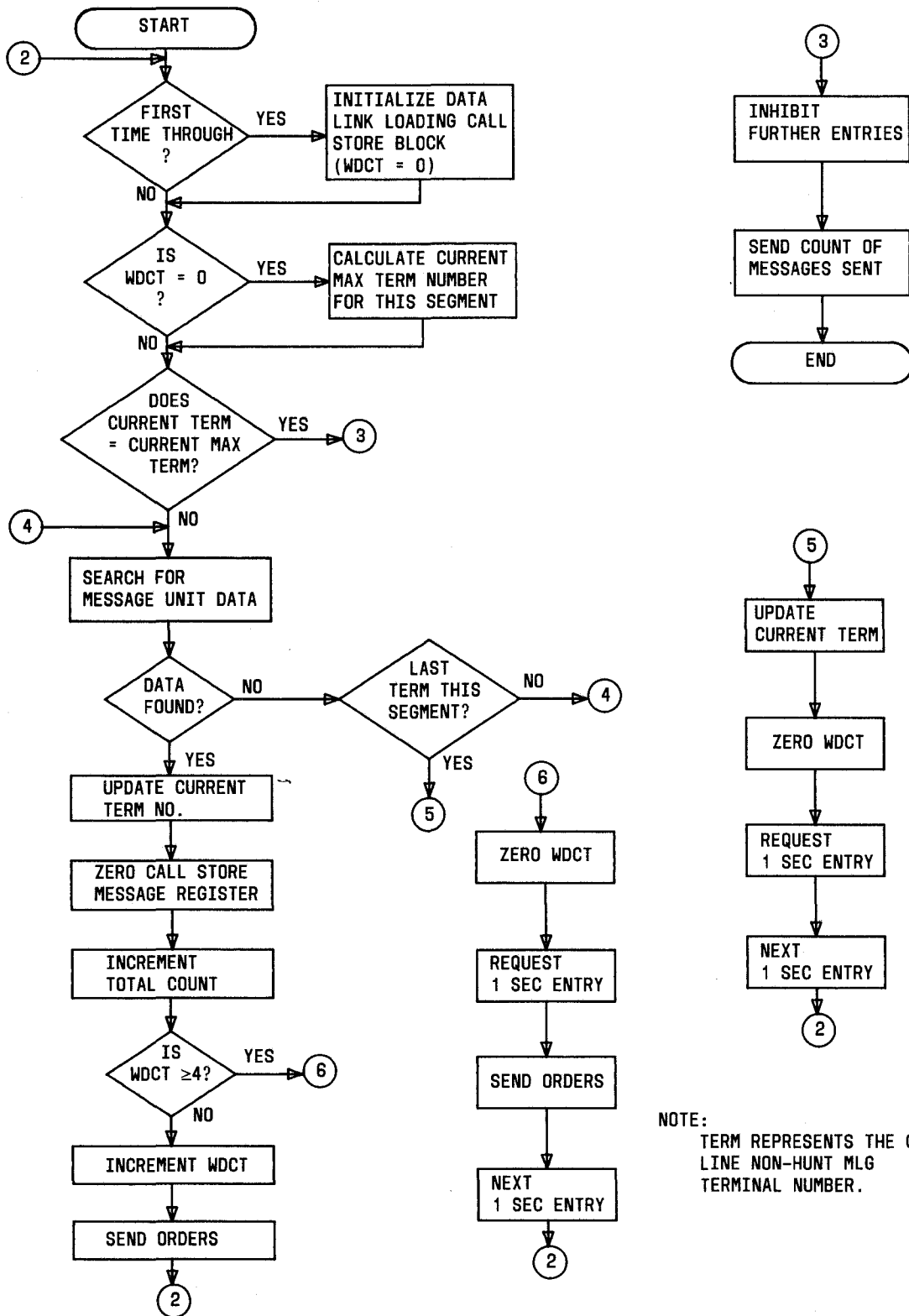


Fig. 15—Block Diagram of the Hotel/Motel Message Unit Feature Data Link



NOTE:  
 TERM REPRESENTS THE GUEST  
 LINE NON-HUNT MLG  
 TERMINAL NUMBER.

Fig. 16—Backup Data Transmission Flow Diagram

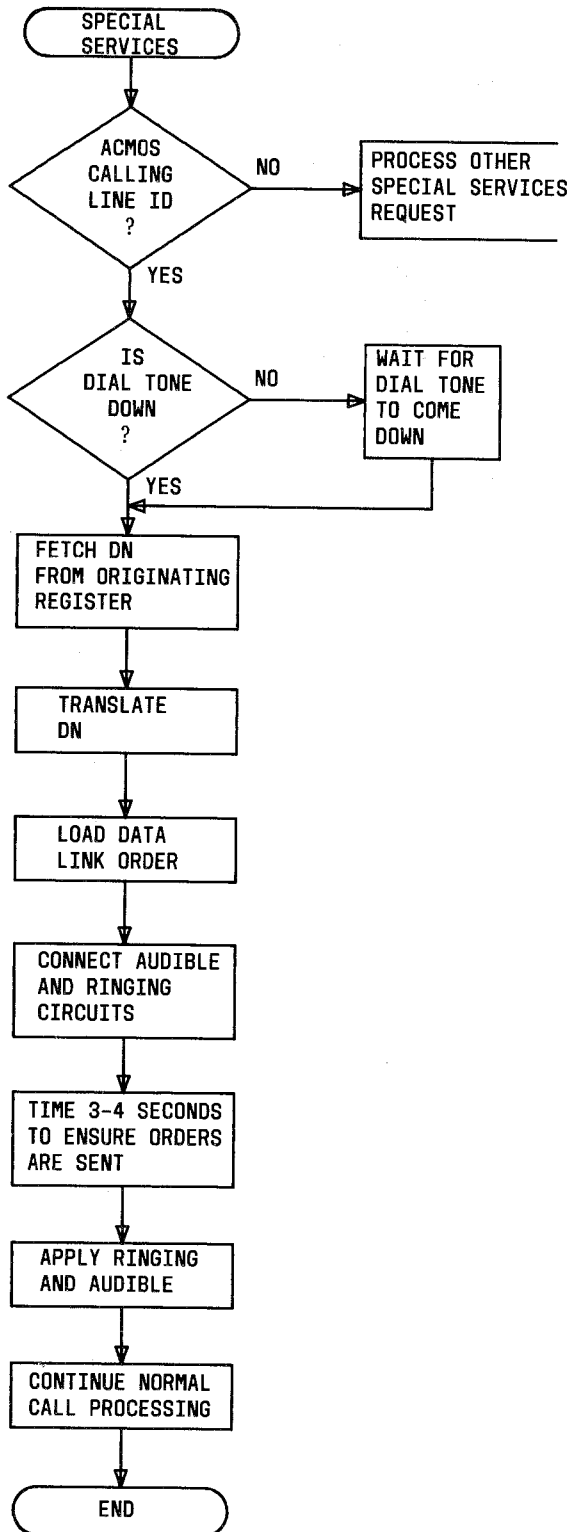


Fig. 17—Calling Line Identification (ALCI) Flow Diagram

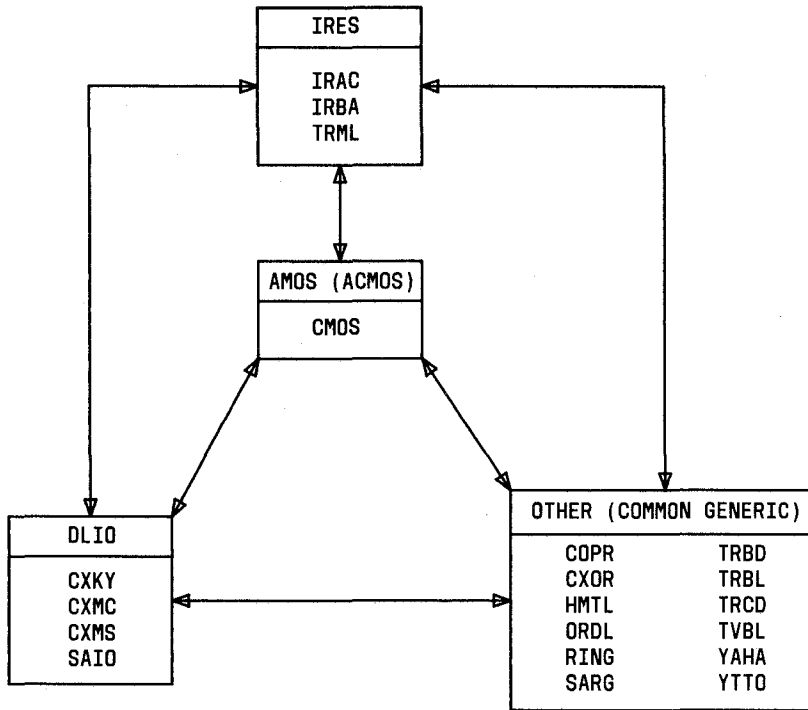


Fig. 18—PIDENTs Interacting With CMOS

5. ABBREVIATIONS AND ACRONYMS

ACLI	ACMOS Calling Line Identification	DAG	Data Accumulation Group
ACMOS	Automatic Customer Message Outputting System	DLG	Data Link Group
AMA	Automatic Message Accounting	DLIO	Data Link Input/Output
AMUR	ACMOS Message Unit Reporting	DLN	Data Link Circuit Number
CAT	Centrex Access Treatment	DN	Directory Number
CMOS	Customer Message Outputting Subroutines	ESS	Electronic Switching System
CPS	Customer Premises System	HMMUR	Hotel/Motel Message Unit Register
CRC	Cyclic Redundancy Check	IHORG	Improved Hotel/Motel Register
CSDA	Call Store Data Accumulator	IRES	Inquiry Response System
CSMU	Call Store Message Unit	LEN	Line Equipment Number
CTX	Centrex	LENCL	LEN Class
CTXN	Centrex Number	MLG	Multiline Group
		MLHG	Multiline Hunt Group

NDS            Number of Display Stations  
 OR            Originating Register  
 SMRS          Station Message Register Service  
 TMAJ          Terminating Major Class  
 WDCT          Word Count

#### 6. REFERENCES

(a) Section 231-090-280—Feature Document—  
 Hotel/Motel Service Feature—2-Wire No. 1  
 and No. 1A Electronic Switching Systems

(b) Section 231-090-402—Feature Document—Station  
 Message Register Service—2-Wire No. 1  
 and No. 1A Electronic Switching Systems

(c) Section 231-090-412—Feature Document—Basic  
 Data Link Input/Output Control—2-Wire  
 No. 1 and No. 1A Electronic Switching Systems

(d) Section 231-090-419—Feature Document—  
 Interface with Property Management System  
 Feature—2-Wire No. 1 and 1A Electronic Switching  
 Systems

(e) Section 231-190-402—Feature Document—  
 Improved Hotel/Motel Register Feature—2-Wire  
 No. 1 and 1A Electronic Switching Systems