FEATURE DOCUMENT

INTERFACE WITH ACD-ESS MANAGEMENT

INFORMATION SYSTEM FEATURE

2-WIRE NO. 1 AND NO. 1A ELECTRONIC SWITCHING SYSTEMS

CONTENTS   PAGE

INTRODUCTION

1. GENERAL INFORMATION

SCOPE

1.01   *The Interface With Automatic Call Distribution (ACD)-Electronic Switching System (ESS) Management Information System (AEMIS)* feature provides the ESS with the capability to operate with a customer premises located Management Information System (MIS) which is part of the Phase 2 premises ACD-ESS.

REASON FOR REISSUE

1.02   This document has been reissued to incorporate additional AEMIS capabilities provided with the ACD Phase 2 (ACD2) Agent Log-In feature. Since this reissue is a general revision which involves conversion to the standard 18-part format, no revision arrows have been used to denote significant changes.

1.03   The Interface With AEMIS feature is available with the 1E4 and later generic programs for No. 1 ESS and with 1AE4 and later generic programs for No. 1A ESS. With the 1E7 and later generic programs for No. 1 ESS and the 1AE6 and later generic programs for No. 1A ESS, the optional ACD2 Agent Log-In feature provides the following AEMIS capabilities.

- Log-in exception reports

- Daily agent performance summary

- Tape output of MIS data.

1.04   The Interface With AEMIS feature is optionally loadable and requires the following feature groups:

- ACD2

- Data Link Input/Output (DLIO)

- Inquiry Response System (IRES).

2. DEFINITION/BACKGROUND

DEFINITION

2.01   The Interface With AEMIS feature provides (1) minicomputer analysis of agent/traffic data to produce detailed agent/traffic information, performance calculations, summarized past history, and short term forecasts to the ACD manager and (2) the ability for the ACD manager, acting on this data, to reconfigure the ACD system.

BACKGROUND

2.02   Via a cathode ray tube (CRT) and optional printer associated with the minicomputer, the Interface With AEMIS feature provides a variety of reports which may be tailored to the customer's needs. The reports can be demanded immediately, displayed automatically by the occurrence of some predefined event(s), or regularly scheduled by time of day and day of week. Reports are available in the following four categories:

(a)   Real time agent/traffic status and performance calculations

(b)   Summarized past history

(c)   Forecast reports (up to one month in advance) used to predict staffing requirements

(d)   Exception reports which bring significant operation-affecting data to the user's attention automatically.

2.03   The AEMIS minicomputer, located on the customer's premises, communicates with ESS via

one or more centrex data links. This communication is bidirectional. The ESS supplies the AEMIS mini-computer with translation data and agent/traffic data; whereas, the AEMIS minicomputer supplies ESS with customer requests for reconfiguring the agent consoles, establishing night directory numbers (DNs), changing intra/interflow trigger values, and changing translation data. In this manner, the AEMIS minicomputer supports the customer in closing the control loop on the ACD.

2.04 All communication between the ESS and the AEMIS minicomputer is over the centrex data links; therefore, the Basic Data Link Input/Output Control feature is a prerequisite for the Interface With AEMIS feature [refer to reference A(14) in Part 18].

2.05 System configuration and control requires the IRES feature; therefore, the IRES feature is a prerequisite for the Interface With AEMIS feature [refer to reference A(15) in Part 18].

DESCRIPTION

3. USER OPERATION

CUSTOMER

3.01 The call-carrying facilities, agents, and queues for an ACD can be logically grouped so that information sent from the ESS to the minicomputer can be accumulated on a group basis. The accumulation of this data enables the creation of dynamic traffic displays and reports. Traffic displays and reports may be scheduled for output to a CRT terminal at specified times or may be demanded for immediate output. Refer to references A(31) and (32) in Part 18 for the dynamic traffic data display and report creation capability of AEMIS.

3.02 The output of the AEMIS is available on black and white or color CRT terminals and hard copy devices. Refer to Fig. 1 for a diagram of the MIS.

3.03 Two classes of messages may be generated by the customer at the CRT associated with the AEMIS minicomputer and transmitted to ESS for processing. The first class of messages, "interrogation," enables the AEMIS minicomputer to keep its translation data accurate and up to date with respect to the ESS machine. These messages may be manually or automatically originated. The second class of

messages, "reconfiguration" control, are customer-originated requests to alter the parameters controlling the routing of traffic through the ACD.

A. Interrogation Messages

Initialization and Call Store Configuration

3.04 Once a day, at a time specified by the customer, the AEMIS minicomputer will automatically request an initialization and a call store configuration.

3.05 Customer-originated requests, via the AEMIS minicomputer, are also honored by the ESS. Because of the large quantity of translation data sent on an initialization request, the customer may choose to request subsets of the total translation data base. Data link orders generated by any interrogation request are interspersed with data link orders for state changes. Refer to reference A(32) in Part 18 for customer interface with AEMIS.

3.06 Customer-originated requests may be made at any time subject to the restrictions described in the functions specified in (a) through (c) below. Refer to Fig. 2 for data link message formats.

(a) When initialization is requested automatically or by the customer via the AEMIS minicomputer, the ESS supplies a copy of the current program store data, including any recent change data. In order to expedite the initialization process 20 data link orders will be loaded at each 1-second entry to the initialization program. Because of the quantity of orders being sent as a result of the initialization request, the rate at which call processing data link orders are sent to the AEMIS minicomputer is reduced.

(b) Initialization occurs only on demand by the customer or the AEMIS minicomputer. Initialization requests are generated for the AEMIS minicomputer for two main reasons. The first is to supply translation information to the AEMIS minicomputer data base when a malfunction occurs and during initial system checkout. The second is to enable the AEMIS minicomputer to keep track of translation changes caused by recent changes put in by the customer or telephone company.

(c) In addition, when an initialization request has been made and successfully performed, the

ESS   OUTSIDE PLANT   COMPUTER ROOM   TERMINAL ROOM

CTX DATA
LINK(S)

AEMIS BUFFER AND
MULTIPLEXER
(INCLUDES THE
J59207C CABINET)

ADM-2
LEAR SIEGLER
CRT TERMINAL*

DEC DR11-C
GENERAL PURPOSE
INTERFACE

DEC
PDP11/45DW
COMPUTER

DEC
DH11-AD
16 LINE
MXR
W/MC

M25A   DEC H312A
NULL MODEM

2640B
HEWLETT PACKARD
CRT TERMINAL*

M25A   DEC H312A
NULL MODEM

M25A   DEC H312A
NULL MODEM

M25A   103A2
DATA SET

8001
INTELLIGENT
SYSTEMS CRT
TERMINAL*

804B
CALLING UNIT

LA36
INTERFACE

PDP11
LINE PRINTER
CONTROLLER

LA36
DEC WRITER
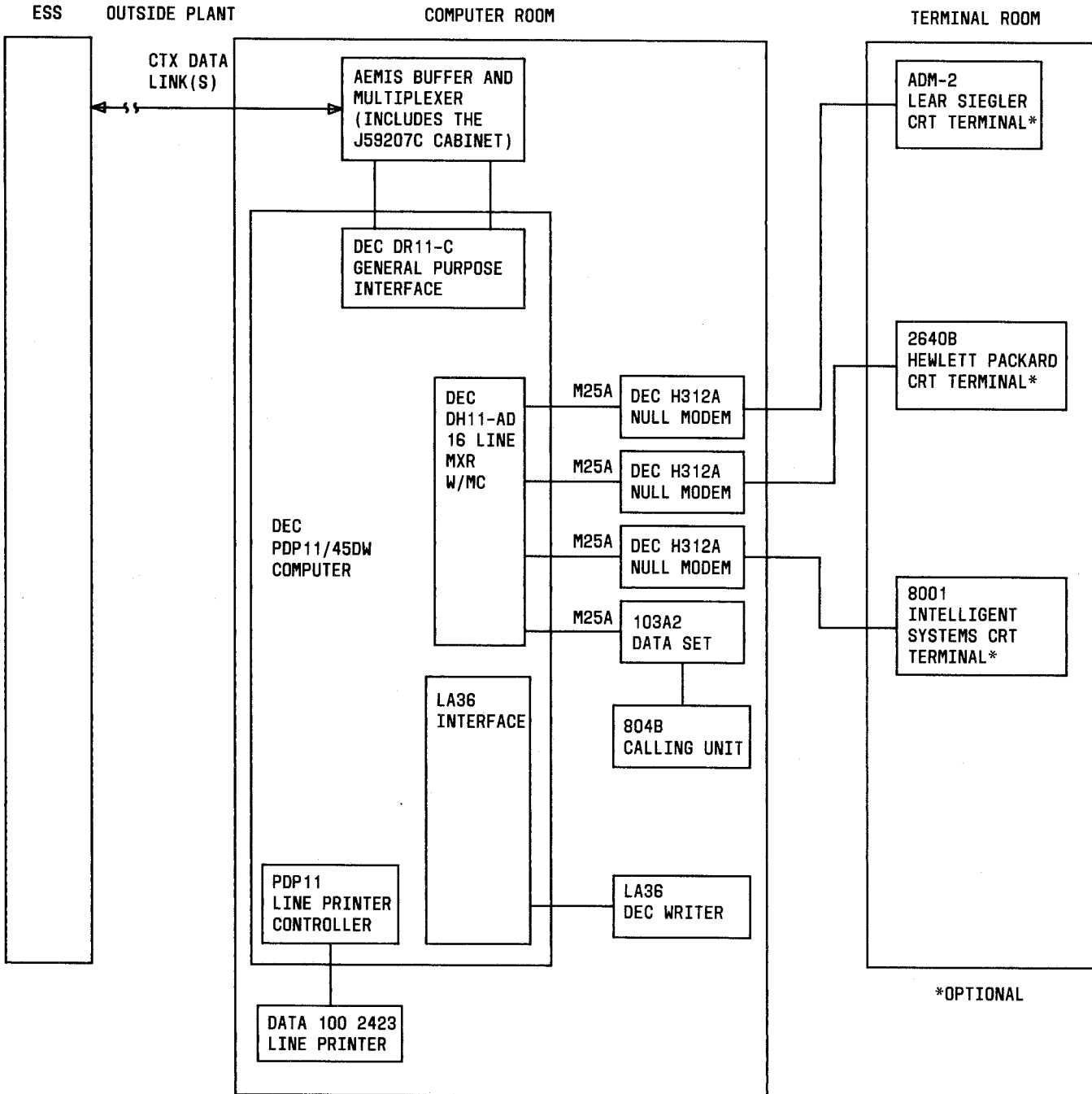
DATA 100 2423
LINE PRINTER

*OPTIONAL

Fig. 1—Management Information System—Block Diagram

AEMIS minicomputer always generates a request for a call store configuration.

Program Store Refresh

3.07 The data content of the program store refresh function is identical to that of initialization; the only difference is that only ten data link orders will be loaded at each 1-second entry to the program handling the AEMIS request. This reduced data link occupancy would allow the system to send more call processing data over the link. However, since the customer cannot really distinguish a difference between the two, the ability to request this function has not been implemented in the minicomputer.

B. Reconfiguration Control Messages

3.08 The customer has several controls over the ACD traffic flow via the AEMIS minicomputer. These reconfiguration control request messages are detailed in reference A(15) in Part 18. These messages allow the customer to modify the current call store data as follows:

(a) *Change Alternate Routing Queue Thresholds:* The three queue thresholds which the customer is allowed to change are the *inflow,* the *primary outflow,* and the *secondary outflow.* The customer may change any of these thresholds via the AEMIS minicomputer requests to the ESS. The inflow threshold must be less than or equal to the outflow thresholds or the request will be denied. The primary outflow

INTERROGATION REQUESTS

23	22	21	20	19	18	17	16	15 12	11	10 0
EP	0	0	1	0	1	0	0	REQUEST	B	DATA FOR THE REQUEST
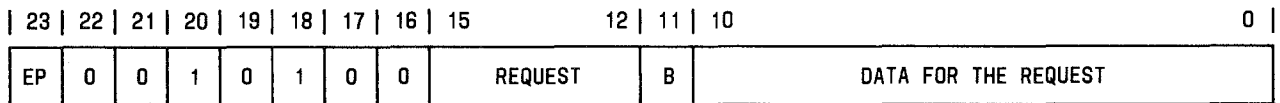
WHERE:
```
    B(IT) 0 = NO DATA FOR REQUEST
          1 = DATA FOR REQUEST
```

IF THE DATA FOR REQUEST FIELD CONSISTS OF ALL ZEROES "0", THEN ALL DATA ASSOCIATED WITH THAT REQUEST WILL BE SENT TO THE MIS. (I.E. REQUEST OPCODE = "1001", DATA FIELD A "00000000000", AND B(IT) = 0 IMPLIES THAT ALL THE TRUNK GROUP NUMBERS AND THEIR MEMBER TNN'S WILL BE SENT TO THE MIS.)

REQUEST OPCODE	TYPE OF REQUEST	DATA FOR REQUEST
0001	INITIALIZATION	–
0010	TIME OF DAY	–
0011	TRUNK STATUS (NOTE)	–
0100	CALL STORE CONFIGURATION	–
0101	PROGRAM STORE REFRESH (NOTE)	–
0110	–	–
0111	–	–
1000	–	–
1001	TRUNK GROUP(S)	TRUNK GROUP NO.
1010	LCP(S)	LCP NUMBER
1011	SIMULATED FACILITY GROUP(S)	SIM FAC GRP NO.
1100	TERMINAL TO EXTENSION	–
1101	QUEUE(S)	QUEUE NUMBER
1110	–	–
1111	–	–

NOTE: NOT CURRENTLY IMPLEMENTED IN AEMIS

Fig. 2—AEMIS Data Link Message Format (AEMIS to ESS)

threshold must be less than or equal to the secondary outflow threshold or the request will be denied. These requests must contain a queue DN and a new threshold value.

(b) **Invoke Load Compensating Package (LCP):** This request allows the customer to change the current (LCP) or functional group (FG) pattern. The data required for this request is the new LCP number.

(c) **Agent(s) to FG Reassignment:** This request allows the customer to move one or more agents from one FG to another. The data required by ESS is a new FG number and the extension number or extension number range associated with the agent(s) to be moved.

(d) **Change Night Transfer DN:** This request allows the customer to implement a remote night transfer DN. The required data for ESS is the base night transfer DN and a remote night transfer DN. This change affects all queues associated with the base night transfer DN.

(e) **Restore Base Night Transfer DN:** This request allows the customer to cancel the current remote night transfer DN and to restore the base night transfer DN. This change affects all queues associated with the base night transfer DN sent.

3.09 When the reconfiguration changes are implemented in ESS call store data, the AEMIS minicomputer will receive an acknowledgment message which verifies the completion of the reconfiguration request. The customer is restricted to waiting until the AEMIS minicomputer has received either an **error on request** message or an **acknowledgment** message from ESS before submitting another request.

Call Processing Messages

3.10 To produce the reports and traffic displays for individual groups of agents it is necessary for the ESS to transmit to AEMIS all state changes of the customer's terminals or customer's facilities. Specifically, the ESS will send messages to AEMIS when the events listed below occur. The data link message formats are listed in Section 3 of Fig. 3.

(a) **Terminal State Messages:** A terminal state message is sent to AEMIS to reflect a change in any of the following terminal states.

- Auxiliary work key state

- Position occupied state

- Incoming extension state

- Tip and ring state

- Terminal make-busy ferrod state.

(b) **Event Messages:** An event message is sent to AEMIS when any of the following keys are operated on the agent console:

- Alert key

- Assist key

- Report trouble key

- Direct call keys (one through four)

- Supervisor key.

(c) **Station Add-On Message:** A station add-on message is sent to AEMIS when a station within the ACD adds on another station.

(d) **Facility Event Messages:** A facility may be either a dedicated ACD-ESS trunk or a simulated facility. A facility event message is sent to AEMIS when any of the following events occur:

- The facility is seized. (This message is sent when a trunk or simulated facility is seized with the exception of a seizure for the receiver attachment delay report [RADR] tests.)

- The facility is put on ACD queue.

- The facility is removed from an ACD queue.

- The facility is connected to an ACD customer.

- The facility is idled (either from a traffic busy or maintenance busy state or following a RADR seizure).

(e) **Simulated Facilities or Dedicated Trunk Overflow Messages:** A simulated facilities message is sent to AEMIS when the number of simulated facilities available to the ACD is

overflowed. A dedicated trunk overflow message is sent to AEMIS when the dedicated trunk group is overflowed in the outgoing direction.

(f) **Queue Overflow Message:** A queue overflow message is sent to AEMIS when the queue for a particular FG is overflowed.

(g) **Trunk Make-Busy or Carrier Group Alarm Messages:** A trunk make-busy message is sent to AEMIS when a trunk make-busy key is operated for a dedicated ACD-ESS trunk. A carrier group alarm message is sent to AEMIS whenever a carrier group alarm is activated for a dedicated ACD-ESS trunk.

(h) **Trunk Maintenance Messages:** Trunk maintenance messages are sent to AEMIS when dedicated trunks are put in the following states as a result of call processing or maintenance actions from the maintenance teletypewriter (TTY) or trunk and line test panel.

- The trunk is disabled.

- The trunk is made high and wet (thaw).

- The trunk is locked out.

- The trunk is made active.

(i) **Optional Agent Log-In Messages:** Agent Log-In messages are sent to AEMIS when an agent logs in and also when an agent logs out. When an agent logs in, the message contains the agent identification (ID) and the console number. When an agent logs out, the message contains only the console number.

TELEPHONE COMPANY

3.11 With an AEMIS installation, it is the responsibility of the telephone company to maintain the AEMIS minicomputer should a malfunction occur. This requires that the maintenance person on customer premises be able to communicate with a maintenance person in the central office (CO) or with someone who has access to a TTY associated with the particular ESS. With this arrangement, the data link can be removed from service upon request by typing in an appropriate TTY message on either the local or remote maintenance channel. Removing the data link from service is the only method of stopping commu-

nication between the ESS and the AEMIS minicomputer. The CO personnel may also be requested to run data link diagnostics.

3.12 When repairs to the AEMIS minicomputer are completed, CO maintenance personnel must be available to type in a message to restore the data link to service.

4. SYSTEM OPERATION

HARDWARE

4.01 Necessary hardware for a typical AEMIS installation is shown in Table A. Additional hardware may be required as determined by system configuration.

OFFICE DATA STRUCTURES

A. Translations

4.02 The unit type 55 auxiliary block (Fig. 4), associated with a queue for an ACD multiline group (MLG) or a queue for a trunk group to which ACD calls are to be interflowed, must have the AEMIS DLG item specified in word 14.

4.03 The ACD MLG common block (Fig. 5) must have the AEMIS DLG item specified in word 16. If the Agent Log-In feature is provided, then item AGLI in word 16 must be set equal to one. Otherwise it should equal zero.

4.04 The simulated facilities auxiliary block (Fig. 6) used for controlling access or screening into or from the ACD master centrex (MCTX) must have the AEMIS DLG item specified in word 3.

4.05 The trunk group supplementary auxiliary block (Fig. 7) for trunk groups dedicated to the ACD customer must have the AEMIS DLG item specified in option word B.

4.06 The remote data interface (RDI) port translator (Fig. 8) must have the AEMIS DLG item specified in word 0.

4.07 The unit type 29 auxiliary block (Fig. 9) must have the AEMIS DLG item specified in word 5A. In addition, the NCC item in word 1 of the auxiliary block should be set to one. The DLTYPE item in word 5A of the auxiliary block should be set to three to indicate an AEMIS data link group (DLG).

1. TRANSLATION BRACKETS

1.1 BEGIN BLOCK

23	22	21 17	16	15 8 5	4 0
OP	1	SOP20		PARAMETER	BLOCK TYPE

WHERE:

TYPE	PARAMETER	MESSAGES
0	LCP NO.	AGENT TO FUNCTIONAL GROUP ASSOCIATION
1	QUEUE NO.	QUEUE INFORMATION
2	TRUNK GRP NO.	TNN TO TRUNK GROUP ASSOCIATION (OUTGOING TRUNK GROUP)
3	TRUNK GRP NO.	TNN TO TRUNK GROUP ASSOCIATION (INCOMING TRUNK GROUP)
4	TRUNK GRP NO.	TNN TO TRUNK GROUP ASSOCIATION (2-WAY TRUNK GROUP)
5	–	SIMULATED FACILITY GROUP SIZE
6	–	AGENT TO CTX EXT ASSOC
7	–	CALL STORE CONFIGURATION
8	–	TRUNK STATUS
9	–	NIGHT TRANSFER DN
13	–	AGENT LOG-IN ID TO TERMINAL ASSOCIATION
31	–	SET OF TRANSLATION BLOCKS

1.2 END BLOCK

23	22	21 17	16	15 5	4 0
OP	1	SOP21		COUNT	BLOCK TYPE

WHERE:

TYPE   IS AS IN "BEGIN BLOCK"

COUNT   IS THE NUMBER OF MESSAGES SENT EXCLUDING THE BRACKETS.
FOR TYPES 8, 9, 31 THE COUNT FIELD IS NOT USED. FOR
TYPE 7 THE FIELD IS USED FOR NOTIFYING MIS THAT THE
CSC WAS ABNORMALLY TERMINATED AND SHOULD NOT BE INSTALLED.

2. TIME OF DAY

2.1 YEAR

23	22	21 17	16 14	13 0
OP	1	SOP28		YEAR

Fig. 3—AEMIS Data Link Message Format (ESS to AEMIS) (Sheet 1 of 10)

2.2 MONTH, DAY, HOURS, MINUTES, SECONDS

23	22	21	20	19	18	17	16 13	12 10	9 5	4 0
OP	1	1	1	1	0	1	DOP15		DATE	HOURS

23	22	21	20	19	18	17	16 13	12 10	9 5	4 0
OP	1	1	1	1	1	1	MONTHS	MINUTES		SECONDS

3. FACILITY EVENTS

FACILITY MESSAGES USE THE FOLLOWING PARAMETERS TO IDENTIFY INFORMATION
CONCERNING AN EVENT. THE PARAMETERS ARE:
    D(IRECTION) 0 = INCOMING
                 1 = OUTGOING
    T(YPE)   0 = PHYSICAL TRUNK
                 1 = SIMULATED FACILITY REGISTER OR QUEUE REGISTER NUMBER

WHEN THE T(YPE) ITEM IS 1 THE FACILITY NUMBER FIELD WILL CONTAIN
EITHER A SIMULATED FACILITY REGISTER (SFR) NUMBER OR A QUEUE REGISTER
NUMBER (QRN). THE DISTINCTION BETWEEN SFR AND QRN IS THAT THE NEXT
HIGH ORDER ITEM, ITEM 14, IF A SFR IS 1, WHILE FOR A QRN ITEM 14 IS 0.

3.1 TRUNK SEIZED

23	22	21 17	16	15	14 0
OP	1	SOP2	D	0	TNN

WHERE: ITEM 15 MUST BE 0 IDENTIFYING A TRUNK

3.2 SIMULATED FACILITY SEIZED

23	22	21	20	19	18	17	16 13	12	11	10 0
OP	1	1	1	1	0	1	DOP1		1	SIMULATED FACILITY GROUP NO.

23	22	21	20	19	18	17	16	15	0
OP	1	1	1	1	1	1	D	1	SIMULATED FACILITY REGISTER NO.

WHERE: ITEM 11 IN THE FIRST MESSAGE AND ITEM 15 IN THE SECOND MESSAGE MUST
       BE 1 IDENTIFYING A SIMULATED FACILITY.

Fig. 3—AEMIS Data Link Format (ESS to AEMIS) (Sheet 2 of 10)

3.3 FACILITY QUEUED

23	22	21	20	19	18	17	16 13	12	11	10 8	7 0
OP	1	1	1	1	0	1	DOP2	I	P		QUEUE NUMBER

OP	1	1	1	1	1	1		T	FACILITY NUMBER

    WHERE: I(NTERFLOW) 0 = QUEUE ASSOCIATED WITH FUNCTIONAL GROUP
                        1 = INTERFLOW QUEUE
           P(RIORITY)   0 = ROUTINE ROUTING
                        1 = PRIORITY ROUTING
    FOR THIS MESSAGE, WHEN THE T(YPE) ITEM IS 1 THE FACILITY NUMBER FIELD
    CONTAINS EITHER A SIMULATED FACILITY OR A QUEUE REGISTER NUMBER.

3.4 FACILITY DEQUEUED

23	22	21 17	16	15	14 0
OP	1	SOP3		T	FACILITY NUMBER

    WHEN THE T(YPE) ITEM IS 1, THE FACILITY NUMBER FIELD CONTAINS EITHER A
    SIMULATED FACILITY REGISTER NUMBER OR A QUEUE REGISTER NUMBER.

3.5 FACILITY CONNECTED

23	22	21	20	19	18	17	16 13	12	11 0
OP	1	1	1	1	0	1	DOPO	I	DESTINATION

OP	1	1	1	1	1	1		T	FACILITY NUMBER

    WHERE: I(NTERFLOW) 0 = DESTINATION - TERMINAL NUMBER
                        1 = DESTINATION - SIMULATED FACILITY GROUP NUMBER
    WHEN THE T(YPE) ITEM IS 1, THE FACILITY NUMBER FIELD CONTAINS EITHER A
    SIMULATED FACILITY REGISTER NUMBER OR A QUEUE REGISTER NUMBER.

Fig. 3—AEMIS Data Link Format (ESS to AEMIS) (Sheet 3 of 10)

3.6 FACILITY IDLE OR SEIZURE DISCLAIMER

23	22	21 17	16	15	14 0
OP	1	SOP4	B	T	FACILITY NUMBER

```
WHERE: B(IT) O = FACILITY IDLE
             1 = SEIZURE DISCLAIMER
WHEN THE T(YPE) ITEM IS 1, THE FACILITY NUMBER FIELD CONTAINS EITHER A
SIMULATED FACILITY OR QUEUE REGISTER NUMBER. THE SEIZURE DISCLAIMER
MESSAGE INFORMS THE MINICOMPUTER THAT NETWORK BLOCKING OCCURRED WITH THE
FACILITY NUMBER CONTAINED IN THE MESSAGE. THIS MEANS THAT THE PREVIOUS
SEIZURE ON THAT FACILITY SHOULD BE IGNORED AND THE FACILITY RETURNED TO
THE IDLE STATE.
```

3.7 TRUNK DISABLED

23	22	21 17	16	15	14 0
OP	1	SOP5		0	TNN

WHERE: ITEM 15 MUST BE 0 IDENTIFYING A PHYSICAL TRUNK

3.8 TRUNK HIGH AND WET (THAW)

23	22	21 17	16	15	14 0
OP	1	SOP6		0	TNN

WHERE: ITEM 15 MUST BE 0 IDENTIFYING A PHYSICAL TRUNK

3.9 TRUNK LOCKED OUT

23	22	21 17	16	15	14 0
OP	1	SOP11		0	TNN

WHERE: ITEM 15 MUST BE 0 IDENTIFYING A PHYSICAL TRUNK

3.10 TRUNK ACTIVE (INTO SERVICE)

23	22	21 17	16	15	14 0
OP	1	SOP12		0	TNN

WHERE: ITEM 15 MUST BE 0 IDENTIFYING A PHYSICAL TRUNK

Fig. 3—AEMIS Data Link Format (ESS to AEMIS) (Sheet 4 of 10)

3.11 TRUNK MAKE-BUSY KEY OPERATED (TMB) OR CARRIER GROUP ALARM (CGA)

23	22	21 17	16	15	14 0
OP	1	SOP7	B	0	TNN

    WHERE: B(IT) 0 = KEY OFF
                 1 = KEY ON
           ITEM 15 MUST BE A 0 IDENTIFYING A PHYSICAL TRUNK

3.12 FACILITY GROUP OVERFLOW

23	22	21 17	16 13	12	11	10 0
OP	1	SOP9		D	T	FACILITY GROUP NUMBER

    WHERE: A TRUNK GROUP CAN ONLY RECEIVE AN OVERFLOW MESSAGE IN THE OUTGOING DIRECTION.

4. PROGRAM STORE QUEUE INFORMATION

4.1 PRIMARY ALTERNATE SERVER POOL

23	22	21 17	16	15 8	7 0
OP	1	SOP25		QUEUE NUMBER 2	QUEUE NUMBER 1

    WHERE: IF ONLY ONE QUEUE NUMBER IS SENT, QUEUE NUMBER 2 IS 0.

4.2 DIRECTORY NUMBERS

23	22	21	20	19	18	17	16 13	12	11 8	7 4	3 0
OP	1	1	1	1	0	1	DOP12	B	D6	D5	D4

OP	1	1	1	1	1	1	D3	D2	D1	D0

WHERE:
  B(IT) 0 = QUEUE DIRECTORY NUMBER
        1 = BASE NIGHT TRANSFER DIRECTORY NUMBER

Fig. 3—AEMIS Data Link Format (ESS to AEMIS) (Sheet 5 of 10)

4.3 PROGRAM STORE QUEUE PARAMETERS

THE PARAMETERS ARE:
1. IN FLOW THRESHOLD (IFT)
2. PRIMARY OUT FLOW THRESHOLD (POFT)
3. SECONDARY OUT FLOW THRESHOLD (SOFT)
4. CALLS WAITING LEVELS THRESHOLDS (CWLT)
5. PRIMARY ALTERNATE SERVER POOL NUMBER (PASPN)
6. SECONDARY ALTERNATE SERVER POOL NUMBER (SASPN)
7. QUEUE SIZE (QS)
8. NUMBER OF QUEUE REGISTERS (NQR)
9. INTERFLOW QUEUE ITEM
10. FUNCTIONAL GROUP NUMBER

23	22	21	20	19	18	17	16 15	14 13	12	11	10 0
OP	1	1	1	1	0	1	DOP11	B	PARAMETER VALUE 1

| OP | 1 | 1 | 1 | 1 | 1 | 1 | NAME | B | PARAMETER VALUE 2 |

WHERE:
B(IT) 0 = NO PARAMETER VALUE
      1 = PARAMETER VALUE

PARAMETER

NAME	VALUE 1	VALUE 2
000	IFT	CWLT
001	POFT	SOFT
010	PASPN	SASPN
011	QS	NQR
100	INTERFLOW ITEM	FUNCTIONAL GROUP NUMBER

4.4 AGENT TO FUNCTIONAL GROUP

23	22	21	20	19	18	17	16 13	12	11 5	4 0
OP	1	1	1	1	0	1	DOP9		ROW NUMBER	FUNCTIONAL GROUP NUMBER

| OP | 1 | 1 | 1 | 1 | 1 | 1 | AGENT ITEMS |

WHERE:
THE AGENT ITEMS REPRESENT A ROW OF TERMINALS WITH THE LOW-END ITEM
(ITEM 0) REPRESENTING THE LOW-NUMBERED AGENT IN THE CURRENT ROW (eg, ROW 0
AGENTS 0-15, HOWEVER AGENT 0 IS NOT ASSIGNED). AN ITEM POSITION SET INDICATES
THAT PARTICULAR AGENT IS A MEMBER OF THE CURRENT FUNCTIONAL GROUP.

Fig. 3—AEMIS Data Link Format (ESS to AEMIS) (Sheet 6 of 10)

4.5 TERMINAL TO EXTENSION

23	22	21	20	19	18	17	16 13	12 10	9 0
OP	1	1	1	1	0	1	DOP13		TERMINAL NUMBER

OP	1	1	1	1	1	1	D3	D2	D1	D0

WHERE:
  THE DIGITS D3-D0 ARE ENCODED IN ESS BCD WITH D0
  BEING THE LEAST SIGNIFICANT DIGIT OF THE CENTREX EXTENSION NUMBER

4.6 TRUNK TO TRUNK GROUP

23	22	21 17	16	15	14 0
OP	1	SOP24		0	TNN

WHERE:
  ITEM 15 MUST BE A "0" IDENTIFYING A TRUNK

4.7 SIMULATED FACILITY GROUP SIZE

23	22	21	20	19	18	17	16 13	12	11	10 0
OP	1	1	1	1	0	1	DOP14		1	SIMULATED FACILITY GROUP NO.

OP	1	1	1	1	1	1		SIMULATED FACILITY GROUP SIZE

WHERE:
  ITEM 11 MUST BE A "1" IDENTIFYING A SIMULATED FACILITY REGISTER

Fig. 3—AEMIS Data Link Format (ESS to AEMIS) (Sheet 7 of 10)

5. TERMINAL MESSAGES

5.1 STATE

23	22	21 17	16 15	14	13	12	11	10	9 0
OP	1	SOP0		AX	PM	IX	TR	TM	TERMINAL NUMBER

WHERE:
  AX IS THE STATE OF THE POSITION'S AUX WORK KEY
  PM IS THE STATE OF THE POSITION MANNED ITEM IN ESS
  IX IS AN ITEM INDICATING AN INCOMING EXTENSION CALL
  TR REFLECTS THE STATE OF TIP AND RING
  TM IS THE STATE OF THE AGENT MAKE-BUSY FERROD

STATE
  INP IN POOL (AVAILABLE)
  ACW AFTER CALL WORK
  OEX OUTGOING EXTENSION
  ACD AUTOMATIC CALL DISTRIBUTION
  IEX INCOMING EXTENSION

THE IX, TM, AND TR ITEMS CAN BE CONSIDERED TO BE AN ENCODED
STATE AS FOLLOWS:

STATE	IX	TR	TM	VALUE (OCTAL)
INP	0	0	0	0
ACW	0	0	1	1
OEX	0	1	0	2
ACD	0	1	1	3
IEX	1	1	0	6

5.2 EVENT

23	22	21 17	16 15	14 10	9 0
OP	1	SOP1		BUTTON	TERMINAL NUMBER

WHERE BUTTON IS ENCODED AS FOLLOWS:

BUTTON	VALUE
ALERT-DEP	0
ALERT-RLS	1
ASSIST	2
TROUBLE	3
DIR-CALL	4-7
SUPV	8

5.3 ADD-ON CALL

23	22	21	20	19	18	17	16 13	12 10	9 0
OP	1	1	1	1	0	1	DOP7		TERMINAL NUMBER 1

OP	1	1	1	1	1	1			TERMINAL NUMBER 2

WHERE:
  TERMINAL NUMBER 1 IS THE ORIGIN OF THE CALL, AND TERMINAL
  NUMBER 2 IS THE DESTINATION OF THE CALL. IF TERMINAL
  NUMBER 2 IS 0, THIS INDICATES THAT THE CALL WAS
  TRANSFERRED OUT OF THE ACD.

Fig. 3—AEMIS Data Link Format (ESS to AEMIS) (Sheet 8 of 10)

6. FUNCTIONAL GROUPS

6.1 FUNCTIONAL GROUP OVERFLOW

23	22	21 17	16 7	6 5	4 0
OP	1	SOP8		NAME	FUNCTIONAL GROUP NUMBER

WHERE:
  NAME: 00 = QUEUE FULL (NO QUEUE SLOTS AVAILABLE)
        01 = QUEUE REGISTER OVERFLOW (NO QUEUE REGISTER AVAILABLE)
        10 = HARDWARE (NO AUDIBLE CIRCUITS AVAILABLE)
        11 = UNASSIGNED

7. AGENT MESSAGES

7.1 AGENT LOG-IN

23	22	21	20	19	18	17	16	15 13	12	11 10	9 8	7 4	3 0
OP	1	1	1	1	0	1		DOP3				TERMINAL NUMBER	

OP	1	1	1	1	1	1		D0	D1	D2	D3

WHERE:
  D0, D1, D2, AND D3 ARE AGENT LOG-IN ID

7.2 AGENT LOG-OUT

23	22	21 17	16 10	9 0
OP	1	SOP13		TERMINAL NUMBER

Fig. 3—AEMIS Data Link Format (ESS to AEMIS) (Sheet 9 of 10)

8. MISCELLANY

8.1 PHASE RECOVERY

23	22	21 17	16 3	2 0
OP	1	SOP26		PHASE NO.

WHERE:
  PHASE NO. 0-2: SHOULD BE IGNORED
            3-6: MIS WILL REQUEST PROGRAM STORE REFRESH
                 AND A CALL STORE CONFIGURATION.

  UPON RECEPTION OF AN ESS PHASE 3, 4, 5, OR 6 THE MIS
  MINICOMPUTER WILL BE REQUIRED TO WAIT A SPECIFIED PERIOD
  OF 120 SECONDS BEFORE REQUESTING THE PROGRAM STORE REFRESH
  AND CALL STORE RECONFIGURATION. THIS PERIOD WILL ALLOW THE
  ESS MACHINE AMPLE TIME TO RESTORE ITS MEMORY.

8.2 ERROR ON REQUEST

23	22	21 17	16 4	3 0
OP	1	SOP27		TYPE

WHERE:
  TYPE 0000 – OPCODE
       0001 – INITILIZATION
       0010 – TIME OF DAY
       0011 – TRUNK STATUS
       0100 – CALL STORE CONFIGURATION
       0101 – PROGRAM STORE REFRESH
       0110 – RETRANSMIT REQUEST
       0111 – BASE NIGHT TRANSFER DIRECTORY NUMBER
       1000 – REMOTE NIGHT TRANSFER DIRECTORY NUMBER
       1001 – TRUNK GROUP NUMBER
       1010 – LOAD COMPENSATING PACKAGE NUMBER
       1011 – SIMULATED FACILITY GROUP NUMBER
       1100 – AGENT TO CENTREX EXTENSION
       1101 – QUEUE IDENTIFIER
       1110 – QUEUE THRESHOLD VALUE
       1111 – UNASSIGNED

Fig. 3—AEMIS Data Link Format (ESS to AEMIS) (Sheet 10 of 10)

4.08 The DLG translator (Fig. 10) must have the AEMIS DLG item specified in word 1. In addition, DLTYPE item in word 0 must be set to three to indicate an AEMIS DLG.

4.09 Each trunk group for which AEMIS data is desired must list trunk network numbers (TNNs) beginning in word 3 of the trunk group number (TGN) table translations data even if the trunk is 1-way outgoing.

B. Parameters/Call Store

4.10 Not applicable.

FEATURE OPERATION

A. General

4.11 Two items of information must be provided to the AEMIS minicomputer on physical trunks purchased for dedicated use by the customer.

TABLE A

AEMIS HARDWARE REQUIREMENTS

QUANTITY	NOMENCLATURE	SUPPLIER
*	AEMIS Buffer and Multiplexer (Including J59207C Cabinet)	Western Electric Company, Inc.
*	CTX Data Link	Western Electric Company, Inc.
*	Data 100 2423 Line Printer	Data Corporation
*	DH11-AD 16 Line Mxr W/MC	Digital Equipment Corporation
*	DR11-C General Purpose Interface	Digital Equipment Corporation
*	H312-A Null Modem	Digital Equipment Corporation
*	PDP-11/45DW Minicomputer	Digital Equipment Corporation
*	M25A Cable	Western Electric Company, Inc.
*	2640B CRT Terminal	Hewlett-Packard
*	8001 CRT Terminal	Intelligent System Company
*	ADM-2 CRT Terminal	Lear Siegler
1	LA36 Writer	Digital Equipment Corporation
1	LA36 Interface	Digital Equipment Corporation
*	103A2 Data Set	Western Electric Company, Inc.
*	804B Calling Unit	Western Electric Company, Inc.
1	804B1 Data Auxiliary Set	Western Electric Company, Inc.
*	202T L1/L2 Data Set	Western Electric Company, Inc.
*	208A Data Set	Western Electric Company, Inc.
*	3002-Type Private Line	Western Electric Company, Inc.
*	4-Wire Private Line	Western Electric Company, Inc.

* Refer to Part 10 for quantities.

(a) **TNN:** The TNN is used by the AEMIS minicomputer as a unique identifier for purchased trunks.
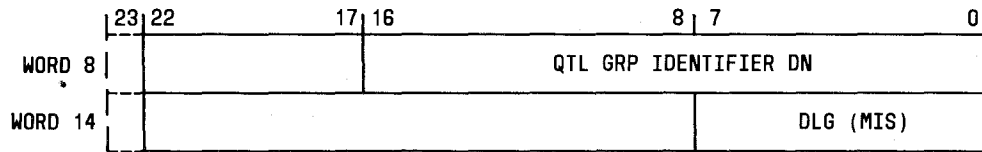
(b) **TNN-to-TGN Association:** The association between a physical trunk (TNN) and the trunk group to which it belongs must be provided in order for the AEMIS minicomputer to be able to provide traffic summaries to the customer.

4.12 If dedicated ACD-ESS trunks or trunk groups are added or deleted from the ACD-ESS customer, the ACD-ESS customer should request an update of the translation data base for the new trunk data from the AEMIS CRT (Table B).

4.13 Two items of information are required by the AEMIS minicomputer for simulated facility groups (SFGs).

(a) **SFG Number:** A list of all SFG numbers must be provided in order for the AEMIS minicomputer to be able to provide traffic data on customer-purchased SFGs.

```
    |23|22           17|16                    8|7              0|
WORD 8|        |                    QTL GRP IDENTIFIER DN        |
      |---|                                                      |
WORD 14|       |                               |   DLG (MIS)     |
      L__|                                                        |
```
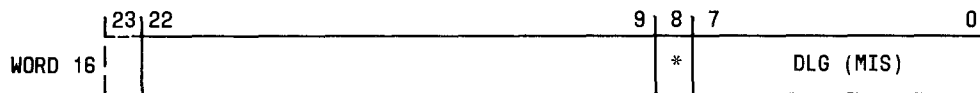
NOTE: BIT 23 EXISTS IN NO. 1A ESS ONLY.

LEGEND:

QTL GRP IDENTIFIER DN-THE GROUP IDENTIFIER DN FOR THE INTERFLOW QUEUE

DLG(MIS)-THE DATA LINK GROUP NUMBER

Fig. 4—Unit Type 55 Auxiliary Block

```
    |23|22                              9|8|7           0|
WORD 16|      |                          |*|  DLG (MIS)  |
      L__|                                                |
```

NOTE: BIT 23 EXISTS IN NO. 1A ESS ONLY.

* AGLI

LEGEND:

AGLI - AGENT LOG-IN BIT. EQUALS 1 IF AGENT LOG-IN FEATURE EXISTS. OTHERWISE EQUALS 0.

DLG(MIS) - THE DATA LINK GROUP NUMBER FOR THE AEMIS

Fig. 5—Multiline Group Common Block

(b) *Size:* The size represents the maximum number of simultaneous calls that ESS will allow per group for customer-purchased SFGs.

4.14 Two (optionally three) items of information are required by the AEMIS minicomputer for agents.

(a) *Extension Number:* This is the 4-digit telephone number for the agent position. The AEMIS minicomputer uses this number as an identifier in all reports to the customer on agent positions.
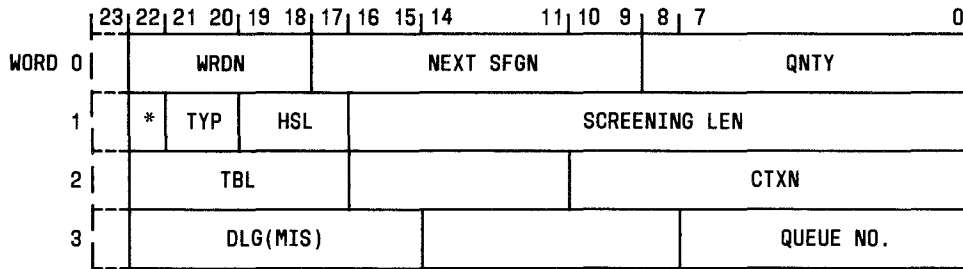
(b) *Agent to FG Associations:* When the LCP is activated, ESS must provide a list of each agent versus the FG to which the agent belongs. This must be done for each LCP activated.

(c) *Agent Log-In ID to Terminal Association (Optional):* This event informs AEMIS

that an agent has either logged in at a console with a certain ID or has logged out.

4.15 To perform all of the AEMIS functions, a data base describing the ACD has to be established for AEMIS by the ESS. This is accomplished by the Management Information System data base update (MSDU) program via a centrex data link (Fig. 11). The MSDU uses the 1-second entries provided by the block data link loading function of the centrex data link DLIO feature [see reference A(14) in Part 18] to format and load the data link orders. The necessary data for the AEMIS data base includes (a) the time of day, (b) the AEMIS trunk groups and associated TNNs, (c) the facilities, (d) the queue data, (e) the agent to FG assignment for each LCP and the active LCP, and (f) the 4-digit extension assigned to each agent terminal.

(1) *Time of Day:* The time-of-day function gives AEMIS a snapshot of the ESS real-time clock. The time sent to AEMIS is the year, month, date,

	23	22	21	20	19	18	17	16	15	14			11	10	9	8	7			0
WORD 0		WRDN							NEXT SFGN								QNTY			
1	*	TYP		HSL			SCREENING LEN													
2	TBL											CTXN							
3	DLG(MIS)											QUEUE NO.							

NOTE: BIT 23 EXISTS IN NO. 1A ESS ONLY.

* DDD

LEGEND:

    CTXN – CENTREX GROUP NUMBER

    DDD – DIRECT DISTANCE DIALING

DLG(MIS) – DATA LINK GROUP NUMBER FOR THE MIS

    HSL – HUNT SEQUENCE LENGTH

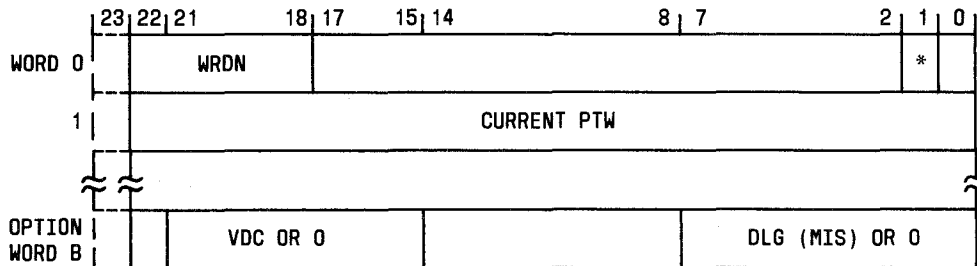   LEN – LINE EQUIPMENT NUMBER

    QNTY – QUANTITY OF LINES

    SFGN – NEXT SIMULATED FACILITIES GROUP NUMBER

    TBL – TRUNK BUSY LAMP

    TYP – TYPE OF SIMULATED FACILITIES

    WRDN – NUMBER OF WORDS IN THE AUXILIARY BLOCK

Fig. 6—Simulated Facilities Auxiliary Block

	23	22	21		18	17		15	14			8	7			2	1	0
WORD 0		WRDN															*	
1	CURRENT PTW																	
OPTION WORD B		VDC OR 0											DLG (MIS) OR 0					

NOTE: BIT 23 EXISTS IN NO. 1A ESS ONLY.

* TGOB

LEGEND:

    DLG(MIS) – DATA LINK GROUP NUMBER FOR THE MIS
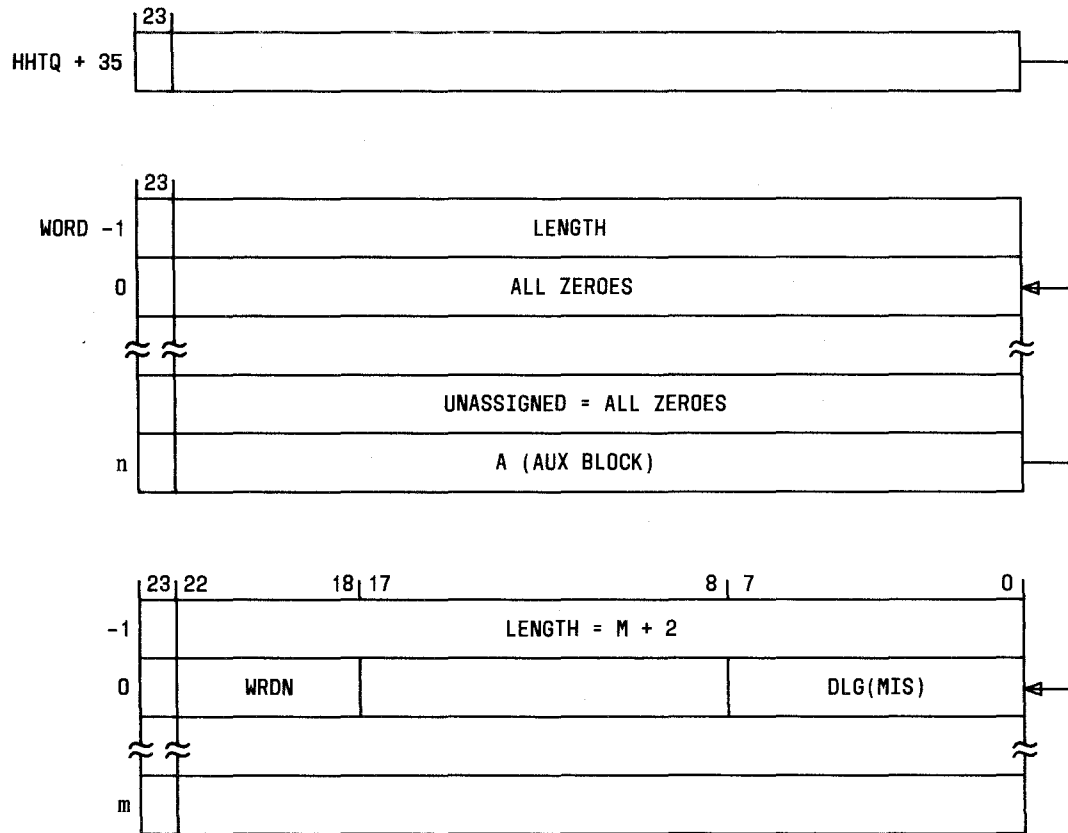
    PTW – PRIMARY TRANSLATION WORD

    TGOB – EQUALS 1 IF OPTION WORD B EXISTS. OTHERWISE EQUALS 0.

    VDC – VISUAL DISPLAY CODE

    WRDN – NUMBER OF WORDS IN THE AUXILIARY BLOCK

Fig. 7—Trunk Group Supplementary Auxiliary Block

```
           |23|
HHTQ + 35  |  |                                                          |
           |  |_____|

           |23|
WORD -1    |  |                      LENGTH                               |
           |  |_____|
      0    |  |                    ALL ZEROES                            |<
           |  |_____|
           ~~ ~~                                                          ~~
           |  |               UNASSIGNED = ALL ZEROES                     |
           |  |_____|
      n    |  |                    A (AUX BLOCK)                          |
           |  |_____|

         |23|22        18|17                    8| 7              0|
     -1  |  |            LENGTH = M + 2                            |
         |  |_____|
      0  |  |    WRDN    |                  |     DLG(MIS)         |<
         |  |_____|
         ~~ ~~                                                    ~~
      m  |  |                                                     |
         |  |_____|
```

NOTE: BIT 23 EXISTS IN NO. 1A ESS ONLY.

LEGEND:
  DLG(MIS) — DATA LINK GROUP NUMBER FOR THE MIS

Fig. 8—RDI Port Translator

hours, minutes, and seconds. The AEMIS resets the PDP-11 clock to equal this time. See Fig. 3 for AEMIS data link message formats.

(2) **Call Store Configuration:** The call store configuration function provides AEMIS with a snapshot of the ACD changeable data, namely, the active LCP, the FG patterns of the active LCP, and the queue data. The active LCP is the current invoked LCP. The FG patterns are the FG patterns of the active LCP plus any changes made by the ACD customer. The queue data is the interflow threshold, primary outflow threshold, and the sec-

ondary outflow threshold. If the night DN is call forwarded, the forwarded DN is also sent; if it is not forwarded, all zeroes are sent.

(3) **Initialization or Program Store Refresh:** Both the initialization and the program store refresh functions send the same data to AEMIS. The distinction is the rate at which the data link orders can be loaded into the data link output buffer. For the initialization request, the maximum rate is 20 data link orders per 1-second entry; whereas the maximum rate for the program store refresh is 10 data link orders per 1-second

	23	22 19	18	17	16	15 14	13 8	7 0
WORD 0		WRDN = 8		QUANT = 4			CPDN	
1		QUANT = 1 OR 3		*		MSN-SUP		
2		QUANT = 31				MSN-DIR		
3		QUANT = 2				MSN-FAST		
4		QUANT = 1		MTDN				
5A		DLTYPE = 03					DLG	
6A					RDI		DAG	
7								

```
NOTE: BIT 23 EXISTS IN NO. 1A ESS ONLY.
* NCC

    LEGEND:
      CPDN  — CENTRAL PULSE DISTRIBUTOR NUMBER
       DAG  — DATA ACCUMULATION GROUP
       DLG  — DATA LINK GROUP NUMBER FOR MIS
    DLTYPE  — DATA LINK TYPE
   MSN-DIR  — DIRECTED MASTER SCANNER POINTS
  MSN-FAST  — FAST MASTER SCANNER POINTS
   MSN-SUP  — SUPERVISORY MASTER SCANNER POINTS
      MTDN  — SIGNAL DISTRIBUTOR POINTS
       NCC  — NON-CONSOLE CONTROL CIRCUIT = 1
     QUANT  — QUANTITY
       RDI  — REMOTE DATA INTERFACE
      WRDN  — NUMBER OF WORDS IN THE AUXILIARY BLOCK
```
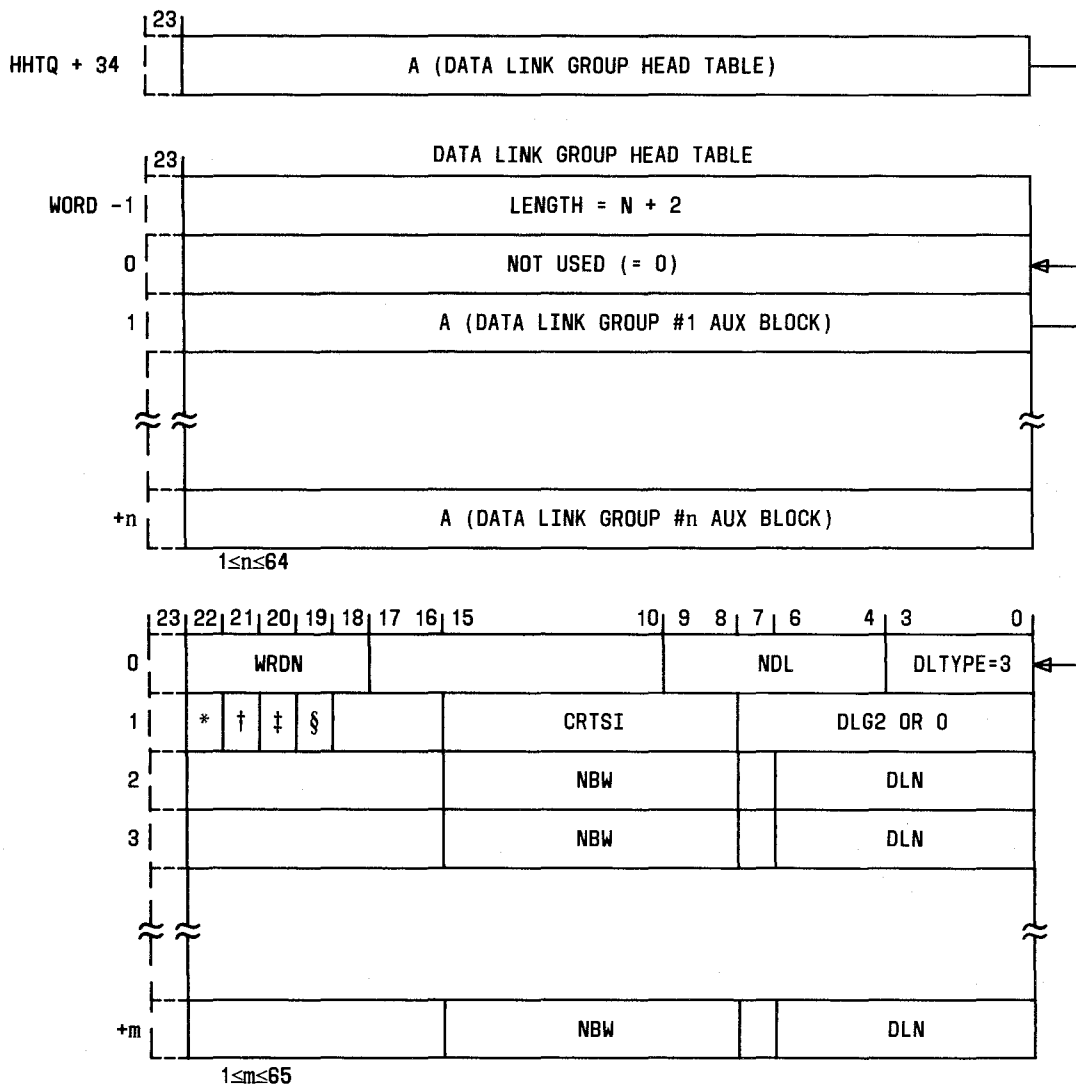
Fig. 9—Unit Type 29 Auxiliary Block

entry. The data that is sent to AEMIS for either function is:

- All of the TNNs for each TGN associated with AEMIS

- All of the rows of data for each FG for all of the LCPs in the data group associated with the ACD

- The number of simulated facilities for each SFG associated with AEMIS

- All of the agent terminals in the data group and their 4-digit extension number associated with the ACD

- The inflow threshold, call waiting lamp threshold, primary outflow threshold A, primary outflow threshold B, primary alternate server pool number, secondary alternate server pool number, queue size, number of queue registers, inflow queue indicator, FG

```
        23
HHTQ + 34  |              A (DATA LINK GROUP HEAD TABLE)                    |
                                                                             ◄─┐
                                                                               │
              DATA LINK GROUP HEAD TABLE                                        │
        23                                                                      │
WORD -1 |                  LENGTH = N + 2                                 |     │
     0  |                  NOT USED (= 0)                                 | ◄───┘
     1  |              A (DATA LINK GROUP #1 AUX BLOCK)                   |
                                                                             ─┐
    +n  |              A (DATA LINK GROUP #n AUX BLOCK)                   |   │
          1≤n≤64                                                              │
                                                                             │
     23 22 21 20 19 18 17 16 15          10 9  8  7 6    4 3       0          │
     0  |  WRDN    |              |           NDL     | DLTYPE=3 | ◄──────────┘
     1  | * † ‡ § |        |     CRTSI        |    DLG2 OR 0      |
     2  |              |     NBW     |          DLN             |
     3  |              |     NBW     |          DLN             |
    +m  |              |     NBW     |          DLN             |
          1≤m≤65
```

NOTE: BIT 23 EXISTS IN NO. 1A ESS ONLY.

* BCW † CAB1 ‡ CAB2 § GRP2

LEGEND:

    BCW — BEEHIVE CALL WAITING INDICATOR

    CAB — COMMON AUDIO BUS

  CRTSI — CRT STORAGE INDEX

   DLG2 — DATA LINK GROUP 2

    DLN — DATA LINK CIRCUIT NUMBER

 DLTYPE — TYPE OF TERMINATION ASSIGNED TO A DATA LINK CIRCUIT

LEGEND-CONT

    NDL — NUMBER OF DATA LINK CIRCUITS IN DATA LINK GROUP

    NBW — NUMBER OF BUFFER WORDS FOR ASSOCIATED DLN

  WRDN — NUMBER OF WORDS IN AUXILIARY BLOCK

Fig. 10—Data Link Group Translator

TABLE B

INTERROGATION MESSAGES (NOTE)

CRT TERMINAL INPUT	CRT TERMINAL DISPLAY
1. Depress <u>RETURN</u> key	1. "!" or "?" prompt displayed
2. Type in <u>revchan</u>	1. ! <u>revchan</u> ☐
3. Depress <u>RETURN</u> key	3. Password:
4. Type in Password for ACD manager	4. (Password will not be displayed)
5. Depress <u>RETURN</u> key	5. Manager mode REQUEST?
6. Type in request <u>aaa..</u>	6. REQUEST? <u>aaa..</u>
7. Depress <u>RETURN</u> key	7. Request is complete — requested system action will now be taken.

Where <u>aaa..</u>

= init — customer is requesting a new translation and call store data base to initialize AEMIS
= tod — AEMIS resets the PDP-11 clock with time supplied by ESS
= csc — AEMIS builds a new call store data base with call store data sent by ESS
= tkg — AEMIS updates the translation data base with new trunk group data sent by ESS
= lpno — AEMIS updates the translation data base with new agent bit maps sent by ESS
= sfg — AEMIS updates the translation data base with new simulated facility group data sent by ESS
= toext — AEMIS updates the translation data base with new terminal to extension data sent by ESS
= queue — AEMIS updates the translation data base with new queue data sent by ESS

Note: The format of each interrogation message is identical. The appropriate variable must be substituted for <u>aaa..</u> in each message. The underlined data is inputted by the customer via the CRT terminal.

number associated with this queue, DN of this queue, base night DN of this queue, and the primary alternate server pool.

The AEMIS can also request a subset of the initialization or program store refresh data. That is, any of the individual blocks of initialization or program store refresh data can be requested separately.

4.16 When interrogation requests are received by ESS appropriate data is sent to AEMIS to satisfy these requests. This data may include a copy of the current program store data and a call store con-

figuration or some subset of this program store data (Fig. 3).

4.17 In addition to sending AEMIS data to satisfy the interrogation requests, the ESS sends a continuous stream of messages describing the call processing activity of the ACD customer. In order to report events to the AEMIS minicomputer, the ESS keeps a record of each incoming or outgoing call over a customer's trunking facilities and SFGs. The ESS also keeps track of calls terminated to and originated from the agent consoles in order to maintain a record of the agent console state.
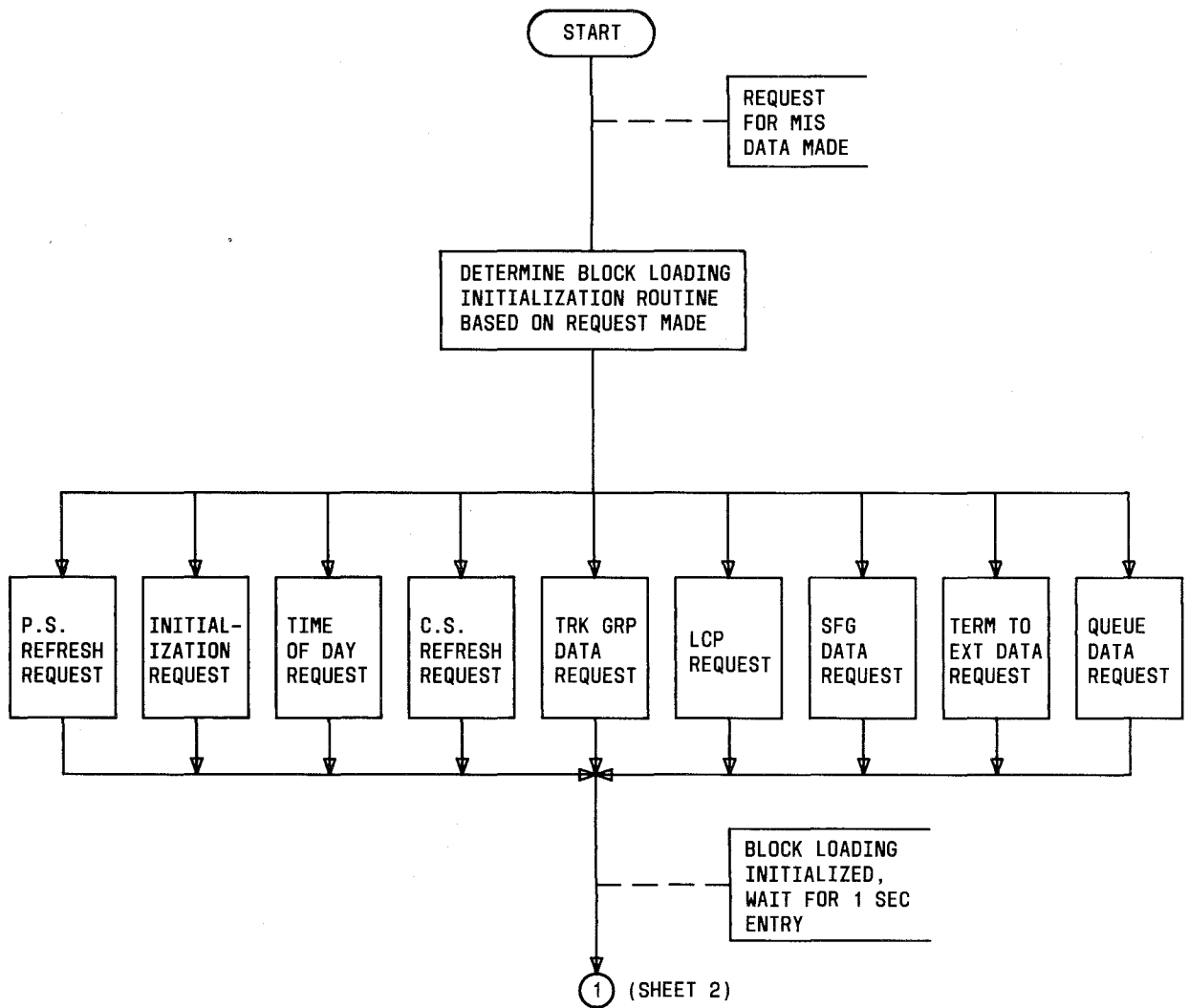
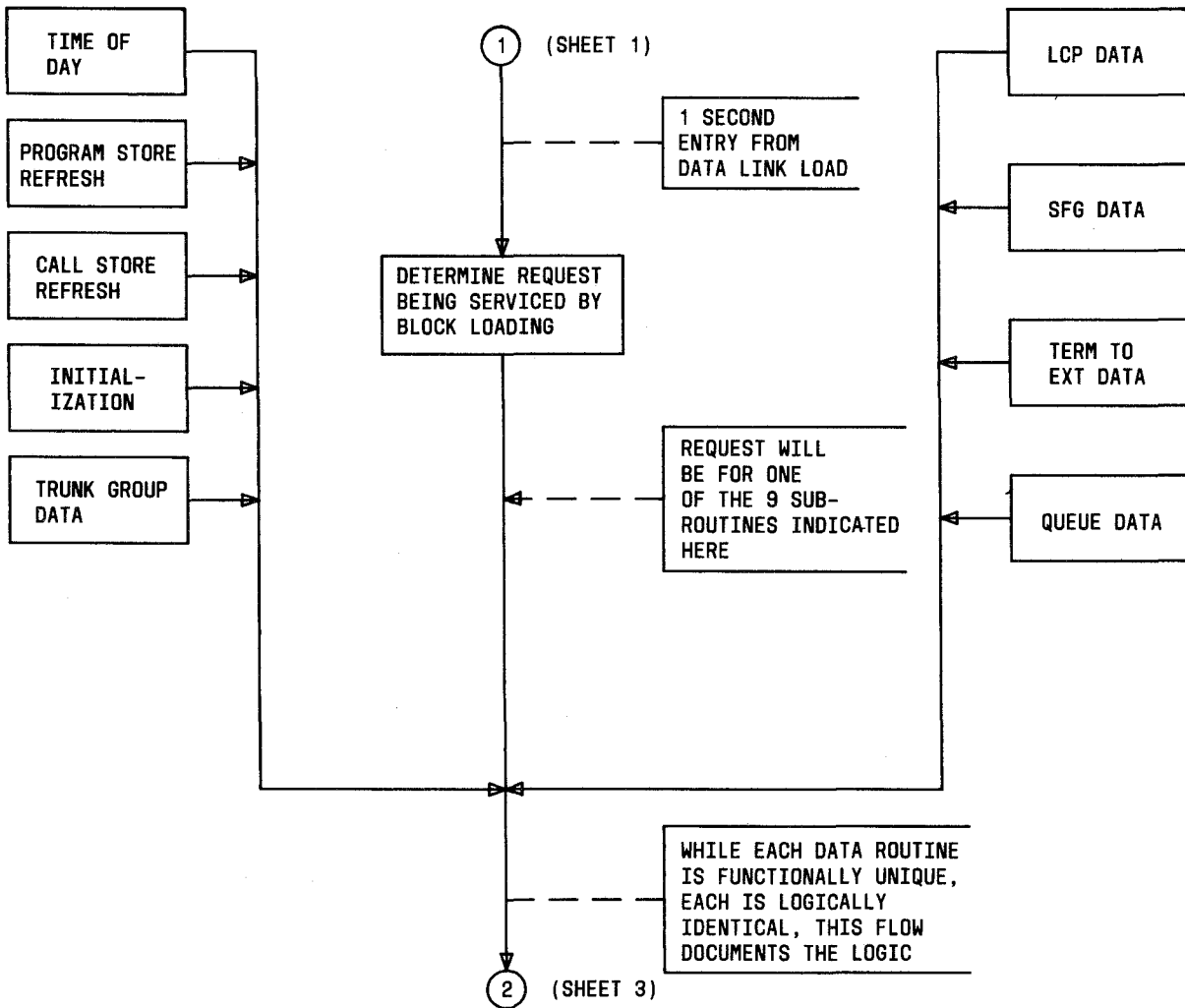Fig. 11—Initialization of AEMIS Memory (Sheet 1 of 5)

TIME OF
DAY

PROGRAM STORE
REFRESH

CALL STORE
REFRESH

INITIAL-
IZATION

TRUNK GROUP
DATA

(1) (SHEET 1)

1 SECOND
ENTRY FROM
DATA LINK LOAD

LCP DATA

SFG DATA

DETERMINE REQUEST
BEING SERVICED BY
BLOCK LOADING

TERM TO
EXT DATA

REQUEST WILL
BE FOR ONE
OF THE 9 SUB-
ROUTINES INDICATED
HERE

QUEUE DATA

WHILE EACH DATA ROUTINE
IS FUNCTIONALLY UNIQUE,
EACH IS LOGICALLY
IDENTICAL, THIS FLOW
DOCUMENTS THE LOGIC

(2) (SHEET 3)

Fig. 11—Initialization of AEMIS Memory (Sheet 2 of 5)

② (SHEET 2)

USE SUBFUNCTION
INTERNAL INDEX TO
DETERMINE WHAT DATA
REMAINS TO BE
SENT (AT INITIAL
ENTRY INDEX = 0)

ENOUGH SPACE IN
BUFFER TO LOAD   NO
NEXT BLOCK OF
ORDERS

INSUFFICIENT
ROOM IN DL
OUTPUT BUFFER,
WAIT FOR NEXT
1 SECOND
ENTRY FROM DLIO

YES

RETRIEVE
AND FORMAT
APPROPRIATE
TRANSLATION DATA

EXIT SUB-
FUNCTION

LOAD DATA LINK
ORDERS FOR
SUBFUNCTION

IS
SUBFUNCTION   YES
COMPLETE

ALL DATA FOR
THIS SUBFUNCTION
HAS BEEN SENT

NO

③ (SHEET 4)

INCREMENT SUB-
FUNCTION INTERNAL
INDEX WHICH
INDICATES DATA
STILL TO BE SENT

②

Fig. 11—Initialization of AEMIS Memory (Sheet 3 of 5)

Fig. 11—Initialization of AEMIS Memory (Sheet 4 of 5)

```
              ④ (SHEET 4)
                │
                ▼
       ┌─────────────────┐
       │ SHOULD MIS      │
       │ DATA BE SENT    │ NO
       │ FOR THIS        │────────────┐
       │ FACILITY        │            │
       └─────────────────┘            │      ┌──────────────┐
                │                      │ ┌ ─ ─│ RETURN TO    │
              YES                      │      │ CALLING      │
                │                      ▼      │ PROGRAM      │
                ▼                  ┌───────┐  └──────────────┘
       ┌─────────────────┐         │ EXIT  │
       │ FORMAT AND      │         └───────┘
       │ LOAD DATA       │
       │ LINK ORDERS     │
       └─────────────────┘
                │
                ▼
       ┌─────────────────┐
       │ SEND DATA       │
       │ LINK            │
       │ ORDERS          │
       └─────────────────┘              ┌──────────────┐
                │              ┌ ─ ─ ─ ─│ RETURN TO    │
                │                        │ CALLING      │
                │                        │ PROGRAM      │
                ▼                        └──────────────┘
            ┌───────┐
            │  END  │
            └───────┘
```
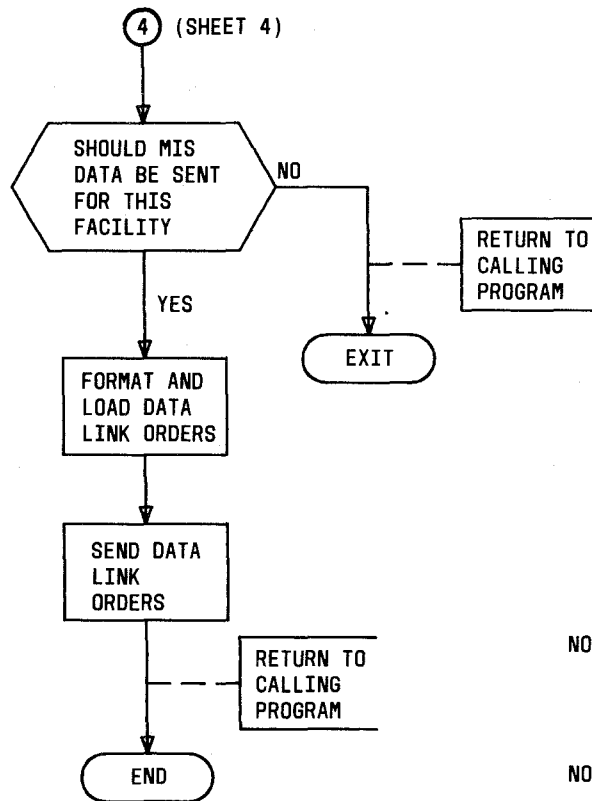
```
THE FOLLOWING TYPE
MESSAGES ARE SENT
TO THE MIS DURING
CALL PROCESSING:
     1. TERMINAL STATE CHANGE
     2. TERMINAL EVENT
     3. TRUNK SEIZED
     4. FACILITY DEQUEUED
     5. FACILITY IDLE, SZR DISCLAIM
     6. TRUNK DISABLED
     7. TRUNK HIGH AND WET
     8. TRUNK M.B. OR CGA
     9. SPLIT OVERFLOW
    10. FACILITY GROUP OVERFLOW
    11. TRUNK LOCKED OUT
    12. TRUNK ACTIVE
    13. AUDIT CORRECTION
    14. FACILITY CONNECTED
    15. SIMULATED FACILITY SEIZED
    16. FACILITY QUEUED
    17. ADD-ON CALL


NOTE 1. SOME OF THESE MESSAGES
        WILL BE FORMATTED AND
        SENT INDIVIDUALLY FROM
        THE CALL PROCESSING
        PROGRAMS.
NOTE 2. IN ALL CASES WHERE
        MIS MESSAGES ARE SENT,
        THE ROUTINES ARE
        LOGICALLY EQUIVALENT
        TO THE FLOW INDICATED
```

Fig. 11—Initialization of AEMIS Memory (Sheet 5 of 5)

4.18 The AEMIS messages themselves may consist of one or two 24-bit words, twenty-three data bits and one parity bit. The bits are numbered from right to left, (0 through 23). Bit 23 is the parity bit. Bit 22 is a maintenance bit. When the maintenance bit is zero, this indicates an ESS maintenance request. When bit 22 is one, the data link message contains AEMIS data.

4.19 Bits 21 through 17 in single word messages contain the operation code (SOP). Bits 21 through 17 in the first word of a double word message are always set to "11101". The operation code (DOP) is contained in bits 16 through 13. Bits 21 through 17 of the second word of a double word message are always set to "11111" as an indicator that this is the last word of a double word message. The individual SOP and DOP code messages are listed in Fig. 3.

B. Call Processing and Maintenance Messages

4.20 A series of call processing AEMIS messages are generated whenever an ACD simulated facility or a dedicated ACD-ESS trunk becomes involved in a call (Fig. 3).

4.21 The sequence of facility messages that are sent to AEMIS is essentially identical whether a simulated facility or a trunk is used. The messages sent to AEMIS are as follows:

(a) Facility seizure message (SOP2 for trunks, DOP1 for simulated facilities)

(b) Facility queued (DOP2)

(c) Facility dequeued (SOP3)

(d) Facility connected (DOP0)

(e) Facility idle (SOP4).

4.22 As indicated in (a) above, the facility seizure messages are unique for trunks and simulated facilities as shown below:

(a) Bit 16 of the SOP2 message is zero for incoming trunks and one for outgoing trunks. When a trunk is seized and becomes traffic busy, the SOP2 message must be sent. The only exception to this is trunk seizures for a RADR test. No message is sent on a RADR seizure.

(b) Bit 16 of the second word of the DOP1 has the same function for simulated facilities.

4.23 In all facility messages a constant identifier, the facility number field (bits 14 through 0), is used throughout the call as a tag. When the facility is a trunk, the facility number field contains a TNN; bit 15 is zero to indicate a trunk.

4.24 When a simulated facility is involved, the facility number field contains a simulated facility register address (bits 2 through 0 of the address are truncated) in bits (14 through 0). Bit 15 is one to differentiate a simulated facility from a trunk. In addition, bit 14 of the facility number is always one to differentiate a simulated facility register from a queueing register (Fig. 3).

4.25 In addition to the call processing facility messages, AEMIS messages are sent for various trunk maintenance states. These states may be initiated either via the TTY, the trunk and line test panel, or as a result of a hardware failure during call processing. The AEMIS maintenance messages listed below are detailed in Fig. 3:

(a) Trunk disabled (SOP5)

(b) Trunk high and wet (SOP6)

(c) Trunk locked out (SOP11)

(d) Trunk active-in-service (SOP12)

(e) Trunk make-busy or carrier group alarm (SOP7).

C. Agent Position Status and Events

4.26 Every agent action triggers a reaction by the ESS. This reaction is, in turn, sent out to the AEMIS minicomputer. As a result, the AEMIS minicomputer is aware of the agent processing states at all times.

4.27 An occupied agent position may be in one of five different call processing states while handling ACD traffic. These states are described in (a) through (e).

(a) *After Call Work:* The agent console is not available to accept an incoming ACD call.

(b) *In Pool:* The agent console is available to accept an incoming ACD call. An agent position in this state appears busy to incoming extension calls.

(c) *On ACD Call:* The agent is connected to an ACD call.

(d) *On Incoming Extension:* The agent is busy on an incoming extension call and is not available to serve ACD traffic.

(e) *On Outgoing Extension:* The agent is talking on an outgoing extension call and is not available to serve ACD traffic.

4.28 In addition to these mutually exclusive states, a number of events at the console are of interest to the customer. These events are defined in (a) through (h).

(a) *Occupied/Unoccupied:* This event informs the AEMIS minicomputer that the agent headset is/is not plugged into the console.

(b) *On AUX Work:* This console button must be activated by the agent to inform the AEMIS minicomputer that the agent is doing work not related to answering incoming ACD calls.

(c) *Alert:* This button on the console informs the AEMIS minicomputer that the agent has signaled an emergency situation while handling traffic.

(d) *Assist:* This button on the console informs the AEMIS minicomputer that the agent has

placed a call to the FG supervisor for assistance while handling traffic.

(e) **Trouble:** This button on the console informs the AEMIS minicomputer that the agent has reported a trouble condition on a call.

(f) **Direct Call Keys One Through Four:** These four buttons on the console inform the AEMIS minicomputer that the agent has placed a call to one of the four predesignated DNs.

(g) **Supervisor:** This button on the console informs the AEMIS minicomputer that the agent has placed a call to the administrative supervisor.

(h) **Add-On Call:** This message is sent when the agent flashes and dials a number which could be in or out of the ACD.

CHARACTERISTICS

5. FEATURE ASSIGNMENT

5.01 The Interface With AEMIS feature is provided on a Centrex/ESSX-1 group basis.

6. LIMITATIONS

OPERATIONAL

6.01 Only one CRT terminal can be actively inputting at any one time. This applies if the CRT terminal is connected to the AEMIS minicomputer or the 60B cabinet.

6.02 It is possible for data link occupancy to be such that messages are being dropped. This results in messages being lost over the data link.

ASSIGNMENT

6.03 A maximum of 30 CRT terminals may be connected to the AEMIS minicomputer. The actual number that may be connected is determined by the AEMIS configuration.

6.04 A maximum of ten data link orders can be loaded per 1-second entry for time of day, trunk data, program store refresh, or any subset request of a program store refresh. A maximum of 20 data link orders can be loaded per 1-second entry for call store configuration or initialization.

7. INTERACTIONS

7.01 Not applicable.

8. RESTRICTION CAPABILITY

8.01 Not applicable.

INCORPORATION INTO SYSTEM

9. INSTALLATION/ADDITION/DELETION

9.01 Refer to Fig. 12 for the procedure for adding the Interface With AEMIS feature.

10. HARDWARE REQUIREMENTS

> **Note:** This part contains cost factors and determination of quantities. Central Office Equipment Engineering System (COEES) Planning and Mechanized Ordering Modules are the recommended procedures for developing these requirements. However, for planning purposes or if COEES is not available, the following guidelines may be used.

10.01 Each AEMIS buffer and multiplexer unit will accommodate up to six centrex data links. A maximum of two AEMIS buffer and multiplexer units may be used.

10.02 At least one centrex data link dedicated to AEMIS-ESS interface is required. This data link must be DLTYPE 3. For the ACD service a second data link providing the ESS RDI is also required. This second data link is to be used as a backup to process reconfiguration requests if the AEMIS minicomputer or the AEMIS data link should be out of service. In a signal processor (SP) office, assuming 91.7 percent data link occupancy, a single data link can process up to 7300 calls per hour. However, as the number of data links increases the expected occupancy on the data link decreases. Two or more AEMIS data links should be expected to handle a maximum of 6200 calls per hour per data link. In a central control (CC) office, assuming a 92.7 percent data link occupancy, a single data link can handle up to 8400 calls per hour. Multiple data links in a CC application can handle a maximum of 7000 calls per hour per data link.

10.03 Each DH11-AD 16-line multiplexer W/MC unit will accommodate up to 15 CRT termi-
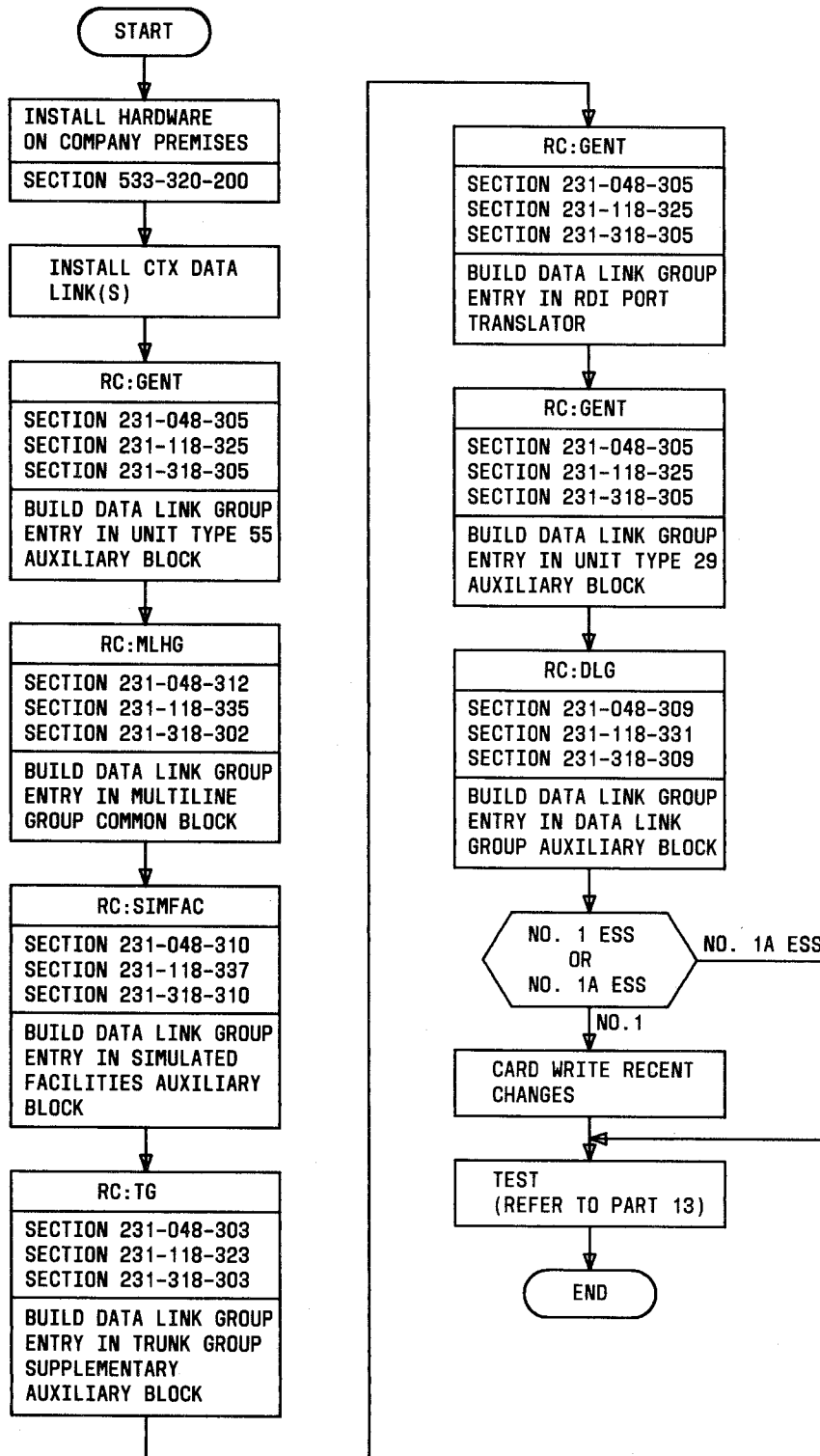
```
                    ┌─────────┐
                    │  START  │
                    └────┬────┘
                         ▼
              ┌───────────────────────┐                            ┌───────────────────────┐
              │ INSTALL HARDWARE      │                            │       RC:GENT         │
              │ ON COMPANY PREMISES   │                            ├───────────────────────┤
              ├───────────────────────┤                            │ SECTION 231-048-305   │
              │ SECTION 533-320-200   │                            │ SECTION 231-118-325   │
              └───────────┬───────────┘                            │ SECTION 231-318-305   │
                          ▼                                        ├───────────────────────┤
              ┌───────────────────────┐                            │ BUILD DATA LINK GROUP │
              │ INSTALL CTX DATA      │                            │ ENTRY IN RDI PORT     │
              │ LINK(S)               │                            │ TRANSLATOR            │
              └───────────┬───────────┘                            └───────────┬───────────┘
                          ▼                                                    ▼
              ┌───────────────────────┐                            ┌───────────────────────┐
              │       RC:GENT         │                            │       RC:GENT         │
              ├───────────────────────┤                            ├───────────────────────┤
              │ SECTION 231-048-305   │                            │ SECTION 231-048-305   │
              │ SECTION 231-118-325   │                            │ SECTION 231-118-325   │
              │ SECTION 231-318-305   │                            │ SECTION 231-318-305   │
              ├───────────────────────┤                            ├───────────────────────┤
              │ BUILD DATA LINK GROUP │                            │ BUILD DATA LINK GROUP │
              │ ENTRY IN UNIT TYPE 55 │                            │ ENTRY IN UNIT TYPE 29 │
              │ AUXILIARY BLOCK       │                            │ AUXILIARY BLOCK       │
              └───────────┬───────────┘                            └───────────┬───────────┘
                          ▼                                                    ▼
              ┌───────────────────────┐                            ┌───────────────────────┐
              │       RC:MLHG         │                            │       RC:DLG          │
              ├───────────────────────┤                            ├───────────────────────┤
              │ SECTION 231-048-312   │                            │ SECTION 231-048-309   │
              │ SECTION 231-118-335   │                            │ SECTION 231-118-331   │
              │ SECTION 231-318-302   │                            │ SECTION 231-318-309   │
              ├───────────────────────┤                            ├───────────────────────┤
              │ BUILD DATA LINK GROUP │                            │ BUILD DATA LINK GROUP │
              │ ENTRY IN MULTILINE    │                            │ ENTRY IN DATA LINK    │
              │ GROUP COMMON BLOCK    │                            │ GROUP AUXILIARY BLOCK │
              └───────────┬───────────┘                            └───────────┬───────────┘
                          ▼                                                    ▼
              ┌───────────────────────┐                            ╱─────────────────╲
              │      RC:SIMFAC        │                           ╱   NO. 1 ESS       ╲   NO. 1A ESS
              ├───────────────────────┤                          ⟨       OR           ⟩───────────┐
              │ SECTION 231-048-310   │                           ╲   NO. 1A ESS      ╱            │
              │ SECTION 231-118-337   │                            ╲─────────────────╱             │
              │ SECTION 231-318-310   │                                 │ NO.1                     │
              ├───────────────────────┤                                 ▼                          │
              │ BUILD DATA LINK GROUP │                            ┌───────────────────────┐       │
              │ ENTRY IN SIMULATED    │                            │ CARD WRITE RECENT     │       │
              │ FACILITIES AUXILIARY  │                            │ CHANGES               │       │
              │ BLOCK                 │                            └───────────┬───────────┘       │
              └───────────┬───────────┘                                        ▼◄─────────────────┘
                          ▼                                        ┌───────────────────────┐
              ┌───────────────────────┐                            │ TEST                  │
              │       RC:TG           │                            │ (REFER TO PART 13)    │
              ├───────────────────────┤                            └───────────┬───────────┘
              │ SECTION 231-048-303   │                                        ▼
              │ SECTION 231-118-323   │                                  ┌─────────┐
              │ SECTION 231-318-303   │                                  │   END   │
              ├───────────────────────┤                                  └─────────┘
              │ BUILD DATA LINK GROUP │
              │ ENTRY IN TRUNK GROUP  │
              │ SUPPLEMENTARY         │
              │ AUXILIARY BLOCK       │
              └───────────────────────┘
```

Fig. 12—Procedure for Adding the Interface With AEMIS Feature

nals. A maximum of two 16-line multiplexer W/MC units may be used.

10.04 One H312-A null modem (plus 50 percent spare) is required for each CRT terminal used in AEMIS.

10.05 One M25A cable is required for each port used on the DH11-AD 16-line multiplexer W/MC unit.

10.06 Either the 2640B, 8001, or ADM-2 CRT terminal may be used by the FG supervisor or the ACD supervisor. The number and type used are a function of the system configuration and a customer prerogative.

10.07 The ADM-2 is the only CRT terminal used by the attendant group supervisor. The number of CRT terminals required is a function of the system configuration.

10.08 One 103A2 data set is used with each DH11-AD 16-line multiplexer W/MC unit. A maximum of two 103A2 data sets may be used.

10.09 One 804B data auxiliary set is required for each 103A2 data set. A maximum of two 804B calling units may be used.

10.10 For remote operation, the following quantities of hardware are required:

(a) When CRT terminals are located more than 1000 feet from the PDP-11/45DW minicomputer, two 202T L1/L2 data sets and one 4-wire private line are required for each CRT terminal used.

(b) When the DATA 100 2423 line printer is located more than 20 feet from the PDP-11/45DW minicomputer, two 208A data sets and one 3002-type private line are required for each line printer used. In a remote operation, the line printer is connected to a DH11-AD port. Thus, the number of possible CRTs on that DH11-AD is reduced to 14.

10.11 For additional hardware and cabling information, refer to reference A(30) in Part 18.

11. SOFTWARE REQUIREMENTS

Note: This part contains cost factors and determination of quantities. Central Office Equipment Engineering System (COEES) Planning and Mechanized Ordering Modules are the recommended procedures for developing these requirements. However, for planning purposes or if COEES is not available, the following guidelines may be used.

MEMORY

A. No. 1 ESS

Fixed

11.01 Approximately 150 words of memory are required in the *base generic program (program store)* whether or not the Interface With AEMIS feature is used.

Conditional

11.02 The *optionally loadable feature package (program store)* MIS1 is required when the Interface With AEMIS feature is activated. This feature package contains 2304 words, 2148 of which are code words.

Variable

11.03 The following memory in *translations (program store)* is required when the Interface With AEMIS feature is applied:

- Two words (shared) in the unit type 55 auxiliary block

- One word in the MLG common block

- One word (shared) in the simulated facilities auxiliary block

- One word (shared) in the trunk group supplementary auxiliary block

- One word (shared) in the RDI port translator

- One word in the unit type 29 auxiliary block

- One word (shared) in the DLG translator.

B. No. 1A ESS

Fixed

11.04 Approximately 190 words of memory are required in the *base generic program*

(program store, file store) whether or not the Interface With AEMIS feature is used.

Conditional

11.05 The *optionally loadable feature package (program store)* MIS1 is required when the Interface With AEMIS feature is activated. This feature package contains 2976 code words.

Variable

11.06 The memory in *translations (unduplicated call store, file store)* required when the Interface With AEMIS feature is applied is the same as for No. 1 ESS. Refer to paragraph 11.03.

REAL TIME IMPACT

11.07 Cycle counts for call processing and trunk maintenance responses to AEMIS are given in Table C. In some cases, analysis must be done to determine whether a facility is associated with AEMIS. In these cases (only when MIS1 feature package is loaded), there are cycles spent even when no AEMIS messages have been sent. These cycles are listed in Table C as "OVERHEAD."

11.08 Cycle counts required to initialize AEMIS are given in Table D. The initialization will only occur when it is requested by AEMIS. The AEMIS can request any block of data individually (eg, time of day or call store configuration), or AEMIS can request that a full program store refresh or initialization be performed.

11.09 Cycle counts for specific reconfiguration requests to the ESS and specific reconfiguration responses to AEMIS are given in reference A(15) in Part 18.

11.10 The cycle time for the No. 1 ESS is 5.5 microseconds (0-percent speedup), 5.24 microseconds (5-percent speedup), or 5.0 microseconds (10-percent speedup). Clock speedup is available with 1E7 and base restarts of the 1E6 generic programs. The cycle time for the No. 1A ESS is 0.7 microsecond.

12. DATA ASSIGNMENTS AND RECORDS

TRANSLATION FORMS

12.01 The ESS translation forms affected by the AEMIS feature are as follows. Refer to C(1) in Part 18 for details.

- ESS 1107
- ESS 1506
- ESS 1514.

Recent Change Messages

12.02 Recent change messages affected by the Interface With AEMIS feature are as follows:

MESSAGE	FUNCTION
RC:MLHG	Keyword DLG adds the DLG to the MLG common block. [See references A(5), A(20), and A(23) for more detailed information.]
RC:SIMFAC	Keyword DLG adds the DLG to the simulated facilities auxiliary block. [See references A(4), A(21), and A(27) for more detailed information.]
RC:TG	Keyword DLG adds the DLG to the trunk group supplementary auxiliary block. [See references A(1), A(17), and A(24) for more detailed information.]
RC:DLG	Build translations for AEMIS data links. [See references A(3), A(19), and A(26) for more detailed information.]

13. TESTING

13.01 The TTY input and output messages given in references B(1) through B(4) in Part 18 can be used to verify the Interface With AEMIS feature. The messages are:

(a) VFY-UNTY-15 input message—Verifies the unit type auxiliary block for unit types 29 and 55. System response is a TR13 output message.

(b) V-SFGN input message—Verifies the simulated facility group. System response is a TR35 output message.

(c) VFY-RDIPORT input message—Verifies the RDI port translator. System response is a TR53 output message.

(d) VFY-CSTG-34 input message—Verifies the common block for a multiline group. System response is a TR15 output message.

TABLE C

PROCESSOR TIME FOR CALL PROCESSING AND TRUNK MAINTENANCE RESPONSES TO AEMIS

FUNCTION	CYCLES/AEMIS MESSAGE		OVERHEAD - NO AEMIS MESSAGE	
	NO. 1 ESS	NO. 1A ESS	NO. 1 ESS	NO. 1A ESS
Incoming step-by-step trunk seizure	111	222	3	6
All other trunk seizures	128	256	7	14
Simulated facility seizure	92	184	3	6
Simulated facility release	74	128	3	6
Simulated facility connect	113	226	6	12
Trunk connect	94	188	6	12
Maintenance:				
(a) Trunk is idled	162	324	81	162
(b) Trunk is active	148	296	81	162
(c) Trunk is locked out	150	300	81	162
(d) Trunk is disabled	152	304	81	162
(e) Trunk is on thaw	142	284	81	162
Trunk make-busy or carrier group alarm on	140	280	81	162
Trunk make-busy or carrier group alarm off	141	282	80	160
Agent console headset changes	70	140	0	0
Agent console key actions:				
(a) Alert key	70	140	0	0
(b) Report trouble key	70	140	0	0
(c) Assist key	70	140	0	0
(d) Supervisor key	70	140	0	0
(e) Direct call key	70	140	0	0
(f) Auxiliary work key	70	140	0	0
Per busy hour call (BHC) at least 3 messages will be sent to AEMIS (on queue, off queue, connect)	550	1100	0	0
Data link orders to AEMIS in response to system control requests from the CRT (per request)	150	300	0	0

(e) VFY-TKGN input message—Verifies the trunk group and will return the address of the supplementary trunk group auxiliary block which may be T-READ- (use DUMP:CSS in No. 1A ESS) to check the AEMIS translations. System response is a TR10 output message.

13.02 The Interface With AEMIS feature may be tested in three steps: (1) verify that interrogation requests can be made, (2) verify that reconfiguration requests are acted upon, and (3) verify that call processing data is sent to AEMIS.

13.03 The input format for the interrogation requests is specified in Table B.

13.04 The input format for the reconfiguration requests is specified in reference A(15) in Part 18. The results of the reconfiguration requests can be verified by using the display functions of the CRT terminal.

13.05 A set of call processing tests (Table E) should be made at the ACD. A test version of the customer status report must be built and monitored as call processing tests are performed. This ensures

TABLE D

PROCESSOR TIME FOR INITIALIZATION/PROGRAM STORE REFRESH REQUESTS

FUNCTION	CYCLES	
	NO. 1 ESS	NO. 1A ESS
Initialization:		
A. Time of day	50	100
B. Call store configuration:		
(1) Search each UTYN auxiliary block in office	100	200 ·
(2) Format queue data	100	200
(3) Invoked load compensating package (LCP) data:		
(a) Each LCP	85	170
(b) Each functional group (FG)	70	140
(c) Each row in FG	45	90
C. Trunk groups:		
(1) Search each TGN in office	130	260
(2) Format data link order (DLO) for each TGN assigned to ACD	45	90
(3) Format DLO for each TNN assigned to TGN in ACD	20	40
D. Load compensating packages:		
(1) Format DLO for each LCP assigned	80	160
(2) For each FG	40	80
(3) Format each DLO for every row of end FG	35	70
E. Simulated facility groups (SFG):		
(1) Search each SFG in office	50	100
(2) Format SFG data	25	50
F. Agent terminal to extension:		
(1) For each 1-second block data link loading entry	90	180
(2) For each agent terminal in ACD assigned or unassigned	110	220
G. Queue data:		
(1) Search each UTYN auxiliary block in office	100	200
(2) Format queue data	350	700
H. Program store refresh:		
Same processor time (cycles) as shown for initialization		

that customer traffic counts reflect the generated traffic. The correctness of the customer's reports indicate that (a) the translation data was correctly communicated to AEMIS and (b) the call processing event data is being sent to AEMIS. Additional call processing tests are specified in Table F. These tests deal specifically with trunk maintenance messages.

13.06 Additional test information for the Interface With AEMIS feature is contained in reference A(29) in Part 18.

14. OTHER PLANNING TOPICS

14.01 In order to ensure reservation of a production schedule for the DEC PDP11/45DW computer, Western Electric Regional Customer Service requires notification no less than 10 months in advance of the requested minicomputer ship date. In addition, approximately 2 weeks are required to install the PDP11/45DW computer and to run acceptance tests.

14.02 After the PDP11/45DW computer has been installed and tested, telephone company personnel must be allotted 1 to 2 weeks to connect the data links to the PDP11/45DW computer through the J59207C cabinet.

ADMINISTRATION

15. MEASUREMENTS

15.01 Not applicable.

16. CHARGING

AUTOMATIC MESSAGE ACCOUNTING

16.01 Not applicable.

UNIFORM SERVICE ORDER CODES

16.02 The applicable USOCs for the Interface With AEMIS feature may be found in the AT&T USOC Manual.

SUPPLEMENTARY INFORMATION

17. GLOSSARY

ACD—Automatic call distribution is a system used to concentrate, queue, and equitably distribute incoming telephone calls to assigned agents with maximum efficiency.

AEMIS—A computer-controlled Management Information System that provides the ACD customer with agent/traffic information, performance calculations, summarized historical data, and short term forecasts via a display screen (CRT) and/or a printer. In addition, requests for information and changes in the system configuration can be inputted by the CRT keyboard.

ASI—Alternate server intraflow/interflow places calls only on their primary QTL queue but allows them to be serviced by agents associated with other queues belonging to the same alternate server pool.

Functional Group—A functional group (split) is a grouping of agents assigned to handle one particular type of call.

Interflow—The redirecting of calls to other customer facilities (queues or agents) located in a different ACD system (either in the same or different central office).

Intraflow—The redirecting of calls to other customer facilities (queues or agents) located in the same ACD system (within the same central office).

LCP—Load compensating packages are predetermined agent position configurations that can be activated via the CRT/keyboard to accommodate changes in the volume of incoming ACD traffic due to lunch hours, holidays, weekends, etc.

QTL Group—A queueing for trunks and lines group is a group of agents or trunks sharing a QTL queue.

QTL Queue—A "queueing for trunks and lines" queue is a block of call store that temporarily stores and keeps track of the order of arrival of incoming ACD calls until they can be serviced by an agent.

18. REFERENCES

18.01 The following documentations contain information pertaining to the Interface With AEMIS feature.

A. Bell System Practices

(1) Section 231-048-303—Trunk Translation Recent Change Formats for TG, TGBVT, TRK,

CFTRK, TGMEM, CCIS, AND TKCONV (1E6/1AE6 and 1E7/1AE7 Generic Programs)—2-Wire No. 1 and No. 1A Electronic Switching Systems

(2) Section 231-048-305—RC Formats for GENT, PSBLK, PSWD, and SUBTRAN (1E6/1EA6 and 1E7/1AE7 Generic Programs)—2-Wire No. 1 and No. 1A Electronic Switching Systems

(3) Section 231-048-309—Centrex CO ESSX-1 Recent Change Formats for CTXCB, CTXDI, CTXEXR, CXDICH, DITABS, DLG, FLXDG, FLXRD, and FLXRS (1E6/1AE6 and 1E7/1AE7 Generic Programs)—2-Wire No. 1 and No. 1A Electronic Switching Systems

(4) Section 231-048-310—Recent Change Formats for ANIDL, CAMA, CFG, CPD, JUNCT, MSN, NMTGC, PLM, ROTL, SIMFAC, TMBCGA, CLAM, PUC, PUCMB, RSP, RSSCB, RCHAN, LRE, BISI, and SCGA (1E6/1AE6 and 1E7/1AE7 Generic Programs)—2-Wire No. 1 and No. 1A Electronic Switching Systems

(5) Section 231-048-312—Line RC Formats for LINE, TWOPTY, MPTY, SCLIST, MLHG, ACT, CFV, OBS, VSS, SIMFAC, and MOVE (1E6/1AE6 and 1E7/1AE7 Generic Programs)—2-Wire No. 1 and No. 1A Electronic Switching Systems

(6) Section 231-061-450—Program Stores—Network Switching Engineering—No. 1 Electronic Switching System

(7) Section 231-061-460—Call Stores—Network Switching Engineering—No. 1 Electronic Switching System

(8) Section 321-062-460—Processor Community Engineering, Program Stores—Network Switching Engineering—No. 1A Electronic Switching System

(9) Section 231-062-465—Processor Community Engineering, Duplicated Call Store—Network Switching Engineering—No. 1A Electronic Switching System

(10) Section 231-062-470—Processor Community Engineering, Unduplicated Call Store—Network Switching Engineering—No. 1A Electronic Switching System

(11) Section 231-062-475—Processor Community Engineering, File Stores—Network Switching Engineering—No. 1A Electronic Switching System

(12) Section 231-090-336—Feature Document ACD Multiline Group Hunt Feature—2-Wire No. 1 and No. 1A Electronic Switching Systems

(13) Section 231-090-399—Feature Document—Automatic Call Distribution (ACD) Feature, Phase 2 Description—2-Wire No. 1 and No. 1A Electronic Switching Systems

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

(15) Section 231-090-414—Feature Document—ACD Interface With 90A-CPS and Coordinator CRT Terminal—2-Wire No. 1 and No. 1A Electronic Switching Systems

(16) Section 231-090-415—Feature Document—Automatic Call Distribution Agent Log-In Feature—2-Wire No. 1 and No. 1A Electronic Switching Systems

(17) Section 231-118-323—Trunk Translation Recent Change Procedures for TG, TGBVT, TRK, CFTRK, and TGMEM (CTX-6 Through 1E5 Generic Programs—2-Wire No. 1 Electronic Switching System

(18) Section 231-118-325—RC Procedures for PSWD, GENT, PSBLK, and SUBTRAN (CTX-6 Through 1E5 Generic Programs)—2-Wire No. 1 Electronic Switching System

(19) Section 231-118-331—Centrex CO RC Procedures for CTXCB, CTXDI, CTXEXR, CXDICH, DITABS, DLG, FLXDG, FLXRD, and FLXRS (CTX-6 Through 1E5 Generic Programs)—2-Wire No. 1 Electronic Switching System

(20) Section 231-118-335—Line RC Procedures for LINE, TWOPTY, MPTY, SCLIST, MLHG, ACT, and CFV (CTX-7 Through 1E5 Generic Programs)—2-Wire No. 1 Electronic Switching System

(21) Section 231-118-337—RC Procedures for MSN, CPD, TMBCGA, CAMA, ANIDL, ROTL, PLM, NMTGC, SIMFAC, and CFG (CTX-6

Through 1E5 Generic Programs)—2-Wire No. 1 Electronic Switching System

(22) Section 231-119-320—Procedures For Building Head Tables, Data Tables, Subtranslators, and Unit Type Translators (CTX-6 Through CTX-8, Issue 3, Generic Programs)—2-Wire No. 1 Electronic Switching System

(23) Section 231-318-302—Line RC Procedures for LINE, TWOPTY, MPTY, SCLIST, MLHG, and CFV (Through 1AE4 Generic Program)—2-Wire No. 1A Electronic Switching System

(24) Section 231-318-303—Trunk Translation RC Procedures for TG, TGBVT, TRK, CFTRK, and TGMEM (Through 1AE4 Generic Program)—2-Wire and HILO 4-Wire No. 1A Electronic Switching System

(25) Section 231-318-305—RC Procedures for PSWD, PSBLK, SUBTRAN, and GENT (Through 1AE4 Generic Program)—2-Wire No. 1A Electronic Switching System

(26) Section 231-318-309—Centrex CO RC Procedures for CTXCB, CTXDI, CTXEXR, CXDICH, DITABS, DLG, FLXDG, FLXRD, and FLXRS (Through 1AE4 Generic Programs)—2-Wire No. 1A Electronic Switching System

(27) Section 231-318-310—RC Procedures for ANIDL, CAMA, CPD, JUNCT, MSN, NMTGC, PLM, ROTL, SIMFAC, and TMBCGA and CLAM (Through 1AE4 Generic Program)—2-Wire No. 1A Electronic Switching System

(28) Section 533-205-200—Phase 2 ACD-ESS 60B Customer Premises System Identification Information

(29) Section 533-210-000—Phase 2 ACD-ESS Management Information System (AEMIS) Installation, Test, and Maintenance (when published)

(30) Section 533-210-200—Phase 2 ACD-ESS Management Information System (AEMIS) Identification Information

(31) Section 999-500-118—AEMIS Attendant Group Supervisor CRT Terminal Manual

(32) Section 999-500-119—AEMIS Functional Group Supervisor and ACD Supervisor Manual.

B. TTY Input and Output Manuals

(1) Input Message Manual IM-1A001—No. 1 Electronic Switching System

(2) Input Message Manual IM-6A001—No. 1A Electronic Switching System

(3) Output Message Manual OM-1A001—No. 1 Electronic Switching System

(4) Output Message Manual OM-6A001—No. 1A Electronic Switching System.

C. Other Documentation

(1) Translation Guide TG-1A—2-Wire No. 1 and No. 1A Electronic Switching Systems

(2) Translation Output Configuration PA-591003—No. 1 Electronic Switching System

(3) Translation Output Configuration PA-6A002—No. 1A Electronic Switching System

(4) Parameter Guide PG-1—No. 1 Electronic Switching System

(5) Parameter Guide PG-1A—No. 1A Electronic Switching System

(6) Office Parameter Specification PA-591001—No. 1 Electronic Switching System

(7) Office Parameter Specification PA-6A001—No. 1A Electronic Switching System

(8) BISP 759-100-000—Subject Index—Central Office Equipment Engineering System (COEES)

(9) BISP 759-100-100—General Description—Central Office Equipment Engineering System (COEES).

TABLE E

CALL PROCESSING TESTS

TERMINALS	TEST ACTION	ESS — AEMIS MESSAGE SEQUENCE	COMMENTS
1. Agent console	Headset IN	SOP0-State 11, SOP0-State 10	Console is occupied and idle in ACW state.
2. Agent console	Agent operates IN key	SOP0-State 10	Agent is available to receive calls in ACD pool.
3. Agent console	Agent operates AUTO-IN key	None	Calls will terminate to agent automatically in ACD pool.
4. ACD line-agent console	ACD lines dials ACD LDN	DOP2, SOP3, DOP0, SOP0-State 13	Agent hears zip tone; call terminates to agent; agent console is in the ACD state (leave call up).
5. Agent console connected in ACD call	Agent operates CALL ID key	None	Agent should hear repeat of COA if provided; agent remains in ACD state.
6. Agent console connected in ACD call	Agent operates ALERT key	SOP0-State 13, SOP1-BUTTON = 0	Emergency trace of agent call occurs at central office TTY; lamps on ACD console and status display flash; agent remains in ACD state.
7. Agent console connected in ACD call	Agent release ALERT key	SOP0-State 13, SOP1- BUTTON = 1	Lamps return to steady; agent remains in ACD state.
8. Agent console connected in ACD call	Agent operates RPT TBL key	SOP1-BUTTON = 3	RPT TBL key will be lit; agent remains in ACD state.
9. Agent console connect in ACD call, assistance supervisor	Agent operates ASST key	SOP1-BUTTON = 2	Original call on hold; agent is connect to assistance DN; agent console remains in ACD state.
10. Agent console on hold to ACD call, connected assistance supervisor	Agent operates RCL key	None	3-way connection between agent, supervisor, and customer; agent console remains in ACD state.
11. Agent console in 3-way path with customer assistance supervisor	Agent operates RCL key	None	Drop assistance supervisor, customer, and agent in talking path; agent console remains in same state.

TABLE E (Contd)

CALL PROCESSING TESTS

TERMINALS	TEST ACTION	ESS — AEMIS MESSAGE SEQUENCE	COMMENTS
12. Agent console connected in ACD call	Agent operates AUX-WORK key	SOP0-State 33	No change in path; agent console is in auxiliary work state.
13. Agent console connected in ACD call	Agent operates NEXT CALL key	SOP0-State 33	Path is disconnected; agent remains in auxiliary work state.
14. Agent console	Agent releases AUX-WORK key	SOP0-State 10	Agent console is occupied and idle in ACD pool.
15. Agent console	Agent operates EXTENSION key	SOP0-State 12	Agent console is in outgoing extension state.
16. Agent console destination of direct call key 1	Agent operates DIRECT call key 1 (DCK1)	SOP1-BUTTON = 4 (DCK1) (FOR DCK2: BUTTON = 5 DCK3: BUTTON = 6 DCK4: BUTTON = 7	Call is completed to destination of DCK1; console remains in outgoing extension state.
17. Agent console	Agent operates NEXT CALL key	SOP0-State 11, SOP0-State 12	Agent console is idled; call is disconnected; console remains in outgoing extension state.
18. Agent console, supervisor DN	Agent operates SUPV key	SOP1-BUTTON = 8 (SUPV)	Call terminates to supervisor extension; console remains in outgoin extension state.
19. Agent console, connected to supervisor	Agent operates NEXT CALL key	SOP0-State 11, SOP0-State 12	Supervisor and agent are disconnected; console remains in outgoing extension state.
20. Agent console	Agent operates IN key	SOP0-State 10	Agent is in ACD pool.
21. Supervisor extension-agent	Supervisor dials agent; agent answers depressing EXT key	SOP0-State 16	Agent is in incoming extension state (disconnect all calls; test is finished)

TABLE F

CALL PROCESSING TESTS

TERMINALS	TEST ACTION	ESS — AEMIS MESSAGE SEQUENCE	COMMENTS
1. Dedicated ACD-ESS trunk, trunk and line test panel TLTP	Maintenance person dials up TNN or TLTP and makes trunk maintenance busy.	SOP4, SOP6, SOP11	Trunk is removed from service and made maintenance busy.
2. Dedicated ACD-ESS trunk, TLTP	Maintenance person idles maintenance busy trunk from TLTP.	SOP6, SOP12, SOP4	Trunk is returned to service.
3. Dedicated ACD-ESS trunk, maintenance TTY (MTC-TTY)	Maintenance person types in T-TNN-LO00XXXXXX* at the MTC-TTY.	SOP4, SOP6, SOP11	Trunk is removed from service (locked out).
4. Dedicated ACD-ESS trunk, MTC-TTY	Maintenance person types in T-TNN-MA00XXXXXX* at the MTC-TTY.	SOP6, SOP12, SOP4	Trunk is returned to service.
5. Dedicated ACD-ESS trunk, MTC-TTY	Maintenance person types in T-TNN-DA00XXXXXX* at the MTC-TTY.	SOP5	Trunk is disabled.
6. Dedicated ACD-ESS trunk, MTC-TTY	Maintenance person types in T-TNN-MI00XXXXXX* at the MTC-TTY	SOP6, SOP12, SOP4	Trunk is returned to service.
7. Dedicated ACD-ESS trunk, associated with trunk make-busy key (TMB)	Maintenance person operates TMB key.	SOP7	Trunk is made busy.
8. Dedicated ACD-ESS trunk, associated with TMB	Maintenance person removes TMB key.	SOP7, SOP4	Trunk is available for service.
9. Dedicated ACD-ESS trunk, associated with carrier group alarm (CGA)	Maintenance person operates the CGA key	SOP7	Carrier group alarm is activated for -ACD-ESS trunk.
10. Dedicated ACD-ESS trunk associated with CGA	Maintenance person releases CGA key	SOP7, SOP4	Carrier group alarm is deactived ACD-ESS trunk.
11. Dedicated ACD-ESS trunk, agent console	Place call over trunk to ACD, answer, disconnect only at ACD	SOP6 (SOP4 is sent when disconnect is received)	Trunk goes high and wet waiting for disconnect from other end.

* Where X = TNN of dedicated ACD-ESS trunk