- Whether or not the distant DN can be retrieved by RCLDN for calls originating from the line making the RDLS request
- Whether or not the distant line has CFV, CFBL, or CFDA active
- Line service code (major class)
- Multistatus - whether or not the distant line is multiline hunt, PBX, or multiparty
- Centrex extension (for centrex only).

Reverting Call [CC-1/1AE1] (AT&T 231-090-143) is a call that takes place between customers who share the same party line.

Ring Reminder (RNGR) [1E6/1AE6] (AT&T 231-090-074) provides an alerting signal at the base station to inform the CFV customer that a call has been forwarded.

RSS—See Remote Switching System.

Satellite Attendant Transfer [CTX-4/1AE1] (AT&T 231-090-079) provides the same service as the call transfer—attendant to satellite locations having no attendant. Satellite attendant transfer service can be provided over both tie trunk facilities and FX facilities for routing calls to an attendant at the main location.

Screen List Editing (SLE) [1AE9] (AT&T 231-390-235 and AT&T 231-390-515) allows the customer to interactively build and maintain a list of numbers used by LASS "client" features. A client is defined as a feature that needs a screening list. The SLE clients are Selective Call Forwarding, Distinctive Alerting, and Selective Call Rejection features.

Screen List Editing Privacy [1AE10.02] (AT&T 231-390-515) custom feature entries added to a customer's screening list from the LHB (line history block) are always marked private. If the set card is assigned, SLEPR marks an entry made from the LHB as

private only if the privacy indicator in the LHB is set. Otherwise, the entry from the LHB will be marked as public on the screening list. Public entries are voiced back while private entries are not. SLEPR (Screen List Editing Privacy) is a custom feature controlled by a fast feature set card.

Selected Traffic Data to Customer (CTRF) [1E3/1AE4] (AT&T 231-090-340) provides for collecting traffic data relating to a Centrex/ESSX-1 customer's private facilities. The data is transmitted to the customer premises via dedicated facilities where it is printed and/or displayed. Three options are available for CTRF data transmission:

- Dedicated, on premises, receive only TTY channel
- Trunk facilities to a 90B CPS dynamic traffic display console
- Special data link to a customer's private network control center.

Effective with **1AE7** (1A ESS switch only), the following enhancements to CTRF are available.

a. ***Improved Output:*** In addition to the standard TTY channel baud rate of 110, optional baud rates of 300 and 1200 are available.

b. ***Increased Number of Ports:*** The number of TTY channels per office is increased from 3 to 15.

As a part of the CTRF feature, NUTS and LUTS service is provided to check the usage of certain trunks during a 2-hour time period. Once every 2 hours, lists are printed of all trunks that have not been found traffic busy or locked-up (off-hook) during the preceding 2 hours. The CTRF feature group is required.

Selective Call Forwarding—LASS [1AE9] (AT&T 231-390-236) allows the customer to selectively call forward, based on the calling party attributes. Only incoming calls from specified CLDNs

(calling line directory numbers) will be forwarded. All other incoming calls will not forward; rather, they will receive standard terminating treatment for the base station. The customer has the ability to obtain the status of and modify the "selective call forwarding screen list" of DNs. If DN added to the list as "the DN of the last call received" is private, it is not revealed to the customer. (Also see Screen List Editing Privacy.)

Selective Call Rejection—LASS [1AE9] (AT&T 231-390-238) provides a telephone customer with the capability of not being alerted by calls from a specified set of DNs. The customer inputs the DNs to be rejected from the station set. These DNs are specified either directly (dialed in) or as the DN of the last call received. The customer has the ability to obtain the status of and modify the "rejection screen list" of DNs. A DN added to the list as "the DN of the last call received" is private, it is not revealed to the customer. (Also see Screen List Editing Privacy.)

Selective Carrier Denial (SCD) [1AE9.07] (AT&T 231-090-120) provides the capability of screening and blocking certain carrier handled calls from those lines that have been designated as nonpayer subscribers. A line which is denied access to a particular carrier is routed to error tone or announcement.

Selective Customer Control of Facilities (SCCOF) [1E6/1AE6] (AT&T 231-090-169) provide the Centrex/ESSX-1 attendant with the ability to make an individual facility group inaccessible to outgoing traffic. The SCCOF feature is activated and deactivated under key control in such a way that one key controls one facility group. Both physical and simulated facilities can be controlled using the SCCOF feature. When SCCOF is active on a facility group, that group is inaccessible to all outgoing traffic, regardless of origin or dialed digits. The feature group required to provide SCCOF is SCOF.

Selective Delay Announcements [1E4/1AE4] (AT&T 231-090-123) provide the capability for giving different announcements to

different calling parties when incoming calls to a multiline hunt group are not serviced within a preset time interval.

Semirestricted Centrex Station Class (SEMI) [1E3/1AE4] (AT&T 231-090-359) provides a Centrex/ESSX-1 terminating major class which restricts DID access but permits access from intragroup stations, attendant, tie lines, and FX lines. In addition, call forwarding and call transfer of DID calls are permitted to these semirestricted stations.

Separation of Automatic Recall/Automatic Callback With Two Line History Blocks [1AE10.01] (AT&T 231-390-239) allows the Automatic Recall and Automatic Callback to be accessed as an individual feature. The separated Automatic Recall capability allows each LEN/DN in the office to access the LOCDN (last outgoing call directory number) or extension (last party called by the customer). The separated Automatic Callback capability allows each LEN/DN to access the LICDN (last incoming call directory number) or extension (last party to alert the customer). The separated Automatic Recall (9SAR2) and Automatic Callback (9SAC2) may be obtained as individual features or individual capabilities or as a combined feature (9SAR). The Separation of AR/AC feature requires the Two Line History Blocks feature (9S2LHB).

Series Completion [CC-1/1AE1] (AT&T 231-090-179) starts hunting with the called line and busy tests each line in the hunting group until either an idle line is found, the end of the hunting group is reached (regular hunting), or the starting line is reached (circular hunting). The size of the series hunting group cannot exceed 16.

Service Code Confirmation Timing (SCCT) [1AE9.01] (AT&T 231-390-289) protects against unintentional calls reaching any service code number. An unintentional call is a call which is inadvertently misdialed. Unintentional calls which are completed to service code number (for example, 411, 911) are inconvenient for both the originating party and the answering party.

Service Switching Point (SSP)—CCS7 [1AE10.01] (AT&T 231-390-509) provides for the implementation of the Number Services calls. The SSP feature provides the ability to recognize Number Service calls and distribute these calls to the appropriate Number Service application. This feature requires either the AMA Standard Entry or the Old Format AMA for Number Services feature to provide the delivery mechanism for the AMA records. See the Network Interconnect—Service Switching Point/800 feature for interaction.

Shared EPSCS Network (SEN) [1E6] (AT&T 231-190-149) allows trunks between EPSCS switches to be shared among EPSCS customers. With SEN, each EPSCS customer location can be homed to the nearest EPSCS switch, thereby reducing the access costs since shorter dedicated access trunks are required. A customer identification is transmitted with each call to allow the terminating EPSCS switch to separate traffic for each customer. This feature is available with the EPS2 feature group.

Shared/Split NXX (S/SNXX) [1AE10.08] (AT&T 231-390-239) enhancement optionally allows a TCAP query to be sent for a number that has a shared or split NXX. "Shared NXX" means that all ten thousand directory numbers for that NXX are shared between switches. "Split NXX" means that thousand's block of numbers are assigned to different switches. This enhancement impacts the decision-making process used by the RDLS primitive to determine whether or not to send a TCAP query for information. RDLS is a LASS primitive that retrieves line status information for client features. Two LASS clients are the AR/AC features and the SLE primitive. AR/AC uses the information "retrieved" by RDLS to determine whether the activation should be allowed and, when allowed, if immediate or delayed processing should be done. SLE uses the information to determine if the number should be allowed on a screening list.

A shared/split NXX number is identified as "intraoffice". Without the S/SNXX enhancement, RDLS returns a status of "unassigned"

to the client routines because terminating DN translations indicate that the DN points to a route index. This results in long-term denial treatment by AR/AC and SLE.

Silence, Tone, or Audible Ringing (STAR) [1E5/1AE5] (AT&T 231-090-056, AT&T 231-090-081, and AT&T 231-090-370) allows the originating party to receive silence, tone, audible ringing, music, or announcements on a call waiting or camp-on call. Call waiting originating cannot receive silence.

Simplified Message Service Interface (SMSI) [1AE7] (AT&T 231-390-176) provides centralized and personalized intraoffice telephone answering and message service capabilities for centrex and POTS customers.

Simplified Message Service Privacy Control (SMSPC) [1AE8A.09] provides the ability to restrict the printing of calling party directory number by the 1A ESS switch SMS feature.

Single Activation Selective Call Forwarding (SASCF) [1AE10.02] (AT&T 231-390-236) feature provides the capability to enter or change the remote DN (that is, forwarded to number), during SLE. This enhancement also removes the requirement that the SCF customer must also subscribe to and activate the CFV (Call Forwarding Variable) feature. However, if an end user has subscribed to both features, there is a restriction that they cannot be active at the same time.

Single Digit Dialing [CTX-7/1AE1] (AT&T 231-090-400) permits Centrex/ESSX-1 station users to reach any of a preselected group of stations or other internal facilities by dialing single digit codes.

Single Line Remote Call Forwarding (SLRCF) [1AE8A.10] (AT&T 231-390-396) allows a POTS line to have RCF service without requiring a SFG and associated limited access simulated facility registers.

Single Line Variety Package (SVP) [1AE8A.09] (AT&T 231-390-381) allows a line with multiple station sets (extensions) which share the same network appearance (DN) to function as a flexible communications system. The SVP with the Home Intercom feature provides the following capabilities: intercom code dialing, selective intercom dialing, selective call transfer, and dialable call hold.

Sleeve Lead Control [CC-1/1AE1] (AT&T 231-090-121) provides for the operation of one or more relays (up to a maximum of three) when a call is originated from or terminated to a line. The relays(s) can be used to control equipment external to the switching machine. A third wire is required.

Source Billing of Attendant Handled Calls (SBAC) [CTX-5/1AE1] (AT&T 231-090-147) causes the attendant's BDN (billing directory number) to be replaced with the source party's BDN in all AMA records which result from the Centrex/ESSX-1 attendant extending a call. This change in BDNs in the AMA record occurs only if the source party belongs to the same master centrex complex as the attendant.

Special Tone Upon Queue Entry [1E4/1AE4] (AT&T 231-090-123) provides for a customer-provided special tone to be given to a calling party upon queue entry.

Speed Calling [CC-1/1AE1] (AT&T 231-090-401) allows a customer to assign abbreviated 1- or 2-digit codes to certain frequently called numbers. The establishment of these codes permits dialing to selected numbers using fewer digits than normally required. (Also see Customer Changeable Speed Calling.)

For centrex lines, 2-digit speed calling is available either on a group or individual basis. Two-digit individual speed calling is available with **1AE7** and later (1A ESS switch only).

Station Dial Conference [CTX-6/1AE1] (AT&T 231-090-116) allows a Centrex/ESSX-1 station user to establish conference

connections involving up to six conferees (including the conference controller) without the aid of an attendant.

Station Message Detail Recording (SMDR) [CTX-6/1AE1] (AT&T 231-090-340) provides a record of calls originated over FX, WATS, CCSA, and the MTS Network (toll) by Centrex/ESSX-1 stations. The record includes the calling station number, called number, date, time of day, length of call and type of facility used. In addition, for MTS calls the charge incurred is recorded.

Station Message Detail Recording to Basic Communications Package via 1A APS (SBVA) Input/Output Processor [1AE10.06] (AT&T 231-090-166 and AT&T 231-390-069) enhancement allows a data facility to receive a message detail record composed of call attempts and related data for cost allocation and telecommunication system management. With the SBVA feature, a copy of SMDR/XMDR records that are sent to the RAO (revenue accounting office) via MDR RAO will be sent to the BCP or equivalent device via the APS. These records are sent over an asynchronous data link in ASCII format.

Station Message Detail Recording to Customer Premises [1E6/1AE6] (AT&T 231-090-166) provides a data facility to receive a message detail record composed of call attempts and related data for cost allocation and telecommunications system management. The feature group required to provide station message detail recording to customer premises is ETS. (Also see Expanded SMDR.)

Station Message Detail Recording - Electronic Tandem Switching Account Code [1AE10.07] (AT&T 231-090-166) enhancement optionally provides CDAR (customer dialed account recording) digits in the ETS account code digit field of the SMDR record sent to the customer. This enhancement also removes the ETS account code restriction of dialing a lead account digit in the range of 2 through 9. Also, the recent change restriction that

customers must have XMDR (Expanded Message Detailed Recording) to set MDRD not equal to 0 (XMDR recording digits) on CDAR access codes will be removed.

Station Message Register Service (SMRS) [CTX-7/1AE1] (AT&T 231-090-402) provides message unit information to message registration equipment centrally located on a customer's premises. This information is provided on a per-station-line basis for each completed outgoing local-service call made from the station. This feature can be used with either electromechanical message registers or electronic display equipment (90A CPS).

Station-to-Station Dialing [CTX-1/1AE1] allows the station user to directly dial other stations within the same Centrex/ESSX-1 group without the assistance of the attendant.

Tandem Tie Trunk Service (AT&T 231-090-254 and AT&T 231-090-256) provides nonsenderized private line service. There are two versions as follows:

a. **Ordinary 1XX (1XX) [CTX-1/1AE1]** inherently has operating noise and, sometimes, poor transmission quality.

b. **Improved 1XX (I1XX) [1E6/1AE6]** provides improved noise and transmission characteristics. The feature groups required to provide I1XX are I1XX and DPRP.

Three-Way Calling [CTX-5/1AE1] (AT&T 231-090-080) allows a subscriber to add a third party to any established call without the assistance of an operator. The ability to hold one party with privacy exclusion while dialing and talking with another party (referred to as consultation hold) and the ability to include the held party in a three-party conference (referred to as add-on) are combined in the Three-Way Calling feature. (Also see Usage Sensitive TWC.)

Through Dialing [CTX-5/1AE1] (AT&T 231-090-253) allows Centrex/ESSX-1 station users to complete dialing on other than

station-to-station calls after the attendant selects the trunk facility on attendant-handled outgoing calls.

Tie Trunk—Nonsenderized [CTX-1/1AE1] (AT&T 231-090-254) is a switching method whereby a Centrex/ESSX-1 user directly controls, in stages, the routing of an outgoing call over tie or FX trunk facilities through the originating as well as any intermediate switches. A user is said to "cut-through" these offices.

Tie Trunk—Nontandem [CTX-1/1AE1] (AT&T 231-090-256) provides customer dedicated 1-way or 2-way trunks between two switching machines without any intermediate switching.

Tie Trunk—Senderized [CTX-1/1AE1] (AT&T 231-090-256) is a switching method whereby outpulsed signals are transmitted in response to information received from another part of the system.

Toll Diversion to Attendant (TOLD) [CTX-7/1AE1] (AT&T 231-090-321) allows a toll call placed from a toll or code restricted Centrex/ESSX-1 station to be intercepted and routed to the attendant.

Toll Office [AT&T 231-090-366 (HILO) and AT&T 231-090-372 (2-Wire)] allows telephone calls between population centers (that are separated by considerable distances) to be switched through toll offices or intertoll trunks that connect to toll offices in other localities. A toll office may also have trunks to tandem offices, direct trunks to nearby local central offices and, to a limited extent, direct connections to subscribers.

Tone, Silence, or Music [1E3/1AE4] (AT&T 231-090-123), optional delay announcement capability provides for terminating a calling party to special tone, silence, or music between and following the delay announcements instead of normal audible ringing tone.

Tones and Announcements to ACD Agents (AT&T 231-090-338) provide increased call handling efficiency. The tones and announcements feature includes:

a. **Daily Announcements [1E4/1AE1]** allow agents to dial up access to a customer recorded announcement provided from customer premises equipment or from the CSRAF. This announcement informs agents of any changes effecting the operation of the business, such as a change of service, price, or schedule provided by agents.

b. **Audible Indication of Intraflowed or Interflowed Calls [1E4/1AE1]** provides a distinctive intermittent audible signal consisting of 100-millisecond bursts of tone spaced 100 milliseconds apart for approximately 500 milliseconds. It is applied to an agent's audio path in place of zip tone to indicate receipt of an intraflowed or interflowed ACD call.

c. **City-of-Origin Announcement [1E3/1AE1]** provides an audible announcement to the ACD agent identifying the origin of the incoming trunk group.

d. **Supervisor to Agent Communication [1E4/1AE1]** allows a supervisor to call or signal an agent.

e. **Zip Tone [1E3/1AE1]** provides a 480-Hz signal to alert the ACD agent that an incoming call is going to be terminated at that console.

f. **Queuing Intraflow Enhancement [1AE8A.15]** allows regular zip tone to be given on calls that intraflow to another queue.

Total Separation of Selective Call Forwarding [1AE10.03] (AT&T 231-390-523) is one of the many features provided by LASS. SCF was first introduced as a feature with the requirement that CFV (Call Forwarding Variable) must be active. This requirement was changed so that now Total Separation of SCF allows SCF and CFV to be active concurrently. Total Separation of SCF stores the

last valid and confirmed remote DN. The remote DN is not permanently stored if the customer's screening list is empty. (Also see Selective Call Forwarding and Single Activation Selective Call Forwarding.)

Touch-Tone Dialing [CC-1/1AE1] provides for dialing 0 through 9, *, and # using multifrequency signals. Any type of customer line may be equipped for this feature.

Traffic Data to Customer (Pollable)—ETS [1E6/1AE6] (AT&T 231-090-168) provides the ETN (electronic tandem network) customer with the ability to obtain, via a dial up data link facility, ETN facility traffic reports and nonusage and locked-up trunk scan (NUTS and LUTS) links. The feature groups required to provide PTRF are ETS, PUC, PDL, and CTRF.

Transaction Capabilities Application Part (TCAP)—CCS7 [1AE10.01] (AT&T 231-390-508) serves as an interface between features such as Number Services or LASS and the CCS7 SCCP. The purpose of this interface is to allow these features to send and receive messages formatted in accordance with SCCP CCS7 TCAP protocol. These messages allow the exchange of information between the 1A ESS switch and other switches or data bases (for example, SCP via a STP). TCAP interacts with the MIP (message interface processor) feature.

Traveling Class Mark (TCM) [1E6 (EPSCS) and 1E6/1AE6 (ETS)] (AT&T 231-090-138) allows for carrying class of service information along with the called number through an ETS or EPSCS private customer network. The TCM is used to provide information for downstream routing and screening. The feature groups required to provide TCM are TCM and ETS or EPSC.

Trunk Answer From Any Station (TAS) [CTX-1/1AE1] (AT&T 231-090-260) allows calls directed to night stations via the Night Service feature to be answered from any other nonrestricted

station in the centrex complex by dialing a special trunk answer code and using the Call Pickup feature.

Trunk Cutover Control provides additional trunk testing features and procedures to simplify and expedite trunk testing during pre-cutover activities. The TCCP feature group is required.

Trunk Dial Transfer [CTX-5/1AE1] (AT&T 231-090-079) provides the ability to give call transfer—individual to centrex tie trunks.

Trunk Group Busy Lamp (TGBL) [CTX-1/1AE1] [AT&T 231-090-262 (50A CPS), AT&T 231-090-177 (50B CPS), and AT&T 231-090-060 (51A CPS)] provides a console attendant with a visual indication when all trunks in a trunk group are busy. The trunk groups that may be equipped with this feature on a selective basis are exchange network, simulated facilities groups, tie trunks, and CCSA.

Trunk-to-Trunk Fraud [1AE9.07] enhancement gives the 1A ESS switch the ability to tear down calls due to signaling irregularities over a trunk-to-trunk configuration. The enhancement uses the existing strategy in SIGI that detects and tears down line-to-trunk fraud calls. This enhancement is activated by the translations office options table. Formerly, setting this bit only resulted in line-to-trunk fraudulent calls being torn down. Now it affects both line-to-trunk and trunk-to-trunk fraudulent calls.

Type 27 AMA Modification [1AE8A.08] (AT&T 231-390-063), in conjunction with the TAMA (Message Detail Recording on Tie Trunks), generates type 27 AMA records for call originations via tie trunks and foreign exchange trunks. This feature provides three service feature codes (that is, 85, 86, and 87) for Data Group A2, which is formatted as part of a type entry code 27 AMA record. Service feature codes 85, 86, and 87 indicate 5-digit, 6-digit, and 7-digit tie trunk and/or foreign exchange trunk call originations, respectively. The number of digits dialed includes the dialed access codes.

Uniform Call Distribution (UCD) [CTX-6/1AE1] (AT&T 231-090-180) is a type of hunting which provides for an even distribution of incoming calls among the available members of a hunt group.

Uniform Numbering—See Electronic Tandem Switching.

Universal Emergency Service Number 911, the 3-digit telephone number 911, has been designated for public use throughout the United States to report an emergency and/or to request emergency assistance. It provides direct access to a PSAP (public safety answering point) without charge to the calling station. Two levels of service are available:

a. **Basic 911 [CTX-6/1AE1]** (AT&T 231-090-287) provides the capability to route 911 calls to a single PSAP.

b. **Enhanced 911 [1E5/1AE5]** (AT&T 231-090-288) provides the capability to selectively route a 911 call originated from any station in the 911 primary service area to the correct PSAP designated to serve the originating station's location. The E911 feature group is required.

Usage Sensitive Three-Way Calling (USTWC) [1AE8A] (AT&T 231-390-086) gives the telephone company the option of offering the Three-Way Calling feature to POTS customers on a casual use basis without the need for the customer to subscribe to the TWC feature.

User Dialed Authorization Codes [1E6/1AE6] (AT&T 231-090-135) provide the ability to require code numbers to be dialed by the originating party for cost accounting and call routing purposes. The ETS and IAC feature groups are required.

Variable Length Delay Announcement [1E4/1AE4] (AT&T 231-090-123) provides for variable delay announcements that may vary in length from 4 to 48 seconds.

Variable Trigger for Calls Waiting Lamps [CTX-5/1AE1] (AT&T 231-090-082) triggers a calls waiting lamp as a function of the number of active consoles and calls waiting for an attendant, thereby relating lamp indications to speed of answer.

Voice/Data Protection [1AE9] (AT&T 231-390-087) feature inhibits 1A ESS switch features which direct a tone toward a busy line and/or allow an additional party to add onto an existing connection. This feature allows data transmission and interruption features to coexist on a single line and/or in a single centrex group.

A customer will be able to have VDP permanently activated on a centrex line, POTS line, or multiline group; or activate/deactivate VDP from a station set via an access code.

The default feature that will be inhibited for residential and RSS (Remote Switching System) lines when the subscriber does not have the SC (station control) option of the VDP feature is:

- CWT (Call Waiting Terminating).

The default features that will be inhibited for centrex lines when the subscriber does not have the SC option of the VDP feature are:

- CWO (Call Waiting Originating)
- CWT (Call Waiting Terminating)
- DCW (Dial Call Waiting)
- Attendant Camp-On.

The following features may be optionally inhibited in addition to the features above (this option applies to centrex customers only):

- BVT (Busy Verification of Centrex Trunks)
- BVL (Busy Verification of Station Lines)
- DPU (Directed Call Pickup With Barge-In).

WATS—See Outward WATS and 800 Service.

WATS Administration (WTAD) [1E5/1AE5] (AT&T 231-090-273) provides a unique identification number for each OUTWATS line (trunk) in a WATS simulated facilities group. This identification number is used as a customer identification and is recorded on AMA in the originating ESS switch.

WATS Reseller (ETS Billing Improvements) [1AE7] (AT&T 231-090-135) provides the ETS customer with the capability to resell WATS. As a security measure the access code is used as an authorization code. A complete billing record is provided to customers who have the SMDR to customer premises feature. A subset of the billing information is also available on the AMA record.

4-Wire Direct Access Line (DAL) [1E5] (AT&T 231-190-133) provides a full 4-wire connection for individual telephone stations, key telephone stations, or voice frequency data sets from a private network customer location to the private network switch. Direct access lines provide for calls to other private on-network customer locations or off-network stations served by the same or different EPSCS switch location. The EPSC feature group is required.

12A Customer Information System (CIS) [1E4/1AE4] (AT&T 231-090-418) is used on the customer premises to provide a Management Information System. The 12A CIS is a minicomputer system which collects and processes traffic data from the ACD for output in predefined reports such as attendant, trunk, split, color,

and forecast. The 12A CIS also provides the capability for system reconfiguration.

The 12A CIS provides features similar to the AEMIS, but on a smaller scale. The 12A CIS provides basic call handling information on attendant positions and trunks for the under 150 position market. This feature requires the ACD2, DLIO, and IRES feature groups.

50A CPS Attendant Position [CTX-5/1AE1] (AT&T 231-090-178) provides a telephone console from which listed DNs, dial "0", and other calls of a Centrex/ESSX-1 customer requiring assistance can be served by the attendant. It is designed to serve Centrex/ESSX-1 customers requiring a minimum of special attendant-provided services. The 50A CPS is rated MD; it has been replaced by the 50B CPS.

50B CPS Attendant Position [CTX-5/1AE1] (AT&T 231-090-177) provides a custom-engineered group of modular CPS equipment that may contain either MET (multibutton electronic telephone) sets or electronic consoles from which listed DNs, dial "0", and other types of calls of a Centrex/ESSX-1 customer requiring assistance by the attendant can be served. Each 50B CPS is custom-engineered for the desired type of attendant consoles, features and options, and traffic capabilities.

51A CPS Attendant Position [CTX-5/1AE1] (AT&T 231-090-060) provides a modular custom-engineering centrex data link arrangement that may include one or more attendant positions from which listed DNs, dial "0", WATS, tie trunk, and other types of customer calls requiring attendant assistance can be served by subscribing customer's attendants.

60A CPS [1E3/1AE4] (AT&T 231-090-422) comprises the ACD1 customer premises equipment through which a large volume of calls are uniformly distributed to a group of service attendants

(agents). It also provides supervisory personnel with traffic and performance data to efficiently manage the call-handling operation.

60B CPS [1E4/1AE4] (AT&T 231-090-423) comprises the ACD2 customer premises equipment through which a large volume of calls are uniformly distributed to a group of service attendants (agents). It also provides supervisory personnel with traffic and performance data to efficiently manage the call-handling operation.

90A CPS [1E3/1AE4] (AT&T 231-090-424) is used for ACD1 system reconfiguration, display, and control. Information is displayed on two LED units located on the 102A-1 display unit. Hard copy may be obtained via an optional printer. (The 90A CPS is also used with Station Message Register Service, q.v.)

90B CPS [1E3/1AE4] (AT&T 231-090-340) display unit can be used by ACD1 customers to display CTRF data.

800 Number Service—CCS7 [1AE10.01] (AT&T 231-390-510) provides the capability to route 800 calls over the carrier chosen by the terminating 800 customer through the use of a telephone company data base. This telephone data base is accessed via the CCS7 SCCP TCAP message. See the Network Interconnect—Service Switching Point/800 feature for interaction.

800 Service—Terminating End Office [CC-1/1AE1] (AT&T 231-090-275) provides service to an 800 Service customer location. 800 Service provides a customer with inward service from one or more predetermined areas at a rate based on expected usage. These calls are toll free to the calling party.

Operation, Administration, and Maintenance Features

3

Introduction

This chapter contains system features that are used in the day-to-day operation, administration, and maintenance of the switching system. Some of the more obvious features that are inherent in all switching systems, such as dial tone, routing, and digit interpretation, are excluded.

Feature Definitions

Abbreviated Class Code [1AE11] enhancement increases the number of originating and terminating codes from 64 to 128. This means the originating and terminating abbreviated class code expansion tables increase in size from 256 words to 512 words. This feature can save memory by allowing additional lines to be abbreviated.

ACD-ESS Management Information System (AEMIS) [1E4/1AE4] (AT&T 231-090-413) provides an optional minicomputer based ACD-ESS Management Information System. This minicomputer is located on customer premises. It interfaces with the ESS switch via one or more data links. AEMIS is a management tool that provides accurate and timely selected system behavioral

information to all levels of management. The report may be routed to CRTs, printers, or memory files. The feature groups required to provide AEMIS are ACD2, DLIO, and IRES. (Also see the 12A Customer Information System.)

Attached Processor System (APS) [1AE7] (254-200-001) provides additional physical memory in the 1A ESS switch by replacing current file store hardware and software with an AT&T 3B20D computer and associated memory. The APS feature group is required to provide this feature.

Attached Processor System Input/Output Message [1AP<1>1D.01] (AT&T 231-390-405, Appendix 1) provides another maintenance interface to the AT&T 3B20 duplex computer. Specifically this feature provides:

a. The ability to enter and receive 3B messages from a 1A processor input/output terminal

b. The MCC (master control center) status lamp monitor of APS equipment status

c. The storage of APS alarmed maintenance messages.

Attached Processor System Pre-Conditioning Check (PREE) [1AE9.09] (AT&T 231-390-405, Appendix 1) is an enhancement to the system update process for 1A ESS switch APS offices. Loading of certain 1A ESS switch generic features requires prior APS feature activation. Failure to precondition the APS may result in lost AMA revenue and/or misrouted calls. PREE safeguards against this by verifying that in the presence of such features, if the APS has not been preconditioned, the system update will abort.

Audible Ringing [CC-1/1AE1] provides audible ringing to the calling party of the same pattern as the immediate ringing but not synchronized with it.

Automated Board-to-Board Testing [CTX-6/1AE1] (AT&T 231-311-005) provides testing hardware to automatically test the large number of interoffice line connections which occur prior to an office cutover or an area transfer.

Automatic Broadcast Warning (ABCW) [1E3] (AT&T 231-190-365) is a system for applying program store overwrites to the 1 ESS switch. It allows input of the overwrite data either directly from paper tape or manually and provides automatic selection of applicable broadcast warning data under control of the 1 ESS switch. The broadcast warning data is automatically checked as it is entered. This feature provides automatic program store configuration control during overwrite application and a series of aids and simplifications of the required program store card manual operation.

Automatic Fault Location and System Reconfiguration [CC-1/1AE1] (AT&T 231-310-300, AT&T 231-310-310, and AT&T 231-310-320) provides extensive program and hardware facilities to detect system malfunctions. Faulty units are automatically identified and removed from service, duplicate units are switched into service, and maintenance personnel are notified that a malfunction has occurred.

Automatic Intercept System (AIS) [CTX-4/1AE1] (AT&T 231-090-115) provides the ESS switch with the capability to operate with the AIS. The AIS improves the method of processing calls to nonworking telephone numbers by automating and centralizing intercept service for large geographical areas.

Automatic Line Insulation Test (ALIT) [CC-1/1AE1] (AT&T 231-090-052) provides the means to check for insulation leaks in the insulation of wire, cable sheath, and cable terminals. All idle lines, except ground-start lines, are checked in sequential order for any line insulation failures.

With the 1AE9.06 generic program, the **Automatic Line Insulation Test** enhancement provides a parameter to the TC-TIME input message that is used when initiating ALIT. The parameter provides the capability of automatically suspending testing at a given point. The capability to restart testing at the point where testing was suspended continues to work in the same manner as manual intervention. Currently, ALIT testing must be stopped manually with craft intervention.

Automatic Message Accounting (AMA) [CC-1/1AE1] provides the ESS switch facilities for automatically collecting, storing, and recording billing information for later processing by the RAO (Revenue Accounting Office). Two methods are available for recording AMA data.

a. **Magnetic Tape** (AT&T 231-190-063 and AT&T 231-390-063) is recorded on magnetic tapes which are then carried to the RAO.

b. **Teleprocessing** is sent to a processor where it is formatted and stored prior to being transmitted to the RAO. The methods used for the 1 ESS and 1A ESS switches differ. (See below.)

NOTE:
Other AMA features appear as separate entries herein. Refer to the Automatic Message Accounting heading in the index.

Automatic Message Accounting Standard Entries (AMASE) [1E7/1AE8A] (AT&T 231-390-069) reside primarily in the APS. Its function is to reformat the raw AMA data into the standard entries format required at the RAO. Output is either to a tape unit associated with the APS or directly to the RAO (teleprocessed) when polled. The AMAS and APS feature groups are required. The following features are optional with AMASE.

a. **AMA Teleprocessing System (AMATPS) [1AE8A]** transmits the standard entries AMA data from the APS to the

RAO when polled. It is contained in the AMAS feature group.

b. **AMA Multiple Entries (AMAME) [1AE8]**, also known as METS (Multiple Entries Teleprocessing System), utilize the APS memory to hold the AMA register information while billable calls are in progress. This frees up duplicated call store space that would otherwise be required for AMA registers. The METS feature group is required. The AMASE and AMATPS features are prerequisites.

With the 1AE9.06 generic program, the **Automatic Message Accounting Standard Entries—Verification** is a standard option of the AMASE feature. This enhancement allows a central office to concurrently create and record old format billing records (except for statistical records such as INWATS overflow counts, ESSX-1 counts, and carrier interconnect overflow counts, etc.) on a 1A ESS switch tape and send standard format billing records to a Host Collector. This option provides the operating company with the ability to match and compare billing records made by both systems. The AMASE/VFY option is turned on or off by the craft personnel.

Automatic Message Accounting Standard Entry Verify On/Off [1AE10.11] enhancement provides the ability to activate/deactivate AMASE/VFY via an input message. This feature also activates AMVF by having the AMASE Verification bit set in the office option table. Since both methods of activation are possible, AMASE/VFY must be deactivated by the same method by which it was activated.

The AVOE enhancement is part of the AMASE feature package and does not require any special TDA or PDA changes. With the METS (Multiple Entry Teleprocessing System), the benefits of AMASE Verification are lost since under that system AMA records are not assembled in the 1A ESS switch; and thus no complete AMA records are available to be written to tape.

Automatic Message Accounting Transmitter (AMAT) Interface [1E7] (AT&T 231-190-068) is a computer system replacement for the tape recorders used to record 1 ESS switch AMA data. The AMAT receives, reformats, and teleprocesses AMA data to the RAO reliably, efficiently, and in a standardized format.

Automatic Overload Controls [CC-1/1AE1] (AT&T 231-190-190, AT&T 231-390-190) are inherent in system operational design and automatically provide controls for hardware, software, and real-time overload.

Automatic Positioning of AMA Beginning-of-Tape Mark (APBOT) [CTX-6/1AE1] (AT&T 231-190-063, AT&T 231-390-063) automatically positions the beginning-of-tape mark after a new reel of tape is mounted on the AMA tape transport.

Belt Line Control of Test Facilities [CTX-5/1AE1] (AT&T 231-301-020) provides a convenient means for central office maintenance personnel working on a trouble condition to control the start of particular test conditions over the frame belt line rather than from the MCC.

Bridge Lifter [CC-1/1AE1] is used in a central office for superimposing one circuit on another without interrupting the continuity of the first.

Building Alarms Summary Message [1E7/1AE7] provides an alarm summary for all building and power alarms that are still active subsequent to the originally generated alarm message. The summary can be initiated by the 1 and 1A ESS switches on a routine basis or it may be triggered by the SCC via input request to the ESS switches.

Bylink—Reverse Battery Supervision Dial Pulse [CC-1/1AE1] provides for immediate registration of dial pulse upon seizure, usually under subscriber control. This is used for calls incoming from step-by-step offices.

Call Gapping [1E8A/1AE8A] (AT&T 231-190-305 and AT&T 231-390-305) provides manual code controls of originating carrier traffic based on a specific carrier access code (ignoring the destination code) or based on a specific destination code (ignoring any carrier access code). Call gapping sets an upper limit on the rate at which attempts to a particular code are allowed out of an ESS switch. The rate is controlled by spacing the outgoing attempts.

With the 1AE10.06 generic program, the **Improved Network Management Call Gapping** enhancement allows call gapping on the home NPA (numbering plan area) in a multiple NPA, multiple rate center environment and/or on conflict codes. This enhancement will also allow call gapping on a ten-digit intraoffice calling type call.

Calling Line Identification (CLID) [CTX-1/1AE1] (AT&T 231-090-083) provides the means in the ESS switch to determine and record the DN of any local incoming call or TNN of a tandem or toll call when a call is placed to a specified DN. This aids in tracing the source of calls to customers who have been receiving harassing, abusive, obscene, or threatening calls.

With the 1AE10.03 generic program, the **Calling Line Identification** enhancement enables network managers to use the CLID (Calling Line Identification) feature to identify the calling line when the home NPA is part of the dialed digits. (Also see End-to-End Call Trace.)

Carrier Group Alarm (CGA) (AT&T 231-090-084) provides action to immediately remove from service any trunks associated with a failed carrier system, and provides automatic restoral to service when the carrier system is restored.

a. **Hardware CGA [CC-1/1AE1]** uses special circuits or hardware for detecting carrier failures on incoming or outgoing trunks (2-wire and HILO 4-wire). The hardware CGA

provides immediate "real time" detection and restoral of carrier group failures due to continuous monitoring.

b. **Software CGA [1E7/1AE7]** results when a continuity check fails on a seized carrier trunk and another trunk in the same carrier group fails the same test. If a carrier group failure is determined, all associated idle trunks are immediately removed from service. Calls-in-progress on busy trunks of the failed carrier group are camped on. These trunks are removed from service when idled. A minor alarm is then generated and group blocking messages are sent to the far-end office. The software CGA provides near "real-time" detection of carrier group restoral by means of periodic monitoring of trunks in the alarmed software CGA group. Carrier group restoral results from either a successful periodic test or a far-end office notification, whichever occurs first. Effective with the 1AE8A generic program (1A ESS switch only), the SCG feature group is required.

Carrier Interconnect Inhibit Term Inter-LATA AMA [1AE9.08] (AT&T 231-090-120) allows the craftsperson to inhibit all terminating unanswered IC/INC AMA records by utilizing the AMA-BILL-options input message. If it is desired to monitor the records generated by a particular carrier or carriers (up to five), the craftsperson can enter these carriers on a phase protected list. The protected list is such that any TUIC records for these carriers are recorded, while all other terminating unanswered records are discarded.

Carrier Trunk Conditioning Recognition (CTCR) [1AE8A] (AT&T 231-390-156) minimizes the impact of remote end failures of carriers on the 1A ESS switch where these carriers operate in a tandem arrangement. The initial application of the CTCR feature provides an interface with the DACS (Digital Access and Cross-Connect System) (a microprocessor-controlled digital terminal that provides improved utilization of carrier facilities between offices).

For PTS (per trunk signaling) trunks, the CTCR feature recognizes trunk conditioning (failure notification) signals from the DACS for outgoing (except loop signaling) and 2-way trunks on a per-trunk basis. Recovery software allows the ESS switch to return individual trunks to service as the failure is corrected. (Loop signaling outgoing trunks use software carrier group alarm for PTS trunks.) The CTCR and SCG feature groups are required.

Cellular Mobile Radio Office (CMRO) Interface [1AE7] (AT&T 231-390-212) provides the control point between a Cellular Mobile Telephone System and the exchange network. The CMRO cell sites, mobile units, cell site trunks, and data links make up the Cellular Mobile Telephone System. The Cellular Mobile Telephone System is located within the mobile service area and is interconnected to one or more class 5 switching offices by voice trunk facilities supplied by the telephone company. These class 5 switching offices are known as zone offices.

Central Control Clock Speed-Up [1E7] (AT&T 231-105-305) provides the capability to help offset real time capacity effects of the 1E7 generic program supervision restructuring through the use of a multiple speed microsecond clock system and CC/SP machine cycle time reduction.

Centralized Automatic Message Accounting (CAMA) [CTX-6/1AE1] (AT&T 231-090-278) enables the ESS switch to provide toll billing for subtending class 5 central offices on an ANI (automatic number identification) or ONI (operator number identification) basis. The feature groups required for CAMA (2W) are CAMA and HLCA; the feature groups for CAMA (4W) are CAMA and HL4W.

The following related features are included in the referenced document.

a. **CAMA Operation Connections During Office Growth (COCO) [1E5/1AE5]** is used for gradual retrofit of a HILO 4-wire network into an existing 2-wire office. This feature

allows incoming CAMA calls (over 2-wire trunks) to be connected to CAMA operators (on HILO 4-wire trunks) for ONI during a retrofit period of several months. CAMA calls not requiring ONI are not affected. The feature groups required to provide COCO are COCO, CAMA, HL4W, and HLCA.

b. **CAMA Terminating Party Disconnect Actions [CTX-7/1AE1]** provide 10- or 11-second timing before transmitting a terminating party disconnect signal on a CAMA incoming trunk and tearing down the call with the originating party still off-hook. Lack of this delay can result in false originations.

Charge Delay Timing (CHDR) [CTX-7/1AE1] reduces the charge delay timing on coin and certain other calls from 2 to 4 seconds to 600 to 800 ms.

Class 5 Operation—Local End Office Switching [CC-1/1AE9] is a central office trunking entity where telephone loops are terminated for purposes of interconnection to each other and to the network. A trunking entity is that grouping of central office equipment at which a central office or a group of central office codes are trunked in common for network access. Local central offices are arranged to process both originating and terminating traffic.

Code 100-Type Test Line [CTX-4/1AE1] (AT&T 231-090-098) provides a termination at the terminating end of a trunk which provides a means for making far-end to near-end loss and noise measurements.

Code 101-Type Test Line [CTX-1/1AE1] (AT&T 231-090-100) provides a communication path and test line to a testboard or test position which can be reached over any trunk incoming to a switching system served by that test position. The code 101 test line is used in reporting troubles, making manual transmission tests, etc.

Code 102-Type Test Line [CC-1/1AE1] (AT&T 231-090-101) provides a test termination to a 1000-Hz test source at the terminating end of a trunk for one-way transmission measurements.

Code 103-Type Test Line [CTX-7/1AE1] (AT&T 231-090-094) provides a connection to a supervisory and signaling test circuit for overall testing on incoming intertoll trunks equipped with ring forward (rering) features.

Code 104-Type Test Line [CTX-7/1AE1] (AT&T 231-090-342) provides a test termination for 2-way transmission testing and one-way noise checking.

Code 105-Type Test Line [CTX-4/1AE1] (AT&T 231-090-099), with an ATMS responder, provides for automatic 2-way loss and noise measurements of telephone trunks and lines requiring transmission testing.

Code 107-Type Test Line [1E6/1AE6] (AT&T 231-090-102) is available for offices which serve customers with switched data service access lines. It provides the capability for testing data link facilities using tone and timing test circuits. When a code 107-type test line is provided in a particular office, it may be utilized to serve customers of another nearby office through an interoffice trunk.

Code 108-Type Test Line [CTX-7/1AE1] (AT&T 231-090-404) provides the far-end loop-around termination for in-service testing of echo suppressors. It is used with the 58-type echo suppressor measuring system.

Combined Touch-Tone and Dial Pulse on Incoming Tie Trunks [CTX-4/1AE1] (AT&T 231-090-105) give the ESS switch the ability to receive station-generated touch-tone or dial pulse address signals on incoming tie trunks.

Common Channel Interoffice Signaling (CCIS) (AT&T 231-090-416) provides for exchanging information between processor-equipped switching systems over a network of signaling data links between offices in the telephone network. All signaling data, including the supervisory and address signals necessary to control call setup and takedown, as well as network management signals, are exchanged by these systems over the signaling links.

a. **Local CCIS [1E7/1AE7]** provides line-to-CCIS trunk and CCIS trunk-to-line connections as well as CCIS trunk-to-trunk connections in local offices. The feature groups required to provide Local CCIS are CILC, CIPC, PDL, PUC, and effective with 1E8A/1AE8A generic programs, SCG.

b. **Toll CCIS [1E5/1AE5]** provides CCIS-to-CCIS or CCIS-to-PTS trunk connections in toll offices. Feature groups required to provide Toll CCIS are CI2W (2-wire) or CIHL (HILO), CIPC, PDL, PUC, and, effective with 1E8A/1AE8A generic programs, SCG. (For 1E6/1AE6 generic programs, 2400 was used in lieu of CIPC, PDL, and PUC.)

   The following features are included with the 1E7/1AE7 CCIS features:

   1. CCIS Network Management provides the capability to accept and respond to dynamic overload control and group signaling congestion signals received via CCIS data links.

   2. Data Link Group for CCIS With PUC/DL provides the software for CCIS operation with PUC/DL.

Conflicting Area Code and Office Code Operation [CTX-5/1AE1] (AT&T 231-048-304) and **[1AE9]** (AT&T 231-318-336). Some numbering plan areas are exhausting their supply of office codes in the form NNX, and office codes in the form N 0/1 X are assigned. When a conflict exists, a prefix (access) code or additional digit timing after the seventh digit differentiates between 7- and 10-digit calls.

Customer Originated Recent Change (CORC) [1E6/1AE6] (AT&T 231-104-305 and AT&T 231-300-020) provides call store recent change areas to store customer related data. The features for which CORC areas have been provided include:

- Customer Station Rearrangements
- Customer Changeable Speed Calling
- Call Forwarding Variable
- Authorization Codes and Treatment Groups (EPSCS)
- Authorization Codes and FRLs (ETS)
- Busy/Idle Status Indicators.

Capabilities available with the CORC feature include:

- Manual RC Controls
- Automatic RC Controls
- RC Area Limits
- RC Area Status
- RC Type Limits
- RC Type Counts
- RC Auxiliary Block Usage.

Cut-Through to Operator After Local Intercept [CTX-6/1AE1] (AT&T 231-090-122) provides access to an operator when a call reaches an ESS switch intercept announcement and the customer needs further assistance.

Data Compression [1AE10.04] (AT&T 231-390-069) feature enables the APS to send compressed AMA data to a HOC (host collector) when compressed AMA data is requested by the HOC. The APS can still send noncompressed AMA data when noncompressed AMA data is requested. The compressed AMA

data will take less time to be teleprocessed and, as a result, save money.

Delay Activation of Recent Change Message (RCDY) [CTX-7] (AT&T 231-048-301) allows recent change messages with "Delay" specified to be accepted, checked for validity, and then stored in the RC area without being activated. A delay message can be activated or canceled by another RC message or it can be activated by the activation phone. A message is provided to verify the delayed activation blocks for a specified order number, all service orders, or all the order numbers. An abbreviated or detailed form of the output can be requested.

Denied Service Signature for Local Test Desk [1AE9.07] enhancement provides the denied service signature for the 1/1A ESS switch local test desk. The denied service signature provides a 1-second burst of dial tone followed by silence when a request to test subscriber line equipment for dial tone is made. This is done for lines that are denied terminating, denied origination, or full denial, thus preventing expensive false dispatches by Automatic Repair Service Bureau Maintenance Centers.

Desks, Interface With [CC-1/1AE1] (AT&T 231-090-108) provides an ESS switch with the capability to operate with standard central office desks. The interface between ESS switches and the following types of desks consist basically of one or more trunk circuits.

a. **Directory Assistance Desks Interface** provides connections for routing DN information requests made by local subscribers, as well as by subscribers located in distant offices, to an information desk. It is also used by toll switchboard operators desiring rate and route information for a toll call.

b. **Local Test Desk Interface** provides a connection to a local test desk in a local or remote location via an outgoing trunk circuit. This connection is used by installers when checking out subscriber installations. It allows the test desk to have

control of a connection after answer and to have a clear tip and ring connection to a subscriber's telephone for testing. The interface circuit allows the test desk, upon receipt of a complaint, to verify that a trouble does exist and whether it is located in the central office or in its associated outside plant.

c. **Repair Service Desk Interface** provides connections to repair service bureau desks in local or remote locations for the purpose of handling various subscriber complaints regarding improper telephone service.

Directory Numbers Associated With Route Indexes [1AE9.09] allows the craft a means for verifying which DNs are associated with RIs. This enhancement provides the craft with the verify capabilities to search through an entire office or a specific input range of DNs for those DNs which are associated with a specific input RI, or for those DNs which are associated with a RI which falls within a specific input RI range.

Detailed Billing on Hotel/Motel Rate Calls [1AE7] (AT&T 231-090-402) provides the capability to permit traffic studies to support decisions to convert hotel/motel lines to measured service. This feature is available with 1AE7 (1A ESS switch only).

Detailed Billing on Timed and Untimed Message Unit Calls (DUMB) [CTX-6/1AE1] replaces AMA type-of-entry codes 17 and 18 with type-of-entry codes 22 and 23, respectively, in AMA data.

Diagnose Trunk-Out-of-Service List [CTX-6/1AE1] allows all trunks on the trunk-out-of-service list to be diagnosed upon TTY or test panel request.

Diagnostic Programs [1E3/1AE4] [254-280-230 (1A ESS switch)] automatically isolate the failure in a faulty unit to relatively few quickly changeable spare parts. The diagnostic test results are printed out on the maintenance TTY.

Dial Long Lines Circuit [CC-1/1AE1] allows the conductor loop resistance over which dialing, supervision, and ringing signals may be validly transmitted and received to be increased beyond the maximum office range by inserting this circuit between a line circuit and associated stations.

Dial Pulse Repeating Diagnostic (DPRP) [1E6/1AE6] (AT&T 231-090-254) provides diagnostics for dial repeating tie trunk circuits. The feature group required to provide DPRP is DPRP.

Dial Tone Speed Measurement [CC-1/1AE1] provides measurement and accumulation of the number of dial tone delays exceeding 3 seconds during the traffic measurement periods. The accumulated data is retrieved by the TTY.

Digital Carrier Trunk (DCT) [1E6/1AE6] (AT&T 231-090-152) allows an ESS switch to operate with a digital carrier trunking arrangement. This trunking arrangement replaces the existing combination of ESS switch trunk circuits and carrier channel units by combined channel units controlled by a microprocessor.

The DCT feature provides an interface with T-carrier line and 1 and 1A ESS switches via digital facilities terminated in a DCTF (digital carrier trunk frame). The DCTF utilizes a peripheral PUC (peripheral unit controller) with duplicated microprocessor and digital carrier trunk banks. The PUC serves as the interface with the ESS switch processor and provides for trunk state control, trunk supervisory scanning, and maintenance functions. The feature groups required to provide DCT are PUC and DCT.

Digital Carrier Trunk Continuity and Polarity Test [1AE9.06] (AT&T 231-090-152) enhancement provides line side tip and ring continuity and polarity tests. These changes to the diagnostic program for "Common System 48 Channel PCM Bank Type DCT CCU (Combined Channel Unit)" -SD-3C329-01 improve the maintainability of these circuits. The changes help to resolve tip/ring reversals when the DCT CCUs are installed. The test circuit being

used, SD-1A226-01 continuity and polarity test circuit, is an existing circuit and is a required test circuit in every switch.

With the 1AE9.07 generic program, the **Digital Carrier Trunk Incoming Continuity and Polarity Diagnostic** enhancement provides for manual (TTY or trunk test panel) requested continuity polarity diagnostic tests for incoming DCT. This enhancement will also include a test of the line side ferrod for nonsaturation in an idle state. The diagnostic TTY output messages (TN01, TN04, and TN05) will print with TC2 (test code 2) set to 5 indicating the continuity polarity test was performed on the trunk.

Directory Assistance Charging (DAMA) [1E3/1AE4] (AT&T 231-090-344) provides for generating charging data on calls to directory assistance.

Disconnect Record at Calling Customer Hang-Up [CTX-6/1AE1] puts time of calling party hang-up in AMA disconnect record or time-out on timed disconnect rather than time of first party hang-up.

Division of Revenue Measurements (AT&T 231-090-346) provide the capabilities to collect and display peg and usage counts required to perform the division of revenue function. Usage counts are available with **1E8A/1AE8A and later**. The feature group required is DRPC.

Division of Revenue Peg Counts (DRPC) [1E3/1AE4] (AT&T 231-090-350) enable the ESS switch office to record various traffic measurements that are required to perform the division of revenue function. The DRPC feature is optionally loaded after 1E5/1AE5. The feature group required to provide DRPC is DRPC. (Note AT&T 231-090-346 must be used with 1E8A/1AE8A and later. [See above.])

E&M [CC-1/1AE1] is a technique for transferring information between a trunk circuit and a separate signaling circuit over two leads designated "E" (receive) and "M" (transmit).

"E" Digit Unblocking [CTX-4/1AE1] is a guard against 0 or 1 in "E" Digit Unblocking" the "E" digit position on 10-digit DDD calls (excluding access code) which is removed in order to permit customer dialing to DNs of the form N0/1X-XXXX.

Echo Suppressor Control [1E4] minimizes speech clipping problems caused by an excessive number of enabled echo suppressors in multilink trunk connections.

Emergency Ringback [CC-1/1AE1] provides for reception of signals from a manual toll switchboard to cause the system to rering a calling customer and reestablish a talking connection to the switchboard. To provide this capability, calls to manual toll switchboards are not considered to have ended until a disconnect signal is received from the connected operator. This capability is not required for calls to a TSPS operator.

Enhanced Reroute Controls [1AE8A] (AT&T 231-390-305) provide flexible reroute controls for network management. Flexible reroute controls contain all the control information in the input command. (With preprogrammed reroute controls, all control data must be stored in translations.) Flexible commands can be entered from the EADAS/NM center, the local NM TTY, or the SCC. The NMER feature group is required.

Expansion of Teletypewriter Channels (TTEX) [1E3] increase the maximum possible number of teletypewriter (TTY) channels available with the 1 ESS switch from 16 to 23.

Extended Plant Measurements [CTX-5/1AE1] provide plant management with a concise, quantitative summary of central office hardware performance and its impact on customer service.

Fraud Prevention on Terminating Calls [1E3/1AE4] prevents possible "black box" fraud. Upon detection of an on-hook condition and the network path is opened, the terminating line supervision is restored to the line's ferrod, thereby preventing conversation during the on-hook interval. The network path is restored if the line returns off-hook before disconnect timing is completed.

General Unit Type Recent Change Message [1E3/1AE4] [AT&T 231-048-305 and AT&T 231-318-319 (1AE9)] is provided to facilitate the addition, change, or deletion of a UTYN (unit type translator) auxiliary block.

Glare Resolution [1E4/1AE4] (AT&T 231-090-054) provides the capability to resolve simultaneous seizures (referred to as glare) of 2-way trunks. The glare resolution capability is available for 2-way trunks arranged for either toll CCIS or per trunk signaling.

Ground Start [CC-1/1AE1] allows an origination to be detected as the result of completing an electrical circuit by applying a ground to one side of the loop facilities at the customer location.

High-Low (Hi-Lo) Supervision [CC-1/1AE1] uses battery and ground through high and low resistance to signify changes from on-hook and off-hook.

Identification of Network Path Associated With a False Answer [CC-1/1AE1] (AT&T 231-051-001) allows the TTY on demand to print out the network path from a transmitter to a loop supervision outgoing trunk if a reversal (false answer) is detected at the end of outpulsing.

Immediate Ringing [CC-1/1AE1] provides 20-Hz ringing of 2 seconds on and 4 seconds off in three phases so that the system can always connect the called line to an active phase of ringing.

Improved Junctor Testing [1E7/1AE7] provides the capability to make AC continuity and crosstalk measurements on junctors automatically or as manually requested.

Improved Minitrunk Signal Distributor Diagnostic [1E7/1AE7] (AT&T 231-050-002) provides a comprehensive diagnostic of the selection matrix for the minitrunk family of signal distributors (miniaturized universal trunk, combined miscellaneous trunk, HILO universal trunk and the HILO miscellaneous trunk).

Improved Outgoing Trunk Diagnostics [1E7/1AE7] is the conversion of all trunk and service circuit diagnostic programs into the common TDL (trunk diagnostic language) macro package. This conversion improves readability and understandability and reduces the number of specialized routines.

Improved Peripheral Recovery Strategy [1E7/1AE7] decreases recovery time and reduces the number of lost and misdirected calls during the recovery interval.

Improvements to 3/6-Digit Translations [1E7/1AE7] [AT&T 231-090-154 (ETS) and AT&T 231-190-148 (EPSCS)] conserve rate centers and program store by limiting each private network customer to one rate center, one 3-digit translator, and one 6-digit translator per NPA for time-of-day routing.

Inactive Line [1E7/1AE7] (AT&T 231-090-125) provides a method for deactivation and reactivation of certain individual lines or groups of lines without affecting their assigned telephone numbers and other translation data associated with these lines.

Incoming Trunk Service Observing (ITSO) [1E5/1AE5] (AT&T 231-090-410) allows the telephone company to monitor incoming trunk (per trunk signaling or CCIS) traffic that completes to another trunk or completes to a terminating line. The ITSO feature is applicable to 2-wire toll or local/toll offices. The feature group required to provide ITSO is ITSO. (Also see Service Evaluation—HILO.)

Incoming Trunk Service Observing/HILO Conversion for CCS7 [1AE10.02] (AT&T 231-090-500 and AT&T 231-090-410) enhancement allows CCS7 2-wire and 4-wire calls to be observed by the Incoming Trunk Service Observing. The ITSO feature provides the ability to perform service observing on incoming 2-wire trunk traffic that completes to a trunk or line. ITSO also performs service observing on incoming HILO 4-wire trunk traffic that completes to a trunk.

Initial AMA Entry on All AMA Call Attempts (IAAC) [CTX-6/1AE1] are generated for all incompleted calls that otherwise would have been chargeable. The entries are of standard format with unavailable information (answer and disconnect times) filled in by noncheck dummy characters.

Intelligent Simplex Peripheral Interface (ISPI) [1AE9] (AT&T 231-365-005) provides an interactive announcement system to support new call processing features such as LASS.

Intelligent Simplex Peripheral Interface Firmware Issue Retrieval and ISPI Heartbeat [1AE9.11] enhancement tests provided for ISPI controllers run continuously in the background on all active controllers for the following issue of firmware:

- For ASC - MC6A002-A1, Issue 4 and later
- For ISU - MC6A004-A1, Issue 5 and later.

The heartbeat test provides a sanity check on both of the IOP channels connected to the controller. This enhancement also checks the issue numbers of the firmware to determine if heartbeat tests can run for a given controller.

Intelligent Simplex Peripheral Interface Message Handler [1AE9.07] enhancement provides the craft personnel with the specific reason why a request to the ISPI controllers is rejected. Requests from clients (features such as LASS or MSS) are sent to the ISPI Message Handler which in turn passes the message to the

ISPI controllers. The ISPI Message Handler enhancement prints a TTY output message when the request is rejected by the ISPI Message Handler system indicating a more specific reason for failure. Also, the TNN will be put on the trunk maintenance list if the client is now a maintenance client.

International Direct Distance Dialing (LAMA Arrangement) [CTX-4/1AE1] (AT&T 231-090-159) provides for station-to-station overseas calls prefixed by the access code 011. Country code plus national number can be from 7 to 12 digits. The gateway code plus the overseas number is outpulsed in two stages. Local AMA records are made of all answered calls.

International Direct Distance Dialing (TSPS Arrangement) [CTX-7/1AE1] (AT&T 231-090-159) provides for routing of IDDD calls via TSPS, extends IDDD capabilities to coin and multiparty lines, permits customer dialing of special toll IDDD calls, and gives dial access to overseas operators.

Line Access to Trunk and Line Test Panel (LATP) [1E3/1AE4] (AT&T 231-090-100) allows a call originated from a line to terminate at the TLTP. This is accomplished by dialing a 7-digit DN from the originating line.

Line and Interface Maintenance [1E3/1AE4] (AT&T 231-090-052) provides sequential and single line demand tests on idle, position busy, or out-of-service ACD lines equipped with AICs (agent interface circuits). The sequential tests include all ALIT and AIC tests. Single line tests also include off-hook tests.

Line Service Overload Strategy (LSOS) (AT&T 231-090-195) efficiently handles all originating service requests and ensures service to essential (class A) lines during office overload conditions.

The LSOS feature is in reality two features. There features are as follows:

a. The **Improved Overload Strategy (IOS) [1E6/1AE6]** employs a LIFO (last-in, first-out) algorithm that results in a more graceful decline in service under overload conditions.

b. The **Essential Service Protection (ESP) [1E7/1AE7]** establishes priority service for class A originations during office overload conditions.

NOTE:
The ESP feature replaces the Line Load Control feature described in AT&T 231-190-190 and AT&T 231-390-190.

Local Area Signaling Services enhancements provide the craft with the following capability:

a. **Local Area Signaling Services Option Word L Recent Change [1AE9.06 and 1AE10.01]** enhancement allows the assigning of LASS features more efficiently. Currently, the initial assignment of LASS features to an individual line requires the craft person to specify each LASS feature being allowed and the type of access (usage-sensitive, subscription, or denied). Any LASS feature not assigned at this time defaults to 0 (usage-sensitive). The craft person must deny each feature not wanted. This enhancement allows the setup of a default option word L in the office option table. Recent change uses the default option word L to fill in the unspecified fields.

b. **Local Area Signaling Services Verify for Line Equipment Number [1AE9.06 and 1AE10.01]** enhancement generates a display of those LASS features associated with a given LEN provided that the LEN is assigned usage-sensitive, subscription billing, or denied access. This display eliminates the need for randomly choosing the individual LASS features with associated billing until the right combination is displayed. This capability only allows for the

display of LASS features designated in option word "L" of the LEN supplementary auxiliary block. No additional software or hardware is required.

c. **Local Area Signaling Services Directory Number Verify [1AE9.07 and 1AE10.01]** enhancement extends the LEN verify enhancement to verify the LASS Usage-Sensitive/Subscription Billing features associated with the DN. The option word L of the LEN supplementary auxiliary block is required to be built in LUCS.

d. **Verify of the Local Area Signaling Services Feature Restrictions Access on a Line [1AE9.09 and 1AE10.04]** enhancement allows the craft a means for verifying a DN's ability to access LASS features (AR, COT, DA, SCR, SCF, AC, and AR2). The enhancement will combine the restrictions at all levels and show whether a DN is denied access, or what type of billing (usage-sensitive, subscription) a DN is assigned for each individual LASS feature. A simple verify request will use the PACT translator or CTXDI, CLSI translator, and option word L of the LEN supplementary auxiliary block to determine a DN's accessibility and/or billing type for each individual LASS feature.

e. **Option Word L Removal [1AE9.10 and 1AE10.05]** enhancement results in a savings of allocated call store words. If a line is restricted access to all LASS features at the PACT (prefixed access code translator) CTXDI [centrex digit interpreter (for CTX lines)] and/or class of service information levels, option word L in the LEN supplementary auxiliary block will not be built. This access checking is performed when running an RC:LINE: new or change message.

Local Automatic Message Accounting (LAMA) [CC-1/1AE1] is an arrangement where the AMA equipment is collocated with the ESS switch.

Loop [CC-1/1AE1] is a metallic loop formed by trunk conductors and termination bridges. The impedance of the loop is changed by openings and closures in the transmitting circuitry which provide the on-hook and off-hook signals.

Loop Range Extension (LRE) [1E6/1AE6] (AT&T 231-090-160) provides 3- or 6-dB gain when used with fully loaded loops from 1500- to 2800-ohms conductor loop resistance. The amount of gain is inserted automatically by the range extension circuit depending upon loop resistance. The LRE feature also provides battery boost, dial pulse repeating, and ring-trip assistance. An automatic bypass capability allows the range extension circuit to be used with short loops of less than 1500 ohms conductor loop resistance. The LRE feature group is required.

The LRE feature refers to the central office components (hardware and software) of the CREG (concentrated range extension with gain) system that extends the office signaling and supervisory range beyond the nominal 1500-ohm limit and provides voice frequency gain for proper transmission.

Loop Start [CC-1/1AE1] indicates the origination of a call by closing the tip and ring loop through the telephone set.

Mapping of TRCA and CORC Blocks by Data Mapping [1AE9.06] (AT&T 231-104-305 and AT&T 231-300-291) enhancement has been made to DMAPLIB (1 and 2) to also map the TRCA and CORC blocks during a translations update as well. The enhancement is transparent to the craft. Currently, mapping of the TRCA and CORC blocks is only possible with a PDA and/or generic update.

With the 1AE9.09 generic program, the **Retrieval of Customer Originated Recent Change Block Address** enhancement is used to store the remote directory number for interoffice Call Forwarding Variable and Call Forwarding Over Private Facilities. The address of this CORC block is difficult to derive manually. This enhancement provides a new input message to retrieve the address and size of the CFCB (call forwarding CORC blocks) associated with the input DN. The existing TR20 output message is used to print the CORC block address and size in response to the new TAG-CFCB input message. The format of the message is "TAG-CFCB-xxxxxxx.", where xxxxxxx is the 7-digit forwarded base DN.

Memory Expansion [1AE7] (AT&T 231-300-014) expands the memory spectrum for the 1A ESS switch. The addressable memory for both program store and call store is doubled with this feature.

Message Detail Recording on Tie Trunks (TAMA) [1E4/1AE4] (AT&T 231-090-417) provides an AMA record of tie trunk or FX trunk call originations on a per access code basis. The TAMA feature group is required.

Mixed Concentration Ratio [1E5/1AE5] (AT&T 231-031-010) allows an office to operate with a mixture of heavy and regular LLN concentrator ratios. This permits an office which is currently heavy to grow more economically with 4:1 regular networks.

Modify Midnight Routine Exercise and Give MAC-REX Status [1E7/1AE7] provides a means of inhibiting routine exercises from running on selected out-of-service units. Equipment is placed in this status via TTY I/O interface.

Monitoring Recent Change Area [CTX-7] (AT&T 231-104-305) is provided to report the status and composition of the RC area. It will be printed once upon TTY request or hourly when the RC is 80 percent full.

Multifrequency Signaling on Bylink Trunks (BYMF) [1E3/1AE4] (AT&T 231-090-409) provides for reuse of existing bylink trunk circuits with multifrequency signaling for traffic other than step-by-step.

Multiple Trunk Test Capability [CTX-7/1AE1] provides the software capability to conduct a number of trunk tests (up to a maximum of eight) in parallel. This increases the ability to test by interrogators or diagnostics.

Network Management (NM) [CTX-6/1AE1] (AT&T 231-190-305 and AT&T 231-390-305) improves total network processing by selectively limiting traffic destined for congested offices or areas. It allows as many calls as possible to be completed while utilizing as much capacity as possible via the network without allowing the congestion to spread.

Capabilities include:

- Code Blocking (Local)
- Trunk Group Controls
- Generation of Dynamic Overload Control Signals
- Discrete Machine and Network Status Indicators
- Reroute Controls
- Response to CCIS data link dynamic overload control and group signaling congestion signals
- Interface With EADAS
- Toll Code Blocking (through 1E7/1AE7 only)
- Selective Incoming Load Control (q.v.) (1E8A/1AE8A)
- Call Gapping (q.v.) (1E8A/1AE8A)
- Enhanced Reroute Controls (q.v.) (1AE8A only).

Feature groups required for network management are EDAS, NMRR, and, prior to 1E8A/1AE8A, NMTC. Enhanced reroute controls require NMER.

No. 2 Service Evaluation System Interface [1AE9] (AT&T 231-390-225) provides an end-to-end objective measurement of the network from the customer point of view. Primarily SES II provides call disposition and timing information. It also provides the potential for recovering lost revenue due to answer supervision problems by examining calls with long holding times without supervision being returned.

Nonsynchronous Test Line [CC-1/1AE1] tests ringing, tripping, and supervisory features of incoming trunk relay equipment. Supervisory pulses are repeated until disconnection takes place.

Office Alarm Subsystem [CC-1/1AE1] (AT&T 231-035-000) reports system trouble conditions to office personnel located on site or remotely. The severity of each trouble will be indicated via one of three levels of urgency: critical, major, and minor.

Office Overload Controls [CC-1/1AE1] (AT&T 231-190-190 and AT&T 231-390-190) provide the means to detect, control, and alleviate various system overload conditions. System overload occurs when excessive demands are made on any of three basic system resources: hardware, software, and real time. An overload condition exists when the office's call handling capacity is exceeded for a sustained period or when one or more of the system resources are exhausted. (Also see Line Service Overload Strategy.)

Off-Line Single Card Writing (OFLN) [CTX-7] (AT&T 231-104-302) provides the 1 ESS switch the ability, via TTY message, to single card write using an off-line PS module as the card source. This permits a defective module to be loaded off-line and corrected via single card writing.

Open Switching Interval Protection (OSIP) [CTX-4/1AE1] (AT&T 231-090-192) protects customer line equipment from momentary loss of central office battery during switching intervals.

Operation With No. 5 Crossbar Synchronous Test Line With Centrex Transfer [CTX-4/1AE1] permits test calls to be made to synchronous test lines in No. 5 Crossbar offices which transfer to a centrex trunk at the end of the synchronous test.

Outgoing Trunks Call Cutoff Enhancement [1AE10.06] provides a LT01 output message that can be used to detect defective outgoing trunks. These defective outgoing trunks may be causing call cutoffs. Printing the LT01 message with the outgoing trunks phase is controlled by the MISC-FLAG input message. The LT01 output message is output 10 or 11 seconds after a line to outgoing trunk connection has disconnected at the trunk side and the line is still off-hook. This enhancement is only useful when used in conjunction with the SCCS programs to gather and pattern outgoing information retrieved from the LT01 outgoing message.

Overflow Registers [CC-1/1AE1] (AT&T 231-090-207) provide measurement and accumulation of the number of overflows to selected trunk groups, service circuit groups and selected subscriber line groups which occur during the traffic measurement periods. Overflow information is retrievable by TTY.

Pair Gain Systems Interface (AT&T 231-090-308) provides a method of reducing the number of loop circuits required to serve a group of low-usage subscriber lines. (Also see Remote Switching System.)

a. **Loop Switching System (LSS) [CTX-7/1AE1]** concentrates 96 customer lines into 32 trunks and is easily expandable to 192 lines and 64 trunks. The LSS is intended for use as a temporary cable/structure deferral vehicle in suburban and rural areas and/or for permanent applications on the longer cable routes.

b. **SLC® 96 Carrier System (Mode II) [CTX-7/1AE1]** is a combined digital carrier and digital concentrator system for subscriber loop service. It provides two independent concentrators, each handling up to 48 customer lines on 24 derived digital trunks (2 to 1 concentration). The SLC 96 carrier is designed for permanent applications in concentrated growth situations in suburban areas, but can be used in rural areas as well.

c. **SLM Multiplex System [CTX-7/1AE1]** is a combined digital carrier and loop switching system for subscriber loop service. It provides 24 low-loss, low-noise, digitally derived channels shared by 80 customer lines. The SLM multiplexers are designed primarily for applications on rural routes exceeding 40 kilofeet in length and having a growth rate of approximately ten lines per year.

d. **1A Line Concentrator [CTX-7/1AE1]** is an electromechanical device which provides a flexible, economical substitute for a customer cable plant. By utilizing a 5-to-1 concentration ratio, the 1A line concentrator allows a large number of low-usage customer lines to be connected to the central office via a few high-usage trunks.

PBX Ringing and Battery Feeders [CC-1/1AE1] provide remotely located PBX equipment with access to central office immediate ringing, audible ring circuits, and reserve battery power.

Periodic Traffic Count [1AE10.07] enhancement assists maintenance personnel in analyzing repairs made to faulty carrier systems after a failure. The periodic traffic count enhancement will separately accumulate (on an hourly basis) both incoming and outgoing trunk time-outs. Each hour these counts will be printed at the maintenance TTY via output message TN24. The HINTO (first) count will hold the accumulated value of incoming trunk time-outs and the HOUTO (second) count will hold the accumulated value of outgoing trunk time-outs. Each hour these values will be zeroed

thus ensuring that the TN24 output message reflects only the most recent hourly collection of counts.

Peripheral Data Storage Processor (PDSP) [1E5] (AT&T 231-190-136) enables the 1 ESS switch call processing programs to communicate with a 3A auxiliary processor for EPSCS or E911 service. The feature group required to provide PDSP is PIU.

Peripheral Unit Controller/Data Link (PUC/DL) [1E6/1AE6] (AT&T 231-090-062) is a self-checking microprocessor controller. The PUC/DL is a particular application of this general purpose microprocessor based controller. It is designed to serve as a general purpose data link controller for a number of projects requiring a data link from ESS switching equipment. The feature groups required to provide PUC/DL are PDL and PUC.

Peripheral Unit Parity (PUP) [1E6/1AE6] (AT&T 231-090-062) provides improved error detection on the scanner answer bus.

Permanent Signal and Partial Dial Treatment and Administration (PSPD) [CTX-2/1AE1] (AT&T 231-090-205) provides for handling customer permanent signals (off-hooks without dialing) or partial dial. Options are included for routing the calling party to tone, announcement, or operator as well as provisions for handling lines not cleared by these options.

Plant Measurements [CC-1/1AE1] (AT&T 231-120-302 and AT&T 231-300-015) provide a concise quantitative summary of the state of central office hardware and its impact on customer service. This data is printed out via TTY as an aid to maintenance personnel in locating and repairing central office problems.

Plug-Up Lists for Trouble Interrupt Routing [CC-1/1AE1] provide a special case of permanent signal treatment. Such lines, when in trouble, can be placed in the plug-up state via a TTY

message. Calls to lines in this state are routed to a trouble intercept. When the line changes state (off- to on-hook or vice-versa), it is automatically restored to service.

Printout of Call Forwarding Entries [CTX-7/1AE1] provides a printout of all telephone numbers that currently have their call forwarding service activated. The printout contains the base station DN and a 7- or 10-digit remote station telephone number. The printout is initiated by a TTY request and the list data is printed on the requesting terminal.

Print Trunk-Out-of-Service (TOS) List [CTX-6/1AE1] outputs, upon TLTP/STTP request, all trunks on the TOS list to be printed in the order of TNN or TGN, depending on an input parameter defining the format desired.

Pseudo Point Code [1AE10.07] capability allows a new 5ESS switch to assume the same CCS7 point code as held by the 1AESS switch. The result is simplified pre-cutover trunk testing procedures and the elimination of numerous recent changes at far-end offices.

Pseudo Route Index (PRI) [1E3/1AE4], 200 route indices, that are currently reserved for fixed RI assignment are near exhaustion. A translator is provided to expand the ability beyond 200.

With the 1AE11 generic program, **Pseudo Route Index Expansion** expands the pseudo route index translator from 200 words to 400 words. This is a nonsignaling related capability.

QZ Billing [CC-1/1AE1] (AT&T 231-090-278) (sometimes called special trunk billing) is a CAMA-ONI billing arrangement that is used when a customer requires special toll call records such as on a per department or contract basis.

Receiver Attachment Delay Report (RADR) [CTX-7/1AE1] (AT&T 231-090-309) provides an ESS switch with an indication that

the office is experiencing delays in providing receiver connections for incoming traffic.

Recent Change Administration [CTX-7/1AE1] (AT&T 231-104-305) provides the following administrative controls:

a. Manual inhibition of Customer Originated RCs (CORCs)

b. Automatic inhibit of CORCs when the RC fills beyond an office-defined limit

c. Warning messages that alert the office to certain RC overload conditions

d. A report on the status and composition of the RC area of call store when any of the above control or warnings are in effect.

Recent Change Keyword Acceptance Control [1E3/1AE4] [AT&T 231-048-301 and AT&T 231-318-319 (1AE9)] provides the ability to prevent the entry of RC keyword data if related modular feature packages are not present. It also provides the ability to remove translation data related to a nonpresent package.

Recorded Announcement Frame (RAF) [CC-1/1AE1] [AT&T 231-090-106 (J1A058C) and AT&T 231-090-107 (J1A058A)] provides the capability for the ESS switch to provide standard recorded announcements to customers. There are two types of frames used. The J1A058C RAF contains a magnetic bubble memory to provide for the recorded announcements; it is a replacement for the J1A058A RAF which contains a rotating magnetic drum. Effective with the 1AE7/1E8A generic programs the J1A058C RAF may contain eight rather than six channels.

Remote Office Test Line (ROTL) and Processor Controlled Interrogator (PCI) [CTX-6/1AE1] (AT&T 231-090-219) provides the capability to originate automatic trunk transmission test calls

under automatic control of a CAROT System from a remote location, under manual control of a PCI in the testing office, or under manual control of a RCU (ROTL control unit) from a remote station.

Remote Switching System (RSS), Operation With [1E6/1AE6] (AT&T 231-090-153) RSS, operating under the software control of a host ESS switch, provides remote switching capabilities with a wide range of ESS switch features and services. By sharing control with the host ESS switch, the RSS arrangement allows ESS switch features to be offered to a small number of lines which otherwise would be too few to support an independent stored program machine. The RSS is intended to economically serve as few as 150 lines and has the capability to serve up to 2048 lines.

With 1E7/1AE7 and later generic programs, improved switch host real time utilization for originating, terminating, and intra-RSS calls is provided. In addition, dial tone delay improvements have been incorporated, reducing the nominal dial tone delay of RSS lines. The improved nominal delay is 500 milliseconds.

The feature groups required to provide RSS are PUC, PDL, and RSS.

Remote Trunk and Line Testing [1E7/1AE7] (AT&T 231-190-405 and AT&T 231-390-405) provides all the maintenance test capabilities available at the MTTP and TLTP via a RTTU (remote trunk test unit) interface to a CTTU (central trunk test unit) located at the SCC.

The two types of RTTU interfaces are as follows:

a. **MTTP Interface** is a "hardware only" interface that supports access to 2-wire and HILO trunks only.

b. **MTTP/TLTP Interface** is a hardware and software interface that supports access to both trunks and lines.

Both interfaces require the MTTP feature group. The MTTP/TLTP interface also requires the R2C2 feature group.

Remreed Grid Diagnostic [1E7/1AE7] (AT&T 231-051-022) is used as a manually requested test tool. It provides a systematic diagnosis of the current product remreed pulse matrix.

Report on Invalid Input Messages to Custom I/O Channel [1AE9.07] enhancement detects and reports every 15 minutes any erroneous input messages received from individual custom I/O channels. The message is printed at the maintenance TTY allowing the maintenance personnel to determine the input message problem.

Reverse Battery [CC-1/1AE1] is a method of loop signaling in which battery and ground are reversed on the tip and ring leads to indicate changes between on-hook and off-hook states.

Revertive Pulsing Trunks [CC-1/1AE1] (AT&T 231-090-191) provide for collection of revertive pulses and conversion to a 4- or 7-digit DN for local termination or tandem processing. Communication capability is also provided for outgoing calls to a crossbar office.

Route Index Loop Prevention [1AE9.09] enhancement prevents new route indexes from being built in a looped condition (via recent change). When the recent change message RC:RI is input with a route index and next route index that cause a loop, a new validity error is output on the TTY. It is recommended that the XLDC library program is run prior to updating to the 1AE9.09 PPU to test for any looped route indexes.

Routing-Selected Transmission Control (RSTC) [1E7/1AE7] (AT&T 231-090-146) enables the 1 and 1A ESS switch to insert gain into a trunk-to-trunk transmission path on a call-by-call basis when the operation of another feature, such as Remote Call

Forwarding, could result in a degradation of transmission standards. The amount of gain added is a function of the office class, the incoming trunk category, the outgoing trunk category, and the other feature.

With the 1AE9.07 generic program, the **Routing Selected Transmission Control Redesign** feature enables the 1A ESS switch to insert gain into trunk-to-trunk transmission paths on a call-by-call basis when the operation of the RCF (Remote Call Forwarding) or SLRCF (Single Line Remote Call Forwarding) features could result in a degradation of transmission. This redesign makes the RSTC feature compatible with the Carrier Interconnect feature and central offices that have multiple rate centers.

Sanity Tests and Test Calls [CC-1/1AE1] are made to ensure that the call processing program modules are cycling in proper sequence and on a timely basis.

Saving Path on Network Failures [1E7/1AE7] (AT&T 231-051-001) provides the capability to trap and release a network path involved in a call failure. A TTY message is used to specify the network path to be trapped. Only one failure trap at a time is permitted to avoid network congestion.

Selective Carrier Denial (SCD) [1AE9.07] (AT&T 231-090-120) feature provides a capability which selectively inhibits certain carrier handled calls from those lines which have been designated as nonpayer subscribers. A line which is denied access to a particular carrier is routed to error tone or announcement. This function is provided on a per line, per carrier basis.

With the 1AE9.08 generic program, **Selective Carrier Denial Phase II** feature provides additional recent change and verify capabilities for the SCD translator.

The SCD feature (Phase I) provides a capability which selectively inhibits certain carrier handled calls from those lines which have

been designated as nonpayer subscribers. A line which is denied access to a particular carrier is routed to error tone or announcement. This function is provided on a per line, per carrier basis.

The SCD translator can be modified with the new phase II RC:SCD: recent change input message. The SCD translator can be verified with the VF:ICSVY input message using the new phase II (SCD) keyword.

Selective Incoming Load Control (SILC) [1E8A/1AE8A] (AT&T 231-190-305 and AT&T 231-390-305), part of Network Management, provides automatic control of incoming traffic by limiting the percentage of calls processed from selected trunk groups.

Selective Inhibit of Scheduled Routine Exercises [CTX-6/1AE1] (AT&T 231-045-200), during growth or retrofit testing, may interfere with the installation effort. A selective inhibit is therefore provided to eliminate one or more types of these routine exercises. The inhibit function can be initiated and canceled via TTY input messages.

Separate Routing of 7-Digit and 1 + 7-Digit Calls [CTX-5/1AE1] (AT&T 231-045-105) provides the flexibility of routing 7-digit calls to certain office codes differently if prefixed by the digit 1. This is useful near the border of an NPA where it is not desirable to force customers to dial 10 digits to get to a nearby office in the local dialing area.

Service Evaluation System—See No. 2 Service Evaluation System.

Service Observing Functions [CC-1/1AE1] (AT&T 231-090-188 and AT&T 231-090-410) provide the means to evaluate the quality of service provided by the ESS switch. Observations may be based on a toll call, business office call, etc., and may include complaint observing, service observing, DDD observing, and PBX terminating observing.

Signaling Irregularities (SIGI) [1E6/1AE6] detect calls with improper signaling sequence and check for subsequent digit signals used for fraudulent purposes. The operating company security personnel are notified via private TTY line of suspected fraudulent calls. Relevant information is recorded on the AMA tape with normal billing data. The feature group required to provide SIGI is SIGI.

Simulated Facilities [CTX-7/1AE1] (AT&T 231-090-229) provide a software method of restricting certain customer services sold on a limited access basis. A SFG (simulated facilities group) simulates hardware facilities and is assigned on a per customer basis. The quantity of facilities purchased is stored in memory and is used to identify and control the number of simultaneous calls for a given customer service.

Standard Billing Number for WATS (SWAB) [1E3/1AE4] (AT&T 231-090-273) provides a standard billing number format for all OUTWATS calls and eliminates certain billing errors that can occur on operator-assisted OUTWATS calls.

Stand-Alone Touch-Tone Receiver Diagnostic [1E7/1AE7] provides a diagnostic in the 1 and 1A ESS switches which routinely exercises the stand-alone touch-tone receivers so that failures can be detected before they are required for service in a stand-alone situation.

Station Ringer and Touch-Tone Test (SRTT) [CC-1/1AE1] (AT&T 231-090-053) permits the performance of the touch-tone dial test, station ground test, and ringer test on a station set. The SRTT feature also allows the performance (with the aid of the customer) of a station touch-tone dial test from the local test desk.

Supplementary Office Options Table [1AE11] is a new translator that is used in the same manner as the translations office options table. This translator has a length of 20 words in the fixed

translation area, starting at address 7724246, and is pointed to from the master head table +247.

Switchboards, Interface With [CC-1/1AE1] (AT&T 231-090-112) provides the ESS switch with the capability to operate with standard toll and other switchboard positions.

Switching Control Center System (SCCS), Interface With [CTX-7/1AE1] (AT&T 231-190-405 and AT&T 231-390-405) is a centrally-located facility capable of accommodating administrative, operational, and maintenance functions for several central offices. There are four basic areas in which the ESS switch and the SCC interface. These are as follows:

- Telemetry System
- MCC Interface
- TTY System
- Remote Trunk and Line Testing (q.v.).

Synchronous Test Line [CTX-4/1AE1] (AT&T 231-090-103) provides marginal tests of ringing, tripping, and supervisory features of incoming trunk relay equipment.

Synchronization With EADAS (SWED) [1E7/1AE7] (AT&T 231-190-314 and AT&T 231-390-314) provides added intelligence to the EADAS interface in the ESS switch. This added intelligence minimizes clock synchronization problems by giving the EADAS a larger polling window and more control over the interface. In addition, the ESS switch can now detect when synchronization is being lost.

Tandem Office [CC-3/1AE1] (AT&T 231-090-372) serves local offices in the same manner that local offices serve individual subscribers. The tandem office is an intermediate switching center primarily used to switch trunks between local or tandem offices and other local or tandem offices or toll offices.

Tandem Test Line [1E3/1AE4] (AT&T 231-090-104) permits direct dial access into a toll or tandem switch in order to perform certain maintenance tasks and/or network management tasks.

Ten-Digit Intraoffice Calling (TDIAC) [1E7/1AE7] allows 1 and 1A ESS switches to locally service office codes in multiple NPAs where intraoffice calls from one served NPA to another are dialed using the standard North American DDD pattern.

Through Balance Test Facilities (TBTF) [CTX-7/1AE1] (AT&T 231-090-316) is a machine aid which allows individual performance of balance adjustments on 4-wire intertoll trunk circuits. After initiation by TTY message, through balance adjustments proceed on signal from the user from one trunk circuit to the next consecutive trunk circuit in the trunk frame. One maintenance person per code 100-type test line in the office can be active concurrently on different trunk frames. Summary and trouble output messages are printed.

TNN-to-TNN Connection [CTX-7/1AE1] allows TTY input messages to be used to set up or disconnect stable connections between various trunks and service or test circuits. Hourly printouts are provided as a reminder of active paths.

Toll Operator Signaling and Compatibility With TSPS Residual Traffic (TORT) [CTX-7/1AE1] (AT&T 231-090-234) provide the ability to receive and transmit operator control signals such as ringback and ring forward when the ESS switch is acting as a toll office or combined local/toll office. If this office interfaces with TSPS, certain operator-assisted calls require switchboard handling and are passed to a toll switchboard operator by a TSPS operator.

Touch-Tone Detection on Dial Pulse Lines [CTX-7/1AE1] provides the ability to detect touch-tone digits originating from a customer dial pulse line in an office which has only combined touch-tone/dial pulse receivers.

Traffic Data on Specific DN Groups [CC-1/1AE1] (AT&T 231-090-207) provides a method for accumulating peg and overflow counts to specified DNs or groups of DNs (traffic line groups).

Traffic Dial Service TTY—Remote—Overload [CC-1/1AE1] provides messages to remote TTY of overload indicators such as excessive dial tone delay, excessive overflow, excessive call attempts, etc.

Traffic Measurement Output on Punched Tape and Printer or EADAS [CC-1/1AE1] provides periodic and demand retrieval of all accumulated traffic data in a permanent record medium.

Traffic Measurements [CC-1/1AE1] (AT&T 231-090-207) provide measurements internal to the ESS switch. These measurements, output via TTY, are used to evaluate the performance of the switching system or to indicate possible trouble conditions.

Traffic Service Position System, Interface With [CC-1/1AE1] (AT&T 231-090-114) gives the ESS switch the ability to interface or operate with a TSPS. A TSPS is a switching system interposed between local and toll offices that provides various operator services to telephone subscribers. The TSPS is a stored program electronic switch. In addition to providing for operator services, the TSPS can record CAMA.

Translation Verification Message Improvements—Phase 1 (VMI1) [1E7/1AE7] (AT&T 231-048-301) provide several TTY data verification messages. Among these are "search" (survey) messages which can print and/or count LENs, pseudo LENs, DNs, and TNNs which have certain features, equipment options, and data structures. The VMI1 feature group is required.

Trunk Failure Treatment [1E3/1AE4] permits selective inhibiting of diagnostic TTY printouts based on pulsing type and direction (incoming/outgoing). The message also provides a hold and trace function on revertive and immediate dial pulse outpulsing failures

based on pulsing type. All messages resulting from trunk diagnostics will be printed unconditionally and so flagged.

Trunk Make-Busy (TMB) [CTX-6/1AE1] (AT&T 231-090-084) provides the capability to manually remove from service any associated trunks. Primarily, the TMB feature is used to make busy groups of operator trunks when unattended.

Two-Digit Translation on Incoming Trunks [CTX-5/1AE1] (AT&T 231-045-105) is required on incoming trunks from CDOs where first digit of 411 (for example) is absorbed in SXS switches, and receipt of 11 in the central office should be interpreted as 411.

Two-Way Trunk Maintenance [CC-1/1AE1] allows a trunk out-of-service state, called lockout, to be designated for 2-way trunks. In this state, outgoing calls are blocked, but incoming calls are accepted. A second state which blocks calls in both directions is called disable.

Verification of Billing Number Assignments [CTX-6/1AE1] provides the capability to verify via a TTY input message single or multiple assignments of billing numbers to terminal equipment numbers.

Verification of H and C Traffic Schedules (VFHC) [1E3/1AE4] provides TTY messages to print (on demand) the translation data in the H and C traffic schedules. This feature also provides the ability to search for and identify a particular traffic measurement in the H and C traffic schedules.

Verifying Long Duration AMA Calls [1E7/1AE7] provides an AM01 output message that is printed every midnight. This output message provides greater accuracy and additional verification methods for each AMA call that has been in progress for more than 24 hours.

WATS Band Indication on AMA [CTX-6/1AE1] (AT&T 231-090-273) is provided to furnish complete detail billing on a WATS call. This entry includes both the WATS band number and the calling station number.

0+, 1+ Dialing [CC-1/1AE1] (AT&T 231-090-095, AT&T 231-090-114, and AT&T 231-090-159) provides the routing of 0 + 7 or 10-digit calls to Operator Assistance or Special Toll. 1 + 10-digit calls are routed to the DDD network.

000 to TSPS Operator [CTX-2/1AE1] provides routing of assistance and special toll calls over a combined trunk group, instead of separate groups, to a TSPS operator.

1, 3, 7, 10-Digit Dialing [CC-1/1AE1] (AT&T 231-045-105) allows routing of calls (exclusive of access code) based on 1, 3, 7, or 10-dialed digits.

100-Second Usage Scan Cycle Count (T100) [1E6/1AE6] (AT&T 231-090-207) provides the number of 100-second usage cycle counts used in accumulating usage measurements. This allows for proper validation and identification of the H- and C-schedule usage measurements delivered to EADAS (when so equipped).

10th 32K Call Store (TEN32K) [1E6] (AT&T 231-025-101) provides the capability for 10 32K call stores. The 10th 32K call store provides memory capability equivalent to 8K call store offices.

1A *ESS* Switch Library Packages [1AE9] currently there are a number of special 1A *ESS* switch Library Packages available that will support unique requirements or conditions. None of the packages described below are available as part of the generic RTU fee. Instead, they are available on J6A002AC-1 with a separate RTU fee being applied.

A general description and release information of each special package follows:

a. **Automatic Message Accounting Tape Copy [1AE9, 1AE10 and 1AE11]** program, functionally, provides a method for producing a "Backup" copy of each AMA tape. This AMA tape produced in an operational 1A ESS switch, greatly reduces the possibility of "Revenue Loss," in the event an original AMA tape is damaged or misplaced while being shipped to an AMA processing center.

b. **Merging of 1024 to 2048 Trunk Link Networks [1AE9, 1AE10 and 1AE11]** program, functionally, provides a program controlled, office "data storage type" selective, nonservice interrupting, method for merging TLNs (trunk link networks) in operational 1A *ESS* switches.

c. **Packed to Unpacked Supplementary Translations [1AE9]** program, functionally, provides a method for "unpacking" any packed OE or REN supplementary translators. These translators MUST BE in the "UNPACKED" format for the 1AE9 generic program. All 1AE8A offices with packed LEN/REN supplementary translations retrofitting to the 1AE9 generic program must use this package to change over these translators to the unpacked state before the retrofit is begun. Ordering information is obtained from J6A002AC-1 under package name APT31, List 31.

d. **Customer Carrier Identification Program [1AE9, 1AE10 and 1AE11]**, functionally, provides a method to verify customer carrier assignments in the 1A ESS switches that have loaded the 1AE9 generic program. Operationally, this program processes translations in an office to extract DNs and PIC (primary inter-LATA carrier) information. The DN and PIC information may then be output to tape for regional processing or to a terminal for local processing. Either method of processing provides customer PIC assignment information. Ordering information must be taken from J6A002AC-1 under package name APT33, List 33.

e. **Centrex Line Primary Interexchange Carriers Unassign Program [1AE9, 1AE10 and 1AE11]**, functionally, provides for locating and unassigning selective Centrex LPIC (line primary interexchange carriers) in the LEN supplementary translators. Operationally, this package enables 1A ESS switches that are on the 1AE9 generic program, and centrex equipped, to selectively locate LPICs in the LEN supplementary translator and unassign them. LPIC unassignment is accomplished by overwriting them with the value of the default PIC indicator. Ordering information must be taken from J6A002AC-1.

f. **Simultaneous Trunk Conversion via Automated Recent Change Program [1AE10 and 1AE11]** provides an automated method for two 1A ESS, or one 1A ESS switches and one 5ESS switch, to simultaneously convert trunks to support CCS7 signaling. Operationally, this package, via automated recent changes, enables two 1A ESS switches to convert their trunks, update their data bases, and test and verify the voice path. In addition, this package also enables a 1A ESS switch and a 5ESS switch (using their version of this package), via automated recent changes, to convert their trunks, update their data bases, and "test and verify" the voice path between the switches. At the completion of "trunk conversions" the converted trunks in both switches can be placed in a predetermined state. Ordering information for the 1A ESS switch must be taken from J6A002AC-1.

g. **1AE8A to 1AE10 Retrofit Program** provides a method to skip a generic in the 1A ESS switch retrofit procedure primarily through translation data mapping control enhancements. Operationally, this package enables 1A ESS switches, currently on any supported 1AE8A PPU, to retrofit to any supported 1AE10 PPU. Ordering information for the 1A ESS switch is available from J6A002AC-1 under package name APT45, List 45.

h. **Local Area Signaling Services Feature Support Package [1AE10]** contains a program (SCFMAP) that supports the initialization of LASS features that have been loaded in a 1AE10 switch. Operationally, this software maps translations associated with the supported LASS features after the features have been loaded in a switch. Ordering information for the 1A ESS switch must be taken from J6A002AC-1 under package name APT47, List 47.

Listed are the SCFMAP tests and the features supported by each:

1. Test 1—Designed to map Call Forwarding Variable (CFV) to CFV and Selected Call Forwarding. This is needed for switches planning to retrofit or update to 1AE10.02 or later generic programs.
2. Test 2/3—Designed to map Automatic Recall (AR) to AR and Automatic Callback. This is needed for switches planning to retrofit or update to 1AE10.01 or later generic programs.

With the 1AE11 generic program, LASS feature support contains a program (SCFMAP) that supports the initialization of LASS features that have been loaded in a 1AE11 switch. Operationally, this software maps translations associated with the supported LASS features after the features have been loaded in a switch. Ordering information for the 1A ESS switch must be taken from J6A002AC-1 under package name APT51, List 51.

Listed are the SCFMAP tests and the feature supported by each:

1. Test 1—Designed to map Call Forwarding Variable (CFV) to CFV and Selected Call Forwarding (SCF). This is needed for switches planning to retrofit or update to 1AE10.02 or later generic programs.

2. Test 2/3—Designed to map Automatic Recall (AR) to AR and Automatic Callback. This is needed for switches planning to retrofit or update to 1AE10.01 or later generic programs.
3. Test 4—Designed for switches that have chosen selective allocations of outgoing line history blocks. This test will be used by switches planning to retrofit or update to 1AE11.02 or later generic programs.

i. **1AE8A to 1AE11 Retrofit**, functionally, provides a method to skip a generic in the 1A ESS switch retrofit procedure primarily through translation data mapping control enhancements. Operationally, this package enables 1A ESS switches, currently on any supported 1AE8A PPU, to retrofit to any supported 1AE11 PPU. Ordering information for the 1A ESS switch is available from J6A002AC-1 under package name APT57, List 57.

800 Service Billing [CTX-1/1AE1] (formerly INWATS Billing) (AT&T 231-090-275) provides an AMA record for calls terminating to an 800 Service SFG. The AMA record is made at the terminating central office. AMA records are made on all call attempts that are both completed and incompleted. In addition, a daily AMA record is provided per 800 Service group which lists the total number of overflows to that group.

800 Service—Originating Screening Office (OSO) [1E7/1AE7] (AT&T 231-090-274) provides single number DDD calling and improved routing by use of CCIS direct signaling. This feature allows a customer to receive and pay for calls from specified NPAs. No charge is made to the originating (calling) party for these calls. This feature is loaded with the CCIS feature group.

2048 Junctor Trunk Link Network (2048-TLN) [CTX-7/1AE1] [AT&T 231-031-100 (Ferreed) and AT&T 231-031-010 (Remreed)] is a switching network which terminates 2048 junctors. The 2048-TLN feature provides an increase in both network terminal and network

traffic capacities and is intended for use in large 1 and 1A ESS switches.

Toll and Tandem Features

4

Introduction

This chapter describes features applicable to the 1 and 1A ESS switches that operate in a local/toll, toll, or tandem environment.

Feature Definitions

Centralized Automatic Message Accounting (CAMA) [CTX-6/1AE1] (AT&T 231-090-278) enables the ESS switch to provide toll billing for subtending class 5 central offices on an ANI (automatic number identification) or ONI (operator number identification) basis. The feature groups required for CAMA (2W) are CAMA and HLCA; the feature groups for CAMA (4W) are CAMA and HL4W.

The following related features are included in the referenced document.

a. **CAMA Operation Connections During Office Growth (COCO) [1E5/1AE5]** is used for gradual retrofit of a HILO 4-wire network into an existing 2-wire office. This feature allows incoming CAMA calls (over 2-wire trunks) to be connected to CAMA operators (on HILO 4-wire trunks) for ONI during a retrofit period of several months. CAMA calls not requiring ONI are not affected. The feature groups

required to provide COCO are COCO, CAMA, HL4W, and HLCA.

b. **CAMA Terminating Party Disconnect Actions [CTX-7/1AE1]** provide 10- or 11-second timing before transmitting a terminating party disconnect signal on a CAMA incoming trunk and tearing down the call with the originating party still off-hook. Lack of this delay can result in false originations.

Code 100-Type Test Line [CTX-4/1AE1] (AT&T 231-090-098) provides a termination at the terminating end of a trunk which provides a means for making far-end to near-end loss and noise measurements.

Code 101-Type Test Line [CTX-1/1AE1] (AT&T 231-090-100) provides a communication path and test line to a testboard or test position which can be reached over any trunk incoming to a switching system served by that test position. The code 101 test line is used in reporting troubles, making manual transmission tests, etc.

Code 102-Type Test Line [CC-1/1AE1] (AT&T 231-090-101) provides a test termination to a 1000-Hz test source at the terminating end of a trunk for one-way transmission measurements.

Code 103-Type Test Line [CTX-7/1AE1] (AT&T 231-090-094) provides a connection to a supervisory and signaling test circuit for overall testing on incoming intertoll trunks equipped with ring forward (rering) features.

Code 104-Type Test Line [CTX-7/1AE1] (AT&T 231-090-342) provides a test termination for 2-way transmission testing and one-way noise checking.

Code 105-Type Test Line [CTX-4/1AE1] (AT&T 231-090-099), with an ATMS responder, provides for automatic 2-way loss and

noise measurements of telephone trunks and lines requiring transmission testing.

Code 108-Type Test Line [CTX-7/1AE1] (AT&T 231-090-404) provides the far-end loop-around termination for in-service testing of echo suppressors. It is used with the 58-type echo suppressor measuring system.

Fast Repeat of Answer Supervision (FANS) [1E3/1AE4] (AT&T 231-090-345) reduces the time required to repeat answer supervision from an outgoing trunk to an incoming trunk on through-switched toll connections. Trunks limited to intertoll, secondary intertoll, CCSA-to-CCSA, or toll completing applications should specify the fast answer feature. The FANS feature also reduces the possible distortion of the gateway wink signal on IDDD calls.

HILO 4-Wire Access Tandem [1AE9] (AT&T 231-390-220) provides the access tandem capability of the equal access Carrier Interconnect feature for a HILO 1A ESS switch. This capability allows HILO 4-wire access arrangements for end offices to carrier connections and provides the option of using 1A ESS HILO local/tandem or local/toll switches as access tandems.

HILO 4-Wire Switching [1E4/1AE4] (AT&T 231-090-366) is an electronic technique of achieving 4-wire switching for toll applications. It provides two electrically independent transmission paths through the switching network. The HILO feature is available for both trunk-only toll offices and combined local/toll offices. The HL4W and MTTP feature groups are required.

Immediate AMA Dump Capability [1AE8A] (AT&T 231-390-382) provides the ability to get a formatted dump of AMA data for a specific DN in real time. This feature allows the telephone company to immediately verify billing changes. If errors existed in the billing changes, this could result in lost revenue.

Toll Common Channel Interoffice Signaling (CCIS) [1E5/1AE5] (AT&T 231-090-416) provides CCIS-to-CCIS or CCIS-to-PTS trunk connections in toll offices. Feature groups required to provide Toll CCIS are CI2W (2-wire) or CIHL (HILO), CIPC, PDL, PUC, and, effective with 1E8A/1AE8A generic programs, SCG. (For 1E6/1AE6 generic programs, 2400 was used in lieu of CIPC, PDL, and PUC.)

The following features are included with the 1E7/1AE7 CCIS features:

a. CCIS Network Management provides the capability to accept and respond to dynamic overload controls and group signaling congestion signals received via CCIS data links.

b. Data Link Group for CCIS With PUC/DL provides the software for CCIS operation with PUC/DL.

Operator Tandem [CTX-6/1AE1] (AT&T 231-090-196) provides the ability to recognize dialing patterns and route traffic from incoming intertoll, secondary intertoll, and DDD access trunks. These dialing patterns include operator codes, test codes, terminating toll center codes, and all other address information associated with combined local/toll offices. The Operator Tandem feature also allows an ESS switch to work as a toll point which provides the first stage of concentration for intertoll traffic from end offices in a full hierarchy of switching systems.

2-Wire Toll/Tandem Operation [CTX-6/1AE1] (AT&T 231-090-372) provides the ESS switch in a 2-wire switching environment with the ability to serve as a tandem (non-DDD) or toll switching center.

2400-Bit/Second Data Link (2400DL) [1E5/1AE5] (AT&T 231-090-067) provides a 2400-bps data link network controlled by a small, high speed, stored program processor. The 2400DL feature allows the exchange of signaling information, including the supervisory and address signals necessary to control call setup and takedown, as well as network management signals within the CCIS System. The feature group required to provide 2400DL is 2400.

Public and Coin Features

5

Introduction

This chapter describes features designed to be used directly by public service officials (police, fire) or by telephone company personnel in response to requests from these officials.

Feature Definitions

Circuit Switched Digital Capability (CSDC) [1AE7] (AT&T 231-390-380) provides end-to-end circuit-switched capability for 56,000-bps data signals in a manner similar to the way the DDD network provides circuit-switched capability for voice frequency signals. The CSDC feature requires the PSDC feature group. (This feature was formerly called Public Switched Digital Capability.)

Coin Features provide station telephone service using a coin telephone set. The ESS switch can serve coin first stations and dial-tone-first stations from the same central office. (Note unless otherwise stated, AT&T 231-090-095 is the reference for the following Coin features.)

a. **Coin Distance Dialing Via Cord Switchboard [CC-1/1AE1]** is controlled entirely by the operator. The operator requests initial rate, monitors coin tones, completes the call,

times the call, signals the central office to collect or return the deposit, and handles any overtime charges.

b. **Coin Distance Dialing Via TSPS [CC-1/1AE1]** (Also AT&T 231-090-114) is almost entirely controlled by the central office and TSPS. The operator requests the initial rate, monitors coin tones, and then releases the position from the call. A TSPS operator is only reconnected if an overtime charge is required.

c. **Coin First [CC-1/1AE1]** requires deposit of initial coins before dial tone is received.

d. **Coin Fraud Elimination [CTX-7/1AE1]** prevents calls from being made without the proper coin deposit and prevents simulation of coin signals by manipulation of the touch-tone dial.

e. **Coin Line Activity Monitoring (CLAM) [1E3/1AE4]** (AT&T 231-090-356 only) provides a periodic printout of DNs for selected coin lines that have not originated traffic within a specified time interval.

f. **Coin Overtime Announcement (CANT) [CTX-6/1AE1]** applies one cycle of a selected announcement to the connected coin line at the end of the initial timed period.

g. **Coin Return on Dial "0" or 411 [CC-1/1AE1]** allows free calls on dial "0" or directory assistance. Coin is returned on disconnect.

h. **Coin Station Test Line (CSTL) [CTX-6/1AE1]** allows installers and repair personnel at a coin telephone station, without assistance from an operator or test person, to test and/or verify the following: loop leakage, coin collect, coin return, and coin relay timing.

i. **Coin Zone Dialing [CC-1/1AE1]** permits multiple message unit calls to be dialed from a coin telephone. An operator momentarily comes on the line to collect initial coin charges

and remains on the line during the overtime period to time the call for overtime charges.

j. **Dial-Tone-First [CTX-3/1AE1]** provides dial tone without initial coin deposit.

k. **Local Coin Overtime [CC-1/1AE1]** provides for an overtime charge on local calls after an initial charge period has elapsed.

l. **Stuck Coin Administration [CC-1/1AE1]** provides a printout of directory numbers and failure rates of coin lines that have experienced stuck coin conditions.

m. **Coin Control [1AE9.08]** enhancement provides better resolution for stuck coin determination and the detection of out of adjustment coin relays, as well as to be able to reduce the overall time required for this procedure.

Coin Line AMA (CLAMA) [1AE8A.08] (AT&T 231-090-095) provides an AMA record for each coin-sent-paid call that is not recorded by TSPS. These calls are rated at the end-office and are local timed, local untimed, and zone. The CLAMA AMA record contains the originating and terminating directory number, and the time of answer and disconnect (answer time and elapsed time for the 1A ESS switch with the AMA Standard Entries feature).

Coinless Public Telephone Service [1E4/1AE4] (AT&T 231-090-097) provides the capability to use coinless stations in public places to place calls not requiring coin deposits.

Combined Operator Office Trunk (COOT) [CTX-7/1AE1] (AT&T 231-090-294) provides a single trunk facility for completion of calls from a toll switchboard to a step-by-step CDO (community dial office), from the CDO to the dial switchboard, and from the ESS switch to the CDO. It is intended for use when an ESS switch is arranged for toll operation in conjunction with small step-by-step CDOs, and the step-by-step office is physically removed from the ESS switch. In addition, when the toll switchboard is arranged for

MF outpulsing only, this feature provides a tandem trunk arrangement to the ESS switch office where the MF pulses are converted to dial pulses and outpulsed over a trunk to the CDO.

Improved Coin Fraud Prevention (ICFP) [1AE9.08] (AT&T 231-090-095) fast feature provides a mechanism to test and administer a coin phone out of service list for lines which fail to properly dispose of a deposit. The feature also provides the capability to take coin phones out of service and place them on the PSPD low priority list after printing a CN04 O/S message. It also attempts to collect the stuck coin after about a minute for all the PSPD coin phones. If successful on the collect, it restores the coin phone to service after printing a CN04 RST message. This also provides an input message (PSG-POHWLN-STC.) to list all out of service coin lines on the high and wet list. The ICPF must be present in the switch and activated for the customer.

Presubscription for Coin Lines (PCL) [1AE9.11] custom feature allows for two different PICs (primary interexchange carriers) to be used when providing service for single coin line depending upon the digits dialed. The PCL custom feature enables the switch to route 1+ or 011+ inter-LATA calls from a coin line to either the PIC of the line or to the coin line office default carrier in the office option table if the PIC does not have the capability of handling 1+ or 011+ traffic. 0+, 01+, and 00-inter-LATA coin calls continue to route to the coin line PIC. The PCL feature is optionally available.

Appendix 6

Introduction

This chapter contains information to be used by the customers in the day-to-day operation of the 1 and 1A ESS switches. This information is contained in the following tables:

- Table 1 — Performance and Environmental Specifications and Limitations
- Table 2 — Power Supplies
- Table 3 — Feature Type and Initial Availability

  NOTE:
  Features that are included in this handbook for the first time are shown in bold type.

- Table 4 — Summary of Centrex Features
- Table 5 — Optionally Loaded Feature Groups.

Table 6-1. Performance and Environmental Specifications and Limitations

Call Handling Capacity

1 ESS Switch CC — 53,000 Peak BHC
1 ESS Switch SP — 110,000 Peak BHC
1A ESS Switch — 230,000 Peak BHC (Slow — 256,000 Store)
1A ESS Switch — 345,000 Peak BHC (Fast — 256,000 Store)

Line Link Network Size and Capacity

Heavy Line Link Network

Line to Junctor Ratio	Rating (Note 1)	LLN Size		Maximum CCS Capacity			Maximum Office Size (Note 2)			
							Standard		Extended (Note 3)	
		LSF or LSC	Lines	LSF or LSC	Conc.	Line	LLN	Lines	LLN	Lines
2:1	STD	4	2048	3800	238	7.42	16	32,768	32	65,536
2.5:1	A&M	5	2560	3120	195	6.09	16	40,960	32	81,920
3:1	STD	6	3072	2660	166	5.20	16	49,152	32	98,304
3.5:1	A&M	7	3584	2340	146	4.57	16	57,340	32	114,680
4:1	A&M	8	4096	2100	131	4.11	16	65,536	32	131,072
Regular Line Link Network										
4:1	STD	4	4096	3680	230	3.59	16	65,536	32	131,072
5:1	A&M	5	5120	3020	189	2.95	16	81,920	25	128,000
6:1	STD	6	6144	2580	161	2.52	16	98,304	21	129,024

See notes at end of table.

Table 6-1. Performance and Environmental Specifications and Limitations (Contd)

Trunk Link Size and Capacity (Note 4)

1024 Junctor —TLN

Line to Junctor Ratio (Note 5)	Rating	TLN Size		CCS Capacity (Note 6)			Office Size	
		Trunks	TSF or TSC	TSF or TSC	Grid	Installed Trunk	Trunk Link Networks	Trunks
1.00:1	STD	1024	4	4600	1150	18.0	16	16,384
1.25:1	A&M	1280	5	3680	920	14.4	16	20,480
1.50:1	STD	1536	6	3060	765	12.0	16	24,576
1.75:1	A&M	1792	7	2620	655	10.3	16	28,672
2.00:1	A&M	2048	8	2300	575	9.0	16	32,768
1:00:1	STD	2048	8	4600	1150	18.0	16	32,768

See notes at end of table.

Table 6-1. Performance and Environmental Specifications and Limitations (Contd)

Building Environment

	Temperature (°F)		Relative Humidity (%)	
	Min	Max	Min	Max
*Recommended operating ranges	40°	100°	20%†	55%
Short term limits (3 days at a time, 15 days a year)	35°	120°	20%	80%

ESS switch equipment heat dissipation is not to exceed 20 watts per square foot.

Air conditioning — as required to meet temperature and humidity requirements.

Building Parameters

11 feet of clear ceiling height required.

Floor loading — 150 pounds per square foot.

Note 1: Remreed LLNs are available in standard rated line junctor ratios only.

Note 2: 1 ESS switches have a maximum size of 16 LLNs.
1A ESS switches through the use of extended networks have a maximum size of 32 LLNs.

Note 3: The maximum number of LLNs for a particular office is determined by generic program and junctoring limitations. The generic program limitation is 32 LLNs for 2:1, 3:1, and 4:1 concentration ratios and 21 LLNs for 6:1. In offices with 4:1R concentrator, the generic programs limit the number of LLNs to that number which when fully equipped has 131,072 or fewer line terminals. The junctoring limitations are dependent on the traffic mix. For example, for a "typical" traffic mix with 25% of the originating traffic being intraoffice, a range of 25 — 28 LLNs is the maximum which will be possible for 2:1, 3:1, and 4:1 concentration ratios.

Note 4: There are up to 1000 trunk groups, 512 trunks per trunk group for two-way trunk groups. All others have 1000 trunks per trunk group.

Note 5: Remreed TLNs are available in standard rated trunk-to-junctor ratios only.

Note 6: CCS capacities assume 50% C-link occupancy which may not be obtainable in large offices. The large office (10 or more TLNs) problem is one in which using a C-link (network) occupancy of 50% requires more than 64 junctor subgroups per trunk link network; thus, the network must be deloaded below 50% occupancy.

*Aisle ambient temperature is measured 5 feet above the floor along the aisle center line.

†The 20% relative humidity minimum is set for electrical charge considerations. At very low humidity, there is a danger of static discharge between tools and electronic equipment which could damage semiconductor devices..

Table 6-2. Power Supplies

Power Supply	Type of Plant or Unit	Capacity (Rated)	Code	Spec. No.	1 *ESS* Switch	1A *ESS* Switch
-48 V DC (-43.75 to -52.5 V) +24 V DC (+21.75 to +26.25 V)	storage batteries (without emergency cell or counter cell switching) rectifier charged	0 — 1200 Amp	152A	J86908	✓	✓
			153A	J86909	✓	✓
		0 — 2400 Amp	154A	J86910	✓	✓
			155A	J86911	✓	✓
		0 — 10,000 Amp	326A	J86874		✓
		0 — 6,000 Amp	326B	J86896		✓
+130 V DC -130 V DC	DC-to-DC solid state conversion from -48V for coin control	3/4 Amp	663A	J86912	✓	✓
		1.6 — 8 Amp	663B	J86913	✓	
		5 — 30 Amp	663C	J86914	✓	✓
PBX talking battery filter on misc frame	coil and capacitor panels	15, 25 and 50 Amp	ED-9217301	J99226	✓	✓
AC supply for protected AC service	DC motor-driven alternator for 120/208 V, 1- and 3-phase power	1.5 or 5 kW	504B	J86617	✓	✓
AC supply for protected AC service	AC triport 1Ø 115 V	5.6 kVa	AC triport	J86518		✓

Table 6-2. Power Supplies (Contd)

Power Supply	Type of Plant or Unit	Capacity (Rated)	Code	Spec. No.	1 *ESS* Switch	1A *ESS* Switch
AC supply for critical central office equipment	AC triport 1Ø 115 V	5.6 kVa	AC triport	J86518	✓	✓
AC power for critical central office equipment	AC 117 V AC power plant with automatic transfer from regular to reserve	54 Amp	524A	J86642	✓	✓
ringing and tones on RT frame	solid-state generator with a precise tone plan	0.5 Amp 1.5 Amp 6 Amp	806H 812A 808A	J86815 J86834 J87801	✓ ✓ ✓	✓ ✓ ✓
appliance outlets frame lighting	distributed from frame or ceiling-supported bus way				✓	✓
120 V AC for the following frames: MCC AMA-TTY MCC CDT recorded announcement ringing and tone misc for TTY data sets, test battery supply unit, 2A sending panel	distributed from AC distribution panel located on miscellaneous power frame (MP)				✓	✓

Table 6-2. Power Supplies (Contd)

Power Supply	Type of Plant or Unit	Capacity (Rated)	Code	Spec. No.	1 *ESS* Switch	1A *ESS* Switch
208 V AC, 3-phase for MCC AMA-TTY and MCW frames	distributed from AC distribution panel located on misc power frame				✓	✓
reserve power system	engine- or gas-turbine alternator 480 V 60 Hz AC 3-phase	2100/2500 kW			✓	✓

Table 6-3. Feature Type and Initial Availability

Feature	Initial Availability (Note 1)		Type of Feature (Note 2)						
	1 *ESS* Switch	1A *ESS* Switch	POTS/ PUB	CTX	Admin/ Bill	Maint	TOLL/ TAN	Sys	Use Sen
Abandoned Call Search (ACD)	1E3	1AE4		X					
Account Codes (ETS)	1E6	1AE6		X					
ACD-ESS Management Information System	1E4	1AE4		X				X	
Add-On (CTX)	CTX-2	1AE1		X					
Add-On (POTS)	CTX-5	1AE1	X						
Advanced Private Line Termination	1E6	1AE6		X					
Advanced Services Platform-Network Access Point	—	1AE11	X						
Agent Log-In	1AE7	1AE6		X					
Alternate Routing	CC-1	1AE1		X					
Alternate Route Selection (EPSCS)	1E7	—		X					
Alternate 1A APS SCCS Interface	—	1AE7				X		X	
Associated Common Channel Signaling		1AE9.03						X	
Attached Processor System	—	1AE7						X	
Attached Processor System Preconditioning Check	—	1AE9.09				X			
Attendant Call-Through Test on Centrex Trunks	CTX-5	1AE1		X					
Attendant Camp-On	CTX-5	1AE1		X					
Attendant Conference	CTX-2	1AE1		X					
Attendant Console	CTX-1	1AE1		X					
Attendant Control of Facilities	CTX-4	1AE1		X					
Attendant Direct Station Selection With Busy Lamp Field	CTX-5	1AE1		X					
Attendant Emergency Override	CTX-5	1AE1		X					
Attendant Position	CTX-1	1AE1		X					
Attendant Recall From Satellite	CTX-5	1AE1		X					
Audible Ringing	CC-1	1AE1						X	

See notes at end of table.

Table 6-3. Feature Type and Initial Availability (Contd)

Feature	Initial Availability (Note 1)		Type of Feature (Note 2)						
	1 *ESS* Switch	1A *ESS* Switch	POTS/ PUB	CTX	Admin/ Bill	Maint	TOLL/ TAN	Sys	Use Sen
Authorization Code Screening (EPSCS)	1E5	—		X					
Automated Board-to-Board Testing	CTX-6	1AE1						X	
Automated Broadcast Warning	1E3	—				X			
Automatic Callback Calling	1E6	1AE6		X					
Automatic Callback Two-Level Announcement	—	1AE10.03	X	X					
Automatic Call Distribution									
Basic Service	CTX-6	1AE1		X					
Phase 1	1E3	1AE4		X					
Phase 2	1E4	1AE4		X					
Automatic Call Distribution Customer Split Configuration Protection	—	1AE9.09		X					
Automatic Calling Station Identification (EPSCS)	1E6	—		X					
Automatic Congestion Control for CCS7	—	1AE11				X			
Automatic Fault Location and System Reconfiguration	CC-1	1AE1				X			
Automatic Identified Outward Dialing	CTX-1	1AE1		X					
Automatic Intercept System	CTX-4	1AE1						X	
Automatic Line Insulation Test	CC-1	1AE1				X			
Automatic Message Accounting	CC-1	1AE1			X				
Multiple Entries	—	1AE8A			X				
Standard Entries	1E7	1AE8A			X				
Transmitter	1E7	—			X				
Teleprocessing System	—	1AE8A			X				
Automatic Overload Controls	CC-1	1AE1				X		X	

See notes at end of table.

Table 6-3. Feature Type and Initial Availability (Contd)

Feature	Initial Availability (Note 1)		Type of Feature (Note 2)						
	1 *ESS* Switch	1A *ESS* Switch	POTS/ PUB	CTX	Admin/ Bill	Maint	TOLL/ TAN	Sys	Use Sen
Automatic Positioning of AMA Beginning-of-Tape Mark	CTX-6	1AE1			X				
Automatic Recall (LASS)	—	1AE9	X	X					X
Automatic Recall/Automatic Callback Idle/Call Waiting Status	—	1A10.05	X	X					
Automatic Route Selection — Deluxe (ETS)	1E6	1AE6		X					
Automatic Time-Out of Announcements and Tones	1E5	1AE5		X					
AUTOVON Interface									
Customer Status	1E7	1AE7		X					
Main-Satellite	1E5	1AE5		X					
Precedence Network In-Dialing	1E3	1AE4		X					
Auxiliary Line Circuit	CC-1	1AE1						X	
Basic Data Link Input/Output	1E4	1AE4		X				X	
Basic Queueing for Trunks and Lines	CTX-6	1AE1	X	X					
Belt Line Control of Test Facilities	CTX-5	1AE1				X			
Bridge Lifter	CC-1	1AE1						X	
Building Alarms Summary	1E7	1AE7				X			
Bulk Calling Line Identification (LASS)	—	1AE9	X	X					X
Busy/Idle Status Indicator	1E7	1AE7						X	
Busy Verification of Centrex Trunks/Lines	CTX-5	1AE1		X					
Bylink—RB Supervision DP	CC-1	1AE1						X	
Call Forwarding									
Busy Line (POTS)	CTX-5	1AE1	X						
Busy Line (CTX)	CTX-7	1AE1		X					
Don't Answer (POTS)	1E6	1AE6	X						
Don't Answer (CTX)	CTX-5	1AE1		X					

See notes at end of table.

Table 6-3. Feature Type and Initial Availability (Contd)

Feature	Initial Availability (Note 1)		Type of Feature (Note 2)						
	1 *ESS* Switch	1A *ESS* Switch	POTS/ PUB	CTX	Admin/ Bill	Maint	TOLL/ TAN	Sys	Use Sen
Don't Answer With VariableTiming (POTS)	1E6	1AE6	X						
Don't Answer With VariableTiming (CTX)	CTX-7	1AE1		X					
Inhibit Line Busy	CTX-7	1AE1	X	X					
Inhibit Make Busy	CTX-7	1AE1	X	X					
Outside	CTX-5	1AE1		X					
Overflow	CTX-7	1AE1	X	X					
Over Private Facilities	1E6	1AE6		X					
Over Private Facilities/ETS	1E7	1AE7		X					
Separate CFBL/CFDA DNs	—	1AE9	X	X					
Unrestricted Source	CTX-5	1AE1		X					
Usage Sensitive	CTX-7	1AE1	X		X				X
Variable	CTX-5	1AE1	X	X					
Call Gapping	1E8A	1AE8A						X	
Call Hold	CTX-5	1AE1		X					
Call Pickup	CTX-7	1AE1		X					
Call Transfer									
Attendant	CTX-1	1AE1		X					
Individual	CTX-2	1AE1		X					
Individual—All Calls	CTX-2	1AE1		X					
Intercentrex Screening	CTX-5	1AE1		X					
Outside	CTX-5	1AE1		X					
To Fully Restricted Stations	CTX-5	1AE1		X					

See notes at end of table.

Table 6-3. Feature Type and Initial Availability (Contd)

Feature	Initial Availability (Note 1)		Type of Feature (Note 2)						
	1 *ESS* Switch	1A *ESS* Switch	POTS/ PUB	CTX	Admin/ Bill	Maint	TOLL/ TAN	Sys	Use Sen
Unlimited	CTX-2	1AE1		X					
Call Waiting									
Intragroup	CTX-5	1AE1		X					
Originating	CTX-5	1AE1		X					
Terminating (POTS)	CTX-2	1AE1	X						
Terminating (CTX)	CTX-5	1AE1		X					
Calling Card Service	1E6	1AE6	X		X				
Calling Line Identification	CTX-1	1AE1				X		X	
Calls Waiting Lamps	CTX-2	1AE1		X					
Cancel Call Waiting	—	1AE8A	X	X					
Cancel Call Waiting Per Line	—	1AE9.09	X	X					
Carrier Group Alarm									
Hardware	CC-1	1AE1				X		X	
Software	1E7	1AE7				X		X	
Carrier Interconnect	1E8A	1AE8A						X	
Carrier Interconnect Inhibit Term Inter-LATA AMA	—	1AE9.08				X			
Carrier Trunk Conditioning Recognition	—	1AE8A						X	
Cellular Mobile Radio Office	—	1AE7						X	
Central Control Clock Speed-Up	1E7	—						X	
Centralized Attendant Service	CTX-2	1AE1		X					
Centralized Automatic Message Accounting	CTX-6	1AE1			X		X	X	
Operator Connections During Office Growth	1E5	1AE5			X		X	X	
Terminating Party Disconnect Actions	CTX-7	1AE1						X	
Centrex	CTX-1	1AE1		X					
Centrex Abbreviated Dialing 2	—	1AE9		X					

See notes at end of table.

Table 6-3. Feature Type and Initial Availability (Contd)

Feature	Initial Availability (Note 1)		Type of Feature (Note 2)						
	1 *ESS* Switch	1A *ESS* Switch	POTS/ PUB	CTX	Admin/ Bill	Maint	TOLL/ TAN	Sys	Use Sen
Centrex Data Facility Pooling									
Network Modem Pooling	—	1AE9		X					
Private Facility Pooling	—	1AE8A		X					
Centrex Electronic Key	—	1AE8A		X					
Centrex Station Rearrangement Phase 1	1E7	1AE7		X					
Centrex-to-PBX Automatic Number Identification	—	1AE9.03		X					
Centrex Verify Group Speed Call List	—	1AE9.07		X					
Charge Delay Timing	CTX-7	1AE1			X				
Circuit Switched Digital Capability	—	1AE7	X	X				X	
Circular Hunting	CTX-6	1AE1	X	X					
Class 5 Operation	CC-1	1AE1						X	
Code Calling	CTX-1	1AE1		X					
Code Restriction	CTX-1	1AE1		X					
Code 100-Type Test Line	CTX-1	1AE1				X	X		
Code 101-Type Test Line	CTX-1	1AE1				X	X		
Code 102-Type Test Line	CC-1	1AE1				X	X		
Code 103-Type Test Line	CTX-7	1AE1				X	X		
Code 104-Type Test Line	CTX-7	1AE1				X	X		
Code 105-Type Test Line	CTX-4	1AE1				X	X		
Code 107-Type Test Line	1E6	1AE6				X			
Code 108-Type Test Line	CTX-7	1AE1				X	X		

See notes at end of table.

Table 6-3. Feature Type and Initial Availability (Contd)

Feature	Initial Availability (Note 1)		Type of Feature (Note 2)						
	1 *ESS* Switch	1A *ESS* Switch	POTS/ PUB	CTX	Admin/ Bill	Maint	TOLL/ TAN	Sys	Use Sen
Coin Features									
Coin Distance Dialing Via Cord Switchboard	CC-1	1AE1	X						
Coin Distance Dialing Via TSPS	CC-1	1AE1	X						
Coin First	CC-1	1AE1	X						
Coin Fraud Elimination	CTX-7	1AE1	X						
Coin Line Activity Monitoring	1E3	1AE4	X						
Coin Overtime Announcement	CTX-6	1AE1	X						
Coin Return on Dial "0" "411"	CC-1	1AE1	X						
Coin Station Line Test	CTX-6	1AE1	X						
Coin Zone Dialing	CC-1	1AE1	X						
Dial-Tone-First	CTX-3	1AE1	X						
Local Coin Overtime	CC-1	1AE1	X						
Stuck Coin Administration	CC-1	1AE1	X						
Coin Control	—	1AE9.08				X			
Coin Line AMA	—	1AE8A.08					X		
Coinless Public Telephone Service	1E4	1AE4	X						
Coin Line Option for Automatic Callback	—	1AE10.01			X				
Combined Operator Office Trunk	CTX-7	1AE1					X		
Combined Touch-Tone and Dial Pulse on Incoming Tie Trunks	CTX-4	1AE1		X				X	
Common Channel Interoffice Signaling									
Local	1E7	1AE7						X	
Toll	1E5	1AE5					X	X	
Common Channel Signaling System 7	—	1AE10						X	

See notes at end of table.

Table 3. Feature Type and Initial Availability (Contd)

Feature	Initial Availability (Note 1)		Type of Feature (Note 2)						
	1 *ESS* Switch	1A *ESS* Switch	POTS/ PUB	CTX	Admin/ Bill	Maint	TOLL/ TAN	Sys	Use Sen
Common Control Switching Arrangement	CTX-1	1AE1		X					
Common Systems Recorded Announcement Frame	1E4	1AE4		X					
Conflicting Area Code and Office Code Operation	CTX-5	1AE1						X	
Consultation Hold	CTX-1	1AE1		X					
Controlled Outward Restriction	1E3	1AE4		X					
Controlled Station-to-Station Restriction	1E3	1AE4		X					
Controlled Termination Restriction	1E3	1AE4		X					
Controlled Total Restriction	1E3	1AE4		X					
Coordinator CRT Terminal (ACD 2)	1E4	1AE4		X					
Customer Changeable PIC	—	1AE8A.05	X	X					
Customer Changeable Speed Calling	CTX-7	1AE1	X	X					
Customer Controlled Station Restriction	1E3	1AE4		X					
Customer Dialed Account Recording	CTX-7	1AE1		X	X				
Customer Facility Groups	1E5	1AE5		X					
Customer Identification on AMA	1E3	1AE4		X					
Customer Originated Recent Change	1E6	1AE6			X				
Customer Originated Trace (LASS)	—	1AE9	X	X					X
Customer Originated Trace Two-Level Announcement	—	1AE10.03	X	X					
Customer Station Rearrangements	1E7	1AE7		X					
Cut-Through to Operator After Local Intercept	CTX-6	1AE1						X	
Data Compression	—	1AE10.04			X				
Data Link Sequencing	1E5	1AE5		X				X	

See notes at end of table.

Table 6-3. Feature Type and Initial Availability (Contd)

Feature	Initial Availability (Note 1)		Type of Feature (Note 2)						
	1 *ESS* Switch	1A *ESS* Switch	POTS/ PUB	CTX	Admin/ Bill	Maint	TOLL/ TAN	Sys	Use Sen
Delay Activation of Recent Change Message	CTX-7	—			X				
Delay Announcement Improved Billing	1E4	1AE4		X	X				
Delay Announcements	CTX-6	1AE1		X					
Deluxe Network Access (EPSCS)	1E6	—		X					
Deluxe Queueing (ETS)	1E6	1AE6		X					
Denied Service Signature for Local Test Desk	—	1AE9.07				X			
Dequeue Capability	—	1AE10.04				X			
Desks, Interface With	CC-1	1AE1						X	
Detailed Billing Hotel/Motel Rate Calls	—	1AE7			X				
Detailed Billing on Timed and Untimed Message Unit Calls	CTX-6	1AE1			X				
Diagnose Trunk-Out-of-Service List	CTX-6	1AE1				X			
Diagnostic Programs	1E3	1AE4				X			
Dial Call Waiting	1E3	1AE4		X					
Dial Long Lines Circuits	CC-1	1AE1						X	
Dial Pulse Dialing	CC-1	1AE1	X	X					
Dial Pulse Repeating Diagnostic	1E6	1AE6				X			
Dial Repeating Tie Trunks	1E6	1AE6		X					
Dial Tone Speed Measurements	CC-1	1AE1				X			
Dial Transfer to Cut-Through Tie Lines	CTX-7	1AE1		X					
Different Route for Transferred Calls	1E3	1AE4		X					
Digit Timing Code Conflict	CTX-7	1AE1		X					
Digital Carrier Trunk	1E6	1AE6						X	
Digital Carrier Trunk Continuity and Polarity Test	—	1AE9.06				X			
Direct Connect for Two-Party Lines	1E6	1AE6	X						

See notes at end of table.

Table 6-3. Feature Type and Initial Availability (Contd)

Feature	Initial Availability (Note 1)		Type of Feature (Note 2)						
	1 *ESS* Switch	1A *ESS* Switch	POTS/ PUB	CTX	Admin/ Bill	Maint	TOLL/ TAN	Sys	Use Sen
Direct Connect Service	CTX-6	1AE1	X	X				X	
Direct Inward Dialing	CTX-1	1AE1		X					
Direct Outward Dialing	CTX-1	1AE1		X					
Directed Call Pickup—Nonbarge-In	1E3	1AE4		X					
Directed Call Pickup With Barge-In	CTX-6	1AE1		X					
Directory Assistance Charging	1E3	1AE4			X				
Disconnect Record at Calling Customer Hang-Up	CTX-6	1AE1			X				
Distinctive Alerting (LASS)	—	1AE9	X	X					X
Distinctive Ringing/Distinctive Call Waiting Tone	1E6	1AE6		X					
Division of Revenue Measurements									
Peg Counts	1E3	1AE4			X			X	
Usage Counts	1E8A	1AE8A			X			X	
E&M	CC-1	1AE1						X	
"E" Digit Unblocking	CTX-4	1AE1						X	
E911 Bulk Recent Change	—	1AE8A.05						X	
E911 Data Link	1E6	1AE6						X	
Echo Suppressor Control	1E4	—						X	
EEDP Trunk Side Access	—	1AE8A.06		X					
Electronic Tandem Switching	1E6	1AE6		X					
Emergency Manual Line Service	CC-1	1AE1	X	X				X	
Emergency Ringback	CC-1	1AE1						X	

See notes at end of table.

Table 6-3. Feature Type and Initial Availability (Contd)

Feature	Initial Availability (Note 1)		Type of Feature (Note 2)						
	1 *ESS* Switch	1A *ESS* Switch	POTS/ PUB	CTX	Admin/ Bill	Maint	TOLL/ TAN	Sys	Use Sen
End-to-End Call Trace (LASS)	—	1AE9	X	X					X
Engineering and Administrative Data Acquisition System	1E3	1AE5			X			X	
Enhanced INWATS - Type AMA	—	1AE8A.07	X	X					
Enhanced Private Switched Communications Service	1E5	—		X				X	
Enhanced Reroute Controls	—	1AE8A						X	
Essential Service Protection	1E7	1AE7						X	
ETS Billing Improvements	—	1AE8A.11		X					
ETS Compatibility With SMDR Via RAO	1E7	1AE7		X					
ETS Off-Network Dialing Improvements	—	1AE7		X					
Expanded ETS Dialing Plan	—	1AE8A.04		X					
Expanded Inband Signaling	1E6	1AE6	X					X	
Expanded Station Message Detail Recording	1E7	1AE7		X					
Expansion of Teletypewriter Channels	1E3	—						X	
Expensive Route Warning Tone (ETS)	1E6	1AE6		X					
Extended Plant Measurements	CTX-5	1AE1			X	X		X	
Extended Ringing Cycle Option	1E6	1AE6	X	X					
Facility Administration and Control (ETS)	1E6	1AE6		X					
Facility Restriction Levels (ETS)	1E6	1AE6		X					
Fast Repeat of Answer Supervision	1E3	1AE4					X		
Fixed Delay Announcement	CTX-6	1AE1		X					
Flexible First Delay Announcement	CTX-6	1AE1		X					
Flexible Incoming Call Restriction	CTX-7	1AE1		X					

See notes at end of table.

Table 6-3. Feature Type and Initial Availability (Contd)

Feature	Initial Availability (Note 1)		Type of Feature (Note 2)						
	1 *ESS* Switch	1A *ESS* Switch	POTS/ PUB	CTX	Admin/ Bill	Maint	TOLL/ TAN	Sys	Use Sen
Flexible Route Selection	CTX-6	1AE1		X					
Increased Number of Routes	—	1AE7							
Overflowed Carrier per Pattern	—	1AE9							
Flexible Route Selection Directory Assistance	—	1AE9.06		X					
Foreign Exchange Service	CTX-4	1AE1		X					
Fraud Prevention on Terminating Calls	1E3	1AE4						X	
Full ESSX-1 Service	1E5	1AE5		X					
Full Selective Ringing	CTX-4	1AE1	X						
General Unit Type Recent Change Message	1E3	1AE4			X				
Glare Resolution	1E4	1AE4				X	X		
Ground Start	CC-1	1AE1						X	
Group Make-Busy Keys	CTX-6	1AE1	X	X					
High-Low Supervision	CC-1	1AE1						X	
HILO 4-Wire Access Tandem	—	1AE9						X	
HILO 4-Wire Switching	1E4	1AE4					X	X	
Home Intercom	—	1AE8A.02	X	X					
Identification of Network Path Associated With a False Answer	CC-1	1AE1				X			
Immediate AMA Dump Capability	—	1AE8A		X			X		
Immediate Ringing	CC-1	1AE1						X	
Improved Coin Fraud Prevention	—	1AE9.08						X	
Improved Junctor Testing	1E7	1AE7				X			
Improved Minitrunk Signal Distributor Diagnostic	1E7	1AE7				X			
Improved Network Management Call Gapping	—	1AE10.06				X			
Improved Outgoing Trunk Diagnostic	1E7	1AE7				X			

See notes at end of table.

Table 6-3. Feature Type and Initial Availability (Contd)

Feature	Initial Availability (Note 1)		Type of Feature (Note 2)						
	1 *ESS* Switch	1A *ESS* Switch	POTS/ PUB	CTX	Admin/ Bill	Maint	TOLL/ TAN	Sys	Use Sen
Improved Overload Strategy	1E6	1AE6						X	
Improved Peripheral Recovery Strategy	1E7	1AE7				X			
Improvements to 3/6-Digit Translations (EPSCS/ETS)	1E7	1AE7						X	
Inactive Line	1E7	1AE7			X			X	
Incoming Call Identification	CTX-1	1AE1		X					
Incoming Trunk Service Observing	1E5	1AE5			X		X	X	
Incoming Trunk Service Observing/HILO Conversion for CCS7	—	1AE10.02				X			
Incoming Trunk Test Line	CC-1	1AE1		X					
Indication of Camp-On	CTX-5	1AE1		X					
Individual Billing of DN	CTX-6	1AE1	X	X					
Individual Calling Line Identification (LASS)	—	1AE9	X	X					X
Inhibit Routine Testing of a Specified Trunk Group	CTX-7	1AE1		X					
Initial AMA Entry on All AMA Call Attempts	CTX-6	1AE1			X				
Integrated Services User Part	—	1AE10						X	
Intelligent Simplex Peripheral Interface	—	1AE9						X	
Intelligent Simplex Peripheral Interface Message Handler	—	1AE9.07				X			
Intelligent Simplex Peripheral Interface Firm Issue Retrieval and ISPI Heartbeat	—	1AE9.11				X			
Inter-LATA Calling Party Number/Billing Number Delivery and Related Services	—	1AE11				X			
International Direct Distance Dialing (LAMA Arrangement)	CTX-4	1AE1						X	

See notes at end of table.

Table 6-3. Feature Type and Initial Availability (Contd)

Feature	Initial Availability (Note 1)		Type of Feature (Note 2)						
	1 *ESS* Switch	1A *ESS* Switch	POTS/ PUB	CTX	Admin/ Bill	Maint	TOLL/ TAN	Sys	Use Sen
International Direct Distance Dialing (TSPS Arrangement)	CTX-7	1AE1						X	
Interoffice Multiple Call Forwarding	—	1AE8A.10	X						
INWATS AMA on DID Trunks	—	1AE7		X					
Line Access to Trunk and Line Test Panel	1E3	1AE4				X			
Line and Interface Maintenance	1E3	1AE4				X			
Line—Bill to Another Number in the Same ESS Switch	CC-1	1AE1			X				
Line—Denied Originating	CC-1	1AE1	X	X					
Line—Denied Terminating	CC-1	1AE1	X	X					
Line—Flat Rate	CC-1	1AE1	X	X					
Line—Free Terminating	CC-1	1AE1	X	X					
Line History	—	1AE9	X	X					
Line—Individual	CC-1	1AE1	X	X					
Line—Individual—Fully Restricted	CTX-1	1AE1		X					
Line—Individual—Nonrestricted	CTX-1	1AE1		X					
Line—Message Rate	CC-1	1AE1	X	X					
Line TWX—Teletypewriter Exchange	CTX-1	1AE1		X					
Local Area Signaling Services	—	1AE9	X	X					X
Local Area Signaling Services Bimodal	—	1AE10.02				X			
Local Area Signaling Services Conversion	—	1AE10.01				X			
Local Area Signaling Services Privacy	—	1AE10.04	X	X					
Local Automatic Message Accounting (LAMA)	CC-1	1AE1			X			X	

See notes at end of table.

Table 6-3. Feature Type and Initial Availability (Contd)

Feature	Initial Availability (Note 1)		Type of Feature (Note 2)						
	1 *ESS* Switch	1A *ESS* Switch	POTS/ PUB	CTX	Admin/ Bill	Maint	TOLL/ TAN	Sys	Use Sen
Local Off-Network Access Line	CTX-2	1AE1		X					
Local Test Desk or Cabinet	CC-1	1AE1				X			
Loop	CC-1	1AE1						X	
Loop Range Extension	1E6	1AE6						X	
Loop Start	CC-1	1AE1						X	
Loudspeaker Paging	CTX-1	1AE1	X	X					
Main Satellite Service	CTX-1	1AE1		X					
Manual Originating Line Service	CC-1	1AE1	X	X				X	
Meet-Me Conferencing (EPSCS)	1E5	—		X					
Memory Expansion	—	1AE7						X	
Message Detail Recording on Tie Trunks	1E4	1AE4			X				
Message Interface Processor	—	1AE10						X	
Message Service System	—	1AE9	X	X					
Mixed Concentration Ratio	1E5	1AE5						X	
MJ and MK Mobile Radio Telephone Systems	CTX-7	1AE1	X				X		
Modify Midnight Routine Exercise and Give MAC-REX Status	1E7	1AE7				X			
Monitoring Recent Change Area	CTX-7	—			X				
Multifrequency Signaling on Bylink Trunks	1E3	1AE4						X	
Multiline Group Hunting (ACD)	1E3	1AE4		X					
Multiline Groups—Hunting	CTX-1	1AE1	X	X					
Multiline Groups—Nonhunting	CTX-7	1AE1	X	X					

See notes at end of table.

Table 6-3. Feature Type and Initial Availability (Contd)

Feature	Initial Availability (Note 1)		Type of Feature (Note 2)						
	1 *ESS* Switch	1A *ESS* Switch	POTS/ PUB	CTX	Admin/ Bill	Maint	TOLL/ TAN	Sys	Use Sen
Multiline Variety Package Service	1E7	1AE7	X						
Multiple Call Forwarding	CTX-7	1AE1	X	X					
Multiple DNs Per Line With Distinctive Ringing	—	1AE9.05	X						
Multiple Position Hunt	CTX-7	1AE1		X					
Multiple Trunk Test Capability	CTX-7	1AE1				X			
Network Attendant (EPSCS)	1E6	—		X					
Network Management	CTX-6	1AE1			X		X		
Network Interconnect	—	1AE11						X	
Network Interconnect—Service Switching Point/800	—	1AE11						X	
Network Management/EADAS	1E4	1AE5			X		X		
Network Message Detail Recording (EPSCS)	1E5	—	X	X					
Network Trunk Queueing (EPSCS)	1E5	—		X					
Night Service	CTX-1	1AE1		X					
No. 2 Service Evaluation System Interface	—	1AE9		X					
Nonsynchronous Test Line	CC-1	1AE1				X			
Number Group Number Recovery	—	1AE8A.07		X					
Office Alarm Subsystems	CC-1	1AE1				X			
Office Overload Controls	CC-1	1AE1			X	X		X	
Off-Line Single Card Writing	CTX-7	—				X			
Off-Network 10-Digit Screening	—	1AE8A.06		X					
Off-Network Access Line	CTX-2	1AE1		X					
Off-Network Calling (EPSCS)	1E5	—		X				X	

See notes at end of table.

Table 6-3. Feature Type and Initial Availability (Contd)

Feature	Initial Availability (Note 1)		Type of Feature (Note 2)						
	1 *ESS* Switch	1A *ESS* Switch	POTS/ PUB	CTX	Admin/ Bill	Maint	TOLL/ TAN	Sys	Use Sen
Old Format AMA Number Services	—	1AE10.01		X					
Open Switching Interval Protection	CTX-4	1AE1						X	
Operation With No. 5 Crossbar Synchronous Test Line With Centrex Transfer	CTX-4	1AE1				X			
Operator Tandem	CTX-6	1AE1					X		
Order of Arrival Queueing	CTX-6	1AE1	X						
Outgoing Trunk Queueing	1E4	1AE4		X					
Outward WATS	CC-1	1AE1	X	X					
Overflow Registers	CC-1	1AE1						X	
Override Attendant Access Restriction	CTX-7	1AE1		X					
Pair Gain Systems Interface Loop Switching System	CTX-7	1AE1						X	
SLC 96 Carrier System	CTX-7	1AE1						X	
SLM Multiplex System	CTX-7	1AE1						X	
1A Line Concentrator	CTX-7	1AE1						X	
Party Line Service	CTX-4	1AE1	X						
Pay Per View	—	1AE9.02		X					
PBX Ringing and Battery Feeders	CC-1	1AE1						X	
Peripheral Data Storage Processor	1E5	—						X	
Peripheral Unit Controller/Data Link	1E6	1AE6						X	
Peripheral Unit Parity	1E6	1AE6			X	X			
Permanent Signal and Partial Dial Treatment and Administration	CTX-2	1AE1			X				
Plant Measurements	CC-1	1AE1				X			

See notes at end of table.

Table 6-3. Feature Type and Initial Availability (Contd)

Feature	Initial Availability (Note 1)		Type of Feature (Note 2)						
	1 *ESS* Switch	1A *ESS* Switch	POTS/ PUB	CTX	Admin/ Bill	Maint	TOLL/ TAN	Sys	Use Sen
Plug-Up Lists for Trouble Interrupt Routing	CC-1	1AE1				X			
Power Failure Transfer—Attendant	CTX-1	1AE1		X					
Preferential Hunt	CTX-6	1AE1		X					
Prefixed Access Code Translator	1E6	1AE6	X					X	
Presubscription for Coin Lines	—	1AE9.11						X	
Printout of Call Forwarding Entries	CTX-7	1AE1				X			
Print Trunk-Out-of-Service List	CTX-6	1AE1				X			
Priority Queueing (Incoming)	1E3	1AE4		X					
Priority Queueing (OUTWATS)	1E4	1AE4		X					
Private Network Access Line Service	1E6	1AE6		X					
Property Management System	1E4	1AE4		X					
Protection of Recent Change Area Card Writing	CTX-4	—				X			
Pseudo Point Code Feature	—	1AE10.08				X			
Pseudo Route Index	1E3	1AE4						X	
Queue Holding Registers	CTX-7	1AE1		X					
Queueing and Call Distribution to Agents (ACD)	1E3	1AE4		X					
QZ Billing	CC-1	1AE1			X				
Radio Paging Access	CC-1	1AE1	X	X				X	
Random Make-Busy Keys	CC-1	1AE1	X	X					
Receiver Attachment Delay Report	CTX-7	1AE1			X	X			
Recent Change Administration	CTX-7	1AE1			X				
Recent Change Keyword Acceptance Control	1E3	1AE4				X			

See notes at end of table.

Table 3. Feature Type and Initial Availability (Contd)

Feature	Initial Availability (Note 1)		Type of Feature (Note 2)						
	1 *ESS* Switch	1A *ESS* Switch	POTS/ PUB	CTX	Admin/ Bill	Maint	TOLL/ TAN	Sys	Use Sen
Recorded Announcement Frame	CC-1	1AE1						X	
Expand J1A058C to 8 Channels	1E8A	1AE7						X	
Recorded Telephone Dictation	CTX-1	1AE1		X				X	
Regular Hunting	CC-1	1AE1	X	X					
Release Link Satellite Operation	CTX-5	1AE1		X					
Remote Access Call Forwarding	—	1AE10.02	X						
Remote Access Service	—	1AE10.02		X					
Remote Call Forwarding	CTX-7	1AE1	X						
Remote Office Test Line and Processor Controlled Interrogator	CTX-6	1AE1				X		X	
Remote Switching System, Operation With	1E6	1AE6						X	
Remote Trunk and Line Testing	1E7	1AE7				X			
Remreed Grid Diagnostic	1E7	1AE7				X			
Residential Data Facilities Pooling	—	1AE9.02		X					
Request for Terminating Scanning	—	1AE10.05				X			
Retrieval of Calling Line DN	—	1AE9				X			
Retrieval of Distant Line Status	—	1AE9				X			
Reverse Battery	CC-1	1AE1						X	
Reverting Call	CC-1	1AE1	X						
Revertive Pulsing Trunks	CC-1	1AE1						X	
Ring Reminder	1E6	1AE6	X	X					
Routing-Selected Transmission Control	1E7	1AE7						X	
Sanity Tests and Test Calls	CC-1	1AE1				X			

See notes at end of table.

Table 3. Feature Type and Initial Availability (Contd)

Feature	Initial Availability (Note 1)		Type of Feature (Note 2)						
	1 *ESS* Switch	1A *ESS* Switch	POTS/ PUB	CTX	Admin/ Bill	Maint	TOLL/ TAN	Sys	Use Sen
Satellite Attendant Transfer	CTX-4	1AE1		X					
Saving Path on Network Failures	1E7	1AE7				X			
Selected Customer Control of Facilities	1E6	1AE6		X					
Selected Traffic Data to Customer	1E3	1AE4		X	X				
Improved CTRF Output	—	1AE7		X					
Increased Number of CTRF Ports	—	1AE7		X				X	
Selective Call Forwarding (LASS)	—	1AE9	X	X					X
Selective Call Rejection (LASS)	—	1AE9	X	X					X
Selective Carrier Denial	—	1AE9.07	X	X					
Selective Delay Announcements	1E4	1AE4		X					
Selective Incoming Load Control	1E8A	1AE8A						X	
Selective Inhibit of Scheduled Routine Exercises	CTX-6	1AE1				X			
Semirestricted Centrex Station Class	1E3	1AE4		X					
Separate Routing of 7-Digit and 1 + 7-Digit Calls	CTX-5	1AE1						X	
Separation of AR/AC With Two Line History Blocks	—	1AE10.01	X	X					
Series Completion	CC-1	1AE1	X	X					
Service Code Confirmation Timing	—	1AE9.01						X	
Service Evaluation-HILO	—	1AE9			X		X	X	
Service Observing Functions	CC-1	1AE1			X			X	
Service Switching Point	—	1AE10.01						X	

See notes at end of table.

Table 6-3. Feature Type and Initial Availability (Contd)

Feature	Initial Availability (Note 1)		Type of Feature (Note 2)						
	1 *ESS* Switch	1A *ESS* Switch	POTS/ PUB	CTX	Admin/ Bill	Maint	TOLL/ TAN	Sys	Use Sen
Shared EPSCS Network	1E6	—		X					
Shared/Split NXX	—	1AE10.08				X			
Signaling Irregularities	1E6	1AE6						X	
Silence, Tone, or Audible Ringing	1E5	1AE5		X					
Simplified Message Desk Interface	—	1AE7	X	X					
Simplified Message Service Privacy Control	—	1AE8A.09	X	X					
Simulated Facilities	CTX-7	1AE1						X	
Single Activation Selective Call Forwarding	—	1AE10.02	X	X					X
Single Digit Dialing	CTX-7	1AE1		X					
Single Line Remote Call Forwarding	—	1AE8A.10	X						
Single Line Variety Package	—	1AE8.09	X	X					
Sleeve Lead Control	CC-1	1AE1	X	X					
Source Billing of Attendant Handled Calls	CTX-5	1AE1		X					
Special Tone Upon Queue Entry	1E4	1AE4		X					
Speed Calling	CC-1	1AE1	X	X					
2-Digit Individual (CTX)	—	1AE7		X					
Stand-Alone Touch-Tone Receiver Diagnostic (RSS)	1E7	1AE7				X			
Standard Billing Number for WATS	1E3	1AE4						X	

See notes at end of table.

Table 6-3. Feature Type and Initial Availability (Contd)

Feature	Initial Availability (Note 1)		Type of Feature (Note 2)						
	1 *ESS* Switch	1A *ESS* Switch	POTS/ PUB	CTX	Admin/ Bill	Maint	TOLL/ TAN	Sys	Use Sen
Station Dial Conference	CTX-6	1AE1		X					
Station Message Detail Recording	CTX-6	1AE1		X					
Station Message Detail Recording to BCP via 1A APS I/O Processor	—	1AE10.06		X					
Station Message Detail Recording to Customer Premises (ETS)	1E6	1AE6		X					
Station Message Register Service	CTX-7	1AE1		X					
Station Ringer and Touch-Tone Test	CC-1	1AE1				X			
Station-to-Station Dialing	CTX-1	1AE1		X					
Switchboard, Interface With	CC-1	1AE1						X	
Switching Control Center System, Interface With	CTX-7	1AE1				X		X	
Synchronization With EADAS	1E7	1AE7			X			X	
Synchronous Test Line	CTX-4	1AE1						X	
Tandem Office	CC-3	1AE1					X		
Tandem Test Line	1E3	1AE4				X	X		
Tandem Tie Trunk Service									
Ordinary 1XX	CTX-1	1AE1		X					
Improved 1XX	1E6	1AE6		X					
Ten-Digit Intraoffice Calling	1E7	1AE7					X		
Three-Way Calling (POTS)	CTX-5	1AE1	X						
Through Balance Test Facilities	CTX-7	1AE1					X		
Through Dialing	CTX-5	1AE1		X					
Tie Trunk—Nonsenderized	CTX-1	1AE1		X					
Tie Trunk—Nontandem	CTX-1	1AE1		X					
Tie Trunk—Senderized	CTX-1	1AE1		X					

See notes at end of table.

Table 3. Feature Type and Initial Availability (Contd)

Feature	Initial Availability (Note 1)		Type of Feature (Note 2)						
	1 *ESS* Switch	1A *ESS* Switch	POTS/ PUB	CTX	Admin/ Bill	Maint	TOLL/ TAN	Sys	Use Sen
Tie Trunk—Tandem	CTX-1	1AE1		X					
TNN-to-TNN Connection	CTX-7	1AE1				X			
Toll Diversion to Attendant	CTX-7	1AE1		X					
Toll Operator Signaling and Compatibility With TSPS Residual Traffic	CTX-7	1AE1					X	X	
Tone, Silence, or Music	1E3	1AE4		X					
Tones and Announcements to ACD Agents									
Daily Announcements	1E4	1AE1		X					
Audible Indication of Intraflowed or Interflowed Calls	1E4	1AE1		X					
City-of-Origin Announcement	1E3	1AE1		X					
Supervisor to Agent Communication	1E4	1AE1		X					
Zip Tone	1E3	1AE1		X					
Total Separation of Selective Call Forwarding	—	1AE10.03	X	X					
Touch-Tone Detection on Dial Pulse Lines	CTX-7	1AE1						X	
Touch-Tone Dialing	CC-1	1AE1	X	X					
Traffic Data on Specific DN Groups	CC-1	1AE1			X	X		X	
Traffic Data to Customer (Pollable) (ETS)	1E6	1AE6		X					
Traffic Dial Service TTY—Remote—Overload	CC-1	1AE1						X	
Traffic Measurement Output on Punched Tape and Printer or EADAS	CC-1	1AE1						X	
Traffic Measurements	CC-1	1AE1			X	X		X	
Traffic Service Position System	CC-1	1AE1						X	
Transaction Capabilities Application Part	—	1AE10.01						X	

See notes at end of table.

Table 6-3. Feature Type and Initial Availability (Contd)

Feature	Initial Availability (Note 1)		Type of Feature (Note 2)						
	1 *ESS* Switch	1A *ESS* Switch	POTS/ PUB	CTX	Admin/ Bill	Maint	TOLL/ TAN	Sys	Use Sen
Translation Verification Message Improvements—Phase 1	1E7	1AE7			X	X			
Traveling Class Mark (EPSCS)	1E6	—		X					
Traveling Class Mark (ETS)	1E6	1AE6		X					
Trunk Answer From Any Station	CTX-1	1AE1		X					
Trunk Dial Transfer	CTX-5	1AE1		X					
Trunk Failure Treatment	1E3	1AE4				X			
Trunk Group Busy Lamp	CTX-1	1AE1		X					
Trunk Make-Busy	CTX-6	1AE1				X		X	
Two-Digit Translation on Incoming Trunks	CTX-5	1AE1						X	
Two-Way Trunk Maintenance	CC-1	1AE1				X			
Type 27 AMA Modification	—	1AE8A.08			X				
Uniform Call Distribution	CTX-6	1AE1	X	X					
Universal Emergency Service Number 911									
Basic	CTX-6	1AE1						X	
Enhanced	1E5	1AE5						X	
Usage Sensitive Three-Way Calling	—	1AE8A	X						X
User Dialed Authorization Codes (ETS)	1E6	1AE6		X	X				
Variable Length Delay Announcement	1E4	1AE4		X					
Variable Trigger for Calls Waiting Lamps	CTX-5	1AE1		X					
Verification of Billing Number Assignments	CTX-6	1AE1			X				
Verification of H and C Traffic Schedules	1E3	1AE4			X	X			
Verifying Long Duration AMA Calls	1E7	1AE7			X				

See notes at end of table.

Table 6-3. Feature Type and Initial Availability (Contd)

Feature	Initial Availability (Note 1)		Type of Feature (Note 2)						
	1 *ESS* Switch	1A *ESS* Switch	POTS/ PUB	CTX	Admin/ Bill	Maint	TOLL/ TAN	Sys	Use Sen
Voice/Data Protection	—	1AE9	X	X					
WATS Administration	1E5	1AE5	X	X	X				
WATS Band Indication on AMA	CTX-6	1AE1			X				
WATS Reseller (ETS Billing Enhancements)	—	1AE7		X					
000 to TSPS Operator	CTX-2	1AE1						X	
0+, 1+ Dialing	CC-1	1AE1						X	
1-, 3-, 7-, 10-Digit Dialing	CC-1	1AE1						X	
2-Digit Individual Speed Calling for Centrex	—	1AE7		X					
2-Wire Toll/Tandem Operation	CTX-6	1AE1					X	X	
4-Wire Direct Access Line (EPSCS)	1E5	—		X					
10th 32K Call Store	1E6	—						X	
12A Customer Information System	1E4	1AE4		X					
50A CPS Attendant Position	CTX-5	1AE1		X					
50B CPS Attendant Position	CTX-5	1AE1		X					
51A CPS Attendant Position	CTX-5	1AE1		X					
60A CPS	1E3	1AE4		X					
60B CPS	1E4	1AE4		X					
90A CPS	1E3	1AE4		X					
90B CPS	1E3	1AE4		X					
100-Second Usage Scan Cycle Count	1E6	1AE6			X			X	
800 Service Billing	CTX-1	1AE1			X				
800 Service — CCS7	—	1AE10.01						X	

See notes at end of table.

Table 6-3. Feature Type and Initial Availability (Contd)

Feature	Initial Availability (Note 1)		Type of Feature (Note 2)						
	1 *ESS* Switch	1A *ESS* Switch	POTS/ PUB	CTX	Admin/ Bill	Maint	TOLL/ TAN	Sys	Use Sen
800 Service—Originating Screening Office	1E7	1AE7						X	
800 Service—Terminating End Office	CC-1	1AE1	X	X					
2048 Junctor Trunk Link Network	CTX-7	1AE1						X	
2400 Bit/Second Data Link	1E5	1AE5					X		

Notes:

1. Where a feature, applicable to both POTS and CTX, shows a 1 ESS switch availability of CC-1, read CTX-1 for CTX unless otherwise noted.

2. Type of feature headings are expanded:

   Plain Old Telephone Service and/or Public
   Centrex/ESSX-1
   Administration and/or Billing
   Maintenance
   Toll and/or Tandem
   System
   Usage Sensitive.

Table 6-4. Summary of Centrex Features

Feature	Feature Capability			
	Per Line	Per CTX Group	Per Cust	Per MLHG
Add-On		X		
Advanced Communications Package			X	
Advanced Private Line Termination		X		
Attendant Call-Through Test on Centrex Trunks		X		
Attendant Camp-On		X		
Attendant Conference		X		
Attendant Console		X		
Attendant Control of Facilities		X		
Attendant Direct Station Selection With Busy Lamp Field		X		
Attendant Emergency Override		X		
Attendant Position		X		
Attendant Recall From Satellite		X		
Automatic Callback Calling	X			
Automatic Call Distribution—Basic			X	
Automatic Call Distribution—Phase 1			X	
Multiline Group Hunting				X
Queueing and Call Distribution to Agents			X	
Tones and Announcements to Agents			X	
60A Customer Premises System			X	
90A Customer Premises System			X	
90B Customer Premises System			X	
Automatic Call Distribution—Phase 2			X	

Table 6-4. Summary of Centrex Features (Contd)

Feature	Feature Capability			
	Per Line	Per CTX Group	Per Cust	Per MLHG
Agent Log-In			X	
Coordinator CRT Terminal			X	
Management Information System (AEMIS)			X	
Multiline Group Hunt				X
Queueing and Call Distribution to Agents			X	
Tones and Announcements to Agents			X	
12A Customer Information System			X	
60B Customer Premises System			X	
Automatic Calling Station Identification		X	X	
Automatic Route Selection—Deluxe			X	
AUTOVON Interface—				
Customer Status			X	
Main-Satellite			X	
Precedence Network In-Dialing			X	
Basic Data Link Input/Output			X	
Basic Queueing for Trunks and Lines		X		
Busy Verification of Centrex Trunk/Lines		X		
Call Forwarding				
Busy Line	X			X
Don't Answer	X			X
Don't Answer With Variable Timing	X			
Extended Ringing Cycle Option	X			
Inhibit Line Busy	X			
Inhibit Make Busy	X			
Outside		X		
Overflow	X			
Over Private Facilities		X		

Table 6-4. Summary of Centrex Features (Contd)

Feature	Feature Capability			
	Per Line	Per CTX Group	Per Cust	Per MLHG
Ring Reminder	X	X		
Unrestricted Source	X			X
Variable	X			
Call Hold	X			
Call Pickup	X			
Call Waiting Lamps		X		
Call Transfer—				
Attendant	X	X		
Individual	X	X		
Individual—All Calls	X	X		
Intercentrex Screening		X		
Outside		X		
To Fully Restricted Stations		X		
Unlimited		X		
Call Waiting—Intragroup		X		
Originating	X			
Terminating	X			
Cancel Call Waiting	X			
Cancel Call Waiting Per Line	X			
Centralized Attendant Service			X	
Centrex		X	X	
Centrex Data Facility Pooling		X		
Centrex Electronic Key			X	
Centrex Station Rearrangements			X	
Circuit Switched Digital Capability		X		
Circular Hunting				X
City-Wide Centrex			X	
Code Calling		X		
Code Restriction	X			
Combined Touch-Tone and Dial Pulse on Incoming Tie Trunks		X		
Common Control Switching Arrangement			X	
Common Systems Recorded Announcement Frame			X	
Consultation Hold		X		

Table 6-4. Summary of Centrex Features (Contd)

Feature	Feature Capability			
	Per Line	Per CTX Group	Per Cust	Per MLHG
Controlled Outward Restriction	X	X		
Controlled Station-to-Station Restriction	X	X		
Customer Changeable PIC		X		
Controlled Termination Restriction	X	X		
Controlled Total Restriction	X	X		
Customer Changeable Speed Calling	X	X		
Customer Dialed Account Recording	X			
Customer Facility Groups		X	X	
Customer Identification on AMA	X			
Data Link Sequencing			X	
Delay Announcement Improved Billing			X	
Delay Announcements			X	
Dial Call Waiting	X	X		
Dial Pulse Dialing	X			
Dial Repeating Tie Trunks		X	X	
Dial Transfer to Cut-Through Tie Lines		X		
Different Route for Transferred Call		X		
Digit Timing Code Conflict		X		
Direct Connect Service	X			
Direct Inward Dialing	X	X		
Direct Outward Dialing	X	X		
Directed Call Pickup—Nonbarge-In	X	X		
Directed Call Pickup With Barge In	X	X		
Distinctive Ringing/Distinctive Call Waiting Tone		X		
EEDP Trunk Side Access		X		
Electronic Tandem Switching			X	
Account Codes			X	
Automatic Alternate Routing			X	

Table 6-4. Summary of Centrex Features (Contd)

Feature	Feature Capability			
	Per Line	Per CTX Group	Per Cust	Per MLHG
Automatic Route Selection—Deluxe			X	
Call Forwarding Over Private Facilities		X		
Compatibility With SMDR Via RAO		X	X	
Deluxe Queueing		X		
Expanded SMDR		X	X	
Expensive Route Warning Tone			X	
Facility Administration and Control			X	
Facility Restriction Levels			X	
Off-Network Dialing Improvements			X	
Selected Customer Control of Facilities		X		
SMDR to Customer Premises		X	X	
Traffic Data to Customer (Pollable)		X	X	
Traveling Class Mark			X	
User Dialed Authorization Codes	X		X	
WATS Reseller (Billing Enhancements)		X	X	
Enhanced INWATS — Type AMA		X		
Enhanced Private Switched Communication Service			X	
Alternate Route Selection			X	
Authorization Code Screening			X	
Automatic Alternate Routing			X	
Automatic Calling Station Identification		X	X	
Bypass Access Line			X	
Deluxe Network Access			X	
Economic Route Selection			X	
Meet-Me Conferencing			X	

Table 6-4. Summary of Centrex Features (Contd)

Feature	Feature Capability			
	Per Line	Per CTX Group	Per Cust	Per MLHG
Network Attendant			X	
Network Message Detail Recording			X	
Network Trunk Queueing			X	
Off-Network Calling			X	
Peripheral Data Storage Processor			X	
Selected Traffic Data to Customer		X	X	
Shared EPSCS Network			X	
Traveling Class Mark			X	
4-Wire Direct Access Line			X	
ETS Billing Improvements		X		
Expanded ETS Dialing Plan		X		
Fixed Delay Announcement		X	X	
Flexible First Delay Announcement		X	X	
Flexible Incoming Call Restriction	X	X		
Flexible Route Selection		X		
Flexible Route Selection Directory Assistance		X		
Foreign Exchange Service		X	X	
Full ESSX-1 Service		X	X	
Group Make-Busy Keys				X
Incoming Call Identification		X		
Indication of Camp-On		X		
Individual Billing of DN	X			
Line—Denied Originating	X			
Line—Denied Terminating	X			
Line—Flat Rate	X			
Line—Free Terminating	X			
Line—Individual	X			
Line—Individual—Fully Restricted	X			
Line—Individual—Nonrestricted	X			
Line—Message Rate	X			
Line TWX—Teletypewriter Exchange	X			

Table 6-4. Summary of Centrex Features (Contd)

Feature	Feature Capability			
	Per Line	Per CTX Group	Per Cust	Per MLHG
Local Area Signaling Service		X		
Automatic Recall		X		
Bulk Calling Line Identification		X		
Customer Originated Trace		X		
Distinctive Alerting		X		
Individual Calling Line Identification	X			
Selective Call Forwarding		X		
Selective Call Rejection		X		
Local Off-Network Access Line			X	
Loudspeaker Paging	X	X		
Main Satellite Service		X		
Manual Originating Line Service	X			
Message Service System	X	X		
Multiline Groups—Hunting		X		
Multiline Groups—No Hunting		X		
Multiple Position Hunt				X
Night Service		X		
Off-Network 10-Digit Screening			X	
Outgoing Trunk Queueing		X		
Outward WATS		X		
Override Attendant Access Restriction		X		
Pay Per-View	X			
Power Failure Transfer—Attendant		X		
Preferential Hunting				X
Priority Queueing (Incoming)			X	
Priority Queueing (OUTWATS)			X	
Private Network Access Line Service			X	
Property Management System			X	
Radio Paging Access		X		
Random Make-Busy Keys	X			
Recorded Telephone Dictation		X		
Regular Hunting				X

Table 6-4. Summary of Centrex Features (Contd)

Feature	Feature Capability			
	Per Line	Per CTX Group	Per Cust	Per MLHG
Release Link Satellite Operation			X	
Remote Access Service	X			
Residence Data Facilities Pooling	X			
Satellite Attendant Transfer			X	
Selected Customer Control of Facilities		X	X	
Selected Traffic Data to Customer		X		
Selective Carrier Denial	X			
Selective Delay Announcement			X	
Semirestricted Centrex Station Class	X	X		
Series Completion	X			
Silence, Tone, or Audible Ringing		X		
Simplified Message Desk Interface		X		
Simplified Message Service Privacy Control		X		
Single Digit Dialing	X	X		
Single Line Variety Package	X			
Source Billing of Attendant Handled Calls		X		
Special Tone Upon Queue Entry			X	
Speed Calling	X	X		
Station Dial Conference		X		
Station Message Detail Recording	X	X		
Station Message Detail Recording to BCP via 1A APS I/O Processor	X	X		
Station Message Register Service	X	X		
Station-to-Station Dialing	X			
Through Dialing		X		
Tie Trunk—Nonsenderized		X		
Tie Trunk—Nontandem			X	
Tie Trunk—Senderized		X	X	
Tie Trunk—Tandem			X	
Toll Diversion to Attendant	X	X		
Tone, Silence, or Music			X	
Touch-Tone Dialing	X			
Trunk Answer From Any Station		X		
Trunk Dial Transfer		X		

Table 6-4. Summary of Centrex Features (Contd)

Feature	Feature Capability			
	Per Line	Per CTX Group	Per Cust	Per MLHG
Trunk Group Busy Lamp		X		
Uniform Call Distribution				X
Variable Length Delay Announcement			X	
Variable Trigger for Calls Waiting Lamp		X		
Voice/Data Protection	X			
WATS Administration			X	
50A CPS Attendant Position		X		
50B CPS Attendant Position		X		
51A CPS Attendant Position		X		
800 Service Billing		X		
800 Service—Terminating End Office		X		

Table 6-5. Optionally Loaded Feature Groups

Feature Group	Title	Generic Program (Note)
ACBC	Automatic Callback	1E6/1AE6
ACD	Automatic Call Distribution	1E3/1AE4
ACD2	Automatic Call Distribution Phase 2	1E4/1AE4
ACS	Authorization Code Screening	1E5/1AE6
ACST	AUTOVON Customer Status	1E7/1AE7
AGLI	Agent Log-In for ACD-2	1E7/1AE6
AIOD	Automatic Identified Outward Dialing	1E3/1AE4
AMAS	AMA Standard Entries	1AE8A
AMOS	Automatic Message Output Service	1E4/1AE4
APS	Attached Processor System	1AE7
BISI	Busy/Idle Status Indicators	1E7/1AE7
CAMA*	Centralized Automatic Message Accounting	1E5/1AE5
CARI	Carrier Interconnect	1E8A/1AE8A
CDFP	Centrex Data Facility Pooling	1AE9
CEKS	Centrex Electronic Key Sets	1AE8A
CFCO	Collocated CFPF/ETS	1E7/1AE7
CFPF	Call Forwarding—Private Facilities	1E6/1AE6
CFPN	CFPF/ETS Noncollocated	1E7/1AE7
CIHL	Common Channel Interoffice Signaling for HILO Offices	1E5/1AE5
CILC	Common Channel Interoffice Signaling, Local	1E7/1AE7
CIPC	CCIS With PUC/Data Link	1E7/1AE7
CI2W	Common Channel Interoffice Signaling—2-Wire Offices	1E5/1AE5
CLOG	Customer Originated Recent Change Log	1E6/1AE6
COCO	CAMA Operator Connections During Office Growth	1E5/1AE5
CRAF	Common Systems Recorded Announcement Frame	1E4/1AE4
CSR1	Centrex Station Rearrangements	1E7/1AE7
CTCR	Carrier Trunk Conditioning Recognition	1AE8A

See note and footnotes at end of table

Table 6-5. Optionally Loaded Feature Groups (Contd)

Feature Group	Title	Generic Program (Note)
CTRF	Customer Traffic Data	1E3/1AE4
DCT	Digital Carrier Trunk Frame	1E6/1AE6
DLIO	Data Link Input-Output	1E4/1AE4
DLSQ	Data Link Sequencer	1E5/1AE5
DPREP	Dial Pulse Repeating Trunk Diagnostic Program	1AE8
DPRP	Dial Pulse Repeating Trunk Diagnostics	1E6/1AE6
DRNG	Distinctive Ringing Call Waiting Tone	1E6/1AE6
DRPC†	Division of Revenue Peg and Usage Counts	1E6/1AE6
EDAS	Engineering and Administrative Data Acquisition System Interface With Network Management	1E3/1AE5
EPSC	Enhanced Private Switched Communications Service	1E5
EPS2	Enhanced Private Switched Communication Service—Phase 2	1E6
ESSX	Centrex Tariff Restructuring	1E5/1AE5
ETS	Electronic Tandem Switching	1E6/1AE6
E911	Enhanced 911 Service	1E6/1AE6
FS	File Store	1AE7
HLCA	2-Wire CAMA Diagnostic	1E4/1AE4
HL4W	HILO 4-Wire Switching	1E4/1AE4
IAC	Improved Authorization Codes	1E6/1AE6
IRES	Inquiry-Response/Hotel Motel	1E3/1AE4
ISPI	Intelligent Simplex Peripheral Interface	1AE9
ISUP	Integrated Services Digital Network User Part	1AE10
ITSO	Incoming Trunk Service Observing	1E5/1AE5
I1XX	Improved Tandem Tie Line Service	1E6/1AE6
LASS	Local Area Signaling Services	1AE9
LHTO	Local and HILO Touch-Tone Outpulsing	1E5/1AE5

See note and footnotes at end of table

Table 6-5. Optionally Loaded Feature Groups (Contd)

Feature Group	Title	Generic Program (Note)
LRE	Loop Range Extension	1E6/1AE6
MDNL	Multiple DNs Per Line With Distinctive Ringing	1AE9
MDS	Message Desk Service	1AE9
METS	Multientry Teleprocessing System	1AE8A
MIP	Message Interface Processor	1AE10
MPTY	4-8 Multiparty and Coded Ringing	1E3/1AE4
MSAC	Centrex Main-Satellite AUTOVON Compatibility	1E5/1AE5
MTTP‡	Manual Trunk Test Position	1E5/1AE5
NMER	Network Management Enhanced Reroute Control	1AE8A
NMRR	Network Management Reroute Trunk Group Control	1E4/1AE4
NMTC§	Network Management Code Blocking on Toll Translators	1E4/1AE4
OFNS	Old Format Number Services	1AE10
OTQ1	Outgoing Trunk Queueing Phase 1	1E4/1AE4
PDL	Peripheral Unit Controller Data Link Maintenance	1E6/1AE6
PIU	Processor Interface Unit	1E5
PNID	AUTOVON Precedence Network In-Dialing	1E3/1AE4
PPV	Pay-Per-View	1AE9
PSDC	Circuit Switched Digital Capability	1AE7
PTDT	Prevent Terminating Disconnect Timing	1E5/1AE5
PUC	Peripheral Unit Controller	1E6/1AE6
RACF	Remote Access to Call Forwarding	1AE10
RAS	Remote Access Service	1AE10
RDFP	Residence Data Facility Pooling	1AE9
RSS	Remote Switching System	1E6/1AE6
R2C2	SCC Trunk Maintenance Phase 2	1E7/1AE7
SCG	Software Carrier Group	1AE8A
SCOF	Selected Control of Customer Facilities	1E6/1AE6

See note and footnotes at end of table

Table 6-5. Optionally Loaded Feature Groups (Contd)

Feature Group	Title	Generic Program (Note)
SIGI	Signaling Irregularities Detection	1E6/1AE6
SLE	Screen List Editing	1AE9
SSP	Service Switching Point	1AE10
SVP	Single Line Variety Package	1AE8A
TAMA	AMA Records on Tandem Tie Line Calls	1E4/1AE4
TCAP	Transaction Capability Application Part	1AE10
TCCP	Trunk Cutover Control	1E5/1AE5
TCM	Traveling Class Mark	1E6/1AE6
VM11	Verification Message Improvements Phase 1	1E7/1AE7
800N	800 Number Services	1AE10
2400	2400 Bit/Second Data Link	1E5/1AE5

Note: The 1E8 and 1AE8 generic programs were interim releases pertaining to Carrier Interconnect and associated capabilities; 1E8A and 1AE8A are the official releases.

* CAMA is a base feature in 1E4/1AE4 and prior generic programs.
† DRPC is a base feature in 1E5/1AE5 and prior generic programs.
‡ MTTP is included in the HL4W feature group with the 1E4/1AE4 generic programs.
§ NMTC is not applicable to 1E8A/1AE8A and later generic programs.

Abbreviations and Acronyms

A

AAR
Automatic Alternate Routing

ABC
Auto-Bill Calling (Renamed Calling Card Service)

ABCW
Automatic Broadcast Warning

AC
Automatic Callback

ACBC
Automatic Callback Calling

ACCS
Associated Common Channel Signaling

ACD
Automatic Call Distribution

ACMOS
Automatic Customer Message Outputting System

ACNR
Attendant Controlled Night Restriction

ACOF
Attendant Control of Facilities (Trunk Group Access)

ACP
Advanced Communications Package

ACS
Authorization Code Screening

ACSB
AUTOVON Customer Status Board

ACSI
Automatic Calling Station Identification

ACST
AUTOVON Customer Status Features

ACTS
Automatic Coin Toll Service

ACTT
Attendant Call-Through Test on Centrex Trunks

ADNET
Administration Data Network

ADSS/BLF
Attendant Direct Station Selection With Busy Lamp Field

AEMIS
ACD-ESS Management Information System

AEO
Attendant Emergency Override

AGLI
Agent Log-In

AIC
Agent Interface Circuit

AICI
AUTOVON Incoming Call Identification

AIOD
Automatic Identified Outward Dialing

AIR
Attendant Control Intercept Routing

AIRI
AIR Index

AIS
Automatic Intercept System

ALDT
ALIT Demand Test of Single Line

ALI
Automatic Line Identifier

ALIT
Automatic Line Insulation Test

ALITP
ALIT Control of Paper Tape Punch

ALSEQ
ALIT Sequential LEN Test

AMA
Automatic Message Accounting

AMAME
AMA Multiple Entries

AMASE
AMA Standard Entries

AMAT
AMA Transmitter

AMATPS
AMA Teleprocessing System

ANI
Automatic Number Identification

APBOT
Automatic Positioning of AMA Beginning-of-Tape Mark

APCW
AUTOVON Priority Call Waiting

APLT
Advanced Private Line Termination

APS
Attached Processor System

AR
Automatic Recall

AR/AC
Automatic Recall/Automatic Callback

ARS
Alternate Route Selection (EPSCS)

ARS
Automatic Route Selection (ETS)

ASMDR
Advanced Station Message Detail Reporting

ASP
Advanced Service Platform

AT
Access Tandem

ATMS
Automatic Transmission Measuring System

AUTOVON
Automatic Voice Network

B

B911
Basic 911

BCLID
Bulk Calling Line Identification

BCP
Basic Communications Package

BDN
Billing Directory Number

BHC
Busy Hour Call

BISI
Busy/Idle Status Indicator

BND
Billing Number Delivery

BVL
Busy Verification of Station Lines

BVT
Busy Verification of Centrex Trunks

BWM
Broadcast Warning Message

BYMF
Multifrequency Signaling on Bylink Trunks

C

CACS
Customer Administration Center System

CAMA
Centralized Automatic Message Accounting

CANT
Coin Overtime Announcement

CAROT
Centralized Automatic Reporting on Trunks

CAS
Centralized Attendant Service

CBA-CS
Coin Box Accounting for Collection Scheduling

CBA-RA
Coin Box Accounting for Revenue Allocation

CC
Central Control

CCIS
Common Channel Interoffice Signaling

CCPIC
Customer Changeable PIC

CCS7
Common Channel Signaling System 7

CCSA
Common Control Switching Arrangement

CCSC
Customer Changeable Speed Calling

CCSR
Customer Controlled Station Restriction

CCW
Cancel Call Waiting

CDAR
Customer Dialed Account Recording

CDFP
Centrex Data Facility Pooling

CDO
Community Dial Office

CEK
Centrex Electronic Key

CFBL
Call Forwarding Busy Line

CFCO
CFPF Compatibility With Collocated ETS

CFDA
Call Forwarding Don't Answer

CFG
Customer Facility Group

CFILB
Call Forwarding Inhibit Line Busy

CFIMB
Call Forwarding Inhibit Make Busy

CFO
Call Forwarding Outside

CFOV
Call Forwarding Overflow

CFPF
Call Forwarding Over Private Facilities

CFPN
CFPF Compatibility With Noncollocated ETS

CFUP
Call Forwarding Usage Sensitive

CFUS
Call Forwarding Unrestricted Source

CFV
Call Forwarding Variable

CGA
Carrier Group Alarm

CHD
Call Hold

CHDR
Charge Delay Timing

CI
Carrier Interconnect

CIS
Customer Information System

CLAM
Coin Line Activity Monitoring

CLAMA
Coin Line Automatic Message Accounting

CLDN
Calling Line Directory Number

CLID
Calling Line Identification

CLOG
Customer Originated RC Log

CMCS
Customer Message Center System

CMRO
Cellular Mobile Radio Office

CMT
Combined Miscellaneous Trunk

COA
City-of-Origin Announcement

COCO
CAMA Operator Connections During Office Growth

COEES
Central Office Equipment Engineering System

CONC
Concentrator

COOT
Combined Operator Office Trunk

COPE
CAMA Operator Position Exercise

CORC
Customer Originated Recent Change

COT
Customer Originated Trace

CPE
Customer Premises Equipment

CPN
Calling Party Number

CPS
Customer Premises System

CPTS
Coinless Public Telephone Service

CPU
Call Pickup

CREG
Concentrated Range Extension With Gain

CS
Call Store

CSACC
Customer Service Administration Control Center

CSAID
Customer Identification on AMA

CSC
Customer Split Configuration

CSDC
Circuit Switched Digital Capability

CSR
Centrex Station Rearrangements

CSRAF
Common Systems Recorded Announcement Frame

CSTL
Coin Station Test Line

CSU
Central Control Clock Speed Up

CTCR
Carrier Trunk Conditioning Recognition

CTDD
Transfer to Party Outside Centrex Group

CTI
Call Transfer Individual

CTO
Call Transfer Outside

CTRF
Selected Traffic Data to Customer

CTTU
Central Trunk Test Unit

CTU
Call Transfer Unlimited

CTX
Centrex

CWI
Call Waiting Intragroup

CWL
Calls Waiting Lamps

CWO
Call Waiting Originating

CWT
Call Waiting Terminating

D

DA
Distinctive Alerting

DACS
Digital Access Cross-Connect System

DAL
Direct Access Line

DAMA
Directory Assistance Charging

DCS
Duplicated Call Store

DCT
Digital Carrier Trunk

DCTF
DCT Frame

DCW
Dial Call Waiting

DCWT
Distinctive Call Waiting Tone

DC2P
Direct Connect for Two-Party Lines

DDD
Direct Distance Dialing

DESEP
Destination Separation

DID
Direct Inward Dialing

DL
Data Link

DLIO
Data Link Input/Output

DLSQ
Data Link Sequencing

DMS
Data Management System

DN
Directory Number

DNA
Deluxe Network Access

DND
Do Not Disturb

DOC
Dynamic Overload Control

DOD
Direct Outward Dialing

DPN
Directed Call Pickup—Nonbarge-In

DPRP
Dial Pulse Repeating Diagnostic

DPU
Directed Call Pickup With Barge-In

DRNG
Distinctive Ringing

DRPC
Division of Revenue Peg Counts

DRTC
Different Route for Transferred Call

DRTT
Dial Repeating Tie Trunks

DSA
Dial System "A"

DSS
Direct Station Selection

DTF
Dial Tone First

DTMF
Dual Tone Multifrequency

DUMB
AMA Detailed Billing on Message Unit Calls

E

E911
Enhanced 911 Service

EADAS
Engineering and Administrative Data Acquisition System

EADAS/NM
EADAS/Network Management

EAEO
Equal Access End Office

EAMF
Equal Access Multifrequency

EBRCC
E911 Bulk Recent Change

EDS
Electronic Directory Service

EECT
End-to-End Call Trace

EEDP
Expanded ETS Dialing Plan

EGO
Equipment or Office Group Number

EIS
Expanded Inband Signaling

EITA
Enhanced INWATS-Type AMA

EKP
Electronic Key Processor

EPSCS
Enhanced Private Switched Communications Service

ERCO
Extended Ring Cycle Option

ERWT
Expensive Route Warning Tone

ESP
Essential Service Protection

ESSX-1
Centrex Tariff Restructure

ETA
EEDP Trunk Side Access

ETDA
ETS Account Codes

ETMT
Expanded Traffic Measurement Types

ETN
Electronic Tandem Network

ETS
Electronic Tandem Switching

ETSBES
ETS Billing Improvement

ETSQ
ETS Deluxe Queueing

F

FANS
Fast Repeat of Answer Supervision

FD
Feature Document

FEMF
Foreign Potential on Tip and Ring

FICR
Flexible Incoming Call Restriction

FIFO
First-In, First-Out

FMS
Facility Management System

FRL
Facility Restriction Level

FRS
Flexible Route Selection

FX
Foreign Exchange

G

GMB
Group Make Busy

GSC
Group Signaling Congestion

GTT
Global Title Translation

H

HCGA
Hardware Carrier Group Alarm

HLAT
HILO Access Tandem

HUCS
High Unduplicated Call Store

I

I/O
Input/Output

IAAC
Initial AMA on All AMA Call Attempts

IBDN
Individual Billing to Directory Number

IC
Inter-LATA Carrier

ICI
Incoming Call Identification

ICLID
Individual Calling Line Identification

IDB
INWATS Data Base

IDDD
International Direct Distance Dialing

IIWR
Intracentrex Inward Restriction

IJCT
Improved Junctor Circuit Testing

IMCF
Interoffice Multiple Call Forwarding

IMD
Improved Minitrunk Signal Distributor Diagnostic

INC
International Carrier

INID
Immediate Diversion Network Indialing

INSEP
Incoming Separation

INWATS
Inward WATS (Renamed 800 Service)

IOD
Identified Outward Dialing

IOS
Improved Overload Strategy

IPRS
Improved Peripheral Recovery Strategy

IRM
Remreed Grid Diagnostic

ISB
Individual Station Billing

ISDNUP
Integrated Services Digital Network User Part

ISPI
Intelligent Simplex Peripheral Interface

ISU
ICLID Service Unit

ISUP
Integrated Services User Part

ITSO
Incoming Trunk Service Observing

IWDID
INWATS AMA on DID Trunks

IWR
Inward Restriction

I1XX
Improved 1XX Tie Trunks

L

LAMA
Local Automatic Message Accounting

LASS
Local Area Signaling Services

LATA
Local Access and Transport Area

LATP
Line Access to Trunk and Line Test Panel

LBMO
Local Area Signaling Services Bimodal

LCAS
Local Customer Administration Center

LCCIS
Local CCIS

LCDN
Last Call DN

LCOTA
Local Coin Overtime Announcement

LDN
Listed Directory Number

LEC
Local Exchange Carrier

LEN
Line Equipment Number

LH
Line History

LHB
Line History Block

LHTO
Local and HILO Touch-Tone Outpulsing

LICDN
Last Incoming Call Directory Number

LLN
Line Link Network

LIFO
Last-In, First-Out

LOCDN
Last Outgoing Call Directory Number

LONAL
Local Off-Network Access Line

LRE
Loop Range Extension

LSC
Line Switch Circuit

LSF
Line Switch Frame

LSOS
Line Service Overload Strategy

LSS
Loop Switching System

LUCS
Low Unduplicated Call Store

LUTS
Locked-Up Trunk Scan

M

MCC
Master Control Center

MCF
Multiple Call Forwarding

MDNL
Multiple DN Per Line With Distinctive Ringing

MDR
Message Detail Recording

MET
Multibutton Electronic Telephone

METS
Multiple Entry Teleprocessing System

MIP
Message Interface Processor

MIS
Management Information System

MLG
Multiline Group

MLHG
Multiline Hunt Group

MMCF
Meet-Me Conferencing

MSAC
Main-Satellite AUTOVON Capability

MSS
Message Service System

MTCI
Modify Midnight Routine Exercise

MTS
Message Telecommunications System

MTTP
Manual Trunk Test Position

MUPH
Multiple Position Hunt

MVP
Multiline Variety Package

MWI
Message Waiting Indicator

N

NAP
Network Access Point

NDN
Night Directory Number

NEAT
Network Attendant

NGN
Number Group Number Recovery

NI
Network Interconnect

NID
Network In Dialing

NM
Network Management

NMEA
Network Management-EADAS

NMERR
NM Enhanced Reroute Controls

NMP
Network Modem Pooling

NMRR
NM Reroute Control

NMTC
NM Toll Code Blocking Controls

NOD
Network Out Dialing

NPA
Numbering Plan Area

NS
Number Services

NTTQ
Network Trunk Queueing

NUTS
Nonusage Trunk Scan

NXX
Office Code (part of dialed number)

O

OA&M
Operation, Administration, and Maintenance

OAR
Override Attendant Access Restriction

OFLN
Off-Line Single Card Writing

OFNS
Old Format AMA Number Services

OHQ
Off-Hook Queueing

ONAL
Off-Network Access Line

ONI
Operator Number Identification

ONTTDP
Off-Network Calling Using Touch-Tone and Dial Pulse Outpulsing

OSIP
Open Switching Interval Protection

OSO
Originating Screening Office

OSS
Operations Support System

OTDS
Off-Network 10-Digit Screening

OTQ1
Outgoing Trunk Queueing—Phase 1

OUTWATS
Outward WATS

OWR
Outward Restriction

P

PACT
Prefixed Access Code Translator

PBX
Private Branch Exchange

PCI
Processor Controlled Interrogator

PCL
Presubscription for Coin Line

PCM
Pulse Code Modulation

PDSP
Peripheral Data Storage Processor

PFP
Private Facility Pooling

PIC
Primary Interexchange Carrier

PIU
Processor Interface Unit

PNAL
Private Network Access Line

PNID
Precedence Network In-Dialing

POI
Point of Interface

POTS
Plain Old Telephone Service

PPU
Periodic Partial Update

PRI
Pseudo Route Index

PSAP
Public Safety Answering Point

PSDC
Public Switched Digital Capability (Renamed Circuit Switched Digital Capability)

PSPD
Permanent Signal and Partial Dial Treatment and Administration

PTRF
Traffic Data to Customer (Pollable)

PTS
Per Trunk Signaling

PUC
Peripheral Unit Controller

PUC/DL
PUC/Data Link

PUP
Peripheral Unit Parity

Q

QTL
Queueing for Trunks and Lines

R

R2C2
Remote Trunk Testing/Remote Line Testing

RACF
Remote Access Call Forwarding

RADR
Receiver Attachment Delay Report

RAF
Recorded Announcement Frame

RAO
Revenue Accounting Office

RAS
Remote Access Service

RB
Reverse Battery

RBQ
Ringback Queueing

RC
Recent Change

RCAD
Recent Change Administration

RCDY
Delayed Activation of Recent Change Message

RCF
Remote Call Forwarding

RCLDN
Retrieval of Calling Line Directory Number

RCU
ROTL Control Unit

RDFP
Residence Data Facility Pooling

RDLS
Retrieval of Distant Line Status

REN
Remote Equipment Number

RI
Route Index

RLT
Release Link Trunk

RMB
Random Make-Busy

RNGR
Ring Reminder

ROTL
Remote Office Test Line

RSS
Remote Switching System

RSTC
Routing-Selected Transmission Control

RTTU
Remote Trunk Test Unit

S

S/SNXX
Shared/Split NXX

SADA
Service After Delay Announcement

SASCF
Single Activation Selective Call Forwarding

SBAC
Source Billing of Attendant Handled Calls

SBVA
SMDR to BCP via 1A APS

SCANS
Software Change Administration and Notification System

SCC
Switching Control Center

SCCOF
Selected Customer Control of Facilities

SCCP
Signaling Connection Control Part

SCCS
Switching Control Center System

SCCT
Service Code Confirmation Timing

SCD
Selective Carrier Denial

SCF
Selective Call Forwarding

SCGA
Software Carrier Group Alarm

SCP
Service Control Point

SCR
Selection Call Rejection

SEMI
Semirestricted Centrex Station Class

SEN
Shared EPSCS Network

SES
Service Evaluation System

SFG
Simulated Facility Group

SIGI
Signaling Irregularities

SILC
Selective Incoming Overload Control

SLE
Screen List Editing

SLEPR
Screen List Editing Privacy

SLRCF
Single Line Remote Call Forwarding

SMDR
Station Message Detail Recording

SMRS
Station Message Register Service

SMS
Simplified Message Service

SMSI
Simplified Message Service Interface

SMSPC
Simplified Message Service Privacy Control

SP
Signal Processor

SPCS
Stored Program Control System

SRG
Short Circuit and Ring to Ground

SRTT
Station Ringing and Touch-Tone Test

SSCP
Signaling Connection Control Part

SSP
Service Switching Point

STAR
Silence, Tone, or Audible Ringing

STP
Signal Transfer Point

STTP
Supplementary Trunk Test Panel

SVDM
Simultaneous Voice/Data Multiplexer

SVP
Single Line Variety Package

SWAB
Standard Billing Number for WATS

SWED
Synchronization With EADAS

T

T100
100-Second Usage Scan Cycle Count

TAMA
Message Detail Recording on Tie Trunks

TAS
Trunk Answer From Any Station

TATO
Automatic Time-Out of Announcement

TBTF
Through Balance Test Facilities

TCAP
Transaction Capability Application Part

TCC
Trunk Class Code

TCM
Traveling Class Mark

TDIAC
Ten-Digit Intraoffice Call

TDL
Trunk Diagnostic Language

TEN32K
10th 32K Call Store

TEO
Terminating End Office

TGBL
Trunk Group Busy Lamp

TGC
Trunk Group Control

TGN
Trunk Group Number

TIRKS
Trunks Integrated Record Keeping System

TLN
Trunk Line Network

TLTP
Trunk and Line Test Panel

TMB
Trunk Make-Busy

TMC
Type Measurement Code

TNN
Trunk Network Number

TNNC
TNN-to-TNN Connection

TOLD
Toll Diversion to Attendant

TORT
Toll Operator Signaling and Compatibility With TSPS Residual Traffic

TOS
Trunk-Out-of-Service

TRCA
Temporary Recent Change Area

TRG
Tip and Ring to Ground

TSC
Trunk Switch Circuit

TSCF
Total Separation of SCF

TSF
Trunk Switch Frame

TSPS
Traffic Service Position System

TTEX
Expansion of Teletypewriter Channels

TTTN
Tandem Tie Trunk Network

TTY
Teletypewriter

TWC
Three-Way Calling

U

UCD
Uniform Call Distribution

UCS
Unduplicated Call Store

USTWC
Usage Sensitive Three-Way Calling

UTYN
Unit Type Translator

V

VCFDA
Call Forwarding Don't Answer With Variable Timing

VDP
Voice/Data Protection

VFHC
Verification of H and C Traffic Schedules

VMI1
Translation Verification Message Improvements—Phase 1

VSGA
Voice Switched Gain Amplifier

W

WATS
Wide Area Telecommunications Service

WTAD
WATS Administration

X

XMDR
Expanded SMDR to Customer Premises

2048-TLN
2048-Junctor Trunk Link Network

2400DL
2400 Bit/Second Data Link