# 1A ESS™ Switch
# Automatic Recall/Automatic Callback
# Local Area Signaling Services
# Feature Document

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# 1. Overview

## Definition

1.01 This practice describes features which recall originating and/or terminating calls. In particular, this practice addresses the following:

(a) The **Automatic Recall (AR)** feature, initially provided in the 1AE9 generic program, enables a customer to place a call to the last call directory number (LCDN). The LCDN is saved in a line history block (LHB) and is for the last party called by the customer or for the last party to alert the customer. This feature is available with three options:

- Customer can recall originating calls only.
- Customer can recall terminating calls only.
- Customer can recall originating and terminating calls.

Each option has a particular activation code. The telephone company will assign the access codes and decide which access codes the customer can use.

This version is not available on 1AE12 and later generic programs.

(b) The **Separation of AR and Automatic Callback (AC)** feature (Separated AR/AC), available in 1AE10 and later generic programs, provides two LHBs and separates the original version of AR into two individual features, AR and AC. The two LHBs, an incoming LHB (ILHB) and an outgoing LHB (OLHB), enable the last incoming call directory number (LICDN) and the last outgoing call directory number (LOCDN), respectively, to be maintained at the same time.

- AR lets a customer recall originating (outgoing) calls.
- AC lets a customer call back terminating (incoming) calls.

AR and AC each have a specific activation access code and a customer can be allowed the use of either code or both codes.

This version of AR/AC is optional on the 1AE10 and 1AE11 generic programs. On 1AE12 and later generic programs, all LHBs are stored in local memory on the direct link node pair (DLN30) on the Common Network Interface (CNI) Ring attached to the Lucent Technologies Attached Processor System (APS) 3B20D computer. Every line equipment number (LEN) on the 1A ESS Switch has an associated LHB on the DLN30 node pair. Each LHB consists of an ILHB and an OLHB. Consequently, Separated AR/AC is the only version of AR/AC available on 1AE12 and later generic programs. Refer to Part 6 A(9) for information about LHBs.

(c) Both versions provide the ability to recall originating calls and to call back terminating calls. The difference is that with the original version of AR, a customer can only recall the last call (originating or terminating). With Separated AR/AC, a customer can recall both the last originating call and the last terminating call. Which version is available in an office is determined by the telephone company.

⇒ **NOTE:**
When "AR" is used alone, it will mean that what is stated applies only to a recall of the last outgoing call. The same is true when only "AC" is used; what is stated applies only to a callback of the last incoming call. Within this document, the term "AR/AC" is used and will not imply a specific version. When something is only true for a particular version, it will be stated.

1.02 This practice is being reissued to include information on the Advanced Intelligent Network (AIN) Release 0.1 Termination Attempt Trigger (TAT) and the AIN Feature Access Code Trigger (FACT) features affecting Automatic Recall/Automatic Callback.

1.03 This practice does not contain admonishments.

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1.08 Part 7 lists the abbreviations and acronyms with applicable terms used in this practice.

## Background

1.09 The AR/AC feature is a LASS feature that is available to lines that have a unique line equipment number (LEN) assigned in the 1A ESS Switch. AR/AC can be used by plain old telephone service (POTS) customers and business customers. The customer can be part of a multiline hunt group (MLHG) if ringback can be directed to the customer's particular set. For centrex customers, AR activation can be limited on an intragroup or intergroup basis by the use of restrictive indicators. (See paragraphs 3.17 and 3.18.)

1.10 When AR/AC is activated to an idle called party, the call is completed immediately. If the call cannot be completed immediately because the called line is busy, the AR/AC customer is given a confirmation announcement. The status of both the originating (AR/AC customer) and terminating lines is checked periodically until the call can be completed or until a specified time limit elapses. When both parties are idle, the AR/AC customer receives ringback ringing and, upon answer, the call is set up.

1.11 A deactivation code is provided for customers who do not want to wait for ringback or for time-out to occur. When the customer enters the deactivation code, all of the customer's AR/AC activations are deactivated. In an office with Separated AR/AC, two distinct deactivation codes are provided. One deactivation code allows a customer to deactivate all AR activations while the other deactivation code allows a customer to deactivate all AC activations.

1.12 Both the customer and called party can originate and receive calls without affecting the status of a delayed activation of AR/AC.

## Economic Worth

1.13 For the customer, AR/AC can be used in the following applications:

(a) To monitor a busy line and automatically place a call to the station set when it becomes idle.

(b) To reestablish a previous conversation (for example, when the customer forgot to mention something during an earlier call).

(c) To contact the party who called while the customer was unavailable (for example, in the shower or outside).

For the telephone company, AR/AC can have a positive effect on network resource usage by providing an alternative to repetitive call attempts, and by increasing call completions.

## Availability

1.14 The AR/AC feature is part of the LASS feature offering. The AR feature is available with the 1AE9 through 1AE11 generic programs. The Separated AR/AC feature, optionally available in the 1AE10 and 1AE11 generic programs, is the only available version in the 1AE12 and later generic programs. Information about the optional features and enhancements for the AR/AC feature begins with paragraph 1.18.

## Feature Groups

1.15 Feature packages and groups are loaded for the AR/AC feature depending on the following:

(a) The generic program

(b) Whether the office provides intraoffice/ interoffice LASS

(c) Whether AR/AC is provided independently of the other LASS features

(d) Whether the office has AR, AC, or both.

1.16 For intraoffice LASS, feature group 9SLASA provides all the LASS features. For interoffice LASS, feature group 9SLASS provides all the LASS features. If AR and/or AC is provided separately from the other LASS features, LASS Unbundling is required. With LASS Unbundling, either 9SAR, 9SAR2, or 9SAC2 is set to 1; and 9SLASA or 9SLASS is set to 0. Common channel signaling is required for interoffice LASS. For details concerning the LASS feature packages, refer to Part 6 A(9) and B(2). The following is a list of the feature groups and packages that must be loaded for AR/AC to be operational.

**A. 1AE9 through 1AE11 Generic Programs Without Separated AR/AC**

- 9SLASS, 9SLASA, or 9SAR feature group
- 9SVMI1 feature group
- 9FACRB feature package.

**B. 1AE10 and Later Generic Programs With Separated AR/AC**

**Office Offering Both AR and AC**

- 9SLASS, 9SLASA, or 9SAR feature group
- 9SVMI1 feature group
- 9S2LHB feature group
- 9FACRB feature package.

**Office Offering AR Only**

- 9SLASS, 9SLASA, or 9SAR2 feature group
- 9SVMI1 feature group

- 9S2LHB feature group
- 9FACRB feature package.

**Office Offering AC Only**

- 9SLASS, 9SLASA, or 9SAC2 feature group
- 9SVMI1 feature group
- 9S2LHB feature group
- 9FACRB feature package.

## Feature Assignment

1.17 The AR/AC feature can be provided on a multiple office basis with Common Channel Signaling System 7 (CCS7) or on a single office basis without CCS7. Refer to Part 6 A(6). The AR/AC feature is available to each line having a unique LEN assigned in the office.

## Enhancements

1.18 The following enhancements are provided to make the 1A ESS Switch AR/AC feature transparent with the 5ESS® Switch offering. These enhancements are provided in the 1AE10 and later generic programs.

(a) With the **Default Number of Ringbacks** enhancement, the default number of ringbacks to the customer is changed to one ringback. Refer to paragraph 4.05.

(b) With the **Reinitializing AR/AC Request Block** enhancement, reactivation of an AR/AC request that is on delayed processing results in the AR/AC block being reinitialized. In the 1AE9 generic program, AR/AC reactivations caused the customer to have multiple AR/AC requests active to the same directory number (DN).

(c) When the **Office Option for Uniqueness** is set, the uniqueness status of the LICDN is ignored for AC attempts. Disregarding uniqueness allows camp-on attempts to members of MLHG lines that do not have a unique DN (refer to paragraph 2.16).

(d) The **Per Call Privacy Toggle/Saving Privacy Status for AR/AC** enhancements provide a toggle access code instead of the activation/deactivation codes used in the 1AE9 generic program. When a customer dials the per-call privacy toggle access code, the privacy status for that call is changed to the opposite of their permanent privacy status value (for example, if the permanent privacy status is public, the privacy status for this call is private). In addition, the privacy status is also saved in the OLHB. Therefore, if the customer activated an AR, the call that is generated by the AR request has the same privacy status as the original call. Refer to paragraph 2.46.

(e) The **Resume Initial Scan Rate After Ringback** enhancement provides a smooth interface for AR/AC calls to offices that maintain queue entries. In the 1AE9 generic program, the far-end status scan rate is decreased to once every 3 to 12 minutes when the initial ringback goes unanswered. In the 1AE10 and later generic programs, in order to prevent far-end queue entries from being marked as inactive, scanning resumes at the initial 30- to 60-second scan rate after a delay period following an unanswered ringback. Refer to paragraph 2.09.

(f) The **Dequeue Capability (DQ)** provides the means to notify a terminating switch that a camp-on entry needs removal from a queue. This capability helps make the 1A ESS Switch LASS compatible with the 5ESS Switch LASS, since AR/AC for the 5ESS Switch makes use of queues to contain calling DNs camped on to a particular line. Refer to paragraph 2.18.

(g) The **LASS Transparency Group D Protocol Enhancement (LTPE)** aligns the 1A ESS Switch with the 5ESS Switch in terms of how the 1A ESS Switch responds to a query message for terminating characteristic information, and how the 1A ESS AR/AC features react to information received in the response message.

1.19 The **Automatic Callback to Coin Lines (ARCE)** feature denies callback requests to a coin line and routes the call to an announcement. It is available in 1AE10 and later generic programs. This is a fast feature that is keyed by FF045. The feature minimizes loss of coin revenue because it eliminates a party at a coin line calling home, letting the phone ring a prearranged number of times or ring without being answered; then going on-hook and letting the party at the home phone call the coin phone back.

1.20 The **AC Two-Level Announcement** feature is optionally available in the 1AE10 and later generic programs. This feature provides interactive announcements to AC customers. This is a fast feature that is keyed by FF052. It uses the announcement service circuit (ASC) to identify the feature, voice back the LICDN, and request the user to confirm that they want to call back the number. Optionally, via set card LATAND, the time and date from the ILHB may be voiced back with the LICDN.

1.21 The **AR/AC Idle/Call Wait Status** feature is an optional feature, keyed by FF058. With this feature, a status of "idle" is returned when the called party is busy, in a stable call state, and has the Call Waiting feature active. It is available in 1AE10 and later generic programs. Refer to paragraph 2.61.

1.22 The **Request for Terminating Scanning (RTS)** feature is available in the 1AE10 and later generic programs. The scanning of the busy/idle status of the LCDN can be done by either the originating office or terminating office. These two methods are called Originating Scanning (OS) and Terminating Scanning (TS), respectively. The 1A ESS Switch provides the OS capability only. However, the 1A ESS Switch may interact with switches that have the TS capability (for example, 5ESS Switch). The RTS feature provides the 1A ESS Switch with the capability to request that a terminating office with TS capability do the scanning for the busy/idle status of the LCDN for interswitch AR/AC requests that have gone to delayed processing. The inclusion of this special feature, keyed by FF060, allows the 1A ESS switch to provide its customers with the same treatment provided by the 5ESS Switch. This feature does not provide the 1A ESS Switch with the capability to perform the actual TS. If the 1A ESS Switch receives a request to do TS, the request is rejected. A response is sent to the requesting office indicating that TS is not supported by the 1A ESS Switch.

1.23 The **Single Level AR/AC Announcement Enhancement (SLAE)** provides an announcement for AR/AC customers when they are prevented activation because of characteristics of the far-end line. The announcement is given only to AR customers when the office has the AC Two-Level Announcement feature. It is available in 1AE10 and later generic programs. The characteristics of the far-end line for which the announcement is given include the following:

- Selective Call Forwarding (SCF) active with the calling DN on the list
- Selective Call Acceptance/Computer Access Restriction (SCA/CAR) active with a nonacceptance treatment of forwarding and the calling DN not on the list
- Call Forwarding Variable (CFV) active
- The LCDN temporarily out of service (with a DN match status of match).

1.24 With the **Ignore Match Status Enhancement (IMSE)**, if a request for terminating characteristics to a MLHG comes back "no match", AR/AC ignores this fact and treats the request the same as if the request had come back "match". It is available in 1AE10 and later generic programs. Refer to the "Station Hunting" section, paragraph 2.54, for more information.

1.25 The **AR/AC Block Improvement** feature, available in 1AE11 and later generic programs, grows the AR/AC request block structure by 5 words per block to a total of 14 words per block (paragraph 3.10). The AR/AC request blocks are used to save information necessary for processing the AR/AC activation.

1.26 The **LHB Improvements** feature, available in the 1AE11 generic only, provides an alternate way to allocate the OLHB structure in an office with two LHBs. In the 1AE11 generic, the basic version of two LHBs, consisting of a 3-word ILHB followed by a 2-word OLHB, is built for each equipped LEN on an equipped line switch frame (LSF). With the LHB Improvements feature, a 3-word ILHB is allocated for each equipped LEN while a 2-word OLHB is allocated only for AR subscribers. Selective allocation of the OLHB

is defined by custom feature set card FFC104.

1.27 The LHB Improvements feature also defines an auxiliary LHB (ALHB) structure that is allocated per LSF and assigned on a per need basis (refer to paragraph 1.29). The ALHB structure is controlled by set card ALHBTB. Refer to Part 6 A(2) and A(9) for more details concerning the structures defined by the LHB Improvements feature.

1.28 The **Inter-LATA Calling Party Number/ Billing Number Delivery and Related Services (CPNBND)** feature, available in 1AE11 and later generic programs, provides an inter-LATA AR/AC blocking option that optionally blocks the sending of Transaction Capability Application Part (TCAP) query messages for line status of numbers outside the LATA. When the AR/AC blocking option is set to "block", long-term denial treatment is returned to the customer. When the AR/AC blocking option is set to "allow", the TCAP query message is formatted and sent. Refer to paragraph 2.21.

1.29 The CPNBND feature also provides the ability to save a dialed carrier access code (that is, 10XXX or, with 1AE12, optional 101XXXX) for use during an AR activation. The carrier is used to complete the call if the AR activation is allowed. In the 1AE11 generic, the carrier identification code designated by the 10XXX is stored in an ALHB. If an ALHB is not available to save the carrier, the associated OLHB is zeroed and the subsequent AR activation attempt receives long term denial treatment. In the 1AE12 and later generics, the carrier identification code index associated with the dialed 10XXX or 101XXXX is saved in the OLHB and will always be available for an AR activation attempt.

1.30 The **Shared/Split NXX (S/SNXX)** enhancement, available in 1AE10 and later generic programs, optionally allows a TCAP query to be sent for a number that has a shared or split NXX. A shared NXX is when all ten thousand DNs for that NXX are shared between switches. A split NXX is when thousand's blocks of numbers are assigned (split) to different switches. Refer to paragraph 2.24.

1.31 During activation of the AC Two-Level Announcement feature (paragraph 1.20) the LICDN is voiced back to the customer if it is a public DN. If the DN is private, the customer hears a privacy announcement. With the **Repeat Last DN Incoming** enhancement, the public DN is voiced back a second time after a 1-second pause. The privacy announcement is not repeated.

1.32 The **Two-Level AC Short-Term Denial Announcement** special feature, available in the 1AE10 and later generic programs, provides two ASC announcements to be used when short-term denial treatment is given. One announcement is used when the far-end DN has CFV active, SCF active with the calling DN on the list, SCA/CAR active with a nonacceptance treatment of forwarding and the calling DN not on the list, or when a temporary out-of-service condition exists. The other announcement is used for the remaining short-term denial cases. Without the Two-Level AC Short-Term Denial Announcement special feature, the long-term denial announcement is used in short- and long-term denial cases. This feature is keyed by FF066.

1.33 The **LASS Dual Timer and Related Enhancements (LDTF)** special feature, available with the 1AE11 generic program, provides the following (refer to paragraph 2.27):

- Eight new AMA records for AR/AC reactivations
- A deactivation AMA record for AR/AC reactivations
- A limit of the number of concurrent AR and AC requests a customer may have active (this option is keyed by FF113)
- A new minimum time allowed for the busy/idle scan rate (this option is keyed by FF113)
- A new timer which limits the total length of time an AR/AC request may maintain its queue position at the far-end office (this option is keyed by FF113).

1.34 The **LASS Office Options Feature (LOOF),** available in 1AE10 and later generic programs, provides an office default option word L. The default option word L is defined by word 19 of the office options table. For offices choosing to implement the LASS features on a subscription basis, LOOF may eliminate the need for ACRG/CAT codes. This is accomplished by using the office default option word L for lines not assigned any LASS features, that is, no individual option word L

exists. Individual line supplementary auxiliary block option word L's override the office default option word L. Elimination of ACRGs will simplify automated recent change processes and reduce feature implementation complexities. This feature is keyed by FF069.

1.35 The **Return Call Automatic Message Accounting (RCAMA)** feature is available in the 1AE10 and later generic programs, and AP3D and later Attached Processor System (APS) loads. It is keyed by FF073. RCAMA provides a called directory number privacy indication in AMA records made for AR/AC activation calls. For AC activation calls, the privacy indicator is associated with the ILHB calling party DN. Called DN privacy does not apply to directly dialed AR activation calls. However, when an AC activation call is made, the OLHB maintains the privacy status of the AC called DN, and applies it to a subsequent AR activation call. The billing organization can then decide whether to exclude the called number from the billing record sent to the customer. RCAMA also has an office option bit which can prevent the called directory number privacy indication in AMA records for calls resulting from AR activations. AMA records for calls resulting from AC activations will still contain privacy indication when this office option bit is set. AMA records for calls resulting from AR activations will not have the RCAMA privacy indication. If the customer activates AR immediately following the AC call completion, the AMA record will not contain the privacy indication.

1.36 The **Automatic Callback to Private Number (ACBPN)** feature is available in the 1AE11 and later generic programs and provides the capability for the TELCO to block all AC activation attempts to directory numbers which are private. When the feature is available in the office (Fast Feature 118), the feature may be activated or deactivated on a per office basis via Recent Change. When the feature is active, all AC activation attempts to a private DN will be blocked and the AC customer will be provided a tone or announcement. The tone or announcement can be provisioned specifically to ACBPN (Pseudo Route Index 206) and is changeable by the TELCO. The processing of AC is unchanged when the feature is unavailable or deactivated. In addition, the ACBPN feature provides a separate traffic count (TMC 148 - EGO 12) of the calls that were blocked via this feature. This count can be added to the hourly, quarter-hour, continuous, and special studies schedules.

# 2. User Perspective

## User Profile

### A. Activation

2.01 The LCDN is defined as one of the following depending on which situation occurred last:

(a) The last party **called** by the customer (referred to as the LOCDN), regardless of whether the party was busy or idle, and if idle, whether the called party did or did not answer. Special calls such as N11 (for example, 911, 411) or "O" operator calls do not update the OLHB.

(b) The last party calling the customer (referred to as the LICDN), regardless of whether the customer did or did not answer the call. The last party calling the customer is always the last party to alert the customer either via ringing or call wait tone. For example, if the AR/AC customer is talking with party A and party B alerts the AR/AC customer who receives a call waiting tone, then party B is the LICDN. If the AR/AC customer does not receive a call waiting tone, then party B is not the LICDN.

2.02 A customer can activate AR/AC any time by dialing one of the available access codes. Upon activation of AR/AC, the customer receives one of the following:

(a) Audible ringing indicating the call is being completed immediately and the called party is being alerted. Even if the called party does not answer, the AR/AC activation is considered complete.

(b) Confirmation announcement indicating that the AR/AC request has been accepted by the system and delayed processing will be done for the office-specified limit. When both the calling and called parties are found

idle, the customer receives ringback. Ringback ringing is two short rings and one long ring within a 6-second cycle.

(c) Temporary denial (reorder tone or announcement) indicating one of the following:

(1) Customer is not allowed to dial the access code

(2) Call store facilities are temporarily unavailable

(3) Network facilities are temporarily out of service.

(4) The LHB cannot be retrieved temporarily because of switch resource limitations. This is a temporary error condition associated with LHBs being stored on the DLN30 node pair and will occur only in 1AE12 and later generics.

(d) Error announcement resulting from one of the following:

(1) The customer is denied access to AR/AC because of originating line type, class of service, or feature assignment restrictions.

(2) The LCDN is not available in the LHB or, for 1AE12 and later generics, the LHB cannot be retrieved from the DLN30.

(3) The access code dialed is not the correct one for the type of LCDN (LOCDN or LICDN) stored in the LHB. This error would only occur in an office that does not have Separated AR/AC.

(4) The LCDN is in another office that is either not equipped with AR/AC or not connected to the originating office via the CCS network. This means that the busy/idle status of the LCDN can not be determined.

(5) The LICDN is determined to be nonunique and the office does not have the office option that ignores uniqueness (refer to paragraph 2.16).

(6) The centrex customer is not allowed AR/AC activation to the LCDN because of intragroup/intergroup restrictions for that centrex group (refer to paragraphs 3.17 and 3.18).

(7) The LICDN is private and the office has the AC Blocked to Private Number feature active.

(8) Unexpected translations error occurred.

(e) Error announcement resulting from one of the following situations identified via the status check of the LCDN:

(1) The LCDN is unassigned.

(2) The line service type for the LCDN is "choke". When the LCDN is in another office, the line service type is returned with the DN match status in the DN to line service type mapping (DN-LSTM) parameter of the CCS7 TCAP response message. The 1A ESS Switch never specifies a line service type of "choke" so this event could occur only if the LCDN is not on a 1A ESS Switch.

(3) The LCDN has a DN match status of "no match" and the line service type is not MLHG.

(4) AC is activated in an office with the ARCE feature active and the LICDN has a line service type of coin.

(5) The LCDN has a line service type of "temporarily out-of-service". Two different error messages are given depending on whether the DN match status is "match" or "no match". The 1A ESS Switch never specifies this line service type so this event could only occur if the LCDN is not on a 1A ESS Switch.

(6) The LCDN has a line service type which is unrecognized

given the existing protocol. This event could only occur if the LCDN is not on a 1A ESS Switch.

(7) The LCDN has Selective Call Rejection (SCR) active and the AR/AC customer's calling DN is on the screening list. The call is set up even if the LCDN is busy and the AR/AC customer receives the rejection announcement for the SCR feature.

(8) The LCDN has SCA/CAR active with a nonacceptance treatment of rejection announcement and the AR/AC customer's calling DN is not on the screening list. The call is set up even if the LCDN is busy and the AR/AC customer receives the rejection announcement for the SCA/CAR feature.

(9) The LCDN has CFV active.

(10) The LCDN has SCF active and the AR/AC customer's calling DN is on the screening list.

(11) The LCDN has SCA/CAR active with a nonacceptance treatment of forwarding and the AR/AC customer's calling DN is not on the screening list.

(12) The LCDN is on the same switch as the AR/AC customer, the AR/AC customer's calling DN is private, and the LCDN has Unidentified Call Rejection (UCR) active. The call is set up even if the LCDN is busy and the AR/AC customer receives the UCR rejection announcement.

(13) The LCDN is in another LATA and the inter-LATA AR/AC blocking option is set to block. Refer to paragraph 2.21.

**2.03** The AC Two-Level Announcement enhancement (FF052) has the following differences with the activation treatments listed in the previous paragraph:

(a) After determination is made that the customer is allowed to activate AC, the ASC is connected to the call. This is done before the status of the LICDN is checked. If the activation is denied for reasons not related to the status check of the LICDN and identified before the ASC is connected, error treatment is the same as that given to the AR customers.

(b) The LICDN is voiced back to the customer if it is a public DN. If it is private, the customer hears a privacy announcement. Optionally, the time and date from the LHB is voiced back. The customer is then requested to dial 1 if the AC is to be completed. If not, the customer merely hangs up.

(c) After the customer dials 1, the status of the LICDN is checked. If the AC is allowed to the LICDN, the customer will hear either audible ringing indicating the call was set up or an announcement indicating the busy/idle status of the LICDN will be monitored until it is idle.

(d) If the AC is not allowed, an error announcement will be given. The standard ASC denial announcement given is the same for all short- and long-term type of denial cases. The Two-Level AC Short-Term Denial special feature provides two unique short-term denial announcements. One is given when the LICDN has CFV active, SCF active with the calling DN on the list, or SCA/CAR active with a nonacceptance treatment of forwarding and the calling DN not on the list. The other is given for all other short-term denial cases encountered during AC Two-Level processing. The standard denial announcement is given for all long-term denial cases.

**2.04** Ringback ringing informs the customer that the LCDN is idle. The number of ringing cycles received by the customer is determined by the local telephone company. If the customer does not answer, ringback is repeated periodically. (The number of ringbacks is determined by the telephone company. With 1AE10 and later generic programs, the default ringback is 1 to provide transparency with the 5ESS Switch.) When the

customer does answer, a short delay can occur before ringing to the LCDN is initiated due to a second check on the status of the line. If the LCDN is still idle at the second busy/idle status check, then the call continues by giving ringing to the LCDN. The AR/AC request is deactivated regardless of whether or not the called party answers. If the LCDN is busy at the second status check, the customer is given an announcement and the AR/AC activation is considered complete.

## Feature Description

### A. Activation

2.05 When a POTS or centrex AR/AC activation is attempted, the prefixed access code translator (PACT) or centrex digit interpreter tables are accessed to determine if the AR/AC access code is allowed for the office or group. If the access code does not exist or is not allowed to be dialed, the customer receives a tone or announcement. If the access code does exist for the office or group, the calling party is screened to determine if AR/AC is allowed from that station set. If a customer is not allowed access to LASS (for example, multiparty origination), an announcement is provided indicating access is denied [pseudo route index (PRI) 167]. If access is allowed, the LCDN is retrieved from the calling party's line history block. If the LCDN is unavailable to be recalled, the customer receives a denial announcement (PRI 168) or tone. If the LCDN is available for recall, the busy/idle status and terminating characteristics of the LCDN are checked to verify the customer can access the LCDN.

2.06 For intraoffice recalls, the LCDN status is checked immediately. For interoffice recalls, a CCS direct signaling message for distant line status is formatted and sent to the terminating end office. This office returns a reply containing the status of the line. If the status of the LCDN is unavailable or if the LCDN is invalid, the customer is routed to a denial announcement (via PRI 168, or for the AC Two-Level feature, via the ASC) or tone.

2.07 If the LCDN is idle, an automatic message accounting (AMA) record is written immediately and the call is processed normally, that is, just as if the customer had dialed the DN. If the LCDN is busy, the customer's LEN and the LCDN are placed in an AR/AC block and timing is initiated for this block. The customer receives a confirmation announcement indicating AR/AC delayed processing has begun.

### B. Delayed Processing

2.08 After delayed processing is initiated, the status of the LCDN in each active AR/AC block is checked periodically. The rate of the periodic check is specified by parameter set card LASTRB (30 to 120 seconds with LDTF active and 45 to 120 seconds without LDTF active). In the 1AE9 generic program, the 1A ESS Switch provides two different scan rates. The LASTRB rate is used until ringback is given. If ringback goes unanswered, the scan rate changes to a longer rate specified by parameter set card LARBST (3 to 12 minutes). This rate is used until ringback is answered, the AR/AC block times out, or the block is deactivated.

2.09 For 1AE10 and later generic programs, set card LARBST is used to specify a delay period after an unanswered ringback before scanning resumes at the LASTRB rate. Any time during the active block stage that ringback goes unanswered, the delay period is used to minimize the annoyance to neighbors and the load on CCS resources that results from continuously ringing back a line. This change was made to provide transparent feature offering with 5ESS switches.

2.10 The status of the AR/AC customer is checked first, and if idle, the LCDN is checked. If both parties are idle, ringback is received by the AR/AC customer. If the customer answers, a second status check is made on the called line to limit the chances of receiving a busy tone before the call completes. After the check is complete and if the called line is still idle, a "delayed" AMA record is written, the AR/AC block is released and normal call processing continues. If the called line is busy during the second check, the customer receives an announcement indicating the called party is busy (PRI 166). The AR/AC request is considered complete, a "busy after ringback" AMA record is written, and the AR/AC block is released. If AR/AC cannot find both lines idle at the same time (that is, within the time period specified by the telephone company), the AR/AC request times out and a "time-out" AMA record is written. If the customer is given the maximum number of

ringbacks (specified by the telephone company per set card LARBNM), and the customer does not respond, the request times out and a "time-out" AMA record is written.

### C. Request for Terminating Scanning (RTS)

**2.11** If the AR/AC request cannot be completed immediately, the originating office decides which method of scanning to use for the LCDN busy/idle status monitoring at the terminating switch. The originating switch bases this decision on the following conditions:

(a) The originating switch has the RTS special feature.

(b) The LCDN is served by another switch and the switches are connected by CCS7 connectivity.

(c) The AR/AC request is queued at the terminating switch.

⇒ **NOTE:**
The 1A ESS Switch does not maintain queues and does not do terminating scanning.

**2.12** If all of the above conditions hold, the originating switch sends a "Send Notification When Party Free (SNWF)" TCAP query to the terminating switch to request TS for a period of time. The terminating switch will respond by sending one of the following messages:

(a) A conversation message indicating the acceptance of the request

(b) A response message indicating the LCDN is idle

(c) A response message indicating that the terminating switch does not support TS

(d) A response message indicating that the terminating switch does not have sufficient processing resources at the moment

(e) A response message indicating that the request contains unexpected data.

**2.13** If the request is accepted by the terminating switch, the originating switch waits for a response message from the terminating switch indicating that the LCDN is idle. During this period, TS is considered active. While TS is active, the originating switch sends a cancel message to the terminating switch to stop TS if, for example, the customer deactivates the AR/AC request.

**2.14** If the request is refused by the terminating switch or the response message is never received, the originating switch continues delayed processing by performing OS.

**2.15** Upon receiving the LCDN idle status from the terminating switch, the originating switch checks the busy/idle status of the customer line. If the customer line is busy, the originating switch waits until the line is found to be idle, and if there is sufficient time left to process the AR/AC request, sends another SNWF to reinitiate TS. If the customer line is idle, ringback is given to the customer. If the customer answers, a final busy/idle status check is made of the LCDN. If the LCDN is still idle, normal call processing continues. If the LCDN is busy, the customer receives an announcement indicating the LCDN is busy. If the customer does not answer ringback and the maximum number of ringback attempts is not exceeded, the originating switch waits for a period of time determined by set card LARBST and then sends another SNWF to reinitiate TS.

### D. Office Option for Uniqueness

**2.16** Without this enhancement, a 1A ESS Switch cannot perform a callback to a nonunique party. The ILHB is built with information about the LICDN provided by the switch for intraoffice calls or from the ISUP initial address message (IAM) for interoffice calls. The IAM is the first message sent during CCS7 call setup and contains calling party information. The information includes the uniqueness information. If the incoming call was from a nonunique number, the AC request is immediately denied. With the office option to "ignore uniqueness", the AC request is not immediately denied and the DN match status of the LICDN is determined. If the DN match status is "match", AC is allowed to the nonunique LICDN. If the DN match status is "no match", AC is not allowed to the nonunique LICDN unless the LICDN is a member of a MLHG. "Match and "no match" are treated the same when the LICDN line type is MLHG and the AC is allowed. Refer to paragraph 2.57.

For all other types of lines, a DN match status of "no match" results in long-term denial.

2.17 This enhancement is implemented as a bit in the office options table translator (refer to paragraph 3.19).

### E. Dequeue Capability

2.18 The DQ capability is incorporated into the retrieval of distant line status (RDLS) primitive. The RDLS primitive sends and processes query and response messages for AR/AC (and other LASS features). The RDLS primitive notifies AR/AC when it receives indication in the response message that the terminating office has queued an AR/AC request. At the request of AR/AC, RDLS provides TCAP with information necessary to format and send the DQ message to the terminating office. Refer to Part 6 A(8) and A(9) for information concerning TCAP and RDLS, respectively.

2.19 The DQ message is sent when the AR/AC request has been queued at the terminating office, and one of the following occurs:

(a) Ringback has been answered, and the response to the final busy/idle query has been received, or the timer for the response has expired.

(b) The AR/AC delayed processing request has timed out.

(c) The AR/AC customer has reactivated the AR/AC request. Refer to paragraph 2.27 (b).

(d) The AR/AC request has been deactivated by the AR/AC customer or a recent change (RC) message.

(e) The activation request has been denied by AR/AC as a result of information provided in the response to the initial query for terminating characteristics.

(f) The AR/AC customer has disconnected during activation or after answering ringback while the query/response process for far-end information is in progress.

2.20 If TS is active, the originating switch sends a cancel message to the terminating switch to stop TS and remove the request from the queue. If TS is inactive, a dequeue message is sent to the terminating switch to remove the request from the queue. Refer to paragraph 2.11.

### F. Inter-LATA AR/AC Blocking Option

2.21 With this option, a 1A ESS Switch can prevent a TCAP query message from being sent for the status information of an inter-LATA number following an AR/AC activation attempt. When the inter-LATA AR/AC blocking option is set to "block" (default), a TCAP query message is not sent and long-term denial treatment is given to the customer (via PRI 168 or, for the AC Two-Level feature, via the ASC).

2.22 When the inter-LATA AR/AC blocking option is set to "allow", a TCAP query message is formatted and sent. If a TCAP response to the query is received and the AR/AC activation is allowed, the resulting call completes via the carrier used for the original call. Refer to paragraph 2.73 for additional information.

2.23 This option is implemented as a bit in the office options table translator (paragraph 3.20) and requires feature group 9SCNBN to be loaded. It is provided in the 1AE11 and later generic programs. In earlier generic programs, query messages are never sent for the status information of inter-LATA numbers.

### G. Shared/Split NXX (S/SNXX) Office Option

2.24 Without this option, a 1A ESS Switch cannot perform an AR/AC request to a DN with a split or shared NXX. A shared NXX is when all ten thousand DNs for that NXX are shared between switches. A split NXX is when thousand's blocks of numbers are assigned (split) to different switches. The 3/6-digit translations identify these numbers as intraoffice. Terminating DN translations, used to get the status information for intraoffice DNs, indicate that these numbers point to a route index. As a result, the customer receives long-term denial announcement or tone (via PRI 168 or, for the AC Two-Level feature, via the ASC).

2.25 With the S/SNXX option active, if terminating DN translations also indicate an outpulsing trunk with a terminating major class of trunk group without ringing, the DN is

treated as interoffice. A TCAP query message is sent to the distant switch to retrieve line status information. Processing continues as stated in paragraph 2.07. A 10-digit destination number is provided in the Signaling Connection Control Part (SCCP) called party address part of the query message for global title translations at the STP.

2.26 This office option is implemented as a bit in the office option table translator (paragraph 3.21).

### H. LASS Dual Timer

2.27 The LASS Dual Timer and Related Enhancements special feature is an enhancement to the AR/AC feature and provides the following:

(a) A new maximum continuous service timer, defined by set card LAMCST, limits the total time subsequent reactivations of an AR/AC activation from one DN towards another DN will be treated as reactivations. It also limits the total time a (re)activation may maintain its current position in the queue at the far-end office. This timer is only used if the LDTF fast feature bit (FF113) is set.

(b) For reactivations, when the LDTF fast feature bit is set, a dequeue message is no longer sent to the far-end office to remove the initial activation from the queue. Instead, the previous activation remains active and the block timer is reinitialized. The existing block timer, defined by set card LARTIM, limits the amount of time a particular (re)activation may remain active. The block timer is set at initial activation and is reinitialized for subsequent reactivations toward the same DN. A customer may reactivate a request and retain its current position in the queue as long as neither the block timer nor the continuous service timer has expired.

(c) A limit on the number of concurrent AR requests from the same DN, defined by set card LAMXAR. Also, a limit on the number of concurrent AC requests from the same DN, defined by set card LAMXAC. This enhancement requires that the LDTF fast feature bit be set.

(d) A decrease in the minimum scan rate for the busy/idle status scan rate to 30 seconds, as defined by set card LASTRB. If the LDTF fast feature is not active, then 45 seconds will be the minimum scan rate for the set card LASTRB.

(e) An AMA deactivation record is written for the existing AR/AC request when a reactivation is made. This enhancement will be available with the 1AE11 and later generic programs with or without LDTF.

(f) Eight additional AMA record types for AR/AC. The new AMA records will be for AR and AC reactivation requests that time-out, complete on delayed processing, receive busy after ringback treatment, or are deactivated. This enhancement will be available with the 1AE11 and later generic programs with or without LDTF.

### I. Deactivation

2.28 The AR/AC requests are deactivated via a deactivation access code dialed by the customer or via a RC message. All current AR/AC activations for the customer are deactivated. No deactivation code exists for removing a specific AR/AC activation request.

### J. Reactivation

2.29 In the 1AE9 generic program, whenever a customer dials the AR/AC access code, a new AR/AC block is obtained. No check is made to determine if the most recent activation is a reactivation of an existing request. A customer may have several AR/AC requests active to the same line and receives ringback for each activation when both parties are idle unless the requests are deactivated. An AMA record is made for each activation when it completes, times-out, receives busy after ringback treatment, or is deactivated.

2.30 In the 1AE10 generic program, whenever a customer dials the AR/AC access code, a check is made of all active AR/AC blocks for a block containing the customer's LEN and the LOCDN/LICDN matching the LCDN in the customer's LHB. If a match is found, then the existing AR/AC block is used and the block time-out value is reset to the value of parameter LARTIM. If the current

activation is queued at the terminating end office, then the initial activation is dequeued and the reactivation is reinstated in the queue.

2.31 In the 1AE11 generic program without LDTF active, if a matching AR/AC block is found, then in addition to what is stated above for the 1AE10 generic program, an AMA deactivation record is created for the previous activation and a reactivation AMA record is made for the reactivation when it completes, times-out, receives busy after ringback treatment or is deactivated.

2.32 In the 1AE11 generic program with LDTF active, if a matching AR/AC block is found, then an AMA deactivation record is created for the previous activation and a reactivation AMA record is made for the reactivation when it completes, times-out, receives busy after ringback treatment or is deactivated. In addition, if the current (re)activation is queued at the terminating end office, it is not dequeued (that is, it retains its current queue position). Also, the block time-out value is reset to either the time remaining in the maximum continuous service timer started with the initial activation or set to the value of parameter LARTIM, whichever is smaller. The use of two timers limits the total time that reactivations will be treated as reactivations and thus retain their current queue positions at the terminating end office.

## Abnormal Operations

2.33 The customer can receive a busy tone after dialing the AR/AC activation code or after answering ringback. This situation can occur if the called party becomes busy immediately after the line status is checked and found idle. The customer's AR/AC request is considered complete and an AMA record is written for this activation. It is highly unlikely that this type of situation will occur. If desired, the customer can redial the AR/AC activation code to recall the party.

2.34 If the customer calls an unassigned or inoperative intraoffice/interoffice DN, the DN is stored as the LOCDN in the LHB just as if it were valid. This occurs because the DN status is not known at the time the LOCDN is saved. If the customer activates AR after calling an unassigned or inoperative DN, the customer receives a recorded announcement indicating the recall attempt was placed to an invalid DN.

2.35 If after dialing the AR/AC activation code for a LCDN in **another switch,** the customer abandons the AR/AC activation before the response to the status query is received, the activation attempt is ignored. If abandon occurs after the response is received the activation attempt is ignored when the LCDN is idle and is given delayed processing treatment when the LCDN is busy. If the LCDN is in the **same switch** and the customer abandons the AR/AC activation before an announcement is given or call setup occurs, the activation attempt is ignored when the LCDN is idle. If the LCDN is busy, delayed processing treatment is given for the activation If the activation attempt is really a reactivation and LDTF is not active in the office, completio treatment of the existing activation depends or the busy/idle status of the LCDN, the intra/interoffice location of the LCDN, and when the abandon occurs. However, if LDTF i active, the existing activation is reactivated.

2.36 If a CCS system error occurs, the customer receives a recorded announcement within 3 seconds after dialing the activation code. The customer can disconnect and dial the activation code again i a recorded announcement does not occur within the 3-second delay. For 1AE10 and late generic programs, the time-out period is office-definable and can be set from 1 to 6 seconds.

2.37 If the customer has the AC Two-Level Announcement feature (FF052 is set) and an ASC is not available, the customer receives reorder. If the ASC is available but three time-outs or errors occur during feature activation, the customer is given an announcement followed by disconnect and dial-tone. If three time-outs or errors occur during feature reactivation and LDTF is not active in the office, the customer is given an error announcement and the existing AC activation is considered completed. If LDTF is active, the customer is given the announcement but the existing AC activation remains active.

## Interactions

### A. Call Forwarding Variable

2.38 The AR/AC requests are not allowed to lines that have CFV activated. In the

1AE9 generic program, if an AR/AC activation is attempted, the customer receives reorder. In the 1AE10 and later generic programs, the customer receives a denial announcement (via PRI 195 or, for the AC Two-Level feature, via the ASC). The AR/AC activations are allowed to lines with call forwarding busy line (CFBL) and call forwarding don't answer (CFDA). These calls are processed as normal AR/AC activations. Delayed or immediate AR/AC processing is implemented depending on the busy/idle status of the lines.

### B. Call Pickup/Directed Call Pickup

**2.39** Call pickup cannot be used to answer a station set that is receiving ringback ringing from an AR/AC activation. When the AR/AC activation initiates normal ringing to the called station set, call pickup can be used to answer the called party.

### C. Individual Calling Line Identification

**2.40** If a customer has Individual Calling Line Identification (ICLID) and the AR activation receives delayed processing treatment, the called party's DN is sent to the customer premise equipment (CPE) during ringback.

**2.41** If a customer has ICLID and the AC activation receives delayed processing treatment, the called party's DN may be sent to the customer during ringback. The LICDN's privacy status, received with the incoming call and saved in the ILHB, is used to determine if the LICDN (that is, the called party's DN) should be displayed during ringback. If the LICDN is private, private-number indication instead of the LICDN is sent to the CPE.

**2.42** If call setup or busy after ringback treatment results from the AC activation, the LICDN and corresponding privacy status are saved in the OLHB. This DN can be used for a subsequent AR activation and, if the activation receives delayed processing treatment, the saved privacy status is used to determine if the called DN should be displayed during ringback.

### D. Calling Name Delivery

**2.43** If a customer has Calling Name Delivery (CNAM) and the AR activation receives delayed processing treatment, the called party's name may be sent to the CPE during ringback. Whether the name or private-name indication is sent to the CNAM customer will depend on the presentation status (allowed or restricted) maintained in the name database with the name characters.

**2.44** If a customer has CNAM and the AC activation receives delayed processing treatment, the called party's name may be sent to the customer during ringback. Whether the name is displayed depends on the name database presentation status and if a name privacy access code (refer to paragraph 2.48) was dialed with the original incoming call. A name presentation indication (no indication, allowed, restricted, or blocking toggle) that corresponds to the name privacy code dialed is saved with the LICDN in the ILHB. If it is "no indication", the database presentation status determines whether the name or private-name indication is sent to the customer during ringback. If it is "allowed" or "restricted", the database presentation status is ignored and the name or private-name indication, respectively, is sent during ringback. If it is "blocking toggle", the database presentation status is reversed to determine if the name or private-name indication should be sent during ringback.

**2.45** If call setup or busy after ringback treatment results from the AC activation, the incoming name presentation information from the ILHB is saved in an ALHB associated with the OLHB (1AE11 generic only) or in the OLHB (1AE12 and later generics). This saved incoming name presentation information is again used, during a subsequent AR activation that receives delayed processing treatment, to determine if the name should be sent to the CPE.

### E. Per Call Number Privacy

**2.46** In the 1AE10 generic program, the interactions between the AR/AC feature and the Privacy feature are as follows:

(a) For a normal call in which the actual called DN is dialed (not an AR/AC activation), the per call privacy (PCP) access code acts as a toggle. If the customer has the permanent privacy status and enters this access code, their calling DN is treated as public for this call. Conversely, if the customer has a public status (that is, does not have the permanent privacy status) and enters this access code, their calling DN is treated as private for this

call.

(b) When a customer with a public status places a private call using the privacy toggle access code, a subsequent AR to the called party is also marked as private. (Note, if the customer dials the per call privacy toggle access code preceding the AR activation code, the calling DN is also marked as private.) Conversely, if a customer with a permanent privacy status places a call using the privacy toggle access code, a subsequent AR to the called party is also marked as public, allowing it to be displayed. (Again note, if the customer dials the per call privacy toggle access code preceding the AR activation code, the calling DN is also marked as public.)

(c) Once an AR activation has been completed, the OLHB is updated with the outgoing privacy status used for this AR. Thus, a subsequent AR to this DN has the same outgoing privacy status as the previous AR. However, if the per call privacy toggle access code is dialed for the second AR activation, the privacy status of the calling DN is set equal to the reverse of permanent privacy status obtained from the LEN. Note, the outgoing privacy status is not retained in the ILHB. However, if an AC is completed, the privacy status is retained in the OLHB and is used for a subsequent AR.

(d) On an AR activation, the only thing that is ever toggled is the permanent privacy status obtained from the LEN. As a result, once the customer dials the per call privacy toggle access code for an AR activation, there is no way for them to place a subsequent AR to this far-end DN such that their calling DN will have its normal permanent privacy status.

**2.47** In the 1AE11 generic program, new privacy control codes are available to give customers additional per call control over privacy of their calling DN. The codes are Name/Number Private (NNP) and Name/Number Delivery Allowed (NNDA) and enable the customer to specify their calling DN be private or public, respectively.

(a) When a customer with a public status places a private call using the NNP access code, a subsequent AR to the called party is also marked as private. Similarly, when a customer with a private status places a public call using the NNDA access code, a subsequent AR to the called party is also marked as public.

(b) NNP or NNDA may be dialed preceding the AR/AC activation code so the calling DN is private or public, respectively, for the call resulting from the AR/AC activation.

(c) Once the AR/AC call is setup, the OLHB is updated with the outgoing privacy status used for the call. Thus, a subsequent AR, dialed without a number privacy control code, to this DN has the same outgoing privacy status as the previous AR/AC call.

(d) A customer may dial a combination of the number privacy control codes (NNDA, NNP or PCP) in succession either before the dialed called DN or before the AR/AC activation code. The last code dialed controls the privacy status of the calling DN. In addition, PCP always toggles the customer's permanent privacy status and not the status specified if NNDA/NNP was dialed immediately before PCP. A subsequent AR activation uses the DN privacy specified for the preceding call unless a different number privacy control code is dialed before the AR activation code.

### F. Per Call Name Privacy

**2.48** In the 1AE11 generic program, privacy control codes are available to provide the customer per call control over display of their name to a called line with the CNAM feature. These codes are Name Privacy (NAP) toggle, NNP, and NNDA. When the NNP or NNDA code is dialed, the name is considered restricted (private) or allowed (public), respectively, for the call. When the NAP code is dialed, the presentation status from the name database is reversed (toggled) for the call. So, for example, if the database presentation status is restricted, the name will be considered public and sent to the CNAM line.

(a) When a customer dials the NAP, NNDA, or NNP access code with the called DN digits, a subsequent AR to the called party uses the presentation status dictated by the access code dialed with the original call. Name presentation indication corresponding to the access code dialed is saved in an ALHB associated with the OLHB (1AE11 generic only) or in the OLHB (1AE12 and later generics).

(b) NAP, NNDA, or NNP may be dialed preceding the AR/AC activation code. When this is done, indication of which access code was dialed is maintained throughout AR/AC processing for use during call setup. When the AR/AC call is setup, an ALHB associated with the OLHB (1AE11 generic only) or the OLHB (1AE12 and later generics) is updated with the name presentation indication. Thus, a subsequent AR, dialed without a name privacy control code, to this DN has the same name privacy status as the previous AR/AC.

(c) A customer may dial a combination of the name privacy control codes (NAP, NNDA, or NNP) in succession either before the dialed called DN or before the AR/AC activation code. The last code dialed dictates the name presentation indication used to determine whether to send the name or private-name indication to the CNAM line. A subsequent AR activation uses the name privacy specified for the preceding call unless a different name privacy control code is dialed before the AR activation code.

### G. Speed Calling

**2.49** A customer with speed calling can activate AR to a called DN placed via speed calling. The AR activation is processed normally just as if the DN had been dialed using the conventional method.

### H. Selective Call Forwarding

**2.50** In the 1AE10 and later generic programs, an AR/AC request is not allowed to a line that has SCF activated when the DN of the calling line is on the screening list. The customer receives a denial announcement (via PRI 195 or, for the AC Two-Level feature, via the ASC).

### I. Selective Call Rejection

**2.51** In the 1AE10 and later generic programs, when an AR/AC request is made to a line with SCR active and the calling DN is on the screening list, the status of the called line is treated as idle, regardless of the busy/idle status of the called party. This causes the call to be placed immediately. The calling party receives the rejection announcement from the far-end office. If SCR is not active or the calling party is not on the screening list, normal AR/AC processing is performed.

### J. Selective Call Acceptance/Computer Access Restriction

**2.52** An AR/AC request is not allowed to a line that has the SCA/CAR feature active with a nonacceptance treatment of forwarding when the calling DN is not on the screening list. The calling party receives a denial announcement (via PRI 195 or, for the AC Two-Level feature, via the ASC).

**2.53** An AR/AC request is allowed to a line that has the SCA/CAR feature active with a nonacceptance treatment of rejection when the calling DN is not on the screening list. However, the busy/idle status of the called party will be considered idle so the call can be placed immediately. The calling party will receive the rejection announcement from the far-end office.

### K. Station Hunting

**2.54** If the AR/AC customer is in a MLHG, ringback will only go to the calling line.

**2.55** In the 1AE9 generic program, if the LICDN is associated with an incoming call from a MLHG, the AC request will be accepted only if the LICDN is marked as "unique" (for example, the call originated from the MLHG pilot).

**2.56** For 1AE10 and later generic programs, if the AC customer's office has the "Office Option for Uniqueness Enhancement", the "uniqueness" status provided for an incoming call can be ignored for AC activations. Thus ACs will be allowed if the last incoming call originated from a nonpilot MLHG line. (In this case, the LICDN is normally marked as nonunique). Refer to paragraph 3.19.

2.57 If the queried DN is a MLHG DN, the 1A ESS Switch always returns a line service type of "multiline hunt" and a DN match status of "match" in the DN to line service type mapping (DN-LSTM) parameter in the CCS7 TCAP response message. A non-Lucent Technologies switch, however, may send a line service type of "multiline hunt" and a DN match status of "no match" for some DNs in a MLHG. AR/AC will ignore a DN match status of "no match" if the line service type is multiline hunt. As a result, the AR/AC request will be treated the same as if the request had come back "match".

### L. 3-Way Calling

2.58 When a 3-way call is in progress and the **last** party connected hangs up, AR/AC can be activated to add this party to reinitialize the 3-way call. If the third party is busy, the call cannot be completed until both parties are idle.

2.59 In an office with the AC Two-Level feature, AC can not be used to add the last incoming call to an existing call.

### M. Call Waiting

2.60 An AR/AC activation to a line with the Call Waiting feature receives immediate call setup only if the line is idle. If the line is busy, the AR/AC activation receives delayed processing treatment, even if the line has an available call waiting slot.

2.61 With the AR/AC Idle/Call Wait Status optional feature, if a line with Call Waiting active is in a stable call state and call waiting is possible, the line is identified as "idle" and immediate call setup occurs. This is true only for the initial AR/AC activation. If delayed processing still results, further requests for busy/idle status of the line with Call Waiting receive "busy" until the line is idle. When this optional feature is not active in the terminating office, the Call Waiting interactions are as detailed in the previous paragraph. Refer to paragraph 4.07(c).

### N. Customer Dialed Account Recording (CDAR)

2.62 The AR/AC activation code is not allowed to be dialed following the CDAR access code and account digits. Long-term denial treatment will be given.

2.63 AR is allowed following a call dialed with CDAR billing. However, the call that results from the AR activation will not utilize the CDAR billing established for the initial call.

### O. Unidentified Call Rejection (UCR)

2.64 In the 1AE10 and later generic programs, when an AR/AC request is made to a line on the same switch with the UCR feature active and the calling DN is private, the status of the called line is treated as idle when the busy/idle status indicates busy. This causes the call to be placed immediately and the UCR rejection announcement to be given without delay. If UCR is not active, the calling DN is not private, or the called line is on another switch, normal AR/AC processing is performed.

### P. Advanced Services Platform/Service Switching Point

2.65 Processing of call set-up following a successful AC activation in an office with the Advanced Services Platform/Service Switching Point (ASP/SSP) feature, may encounter an Off-Hook Delay (OHD) Trigger or a Dialed Number Trigger (DNT) against the LICDN. If this happens, the call terminates to the destination dictated by the routing information provided in response to the ASP/SSP query sent to a Service Control Point (SCP). This destination may differ from the line associated with the LICDN and may also be busy. Since AC activation is considered complete once call set-up begins, any problems encountered during the ASP/SSP query/response sequence are treated according to ASP/SSP error handling specifications. Refer to Part 6 A(10) for information about the ASP/SSP feature.

2.66 An originating line's OLHB is updated with the dialed digits if a DNT is encountered against them. Also, the OLHB is updated with the dialed digits if an OHD Trigger is encountered against them. However, the OLHB is zeroed if a Centrex Access Trigger is encountered or if an OHD Trigger is encountered but the dialed digits translate to a Centrex Access Trigger (datatype 8). A subsequent AR activation uses existing AR processing rules to determine if the AR activation should be allowed given the contents of the OLHB. If it is allowed, an ASP/SSP query is sent to the SCP after the OHD or DNT Trigger is detected during call set-up (that is, after the line associated with the LOCDN is idle). The call then terminates to the

destination specified by the routing information returned from the SCP. Like AC, the destination may differ from the line associated with the LOCDN and may be busy. Since AR activation is considered complete once call set-up begins, any problems encountered during the ASP/SSP query/response sequence are treated according to ASP/SSP error handling specifications. Refer to Part 6 A(10) for information about the ASP/SSP feature.

**Q. Advanced Intelligent Network Release 0.1**

2.67 The AIN Release 0.1 Termination Attempt Trigger (TAT) and the AIN Feature Access Code Trigger (FACT) features affect AR/AC. Refer to Part 6 A(11) for detailed information on the AIN Release 0.1, TAT, and FACT features.

2.68 ASP triggers are ignored during the Retrieval of Distant Line Status (RDLS) processing of the AR/AC feature. ASP triggers are encountered when a callback call is routed.

⇒ **NOTE:**
AR/AC processing may not terminate at the same DN that the RDLS query used in processing, thus the AR/AC customer may receive busy treatment even when the RDLS query returned a status of idle.

2.69 TAT is not encountered upon ringback to an AR/AC client.

2.70 A subscriber dialed FAC Trigger zeroes the Outgoing Line History Block (OLHB) associated with the subscriber's line. Zeroing the OLHB prevents the subscriber from invoking a FAC Trigger via AR.

2.71 Note that when the SCP includes a Calling Party ID parameter in the Routing Response for an ASP-handled call, the new Calling Party Number included in that parameter is delivered to the terminating party and would be the target of an AC attempt.

## Operational Limitations

2.72 Only DNs within the LASS area can be recalled by using AR/AC. If CCS is provided, interoffice calls can be recalled/called back by using AR/AC. If CCS is not provided, AR/AC is limited to recalling/calling back intraoffice calls.

2.73 Currently, there are no specifications available that provide instructions on how to route LASS inter-LATA TCAP messages (neither the query messages nor the response messages). If CPNBND is not loaded or CPNBND is loaded and the blocking option is set to "allow", a TCAP message is sent from the originating end office but it may not be possible to deliver it to its destination. Or, the terminating office may not be able to correctly deliver the response back to the originating office. The inter-LATA application of the TCAP issue currently is not resolved. Therefore, if the AR/AC blocking option is not set to "block", it is the responsibility of the operating telephone companies to make the necessary routing translations in their signal transfer points (STPs) to allow TCAP messages to route across local access and transport area (LATA) boundaries and to assure that TCAP messages for LASS are appropriately delivered.

2.74 The maximum number of AR/AC requests that can be activated simultaneously is 511 per office (interoffice or intraoffice calls). The customer can have any number of AR activations in effect concurrently, but the total number cannot exceed the office parameter. For Separated AR/AC, the maximum number of requests is 511 for AR and 511 for AC. For offices that have LDTF active, the number of AR/AC requests customers may have active is limited. For Separated AR/AC, set card LAMXAC (1-30) specifies the maximum number of concurrent AC requests per customer, and set card LAMXAR (1-30) specifies the maximum number of concurrent AR requests per customer. For nonseparated AR offices, set card LAMXAR (1-30) specifies the maximum number of concurrent AR/AC requests per customer.

## Restriction Capability

2.75 Each of the LASS features can be denied to certain classes of lines (paragraphs 4.02 and 4.03). The telephone company determines the features that are included in each service class. The RC:CCOL message can be used to restrict access to AR/AC on a class of service basis. Refer to

Part 6 A(2) for the keywords associated with the RC:CCOL message.

2.76 A line is unconditionally restricted from activating AR/AC when its originating major class (OMAJ) is either 2-party or multiparty.

2.77 The LASS features can also be denied to specific access code restriction group/centrex access treatment (ACRG/CAT) code groups. On a per line basis, the ACRG/CAT code field in the LENCL2 word is used to determine if a LASS feature can be accessed. The RC:LINE message is used to change the ACRG/CAT code to allow or deny access to AR/AC. Refer to Part 6 A(2) for the keywords associated with the RC:LINE message.

2.78 In addition to the ACRG/CAT code mechanism of feature denial, option word L of the LEN supplementary auxiliary block can be used to disallow AR/AC. Option word L is built for lines that have access to certain LASS features (subscription or usage-sensitive), but are denied access to others. In the 1AE9 generic program, centrex lines are always subscription so option word L has limited utility; it can only be used to deny access. Refer to Part 6 A(2) for the keywords associated with the RC:LINE message.

2.79 Word 19 of the office options table contains a default LEN supplementary auxiliary block option word L. The default option word L indicates the type of LASS features billing access that is defaulted for new LASS customers. The default option word L is consulted by RC when building a customer's LEN supplementary auxiliary block option word L for the **first time.** When a LASS feature is added to a line for the first time, the default option word L is used by RC to build out the remaining fields of the customer's option word L. If the default option word L is set to deny all LASS features, RC builds all unspecified feature fields the same as the default option word L which, in this case, is denied access.

2.80 An alternative mechanism to restricting all lines access to LASS features is to implement LOOF. LOOF eliminates the need for ACRG/CAT codes in offices implementing the LASS features on a subscription only basis by allowing all lines to dial the LASS feature access codes. After the access code is dialed, normal ACRG/CAT screening applies but is not required. The second level of screening is performed on a class-of-service basis. The final level of restriction is the option word L check. LOOF, if loaded, provides all lines without an option word L a default option word L from word 19 of the office options table. Word 19 of the office options table is the recent change default and, if LOOF is loaded, will also be the call processing default for all lines without an option word L. If a line has been assigned LASS features and has a LEN option word L, then the individual LEN option word L is used instead of the office default option word L. LOOF is controlled by FF069.

# 3. Engineering

3.01 These guidelines are for planning purposes only. The Central Office Equipment Engineering System (COEES) Information System Engineering Document, Index 38, should be used to manually order and engineer the 1A ESS Switch. The standard recommended automated procedure is COEES-Mechanized Ordering (MO).

## Hardware

3.02 The AR feature requires the following hardware:

(a) Special ringing circuits SD-1A188-01

(b) Reorder-tone circuits SD-1A218-01

(c) Recorded announcement frame circuits SD-1A461-01, SD-1A622-01, or SD-1A623-01

(d) CCS data links for signaling

(e) Additional customer digit receivers (CDRs) for activation and setup of AR/AC.

3.03 The following changes are needed for the AC Two-Level Announcement feature:

(a) If the office does not have an ASC, the ASC and all associated hardware and firmware are required. This includes evaluation of the number of announcement trunk interfaces (ATIs). In addition, the ASC announcement system requires I/O channels.

(b) If the office already has an ASC, the number of ATIs should be reevaluated.

(c) New voice boards with required voice segments.

3.04 Refer to Part 6 A(4) for ASC information. Refer to Part 6 B(2) for hardware engineering information and to COEES-MO for ordering information.

## Software

### A. Base Generic Program

3.05 The AR/AC feature uses some base program store (PS) memory. For further information concerning memory usage, refer to Part 6 B(2).

### B. Optionally Loaded Feature Groups

3.06 The AR/AC feature is part of the optionally loaded LASS feature groups and feature packages. Other feature groups and packages are: 9SAR, 9SAR2, 9SAC2, 9S2LHB, and 9SVMI1 feature groups, and 9FLASS, 9FVMI1, and 9FACRB feature packages. Refer to Part 6 B(2) for further details.

3.07 The Inter-LATA AR/AC Blocking Option is part of the optionally loaded 9SCNBN feature group. If 9STCAP and either 9SAR, 9SAR2, or 9SAC are loaded, it is recommended that 9SCNBN be loaded. Refer to paragraph 2.73.

### C. Parameters/Call Store Areas

#### Call Store Parameters

3.08 For each AR activation that results in delayed processing, the following parameters and call store are required. Parameter word L9ARPTR points to the AR block table. Parameter word L9ARPTR+1 equals set card LARBLK, which specifies the number of AR blocks available.

3.09 With separated AR/AC, parameter word L9ACPTR is used to point to the AC block for AC. Parameter word L9ACPTR + 1 equals set card LACBLK, which specifies the number of AC blocks available for AC.

3.10 For the 1AE9 generic program, each AR block contains 8 call store words. For the 1AE10 generic program, each AR/AC block contains 9 call store words. For the 1AE11 and later generic programs, each AR/AC block contains 14 words. Refer to Figure 1 (1AE9 generic program), Figure 2 (1AE10 generic program), Figure 3 (1AE11 generic program), and Figure 4 (1AE12 and later generic programs) for details.

3.11 The maximum number of call store words allocated for the AR block table in the 1AE9 generic program is 4096 words. In the 1AE10 generic program, the maximum number is 4608 words. In the 1AE11 and later generic programs, the maximum number is 7168 words. Similarly, the maximum number of call store words allocated for the AC block table in the 1AE10 generic program is 4608 words and in the 1AE11 and later generic programs is 7168 words.

#### Timing Parameters

3.12 Timing parameters L9ARPARM1 and L9ARPARM2 are used for AR/AC. For L9ARPARM1, bits 0 through 4 equal set card LASTRB, bits 5 through 10 equal set card LARTIM, bits 11 through 14 equal set card LARBCC, and bits 15 through 18 (1AE11 and later generic programs) equal set card LAMCST. For L9ARPARM2, bits 0 through 6 equal set card LARBST, bits 7 through 11 equal set card LARBNM, bits 12 through 16 (1AE11 and later generic programs) equal set card LAMXAC, and bits 17 through 21 (1AE11 and later generic programs) equal set card LAMXAR.

### D. Translations

3.13 The following PRIs are used for the AR/AC feature. Refer to Table A, Figure 5, and Part 6 A(2), A(9), and B(2) for details.

(a) PRI 165 is used when the wrong AR/AC activation access code is dialed. This PRI is not used in an office with Separated AR/AC and, consequently, is not available in the 1AE12 and later generics.

(b) PRI 166 is used to notify the AR/AC customer who has answered ringback that the called party has become busy. This announcement is given as a result of the final busy/idle status check done before the call is set up.

(c) PRI 167 is used when the customer is denied access to AR/AC.

(d) PRI 168 is used when the AR/AC activation is denied for the LCDN.

(e) PRI 179 is used for confirmation of deactivation of all AR delayed activations when the office has Separated AR/AC.

(f) PRI 180 is used for confirmation of deactivation of all AC delayed activations when the office has Separated AR/AC.

(g) PRI 189 is used for confirmation of a delayed AC activation to an LICDN.

(h) PRI 190 is used for confirmation of a delayed AR activation to an LOCDN.

(i) PRI 192 is used for confirmation of deactivation of all AR/AC delayed activations. This PRI is not used in an office with Separated AR/AC and, consequently, is not available in the 1AE12 and later generics.

(j) PRI 195 is used when AR/AC activation is denied because of characteristics of the far-end line (for example, the far-end line has SCF active with the calling DN on the SCF list). This announcement is not given to AC customers in an office with the AC Two-Level Announcement feature. Refer to paragraph 1.23.

(k) PRI 206 is used when the AC activation is denied because of the ACBPN feature. This feature denies AC activation to DNs which are marked private in the ILHB.

**Prefixed Access Code Translator**

3.14 For individual and noncentrex multiline group lines, the AR access codes are assigned in the PACT. A primary translations word (PTW) (type C) is added to the PACT. Refer to Figure 6 for the layout of the PTW (type C).

**Centrex Translator**

3.15 A word type (5E) is added for words 3 through 14 in the centrex common block and the data words in the digit interpreter tables. Refer to Figure 7 for the layout of word type 5E.

3.16 The centrex access code auxiliary block, pointed to by centrex supplementary data auxiliary block option word E, contains the LASS access codes defined for that centrex group. AR/AC feature access codes must be defined in the access code auxiliary block before they can be built for the centrex group. Refer to Part 6 A(2) for more information.

3.17 Word 23, bit 11, contains the intergroup restriction indicator; when set to 1, it indicates that intergroup AR/ACs are prohibited. Bit 12 contains the intragroup restriction indicator; when set to 1, it indicates that intragroup AR/ACs are prohibited. These restriction indicators are not used in offices with Separated AR/AC and, consequently, are not available in the 1AE12 and later generics.

3.18 For Separated AR/AC, word 22 contains the intragroup/intergroup restriction indicators for the AR and AC features. Bit 14 is the AR intragroup restriction indicator; when set to 1, it indicates that intragroup ARs are prohibited. Bit 15 is the AR intergroup restriction indicator; when set to 1, it indicates that intergroup ARs are prohibited. Bit 16 is the AC intragroup restriction indicator; when set to 1, it indicates that intragroup ACs are prohibited. Bit 17 is the AC intergroup restriction indicator; when set to 1, it indicates that intergroup ACs are prohibited.

**Office Options Table Translator**

3.19 Word 0, bit 6, of the office options table translator allows a 1A ESS Switch to set the office option so that uniqueness of the LICDN can be ignored for AC.

3.20 Word 10, bit 9, of the office options table translator defines the inter-LATA AR/AC blocking option. The blocking option allows a 1A ESS Switch to prevent sending the TCAP query message for status information of inter-LATA numbers. The default is "0" which blocks the TCAP query message.

3.21 Word 10, bit 10, of the office options table translator defines the S/SNXX office option. This office option allows a 1A ESS Switch to send a TCAP query message for status information of a number having a shared/split NXX. The default is "0" which prevents the TCAP query message.

3.22 Word 10, bit 18 of the office options table translator along with FF073 (RCAMA) set, allows AMA records for calls

resulting from AC to provide a called directory number privacy indication. AMA records for calls resulting from AR will not provide a called directory number privacy indication. When this office option bit is not set and FF073 is set, AMA records for calls resulting from AR and from AC will provide a called directory number privacy indication. When FF073 is not set, this office option bit is meaningless. AMA records for calls resulting from AR/AC do not provide a called directory number privacy indication when FF073 is not set.

3.23 Word 18 in the office options table translator contains the office AMA mode indicators for the AR/AC features. The indicator is used to specify when AMA records should be written. The options per feature are:

(a) Never write AMA records.

(b) Always write AMA records.

(c) Write AMA records for usage-sensitive customers only.

3.24 Word 19 of the office options table contains the office default option word L. This value represents the office default handling for the type of access this feature is given (that is, usage sensitive, subscription, denied access, or unused). The default option word L is consulted by RC when building a customer's LEN supplementary auxiliary block option word L for the first time. When a LASS feature is added to a line for the first time, the default option word L is used by RC to build out the remaining fields of the customer's option word L. If the default option word L is set to deny all LASS features, RC builds all unspecified feature fields the same as the default option word L which, in this case, is denied access. If LOOF is loaded, and if the LEN supplementary auxiliary block option word L does not exist, word 19 of the office options table is used as the default option word L by call processing.

**LEN Supplementary Translator**

3.25 Option word L is used to allow or deny access to LASS features on a per line basis. Access to AR/AC can be allowed or restricted by this structure. Refer to Part 6 A(2) for more information.

3.26 Option word P is built for each AR subscriber when the LHB Improvements feature (FFC104; 1AE11 generic only) is loaded in the office. With this feature, OLHBs are built only for AR subscribers. Without this feature, an OLHB is built for every LEN in the office. Option word P contains the index that points to the AR subscriber's OLHB. Refer to Part 6 A(2) for more information.

**Class of Service Information Translator**

3.27 Option word B of the Class of Service Information Auxiliary Block is used to allow or deny access to LASS features on a class of service basis. Access to AR/AC can be restricted by this structure. Refer to Part 6 A(2) for more information.

**Supplemental Office Options Table Translator**

3.28 Word 2, bit 6, of the Supplemental Office Options Table Translator specifies if the ACBPN feature is active. When this bit is a "1", the ACBPN feature is active and AC activation attempts will be blocked to private DNs.

# 4. Implementation

4.01 For details of the procedures used to initially install LASS (including AR/AC), refer to Part 6 A(2).

## Assignment Restrictions

4.02 Customers with the following lines are denied access to AR or AC:

(a) Two-party

(b) Multiparty

(c) PBX

(d) RSS.

4.03 Customers with the following types of lines should be denied access to the AR/AC feature:

(a) Coin

(b) Coinless public lines

(c) Hotel/Motel.

## Set Cards

4.04 The AR/AC feature, like all LASS features, requires the feature package 9FLASS to be loaded. Refer to paragraph 4.05 for the set cards required for AR/AC to be operational. If the non-separated AR/AC feature is desired, either feature group 9SLASS, 9SLASA, or 9SAR is required. If the Separated AR/AC feature is desired, either feature group 9SLASS, 9SLASA, 9SAR, 9SAR2, and/or 9SAC2 is required.

(a) The 9SLASS feature group contains the feature packages and groups needed to allow all LASS features to work for intra/interoffice calls. Set card 9SLASS requires 9FLASS, 9SDRNG, 9FACRB, and 9SSLE. Set card 9SLASS also requires 9SISUP and 9STCAP for CCS7 signaling.

(b) The 9SLASA feature group contains the feature packages and groups needed to allow all LASS features to work for intraoffice calls. The 9SLASA feature group requires 9FLASS, 9SDRNG, 9FACRB, and 9SSLE.

(c) The 9SAR feature group contains the feature groups and packages that are needed when buying non-separated AR/AC or separated AR/AC using LASS unbundling.

(d) The 9SAR2 feature group contains the feature groups and packages that are needed when buying AR as a separate feature using LASS unbundling.

(e) The 9SAC2 feature group contains the feature groups and packages that are needed when buying AC as a separate feature using LASS unbundling. If FF052 is set, 9SSLE is required.

4.05 The following set cards are provided for AR/AC. All the set cards below are related and are associated with set cards 9FLASS, 9SAR, 9SAR2, or 9SAC2:

(a) **LARBLK** indicates the number of concurrent AR (with separation) or AR/AC (without separation) blocks available (range can be 10 through 512). LARBLK can have a value of 10 through 512. When LARBLK is 0, the AR feature is off.

(b) **LACBLK** indicates the number of concurrent AC blocks available (range can be 10 through 512). LACBLK can have a value of 10 through 512. When LACBLK is 0, the AC feature is off. The LACBLK set card is only valid for Separated AR/AC and, consequently, is required on 1AE12 and later generics.

(c) **LASTRB** specifies the amount of time between busy/idle status checks before the first ringback attempt. With 1AE10 and later generic programs, LASTRB also specifies the amount of time between busy/idle status checks after a delay period (specified by set card LARBST) following an unanswered ringback attempt. Refer to Table B for LASTRB values and time intervals. For 1AE11 and later PPUs with the LDTF feature active, the minimum scan rate for the busy/idle status checks is 30 seconds.

(d) **LARBST** specifies the amount of time between busy/idle status checks after an unanswered ringback in the 1AE9 generic program. With 1AE10 and later generic programs, LARBST specifies the delay period following an unanswered ringback before busy/idle scanning resumes at the rate specified by set card LASTRB. For 1AE11 and later generic programs with the LDTF feature active, LARBST additionally specifies the threshold value to determine if terminating scanning should be reinitiated when a time-out message is received from the far-end office. For TS, when the originating office receives a time-out message from the far-end office, the originating office sends another SNWF to reinitiate TS, provided the block timer value is greater than the threshold (LARBST) value. If the block timer value is less than LARBST, then the request times out. Refer to Table C for LARBST values and time intervals.

(e) **LARTIM** specifies the total amount of time delayed processing checks for an idle status per AR/AC activation. Refer to Table D for LARTIM values and time intervals.

(f) **LARBNM** indicates the maximum number of ringback attempts given to

a customer per AR/AC activation request. Refer to Table E for LARBNM values and the associated number of ringbacks.

(g) **LARBCC** indicates the number of 6-second cycles in a ringback sequence. Refer to Table F for LARBCC values and the associated number of cycles.

(h) **LATAND**, when set to 1, allows the date and time of the last incoming call to be voiced back when the AC Two-Level Announcement feature is active.

4.06 The following list of set cards is required by the LDTF special feature.

(a) **LAMXAC** indicates the maximum number of concurrent AC activations a customer may have active. Refer to Table G for LAMXAC values and the associated number of concurrent activations.

(b) **LAMXAR** indicates the maximum number of concurrent AR activations a customer may have active. Refer to Table H for LAMXAR values and the associated number of concurrent activations.

(c) **LAMCST** indicates the total amount of time subsequent activations of an AR/AC activation will be treated as reactivations and the total time an AR/AC (re)activation may maintain its queue position at the far-end office. Refer to Table I for LAMCST values and time intervals.

4.07 The following list of fast feature set cards is available for AR.

(a) **FF045** activates the Automatic Callback to Coin Lines feature when set to 1. When an AC request to a coin line is made, the request is denied and the call is routed to a tone or announcement.

(b) **FF052** activates the AC Two-Level Announcement feature when set to 1.

(c) **FF058** activates the AR/AC Idle/Call Wait Status optional special feature when set to 1. An AR/AC request to a line with the Call Waiting feature active results in an immediate call setup to the line rather than delayed processing treatment. The line must be in a stable call state and have a call waiting slot available.

(d) **FF060** activates the RTS optional special feature when set to 1. The originating 1A ESS Switch requests the terminating switch (non-1A ESS Switch) to do the scanning for busy/idle status of the called line when the terminating switch puts the AR/AC request to the called line on a queue for delayed processing.

(e) **FF066** activates the Two-Level AC Short-Term Denial special feature when set to 1. This feature provides two short-term denial announcements for the AC Two-Level Announcement feature.

(f) **FF069** activates the LOOF optional feature. If FF069 is set to 1, then all lines without an individual option word L in the supplemental auxiliary block will use the office default option word L. The office option table word 19 defines the call processing/recent change default option word L. LOOF eliminates the need to restrict nonsubscribers' access to LASS features by using the ACRG/CAT codes in the PACT/CTXDIT translators thus simplifying recent change procedures required to implement the LASS features. If set card FF069 is set to 0, LASS feature access defaults to usage sensitive access if no option word L exists in the LEN supplementary auxiliary block.

(g) **FF073** activates the RCAMA feature when set to 1. This feature provides a called DN privacy indicator in AMA records made for AR/AC activation calls.

(h) **FF113** activates the LDTF special feature when set to 1. An activation queued at the far-end office may maintain its current queue position for a limited time, regardless of the number of times the request is reactivated. Additionally, the number of concurrent AR and concurrent AC requests customers may have active is limited. Lastly, the minimum time

between busy/idle status checks is changed to 30 seconds.

(i) **FF118** makes the ACBPN feature available. This feature must be activated via the Supplemental Office Options Translator.

**4.08** The inter-LATA AR/AC office blocking option requires that the 9SCNBN feature group be loaded. Feature group 9SCNBN contains 9FCNBN and requires that 9STCAP and at least either 9SAR, 9SAR2, or 9SAC2 be loaded for the inter-LATA AR/AC office blocking option. It is recommended that 9SCNBN be loaded in multiswitch AR/AC configurations. Refer to paragraph 2.73.

## Translation Forms

**4.09** The following translation forms, detailed in TG-1A, are applicable to the AR/AC feature. Refer to Part 6 B(3).

(a) ESS 1101 – Directory Number Record

(b) ESS 1107A/B – Supplementary Information Record

(c) ESS 1109 – Centrex Group Record

(d) ESS 1303D – Pseudo Route Index Record

(e) ESS 1317 – Prefixed Access Code Record

(f) ESS 1334 – Class of Service Information

(g) ESS 1400 – Traffic Register Assignment Record

(h) ESS 1500D – Office Option Record.

## Recent Change Messages

**4.10** The following RC messages are applicable to the AR feature:

| Message | Definition |
|---|---|
| RC:LINE | This message can be used to assign a line AR/AC as denied access, usage sensitive access, or subscription access. |
| RC:CTXCB | This message can be used to define the AR/AC access codes for a centrex group. In order to build AR/AC access codes for a centrex group, the access codes must be defined for the centrex group first. This message can also be used to restrict AR/AC activations on an intra-centrex group or inter-centrex group basis. |
| RC:CTXDI | This message can be used to build centrex digit interpreter data word type 5E. This can be useful in building the AR/AC activation/ deactivation access codes for centrex groups. |
| RC:CCOL | This message can be used to prohibit classes of service from using AR/AC access codes. |

**4.11** Refer to the Lucent Technologies practice about the specific RC message for valid keywords. Also, refer to Part 6 A(2) for the complete installation procedure for all of the LASS features (including AR/AC).

# 5. Administration

## Measurements

**5.01** The traffic measurement code (TMC) 148 collects traffic counts for the AR/AC feature. The following counts define the AR/AC total office traffic counts:

| EGO | Definition |
|---|---|
| 012 | **Automatic Callback to Private Number Peg Count:** This counts the number of times that an AC activation is blocked due to the ACBPN feature. |
| 030 | **AR Originating Activation Peg Count:** This counts the number of times that a customer dials the AR access code. |

031 **AC Terminating Activation Peg Count:** This counts the number of times that a customer dials the AC access code.

032 **AR/AC Originating/ Terminating Activation Peg Count:** This counts the number of times that a customer dials the combined AR/AC access code. (This peg count does not apply with Separated AR/AC and is not used in the 1AE12 and later generics.)

033 **AR/AC Immediate Processing Peg Count:** This counts the number of times the last calling/called DN is found idle during AR/AC activation.

034 **AR/AC Delay Processing Peg Count:** This counts the number of times that the last calling/called DN is found busy during AR/AC activation.

035 **AR/AC Ringbacks Peg Count:** This counts the number of ringbacks given to the AR/AC customer.

036 **AR/AC Ringbacks Answered Peg Count:** This counts the number of ringbacks answered by the customer.

037 **AR/AC Request Block Time-Outs Peg Count:** This counts the number of request block time-outs due to the calling/called parties being busy over a specified time period.

038 **AR/AC Deactivation Peg Count:** This counts the number of times that a customer dials the deactivation access code. (This peg count does not apply with Separated AR/AC and is not used in the 1AE12 and later generics.)

039 **AR/AC Found Busy After Ringback Peg Count:** This counts the number of times that a called party is found busy after an AR/AC customer has answered ringback.

040 **AR/AC or AR With Separated AR/AC Request Block Overflow Count:** This counts the number of times that an AR/AC customer fails to get an AR/AC block when AR/AC is not separated, or the number of times that an AR customer fails to get an AR block when AR/AC is separated.

041 **AR/AC Long-Term Denials Peg Count:** This counts the number of long-term denials given to the AR/AC customers.

042 **AR/AC Temporary Denials Peg Count:** This counts the number of temporary denials given to the AR/AC customers.

043 **AR/AC or AR With Separated AR/AC Request Blocks Peg Count:** This counts the number of requests to allocate an AR/AC block when AR/AC is not separated, or counts the number of AR requests to allocate an AR block when AR/AC is separated.

044 **AR/AC or AR With Separated AR/AC Request Blocks Usage Count:** This measures the usage of AR/AC blocks for nonseparated AR/AC activations, or measures the usage of AR blocks for AR (Separated AR/AC) activations. This count is provided on a 100-second scan basis.

**5.02** The TMC 168 collects traffic counts for the Separated AR/AC feature. The following counts define the additional traffic counts provided for Separated AR/AC:

| EGO | Definition |
|---|---|
| 000 | **AC Request Block Overflow Count:** This counts the |

number of times that an AC customer failed to get an AC block.

001 **AC Request Block Peg Count:** This counts the number of requests to allocate an AC block.

002 **AC Deactivation Peg Count:** This counts the number of times a customer dials the AC deactivation code.

003 **AR Deactivation Peg Count:** This counts the number of times a customer dials the AR deactivation code.

004 **AC Request Block Usage Count:** This measures the usage of AC blocks for AC activations. This count is provided on a 100-second scan basis.

## Automatic Message Accounting

5.03 One of the following AMA records is written for each successful AR/AC activation:

- Immediate Processing
- Delayed Processing
- Busy After Ringback
- Deactivation
- Time-out.

=> **NOTE:**
Each record contains the customer DN, the called party DN, the date, and the time.

5.04 For the 1AE11 and later generic programs, a deactivation AMA record is made when a customer reactivates a request. Also, for reactivated requests, one of the following AMA records is written:

- Delayed Processing – Reactivation
- Busy After Ringback – Reactivation
- Deactivation – Reactivation
- Time-out – Reactivation.

5.05 For the AC Two-Level Announcement custom feature, an AMA record is made when the activation code is dialed. If the customer dials a 1 to indicate they want to attempt to complete the AC, one of the AMA records listed above is also made.

5.06 Refer to paragraph 3.23 for office control over when AR/AC AMA records will be written. Refer to Part 6 A(5) and B(4) for the AMA format applicable to AR/AC.

5.07 With the RCAMA feature, AMA records for calls resulting from AR/AC activations contain a called DN privacy indication. For AMA Standard Entry (AMASE) records, RCAMA uses the fifth binary coded decimal (BCD) character of table 8 (Study Indicator) to indicate either an AR/AC activation to a private DN (value 3) or an AR/AC activation to a public DN (value 2). For Single Entry records, RCAMA uses the optional U10000 group to indicate either an AR/AC activation call to a private DN (value 3) or an AR/AC activation call to a public DN (value 2).

# 6. Supplementary Information

## References

### A. LT Practices

(1) 231-090-207 – *Traffic Measurements*

(2) 231-318-340 – *Local Area Signaling Services Recent Change Implementation Procedure*

(3) 231-361-026 – *Common Channel Signaling 7 Common Network Interface (CNI) Ring Implementation*

(4) 231-365-005 – *Intelligent Simplex Peripheral Interface Implementation Procedures*

(5) 231-390-063 – *Automatic Message Accounting*

(6) 231-390-500 – *Common Channel Signaling System 7 Feature General Description*

(7) 231-390-502 – *Integrated Services User Part Common Channel Signaling*

*System 7*

(8) 231-390-508 – *Transaction Capability Application Part Common Channel Signaling System 7*

(9) 231-390-515 – *Local Area Signaling Services Common Channel Signaling System 7 General Description*

(10) 231-390-519 – *Advanced Services Platform/Service Switching Point (ASP/SSP) Feature Document*

(11) 231-390-522 – *Advanced Intelligent Network (AIN) Release 0.1 Protocol and Capabilities Feature Document*

**B. Other Documentation**

(1) *Data Layout Document PK-6A006*

(2) *COEES Information System Engineering Document Index 38*

(3) *Translation Guide TG-1A*

(4) *TR-TSY-000508 LSS-GR-AMA Section 8.1.*

(5) *Office Parameter Specification PA-6A001*

(6) *Parameter Guide PG-1A*

(7) *Translation Output Configuration PA-6A002*

# 7. Abbreviations and Acronyms

## A

**AC**
Automatic Callback

**ACBPN**
Automatic Callback to Private Number

**ACRG**
Access Code Restriction Group

**AIN**
Advanced Intelligent Network

**AFAC**
AIN Feature Access Code

**ALHB**
Auxiliary LHB

**AMA**
Automatic Message Accounting

**AMASE**
AMA Standard Entry

**APS**
Attached Processor System

**AR**
Automatic Recall

**ARCE**
Automatic Callback to Coin Lines

**ASC**
Announcement Service Circuit

**ASP**
Advanced Services Platform

**ATI**
Announcement Trunk Interface

## B

**BCD**
Binary Coded Decimal

## C

**CAR**
Computer Access Restriction

**CAT**
Centrex Access Treatment

**CCS**
Common Channel Signaling

**CCS7**
Common Channel Signaling System 7

**CDR**
Customer Digit Receiver

**CFBL**
Call Forwarding Busy Line

**CFDA**
Call Forwarding Don't Answer

**CFV**
Call Forwarding Variable

**CNAM**
Calling Name Delivery

**CNI**
Common Network Interface

**COEES**
Central Office Equipment Engineering System

**COEES-MO**
COEES-Mechanized Ordering

**CPNBND**
Inter-LATA Calling Party Number/Billing Number Delivery and Related Services

**CTXDIT**
Centrex Digit Interpreter Table

## D

**DLN**
Direct Link Node

**DLN30**
AP30 Attached Processor based DLN with an IRN2 Node Processor

**DN**
Directory Number

**DN-LSTM**
DN to Line Service Type Mapping

**DNT**
Dialed Number Trigger

**DQ**
Dequeue capability

## F

**FACT**
Feature Access Code Trigger

## I

**IAM**
Initial Address Message

**ICLID**
Individual Calling Line Identification

**ILHB**
Incoming LHB

**IMSE**
Ignore Match Status Enhancement

**ISUP**
Integrated Services User Part

**I/O**
Input/Output

## L

**LASS**
Local Area Signaling Services

**LATA**
Local Access and Transport Area

**LCDN**
Last Call Directory Number

**LDTF**
LASS Dual Timer and Related Enhancements Special Feature

**LEN**
Line Equipment Number

**LHB**
Line History Block

**LICDN**
Last Incoming Call Directory Number

**LOCDN**
Last Outgoing Call Directory Number

**LOOF**
LASS Office Option Feature

**LSF**
Line Switch Frame

**LTPE**
LASS Transparency Group D Protocol Enhancement

## M

**MLHG**
Multiline Hunt Group

## N

**NAP**
Name Privacy Toggle

**NNDA**
Name/Number Delivery Allowed

**NNP**
Name/Number Private

**NXX**
Office Code

## O

**OHD**
Off-Hook Delay

**OLHB**
Outgoing LHB

**OMAJ**
Originating Major Class

**OS**
Originating Scanning

## P

**PACT**
Prefixed Access Code Translator

**PBX**
Private Branch Exchange

**PCP**
Per-Call Privacy Toggle

**POTS**
Plain Old Telephone Service

**PRI**
Pseudo Route Index

**PS**
Program Store

**PTW**
Primary Translations Word

## R

**RC**
Recent Change

**RCAMA**
Return Call Automatic Message Accounting

**RDLS**
Retrieval of Distant Line Status

**RSS**
Remote Switching System

**RTS**
Request for Terminating Scanning

## S

**SCA**
Selective Call Acceptance

**SCCP**
Service Connection Control Part

**SCF**
Selective Call Forwarding

**SCP**
Service Control Point

**SCR**
Selective Call Rejection

**SLAE**
Single Level AR/AC Announcement Enhancement

**SNWF**
Send Notification When Party Free

**SSP**
Service Switching Point

**STP**
Signal Transfer Point

**S/SNXX**
Shared/Split NXX

## T

**TAT**
Termination Attempt Trigger

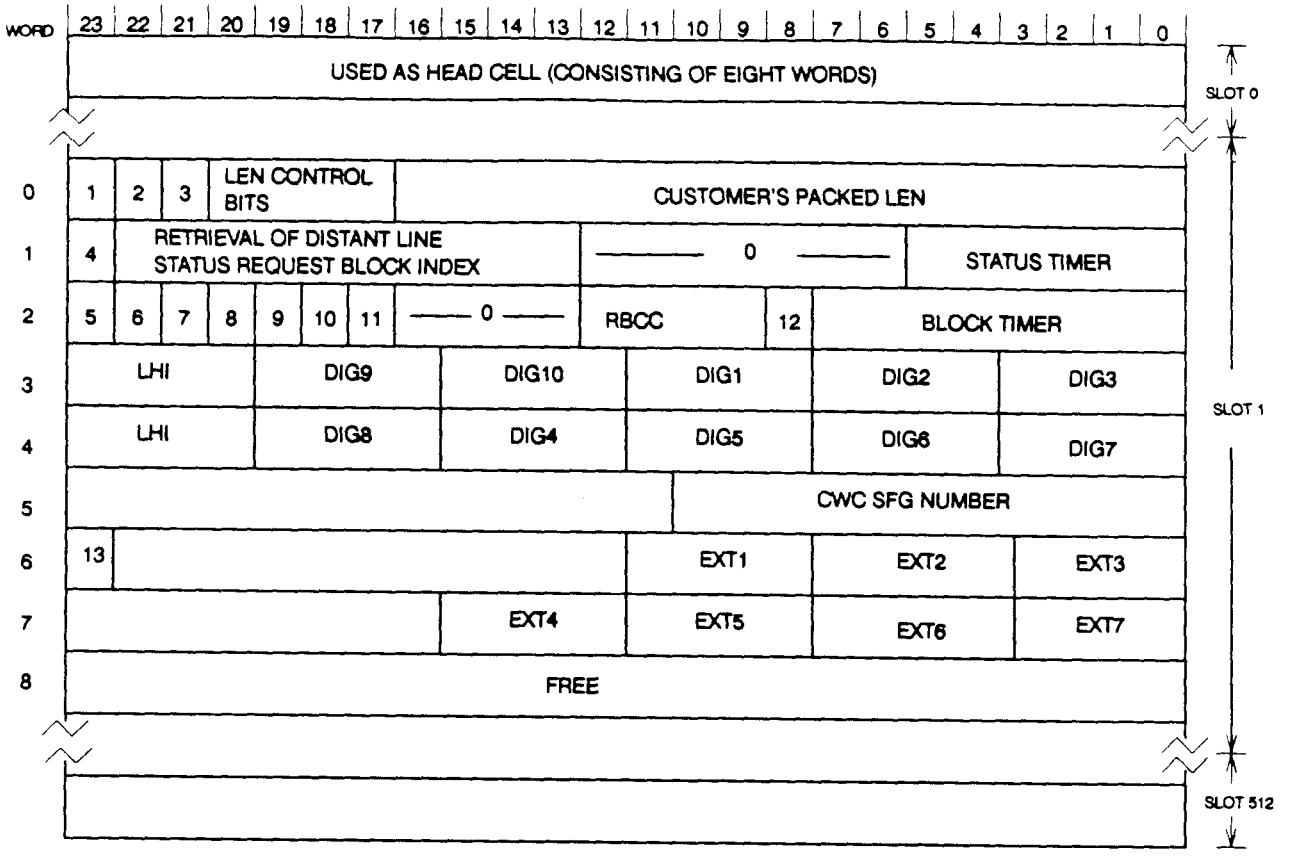
**TCAP**
Transaction Capability Application Part

**TMC**
Traffic Measurement Code

**TS**
Terminating Scanning

**U**

**UCR**
Unidentified Call Rejection




WORD 0
- 1 - Queued at Far-End-Office Indicator
- 2 - Inital Status Indicator
- 3 - Release in Progress Indicator

WORD 1
- 4 - Retrieval of Distant Line Status in Progress

WORD 2
- 5 - Status timeout
- 6 - Block Timeout
- 7 - Block Deactivated
- 8 - Centrex Customer
- 9 - Ringback in progress
- 10 - Ringback given
- 11 - Use 7-Digit Indicator
- 12 - Outgoing (calling DN) privacy indicator
- RBCC - Ringbacks given to Customer Counter

WORDS 3,4

LHI - Line History Indicators

DIGIT 1-10 - These fields repreresent the last call DN (originating from or terminating to the AR customer). The last call DN is stored for the purpose of Ringback.

WORDS 6,7

EXTENSION 1-7 - Applies to Centrex customers The contents of these words represents the last call extension (origination from or termination to the Centrex customer).

13 - COT Call Waiting Indicator (CWI)

**Figure 1. AR/AC Block for 1AE9**

| WORD | 23 | 22 | 21 | 20 | 19 | 18 | 17 | 16 | 15 | 14 | 13 | 12 | 11 | 10 | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | FREE | | | LEN CONTROL BITS | | | | CUSTOMER'S PACKED LEN | | | | | | | | | | | | | | | | |
| 1 | 4 | BATB INDEX | | | | | | | | | | 3 | 2 | # OF RINGBACK | | | 1 | STATUS TIMER | | | | | | |
| 2 | 7 | 6 | FREE | | | | | | | | | | | | | 5 | BLOCK TIMER | | | | | | | |
| 3 | LHI | | | | DIG9 | | | DIG10 | | | | DIG11 | | | | | DIG12 | | | | DIG13 | | | |
| 4 | LHI | | | | DIG8 | | | DIG4 | | | | DIG5 | | | | | DIG6 | | | | DIG7 | | | |
| 5 | RESPONDING TRANSACTION ID (RID) OCTETS 1-3 | | | | | | | | | | | | | | | | | | | | | | | |
| 6 | 8 | CWC SFG NUMBER | | | | | | | | | | EXT1 | | | | | EXT2 | | | | EXT3 | | | |
| 7 | 15 | 14 | 13 | 12 | 11 | 10 | 9 | EXT4 | | | | EXT5 | | | | | EXT6 | | | | EXT7 | | | |
| 8 | RID (OCTET 4) | | | | | | | ORIGINATING TRANSACTION ID (TIME STAMP PORTION) | | | | | | | | | | | | | | | | |

LEGEND:

WORD 1
1 - STATUS TIME-OUT
2 - RINGBACK IN PROGRESS
3 - RINGBACK GIVEN
4 - RETRIEVAL OF DISTANT LINE STATUS IN PROGRESS

WORD 2
5 - BLOCK TIME-OUT
6 - BLOCK RELEASE IN PROGRESS
7 - BLOCK DEACTIVATED

WORDS 3,4
LHI - LINE HISTORY INDICATOR
DIGIT 1-10 - DIGITS 1 THROUGH 10 REPRESENT THE LAST CALL DN (ORIGINATING FROM OR TERMINATING TO THE AR CUSTOMER). THE LAST CALL DN IS STORED FOR THE PURPOSE OF RINGBACK

WORD 6
8 - CENTREX CUSTOMER

WORD 7
9 - USE 7 INDICATOR
10 - OUTGOING (CALLING DN) PRIVACY INDICTOR
11 - COT CALL WAITING INDICATOR (CWI)
12 - INITIAL STATUS CHECK
13 - REQUEST QUEUED AT FEO
14 - REQUEST FOR TERMINATING SCANNING (RTS) STATUS
15 - INITAIL REQUESTS FOR TERMINATING SCANNING QUERY

WORDS 6,7
EXTENSION 1-7 - EXTENSIONS 1 THROUGH 7 APPLY TO CENTREX CUSTOMERS ONLY. THE CONTENTS OF THESE WORDS REPRESENT THE LAST CALL EXTENSION (ORIGINATING FROM OR TERMINATING TO THE CENTREX CUSTOMER.)

**Figure 2. AR/AC Block for 1AE10**

| WORD | 23 | 22 | 21 | 20 | 19 | 18 | 17 | 16 | 15 | 14 | 13 | 12 | 11 | 10 | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | FREE | | | LEN CTLBITS | | | | CUSTOMER'S PACKED LEN | | | | | | | | | | | | | | | | |
| 1 | 4 | BATB INDEX | | | | | | | | | | | 3 | 2 | # OF RINGBACK | | | 1 | STATUS TIMER | | | | | |
| 2 | 7 | 6 | FREE | | | | | | | | | | | | | | | 5 | BLOCK TIMER | | | | | |
| 3 | LH IND | | | DIG9 | | | | DIG10 | | | | DIG1 | | | | | DIG2 | | | | DIG3 | | | |
| 4 | LH IND | | | DIG8 | | | | DIG4 | | | | DIG5 | | | | | DIG6 | | | | DIG7 | | | |
| 5 | 15 | 0 | 22 | | | | | | | | | | | | | 21 | 20 | | | | | | | |
| 6 | 8 | CWC SFG NUMBER | | | | | | | | | | EXT1 | | | | | EXT2 | | | | EXT3 | | | |
| 7 | 14 | 13 | | 12 | | 11 | FREE | | 10 | | 9 | EXT4 | | | | | EXT5 | | | | EXT6 | | | EXT7 |
| 8 | RID (OCTET 4) | | | | | | | ORIGINATING TRANSACTION ID (TIME STAMP PORTION) | | | | | | | | | | | | | | | | |
| 9 | RESPONDING TRANSACTION ID (RID) OCTETS 1-3 | | | | | | | | | | | | | | | | | | | | | | | |
| 10 | 16 | 17 | 18 | FREE | | | | | | | | | | | | 19 | | | | | | | | |
| 11 | AVAILABLE | | | | | | | | | | | | | | | | | | | | | | | |
| 12 | AVAILABLE | | | | | | | | | | | | | | | | | | | | | | | |
| 13 | AVAILABLE | | | | | | | | | | | | | | | | | | | | | | | |

LEGEND:

WORD 1
1 - STATUS TIME-OUT
2 - RINGBACK IN PROGRESS
3 - RINGBACK GIVEN
4 - RDLS IN PROGRESS

WORD 2
5 - BLOCK TIME-OUT
6 - BLOCK RELEASE IN PROGRESS
7 - BLOCK DEACTIVATED

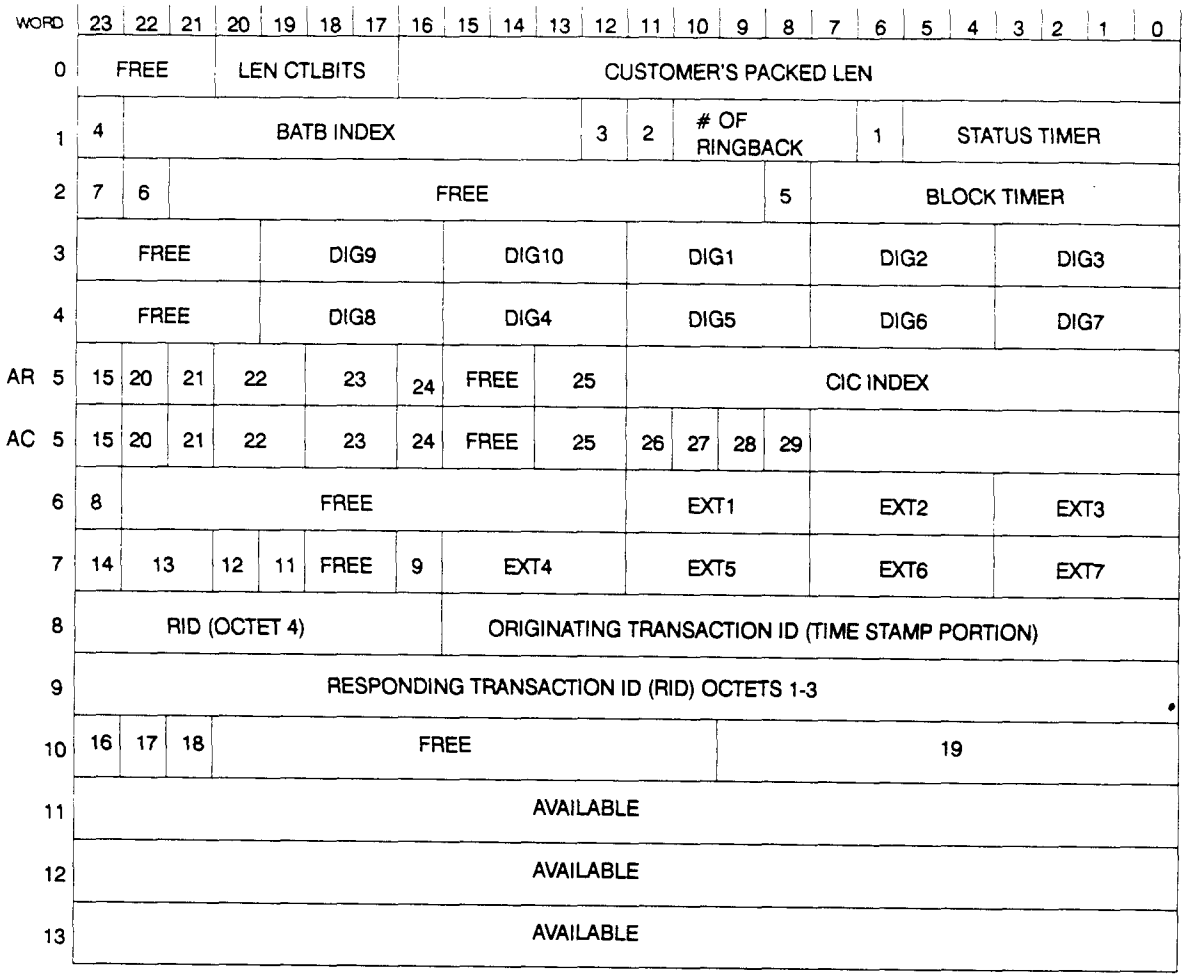
WORD 5
15 - COT CWI (INCOMING BLOCK ONLY)
20 - NAME PRIVACY DIALED (OUTGOING BLOCK ONLY)
21 - INCOMING NAME PRIVACY MAINTAINED (OUTGOING BLOCK ONLY)
22 - 10XXX (OUTGOING BLOCK ONLY)

WORD 6
8 - CTX CUSTOMER

WORD 7
9 - USE 7 INDICATOR
10 - OUTGOING (CALLING DN) PRIVACY INDICATOR
11 - INITIAL STATUS CHECK
12 - REQUEST QUEUED AT FEO
13 - REQUEST FOR TERMINATING SCANNING (RTS) STATE
14 - INITIAL REQUEST FOR TERMINATING SCANNING QUERY

WORD 10
16 - INTEROFFICE INDICATOR
17 - REACTIVATION INDICATOR
18 - MAXIMUM NUMBER OF CONCURRENT ACTIVATIONS REACHED
19 - MAXIMUM CONTINUOUS SERVICE TIMER

**Figure 3. AR/AC Block for 1AE11**




LEGEND:

WORD 1
1 - STATUS TIME-OUT
2 - RINGBACK IN PROGRESS
3 - RINGBACK GIVEN
4 - RDLS IN PROGRESS

WORD 2
5 - BLOCK TIME-OUT
6 - BLOCK RELEASE IN PROGRESS
7 - BLOCK DEACTIVATED

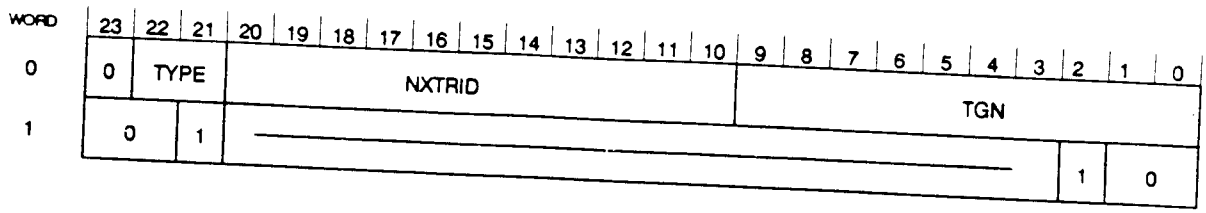
WORD 5
15 - AR/AC INDICATOR
20 - CTX EXTENSION INDICATOR (AR/AC)
21 - INCOMING NUMBER PRIVACY MAINTAINED INDICATOR (AR)
- INCOMING NUMBER PRIVACY INDICATOR (AC)
22 - INCOMING NAME PRIVACY MAINTAINED INDICATOR (AR)
- INCOMING NAME PRIVACY INDICATOR (AC)
23 - OUTGOING NAME PRIVACY (AR/AC)
24 - OUTGOING NUMBER PRIVACY INDICATOR (AR/AC)
25 - PREFIX INDICATOR (AR/AC)
26 - NONUNIQUENESS INDICATOR (AC)
27 - DN FORMAT OF EXTENSION INDICATOR (AC)
28 - CALL WAITING INDICATOR (AC)
29 - COT DONE INDICATOR (AC)

WORD 6
8 - CTX CUSTOMER

WORD 7
9 - USE 7 INDICATOR
11 - INITIAL STATUS CHECK
12 - REQUEST QUEUED AT FEO
13 - REQUEST FOR TERMINATING SCANNING (RTS) STATE
14 - INITIAL REQUEST FOR TERMINATING SCANNING QUERY

WORD 10
16 - INTEROFFICE INDICATOR
17 - REACTIVATION INDICATOR
18 - MAXIMUM NUMBER OF CONCURRENT ACTIVATIONS REACHED
19 - MAXIMUM CONTINUOUS SERVICE TIMER

**Figure 4. AR/AC Block for 1AE12**




LEGEND:

NXTRID - NEXT ROUTE INDEX: STOP WHEN ALL BITS ARE SET TO 1
TGN - TRUNK GROUP NUMBER
TYPE - TYPE OF ROUTE INDEX EXPANSION TABLE ENTRY" 01 FOR NO OUTPULSING FOR NONPREFIXED DIGITS

**Figure 5. Route Index Expansion Word**

| 23 | 22 | 21 | 20 | 19 | 18 | 17 | 16 | 15 | 14 | 13 | 12 | 11 | 10 | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 1 | 0 | 0 | RESTRICTION CODE | | | | | | | | SSI | | FEATURE SUBTYPE (NOTE 1) | | | | | FEATURE TYPE | | | | |

NOTE: 1. Four feature subtypes are assigned to AR (1AE9 through 1AE11 generic programs) as follows:

SUBTYPE 0 is for AC activation;
SUBTYPE 1 is for AR activation;
SUBTYPE 2 is for combined AR/AC activation;
SUBTYPE 3 is for combined AR/AC deactivation.

For the optional separated AR/AC feature or in 1AE12 and later generics, the following four feature subtypes are assigned:

SUBTYPE 0 is for AC activation;
SUBTYPE 1 is for AR activation;
SUBTYPE 28 is for AC deactivation;
SUBTYPE 29 is for AR deactivation.

LEGEND:

FEATURE SUBTYPE - ALLOWABLE VALUES ARE 0 THROUGH 31 (DECIMAL)
FEATURE TYPE - ALWAYS 31 FOR THIS PTW TYPE
SSI - FEATURE SUBTYPE INDEX 0 IS DEDICATED TO LASS (3 IS UNUSED)

**Figure 6. PACT Primary Translation Word Type C**

| 23 | 22 | 21 | 20 | 19 | 18 | 17 | 16 | 15 | 14 | 13 | 12 | 11 | 10 | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 1 | 0 | 1 | TREATMENT CODE | | | | | | | | SSI | | SUB-SUBTYPE (NOTE 1) | | | | | SUBTYPE | | | | |

NOTE:

1. Four feature sub-subtypes are assigned to AR (1AE9 through 1AE11 generic programs) as follows:

   SUBTYPE 0 is for AC activation;
   SUBTYPE 1 is for AR activation;
   SUBTYPE 2 is for combined AR/AC activation;
   SUBTYPE 3 is for combined AR/AC deactivation.

   For the optional separated AR/AC feature or in 1AE12 and later generics, the following four feature sub-subtypes are assigned:

   SUBTYPE 0 is for AC activation;
   SUBTYPE 1 is for AR activation;
   SUBTYPE 28 is for AC deactivation;
   SUBTYPE 29 is for AR deactivation.

LEGEND:

SSI - SUB-SUBTYPE INDEX IS 0 FOR LASS (3 IS UNUSED)
SUB-SUBTYPE - ALLOWABLE VALUES ARE 0 THROUGH 31 (DECIMAL)
SUBTYPE - ALWAYS 31 FOR TYPE 5E.

**Figure 7. Centrex Translator – Word Type 5E**

**Table A. Pseudo Route Indexes for Automatic Recall**

| PRI | Next RI | Description |
|---|---|---|
| 165 | STOP | Wrong AR/AC activation code was dialed for the LCDN. This PRI is not used for Separated AR/AC and is not available in 1AE12 and later generics. |
| 166 | STOP | "Party is Busy" after a ringback was answered, that is, after the second busy/idle status check. |
| 167 | STOP | Customer is denied access to the requested LASS feature. |
| 168 | STOP | Last call directory number is not available. |
| 179 | STOP | AR deactivations have been performed. This PRI is required for Separated AR/AC and in 1AE12 and later generics. |
| 180 | STOP | AC deactivations have been performed. This PRI is required for Separated AR/AC and in 1AE12 and later generics. |
| 189 | STOP | AC will be performed on the LICDN. |
| 190 | STOP | AR will be performed on the LOCDN. |
| 192 | STOP | AR/AC deactivations have been performed. This PRI is not used for Separated AR/AC and is not available in 1AE12 and later generics. |
| 195 | STOP | Single level AR/AC customer denied activation because of characteristics of the far-end line. |
| 206 | STOP | AC blocked to private DN. |

**Table B. Set Card LASTRB**

| Value | Time Between Busy/Idle Status Checks (Seconds) | |
|---|---|---|
| | Without LDTF Active | With LDTF Active |
| 1 | 45 | 30 |
| 2 * | 60 | 45 |
| 3 † | 75 | 60 |
| 4 | 90 | 75 |
| 5 | 105 | 90 |
| 6 | 120 | 105 |
| 7 | – | 120 |

* Without LDTF active, two is the recommended value.

† With LDTF active, three is the recommended value.

**Table C. Set Card LARBST**

| Value | Time Between Busy/Idle Status Checks and Reinitiate Scanning Timer Threshold (Minutes) |
|---|---|
| 1 | 3:00 |
| 2 | 3:15 |
| 3 | 3:30 |
| 4 | 3:45 |
| 5 | 4:00 |
| 6 | 4:15 |
| 7 | 4:30 |
| 8 | 4:45 |
| 9 * | 5:00 |
| 10 | 5:15 |
| 11 | 5:30 |
| 12 | 5:45 |
| 13 | 6:00 |
| 14 | 6:15 |
| 15 | 6:30 |
| 16 | 6:45 |
| 17 | 7:00 |
| 18 | 7:15 |
| 19 | 7:30 |
| 20 | 7:45 |
| 21 | 8:00 |
| 22 | 8:15 |
| 23 | 8:30 |
| 24 | 8:45 |
| 25 | 9:00 |
| 26 | 9:15 |
| 27 | 9:30 |
| 28 | 9:45 |
| 29 | 10:00 |
| 30 | 10:15 |
| 31 | 10:30 |
| 32 | 10:45 |
| 33 | 11:00 |
| 34 | 11:15 |
| 35 | 11:30 |
| 36 | 11:45 |
| 37 | 12:00 |

* Nine is the recommended value.

**Table D. Set Card LARTIM**

| Value | Time-Out Interval (Minutes) |
|---|---|
| 1 | 16:00 |
| 2 | 17:00 |
| 3 | 18:00 |
| 4 | 19:00 |
| 5 | 20:00 |
| 6 | 21:00 |
| 7 | 22:00 |
| 8 | 23:00 |
| 9 | 24:00 |
| 10 | 25:00 |
| 11 | 26:00 |
| 12 | 27:00 |
| 13 | 28:00 |
| 14 | 29:00 |
| 15 * | 30:00 |
| 16 | 31:00 |
| 17 | 32:00 |
| 18 | 33:00 |
| 19 | 34:00 |
| 20 | 35:00 |
| 21 | 36:00 |
| 22 | 37:00 |
| 23 | 38:00 |
| 24 | 39:00 |
| 25 | 40:00 |
| 26 | 41:00 |
| 27 | 42:00 |
| 28 | 43:00 |
| 29 | 44:00 |
| 30 | 45:00 |

* Fifteen is the recommended value.

**Table E. Set Card LARBNM**

| Value | Number of Ringbacks |
|---|---|
| 1 * | 1 |
| 2 | 2 |
| 3 | 3 |
| 4 | 4 |
| 5 | 5 |
| 6 | 6 |
| 7 | 7 |
| 8 | 8 |
| 9 | 9 |
| 10 | 10 |
| 11 | 11 |
| 12 | 12 |

* One is the recommended value.

**Table F. Set Card LARBBC**

| Value | Number of Cycles |
|---|---|
| 1 | 2 |
| 2 | 3 |
| 3 * | 4 |
| 4 | 5 |
| 5 | 6 |
| 6 | 7 |

* Three is the recommended value.

**Table G. Set Card LAMXAC**

| Value | AC Concurrent Activation Limit |
|---|---|
| 1 | 1 |
| 2 | 2 |
| 3 | 3 |
| 4 | 4 |
| 5 | 5 |
| 6 | 6 |
| 7 | 7 |
| 8 | 8 |
| 9 | 9 |
| 10 * | 10 |
| 11 | 11 |
| 12 | 12 |
| 13 | 13 |
| 14 | 14 |
| 15 | 15 |
| 16 | 16 |
| 17 | 17 |
| 18 | 18 |
| 19 | 19 |
| 20 | 20 |
| 21 | 21 |
| 22 | 22 |
| 23 | 23 |
| 24 | 24 |
| 25 | 25 |
| 26 | 26 |
| 27 | 27 |
| 28 | 28 |
| 29 | 29 |
| 30 | 30 |

* Ten is the recommended value.

**Table H. Set Card LAMXAR**

| Value | AR Concurrent Activation Limit |
|---|---|
| 1 | 1 |
| 2 | 2 |
| 3 | 3 |
| 4 | 4 |
| 5 | 5 |
| 6 | 6 |
| 7 | 7 |
| 8 | 8 |
| 9 | 9 |
| 10 * | 10 |
| 11 | 11 |
| 12 | 12 |
| 13 | 13 |
| 14 | 14 |
| 15 | 15 |
| 16 | 16 |
| 17 | 17 |
| 18 | 18 |
| 19 | 19 |
| 20 | 20 |
| 21 | 21 |
| 22 | 22 |
| 23 | 23 |
| 24 | 24 |
| 25 | 25 |
| 26 | 26 |
| 27 | 27 |
| 28 | 28 |
| 29 | 29 |
| 30 | 30 |

* Ten is the recommended value.

**Table I. Set Card LAMCST**

| Value | Maximum Continuous Service Timer (Hours) |
|---|---|
| 1 | 2:00 |
| 2 | 2:15 |
| 3 | 2:30 |
| 4 | 2:45 |
| 5 * | 3:00 |
| 6 | 3:15 |
| 7 | 3:30 |
| 8 | 3:45 |
| 9 | 4:00 |

* Five is the recommended value.

# FEEDBACK FORM

Document Title: 1A ESS™ Switch
Automatic Recall/Automatic Callback Local Area Signaling Services
Feature Document

Document Number: 231-390-239

Issue Number: 12

Issue Date: August 1996

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Comments: _____

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