Service Switching Point
Common Channel Signaling System 7
Feature Document
1A ESS™ Switch

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1. Introduction

Definition

1.01 The **SSP (Service Switching Point)** feature provides for the implementation of NS (Number Services) calls. The SSP feature provides the ability to recognize NS calls and distribute these calls to the appropriate NS application.

1.02 Figure 1 shows the possible connections to an SSP office. The NS application (800 Service), located at a SSP office, interfaces with telephone company data bases at an SCP (service control point) using CCS7 (Common Channel Signaling System 7) TCAP (Transaction Capability Application Part). Refer to Part 6 A(15) for a general description of CCS7. The NS application passes the called number and calling party identity, received from the SSP feature, to the SCP via an STP (signal transfer point). The SCP responds with detailed call handling instructions. The NS application then routes the call based on these instructions.

1.03 The 1A ESS Switch SSP feature uses Bell Communications Research Technical Reference TR-TSY-000024 (TR024, Issue 1, Revision 1) as the basis for requirements. Refer to paragraph 2.134 for a list of 1A ESS Switch SSP/NS exceptions to TR024.

1.04 The **BNI (Basic network Interconnect) SSP/800** feature allows the use of CCS7 ISDN-UP (integrated services digital network - user part) protocol for signaling between an EAEO (equal access end office) and the SSP, and the SSP and the IC/INC (inter-LATA carrier/international carrier). Refer to Part 6 A(26) for comprehensive BNI information. Refer to Part 6 A(16) for comprehensive ISDN-UP information.

1.05 The BNI SSP/800 feature is based on AT&T requirements for use of the SSP feature with CCS7 ISDN-UP SSD (Signaling System Specification Document, July 1988) and Bell Communications Research TR-TSY-000533 (TR533, Issue 2, July 1987) with 1A ESS Switch exceptions.

1.06 The 800 Number Exhaust Feature allows new toll-free Service Access Codes (SACs) in addition to the 800 SAC.

Reason For Reissue

1.07 This practice is reissued to support the 800 Number Exhaust Feature for the 1AE12 Generic Program.

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Background

1.12 Number Services is a group of services that requires the dialing of special numbers to provide inward call management functions. The 800 Service feature is an example of a NS with a toll-free SAC indicating that the call requires special treatment. Routing of the call is determined using the digits that follow the SAC. With divestiture, it becomes necessary to be able to route toll-free calls to specific ICs (inter-LATA carriers) or within the telephone company. Such routing varies depending upon the arrangements made between the toll-free customer and the carriers. These arrangements may include different routing based on the time-of-day, day-of-week, and/or location of the originating call.

1.13 A NS call is usually routed from an EO (end office) to a tandem office equipped as a SSP. The SSP feature passes the dialed number and calling party identity, if available, to the NS application. The NS application interfaces with the data base to retrieve subsequent call handling instructions necessary to complete the SSP function.

1.14 The SSP feature is designed to define a standard interface to any NS. The preprocessing functions that SSP performs for NS features include:

(a) Recognizing the call as a NS call and collecting the required digits (including possible prefix information).

(b) Performing any possible screening functions (for example, 10XXX (or optional 101XXXX with 1AE12) prefix dialed but invalid for the particular NS).

(c) Determining if a NM (network management) control is in effect on the call, and if so, processing the control.

(d) Supervising the call for calling party abandon or any call processing irregularities (prior to passing the control to the particular NS) and processing these accordingly.

(e) Providing data that may be needed by the NS to further process the call. This includes the dialed digits, call configuration data, ANI (automatic number identification) information, data related to CI (carrier interconnect) and so forth.

(f) Passing control to the designated NS.

1.15 The BNI SSP/800 feature provides CCS7 EA (equal access) signaling for NS calls. Previous to the BNI SSP/800 development, NS used CCS7 call processing (ISDN-UP) on intra-LATA applications only (for example, between an EAEO and the SSP). Activation of BNI SSP/800 removes this restriction. This allows CCS7 to be used possibly all the way from EO to IC Refer to Figure 1, sheet 1. Call processing with ISDN-UP signaling interworking with inband signaling is also provided. The BNI SSP/800 development also upgrades CCS7 intra-LATA signaling.

⇒ **NOTE:**
Inband signaling is any signaling protocol in which signaling information is conveyed on the same facility (trunk) as the transmission path. This includes MF (multifrequency) and DP (dial pulse) signaling. Exchange access inband signaling, such as EAMF (equal access multifrequency), uses MF signaling and supports EA arrangements.

1.16 The 800 Number Exhaust Feature provides additional (besides 800) Service Access Codes (SACs) for toll-free numbering services. The first two new toll-free SACs are 888 and 877. Other new toll-free SACs are forthcoming. Each new toll-free SAC functions virtually the same as the 800 SAC. The one exception is that 00Y codes are not supported for the new toll-free SACs.

1.17 Any reference in this document to "800 Number Service", "800 NS", "SSP/800", or "800 Service" pertains to the feature which now includes all toll-free numbers. Also, in general, any reference to a "800 Call" or "800-NXX-XXXX" means a "toll-free" call or number.

Availability

1.18 The SSP feature is an optional feature that is initially available in the 1AE10.01 generic program. An APS (Attached Processor System) with the AP<3>3 or later generic program is required.

1.19 The BNI SSP/800 feature is an optional feature that is initially available in the 1AE11.01 generic program.

1.20 The 800 Number Exhaust Feature, which provides additional toll-free SACs, is available with the 1AE12.05 Generic Program.

Feature Groups

1.21 The SSP feature requires feature package 9FSSP and feature group 9SCARI. For the AMA (automatic message accounting) function, either 9SAMAS or 9SOFNS may be chosen (Table A).

1.22 If CCS7 intra-LATA call processing is desired, feature group 9SISUP is also required (Table B). Refer to Part 6 A(16).

1.23 When CCS7 intra-LATA/international call processing is provided (that is, BNI SSP/800), feature group 9SBNI is required in addition to the preceding (Table B). Refer to Part 6 A(26). Refer to Part 6 A(18) for the feature groups that pertain to the 800 Service feature.

1.24 If the SSP office is configured as an AT (access tandem)/SSP and receives NS calls from EAEOs (equal access end offices) using EA signaling over 4-wire (HILO) trunks, the HL4W and HLAT features are also required. Refer to Part 6 A(23) and A(24).

1.25 If the SSP office receives NS calls over CAMA (centralized automatic message accounting) trunks, the office also requires the CAMA feature [Part 6 A(22)]. The feature groups required for 2-wire CAMA are CAMA and HLCA; the feature groups required for 4-wire CAMA are CAMA and HL4W.

Feature Assignment

1.26 The SSP function may be assigned to an EAEO, an AT office, or an EA tandem office. There is very little difference between the AT/SSP and EA tandem/SSP office. Essentially, the only difference is that an EA tandem/SSP does not handle incoming NS calls via EA signaling. However, both offices must be able to handle outgoing EA signaling to a carrier. Therefore, to simplify future references to AT/SSP and EA tandem/SSP, all references to a tandem SSP that handles incoming NS calls will be termed AT/SSP.

1.27 The BNI SSP/800 feature may be assigned to an EAEO/SSP or an AT/SSP office.

2. User Perspective

Customer

2.01 A telephone user places a NS call by dialing a 7- or 10-digit number that contains a NS code as the first three digits. (For 800 Service, only 10-digit numbers are acceptable.) This number may be preceded by a "0" prefix depending upon local dialing arrangements. Number Service calls dialed with a 10XXX prefix are blocked or completed based upon the NS application.

Customer Premises Equipment

2.02 A telephone user requires only a standard telephone set to access the SSP feature.

Telephone Company

2.03 The SSP feature identifies and collects or generates calling party identity, if available. The NS application uses this call data to process the NS call.

2.04 A NS call is determined by a translation of the first three digits (on 7-digit numbers) or three/six digits (on 10-digit numbers) received on a call (excluding prefixes). At the option of the telephone company, NS calls dialed with a 10XXX (or optional 101XXXX with 1AE12) are blocked or completed. For 800 Service, calls dialed with a 10XXX (or optional 101XXXX with 1AE12) prefix should be blocked.

2.05 An AT/SSP also recognizes NS calls from other COs (central offices) when an arbitrary 3-digit code is sent in place of a normal NS code (for example, XXX code in place of an 800 code). It is able to recognize NS calls from an EAEO in the form KP+0ZZ+XXX+ST by the particular XXX code.

2.06 The SSP function may be performed at either an EAEO or an AT office. Offices with the SSP feature recognize the following types of incoming trunk signaling: CCS7, EA, CAMA, and traditional. Refer to Table C.

2.07 The SSP capability is provided at an AT office such that no program or hardware changes are needed in the EOs that feed NS traffic to the AT office. Translation changes may be required in the EOs to set up the appropriate NS routing to the AT/SSP. If an EO serves as an SSP office, it must have the SSP feature and connect to a CCS7 TCAP network. The preceding allows all customers to access these services regardless of the type of switching system in which the call originated.

A. CCS7 Call Processing

General

2.08 The BNI SSP/800 feature provides the ability to pass call information through CCS7 messages. A BNI AT/SSP office recognizes a NS call by the appropriate pseudo carrier code when CCS7 inter-LATA signaling is used. Or, a NS call is identified by translating the first 3 or 6 digits of the called digit sequence NXX-NXX-XXXX or NXX-XXXX when CCS7 intra-LATA signaling is used. For both the EAEO/SSP and the AT/SSP, after front-end processing, the NS application (for example, 800) queries the TELCO data base at the SCP using TCAP signaling.

2.09 After the TCAP query, the call can be routed to the TELCO using CCS7 intra-LATA signaling or to an IC/INC using CCS7 inter-LATA/international signaling. The response to the query determines this.

2.10 The BNI SSP/800 feature passes call information through the CCS7 message. Error conditions and acknowledgement can be handled by sending CCS7 messages to the preceding office from the AT/SSP (refer to paragraph 2.134).

BNI SSP/800 Processing

2.11 The CCS7 ISDN-UP messages that interface with SSP/800 services are described in the following paragraphs.

Initial Address Message

2.12 The CCS7 initiates an interoffice call by sending an IAM (initial address message) for the selected outgoing circuit. An IAM is sent to the appropriate destination. (This corresponds to sending routing digits through the actual speech path in inband signaling for call initiation.) In addition to the routing digits, CCS7 IAMs carry additional data in its parameters.

2.13 An IAM contains six mandatory parameters and zero, one or more optional parameters. For intra-LATA signaling, the CgPN (calling party number) is the only optional parameter. With inter-LATA/international signaling for the SSP feature, the optional parameters may include charge number parameter, CgPN parameter, TNS (transit network selection) parameter, OLI (originating line information), presubscription parameter, and service code parameter.

2.14 The **charge number parameter** contains the billing number which is the ANI in EAMF. It is included in the IAM on a per IC/INC per call basis.

2.15 The charge number parameter may or may not be included in the incoming IAM. If the calling party number parameter and the OLI parameter are included in the IAM, but the charge number parameter is not, the presence of the OLI parameter indicates that the billing number and the CgPN are the same.

2.16 When the 10-digit charge number is not available (for example, multiparty), only the three digits of the NPA (numbering plan area) code are received. The AT/SSP attempts to derive an NXX served by the originating office based on the incoming TG (trunk group).

2.17 If the IC/INC subscribes to charge information, the charge number in the outgoing IAM should contain, when available, ten address digits of this ANI (automatic number identification) in the address information field of the parameter. If the ten address digits are not available, but the NPA digits (or possibly the derived NXX) are, then only a 3- or 6-digit charge number should be sent in the address information field. However, if the charge number is the same as the 10-digit CgPN which is sent to the IC/INC, and the II digits are present, the charge number parameter is omitted.

2.18 The **OLI parameter** contains the II digits (ANI information digits). The OLI parameter in the outgoing IAM is provided on a per IC/INC per call type basis. Whenever the charge information is to be included in the incoming IAM, the OLI is included.

2.19 If the OLI parameter is not provided, the AT/SSP attempts to derive the II digits. The EO can send the digit sequence XXX-NXX-XXXX or XXX-XXXX in the IAM to identify coin originated NS calls. The XXX is an unused 3-digit code that is interpreted as an originating coin line NS call. The AT/SSP recognizes the XXX as a NS call from a coin line and recreates the original dialed number. If the 3-digit code received in place of the NS code does not identify the NPA and the 10-digit calling party is not contained in the IAM, the TG default NPA value is used.

2.20 If the optional OLI parameter is provided to the IC/INC and the toll-free number has been translated to a POTS number by data base query, the binary equivalent of the integer 24 is used as the OLI parameter. If the SCP translation of the toll-free number has not occurred, the II digits remain the same as it was received or derived by the SSP.

2.21 The optional **CgPN parameter** contains the address digits of the station set originating the call. This parameter is present at the SSP if the CgPN is available at the switch sending the IAM. When intra-LATA signaling is used, this parameter should be included in the outgoing intra-LATA IAM if the CgPN is available to the SSP. If inter-LATA/international signaling is used, and the CgPN parameter is available to the SSP, the CgPN parameter should be included in the outgoing IAM on a per IXC (interexchange carrier) basis.

2.22 The 1A ESS Switch generates 10-digit CgPNs only. It does not generate a 3- or 6-digit CgPN. Therefore, the CgPN parameter is not always included in the outgoing IAM within the LATA. If, however, a non-1A ESS Switch provides a 3- or 6-digit CgPN to a 1A ESS Switch, the 3 or 6 digits are sent out in the outgoing IAM if required.

2.23 As described in TR533, the CgPN should be marked presentation restricted when applicable. This field and the nature of address field are set set by the LASS feature according to the existing LASS privacy indicator of the CgPN. They are passed by the AT/SSP.

2.24 The optional **TNS parameter** should be included in all IAMs when CCS7 international signaling is used for a call. For calls completed from the SSP to an IC/INC using CCS7 inter-LATA signaling, the TNS parameter is included only for calls routed via another AT. The carrier identification code of the parameter indicates which IC/INC should be used in completing the call.

2.25 For a toll-free call, the incoming TNS parameter received at the SSP office, contains the appropriate pseudo carrier code in the "carrier code identification" field. This indicates that the SSP function is required on the call. The real carrier code is returned by the SCP data base and is included in the outgoing IAM when applicable.

2.26 The optional Carrier Identification Parameter (CIP) may be included in the IAM. For SSP/800 calls where the originating EAEO performs the SSP function, the Carrier Identification Code (CIC) returned in the response message from the SCP is used as the CIP. If the IC specified by this CIC has direct trunk circuits from the EAEO and has subscribed to CIP receipt for that CIC value and selected outgoing route, then the originating EO includes the CIP in the outgoing IAM. If the CIP is not subscribed to by the IC, it is not included in the IAM. The CIP feature requires Fast Feature Set Card FF121.

2.27 For calls routed to an Access Tandem, the EAEO/SSP always includes the CIP

in the IAM regardless of the IC's subscription. As stated above, the CIC returned from the SCP is used as the CIP.

2.28 Other optional parameters included in the IAM are not passed to the IXC by 1A ESS Switch AT/SSP offices.

2.29 The mandatory **CdPN (called party number) parameter** contains the routing information and the type of call. For toll-free calls, the address information field of the parameter contains the called number (for example, 800-NXX-XXXX) in the incoming IAM. For the outgoing IAM, the return CdPN from the TCAP query replaces the original toll-free number.

2.30 Number service calls are identified by a 3/6-digit translation of the called number. Even if TNS indicated that this is a NS call, the called number must still translate to a NS call.

2.31 The mandatory "bearer capability (user service information) parameter" indicates the type of transmission medium requested for the call connection. If the "information transfer capability" field of the parameter indicates other than a request for "speech" or "3.1 Khz" capability for a toll-free call, the call should be rejected. A REL (release message) with cause value "Normal - unspecified" is returned.

Exit Message

2.32 The EXM (exit message) is returned by the AT/SSP to the EAEO immediately after the TCAP query is sent to the SCP. The EXM normally carries the TGN (trunk group number) used by the AT/SSP to reach the IXC. However, for toll-free calls, the EXM does not contains the TGN parameter. This indicates that a data base query is being performed before final routing occurs.

Release Message

2.33 The REL contains an appropriate cause indicator parameter when it is sent to the preceding switch. The cause indicators used by SSP/800 are:

- Normal - unspecified (0011111)
- Normal release
- Temporary failure (0101001)
- No circuit available (0100010).

Address Complete Message

2.34 The ACM (address complete message) contains the **backward call indicator parameter**. The SSP will not send the ACM back to the preceding before the data base query. The existing procedure for sending the ACM back is canceled by the SSP function. After the data base query, the SSP assures that the ACM returns on the incoming trunk after it is received at the outgoing trunk. For CCS7 and EAMF interworking, the AT/SSP also returns the ACM on the incoming trunk before the first EAMF wink is received from the IXC.

Answer Message

2.35 The ANM (answer message) is received at an EAEO/SSP or AT/SSP to indicate that the call is answered. The message may contain the backward call indicator parameter. The SSP feature assures that the ANM is handled correctly.

Intra-LATA CCS7 Signaling (Non-EAEO) to AT/SSP

2.36 Number Services calls can be signaled to the AT/SSP using intra-LATA CCS7 signaling. The EO sends the called digit sequence NXX-NXX-XXXX or NXX-XXXX in the IAM. The AT is able to recognize a NS call by translating the first three or six digits. The calling party parameter may also be included in the IAM sent to the AT/SSP. If 10-digit calling party is received, it is used as the calling party DN by the SSP. For EOs serving multiple NPAs and 10-digit calling party not contained in the IAM, a used 3-digit code may be substituted in place of the NS code in the received called digit sequence to indicate the NPA. If the 10-digit calling party is not contained in the IAM, the AT/SSP determines the NXX served by the originating office based on the incoming TG. One NXX per TG should be assigned even though the office may serve several NXX codes. This NXX is recorded in the AMA record that is made on all NS calls by the NS application.

2.37 Since ANI information digits (II) are not sent in the IAM, the EO can send the digit sequence XXX-NXX-XXXX or XXX-XXXX in the IAM to identify coin originated NS calls. The XXX is an unused 3-digit code that is interpreted as an originating coin line NS call. The AT/SSP recognizes the XXX as a NS call from a coin line and recreates the original dialed number. If the 3-digit code received in

place of the NS code does not identify the NPA and the 10-digit calling party is not contained in the IAM, the TG default NPA value is used.

2.38 The same 3-digit XXX code can be used to identify both NPA and coin. However, each NS may require unique XXX codes.

2.39 The ACM, ANS, and REL are handled as stated previously.

B. Equal Access End Office/SSP (Using Inband Signaling)

2.40 The EAEO recognizes a NS call by translating the first three or six digits. If the originating party can be identified, the ANI calling party identity consists of the NPA code plus the billing number. If the originating party cannot be identified (for example, multiparty), only the 3-digit NPA code is used for calling party identity. Two ANI information digits are generated based on the originating line class of service.

C. Access Tandem/SSP (Using Inband Signaling)

2.41 When an EO or CAMA office recognizes that a NS call has been dialed, it seizes a trunk to the AT/SSP. The type of trunk and the digits outpulsed depend upon the type of EO and, possibly, the class of service of the originating line.

2.42 If an AT/SSP also has collocated stations, the AT office acts like an EAEO for those calls.

Equal Access End Office to Access Tandem/SSP

2.43 An EAEO may use EA signaling when routing NS calls to an AT/SSP. The EAEO outpulses the sequence KP + 0ZZ + XXX (or optional XXXX with 1AE12) + ST with a special XXX (or optional XXXX with 1AE12) code to indicate that the call is a NS call.

2.44 Upon receipt of the above digits, the AT/SSP delays 200 ms before sending the standard wink. The EAEO then outpulses the EA ANI sequence KP + II + 3/10 digits + ST, where II represents the two ANI information digits. The calling number usually consists of ten digits. If the calling party cannot be identified (for example, multiparty), only the three digits of the NPA code are sent. In this case, the AT/SSP attempts to determine the NXX served by the originating office based on the incoming TG. One NXX per TG should be provided for this purpose even though the originating office may serve several NXX codes. This NXX is recorded in the NS AMA record.

2.45 After sending the ANI sequence, or if overlap outpulsing is used after the user has completed dialing, the EAEO transmits the called number as
KP + (0) + NXX + NXX + XXXX + ST or
KP + (0) + NXX + XXXX + ST (0 + is optional).
Upon receipt of this sequence, the AT/SSP delays 200 ms after receiving the address sequence before sending the acknowledgement wink.

2.46 A 3/6-digit translation on the called number must identify a NS call. Even if the XXX code indicated a NS call, the called number must still translate to a NS call.

Intermediate Access Tandem to Access Tandem/SSP

2.47 A NS call, received from an EAEO may route to the AT/SSP via an intermediate AT. The intermediate AT passes all incoming digits via EA signaling to the AT/SSP. The AT/SSP receives the same digit sequence as if an EAEO had signaled to the AT/SSP.

2.48 If a NS call is received from an intermediate AT, the wink after the first digit sequence (KP + 0ZZ + XXX [or optional XXXX with 1AE12] + ST) is delayed 700 ms. This delay is required to ensure that the intermediate AT can pass the wink back to the EAEO. The wink delay after receiving the called number sequence
(KP + [0] + NXX + NXX + XXXX + ST or
KP + [0] + NXX + XXXX + ST) remains at 200 ms for indirect trunks.

CAMA ANI Signaling to Access Tandem/SSP

2.49 A NS call from an EO without EA signaling can be received using standard CAMA type signaling. The EO outpulses the called number sequence as
KP + NXX + NXX + XXXX + ST or
KP + NXX + XXXX + ST to the AT/SSP. The AT/SSP is able to recognize NS calls by translating the first three or six digits. For EOs serving multiple NPAs, an unused 3-digit code (for example, 009), indicating the originating NPA code, may be substituted for the 3-digit NS code (for example, 800) in the received called digit sequence.

2.50 Some NSs may need to identify coin originations. There is no ANI information digit to identify coin. The EO outpulses the called number sequence as KP + XXX + NXX + XXXX + ST or KP + XXX + XXXX + ST. The XXX, in this case, is an unused 3-digit code that is interpreted as a NS call originating from a coin line. The AT/SSP recognizes the XXX as such and is able to recreate the original dialed number (for example, replace XXX with 800). The same 3-digit XXX code can be used to identify both NPA and coin.

2.51 After receipt of the called digits, the AT/SSP returns a steady off-hook signal to the EO as an ANI request. The EO then sends the standard CAMA ANI sequence KP + I + 0/7 digits + ST. The I indicates a single ANI information digit. The calling number usually consists of seven digits.

CAMA ONI Signaling to Access Tandem/SSP

2.52 When the calling party cannot be identified (for example, multiparty line or ANI failure), no ANI digits are received. The call may then be processed as a CAMA ONI (operator number identification) call. The called number sequence is the same as in the ANI case (paragraphs 2.49 and 2.50).

2.53 If the office is not able to provide ANI (for example, from coin lines), the EO outpulses the called digit sequence as KP + XXX + NXX + XXXX + ST or KP + XXX + XXXX + ST. The XXX is an unused 3-digit code that is interpreted as a NS call originating from a coin line. The AT/SSP recognizes the XXX as such and is able to recreate the original dialed number (for example, replace XXX with 800). For these calls, TG default NPA and NXX values are used to identify the calling party.

2.54 For EOs serving multiple NPAs, an unused 3-digit code (for example, 009) (indicating the originating NPA) may be substituted for the 3-digit NS code (for example, 800) in the received called digit sequence. The same 3-digit XXX code can be used to identify NPA and coin.

⇒ **NOTE:**
This substitution can only be performed for the 800 SAC. It does not apply to other toll-free SACs.

2.55 If a NS call comes over an ONI TG, ONI may be optionally provided based on the particular NS code dialed. Also, ONI is optionally provided on NS calls if the AT/SSP receives a multiparty or ANI failure information digit on an ANI TG. The TG default NPA (if not received in the signaling digit sequence) and NXX values are used to identify the originating party for calls that do not require ONI.

Traditional Signaling to Access Tandem/SSP

2.56 In offices where the AT is not providing a CAMA function, NS calls use traditional signaling. The EO outpulses the called digit sequence as KP + NXX + NXX + XXXX + ST or KP + NXX + XXXX + ST. The AT/SSP is able to recognize a NS call by translating the first three or six digits. For EOs serving multiple NPAs, an unused 3-digit code may be substituted to indicate the originating NPA.

2.57 If the NS call originated from a coin line, the EO outpulses the digit sequence KP + XXX + NXX + XXXX + ST or KP + XXX + XXXX + ST. The XXX is an unused 3-digit code that is interpreted as an originating coin line NS call. The AT/SSP recognizes the XXX as a NS call from a coin line and recreates the original dialed number. For these calls, TG default NPA (if not received in the signaling digit sequence) and NXX values are used to identify the calling party. The same 3-digit XXX code can be used to identify both NPA and coin.

Tandem to Access Tandem/SSP

2.58 Calls (NS) from SXS (step-by-step) offices may route to the AT/SSP via a CAMA tandem office. Calls from other offices may route to the AT/SSP via a local tandem office. In these cases, the tandem office does not forward ANI information to the AT/SSP. The tandem office outpulses the called digit sequence as KP + NXX + NXX + XXXX + ST or KP + NXX + XXXX + ST. The AT/SSP recognizes a NS call by translating the first three or six digits. For tandem offices serving multiple NPAs, an unused 3-digit code (for example, 009) may be substituted for the NS code (for example, 800) in the received called digit sequence to indicate the originating NPA.

2.59 If the NS call originated from a coin line, the tandem office may outpulse the digit sequence KP + XXX + NXX + XXXX + ST or KP + XXX + XXXX + ST. The XXX is an unused 3-

digit code that is interpreted as an originating coin line NS call. The AT/SSP recognizes the XXX as a NS call from a coin line and recreates the original dialed number.

2.60 The same 3-digit XXX code can be used to identify both NPA and coin. The NXX of the originating office may not be identifiable on NS calls from these offices. For these calls, TG default NPA (if not received in the signaling digit sequence) and NXX (if possible) values are used to identify the calling party.

TSPS to Toll Office to AT/SSP

2.61 If separate TELCO operator facilities are not provided, NS calls originating from coin lines in some offices may be routed via a TSPS (Traffic Service Position System) office to its associated toll office. These calls are then routed from the toll office to the AT/SSP. As in the tandem case, ANI is not available on such calls. Therefore, the AT/SSP recognizes NS calls in the same manner as in the tandem office (paragraph 2.58).

2.62 In some cases all NS calls routed from the toll office are from coin lines. Therefore, the AT/SSP should be able to recognize that a NS call is from a coin line based on the incoming TG. To identify coin line originated NS calls, the incoming TG must be dedicated to coin calls.

D. Local Access and Transport Area Identity

2.63 If an AT/SSP serves more than one LATA, it is able to identify the originating LATA based upon the incoming TG. If a tandem office serves more than one LATA, it has to route NS calls over more than one TG in order to indicate the originating LATA. For a SSP that also has originating calls, an originating LATA is needed. The LATA identifier is included in the AMA record.

E. Automatic Number Identification

EAEO/SSP or AT/SSP With Collocated Stations

2.64 If the originating party can be identified, the ANI calling number consists of the NPA code and the billing number. If the originating party cannot be identified (for example, multiparty) only the 3-digit NPA code is used. The 2-digit ANI information digits are based on the class of service of the originating line.

CAMA to AT/SSP

2.65 If a single digit ANI with a 7-digit calling number is received, the AT/SSP is able to identify the originating NPA based upon either the incoming TG or the 3-digit XXX code received in the called number. The AT/SSP then converts the 7-digit calling number to a 10-digit calling number.

2.66 On calls for which the 7-digit calling number has been collected, the single digit ANI information digits 1/4, 2/5, 6, and 7 are converted to 2-digit ANI information digits. The 2-digit ANI plus a 10-digit calling number are passed to the NS application to be used in the SCP data base query. These are also used in the signaling sequence when routing an IC call if that routing is returned in the SCP response message with an 800 number. See Table D.

2.67 If an I digit of 2 is received on a dedicated noncoin CAMA ANI TG and ONI is inhibited, the I digit of 2 is converted to II digits of 02.

2.68 The following three paragraphs apply for I digits of 0/3 or 2/5 (when the CAMA ANI TG is dedicated coin or mixed noncoin/coin).

2.69 The ANI information pair "00" is used if a 7-digit calling number is received and the 3-digit code received in the called number signaling sequence identified a POTS origination, or the incoming CAMA TG is dedicated to POTS. The ANI information pair "00" indicates POTS origination of SSP calls.

2.70 The ANI information pair "27" is used if a 7-digit calling number is received and the 3-digit code received in the called number signaling sequence identified a coin origination, or the incoming CAMA TG is dedicated to coin. The ANI information pair "27" indicates coin originations of SSP calls.

2.71 The ANI information pair "23" is used if coin and noncoin calls are routed on the same CAMA TG with a 7-digit calling number. The ANI information pair "23" indicates that the call originated in an office that does not distinguish between coin and noncoin for ANI purposes.

2.72 Table E correlates the ANI received at the AT to the ANI transmitted to the carrier. This table excludes the case where the 3-digit code received in the called number indicates a coin origination. In this case, the

ANI transmitted to the carrier is the same as in the dedicated coin TG case.

2.73 If the expected number of ANI digits is not received, the call is blocked.

CAMA ONI and Non-CAMA

2.74 In a similar manner, if no ANI is received, the originating NPA is identified by the incoming TG or the 3-digit code received in the called number. The ANI information pair "23" is used to indicate that the call originated from an office where it is not possible to identify a coin from a noncoin line.

2.75 If it can be determined by the 3-digit code received in the called number or by the TG that a call originated from a coin line, the ANI information digit pair "27" is used. Similarly, if it can be determined by the 3-digit code received in the called number or by the TG that a call originated from a noncoin line, the ANI information digit pair "00" is used.

F. NXX Identity

2.76 If the calling party number is not available, an office code (NXX) of the originating office is generated based on the incoming TG, if possible. This office code is included in the AMA record.

Feature Description

A. General

2.77 The SSP feature essentially acts as a preprocessor for NS calls; call processing control is then passed to the particular NS involved. However, there may be further interaction/interfaces between the NS feature and some of the SSP subsystems. The NS feature still has control of the call at these points. The SSP subsystem involved in the interface acts as a subroutine which may provide a common function to multiple NS applications (Figure 2).

2.78 The basic functions for SSP are divided into the following subsystems:

- CP (call processing)
- DB (data base)
- AMA (automatic message accounting)
- NM (network management)
- MS (measurements).

Refer to Part 5 for information concerning AMA and MS.

2.79 The SSP CP subsystem with portions of the DB, NM, and MS subsystems are involved in the actual preprocessing of a NS call by SSP. The SSP AMA subsystem with portions of the other SSP subsystems interfaces with NS after NS assumes control of the call.

B. Call Processing Subsystem

General

2.80 The SSP feature is designed so that it can be implemented at a tandem office and require no generic changes in the EOs feeding NS calls to the SSP. The CP subsystem can be characterized as a front end preprocessor of NS calls which passes the information received to the proper NS.

2.81 The SSP CP subsystem provides the switching and signaling functions required to perform digit collection and analysis for NS calls. The CP subsystem interfaces directly with the SSP DB (translations), NM, and MS subsystems during its preprocessing of a NS call. Basic SSP CP can be divided into the following main categories:

- An incoming call using CCS7 signaling
- A station originated NS call at a SSP
- An incoming NS call to a SSP using traditional signaling (that is, LAMA [local automatic message accounting] or LCCIS [local common channel interoffice signaling 6])
- An incoming NS call to a SSP using CAMA signaling
- An incoming NS call to a SSP using EA signaling.

2.82 In the case where a station originates a NS call at a SSP, the originating station may be other than POTS. This applies to outside (dial 9) NS calls from centrex lines, and NS calls initiated from CO trunks (sometimes referred to as TWLT [trunks with line treatment]). These are essentially treated as station originations in the office.

2.83 Once SSP CP passes control of the call to the appropriate NS, SSP CP has no further interaction with the call. This requires that SSP CP passes to the NS not only the data it needs to perform the specific NS function, but all information concerning the general call processing state of the call. For example, SSP CP must maintain the integrity of path memory information and the state of any circuits involved in the call.

2.84 In the case of an incoming NS call to an AT/SSP using inband EA signaling, the duration of receiver holding time for the period between the reception of the II+ANI portion and the called number portion must be extended. Prior to SSP, an AT was not required to collect or analyze the second stage of signaling on an indirect CI call. This requirement, compounded by the fact that overlap outpulsing can be used at the EAEO, can extend the receiver holding time greatly. Refer to Part 6 B(5) for engineering requirements.

2.85 If an incoming SSP call uses CAMA signaling, the CAMA billing function must be bypassed and replaced with NS AMA recording. There is also an indicator that is returned from the 3/6-digit translation that tells SSP CP whether or not ANI information is required for the particular NS received. This indicator is used to determine if operator intervention (a CAMA-ONI interface) is required for a NS call received on a CAMA TG when the ANI digits were not received. Refer to Part 6 A(22) for further details regarding CAMA.

C. Data Base Subsystem

2.86 The DB subsystem provides all translation structures, RC (recent change) procedures, and verification procedures required for SSP. Refer to Part 4 for specific RC and verify messages. These allow craft personnel to build, update, and examine the SSP translation data via RC and verify input messages. Translation procedures retrieve data from new and modified data structures for the SSP feature.

2.87 The following are the functions supplied by the DB subsystem on a SSP NS call:

- It provides the data required by the SSP CP subsystem during digit collection and analysis to recognize the call as a NS call, identify the particular NS, and specify characteristics that CP may require to process the call.
- It provides the data and logic to perform screening functions.
- It provides data required by the NS to format the query to the SCP DB.
- It provides a mechanism to provide final routing.
- It provides a mechanism to translate the call code received in the SCP response to a SCP DB query.
- It provides a mechanism to translate the standard announcement (received in a SCP response) to a RI (route index) which leads to the desired announcement.

Routing a SSP/NS Call

2.88 The major function of the SSP DB when processing a NS call is to provide routing. In an EAEO, this was normally done via a single 3-digit translation which included such inputs as whether 10XXX (or optional 101XXXX with 1AE12) was dialed and the originating station identity (LEN/REN [line/remote equipment number]). The LEN/REN could be used to derive the station's PIC (primary inter-LATA carrier), if required, and CI (carrier interconnect) dialing restrictions and so forth. The routing information was returned to CP which completed the call. The AT function required a 3-digit translation to determine that the call was an indirect CI call (for example, 0ZZ=CTYP 30). The AT would then collect the 3 (or 4 with 1AE12) digit carrier code and call a CI routing translation to determine the route.

2.89 In contrast to the above, SSP NS call routing consists of two translation routing calls: one by CP to obtain data associated with the dialed/received digits, and one by NS to derive the final routing data. This is because, as in the case of 800 Service, the actual destination (whether the call is to be routed via an IC or by the TELCO) is not known at the time of the initial 3/6-digit translation. In these cases, the SSP DB subsystem is the first to recognize the call as a SSP NS call based on the NS call type.

2.90 When the DB first recognizes the call as a SSP NS call, it knows not to attempt to derive final routing at that time. The only error checking that the SSP DB logic performs at this point is to screen for invalid prefixes, if

applicable. Assuming that no prefixing error occurred, SSP DB returns the following items from the 3/6-digit translation of a NS code to SSP CP:

(a) An indicator that the call is a NS call (a new call type)

(b) An indicator of which NS (a NS ID)

(c) An indicator if the code represents a NS call from a coin line (optional)

(d) A NPA represented by the input code (optional)

(e) A LATA index associated with the input code (optional)

(f) An indicator if the operator is brought in (ONI) for an incoming NS call on a CAMA trunk when the ANI is not otherwise received

(g) An indicator of the number of digits (7 or 10)

(h) Any CI-related data associated with the input digits that may be used to route the call to an IC using route list routing

(i) An indicator of possible POTS NM CG (call gap) control on the call.

2.91 If the SSP DB does recognize a prefixing error, it sets up a RI to route to the desired announcement for the discovered error and returns an error call type. Since this determination is based on call type, the completion of the call to the desired tone/announcement is a function of the existing call processing logic.

2.92 In the case of an EA NS call, the call is recognized as a NS call by the XXX (or XXXX with 1AE12) received following the 0ZZ (the XXX[X] is dedicated to indicate NS - but not which NS). Then, SSP CP collects the second stage of digits from the EAEO rather than attempting to route based on the 0ZZXXX[X] received (as would be the case in a standard CI call). Then SSP CP calls the DB to perform a 3/6-digit translation on the called number portion of the received sequence (disregarding a zero prefix, if received). If the DB does not recognize the call as a NS call, SSP CP considers this as an error when it regains control from DB and processes the call accordingly. The SSP processes errors by printing an error message (indicating that some translation mismatch exists between the EAEO and the SSP/AT) and routing the call to a tone/announcement.

2.93 For CCS7 inter-LATA NS calls, the call is recognized as a NS call by the TNS parameter. Then SSP CP calls the DB to perform 3/6-digit translations as in the previous paragraph and processes the call the same as EA NS calls.

2.94 If the DB recognizes the call as a NS call, it returns the 3/6-digit translation information specified in paragraph 2.87. If CP receives a different number of digits than is specified by the DB, it is considered an error. The SSP processes the error by printing an error message (indicating that some translation mismatch exists between the EAEO and the SSP/AT) and routing the call to a tone/announcement.

2.95 If no error is detected (or abandon, and so forth), the final routing of the call is performed by the SSP DB at a later point under control of the NS application. Assuming the SCP DB query performed by NS is successful, the NS uses the data returned in the query to determine whether the call is to be routed via the TELCO or an IC. The NS then calls the appropriate SSP DB routine to provide final routing data. Refer to Part 6 A(18).

2.96 The 1A ESS Switch translations for all ICs that receive calls for a particular NS must have a route list entry defined for that NS. Number Service calls are routed using the route list even if non-NS calls for the IC are routed via CIW/SCIW (call identification word/supplementary call identification word) routing.

D. Network Management

2.97 The SCP sends an ACG (automatic call gap) component when the NS SCP application:

- Is overloaded.
- Detects mass calling to a NS destination.
- Detects excessive calling to a 6- or 10-digit vacant code or from a nonpurchased NPA.
- Receives a manual control initiation from a SMS (System Management System).

2.98 The ACG component is included with the response message received by the NS application for each call associated with the problem. It includes the following:

(a) The 6- or 10-digit NS code to be controlled. In response to the ACG, completion of future NS calls to that code are restricted. (The current call is completed in the normal manner.)

(b) The control gap interval level (indicating the severity of the cutback).

(c) The control duration level (indicating the duration of the cutback).

(d) The reason for call gapping.

If no ACG message is returned with a response message, the ACG for that dialed number, if any, is removed.

2.99 The SSP provides a 30-second discrete count:

(a) **SCP Initiated Control**: This indicates blocked calls due to SCP initiated controls.

A SSP sends this data to the EADAS (Engineering and Administration Data Acquisition System)/NM system that has interfaces to the particular SSP.

2.100 Counts are provided for each NM control block type and for each NM control list overflow. Refer to Part 6 A(14) for traffic information.

2.101 Audit 32 has been modified to include maintenance of the ACG table. The ACG table contains control slots for each of the different types of ACG controls that may be applied to NS calls. Audit 32 calls a new NM ACG audit to maintain the sanity of the ACG table. If a problem is found, the control slot with the problem is zeroed. A SA03 audit error message is printed to specify the problem and indicate the address where the problem was identified.

2.102 The NM ACG TTY status message enables the craft to print a list of the active ACG controls within the office. This ACG status message is in response to the input request message "ACG-STATUS-.". Output message NM37 lists all active 10- and 6-digit ACG controls. This output message prints on both the requesting TTY channel and the local maintenance channel.

POTS Controls

2.103 All manual NM call gapping controls that are available at the SSP for POTS numbers are also applicable to the NS numbers. Refer to Part 6 A(25) for NM information.

Special Planning Considerations

2.104 To permit testing of this feature with the telephone company signaling network, and to avoid problems when introducing this feature, toll-free numbers may be added on a gradual basis to the SCP DB. For example: Some 800 calls with certain NXX codes can be routed to the SCP DB. Other 800-NXX codes would continue to be routed to the inter-LATA carrier (for example, AT&T OSO [originating screening office]) as determined by the 6-digit translation of the 800-NXX number. Consequently, SSP offices are able to perform a 6-digit translation on 800 numbers received from collocated stations or from end offices to determine the routing of the 800 call.

2.105 If a switch is performing the OSO function for toll-free calls at the time the SSP feature is introduced, it is capable of performing either function based on the result of the 800-NXX translation described above. For OSO calls, loop-around trunks can be used to provide this function.

2.106 As future NS applications are defined, transition requirements will also be supplied for that particular NS application.

Activation (Signaling)

A. Customer Loop

2.107 The DTMF (dual tone multifrequency) signaling device on stations should not be disabled during a NS call. This means that coins should not be returned until the end of the call on calls from coin-first coin stations and that the polarity to the station should not be reversed.

B. CCS7 Signaling

Between End Offices and AT/SSPs or Tandem/SSPs

2.108 Incoming NS calls to the SSP can use CCS7 signaling. In order for the SSP office to receive intra-LATA NS calls over CCS7 TGs, the ISUP (Integrated Services User Part) feature must be operative in the EO and the

SSP office. The BNI SSP/800 feature is required to process inter-LATA/international signaling; it includes the ISUP feature. Refer to Part 6 A(16) or A(26).

Between SSP and STP

2.109 The NS applications communicate with SCPs using CCS7 TCAP protocol. The CCS7 SCCP function should be implemented in the switching system before or concurrent with SSP and the NS application.

From SSP to IC/INC

2.110 When The BNI SSP/800 feature is used to route a call to an IC/INC, the SSP marks the circuit as busy and formulates and sends the IAM. For an 800 Number Service call, the SSP should not include the presubscription and service code parameters in the outgoing IAM to the IC/INC. If the CgPN parameter has been received by the SSP, or if the CgPN is available for a call originating from the SSP when serving as an end office, then this parameter should be included in the IAM based on the selected IC/INC.

2.111 The optional TNS parameter should be included in an outgoing IAM if CCS7 international signaling is used for the call or if CCS7 inter-LATA signaling is used for the call via an AT.

2.112 The OLI parameter is included in the outgoing IAM on a per IC/INC basis as indicated by AT/SSP translation data.

2.113 If a charge number is available, it may or may not be included in the outgoing IAM based on the selected IC/INC and AT/SSP translation data.

C. Inband DC Signaling

Between End Offices and AT/SSPs or Tandem/SSPs

2.114 On calls using EA signaling, the AT/SSP returns a standard wink to the office upon seizure of the trunk. Upon receipt of the first stage of digits (KP+0ZZ+XXX[X]+ST) the AT/SSP delays 200 ms before sending another standard wink. Upon receipt of the second stage of digits (KP+II+3/10D+ST,KP+7/10D+ST), the AT/SSP delays 200 ms before returning a standard wink as an acknowledgment signal.

2.115 On calls from offices over CAMA TGs, standard CAMA signaling is used. That is, a steady off-hook ANI request signal is returned upon receipt of the called number.

2.116 On calls from offices that do not use EA signaling over non-CAMA TGs, the AT/SSP does not send a steady off-hook signal upon receipt of the called number.

Between Intermediate AT and AT/SSPs

2.117 When EA signaling is used on calls through an intermediate AT to an AT/SSP, the AT/SSP returns a standard wink to the intermediate AT upon seizure of the trunk. Upon receipt of the first stage of digits (KP+0ZZ+XXX[X]+ST), the AT/SSP delays 700 ms before sending another standard wink. Upon receipt of the second stage of digits (KP+II+3/10D+ST,KP+7/10D+ST), the AT/SSP delays 200 ms before returning a standard wink as an acknowledgment signal.

Between SSP and Inter-LATA/International Carriers

2.118 Number Service applications are able to interface with IC/INCs (inter-LATA/international carriers) using any of the following methods of signaling.

2.119 The following applies when traditional signaling is used:

- The trunk to the carrier is seized by changing the state of the trunk from on- to off-hook.
- The carrier responds with a standard wink signal.
- The NS application outpulses the called number.
- The carrier changes the state of the trunk from on- to off-hook when the called party answers.

2.120 The following applies when EA signaling is used:

- A trunk to the carrier is seized by changing the state of the trunk from on- to off-hook.
- The carrier responds with a standard wink signal.
- The NS application outpulses the calling number (if required) and the called number.
- The carrier responds with an acknowledgment wink, followed by an on- to off-hook state when the called party

answers.

2.121 The following applies when INC signaling is used:

- A trunk to the carrier is seized by changing state of the trunk from on- to off-hook.
- The carrier responds with a standard wink signal.
- The NS application sends the first stage of outpulsing. The first stage of outpulsing contains the toll center code (1NX), the carrier code (XXX[X]), and either the CC (country code) or the World Zone 1 region (01R).
- A second wink is returned by the carrier; it may be of nonstandard duration.
- When the wink is received, the NS application sends the second stage of outpulsing. The second stage of outpulsing contains the ANI and called digits.
- The carrier responds with an acknowledgment wink, followed by an on- to off-hook state when the called party answers.

2.122 The following applies when traditional IDDD (international direct distance dialing) signaling is used:

- The trunk to carrier is seized by changing the state of the trunk from on- to off-hook.
- The carrier responds with a standard wink signal.
- The NS application sends the first stage of outpulsing. The first stage of outpulsing contains either the gateway code (18X) or the PCC (pseudo country code).
- The carrier responds with a sender attached signal.
- The NS application sends the second stage of outpulsing. The second stage of outpulsing contains the CC and NN (national number).
- The carrier changes the state of the trunk from on- to off-hook when the called party answers.

Intra-LATA Calls Routed via the TELCO

2.123 Number Service applications use traditional PTS (per trunk signaling), CCIS6 (common channel interoffice signaling 6), or CCS7 signaling on trunks used to route calls to other TELCO offices in the LATA.

D. Inband AC Signaling

2.124 Address and CAMA signaling between EOs and an AT/SSP are the same as today. That is, calls from a SXS office may use dial pulse signaling for the address information and MF for the ANI information. See paragraph 2.40 for the format to be used between EOs and the AT/SSP.

2.125 Number Service applications may route calls to an IC/INC using MF signaling.

2.126 If traditional signaling is to be used, the NS application outpulses
KP + NXX + NXX + XXXX + ST or
KP + NXX + XXXX + ST to the carrier.

2.127 When a SSP office serves more than one NPA and the response message from the SCP indicates that an 800 number should be sent to the carrier, the 800 Service sends an indication of the originating NPA to the carrier. This should be done by substituting 00Y for 800 in the called number; thus, the called number will be outpulsed as KP + 00Y + NXX + XXXX + ST to the carrier. Each 00Y code indicates a particular NPA. Only the 800 toll-free SAC can be substituted with 00Y. The other toll-free SACs cannot be replaced with 00Y.

2.128 When the response message from the SCP contains an international number, the NS application must determine the CC to be outpulsed in the first stage of outpulsing. Also, special 01R codes are used if the call is for an INC, and either the toll-free number or a number in the North American numbering plan is returned.

E. Operator Service Signaling

2.129 No new signals are required between a SSP and an operator system.

F. Common Channel Interoffice Signaling 6

2.130 If an office is in the transition phase and the office provided the OSO function prior to transition, CCIS6 direct signaling is required to provide the OSO function.

Abnormal Operations

A. General

2.131 Number Service calls are blocked if the following conditions occur:

- NS calls dialed with a 10[1]XXX[X] prefix when it is not allowed (optional)
- NS calls dialed with a "0" prefix when it is not allowed (optional).

2.132 No interaction between NS calls and any LASS (local area signaling services) feature is allowed.

B. 1A ESS Switch SSP Exceptions

2.133 The following summarizes the 1A ESS Switch SSP exceptions and differences from the October 1985 version of TR024 specifications.

(a) The 1A SSP does not support combined CAMA/non-CAMA TGs.

(b) It does not support the direct use of the LATA identifier in routing IC calls.

(c) The 1A ESS SSP blocks the call (that is, does not send an SCP query) if a called number following the OZZXXX[X] does not translate to a specific NS (for example, 800).

(d) The 1A SSP does not provide an irregularity event count for an invalid (incomplete or out-of-sequence) set of commands.

C. BNI SSP/800 Error Treatment

2.134 With the upgrade to CCS7 BNI signaling, the SSP should either return tone/announcements or a REL when an error condition occurs. The use of tone/announcement or REL for an error condition is determined by the office option block. The possible error conditions for SSP/800 are as follows: (also, refer to paragraph 2.33).

(a) **Unsuccessful Call Setup Before Query:** If a call processing failure occurs before the query (for example, unable to derive NPA) an REL or appropriate tone/announcement is returned. If the AT/SSP is designated to return a REL, the cause value contained in the REL is "temporary failure".

(b) **Unsuccessful Call Setup After Query:** If the requested outgoing trunk specified by the SCP is busy or blocked, a REL with the cause "no circuit available" should be sent to the EO when the SSP is not designated to play tones/announcements. If a call processing failure (for example, unable to derive routing information) occurs after the SCP has returned the carrier and routing DN, a REL or appropriate tone/announcement is returned. If the AT/SSP is designated to return a REL, the cause value contained in the REL is "temporary failure".

Interactions

2.135 No screening is required at a SSP for NS calls except for the ability to perform a 3/6-digit translation to determine if NS applies. Any other screening is performed at the SCP.

2.136 This feature requires that the SSP office have the CI feature. Refer to Part 6 A(21).

2.137 The BNI SSP/800 feature requires that the SSP office have the BNI feature. Refer to Part 6 A(26).

2.138 The SSP feature interacts with NS applications (for example, 800 Service) to provide the NS function. It collects the called number and calling party identity, if available, and passes them to the NS application. The NS application makes the SCP query and processes the response. Refer to Part 6 A(18) for details concerning the 800 Service feature.

2.139 Most of the SSP translations, measurements, billing, and NM requirements are needed by the NS application. These are defined in the SSP feature so that they will exist for any NS application.

2.140 The standard entry format AMA records require the AMASE (AMA Standard Entries) feature. The old format (single entry) AMA records require the OFNS (Old Format AMA for NS) feature.

2.141 A SSP office must be arranged for CCS7 SCCP. If the office is in the transition phase and is providing the OSO

function, CCIS6 direct signaling is required.

2.142 An external interface exists with EADAS and EADAS/NM. The EADAS feature receives the 30-second discrete count and polls for the 5-minute EADAS/NM measurements and passes the data to EADAS/NM. Refer to Part 6 A(25) for details concerning these features.

2.143 Number service calls can be placed on a customer speed calling list.

2.144 The SSP feature may also interact with the CFV (Call Forwarding Variable) feature. Performing CFV activation for a NS call requires a SCP query. However, no special NS application processing is required. The NS application can perform the routing and response processing the same as it would for an originating/incoming NS call.

2.145 The SSP feature recognizes forwarding to a NS number. The NS forward-to number is processed the same as an originating or incoming NS call before control is passed to the NS application to complete the call.

3. Engineering

3.01 These guidelines are for planning purposes only. The COEES (Central Office Equipment Engineering System) Information System engineering document, Index 75, should be used to manually order and engineer the 1A ESS Switch. The standard recommended automated procedure is COEES-MO (Mechanized Ordering).

Hardware

3.02 When CCS7 call processing is applied at the SSP (either ISUP or BNI SSP/800) CCS7 trunks are used. Refer to Part 6 A(16) or A(26) for CCS7 trunk group types.

Software

A. Base Generic Program

3.03 The SSP feature is available with the 1AE10.01 generic program. The AP<3>3 generic program must be in place for the APS.

3.04 The BNI SSP/800 feature is available with the 1AE11.01 generic program.

3.05 The 800 Number Exhaust Feature, which provides additional toll-free SACs, is available with the 1AE12.05 Generic Program.

B. Optionally Loaded Feature Groups

3.06 Table A lists the memory requirements for CCS7 feature group 9SSSP.

3.07 Table B lists the memory requirements for CCS7 feature group 9SBNI.

C. Parameters/Call Store Areas

3.08 Refer to Part 6 B(7) and B(9) for comprehensive parameter information. Refer to Part 4 for SSP set cards.

3.09 The SSP feature requires the AMA NS register table (AMNS), in restricted DCS (duplicated call store), to store detailed billing information on NS calls. If SSP is loaded, the length of AMNS is equal to the value of set card NAMNS times 28.

3.10 Parameter A8OFNSBUF contains the address and size of the OFNSBUF (old format number service buffer). Call store table OFNSBUF, in unrestricted DCS, is required to buffer AMA data (for TN purposes) associated with old format AMA for NS. If set card 9FOFNS=1, the size of OFNSBUF is 2650. Refer to Part 5.

3.11 Parameter NAG6 contains the address of the 6-digit call gap table for SSP. Parameter NAG6+1 contains the number of 6-digit control slots built for 6-digit ACG controls.

3.12 The ACG 6-digit (ACG6) table, in unrestricted DCS, contains information about the destination number that is being controlled by the call gap.

3.13 Parameter NAG10 contains the address of the 10-digit call gap table for SSP. Parameter NAG10+1 contains the number of 10-digit control slots built for 10-digit ACG controls.

3.14 The ACG 10-digit (ACG10) table, in unrestricted DCS, contains information about the destination number that is being controlled by the call gap. The 10-digit control table contains an extra five words that are used to store counts for both the 10-digit and

6-digit tables.

3.15 Parameter B6SSP contains the beginning address of the SSP traffic counts block in unrestricted DCS. Parameter B6SSP + 1 contains the size (21) of the block.

3.16 Parameter B6SSP1 contains the beginning address of the NS incoming calls peg count block in unrestricted DCS. These are the calls at the SSP that reach "all digits in" stage. Parameter B6SSP1 + 1 contains the size (32 for 31 NS numbers in an office) of the block.

3.17 Parameter B6SSP2 contains the beginning address of the peg count block where the number of total successes of SCP DB queries are stored. This count is pegged whenever any NS number reaches the dialing complete stage. Parameter B6SSP2 + 1 contains the size (32 for 31 NS numbers in an office) of the block.

D. Translations

3.18 Refer to Part 6 A(7) for detailed NS/SSP translation information. Refer to Part 6 B(10) and B(11) for comprehensive translation information.

3.19 The following translations apply to the SSP feature:

(a) Route pattern CIW
  (1) Route pattern auxiliary block
  (2) Route pattern option auxiliary block

(b) CCS7 features TG translator – CCS7 features TG option auxiliary block

(c) Office options table

(d) AMA call code head table
  (1) AMA CC141 structure table
  (2) AMA CC142 structure table

(e) NS announcement RI (route index) table

(f) INWATS service area translator

(g) IC primary route list table

(h) LATA_ID head table

(i) Head table length's table translator.

4. Implementation

4.01 Refer to Part 6 A(7) for detailed SSP implementation procedures.

Service Changes

4.02 The TELCO can add, delete, or modify the following elements of this feature:

- Assign an NPA, an NXX, and a LATA number to each TG over which NS calls may be received.
- Assign a LATA number for the SSP.
- Designate for each IC whether traditional or EA signaling is to be used.
- Assign all CI related TG routing information.
- If there is more than one TG to an IC, designate which TG will be used for specific types of NS calls.
- If calls are to be routed from an end office SSP via an AT, designate the 0ZZ code to be sent to the AT.
- Assign the 3-digit code(s) that is to be interpreted as a NS call from a coin line.
- Designate which NPA-NXX numbers that, for transition purposes, are not to be treated as NS calls by the SSP but are to continue to be routed as before (see paragraph 2.104).
- Associate the AMA call code received in the response message with the proper AMA structure code.
- Designate the TGs on which NS calls are assumed to be from coin stations.
- Assign the NPA codes that are to be associated with the 3-digit codes received from EOs.
- Assign the 00Y codes that are to be associated with originating NPA codes.
- Assign NPA codes, NPA + NXX codes, and NXX codes that are to be treated as NS codes.
- Assign the XXX[X] code in the signaling sequence KP + 0ZZ + XXX[X] + ST that is used by the AT/SSP to recognize calls as incoming EA NS calls, and in the response message as an indicator that the call should

be completed via the TELCO.

- Mark TGs as incoming from intermediate AT.
- Associate the announcement code received in the response message with the proper announcement.
- For outgoing international calls, assign values for "R" in the 01R field.
- For calls using international signaling, assign 1NX codes for each international and consolidated carrier.

Assignment Restriction

4.03 There is no restriction on the originating class of service. However, there are incoming trunk restrictions for the SSP. Table B lists the types of incoming TGs that may be used for NS calls.

Set Cards

4.04 Refer to Part 6 B(7) and B(9) for comprehensive set card information. Besides the set cards listed in Table A, the following set cards are required for the SSP feature:

- **NACG10** defines the number of automatic call gap 10-digit control blocks. If 9FSSP = 1, the default value for this set card is 16.
- **NACG6** defines the number of automatic call gap 6-digit control blocks. If 9FSSP = 1, the default value for this set card is 64.
- **NAMNS** defines the number of 28-word AMA NS registers that are required for detailed billing of NS.

4.05 The Carrier Identification Parameter (CIP) feature requires the Fast Feature Set Card FF121.

4.06 The 800 Number Exhaust feature requires the Fast Feature Set Card FF130.

Translation Forms

4.07 The following translation forms are applicable for SSP/NS features. Refer to the TG-1A for details.

- ESS Form 1232 – CCS7 Trunk Group and Point Code Record
- ESS Form 1305-2 – Rate and Route Pattern Record
- ESS Form 1307 – International Direct Distance Dialing Route Index Record
- ESS Form 1326 – 800 Service Area Record
- ESS Form 1333 – Interexchange Carrier and International Carrier Common Block Record
- ESS Form 1337 – Local Access and Transport Area Identification Record
- ESS Form 1338 – Number Service Announcement Route Index Record
- ESS Form 1400 – Traffic Register Assignment Record
- ESS Form 1410 – AMA Call Code Record
- ESS Form 1500D – Office Option Record.

Recent Change Messages

4.08 The following messages have been modified for the SSP feature:

- Recent change message RC:ICCB is used to add, delete, or change interexchange carrier common block and/or carrier routing information.
- Recent change message RC:IWSA builds NPAs in the INWATS service area translator.
- Recent change message RC:RATPAT is used to modify the rate and route pattern translator/auxiliary block.
- Recent change message RC:TRFHC is used for initiating, canceling, or suspending SSP traffic counts.
- Recent change message RC:TG is used to add, delete, or change data in the CCS7 TG translator/auxiliary block.

Verification

4.09 The following input/output messages are affected by SSP. Refer to Part 6 B(6) and B(8).

(a) The TR04 message prints routing and charging information in response to input message VFY-OFFC.

(b) The TR10 message prints translation information for a TGN in response to input message VFY-TKGN.

(c) The TR38 message prints routing information in response to input message V-TOLLRT.

(d) The TR107 message prints a list of valid NPAs associated with INWATS service area codes in response to input message V-OSO.

(e) The TR138 message prints the requested route list block(s) associated with an interexchange or international carrier in response to a VF:ICSVY input message. Included is the primary route list entry defined for 800 Service calls.

5. Administration

Measurements

5.01 Maintenance measurements are required to provide call irregularity data. If a count exists for a SSP call irregularity, then the existing count is used. If no count exists for the irregularity, a new count is provided. New counts are needed to provide NS call volume. Refer to Part 6 A(14).

5.02 Plant measurements provide a concise quantitative summary of the SSP/800 feature performance. This data is printed out via TTY as an aid to maintenance personnel in locating and repairing CO problems. The SSP counts are associated with TTY plant output message PM01. Refer to Part 6 A(2) for details.

Automatic Message Accounting

5.03 When a NS call is dialed at a non-SSP office, the call is routed to an appropriate AT/SSP. An AMA record for access charge billing and possibly end user billing is made at the SSP. If possible, the AMA record normally made at the EO or CAMA office should not be made on these calls. However, for special study purposes, such AMA records may be made. If it is not possible to avoid making an AMA record at the EO, and two AMA records are made, the record made at the SSP office is used for billing purposes.

5.04 When a NS call is dialed at a SSP office, the AMA record for access charge billing and possible end user billing is made at the SSP.

5.05 The SSP office must select either OFNS or AMASE records for NS calls. These record formats require either the OFNS or AMASE feature package. Refer to Part 6 A(12) and A(13) for comprehensive AMA information. Refer to Part 6 A(12), Appendix 1 for OFNS, and Part 6 B(1) for AMASE record formats associated with the SSP feature.

5.06 **AMASE Records:** The AMA subsystem generates AMA billing records for NS calls provided by the SSP feature. The SSP AMA collects information during call progress. As each chargeable call completes, AMA data is buffered and then transferred to the APS to be formatted in standard entry format, and then teleprocessed to the RAO (Revenue Accounting Office).

5.07 **OFNS Records:** As with the standard entry records, the SSP AMA subsystem collects information during call progress, but when a chargeable call completes, the AMA data is formatted and output to the AMA tape unit. If TN (termination notification) (paragraph 5.15) is required for a completed call, the AMA data is buffered for transfer to the APS. There the elapsed time for the call is calculated for inclusion in the TN message. The SSP AMA sends a TCAP message to the SCP data base with TN.

A. AMASE

5.08 When a NS call is dialed at a non-SSP office, the call is routed to an appropriate SSP. An AMA record for access charge billing and possibly end user billing is

made at the SSP.

5.09 The AMASE feature provides standard AMA formats for recording NS calls. The initial NS feature requires ten new structure codes.

5.10 The AMASE Table Number 83 has been updated to identify both CCS7 and non-CCS7 TG connection types.

5.11 The following standard entry tables also apply for SSP NS.

- The LATA field (Table Number 197) is a field consisting of four characters. The first three characters of this field define the LATA from which the call originated. The fourth is the sign character.
- The RAO number field (Table Number 46) consists of four characters. The first three characters contain the customer 3-digit RAO number and the fourth character is the sign character. If the RAO number is not available, the field contains zeroes.
- The alternate billing number field (Table Number 138) consists of 12 characters. The first character is a 0, the next 10 characters are the 10 digits of the billing number, and the last character is the sign character.

5.12 The destination overseas indicator, destination NPA, and destination number are obtained from the routing number received from the SCP. This may be the NS number that the calling party dialed. If it is the NS number dialed, this number also appears in the dialed NPA and dialed number fields.

5.13 The AMA records provide the medium that an office uses to bill a customer for telephone services. With the introduction of AMASE, the need to protect this valuable billing information during office changeover from old format to standard entry format records became apparent. The AMASE verify capability was developed to provide this protection by generating both the old format record (sent to the 1A ESS Switch AMA tape unit) and the standard entry format record (sent to the APS for formatting and subsequent teleprocessing) for each billable call. The AMASE verify function is modified to support NS AMA records.

B. OFNS

5.14 The information contained in the preceding paragraphs for the AMASE record format generally applies to OFNS AMA records for SSP/NS calls. Refer to Part 6 A(12) for information that is included in Entry Code 75 OFNS records. The following DGs (data groups) are included in these records:

- DG I28 – Dialed number
- DG I29 – Number service customer RAO
- DG I30 – Originating LATA
- DG I31 – Call type (call code)
- DG I32 – Structure code
- DG W400 – Alternate billing number.

5.15 The "TG connection type" for BNI SSP/800 is updated in DG T.

5.16 Although the call code and structure code are not normally provided in an old format record, these data groups are included in OFNS records. The reason for this is that new features with new call codes could use existing structure codes causing difficulty in determining the type of AMA record.

C. Termination Notification

5.17 The 800 NS application may receive a request for TN in response to its SCP DB query. Due to the fact that an AMA register is often the only register remaining on a stable call, this information is stored in the NS AMA register. The AMA subsystem includes a mechanism to report the final status of the call to the SCP via a TN message when the call terminates. Upon call abandon or normal completion of calls marked for notification, 800 sends a TN message to the data base with the following data:

- Termination indicators (for example, answered, abandoned, NM overflow)
- Echo data (for correlation)
- Connect time (call duration from AMA record)
- Error type (if TN cannot be provided)
- Data (data in error from DB, if any).

5.18 The connect time in the TN message is the same as the elapsed time in the NS AMA record. Only standard entry AMA records provide the elapsed time of a call (based on the difference between the disconnect and answer times stored in the AMA register).

Offices selecting OFNS AMA records do not include the elapsed time in these records. However, the TN message formatted on the APS contains the elapsed time for the call based on the disconnect and answer times.

5.19 Because the AMASE feature is not included on the 1A ESS Switch when OFNS is loaded, and OFNS must communicate with the APS software to calculate elapsed time for TN, the OFNS feature package includes a 1A ESS Switch to APS buffer administration routine. Because of the anticipated call volume, the OFNS buffer contains two 1320-word blocks per office.

5.20 The TN message is formatted by the APS and sent to the SCP via the CNI (common network interface) ring.

D. External Interfaces

5.21 The NS application provides the billing information listed below, which is recorded on the AMA NS record:

- AMA call code (3 digits)
- Service feature identification (2 digits)
- Originating NPA and number (3, 6, or 10 digits)
- Dialed number (7 or 10 digits)
- Destination NPA and number (7, 10, or IDDD digits)
- Originating LATA (3 digits)
- Customer RAO (3 digits)
- Alternate billing number (10 digits - optional).

5.22 A 7-/10-digit dialed number is always passed to SSP AMA by NS.

5.23 If SSP AMA fails to seize a NS AMA register, SSP AMA returns failure to NS. An AMA record is not made and a traffic count (NS AMA register overflow) is incremented. The call is allowed to continue.

5.24 If TN is specified by the response message received from the SCP, the terminating indicator echo data is passed to SSP AMA by 800 NS. For uncompleted calls, SSP AMA returns to 800 NS with the following information:

- Terminating indicators
- Echo data (4 octets).

5.25 The SSP AMA interacts with SSP DB twice. Once, when SSP NS calls SSP AMA with the call code to determine if the call code is valid, and once, when the NS call has terminated to determine the structure code.

5.26 If failure is returned back from the SSP DB, from the first call to SSP DB, SSP AMA returns failure to NS. No AMA record is made and an error message is printed.

5.27 If failure is returned back from the SSP DB, from the second call to SSP DB, no AMA record is made and an error message is printed.

5.28 For each 1A ESS Switch system clock change (that is, CLK-SET- or CLK-ADVANCE- input message) or midnight day and date change, a record is sent to the APS via either the AMASE or OFNS buffer. This allows accurate elapsed time calculation for any affected calls.

6. Supplementary Information

References

6.01 The following documentation contains information related to or affected by the SSP feature.

A. AT&T Practices

(1) 231-090-416 – *Common Channel Interoffice Signaling Feature*

(2) 231-300-015 – *Plant Measurement Description 1A ESS Switch*

(3) 231-301-302 – *CCS7 Trunk Maintenance*

(4) 231-318-334 – *Trunk Recent Change Formats*

(5) 231-318-336 – *Rate and Route Recent Change Formats*

(6) 231-318-375 – *Trunk Signaling CCS7 RC Implementation*

(7) 231-318-376 – *Numbering Services CCS7 RC Implementation*

(8) 231-361-025 – *APS and API Growth*

(9) 231-361-026 – *CNI Growth*

(10) 231-368-019 – *CNI Description*

(11) 231-368-020 – *APS and CNI Operation Maintenance and Recovery*

(12) 231-390-063 – *Automatic Message Accounting Feature*

(13) 231-390-069 – *Automatic Message Accounting Standard Entries and Multientry Teleprocessing Feature*

(14) 231-390-207 – *Traffic Measurement Feature*

(15) 231-390-500 – *Common Channel Signaling System 7 General Description*

(16) 231-390-502 – *Integrated Services User Part (ISUP) Feature*

(17) 231-390-508 – *Transaction Capability Application Part (TCAP) CCS7 Feature*

(18) 231-390-510 – *800 Service CCS7 Feature*

(19) 254-201-002 – *TOP (Task Oriented Practice) API Frame Description*

(20) 254-251-016 – *TOP (Task Oriented Practice) API Frame*

(21) 231-090-120 – *Carrier Interconnect Feature*

(22) 231-090-278 – *Centralized Automatic Message Accounting Feature*

(23) 231-090-366 – *HILO 4-Wire Switching Feature*

(24) 231-390-220 – *HILO 4-Wire Access Tandem Feature*

(25) 231-390-305 – *Network Management Feature*

(26) 231-390-521 – *Basic Network Interconnect Feature*

B. Other Documentation

(1) *AT&T Pub 48501 LSSGR (Local Switching Systems General Requirements) Technical Reference Section 8.1.*

(2) *Bell Communication Research Technical Reference TR-TSY-000024, Issue 1, Revision 1*

(3) *Bell Communication Research Technical Reference TR-TSY-000533, Issue 1, August 1987*

(4) *Call Store Data Layout Manual PK-6A006*

(5) *COEES Information System Engineering Document Index 75*

(6) *Input Message Manual IM-6A001*

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

(8) *Output Message Manual OM-6A001*

(9) *Parameter Guide PG-1A*

(10) *Translation Guide TG-1A*

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

(12) *COEES Information System Engineering Document Index 61, 75, and 108*

7. Abbreviations and Acronyms

A

ACG
Automatic Call Gap

AMA
Automatic Message Accounting

AMASE
Automatic Message Accounting Standard Entries

ANI
Automatic Number Identification

ANM
Answer Message

API
Attached Processor Interface

B

BNI
Basic Network Interconnect

C

CAMA
Centralized Automatic Message Accounting

CG
Call Gap

CI
Carrier Interconnect

CIC
Carrier Identification Code

CICE
Carrier Identification Code Expansion

CIP
Carrier Identification Parameter

CIW
Call Identification Word

CNI
Common Network Interface

CTYP
Call Type

CdPN
Called Party Number

CgPN
Calling Party Number

D

DB
Data Base

DCS
Duplicated Call Store

DG
Data Group

DP
Dial Pulse

DTMF
Dual Tone Multifrequency

E

EA
Equal Access

EADAS
Engineering and Administration Data Acquisition System

EAEO
Equal Access End Office

EO
End Office

EXM
Exit Message

I

IAM
Initial Address Message

IC
Inter-LATA Carrier

IDDD
International Direct Distance Dialing

INC
International Carrier

INWATS
Inward Wide Area Telecommunications Service

ISDN-UP
Integrated Services Digital Network User Part

ISUP
Integrated Services User Part

IXC
Interexchange Carrier

K

KP
Key Pulse

L

LAMA
Local Automatic Message Accounting

LATA
Local Access and Transport Area

LCCIS
Local Common Channel Interoffice Signaling 6

M

MF
Multifrequency

N

NN
National Number

NPA
Numbering Plan Area

O

OFNS
Old Format for Number Services

OLI
Originating Line Information

ONI
Operator Number Identification

OSO
Originating Screening Office

P

PCC
Pseudo Country Code

PIC
Primary Inter-LATA Carrier

PTS
Per Trunk Signaling

R

RAO
Revenue Accounting Office

RC
Recent Change

REL
Release Message

REN
Remote Equipment Number

RI
Route Index

S

SAC
Service Access Code

SCCP
Signaling Connection Control Part

SCIW
Supplementary Call Identification Word

SCP
Service Control Point

SMS
System Management System

SSP
Service Switching Point

ST
Start

STP
Signal Transfer Point

SXS
Step by Step

T

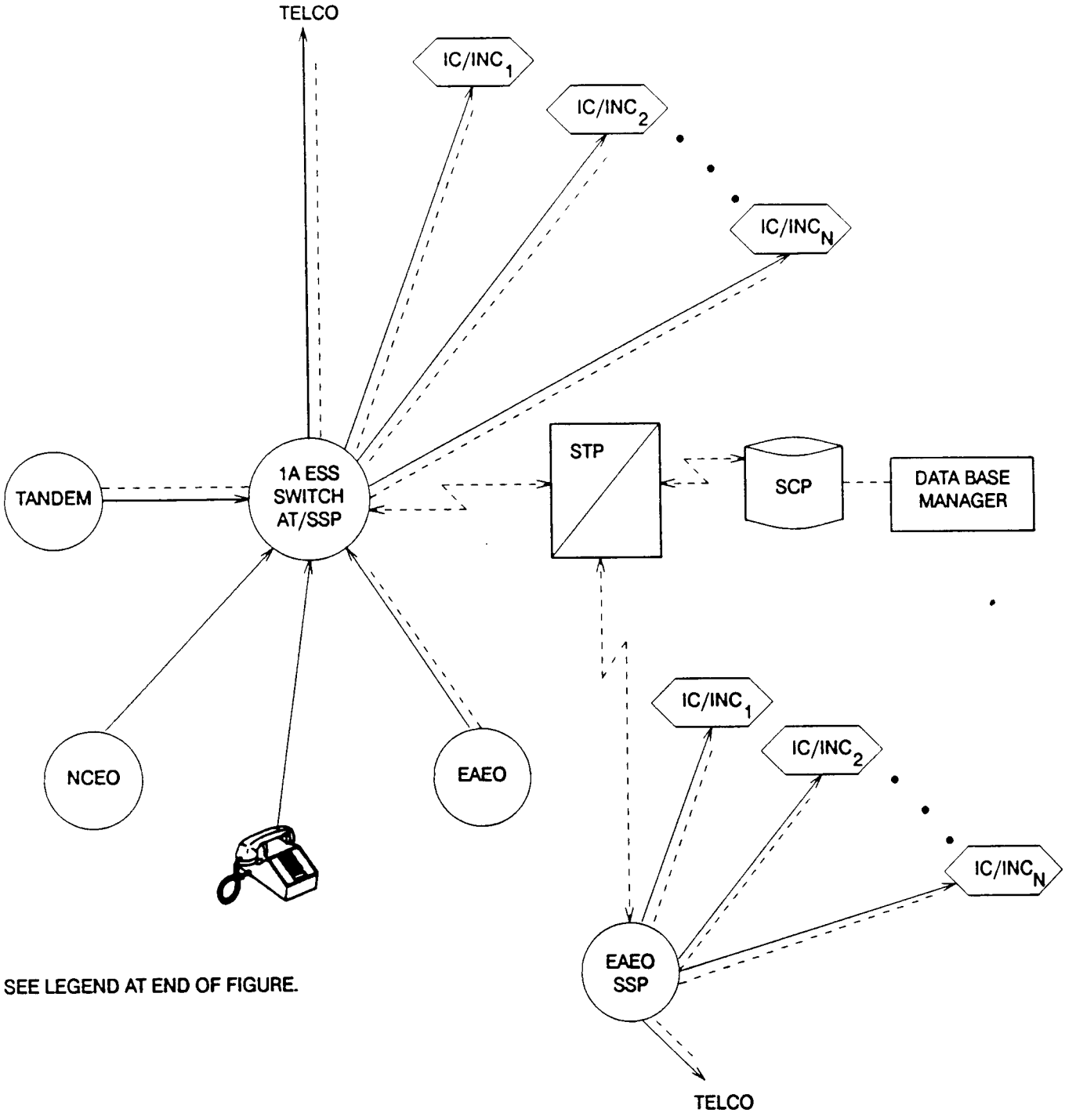
TCAP
Transaction Capability Application Part

TELCO
Telephone Company

TG
Trunk Group

TGN
Trunk Group Number

TN
Termination Notification



SEE LEGEND AT END OF FIGURE.

Figure 1. SSP/CCS7 Network Configuration (Sheet 1 of 2)

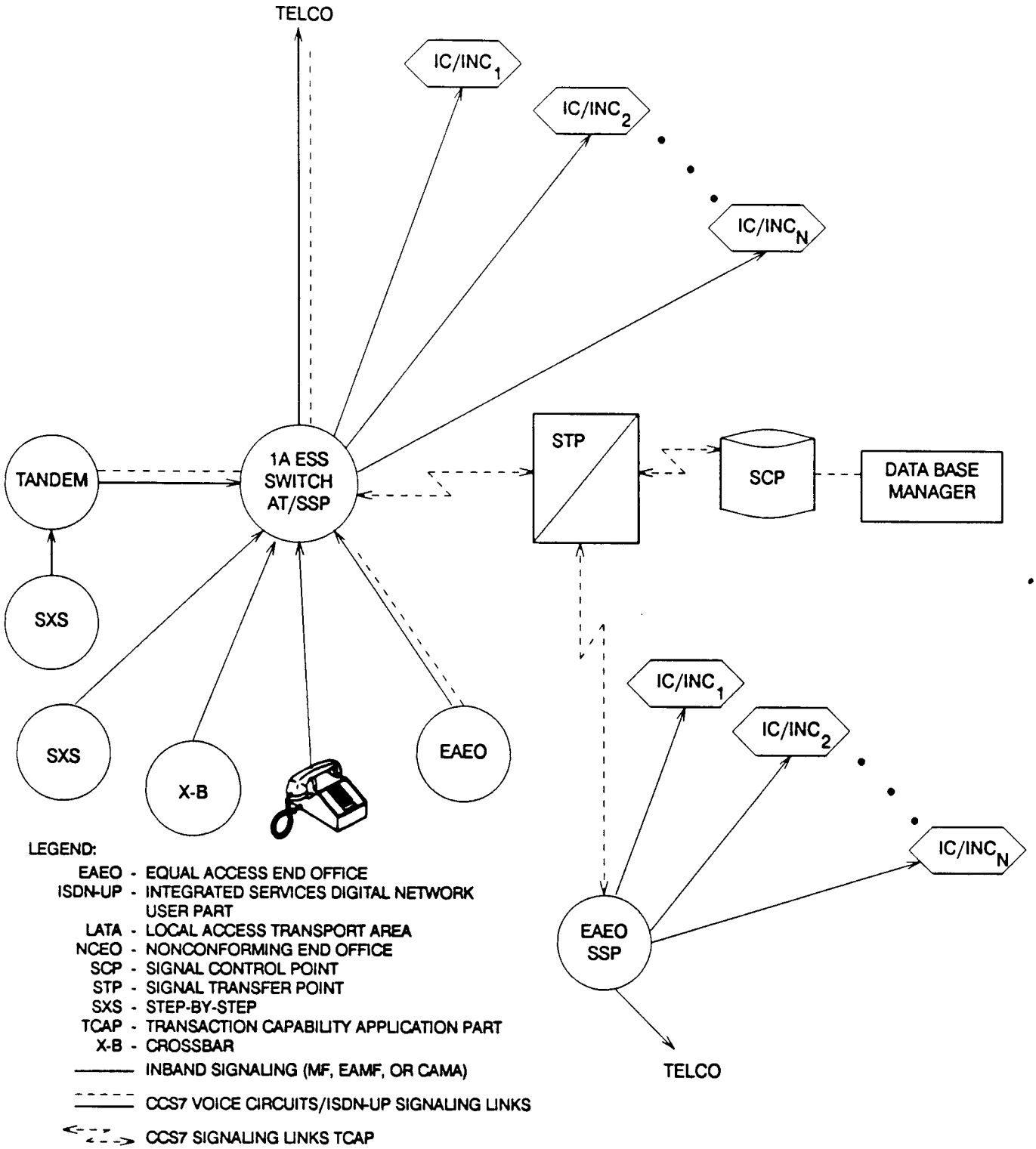


Figure 1. SSP/CCS7 Network Configuration (Sheet 2 of 2)

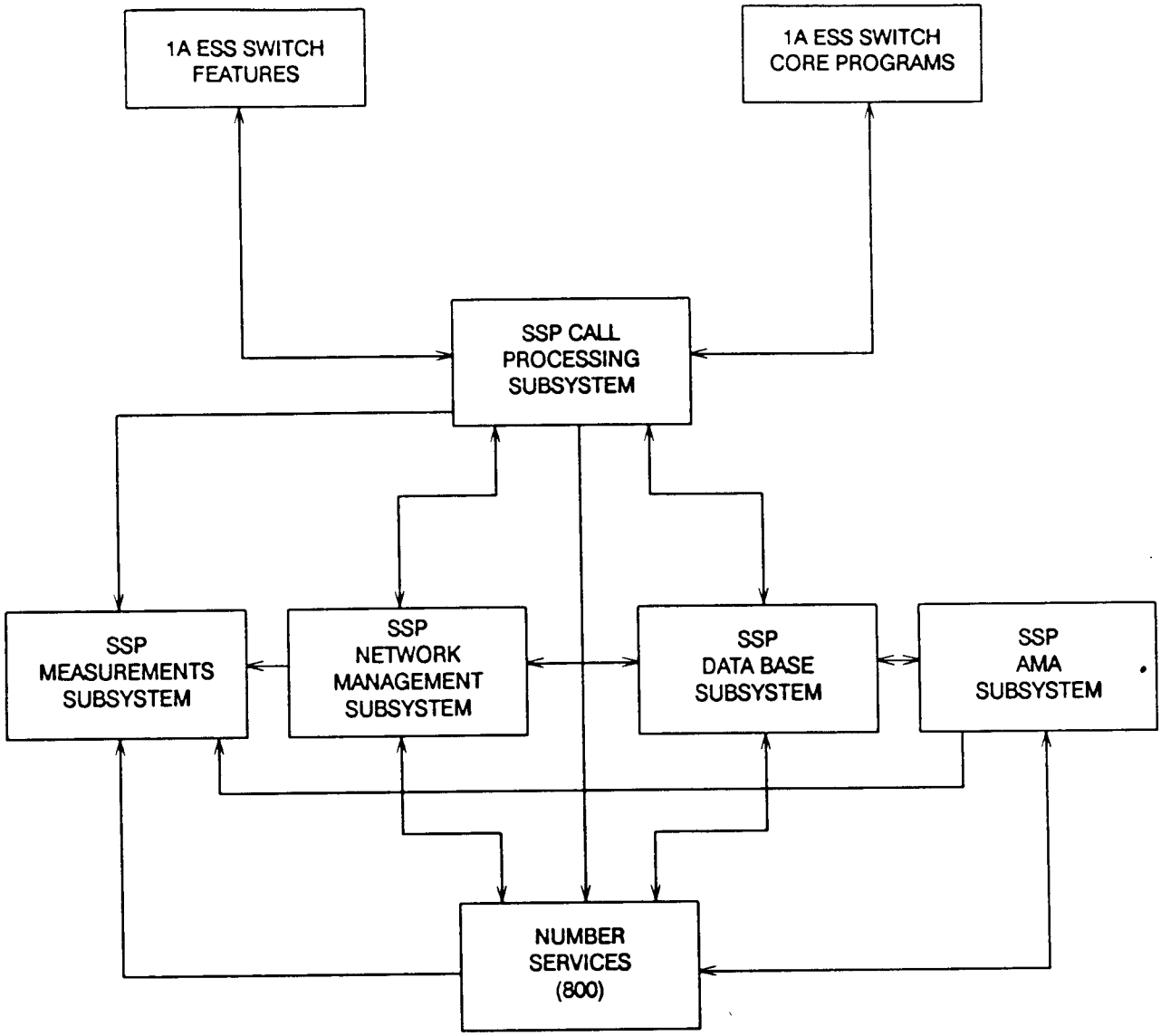


Figure 2. SSP Subsystems

Table A. Service Switching Point Feature Group Requirements

Feature Groups Required	Feature Groups/Packages Included	Sizes
9SSP	9FSSP	10240
	9SCARI	3400
	9SAMAS/9SOFNS	3648/2000
9SCARI	9FCARI	3400
	9SVMI1	11104
	9SDRPC	1248

Note: Either 9SAMAS or 9SOFNS must be selected.

Table B. CCS7 Feature Group 9SBNI

Feature Groups Required	Feature Packages Required	Sizes
9SBNI	9FBNI	14016
9SISUP	9FISUP	42720
	9FSCG	1950
	9FCC67S	512
9SMIP	9FMIP	3168
9SVMI1	9FVMI1	13568
9SAPS	9FAPS	960
	9FAPSCSN	0
	9FAPSPRC	0
	9FAPSUTL	32
	9FAPS20	0
9SCARI	9FCARI	2784
9SDRPC	9FDRPC	1248

Table C. Number Service Incoming Trunk Group Types

TG Type	Description
10	Intertoll-EA Signaling
10	Intertoll-Traditional (LAMA) Signaling
10	Intertoll-LCCIS Signaling
10	Intertoll CCS7 Signaling
8	CAMA ANI
9	CAMA ONI
6	Centrex-Tie/Central Office
15	Toll-Traditional (LAMA) Signaling

Note 1: Intertoll-CCIS toll signaling is not allowed.

Note 2: A NS number received using intertoll-EA or traditional signaling from a carrier is not allowed.

Table D. Automatic Number Identification Conversion (I to II)

I	II	Meaning
0 or 3	00	Calling Party --> POTS
0 or 3	23	Calling Party --> Mixed POTS and COIN
0 or 3	27	Calling Party --> COIN
1 or 4	01	Multiparty --> Multiparty
2 or 5	02	ANI Failure --> ANI Failure
6	06	Hotel/Motel
7	07	COINless, etc.

Note: If the call routes via an operator, COIN is not specified.

Table E. Incoming CAMA ANI to ANI to SCP Correlation

ANI Received	ANI Passed to NS
Combined COIN and Non-COIN Trunk Group	
KP+0+NXX+XXXX+ST	23+NPA+NXX+XXXX
KP+1+ST	01+NPA
KP+2+ST	23+NPA
KP+3+NXX+XXXX+ST	23+NPA+NXX+XXXX
KP+4+ST	01+NPA
KP+5+ST	23+NPA
KP+6+NXX+XXXX+ST	06+NPA+NXX+XXXX
KP+7+NXX+XXXX+ST	07+NPA+NXX+XXXX
No ANI	23+NPA
Non-Coin Trunk Group	
KP+0+NXX+XXXX+ST	00+NPA+NXX+XXXX
KP+1+ST	01+NPA
KP+2+ST	02+NPA
KP+3+NXX+XXXX+ST	00+NPA+NXX+XXXX
KP+4+ST	01+NPA
KP+5+ST	02+NPA
KP+6+NXX+XXXX+ST	06+NPA+NXX+XXXX
KP+7+NXX+XXXX+ST	07+NPA+NXX+XXXX
No ANI	00+NPA
Dedicated COIN Trunk Group	
KP+0+NXX+XXXX+ST	27+NPA+NXX+XXXX
KP+2+ST	27+NPA
KP+3P+NXX+XXXX+ST	27+NPA+NXX+XXXX
KP+5+ST	27+NPA
No ANI	27+NPA

FEEDBACK FORM

Document Title: Service Switching Point
Common Channel Signaling System 7
Feature Document
1A ESS™ Switch

Document Number: AT&T 231-390-509

Issue Number: 5

Issue Date: November 1995

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