AT&T 231-090-275
Issue 2, April 1986

800 SERVICE—TERMINATING END OFFICE FEATURE DOCUMENT 1 AND 1A *ESS*™ SWITCHES

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1. INTRODUCTION

DEFINITION

1.01 The ***800 Service—Terminating*** feature provides service to an 800 Service customer location via 1 and 1A ESS switches. The 800 Service feature provides a customer with inward service from one or more predetermined areas at a rate based on expected usage. These calls are toll free to the calling party.

1.02 The ***WATS (Wide Area Telecommunication Service) Administration*** feature provides a unique identification number for each individual line (trunk) in an 800 Service SFG (simulated facilities group).

1.03 The ***800 Service Billing*** feature provides an AMA (automatic message accounting) record for calls terminating to an 800 Service SFG. The AMA records are made on all call attempts, both completed and incompleted. A daily AMA record is also provided per 800 Service group that lists the total number of overflows to that group.

1.04 The ***INWATS (Inward Wide Area Telecommunication Service) AMA DID (direct inward dialing)*** trunks capability provides INWATS-type AMA records on calls terminating to outgoing DID trunks. The calls are billed to the billing DN (directory number). The SFG access is limited or unlimited as required by the end user.

1.05 The ***Enhanced INWATS-Type AMA*** feature provides the capability of expanded service feature codes on the INWATS-type AMA record. This feature allows the assigning of any nonused service feature code (01-99). The assignment of service feature codes requires the agreement with the Revenue Accounting Office.

REASON FOR REISSUE

1.06 This practice is reissued to add information concerning the Enhanced INWATS-Type AMA feature and to incorporate changes issued via addendum. Since this is a general revision involving format conversion, no revision arrows are used.

BACKGROUND

1.07 The term "800 Service" is a marketing name given to the INWATS feature. It is important to note that these terms are synonymous. Both terms are used in this document due to translations, set cards, etc., requiring the INWATS term. The 800 Service term is used in reference to the feature or for customer identification and explanation.

1.08 The 800 Service feature is available as an interstate or intrastate offering. The traffic associated with the interstate offering is approved by the Federal Communication Commission and applies to 800 Service calls which cross state and/or international boundaries. Intrastate offerings are approved by local and/or state regulatory agencies. Since these tariffs may change, this practice avoids references to tariff-related items.

1.09 The charges for 800 Service calls are based on the usage of the service and the customer subscribed serving area (WATS band). A WATS band number is a number representing certain geographical areas from which an 800 Service customer may receive calls and be billed in accordance with the applicable WATS tariffs. The customer must subscribe to the WATS band which contains the desired call origination points for 800 Service.

1.10 Interstate WATS bands are numbered successively from the customer's location. The first (nearest) interstate WATS band is 01, etc. Higher-numbered bands are more expensive. With interstate 800 Service, a subscriber's band includes service (call privileges) from a lower-numbered band. However, if a call from a lower-numbered band overflows to a higher-numbered band, the call is charged at the higher rate.

1.11 In addition to subscribing to the WATS bands, the customer must also subscribe to the quantity of 800 Service lines per band. This quantity of lines equals the number of simultaneous calls an 800 Service customer may receive from a particular band.

1.12 The 800 Service line groups are provided via the Simulated Facilities feature. This feature, which eliminates the need for certain physical hardware, is the required method of providing 800 Service. Details of the Simulated Facilities feature are given in Part 6 A(1).

ECONOMIC WORTH

A. Customer Benefits

1.13 The 800 Service feature uses the CCIS (common channel interoffice signaling) network. The CCIS network and associated STP (signal transfer points) provide access to the 800 Service data base. The following is a listing of 800 Service vertical services that the data base provides. They are based on the fact that the data base is given the 800 Service number and NPA (numbering plan area). Each call originates and returns an unlisted 10-digit DDD (direct distance dialing) number identifying the terminating party. The actual offering and packaging of these capabilities depends on marketing, rate-and-tariff, and legal considerations. The routing and service capabilities are applicable to both interstate and intrastate 800 Service offering.

1.14 ***800 Service by Area Code***—Since the originating NPA (area code) is known at the time of the call screening operation, it is possible to tariff the 800 Service feature based on a NPA. This should be attractive to marketers or customers doing business in selective locations.

1.15 ***One Number 800 Service***—Since the 800 Service data base knows the originating NPA, it knows if the call originated in the same state as the terminating point of the call. The data base could return two different telephone numbers depending on whether the call is interstate or intrastate. The two conditions would still exist for tariff reasons, but one 800 Service number could be used by a customer to simplify advertising.

1.16 ***800 Service Call Distribution (NPA)***—The 10-digit unlisted telephone number that the data base returns depends on the originating NPA. A customer could have as many locations as there are NPAs receiving calls to a single 800 Service number. This avoids establishing multiple 800 Service numbers and is an advantage to the customer.

1.17 ***800 Service Call Distribution (Clock/Calendar)***—Call distribution could also depend on the time of day or the day of the week. At night or on weekends, all calls could be routed to a single location. This service allows for more economical continuous coverage for large 800 Service feature customers.

1.18 ***Permanent 800 Number***—The actual 800 directory number would no longer have any geographical or banding significance. A customer could move a business location across state boundaries or change the form of the service without changing the toll free number.

1.19 ***Customized 800 Numbering***—Since geographical significance is removed, customized numbering may occur, such as 800-CALL-IRS. This advantage assists 800 Service customers with memorable advertising when available.

1.20 ***800 Service Attempt Counting by NPA***—A monthly listing of all calls to a customer's 800 number, itemized by NPA, could be available to the customer. This could aid in evaluating new product marketing or measuring response to an advertising campaign.

1.21 ***Part Time 800 Service Line***—A customer's 800 Service line may be denied access during specific hours of the day, e.g., evening or weekends, at the customer's request. The calls can be intercepted at the first CCIS office that the call encounters and routed to an announcement to explain the closing.

1.22 ***Mass Announcement Service***—800 Service calls may be routed to a common announcement during the customer's off-hours. This announcement is provided by the telephone company for many 800 Service customers.

B. Network Benefits

1.23 ***Elimination of Terminating Screening Office***—Prior to CCIS 800 Service, TSOs (terminating screening offices) were required to determine whether or not the 800 Service customer had purchased the WATS band from which the call originated. This created a routing and switching penalty over normal DDD routing. The OSO (Originating Screening Office) feature eliminates the need for TSOs and provides the screening and routing required to switch 800 Service calls. Refer to Part 6 A(3) for details.

1.24 ***Elimination of 10's Blocks***—The requirements of 10's-block usage caused ten numbers to be assigned to the same band creating packing problems and forcing customers to change numbers

when changing bands. The 800 Service eliminates these problems.

AVAILABILITY

1.25 The 800 Service—Terminating, WATS Administration and the 800 Service Billing features are contained in the base. The 800 Service Terminating End Office feature is initially available with the 1E7/1AE7 generic program. The Enhanced INWATS-Type AMA feature is initially available with the 1AE8.07 generic program.

FEATURE ASSIGNMENT

1.26 The 800 Service—Terminating feature is provided on a per customer basis.

INCOMPATIBILITIES

1.27 The CFV (Call Forwarding Variable), RCF (Remote Call Forwarding), and QTL (Queueing for Trunks and Lines) features are not recommended with 800 Service using unlimited access SFGs or limited access SFGs with TNAC (terminal number access check) = 1. The CFV, RCF, and QTL features imply nondedicated 800 Service lines and require limited access SFGs with TNAC = 0.

1.28 Make-busy arrangements (e.g., make-busy keys) create a condition whereby 800 Service calls using unlimited access SFGs may be routed to overflow because the lines have been made artificially busy. Make-busy arrangements place a constraint on attempts to complete 800 Service calls and should not be used with 800 Service using unlimited access SFGs and limited access SFGs with TNAC = 1.

1.29 The Call Forwarding Busy Line feature should not be assigned to 800 Service lines, since the SFG function (and associated 800 Service billing) is lost when the Call Forwarding Busy Line feature takes effect.

2. USER PERSPECTIVE

USER PROFILE

2.01 The 800 Service feature encourages people to respond to a customer's advertising with no charge. From the 800 Service customer's perspective, the only difference between an 800 Service call and any other incoming call is that the call is charged to the 800 Service customer instead of to the calling party.

FEATURE DESCRIPTION

A. General

2.02 Figure 1 depicts a typical 800 Service call. In this case the call originates in office A (crossbar, ESS switch, etc.) by dialing 800-NXX-XXXX. The call arrives at an OSO, office B, which recognizes the call as an 800 Service call and accesses the INWATS data base. The 800-NXX-XXXX number plus the originating NPA is sent to the INWATS data base over CCIS data links. The 800 Service data base determines whether the call is allowed by comparing the originating NPA and the customer's purchased serving area. If the call is allowed, the data base returns an unlisted 10-digit DDD number for the routing of the call. If the call is not allowed, the data base will not return a DDD number, and the OSO routes the call to an appropriate tone or announcement. If the terminating end office has the Busy Idle Status Indicators feature, the data base may return an indication that all lines are busy for that 800 number. If so, the OSO gives busy treatment to the calling party.

2.03 When the call reaches the terminating office, the system performs a DN translation. The DN translation specifies the SFGN (simulated facilities group number). The SFGN auxiliary block item TYP is checked for a 3 indicating an 800 Service call.

B. Band Hunting and Volume Control

2.04 Band hunting and volume control are provided using simulated facilities. Band hunting determines the billing treatment that the call will receive. Higher-numbered WATS bands may be used to handle calls initiated within lower-numbered bands if all the lines in the lower-numbered band are busy. The lower-numbered band "hunts" to the higher-numbered band. Hunting is also used between service levels within the same band (e.g., full business day or measured time). Volume control limits the number of calls that may be in progress at any time. Band hunting and volume control occur in one of three ways, depending on the type of terminating arrangement the 800-Service customer has purchased. If the customer has nondedicated 800 Service lines (i.e., the station terminating the call is not uniquely associated with a particular SFGN), band hunting and vol-

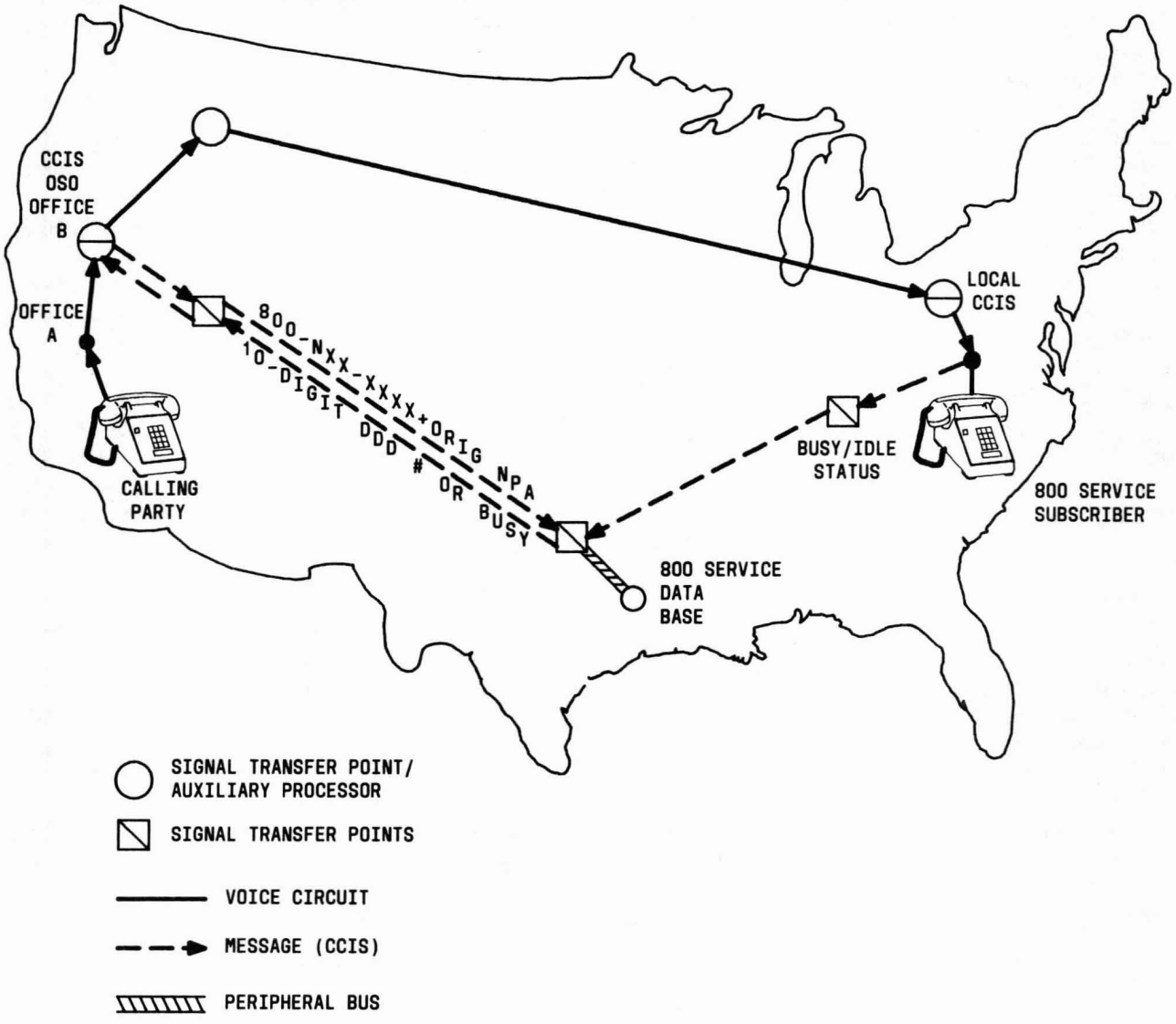


Fig. 1—800 Service Routing

ume control are provided by limited access SFGs without the TNAC = 0. This method is described in paragraph 2.05. If the customer has a dedicated sequential hunting multiline group, each terminal in the multiline group is rigidly associated with a given SFGN. Band hunting and volume control, in this case, are provided by limited access SFGs with the TNAC = 1. This method is described in paragraph 2.06. In all other terminating arrangements, band hunting and volume control may be provided by unlimited access SFGs (see paragraph 2.07).

2.05 Limited access SFGs, with TNAC = 0 (nondedicated), require the use of a simulated facilities register for each call. The simulated facilities register is seized from a common pool of simulated facilities registers at the time the system determines that a call is a limited access call. A simulated facilities register is used to store data pertinent to the call and remains linked to the call for its duration. Initial SFGN access is dictated by the 10-digit DDD number for 800 Service calls. This SFGN relates, via an item called QNTY, the number of calls that may be in progress simultaneously for the SFGN (volume con-

trol). An up/down counter is provided for each SFGN. If the value of the counter is less than the quantity of simultaneous calls, the counter is incremented and the current SFGN is used. If the SFGN is busy, the 800 Service overflow count for the associated SFGN is incremented and a check is made of item HSL to determine if there is a hunting arrangement. If so, the next SFGN is accessed. This process is repeated until the specified number of SFGNs have been checked. With this arrangement, the station terminating the call is not uniquely associated with an 800 Service SFGN. Usually, Centrex customers will route all 800 Service calls to an attendant. The attendant must have limited access SFGs (with TNAC = 0) in order to provide "passoff" capabilities.

2.06 Item TNAC in the SFGN auxiliary block translations indicates whether the TNAC applies for the SFGN. The state of this item is established when translations for the given SFGN are incorporated into the system and are set for all SFGs associated with sequential hunt multiline groups without "passoff", and not set for all other SFGs. If item TNAC is clear, volume control is as described previously (paragraph 2.05). If TNAC is set, the HITN (highest terminal number) (which represents the highest terminal number associated with this SFGN) is compared with the terminal number of the terminating station (as selected by normal call processing). If the item HITN is greater than or equal to the terminal number of the terminating station, the call is allowed to complete. If not, the 800 Service overflow count for the associated SFGN is scored and a check is made of item HSL to ascertain if there is a hunting arrangement. If so, the next SFGN is accessed and the HITN check is repeated until either an unlimited access SFGN or terminal number greater than or equal to HITN is found (in which case the call completes) or until the specified number of SFGNs is accessed (in which case the call routes to busy tone). An unlimited SFGN may be used as the last SFGN in the hunting sequence.

2.07 With unlimited access SFGs, station selection is made according to the 800 Service terminating arrangement (multiline hunting or series completion). The terminating station selected determines the SFGN with which the call is associated, since each physical facility is directly associated with an SFGN. The band hunting and volume control functions are performed during terminating station selection. If an idle line within a given SFGN is available on a given call, the call will complete using the SFGN associated with that line. If an idle line is not available, the call will receive busy treatment.

C. WATS Administration Feature

2.08 The WATS Administration feature provides a unique "line" identification number for certain 800 Service calls. The identification is entered in the AMA register for the call. For dedicated 800 Service series completion groups, the identification number is the last four digits of the line number to which the call completed. For dedicated sequential hunt multiline groups, the identification number is the terminal number of the station to which the call completed. For nondedicated 800 Service groups, the identification number is a SFLN (simulated facilities line number). A SFLN is entered only if item SFLO in the SFG auxiliary block is set. If none of the above descriptions apply, zeroes will be entered in the AMA register.

2.09 When item SFLO is set, the SFLN displacement table is indexed by SFGN/2. Within the table, right-half words are even SFGNs and left-half words are odd SFGNs. The SFLN displacement table value is the displacement into the SFLN activity block for those SFGNs with associated SFLNs, or zero, for those SFGs without associated SFLNs. Zero values do not effect access to the SFLN activity block. After access to the portion of SFLN activity block related to a given SFGN, a search is made for the lowest-numbered idle SFLN. When found, the SFLN is marked busy in the activity block and the number representing the SFLN is entered in the simulated facilities register. Since SFLNs are provided for limited access SFGNs and since there is an SFLN for every "line" within the SFGN whenever access to a given SFGN is permitted (i.e., there is an idle "line" within the SFGN), then there must also be an idle SFLN, or an error exists. In those cases where an idle SFLN is not found, the reset item is set within the applicable SFLN activity block word and zero is entered in the simulated facilities register instead of the SFLN.

2.10 If there is a nonzero SFLN in the simulated facilities register at the call disconnect, the SFLN displacement table is again indexed by SFLN/2 to obtain the displacement into the SFLN activity block. If the displacement value is nonzero, the bit which represents the given SFLN is indexed by (SFLN-1)/16, where the quotient is the word number and the remainder is the bit number within the

word. For example, given SFLN 56, the desired bit is bit 7 of word 3 (the fourth word) [(56-1)/16 equals 3 with a remainder of 7]. If the selected bit is set, indicating idle, an error exists and the reset bit for the applicable SFLN activity block is set to inform the system audit of the error. If the selected bit is clear, indicating busy, the state of the bit is changed to set to indicate idle. These actions are incorporated into the routine to release a simulated facilities register.

2.11 Certain changes in the ACD (Automatic Call Distribution) feature [see Part 6 A(5)] were made to allow the use of SFLNs. These changes include a routine to seize a SFLN and load it into the simulated facilities register for those calls requiring a SFLN and a "new" simulated facilities register. With the ACD feature, a simulated facilities register does not have to be released after a call; it may remain seized for a call coming off queue. Therefore, some calls do not require a new simulated facilities register. For simulated facilities registers that remain seized to be utilized for a call coming off queue, routines were incorporated to:

(a) Release the SFLN associated with the previous call (the "old" SFLN).

(b) Seize a SFLN for the call coming off queue (the "new" SFLN).

(c) Load the "new" SFLN into the simulated facilities register.

2.12 In order to provide certain functions required by the WATS Administration feature, a routine has been added to system audit 38. The functions provided by this routine include:

(a) The SFLN words are allocation/deleted as required by the associated SFGN. Change requests are transmitted to the system via recent change messages. Based on the recent change message, SFLN words are added/deleted such that all active SFLN words are at the top of the SFLN activity block and all unused words are at the bottom.

(b) The SFLN displacement table is updated so that the displacement value yields the correct word(s) in the SFLN activity block for those SFGNs with SFLNs. Displacement values of zero do not affect access to the SFLN activity block.

(c) The SFLN activity bits are reset when an error is detected. This is accomplished for any given SFGN by setting (marking "idle") all associated SFLNs, searching the simulated facilities registers to determine the registers associated with the given SFGN, and reassigning SFLNs to these registers. The SFLN reassignment is made in sequential order; i.e., SFLN 1 is assigned to the first located simulated facilities register, SFLN 2 to the second, etc., until all the "active" simulated facilities associated with the given SFGN have an SFLN.

(d) After a system emergency phase 4 or 5, the SFLN activity bits (as above) are reset and the displacement values are rebuilt.

2.13 Zeros are entered on the AMA tape. The "line" identification number cannot be ascertained because of system error or because translations do not reflect the data required by the WATS Administration feature. An example of improper translation data for the WATS Administration feature is the use of an unlimited access SFG for any 800 Service customer requiring an SFLN.

INTERACTIONS

2.14 The ACD feature is used to concentrate, queue, and equitably distribute incoming calls to assigned agents with maximum efficiency.

2.15 It is possible that a caller may dial an 800 Service number for a customer located within the caller's central office. The return of a 10-digit DDD number by the 800 Service data base creates a 10-digit intraoffice call. The 10-digit Intraoffice Calling feature is available in the base of the 1E7/1AE7 generic program to recognize and complete these types of calls.

2.16 The RCF feature can be used with 800 Service using limited access SFGs (TNAC = 0). The RCF feature enables calls to a local station to be redirected over 800 Service lines (trunks) to the customer. This allows the customer to advertise a local number in any city of their choice.

2.17 In some areas, 800 Service may be centralized in one or more offices. In this case, RCF may be used to extend 800 Service using limited access SFGs (TNAC = 0) to subscribers terminating in those particular offices. See Part 6 A(5) for details.

ASSIGNMENT LIMITATIONS

2.18 Whenever the identification number provided by the WATS Administration feature is a SFLN, the quantity of SFLNs assigned equals the quantity of lines within a given customer service group. When a given 800 Service call uses a SFLN, the lowest-numbered idle SFLN associated with the given group is found and marked busy for the duration of the call.

2.19 The maximum number of SFGs available in an office is 2047. The maximum number of lines (trunks) available per SFG is 126 for limited access SFGs; 127 indicates unlimited access. The SFG assignments for 800 Service may use any SFGN ($1 < SFGN < 2047$).

2.20 More than one limited access SFG may be associated with a given WATS band (level) for a given customer. Multiple SFGs are necessary only if a single SFG cannot supply the desired number of lines and may be accomplished as follows:

(a) Build the initial SFG to contain 126 lines.

(2) Establish hunting from the initial SFG to another SFG.

(c) Build the second SFG to contain the remaining lines (up to 126 additional lines). If more than a total of 252 lines are required, establish hunting to a third SFG. Use the same screening line equipment number used for the initial SFG.

2.21 When 800 Service is provided via a dedicated sequential multiline hunt group without "passoff", each terminal in the group is uniquely associated with a given SFGN. This is possible by using the highest terminal number check as described in paragraph 2.06 whereby a terminal is selected and then the associated SFGN is determined, using the terminal number of the selected terminal. Consequently, a maximum of 126 terminals can be associated with all SFGs in a hunting sequence of this type.

2.22 The 800 Service feature requires that all lines used for this service be accessed by regular 10-digit DDD telephone numbers. This 10-digit number assignment is required for the Busy-Idle Status Indicators feature and for the vertical services available. The following guidelines are recommended to assist in the assignment of regular telephone numbers:

(a) In addition to an 800 Service number, a regular 10-digit DDD number in the format NPA NXX-XXXX should be assigned to all 800 Service customer service groups. If an office does not have the Busy-Idle Status Indicator feature, a 10-digit DDD number need only be assigned to the first SFG in the hunt sequence.

(b) In areas where central office code shortages exist, or where "protection" from access by local or toll network is desired, numbers in the format of NPA 0XX-XXXX may be assigned. This assignment technique should be minimized.

(c) There is no relationship between the 800 number dialed and the 10-digit DDD number. The last four digits of the 10-digit DDD number do not have to be the same as those in the 800 Service number. This is what allows a customer to keep his 800 number assignment even though the customer may move to another office, city, or state.

3. ENGINEERING

SOFTWARE—1A *ESS* SWITCH

A. Base Generic Program

3.01 Approximately 1750 words are required.

B. Optionally Loaded Feature Groups

3.02 Not applicable.

C. Parameters/Call Store Areas

3.03 Parameter word A8SFOC requires two words. This parameter word points to the starting address of a block of call store used to accumulate 800 Service overflow counts. The overflow count block (table) is indexed by a SFGN.

3.04 Parameter words A8SFLD and A8SFLA require two words each and are used by the WATS Administration feature. Parameter word A8SFLD points to the SFLN displacement table. For each SFGN the displacement table contains a number used as an index to the SFLN activity block. Parameter word A8SFLA points to the SFLN activity block starting address. The starting address plus the

number obtained from the displacement table points to the SFLN activity block for a specific SFG. A SFLN activity block for a specific SFG may contain up to eight words (0-7). Each word has 16 activity bits for a total of 128 busy-idle indicators.

3.05 The compool-defined word A8SFOF points to the starting address of the 800 Service overflow count table. This compool-defined word requires two words.

3.06 The three compool-defined words associated with the WATS Administration feature are W5SFLD, W5SFLA, and W5SFLL. These words contain the address of the SFLN displacement table, the address of the SFLN activity block, and the length of the SFLN activity block, respectively. These compool-defined words require two words each.

3.07 The following variable call store memory is required when the feature is activated:

(a) A 9-word AMA register is required for each 800 Service call not routing to overflow.

(b) A block is required to serve as the SFLN displacement table whenever SFLA does not equal zero. The size of the block is (SFG + 2)/2 if SFG is even or (SFG + 1)/2 if SFG is odd. The SFG is the value of parameter set card SFG.

(c) A block is required to serve as the SFLN activity block whenever the value of set card SFLA does not equal zero. The size of this block is SFLA + 1.

(d) A block is required to serve as the SFG overflow table. The size of this block is the value of set card SFG + 1. This cost is shared with other services utilizing simulated facilities.

(e) An 8-word simulated facilities register is required per line in a limited access SFGN.

D. Translations

3.08 The DN and SFGN translators are required to implement the 800 Service feature as follows:

(a) The translations required per customer when 800 Service is provided via a dedicated multiline hunt or series completion group are listed below:

(1) The multiline hunt group requires eight words to provide a common block.

(2) The normalized office code and number group number tables require one word to provide the number group number of the multiline hunt or series completion group.

(3) The DN head table and DN subtranslator require one word each.

(4) When the DN subtranslator yields a DN auxiliary block, the DN auxiliary block requires a service-dependent number of words as follows:

- Two words—individual or centrex line, nonattendant
- Five words—attendant with console and not associated with a multiline hunt group
- Seven words—attendant (nonconsole) and associated with a series completion group
- Five words—attendant with console and associated with a multiline hunt group
- Three words—multiline hunt group without an attendant
- Two additional words per DN auxiliary block. (A 4-word DN auxiliary block associated with a route index does not require additional words.)

(b) The translations required when 800 Service Billing is provided with a dedicated multiline hunt or series completion group are listed below.

(1) The SFGN translator requires one word for each SFG utilized.

(2) The SFGN subtranslator requires one word for each SFG utilized.

(3) The SFGN auxiliary block requires two words for each SFG utilized.

(4) The screening LEN (line equipment number) translator requires zero to six words depending upon the service arrangement. If a physical LEN is used as the screening LEN, no words are attributable to the 800 Service Billing feature.

(c) The translations required per customer when 800 Service is provided to a centrex customer are listed below.

(1) If the 800 Service DN is different from the business service DN, the following is required:

- One word—DN head table
- One word—normalized office code and number group number
- One word—DN subtranslator
- One DN auxiliary block. (The exact length depends upon the business service DN.)

(2) The business service DN auxiliary block requires two words if the 800 Service DN is the same as the business service DN.

(3) The screening LEN translator requires one to six words. (The exact length depends upon the business service arrangement.)

(4) The SFGN head table requires one word for each SFG utilized.

(5) The SFGN subtranslator requires one word for each SFG utilized.

(6) The SFGN auxiliary block requires two, three, or four words.

3.09 The USOC (universal service order codes) translator requires one word.

SOFTWARE—1 *ESS* SWITCH

A. Base Generic Program

3.10 Approximately 1140 words are required.

B. Optionally Loaded Feature Group

3.11 Not applicable.

C. Parameters/Call Store Areas

3.12 The parameters and call store areas are the same as the 1A ESS switch in paragraphs 3.03 through 3.07 except each parameter word and compool-defined word requires one word each.

D. Translations

3.13 The translations are the same as the 1A ESS switch in paragraphs 3.08 and 3.09.

REAL TIME

3.14 Calls directed to a dedicated series completion or multiline hunt group require approximately 1200 to 1400 additional cycles (1A ESS switch) or 600 to 700 additional cycles (1 ESS switch) per call compared to a non-800 Service call to an identical group.

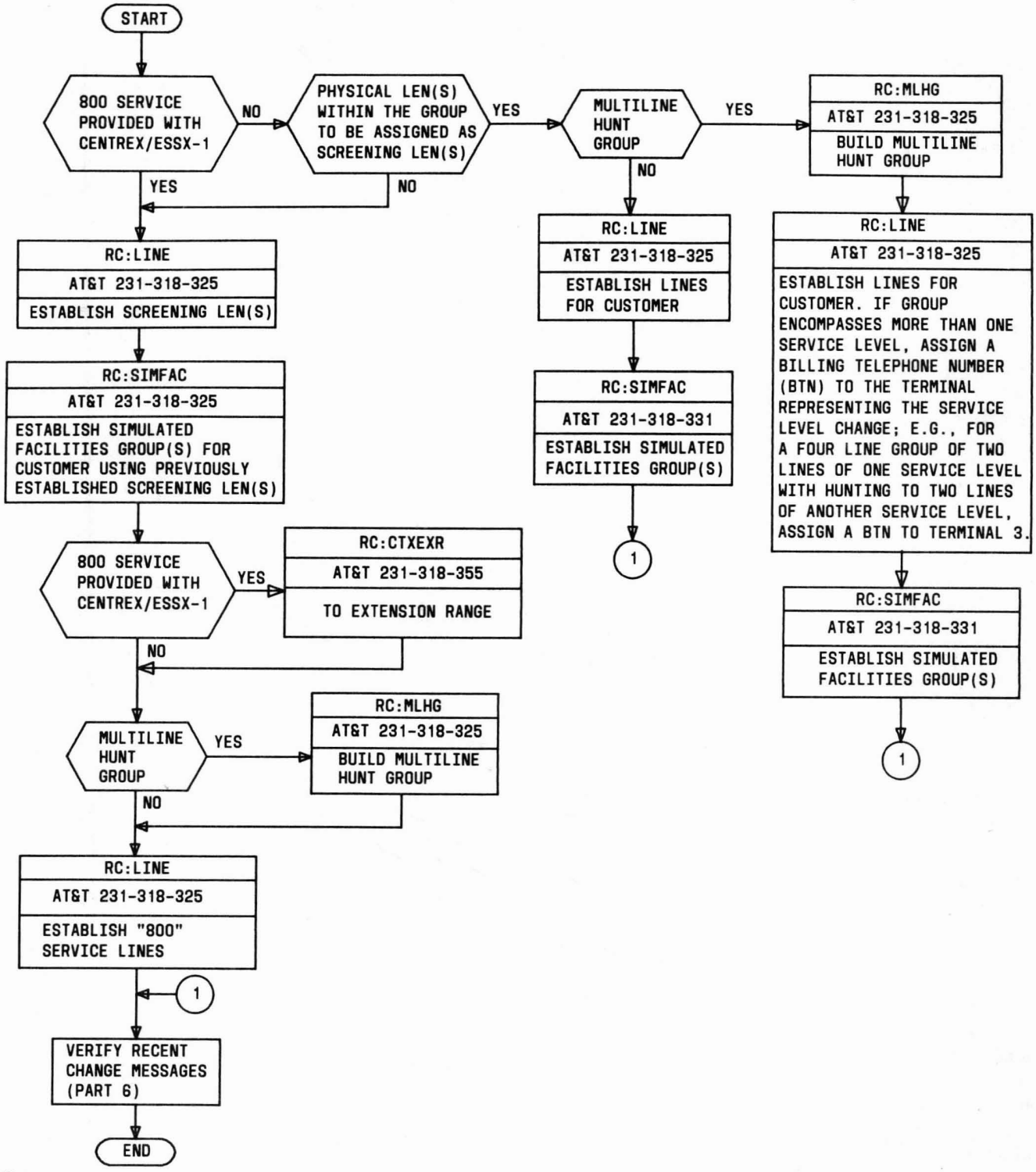
3.15 Calls directed to a centrex group require approximately 1050 to 1250 additional cycles (1A ESS switch) or 650 to 750 additional cycles (1 ESS switch) per call compared to a non-800 Service call to the same group.

4. IMPLEMENTATION

4.01 A flowchart showing the procedure to establish 800 Service for a customer is shown in Fig. 2.

4.02 Additions and deletions of 800 Service per service order require updating the 800 Service data base in addition to the terminating office translations.

4.03 The 800 Service USOCs should be opened up on the ESS 1306 form as LCCs (line class codes). These LCCs should be assigned in one of two ways. One way is to assign a major originating class of 03, major terminating class of 04, and any existing chart column. Another way is to have a major originating class of 04, a major terminating class of 04, and a chart column which routes all originations to a vacant code announcement. The latter method is ***not*** recommended for offices which already have 800 Ser-



Notes:

1. Physical (i.e., not simulated) lines terminate "800" traffic only and are referred to as "Dedicated."
2. Simulated "800" lines are used whenever "800" Service is provided in conjunction with Centrex/ESSX-1; the associated SFGS must be limited access SFGs.

Fig. 2—Establishing 800 Service

vice lines in service with a major originating class of 03.

4.04 When a dedicated multiline hunt or a series completion group is used to provide 800 Service, the first line in each customer service group may be assigned as the screening LEN. The screening LEN will designate the DN of the first line in the customer service group as the billing number. This method saves the additional assignment of a LEN and a DN in the customer service group. However, if the multiline hunt or series completion group provides both full and measured service, the first terminal of the second (measured) group must be assigned a special billing number.

4.05 In order to supply a screening LEN for the 800 Service Billing feature, an LCC for 800 Service screening LENs must be opened up on the ESS 1306 form. The LCC should have a major originating class of 04, major terminating class of 04, and a chart column which routes all originations to a vacant code announcement. This LCC should be established regardless of the method used to establish USOCs. When a customer wishes to bill to a number other than the first number of the customer service group, an additional LEN will serve as the screening LEN for the customer service group. The additional DN assigned is the DN that will be entered on the AMA tape whenever the customer uses the 800 Service feature.

4.06 Multiline hunting is recommended whenever a customer has ten or more lines of a single class or has service level hunting and the total accessible lines are ten or more. Series completion arrangement is recommended if the total accessible lines are less than six. When the accessible lines total seven, eight, or nine, multiline hunting is recommended if a later expansion of service is anticipated; if the service is likely to remain stable, series completion is recommended. When the customer service groups are established in the recommended manner, unlimited size may be used for:

- The SFG of a customer using a single WATS band without "passoff."
- The first SFG of a customer using two WATS bands with series completion without "passoff."
- The second SFG of a customer using two WATS bands without "passoff."

Unlimited size assigned to a SFG saves the use of a simulated facilities register. Access is limited to the number of physical lines in the group.

SET CARDS

4.07 The following set cards are applicable to the 800 Service—Terminating End Office feature:

(a) Set card INWATS indicates if INWATS billing service is provided.

(b) Set card SFG is required for traffic counts on simulated facilities groups.

(c) Set card SFLA is the quantity of simulated facility line number activity words.

(d) Set card FF004 indicates if INWATS AMA on DID trunks is provided.

(e) Set card FF027 indicates if enhanced INWATS type AMA is provided.

TRANSLATION FORMS

4.08 The following translation forms are applicable to the 800 Service— Terminating End Office feature. Refer to Part 6 B(5) for details.

- ESS 1101—Directory Number Record
- ESS 1107A—Supplementary Information Record
- ESS 1109—Centrex Group Record
- ESS 1210—Simulated Facilities Group Record
- ESS 1306—Line Class Code Record
- ESS 1400—Traffic Register Assignment Record.

RECENT CHANGE MESSAGES

4.09 The RC:SIMFAC recent change message is applicable to the 800 Service feature. The keyword APPbb specifies the simulated facilities

application where bb = IW for 800 Service. The keyword HITN specifies the highest terminal number (in dedicated sequential hunt multiline hunt group) associated with this simulated facilities group. (Permissible values are 1 through 126 for an unlimited access simulated facilities group.) The keyword SFLO specifies that SFLNs are associated with this simulated facilities group. See Part 6 A(9) for details.

VERIFICATION

4.10 Translation data for the 800 Service—Terminating End Office feature can be verified using the following TTY messages. Refer to Part 6 B(1) and B(2) for details.

(a) Use VFY-DN to verify the feature associated with one or a group of directory numbers. System response is a TR01 output message.

(b) Use V-SFGN to verify the simulated facilities auxiliary block associated with the SFGNs. System response is a TR35 output message.

(c) Use VFY-CSTG to verify information pertaining to a multiline group. System response is a TR15 output message.

(d) Use VF-SURVEY:SFGN,AUX to initiate a search for all simulated facilities groups and to initiate a survey for the auxiliary block information associated with the input SFGN. System response is a TR35 output message.

5. ADMINISTRATION

MEASUREMENTS

5.01 Measurements required for the Simulated Facilities feature include peg, usage, and overflow counts. All are available on the H- and C-schedules and may be included on the DA 15 and S1-, S2, S3-schedules. Refer to Part 6 A(1) for details.

AUTOMATIC MESSAGE ACCOUNTING

5.02 With the 800 Service Billing feature active in all offices, an AMA record is made of all 800 Service calls (abandoned and completed). The record of an 800 Service call is entered on the AMA tape as an entry type 29 (Table A). On incomplete (abandoned) calls, the abandon time is entered in the correct time space, and the disconnect time space is filled with NCD (noncheck dummy) characters.

5.03 The 800 Service overflow counts are made on nonhunting SFGs and are recorded on AMA tape at 11:00 p.m. daily as a statistical record. An 800 Service statistical record contains overflow counts for up to five 800 Service line groups. Each statistical record is preceded by a statistical heading. The statistical heading format and the statistical format are shown in Table B. This overflow count information may be included on the 800 Service customer's bill.

6. REFERENCES

6.01 The following practices contain information related to or affected by the 800 Service Terminating End Office feature.

A. AT&T Practices

(1) 231-090-229—Simulated Facilities

(2) 231-090-271—Wide Area Telecommunication Service

(3) 231-090-274—800 Service—Originating Screening Office

(4) 231-090-276—Busy-Idle Status Indicators

(5) 231-090-312—Remote Call Forwarding

(6) 231-090-334—Automatic Call Distribution

(7) 231-090-416—Toll Common Channel Interoffice Signaling

(8) 231-318-325—Line Recent Changes

(9) 231-318-331—Miscellaneous Recent Changes

(10) 231-318-355—Centrex Recent Changes.

B. Other Documentation

Note: Items in parentheses denote the 1 ESS switch documents.

(1) Input Message Manual IM-6A001 (IM-1A001)

(2) Output Message Manual OM-6A001 (OM-1A001)

TABLE A

TYPE OF ENTRY 29 FORMAT

TAPE POSITION	DATA GROUP	DATA
1		Start of entry code (V)
2-3		Entry type (29)
4-5	A	Information digits
6-7		Service features (08)
8-15		Connect time 1-Noncheck dummy (NCD) character 7-Digit connect time
16-22	B	Calling number
23-30	C	Disconnect time 1 Midnights passed digit 7-Digit disconnect time
31-35*	14	Line number (last four digits), terminal number, or SFLN
36-		Optional data groups, if any†
XX-		NCD characters‡

* The format of this field is ABBBB, where A is a NCD character and BBBB is NCD characters if the call is a non-800 Service call, the line number (last four digits), terminal number, or SFLN when these numbers can be obtained by the system, or all zeroes when a line number, terminal number, or SFLN cannot be obtained.

† Type of entry 29 may have the following: J (Calling NPA,) L (Entry Extender), M (Optional Information), P (Data Group U Indicator), Q (Trunk Network Number), T (Carrier Interconnect) and /or U100 (Minimum Recordable Duration).

‡ The number of NCD characters recorded is the quantity required to extend the entry to a multiple of five digits.

(3) Office Parameter Specification PA-6A001 (PA-591001)

(4) Parameter Guide PG-1A (PG-1)

(5) Translation Guide TG-1A

(6) Translation Output Configuration PA-6A002 (PA-591003).

7. COMMENT FORM

7.01 A comment form is located at the back of this practice to provide a communications channel from the user to the writer.

TABLE B

800 SERVICE STATISTICAL DATA

HEADING ENTRIES	TAPE POSITION	STATISTICAL ENTRIES	TAPE POSITION
Statistics identifier — first digit (V)	1	Directory number (7 digits)*	11-17
Statistics identifier — second digit (Z)	2	Overflow count (5 digits)*	18-22
Type of statistical data (08)	3-4	Directory number	23-29
Noncheck dummy character (1011)	5	Overflow count	30-34
Hours tens	6	Directory number	35-41
Hours units	7	Overflow count	42-46
Minutes tens	8	Directory number	47-53
Minutes units	9	Overflow count	54-58
Noncheck dummy character	10	Directory number	59-65
		Overflow count	66-70

* Five directory number-overflow count pairs may be included per entry. Additional entries (including another statistical header) are made when additional data are required. The final statistical entry may be less than 70 BCD characters.

COMMENT FORM

Your comments and suggestions concerning accuracy, level of coverage, organization, etc., of this document will be appreciated. Please be as specific as possible for technical comments.

( ) Check to request reply (technical comments only, please).

Mail comments to:

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