SWITCHING SYSTEMS MANAGEMENTS
NO. 2 ELECTRONIC SWITCHING SYSTEM (2-WIRE)
CENTREX ADMINISTRATION

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1. INTRODUCTION

1.01 Centrex service is a telecommunication switching arrangement provided for the benefit of an individual or private organization and is sometimes referred to as centrex customer group service. The service includes facilities for interconnecting telephones within a customer group and for connecting those telephones to other telephones associated with the central office, with other central offices, and with other centrex customer groups. Centrex service is distinguished from private branch exchange (PBX) service in that it provides direct inward dialing (DID) and identified outward dialing for its stations.

1.02 When this section is reissued, this paragraph will contain the reason for reissue.

1.03 The network administrator is responsible for the translation, data acquisition, and administration of the No. 2 Electronic Switching System (ESS) office providing centrex service. This section therefore describes centrex service for the No. 2 ESS, the various methods of providing service to the customer, and the equipment arrangements required. Also provided is information pertaining to the planning for, translation of, and supervision required for new and existing centrex groups.

1.04 This section deals with the Extended Features (EF-1) generic program.

1.05 The title of each figure includes a number(s) in parentheses which identifies the paragraph(s) in which the figure is referenced.

1.06 A general description of No. 2 ESS centrex service equipment may be found in Dial Facilities Management Practices (DFMP), Division H, Section 10s(1).

2. CENTREX

2.01 Centrex service may be provided from a No. 2 ESS central office which has been equipped with an EF-1 generic program. A maximum of 127 centrex customer groups as well as basic telephone subscribers may be served by this office. All switching equipment required to serve the centrex group(s) is within the No. 2 ESS switching machine and is located on operating telephone company premises. Centrex customers' lines are directly connected to the central office in the same manner as regular telephone subscriber lines (plain old telephone service [POTS]). Each centrex line therefore has an equipment appearance at the central office and has direct access to the switching facilities. Historically, this type of centrex service has been referred to as centrex-CO.

2.02 In addition to individual centrex station lines, each centrex group may be provided with a

maximum of 63 1B, 2B, 27A, or 47A type universal cordless telephone consoles to provide attendant services. Association of the consoles with the central office is made via attendant trunks while console key and lamp data are transmitted back and forth between the console and central office via a console control cabinet and console data loop.

2.03 Since each centrex line has an appearance at the central office, calls originating or terminating at centrex stations are switched through the network in the same manner as calls for POTS customers. This is also true of calls involving the attendant.

2.04 A variation of the centrex service just described utilizes switching equipment which is located on the customer's premises. In the past, this type of service has been referred to as Centrex-CU. As related to the No. 2 ESS this can imply two separate concepts:

(a) A centrex-serving vehicle (not a No. 2 ESS) located on the customer's premises which "homes" on a No. 2 ESS central office. This serving vehicle is equipped with automatic number identification (ANI) capability and is compatible to the No. 2 ESS automatic identified outward dialing (AIOD) interface arrangement.

(b) A No. 2 ESS arranged for centrex operation and located on the customer's premises. This No. 2 ESS, although located on the customer's premises, is a central office. Unlike the centrex-serving vehicle described in (a) above, the No. 2 ESS is not capable of homing on a class 5 central office nor is it capable of performing ANI operation. The No. 2 ESS located on the customer's premises is engineered and administered in the same manner as a central office located on the telephone company's premises.

SIMULATED PBX SERVICE

2.05 PBX service is traditionally provided utilizing switching equipment located on the customer's premises but can be provided on a central office basis. This service, in general, is similar to regular PBX service with the exception that the No. 2 ESS uses its centrex translation program capability to simulate PBX service. Historically, this service has been referred to as PBX-CO.

2.06 All station lines are connected over outside plant facilities directly into the central office as is done for centrex service. The basic difference between simulated PBX service and centrex service is that centrex stations are allowed to receive DID calls whereas in a simulated PBX environment all incoming calls are directed to the attendant. A second major difference is that PBX outward-dialed calls are not station identified for charging purposes. A third difference is that there is a maximum quantity of calls that a PBX customer can have in progress at any one time with the local message network, whereas the centrex customer has no such restriction. Centrex translations are used to apply the PBX restrictions.

3. EQUIPMENT

CENTREX

3.01 Centrex service may be offered to a customer either with or without centrex data link hardware.

A. Centrex Service With Data Link Hardware

3.02 Each centrex customer being provided centrex service with data link hardware is equipped with one or more 1B, 2B, 27A, or 47A type universal cordless telephone consoles to provide attendant services.

3.03 A centrex data loop interconnects the attendant telephone consoles and console control cabinet at the customer's premises with the 2-wire No. 2 ESS central office. This loop provides 2-way data communications between the central office and the attendant consoles. Lamp data are transmitted by means of this loop and the console control cabinet to the attendant consoles in order to control the state of lamps on the consoles; these lamps indicate service requests or other supervisory signals to the attendant. Key signals from the attendant consoles are transmitted to the central office by the data loop and console control cabinet. These key signals are interpreted at the ESS central office as requests for specific actions at the central office. One data loop circuit is capable of controlling a maximum of four of the 1B or 27A type consoles or four of the 2B or 47A type attendant consoles.

3.04 Each centrex customer group is assigned a listed directory number (LDN). All calls to

the LDN are routed, in the order of their arrival, to an attendant associated with that particular customer group.

3.05 Call distribution is provided to spread the load evenly to all attendants and to prevent a new call from being switched to a console before the attendant is ready to answer it.

3.06 Centrex stations may be equipped with either TOUCH-TONE® or rotary dial telephones.

3.07 Centrex service requires the use of two specialized equipment units in addition to the attendant telephone consoles and the station telephones:

- A centrex data link frame provided at the ESS central office
- A centrex console control cabinet installed at the centrex customer group premises.

These units are used to implement the data transmission between the centrex customer location and the central office.

3.08 Trunk circuits for tie lines and foreign exchange (FX) trunks may be assigned for the exclusive use of a particular centrex customer group or centrex complex. These circuits are used to connect the particular centrex group or complex to other switching systems. These circuits are terminated in the ESS central office in the same manner as other trunks; however, through the ESS stored memory the system is aware that these trunks are to be used only by a particular centrex customer group or centrex complex.

3.09 A block diagram of a typical centrex customer using data link hardware is shown in Figure 1. Although only one console is shown, on larger centrex installations additional consoles may be provided to handle greater attendant traffic. The centrex station telephones are shown connecting directly to the No. 2 ESS switching network in the same manner as noncentrex subscribers are connected. The attendant trunk circuit is shown connected to the switching network to provide a talking path for the attendant. Only one talking path is provided for each attendant telephone console since an attendant can process only one call at a time. The data loop which is illustrated provides the 2-way data path. One data loop path is required for each centrex console control cabinet. The system is controlled by the 2-wire No. 2 ESS central processor. Tie trunks and FX trunks through which a centrex customer group may have access to other switching systems are shown connected to the switching network.

B. Centrex Service Without Data Link Hardware

3.10 Centrex service can be provided without the use of console data link hardware when attendant consoles are not required. The following facilities may be used to handle limited attendant functions:

(a) CALL DIRECTOR®

(b) Telephone keyset

(c) Simple telephone.

3.11 Trunk circuits can also be assigned for the exclusive use of a centrex customer as with 1B, 2B, 27A, or 47A type attendant console operation.

3.12 A block diagram of a typical centrex customer using a CALL DIRECTOR instead of a 1B, 2B, 27A, or 47A type attendant console is shown in Figure 2.

3.13 Centrex service as described in 2.04(a) utilizes ANI equipment at the customer's location to determine the station number originating the call and the trunk number of the central office trunk being used. This information is transmitted to the No. 2 ESS AIOD interface equipment and made available to the Local Automatic Message Accounting (LAMA) System. Before AIOD became available this function required the manual intervention of an operator.

3.14 The central office must have LAMA before this service can be implemented without operator assistance. No. 2 ESS AIOD is compatible to all PBX systems having ANI features, including No. 101 ESS.

3.15 The basic configuration used to provide centrex service with AIOD is illustrated in Figure 3. For further information pertaining to No. 2 ESS AIOD refer to Feature Document 232-190-502 or Bell System Practices Section 232-203-101.

3.16 Centrex service as described in 2.04(b) is identical to centrex service as described in 2.01 except that the entire No. 2 ESS is located on the customer's premises. Figure 1 gives an accurate representation of this service except that the interconnecting lines are not required.

SIMULATED PBX SERVICE

3.17 Simulated PBX service, as provided by the central office, can be provided by either of two methods:

(1) With centrex data link hardware

(2) Without the use of data link hardware.

In each case, the number of calls in progress between the local message network and the simulated PBX group is restricted by the simulated-facilities feature of the EF-1 generic program. The feature is incorporated using the centrex translations as described in Part 6 of this section.

A. Simulated PBX Service With Data Link Hardware

3.18 Each customer being provided simulated PBX service with data link hardware is equipped with one or more 1B, 2B, 27A, or 47A type universal cordless telephone consoles to provide attendant service.

3.19 A simulated PBX group uses the same centrex hardware as the centrex group does: centrex data loop, centrex data link frame, centrex console control cabinet, etc (3.02 through 3.08).

3.20 A block diagram of a typical simulated PBX customer using data link hardware is shown in Figure 1 and a description of this figure is given in 3.09. Note that the layout is the same for centrex and simulated PBX service.

B. Simulated PBX Service Without Data Link Hardware

3.21 Simulated PBX service can be provided without the use of data link hardware when attendant consoles are not required. Simulated PBX operation without data link hardware is basically the same as that of centrex without data link hardware (3.10 through 3.12).

3.22 A block diagram of a typical customer with simulated PBX service using a CALL DIRECTOR instead of a 1B, 2B, 27A, or 47A type attendant console is shown in Figure 2.

4. CENTREX FEATURES

4.01 The features available with the local office (LO-1) and EF-1 generic programs are listed and described in DFMP, Division H, Section 10L, Generic Program Documentation and Features Description, and Feature Document 232-190-012. Centrex service requires that the central office be equipped with the EF-1 generic program and the features available to the customer are those of the EF-1 generic.

4.02 For marketing purposes, features are generally offered in packages. Figure 4 lists the most commonly offered centrex and PBX feature packages. However, tariff filings may differ and the features offered may differ accordingly. It is suggested that any deviations from the feature packages listed in Figure 4 be marked on the copy by hand to avoid any misinterpretation later.

4.03 The network administrator should be familiar with all aspects of the features available with centrex service in order to ensure that they are properly applied. A knowledge of the generic applications, hardware and software limitations, and methods of incorporating features into the system is required. Specific information by feature is available in the No. 2 ESS Feature Documents.

4.04 Features are allowed or denied to a centrex customer by making appropriate entries in the centrex translations. This requires some planning and forecasting with regard to the customer's desires and needs. Centrex planning and translations are discussed in Parts 5 and 6 of this section.

5. CENTREX PLANNING

5.01 Planning the service for a prospective centrex group requires coordination within and among a number of departments. It is recommended that a committee be formed to be responsible for the planning, activity, and cutover of all centrex service. This committee may be called the centrex cutover committee, centrex planning team, or a similar name which implies its task. Each telephone company department which could possibly be involved in a centrex cutover should be represented on the committee.

5.02 The first contact between the telephone company and a prospective centrex customer is usually made by a marketing representative. The marketing representative should obtain sufficient information describing the customer's service requirements. This information is then passed to the centrex committee to establish the compatibility of the prospective service and the central office.

5.03 Once it has been determined that the central office can serve the customer, the centrex committee may meet to establish a cutover schedule and to assign each department its respective tasks. By this time a cutover date should have been tentatively agreed upon by the customer and the marketing representative. Using that target date, the committee will assign tasks and schedules to each department through its committee representatives. When this has been done, the cutover schedule will be established and all parties concerned will be made aware of their responsibilities for the cutover.

5.04 In order to simplify the scheduling and assigning of tasks, it is common practice for the centrex committee to generate a memorandum or data sheet(s) which provides all facts and figures pertinent to the cutover of the centrex group. One example of centrex cutover data sheets is given in Figure 5. The data sheets contain entries for pertinent centrex information. The first entries on the data sheets may be made by the marketing representative and as the job progresses the entries will be updated with changes or additions to keep the information current.

5.05 An additional item which aids in the development of a cutover schedule is the centrex task sequence list. An example of a sequence list is given in Figure 6. The list contains task-oriented entries which are numbered and assigned to the various telephone company departments. The sequence list may be developed at the first meeting of the centrex committee but will usually be developed from some standard list. In any event, the centrex committee should establish dates for starting and completing each task and, if possible, this should be done during an early meeting. The sequence list may then be attached to or incorporated into the centrex memorandum or data sheets.

5.06 As the centrex job progresses, the centrex committee may meet frequently to review the job progress or make schedule or service changes. (In some companies, the committee may meet on a regularly scheduled basis either at a time mutually agreed upon by the committee members or at a time prescribed by standard company procedures).

5.07 During the planning and cutover period, the network administrator's primary responsibility is to prepare the office translations necessary to provide centrex service to the customer based upon information obtained from the marketing representative or business services representative.

6. CENTREX TRANSLATIONS

6.01 The No. 2 ESS utilizes stored data to control a configuration of data processing, input/output, and switching equipment. This concept is referred to as stored program control. There are two distinct categories of data which make up the stored program; they are the generic program and the translations data.

6.02 The generic program is a group of instructions which direct the normal telephone switching operations of line and trunk interconnections and the maintenance routines for automatic detection of component and package failures. The size of the generic program is determined by the features and services offered and does not change with office growth in terms of the number of lines and trunks served. The generic program is discussed in DFMP, Division H, Section 10L, Generic Program Documentation and Features Description.

6.03 The translations data consist of information which defines the characteristics of the individual office and each customer within the office. Translations are unique for each No. 2 ESS office and it is through translations that the centrex customer is allowed or denied the many features and options available with centrex service.

6.04 The network administrator is responsible for ensuring that all of the necessary translation forms are completed properly and within the scheduled time. The preparation of translation forms is a process of transforming raw data into a form which can be keypunched and fed into a data processor. The raw data and schedule information should be available from data sheets supplied by the centrex committee. After processing

is completed the data are ready for storage in the magnetic memory of the No. 2 ESS program store.

6.05 Before starting the actual form preparation, the data should be reviewed to gain an overview of the service to be translated. While the data are being reviewed it should be kept in mind that the data should fall into one of three general categories of translation data. These categories are office-type information, group information, and line information.

6.06 Office-type information includes those items which are needed for general call processing. Examples of this type of information are line class codes, abbreviated classes, and routing and charging information. Office-type information is needed to process POTS calls as well as centrex calls and forms the groundwork for the office.

6.07 Group-type information includes data which are common to all or part of the centrex group. Examples of this type of information are feature offerings, console data, dialing assignments, trunk requirements, etc. Group-type information is needed to define the characteristics of the centrex group as a whole.

6.08 Line-type information includes data which pertain to the individual stations which make up the centrex group. This is basically detailed number and feature information and is needed to associate the two.

6.09 The network administrator's primary source of instruction for preparing translations will be the No. 2 ESS Translation Guide (TG-2H). It is therefore important that this document be kept current and that pages are inserted or removed as specified in the TG-2H transmittal notices which are distributed by Western Electric. Supplementing TG-2H are American Telephone and Telegraph Company letters and local company directives on translation-related subjects.

6.10 The sequence for completing input forms does not have to be the same for all offices and usually will not be obvious. Guidelines for completing the forms are provided in Division 5 of TG-2H. It is generally good practice to begin by translating the office-type data. Office-type information will be required later and backtracking is likely to cause translation errors. Also, all of the group and line information is not needed to complete the office-type translations. After the office data, group data may be translated. Most group information is required on the Centrex Group Table—Form 2109 which can be completed without detailed line information. Line translations are best left as the final translation task. Most centrex line information is required on the Centrex Directory Number Table - Form 2101. The information on this table will include each directory number, its appearance on the network, and the line class code and feature information for each.

6.11 Translation forms which may apply to a centrex service are listed in Figure 7. Division 11 of TG-2H contains reproducible copies of all the forms. Most of the forms apply only in part to centrex and some forms apply only in the sense that they contain office-type information which is needed by both POTS and centrex customers. Forms 2105 and 2213 have application for centrex service as described in 2.04(b) and Form 2201 applies only to growth jobs. The instructions in Division 4 of TG-2H should be read to determine if a particular form applies. Considerable cross-referencing is required between the forms and this cross-referencing is also indicated in TG-2H.

6.12 Figures 8, 9, and 10 list all of the centrex features presently available and also indicate, on a per-feature basis, the translation forms which are applicable. Entries are indicated as either required (R) or allowed (A). The basis for whether an entry is considered to be ***required*** or ***allowed*** will not always be obvious and the exact nature of the entries is not indicated. However, TG-2H will provide any additional information needed to complete the forms. As a rule, an entry is considered to be ***required*** if it is independently necessary to provide the feature and an entry is considered to be ***allowed*** if its need is dependent upon other factors related to the feature. Examples of some ***allowed*** type entries are those indicated on Form 2107. These are necessary only if insufficient space is available elsewhere to provide them. Figures 8, 9, and 10 are intended only as keys to guide the user to appropriate sections of TG-2H. As changes are made to TG-2H, the information on the figures may become outdated and therefore TG-2H should always take precedence when there is a conflict.

6.13 Completed translation forms must be submitted to Western Electric's regional center. At the regional center the information contained on

the forms will be processed by the Office Data Administrative (ODA) System and transformed into data tables which will be compatible to the No. 2 ESS data-processing system (control complex). The ODA System, including scheduling and updating information, is discussed in Division 3 of TG-2H.

7. NETWORK MEASUREMENTS

CENTREX TRAFFIC REGISTERS

7.01 The EF-1 generic program provides centrex registers as part of the H- or C-schedule. These registers provide measurements for each type of centrex call that can originate in a centrex-serving office. The measurements include peg counts and usage counts. Any centrex group may be assigned to either the H- or C-schedule or neither schedule. A complete listing and description of the No. 2 ESS traffic registers are provided in Division 10 of TG-2H and in Bell System Practices, Section 232-120-301.

RELATED TRAFFIC REGISTERS

7.02 Traffic registers which are applicable to some centrex customers are the trunk and service circuit (TRK), simulated trunk group (SIM), and multiline hunt (MLH) measurements of the H- or C-schedule. The TRK registers may be used to measure usage, overflow, etc, in centrex DID trunk groups. The SIM registers may be used to measure like information in software simulated trunk groups such as wide area telephone service (WATS) and simulated PBX service dial 9 trunks. The MLH registers may be used to obtain network measurements on inward WATS trunk groups and centrex AIOD access lines.

8. RECORDS

GENERAL

8.01 The Translations Office Records Generation (TORG) System of the No. 2 ESS ODA System enables the telephone companies to obtain, upon request, a complete or partial set of office records for a No. 2 ESS central office. The available records are grouped into the eight categories (including centrex) listed below:

- Line
- Trunk
- Scanner
- Junctor
- Routing and charging
- Traffic measurements
- Miscellaneous
- Centrex.

8.02 TORG office records are derived from the working program store and appear as computer printouts of various topical data. Each topic is covered on a separate record (R) form. The R-forms available for centrex are listed in Figure 11. Each record is printed on 8 1/2-inch by 11-inch 2-part paper. The second part is erasable and may be maintained as the official office record. Sample office records are found in Division 8 of TG-2H. The TORG System is discussed further in DFMP, Division H, Section 10u, Translation Office Record Generation System.

8.03 The main advantage of the No. 2 ESS R-form records is that they may be used by the telephone company as permanent office records and eliminate the need for keeping manual records. These records also serve as a valuable aid in the preparation of growth translations since they contain current translations including those previously altered by recent change.

RECORDS ADMINISTRATION

8.04 Office records serve as a valuable tool in the administration of the office and contain a cross-reference of information on lines, trunks, routing, and charging. The network administrator is responsible for acquiring and maintaining accurate and current office records for each centrex customer served by the office. Records may be obtained by submitting a data link questionnaire, Form E-8103, and an office records request, 2002, to the Western Electric regional center. The data link questionnaire is used to schedule administrative data link (ADL) activities; to establish the identity of persons responsible for the ADL input, output, and processing operation; and to identify the specific telephone company requirements for the order. The office records request indicates which office records are required. Centrex records may be obtained by checking the appropriate block on this

form. Detailed information on ordering office records is provided in TG-2H. A normal time-frame for ordering and receiving office records is 10 calendar days from the time of the data link activity to the delivery of the office records.

RECORDS MAINTENANCE

8.05 The network administrator is responsible for maintaining current office records. The effort required to maintain centrex records will depend upon the size and stability of the centrex group and the accuracy of the centrex forecast. Most changes to a centrex group can be accomplished by recent change and are included in the list in Figure 12. Figure 13 lists those changes which require an ODA run.

8.06 For record keeping purposes, changes not requiring an ODA run should be marked on the existing records. Information pertaining to minor line or feature changes can be obtained from the service order. Major changes may necessitate direct communication with marketing personnel. If the records become worn due to group activity or for some other reason, they may be replaced by ordering new records as discussed in 8.04.

REMARKS

8.07 Remarks may be added, deleted, or changed on certain TORG office records. The remarks must be submitted to the Western Electric regional center on the necessary translation forms along with the two forms required when ordering office records (see 8.04). At present, the only centrex record listed in Figure 11 which has the remarks feature available is the 2100-R. Remarks which appear on this form are extracted from either the 2100 or 2101 translation forms depending upon which defines the particular directory number.

9. GROWTH

9.01 Growth, for the purpose of this discussion, can mean general office growth in terms of equipment and software or it can mean growth within the family of centrex customers being served by the office. The two are related in that planning during general office growth will directly affect the later growth of centrex service.

9.02 From the network administrator's viewpoint there are two fundamental types of growth jobs for centrex: those which require an ODA run and those which do not. The forecast planning done during general office growth will play a major role in determining the category into which any centrex growth will fall.

9.03 Most changes to the service of existing centrex groups can be accomplished with a recent change update to the translations. This type of change (or growth) does not require an ODA run and can be accomplished in a relatively short period of time using service order activity to effect changes to the office translations. Adding new centrex groups for which memory space has not been provided will require an ODA run and requires a longer period of time. Figure 12 lists all translation data which are alterable only by the ODA method. Figure 13 lists all translation data which are alterable by the recent change method.

9.04 The time to plan for centrex growth is when the central office is undergoing general equipment and software storage growth. At that time, the network administrator should be provided with a forecast of centrex growth to the end of the planning period. Using that forecast, the network administrator must build dummy centrex groups into the office translations. Later, these dummy groups will be assigned to new centrex customers and additional information may be provided via recent change. ***If the dummy groups are not built into the translations, an ODA run will be required for each new centrex group.***

9.05 Dummy centrex groups are built to provide the basic memory storage blocks which are required for those groups. A minimum amount of information is needed to build a centrex dummy group but the more information the network administrator has in advance, the more accurately the dummy group can be built. Once space has been provided in memory for a centrex group, that space cannot be used for any other purpose. Building dummy groups will therefore require some forecasting in order to allow sufficient space to be provided and still not waste valuable memory. The same three categories of data needed for translating any centrex group (office, group, and line) are needed to build dummy centrex groups.

9.06 The centrex group information must be provided on translation forms 2108 and 2109

and line information must be provided on form 2101. Dummy trunk and/or simulated facilities groups must be reserved on form 2202. Line class codes for the centrex group are defined on forms 2306 and 2307. Building a dummy group is similar to building an actual centrex group except that most of the information must be estimated or forecasted. A decision must be made on the number of dummy groups to build, the size of the block of directory numbers to reserve for each, and the maximum number of attendants each group will require. It is also advisable to provide forecasted data for each applicable group on form 2215 - Manual Trunk Disposition and Group Billing List. The centrex access treatment codes for each group must be provided on form 2109.

9.07 Figure 14 is an example of the translation forms and data required for building centrex dummy groups. Each part of the figure shows one of the translation forms provided in TG-2H and sample data. Making a working centrex group from a dummy group requires information additions to the translation data. This information is primarily number and feature information for the centrex stations and consoles and may be added via recent change.

10. PROBLEM ANALYSIS

PROBLEM DETERMINATION

10.01 Common centrex-related problems encountered by the network administrator are those which result from translation errors, blockage, or some difficulty on the customer's premises. These problems are usually channeled to the network administrator via marketing personnel. Analysis of network problems requires skill which can only be developed through experience and thorough knowledge of the equipment and software used to serve the customer.

TRANSLATION PROBLEMS

10.02 Two types of translation problems which the network administrator may encounter are those which are incompatible to the ODA System and those which result in improper service to the customer. Those translation errors which are incompatible to the ODA System will be reported back to the network administrator after the data is analyzed by the Error Check subsystem at the Western Electric regional center. Although this type of problem may have an impact on scheduling, due to an ODA delay, it is relatively easy to correct because the Error Check subsystem will pinpoint the problem area and the cause of the problem.

10.03 Translation errors which are compatible to the ODA System but which result in improper service are more difficult to correct. These types of errors are more difficult to correct because the only clues to the trouble are the symptoms and even these may not be obvious. Experience and a working knowledge of the equipment and software are prerequisites for isolating the problem and affecting corrective action.

OVERFLOW PROBLEMS

10.04 Blockage can be the result of a translation problem causing the machine to handle customer traffic ineffectively but the cause is more likely to be a lack of sufficient hardware available to handle the volume of calls during the customer's busy hour. For example, a customer's WATS service will be limited by a simulated facilities group and although there may be substantial physical hardware available, the software will limit the number of circuits which can handle the customer's traffic; overflow will result if the simulated facilities group is too small.

CUSTOMER PREMISES PROBLEMS

10.05 Problems may be encountered which are the result of some irregularity at the customer's premises such as a hardware problem or improper use of equipment by the customer. A suspected hardware problem on the customer's premises should be referred to and investigated by repair personnel. If the problem is the result of improper equipment utilization then the solution may involve customer training. Customer training in the use of equipment is the responsibility of business services personnel and problems of this type should be referred to them for resolution.

PROBLEM ANALYSIS AND CORRECTIVE ACTION

10.06 Network administrators must use their experience and system knowledge along with the office records and applicable traffic registers in order to isolate a particular problem. If the problem is not obvious, it will help to postulate a set of circumstances which could cause the problem and then determine if that set of circumstances

exists for the actual problem. This may merely require checking office records and service orders to determine if a customer is being provided the service due. Appropriate traffic registers should be checked when blockage occurs to determine if the customer's volume of traffic falls within the range of the facilities available to handle that traffic. A check of the traffic registers may reveal that the facilities purchased by the customer are insufficient to handle the traffic load, that a translation error is causing reduced service, or that the customer's busy hour has shifted and is causing service degradation in the central office.

10.07 Once the cause of a problem has been isolated, corrective action should be taken. Implementing corrective action may be a matter of inserting a recent change into the office translations or it may require adding to or rearranging the existing equipment to accommodate the customer.

11. SPECIAL REQUIREMENTS

ASSIGNMENT CONSIDERATIONS

11.01 In addition to the general guidelines for line assignment given in DFMP, Division H, Section 10g, Load Balance, and Division H, Section 10o, Assignment Administration, care should be taken to spread centrex lines, trunks, and console loops evenly across the line trunk networks, line trunk switches, and concentrators both by customer group and class of service. A usage study should then be made shortly after cutover to determine if the load is evenly distributed over the switching network. The usage study is important in as much as centrex groups tend to add a relatively large amount of usage to the machine suddenly as compared to noncentrex customers.

DIALING PLAN CONSIDERATIONS

11.02 A regular 7-digit central office number is assigned to each centrex station. The No. 2 ESS does not require centrex numbers to be consecutive in nature. Nor are there any other restrictions which are placed on centrex numbers by the machine itself. However, it is administratively desirable to have consecutive blocks of numbers for centrex groups. Consecutive numbering plans are easier to administer and record, are less likely to cause errors or misinterpretation between the customer and the telephone company, and are more efficient where program store space is concerned. It is also essential that centrex numbers be so assigned as to use central office codes as efficiently as possible. Good planning requires a central office code be shared by several centrex or noncentrex customers.

11.03 It is suggested that the initial digit of a centrex station number not begin with:

"0"—conflicts with suggested assignment for attendant access code

"9"—conflicts with suggested assignment for direct out dial code

"8"—conflicts with suggested assignment for CCSA access code (if any)

"1"—conflicts with suggested assignment for special services access codes.

11.04 Although the customer may have no desire initially for CCSA, special services, etc, it is prudent to allow for such contingencies when developing the dialing plan.

11.05 Number series beginning with 0, 9, 8, and 1 may be assigned to noncentrex customers.

11.06 The initial dialing plan, whether two, three, four, or five digits, should be sufficient to serve the ultimate size of the customer group while permitting station users to dial a minimum number of digits. Should unforeseen station growth develop, however, it may be necessary to convert a 3-digit system to a 4, or a 4-digit system to a 5. The construction of the DID numbers may prohibit this expansion if prudent number assignments were not made initially. For example, a customer with a 3-digit system should not be assigned a code such as:

NNX-0XXX

NNX-9XXX

NNX-1XXX

NNX-8XXX (if CCSA possibility).

11.07 It can readily be seen that to convert one of the above 3-digit systems to a 4-digit system might cause conflicting dialing codes for

the centrex customers which must be resolved with a dialing plan change.

DIVISION OF REVENUE

11.08 Division of Revenue studies are made and used to determine how the revenue each company receives from intercompany traffic is to be divided among the companies.

11.09 It is recommended that the Division of Revenue function be performed in the following manner. Each month, on a routine basis, each network administrator is required to collect Division of Revenue peg counts on a sample basis. These data are manipulated and scaled up to total-month peg counts and summed over all switching machines in the entire Division of Revenue area. Each month the data are inputted to a Long Lines computer program which computes each company's share of the Bell System's total interstate toll revenue for that month. In addition to the computations for the Bell System intercompany revenue division, monthly settlements are made between the Bell System company and all non-Bell System companies with which the Bell System company interfaces.

11.10 Division of Revenue traffic data must be collected and manipulated to separate revenue-sharing data from nonrevenue-sharing data. The data are collected for the following categories:

- Originating traffic
- Intercentrex traffic
- Common control switching arrangement traffic
- Toll traffic on selected trunk groups
- Direct distance dialing message network traffic.

The methods and registers used for data collection will vary from company to company but are usually specified by a Division of Revenue group. The data collected by the network administrator are turned over to that group for processing.

INTERCEPT ARRANGEMENT

11.11 Centrex customers utilize the same general intertoll and switching blockage intercept arrangements as POTS customers. However, because of the high usage rate of business customers and the variety of features available to centrex customers, additional intercept arrangements may be provided which meet an individual centrex customer's unique needs. These include intercept arrangements for:

- Access code dialed in error
- Access code not dialed
- Nonworking centrex station
- Common centrex announcement (intracentrex calls)
- PBX service converted to centrex
- Customer calling.

These intercepts are further broken down in Figure 15. The equipment required to provide the intercept may be located at the central office or on the customer's premises, depending on the type of intercept and the type of centrex service provided.

11.12 The network administrator is responsible for generating the translations necessary to provide the intercepts for a centrex customer. When and how a call is intercepted are determined by entries in the office translations. Most centrex intercepts are provided as a matter of common practice when the network administrator prepares the translations for the centrex group.

11.13 Special cases may arise where the customer requires some unique intercept arrangement or a variation of one of the more common arrangements or the customer may wish to control the intercept using equipment located on the customer's premises. These special cases should be brought to the attention of the network administrator by marketing personnel or during a meeting of the centrex cutover committee in order that the network administrator may generate, if necessary, the required translations.

11.14 Intercept arrangements and recorded announcements are discussed further in DFMP, Division H, Section 10d(11), Recorded Announcements.

BUSINESS SERVICES REQUIREMENTS

11.15 The business services representative is responsible for familiarizing the customer with the centrex equipment and features and for training the customer and the customer's employees in their proper use. Some telephone companies provide special training centers for this purpose. Training may also be provided for a limited period of time on the customer's premises.

11.16 If temporary training facilities are to be provided on the customer's premises, the network administrator is responsible for generating the necessary translations and assigning the appropriate terminals required to serve the training facilities.

12. REFERENCES

12.01 The following is a list of references which contain information pertaining to this section.

Dial Facilities Management Practices:

(1) Division H, Section 6d(5), Operational Features, Recorded Announcements, No. 1 Electronic Switching System

(2) Division H, Section 10L, Generic Program Documentation and Features Description, No. 2 Electronic Switching System

(3) Division H, Section 10s(1), Centrex Central Office Service General Description, No. 2 Electronic Switching System

(4) Division H, Section 10u, Translation Office Records Generation, No. 2 Electronic Switching System

Feature Documents:

(1) 232-190-012, General Description—Centrex-CO, No. 2 Electronic Switching System

(2) 232-190-301, Centrex Call Transfer Service, No. 2 Electronic Switching System

(3) 232-190-307, Busy Verification of Station Lines, No. 2 Electronic Switching System

(4) 232-190-316, Direct Inward Dialing—Centrex-CO, No. 2 Electronic Switching System

(5) 232-190-318, Directed Call Pickup, Centrex-CO, No. 2 Electronic Switching System

(6) 232-190-326, Night Service for Centrex-CO (Night Service and Trunk Answer Any Station), No. 2 Electronic Switching System

(7) 232-190-331, Centrex Speed Calling, No. 2 Electronic Switching System

(8) 232-190-338, Tandem Tie Trunk Dialing, No. 2 Electronic Switching System

(9) 232-190-339, Most Economical Routing (MER), No. 2 Electronic Switching System

(10) 232-190-502, Automatic Identified Outward Dialing, No. 2 Electronic Switching System

Bell System Practices:

(1) 232-118-301, Procedures For Adding A Centrex-CO Customer, No. 2 and 2B Electronic Switching Systems

(2) Section 232-120-301, Traffic and Plant Measurements, No. 2 Electronic Switching System

(3) Section 232-203-101, Automatic Identified Outward Dialing, No. 2 Electronic Switching System

Translation Guide:

Translation Guide, TG-2H, No. 2 Electronic Switching System

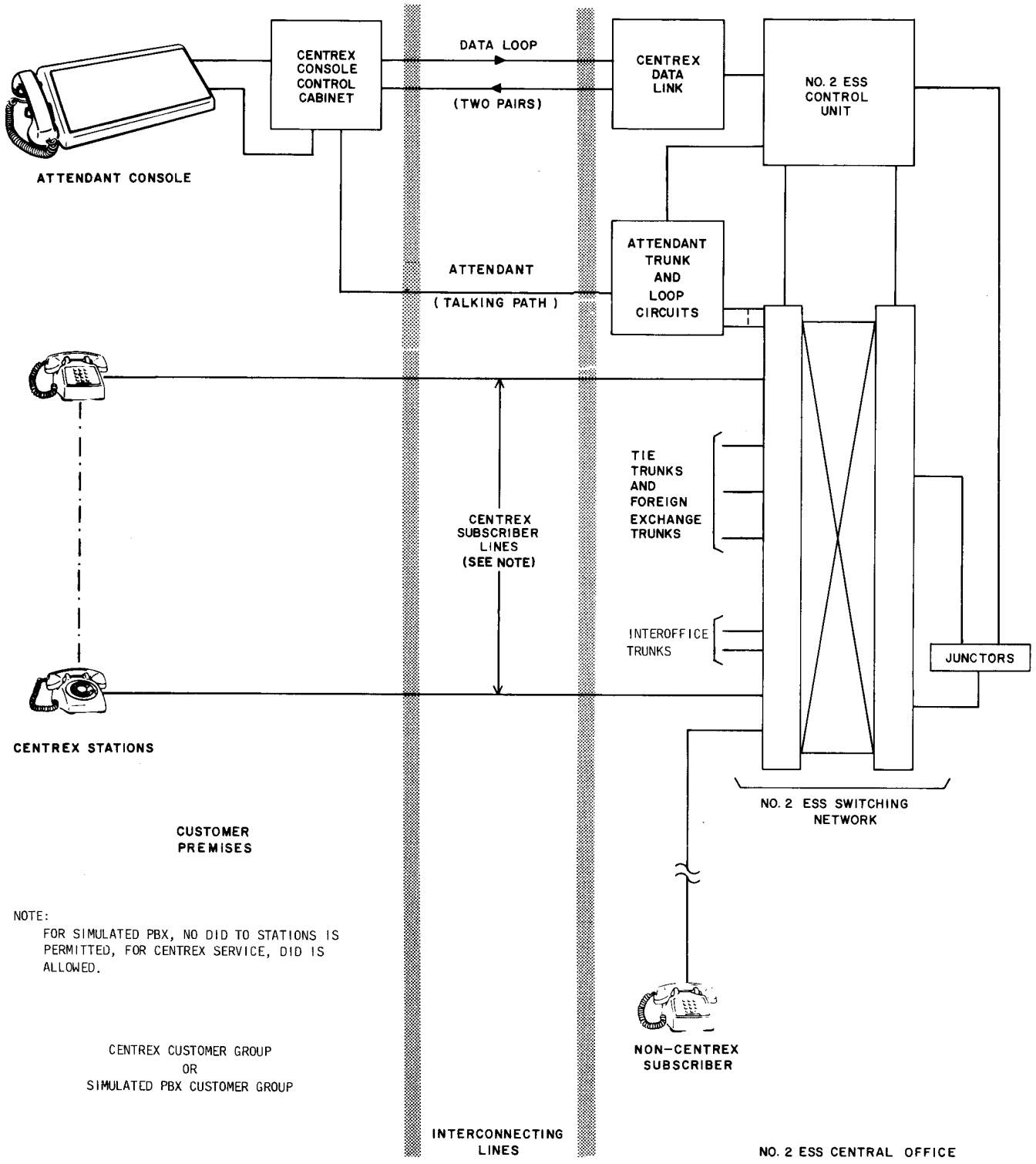

Fig. 1—Centrex Simulated PBX System With Centrex Data Link Hardware (3.09, 3.20)

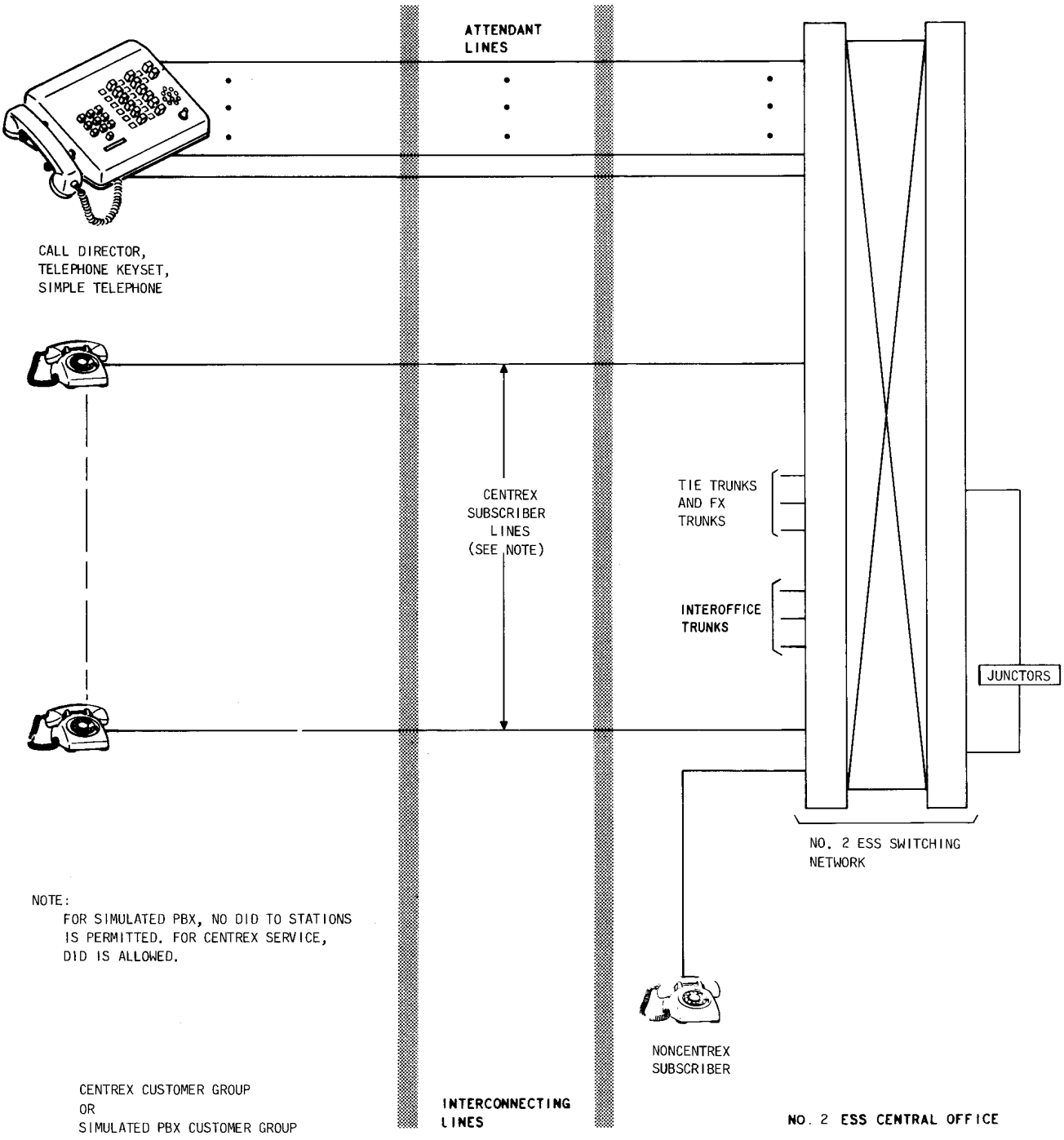

Fig. 2—Centrex or Simulated PBX System Without Centrex Data Link Hardware (3.12, 3.22)

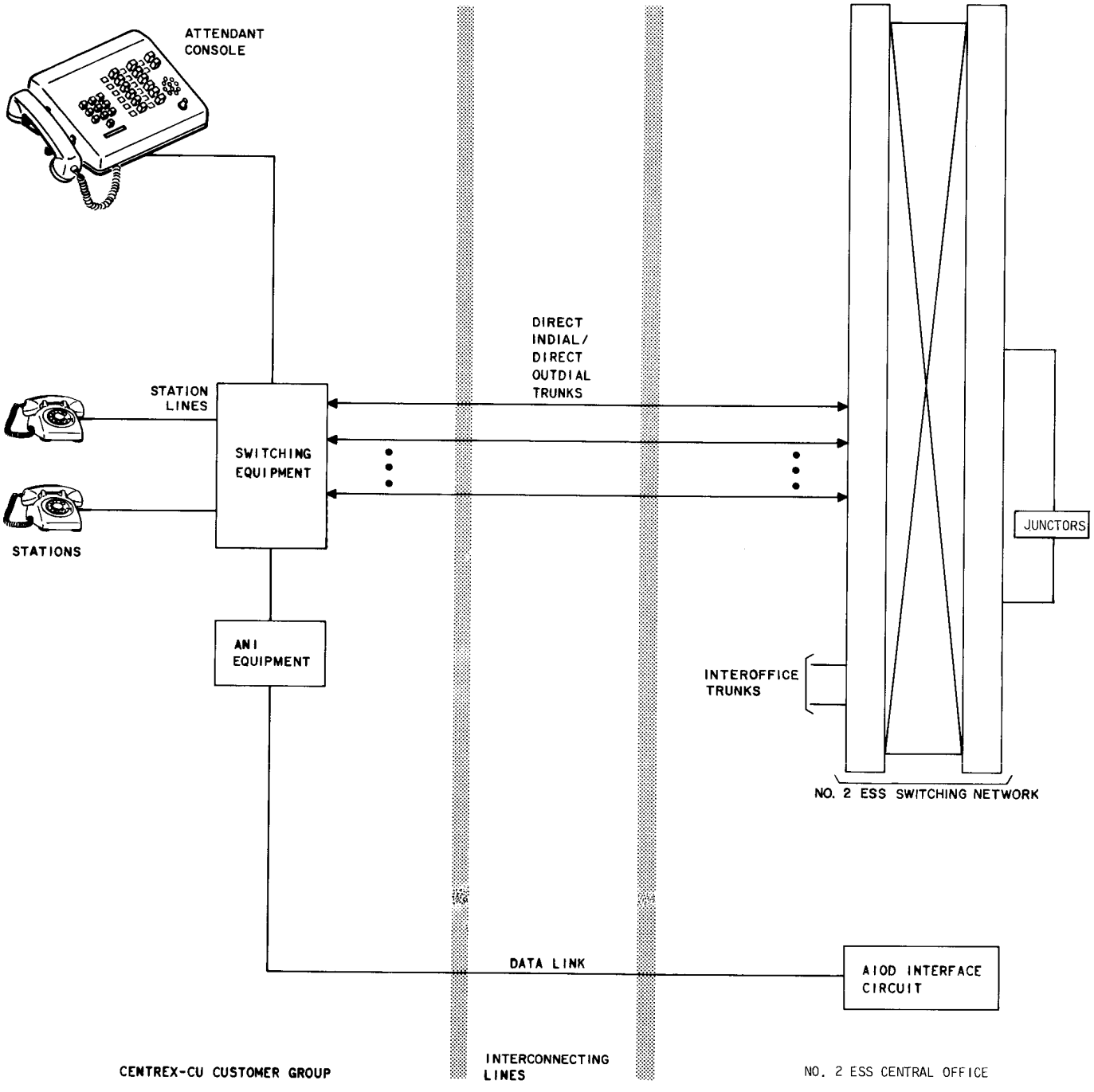

Fig. 3—Centrex System (AIOD Configuration) (3.16)

PBX	CENTREX
Series 100	Centrex I
Attendant Position (Console) Call Transfer — Attendant Direct Outward Dialing Night Service Power Failure Transfer — Station Restriction From Outgoing Calls Station Hunting Station-To-Station Calling	Attendant Position (Console) Call Transfer — Attendant Direct Inward Dialing Direct Outward Dialing Identified Outward Dialing Night Service Reserve Power Miscellaneous Trunk Restriction Station Hunting Station-To-Station Calling
Series 200	Centrex II
Series 100 Features Plus Attendant Camp-On Attendant Conference Attendant DSS W/Busy Lamp Field Indication of Camp-On	Centrex I Features Plus Consultation Hold Add-On (3-Way Calling) Call Transfer — Individual Trunk Answer From Any Station **
Series 300	
Series 200 Features Plus Consultation Hold Add-On (3-Way Calling) Call Transfer—Individual Trunk Answer From Any Station *	

* Less the Night Service feature, requirement fulfilled by Night Position option where available.

** Fulfills Night Service requirement.

Fig. 4—Centrex and PBX Feature Packages (4.03)

NO. 2 ESS CENTREX – CO
TRANSLATION AND CUTOVER DATA

These forms are intended to be used by the centrex cutover committee as a guide to provide translation data and develop implementation schedules.

Date _____
Issue No. _____
Prepared By _____
Tel. No. _____

Responsibility

NA = Network administration
M = Marketing
C = Commercial
E = Equipment engineering
CO = Central office — Maintenance
PA = Plant assignment/Mech. assign
BS = Business services
PI = Plant installation
PE = PBX engineering
SB = Special service bureau

1. General Information

1.01	Customer name	_____	(M)
1.02	Customer address	_____	(M)
1.03	Requested service date	_____	(M)
1.04	Serving ESS office	_____	(NA)
1.05	Central office code	_____	(NA)
1.06	Centrex service (tariff offering)	_____	(M)
1.07	Type consoles	_____	(BS)
1.08	Quantity of consoles	_____	(BS)
1.09	TOUCH-TONE (percent of stations)	_____	(M)
1.10	Class A essential (quantity of lines)	_____	(M)
1.11	Line class codes	_____ _____ % _____ _____ %	(M)
		_____ _____ % _____ _____ %	(M)
		_____ _____ % _____ _____ %	(M)
1.12	Station number series	_____	(NA)
1.13	Computer ports	Yes _____ No _____	(M)
1.14	Special plant test lines required	Yes _____ No _____	(CO)

Fig. 5—No. 2 ESS Centrex Translation and Cutover Data (Sheet 1 of 11) (5.04)

2.	Group Translation Data			
2.01	Centrex group number			(NA)
2.02	Inter-Centrex calling group			(NA)
2.03	Trunk answer any station	Yes _____	No _____	(M)
2.04	Dialing error route index			(NA)
2.05	ACOF route index			(NA)
2.06	Billing number			(M)
2.07	Night service and power failure number (always req.)			(M)
2.08	Listed directory number (LDN)			(M)
2.09	Attendant camp-on	Yes _____	No _____	(M)
2.10	Busy verification of lines	Yes _____	No _____	(M)
2.11	Call transfer			
	Attendant (TW1)	Yes _____	No _____	(M)
	Individual (TW2)	Yes _____	No _____	(M)
	Individual All Calls (TW3)	Yes _____	No _____	(M)
2.12	Call Forwarding			
	All calls (CFA)	Yes _____	No _____	(M)
	Busy line (CFB)	Yes _____	No _____	(M)
	Don't answer (CFD)	Yes _____	No _____	(M)
2.13	Group speed calling			
	Group (30) (SC2)	Yes _____	No _____	(M)
	Change SC2 (CH2)	Yes _____	No _____	(M)
	Individual (6) (SC1)	Yes _____	No _____	(M)
	Change SC1 (CH1)	Yes _____	No _____	(M)
2.14	Dial thru attendant (DTA)	Yes _____	No _____	(M)

Fig. 5—No. 2 ESS Centrex Translation and Cutover Data (Sheet 2 of 11) (5.04)

3. Trunk & Simulated Facilities Data

3.01 FX groups (attach specific requirements or reference to project memo.) (M)

Incoming only (console terminated)		Qty _____
Outgoing only		Qty _____
2-way		Qty _____
Outgoing digits dialed:		Fixed _____ Qty
		Var _____
Call indicator lamp	Yes _____	No _____
Group busy lamp required	Yes _____	No _____
Second dial tone provided after access code	Yes _____	No _____

3.02 Tie lines (attached specific requirements or reference to project memo). (M)

1 Way: Manual incoming		Qty _____
1 Way: Manual outgoing		Qty _____
1 Way: Dial incoming		Qty _____
1 Way: Dial outgoing		Qty _____
2 Way: Manual incoming, dial outgoing		Qty _____
2 Way: Dial incoming, manual outgoing		Qty _____
2 Way: Dial incoming, dial outgoing		Qty _____
2 Way: Manual outgoing, manual incoming		Qty _____
No. of digits to be outpulsed	Fixed _____	Qty Variable _____
Call indicator lamp required	Yes _____	No _____
Group busy lamp required	Yes _____	No _____
Second dial tone provided after access code	Yes _____	No _____

Fig. 5—No. 2 ESS Centrex Translation and Cutover Data (Sheet 3 of 11) (5.04)

3.03 Outward WATS (simulated facilities)

INTERSTATE	ACCESS CODE	FULL QTY	FULL SIM#	MEAS QTY	MEAS SIM#	HUNTING FULL TO MEAS YES	HUNTING FULL TO MEAS NO	
Zone — 1	_____	___	___	___	___	___	___	(M)
— 2	_____	___	___	___	___	___	___	
— 3	_____	___	___	___	___	___	___	
— 4	_____	___	___	___	___	___	___	
— 5	_____	___	___	___	___	___	___	
(Future) — 6	_____	___	___	___	___	___	___	
(Future) — 7	_____	___	___	___	___	___	___	
INTRASTATE								
	_____	___	___	___	___	___	___	(M)
	_____	___	___	___	___	___	___	
	_____	___	___	___	___	___	___	

Group busy lamps required. Yes _____ No _____ (BS)

Second dial tone provided after access code Yes _____ No _____ (M)

3.04 Inward WATS

INTERSTATE	NON CENTREX QTY FULL	NON CENTREX QTY MEAS	CONSOLE TERMINATED QTY FULL	CONSOLE TERMINATED QTY MEAS	HUNTING FULL TO MEAS YES	HUNTING FULL TO MEAS NO	
Zone — 1	___	___	___	___	___	___	(M)
— 2	___	___	___	___	___	___	
— 3	___	___	___	___	___	___	
— 4	___	___	___	___	___	___	
— 5	___	___	___	___	___	___	
INTRASTATE							
Same NPA	___	___	___	___	___	___	(M)
Entire State	___	___	___	___	___	___	

Call indicator lamps required Yes _____ No _____ (M)

Fig. 5—No. 2 ESS Centrex Translation and Cutover Data (Sheet 4 of 11) (5.04)

3.08 CENTREX ACCESS TREATMENT CODES

FACILITY	DIGIT(S) DIALED	CTX ACCESS TREATMENT CODE (CAT)															
		00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15

3.09 FEATURES	ACCESS CODE(S)	(M)
C.O. ACCESS	9 (SUGGESTED)	YES ___ NO___
TIE TRUNK(S)	_____	YES ___ NO___
FX TRUNK(S)	_____	YES ___ NO___
CCSA	8 (SUGGESTED)	YES ___ NO___
SPECIAL ROUTING	_____	YES ___ NO___
WATS	_____	YES ___ NO___
SPECIAL SERVICES		
* 6-CODE S.C.	_____	YES ___ NO___
* 30-CODE S.C.	_____	YES ___ NO___
CALL PICKUP	_____	YES ___ NO___
TRUNK ANSWER	_____	YES ___ NO___
TRUNK FLASH REG.	_____	YES ___ NO___
* CALL HOLD	_____	YES ___ NO___
* ACTIVATE CALL FWD.	_____	YES ___ NO___
* CANCEL CALL FWD.	_____	YES ___ NO___
* CHANGE 6-CODE S.C.	_____	YES ___ NO___
* CHANGE 30-CODE S.C.	_____	YES ___ NO___
CODE CALL PICKUP	_____	YES ___ NO___

Fig. 5—No. 2 ESS Centrex Translation and Cutover Data (Sheet 5 of 11) (5.04)

ATTENDANT	0 (SUGGESTED)	YES ____ NO____
CONFERENCE ATTENDANT	_____	YES ____ NO____
MOST ECONOMICAL ROUTING	_____	YES ____ NO____
OTHER _____	_____	
_____	_____	
_____	_____	

* CHECK ALL CTX ACCESS TREATMENT CODES 00-15 (RESTRICTIONS ARE DEFINED ON A PER STATION BASIS)

3.10 OTHER COMMENTS AND NOTES

Fig. 5—No. 2 ESS Centrex Translation and Cutover Data (Sheet 6 of 11) (5.04)

Enter names of responsible persons.

		Provided By	Provided To	Date	Completed
4.01	Traffic Register assignment	_____(NA)	_____(CO)	_____	_____
4.02	Night number	_____(M)	_____(NA)	_____	_____
4.03	USOC codes	_____(M)	_____(NA)	_____	_____
4.04	Call indicator lamps	_____(BS)	_____(NA)	_____	_____
4.05	Group busy lamps	_____(BS)	_____(NA)	_____	_____
4.06	Special service orders	_____(M)	_____(SB)	_____	_____
4.07	Special service orders	_____(SB)	_____(NE)	_____	_____
4.08	1XX assignments	_____(NA)	_____(M)	_____	_____
4.09	Centrex treat. codes req.	_____(M)	_____(NA)	_____	_____
4.10	Centrex treat. code assign.	_____(NA)	_____(M)	_____	_____
4.11	Routing and charging transl	_____(NE)	_____(CO)	_____	_____
4.12	Trunk translations	_____(NE)	_____(CO)	_____	_____
4.13	Trunk orders	_____(NE)	_____(CO)	_____	_____
4.14	ESS 2109 form	_____(NA)	_____(CO)	_____	_____
4.15	Data link assignments	_____(NA)	_____(CO)	_____	_____
4.16	Console test dates From	_____To	_____	_____	_____
4.17	CTX station test dates From	_____To	_____	_____	_____
4.18	Console cabinet to CO	_____(PE)	_____(CO)	_____	_____
4.19	Console cabinet to plant	_____(CO)	_____(PI)	_____	_____
4.20	Station X-conn list (manual)				
	a. NA to plant assign. (for CA PR assign.)	_____	_____	_____	_____
	b. Plant assign to NA (for TEN assign)	_____	_____	_____	_____
	c. NA to plant assign. (for RC tapes)	_____	_____	_____	_____
	d. NA to MDF	_____	_____	_____	_____
	e. Plt assign to plant install.	_____	_____	_____	_____
4.21	Other_____	_____	_____	_____	_____
	_____	_____	_____	_____	_____
	_____	_____	_____	_____	_____
	_____	_____	_____	_____	_____
	_____	_____	_____	_____	_____

Fig. 5—No. 2 ESS Centrex Translation and Cutover Data (Sheet 7 of 11) (5.04)

LAMP DESIGNATION BY LAMP NUMBER

OUTGOING					INCOMING			
GRP. BSY.		GRP. BSY.			CALL IND.		CALL IND.	
05		11			11		5	ATT'D "0"
04		10			10		4	
03		09			9		3	
02		08			8		2	
01		07			7		1	
00		06			6		0	LISTED NUMBER

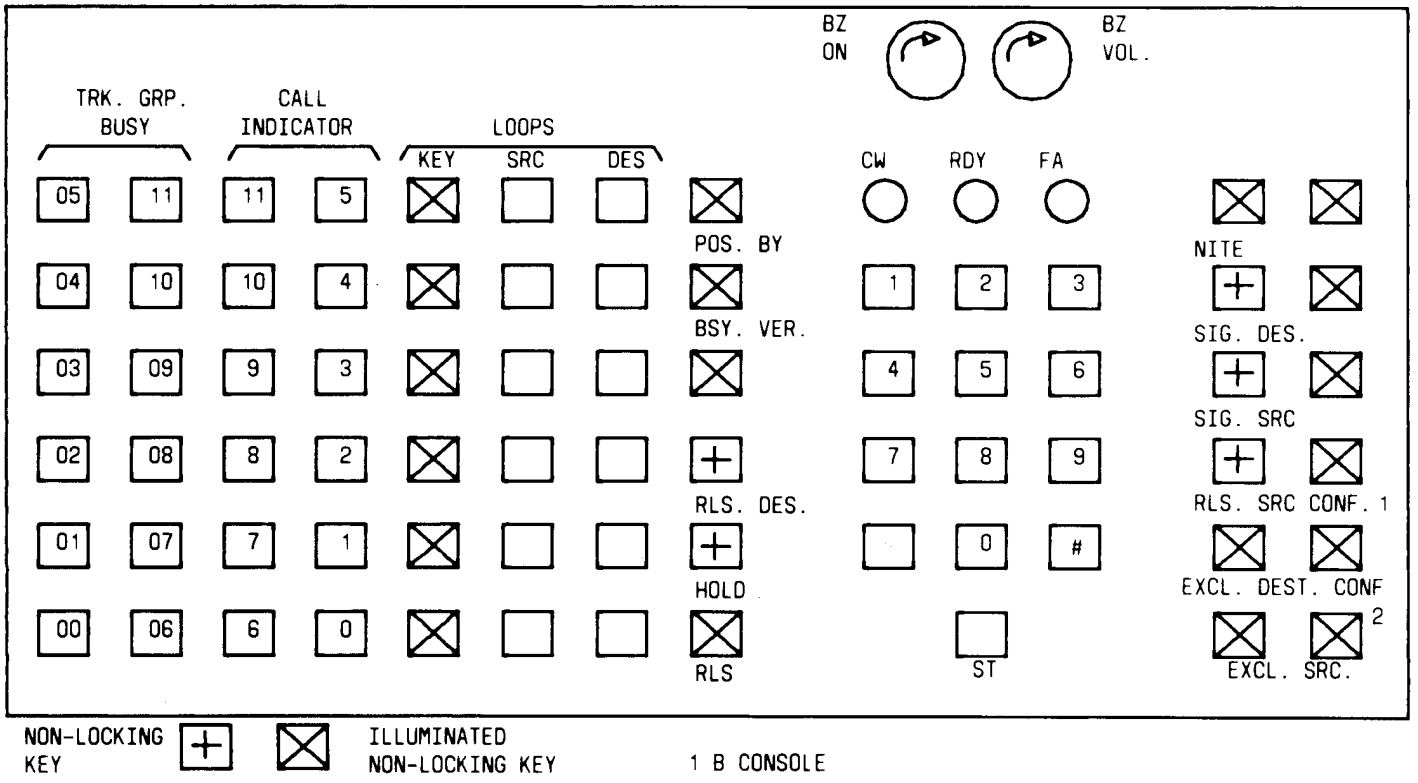

Fig. 5—No. 2 ESS Centrex Translation and Cutover Data (Sheet 8 of 11) (5.04)

LAMP DESIGNATION BY LAMP NUMBER

OUTGOING								INCOMING			
GRP. BSY.				GRP. BSY.				GRP. BSY.		CALL IND.		CALL IND.	
59		47		35		23		11		23		11	
58		46		34		22		10		22		10	
57		45		33		21		9		21		9	
56		44		32		20		8		20		8	
55		43		31		19		7		19		7	
54		42		30		18		6		18		6	
53		41		29		17		5		17		5	
52		40		28		16		4		16		4	
51		39		27		15		3		15		3	
50		38		26		14		2		14		2	
49		37		25		13		1		13		1	
48		36		24		12		0		12		0	

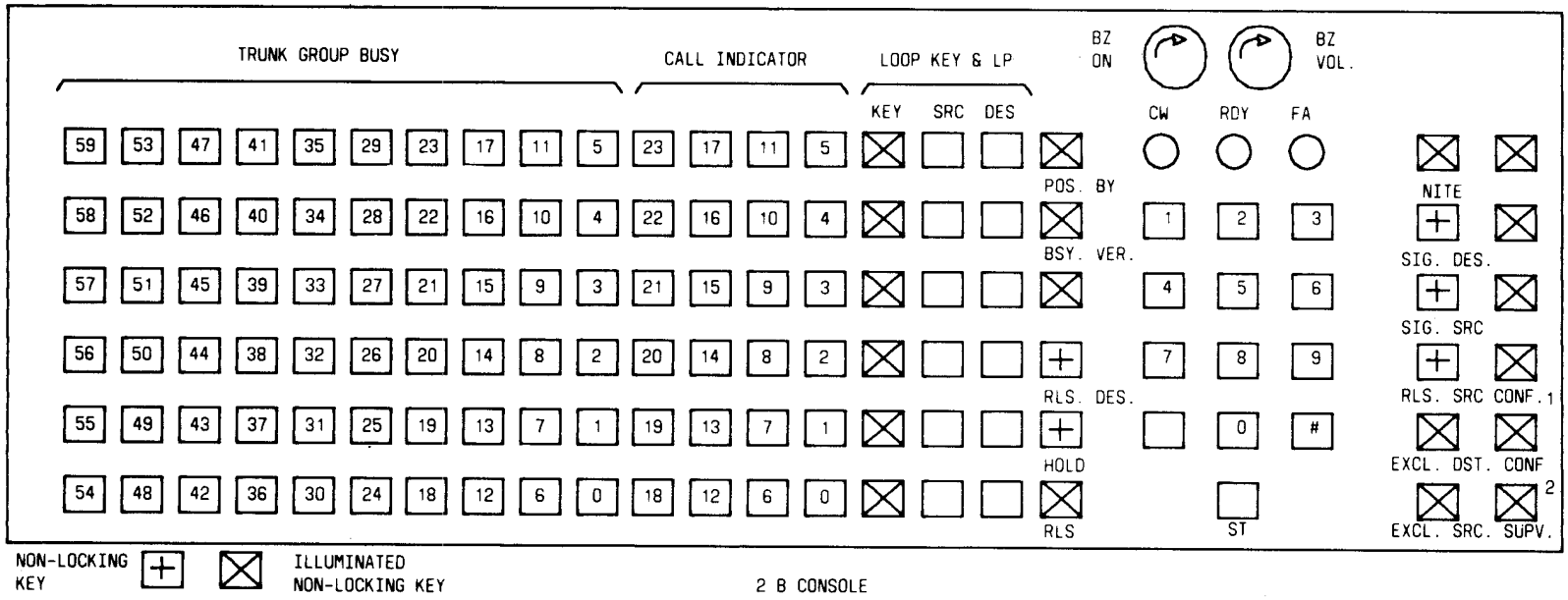

Fig. 5—No. 2 ESS Centrex Translation and Cutover Data (Sheet 9 of 11) (5.04)

LAMP DESIGNATION BY LAMP NUMBER

OUTGOING					INCOMING			
GRP. BSY.		GRP. BSY.			CALL IND.		CALL IND.	
05		11			11		5	ATT'D "0"
04		10			10		4	
03		09			9		3	
02		08			8		2	
01		07			7		1	
00		06			6		0	LISTED NUMBER

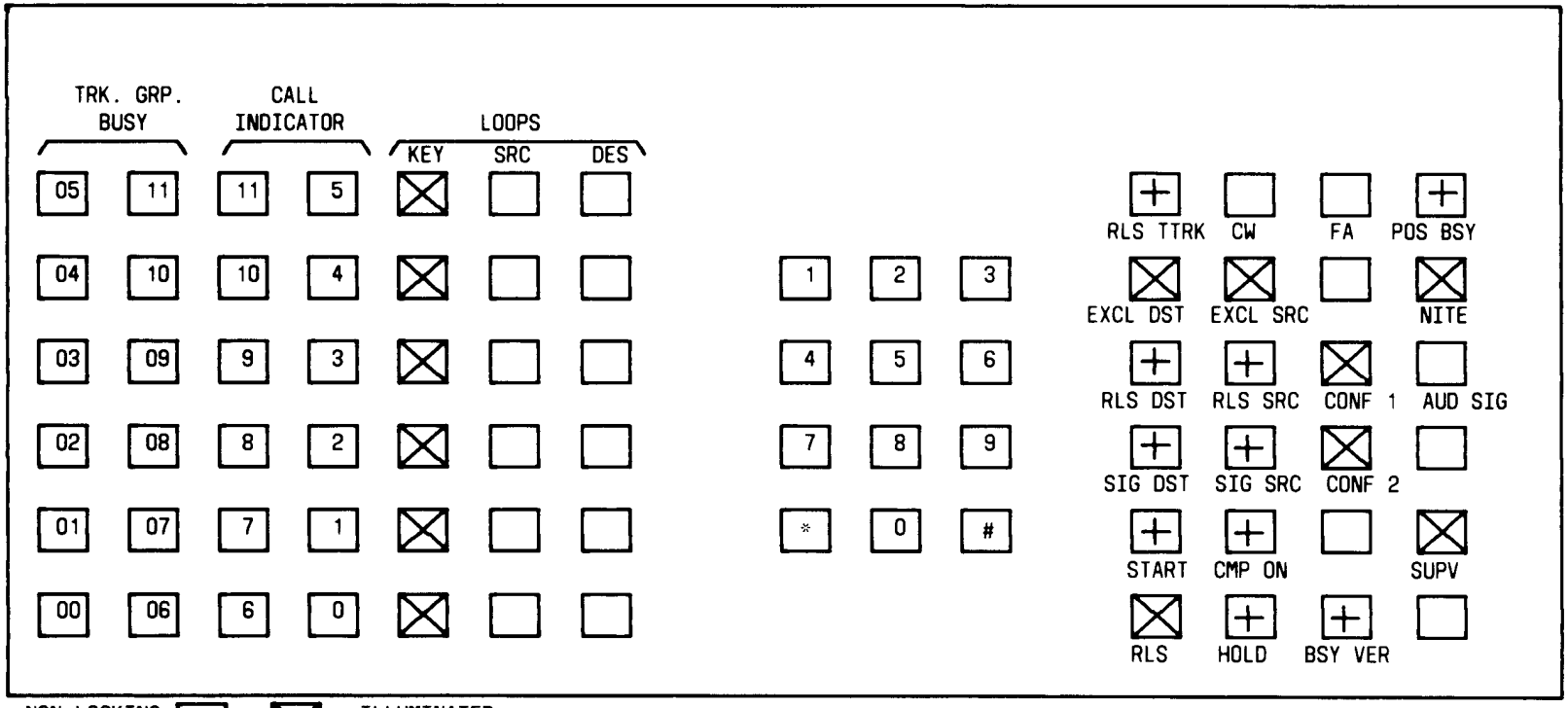

Fig. 5—No. 2 ESS Centrex Translation and Cutover Data (Sheet 10 of 11) (5.04)

LAMP DESIGNATION BY LAMP NUMBER

OUTGOING								INCOMING			
GRP. BSY.				GRP. BSY.				GRP. BSY.		CALL IND.		CALL IND.	
59		47		35		23		11		23		11	
58		46		34		22		10		22		10	
57		45		33		21		9		21		9	
56		44		32		20		8		20		8	
55		43		31		19		7		19		7	
54		42		30		18		6		18		6	
53		41		29		17		5		17		5	
52		40		28		16		4		16		4	
51		39		27		15		3		15		3	
50		38		26		14		2		14		2	
49		37		25		13		1		13		1	
48		36		24		12		0		12		0	

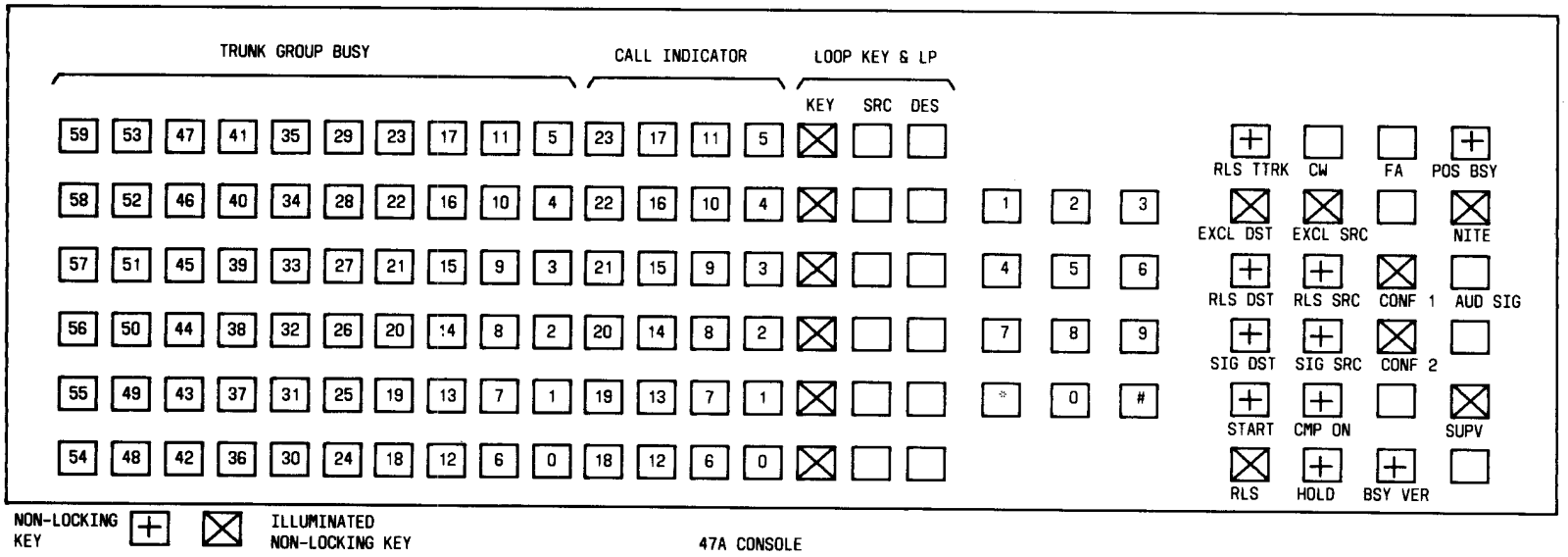

Fig. 5—No. 2 ESS Centrex Translation and Cutover Data (Sheet 11 of 11) (5.04)

CENTREX SEQUENCE SCHEDULE

PRESENT TEL. #_____ FOR: _____ CUTOVER _____

PROPOSED TEL. #_____ ISSUE DATE _____

ISSUE # _____

ITEMS / RESPONSIBILITY		ITEM NO.	DATES START	DATES FINISH	NEW FINISH DATE	ACTUAL COMPL. DATE	REMARKS
CUSTOMER TRNG - STAS.		1					
INSTALL & TST TRNG PHONES		2					
ISSUE ORDER FOR TRNG PHONES		3					
CUSTOMER TRNG-CONSOLES		4					
TEST ATTNDAT. FAC.		5					
PBX SW. EQPT-TST-INSTALL		6					
CONSOLE RM. RDY		7					
CONSOLE TST.		8					
PBX EQUIP. INSTALL/ORDER		9					INF. SHIP.
TRK, TL, FX, OPX TST.		10					
SPEC CKT TST		11					
RUN X CONN. XRL FOR TRK, TL, FX		12					
INSTALL MAINT. TST LN		13					
ISSUE ORDER FOR TST LN		14					
CO EQUIP INSTALL		15					
T-1 CARR. LINE UP		16					
TOLL TERM LN. EQ. INSTALL		17					
X CONN & WORK CKT ORD (CLEAR)		18					
CLEARING ORD.		19					
XRL & CKT ORD EQUIP. SHEETS		20					ATT'D FAC-INDIAL TRKS
XRL & CKT ORDS		21					
FAC DESIGNS		22					
TRK REQUIREMTS		23					
CLR LTRS - COE		24					
CLR LTRS - PBX		25					
INTERTOLL DIAL RTG. INFO		26					
CODE & RTG LIST		27					
ORDER FOR NEW ANC CODE		28					
FER LTRS		29					
TOLL TERM DESIGNS		30					
ISSUE TCRS		31					
SSMB-ISSUE USSO'S		32					
ISSUE USSO'S TO SSMB.		33					SHOW PTD OF
PBX LTR/RATE REQUESTS		34					
ISSUE INFO-ACCESS CODES		35					
LTR. ANNOUNCING NEW CODE & CUT		36					
DETAILED INFO TO ENGR		37					
COPY OF SPEC. CKTS, OPX TO FAC		38					
CKT COMP. & DESIGN MTG		39					
MEMO W/REQ & SKETCH		40					
CONSOLE FACING TO PAPT		41					
RATE LTR FOR SP. ASSBLY		42					
INSTALL STA		43					
X CONN STA & TST		44					
CTX AMA VERIFICATION		45					

Fig. 6—Centrex Task Sequence List (Sheet 1 of 2) (5.05)

CENTREX SEQUENCE SCHEDULE

FOR: _____

PRESENT TEL. # _____ CUTOVER _____

PROPOSED TEL. # _____ ISSUE DATE _____

ISSUE # _____

ITEMS / RESPONSIBILITY		ITEM NO.	DATES START	DATES FINISH	NEW FINISH DATE	ACTUAL COMPL. DATE	REMARKS
INSTALL MAINT. TST LN		51					
ISSUE ORDER FOR OFFICIAL TEL.		52					
PUT STA. INFO IN MEMORY		53					
CUT STA TAPES FOR ESS		54					
OFC & GRP. INFO. PUT IN MEMORY		55					
OFC RECORD ASSIGN		56					
INSTALL OSP - SUB - CABLE		57					WO.
INSTALL HSE CABLE		58					WO.
PBX RM RDY		59					DATA TERM SPACE
OSP CABLE/ORDER		60					EST. # -
TRK OSP FAC INSTALLATION		61					
PBX SUMM SHT DISTRIB		62					
PBX SUMM REPRODUCE		63					
SVC CTR-CA & PR - ASSIGN		64					
DATA TERM CA & PR - ASSIGN		65					
STA LINE ASSIGN		66					
CTX GRP ASSIGN		67					
INITIAL STA INFO		68					
DETAILED TEL SET INFO		69					
KEY SHTS TO I&R		70					
PROVIDE FLOOR PLNS FOR STAS		71					
ANC CODE PROCUREMENT		72					
ACCESS CODES FOR CTX		73					
OPEN NEW ANC CODE		74					
INSTALL & TST INTERCEPT EQP		75					1 WK BEFORE CUT
INTERCEPT EQUIP		76					
INTERCEPT ARRANGE		77					
CUT OFF - CUSTOMER CHGS		78					1 MO BEFORE CUT
ISSUE CHG SHTS		79					
REVISED STA INFO		80					
REVIEW CUST. DIR. -DIAL INST		81					1 MO BEFORE CUT
REVIEW CUST. DIR. -DIAL INST		82					
ESTABLISH BILLING DATE		83					
PREP. & SUBMIT BILLING ORD TO							
ACCOUNTING		84					
BILLING ORDER		85					B. P.=
INVENTOR & BILLING CHECK		86					
ISSUE SVC ORD-ADV LIST		87					
ESTABLISH CUTOVER COMMITTEE		88					
DETAILED CUTOVER PROCED.		89					

Fig. 6—Centrex Task Sequence List (Sheet 2 of 2) (5.05)

2101	Centrex Directory Number Table
2105	Multiline Hunting Group Table
2107	Supplementary Information Table
2108	Attendant Console Table
2109	Centrex Group Table
2201	Trunk Assignment Table
2202	Centrex Trunk Group and Simulated Facilities Group Table
2204	Trunk Feature Table
2213	Automatic Identified Outward Dialing Table
2215	Manual Trunk Disposition and Trunk Billing Index Table
2217	Attendant Control of Facilities Table
2301	Rate and Route Table
2302	Charge Tables and Charge Information Table
2303	Route Index Expansion Table
2306	Line Class Code Table
2307	Centrex Screening Table
2500	General Information Table
2501	Office Code Table
2505	Automatic Trunk Test Table
2510	Flexible Call Store

Fig. 7—Translation Forms With Centrex Application (6.11)

	CTX 1	CTX 2	2101	2105	2107	2108	2109	2201*	2202	2204	2213	2215	2217	2301	2302	2303	2304	2306	2307	2500	2501	2505	2510		
DIRECT INWARD DIALING	✓	✓	R													A		R			R				
DIRECT OUTWARD DIALING	✓	✓							A				A	R		A		R	R						
IDENTIFIED OUTWARD DIALING	✓	✓		A							A														
FOREIGN EXCHANGE TRUNKS							R	A	R	R		A	A		A	R		R				A			
WIDE AREA TELEPHONE SERVICE				A			R	A	R			A	A	R	A	A	R	R							
TIE TRUNKS							R	A	R	R		A	A		A							A			
CCSA ACCESS			A				R	A	R	R			A		A	A				R					
PAGING-LOUDSPEAKER							R		R	R															
PAGING-RADIO							R		R	R															
RECORDED TELEPHONE DICTATION							R		R	R															
CODE CALL							R		R	R															
TANDEM TIE TRUNK DIALING							R	A	R						A										
PAD SWITCHING									R																
MOST ECONOMICAL ROUTING			R				R							R	R	R		R							
SIMULATED FACILITIES							R		R				A			A									
TRAFFIC MEASUREMENTS				A			A		A																

* REQUIRED ON GROWTH JOBS ONLY
R REQUIRED
A ALLOWED

Fig. 8—Centrex Group Features and Options (6.12)

	CTX 1	CTX 2	2101	2105	2107	2108	2109	2201*	2202	2204	2213	2215	2217	2301	2302	2303	2304	2306	2307	2500	2501	2505	2510		
STATION-TO-STATION CALLING	✓	✓	R				R									PBX		R							
FLEXIBLE NUMBERING OF STATIONS																									
RESTRICTION FROM OUTGOING CALLS (MISC. TRK. REST)	✓	✓					R																		
FULLY RESTRICTED STATION							R									A		R			A				
MANUAL LINE SERVICE							A											R							
TOLL RESTRICTION																			R						
STATION HUNTING			R		A																				
CALL FORWARDING																									
VARIABLE (CFV)			R				R																A		
BUSY LINE (CFB)			R		A		R																		
DON'T ANSWER (CFD)			R		A		R																		
ALL CALLS (CFA)			R		A		R																		
STATION HUNTING	✓	✓	R		A																				
CALL HOLD			R				R																A		
CALL PICKUP			R		A		R																		
CALL TRANSFER																									
ATTENDANT (TW1)	✓	✓	R						A																
INDIVIDUAL (TW2)		✓	R						A																
INDIVIDUAL - ALL CALLS (TW3)		✓	R																						
ADD-ON (P/O TW2)		✓																							
CONSULATION HOLD (P/O TW2)		✓																							
CONSULATION HOLD-ALL CALLS (P/O TW3)																									
THREE-WAY CALLING (P/O TW3)																									
DIRECTED CALL PICKUP			R				R																		
SPEED CALLING																									
ONE DIGIT-6 (SC1)			R		A		R																		
SC1 CHANGE (CH-1)			R				R																		
TWO DIGIT-30 (SC2)			R		A		R																		
SC2 CHANGE (CH-2)			R				R																		
SPECIAL TOLL BILLING			R																						
BILL LISTED NUMBER			R				R																		
RECALL			R																						
DENIED ORIGINATING																		R							
DENIED TERMINATING																		R							
FREE TERMINATING																		R							
MULTI-LINE HUNTING				R							R														

* REQUIRED ON GROWTH JOBS ONLY
R REQUIRED
A ALLOWED

Fig. 9—Centrex Line Featres and Options (6.12)

	CTX 1	CTX 2	2101	2105	2107	2108	2109	2201*	2202	2204	2213	2215	2217	2301	2302	2303	2304	2306	2307	2500	2501	2505	2510		
ATTENDANT RESTRICTION							R																		
DIAL ACCESS TO ATTENDANT							R																		
SWITCHED LOOP																									
TIMED REMINDER																									
INCOMING CALL IDENTIFICATION (ICI)			R				R		R																
TRUNK GROUP BUSY LAMP									R																
TRUNK ANSWER FROM ANY STATION		✓					R																		
ATTENDANT CONTROL OF FACILITIES							A		A				R												
NIGHT SERVICE	✓	✓	R				R																		
ATTENDANT CONFERENCE						R	R	A	R																
LISTED DIRECTORY NUMBER SERVICE			R																						
ATTENDANT CAMP-ON			A				R		R														A		
TWO-WAY SPLITTING																									
THROUGH DIALING							R																		
POWER FAILURE TRANSFER-ATTENDANT																									
RESERVE POWER	✓	✓																							
ATTENDANT CALL TRACE																									
ATTENDANT MAINTENANCE																									
CAMP-ON TONE			A				R	A	R																
ATTENDANT POSITION (CONSOLE)			R			R	R											R			A				
BUSY VERIFY							R	A	R																

* REQUIRED ON GROWTH JOBS ONLY
R REQUIRED
A ALLOWED

Fig. 10—Centrex Attendant Features and Options (6.12)

FORM	RECORD
†ESS 2100-R	Directory Number Record
ESS 2108-R	Centrex Attendant Console Record
ESS 2109-9A-R	Centrex Group Record
ESS 2109-9B-R	Centrex Dialing Assignment Record
ESS 2109-9C-R	Centrex Console Lamp Record
*ESS 2109-9D-R	Centrex Private Facility Supplementary Record
*ESS 2172-R	Centrex Speed Calling List Record
*ESS 2173-R	Centrex Speed Calling Group Record
ESS 2174-R	Centrex Call Pickup Group Record
ESS 2202-3-R	Centrex Trunk Group Record
ESS 2208-R	Centrex Data Link Record
*ESS 2213-R	AIOD Data Link Record
ESS 2215-R	Centrex Manual Trunk Display Record
ESS 2307-R	Centrex Screening Record

* Future Issue

† Remarks Feature Available

Fig. 11—Centrex Office Records (8.02, 8.07)

A. All information pertaining to POTS and centrex lines and multiline hunting group/PBX group members, including:
   1. Deleting all information on removed lines.
   2. Changing any information.
   3. Putting a line onto a given intercept. The recent change program removes all features first. They can only be taken off intercept by out orders.
   4. Internal selective denial of 2-party service.
   5. Reassign terminal equipment number (TEN).

B. Changing certain items in trunk group information:
   1. Changing group and member to which a trunk circuit or service circuit belongs.
   2. Reassigning TEN of a trunk or service circuit.
   3. EF-1 generic program only: change trunk group data and features.
   4. EF-1 generic program only: change carrier group alarm assignments.

C. Altering traffic counter assignments:
   1. Counts by screening code
   2. Line overflow
   3. Trunk and PBX counts
   4. Preroute peg counts

D. Changing certain items in the 3-digit translator:
   1. Code group to which a 3-digit code belongs (make office code ABC identical with office code XY7 in treatment — rate, route screening)
   2. Add or delete direct route index for a code group.
   3. Add a code group with same treatment as another existing code group.

E. Adding or redefining a route index.

F. Various indicators such as:
   1. Whether to use old or new junctor grouping tables.
   2. Whether ODA run is in progress.

G. Fuse alarm assignments.

H. All centrex group information in offices equipped with the EF-1 generic program, *excluding* the following:
   1. Cannot add more attendants than maximum number defined on ESS 2109-1, Form Code 9A.
   2. Cannot exceed number of speed calls lists defined on ESS 2109-1, Form Code 9A.
   3. Cannot add trunk groups, unless dummy groups have been provided on ESS 2202-3.
   4. Cannot add ACOF keys for a centrex group.
   5. Cannot add trunk groups to an ACOF key.

Fig. 12—Translation Data Alterable By Recent Change (8.05, 9.05)

A. PBX group and maximum size.

B. Scan point number and peripheral decoder address for trunks and service circuits.

C. Abbreviated class expansion.

D. 3-digit translator:

1. Line screen class expansion.
2. Screening tables.
3. Charge expansion.
4. Create a new treatment (from two separate existing treatments or from scratch).
5. Add new foreign area translators.

E All trunk and service circuit group data (except traffic) LO-1 generic program only.

F. Storage allocations or restructuring of data layouts.

G. Network and junctor assignments.

H. Scanner, CPD, or peripheral decoder assignments.

I. Trunk testing codes.

J. Major task (diagnostic) time table.

K. Various parameters:

1. The number of program stores, call stores, scanners, supplementary CPDs, ect.
2. Teletypewriter options.
3. Local office options.

L. Major equipment growth (networks, CPD, storage, trunk frames, etc).

M. Adding new centrex groups.

Fig. 13—Translation Data Alterable By ODA (8.05, 9.05)

ESS 2101(07) TG 2H

CENTREX

DIRECTORY NUMBER TABLE

NO 2 ESS

DATE ___ ___ ___ (1 2 3 4 5)

BASE & CONTROL ___ (6 7 8 9 10 11)

OFFICE CODE 834 (17 18 19)

FORM CODE | | (14 15)

ESS UNIT ___

HUNDRED ___

HUNDRED (20 21)	DIRECTORY NUMBER (22 23)	TERMINAL EQUIPMENT NUMBER: NET (25 26)	CONC. GRP (27)	CONC. (28)	SWITCH (29)	LEVEL (30)	PARTY NO. (31)	RATE AREA (32)	RALCC LINE CLASS CODE (33 35)	EQUIPMENT & FEATURES: BASE & CENTREX 1 (3)	TTC (37)	TLT (38)	CFV (39)	SCI (40)	CH1 (41)	CENTREX TWC (42)	CHD (43)	BLN (44)	CFB (45)	RCL (46)	SUPPL INFO: MNEMONIC (47 48 49)	DATA (50 51 52 53 54 55 56 57 58)	CENTREX: GRP NO (59 60 61)	ACCESS TREATMENT CODE (62 63)	(64 79)	REVISE (80)
28	00	07	3	2	0	2			ATT											✓	UNV		005		DUMMY	
28	09	07	3	2	0	2			PXU						2								005	01	NIGHT SERVICE	

Fig. 14—Translation Data for Centrex Dummy Group (Sheet 1 of 8) (9.07)

ESS 2108 (08) TG-2H

CENTREX ATTENDANT CONSOLE TABLE

NO 2 ESS

DATE ____-____-____ (1 2 - 3 4 - 5)

BASE & CONTROL ____ (6 7 8 9 10 11)

FORM CODE 18 (14 15)

ESS UNIT ____

PAGE ____ (17) OF ____ (19)

CTXN GRP 005 (20 22)

ITEM (23 24)	FRAME DATALINK CONSOLE (25 27)	AUTOVON (28)	PCN (Y=YES) (29 30)	TERMINAL EQUIPMENT NUMBER: NETWORK (31 32)	C GRP (33)	CONC (34)	SWITCH (35)	LEVEL (36)	LOOP (37)	PORT (38)	ATTENDANT LOOP BASE SCAN POINT: SCANNER (39 40)	ROW (41 42)	COL (43 44)	BASE CPD: CPD FR (45)	NEST (46)	CARD (47)	POINT (48)	ATTENDANT TRUNK: SCANNER (49 50)	ROW (51 52)	COL (53 54)	CONFERENCE 1 (55)	CONFERENCE 2 (56)	REMARKS (57 79)	(80)
00	030			07	3	5	6	2	0	0	WE			WE				WE					DUMMY GROUP	
01				04	3	5	2	2	0	1	—	—	—				—	—	—	—				
02				08	0	2	4	2	1	0	—	—	—				—	—	—	—				
03				08	0	2	6	2	1	1	—	—	—				—	—	—	—				
04				00	2	2	2	2	2	0	—	—	—				—	—	—	—				
05				03	2	2	0	2	2	1	—	—	—				—	—	—	—				
06				08	0	1	4	2	3	0	—	—	—				—	—	—	—				
07				08	0	1	2	2	3	1	—	—	—				—	—	—	—				
08				02	0	1	0	2	4	0	—	—	—				—	—	—	—				
09				03	2	1	2	2	4	1	—	—	—				—	—	—	—				
10				08	0	4	4	2	5	0	—	—	—				—	—	—	—				
11				08	1	0	6	2	5	1	—	—	—				—	—	—	—				
12									0	0														
13									0	1	—	—	—				—	—	—	—				
14									1	0	—	—	—				—	—	—	—				
15									1	1	—	—	—				—	—	—	—				
16									2	0	—	—	—				—	—	—	—				
17									2	1	—	—	—				—	—	—	—				
18									3	0	—	—	—				—	—	—	—				
19									3	1	—	—	—				—	—	—	—				
20									4	0	—	—	—				—	—	—	—				
21									4	1	—	—	—				—	—	—	—				
22									5	0	—	—	—				—	—	—	—				
23									5	1	—	—	—				—	—	—	—				
24									0	0														
25									0	1	—	—	—				—	—	—	—				
26									1	0	—	—	—				—	—	—	—				
27									1	1	—	—	—				—	—	—	—				
28									2	0	—	—	—				—	—	—	—				
29									2	1	—	—	—				—	—	—	—				
30									3	0	—	—	—				—	—	—	—				
31									3	1	—	—	—				—	—	—	—				
32									4	0	—	—	—				—	—	—	—				
33									4	1	—	—	—				—	—	—	—				
34									5	0	—	—	—				—	—	—	—				
35									5	1	—	—	—				—	—	—	—				
36									0	0														
37									0	1	—	—	—					—	—	—				
38									1	0	—	—	—					—	—	—				
39									1	1	—	—	—					—	—	—				
40									2	0	—	—	—				—	—	—	—				
41									2	1	—	—	—				—	—	—	—				
42									3	0	—	—	—				—	—	—	—				
43									3	1	—	—	—				—	—	—	—				
44									4	0	—	—	—				—	—	—	—				
45									4	1	—	—	—				—	—	—	—				
46									5	0	—	—	—				—	—	—	—				
47									5	1	—	—	—				—	—	—	—				

Fig. 14—Translation Data for Centrex Dummy Group (Sheet 2 of 8) (9.07)

ESS 2109-1 (03) TG-2H

CENTREX GROUP TABLE

NO 2 ESS

DATE ____ - ____ - ____ (1 2 3 4 5)

ESS UNIT _____

BASE & CONTROL _____ (6 7 8 9 10 11)

FORM CODE 9A (14 15)

CTX GRP 005 (20 22)

CENTREX GROUP ASSIGNMENTS

ITEM (23 24)	ICCG (25)	SPEED CALL: NUMBER OF SC1 LISTS (26 29)	SPEED CALL: NUMBER OF SC2 LISTS (30 31)	TIMEOUT DIAL (32)	TRK ANS. (33)	2ND CCSA TRK GRP NUMBER (34 36)	TRAFFIC SCHEDULE C (37)	TRAFFIC SCHEDULE H (38)	ATTENDANT CAT CODE (39 40)	ROUTE INDEXES: DIALING ERROR (41 43)	ROUTE INDEXES: ACOF (44 46)	BILLING NUMBER (47 53)	DIAL 'O' NIGHT SERVICE NUMBER (54 60)	LDN SIM GRP (61 63)	VTI (64 65)	CO ACCESS CODE (66)	REMARKS (67 79)	REVISE (80)
00		0015	04		✓		D		00	084		8342800	8342809				SPARE	

CENTREX UNIVERSAL ATTENDANT ASSIGNMENTS

ITEM (23 24)	MAX NO. OF ATT'D'S. (25 26)	6 PORT CONF TRK GRP NO. (27 29)	CAMP-ON (30)	BUSY VERIFY (31)	ATTD SC 20-49 (32)	ATTD SC 50-79 (33)	THRU DIAL (34)	CONSOLE TYPE (35)	ICI: DIAL "0" (40 41)	ICI: ATT'D CONF (42 43)	LAMP ASSIGNMENTS: MANUAL LINE (44 45)	LAMP ASSIGNMENTS: CF-DA (46 47)	LAMP ASSIGNMENTS: CF-BL (48 49)	LAMP ASSIGNMENTS: CALL-TRANS ATT'D (50 51)	LAMP ASSIGNMENTS: ATT'D INCPT. (52 53)	REMARKS (54 66 67 79)	REVISE
01	02						V	1	05								

Fig. 14—Translation Data for Centrex Dummy Group (Sheet 3 of 8) (9.07)

ESS 2109-2 (03) TG-2H
BASE & CONTROL _____
FORM CODE 98

CENTREX GROUP TABLE

NO. 2 ESS

ESS UNIT _____

DIALING ASSIGNMENT

DATE ____ ____ ____

CTXN GRP 005

DIGIT(S) DIALED	CTX ACCESS TREATMENT CODE (CAT) 00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	DATA TYPE	SUB TYPE	SIMULATED FACILITIES GROUP NO	TRUNK GROUP NO	2ND DIAL TONE	OUT PULSE ACCESS CODE	CCSA 7 DIGITS ONLY	CCSA	DIG EXPECTED	TRK DEL/PFX	ROUTE INDEX NHX PRIVATE FAC SUPP INFO	EXT DUP PREFIX 1	EXT DUP PREFIX 2	RATE AREA	LINE CLASS CODE	REMARKS	REVISE
0	✓	✓	✓	✓													12	00															"0" ATTN D
9	✓	✓															01				✓												9 OUTSIDE
109		✓	✓														10	04															TRK ANS AS
112	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		02															30 CD S.C.
113																		02														30 CD S.C.
114																		02														30 CD S.C.
118																		07														CALL FWD
119																		08														CALL FWD
12																		01														6 CD S.C.
13																																6 CD S.C.
14																																6 CD S.C.
15																																6 CD S.C.
16																																6 CD S.C.
17																																6 CD S.C.
18																		09														CHG 6 CD SC
19																		10														CHG 30 CD SC
280																	02								4		834					280X STA

Fig. 14—Translation Data for Centrex Dummy Group (Sheet 4 of 8) (9.07)

ESS 2202-4(05) TG-2H

BASE & CONTROL _____ 6 7 8 9 10 11

FORM CODE 27 14 15

CENTREX TRUNK GROUP AND SIMULATED FACILITIES GROUP TABLE

NO. 2 ESS
ESS UNIT _____

DATE ___ - ___ - ___ 1 2 3 4 5

PAGE _____ OF ___ 18 19 20

ITEM 21 22	TRUNK GROUP NO OR SIM GROUP NO 23 25	NUMBER OF MEMBERS IN SIM GROUP 26 28	CENTREX GROUP NUMBER 29 31	ICI LAMP 32 33	ACOF OPTION 34	ACOF LAMP 35	TGB LAMP 36	TGB/ACOF LAMP NO 37 38	RALCC RATE AREA 39	RALCC LINE CLASS CODE 40 42	NEXT SIMULATED FAC GRP 43 45	MTD/GBI 46 47	TRUNK DEFINITION 48 49	CENTREX ACCESS TREATMENT CODE 50 51	TSI (0-3) 52	SDT TDP 53	NPO 54	TFR ATC RCL 55	MAN PSW 56	1 2 4 C 57	TRAF SCHEDULE H 58	REMARKS 59 79	REVISE 80
00	160		000																		DUMMY GROUP	
01	161																					
02	162																					
03	163																					
04	164																					
05	165																					
06	166																					
07	167																					
08	168																					
09	169																					
10	170																					
11	171																					
12	172																					
13	173																					
14	174																					
15	175																					
16	176																					
17	177																					
18	178																					
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20	180																					
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46																						
47																						
48																						
49																						

Fig. 14—Translation Data for Centrex Dummy Group (Sheet 5 of 8) (9.07)

ESS 2215 (04) TG-2H

MANUAL TRUNK DISPOSITION AND GROUP BILLING INDEX TABLE

NO. 2 ESS

EF1 GENERIC PROGRAM

DATE __-__-__ (12 3 4 5)

BASE & CONTROL _____ (6 7 8 9 10 11)

FORM CODE 25 (14 15)

ESS UNIT _____

PAGE _____ (17 19)

ITEM (21 22)	MTD/GBI (23 24)	CENTREX GROUP NUMBER (25 27)	BILLING OR TERMINATING NUMBER (28 34)	REMARKS (35 79)	REVISE (80)
00	01	005	8342801	TL BILLING NO.	
01	02				
02	03				
03	04				
04	05				
05	06				
06	07				
07	08				
08	09				
09	10				
10	11				
11	12				
12	13				
13	14				
14	15	↓			
15	01				
16	02				
17	03				
18	04				
19	05				
20	06				
21	07				
22	08				
23	09				
24	10				
25	11				
26	12				
27	13				
28	14				
29	15	↓			

ITEM (21 22)	MTD/GBI (23 24)	CENTREX GROUP NUMBER (25 27)	BILLING OR TERMINATING NUMBER (28 34)	REMARKS (35 79)	REVISE (80)
30	01				
31	02				
32	03				
33	04				
34	05				
35	06				
36	07				
37	08				
38	09				
39	10				
40	11				
41	12				
42	13				
43	14				
44	15	↓			
45	01				
46	02				
47	03				
48	04				
49	05				
50	06				
51	07				
52	08				
53	09				
54	10				
55	11				
56	12				
57	13				
58	14				
59	15	↓			

Fig. 14—Translation Data for Centrex Dummy Group (Sheet 6 of 8)

ESS 2306(07)TG-2H

LINE CLASS CODE TABLE
NO. 2 ESS

DATE __-__-__ (1 2 3 4 5)

BASE & CONTROL _____ (6 7 8 9 10 11)

FORM CODE 36 (14 15)

ESS UNIT _____

PAGE __ OF __ (21)

ITEM (22 23)	RALCC RATE AREA (24)	RALCC LINE CLASS CODE (25 27)	PARTY NUMBER (28)	MAJOR CLASS ORIG (29 30)	MAJOR CLASS TERM (31 32)	CENTREX PBX-CO DENY ORIG (33)	DENY TERM (34)	FREE TERM (35)	FULLY REST TERM (36)	MANUAL (37)	(38)	LDN ATTENDANT (39)	PBX CO (40)	UNIV CONSOLE (41)	SYNONYMOUS RALCC RATE AREA (42)	SYNONYMOUS RALCC LINE CLASS CODE (43 45)	REMARKS (46 79)	REVISE (80)
00		PXU														ATT	CENTREX, UR ORIG, UR TERM	
01		PXA														ATT	NO "9", UR TERM	
02		PXR							✓							ATT	NO "0", "9", NO DID	
03		RSC															LOCAL ORIG, UR TERM	
04		PXH								✓						ATT	MAN. ORIG, UR TERM	
05		PXK					✓			✓						ATT	MAN. ORIG, DEN TERM	
06		ATT										✓		✓			ATTENDANT-LDN	
07		COO				✓										ATT	DEN ORIG, UR TERM	
08		DTC					✓									ATT	UR ORIG, DEN TERM	
09		PXB														ATT	SEMI-RESTRICTED	
10		SR2							✓							ATT	CUSTOM CTX, FR ORIG, FR TERM	
11		SR3															UR ORIG, UR TERM	
12		ATS										✓					ATTENDANT-LDN	
13																		
14																		
15																		
16																		
17																		
18																		
19																		
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42																		
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44																		
45																		
46																		
47																		
48																		
49																		

Fig. 14—Translation Data for Centrex Dummy Group (Sheet 7 of 8) (9.07)

ESS 2307 (03) TG-2H

CENTREX SCREENING TABLE
NO. 2 ESS

DATE 1-2-3-4-5

BASE & CONTROL 6 7 8 9 10 11

FORM CODE 37 (14 15)

ESS UNIT _____

PAGE ____ OF ____ (20 21 22)

ITEM (23 24)	CENTREX GROUP NUMBER (25 27)	PRIMARY LINE CLASS CODE SCR-0 RATE AREA (28)	SCR-0 LINE CLASS CODE (29 31)	SCR-1 RATE AREA (32)	SCR-1 LINE CLASS CODE (33 35)	SCR-2 RATE AREA (36)	SCR-2 LINE CLASS CODE (37 39)	SCR-3 RATE AREA (40)	SCR-3 LINE CLASS CODE (41 43)	REMARKS (44 79)	REVISE (80)
00	005		ATT		RSC					SPARE CENTREX	
01											
02											
03											
04											
05											
06											
07											
08											
09											
10											
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47											
48											
49											

Fig. 14—Translation Data for Centrex Dummy Group (Sheet 8 of 8) (9.07)

POTS calls to a *disconnected* CTX number

POTS calls to *spare* numbers *assigned* to a particular customer group.

POTS calls to *spare* numbers *not assigned* to a particular customer group.

POTS calls to a fully restricted (terminating) CTX number.

CTX station calls (4- or 5-digit) to a disconnected CTX number in the *same customer group* (Intra-CTX)

CTX station calls (4- or 5-digit) to numbers *not* in the same customer group.

CTX station calls to services not allowed, ie

Ninth Level access
1XX access
Tie-line access
Conference access

CTX station calls misdialed.

Attendant calls (4- or 5-digit) to a *disconnected* number in the *same* customer group

Attendant calls (4- or 5-digit) to a number not in the same customer group.

Attendant calls to fully restricted CTX stations

Attendant calls to services not allowed, ie:

Tie-line access
1XX access.

Fig. 15—Centrex Intercept Considerations (11.04)