

FEATURE DOCUMENT  
OUTWARD WIDE AREA TELECOMMUNICATIONS SERVICE  
(OUTWATS)  
NO. 2 ELECTRONIC SWITCHING SYSTEM

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**NOTICE**

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**FEATURE DEFINITION AND DESCRIPTION****1. DEFINITION/INTRODUCTION****DEFINITION**

**1.01** Outward wide area telecommunications service (OUTWATS) is a form of distance dialing telephone service which allows a customer, in consideration of a monthly charge, to place calls to specified geographical areas.

**1.02** The standard billing number for OUTWATS provides a standard billing number format for the automatic message accounting (AMA) recording of all group-billed OUTWATS calls and eliminates certain billing errors which can occur on operator assisted noncentrex OUTWATS calls.

**INTRODUCTION**

**1.03** OUTWATS is a telephone service designed to meet the needs of customers who make a substantial volume of long distance calls to many areas of the country. OUTWATS is provided as an alternative to tie lines, common control switching arrangements, direct distance dialing, and other services.

**1.04** The No. 2 Electronic Switching System (ESS) provides OUTWATS to both noncentrex and centrex customers. Noncentrex OUTWATS customers are connected to the dialing network by special "denied terminating" lines. Centrex OUTWATS customers are provided access to the dialing network over the regular centrex lines; however, the number of simultaneous calls is controlled by a software counter in a simulated facilities group (SFG). An OUTWATS customer can place direct dialed or operator assisted calls to points within a specific service area or band.

**1.05** Many billing errors result from the customer verbally providing information to the operator on operator assisted calls. The standard billing number for OUTWATS provides a standard format for AMA recording of OUTWATS calls and eliminates these billing errors on operator-assisted calls placed by noncentrex customers by allowing the No. 2 ESS to forward certain customer information to a traffic service position system (TSPS).

**1.06** The intent of this document is to detail the role of the No. 2 ESS in providing OUTWATS and the standard billing number for OUTWATS.

**1.07** The No. 2 ESS provides this feature to noncentrex customers with all available issues of the LO-1 generic program and to both noncentrex and centrex customers with all available issues of the EF-1 generic program. No special hardware is required to implement the feature. An office data administration (ODA) run is required to initially establish the feature in an office.

**2. USER PERSPECTIVE****CUSTOMER****A. OUTWATS Service Arrangement**

**2.01** Each OUTWATS customer specifies a service arrangement which is designed to meet the customer's particular needs. Service areas or bands are available which represent geographical areas to which an OUTWATS customer may place calls. An OUTWATS customer subscribes to a service arrangement which includes the desired band and the required number of lines.

**2.02** A centrex OUTWATS customer has several options not available to a noncentrex customer. A customer may specify a hunting arrangement where the facilities associated with a higher numbered band can be used to complete a call when the facilities associated with a lower numbered band are busy. OUTWATS may also be included within a preselected set of foreign exchange, common control switching arrangement, and regular direct distance dialing network facilities in a most economical routing (MER) arrangement (refer to Reference 6 in Part 19).

**2.03** The definition of the available service arrangements, the exact service area included in each band from each home area, the line number and billing number plans, the applicable charge information, and other OUTWATS information can be obtained from the WATS coordinators in each operating company.

**B. OUTWATS Access**

**Noncentrex**

**2.04** OUTWATS is normally provided to noncentrex customers by telephone sets dedicated exclusively to OUTWATS. These telephones are designated for one-way service; and the customer can place calls, but not receive them. If the OUTWATS lines are connected to a private branch exchange (PBX) or other Noncentrex-CO unit, station users may have to dial an access code to gain access to OUTWATS. No access code digits required in these situations are interpreted by the No. 2 ESS.

**2.05** After obtaining access to OUTWATS, dial tone is received. The customer then dials the desired 7- or 10-digit number or "0" if operator assistance is desired. The OUTWATS line used for the call is associated with a specific OUTWATS band, so the dialed 7- or 10-digit number must be within the geographical area served by the accessed OUTWATS band; otherwise, the call is routed to a recorded announcement or overflow.

**Centrex**

**2.06** A centrex customer must dial the assigned OUTWATS access code. If the particular line is allowed access to OUTWATS and the OUTWATS simulated facilities group does not indicate that the maximum number of OUTWATS calls are already in progress, a second dial tone can be returned. The customer then dials the desired 7- or 10-digit number or "0" if operator assistance is required.

**C. Operator-Assisted Calls**

**2.07** For operator-assisted OUTWATS calls which are routed to a cord switchboard, the OUTWATS customer must verbally provide the operator with the called and calling telephone numbers and, in certain instances, the customer's band. For operator-assisted noncentrex OUTWATS calls which are routed to a TSPS, the calling number (the noncentrex OUTWATS line number or the standard billing number for OUTWATS) is forwarded automatically by the No. 2 ESS. For operator-assisted centrex OUTWATS calls, the calling number forwarded is either the billing or directory number or the centrex listed directory number (LDN); the standard billing number cannot be

forwarded to TSPS. The calling party must verbally provide the TSPS operator with the standard billing number.

**D. Billing**

**Noncentrex**

**2.08** Noncentrex OUTWATS is normally billed to the telephone number assigned to the station originating the call. When billed in this manner, the service is said to be "station billed." Some operating telephone companies will, at the customer's request, bill OUTWATS to a standard billing number. When billed in this manner, the service is said to be "group billed." The customer should specify the preferred billing method prior to OUTWATS installation. The monthly bill is computed from the usage of the customer's selected service.

**Centrex**

**2.09** Centrex OUTWATS may be billed to the individual stations which originate OUTWATS calls or to a single number for all users in the centrex group. The single number is the standard billing number for OUTWATS or the centrex LDN. OUTWATS billed to individual stations is referred to as "station billed." OUTWATS billed to a single number is referred to as "group billed." The customer should specify the preferred billing method prior to OUTWATS installation. The monthly bill is computed from the usage of the customer's selected service.

**TELEPHONE COMPANY**

**2.10** Most operating companies route WATS "0" assistance calls (WATS "0" calls) to a cord switchboard. Completion of the call requires the verbal exchange of information between the calling party and the operator. The extent to which billing errors can occur is dependent upon the procedures defined for the operator when handling OUTWATS calls and the methods used to route WATS "0" traffic to the cord switchboard.

**2.11** If WATS "0" calls are routed to a TSPS, a number whose format is dependent on the customer's type of billing is forwarded to the TSPS. Since a standard billing number cannot be forwarded to a TSPS for a centrex customer, the calling party must verbally provide the standard billing number

to the TSPS operator. The TSPS operator can then use the standard billing number as the calling number. The TSPS operator processes the call without question. After the OUTWATS call is completed, the initial, answer, and disconnect AMA entries are made at the TSPS using the forwarded number as the number of the calling party.

**2.12** On each directly dialed call, an initial AMA entry is made at the local office. Answer and disconnect entries are made for each completed call. No AMA entry is made at the local office for WATS "0" traffic.

**2.13** Complete WATS billing information is obtained when the AMA tapes (TSPS and local office) are processed at the accounting center.

**2.14** If WATS "0" out-of-band screening is provided by the accounting center, all OUTWATS operator-assisted calls which are terminated to bands higher than the customer's actual band are billed at a higher rate. It is assumed that customers are aware of the area included in their band when placing WATS "0" calls.

### **3. SYSTEM PERSPECTIVE**

#### **FEATURE OPERATION**

**3.01** A flow diagram of the OUTWATS feature operation is shown in Figure 1. All noncentrex OUTWATS lines are dedicated to OUTWATS and any call origination on these lines represents a request to make an OUTWATS call. If the station user is a member of a PBX or other Noncentrex-CO unit, any required access code digits are processed by that unit.

**3.02** When an off-hook is detected from a noncentrex customer, the terminal equipment number (TEN) translation provides the originating major class, line screening class, line features, and the directory and billing numbers for the calling line. Dial tone is returned to the calling customer via normal call processing routines.

**3.03** When an off-hook is detected from a centrex customer, the TEN translation provides the centrex number, the directory number, the centrex access treatment (CAT) code, and other information. Dial tone is returned to the calling customer. The

customer may then dial the assigned access code for OUTWATS.

**3.04** The centrex digit interpretation program is activated to locate a terminal entry from the dialed digits. For OUTWATS, the terminal entry indicates that an SFG is required to complete the call. The CAT code of the calling line is checked against the restriction bits in the terminal entry to determine whether the station user is allowed access to OUTWATS. If the station user is denied access to OUTWATS, a centrex dialing error is returned.

**3.05** The SFG expansion for OUTWATS is accessed to determine if the maximum number of OUTWATS calls are already in progress. If so, the SFG is checked for an alternate SFG which would represent a hunting arrangement to a higher numbered OUTWATS service area. If no alternate SFG exists, reorder tone is returned. Each alternate SFG is accessed and given treatment identical to the first SFG.

**3.06** If the maximum number of OUTWATS calls are not already in progress, the count of calls in progress is incremented and a second dial tone is returned. This second dial tone is optional.

**3.07** At this point, calls from noncentrex and centrex customers are treated the same. The calling party may dial "0" for operator assistance or a 7- or 10-digit number. Operator assistance calls can be routed to a cord switchboard or a TSPS.

**3.08** Calls routed to a cord switchboard may create billing errors since the calling party verbally provides information to the operator. After the call is completed, the operator prepares a billing ticket.

**3.09** On calls routed to a TSPS operator, the directory or billing number assigned to the customer is forwarded; and, if the call is completed, the initial, answer, and disconnect AMA entries are made at the TSPS.

**3.10** If the customer dials a 7- or 10-digit number, the 3-digit translation provides a screening table (SCRTBL) number from the code index expansion table. The screening index (SCRNDX) and screening table (SCRTBL) number yields a charge index and a route index from the screening

tables. The SCRNDX is located from the screening class in the SFG for centrex OUTWATS lines or from the line's originating expansion for noncentrex OUTWATS lines.

**3.11** If the dialed digits are not within the customer's band, the route index from the screening tables routes the call to a recorded announcement or overflow. If the dialed digits are in-band, the direct route index in the code index expansion table is used to select the proper trunk group to complete the call. The call is then completed by the normal call processing routines.

**3.12** The appropriate AMA tape entries are made at the local office for all directly dialed attempted and completed calls.

**Software Data Structures**

**3.13** The translations required for the OUTWATS feature are shown in Figure 2. The translations for noncentrex OUTWATS are the same as those performed during the processing of a normal outgoing call.

**3.14** The translations for centrex OUTWATS require structuring of the digit interpreter tables to establish an OUTWATS access code. A CAT code is used to restrict the OUTWATS access. The CAT code must be assigned to the centrex line expansion of each line having access to OUTWATS. A wide area telephone service expansion and a simulated facilities group expansion are also required. If a group billing number is specified, a word in the Manual Trunk Disposition/Group Billing Index (MTD/GBI) table is required.

**3.15** Charge index and route index data in the screening table located from the screening index and the screening table number provide the routing information to terminal out-of-band calls to a recorded announcement or overflow. Each unique rate area and line class code defined for OUTWATS requires a word in each of the screening tables.

**FEATURE ATTRIBUTES**

**4. APPLICABILITY**

**4.01** OUTWATS is provided on a per-line basis to noncentrex customers or on a per-customer group basis to centrex customers. The standard billing number for OUTWATS is provided on a

per-central office basis and, when utilized, should be applied to all OUTWATS lines in the office.

**5. LIMITATIONS AND RESTRICTIONS**

**5.01** The following limitations apply to OUTWATS.

- Noncentrex lines are usually assigned as "denied termination" lines because of restrictions provided by existing interstate and most intrastate OUTWATS tariffs.
- One of the six NOCs (LO-1) or one of the six pseudo NOCs (EF-1) must be assigned to associate a NOC with each office code required for the standard billing number for OUTWATS.
- WATS "0" calls, at operating company option, can be routed to a cord switchboard or a TSPS.
- The standard billing number located from the GBI code in the SFG cannot be forwarded to a TSPS on operator-assisted calls originated by centrex users. The calling party must verbally provide this number to the TSPS operator.
- Simulated facilities groups are only used in centrex and are not available in the LO-1 generic program. The EF-1 generic program is limited to 127 SFGs.
- The "800" special area code which is used for Inward Wide Area Telecommunications Service (INWATS) is considered an out-of-band call to all OUTWATS service areas and should be blocked in the screening tables to OUTWATS customers. This prevents double charging on INWATS calls placed by OUTWATS customers.

**6. COMPATIBILITY AND INTERACTIONS**

**6.01** Identification of the calling line from PBX and Centrex-CU facilities requires automatic number identification (ANI) equipment at the PBX end and automatic identification of outward dialing (AIOD) equipment at the No. 2 ESS end.

**6.02** An attendant control of facilities (ACOF) key or dial code can be assigned to deny use of the SFGs to centrex station users.

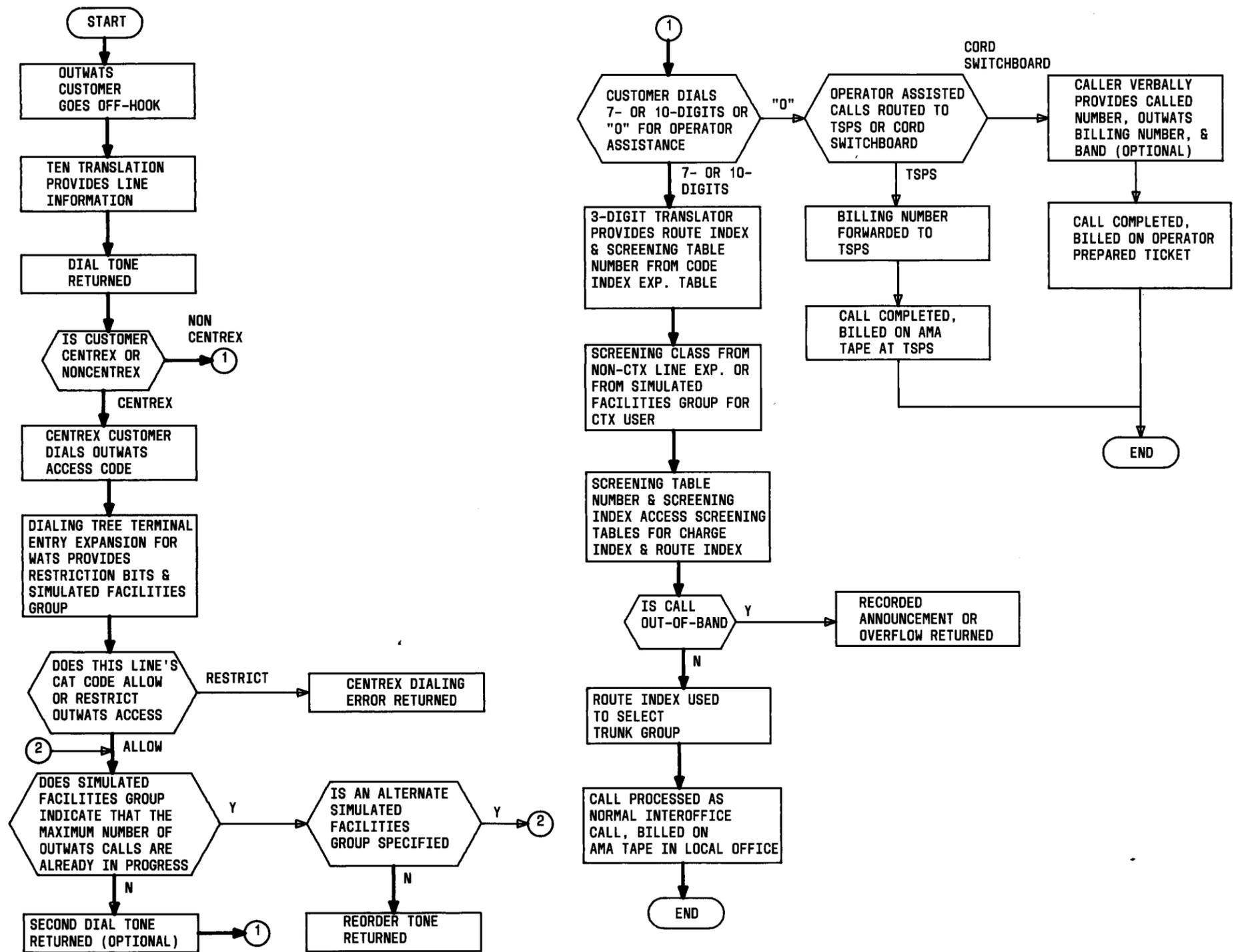


Fig. 1—OUTWATS Feature Operation Flow Diagram

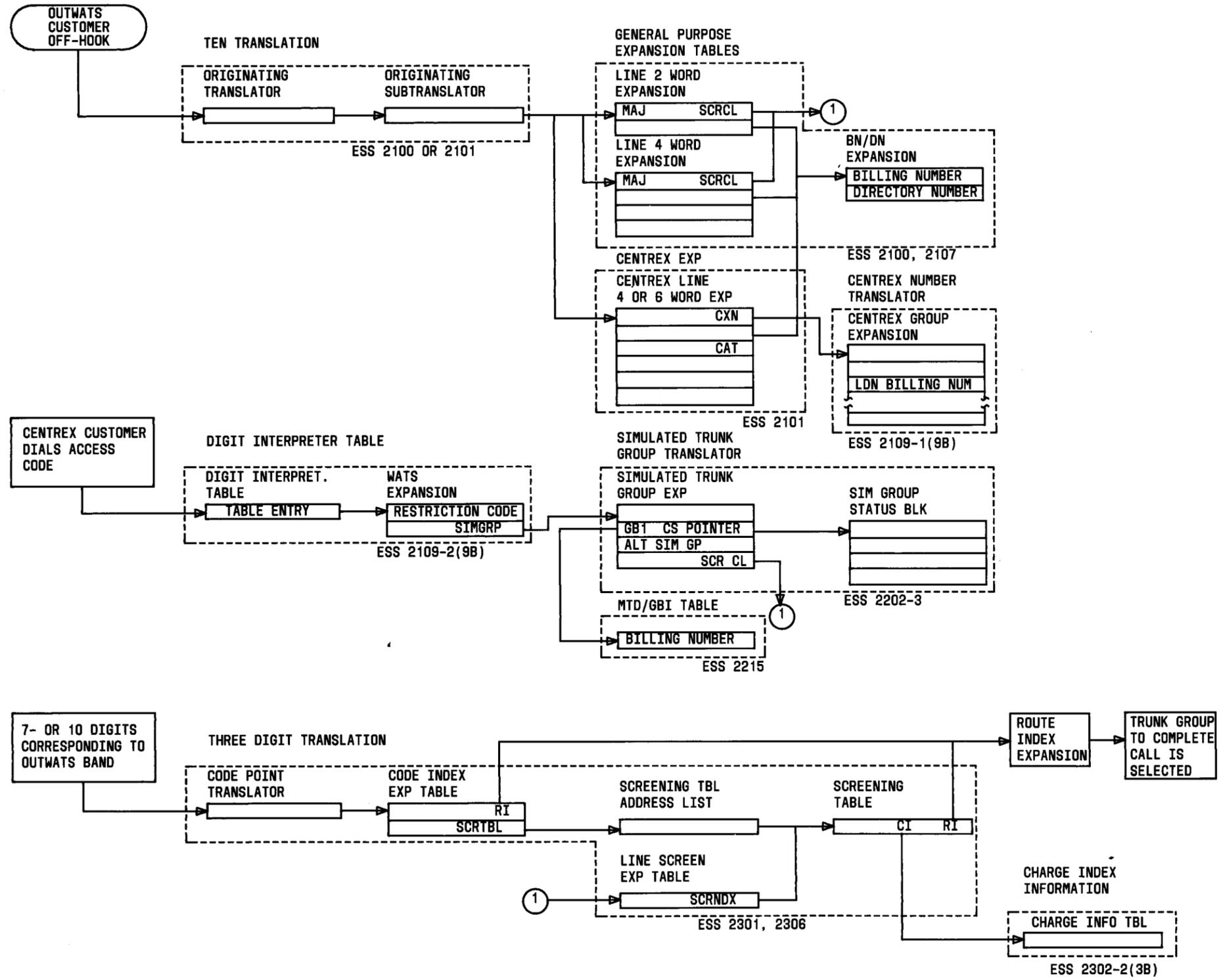


Fig. 2—OUTWATS Translations

**6.03** The standard billing number for OUTWATS is inoperative for operator assisted calls routed to a cord switchboard and for centrex calls routed to a TSPS.

## 7. COST FACTORS

### PROGRAM STORE

**7.01** The following translation words are required for OUTWATS:

- (a) Terminal Equipment Number Translation—one word in the originating subtranslator
- (b) General Purpose Expansion Table—a line expansion whose size depends on the specific line features. Two words are required for the billing/directory number expansion for noncentrex. Centrex lines require a 4- or 6-word expansion.

**7.02** The following translation words are required for each centrex OUTWATS customer's band in the Centrex Number Translator:

- (a) Digit Interpreter Table—if the desired centrex access code is established, but unassigned in the tables, a terminal entry must be made. In certain instances, another 16-word table may have to be established to provide the desired access code.
- (b) Digit Interpreter Table Expansion—two words for the wide area telephone service expansion.
- (c) Manual Trunk Disposition/Group Billing Index (MTD/GBI) Table—one word in this table if the standard billing number is used for OUTWATS.

**7.03** Each centrex OUTWATS band requires a 4-word SFG expansion in the SFG translation.

**7.04** Each centrex attendant key requires half of a word in the ACOF scan point translator, if used. Dial control by the attendant is established by using the special service access expansions for Activate Call Forward and Cancel Call Forward. These expansions are shared between the attendant and those stations with call forwarding. The attendant can activate or cancel control of the SFG for OUTWATS by dialing the access code of the special service access plus the access code of the OUTWATS SFG.

**7.05** The screening tables and the line screen expansion tables are affected when OUTWATS is initially incorporated. Each line screening class defined for OUTWATS requires one word in the line screen expansion tables to provide the SCRNDX to index the screening tables. Each unique rate area and line class code defined for OUTWATS requires a word in each of the screening tables.

**7.06** Each line class code established for OUTWATS requires three words in the Line Class Code Table.

**7.07** One word is required to assign one of the NOCs (01-05) or one of the pseudo NOCs (08-13) which is required to associate the NOC with each office code used for the standard billing number.

### CALL STORE

**7.08** Each SFG has an associated group status block in call store for group peg, usage, and overflow counts and for calls in progress status. A status block contains four words.

### PROCESSOR TIME

**7.09** The processor time required for calls from noncentrex OUTWATS lines is the same as calls from other individual lines. The processor time required for calls from centrex lines using simulated facilities is not available at this time.

## 8. AVAILABILITY

**8.01** Both OUTWATS and the standard billing number for OUTWATS are available with all available issues of the LO-1 and EF-1 generic programs. Centrex requires the EF-1 generic program.

## CONSIDERATIONS FOR INCORPORATION OF FEATURE INTO SYSTEM

### 9. PLANNING

**9.01** The following possible characteristics of OUTWATS lines should be considered when establishing the initial service:

- (a) OUTWATS lines usually experience high usage during their busy hour. Line assignments for these lines should be carefully planned.

(b) OUTWATS lines used as outgoing lines from polling computers create a large number of short holding time calls in a short period of time. New groups need to be screened for this type of user to determine the effect on the office prior to installing the service.

(c) Trunk access to the toll network should be continuously evaluated.

(d) Since customers may be served for a large area, possible heavy dial tone demands need to be considered.

(e) As the details of OUTWATS calls (except those routed to a cord switchboard) are entered as AMA tape entries, the adequacy of the AMA recording equipment must be evaluated as additional lines are assigned.

**9.02** Changes must be planned for the screening tables when establishing the initial service. A word in each of the screening tables is required for each unique rate area and line class code defined for OUTWATS. The route index entries for those zone indexes which represent out-of-band calls should be routed to either reorder tone or a recorded announcement. The INWATS "800" Special Area Code should be "blocked" to all OUTWATS customers.

**9.03** No special planning is required for the standard billing number for OUTWATS. However, once established, it should be applied to all OUTWATS customers served by the office. References 1 or 2 include the preferences for establishing the various billing numbers.

## **10. HARDWARE**

**10.01** No special hardware is required for either OUTWATS or the standard billing number for OUTWATS. The No. 2 ESS office must be equipped with a local automatic message accounting (LAMA) system to provide centrex OUTWATS features.

## **11. DETERMINATION OF QUANTITIES**

**11.01** The total software quantities are dependent on the number of customer lines that are to be provided for each of the bands. The items listed in Part 9, PLANNING should be considered. The OUTWATS software requirements are listed in Part 7, COST FACTORS.

## **12. ASSIGNMENTS AND RECORDS**

**12.01** Distinctive numbering formats exist for the line numbering of noncentrex OUTWATS lines and for the standard billing number for OUTWATS. These formats and other recommendations pertaining to OUTWATS are available from the WATS coordinators in each operating company.

### **INPUT AND RECORD KEEPING**

#### **A. Office Data Administration (ODA)**

**12.02** When an ODA run is required, the following completed forms for providing OUTWATS must be submitted to the appropriate WECO Regional Data Center for processing:

- **ESS 2100 Directory Number Table:** This form lists the directory number, the terminal equipment number, class information, and supplementary information associated with the noncentrex lines providing OUTWATS.
- **ESS 2101 Centrex Directory Number Table:** This form is used to indicate the centrex lines which have the CAT code allowing OUTWATS access.
- **ESS 2107 Supplementary Information Table:** This form is used to include additional information not included on ESS 2100 or ESS 2101.
- **ESS 2109-2 (9B) Centrex Group Table:** This form is used to identify the OUTWATS access code, the CAT code which allows the access code, the second dial tone option, and the SFG number.
- **ESS 2202-3 Centrex Trunk Group and Simulated Facilities Group Table:** This form is used to define the SFG required for OUTWATS including the Group Billing Index and alternate SFG, if required.
- **ESS 2215 Manual Trunk Disposition and Trunk Billing Index Table:** This form provides the entry for the standard billing number for centrex OUTWATS.
- **ESS 2217 Attendant Control of Facilities Table:** This form is used to assign a key

which allows the centrex attendant to deny access to a simulated facilities group.

- ESS 2301 Rate and Route Table: This form is used to specify a charge index and route index for each combination of distinct OUTWATS line class code and zone index.
- ESS 2302-2 (3B) Charge Information Table: This form is used to enter a message billing index and the LAMA data for the OUTWATS direct dialed calls.
- ESS 2303-2 Route Index Expansion Table: This form provides the association of each office code required for the standard billing numbers with a NOC between 01 and 05 or a pseudo NOC between 08 and 13 (EF-1).
- ESS 2306 Line Class Code Table: This form relates the various combinations of line class code and rate area to originating and terminating major classes.

**12.03** Reference 11 contains the details for completing these forms.

#### **B. Recent Change Messages**

**12.04** The following RC messages can be used to change portions of the OUTWATS feature:

- A RC:CTX—change the listed directory number (LDN) billing number for the centrex group.
- A RC:DIT—change the information in the terminal entry of the digit interpreter table (EF-1 only).
- A RC:DTB—add or delete a 16-word digit interpreter table to or from the dialing tree (EF-1 only).
- A RC:L—change translation data associated with a given noncentrex or centrex line.
- A RC:SIM—change a given word in a specified simulated facilities group (EF-1 only).

**12.05** The A RC:L input message can change the standard billing number for OUTWATS for noncentrex OUTWATS lines. The billing

number in the MTD/GBI table is not recent changeable.

**12.06** The corresponding A VY messages can be used to verify the A RC messages.

#### **C. Record Keeping**

**12.07** The translation administration record forms reflecting the incorporation of OUTWATS and the standard billing number for OUTWATS are returned to the operating company after an ODA run is made. A record of all RC messages must be retained as part of the office records.

#### **13. NEW INSTALLATION AND GROWTH**

**13.01** OUTWATS for noncentrex customers and the standard billing number for OUTWATS are available in No. 2 ESS offices equipped with either generic program. An office can be retrofitted with EF-1 so that OUTWATS for centrex customers can be provided.

**13.02** An ODA run is required to assign a NOC or a pseudo NOC (EF-1) for each office code required for the standard billing number for OUTWATS and to establish the screening table and charge information table entries for OUTWATS. An ODA is also required to assign an attendant key to an SFG or a group billing number in the MTD/GBI table.

**13.03** Once the features are established in an office, both can be provided to new customers or expanded for existing customers by RC messages if proper spare allocations were made in the ODA.

#### **14. TESTING**

**14.01** The OUTWATS translations should be verified using the office records and the A VY: input messages which correspond to those listed in 12.04 and 12.05.

**14.02** The correct initial operation of the features can be tested as follows:

- (a) Place a direct dialed test call that is in-band. The call should be completed and the AMA tape entries made at the local office.

(b) Place a direct dialed test call that is out-of-band. The call should be routed to a recorded announcement or overflow.

(c) Place a test call to the operator. The call should be completed and the AMA tape entries made at the TSPS.

(d) Place a test call to the INWATS "800" Special Area Code. The call should be routed to a recorded announcement or overflow.

(e) Request a printout of the AMA tape entries from the accounting department and verify that the entries actually took place.

**15. MEASUREMENTS**

**15.01** Usage counts on up to 64 selected lines can be performed using schedule W and are output when a TTY printout is requested or when traffic data is automatically printed out in accordance with the Traffic Work Table schedule. Each SFG provides overflow counts, group peg counts, and group usage counts using schedule C or H. Refer to Reference 7 in Part 19 for additional information.

**15.02** No specific measurements are taken for the standard billing number for OUTWATS.

**16. CHARGING**

**16.01** All billable OUTWATS transactions are recorded on AMA tape except WATS "0" calls routed to a cord switchboard. These calls are billed on an operator prepared ticket. Use of either the standard billing number for OUTWATS or the line number for noncentrex OUTWATS lines identifies the OUTWATS band used for the call and allows out-of-band screening to be performed by the accounting department. The standard billing number cannot be forwarded to a TSPS on assistance calls from centrex users. The number must be provided verbally to the TSPS operator by the centrex user. Entry type 25 is required for centrex OUTWATS if the calling party billing number is to be used, and entry type 11 is required if the standard billing number for OUTWATS is to be used. References 1 or 2 show when certain billing numbers are used in preference to others for various types of call.

**SUPPLEMENTARY INFORMATION**

**17. GLOSSARY**

**17.01** The following list contains an explanation of the terms used in this section.

- **Attendant Control of Facilities (ACOF)**—An attendant can restrict dial access by all station lines to FX, WATS, and/or tie trunk groups by operating a key or dialing a code. When control is activated, calls to trunk groups so restricted will be routed to the attendant for subsequent completion or to a tone or announcement. Trunk group busy (TGB) lamps on the simplified console attendant may be assigned to indicate activation of ACOF.
- **Automatic Message Accounting (AMA)**—A mechanized system used to record charging information in telephone switching systems.
- **Office Data Administration (ODA) Run**—Mechanism by which translation information may be assembled or changed for a No. 2 ESS. Information from the ESS input forms is inputted into the regional ODA computer, assembled, then sent back to the No. 2 ESS.
- **Recent Change (RC) Messages**—Mechanism for making changes to information stored in the program store. These changes are accomplished via TTY input messages and are stored in the recent change area of call store until some later time when the program store can be updated.
- **Standard Billing Number**—A billing number assigned, in addition to a directory number, to a customer or members of a customer group.
- **Traffic Service Position System (TSPS)**—An electronic stored program control system in a central location that provides operator and charging functions for associated offices.

**18. REASONS FOR REISSUE**

**18.01** This is the initial issue of this document.

**19. REFERENCES**

**19.01** The following documents may be referenced for information pertaining to OUTWATS:

- (1) Centrex Billing Arrangements—Section 232-190-355
- (2) Charging Arrangements—Section 232-190-101
- (3) Dial Facilities Management Practices, Division F, Section 4
- (4) Federal Communications Commission Tariff 259
- (5) Input Message Manual No. 2 ESS IM-2H200
- (6) Most Economical Routing (MER) No. 2 Electronic Switching System (Centrex-CO)—Section 232-190-339
- (7) Notes on Distance Dialing, Section 9
- (8) Office Data Tables Layout Specification No. 2 ESS PA-2H200
- (9) Output Message Manual No. 2 ESS OM-2H200
- (10) Traffic and Plant Measurements—Section 232-120-301
- (11) Translation Guide, TG-2H.