FEATURE DOCUMENT
OUTWARD WIDE AREA TELECOMMUNICATIONS SERVICE
(OUTWATS)
NO. 3 ELECTRONIC SWITCHING SYSTEM

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INTRODUCTION

1. GENERAL INFORMATION

1.01 This document describes the Outward Wide Area Telecommunications Service (OUTWATS) feature provided by the No. 3 Electronic Switching System (ESS). This is an optional feature which may be utilized in conjunction with the Automatic Message Accounting Recording System (AMARS) feature.

1.02 When this section is reissued, the reasons for reissue will be included in this paragraph.

1.03 The OUTWATS feature is available with Issue 4 of the SO-2 generic program. This feature is essentially a software feature which requires no special hardware.

2. DEFINITION

2.01 OUTWATS is a form of direct distance dialing telephone service which allows a customer, in consideration of a monthly charge, to place calls to specified geographical areas.

2.02 The standard billing number for OUTWATS may be used to provide a standard billing number format for the Automatic Message Accounting (AMA) recording of all group-billed OUTWATS calls. However, calls may also be billed to the telephone number of the station originating the call. These types of billing are used whenever possible to eliminate certain billing errors which can occur on operator-assisted OUTWATS calls.

2.03 OUTWATS telephone service is 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.

2.04 In the No. 3 ESS, OUTWATS customers are connected to the dialing network by special "denied terminating" lines. An OUTWATS customer may place direct-dialed or operator-assisted calls to points within a specific service area or band.

2.05 Many billing errors may result when the customer verbally provides billing information to the operator for 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. The No. 3 ESS accomplishes this by automatically forwarding the billing number to an operator position under the control of a Traffic Service Position System (TSPS).

DESCRIPTION

3. USER OPERATION

A. OUTWATS Service Arrangement

3.01 Each customer specifies a service arrangement which is designed to meet the customer's particular needs. Service areas, or bands, are available representing 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.

3.02 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 available charge information, and other OUTWATS details may be obtained from the WATS coordinators in each operating company.

B. OUTWATS Access

3.03 OUTWATS is normally provided through the use of telephone sets dedicated exclusively to OUTWATS. These telephones are designated for 1-way service allowing the customer to originate calls but not receive them. If the OUTWATS lines are connected to a private branch exchange (PBX), station users may have to dial an access code to gain access to the dedicated OUTWATS lines. The access code digits required in this situation are not interpreted by the No. 3 ESS.

3.04 After obtaining access to OUTWATS, dial tone is received. The customer may then dial the desired 7- or 10-digit number, or 0 if operator assistance is desired. The OUTWATS line accessed for the call is associated with a specific OUTWATS band, so the 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 reorder tone. Some operating telephone companies may

allow customers to complete calls to any band below the one to which they subscribe. This is accomplished through the proper arrangement of the screening tables.

C. Operator Assisted Calls

3.05 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-party telephone numbers and, in certain instances, the customer's band. For operator-assisted OUTWATS calls which are routed to TSPS, the calling number (either the standard billing number for OUTWATS or the OUTWATS line number) is forwarded automatically by the No. 3 ESS.

D. Billing

3.06 OUTWATS calls may be billed to the telephone number assigned to the station from which the call is originated. When billed in this manner, the service is said to be "station billed." OUTWATS calls may also be billed 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.

E. Telephone Company Actions

3.07 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. If WATS "0" calls are routed to a TSPS, a number whose format is dependent on the customer's type of billing is automatically forwarded to the TSPS. The TSPS then uses this forwarded number as the billing 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.

3.08 For each directly dialed OUTWATS call, an initial, answer, and disconnect entry is automatically made by the AMARS feature (the No. 3 ESS constructs the entries and transmits them to be recorded at the remote AMA recording center). Refer to Section 233-190-204 for further details concerning the AMARS feature. No AMA entry is made by the AMARS feature for WATS "0" traffic.

3.09 Complete WATS billing information is obtained when the AMA tapes (either from the TSPS or the AMA recording center) are processed at the accounting center.

3.10 WATS "0" out-of-band screening may be provided by the accounting center. In this case, all OUTWATS operator-assisted calls which are terminated to bands higher than the customer's subscribed band are billed at a higher rate. It is assumed that customers are aware of the area included in their subscribed service area when placing WATS "0" calls. However, the operating telephone company may elect to perform 0+ screening automatically by the No. 3 ESS. In this case, 0+ out-of-band calls are automatically denied.

3.11 In order to provide direct-dialed OUTWATS service, the operating telephone company must properly construct the screening tables to provide the correct charging and routing for OUTWATS calls based on the customer's class of service and the service area of the called party.

3.12 The OUTWATS feature may be provided utilizing Centralized Automatic Message Accounting (CAMA) or TSPS recording instead of AMARS recording. In these instances, the OUTWATS band in which the called party resides (as represented by the charge index) cannot be recorded. Therefore, the accounting center, which has only the calling and called party telephone numbers and the duration of the call, must identify the band and determine the charges. OUTWATS calls can be easily recognized when a standard billing number is outpulsed to the CAMA or TSPS. Out-of-band screening may be performed by the No. 3 ESS through proper construction of the screening tables.

4. SYSTEM OPERATION

4.01 A flow diagram of the OUTWATS feature operation is shown in Figure 1. All 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, any required access code digits are processed by the PBX.

4.02 When an off-hook is detected from an OUTWATS customer, the scan point number (SPN) is translated to identify the customer and to obtain the customer's originating major class, screening class, and directory and billing numbers. Dial tone is then returned to the customer.

4.03 The customer may then directly dial the OUTWATS call by dialing a 7- or 10-digit number, or a "0" may be dialed if operator assistance is required. Operator assistance calls may be routed to a cord switchboard or to a TSPS.

4.04 Calls routed to a cord switchboard may create billing errors since the calling party must verbally provide billing information to the operator. When the call is completed, the operator must prepare a billing ticket.

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

4.06 If the customer dials a 7- or 10-digit number, the 3-digit translation provides a screening table number from the code index expansion. The screening table number and the customer's screening class (obtained from the line's originating translations) are used to access a particular screening table entry which provides a charge index and a route index. This information is required in order to properly route the OUTWATS call and to provide the necessary billing.

4.07 If the dialed digits represent a telephone number which is out of the customer's subscribed band, the route index causes the call to be connected to a recorded announcement or to reorder tone. In order to assure this type of routing, the operating telephone company must properly construct the screening tables. The combination of the customer's screening class and the screening table number (derived from the 3-digit translator) must point to a screening table entry that contains a route index which identifies a recorded announcement or reorder tone as the ultimate destination.

4.08 If the dialed digits represent a telephone number located within the customer's band, the route index points to a trunk group which eventually leads to the called line. The call is then completed like any other outgoing call. The charge index obtained for this type of call is representative of the band in which the called party resides. The WATS bands and their associated charge indexes are listed in Table A.

4.09 For calls which are diverted to an announcement or to reorder tone, the charge index must be 1, indicating a free call.

4.10 For customer-dialed OUTWATS calls, the No. 3 ESS automatically generates the billing data which is transmitted to an Automatic Message Accounting Recording Center (AMARC) for storage on magnetic tape. The tape is then processed for billing by the revenue accounting office. The data generated by the No. 3 ESS includes the called telephone number, billing number (either the station number or standard OUTWATS billing number), a full business day or measured rate indicator, a charge index, and the initial, answer, and disconnect times. For further details regarding the AMARS feature, refer to Section 233-190-204.

CHARACTERISTICS

5. FEATURE ASSIGNMENT

5.01 The OUTWATS feature is assigned within the No. 3 ESS on a per-line basis.

6. LIMITATIONS

6.01 The following limitations apply to the OUTWATS feature.

- Lines are usually assigned as "denied termination" lines because of restrictions provided by existing interstate and most intrastate OUTWATS tariffs.
- One of the 31 office indexes must be assigned as a psuedo office index to be associated with the standard OUTWATS billing number. The office index used for OUTWATS billing numbers is 31.
- WATS "0" calls, at operating company option, may be routed to a cord switchboard or a TSPS.

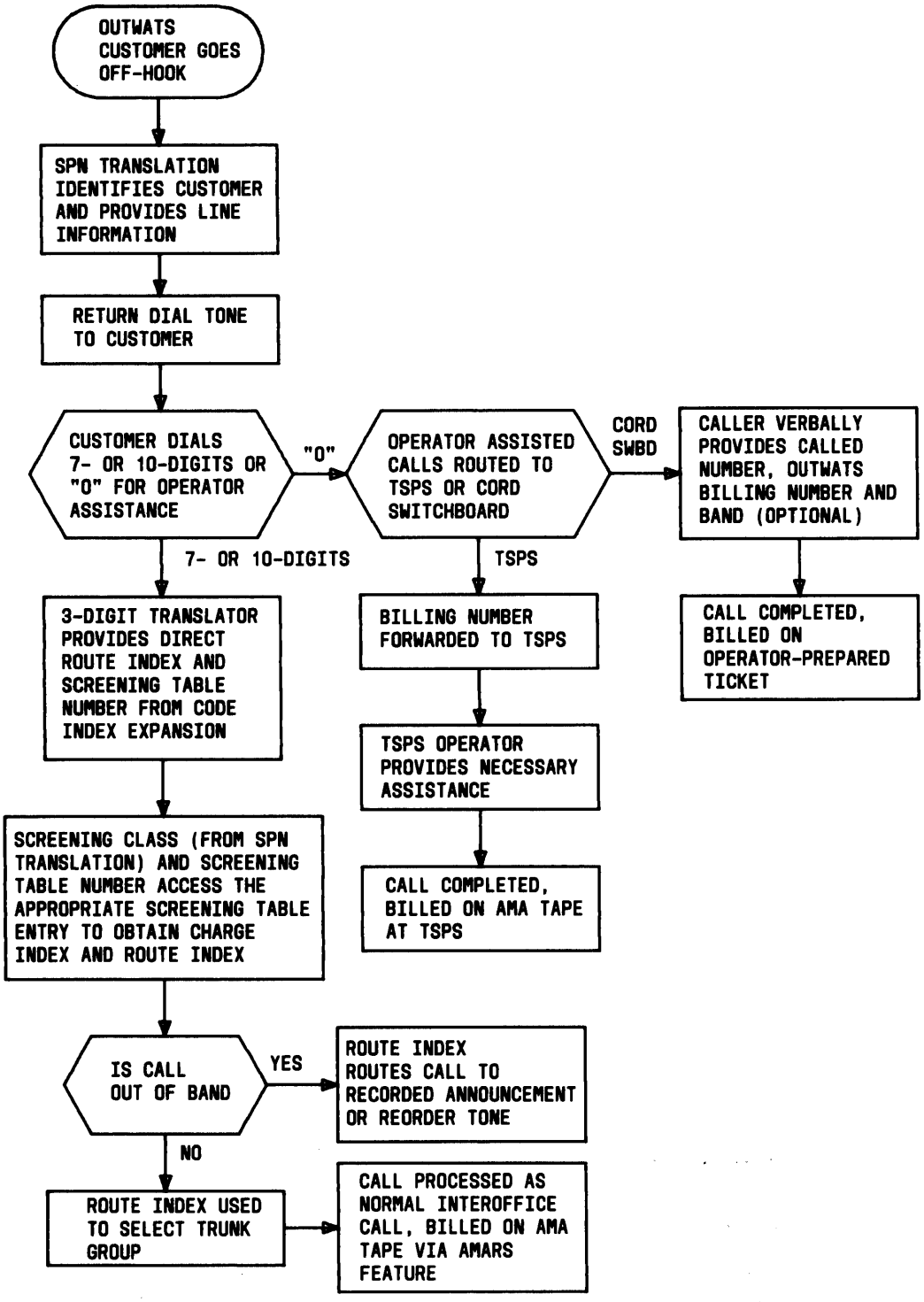

Fig. 1—OUTWATS Feature Operation Flow Diagram

TABLE A

RESERVED CHARGE INDEXES FOR WATS BANDS

CHARGE INDEX	WATS BAND
2	0
3	1
4	2
5	3
6	4
7	5
8	6
9	7
10	8
11	9

- 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 to OUTWATS customers by the screening tables. This prevents double charging on INWATS calls placed by OUTWATS customers.

- A maximum of 1024 standard OUTWATS billing numbers may be assigned for any No. 3 ESS office.

7. INTERACTIONS

7.01 The standard billing number for OUTWATS is inoperative for operator-assisted calls routed to a cord switchboard.

8. RESTRICTION CAPABILITY

8.01 OUTWATS customers are restricted from making calls to destinations outside of the specified bands and from making calls to toll free "800" numbers. No other restrictions apply to this feature.

INCORPORATION INTO SYSTEM

9. INSTALLATION/ADDITION/DELETION

9.01 OUTWATS service and the standard OUTWATS billing number are available in No. 3 ESS offices equipped with Issue 4 of the SO-2 generic program.

9.02 Recent change messages or an office data administration (ODA) run (in the case of the initial installation) is required in order to make the necessary software assignments. These assignments are described further in the DATA ASSIGNMENTS AND RECORDS portion of this section.

10. HARDWARE REQUIREMENTS

10.01 No special hardware is required for the OUTWATS feature or for the standard OUTWATS billing number.

11. SOFTWARE REQUIREMENTS

11.01 As previously described, the software required for the OUTWATS feature is provided as a part of the No. 3 ESS generic program. The translations required for the OUTWATS feature are shown in Figure 2. Except for the special billing table which provides the WATS billing number, these translations are the same as for any outgoing call.

11.02 Charge index and route index data are stored in the screening table which is located from the line's screening class and the screening table number. This data provides the routing information required to route the call to its appropriate destination. Each unique rate area and line class code defined for OUTWATS requires a word in each of the screening tables.

11.03 Each standard OUTWATS billing number requires two words in the special billing table.

12. DATA ASSIGNMENTS AND RECORDS

A. Data Assignments

12.01 Each OUTWATS line must be properly assigned with the appropriate billing number and class of service information. The screening tables must be properly constructed in order to provide the required charging and routing for OUTWATS calls. These assignments may be made through use of recent change messages or, in the case of the initial installation, the ODA run.

12.02 The OUTWATS billing number may be the station number of the OUTWATS line, or a standard OUTWATS billing number may be used. The standard OUTWATS billing number consists of a 3-digit numerical code and a 4-digit number in the form of 0/1 XY-XXXX. The first digit of the code (0 or 1) indicates whether the customer has full business day (0) or measured-rate (1) service. The second digit (X) is reserved for assignment by the operating company. (Usually a different digit is assigned to each state for identification purposes.) The third digit (Y) designates the service area or band subscribed to by the customer. The remaining four digits (XXXX) represent the specific billing number for the line. This is an arbitrary assignment; however, no 4-digit number should be duplicated within a given band in a given Numbering Plan Area (NPA). Further information and recommendations concerning standard OUTWATS billing numbers are available from the WATS coordinators in each operating company.

12.03 When an ODA run is required to assign the OUTWATS feature, the following ESS forms must be completed and submitted to the appropriate Western Electric Regional Data Center for processing:

- ***ESS 3100—Telephone Number Table:*** This form lists the directory number, terminal equipment number, class information (including line class code), and supplementary information indicator for OUTWATS lines.

- ***ESS 3107-1—Supplementary Information Table:*** This table lists the OUTWATS billing number associated with the station's telephone number.

- ***ESS 3301—Rate and Route Table:*** This form is used to construct the screening tables by providing a charge index and route index for each combination of screening class and screening table.

- ***ESS 3302—Charge Table:*** The reserved OUTWATS charge indexes are preprinted on this form.

- ***ESS 3303-2—Route Index Expansion Table:*** This form is used to provide trunk group numbers, outpulsing information, alternate routing, and other information for trunk groups which may be used for OUTWATS calls as well as the usual customer dialed toll calls.

- ***ESS 3306—Line Class Code Table:*** The line class code (a standard universal service order code), originating major class, terminating major class (class 30 is used to deny termination), and screening class for OUTWATS lines are listed on this form.

For further details concerning the completion of these forms, refer to Translation Guide TG-3.

12.04 The following recent change messages may be used to make the necessary assignments for the OUTWATS feature.

RC:CDI—This message is used to associate a screening table number (keyword SCRTBL) and direct route index (keyword RTI) with each 3-digit office or area code.

RC:LCC—This message is used to associate an originating major class (keyword OMAJ), terminating major class (keyword TMAJ), and a screening class (keyword SCR) with a line class code for OUTWATS lines.

RC:LINE—This message is used to associate a line class code (keyword LCC), billing number (keyword BTN—used when a standard OUTWATS billing number is not desired), and standard OUTWATS billing number (keyword WATS) with OUTWATS lines.

RC:SCR—This message is used to construct the screening tables for OUTWATS calls. The following keywords are used:

- SCR—defines the screening class entry

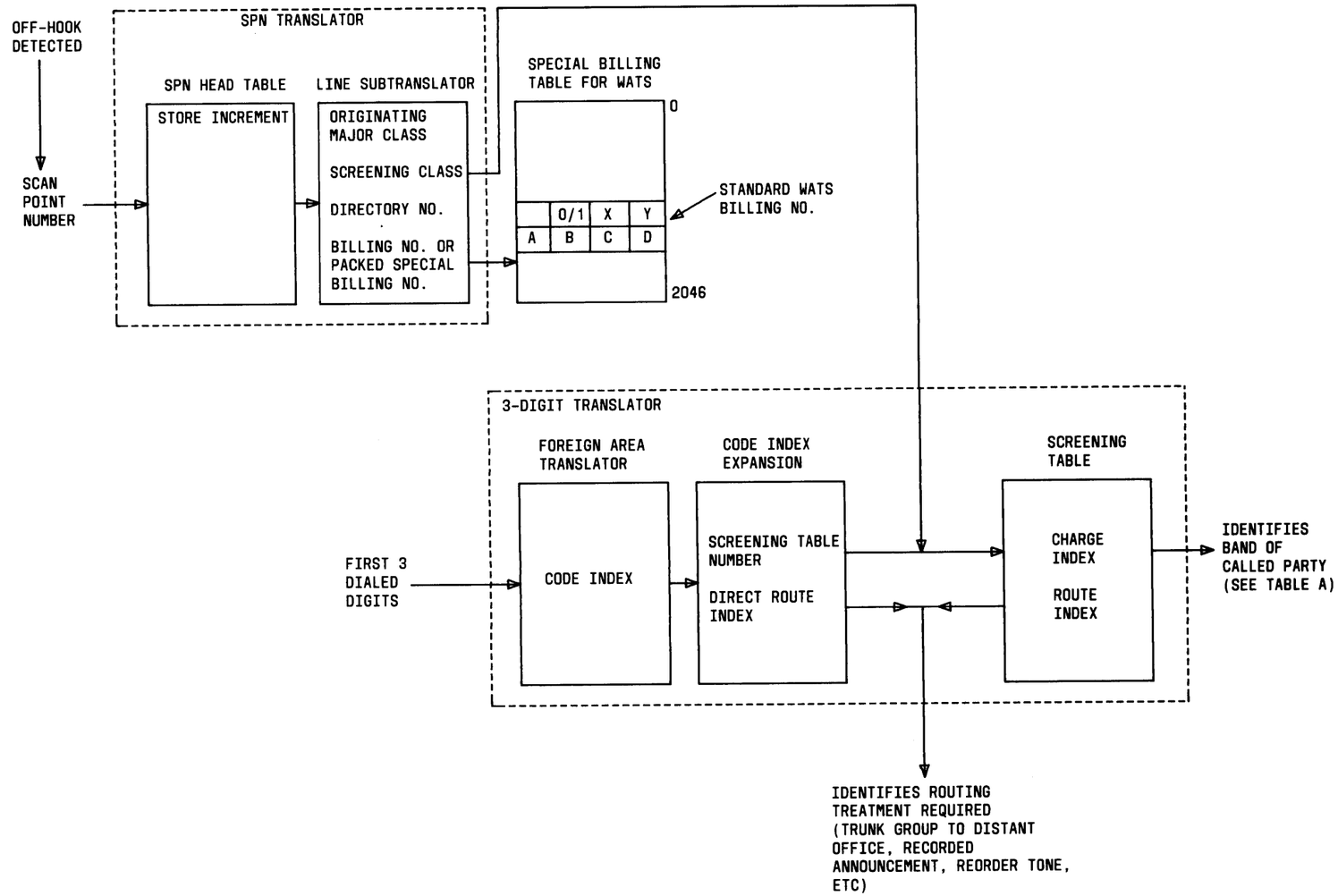

Fig. 2—Translation Layout for OUTWATS Feature

- SCRTBL—defines the screening table number entry

- RTI—associates a route index with the appropriate screening class and screening table number

- CHI—associates the appropriate reserved OUTWATS charge index with the screening class and screening table number.

Refer to IM-3H300 and the Recent Change Users Guide for further details concerning the use of these messages.

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

B. Records

12.06 If an ODA run was made to incorporate the OUTWATS feature, the resulting output forms should be retained as part of the office records. Records for trouble reports and maintenance should be kept in accordance with local procedures.

13. TESTING

13.01 The office translations should be verified using the office records and the following verification messages:

VER:CDI—This message is used to verify the code index translator entries.

VER:LCC—This message is used to verify the line class code information.

VER:LINE—This message is used to verify all line information related to OUTWATS lines.

VER:SCR—This message is used to verify the construction of the screening tables.

For further details concerning the use of these messages, refer to IM-3H300.

13.02 The correct initial operation of the OUTWATS feature may 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 AMARC.

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

(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 to reorder tone.

14. OTHER PLANNING TOPICS

14.01 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) The number of OUTWATS customers must be considered in order to evaluate the possibility of heavy dial tone demands.

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

ADMINISTRATION

15. MEASUREMENTS

15.01 No specific measurements are made for OUTWATS calls. Usage information may be obtained from the AMA records.

16. CHARGING

16.01 All billable OUTWATS transactions are automatically recorded by the AMARS feature except WATS "0" calls which are 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 of the OUTWATS line identifies the OUTWATS band used for the call and allows out-of-band screening to be performed by the accounting department.

SUPPLEMENTARY INFORMATION

17. GLOSSARY

17.01 The following list contains an explanation of terms used in this document.

- Automatic Message Accounting (AMA)—A mechanized system used to record charging information in telephone switching systems.

- Automatic Message Accounting Recording System (AMARS)—The system used to record AMA information for calls originated from within the No. 3 ESS service area. The No. 3 ESS generic program collects the billing informaion for all customer-dialed toll calls and automatically transmits it via a data link to the Automatic Message Accounting Recording Center (AMARC). There, the billing information is assembled and stored on magnetic tape for future processing by the accounting department.

- CAMA—Centralized Automatic Message Accounting

- Office Data Administration (ODA) Run—The mechanism by which translation information may be assembled for a No. 3 ESS office. Information from the ESS input forms is inputted into the regional ODA computer, assembled, and sent back to the No. 3 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 temporary store until later when the program store is 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. REFERENCES

18.01 The following documents may be referred to for further information related to the OUTWATS feature.

- Output Message Manual—OM-3H300

- Input Message Manual—IM-3H300

- Office Data Tables Layout Specification—PA-3H300

- Translation Guide—TG-3

- Section 233-190-010—System Features No. 3 Electronic Switching System

- Section 233-190-024—Trunking Arrangements No. 3 Electronic Switching System

- Section 233-190-101—Charging Arrangements No. 3 Electronic Switching System

- Section 233-190-149—Interface with Traffic Service Position System No. 3 Electronic Switching System

- Section 233-190-204—Automatic Message Accounting Recording System (AMARS) Feature No. 3 Electronic Switching System
- Section 233-154-130—Recent Change Users Guide
- Federal Communications Commission Tarriff 259
- Section 781-030-100—Notes on Distance Dialing