FEATURE DOCUMENT

MULTIPARTY SERVICE

NO. 3 ELECTRONIC SWITCHING SYSTEM

Figures

Figures

INTRODUCTION

DESCRIPTION

1. GENERAL INFORMATION

1.01 The No. 3 Electronic Switching System (ESS) provides service to multiparty customers in the same way as individual customer calls except for calls to another party on the same line (reverting calls) and calls requiring charging. Calls to multiparty customers are processed as normal calls except that selection of which side of the line to ring (tip or ring) must be made, and for some 4-party and all 8-party service, a special ringing code must be used to enable the parties on the called line to identify which party is being called. Toll calls from 4- and 8-party customers must be routed to an operator for identification of the calling station. No custom calling features are available to multiparty lines.

1.02 This document is being reissued to include 3E3 generic program changes and other information not previously included. Since this is a general reissue, no revision arrows will be used.

1.03 The Multiparty Service feature requires both software and hardware. Software is included in the system program. The Completion of Incoming and Intraoffice Calls (TERM) program is used to control termination to and the ringing of multiparty lines. Hardware in addition to the standard 881A ringing and tone plant (SD-82255) is required if superimposed type ringing is used. In this case, a superimposed ringing circuit (SD-3H406 and the associated circuit packs FB375 and FB376) must be installed. The proper station ringers, as described in Section 500-114-100, must also be installed.

1.04 The Multiparty Service feature is available with all versions of the No. 3 ESS program.

2. DEFINITION

2.01 The Multiparty Service feature provides 2-, 4-, or 8-party service to a maximum of eight customers on a common line. It is sometimes referred to as rural service and is usually implemented in areas where the cost of outside plant facilities to a single customer becomes prohibitive.

3. USER OPERATION

3.01 The Multiparty Service feature provides 2-party service, fully selective or semiselective 4-party service, and semiselective or coded 8-party service to customers in rural areas where the cost of running wire to a single customer is prohibitive. Fully selective service indicates that each multiparty customer can be rung with a common ringing code without ringing the telephones of the other parties on that line. Semiselective service refers to an arrangement in which no more than two telephones are rung on a call to a multiparty line with a different ringing code assigned to each party for identification. Coded service is accomplished the same as semiselective service except that it is extended to four parties.

3.02 Special ringing features will be available to those customers with 2-party service in No. 3 ESS offices equipped with the 3E3 generic program. Refer to Section 233-190-146, Enhanced Ringing Features, for details of these special 2-party services.

3.03 Calls from multiparty customers are processed the same way as individual customer calls except for calls to another party on the same line (reverting calls) and calls that require charging.

3.04 When a multiparty customer dials the directory number of a customer on the same line, a reverting call sequence is initiated. When the customer's class of service is 2-party, 4-party semiselective, or 8-party coded service, busy tone (60 ipm) is returned. The calling customer must then go on-hook. This removes the busy tone and the calling party is rung with a revertive ring and the called party is rung with their proper signal. If the called and calling parties are on the same side of the line, they are rung simultaneously with the ringing code of the called party. If the called and calling parties are on opposite sides of the line, the calling party is rung first so that the calling party knows that ringing has begun in case the called party answers on the first ring. The ringing continues until the called party answers or the calling party goes off-hook and back on-hook, abandoning the call. When the called party goes off-hook, the ringing stops and the calling party must then go off-hook to complete the talking connection.

3.05 If the multiparty customer on a line with 4-party full selective or 8-party semiselective service makes a reverting call, the customer is given a second dial tone after the directory number is dialed. A special station identification digit (some number from two through nine which is assigned by the telephone company) must then be dialed to identify the calling station. This digit directs the No. 3 ESS to apply the correct ring signal to the calling party's line. When the valid station digit is dialed, the calling customer is given busy tone (60 ipm). The calling customer must then go on-hook. This removes the busy tone and the called and calling parties are rung with their proper signals. The ringing continues until the called party answers or the calling party goes off-hook and back on-hook, abandoning the call. When the called party goes off-hook, the ringing stops and the calling party must then go off-hook to complete the talking connection.

3.06 Direct distance dialing (DDD) toll calls from customers with a 4- and 8-party service must be routed to an operator. This must be done because the No. 3 ESS cannot identify the calling party on 4- and 8-party lines. After dialing the desired number, the caller is connected to the operator who requests the calling number and records it before allowing the call to complete.

4. SYSTEM OPERATION

Multiparty Service

4.01 The type of multiparty service available to customers is dependent on the type of ringing equipment installed in the No. 3 ESS. Regular ringers are always required and are used to ring single and 2-party lines. AC-DC ringing is used to provide 4-party semiselective and 8-party coded service (Figure 1). Superimposed ringing is used to provide 4-party full selective and 8-party semiselective service (Figure 2). (A mix of 4-party semiselective and 4-party full selective service is not provided in No. 3 ESS.) To distinguish which party is being rung in those cases where full selective ringing is not possible, up to four ring codes are used: 2 seconds on and 4 seconds off (code 1); 1 second on, 1 second off, 1 second on, and 3 seconds off (code 2); 1-1/2 seconds on, 1/2 second off, 1/2 second on, and 3-1/2 seconds off (code 3); and 1-1/2 seconds on, 1/2 second off,

1/2 second on, 1/2 second off, 1/2 second on, and 2-1/2 seconds off (code 4).

TYPE OF LINE	PARTY	RING CODE
2-PARTY	1-RING	CODE 1
	2-TIP	CODE 1
4-PARTY	1-RING	CODE 1
	2-TIP	CODE 1
	3-RING	CODE 2
	4-TIP	CODE 2
8-PARTY CODED	1-RING	CODE 1
	2-TIP	CODE 1
	3-RING	CODE 2
	4-TIP	CODE 2
	5-RING	CODE 3
	6-TIP	CODE 3
	7-RING	CODE 4
	8-TIP	CODE 4

Fig. 1—Ringing Used in Offices With AC-DC Ringing

4.02 A call to a multiparty line is processed the same as an individual line up to the point where connection to a ringing circuit is required. The terminating major class and whether 4-party semiselective or 4-party full selective service is provided are used to determine the ringing requirements. After selection of a ringing circuit, that part of the terminating major class that describes the ringing is saved in word 14 of the transient call record (TCR) and used to set up ring to the called party (Figure 3 summarizes the ringing requirements). Refer to Section 233-190-146, Enhanced Ringing features for details about No. 3 ESS ringing requirements.

4.03 Ringing is tripped when the called line goes off-hook. This answer report or any abandon report for the called party is handled in the same manner as for regular ringing. The same valid answer timing is done and charging entries are made for calls to multiparty lines in the same manner as for calls to individual lines.

TYPE OF LINE	PARTY	IDENTIFICATION DIGIT	RING CODE
2-PARTY	1-RING (−)	−	CODE 1
	2-TIP (−)	−	CODE 1
4-PARTY	1-RING (−)	2	CODE 1
	2-TIP (−)	3	CODE 1
	3-RING (+)	4	CODE 1
	4-TIP (+)	5	CODE 1
8-PARTY	1-RING (−)	2	CODE 1
	2-TIP (−)	3	CODE 1
	3-RING (+)	4	CODE 1
	4-TIP (+)	5	CODE 1
	5-RING (−)	6	CODE 2
	6-TIP (−)	7	CODE 2
	7-RING (+)	8	CODE 2
	8-TIP (+)	9	CODE 2

Fig. 2—Ringing Used in Offices With Superimposed Ringing

4.04 Originations from multiparty lines are handled in the same manner as individual lines except for reverting calls and toll calls.

Reverting Calls

4.05 A revertive call is a call made by a customer on a party line to another customer on the same line. These calls in a No. 3 ESS office are controlled autonomously by the calling customer. The following sections are procedures for revertive calls.

A. AC-DC Revertive Ringing

(1) 2-Party

4.06 When a customer goes off-hook, a customer dial pulse receiver is connected via a path through the switching network to the customer line. A tip-party test is first made to determine which party (tip or ring) is off-hook, and then dial tone is returned to the customer. The directory number of the party to be called is then dialed. After dialing is completed, the customer dial pulse receiver is disconnected by system control, and a tone circuit is connected (via a network path) to the calling customer line to return busy tone. This is a signal for the customer to go on-hook. (The

customer must go on-hook within 30 seconds or they will be given permanent signal treatment.) After the customer goes on-hook, the tone circuit is disconnected and the customer line is connected, via a network path, to a ringing circuit.

4.07 The required ringing states are selected and both the calling and called parties are rung alternately. The calling party is rung with a distinct reverting ringing signal (a 0.5-second ring every 3 seconds) and the called party with the regular ringing signal (code 1). Ringing is applied to the calling party first so that the calling party knows that ringing has started in case the called party answers on the first ring.

4.08 Ringing to both calling and called parties continues until the called party goes off-hook and trips the ringing. Answer supervision is detected by system control and the ringing circuit is restored to the idle state. A circuit junctor is then connected, via a network path, to the customer line to provide talking battery and supervision. When the telephone stops ringing, the calling party, knowing the call has been answered, goes off-hook and the talking connection is complete.

4.09 System control will restore the circuit junctor and line to idle when both the calling and

BIT => (NOTE)	15	14	13	12	11	CLASS	PARTY
	0	0	1	0	0	4	1
	0	0	1	0	1	5	2
	1	0	0	0	0	16	1
	1	0	0	0	1	17	2
	1	0	0	1	0	18	3
	1	0	0	1	1	19	4
	1	0	1	0	0	20	5
	1	0	1	0	1	21	6
	1	0	1	1	0	22	7
	1	0	1	1	1	23	8
2-PARTY OR 4-PARTY FUSEL			RINGING CODE	SUP +/--	RING/ TIP		
2-PARTY OR 4-PARTY SEMSEL				RINGING CODE	RING/ TIP		
8-PARTY SEMSEL			RINGING CODE	SUP +/—	RING/ TIP		
8-PARTY CODED RING			RINGING CODE		RING/ TIP		

Note: Bits 11 through 15 are derived from the terminating major class.

LEGEND: (A) RINGING CODE 0=CODE 1 — 1=CODE 2 FOR 2-PARTY, 4-PARTY
   FULLSELECTIVE OR SEMISELECTIVE, AND 8-PARTY SEMISELECTIVE
   00=CODE 1, 01=CODE 2, 10=CODE 3, 11=CODE 4 FOR 8-PARTY CODED
   (B) RING/TIP 0=RING THE RING SIDE, 1=RING THE TIP SIDE
   (C) SUP+/—, 0=SUPERIMPOSED ON —48, 1=SUPERIMPOSED ON +48

Fig. 3—Terminating Major Class—Multiparty Classes

called parties go on-hook. If the called party did not answer, the calling party would go off-hook momentarily to trip the ringing and the ringing circuit, and line would be returned to idle. If the called party did not answer and the calling party did not trip the ringing, the system control would idle the line and ringing circuit after 2 minutes of ringing.

(2) 4-Party Semiselective

4.10 Reverting ringing for 4-party semiselective service is accomplished in the same manner as 2-party service except for the following.

(a) A tip-party test is not made.

(b) A second ringing code (code 2) is needed to distinguish between parties on the same side of the line.

(c) The called party code is always applied on the side of the line as determined by the called directory number, and the special reverting ring code is always applied to the opposite side of the line to signal the calling customer. When parties on the same side of the line call each other, the calling party will hear the code of the called party and not the special reverting code. Customers on the opposite side of the line will hear the special reverting ring code but will ignore the signal, as neither of them would have originated the call.

(d) If the called and calling parties are on the same side of the line, they are rung simultaneously with the ringing code of the called party. If the called and calling parties are on opposite sides of the line, the calling party is rung first so that the calling party knows that ringing has begun in case the calling party answers on the first ring.

(3) 8-Party Coded

4.11 Reverting ringing for 8-party coded service is accomplished in the same manner as 4-party semiselective except that four ringing codes are needed to distinguish between parties on the same side of the line.

B. Superimposed Revertive Ringing

(1) 4-Party Full Selective

4.12 When a customer goes off-hook, a customer dial pulse receiver is connected via a path through the switching network, to the line and then dial tone is returned to the customer. The directory number of the party to be called is then dialed. After dialing is completed, a second dial tone is returned. This signals the calling party to dial an identification digit (Figure 2) which identifies the calling party number to system control (so that the ringing code of the calling party can be determined). After this digit is dialed, the customer dial pulse receiver is disconnected and a tone circuit is connected via a network path to the customer line to return busy tone. This is a signal for the customer to go on-hook (the customer must go on-hook within 30 seconds or they will be given

permanent signal treatment.) The tone circuit is then disconnected and the customer line is connected, via a network path, to a ringing circuit.

4.13 The required ringing states are selected, and both the calling and called parties are rung alternately with their regular ringing codes (code 1). Ringing is supplied to the calling party first, to indicate that ringing has started in case the called party answers on the first ring. Ringing continues, as stated in paragraph 4.08.

(2) 8-Party Semiselective

4.14 Reverting ringing of 8-party semiselective customers is accomplished in the same manner as 4-party full selective customer (paragraphs 4.12 and 4.13) with the exception of two differences.

(a) A second ringing code (code 2) is needed to distinguish between parties on the same side of the line and of the same polarity.

(b) When parties on the same side of the line and of the same polarity call each other, only the code of the called party is applied to prevent confusion. If the code of the calling party were applied, each party would hear both codes.

Toll Calls From 4-Party and 8-Party Lines

4.15 Toll calls from 4- and 8-party lines cannot be station identified by ANI for charging purposes. The services of a traffic service position (TSP)/Traffic Service Position System (TSPS) or a centralized automatic message accounting (CAMA) operator are required for station identification on DDD calls from 4- and 8-party lines. Zero or "0+" calls also require operator number identification (ONI) of 4- and 8-party stations, but can be routed to TSP/TSPS or a 3CL operator position for completion of the call.

Emergency or Operator Ringback on Multiparty Lines

4.16 In those cases where ringback is required by a 911 emergency services bureau or an operator position, the No. 3 ESS handles multiparty lines in the following manner. If the line is on-hook, 4 seconds of ringing is applied to all parties on the line. Two-party lines are rung individually, 4-party semiselective lines are rung two at a time, 4-party full selective lines are rung one at a time,

8-party semiselective lines are rung two at a time, and 8-party coded lines are rung four at a time. This is necessary since party identification is not available for 4- and 8-party service at this point. If the wrong party goes off-hook, they must go back on-hook and the line rerung. This continues until the desired party is reached. If a party on the line goes off-hook just as ringback was about to occur, they are given 2 seconds of ROH tone and connected to the bureau.

4.17 With 3E3 and later, a 0- operator ringback attempt on a 4- or 8-party line will not be done and the operator will not be notified that the ringback was not done. An emergency ringback from a 911 bureau for a 4- or 8-party line will be honored unconditionally. Because of this operator inability to do a ringback, it is recommended that 911 bureau calls not be routed or alternately routed to a regular 0- operator.

Feature Flow Diagram

4.18 A feature flow diagram of the multiparty feature is shown in Figure 4.

CHARACTERISTICS

5. FEATURE ASSIGNMENT

5.01 The multiparty feature is provided on a per-line basis to customers desiring 2-party, 4-party, or 8-party service.

5.02 The use of this feature is determined by the assignment of the originating and terminating major class via the following recent change (RC) messages (1) RC:TWOPTY/ for origination and termination to 2-party line customers, (2) RC:MPTY/ for termination to 4- and 8-party line customers, or (3) RC:OFFICE/ to provide 4-party full selective service.

6. LIMITATIONS

6.01 Two, four-, and eight-party lines are not allowed any custom calling features and four- and eight-party lines cannot be station identified by ANI equipment for calls that require charging. No more than eight customers are allowed on any one line.

6.02 No mixture of 4-party semiselective and 4-party full selective service is allowed for multiparty lines in a No. 3 ESS office.

7. INTERACTIONS

7.01 The multiparty feature interacts with the enhanced ringing feature as described in Section 233-190-146.

8. RESTRICTION CAPABILITY

8.01 This feature can be restricted by using the RC messages described in paragraph 5.02.

INCORPORATION INTO SYSTEM

9. INSTALLATION/ADDITION/DELETION

9.01 In order to install this feature for a customer, the proper line (2-party or multiparty) must be provided, the station sets properly installed and wired to receive the desired type of ringing, and the appropriate software assignments must be made within the central office.

10. HARDWARE REQUIREMENTS

10.01 Hardware required for this feature is dependent upon the ringing requirements of the area to be served by the No. 3 ESS office. Refer to Section 500-114-100 for station ringer requirements and limitations. The No. 3 ESS comes equipped with an 881A ringing and tone plant (SD-82255) which is mounted in the miscellaneous power frame. This circuit provides a ringing signal of 20 Hz of 86 ±2 Vac in series with –42.75 to –52.5 Vdc. This type of ringing signal is referred to as ac-dc ringing. Regular ringers are always required and are used to ring single and 2-party lines. If the office does not have 4-party full selective service, then regular ringers are also used to ring 4- and 8-party lines (and, with 3E3, those lines having the enhanced ringing feature, Section 233-190-146).

10.02 If the office has 4-party full selective service, superimposed ringers are required and are used only to ring 4- and 8-party lines (including those lines having the enhanced ringing feature). To provide superimposed ringing, an office must be equipped with a superimposed ringing circuit (SD-3H406, FB375 and FB376) in addition to the 881A ringing and tone plant. This

```
                    START
                      |
                      | - - - -  LOCALLY
                      |          ORIGINATED
                      |          CALL
                      v
                OFF-HOOK
                DETECTED
                      |
                      v
                SPN AND TEN
                TRANSLATION
                      |                    ORIGINATING MAJOR
                      | - - - - - - -      CLASS INDICATES LINE
                      |                    IS A MULTI-PARTY LINE
                      v
                 IS THIS        YES        DO TIP-PARTY TEST
                 A 2-PARTY   -------->     TO DETERMINE WHICH
                 LINE                      PARTY IS OFF-HOOK
                      |
                      | NO
                      v
                COLLECT AND
                TRANSLATE DIGITS
                      |
                      v
                 IS THIS A      TOLL       2-PARTY, OR    4- OR 8-PARTY
                 LOCAL OR A  -------->     4- OR 8-PARTY  --------->
                 TOLL CALL                 LINE
                      |                        |
                      | LOCAL                  | 2-PARTY
                      v                        v
                SET UP PATHS AND          DDD OR         DDD
                TEST FOR BUSY LINE        OPERATOR    -------->
                      |                   ASSISTED
                      v                        |
                      A                        | OPERATOR ASSISTED
                                               v
                                          ROUTE TO TSP/TSPS
                                          OR 3CL POSITION
```

ROUTE TO TSP/TSPS, CAMA OR 3CL FOR ONI OR OPERATOR ASSISTANCE

ROUTE SAME AS REGULAR DDD CALL WITH ANI

CALL CONNECTED, BUSY OR REORDER RETURNED

```
                    START
                      |
                      | - - - -  CALL ON
                      |          INCOMING
                      |          TRUNK
                      v
                4 DIGIT TRANSLATION INDICATES
                CALL IS TO A MULTIPARTY LINE
                VIA THE TERMINATING MAJOR CLASS
                      |
                      v
                TERMINATING MAJOR CLASS
                DETERMINES WHICH SIDE OF
                LINE IS TO BE RUNG AND
                WHAT TYPE OF RINGING CODE
                IS REQUIRED
                      |
                      v
                      B
```
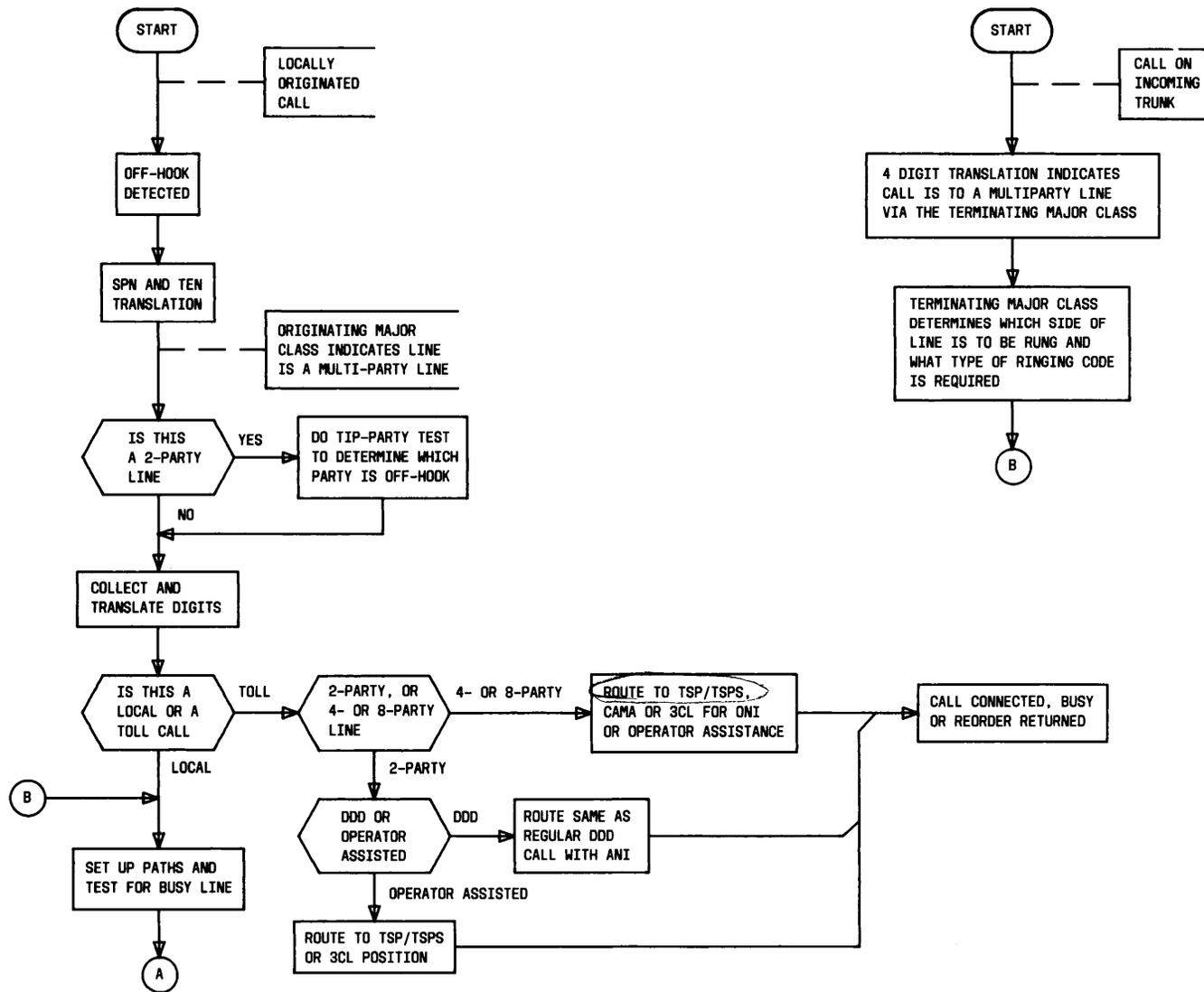
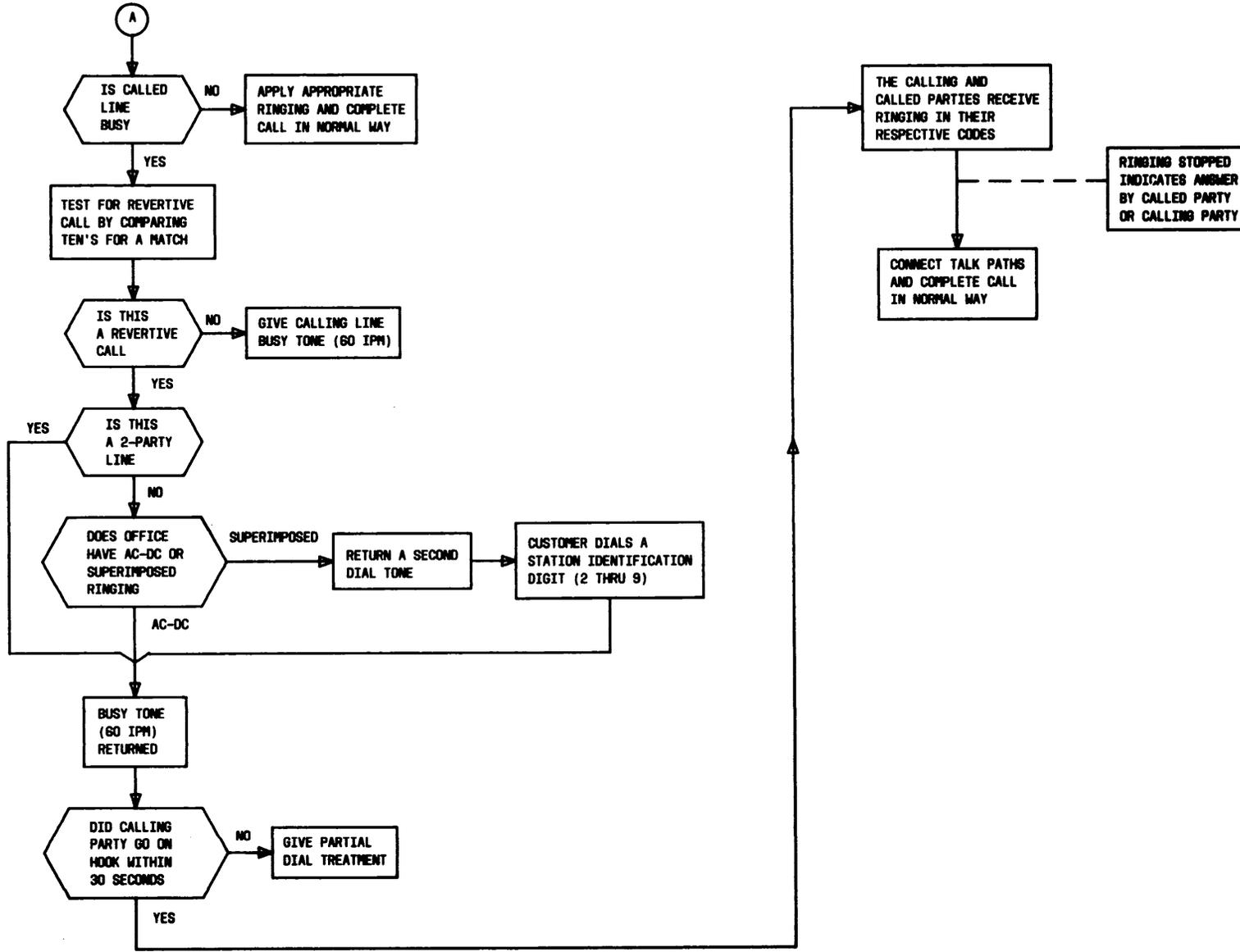**Fig. 4—Multiparty Service Feature Flow Diagram (Sheet 1 of 2)**

Fig. 4—Multiparty Service Feature Flow Diagram (Sheet 2 of 2)

combination then provides 20 Hz of 86 ±2 Vac in series with +48 ±2 Vdc or -48 ±2 Vdc.

10.03 A maximum of 127 regular ringers and 127 superimposed ringers are allowed in any No. 3 ESS office. Refer to Section 233-060-210 Network Design Worksheets, No. 3 ESS, to determine the required quantities of these circuits.

10.04 In order to provide immediate ring, the interruptions for all codes of ringing are timed under 3A CC control with the interruptions being affected by relays being energized and released in the ringing circuit.

10.05 Each ringing circuit (regular or superimposed) requires one network appearance and each line subscribing to 2-party service and each set of lines subscribing to 4- or 8-party service requires one network appearance. Each regular ringer requires one distributor and each superimposed ringer requires two distributor triplets. A supervisory scan point is required to provide supervision, and a directed scan point is required to perform the ringing continuity test.

11. SOFTWARE REQUIREMENTS

11.01 The translations required for multiparty service are those involving originating and terminating translations. Originating translation data for multiparty lines require line expansion words such as shown in the word layout in Figure 5. The data found is compared to that found in the terminating translations (Figure 6) to determine if a revertive call is being made. If no match is found, the call is completed using normal call processing. The type of ringing to be used in terminating to a multiparty line must be marked in the "SUP" bit in the office data words shown in Figure 6. The SUP bit is marked if 4-party full selective service is provided in the office. The terminating major class and the type of ringing used are required by the system program in order to ring the proper party with their appropriate ringing code. Refer to the PA-3H3XX for other details pertaining to these word layouts.

11.02 The software requirements for multiparty service consist of the following translation store words per line:

- 2-party service requires 10 words

- 4-party service requires 14 words

- 8-party service requires 28 words.

11.03 For incoming calls to a multiparty customer, two translation store words per customer are required. Outgoing and revertive calls require the following translation store words per line.

- 2-party service requires 4 words

- 4-party service requires 3 words

- 8-party service requires 4 words.

11.04 Approximately 250 words of program store words are required in the Completion of Incoming and Intraoffice Calls (TERM) program (PR-3H175) to provide coded and revertive ringing for multiparty service.

11.05 There is negligible difference between the processor time required to process individual line calls and multiparty line calls. Processor real-time data required by this feature will be supplied when the data becomes available.

12. DATA ASSIGNMENTS AND RECORDS

12.01 The following Translation Input Forms must be completed and submitted to the WECo Regional Center using normal schedule procedures for the initial office data administration (ODA) run. Refer to the Translation Guide TG-3 for details and other information required to complete these forms. A copy of these forms should be maintained for general office records.

FORM	TITLE
3100	Telephone Number Table
3107	Supplementary Information Table
3201	Trunk Assignment Table
3202	Trunk Group Table
3300	Three and Six-Digit Translation Table
3301	Rate and Route Table
3302	Charge Table

3303	Route Index Expansion Table
3304	Code Index Table
3306	Line Class Code Table
3500	General Information Table

12.02 The following RC Messages are used to add to or to change translations required for the multiparty service feature. Refer to the Input Message Manual, IM-3H300, and the Recent Change Users Guide, Section 233-154-130, for details of these messages and their keywords.

RC MESSAGES	EXPLANATION OF MESSAGE
RC:CDI/	Used to define, change, or remove code index expansion entries.
RC:CHI/	Used to define, change, or remove a charge index entry. Used to define charge status for 4- and 8-party toll calls.
RC:CKT/	Used to associate SPNs, TENs, and member numbers with particular circuits of a service circuit group.
RC:DIG/	Defines the code index for a 3- or 6-digit translation or a default code index for an area translator.
RC:GRP/	Used to define the trunk or service circuit features for a group.
RC:LCC/	Used to associate an originating major class, a terminating major class, and a screening class with a line class code and rate area.
RC:MPTY/	Used to add, change, or remove line information for multiparty lines (4- and 8-party).
RC:OFFICE/	Used to define the office options such as whether 4-party full selective or 4-party semiselective service is provided.
RC:RTI/	Used to add, change, or remove a route index expansion entry and its associated alternate route index expansion entry.
RC:SCR/	Used to add, change, or remove a screening class expansion entry.
RC:TWOPTY/	Used to add, change, or remove line information for 2-party lines.

13. TESTING

13.01 Testing of this feature is accomplished through RC verification of the RC input messages described in paragraph 12.02 and by placing test calls to verify that the proper ringing sequence occurs for standard and revertive calls and that 4- and 8-party lines are given toll diversion on toll calls.

14. OTHER PLANNING TOPICS

14.01 The ringing requirements of the area which the No. 3 ESS office is to serve must be taken into consideration. In an area where multiparty service is already established, the type of ringing presently used should be maintained whether it is ac-dc or superimposed.

14.02 In those cases where an office is to serve a new area and multiparty service is to be provided, it should be remembered that ac-dc ringing requires no extra circuits and fewer types of station ringers. However, superimposed ringing is less annoying to the customers in that they hear only their ring (2- and 4-party full selective) or at most only one other ring other than their own (8-party semiselective).

14.03 With 3E3 and later, it is recommended that those offices that have multiparty lines not route or alternate route 911-type calls to a 0- operator. Refer to paragraph 4.17 for more information.

ADMINISTRATION

15. MEASUREMENTS

15.01 The measurements required for this feature are the group traffic measurements. These are peg, usage, and overflow. Refer to Sections 233-152-135 and 233-020-020 for details of these measurements and the applicable registers.

LINE SUBTRANSLATOR EXPANSION (NOTE 1)

2 PARTY EXPANSION (NOTE 2)

2 PARTY LINE

1	1	0	1	TABLE NUMBER	ENTRY NUMBER
15	14	13	12	11 ... 7	6 ... 0

0				TT2	TT1	CDPR
						1 ... 0

RING

TIP

0	EL	GS		OMAJ	TTC	SCR	NOTE 4
15	14	13	11 ... 7	6 5	4 ... 0	

0	BILLING AND DIRECTORY NUMBER (NOTE 3)

1	1	1	1	TABLE NUMBER	ENTRY NUMBER
				11 ... 7	6 ... 0

0	BILLING AND DIRECTORY NUMBER (NOTE 3)

4 AND 8 PARTY LINE WITHOUT EXPANSION

0	EL	GS		OMAJ	TTC	SCR	NOTE 4
15	14	13	12	11 ... 7	6 5	4 ... 0	

1				TABLE NUMBER	ENTRY NUMBER
15	14	12	11 ... 7	6 ... 0	

4 AND 8 PARTY LINE WITH EXPANSION

1	1	1	1	TABLE NUMBER	ENTRY NUMBER
15	14	13	12	11 ... 7	6 ... 0

1		SS	SOB	TABLE NUMBER	ENTRY NUMBER
15	14	13	12	11 ... 7	6 ... 0

0	EL	GST		OMAJ	TTC	SCR	NOTE 4
15	14	13	12	11 ... 7	6 5	4 ... 0	

PLUS 1 OR 3 LINE DATA WORDS

4 PARTY LINES

0	DIRECTORY NUMBER
	14 ... 0

0	DIRECTORY NUMBER

1	UNASSIGNED

0	DIRECTORY NUMBER

8 PARTY LINE ENTRY POINTS TO 2 FOUR WORD ENTRIES

1	TABLE NUMBER	ENTRY NUMBER
	11 ... 7	6 ... 0

1	TABLE NUMBER	ENTRY NUMBER
	11 ... 7	6 ... 0

FIRST 4 OF 8

0	DIRECTORY NUMBER	1
	14 ... 0	

0	DIRECTORY NUMBER

1	UNASSIGNED

0	DIRECTORY NUMBER	4

SECOND 4 OF 8

0	DIRECTORY NUMBER	5
	14 ... 0	

0	DIRECTORY NUMBER

1	UNASSIGNED

0	DIRECTORY NUMBER	8

NOTES:
1. EXPANSION ENTRIES CONTAIN 1, 2, OR 4 LINE DATA WORDS. IF SEVERAL EXPANSION ENTRIES ARE PROVIDED THEY ARE LINKED BY MEANS OF TABLE AND ENTRY NUMBERS. A TABLE AND ENTRY NUMBER WORD WHEN PROVIDED MUST BE THE LAST WORD OF THE ENTRY.
2. TYPICAL 2 PARTY LINE EXPANSION SHOWING TWO TYPES OF ENTRY FORMATS THAT MAY APPEAR FOR EITHER RING OR TIP PARTY. EITHER PARTY MAY ALSO BE UNASSIGNED.
3. FOR LINES WITH EXPANDED BILLING INFORMATION. ENTRY CONTAINS A TABLE AND ENTRY NUMBER.
4. SCR EXPANDS TO 6 BITS AND TTC IS MOVED TO BIT 6 IN 3E3.

LEGEND

EL = ESSENTIAL LINE
GS = GROUND START LINE
TT = TOUCH TONE SERVICE
TT1 = TOUCH TONE SERVICE FOR RING PARTY
TT2 = TOUCH TONE SERVICE FOR TIP PARTY
TTC = TOUCH TONE CALLING FEATURE
CDPR = EXIT CODE THAT INDICATES THE TYPE OF CUSTOMER DIAL PULSE RECEIVER TO CONNECT TO THE TWO PARTY LINE
 00 = ERROR
 01 = ATTACH A TT RECEIVER
 10 = ATTACH A DP RECEIVER
 11 = DO NOT ATTACH ANY RECEIVER. BOTH PARTIES ARE DENIED OR ONE IS UNASSIGNED AND THE OTHER IS DENIED
SOB = SERVICE OBSERVING
SS = SPECIAL STUDIES

Fig. 5—Originating Translations Data

NOC	THOUSANDS	HUNDREDS	TENS	UNITS

NOCD   15   (MTI ENTRY)   0   0

3 * NOC

NOTE 2

0	0	0	1	0	0			0	0	1	0	0	0	0	0	0
15	14	13	12	11	10			7		5	4					

NUMBER OF NUMBER GROUP ENTRIES-1 = 9

15 | | | | | | | | | | | 4 3 | | | | 0

PS ADDRESS OF NUMBER GROUP TABLE

23

15   NUMBER GROUP TABLE   0   0

THOUSANDS DIGIT

0	0	0	(VACANT THOUSANDS GROUP)	0
0	1		CODE INDEX (SEE NOTE 3)	
			7	0
1	STORE INCREMENT			

STORE INCREMENT

9

OFFICE OPTION WORDS (MTI INDEX)

Z PLUS   3E3 ONLY

OFF DATA

D P G		MOT	SUP												C_F O
			13	12	11										0

					S_{R_C}	H_{I_T}	I_{C_S}	A_{L_C}	I_{D_D}	CO	TS	S_{L_U}	A_{M_A}	RV	PC

NOTE 1

BITS NOT USED IN 3E3

NOTES:
1. WORD NOT USED IN SO-2
2. WORD APPEARS AS BELOW IN 3E3

0	0	0	1	0	0	0		0	0	1	0	0	0	0	0
15	14	13	12	11	10			8		6	5				0

3. NUMBER GROUP TRANSLATION INDICATES ROUTING TO ANOTHER OFFICE
4. WITH SO-2 X = 2, WITH 3E3 X = 3

THOUSANDS GROUP TABLE   0

HUNDREDS DIGITS

0	0	0	(VACANT HUNDREDS GROUP)	0
0	1		ROUTE INDEX	
			7	0	NOTE 1
1	C_{U_T}	STORE INCREMENT		

9

STORE INCREMENT

HUNDREDS GROUP TABLE   0

UNASSIGNED

X (10*TENS+UNITS)
NOTE 4

0	0	0	UNASSIGNED	0

NOTE 1

PBX/MLHG

0	1	0	PBX/MLHG GROUP NUMBER	1ST HUNT MBR NO.	0
			11	6 5	0
TERM	MJ CL CD	TRC	0	OX	LAST HUNT MBR NO.
TCR ALM					LCC INDEX
				7	0	NOTE 1

NORMAL LINE

1	1	0	TERMINAL EQUIPMENT NO.	0
			12	
TERM	MJ CL CD	TRC	ESX	OX	ROUTE INDEX
15		11	10 9	8	7	0
TCR ALM					LCC INDEX
				7	0	NOTE 1

LINE REQUIRING EXPANSION DATA

1	1	1	TABLE	ENTRY

2ND WORD OF NORMAL LINE OR PBX/MLHG   199

TCR ALM	LCC INDEX
	7	0	NOTE 1

LEGEND:
SRC = STATION RINGER CIRCUIT
    0 = OLD STATION RINGER CIRCUIT (FB 521, SERIES 1)
    1 = NEW STATION RINGER CIRCUIT (FA 521, SERIES 3 OR LATER)
TERM MJ CL CD = TERMINATING MAJOR CLASS CODE
    OX = THE ORIGINATING TRANSLATOR HAS TERMINATING TRANSLATION DATA:
        1. GROUND START   3. SLEEVE LEAD DISTRIBUTOR TRIPLET ADDRESS
        2. CALL FORWARD INDEX   4. NOISY LINE CIRCUIT DISTRIBUTOR TRIPLET ADDRESS
ZPLUS = 1 - 0+ ALLOWED
SUP   = 0 - OFFICE HAS AC-DC RINGING
      = 1 - OFFICE HAS SUPERIMPOSED RINGING
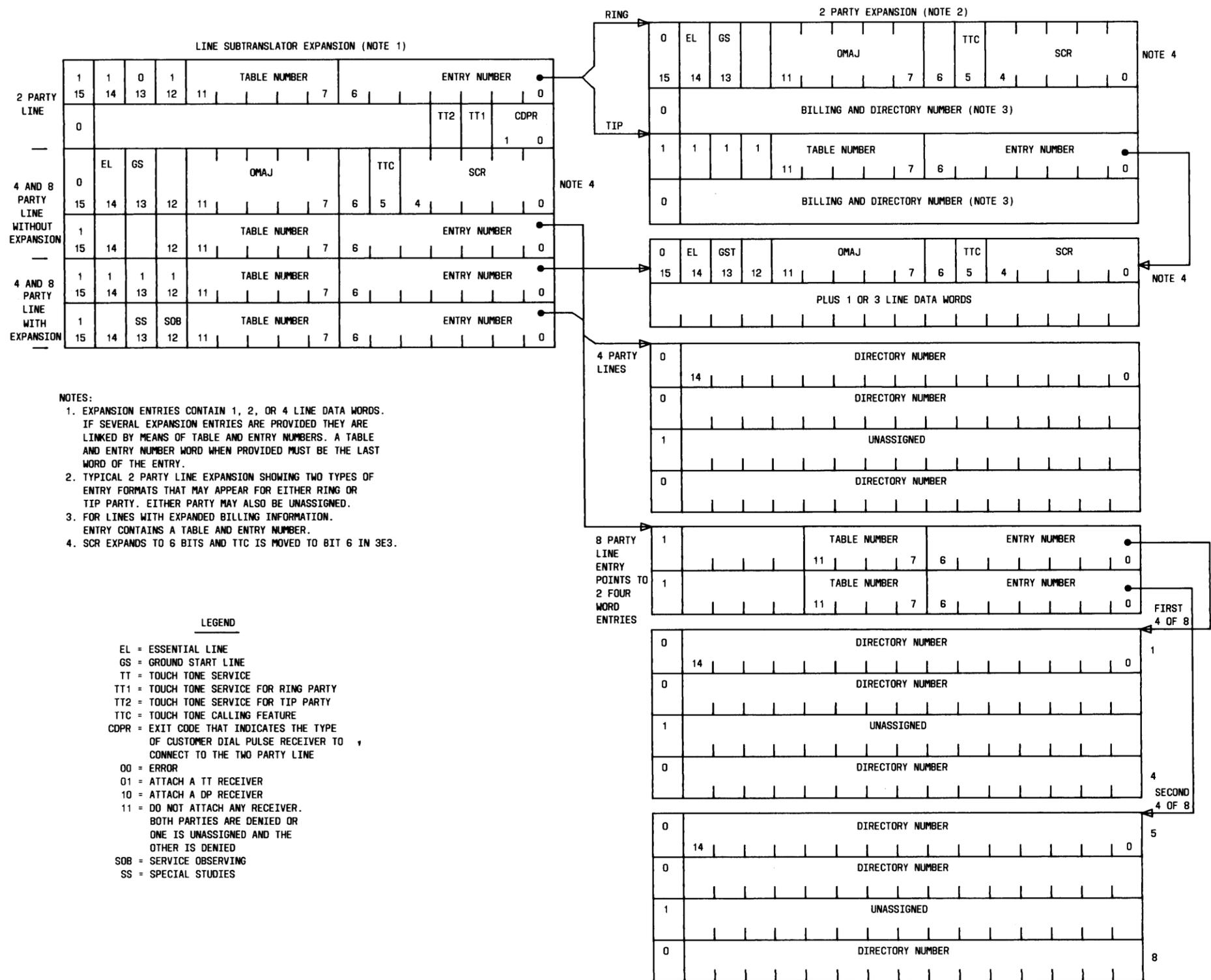
Fig. 6—Terminating Translations Data and Office Options Words

16. CHARGING

16.01 No charging is applied for standard intraoffice calls by 4- and 8-party customers for either regular or revertive calls. Standard toll charging is applied to these customers who have toll intercept for ONI. A charge delay time of 2 seconds applies on toll calls from No. 3 ESS customers.

16.02 Two-party customers have ANI capability for toll calls and can also have message rate charging because of ANI. Standard toll charges and charge delay timing apply for DDD type calls. Two-party customers with message rate service are not charged for revertive calls.

SUPPLEMENTARY INFORMATION

17. GLOSSARY

17.01 The following list identifies terms used in this document.

- AC-DC Ringing—20 Hz of 86 ±2 Vac in series with –42.75 to –52.5 Vdc.

- Automatic Number Identification (ANI)—Automatic identification of the calling party.

- Centralized Automatic Message Accounting—Equipment which serves several central offices in recording data of customer dialed long distance calls. When ANI is not included, an operator records the calling number at the beginning of the call.

- Coded Service—A ringing arrangement in which up to four telephones are rung on a call to a multiparty line with a different ringing code assigned to each party for identification.

- Operator Number Identification (ONI)—An arrangement where an operator obtains and keys in the identification of the calling party at the start of a toll call.

- Semiselective Service—A ringing arrangement in which no more than two telephones are rung on a call to a multiparty line with a different ringing code assigned to each party for identification.

- Superimposed Ringing—20 Hz of 86 ±2 Vac in series with +48 ±2 Vdc or –48 ±2 Vdc. The station ringer rings only when the proper dc polarity is applied thus giving superimposed ringing its selectivity. When provided, superimposed ringers are only used to ring 4- and 8-party lines and lines with enhanced ringing features.

- Completion of Incoming and Intraoffice Calls (TERM) Program—The No. 3 ESS subprogram that serves to complete all calls terminating to lines in the No. 3 ESS office. It is used in this feature to set up regular and revertive multiparty ringing.

- Transient Call Record (TCR)—A block of temporary store assigned to all calls in a transient state. It is used to record the state of the call, to collect and send digits, and to record the service circuits assigned.

- Traffic Service Position System (TSPS)—An operator position used to handle toll calls which require operator assistance.

18. REFERENCES

18.01 The following documents may be referred to for supplementary information concerning the multiparty feature.

- PR-3H175—Completion of Incoming and Intraoffice Calls (TERM) Program

- PA-3H3XX—No. 3 ESS Office Data Tables Layout Specification

- Translation Guide (TG-3)

- Input Message Manual, IM-3H300

- Output Message Manual, OM-3H300

- SD-3H406, FB375 and FB376—Superimposed Ringing Circuit

- SD-82255—Regular Ringing Circuit

- Section 233-154-130—Recent Change Users Guide

- Section 500-114-100—Ringing Limitations

- Section 233-152-135—Traffic and Plant Measurements

- Section 233-135-105—Trunk and Test Line Panel

- Section 233-060-210—Network Switching Practices

- Section 233-020-020—Measurements, No. 3 ESS