FEATURE DOCUMENT

SPEED CALLING

NO. 3 ELECTRONIC SWITCHING SYSTEM

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NOTICE
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INTRODUCTION

1. GENERAL INFORMATION

1.01 Speed calling in the No. 3 Electronic Switching System (ESS) has two separate parts. The first is the provision for a customer to call frequently called numbers that are stored in a repertory by dialing a 1- or 2-digit code. The second is the ability to change the customer's speed calling repertory. The repertory can be changed either by recent change procedures or by a procedure using the customer's telephone. The capability to inhibit the customer from changing the speed call list(s) is available in 3E3 and later generics. The customer may subscribe to Speed Call 8 service which allows up to eight stored directory numbers accessed by dialing a 1-digit code, or Speed Call 30 service which allows up to 30 stored directory numbers accessed by dialing a 2-digit code, or both Speed Call 8 and 30 service. A No. 3 ESS office equipped with the SO-2, Issue 4A generic can provide up to 1023 Speed Call 8 lists and up to 364 Speed Call 30 lists. However, an office equipped with the 3E3 generic program can provide up to 2048 Speed Call 8 lists and up to 546 Speed Call 30 lists. Within these limits, each station may have one Speed Call 8 list and one Speed Call 30 list.

1.02 This section is being reissued to include the 3E3 generic program information and to update the format. Since this reissue is a general revision, no revision arrows have been used to denote significant changes.

FEATURE AVAILABILITY

1.03 Speed calling is a software feature and is made available in any No. 3 ESS office equipped with SO-2, Issue 4A or later generic program. Since this is a software feature, no additional hardware is required. Speed calling is implemented into the No. 3 ESS via an office data administration (ODA) run or by recent change.

2. DEFINITION

2.01 Speed calling is an arrangement that allows a customer to call frequently called numbers using fewer digits than are normally required.

DESCRIPTION

3. USER OPERATION

3.01 To use speed calling, the customer goes off-hook and dials a 1- or 2-digit code followed by the number sign (#) digit or a 4-second interdigital time-out (TO). See Figure 1. The central office then converts the dialed code into the entire telephone number represented by that code. The entire number, which may consist of up to 12 digits, is used by the No. 3 ESS machine to complete the call by normal call processing procedures.

3.02 The number sign is the twelfth button on the TOUCH-TONE® dialing unit. If the customer does not have a 12-button TOUCH-TONE dialing unit, the 4-second time-out may be substituted. A customer may use either the number sign digit or time-out interchangeably. Note that interdigital timing for a Speed Call 8 or 30 customer is shortened to 4 seconds so that the No. 3 ESS can distinguish more quickly between 1- and 2-digit speed calls and other call types. The makeup of the 1- and 2-digit speed call codes are defined as follows:

LIST	DIGITS	EXAMPLE OF CODE
Speed Call 8 code	N# (or N followed by a 4-second time-out)	2# (2 + time-out)
Speed Call 30 code	AX# (or AX followed by a 4-second time-out)	20# (20 + time-out)

where: N = any digit 2 through 9

A = any digit 2 through 4

X = any digit 0 through 9

3.03 The Speed Calling feature cannot be used to replace part of a dialed number where additional digits are required to complete the call.

3.04 The contents of the speed calling lists associated with the customers may be changed using recent change procedures (see Part 12 of this document for RC messages and keywords) or by a procedure using the customer's telephone

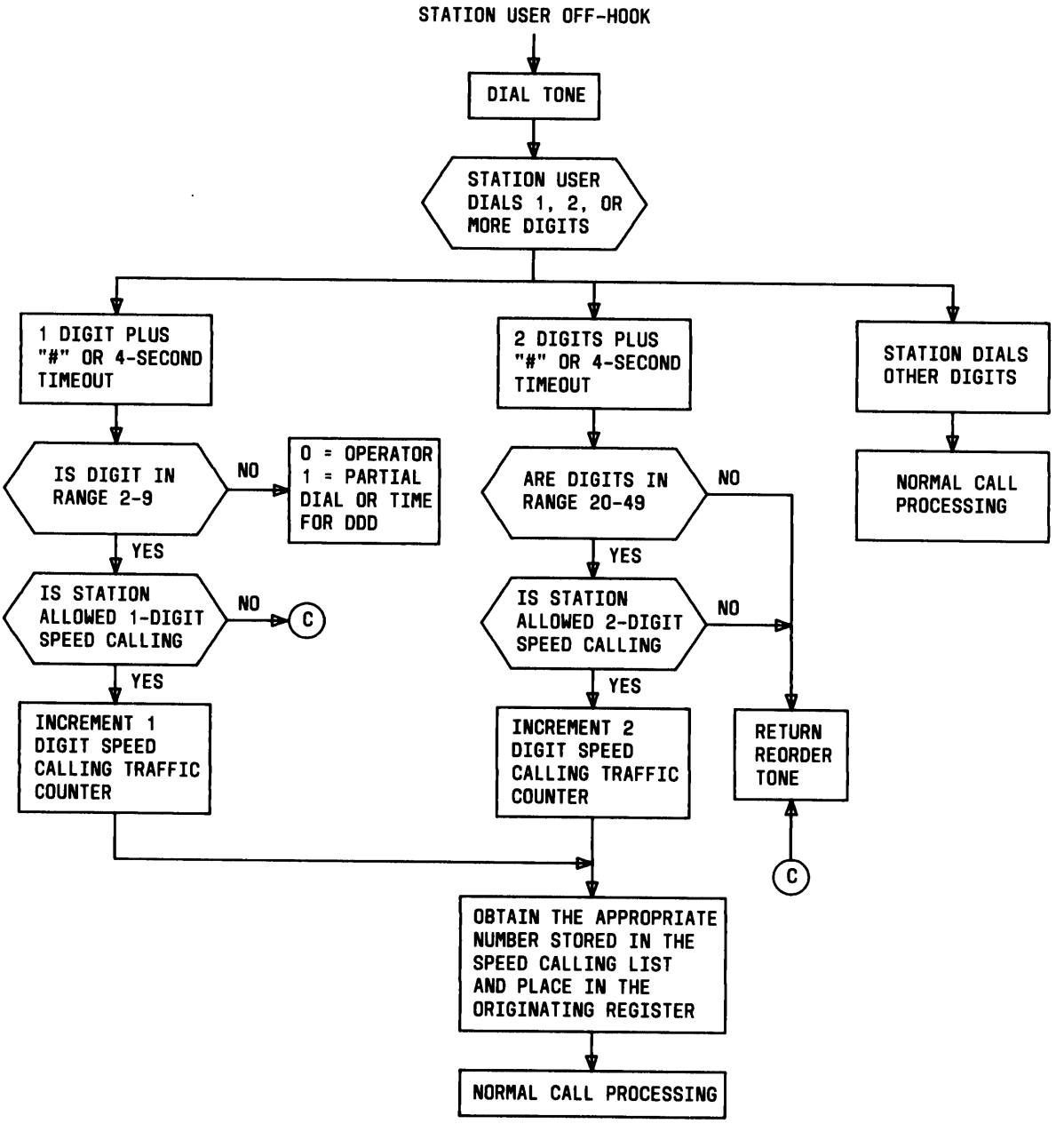


Fig. 1—Feature Flow Diagram—Speed Calling

(see Figure 2). The capability to inhibit the customer from changing the speed call list(s) is available in 3E3 and later generics.

3.05 To dial a change into the Speed Calling 8 list, the customer goes off-hook and dials 74 and then the number sign digit (or waits for a 4-second time-out). To dial a change into the Speed Call 30 list, the customer goes off-hook and dials 75 and then the number sign (or waits for a 4-second time-out). At this point, the station user receives second dial tone. Upon receipt of second dial tone, the dial code for the number to be changed (one or two digits) and then the number to be associated with the code is dialed. The range of the 1-digit code is two through nine. Similarly, the range of the 2-digit code is 20 through 49. The number is the complete telephone number (including the prefix

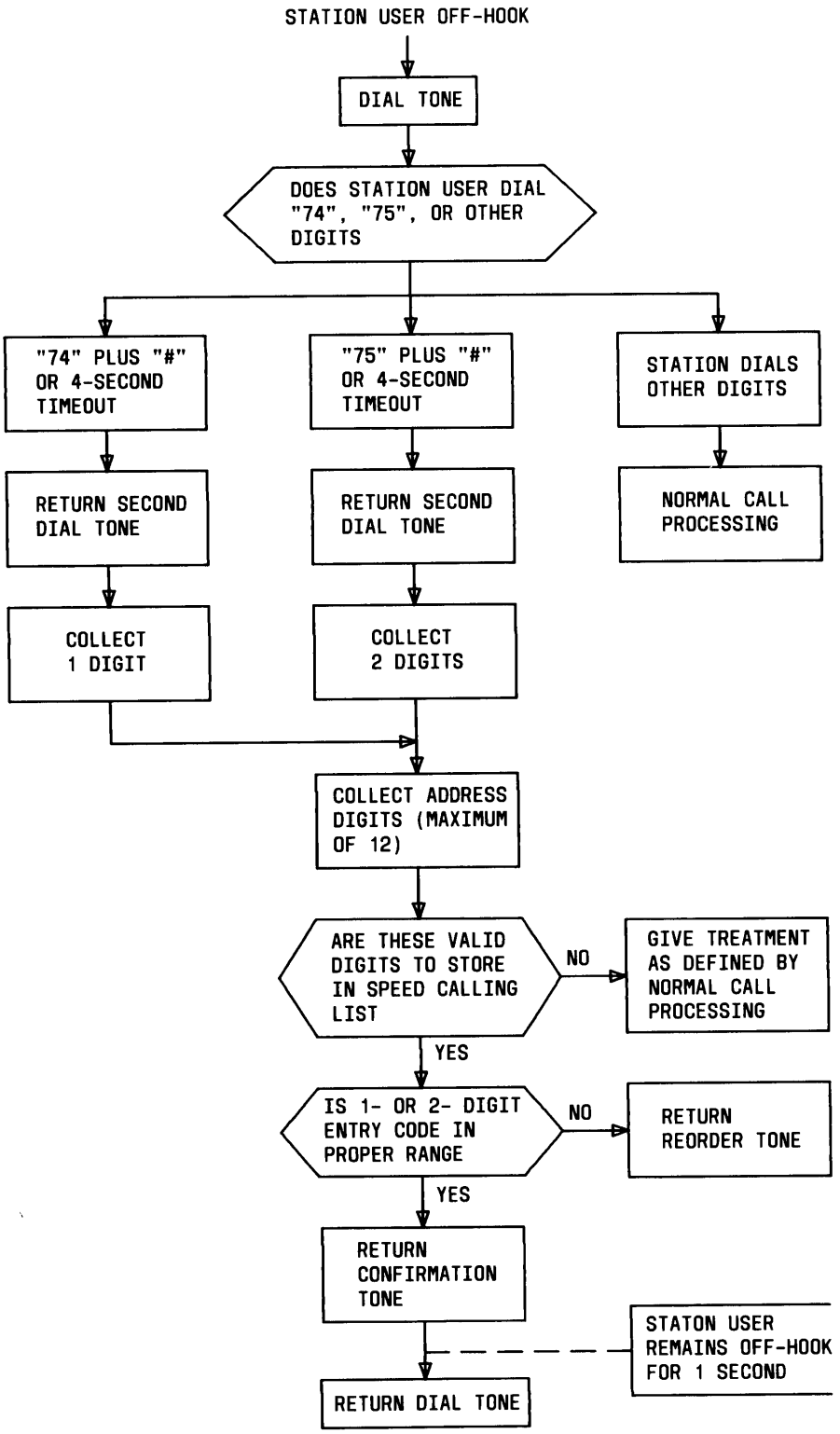


Fig. 2—Feature Flow Diagram—Speed Calling—Dial Change

and area code, if any). After dialing is completed, a confirmation tone is returned if the number is valid. The confirmation tone consists of 100 milliseconds of dial tone, 100 milliseconds of silence, and then 300 milliseconds of dial tone. After 1 second, steady dial tone is received. If the number is invalid and the error can be detected in the No. 3 ESS office, the customer receives the appropriate error treatment (ie, the same treatment the customer would have received if the customer dialed only the number). However, if the error is one which would be detected only after control of the call passed from the No. 3 ESS office, the customer receives confirmation tone.

3.06 This feature can be assigned to a multiline hunt group (MLHG) either on a per-group or per-member basis.

3.07 If the feature is assigned to a MLHG on a group basis, then the group may subscribe to Speed Call 8 service or Speed Call 30 service, or both Speed Call 8 and 30 service. Each member of the MLHG can use the group's speed call repertory(s) in the normal manner. The repertory(s) can be changed by recent change procedures (see Part 12 of this document for RC messages and keywords) and the group's members may be allowed or denied the ability to dial in changes to the group's speed call list(s).

3.08 If the feature is assigned to a member of a MLHG, then the member may subscribe to Speed Call 8 service or Speed Call 30 service or both Speed Call 8 and 30 service. If a member is assigned Speed Call 8 service, then the member cannot use the group's Speed Call 8 list. Similarly, if a member is assigned Speed Call 30 service, then the member cannot use the group's Speed Call 30 list.

4. SYSTEM OPERATION

Speed Calling Lists a Customer May Select

4.01 There are two basic sizes of speed calling lists that can be used for speed calling. See Figure 3 or 4. One is a Speed Call 8 list and the other is a Speed Call 30 list.

- Speed Call 8 List: A customer with a Speed Call 8 list can call up to eight different numbers using an abbreviated code of one digit.
- Speed Call 30 List: A customer with a Speed Call 30 list can call up to 30 different numbers using an abbreviated code of two digits.

A customer may have either a Speed Call 8 list, a Speed Call 30 list, or both lists.

4.02 An MLHG may have speed call list(s) (either Speed Call 8, Speed Call 30, or both) assigned on a group basis. (See Figure 5.) Members may either be given the ability or denied the ability to dial changes into the speed call list(s). If members are denied this ability, then changes can only be made using recent change methods.

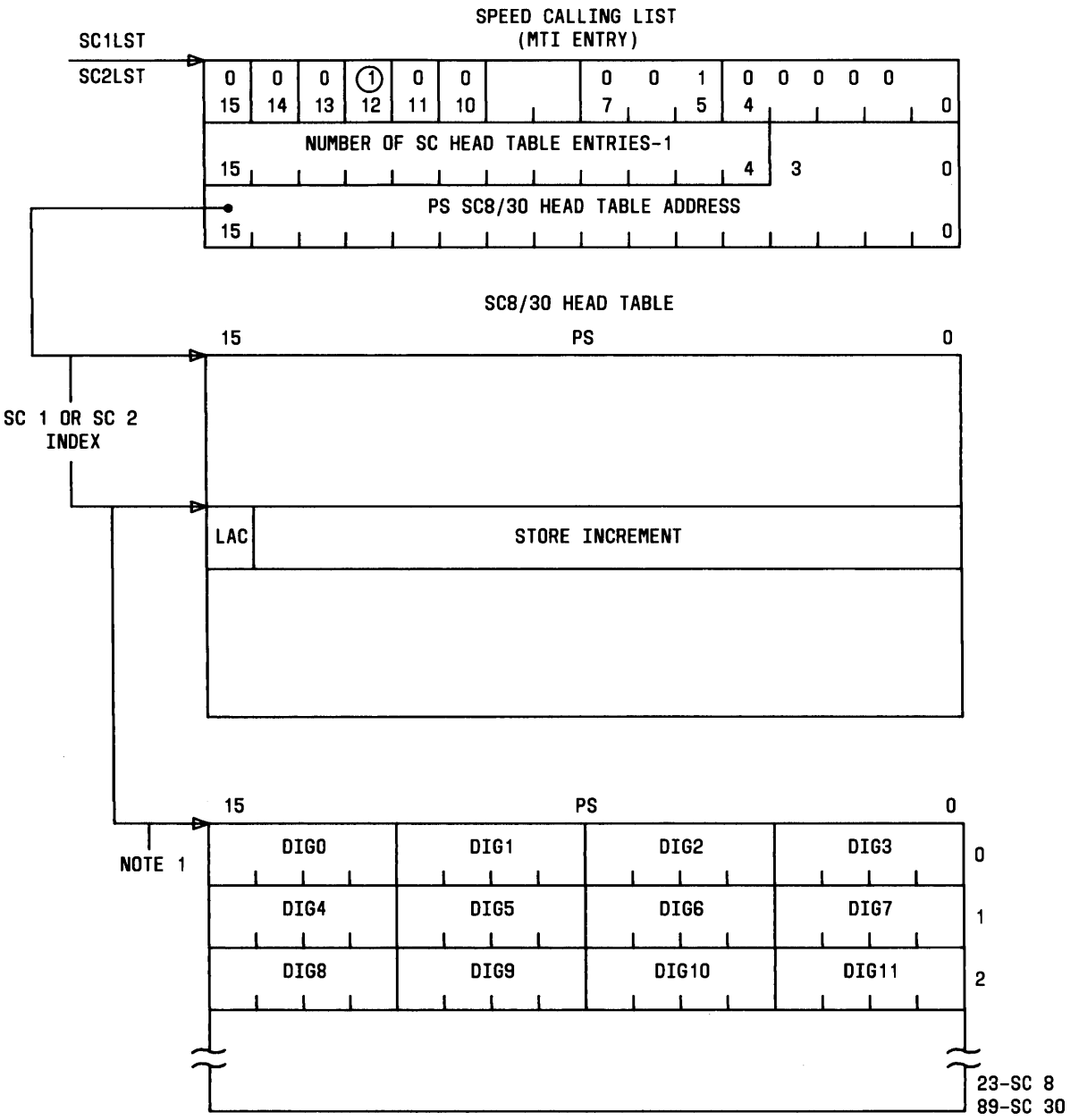
4.03 A member of an MLHG may have a speed call list(s) (either Speed Call 8 or Speed Call 30, or both) assigned to the individual member. See Figure 6. If a member is assigned an individual Speed Call 8 list, then that member cannot have access to the group's Speed Call 8 list. Similarly, if a member is assigned an individual Speed Call 30 list, then that member cannot have access to the group's Speed Call 30 list.

4.04 As can be seen in Figure 3, entries in the Speed Call 8 list have the same format as entries in the Speed Call 30 list, and entries in either list can have a maximum of 12 digits. A partial list of examples of numbers that might be stored in either speed calling list is described as follows:

- A 7-digit DN (591-4404)
- A prefix + DN (1-591-4404)
- An area code + DN (301-591-4404)
- A prefix + area code + DN (1-301-591-4404).

Program Control Flow

4.05 When a speed call customer is in the dialing phase of a call, the Digit Interpretation Program determines that the calling party has Speed Call 8 or Speed Call 30 service. See translation expansions in Figures 5 and 6. The Digit Interpretation Program then branches into the appropriate point of the Speed Calling Routines of the Custom Calling Program (for the 3E3 generic, Speed Calling Program SPDCAL). The dialed 1- or 2-digit code is then passed to a translation



NOTE 1: THE INDEX FOR THE SC LIST IS A FUNCTION OF THE DIALED CODE.

f(CODE) = 3 * CODE –6 IF 2≤ CODE ≤9

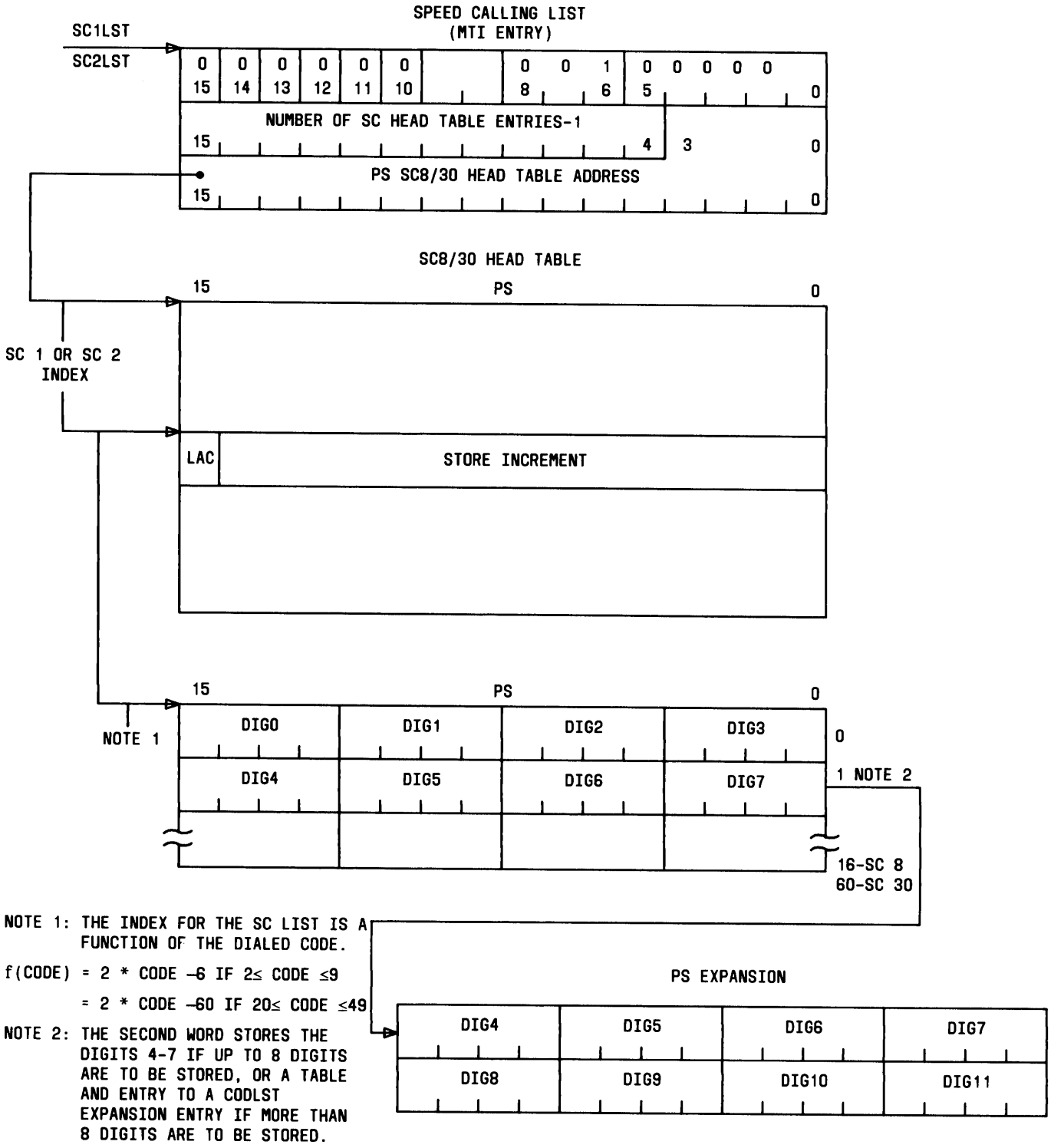
= 3 * CODE –60 IF 20≤ CODE ≤49

Fig. 3—Speed Calling List—Translation Expansion (SO-2, Issue 4A Generic Program)

subroutine which returns the address of the directory number. See Figure 3 for translation expansion. The directory number is inserted into the transient call record (TCR), and control is returned to the Digit Interpretation Program to process the directory number.

Changing of Lists

4.06 Changes or additions to Speed Call repertory(s) can be made either by recent change procedures (see Part 12 of this document for RC messages and keywords) or by a procedure using



NOTE 1: THE INDEX FOR THE SC LIST IS A FUNCTION OF THE DIALED CODE.

f(CODE) = 2 * CODE –6 IF 2≤ CODE ≤9

= 2 * CODE –60 IF 20≤ CODE ≤49

NOTE 2: THE SECOND WORD STORES THE DIGITS 4-7 IF UP TO 8 DIGITS ARE TO BE STORED, OR A TABLE AND ENTRY TO A CODLST EXPANSION ENTRY IF MORE THAN 8 DIGITS ARE TO BE STORED.

Fig. 4—Speed Calling List—Translation Expansion (3E3 Generic Program)

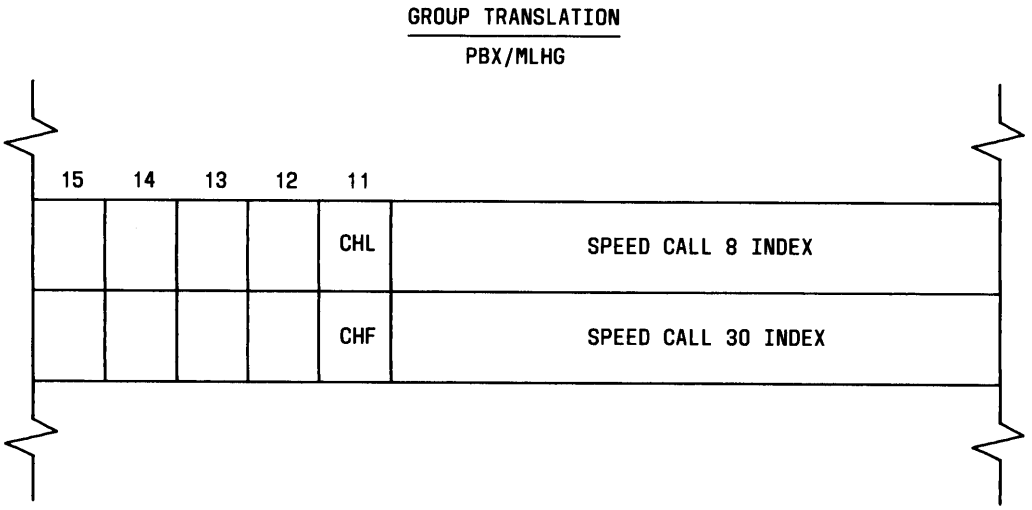


Fig. 5—MLHG—Translation Expansion

the customer's telephone. The capability to inhibit the customer from changing the speed call list(s) is available in 3E3 and later generics. The customer dialing procedures for adding or changing entries in the customer's Speed Call 8 or Speed Call 30 lists differ only in the "change speed calling access code" to be dialed. A typical change to a Speed Call 30 speed calling list is as follows:

75#DT 23 727-3711 CT

75# = Speed Call 30 list change access code

DT = Dial tone

23 = The calling entry to be changed

727-3711 = The number to be used when the speed calling code (23) is dialed by the customer

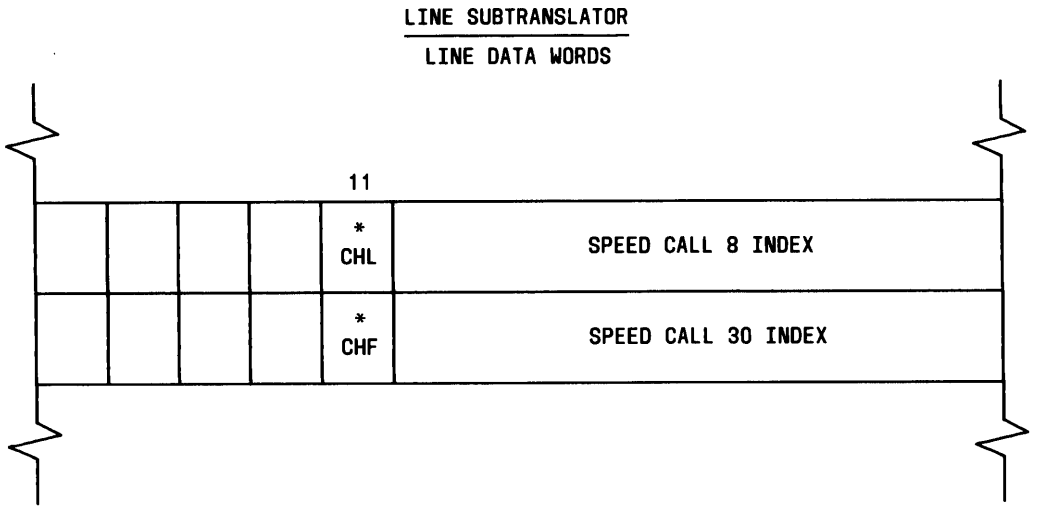
CT = Confirmation tone.

4.07 The customer changes the speed calling list by dialing an access code (74# or 74 plus time-out for Speed Call 8 list change, or 75# or 75 plus time-out for Speed Call 30 list change). This signals the regular call processing programs that the Custom Calling Program (for the 3E3 generic program, Speed Calling Program SPDCAL) should be entered and the customer receives second dial tone. On entry into the Customer Calling Program (for the 3E3 generic program, Speed Calling Program SPDCAL), a bit is set in the TCR to indicate which repertory is being changed, and the digit storage area contains the 1- or 2-digit code and the new directory number for it. The Digit Selection (DIGSCL) subroutine (for the 3E3 generic program, Storage SPCL_PUT subroutine) stores the speed call digits into the speed call entry. If the new digits could not be stored, the customer is given reorder. If the new number is stored into the appropriate entry, the customer is given confirmation tone. If the customer then remains off-hook for 1 second, the call is recycled to dial tone as a new origination.

CHARACTERISTICS

5. FEATURE ASSIGNMENT

5.01 The Speed Calling feature covered by this document is provided on a per-station basis except for MLHGs. The feature may be assigned



* CHL 1 = 1 LINE PERMITTED TO CHANGE 8 CODE LIST
* CHF 2 = 1 LINE PERMITTED TO CHANGE 30 CODE LIST
* THE CAPABILITY TO INHIBIT THE CUSTOMER FROM CHANGING THE SPEED CALL LIST(S) IS AVAILABLE IN 3E3 AND LATER GENERICS.

Fig. 6—Line Data Words—Translation Expansion

to MLHGs either on a per-group or per-member basis.

6. LIMITATIONS

6.01 A No. 3 ESS office equipped with the SO-2, Issue 4A generic can provide up to 1023 Speed Call 8 calling lists and up to 364 Speed Call 30 calling lists. Within these limits, each customer may have one Speed Call 8 calling list and one Speed Call 30 calling list. An office equipped with the 3E3 or later generic program can provide up to 2048 Speed Call 8 lists and up to 546 Speed Call 30 lists.

6.02 A maximum of 12 digits can be stored in any speed calling entry associated with either Speed Call 8 or Speed Call 30 calling list.

6.03 The Speed Calling feature cannot be assigned to party lines or coin lines.

6.04 The capability to inhibit the customer from changing the speed call lists is available in 3E3 and later generics.

7. INTERACTIONS

7.01 Speed calling can be used in lieu of any legitimate completely dialable directory number (up to a maximum of 12 digits). However, speed calling cannot be used to replace part of a dialed number where additional digits are required to complete the dialing information. It must represent the entire number to complete the call.

8. RESTRICTION CAPABILITY

8.01 Speed calling is assigned on a per-station basis, and each station may be assigned a Speed Call 8 calling list, a Speed Call 30 calling list, neither, or both.

8.02 With 3E3 or later generics, each customer accessing a Speed Call 8 list or Speed Call

30 list may have the ability or be denied the ability to change the entries in these lists.

INCORPORATION INTO SYSTEM

9. INSTALLATION/ADDITION/DELETION

9.01 The Speed Calling feature can be incorporated into a No. 3 ESS office only if the office is equipped with Issue 4A of the SO-2 or later generic programs. An office data administration (ODA) run can implement this feature for new offices or reallocation can be used for existing offices.

9.02 Recent change methods may be used to add or delete the feature. Recent change methods can be used to add, delete, or change the customer's entries in the speed call lists; however, the capability to inhibit the customer from changing the speed call lists is available in 3E3 and later generics.

10. HARDWARE REQUIREMENTS

10.01 Speed calling is a software feature and there is no special hardware required. However, if the customer wishes to hasten the processing of the speed calling 4-second interdigital time-out, a TOUCH-TONE telephone containing the number sign key is required. This is accomplished by depressing the number sign (#) key at the end of the 1- or 2-digit code, thus eliminating the 4-second delay.

11. SOFTWARE REQUIREMENTS

11.01 There are 133 generic program words that are attributable to the feature when the office is equipped with the SO-2, Issue 4A generic and 166 generic program words that are attributable to the feature when the office is equipped with the 3E3 generic program.

11.02 When the office is equipped with the SO-2, Issue 4A generic, 24 translation words are required for each Speed Call 8 calling list, and 90 translation words are required for each Speed Call 30 calling list. In addition, three translation words are required for each speed call customer.

11.03 When the office is equipped with the 3E3 generic program, 16 translation words are required for each Speed Call 8 calling list, and 60 translation words are required for each Speed Call 30 calling list. In addition, three translation words are required for each speed call customer. Two additional words are required to store expansions for speed call numbers greater than eight.

12. DATA ASSIGNMENTS AND RECORDS

12.01 The Speed Calling feature may be added or deleted for a line by entries in the Telephone Number Table (ESS 3100). The feature may be added or deleted for a MLHG by entries in the Multihunting Group Table (ESS 3105). Refer to TG-3 for details concerning entries in these forms for the initial ODA run. In addition, the General Information Table, (ESS 3105-1) has an entry for Speed Calling to allow or inhibit customer change on an office basis.

12.02 The following RC messages are used to add or to change translations required for the Speed Call feature. Refer to No. 3 ESS Input Message Manual IM-3H300 for details of these messages and their associated keywords.

RC MESSAGE	EXPLANATION OF MESSAGE
RC:LINE/	Use the keyword ESL followed by yes or no to either add or delete the Speed Call 8 feature for an individual line. With the 3E3 or later generics, use the keyword CSL1 followed by yes or no either to allow or deny the customer change of speed call list. If CSL1 is not specified, the office default will be used. Use the keyword ESF followed by yes or no to either add or delete the Speed Call 30 feature for an individual line. With the 3E3 or later generics, use keyword CSL2 followed by yes or no either to allow or deny customer change of speed call. If not specified, the office default will be used.
RC:MLHG/	Use the keyword ESL followed by yes or no to either add or delete the Speed Call 8 feature for a MLHG.

Use the keyword CHL for the SO-2, Issue 4A generic, and CSL1 for the 3E3 or later generics followed by yes or no to either allow or deny the group's members the ability to dial in direct changes to the group's Speed Call 8 list.

With the 3E3 or later generics, if CLS1 is not specified, the office default will be used. ESL is a required keyword if CLS1 is specified.

Use the keyword ESF followed by yes or no to either add or delete the Speed Call 30 feature for a MLHG.

Use the keyword CHF for the SO-2, Issue 4A generics, and CSL2 for the 3E3 or later generics followed by yes or no to either allow or deny the group's members the ability to dial direct changes to the group's Speed Call 30 list.

With the 3E3 or later generics, if CSL2 is not specified, the office default will be used. ESF is a required keyword if CSL2 is specified.

RC:MTL/ Use the keyword ESL followed by yes or no to either add or delete the Speed Call 8 feature for a member of a MLHG. Do not specify this keyword if the group's Speed Call 8 list is to be used by this member.

With the 3E3 or later generics, use the keyword CSL1 followed by yes or no to either allow or deny the member the ability to dial in direct changes to member Speed Call 8 list. If CSL1 is not specified, the office default will be used. ESL is a required keyword if CSL1 is specified.

Use the keyword ESF followed by yes or no to either add or delete the Speed Call 30 feature for a member of a MLHG. Do not specify this keyword if the group's Speed Call 30 list is to be used by this member.

With the 3E3 or later generics, use the keyword CSL2 followed by yes or no to either allow or deny the member the ability to dial in direct changes to member Speed Call 30 list. If CSL2 is not specified, the office default will be used. ESF is a required keyword if CSL2 is specified.

RC:SCN/ Use the keyword ADN followed by one digit (2-9) for Speed Call 8 feature or two digits (20-49) for Speed Call 30 feature.

For the SO-2, Issue 4A generics, use the keyword SCN and for the 3E3 and later generics, use the keyword DGS to enter the speed calling number associated with keyword ADN.

RC:OFFICE/ With the 3E3 generic, use the keyword ICS (Inhibit Customer Speed Call change) followed by yes or no to set office option default to either allow customer change (NO) or inhibit customer change (YES). When keyword ESL or ESF is specified on RC:LINE, RC:MLHG, or RC:MTL, this default will be used unless CSL1 or CSL2 is also specified.

12.03 The Telephone Number Table form (ESS 3100R) and Multihunting Table form (ESS 3105R), resulting from an ODA run, must be retained for the office records. When changes are made via recent change, these forms should be marked to reflect the changes. Form changes required by recent change are updated as required on machine generated forms with SO-2, Issue 4A and later generics. (Refer to the OP:OFR input message in the Input Manual.)

13. TESTING

13.01 Testing of the Speed Calling feature may be done by making test calls to verify that the feature is operational.

14. OTHER PLANNING TOPICS

14.01 In planning for this feature, completion of certain translation input forms is required to indicate whether or not each customer line is allowed this feature.

ADMINISTRATION

15. MEASUREMENTS

15.01 The following traffic and plant measurements are available for the Speed Calling feature. Refer to Section 233-152-135 for additional details.

- ***OFT 45***—This count is pegged when a call is originated using a 1-digit speed calling list.
- ***OFT 46***—This count is pegged when a call is originated using a 2-digit speed calling list.

16. CHARGING

16.01 Speed calls outside the free calling area are billed to the customer placing the call just as if the customer had dialed the entire number associated with the 1- or 2-digit dialed code.

SUPPLEMENTARY INFORMATION

17. GLOSSARY

17.01 The following list identifies terms in this feature document.

- Abbreviated Code—A 1- or 2-digit number that is dialed to access a number that is stored in a speed calling list.
- Access Code—Those digits dialed to activate the change speed calling function.
- Central Office (CO)—The switching equipment in a building which provides exchange telephone service for a given geographical area.
- Confirmation Tone—Two bursts of dial tone, 100 milliseconds on, 100 milliseconds off, and 300 milliseconds on. After 1 second, steady dial tone then follows. This tone is used to indicate to the customer that the customer's speed call repertory change attempt was successful.
- Dial Tone—(DT).
- Directory Number—(DN).
- List Entry—Refers to the contents of a speed calling list associated with a particular abbreviated code.
- Multiline Hunt Group (MLHG)—A customer optional feature which allows calls to hunt over a group of customer facilities in order to connect a calling party with an idle facility within the group.
- Number Sign (#)—The # is the twelfth digit on a TOUCH-TONE telephone and is used in the same way that time-out is used.
- Office Data Administration (ODA)—Mechanism by which translation information may be assembled or changed for a No. 3 ESS. Information from the ESS input forms is inputted into the regional ODA computer, assembled, then sent to the No. 3 ESS.
- Recent Change (RC)—The ability to change certain translations within No. 3 ESS via teletypewriter input.
- Terminal Equipment Number (TEN)—A 6-digit number representing the physical location of a line, trunk, or service circuit in the switching network.
- Transient Call Record (TCR)—Consists of 16 call store words and controls the progress of the call from origination until an answer signal is received, and the connection is placed in a talking state. It also controls the action taken to disconnect the call.
- Time-Out (TO)—Time-out occurs if no action is taken by the customer for a period of 4 seconds after dialing one or two digits. It is used to signify the completion of dialing.

It is an alternative to the number sign (#) on a TOUCH-TONE telephone.

18. REFERENCES

18.01 The following documents provide supplementary information concerning the Speed Calling feature described in this document.

- PR-3H152—Custom Calling Programs (SO-2, Issue 4A generic)
- PR-3H188—Speed Calling Program (3E3 generic)
- PA-3H3XX—Office Data Tables Layout Specification No. 3 ESS
- OM-3H300—Output Message Manual No. 3 ESS
- Section 233-150-130—Recent Change Users Guide
- TG-3, Translation Guide
- Section 233-151-105—Call Processing
- Section 233-060-XXX Series—Network Design Engineering Practices
- Section 680-536-101—Service Order Procedure Using Order TTY
- IM-3H300—Input Message Manual