FEATURE DOCUMENT

SERIES COMPLETION

NO. 3 ELECTRONIC SWITCHING SYSTEM

INTRODUCTION

1. GENERAL INFORMATION

1.01 Series completion is a feature that allows calls to a busy line to be routed to another specified directory number in the same switching office.

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

FEATURE AVAILABILITY

1.03 The Series Completion feature is available with all issues of the No. 3 Electronic Switching System (ESS).

2. DEFINITION

2.01 In the No. 3 ESS, up to 16 lines can be included in a series completion hunt. When a call is placed to a busy number with series completion, hunting is done through the series completion chain until an idle line is encountered, until the end of the chain is reached, or the hunt returns to the dialed number. The directory numbers in a series completion list do not have to be numbered sequentially; however, the office codes must be in the same No. 3 ESS office. When using the SO-2 generic, the office codes must be in the same NNX as the called number. In the 3E3 generic and later, it can be to any NNX in the No. 3 ESS office.

DESCRIPTION

3. USER OPERATION

3.01 When a caller dials a directory number that has series completion, no indication is given that hunting is taking place. The caller is connected to the first idle line in the series completion chain. If all of them are busy or if a return to the dialed number is reached, the caller receives busy treatment.

3.02 Calls will be completed to the dialed number except when it is busy. When the dialed number is busy, the call will attempt to complete to the series completion number. This process will continue until an idle line is found or the end of

the series completion chain is reached or if a return to the dialed number is reached. A customer may have as many numbers in a series completion chain as desired; however, the series completion program will stop the hunt after 16 busy lines have been encountered from the point a call entered the series completion chain.

4. SYSTEM OPERATION

4.01 When a call is placed to a number that has the Series Completion feature, the call is handled the same as any incoming or intraoffice call until the 4-digit translation is done. The 4-digit translation indicates that the called line has series completion and if the line has call forwarding.

4.02 If the line has call forwarding and it is activated, the series completion number is ignored and the call is forwarded by the custom calling program.

4.03 If the called party does not have call forwarding or call forwarding is not activated, the busy/idle status of the line is checked. If it is idle, the call is completed to the dialed number. If the line is busy, the program determines if the maximum number of series completion tries has been reached (16 tries). If it has, busy treatment is returned to the caller. If not, the series completion number is read and the 4-digit translation is reentered with the new number. The new number is translated and checked for its busy/idle status. This process continues until an idle series completion number is found, until 16 numbers in the series completion list have been checked and found busy, until a new series completion number is found that is the same number as the dialed number or the end of the series completion chain is reached.

4.04 Figure 1 illustrates the sequence of actions that occurs when calls are placed to directory numbers with series completion.

CHARACTERISTICS

5. FEATURE ASSIGNMENT

5.01 The addition of the Series Completion feature to an existing office is accomplished via the RC:LINE input message and the SER keyword. Refer to the No. 3 ESS *Input Message Manual* for complete details on the use of this message.
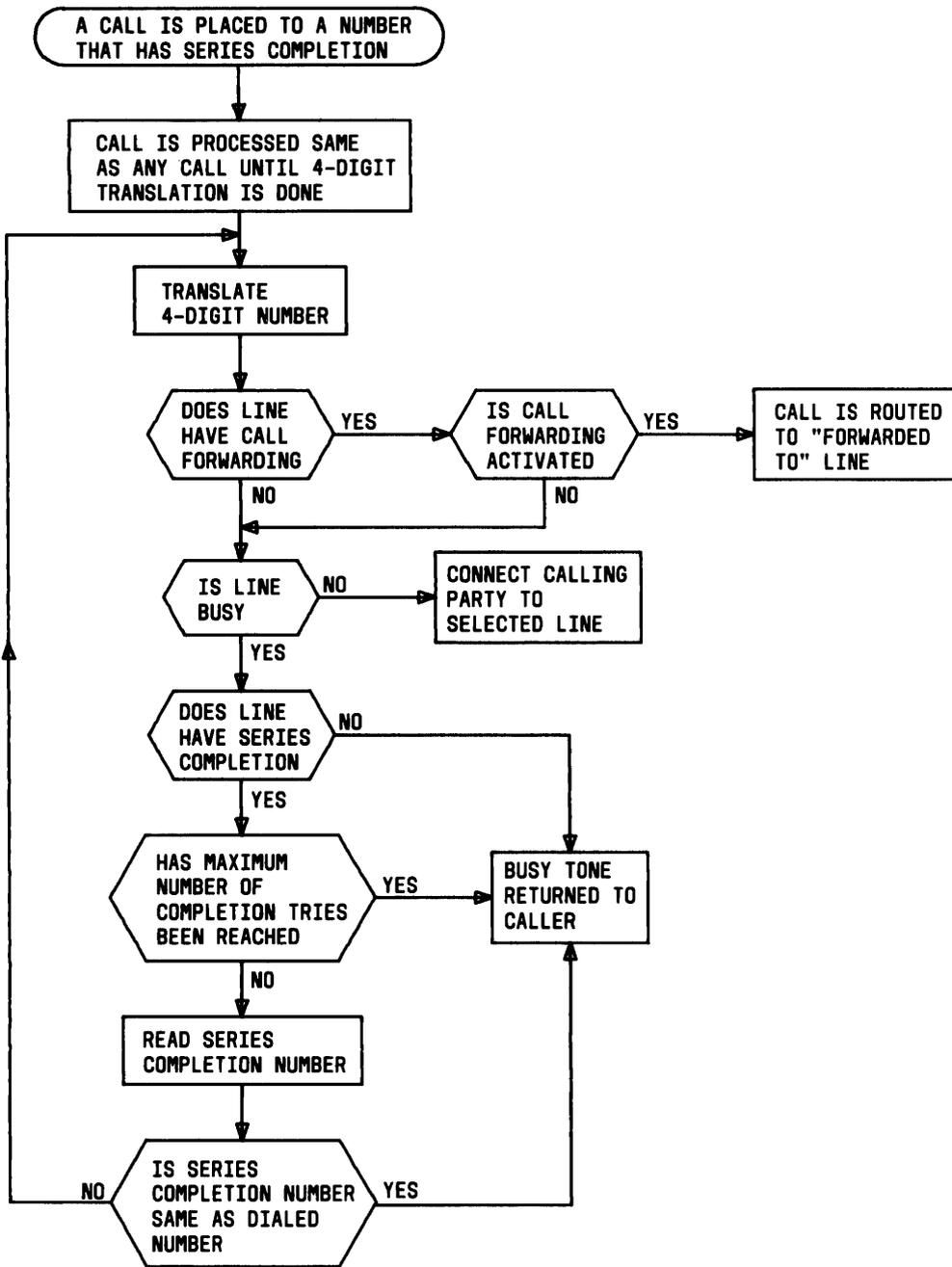
Fig. 1—Sequence of Actions When Series Completion Lines Are Called

6. LIMITATIONS

6.01 Some limitations of the Series Completion feature are:

- A maximum of 16 lines can be hunted in a single hunt. More lines may be included in a series completion chain, but only 16 lines will be hunted from the point the call enters the series completion chain.

- No group traffic counts such as overflow and peg counts can be provided for series completion. Counts are kept for indivudual series completion lines.

- In 3E3 and later generic, directory numbers may be series completed to different office codes, but the office codes must be in the same No. 3 ESS office.

- In the SO-2 generic, a directory number may only series complete to a line in the *same* office code (same NNX).

7. INTERACTIONS

7.01 Lines with series completion may be assigned the *call forwarding* feature; however, when call forwarding is activated, the series completion number is ignored and the call is forwarded.

7.02 A remote make-busy key may be assigned to a series completion line. When the key is operated, the line appears busy and the call is routed to the series completion number.

8. RESTRICTION CAPABILITY

8.01 The Series Completion feature may only be restricted by removing it from a line via a recent change message.

INCORPORATION INTO SYSTEM

9. INSTALLATION/ADDITION/DELETION

9.01 Series completion may be activated for a line in any working No. 3 ESS office with any issue of the generic program via the RC:LINE input message with the SER keyword. Refer to the *Input Message Manual* for details on the use of this message.

10. HARDWARE REQUIREMENTS

10.01 No hardware additions are required to implement the Series Completion feature in the No. 3 ESS.

11. SOFTWARE REQUIREMENTS

11.01 For each directory number that has the Series Completion feature, one additional translation word is required in a 2- or 4-word expansion in the 4-digit translation. This word stores the series completion number.

11.02 Each time series completion is activated, the new number must be translated. Thus, a call could involve as many as 16 translated numbers. This additional translation time should be taken into account when determining the cost of this feature and will be supplied when the data becomes available. An alternative to series completion is the use of a Multiline Hunt Group (see Section 233-190-125).

12. DATA ASSIGNMENTS AND RECORDS

12.01 Series completion may be incorporated into the No. 3 ESS by making changes to the office translation data. Figure 2 illustrates the translation words involved. These words are expansions in the 4-digit translation.
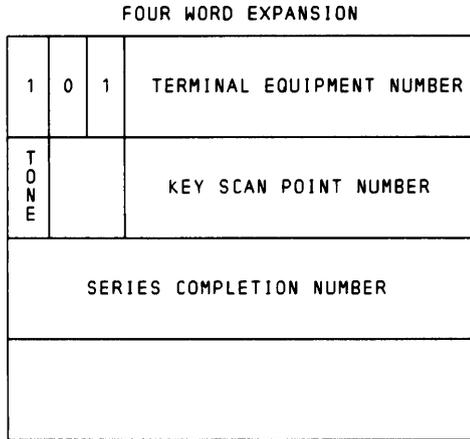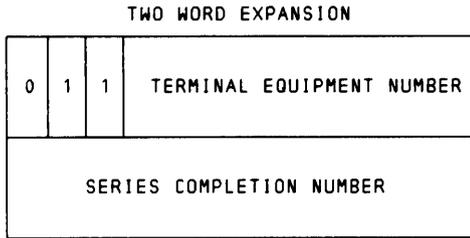
12.02 For initial office translations, series completion may be assigned to a line by completing *ESS form 3100, Telephone Number Table* and submitting it to the WECo Regional Data Center for processing as part of the initial office data administration (ODA) run. In addtion, when the office is equipped with the 3E3 generic program, *ESS form 3107-1B, Supplementary Information Table* is also required.

12.03 To assign series completion to a line in a working office, use the RC:LINE recent change message along with the SER keyword. Refer to the No. 3 ESS *Input Message Manual* for complete details concerning use of this message.

13. TESTING

13.01 Test calls should be made to directory numbers with series completion to verify operation of the feature. As many calls as series

TWO WORD EXPANSION

0	1	1	TERMINAL EQUIPMENT NUMBER
			SERIES COMPLETION NUMBER

FOUR WORD EXPANSION

1	0	1	TERMINAL EQUIPMENT NUMBER
T O N E			KEY SCAN POINT NUMBER
			SERIES COMPLETION NUMBER

Fig. 2—Translation Layouts For Directory Numbers With Series Completion

completion numbers in the list should be made to ensure the entire list is working correctly.

14. OTHER PLANNING TOPICS

14.01 The ultimate size of the series completion list should be estimated before implementing the feature. Series completion may be used to hunt over up to 16 numbers; however, it is recommended that the multiline hunting feature be used for more than 12 lines due to the real-time penalty and growth possibilities, see Section 233-190-125.

14.02 The Series Completion feature in the No. 3 ESS is compatible with both ground-start and loop-start lines.

ADMINISTRATION

15. MEASUREMENTS

15.01 The only traffic measurements done on series completion lines are usage counts that are normally done on all customer lines.

16. CHARGING

16.01 Series completion is limited to numbers in the same local calling area. No provisions have been made for billing of series completed calls. The customer is charged a flat rate for the feature.

SUPPLEMENTARY INFORMATION

17. GLOSSARY

17.01 The following is a list of terms used in this document that may be unfamiliar to the reader.

- *Loop-Start Line*—Lines that signal a bid for service by loop closure (ie, the line goes off-hook).

- *Ground-Start Lines*—Lines that signal a bid for service by applying ground to the tip lead with respect to the ring lead.

- *Multiline Hunting*—A hunting arrangement in which a prearranged group of lines are hunted over sequentially in an attempt to find an idle line.

- *Office Data Administration (ODA) Run*—Mechanism by which initial office translations are assembled. Information from the ESS input forms are inputted into the WECo Regional Data Center computer, then sent to the No. 3 ESS and installed into the system.

- *Usage Counts*—A register count of the number of facilities that are simultaneously busy when examined at regular intervals.

18. REFERENCES

18.01 The following is a list of documents that may be consulted for additional information related to the Series Completion feature.

- TG-3, No. 3 ESS Translation Guide

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

- Section 233-060-ZZZ—Network Design Practices, No. 3 ESS

- Section 233-151-130 Basic Call Processing