

SWITCHING SYSTEMS MANAGEMENT
NO. 4A/4M CROSSBAR
ASSIGNMENT PRACTICES
TRANSLATOR CARDS

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1. GENERAL

1.01 The preparation of a new translator card or the revision of an existing card in the No. 4A or 4M Crossbar System involves the action of traffic routing, dial administration, and the No. 4A/4M machine maintenance group. The sources of information to be placed on the card originate with the first two groups and the final punching of the card and placing it in operation are the responsibility of the maintenance group. Although each group has defined responsibilities, some steps in the preparation of translator cards will require the sharing of information among groups.

1.02 The general procedure used in the preparation of a new or revised translator card is as follows.

(a) The traffic routing personnel will, prior to cutover, prepare a translator card order (form E-3920 [Fig. 1]) in quadruplicate for each different translator card. Thereafter, similar forms will be prepared for each new translator card required as a result of routing or coding changes. These orders will be numbered consecutively beginning with order number one. When the numbers become too large, a new series with a letter suffix may be introduced.

(b) The dial administration personnel will receive three copies of the order from the routing engineer and will add information as to the assignment of trunks, traffic registers, translator box numbers, and trunk class information. Two copies will then be forwarded to No. 4A/4M maintenance personnel.

(c) The maintenance personnel will receive the order, translate the information into codes to be punched on the translator card, prepare a template, punch the translator card, and place the cards in (or remove them from) the translator boxes on the effective date.

(d) When the work is completed by the maintenance force, one copy of the order will be routed back through the preceding two groups in order that they may note the completion on their copies of the order.

(e) Orders for revised translator cards may originate from the dial administration personnel, for example, when a trunk group is changed to a new trunk block connector location. The routing personnel are not involved in this case. Dial administration personnel will issue a

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complete new order form E-3920A which is identical to form E-3920 except that it is on yellow paper. This form will be prepared in triplicate, two copies of which will be sent to the maintenance group. The dial personnel will copy all of the information shown on the original order with, of course, the substitution of new assignment information. Such forms will bear the original order number followed by an issue number beginning with "Issue 2"; as in 273-2. This order will be processed in exactly the same manner as a white order by maintenance (as described in [c] above) and one copy will be routed back to the dial administration personnel. If desirable, this copy may also be routed to the routing personnel in order that their files may be up-to-date for all items on the form.

2. ASSIGNMENT CONSIDERATIONS

2.01 The items for which the dial administration personnel are responsible are outlined and discussed in Parts 3 through 6 under their respective locations on the order form E-3920 or E-3920A.

2.02 In the discussion, reference will be made to the condition "when routing may be done from the card involved." This wording includes all cards which can be used to direct the completion of a call. It includes all cards except:

- (a) Three-digit area cards which refer the call to a 6-digit card and where principal city routing is *not* involved
- (b) Three-digit TX code cards
- (c) The 3-digit card for the TC code for the toll center in which the 4A/4M is located.

3. HEADING ITEMS

3.01 On form E-3920 (white form) only one heading item, "Box No.", is filled in by the dial assignment personnel. This designates the translator box into which the card to be prepared from this order is to be placed. The entry "HB" would denote that the cards should be located in the home translators. Cards to be located in a foreign area translator should have the translator number entered in this space. Those cards to be located in paired foreign area translators should have the numbers for both boxes entered in this space.

3.02 There are two types of card translators which may be provided in an office, depending upon translator card requirements. The types of translators are home and foreign area. Each of these translators has a capacity of 1176 working cards.

3.03 One home translator is provided for each decoder in an office. Each home translator must contain a card for each valid 3-digit code which may be received from the sender for decoding. One copy of each 3-digit route advance card and one copy of each alternate route card must also be located in each home translator. Four- or five-digit TX cards requiring more than three digits for translation purposes are considered as 6-digit cards. It is preferable to locate a copy of each of these TX cards in each home translator. In addition to 3-digit cards and TX cards, home translators should also contain 6-digit cards as space permits. Where 6-digit cards are to be located in home translators, one copy of each 6-digit card is located in each home translator.

3.04 When the home translator capacity is not sufficient to care for all cards, one or more foreign area translators will be provided. These translators contain the balance of the 6-digit cards not located in home translators. All 6-digit cards for a particular foreign area must be located as a group in one of the following:

- (a) The home translators
- (b) In either one or a pair of foreign area translators.

3.05 The number of foreign area translators provided depends upon the total number of cards to be accommodated. When 6-digit nonprincipal city routing to a foreign area is involved and foreign area translators are used, two copies of each translator card for that area are made and one copy is located in each of the paired foreign area translators. Where principal city routing is involved and foreign area translators are used, a single copy of each 6-digit card for that area is located in one foreign area translator. This foreign area translator may also be one of the translators arranged for paired operation.

3.06 Principal city routing may be used where there is a control switching point (CSP) through which the majority of the traffic to a

foreign area is routed and through which all of the traffic could be routed without violating the basic routing pattern. Traffic to and through the principal city (CSP) is routed chiefly from the 3-digit card. Traffic to this foreign area that is not routed through the principal city is routed from 6-digit cards. If one of these 6-digit cards fails to drop, the decoder is instructed to return to the 3-digit card for routing instructions. Since this provision affords adequate service protection it is not necessary to provide duplicate cards in paired foreign area translators.

3.07 The 6-digit cards for an area not using principal city routing are not punched to return to the 3-digit card for routing information if a 6-digit card does not drop. For service protection, these cards must be provided in pairs and located in paired foreign area translators or one copy of each card must be located in each home translator. If the first 6-digit card does not drop, the decoder is instructed to release this foreign area translator and go to the other foreign area translator in the pair and look for the 6-digit card. If the 6-digit cards are located in home translators the decoder is instructed to release the first home translator and look for the 6-digit card in another home translator.

3.08 Principal city routing is done to avoid the necessity of installing a pair of foreign area translators where one translator is adequate and to save translator cards.

3.09 Although the use of principal city routing may reduce considerably the requirements for 6-digit cards in the office, as compared with nonprincipal city routing, it causes an increase in decoder holding time. This increase in decoder holding time is 0.2 second per attempt through the principal city if the 6-digit cards for the foreign area involved are located in foreign area translators or 0.3 second if they are located in home translators.

3.10 Where principal city routing is used as a means of saving translator cards the holding time per decoder attempt may be increased to the extent that an additional decoder and associated home translator may be required. In arriving at translator card requirements, each situation should be studied to determine if increased decoder requirements, as a result of principal city routing, would offset the savings in foreign area translators.

3.11 The amount of principal city routing from a 3-digit card may be reduced in varying degrees, depending upon the requirements for a particular office. Some reduction may be accomplished by providing 6-digit cards for the central offices of the principal city involved. If further reduction is desired, 6-digit cards may be provided for the more frequently called points reached through the principal city. The traffic engineer, in writing the traffic order, coordinates with the routing personnel in determining the amount of principal city routing that will be done in this office and the decoder and card translator requirements. Where card requirements are not specified in the traffic order, the traffic engineer and routing personnel should be consulted to obtain this information.

3.12 The number of cards assigned to any one box is, of course, limited by its capacity (approximately 1176). The planned distribution of cards between boxes should be influenced by anticipated growth in certain codes and/or code changes to avoid subsequent rearrangements.

3.13 Certain cards must be located in the home translators. These are:

- (a) All 3-digit cards, including 3-digit route advance (RA) cards (used for card-to-card routing)
- (b) All alternate route (AR) cards (used for relay routing).

It is advisable, but not mandatory, to include all 4- or 5-digit TX cards in the home translator.

3.14 If an area has principal city routing, all of the 6-digit cards which direct calls to that area must be assigned to the home translators, or to any one of the foreign area translators. If an area does not have principal city routing, all of the 6-digit cards which direct calls to that area must be assigned to the home translators or duplicate cards must be prepared and one copy assigned to each of a pair of foreign area translators. Translator boxes may be paired as follows: 01 and 02, 03 and 04, 05 and 06, etc. The traffic order will specify which foreign area translators are paired.

3.15 In distributing the 6-digit cards among the various foreign area translators, the dial administration personnel should endeavor to maintain

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an even call load among these translators by avoiding the assignment of cards for a number of high-calling-rate areas in any one translator. The distribution should also recognize significant day/night or seasonal traffic patterns. The traffic order should indicate which areas were intended to be assigned to specific translators.

3.16 Foreign area translators are provided as a pool common to all decoders. Where there is a large community of interest between the home area and one or more foreign areas, delays may be experienced by decoders waiting to obtain access to the foreign area translator (or pair of translators) containing the 6-digit cards for an area. If space for these cards is not available in home translators, additional sets of cards may be prepared and located in additional foreign area translators. Where this procedure is followed, the 3-digit cards are punched so that one group of decoders will direct calls to certain foreign area translators while the other group of decoders will direct their calls to other foreign area translators, thus spreading the usage and minimizing the possibility of congestion. For example, even-numbered decoders could contain cards directing calls to foreign area translators 1 and 2 (where there is no principal city routing) while odd-numbered decoders direct their calls to foreign area translators 5 and 6.

3.17 Other heading items will have been filled in by the routing personnel except when dial administration personnel originate the form (E-3920A, yellow paper). When dial administration personnel originate the form, it will be filled in as follows:

- (a) **"Replace Order No."**—Enter the order number being replaced, such as 349 or 237-2.
- (b) **"Order No."**—This will always be the same as the order number being replaced, but with a different issue number, such as 349-1, 273-3, or the next higher number.
- (c) **"Effective"**—The date and time (such as 12:01 am) that the new card is to be placed in service.

4. ITEMS IN BODY OF FORM

4.01 The body of the form provides two columns for listing and coding various types of information. The left-hand column is used by the traffic routing and dial administration groups to

indicate the particular information required. The right-hand column has been arranged to indicate the codes which relate to the information supplied in the left-hand column. These codes are used by the maintenance group for punching the translator card.

4.02 Twenty-one types of information are shown on the body of the form. Individual orders vary in the amount of information required, depending upon the type of card involved. The items discussed in this practice are those which are the responsibility of the dial administration personnel. The remaining items are filled in by routing personnel. (Numbering corresponds to item numbers on form.)

4.03 **Out Trunk Appearance (Item 2):** This item will apply only when routing may be done from the card involved. In a 2-train office encircle the appropriate marker train which serves the outgoing trunk group. In a single-train office, leave both entries blank.

4.04 **Traffic Separation—Peg Count (Item 3):** Four incoming class indications, combined with seven outgoing classifications, provide for a maximum of 28 possible classes of traffic which may be peg counted separately. The outgoing classifications (A to G, inclusive) are assigned to traffic items as required to meet Division of Revenue requirements. Traffic separation registrations of these classifications are obtained from the translator cards as indicated by this item. Traffic separation information is locked into the decoder and, hence, it must be indicated on only one of any series of cards which may be dropped in the completion of a call. The method for obtaining traffic separation data depends upon the segregation required. Thus, if all calls employing the same initial three digits require the same classification, this classification is established on the 3-digit card and the appropriate item should be encircled. Six-digit cards which may subsequently be dropped for the completion of a call to this area should not have any item encircled. Where all traffic employing the same initial three digits cannot be classified in common, the separation classification is established on the 6-digit card. Alternate route or route advance cards never specify a requirement for traffic separation peg count since this information is established only on attempts to the initial destination or first route.

4.05 Through Peg Count (Item 4): A through peg count (TPC) registration is scored whenever an attempt is made to connect an incoming intertoll trunk to an outgoing intertoll trunk. For the purpose of this item, an intertoll trunk is one which terminates at another toll center or at one of the tributaries of a distant toll center. A trunk which terminates at a tributary of the local toll center is not considered as intertoll for the purpose of TPC. It is necessary that the traffic engineer know precisely which items of the traffic will be classified as "through traffic".

4.06 The first card that is dropped on which it is possible to determine that the outgoing trunk is intertoll establishes this condition which is locked in the decoder. Hence, once this indication is supplied, subsequent cards which may be dropped on the call (such as route advance and alternate route cards) provide no indication and this item is left blank, not encircled.

4.07 In explanation, where all calls having the same first three digits are routed via intertoll trunks, TPC is encircled on the order for the 3-digit card. This is true whether the call is routed from the 3-digit card or from a 6-digit card. Under this condition, orders for 6-digit cards with these same first three digits are not circled. If only a portion of the calls using the same first three digits is routed via intertoll trunks, this item will not be circled on the 3-digit card order but will be circled on orders for 6-digit cards which route calls via intertoll trunks. Orders for 6-digit cards routing traffic via toll connecting trunks will not be encircled. Alternate route and route advance card orders are never encircled.

4.08 Trunk Group Peg Count and Overflow (Item 5): This item will apply only when routing may be done from the card involved. If all the trunks in the group (including spare terminations) are assigned to the same trunk block, one pair of leads from the trunk block is used for obtaining both peg count and overflow registrations. Each trunk block has available three such pairs of leads (numbered 0, 1, and 2) which can be assigned to any three trunk groups on that trunk block. In addition, there are two additional pairs of leads per trunk block connector (numbered 3 and 4) which can be assigned to any two trunk groups on any of the ten trunk blocks served by the connector. These can care for the fourth groups on any two of the trunk blocks, or the fourth and

fifth groups on any one trunk block. These leads should be assigned to the various trunk groups at the trunk block connector and the appropriate item encircled on the order for the translator card.

4.09 If the trunk group is spread over more than one trunk block and is not associated with a decoder route relay, only the card for the first subgroup should be arranged for scoring peg count, only the card for the last subgroup should be arranged for scoring overflow, and any intermediate subgroups should score neither. Alternate route cards for all subgroups of groups associated with decoder route relays should be arranged for scoring peg count and the last subgroup should also be arranged to score peg count and overflow. The "0" pair of peg count leads in the trunk block relay must be assigned to a subgroup when either peg count only or overflow only is required. (See form E-3920.) If there is no subgroup in a trunk block relay that requires peg count only or overflow only, the 0 pair of leads (0 group) may be assigned to any subgroup or group of trunks within the relay to score both peg count and overflow. The appropriate line of this item should be encircled in accordance with these rules.

4.10 Translator Box Number (Item 6A): This item applies only to orders for 3-digit cards which refer calls to 6-digit cards. This is a general category and includes 4- or 5-digit TC code cards. The entry to be made is the box number to which the decoder is directed to locate the 6-digit card. If the 6-digit card is in the home box, the entry should be "HB." If it is in a foreign area translator, the proper box number should be entered. In the latter arrangement, if the cards are placed in both boxes of a pair (nonprincipal city routing involved) both box numbers of the pair of foreign area translators should be entered. These will always be consecutively numbered boxes starting with an odd number since paired boxes are grouped as numbered, 01 and 02, 03 and 04, 05 and 06, etc. The cards assigned to a pair of boxes will also be punched to indicate that nonprincipal city routing is involved. The combination of these two indications will cause the decoders served by even-numbered senders to look first for a card in the even-numbered translator box and will cause the decoders served by the odd-numbered senders to look first for the desired card in the odd-numbered translator box. If a card is not found (or fails to drop due to a trouble condition) in the first of the pair of boxes indicated by the sender, the other box in the pair

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will then be tested. On the other hand, cards appearing in only one foreign area box will have only that box number punched and, by the absence of a nonprincipal city routing punching, will indicate that principal city routing is involved. The combination of these two indications will cause all senders to order the decoder to look in the box number as noted on the translator card. If this item does not apply, as indicated by CA4, CA5, or CA6 not being encircled in item number 1 of the order, it should be left blank.

4.11 Class (Item 7): This item applies only when routing may be done from the card involved. Certain of the entries pertain to circuit arrangements for the trunk group and the information needed for these entries must be obtained from other departments as covered in Part 5, "Trunk Class Information". The appropriate items should be encircled as described in 4.12 through 4.14.

4.12 Manual Outgoing: When the outgoing trunks do not involve outpulsing, such as trunks to operator codes (as "121"), certain test lines, to ringdown or straightforward trunks, etc.

4.13 Outpulsing—DC: When an out sender is involved on the call. (The incoming sender transfers the digits to the out sender by means of DC pulses.)

4.14 Outpulsing—MF: When MF pulses are transmitted onto the outgoing trunk.

- **Dialing—Loop, Dialing—Simplex:** Intertoll trunks with dial outpulsing will probably be of the simplex type. Trunk groups within the toll center area using dial pulses (toll switching, tributary, and in some cases TX trunk groups) may be either loop or simplex dialing. For all such groups, the assignment personnel must determine which class applies.

4.15 There may be cases where there are two types of trunks in a group. When this is the case, the trunks must be considered as in two separate subgroups, each with its own assignment and with arrangements to route advance from one subgroup to the other. Since separate cards are required for each subgroup, the assignment personnel must notify the routing personnel of the condition so that they may initiate an order for each card required. When additions are made to such trunk groups, it is necessary to determine the classification

of the new trunks so that they may be assigned to the proper subgroup.

4.16 Expect Delay Dial: This applies when the trunk group terminates in a sender-type or link-type office. Delay dial causes the 4A/4M sender to hold up the start of its outpulsing until it has received a "sender on" signal from the next office. This item is applicable only to dialing and should be encircled only when "Dialing-Loop" or "Dialing-Simplex" applies.

4.17 Expect Stop—Go: This applies when an outgoing trunk terminates at a nonsender-type office, and through that office another trunk may be selected to a link-type or to a sender-type office. Outpulsing must be stopped at the 4A/4M office from the time of seizure of the second trunk until the link-type or sender-type office is ready to receive pulses. The stopping of outpulsing is accomplished by receiving a change from on-hook to off-hook supervision (stop signal). Resumption of outpulsing occurs upon the reversing of the signal condition (go signal). This may occur on two categories of trunks: (1) intertoll trunk groups to toll centers which are not equipped with senders in their toll dialing switching facilities and (2) tributary groups of the 4A/4M office, where a second tributary is reached through the first tributary (tandem CDO arrangement) and where the second tributary is a link-type office. In such cases the 4A/4M office sender must be advised to expect the stop-go condition. This information is obtained from the translator card.

4.18 In cases where the destination of the card *might* fall within the categories described above, this item should be encircled; for example, a tributary of a direct-circuit step-by-step toll center where the type of tributary is unknown or is definitely known to be link type. In all other cases enter a dash after this item.

4.19 Ringing—20-Cycle, Ringing—Simplex: When a dial-type toll switching or tributary trunk terminates on a step-by-step selector of the type designed for delayed (controlled) ringing, a ringing signal must be sent out from the 4A/4M office to start the ringing of the subscriber's telephone. This arrangement will usually be found when such selectors are reused from the arrangement in the toll center area prior to the 4A/4M crossbar installation. The dial administrator must determine from the maintenance personnel whether this

condition pertains to any dial-type toll switching or tributary trunk group, and if so, which type of ringing (20-cycle or simplex) applies. When this condition is found to exist, it is quite likely that only part of the trunks in the group will be affected. If this is true, the trunks must then be considered as two separate subgroups and two cards are required. The dial administration personnel must then notify the routing engineer of the condition so that separate cards can be initiated for each type.

4.20 This item does not refer to ringdown trunks.

4.21 *Cancel Delay Loop Closure (CDLC):* This is circuit-arrangement information which must be obtained from the maintenance forces. This item is encircled when it applies to a trunk group or subgroup. The CDLC feature requires different treatments in the 4A and 4M Systems as follows.

(a) **4A System:** The outgoing trunks may be of the *guarded* or *unguarded* type. All 2-way trunks are guarded; that is, the trunk circuit is held busy for a measured interval after release of a previous call to allow all equipment at both ends of the trunk to restore to normal. One-way outgoing trunks may be either guarded or unguarded. When an unguarded trunk is seized by a marker it is merely made busy and no signal is sent forward until the sender closes the loop. When a guarded trunk is seized a signal is immediately sent forward. On a 2-way trunk, this signal busies the trunk at the other end. Since intertoll trunk groups may contain both one-way and 2-way trunks, all such trunks are accordingly guarded. A feature to provide a measured delay loop closure (DLC) interval is built into the senders. Where this feature is not required (ie, on guarded trunks), the translator card must be coded to CDLC. On calls requiring outgoing senders, no delay loop closure timing is required by the incoming sender, hence all translator cards coded for DC outpulsing should also be coded to CDLC. Calls requiring simplex dialing are completed only over intertoll trunks, hence cards for such calls should be coded to CDLC. For manual outpulsing or loop dialing classes over toll completing trunks, unless otherwise specified, the cards should not be coded to CDLC. The intertoll trunks for these classes require the CDLC coding.

(b) **4M System:** In the 4M System the CDLC coding is used for a different purpose, namely to provide round trip timing (RTT) on certain MF outpulsing class trunks. RTT relates to the time required for a signal to be sent to the distant end and for a return signal to be received. On intertoll trunks this time may be appreciable and the sender is arranged to provide RTT on MF calls provided the CDLC coding is used. However, MF calls to local offices or nearby crossbar tandem offices do not require this timing, hence cards for such calls should not be coded to CDLC. All other cards should remain uncoded with respect to CDLC.

4.22 The following items are used only at offices which are designated as overseas or gateway offices.

- Send code 14
- Camp on trunk
- Signaling changes forward
- Coded overseas transmission

If any of these entries are required, the dial administrator obtains the necessary information from local maintenance personnel. Those items required should be encircled.

4.23 *Alternate Route Pattern Number (Item 9):*

Although this item is filled in by routing personnel, the dial administration personnel are responsible for the actual assignment of route relays in the decoder. A group from a 4A/4M office which is an alternate route for some other item of traffic may have a route relay with an associated pattern number assigned to it. The only exception is when alternate routing is done on a card-to-card basis. When the routing personnel have formulated their alternate route patterns for an office the dial personnel should assign route relays to those groups which are to be used as alternate routes and supply the routing engineer with the associated route relay pattern numbers.

4.24 *Trunk Block Connector, Trunk Block, Group Start, and Group End (Items 14 Through 17):* Each card which involves routing must be able to direct the marker to a particular trunk group or subgroup. The group involved is that shown in the fourth line of the block in the

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upper right corner of the form. It may have no apparent relation to the destination. For example, on a built-up call the trunk group selected would be that to the first intermediate office. Each outgoing or 2-way trunk group or subgroup is assigned to terminals of a trunk block. Some adjacent terminals are reserved as spare for growth within the group and four terminals (in some offices two terminals) at the end of certain intertoll trunk groups are assigned for recorded announcement (CBA) trunks. The overall span, which can never exceed 40 terminals, makes up the trunk block location of the outgoing trunk group or subgroup. Included in the span are working trunks and spare terminations. Hence, each card which may involve routing must direct the marker to the particular trunk block location of the trunks involved. The information to accomplish this is entered in these four spaces in terms of the number of the trunk block connector, the number of the trunk block, the terminal where the first trunk of the span is located (group start—always an even numbered terminal), and the last terminal in the span serving the group (group end—always an odd numbered terminal).

4.25 On orders for cards which cannot route calls, these items should be dashed.

5. TRUNK CLASS INFORMATION

5.01 As mentioned previously, there are certain items such as class information which are entered by dial administration personnel, but which are dependent on the trunk circuit arrangement. It is the responsibility of the administration personnel to determine the proper status of these items for each trunk group by consultation with the maintenance or engineering personnel as appropriate. This arrangement is suggested since once this information has been determined, it is not likely to change. The dial administration personnel can then make the appropriate entry when the original order and subsequent reissues of the order pass through their hands, rather than having them continually routed to additional personnel to enter this information. There may be occasional cases where changes occur in these items. In this event, it is the responsibility of the maintenance or engineering personnel to notify dial administration in order that they may correct their records and issue new orders to make the necessary changes.

6. RECORDS

6.01 In addition to the usual assignment records (consisting of the location of various items of equipment on the machine) it is necessary for dial administration personnel to maintain certain records for properly handling their work in connection with translator cards. It is of utmost importance that the forms used for this purpose afford adequate cross-reference between the translator card order form E-3920 [E-3920(A)] and various other items such as trunk group, destination, effective date, route advance cards, alternate route cards, etc. The five forms, sample copies of which are located at the end of this section, should provide adequate records for use by the dial administration personnel. The explanation in 6.02 through 6.08 which covers the use of these forms should help dial administration personnel in maintaining the proper assignment records.

6.02 Form E-4331—E-3920(A) Translator Card Order No. Index:

A sample copy of this form is shown in Figure 2. This form is used to maintain an up-to-date record of each translator card order number, issue number, code to be dialed, destination, trunk group over which the calls to this destination point will be routed, date the order was forwarded to maintenance personnel, and the date the order was completed. The top line of the "Order No." columns should be filled in with the appropriate digits.

6.03 Form E-4332—E-3920(A) Translator Card Orders—Area:

A sample copy of this form is shown in Figure 3. This form is printed on both sides of the paper with Figure 3, Page 1 printed on the front and Figure 3, Page 2 printed on the back. Ten of these forms are required for the 3-digit cards located in the home translators. Ten are also required for the 4- or 5-digit (TC) cards and ten are required for each numbering plan area where 6-digit translation is being done in this office. The block of ten lines associated with the 11X code on the 3-digit index card should be blocked out and reserved for TC codes in those offices which have 2- or 3-digit TX codes (11XX or 11XXX). Any 11XX or 11XXX operator codes may be treated the same as 2- or 3-digit TC codes.

6.04 Space is provided at the top of this form to enter the foreign area translator box number in which these cards are located. The "HB" should be encircled if the cards are located

in the home translator. The blank space in front of "Area" should be used to enter the 3-digit code and the name or identification of the area associated with this code. The area space should be left blank on 3-digit index cards. The 3-, 4-, 5-, or 6-digit should be encircled in the "Digit Cards" item, depending upon the number of digits required to cause these cards to drop.

6.05 The code column of the form should be used to enter the first three digits for a 3-digit card or the last three digits for a 6-digit card. Other columns are used to enter the destination, trunk group over which the calls to this destination are to be routed, order number, effective date, traffic separation (item 3, form E-3920), routing instructions (item 10, form E-3920), route advance cards follow (item 18, form E-3920), alternate route pattern number (item 18, form E-3920), and whether or not 6-digit cards follow.

6.06 Form E-4333—E-3920(A) Translator Card Orders Route Advance (Alternate Route)

Cards: A sample copy of this form is shown in Figure 4. Ten of these forms with codes numbering 000 through 999 will be required to record 3-digit route advance orders and ten additional forms for the 6-digit orders for each area that requires 6-digit translation. If a route advance card is used for alternate routing it should appear on this record. The columns on the form are used to indicate the code that has to be dialed to cause the card to drop, destination, toll center of the destination, first route trunk group to be tested to complete the call, RA-1, RA-2, and RA-3 card order numbers, and the trunk group to be tested. A column is also used to indicate (yes or no) if 6-digit cards follow. This column is used only for 3-digit route advance cards.

6.07 Form E-4334—E-3920(A) Translator Card Orders Alternate Route Cards:

A sample copy of this form is shown in Figure 5. This form is printed so that dial personnel have to enter only the tens digits of the route relay number. Since

the maximum number of decoder route relays in an office is 100, five of these forms will provide an adequate record. Space is provided to enter the route relay code (route relay number and trunk block connector subgroup served), trunk group served by the route relay, translator card order number, effective date, and routing instructions such as FOF, FMB, etc (follow with overflow, follow with master busy).

6.08 Form E-4335—All Codes Which Route Directly to Each Trunk Group:

A sample copy of this form is shown in Figure 6. This form is used to enter each direct circuit trunk group in the 4A/4M System and the 3-digit codes which will route directly to each trunk group. Trunk groups should be listed alphabetically, with space between entries in order to accommodate growth.

7. INFORMATION FOR THE ROUTING ENGINEER

7.01 The routing engineer is responsible for entering the remaining items on the translator card order form E-3920. Entries for several of the items will be dependent upon how the dial administrator assigns the machine. The dial personnel should furnish the routing engineer with this information and keep it up-to-date.

7.02 Information which the routing engineer requires includes the following:

- (1) A list of trunk groups which will have "follow with overflow" instructions
- (2) A list of decoder route relay assignments
- (3) The number of subgroups (trunk block relays) assigned for each group.

Whenever a change in any of these items is contemplated the routing engineer should be notified so that, if necessary, new E-3920 forms can be issued.

SECTION 13c(1)

REF: TFP DIV G SECT 2C(7)
 BSP 212-1200-301
 DFMP DIV H, SECT 13C(1)

E-3920 (6-75)

TRANSLATOR CARD ORDER FOR

OFFICE

TYPE OF CARDS				ORDER NO.					
DESTINATION				CODE					
TOLL CENTER				BOX NO.					
FIRST ROUTE				GRP. ASSIGN.					
FIRST ALTERNATE ROUTE				EFFECTIVE					
REPLACES ORDER NO.				REPLACED BY					
1	PRETRANS. OR CODE DIGIT PARITY	XXX	CODE	11A	CONTINUITY AND DIGIT CONTROL	CANC	MADE	CODE	
	NCA OR 3D	NCA			0 DIGITS	0, 2	1, 2		CDC
	CA4 OR 4D	CA4			4 DIGITS	0, 4	1, 4		
	CA5 OR 5D	CA5			5 DIGITS	2, 4	0, 7		
	CA6 OR 6D	CA6			INDETERMINATE	4, 7	0, 1		
OUT TRUNK APPEARANCE	XXX		INWATS SCREENING	CANC.	MADE	WST CDC			
IT TRAIN	IT		BAND 1	0-4, 7	0-0, 1				
TC TRAIN	TC		BAND 1 & 2	0-0, 2	0-1, 2				
TRAFFIC SEPARATION - PEG COUNT	XXX		BAND 1-3	0-0, 4	0-1, 4				
OUT TRUNK CLASS A	0		BAND 1-4	0-2, 4	0-0, 7				
B	1		BAND 1-5	0-1, 7	0-2, 7				
C	2		BAND 1-6	1-4, 7	1-0, 1				
D	0, 1		BAND 1-7	1-0, 2	1-1, 2				
E	0, 2	TS	ORIGINATING SCREENING	CANC.	MADE	CCHN CCH CCTN CCT CCUN CCU			
F	1, 2		AUTHORIZED CODE CAMA AO & NON-CAMA	1-2, 4	1-0, 7				
G	0, 1, 2		CAMA AI	1-0, 4	1-2, 4				
			CAMA AO, AI & NON-CAMA	1-1, 7	1-2, 7				
4	THROUGH PEG COUNT	TPC		12	CODE CONVERSION OR	XXX			
5	TRK. GRP. PEG COUNT & OVERFLOW	XXX			AREA CODE (AR CARDS)	XXX			
	PEG COUNT & OVERFLOW GRP. 0	0			HUNDREDS				
	1	1			TENS				
	2	2			UNITS		XXX		
	3	0, 1	TP			VARIABLE SPILL CONTROL	XXX		
4	0, 2				SKIP - NONE	NSK			
	1, 2				- 3	SK3			
	0, 1, 2				- 6	SK6			
						XXX			
6A	TRANSLATOR BOX NUMBER		HB BT BU	14	TRUNK BLOCK CONNECTOR			TCT TCU	
6B	INWATS AREA 1 BAND DIGIT		BU	15	TRUNK BLOCK			TB	
6C	TASI TRANSIT SWITCHING	YES	HB	16	GROUP START			GST	
	- 3 DIGIT TRANSLATION	NO	BTO, BU4		17	GROUP END			GSU
	OPERATOR AND CUSTOMER		BTO					GET	
	"C" DIGIT CODE CONFLICT		BU 4					GEU	
			BU 7						
7	CLASS	XXX		18	CODE BAR INFORMATION	XXX			
	MANUAL OUTGOING	0-4, 7			DIGIT - A			A	
	OUTPULSING - DC	0-0, 1			- B			B	
	DIALING - SIMPLEX	0-1, 4			- C			C	
	- EXPECT DELAY DIAL	0-2, 4			- D			D	
	- EXPECT STOP - GO	0-0, 7			- E			E	
	- EXPECT DELAY DIAL & STOP - GO	1-0, 4			- F			F	
	- LOOP	0-2, 7			ALTERNATE ROUTE		0, 2		
	- RING 20 CYCLES	1-0, 1	CLT		ROUTE ADVANCE - 1		0, 1		
	- RING SIMPLEX	0-1, 7			- 2		1, 2		
	- EXPECT DELAY DIAL	1-0, 2	CLU		- 3		0, 4	CG	
	- EXPECT STOP - GO	1-4, 7	CDLC		3 DIGIT NAC		1, 4		
	- EXPECT DELAY DIAL & STOP - GO	1-1, 2			3 DIGIT AC		4, 7		
	MF + KPI - SEND CODE "4" OR SIGNAL CHANGES FORWARD	0-0, 2			6 DIGIT		2, 4		
	MF + KPI - SEND OVS TRANS & SIGNAL CHANGES FORWARD	0-1, 2			PNC		0, 7		
MF + KP2 - SIGNAL CHANGES FORWARD	1-1, 4		PNC ROUTE ADVANCE - 1		1, 7				
MF + KP2 - SEND OVS TRANS & SIGNAL CHANGES FORWARD	1-2, 4		TASI, TAS2 OR TAS3		2, 7	VO			
CAMP ON TRUNK	0-0, 4		COMMON ONLY		VO	NVO			
CANCEL DELAY LOOP CLOSURE	CDLC		TERMINAL OR COMMON		NVO				
AREA CODE CONTROL	XXX		CAMA ROUTING		XXX				
AREA CODE	AC		AUTHORIZED CAMA ROUTING		ACR	ACR			
NOT AN AREA CODE	NAC		UNAUTHORIZED CAMA ROUTING		UCR	UCR			
ALTERNATE ROUTE - HOME AREA	AHA			BY	DATE				
ALTERNATE ROUTE - FOR. AREA	AFA			ROUTING					
9	ALTERNATE ROUTE PATTERN NO.		ART ARU	ASSIGNMENT					
10	ROUTING INSTRUCTIONS	XXX		CODED					
	NO PRINCIPAL CITY ROUTE	0, 7		TEMPLATE					
	INWATS NONPRINCIPAL CITY ROUTE	1, 7		WORK DONE					
	CARD TO CARD	4, 7							
	CARD TO RELAY	0, 1	RI						
	RELAY ROUTE	0, 2							
	FOLLOW WITH OVERFLOW (CBA)	1, 2							
	FOLLOWING WITH REORDER (FRA)	0, 4							
FOLLOW WITH MASTER BUSY (NCA)	1, 4								
FOLLOW WITH SECOND TRIAL	2, 4								

Fig. 1—Form E-3920 Translator Card Order

E-4331
(4-55)

E-3920(A) TRANSLATOR CARD ORDER NO. INDEX

ORDER NO.	CODE	DESTINATION	TRUNK GROUP	DATE		ORDER NO.	CODE	DESTINATION	TRUNK GROUP	DATE	
				FORWARDED	COMPLETED					FORWARDED	COMPLETED
1						51					
2						52					
3						53					
4						54					
5						55					
6						56					
7						57					
8						58					
9						59					
10						60					
11						61					
12						62					
13						63					
14						64					
15						65					
16						66					
17						67					
18						68					
19						69					
20						70					
21						71					
22						72					
23						73					
24						74					
25						75					
26						76					
27						77					
28						78					
29						79					
30						80					
31						81					
32						82					
33						83					
34						84					
35						85					
36						86					
37						87					
38						88					
39						89					
40						90					
41						91					
42						92					
43						93					
44						94					
45						95					
46						96					
47						97					
48						98					
49						99					
50						100					

Fig. 2—Form E-4331—Form 3920A Translator Card Order Number Index

E-3920(A) TRANSLATOR CARD ORDERS

F.A.T. NO. _____ H.B. _____ AREA _____ 3-4-5-6 DIGIT CARDS

CODE	DESTINATION	TRUNK GROUP	ORDER NUMBER	EFFECT DATE	TFFC SEP	RTG INSTR	RA COS FOL	AR PAT NUM	60 COS FOL	CODE
00										00
01										01
02										02
03										03
04										04
05										05
06										06
07										07
08										08
09										09
10										10
11										11
12										12
13										13
14										14
15										15
16										16
17										17
18										18
19										19
20										20
21										21
22										22
23										23
24										24
25										25
26										26
27										27
28										28
29										29
30										30
31										31
32										32
33										33
34										34
35										35
36										36
37										37
38										38
39										39
40										40
41										41
42										42
43										43
44										44
45										45
46										46
47										47
48										48
49										49

Fig. 3—Form E-4332—Form 3920A Translator Card Orders—Area (Sheet 1 of 2)

E-4332
(4-55)

E-3920(A) TRANSLATOR CARD ORDERS

F.A.T. NO. _____ H.B. _____ AREA _____ 3-4-5-6- DIGIT CARDS

CODE	DESTINATION	TRUNK GROUP	ORDER NUMBER	EFFECT DATE	TFFC SEP	RTG INSTR	RA CDS FOL	AR PAT NUM	GD CDS FOL	CODE
50										50
51										51
52										52
53										53
54										54
55										55
56										56
57										57
58										58
59										59
60										60
61										61
62										62
63										63
64										64
65										65
66										66
67										67
68										68
69										69
70										70
71										71
72										72
73										73
74										74
75										75
76										76
77										77
78										78
79										79
80										80
81										81
82										82
83										83
84										84
85										85
86										86
87										87
88										88
89										89
90										90
91										91
92										92
93										93
94										94
95										95
96										96
97										97
98										98
99										99

Fig. 3—Form E-4332—Form 3920A Translator Card Orders—Area (Sheet 2 of 2)

E-3920(A) TRANSLATOR CARD ORDERS
ROUTE ADVANCE (ALTERNATE ROUTE) CARDS

3-4-5-6. DIGIT CARDS

CODE	DLSTINATION	TOLL CENTER	151 RTE TRK GP	RA-1		RA-2		RA-3		6D CARDS FOL	CODE
				ORDER NO.	TRK GP	ORDER NO.	TRK GP	ORDER NO.	TRK GP		
00											00
01											01
02											02
03											03
04											04
05											05
06											06
07											07
08											08
09											09
10											10
11											11
12											12
13											13
14											14
15											15
16											16
17											17
18											18
19											19
20											20
21											21
22											22
23											23
24											24
25											25
26											26
27											27
28											28
29											29
30											30
31											31
32											32
33											33
34											34
35											35
36											36
37											37
38											38
39											39
40											40
41											41
42											42
43											43
44											44
45											45
46											46
47											47
48											48
49											49

Fig. 4—Form E-4333—Form E-3920A Translator Card Orders Route Advance (Alternate Route) Cards (Sheet 1 of 2)

E-3920(A) TRANSLATOR CARD ORDERS
ROUTE ADVANCE (ALTERNATE ROUTE) CARDS

3-4-5-6 DIGIT CARDS

CODE	DESTINATION	TOLL CENTER	1ST RTE TRK GP	RA-1		RA-2		RA-3		60 CARDS FOL	CODE
				ORDER NO.	TRK GP	ORDER NO.	TRK GP	ORDER NO.	TRK GP		
50											50
51											51
52											52
53											53
54											54
55											55
56											56
57											57
58											58
59											59
60											60
61											61
62											62
63											63
64											64
65											65
66											66
67											67
68											68
69											69
70											70
71											71
72											72
73											73
74											74
75											75
76											76
77											77
78											78
79											79
80											80
81											81
82											82
83											83
84											84
85											85
86											86
87											87
88											88
89											89
90											90
91											91
92											92
93											93
94											94
95											95
96											96
97											97
98											98
99											99

Fig. 4—Form E-4333—Form E-3920A Translator Card Orders Route Advance (Alternate Route) Cards (Sheet 2 of 2)

E-3920(A) TRANSLATOR CARD ORDERS
ALTERNATE ROUTE CARDS

CODE		TRUNK GROUP	ORDER NUMBER	EFFECTIVE DATE	RTG INST	CODE		TRUNK GROUP	ORDER NUMBER	EFFECTIVE DATE	RTG INST
RTE RELAY	SUB-GP SERVED					RTE RELAY	SUB-GP SERVED				
0	0					0	0				
0	1					0	1				
0	2					0	2				
0	3					0	3				
1	0					1	0				
1	1					1	1				
1	2					1	2				
1	3					1	3				
2	0					2	0				
2	1					2	1				
2	2					2	2				
2	3					2	3				
3	0					3	0				
3	1					3	1				
3	2					3	2				
3	3					3	3				
4	0					4	0				
4	1					4	1				
4	2					4	2				
4	3					4	3				
5	0					5	0				
5	1					5	1				
5	2					5	2				
5	3					5	3				
6	0					6	0				
6	1					6	1				
6	2					6	2				
6	3					6	3				
7	0					7	0				
7	1					7	1				
7	2					7	2				
7	3					7	3				
8	0					8	0				
8	1					8	1				
8	2					8	2				
8	3					8	3				
9	0					9	0				
9	1					9	1				
9	2					9	2				
9	3					9	3				

Fig. 5—Form E-4334—Form E-3920A Translator Card Alternate Route Cards

