MANUAL TRANSLATION MODIFICATION PROCEDURES—
CHANGING TOTANI TABLE—NO. 2 AND NO. 2B ESS
(LO-1, EF-1, AND 2B-EF-1)

1. GENERAL

1.01 This section provides the procedures for allocating new terminating office test access number index (TOTANI) tables and changing information within existing TOTANI tables.

1.02 Whenever this section is reissued, the reason for reissue will be given in this paragraph.

1.03 Before starting a TOTANI manual translation modification (MTM) procedure, obtain the appropriate unmarked TOTANI forms. If blank forms are not available, reproducible forms are provided in Appendix 1 of this section.

1.04 The ability to add and subtract in octal and add in binary is essential to the successful utilization of the procedures in this section. The size and address of each block will be read out of the No. 2 or No. 2B ESS program store in octal in response to a teletypewriter (TTY) input message. The standard change in Program Store (CHIPS) procedure required to change the program store cards or the main store words requires an octal

input. All address calculation and indexing is done by octal addition and subtraction. Refer to Section 232-127-101, Manual Translation Modification Procedure—General Description for methods of addition and subtraction in octal, binary-to-octal conversions, and tables for decimal-to-octal conversion.

1.05 Specified information gathered on the TOT forms will be entered as CHIPS information. This CHIPS information will be used in performing the procedures in one of the following sections: Manual Translation Modification Procedure—Changes in Program Store Formatting, Section 232-127-303 (No. 2 ESS) or Section 232-327-303 (No. 2B ESS). The procedures in one of these sections must be completed before performing the Change in Program Store (CHIPS) procedure, Section 232-004-303 (No. 2 ESS) or Section 232-304-303 (No. 2B ESS).

2. DESCRIPTION

2.01 The primary purpose of the terminating office test access number index (TOTANI) is to provide various test access numbers for trunk maintenance. Trunk maintenance is provided by performing certain tests on trunks once continuity has been established between the originating and terminating offices.

2.02 Whenever a diagnostic test is originated from either the maintenance teletypewriter, trunk test panel or an internal program request, a transient call record (TCR) is selected to provide the call store area for a test. The following three types of tests are available for outgoing and 2-way trunks:

- Permanent busy test

- Operational synchronous test

- Operational nonsynchronous test.

2.03 The particular tests available for a given trunk or trunk group are dependent upon the facilities in the far-end office. This information is contained in the translation information concerning the particular far-end office or group of offices having similar far-end treatment.

2.04 Each TOTANI number provides space for the following trunk testing information:

(a) The far-end number to be outpulsed for the operational test including an indicator for

synchronous or nonsynchronous operation (up to seven digits).

(b) The far-end number to be outpulsed for the permanent busy test (up to seven digits).

(c) An optional area code if the far-end office is in a foreign area.

(d) An optional 2-digit access code to be used to gain access to a centrex trunk in the far-end office.

(e) Space for a third test number (spare).

2.05 More than one trunk group may use the same TOTANI index since only the low four digits are outpulsed.

TOTANI

2.06 The TOTANI number is used to index into the test access number table, or the second level of the translation (Fig. 1). The TOTANI number must be nonzero to be valid and can not be assigned to service circuits. The TOTANI number is supplied from the fifth word of the trunk group data table (via the Automatic Trunk Test Table, form 2505-1, item number 22-23). Each TOTANI number is associated with the automatic progression test (APT) code, the associated numbering plan area (NPA), and the digits to be outpulsed to a distant office.

TOTAN

2.07 TOTAN is a 2-level translator (Fig. 1). The *first level* is a 2-word area of the master table index (MTI). The first word in the first level contains the table size indicator, which is the word length of the test access number table. The second word in TOTAN contains the program store address of the first word of the test access number table.

TEST ACCESS NUMBER TABLE

2.08 The *second level* of the TOTAN translator is the test access number table and is a variable length table of 4-word entries (Fig. 1). The maximum length of the test access number table is sixty-four, 4-word groups. However, the first four words (0-3) of the test access number table are not used; and therefore, will contain a

zero entry for all four words. Thereafter, each 4-word entry will contain the encoding of three possible terminating office test access numbers and an index into an area code table.

2.09 The first word of each entry in the test access number table contains several items within the 21 bits available. Bits 18-20 (U) of the first word are unused. Bit 17 (G) contains information needed to determine if the operational test to be performed is synchronous or nonsynchronous. If bit 17 is set (equal to 1), the operation is synchronous. A synchronous operation test is used between other offices and consists of a series of on-hook or flash supervisory reports, and a count of the number of tone bursts received from the distant office within a specified period of time.

2.10 Bits 14-16 (H) of the first word of each entry contain the area code index (ACI). This information is used for indexing into the area code table (ACTBL).

2.11 Bits 12-13 (I) contain the APT code. There are four codes used. The binary representation and definition are:

        00 - None

        01 - Permanent busy test

        10 - Operational, synchronous test

        11 - Operational, nonsynchronous test.

2.12 Bits 0-11 pertain to three possible test line numbers of outpulsed digits. Bits 8-11 (J) pertain to spare test access numbers containing the binary equivalent of the seventh digit of a 7-digit outpulsed number; or, if less than seven digits, the binary equivalent of the number of digits to be outpulsed. Bits 4-7 (K) are similar to the explanation for bits 8-11, but the data contained herein pertains to an operational test line. If information is contained in bits 4-7, the type of operational test is determined by the contents of bit 17 (G). Bits 0-3 (L) are used similar to bits 8-11; however, the data contained herein pertains to a permanent busy test line.

2.13 The next three words of each entry in this table are used in conjunction with the data supplied by the first word of this table. If data is contained in bits 0-3 (L) of the first nonzero

word, further data concerning a permanent busy test line will be contained in the second word. If bit 20 (M) of the second word is set (equal to 1), the permanent busy test line access is exactly seven digits long, and bits 0-3 (L) contain the binary equivalent of the seventh digit. The contents of bits 10-19 (N) represent the binary encoding of digits 4-6 to be outpulsed for access to a permanent busy test line. The contents of bits 0-9 (O) represent the binary encoding of digits 1-3.

2.14 The contents of the third word of each entry in the test access number table is related to the information contained in bits 4-7 (K) in the first nonzero word. Information contained in bits 10-19 (R) and 0-9 (S) pertain to an operational test line. The explanation in paragraph 2.13 of the digital contents of (N) and (O) also pertains to the contents of (R) and (S).

2.15 The contents of the fourth word of each entry relate to the information contained in bits 8-11 (J) of the first word. Bits 10-19 (V) and 0-9 (W) contain digital information pertaining to a spare test line.

AREA CODE TABLE

2.16 The area code table is an 8-word table (Fig. 1). The first word of the table contains the encoding of the trunk maintenance billing number in bits 0-15 (X). The area code index (H) which is used to index into the area code table may only fall within the range of 1-7. If the area code index is zero, then no area code is needed.

2.17 The remaining seven words of the area code table contain an area code in bits 0-11 (AA, BB, CC) and the access code in bits 12-19 (Z,Y). The access code is required in EF-1 generic programs and is used for central office access via a centrex or PBX located in another central office. This code permits further access of a trunk test circuit used primarily for tie trunks.

3. PROCEDURES

A. Changing Existing Information Using the TOT-1 Form

TOTANI Data

    (1) Every TOTANI number defined in the central office is listed on the Automatic Trunk Test

Record (form ESS 2505-1) in numerical order. The TOTANI number is a 2-digit decimal number which has a range from 01-63. Select the TOTANI that is to be changed and convert the decimal number to octal. Record the octal number as item 1 of the TOT-1 form (Fig. 2) attached to this section.

(2) Convert the octal TOTANI in item 1 to binary and record the binary number as item 2.

(3) To obtain access to the test access number table, multiply the TOTANI address by 4. This may be accomplished by placing two zeros to the right side of the TOTANI binary number recorded in item 2. Record the results as item 3.

(4) Convert the TOTANI address recorded in item 3 to octal and enter this number as item 4.

TOTAN Data

(5) Refer to the master table index (MTI) (Fig. 1 of the appropriate PA drawing) to locate the addresses of TOTAN and ACTBL. Record these addresses, in octal, in item 5. The ACTBL data will be used later in this section.

(6) Perform a 2-word utility read of the program store at the TOTAN address recorded in item 5 using the maintenance TTY. Use the following input message.

For No. 2 ESS

UB PS:RP:aaaaaa 000000 2!

aaaaaa = item 5

For No. 2B ESS

DMP:PS aa!

aa = item 5

Refer to Input Message Manual (IM-2H200) for a further explanation of the variable fields.

(7) Record the first word of the 2-word utility read performed in Step 6, in item 6, and record the second word in item 7.

(8) Add the TOTANI octal number recorded in item 4, to the TOTAN octal address recorded in item 7. The sum of these two numbers is the address indexing into the test access number table. Record the least significant six octal digits for No. 2 ESS or seven octal digits for No. 2B ESS as item 8 and item 9(A), 1st word.

(9) Calculate and enter remaining three addresses in item 9(A) by adding octal 1 to each address preceding the address being calculated.

Test Access Number Table Data

(10) Perform a 4-word utility TTY read of the test access number table. Use the input message.

For No. 2 ESS

UB RS:RP:aaaaaa bbbbbb 2!

aaaaaa = item 9(A), 1st word

bbbbbb = item 9(A), 3rd word

For No. 2B ESS

DMP:PS aa!

aa = item 9(A), 1st word

(11) Record the results of the utility read message as item 9(B) under the *initial octal content* column.

(12) For each of the four words listed in item 9(B) under the column marked *initial octal content* perform the following:

(a) Convert the octal content to binary and record this data in item 9(C) under the column marked *initial binary content.*

(b) Make the desired changes to the test access number table words using the following format. Then record the new contents for the appropriate word in item 9(D) under the column marked *new binary contents* column.

First Word

P	U	G	H	I	J	K	L
21	20-18	17	16-14	13-12	11-8	7-4	3-0

1ST WORD

P = parity and will be calculated later using Section 232-127-303 for No. 2 ESS or Section 232-327-303 for No. 2B ESS.

U = unused bits.

G = the indicator bit for synchronous or nonsynchronous operational tests. If the operational test to be performed is synchronous, set G equal to 1. If the operational test is nonsynchronous, set G equal to 0.

H = the area code index. This code has a range of 1-7, and if there is no area code, then zeros must be entered.

I = the automatic progression test code. If no automatic test is desired, set the bits equal to zero. In any case manual tests can be run, but no automatic tests can be run. If automatic tests are desired for permanent busy test set the bits to 01. If the test is operational, synchronous set the bits to 10. If the test is operational, nonsynchronous set the bits to 11.

Note: Care must be taken to use the proper digital form in constructing the data. Bit positions J, K, and L, in certain cases, employ the use of the binary coded decimal (BCD) form; therefore:

- Decimal 0 = BCD 1010
- Decimal 1 = BCD 0001
- Decimal 2 = BCD 0010
- Decimal 3 = BCD 0011
- Decimal 4 = BCD 0100
- Decimal 5 = BCD 0101
- Decimal 6 = BCD 0110
- Decimal 7 = BCD 0111
- Decimal 8 = BCD 1000
- Decimal 9 = BCD 1001

J = a register which pertains to bit 20 of the fourth word (T) and the spare test line access number. If there are seven digits in the access number, T (bit 20 of the fourth word) = 1 and bits 8-11 (J) contain the binary coded decimal equivalent of the seventh digit. When T = 0, there are less than seven digits to be outpulsed and bits 8-11 contain the binary equivalent of the number of digits to be outpulsed.

K = a register which pertains to bit 20 of the third word (Q) and the operational test line access number. When bit 20 of the third word (Q) = 0, bits 4-7 (K) represent the number of digits to be outpulsed for operational test line access. When the operational test line number is seven digits long, Q = 1 and bits 4-7 contain the BCD equivalent of the seventh digit.

L = a register which pertains to bit 20 of the second word (M) and the permanent busy test line access number. When there are seven digits to be outpulsed for access, M (bit 20 of the second word) = 1 and bits 0-3 (L) contain the BCD equivalent of the seventh digit. When M = 0 bits 0-3 contain the binary equivalent of the number of digits to be outpulsed.

Second Word

If data is contained in bits 0-3 of the first word (L), further data concerning the permanent busy test line will be contained in this word.

P	M	N	O
21	20	19-10	9-0

2ND WORD

P = parity and will be calculated later using Section 232-127-303 for No. 2 ESS or Section 232-327-303 for No. 2B ESS.

M = 1 if the permanent busy test line access is exactly seven digits long, and bits 0-3 of the first word (L) contain the binary coded decimal equivalent of the seventh digit. If the access number is less than seven digits long, M = 0.

N = the binary encoding of digits 4-6 to be outpulsed for access to a permanent busy test line.

O = the binary encoding of digits 1-3 to be outpulsed for access to a permanent busy test line.

Note: For bit positions N, O, R, S, V, and W, convert up to three decimal digits each to octal and then to binary as shown in the following example.

Example:

Given seven digits to be outpulsed for access to a permanent busy test line:

512 3468

Starting with the most significant digit, separate the digits into groups of three and convert into octal. Since there are seven digits, there will be two groups of three digits and a single digit remaining. This single digit, the seventh of those to be outpulsed, will be entered in bits 0-3(L) of the first word in binary coded decimal form.

512 decimal = 1000 octal
346 decimal = 532 octal
8 decimal = 1000 BCD

Next, convert the groups of three from octal to binary:

1000 octal = 1 000 000 000 binary
532 octal = 0 101 011 010 binary

The binary equivalent of digits 1-3 (1 000 000 000) is entered in bits 0-9 (O) of the second word.

The binary equivalent of digits 4-6 (0 101 011 010) is entered in bits 10-19 (N) of the second word.

Since there are seven digits to be outpulsed, bit 20 (M) of the second word is set to 1. The BCD equivalent of the seventh digit (1000) is entered in bit 0-3 (L) of the first word.

Third Word

If data is contained in bits 4-7 of the first word (K), further data concerning the permanent busy test line will be contained in this word.
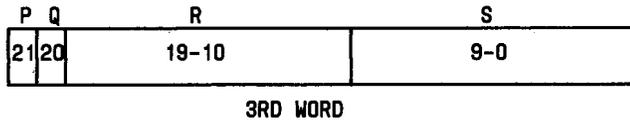
P	Q	R	S
21	20	19-10	9-0

3RD WORD

P = parity and will be calculated later using Section 232-127-303 for No. 2 ESS or Section 232-327-303 for No. 2B ESS.

Q = 1, if the operational test line access is exactly seven digits long, and bits 4-7 of the first word (K) contain the binary coded decimal equivalent of the seventh digit. If the access is less than seven digits long, Q = 0.

R = the binary encoding of digits 4-6 to be outpulsed for access to an operational test line.

S = the binary encoding of digits 1-3 to be outpulsed for access to a operational test line.

Fourth Word

If data is contained in bits 8-11 of the first word (J), further data concerning the permanent busy test line will be contained in this word.

P	T	V	W
21	20	19-10	9-0

4TH WORD

P = parity and will be calculated later using Section 232-127-303 for No. 2 ESS or Section 232-327-303 for No. 2B ESS.

T = 1 if the spare test line is exactly seven digits long, and bits 8-11 of the first word (J) contain the binary coded decimal equivalent of the seventh digit. If the access is less than seven digits long, T = 0.

V = the binary encoding of digits 4-6 to be outpulsed for access to a spare test line.

W = the binary encoding of digits 1-3 to be outpulsed for access to a spare test line.

    (c) Convert binary content to octal and record in item 9(E) under the column marked **new octal content.**

(13) Convert each of the words listed in item 9(D), under the **new content** column, to octal and record this data in item 9(E) under the **new octal content** column.

    (14a) If the area code table requires changing—Refer to Part C, **Changing Area Code Table Using the TOT-4 Form.**

(15) At this point the procedure for changing existing information has been completed, and may be used to perform the CHIPS procedure (Formatting Changes In Program Store) Section 232-127-303.

B. Define an Additional TOTANI Using the TOT-2 Form

(1) Refer to the master table index (MTI) of the appropriate PA drawing to locate the address of TOTAN. Record the TOTAN address as item 1 of the TOT-2 Form (Fig. 3).

(2) Using the TOTAN address, perform a 2-word utility TTY read of the program store from the maintenance TTY. Use input message:

For No. 2 ESS

    UB PS:RP:aaaaaa 000000 2!

aaaaaa = item 1

For No. 2B ESS

    DMP:PS aa!

aa = item 1

Refer to Input Message Manual (IM-2H200) for a further explanation of the variable fields.

(3) Record the address and the contents obtained in Step 2 for words one and two in the **address** and **initial contents** column of items 2 and 3 respectively.

(4) Record the most significant six digits of item 2(B) **initial contents** column, in item 4 as A. This number represents the table size indicator, binary bits 6-21 of word one in the TOTAN table.

(5) Refer the octal number in item 4 to Table A to obtain the decimal number of 4-word blocks. Record the number of 4-word blocks in item 5(A).

(6) To obtain the number of words in the test access number table, multiply the contents of item 5(A) by 4. Record this number as item 5(B).

(7) Scan the test access number table in the office functional listing for the number of words indicated in item 5(B). Try to locate the starting address of a spare "all zero" block of four words within the range of the table. The first four words in the table cannot be used.

(8b) If a spare 4-word block exists, determine the TOTANI number of the 4-word all-zero block and enter in item 6.

(9b) Perform Procedure **A. Changing Existing Information Using TOT-1**

TABLE A

TEST ACCESS NUMBER
TABLE SIZE CONVERSION CHART

DECIMAL BLOCK SIZE	OCTAL NUMBER	DECIMAL BLOCK SIZE	OCTAL NUMBER
1* =	17777700	33 =	17773700
2 =	17777600	34 =	17773600
3 =	17777500	35 =	17773500
4 =	17777400	36 =	17773400
5 =	17777300	37 =	17773300
6 =	17777200	38 =	17773200
7 =	17777100	39 =	17773100
8 =	17777000	40 =	17773000
9 =	17776700	41 =	17772700
10 =	17776600	42 =	17772600
11 =	17776500	43 =	17772500
12 =	17776400	44 =	17772400
13 =	17776300	45 =	17772300
14 =	17776200	46 =	17772200
15 =	17776100	47 =	17772100
16 =	17776000	48 =	17772000
17 =	17775700	49 =	17771700
18 =	17775600	50 =	17771600
19 =	17775500	51 =	17771500
20 =	17775400	52 =	17771400
21 =	17775300	53 =	17771300
22 =	17775200	54 =	17771200
23 =	17775100	55 =	17771100
24 =	17775000	56 =	17771000
25 =	17774700	57 =	17770700
26 =	17774600	58 =	17770600
27 =	17774500	59 =	17770500
28 =	17774400	60 =	17770400
29 =	17774300	61 =	17770300
30 =	17774200	62 =	17770200
31 =	17774100	63 =	17770100
32 =	17774000	64 =	17770000

* This 4-word all-zero block cannot be used.

Form. Use the contents of item 6 as the TOTANI to be changed.

(10c) If a spare 4-word block *does not* exist, determine the total number of words required by adding the needed additional words (four words per TOTANI) to the contents of item 5(B) and enter the results in item 7. The total number should not exceed decimal 255.

(11c) Divide the contents of item 7 by 4 and enter as item 8.

(12c) Allocate the number of words required from spares using the procedures in Section 232-127-302, Manual Translation Modification Procedure—Allocation of Program Store Memory. Record the starting address obtained from Section 232-127-302 in item 3(C) under the *new contents* column. This address is used as a pointer to the new test access number table.

(13c) Enter the new test access number table address (obtained from Step 12) in word 0 of the TOT-3 (Fig. 4) form under the *new address* column. Calculate and enter remaining addresses, up to the total number of words indicated in item 7, by adding octal 1 to each address preceding the address being calculated.

(14c) Using the Office Functional Listing, record the test access number table *initial address* and *initial contents* on the TOT-3 form for the total number of words indicated in item 5(B).

(15c) Transfer the contents under the *initial contents* column to the *new contents* column. The remaining space in the *new contents* column is for the new test access number table information.

Changing the Table Size Indicator

(16c) Refer to item 8 of TOT-2 form to obtain the decimal number of the table size indicator. Using Table A, cross-reference the decimal number to the octal equivalent. Record the octal table size indicator in item 9.

(17c) Record the least significant digits (last 2 digits on the right side of the octal number) of item 2(B) in item 10.

(18c) Add the contents of item 9 to the contents of item 10, and record the summation in item 11.

(19c) Convert item 11 to binary and record this data in item 12.

(20c) Using the TOTAN 2-word layout, (Fig. 1) as a guide, check for even parity of the binary number in item 12. Record the binary number with corrected parity in item 13. It should be noted that the parity bit for the table size indicator is located in bit position 4.

Example:

Given the binary word

P
001 000 001 010 011 100 101 001

Add the digits in decimal to obtain an odd or even number. In this example there are 9 ones. Since 9 is an odd decimal number, and even parity is desired, the parity bit must be set to 1 giving,

P
001 000 001 010 011 100 111 001

(21c) Convert the data in item 13 to octal and record this number as *new contents* in item 2.

(22c) Record necessary changes in the Office Functional Listing and other pertinent office records.

(23c) Refer to Procedure **A. Changing Existing Information Using TOT-1 Form.** Use completed TOT-3 form to determine the new TOTANI to be changed.

C. Changing Area Code Table Using the TOT-4 Form

(1) The area code index (ACI) is contained in binary bits 14-16 of the first word of the 4-word block being manipulated in the test access number table. The ACI is used to index into the area code table. If the ACI is zero, no area code is needed. The address of word one may be obtained from item 8 of the TOT-1 form.

Record this address as item 1 of the TOT-4 form (Fig. 5) under the address column.

(2) Perform a one-word utility read of the address in item 1. Use the input message provided in item 6 of Part **A, Changing Existing Information Using TOT-1 Form.**

(3) Record the results of the utility TTY read message as item 1 under the **contents** column.

(4) Convert the data in the contents column of item 1 to binary. Record this binary number as item 2.

(5) Convert binary bits 14-16 to octal and record on item 3.

(6) Refer to the Master Index Table or item 5 of TOT-1 form to obtain the ACTBL address.

(7) Record the ACTBL address as item 4.

(8) Add the ACTBL address (item 3) to the ACI (item 4). The sum of this addition is the octal address indexing into the eight word area code table. Record this octal address as item 5, under the **address** column.

(9) Perform a utility TTY read of the program store using the address recorded in item 5 and the input message in item 6 of Part A.

(10) Record the second word of the utility read output message in item 5, under the **initial contents** column.

(11) Convert the **initial contents** on item 5 to binary and record this data on item 6.

(12) Make the required changes to the contents (item 6) of the area code (binary bits 0-11) and if necessary make changes to the access code (binary bits 12-19). It should be noted that the access code is only applicable to EF-1 generic programs. As an aid in making the necessary changes to the second word of the area code table, the following word format is provided.

SECOND WORD

P	U	Y	Z	AA	BB	CC
21	20	19-16	15-12	11-8	7-4	3-0

2ND WORD

P = parity and will be calculated later using Section 232-127-303 for No. 2 ESS or Section 232-327-303 for No. 2B ESS.

U = unused bit.

Y,Z = two optional binary coded decimal (BCD) access code digits for EF-1 generic programs. They are used for central office access via a centrex or PBX located in another office. This permits further access of a trunk test circuit used primarily for tie trunks.

AA = a portion of the area code (office code) in BCD and taken from the Automatic Trunk Test Table, form ESS 2505, column 25.

BB = a portion of the area code (office code) in BCD and taken from the Automatic Trunk Test Table, form ESS 2505, column 26.

CC = a portion of the area code (office code) in BCD and taken from the Automatic Trunk Test Table, form ESS 2505, column 27.

(13) Record the new contents obtained from Step 12 in binary on item 7.

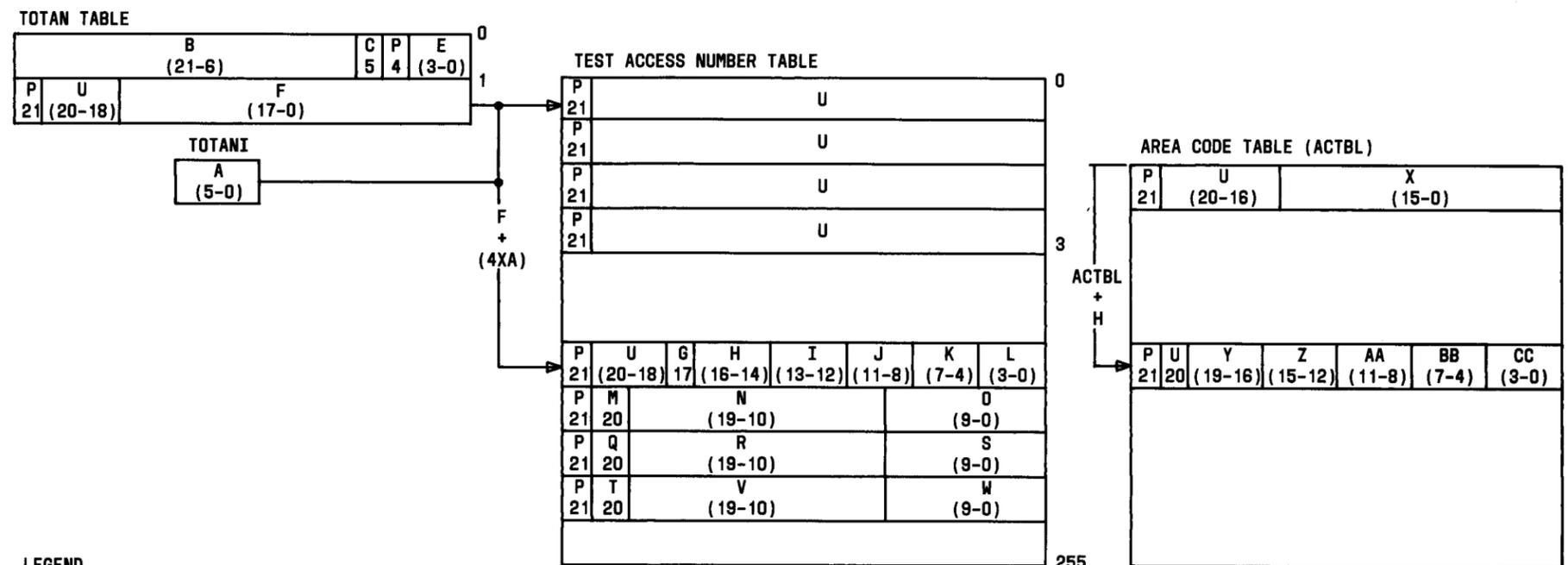(14) Convert the contents of item 7 to octal and record this data in item 5 under *new contents.*

TOTAN TABLE

| | B (21-6) | | | C 5 | P 4 | E (3-0) | 0 |
| P 21 | U (20-18) | | F (17-0) | | | | 1 |

TOTANI

| A (5-0) |

F + (4XA)

TEST ACCESS NUMBER TABLE

P 21	U	0
P 21	U	
P 21	U	
P 21	U	3

P 21	U (20-18)	G 17	H (16-14)	I (13-12)	J (11-8)	K (7-4)	L (3-0)
P 21	M 20	N (19-10)			O (9-0)		
P 21	Q 20	R (19-10)			S (9-0)		
P 21	T 20	V (19-10)			W (9-0)		

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AREA CODE TABLE (ACTBL)

| P 21 | U (20-16) | X (15-0) | 0 |

ACTBL + H

| P 21 | U 20 | Y (19-16) | Z (15-12) | AA (11-8) | BB (7-4) | CC (3-0) |

7

LEGEND

A TOTANI NUMBER
B TOTAN TABLE SIZE NUMBER
C 1 = TABLE IS NOT AN INTEGRAL POWER OF TWO
E 0010
F PS ADDRESS*
G 1 = OPERATIONAL TEST IS SYNCHRONOUS
H AREA CODE INDEX
I AUTOMATIC PROGRESSION TEST CODE**
J ⎫ WHEN M, Q, OR T = 0; J, K, OR L IS THE NUMBER
K ⎬ OF DIGITS TO BE OUTPULSED, RESPECTIVELY
L ⎭ WHEN M, Q, OR T = 1; J, K, OR L IS THE BCD ENCODING OF THE
      7th DIGIT, 0 BEING REPRESENTED BY BCD 10.
M WHEN 1, TEST LINE ACCESS NUMBER IS EXACTLY SEVEN DIGITS IN LENGTH
N BINARY ENCODING OF THE SECOND SET OF 3 DIGITS TO BE OUTPULSED FOR ACCESS
    TO THE PERMANENT BUSY TEST LINE
O BINARY ENCODING OF THE DECIMAL NUMBER FORMED FROM THE FIRST SET OF
    3 DIGITS FOR THE PERMANENT BUSY TEST LINE
P PARITY
Q WHEN 1, TEST LINE ACCESS NUMBER IS EXACTLY SEVEN DIGITS IN LENGTH
R BINARY ENCODING OF THE SECOND SET OF 3 DIGITS TO BE OUTPULSED FOR ACCESS
    TO THE OPERATIONAL TEST LINE
S BINARY ENCODING OF THE DECIMAL NUMBER FORMED FROM THE FIRST SET OF
    3 DIGITS FOR THE OPERATIONAL TEST LINE
T WHEN 1, TEST LINE ACCESS NUMBER IS EXACTLY SEVEN DIGITS IN LENGTH
U UNUSED
V BINARY ENCODING OF THE SECOND SET OF 3 DIGITS TO BE OUTPULSED FOR ACCESS TO SPARE
W BINARY ENCODING OF THE DECIMAL NUMBER FORMED FROM THE FIRST SET OF
    3 DIGITS FOR ACCESS TO SPARE
X ENCODING OF THE BILLING NUMBER ASSIGNED TO TRUNK MAINTENANCE
Y ⎫ ACCESS CODE FOR EF-1
Z ⎭

AA ⎫ AREA CODE DIGITS
BB ⎬
CC ⎭
*   (19-0) FOR NO. 2B EF-1 GENERIC
**⎫ 00 = NONE
   ⎪ 01 = PERMANENT BUSY TEST
   ⎬ 10 = OPERATIONAL, SYNCHRONOUS TEST
   ⎭ 11 = OPERATIONAL, NON-SYNCHRONOUS TEST

Fig. 1—Data Sequence for Changing TOTANI

TEST ACCESS NUMBER TABLE CHIPS ADDRESS RANGE*(_657641_)(_657644_)
TOTAN CHIPS ADDRESS RANGE   *(_____)(_____)
AREA CODE TABLE CHIPS ADDRESS RANGE   *(_____)(_____)

CHANGING EXISTING INFORMATION ON TOTANI TABLES   TOT-1 FORM

TOTANI

  1. TOTANI NUMBER IN OCTAL   _04_
  2. TOTANI NUMBER IN BINARY   _000100_
  3. PLACE TWO ZEROS TO RIGHT SIDE OF TOTANI BINARY NUMBER (ITEM 2) _00010000_
  4. ITEM 3 CONVERTED TO OCTAL   _020_

TOTAN

  5. TOTAN OCTAL ADDRESS   _440126_
     ACTBL OCTAL ADDRESS   _440160_
  6. CONTENTS OF TOTAN OCTAL ADDRESS - WORD 1   _13472410_
  7. CONTENTS OF TOTAN OCTAL ADDRESS - WORD 2   _1465762/_
  8. ADD TOTANI (ITEM 4) TO TOTAN (ITEM 7)*   _657641_

TEST ACCESS NUMBER TABLE

  9. READ TEST ACCESS NUMBER TABLE

(A) OCTAL ADDRESS	(B) INITIAL OCTAL CONTENT	(C) INITIAL BINARY CONTENT	(D) NEW BINARY CONTENT	(E) NEW OCTAL CONTENT
1st WORD _657641_	_25463421_	X 101100110011100010001	X 110101101000011100100	_6550344_
2nd WORD _657642_	_25671542_	X 101110111001101100010	X 100011010001001001000	_4321110_
3rd WORD _657643_	_15554432_	X 101101101100100011010	X 111010110001000010010	_7261022_
4th WORD _657644_	_15564213_	X 101101110100100010011	X 100100111011001000000	_4473100_

  * IN NO. 2B ESS THE OCTAL ADDRESS WILL BE 7 DIGITS; HOWEVER, FOR NO. 2 ESS THE OCTAL ADDRESS
    WILL BE 6 DIGITS.

Fig. 2—Example of Completed-TOT-1 Form

TEST ACCESS NUMBER TABLE CHIPS ADDRESS RANGE (_____)(_____)
TOTAN CHIPS ADDRESS RANGE   (_*4.0/26_)(_4.0/27_)
AREA CODE TABLE CHIPS ADDRESS RANGE   (_____)(_____ .)

DEFINE AN ADDITIONAL TOTANI TABLE   TOT-2 FORM

<u>TOTAN</u>

1. TOTAN OCTAL ADDRESS   _440126_

2. ADDRESS AND CONTENTS OF TOTAN WORD 1

   (A) <u>ADDRESS</u>   (B) <u>INITIAL CONTENTS</u>   (C) <u>NEW CONTENTS</u>

     _440126_   _17776612_   _17770312_

3. ADDRESS AND CONTENTS OF TOTAN WORD 2

   (A) <u>ADDRESS</u>   (B) <u>INITIAL CONTENTS</u>   (C) <u>NEW CONTENTS</u>

     _440127_   _01120323_   _11241320_   A

4. TABLE SIZE INDICATOR   _17776600_

5. (A) DECIMAL EQUIVALENT OF EXISTING 4-WORD ENTRIES   _10_

   (B) NUMBER OF WORDS IN TABLE (ITEM 5(A) TIMES 4)   _40_

<u>IF SPARE BLOCK OF 4-WORDS EXISTS</u>

6. TOTANI NUMBER TO BE CHANGED   _—_

<u>IF SPARE BLOCK OF 4-WORDS DOES NOT EXIST</u>

7. NUMBER OF WORDS REQUIRED   _244_

8. NUMBER OF 4-WORD ENTRIES (ITEM 7 DIVIDED BY 4)   _61_

9. TABLE SIZE INDICATOR   _17770300_

10. LEAST SIGNIFICANT DIGITS OF TOTAN WORD 1 (ITEM 1)   _12_

11. ADD TABLE SIZE INDICATOR (ITEM 9) TO LEAST SIGNIFICANT DIGITS OF
    TOTAN WORD 1 (ITEM 10)   _17770312_

12. CONVERT NEW TOTAN WORD 1 (ITEM 11) TO BINARY   _1111111111000011001010_

13. NEW TOTAN WORD 1 WITH CORRECTED PARITY   _1111111111000011001010_

Fig. 3—Example of Completed TOT-2 Form

TEST ACCESS NUMBER TABLE CHIPS ADDRESS RANGE *(_//20323_)(_//24513_)
TOTAN CHIPS ADDRESS RANGE   *(_____)(_____)
AREA CODE TABLE CHIPS ADDRESS RANGE   *(_____)(_____)

TEST ACCESS NUMBER TABLE (WORDS 0-255)   TOT-3 FORM

	WORD	INITIAL ADDRESS	NEW ADDRESS	INITIAL CONTENTS	NEW CONTENTS
NOT USED	0	1120323	1241320	00000000	00000000
	1	1120324	1241321	00000000	00000000
	2	1120325	1241322	00000000	00000000
	3	1120326	1241323	00000000	00000000
TOTANI = 1	4	1120327	1241324	14653211	14653211
	5	1120330	1241325	24563101	24563101
	6	1120331	1241326	43216100	43216100
	7	1120332	1241327	17000211	17000211
TOTANI = 2	8	1120333	1241330	14326512	14326512
	9	1120334	1241331	14432611	14432611
	10	1120335	1241332	10031711	10031711
	11	1120336	1241333	00113201	00113201
TOTANI = 61	244	1124510	1245612	00000000	
	245	1124511	1245613	00000000	
	246	1124512	1245614	00000000	
	247	1124513	1245615	00000000	
TOTANI = 62	248				
	249				
	250				
TOTANI = 63	251				
	252				
	253				
	254				
	255				

Fig. 4—Example of Completed TOT-3 Form

TEST ACCESS NUMBER TABLE CHIPS ADDRESS RANGE *(_____)(_____)
TOTAN CHIPS ADDRESS RANGE   *(_____)(_____)
AREA CODE TABLE CHIPS ADDRESS RANGE   *(_440160_)(_____)

AREA CODE TABLE   TOT-4 FORM

ITEM   DESCRIPTION

1. TEST ACCESS NUMBER TABLE ENTRY WORD 1

          ADDRESS   CONTENTS
          652641   1634572

2. CONVERT WORD 1 CONTENTS (ITEM 1) TO BINARY

          P   16 14
        X 1100111001011110100001

3. CONVERT BINARY BITS 14-16 (ITEM 2) TO OCTAL   7

4. ACTBL ADDRESS FROM MTI TABLE   440160

5. AREA CODE TABLE ENTRY ADDRESS AND CONTENTS

          ADDRESS   INITIAL CONTENTS   NEW CONTENTS
          440160   1362570   0162531

6. INITIAL CONTENTS (ITEM 5) IN BINARY

          P
        X 0111100101010011111000

7. NEW CONTENTS IN BINARY

          P
        X 0011100101010010110011

Fig. 5—Example of Completed TOT-4 Form