

**TRANSFER REGISTER SD-27667-01**  
**DIAL PULSE OR "TOUCH-TONE" SIGNALING**  
**TESTS USING TEST SET SD-25676-01**  
**NO. 5 CROSSBAR OFFICES**  
**ARRANGED FOR PHASE III CENTREX**

**1. GENERAL**

**1.01** This section describes a method of testing station dial transfer registers SD-27667-01 (dial pulse or TOUCH-TONE), using the test set circuit for register and CAMA sender circuits SD-25676-01, test circuit for register and CAMA sender circuits SD-25988-01, master test control circuit SD-25800-01, and 3A pulse generating test set SD-95686-01 in No. 5 crossbar offices arranged for Phase III centrex.

**1.02** This section is reissued for the following reasons:

- (a) To revise all tests except H, I, N through W, and AE to include reference to operation of keys and setting of switches in accordance with modified Test Charts.
- (b) To revise Tests A, B, C, E, F, G, AF, AG, and AI to provide means of retaining line location information for trouble record purposes.
- (c) To revise Test J to provide testing procedures for zero calls erroneously dialed by attendants.
- (d) To add Tests Z.1, AA.1, AB.1, AC.1, and AD.1 to provide testing procedures for precision pulsing tests using the 4A signaling test set.
- (e) To make minor changes as required.

This reissue affects Equipment Test Lists.

**1.03** The tests covered are:

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**A. 4-, 5-, and 7-Digit Transfer Identification—No Trouble:**

The following features are checked: (1) Simulation of the register connecting to a line identifier. (2) Registration of line location and class of service of transferring line. (3) Registration of line link used by transferring line. (4) Registration of digits. (5) Selection and transmission to a marker, at the end of dialing or keying four digits, all information necessary for the satisfactory completion of a transfer call. . . . .

**7**

**B. Manual Transfer Call:**

This test checks the ability of the transfer register to recognize a transfer request from a manual transfer class customer and to seize a marker. . . . .

**8**

**C. Attendant Transfer:**

This test checks the ability of the transfer register to recognize a transfer request from an attendant and transmit to a marker all information necessary to complete the transfer. . . . .

**9**

**D. Manual Retransfer Call:**

This test checks the ability of the transfer register to service a call from a manual transfer class customer that has previously completed a transfer call. . . . .

**10**

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<b>E. Don't Answer Transfer Call:</b> This test checks the ability of the transfer register to seize a marker when don't answer transfer class is provided.	10	TOUCH-TONE digits when the signal level is 15 dBm lower or 10 dBm higher than the nominal.	17
<b>F. First Trial Line Identifier Connection—Trouble (4-, 5-, and 7-Digit):</b> This test checks the ability of the transfer register to seize a marker and to make a second attempt to connect to a line identifier on a 4-, 5-, and 7-digit transfer.	11	<b>M. Maximum and Minimum Frequency:</b> This test checks the ability of the transfer register to function properly when the TOUCH-TONE frequencies are 1.5 percent higher or lower than the nominal.	18
<b>G. First Trial Line Identifier Function—Trouble (4-, 5-, and 7-Digit):</b> This test checks the ability of the transfer register to seize a marker and to connect to the other line identifier when transferring line location is not received in the required time from the first identifier used on a 4-, 5-, and 7-digit transfer.	12	<b>N. Link Release:</b> This test checks the ability of the transfer register to time out when transfer class information is withheld.	19
<b>H. Second Trial Line Identifier Connection—Trouble:</b> This test checks the ability of the transfer register to initiate a trouble release if the register fails to connect to either line identifier.	14	<b>O. Abandoned Call (Nonattendant):</b> This test checks the ability of the transfer register to release on an abandoned call.	19
<b>I. Second Trial Line Identifier Function—Trouble:</b> This test checks the ability of the transfer register to initiate a trouble release after connecting to both line identifiers and failing to receive line location information from either line identifier.	14	<b>P. Abandoned Call (Attendant):</b> This test checks the ability of the transfer register to recognize an abandoned call from an attendant.	20
<b>J. First Digit 0:</b> This test checks the ability of the transfer register to seize a marker if the first digit dialed or keyed is 0.	15	<b>Q. Partial Dial Timeout:</b> This test checks the ability of the transfer register TM timing circuit to function if the second digit is not dialed in the allotted time.	20
<b>K. 4-, 5-, and 7-Digit Retransfer Call:</b> This test checks the ability of the transfer register to serve a call from a transferring station that has previously completed a transfer.	16	<b>R. Permanent Signal Timing:</b> This test checks the ability of the transfer register TM timing circuit to function if the first digit is not dialed in the allotted time.	21
<b>L. Low and High Level:</b> This test checks the ability of the transfer register to properly receive and record		<b>S. Recycle of Timing:</b> This test checks the ability of the transfer register to recycle the TM timing circuit when each digit is dialed or keyed in the allotted time interval.	23
		<b>T. Common Alarm Timing:</b> This test checks the ability of the transfer register to cause the common alarm circuit to function properly in the allotted time.	24
		<b>U. Overall Timeout of Identification:</b> This test checks the ability of the	

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transfer register TM timing circuit to function if the information from the line identifier is not received in the allotted time. . . . .	25	receive and record TOUCH-TONE signals at nominal level (40-millisecond pulse with 50 milliseconds between pulses) and frequencies at a fast signaling speed.♦	32
<b>V. Trouble Release:</b> This test checks the ability of the transfer register to receive a trouble release signal from the marker. . . . .	26	<b>AB. Low Level Precision Pulsing ♦(3A Pulse Generating Test Set):</b> ♦ This test checks the ability of the transfer register to receive and record TOUCH-TONE signals at fast signaling speed when the signal level is lower than nominal. . . . .	33
<b>W. Surge:</b> This test checks that the transfer register does not record a false pulse when the dial returns to normal at the end of each digit. . . . .	26	<b>AB. 1 ♦Low Level Precision Pulsing (4A Signaling Test Set):</b> This test checks the ability of the transfer register to receive and record TOUCH-TONE signals at fast signaling speed when the signal level is lower than nominal.♦ . . . .	35
<b>X. Single Frequency:</b> This test checks the ability of the transfer register to disregard TOUCH-TONE signals composed of a single frequency. . . . .	27	<b>AC. Maximum and Minimum Frequency Precision Pulsing ♦(3A Pulse Generating Test Set):</b> ♦ This test checks that the transfer register will correctly receive and record TOUCH-TONE signals at fast pulsing speeds when the signal level is lower than nominal and the signal frequencies are 1.5 percent higher or lower than nominal. . . . .	36
<b>Y. Special 3-Frequency:</b> This test checks the ability of the transfer register to disregard signals composed of three frequencies, two of which are a valid combination of TOUCH-TONE frequencies and the third, a signal of 2000 Hz at a higher level. . . . .	28	<b>AC. 1 ♦Maximum and Minimum Frequency Precision Pulsing (4A Signaling Test Set):</b> This test checks that the transfer register will correctly receive and record TOUCH-TONE signals at fast pulsing speeds when the signal level is lower than nominal and the signal frequencies are 1.5 percent higher or lower than nominal.♦ . . . . .	37
<b>Z. Precision Pulsing ♦(3A Pulse Generating Test Set):</b> ♦ This test checks the pulse-counting feature under marginal conditions. . . . .	29	<b>AD. Long Pulse Precision Pulsing ♦(3A Pulse Generating Test Set):</b> ♦ This test checks the ability of the transfer register to receive and record TOUCH-TONE signals composed of a 50-millisecond pulse with an interval between pulses of 40 milliseconds. . . . .	39
<b>Z.1 ♦Precision Pulsing (4A Signaling Test Set):</b> This test checks the pulse-counting feature under marginal conditions♦ . . . . .	30	<b>AD. 1 ♦Long Pulse Precision Pulsing (4A Signaling Test Set):</b> This test checks the ability of the transfer register to receive and record TOUCH-TONE	
<b>AA. Regular Precision Pulsing (TOUCH-TONE) Calling ♦(3A Pulse Generating Test Set):</b> ♦ This test checks the ability of the transfer register to receive and record TOUCH-TONE signals at nominal level (40-millisecond pulse with 50 milliseconds between pulses) and frequencies at a fast signaling speed. . . . .	31		
<b>AA. 1 ♦Regular Precision Pulsing (TOUCH-TONE) Calling (4A Signaling Test Set):</b> This test checks the ability of the transfer register to			

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signals composed of a 50-millisecond pulse with an interval between pulses of 40 milliseconds.¶ . . . . .	40
<b>AE. Double Connection:</b> This test checks that the transfer register recognizes a double connection in the transfer register link switch and times out. . . . .	41
<b>AF. 4- or 5-Digit Transfer Identification (Wideband):</b> This test checks the following features: (1) Simulation of the register connecting to a line identifier. (2) Registration of line location and class of service of transferring line. (3) Registration of line link used by transferring line. (4) Registration of digits. (5) Selection and transmission to a marker at the end of keying 4 or 5 digits, all information necessary for the satisfactory completion of a wideband transfer call. . . . .	42
<b>AG. Don't Answer Transfer Call (Wideband):</b> This test checks the ability of the transfer register to seize a marker when don't answer transfer call is provided on a wideband call. . . . .	43
<b>AH. 4- or 5-Digit Retransfer (Wideband):</b> This test checks the ability of the transfer register to serve a wideband call from a transferring station that has previously completed a transfer. . . . .	44
<b>AI. Manual Transfer Call (Wideband):</b> This test checks the ability of the transfer register to recognize a transfer request from an attendant and transmit to a marker all information necessary to complete the transfer of a wideband call. . . . .	45
<b>AJ. First Digit 0 (Wideband):</b> This test checks the ability of the transfer register to seize a marker if the first digit keyed on a wideband transfer is 0. . . . .	45
<b>AK. Invalid Frequency Combination and Sequence (Wideband):</b> This	

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test checks that the transfer register will recognize an invalid sequence (wideband prefix keyed after digit) or invalid frequency combination (key button to the left of 0) on a wideband transfer request. . . . .	46
<b>AL. Non-Wideband Call with Wideband Prefix:</b> This test checks that the transfer register will recognize the use of a wideband prefix signal on a non-wideband call. . . . .	47
<b>1.04</b> Test AE requires action and verification at the transfer register frame. The test circuits and test sets used for the other tests are not necessary to perform this test.	
<b>1.05</b> When tests are made at the register frame, or to avoid duplicate trouble recorder cards, release the ITRR key.	
<b>1.06</b> If the office is equipped with both automatic monitor, register, and CAMA sender test circuits, and if the STT or STM key of the automatic monitor is operated while a test by the test circuit for register and CAMA sender circuits is in progress, the circuit will release as if the RL key had been operated.	
<b>1.07</b> ¶Test Charts are provided which show priming information required for some tests. Spaces are provided on Test Chart A for listing specific priming information depending on local conditions. This chart should be filled out from local records in accordance with the instructions provided in Part 5, Preparation of Test Chart. No additional preparation is required for Test Charts B through E.¶	
<b>1.08</b> During Tests A through N, U, and W through AD, trouble recorder register (TRE) will score. The reporting of this register operation should be in accordance with local instructions.	
<b>1.09 Lettered Steps:</b> A letter a, b, c, etc, added to a step number in Parts 3 and 4 of this section indicates an action which may or may not be required depending on local conditions. The condition under which a lettered step or a series of lettered steps should be made is given in the ACTION column, and all steps governed by	

the same condition are designated by the same letter within a test. Where a condition does not apply, all steps designated by that letter should be omitted.

**1.10** The manner of selecting some circuits and test conditions at the MTF and its associated circuits varies depending on the apparatus options furnished with these circuits. Therefore, where variable means of selection are provided, precise instructions for selection of circuits and test conditions are not given. Precise instructions for the use of these variable means are given in Section 218-106-301.

**1.11** The location statement, At MTF—, is used to refer to all apparatus located on the four basic bays of the MTF.

**1.12** When the transfer register is arranged for wideband transfer features and non-wideband transfer trunks are used for regular Phase III transfer, Tests A through AE are to be used for testing regular transfer features, and Tests AF through AL are to be used for testing the wideband transfer features.

## **2. APPARATUS**

### **Tests A Through AL**

- 2.01** Master test control circuit SD-25800-01.
- 2.02** Test circuit for register and CAMA sender circuits SD-25988-01.
- 2.03** Test set circuit for register and CAMA sender circuits (test set) SD-25676-01.
- 2.04** Testing cord, 20-conductor cord, 6 feet long, equipped with one KS-13875 plug and one KS-13895 plug (W20C cord) (for connecting test circuit for register and CAMA sender circuits).

### **Tests A Through R, T Through AL**

- 2.05** ♦1014A dial hand test set (handset) or equivalent,♦ equipped with a 2W38A cord

assembly consisting of one W2CK cord, one 310 plug, and one 471 jack.

### **Tests F, H, Q, R, T, U**

- 2.06** KS-3008 stopwatch or equivalent.

### **Tests Q Through U**

- 2.07** Blocking and insulating tools as required. Use tools and apply as covered in Section 069-020-801.

### **Tests S, T, U, AE**

- 2.08** 322A (make-busy) plugs as required.

### **Tests Z, ♦Z.1♦**

- 2.09** Patching cord, P3E cord, 8 feet long, equipped with two 310 plugs (3PE cord) for connecting test set to 3A pulse generating test set ♦or 4A signaling test set.♦

### **Tests Z, AA, AB, AC, AD**

- 2.10** 3A pulse generating test set J94732A and power supply unit J94732B (SD-95686-01).

### **♦Tests Z.1, AA.1, AB.1, AC.1, AD.1**

- 2.11** 4A signaling test set J94743A and loop unit J94743AB (SD-1C244-01).♦

### **Tests AA Through ♦AD.1♦**

- 2.12** Patching cord, P3D cord, 8 feet long, equipped with two 309 plugs (3P3B cord) for connecting test set to 3A precision pulse generating test set ♦or 4A signaling test set.♦

### **Test AE**

- 2.13** Testing cord, 893 cord, 6 feet long, equipped with two 360A tools (1W13B cord) and two KS-6278 connecting clips (for making test connection to terminal strip terminals).

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3. PREPARATION

STEP	ACTION	VERIFICATION
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All Tests

*Note:* Refer to 1.10 and 1.11.

- |   |   |                         |
|---|---|-------------------------|
| 1   | At MTF—<br>Restore all keys and switches.   |                         |
| 2   | Momentarily operate RL key.   | All lamps extinguished. |
| <b>Tests A Through R, T Through AD, AF Through AL</b> |   |                         |
| 3   | Select transfer register.   |                         |
| 4   | Operate T1R key.  |                         |
| 5   | At test set—<br>Patch IRT jack to IRT jack of test circuit<br>for register and CAMA sender circuits.        |                         |
| 6   | Patch handset to PLS jack and set handset<br>switch to TALK.  |                         |
| 7a  | If TOUCH-TONE tests are to be made—<br>Operate PB, RP keys.   |                         |
| 8b  | If connection to line identifier 1 is to be<br>simulated—<br>At register test circuit—<br>Operate RVTI key. |                         |

**Tests A Through M, W Through AD, AF Through AJ**

- |   |                   |  |
|---|-------------------|--|
| 9 | Operate ITRR key. |  |
|---|-------------------|--|

**Tests A Through C, E Through I, P**

- |    |                             |  |
|----|-----------------------------|--|
| 10 | At MTF—<br>Operate TRT key. |  |
|----|-----------------------------|--|

**Tests Z, AA, AB, AC, AD**

- |    |  |   |
|----|--|---|
| 11 | At 3A pulse generating test set—<br>Patch PWR jack to PWR jack on power supply<br>unit.                                |   |
| 12 | At power supply unit—<br>Plug AC cord into 115V 60Hz AC supply and<br>operate 115V 60 ON-OFF switch to ON<br>position. | ON lamp lighted.<br>WARNING OFF lamp lighted. |

STEP	ACTION	VERIFICATION
13	Operate HEATER STAB switch to ON position.	WARNING OFF lamp extinguished.
14	At 3A pulse generating test set— Prepare test set as outlined in section titled 3A Pulse Generating Test Set Description and Operation.	

**Tests Z.1, AA.1, AB.1, AC.1, AD.1**

- |    |  |  |
|----|--|--|
| 15 | At 4A signaling test set—<br>Plug AC cord into 115V 60Hz AC supply and operate POWER ON-OFF switch to ON position.                     |  |
| 16 | Prepare test set equipped with loop interface unit as outlined in the section titled 4A Signaling Test Set Description and Operation.♦ |  |

**4. METHOD**

STEP	ACTION	VERIFICATION
	<p><b>Note:</b> Under nonoverload conditions, begin dialing or keying digits shown on Test Chart within 19 seconds after operating STT key or register may time out. Under overload conditions, begin dialing or keying digits shown on Test Chart within 12 seconds after operating STT key or register may time out.</p>	

**A. 4-, 5-, and 7-Digit Transfer Identification—No Trouble**

- |    |  |   |
|----|--|---|
| 11 | Operate keys and set switches in accordance with Test Chart ♦A, Test 1.♦ |   |
| 12 | At test set—<br>Momentarily operate STT key.                             | RR lamp lighted.<br>Dial tone heard.<br>At MTF—<br>IRON, IRT lamps lighted.<br>Trouble record taken.<br>DTI, RIK, CT_, CU_, AOT designations perforated.<br>♦If transfer register is arranged to retain line location information—<br>FT_, FU_, VG_, HG_, VF_ designations perforated.♦<br>If RVTI key is normal—<br>LI0 designation perforated.<br>If RVTI key is operated—<br>LI1 designation perforated. |

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STEP	ACTION	VERIFICATION
13	At test set— Dial or key digits as shown on Test Chart ◆A.◆	Dial tone silenced. RR lamp extinguished. At MTF— IRON lamp extinguished. Trouble record taken. Number dialed, CT_, CU_, DTF, AOT designations perforated. ◆If transfer register is arranged to retain line location information— FT_, FU_, VG_, HG_, VF_ designations perforated.◆ If testing 4-, 5-, or 7-digit class— X11, FUD, or LL designation perforated.
14	At test set— Momentarily operate RL key.	At MTF— All lamps extinguished.
15	◆Repeat Steps 11 through 14 as required for Test Chart A, Tests 2 through 18.	
16	Restore all keys and switches not required in next test.	
17	At test set and register test circuit— Restore all keys and switches not required in next test.◆	
18c	If no further tests are to be performed— Remove all cords.	

**B. Manual Transfer Call**

11	Operate keys and set switches in accordance with Test Chart ◆A, Test 19.◆	
12	At test set— Momentarily operate STT key.	At MTF— IRT, IRON lamps lighted. First trouble record taken. CT_, CU_, DTI, AOT, RIK designations perforated. ◆If transfer register is arranged to retain line location information— FT_, FU_, VG_, HG_, VF_ designations perforated.◆ If RVTI key is normal— LI0 designation perforated. If RVTI key is operated— LI1 designation perforated. Second trouble record taken. DTF, X11, A4, A7, B7 designations perforated.

STEP	ACTION	VERIFICATION
13	At test set— Momentarily operate RL key.	At MTF— All lamps extinguished.
14	Repeat Steps 11 through 13 as required for Test Chart A, Tests 20 through 24.	
15	Restore all keys and switches not required in next test.	
16	At test set and register test circuit— Restore all keys and switches not required in next test.	
17c	If no further tests are to be performed— Remove all cords.	
<b>C. Attendant Transfer</b>		
11	Operate keys and set switches in accordance with Test Chart A, Test 25.	
12	At test set— Momentarily operate STT key.	RR lamp lighted. Dial tone heard. At MTF— IRON, IRT lamps lighted. Trouble record taken. DTI, RIK, ATT, CT_, CU_ designations perforated. If transfer register is arranged to retain line location information— FT_, FU_, VG_, HG_, VF_ designations perforated. If RVTI key is normal— LI0 designation perforated. If RVTI key is operated— LI1 designation perforated.
13	At test set— Dial or key digits as shown on Test Chart A.	Dial tone silenced. RR lamp extinguished. At MTF— IRON lamp extinguished. Trouble record taken. Number dialed, CT_, CU_, DTF, ATT designations perforated. If transfer register is arranged to retain line location information— FT_, FU_, VG_, HG_, VF_ designations perforated. If testing 4-, 5-, or 7-digit class— X11, FVD, or LT designation perforated, respectively.

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STEP	ACTION	VERIFICATION
14	At test set— Momentarily operate RL key.	At MTF— All lamps extinguished.
15	◆Repeat Steps 11 through 14 as required for Test Chart A, Tests 26 and 27.	
16	Restore all keys and switches not required in next test.	
17	At test set and register test circuit— Restore all keys and switches not required in next test.◆	
18c	If no further tests are to be performed— Remove all cords.	
<b>D. Manual Retransfer Call</b>		
10	Operate keys and set switches in accordance with Test Chart ◆A, Test 28.◆	
11	At test set— Momentarily operate STT key.	At MTF— IRT, IRON lamps lighted. Trouble record taken. DTF, X11, A4, A7, B7, AOT designations perforated. IRON lamp extinguished.
12	At test set— Momentarily operate RL key.	At MTF— All lamps extinguished.
13	Restore all keys and switches not required in next test.	
14	◆At test set and register test circuit— Restore all keys and switches not required in next test.◆	
15c	If no further tests are to be performed— Remove all cords.	
<b>E. Don't Answer Transfer Call</b>		
11	Operate keys and set switches in accordance with Test Chart ◆A, Test 29.◆	
12	At test set— Momentarily operate STT key.	At MTF— IRT, IRON lamps lighted. First trouble record taken. CT_, CU_, DAT1, DTI, RIK designations perforated. ◆If transfer register is arranged to retain line

STEP	ACTION	VERIFICATION
		location information— FT_, FU_, VG_, HG_, VF_ designations perforated.♦ If RVTI key is normal— LI0 designation perforated. If RVTI key is operated— LI1 designation perforated. Second trouble record taken. DAT1, DTF, A4, A7, B7, X11 designations perforated. IRON lamp extinguished.
13	At test set— Momentarily operate RL key.	At MTF— All lamps extinguished.
14	♦Repeat Steps 11 through 13 as required for Test Chart A, Tests 30 through 34.	
15	Restore all keys and switches not required in next test.	
16	At test set and register test circuit— Restore all keys and switches not required in next test.♦	
17c	If no further tests are to be performed— Remove all cords.	
<b>F. First Call Line Identifier Connection—Trouble (4-, 5-, and 7-Digit)</b>		
11	♦At register test circuit— Operate TIF1, TID1 keys.♦	
12	Operate keys and set switches in accordance with Test Chart ♦A, Test 1.♦	
13	At test set— Momentarily operate STT key; <i>start timing</i> .	At MTF— IRT, IRON lamps lighted. In 5 to 9 seconds— First trouble record taken. DTI, LRI, AOT designations perforated. If RVTI key is normal— LI0 designation perforated. If RVTI key is operated— LI1 designation perforated. Second trouble record taken. DTI, RIK, CT_, CU_, AOT designations perforated. ♦If transfer register is arranged to retain line location information— FT_, FU_, VG_, HG_, VF_ designations

STEP	ACTION	VERIFICATION
		perforated.♦ If RVTI key is normal— LI1 designation perforated. If RVTI key is operated— LI0 designation perforated. At test set— RR lamp lighted. Dial tone heard.
14	Dial or key digits as shown on Test Chart ♦A.♦	Dial tone silenced. RR lamp extinguished. At MTF— IRON lamp extinguished. Trouble record taken. Number dialed, CT_, CU_, DTF, AOT designations perforated. ♦If transfer register is arranged to retain line location information— FT_, FU_, VG_, HG_, VF_ designations perforated.♦ If testing 4-, 5-, or 7-digit class— X11, FVD, or LT designation perforated, respectively.
15	At test set— Momentarily operate RL key.	At MTF— All lamps extinguished.
16	♦Repeat Steps 12 through 15 as required for Test Chart A, Tests 2 through 18.	
17	Restore all keys and switches not required in next test.	
18	At test set and register test circuit— Restore all keys and switches not required in next test.♦	
19c	If no further tests are to be performed— Remove all cords.	
<b>G. First Trial Line Identifier Function—Trouble (4-, 5-, and 7-Digit)</b>		
11	♦At register test circuit— Operate TIF1, TID2 keys.♦	
12	Operate keys and set switches in accordance with Test Chart ♦A, Test 1.♦	
13	At test set— Momentarily operate STT key.	At MTF— IRT, IRON lamps lighted. In approximately 1 second—

STEP	ACTION	VERIFICATION
		<p>First trouble record taken.  DTI, LRI, AOT designations perforated.  If RVTI key is normal—  LI0 designation perforated.  If RVTI key is operated—  LI1 designation perforated.  Second trouble record taken.  DTI, RIK, CT_, CU_, AOT designations perforated.  ◆If transfer register is arranged to retain line location information—  FT_, FU_, VG_, HG_, VF_ designations perforated.◆  If RVTI key is normal—  LI1 designation perforated.  If RVTI key is operated—  LI0 designation perforated.  At test set—  RR lamp lighted.  Dial tone heard.</p>
14	Dial or key digits as shown on Test Chart ◆A.◆	<p>Dial tone silenced.  RR lamp extinguished.  At MTF—  IRON lamp extinguished.  Trouble record taken.  Number dialed, CT_, CU_, DTF, AOT designations perforated.  ◆If transfer register is arranged to retain line location information—  FT_, FU_, VG_, HG_, VF_ designations perforated.◆  If testing 4-, 5-, or 7-digit class—  X11, FVD, or LT designation perforated, respectively.</p>
15	At test set— Momentarily operate RL key.	At MTF— All lamps extinguished.
16	◆Repeat Steps 12 through 15 as required for Test Chart A, Tests 2 through 18.	
17	Restore all keys and switches not required in next test.	
18	At test set and register test circuit— Restore all keys and switches not required in next test.◆	
19c	If no further tests are to be performed— Remove all cords.	

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STEP	ACTION	VERIFICATION
<b>H. Second Trail Line Identifier Connection—Trouble</b>		
11	◆At register test circuit— Set TCL switch to 3.	
12	Operate H, TID1, TIF1, FTI2 keys.◆	
13	At test set— Momentarily operate STT key; <i>start timing</i> .	At MTF— IRT, IRON lamps lighted. In 5 to 9 seconds— First trouble record taken. DTI, LRI, AOT designations perforated. If RVTI key is normal— LI0 designation perforated. If RVTI key is operated— LI1 designation perforated. In 5 to 9 seconds— Second trouble record taken. DTI, LRI, AOT designations perforated. If RVTI key is normal— LI1 designation perforated. If RVTI key is operated— LI0 designation perforated. In approximately 1 second— Third trouble record taken. DTI, LRI, 2TR, AOT designations perforated. If RVTI key is normal— LI1 designation perforated. If RVTI key is operated— LI0 designation perforated. IRON lamp extinguished.
14	At test set— Momentarily operate RL key.	At MTF— All lamps extinguished.
15	Restore all keys and switches not required in next test.	
16	◆At test set and register test circuit— Restore all keys and switches not required in next test.◆	
17c	If no further tests are to be performed— Remove all cords.	
<b>I. Second Trial Line Identifier Function—Trouble</b>		
11	◆At register test circuit— Set TCL switch to 3.	
12	Operate H, TID1, TIF1, FTI2 keys.◆	

STEP	ACTION	VERIFICATION
13	At test set— Momentarily operate STT key.	At MTF— IRT, IRON lamps lighted. In approximately 1 second— First trouble record taken. DTI, LRI, AOT designations perforated. If RVTI key is normal— LI0 designation perforated. If RVTI key is operated— LI1 designation perforated. In approximately 1 second— Second trouble record taken. DTI, LRI, AOT designations perforated. If RVTI key is normal— LI1 designation perforated. If RVTI key is operated— LI0 designation perforated. In approximately 1 second— Third trouble record taken. DTI, LRI, 2TR, AOT designations perforated. If RVTI key is normal— LI0 designation perforated. If RVTI key is operated. LI1 designation perforated. IRON lamp extinguished.
14	At test set— Momentarily operate RL key.	At MTF— All lamps extinguished.
15	Restore all keys and switches not required in next test.	
16	◆At test set and register test circuit— Restore all keys and switches not required in next test.◆	
17c	If no further tests are to be performed— Remove all cords.	
<b>J. First Digit 0</b>		
10	Operate keys and set switches in accordance with Test Chart ◆B, Test 1.◆	
11	At test set— Momentarily operate STT key.	RR lamp lighted. Dial tone heard. At MTF— IRT, IRON lamps lighted.
12	At test set— Dial or key digit 0.	Dial tone silenced. RR lamp extinguished. At MTF— IRON lamp extinguished.

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STEP	ACTION	VERIFICATION
		Trouble record taken. DTF, A4, A7, B7, AOT designations perforated. If testing 4-, 5-, or 7-digit class— X11, FVD, or LT designation perforated, respectively.
13	At test set— Momentarily operate RL key.	At MTF— All lamps extinguished.
14	♦Repeat Steps 10 through 13 as required for Test Chart B, Tests 2 through 6.	
15	At register test circuit— Set TCL switch to 6.	
16	At test set— Momentarily operate STT key.	RR lamps lighted— Dial tone heard. At MTF— IRT, IRON lamps lighted.
17	At test set— Key digit 0.	Dial tone silenced. RR lamp extinguished. At MTF— IRON lamp extinguished. Trouble record taken. DTF, A4, A7, B7, ATT designations perforated. If transfer register is arranged to route all zero calls dialed by attendant to reorder tone— LRI designation perforated.
18	At test set— Momentarily operate RL key.	At MTF— All lamps extinguished.
19	Restore all keys and switches not required in next test.	
20	At test set and register test circuit— Restore all keys and switches not required in next test.	
21c	If no further tests are to be performed— Remove all cords.♦	
<b>K. 4-, 5-, and 7-Digit Retransfer Call</b>		
10	Operate keys and set switches in accordance with Test Chart ♦B, Test 7.♦	
11	At test set— Momentarily operate STT key.	RR lamp lighted. Dial tone heard. At MTF— IRT, IRON lamps lighted.

STEP	ACTION	VERIFICATION
12	At test set— Dial or key digits as shown on Test Chart ◆B.◆	Dial tone silenced. RR lamp extinguished. At MTF— IRON lamp extinguished. Trouble record taken. Number dialed, DTF, AOT designations perforated. If testing 4-, 5-, or 7-digit class— X11, FVD, or LT designation perforated, respectively.
13	At test set— Momentarily operate RL key.	At MTF— All lamps extinguished.
14	◆Repeat Steps 10 through 13 as required for Test Chart B, Tests 8 through 18.	
15	Restore all keys and switches not required in next test.	
16	At test set and register test circuit— Restore all keys and switches not required in next test.◆	
17c	If no further tests are to be performed— Remove all cords.	
<b>L. Low and High Level</b>		
10	Operate keys and set switches in accordance with Test Chart ◆B, Test 19.◆	
11	At test set— Momentarily operate STT key.	RR lamp lighted. Dial tone heard. At MTF— IRT, IRON lamps lighted.
12	At test set— Key digits as shown on Test Chart ◆B.◆	Dial tone silenced. RR lamp extinguished. At MTF— IRON lamp extinguished. Trouble record taken. Number keyed, DTF, AOT designations perforated. If testing 4-, 5-, or 7-digit class— X11, FVD, or LT designation perforated, respectively.
13	At test set— Momentarily operate RL key.	At MTF— All lamps extinguished.

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<b>STEP</b>	<b>ACTION</b>	<b>VERIFICATION</b>
14	◆Repeat Steps 10 through 13 as required for Test Chart B, Tests 20 through 24.	
15	Restore all keys and switches not required in next test.	
16	At test set and register test circuit— Restore all keys and switches not required in next test.◆	
17c	If no further tests are to be performed— Remove all cords.	

**M. Maximum and Minimum Frequency**

10	Operate keys and set switches in accordance with Test Chart ◆B, Test 25.◆	
11	At test set— Momentarily operate STT key.	RR lamp lighted. Dial tone heard. At MTF— IRT, IRON lamps lighted.
12	At test set— Key digits as shown on Test Chart ◆B.◆	Dial tone silenced. RR lamp extinguished. At MTF— IRON lamp extinguished. Trouble record taken. Number keyed, DTF, AOT designations perforated. If testing 4-, 5-, or 7-digit class— X11, FVD, or LT designation perforated.
13	At test set— Momentarily operate RL key.	At MTF— All lamps extinguished.
14	◆Repeat Steps 10 through 13 as required for Test Chart B, Tests 26 through 30.	
15	Restore all keys and switches not required in next test.	
16	At test set and register test circuit— Restore all keys and switches not required in next test.◆	
17c	If no further tests are to be performed— Remove all cords.	

STEP	ACTION	VERIFICATION
<b>N. Link Release</b>		
9	◆At register test circuit— Set TCL switch to OFF.	
10	Operate H, TIS, IRBT, TLR keys.◆	
11	At test set— Momentarily operate STT key.	At MTF— IRT, IRON lamps lighted. In approximately 1 second— IRON lamp extinguished. Trouble record taken. LRI (link release) designation perforated. FR_, CN_, RG_ designations perforated corresponding to number of marker connector frame, connector in frame, and register in connector.
12	At test set— Momentarily operate RL key.	At MTF— All lamps extinguished.
13	Restore all keys and switches not required in next test.	
14	◆At test set and register test circuit— Restore all keys and switches not required in next test.◆	
15c	If no further tests are to be performed— Remove all cords.	
<b>O. Abandoned Call (Nonattendant)</b>		
9	◆At register test circuit— Set TCL switch to 0.	
10	At test set— Set L switch to 0.◆	
11	Momentarily operate STT key.	RR lamp lighted. Dial tone heard. At MTF— IRT, IRON lamps lighted.
12	At test set— Dial digit 1.	Dial tone silenced. RR lamp extinguished.
13	Operate DIS key.	At MTF— IRON lamp extinguished.
14	At test set— Momentarily operate RL key.	At MTF— All lamps extinguished.

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STEP	ACTION	VERIFICATION
15	Restore all keys and switches not required in next test.	
16	◆At test set and register test circuit— Restore all keys and switches not required in next test.◆	
17c	If no further tests are to be performed— Remove all cords.	

**P. Abandoned Call (Attendant)**

11	◆At register test circuit— Set TCL switch to 3.	
12	Operate TIS, TCON keys.◆	
13	At test set— Momentarily operate STT key.	RR lamp lighted. Dial tone heard. At MTF— IRT, IRON lamps lighted.
14	Operate ATAB key.	IRON lamp extinguished. At test set— Dial tone silenced. RR lamp extinguished.
15	Momentarily operate RL key.	At MTF— All lamps extinguished.
16	Restore all keys and switches not required in next test.	
17	◆At test set and register test circuit— Restore all keys and switches not required in next test.◆	
18c	If no further tests are to be performed— Remove all cords.	

**Q. Partial Dial Timeout**

9	◆At register test circuit— Operate TCL switch to 0.	
10	At test set— Set L switch to 5.	
11	Operate H, TLR keys.◆	
12	Momentarily operate STT key.	RR lamp lighted. Dial tone heard.

STEP	ACTION	VERIFICATION
		At MTF— IRT, IRON lamps lighted.
13	At test set— ◆Dial or key digit 1; <i>start timing</i> .◆	Dial tone silenced. In 20 to 37 seconds— RR lamp extinguished. At MTF— In 20 to 37 seconds— IRON lamp extinguished.
14	At test set— Momentarily operate RL key.	At MTF— All lamps extinguished.
15	At relay rack frame— Block operated RB2 relay in group-busy circuit associated with register under test.	
16	At test set— Momentarily operate STT key.	RR lamp lighted. Dial tone heard. At MTF— IRT, IRON lamps lighted.
17	At test set— ◆Dial or key digit 1; <i>start timing</i> .◆	Dial tone silenced. In 4 to 7 seconds— RR lamp extinguished. At MTF— In 4 to 7 seconds— IRON lamp extinguished.
18	At test set— Momentarily operate RL key.	At MTF— All lamps extinguished.
19	At relay rack frame— Remove blocking tool from RB2 relay.	
20	At MTF— Restore all keys and switches not required in next test.	
21	◆At test set and register test circuit— Restore all keys and switches not required in next test.◆	
22c	If no further tests are to be performed— Remove all cords.	

#### R. Permanent Signal Timing

- 9 ◆At register test circuit—  
Set TCL switch to 0.

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STEP	ACTION	VERIFICATION
10	At test set— Operate H, TLR keys.♦	
11	At register frame— Block nonoperated OVL relay.	
12	At test set— Momentarily operate STT key; <i>start timing</i> .	RR lamp lighted. Dial tone heard. At MTF— IRT, IRON lamps lighted. At test set— In 20 to 37 seconds— Dial tone silenced. RR lamp extinguished. At MTF— IRON lamp extinguished.
13	At test set— Momentarily operate RL key.	At MTF— All lamps extinguished.
14	At register frame— Remove blocking tool from OVL relay.	
15	At relay rack frame— Block operated RB2 relay in group-busy circuit associated with register under test.	
16	At test set— Momentarily operate STT key; <i>start timing</i> .	RR lamp lighted. Dial tone heard. At MTF— IRON, IRT lamps lighted. At test set— In 12 to 19 seconds— Dial tone silenced. RR lamp extinguished. At MTF— IRON lamp extinguished.
17	At test set— Momentarily operate RL key.	At MTF— All lamps extinguished.
18	At relay rack frame— Remove blocking tool from RB2 relay.	
19	At MTF— Restore all keys and switches not required in next test.	
20	♦At test set and register test circuit— Restore all keys and switches not required in next test.♦	

STEP	ACTION	VERIFICATION
21c	If no further tests are to be performed— Remove all cords.	
<b>5. Recycle of Timing</b>		
3	At jack, lamp, and key circuit— Insert make-busy plug into TFRMB_ jack associated with register under test.	
4	At MTF— Select transfer register.	
5	Operate keys and set switches in accordance with Test Chart B, Test 31.	
6	At register frame— Patch IRT jack to IRT jack of test set.	
7	Block nonoperated TC2 relay.	
8a	If TOUCH-TONE test is to be made— At test set— Operate PB, RP keys.	
9	Momentarily operate STT key.	RR lamp lighted. At register frame— TMA, TMB relays operated. If TOUCH-TONE test is being made— TMC relay operated.
10	At test set— Dial or key digits as shown on Test Chart B, allowing at least 2 seconds between digits.	At register frame— TMA, TMB relays momentarily released after each digit. If TOUCH-TONE test is being made— TMC relay momentarily released after each digit.
11	At test set— Momentarily operate RL key.	RR lamp extinguished. At register frame— TMA, TMB, TMC relays released. At MTF— All lamps extinguished.
12	Repeat Steps 3 through 11 as required for Test Chart B, Tests 32 and 33.	
13	At register frame— Remove blocking tool from TC2 relay.	
14	Remove patching cord from IRT jack.	

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STEP	ACTION	VERIFICATION
15	At jack, lamp, and key circuit— Remove make-busy plug from TFRMB_ jack.	
16	At MTF— Restore all keys and switches not required in next test.	
17	◆At test set and register test circuit— Restore all keys and switches not required in next test.◆	
<b>T. Common Alarm Timing</b>		
9	At jack, lamp, and key circuit— Insert make-busy plug into TFRMB_ jack associated with register under test.	
10	◆At register test circuit— Set TCL switch to 0.	
11	Operate H key.	
12	At test set— Set L switch to 5.◆	
13	At register frame— Block nonoperated OVL relay.	
14	Insulate 11M of M relay.	
15	At test set— Momentarily operate STT key; <i>start timing.</i>	RR lamp lighted. Dial tone heard. At MTF— IRT, IRON lamps lighted. At test set— In 20 to 37 seconds— Dial tone silenced. RR lamp extinguished. In 20 to 37 seconds after RR lamp extinguished— At jack, lamp, and key circuit— TO lamp associated with register being tested lighted.
16	Remove plug from TFRMB_ jack; <i>start timing.</i>  <i>Note:</i> If another register or sender grounds the common alarm circuit during this test, it may be necessary to repeat the test.	In 10 to 15 seconds— RS-TOA lamp lighted. Major alarm sounds.
17	Insert make-busy plug into TFRMB_ jack of register under test.	Major alarm silenced. RS-TOA lamp extinguished.

STEP	ACTION	VERIFICATION
18	Repeat Steps 15 and 16.	
19	At test set— Momentarily operate RL key.	At MTF— All lamps extinguished.
20	At register frame— Remove blocking tool from OVL relay.	
21	Remove insulator from M relay.	
22	At jack, lamp, and key circuit— Remove make-busy plug from TFRMB_ jack.	
23	At MTF— Restore all keys and switches not required in next test.	
24	At test set and register test circuit— Restore all keys and switches not required in next test.	
25c	If no further tests are to be performed— Remove all cords.	
<b>U. Overall Timeout of Identification</b>		
9	At jack, lamp, and key circuit— Insert make-busy plug into TFRMB_ jack associated with register under test.	
10	At register test circuit— Set TCL switch to OFF.	
11	Operate H, TIS, TLR, IRBT keys.	
12	At register frame— Block nonoperated LR relay.	
13	At test set— Momentarily operate STT key; <i>start timing</i> .	At MTF— IRT, IRON lamps lighted. In 12 to 19 seconds— IRON lamp extinguished. Trouble record taken. LRI designation perforated. FR_, CN_, RG_ designations perforated corresponding to number of marker connector frame and register in connector.
14	At test set— Momentarily operate RL key.	At MTF— All lamps extinguished.

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STEP	ACTION	VERIFICATION
15	At register frame— Remove blocking tool from LR relay.	
16	At jack, lamp, and key circuit— Remove make-busy plug from TFRMB_ jack.	
17	At MTF— Restore all keys and switches not required in next test.	
18	◆At test set and register test circuit— Restore all keys and switches not required in next test.◆	
19c	If no further tests are to be performed— Remove all cords.	

**V. Trouble Release**

9	◆At register test circuit— Set TCL switch to 0.	
10	Operate IRBT key.	
11	At test set— Set L switch to 0.◆	
12	Momentarily operate STT key.	RR lamp lighted. At MTF— IRT, IRON lamps lighted.
13	At test set— ◆Dial or key digits 9, 3, 5, 7.◆	RR lamp extinguished. At MTF— IRON lamp extinguished.
14	At test set— Momentarily operate RL key.	At MTF— All lamps extinguished.
15	Restore all keys and switches not required in next test.	
16	◆A test set and register test circuit— Restore all keys and switches not required in next test.◆	
17c	If no further tests are to be performed— Remove all cords.	

**W. Surge**

10	◆At register test circuit— Set TCL switch to 0.	
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STEP	ACTION	VERIFICATION
11	At test set— Set L switch to 6.◀	
12	Momentarily operate STT key.	RR lamp lighted. At MTF— IRT, IRON lamps lighted.
13	At test set— ◀Dial digits 9, 3, 5, 7.◀	RR lamp extinguished. At MTF— IRON lamp extinguished. Trouble record taken. Number dialed designations perforated.
14	At test set— Momentarily operate RL key.	At MTF— All lamps extinguished.
15	At MTF— Restore all keys and switches not required in next test.	
16	◀At test set and register test circuit— Restore all keys and switches not required in next test.◀	
17c	If no further tests are to be performed— Remove all cords.	

#### X. Single Frequency

10	Operate keys and set switches in accordance with test Chart ◀C, Test 1.◀	
11	Momentarily operate STT key.	RR lamp lighted. Dial tone heard. At MTF— IRT, IRON lamps lighted.
12	At test set— Momentarily operate SF-IA key.	RR lamp remains lighted. Dial tone still heard. At MTF— IRT, IRON lamps remain lighted.
13	At test set— Key digits as shown on Test Chart ◀C.◀	Dial tone silenced. RR lamp extinguished. At MTF— IRON lamp extinguished. Trouble record taken. Number keyed designations perforated.
14	At test set— Momentarily operate RL key.	At MTF— All lamps extinguished.

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STEP	ACTION	VERIFICATION
15	◆Repeat Steps 10 through 14 as required for Test Chart C, Tests 2 through 24.	
16	Restore all keys and switches not required in next test.	
17	At test set and register test circuit— Restore all keys and switches not required in next test.◆	
18c	If no further tests are to be performed— Remove all cords.	
<b>Y. Special 3-Frequency</b>		
10	Operate keys and set switches in accordance with Test Chart ◆C, Test 25.◆	
11	At test set— Momentarily operate STT key.	RR lamp lighted. Dial tone heard. At MTF— IRT, IRON lamps lighted.
12	At test set— Momentarily operate SF-IA key.	RR lamp remains lighted. Dial tone still heard. At MTF— IRT, IRON lamps remain lighted.
13	At test set— Key digits as shown on Test Chart ◆C.◆	Dial tone silenced. RR lamp extinguished. At MTF— IRON lamp extinguished. Trouble record taken. Number keyed designations perforated.
14	At test set— Momentarily operate RL key.	At MTF— All lamps extinguished.
15	◆Repeat Steps 10 through 14 as required for Test Chart C, Tests 26 through 36.	
16	Restore all keys and switches not required in next test.	
17	At test set and register test circuit— Restore all keys and switches not required in next test.◆	
18c	If no further tests are to be performed— Remove all cords.	

STEP	ACTION	VERIFICATION
<b>Z. Precision Pulsing (3A Pulse Generating Test Set)</b>		
15	Operate keys and set switches in accordance with Test Chart <b>D</b> , Test 1.	
16	At test set— Patch PLS jack to OUTPUT CP jack on 3A pulse generating test set.	
17	At 3A pulse generating test set— Adjust settings so interdigital time is 185 milliseconds; pulses per second and percent break correspond to information on Test Chart <b>D</b> .	
18	Set PULSES PER TRAIN switch to agree with number of pulses for digit A on Test Chart <b>D</b> .	
19	Operate LOOP key to CLOSED position.	
20	Set PULSE SEL switch to CONT TRAINS.	
21	At test set— Momentarily operate STT key.	RR lamp lighted. At MTF— IRT, IRON lamps lighted.
22	At 3A pulse generating test set— Operate TRAIN CONTROL key to <b>PULSE</b> .	At test set— RR lamp extinguished.
23	At 3A pulse generating test set— Restore TRAIN CONTROL key at start of last digit.	At MTF— IRON lamp extinguished. Trouble record taken. Number pulsed designations perforated.
	<b>Note:</b> The number of digits pulsed can be counted by observing the revolutions on the countertube.	
24	At test set— Momentarily operate RL key.	At MTF— All lamps extinguished.
25	Repeat Steps 15 through 24 as required for Test Chart D, Tests 2 through 15.	
26	Restore all keys and switches not required in next test.	
27	At test set and register test circuit— Restore all keys and switches not required in next test.	

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STEP	ACTION	VERIFICATION
28c	If no further tests are to be performed— Remove all cords from all test sets.¶	
<b>Z.1 ¶Precision Pulsing (4A Signaling Test Set)</b>		
17	Operate keys and set switches in accordance with Test Chart D, Test 1.	
18	At test set— Patch PLS jack to SR jack on 4A signaling test set loop interface unit.	
19	At 4A signaling test set—main module— Adjust settings so pulses per second and percent break correspond to information on Test Chart D.	
20	Set PULSE MODE switch to KEYSSET.	
21	Operate OPERATE-CLEAR key.	OPERATE-CLEAR lamp lighted.
22	Operate START-STOP key.	START-STOP lamp lighted.
23	At 4A signaling test set—loop interface unit— Set FUNCTION switch to SR.	
24	At test set— Momentarily operate STT key.	RR lamp lighted. At MTF— IRT, IRON lamps lighted.
25	At 4A signaling test set—main module— Momentarily operate keyset # key to allow a repeated discrete train of pulses with an interdigital time of 185 ms.	
26	Momentarily operate a keyset key to agree with number of pulses for digit A <sub>1</sub> on Test Chart D.	WAIT TO DIAL lamp lighted. At MTF— Trouble record taken. Digits on Test Chart D match designations perforated.
27	At signaling test set—main module— Release OPERATE-CLEAR, START-STOP keys.	OPERATE-CLEAR, START-STOP lamps extinguished. WAIT TO DIAL lamp extinguished.
28	At test set— Momentarily operate RL key.	At MTF— All lamps extinguished.
29	Repeat Steps 17 through 28 as required for Test Chart D, Tests 2 through 15.	

STEP	ACTION	VERIFICATION
30	Restore all keys and switches not required in next test.	
31	At test set and register test circuit— Restore all keys and switches not required in next test.	
32c	If no further tests are to be performed— Remove all cards from all test sets.♦	
<b>AA. Regular Precision Pulsing (TOUCH-TONE) Calling (3A Pulse Generating Test Set)</b>		
15	Operate keys and set switches in accordance with Test Chart ♦D, Test 16.♦	
16	At test set— Patch MF jack to OUTPUT NCP jack on 3A pulse generating test set.	
17	At 3A pulse generating test set— Adjust settings for percent break and pulsing speed in accordance with Test Chart D with LOOP key in OPEN position.	
18	♦Set PULSE SEL switch to a SINGLE TRAIN.	
19	For Test Chart D, Tests 16 through 19— Set PULSES PER TRAIN switch to 4. For Test Chart D, Tests 20 through 23— Set PULSES PER TRAIN switch to 5. For Test Chart D, Tests 24 through 27— Set PULSES PER TRAIN switch to 7.♦	
20	Operate LOOP key to CLOSED position.	
21	At test set— Momentarily operate STT key.	RR lamp lighted. At MTF— IRT, IRON lamps lighted.
22	At 3A pulse generating test set— Operate LOOP key to OPEN position.	
23	At test set— Depress and hold digit key in accordance with Test Chart ♦D.♦	
24	At 3A pulse generating test set— Operate TRAIN CONTROL key to ♦PULSE♦ position.	At MTF— Trouble record taken. Digits corresponding to key held in Step 23 designations perforated.

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STEP	ACTION	VERIFICATION
25	At test set— Release key held in Step 23.	
26	Momentarily operate RL key.	RR lamp extinguished. At MTF— All lamps extinguished.
27	At 3A pulse generating test set— Restore TRAIN CONTROL key.	
28	◆Repeat Steps 15 through 27 as required for Test Chart D, Tests 17 through 27.	
29	At MTF— Restore all keys and switches not required in next test.	
30	At test set and register test circuit— Restore all keys and switches not required in next test.◆	
31c	If no further tests are to be performed— Remove all cords.	
<b>AA. 1</b>	<b>◆Regular Precision Pulsing (4A Signaling Test Set)</b>	
17	Operate keys and set switches in accordance with Test Chart D, Test 16.	
18	At test set— Patch MF jack to SR jack on 4A signaling test set loop interface unit.	
19	At 4A signaling test set—main module— Adjust settings so pulses per second and percent break correspond to information on Test Chart D.	
20	Set PULSE MODE switch to KEYSET.	
21	Operate GEN SUPV key to OFF HK.	
22	Operate OPERATE-CLEAR key.	OPERATE-CLEAR lamp lighted.
23	Operate START-STOP key.	START-STOP lamp lighted.
24	At 4A signaling test set—loop interface unit— Set FUNCTION switch to SR.	
25	At test set— Depress and hold key in accordance with	

STEP	ACTION	VERIFICATION
	DEPRESS AND HOLD KEY column on Test Chart D.	
26	Momentarily operate STT key.	RR lamp lighted. At MTF— IRT, IRON lamps lighted.
27	At 4A signaling test set—main module— Momentarily operate keyset * key to allow a repeated discrete train of pulses with an interdigital time of 680 ms.	
28	Momentarily operate keyset 1 key.	WAIT TO DIAL lamp lighted. At MTF— Trouble record taken. If testing 4-, 5-, or 7- digit class— A_ through D_, A_ through E_, or A_ through G_ digits designations perforated, respectively corresponding to key held in Step 25.
29	At 4A signaling test set—main module— Release OPERATE-CLEAR, START-STOP keys.	OPERATE-CLEAR, START-STOP lamps extinguished.
30	At test set—	WAIT TO DIAL lamp extinguished.
31	Momentarily operate RL key. Repeat Steps 17 through 30 as required for Test Chart D, Tests 17 through 27.	At MTF— All lamps extinguished.
32	Restore all keys and switches not required in next test.	
33	At test set and register test circuit— Restore all keys and switches not required in next test.	
34c	If no further tests are to be performed— Remove all cords from all test sets.	
<b>AB. Low Level Precision Pulsing (3A Pulse Generating Test Set)</b>		
15	Operate keys and set switches in accordance with Test Chart D, Test 16.	
16	At test set— Patch MF jack to OUTPUT NCP jack on 3A pulse generating test set.	
17	At 3A pulse generating test set— Adjust settings for percent break and pulsing	

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STEP	ACTION	VERIFICATION
	speed in accordance with Test Chart D with LOOP key in OPEN position.	
18	Set PULSE SEL switch to SINGLE TRAIN.	
19	For Test Chart D, Tests 16 through 19— Set PULSES PER TRAIN switch to 4. For Test Chart D, Tests 20 through 23— Set PULSES PER TRAIN switch to 5. For Test Chart D, Tests 24 through 27— Set PULSES PER TRAIN switch to 7.	
20	Operate LOOP key to CLOSED position.	
21	At test set— Momentarily operate STT key.	RR lamp lighted. At MTF— IRT, IRON lamps lighted.
22	At 3A pulse generating test set— Operate LOOP key to OPEN position.	
23	At test set— Operate and hold digit key in accordance with Test Chart D.	
24	At 3A pulse generating test set— Operate TRAIN CONTROL key to PULSE position.	At MTF— Trouble record taken. Digits corresponding to key held in Step 23 designations perforated.
25	At test set— Release key held in Step 23.	
26	Momentarily operate RL key.	RR lamp extinguished. At MTF— All lamps extinguished.
27	At 3A pulse generating test set— Restore TRAIN CONTROL key.	
28	Repeat Steps 15 through 27 as required for Test Chart D, Tests 17 through 27.	
29	At MTF— Restore all keys and switches not required in next test.	
30	At test set and register test circuit— Restore all keys and switches not required in next test.	

STEP	ACTION	VERIFICATION
31c	If no further tests are to be performed— Remove all cords from all test sets.	
<b>AB. 1</b>	<b>Low Level Precision Pulsing (4A Signaling Test Set)</b>	
17	Operate keys and set switches in accordance with Test Chart D, Test 16.	
18	At test set— Patch MF jack to SR jack on 4A signaling test set loop interface unit.	
19	At 4A signaling test set—main module— Adjust settings so pulses per second and percent break correspond to information on Test Chart D.	
20	Set PULSE MODE switch to KEYSET.	
21	Operate GEN SUPV key to OFF HK.	
22	Operate OPERATE-CLEAR key.	OPERATE-CLEAR lamp lighted.
23	Operate START-STOP key.	START-STOP lamp lighted.
24	At 4A signaling test set—loop interface unit— Set FUNCTION switch to SR.	
25	At test set— Depress and hold key in accordance with DEPRESS AND HOLD KEY column on Test Chart D.	
26	Momentarily operate STT key.	RR lamp lighted. At MTF— IRT, IRON lamps lighted.
27	At 4A signaling test set—main module— Momentarily operate keyset * key to allow a repeated discrete train of pulses with an interdigital time of 680 ms.	
28	Momentarily operate keyset 1 key.	WAIT TO DIAL lamp lighted. At MTF— Trouble record taken. If testing 4-, 5-, or 7- digit class— A_ through D_, A_ through E_, or A_ through G_ digits designations perforated, respectively corresponding to key held in Step 25.

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STEP	ACTION	VERIFICATION
29	At 4A signaling test set—main module— Release OPERATE-CLEAR, START-STOP keys.	OPERATE-CLEAR, START-STOP lamps extinguished.
30	At test set— Momentarily operate RL key.	WAIT TO DIAL lamp extinguished.
31	Repeat Steps 17 through 30 as required for Test Chart D, Tests 17 through 27.	At MTF— All lamps extinguished.
32	Restore all keys and switches not required in next test.	
33	At test set and register test circuit— Restore all keys and switches not required in next test.	
34c	If no further tests are to be performed— Remove all cords from all test sets.	
<b>AC. Maximum and Minimum Frequency Precision Pulsing (3A Pulse Generating Test Set)</b>		
15	Operate keys and set switches in accordance with Test Chart D, Test 16.	
16	At test set— Patch MF jack to OUTPUT NCP jack on 3A pulse generating test set.	
17	At 3A pulse generating test set— Adjust settings for percent break and pulsing speed in accordance with Test Chart D with LOOP key in OPEN position.	
18	Set PULSE SEL switch to SINGLE TRAIN.	
19	For Test Chart D, Tests 16 through 19— Set PULSES PER TRAIN switch to 4. For Test Chart D, Tests 20 through 23— Set PULSES PER TRAIN switch to 5. For Test Chart D, Tests 24 through 27— Set PULSES PER TRAIN switch to 7.	
20	Operate LOOP key to CLOSED position.	
21	At test set— Momentarily operate STT key.	RR lamp lighted. At MTF— IRT, IRON lamps lighted.
22	At 3A pulse generating test set— Operate LOOP key to OPEN position.	

STEP	ACTION	VERIFICATION
23	At test set— Operate and hold digit key in accordance with Test Chart D.	
24	At 3A pulse generating test set— Operate TRAIN CONTROL key to PULSE position.	At MTF— Trouble record taken. Digits corresponding to key held in Step 23 designations perforated.
25	At test set— Release key held in Step 23.	
26	Momentarily operate RL key.	RR lamp extinguished. At MTF— All lamps extinguished.
27	At 3A pulse generating test set— Restore TRAIN CONTROL key.	
28	Repeat Steps 15 through 27 as required for Test Chart D, Tests 17 through 27.	
29	At MTF— Restore all keys and switches not required in next test.	
30	At test set and register test circuit— Restore all keys and switches not required in next test.	
31c	If no further tests are to be performed— Remove all cords from all test sets.	

**AC. 1 Maximum and Minimum Frequency Precision Pulsing (4A Signaling Test Set)**

17	Operate keys and set switches in accordance with Test Chart D, Test 16.
18	At test set— Patch MF jack to SR jack on 4A signaling test set loop interface unit.
19	At 4A signaling test set—main module— Adjust settings so pulses per second and percent break correspond to information on Test Chart D.
20	Set PULSE MODE switch to KEYSET.
21	Operate GEN SUPV key to OFF HK.

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STEP	ACTION	VERIFICATION
22	Operate OPERATE-CLEAR key.	OPERATE-CLEAR lamp lighted.
23	Operate START-STOP key.	START-STOP lamp lighted.
24	At 4A signaling test set—loop interface unit— Set FUNCTION switch to SR.	
25	At test set— Depress and hold key in accordance with DEPRESS AND HOLD KEY column on Test Chart D.	
26	Momentarily operate STT key.	RR lamp lighted. At MTF— IRT, IRON lamps lighted.
27	At 4A signaling test set—main module— Momentarily operate keyset * key to allow a repeated discrete train of pulses with an interdigital time of 680 ms.	
28	Momentarily operate keyset 1 key.	WAIT TO DIAL lamp lighted. At MTF— Trouble record taken. If testing 4-, 5-, or 7- digit class— A_ through D_, A_ through E_, or A_ through G_ digits designations perforated, respectively corresponding to key held in Step 25.
29	At 4A signaling test set—main module— Release OPERATE-CLEAR, START-STOP keys.	OPERATE-CLEAR, START-STOP lamps extinguished.
30	At test set— Momentarily operate RL key.	WAIT TO DIAL lamp extinguished.
31	Repeat Steps 17 through 30 as required for Test Chart D, Tests 17 through 27.	At MTF—
31		All lamps extinguished.
32	Restore all keys and switches not required in next test.	
33	At test set and register test circuit— Restore all keys and switches not required in next test.	
34c	If no further tests are to be performed— Remove all cords from all test sets.	

STEP	ACTION	VERIFICATION
<b>AD.</b>	<b>Long Pulse Precision Pulsing (3A Pulse Generating Test Set)</b>	
15	Operate keys and set switches in accordance with Test Chart D, Test 28.	
16	At test set— Patch MF jack to OUTPUT NCP jack on 3A pulse generating test set.	
17	At 3A pulse generating test set— Adjust settings for percent break and pulsing speed in accordance with Test Chart D with LOOP key in OPEN position.	
18	Set PULSE SEL switch to SINGLE TRAIN.	
19	For Test Chart D, Tests 29 through 31— Set PULSES PER TRAIN switch to 4. For Test Chart D, Tests 32 through 35— Set PULSES PER TRAIN switch to 5. For Test Chart D, Tests 36 through 39— Set PULSES PER TRAIN switch to 7.	
20	Operate LOOP key to CLOSED position.	
21	At test set— Momentarily operate STT key.	RR lamp lighted. At MTF— IRT, IRON lamps lighted.
22	At 3A pulse generating test set— Operate LOOP key to OPEN position.	
23	At test set— Operate and hold digit key in accordance with Test Chart D.	
24	At 3A pulse generating test set— Operate TRAIN CONTROL key to PULSE position.	At MTF— Trouble record taken. Digits corresponding to key held in Step 23 designations perforated.
25	At test set— Release key held in Step 23.	
26	Momentarily operate RL key.	RR lamp extinguished. At MTF— All lamps extinguished.
27	At 3A pulse generating test set— Restore TRAIN CONTROL key.	

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STEP	ACTION	VERIFICATION
28	Repeat Steps 15 through 27 as required for Test Chart D, Tests 29 through 39.	
29	At MTF— Restore all keys and switches not required in next test.	
30	At test set and register test circuit— Restore all keys and switches not required in next test.	
31c	If no further tests are to be performed— Remove all cords from all test sets.	
<b>AD. 1 Long Pulse Precision Pulsing (4A Signaling Test Set)</b>		
17	Operate keys and set switches in accordance with Test Chart D, Test 28.	
18	At test set— Patch MF jack to SR jack on 4A signaling test set loop interface unit.	
19	At 4A signaling test set—main module— Adjust settings so pulses per second and percent break correspond to information on Test Chart D.	
20	Set PULSE MODE switch to KEYSET.	
21	Operate GEN SUPV key to OFF HK.	
22	Operate OPERATE-CLEAR key.	OPERATE-CLEAR lamp lighted.
23	Operate START-STOP key.	START-STOP lamp lighted.
24	At 4A signaling test set—loop interface unit— Set FUNCTION switch to SR.	
25	At test set— Depress and hold key in accordance with DEPRESS AND HOLD KEY column on Test Chart D.	
26	Momentarily operate STT key.	RR lamp lighted. At MTF— IRT, IRON lamps lighted.
27	At 4A signaling test set—main module— Momentarily operate keyset * key to allow a	

STEP	ACTION	VERIFICATION
	repeated discrete train of pulses with an interdigital time of 680 ms.	
28	Momentarily operate keyset 1 key.	WAIT TO DIAL lamp lighted. At MTF— Trouble record taken. If testing 4-, 5-, or 7-digit class— A_ through D_, A_ through E_, or A_ through G_ digits designations perforated, respectively corresponding to key held in Step 25.
29	At 4A signaling test set—main module— Release OPERATE-CLEAR, START-STOP keys.	OPERATE-CLEAR, START-STOP lamps extinguished. WAIT TO DIAL lamp extinguished.
30	At test set— Momentarily operate RL key.	At MTF— All lamps extinguished.
31	Repeat Steps 17 through 30 as required for Test Chart D, Tests 29 through 39.	
32	Restore all keys and switches not required in next test.	
33	At test set and register test circuit— Restore all keys and switches not required in next test.	
34c	If no further tests are to be performed— Remove all cords from all test sets.♦	
<b>AE. Double Connection</b>		
3	At jack, lamp, and key circuit— Insert make-busy plug into TFRMB_ jack associated with register under test.	
4	At register frame— Connect GRD (ground) terminal to terminal strip D terminal 41.	H relay operated.
5	Manually operate and hold ON relay.	DCK relay does not operate.
6	Release ON relay.	
7	Remove GRD terminal connection from terminal strip D terminal 41.	H relay released.
8	Block operated H relay.	

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STEP	ACTION	VERIFICATION
	<i>Note:</i> Perform Steps 9, 10, 11 as quick as possible to prevent TRMC time alarm from operating.	
9	Manually operate ON relay.	DCK relay operated.
10	Release ON relay.	DCK relay released.
11	Remove blocking tool from H relay.	
12	At jack, lamp, and key circuit— Remove make-busy plug from TFRMB_ jack.	
<b>AF. 4- or 5-Digit Transfer Identification (Wideband)</b>		
10	Operate keys and set switches in accordance with Test Chart ♦E, Test 1.	
11	Select line location as required for wideband service.	
12	Select class of service and rate treatment as required for Phase III centrex customers arranged for wideband transfer.♦	
13	At test set— Momentarily operate STT key.	RR lamp lighted. Dial tone heard. At MTF— IRON, IRT lamps lighted. Trouble record taken. WDTI, RIK, CT_, CU_, AOT designations perforated. ♦If transfer register is arranged to retain line location information— FT_, FU_, VG_, HG_, VF_ designations perforated.♦ If RVTI key is normal— LI0 designation perforated. If RVTI key is operated— LI1 designation perforated.
14	At test set— Dial or key digits as shown on Test Chart ♦E.♦	Dial tone silenced. RR lamp extinguished. At MTF— IRON lamp extinguished. Trouble record taken. Number dialed, CT_, CU_, WDTF, AOT designations perforated. ♦If transfer register is arranged to retain line location information— FT_, FU_, VG_, HG_, VF_ designations perforated.♦

STEP	ACTION	VERIFICATION
		X11 or FVD designation perforated for 4- or 5-digit call respectively. For Tests 1 and 2— PK1 designation perforated. For Tests 3 and 4— PK designation perforated.
15	At test set— Momentarily operate RL key.	At MTF— All lamps extinguished.
16	♦Repeat Steps 10 through 15 as required for Test Chart E, Tests 2 through 4.	
17	Restore all keys and switches not required in next test.	
18	At test set and register test circuit— Restore all keys and switches not required in next test.♦	
19c	If no further tests are to be performed— Remove all cords.	
<b>AG. Don't Answer Transfer Call (Wideband)</b>		
10	Operate keys and set switches in accordance with Test Chart ♦E, Test 5.	
11	Select line location as required for wideband service.	
12	Select class of service and rate treatment as required for Phase III centrex customers arranged for wideband transfer.♦	
13	At test set— Momentarily operate STT key.	At MTF— IRT, IRON lamps lighted. First trouble record taken. CT_, CU_, DAT1, WDTI, RIK designations perforated. ♦If transfer register is arranged to retain line location information— FT_, FU_, VG_, HG_, VF_ designations perforated.♦ If RVT1 key is normal— LI0 designation perforated. If RVTI key is operated— Second trouble record taken. PKI, DAT1, WDTF, A4, A7, B7, X11 designations perforated. IRON lamp extinguished.

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STEP	ACTION	VERIFICATION
		For Test 6— PK, WAT designations perforated.
14	At test set— Momentarily operate RL key.	At MTF— All lamps extinguished.
15	Repeat Steps 10 through 14 as required for Test Chart E, Test 6.	
16	Restore all keys and switches not required in next test.	
17	At test set and register test circuit— Restore all keys and switches not required in next test.	
18c	If no further tests are to be performed— Remove all cords.	
<b>AH. 4- or 5-Digit Retransfer (Wideband)</b>		
10	Operate keys and set switches in accordance with Test Chart E, Test 7.	
11	At test set— Momentarily operate STT key.	RR lamp lighted. Dial tone heard. At MTF— IRT, IRON lamps lighted.
12	At test set— Dial or key digits as shown on Test Chart E.	Dial tone silenced. RR lamp extinguished. At MTF— IRON lamp extinguished. Trouble record taken. Number dialed, WDTF, AOT designations perforated. X11 or FVD designation perforated for 4- or 5- digit call respectively. For tests 7 and 9— PK1 designation perforated. For Tests 8 and 10— PK, WAT designations perforated.
13	At test set— Momentarily operate RL key.	At MTF— All lamps extinguished.
14	Repeat Steps 10 through 13 as required for Test Chart E, Tests 8 through 10.	
15	Restore all keys and switches not required in next test.	

STEP	ACTION	VERIFICATION
16	At test set and register test circuit— Restore all keys and switches not required in next test.♦	
17c	If no further tests are to be performed— Remove all cords.	
<b>AI. Manual Transfer Call (Wideband)</b>		
10	Operate keys and set switches in accordance with Test Chart ♦E, Test 11.♦	
11	At test set— Momentarily operate STT key.	At MTF— IRT, IRON lamps lighted. First trouble record taken. CT_, CU_, WDTI, AOT, RIK designations perforated. ♦If transfer register is arranged to retain line location information— FT_, FU_, VG_, HG_, VF_ designations perforated.♦ If RVTI key is normal— LI0 designation perforated. If RVTI key is operated— LI1 designation perforated. Second trouble record taken. PK, WDTF, X11, A4, A7, B7 designations perforated.
12	At test set— Momentarily operate RL key.	At MTF— All lamps extinguished.
13	Restore all keys and switches not required in next test.	
14	♦At test set and register test circuit— Restore all keys and switches not required in next test.♦	
15c	If no further tests are to be performed— Remove all cords.	
<b>AJ. First Digit 0 (Wideband)</b>		
10	Operate keys and set switches in accordance with Test Chart ♦E, Test 12♦	
11	At test set— Momentarily operate STT key.	RR lamp lighted. Dial tone heard. At MTF— IRT, IRON lamps lighted.

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STEP	ACTION	VERIFICATION
12	At test set— Dial or key digit 0.	Dial tone silenced. RR lamp extinguished. At MTF— IRON lamp extinguished. Trouble record taken. WDTF, A4, A7, B7, AOT designations perforated. PK, X11 or FVD designation perforated for 4- or 5- digit call.
13	At test set— Momentarily operate RL key.	At MTF— All lamps extinguished.
14	Restore all keys and switches not required in next test.	
15	◆At test set and register test circuit— Restore all keys and switches not required in next test.◆	
16c	If no further tests are to be performed— Remove all cords.	

**AK. Invalid Frequency Combination and Sequence  
(Wideband)**

9	Operate keys and set switches in accordance with Test Chart ◆E, Test 13.◆	
10	At test set— Momentarily operate STT key.	RR lamp lighted. Dial tone heard. At MTF— IRT, IRON lamps lighted.
11	At test set— Key digit shown on test chart ◆E.◆	Dial tone silenced. RR lamp extinguished. At MTF— IRON lamp extinguished.
12	At test set— Momentarily operate RL key.	At MTF— All lamps extinguished.
13	◆Repeat Steps 9 through 12 as required for Test Chart E, Test 14.	
14	At MTF— Restore all keys and switches not required in next test.	
15	◆At test set and register test circuit— Restore all keys and switches not required in next test.◆	

STEP	ACTION	VERIFICATION
16c	If no further tests are to be performed— Remove all cords.	
<b>AL. ♦Non-Wideband Call With Wideband Prefix</b>		
9	Operate keys and set switches in accordance with Test Chart E, Test 15.	
10	At test set— Momentarily operate STT key.	RR lamp lighted. Dial tone heard. At MTF— IRT, IRON lamps lighted.
11	At test set— Key digit shown on Test Chart E.	Dial tone silenced. RR lamp extinguished. At MTF— IRON lamp extinguished.
12	At test set— Momentarily operate RL key.	At MTF— All lamps extinguished.
13	Repeat Steps 9 through 12 as required for Test Chart E, Test 16.	
14	At MTF— Restore all keys and switches not required in next test.	
15	At test set and register test circuit— Restore all keys and switches not required in next test.	
16c	If no further tests are to be performed— Remove all cords.♦	

## 5. PREPARATION OF TEST CHART

**5.01** The Test Chart is used as a particular number chart and provides the priming information required for each test. Information obtained from local office records should be used to fill in Test Chart ♦A♦ in the following manner:

- (a) Record various classes of service and rate treatment as required. The classes of service

and rate treatment should be those assigned to Phase III centrex customers. Do not use manual class of service unless specified.

**5.02** For Tests A, C through G apply (a) of 5.01.

**5.03** For Test B, select a manual class of service.

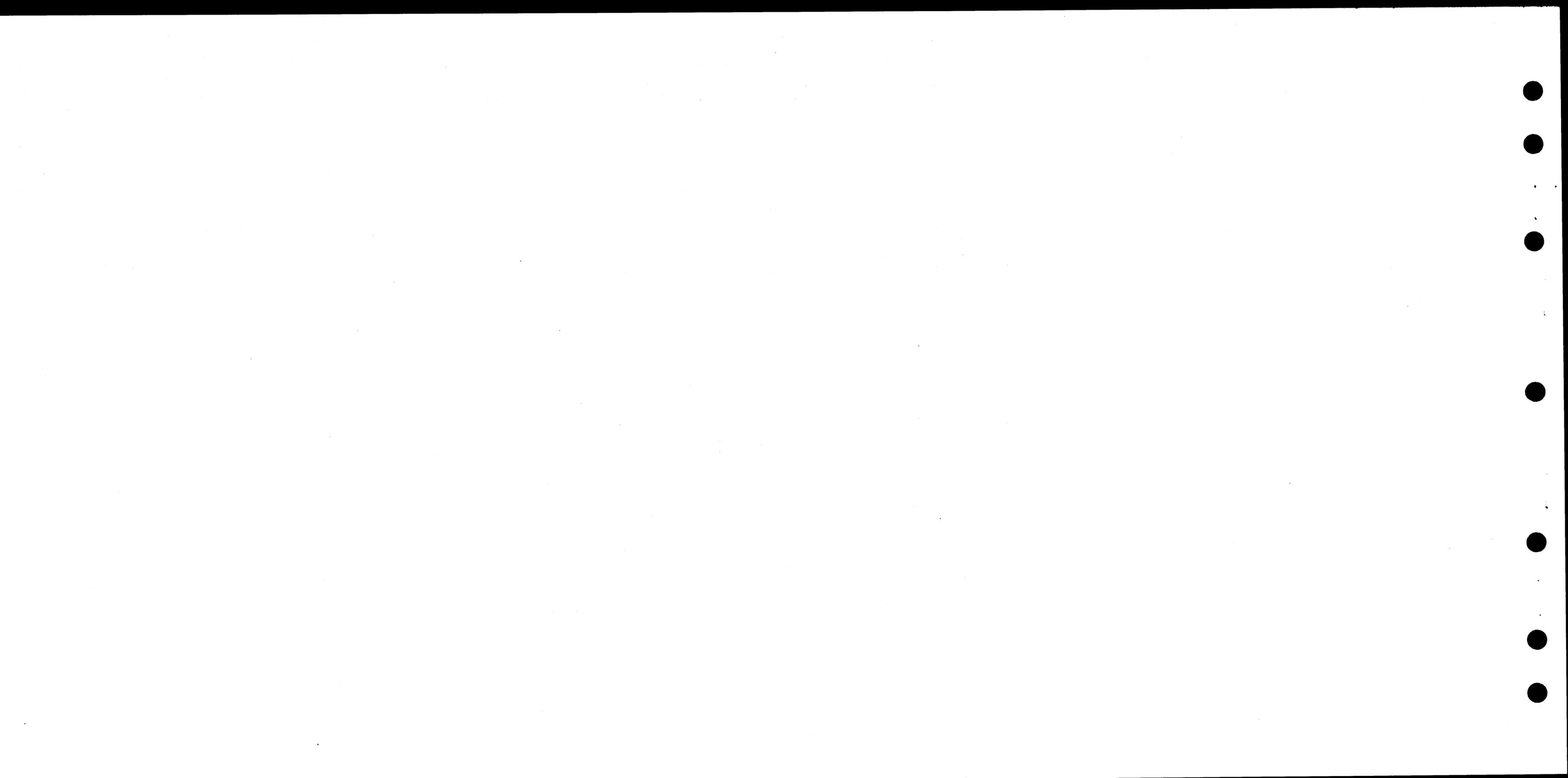
**5.04** ♦No additional preparation is required for Test Charts B through E.♦



TEST CHART A

TYPE OF CALL	TEST NO.	MASTER TEST FRAME PRIMING INFORMATION										TEST SET							REG TEST CKT							
		LINE LOCATION						CLASS OF SERVICE		RATE TREAT.		CHANNEL	DIGITS - CODE (S) AND NUMBER							PULSING CONT		TCL	MISC KEYS	TEST NO.		
		FRAME NO		VERT GR		HOR GR	VERT FILE	CLASS OF SERVICE		RATE TREAT.			(CALLED NUMBER)							PPS DIAL	LOOP COND					
		TENS	UNITS	TENS	UNITS			TENS	UNITS	TENS	UNITS		TENS	UNITS	A	B	C	D	E						F	G
Transfer Identification - No Trouble and 4-Digit First Trial Line Identifier Connection - Trouble and 5-Digit First Trial Line Identifier Function - Trouble and 7-Digit	1	0	0	0	0	0	0					0	3	5	7	0					10	1	3	TIS		1
	2	1*	1	0	1	1	1					1	5	7	0	1					10	1	3	TIS		2
	3	2*	2	0	2	2	2					2	7	0	1	3					10	2	3	TIS		3
	4	3*	3	0	3	3	3					3	7	1	3	5					10	3	3	TIS		4
	5	4*	4	0	4*	4	4					4	1	3	5	0					10	4	3	TIS		5
	6	5*	5*	1*	0	5	0					5	9	3	5	7					10	5	3	TIS		6
	7	0	0	0	0	1	0					0	3	5	7	0	1				10	1	3	TIS		7
	8	1*	1	0	1	2	1					1	5	7	0	1	3				10	1	3	TIS		8
	9	2*	2	0	2	3	2					2	7	0	1	3	5				10	2	3	TIS		9
	10	3*	3	0	3	4	3					3	7	1	3	5	7				10	3	3	TIS		10
	11	4*	4*	0	4*	5	4					4	1	3	5	7	0				10	4	3	TIS		11
	12	5*	5*	1*	0	0	0					5	4	8	5	2	7				10	5	3	TIS		12
	13	0	0	0	0	0	0					0	3	5	7	0	1	3	5		10	1	3	TIS	TCON	13
	14	1*	1	0	1	1	1					1	5	7	0	1	3	5	7		10	1	3	TIS	TCON	14
	15	2*	2	0	2	2	2					2	7	0	1	3	5	7	0		10	2	3	TIS	TCON	15
	16	3*	3	0	3	3	3					3	7	1	3	5	7	0	1		10	3	3	TIS	TCON	16
	17	4*	4*	0	4*	4	4					4	1	3	5	7	0	1	3		10	4	3	TIS	TCON	17
	18	5*	5*	1*	0	5	0					5	4	8	5	2	7	6	9		10	5	3	TIS	TCON	18
Manual Transfer Call	19	0	0	0	0	0	0					0											3	TIS		19
	20	1*	1	0	1	1	1					1											3	TIS		20
	21	2*	2	0	2	2	2					2											3	TIS		21
	22	3*	3	0	3	3	3					3											3	TIS		22
	23	4*	4*	0	4*	4	4					4											3	TIS		23
	24	5*	5*	1*	0	5	0					5											3	TIS		24
Attendant Transfer Call	25	0	1	0	2	3	4					0	3	5	0	7						5	3	TIS	TCON	25
	26	0	1	0	2	3	4					1	3	5	0	7	1					5	3	TIS	TCON	26
	27	0	1	0	2	3	4					2	3	5	0	7	1	3	5			5	3	TIS	TCON	27
Manual Retransfer	28	0	1	0	2	3	4					0											2			28
Don't Answer Transfer Call	29	0	0	0	0	0	0					0											4	TIS		29
	30	1*	1	0	1	1	1					1											4	TIS		30
	31	2*	2	0	2	2	2					2											4	TIS		31
	32	3*	3	0	3	3	3					3											4	TIS		32
	33	4*	4*	0	4*	4	4					4											4	TIS		33
	34	5*	5*	1*	0	5	0					5											4	TIS		34

\* If not equipped, use 0.



TEST CHART B

TYPE OF CALL	TEST NO.	TEST SET									REG TEST CKT			TEST NO.		
		DIGITS - CODE (S) AND NUMBER							PULSING CONT		TCL	MISCELLANEOUS KEYS AND SWITCHES				
		(CALLED NUMBER)							PPS DIAL	LOOP COND						
		A	B	C	D	E	F	G							1 SWITCH	
First Digit Zero	1								10	1	0				1	
	2								10	2	0				2	
	3								10	3	1				3	
	4								10	4	1				4	
	5								10	4	7				5	
	6								10	5	7				6	
Retransfer Call	4-Digit	7	3	5	7	0			10	1	0				7	
		8	5	7	0	1			10	2	0				8	
		9	7	0	1	3			10	3	0				9	
		10	7	1	3	5			10	4	0				10	
	5-Digit	11	1	3	5	7	0			10	5	1				11
		12	4	8	5	2	7			10	1	1				12
		13	3	5	7	0	1			10	2	1				13
		14	5	7	0	1	3			10	3	1				14
		15	7	0	1	3	5	7	0	10	4	7	TCON			15
		16	7	1	3	5	7	0	1	10	5	7	TCON			16
7-Digit	17	1	3	5	7	0	1	3	10	1	7	TCON			17	
	18	4	8	5	2	7	6	9	10	2	7	TCON			18	
Low and High Level	4-Digit	19	9	3	5	7				0	0	LLV			19	
		20	9	3	5	7				0	0	HLV			20	
	5-Digit	21	9	3	5	7	8			0	1	LLV			21	
		22	9	3	5	7	8			0	1	HLV			22	
	7-Digit	23	9	3	5	7	8	9	0	0	7	LLV	TCON		23	
		24	9	3	5	7	8	9	0	0	7	HLV	TCON		24	
Maximum and Minimum Frequency	4-Digit	25	9	3	5	7				0	0	LLV		(FCB-MXF)	25	
		26	9	3	5	7				0	0	LLV		(FCB-MNF)	26	
	5-Digit	27	9	3	5	7	8			0	1	LLV		(FCB-MXF)	27	
		28	9	3	5	7	8			0	1	LLV		(FCB-MNF)	28	
	7-Digit	29	9	3	5	7	8	9	0	0	7	LLV	TCON	(FCB-MXF)	29	
		30	9	3	5	7	8	9	0	0	7	LLV	TCON	(FCB-MNF)	30	
Recycle of Timing	31	9	3	5	7				10	0	0	TIR			31	
	32	9	3	5	7	8			10	0	1	TIR			32	
	33	9	3	5	7	8	6	5	10	9	7	TIR	TCON		33	



TEST CHART C

TYPE OF CALL	TEST NO.	TEST SET									REG TEST CKT				TEST NO.		
		DIGITS - CODE (S) AND NUMBER							PULSING CONT		TCL	FREQ CONT ("TOUCH-TONE" CALLING)		MISC KEYS AND SWITCHES			
		(CALLED NUMBER)							SPEED	LOOP COND		FCA	FCB				
		A	B	C	D	E	F	G			PPS DIAL			L SWITCH			
Single Frequency	4-Digit	1	3	5	7	0					0	0	1	SFH		1	
		2	3	5	7	0					0	0	2	SFH		2	
		3	3	5	7	0					0	0	3	SFH		3	
		4	3	5	7	0					0	0	4	SFH		4	
		5	3	5	7	0					0	0	1	SFL		5	
		6	3	5	7	0					0	0	2	SFL		6	
		7	3	5	7	0					0	0	3	SFL		7	
		8	3	5	7	0					0	0	4	SFL		8	
		9	3	5	7	0	1				0	1	1	SFH		9	
	5-Digit	10	3	5	7	0	1				0	1	2	SFH		10	
		11	3	5	7	0	1				0	1	3	SFH		11	
		12	3	5	7	0	1				0	1	4	SFH		12	
		13	3	5	7	0	1				0	1	1	SFL		13	
		14	3	5	7	0	1				0	1	2	SFL		14	
		15	3	5	7	0	1				0	1	3	SFL		15	
		16	3	5	7	0	1				0	1	4	SFL		16	
		17	3	5	7	0	1	3	5		0	7	1	SFH	TCON	17	
		18	3	5	7	0	1	3	5		0	7	2	SFH	TCON	18	
	7-Digit	19	3	5	7	0	1	3	5		0	7	3	SFH	TCON	19	
		20	3	5	7	0	1	3	5		0	7	4	SFH	TCON	20	
		21	3	5	7	0	1	3	5		0	7	1	SFL	TCON	21	
		22	3	5	7	0	1	3	5		0	7	2	SFL	TCON	22	
		23	3	5	7	0	1	3	5		0	7	3	SFL	TCON	23	
		24	3	5	7	0	1	3	5		0	7	4	SFL	TCON	24	
Special 3-Frequency		4-Digit	25	3	5	7	0	1	3	5		0	0	1	3FS		25
			26	3	5	7	0					0	0	2	3FS		26
	27		3	5	7	0					0	0	3	3FS		27	
	28		3	5	7	0					0	0	4	3FS		28	
	5-Digit	29	3	5	7	0	1				0	1	1	3FS		29	
		30	3	5	7	0	1				0	1	2	3FS		30	
		31	3	5	7	0	1				0	1	3	3FS		31	
		32	3	5	7	0	1				0	1	4	3FS	TCON	32	
	7-Digit	33	3	5	7	0	1	3	5		0	7	1	3FS	TCON	33	
		34	3	5	7	0	1	3	5		0	7	2	3FS	TCON	34	
		35	3	5	7	0	1	3	5		0	7	3	3FS	TCON	35	
		36	3	5	7	0	1	3	5		0	7	4	3FS	TCON	36	



TEST CHART D

TYPE OF CALL	TEST NO.	TEST SET							DE-PRESS AND HOLD KEY	PULSING CONT			TCL	REG TEST CKT		PRECISION PULSE GENERATOR		TEST NO.
		DIGITS - CODE (S) AND NUMBER								PPS DIAL	LOOP COND	L SWITCH		MISC KEYS AND SWITCHES	PULSING SPEED	% BREAK		
		(CALLED NUMBER)																
		A	B	C	D	E	F	G										
Precision Pulsing	4-Digit	1	9	9	9	9					1	0			7	50	1	
		2	9	9	9	9					2	0			7	80	2	
		3	9	9	9	9					2	0			15	65	3	
		4	9	9	9	9					4	0			24	55	4	
		5	9	9	9	9					5	0			24	70	5	
	5-Digit	6	9	9	9	9	9				1	1			7	50	6	
		7	9	9	9	9	9				2	1			7	80	7	
		8	9	9	9	9	9				3	1			15	65	8	
		9	9	9	9	9	9				4	1			24	55	9	
		10	9	9	9	9	9				5	1			24	70	10	
	7-Digit	11	9	9	9	9	9	9	9		1	7	TCON		7	50	11	
		12	9	9	9	9	9	9	9		2	7	TCON		7	80	12	
		13	9	9	9	9	9	9	9		3	7	TCON		15	65	13	
		14	9	9	9	9	9	9	9		4	7	TCON		24	55	14	
		15	9	9	9	9	9	9	9		5	7			24	70	15	
Regular Precision Pulsing (T-T) and Low Level Precision Pulsing and Maximum and Minimum Precision Pulsing	4-Digit	16							3			0			11	56	16	
		17							5			0			11	56	17	
		18							7			0			11	56	18	
		19							0			0			11	56	19	
	5-Digit	20							3			1			11	56	20	
		21							5			1			11	56	21	
		22							7			1			11	56	22	
	7-Digit	23							0			1			11	56	23	
		24							3			7	TCON		11	56	24	
		25							5			7	TCON		11	56	25	
26								7			7	TCON		11	56	26		
27								0			7	TCON		11	56	27		
Long Pulse Precision Pulsing	4-Digit	28							3			0			11	44	28	
		29							5			0			11	44	29	
		30							7			0			11	44	30	
		31							0			0			11	44	31	
	5-Digit	32							3			1			11	44	32	
		33							5			1			11	44	33	
		34							7			1			11	44	34	
		35							0			1			11	44	35	
	7-Digit	36							3			7	TCON		11	44	36	
		37							5			7	TCON		11	44	37	
		38							7			7	TCON		11	44	38	
		39							0			7	TCON		11	44	39	



TEST CHART E

TYPE OF CALL	TEST NO.	MTF		TEST SET							REG TEST CKT			TEST NO.		
		MISC KEYS AND/OR SWITCHES	PREFIX DIGITS	DIGITS - CODE (S) AND NUMBER							TCL	MISC KEYS				
				(CALLED NUMBER)												
				A	B	C	D	E	F	G						
4- or 5-Digit Transfer Identification (Wideband)	1	TRT	4W	KP	3	5	0	7				3	TIS	WBT		1
	2	TRT			3	5	0	7				3	TIS	WBT	TCON	2
	3	TRT	4W	KP	3	5	0	7	1			3	TIS	WBT		3
	4	TRT			3	5	0	7	1			3	TIS	WBT	TCON	4
Don't Answer Transfer (Wideband)	5	TRT										3	TIS	WBT		5
	6	TRT										3	TIS	WBA		6
4- or 5-Digit Retransfer (Wideband)	7		4W	KP	3	5	0	7				0	WBT			7
	8				3	5	0	7				0	WBA	TCON		8
	9		4W	KP	3	5	0	7	1			1	WBT			9
	10				3	5	0	7	1			1	WBA	TCON		10
Manual Transfer Call (Wideband)	11	TRT			0							3	TIS	WBT		11
First Digit 0 (Wideband)	12												WBT			12
Invalid Frequency Combination and Sequence (Wideband)	13		4W		3	KP						3	WBT	H	TLR	13
	14		4W	RS								3	WBT	H	TLR	14
Non-Wideband Call with Wideband Prefix	15		4W	KP	3	5	0	7				3	TLR	H		15
	16		4W	KP	3	5	0	7	1			3	TLR	H		16

