

SUBSCRIBER LINE TEST

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1. GENERAL INFORMATION

1.1 Description of Tests: This section covers the tests of all block relay frame and LDF cross-connections between the markers and line circuits excepting the message register leads. The tests are made by routine calls from an incoming trunk to each assigned line circuit together with some terminating trouble indicator and number check calls.

1.2 Line Assignment.

Before starting any tests the line assignment information provided by the Telephone Company should be brought up to date by posting all bulletin changes in a Master copy.

1.3 Test Lines and PBX Trunks

(a) It will not be necessary to perform tests over individual test lines such as the return test line used for testing incoming trunks.

(b) When testing to lines having trunk or long line circuits attached, the tip and ring of these circuits should be cleared before tests are started. (On "A" board trunk circuits SD-25301 insulate contacts 6B and 7T of relay CO. On dial long line circuits SD-96034 block relay R normal.

(c) Test and service lines may be tested by using existing facilities. Make the line busy and call that line. Check that a busy signal is received. Complete an idle line test and check transmission.

1.4 Originating Service Lines

The test of lines arranged for originating service only is described in Section 315 of Handbook 63.

1.5 10 Party Line Tests

The test of "ten party" lines is described in Section 306 of Handbook 63.

1.6 Manload: All tests require one man with the exception of the tests outlined in Paragraphs 7 and 8.11.

2. RECORDS AND REQUIREMENTS

2.1 Records

Forms ID-1313 and ID-1315 are required for recording the results of these tests. For further information see Section 3 of Handbook 50.

2.2 Requirements

Section 0.3 lists all the tests to be made on subscriber line cross-connections together with the associated performance requirements.

3. TEST EQUIPMENT

3.1 Test Sets and Accessories

Amt	ITE	Description	With ITE
1	4042	Handset	4023
1	4010	Terminating Equipment Test Set	
1	4052	Fixture	4010

3.2 Cords

Amt	ITE	Lath	Cdrs	One End	Other End	With ITE
1	9598	12'	2	110 Plug	110 Plug	4010
10	9637	12'	3	110 Plug	S.O. Shoe	4010
4	9601	12'	3	110 Plug	110 Plug	4023
2	9639	12'	3	110 Plug	ITE-2455	4023
1	9650	6'	4	137 Plug	Tel. Set	4023

4. INDIVIDUAL AND PARTY LINE TEST

4.1 Setup for Test

4.11 Locate the test set at the line link frame. Using cord ITE-9598 patch the A jack to the test battery and ground supply. Operate key IRM.

4.12 At the MDF connect the B jack of the line link frames to the B jack of the incoming trunk frames. Using cord ITE-9601 patch the line link frame B jack to the T jack of the test set. Using cord

ITE-9601 patch the incoming frame B jack to the T jack of a full mechanical incoming trunk arranged for immediate ringing.

If the B jacks are not available, run a three conductor cable from the line frames to the incoming trunk frames and connect the tip and ring of ITE-9639 cord at each end of the cable. Plug one cord into the test set T jack. Plug the other ITE-9639 into the T jack of a trunk incoming from panel or crossbar.

4.13 Plug the ITE-9637 cords into jacks O to 9.

4.14 Operate keys IRM and AOS or AOB as required.

#### 4.2 Individual Line

**NOTE:** This test covers all individual lines in the regular number series including the last line of PBX groups.

4.21 Attach the shoes of cords ITE-9637 to the first 10 assigned lines listed on the line assignment chart.

4.22 Write up the first number on the key set. Operate and release the ST key. A call is directed to the first line. The test set places a busy condition on this line which the marker recognizes and busy back flashes are received which flash the SU lamp.

4.23 After two flashes, the set partially restores and a call is again directed to the line. The set has removed the busy condition so connection is made and ringing is tripped. Lamp TR lights and lamp SU is extinguished.

4.24 Operate and release RS key. Step the selector to the next line with ADV key. Write up the number. Operate and release ST key. The test is made to this line as before.

4.25 The test is continued in this manner on all assigned lines, moving the cords after each set of 10 lines has been tested.

**NOTE 1:** Operate the PPC key when testing prepayment coin lines.

**NOTE 2:** If desirable, the individual line tests may be performed on a semi-automatic basis as outlined in TMO-4010, Paragraph 4.5.

**NOTE 3: Free Line Tests** - When tests are made to free lines lamp SUPV is not extinguished when the called line is reached.

#### 4.3 Party Line

4.31 Operate key TPG for all tip party tests.

4.32 Operate key FS+ when testing the two party lines of a four party full selective line group arranged for positive superimposed ringing.

4.33 When testing four party semi-selective lines the SS key must be operated before the test is started. An ITE-9650 cord is plugged into the test set TEL jacks.

4.34 Using an ITE-9637 cord patch the test set O jack to the line to be tested.

4.35 The test set operation is the same as described for an individual line manual test except that when the SS key is operated the ringing code is checked by listening in on the test set telephone set. After ringing has been verified the SS key is released and the test set advances to normal. Key SS is reoperated before the next test is started.

#### 5. TEST OF PBX LINES NOT ALLOTTED, ALLOTTED PBX LINES IN THE REGULAR NUMBER SERIES CONNECTED TO THE AL-2 RELAY, LINES JUMPED TO IN THE REGULAR NUMBER SERIES AND TERMINATING SERVICE LINES ONLY

5.1 The test operations are the same as for an individual line except that the CB key is operated which cancels the busy test. (See Note).

**NOTE:** On terminating service lines having RF cross-connections make two tests. One with the line idle and one with the line busy, the busy condition being imposed by inserting a make busy shoe in the line vertical.

#### 6. TEST OF LINES HAVING JF AND JC CROSS CONNECTIONS

6.1 The test setup is the same as Paragraph 4.1. Operate the CB key. Write up on the test set keys the number of a line having JF and JC cross-connections. Insert one of the O to 9 ITE-9637 cords into the line vertical of the first line jumped to. Operate the ST key and the call will complete as an individual line with the busy test cancelled. Repeat this test on all lines involved.

**NOTE:** By noting the information required on the assignment sheets this test may be performed at the same time as the tests made per Paragraphs 4 and 5.

#### 7. TEST OF ALLOTTED PBX LINES CONNECTED TO THE AL-1 RELAY AND LINES IN THE EXTRA NUMBER SERIES

**NOTE:** This test requires two men and an operator at the "B" board.

#### 7.1 Setup for Test with ITE-4010 Test Set

(a) Locate the test set at the incoming trunk frame equipped with an LTD no test trunk.

(b) Patch an ITE-9650 cord (Operator's Telephone Set) into the TEL jacks.

(c) Patch an ITE-9598 cord into the test set A jack and the incoming trunk frame A jack.

(d) Patch an ITE-9639 cord into the test set T-1 jack. Equip the other end of the cord with an ITE-4052 fixture. (This cord is used for connecting to the incoming trunk tip and ring or tip, ring and sleeve as specified in the test of the particular trunk.

**NOTE:** Test set may be located at LL frame if more convenient and the incoming trunk patched by means of the "B" jacks.

#### 7.2 Test of Lines Connected to the AL-1 Relay

(a) Use the setup for test described in Paragraph 7.1. Connect the contact fixture ITE-4052 of cord, ITE-9639 to the tip, ring and sleeve of an LTD no test trunk. Connection is made at the vertical unit terminal strip.

(b) Connect a handset ITE-4042 to the first line in the PBX group.

(c) Operate keys BG and HRS. Lamp SL lights. When order tone is heard, pass the line number to the "B" operator.

(d) When the subscriber line hold magnet operates, operate the handset C key. Lamps T and R light. Check talking between the test set and the handset.

(e) Release the handset key. Lamps T and R are extinguished. Release key BG. Operate key LRS. The SL lamp is extinguished as the HRS key is released but lights momentarily after key is operated.

(f) Repeat the above test on all of the lines involved, always calling the directory number of the line under test.

#### 7.3 Test of Lines in the Extra Number Series

**NOTE:** When testing extra numbers reverse the T and R connections at the ITE-4052 fixture, on the incoming Vertical, to signal the trunk circuit to send an NTX indication to the marker.

→ Arrowed lines indicate new or changed information.

7.31 Setup the code on the test set required to select the number to be tested in the extra number series. The test operations and results are the same as per Paragraph 7.2 (c to e).

7.32 Repeat this test on all assigned lines in the extra number series.

### 8. CHECK OF PBX GROUPS

**NOTE:** This test is made on PBX groups to insure the proper HF and RF cross-connections. Two methods are provided for this test; one using the number check train and where number checking is not provided a test with the terminating trouble indicator is provided. The last line of the group in the regular number series was checked as an RF cross-connection during the tests of Paragraph 4.

#### 8.1 Test With the Number Check Train

**NOTE:** This test requires an operator at the "A" board.

8.11 Plug an ITE-4042 into the last line of a PBX group. Operate the C key and when dial tone is heard, dial "0" operator. The call will be answered by the operator at the "A" board. The tester at the line link frame passes the directory number of the first line in the PBX to the "A" board operator for number check. If the first and intermediate lines are cross-connected as hunt lines an OK number check will be received.

8.12 Repeat this test on all PBX groups.

8.13 Using the terminating trouble indicator make a test call to each line in the extra number series having an RF cross-connection and to all lines in an allotted PBX. By means of the display, check that the proper line is selected and that the RF and HF cross-connections are correct.

#### 8.2 Test With Terminating Trouble Indicator

8.21 Insert a make busy plug into the DB jack of a special marker at the terminating trouble indicator frame. Using this marker and the terminating trouble indicator make a test call to each line in a PBX group. By means of the display on the terminating trouble indicator, verify that the proper line is selected and that the HF or RF cross-connection is correct.

8.22 Repeat this test on all PBX groups.

J. Crockett,

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Reason for Reissue: To add contents, Paragraph 2 and include the Addendum.

Replaces Section 246 of Handbook 62 dated 6-6-40 and Addendum dated 12-9-40.