TEST OF SUBSCRIBER LINE CABLING FROM MDF TO PRIMARY LINE SWITCH

1. GENERAL INFORMATION

1.1 Description of Test:

1.11 The procedure outlined in this section tests the subscriber lines from the MDF to the primary line switches and line relays. The tests verify proper continuity, absence of crosses and foreign potentials, and the contacts of the hold magnets.

1.12 The line circuits tested by this method are shown on SD-25003 and SD-25553.

1.13 Special Test Connections: When circuits under test are equipped with CA6A and similar type wire wrap terminal strips, ITE-4026 multicontact relay T.S. fixture should not be used for making these connections. Instead, ITE-4085 push-on clips should be used at the terminal strip punchings as required and the test cord connected to these clips by means of alligator clips. Test cord must be supported in order to remove weight of cord from terminal strip connections.

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 0.1 lists all tests to be made on subscribers line cabling from MDF to primary line switch.

3. TESTING EQUIPMENT

3.1 Test Sets

Amt	Code	Description	With Kit or ITE
1	ITE-4015	Continuity Test Set	+4023
1	ITE-4033	Link Frame Test Set	-
2	ITE-2418	Flashlight Buzzer Set	102

3.2 Cords

Amt	ITE	Lgth	Cdrs	One End	Other End	With ITE
2	9547	12'	1	ITE-2455	ITE-2455	+4023
2	9650	6'	4	Trans. & Rec.	137 Plug	+4023
1	9598	12'	2	110 Plug	110 Plug	4033
1	9947	12'	10	Yaxley Plug	10 ITE 2455 Plugs	4033

3.3 Accessories

Amt	Code	Description	With Kit or ITE
2	ITE-2260	Call Wire Telephone Jack	102
2	ITE-4092	Call Wire Buzzer Set Clamp	102
10	298A	Make Busy Plugs	+4023
1	ITE-4046 or ITE-2370	Gun Jig, Eight Point	4043
2	ITE-2455	Banana Plug	+4023
1	R-9572	Test Receiver	+4023
2	ITE-8507	Alligator Clips	+4023

+- Crossbar Accessory Kit

4. SETUP FOR TEST

4.1 Connect a banana plug to each wire of a pair about 3 feet long. Connect the other end of the pair to #1 and #3 contacts of fixture ITE-2370 or ITE-4046.

4.2 At the M.D.F. connect 48 volt battery and ground to the B and G terminals of ITE-4015 using ITE-9547 cords equipped with ITE-8507 clips on one end. Connect the plugs attached to fixture ITE-2370 or ITE-4046 to the T and R jacks of the test set.

4.3 Set up a talking line between the M.D.F. and the line link frames, per Figure 1, Section 2, Handbook 50.

4.4 At the line link frame insert 298A make busy plugs into jacks SS0 to SS9 of the line group to be tested. This is to prevent making connection to senders when the L relays are operated during the following tests.

4.5 Remove all test connections, insulators, and 298A plugs from SS0 to SS9 jacks at completion of tests in Paragrapshs 5 and 6.

5. NON-COIN LINES - GROUND ON TIP

5.1 Connect battery and ground to ITE-4033 using an ITE-9598 cord. Operate the SB key on ITE-4033. Insulate contacts 9 and 10 T of relays HC2 and TA1 on the line link frame under test.

5.2 At the line link frame, on the terminal strip adjacent to the AC relay obtain the following association, using ITE-9947 cord. (See Paragraph 1.13)

ITE-9947 Leads	HG T.S. Pchgs.	HG T.S. Leads	Test Set Receptacle
0-9	40-49	LR 0-9.	S

5.3 At the M.D.F. place the ITE-2370 or ITE-4046 fixture in contact with the tip and ring terminals of the first line, (T and R of ITE-4015 to tip and ring respectively). The tester at the line link frame observes that the S lamp corresponding to the position of the L relay in the group of 10 L relays lights. The needle of the meter should deflect to the left (12 to 16 mils). Any other deflection indicates a trouble condition. Refer to Paragraph 5.6 as a guide to trouble indications.

NOTE: In locations where ITE-2370 or ITE-4046 fixtures cannot be used, test receiver shall be used when making this test.

5.4 If the L relay operates and the reading is correct the tester at the link frame manually operates the associated hold magnet. The L relay releases extinguishing the S lamp on the test set and the meter reads "0".

5.5 Repeat tests per Paragraphs 5.3 and 5.4 until all lines have been tested. Move 298A make busy plugs and change test connections (Paragraph 5.2) as required.

5.6 Trouble Indications

Tip and Ring Reversed - Practically full scale deflection to the left.

False ground on Ring - The L relay will be operated. If this is not noticed in advance, the meter indicates the same as a tip and ring reverse - see above.

False ground on Tip - A deflection to the left of approximately 30 mils after the hold magnet is operated.

Open Tip - Wide deflection to right. (Between 30 and 40 mils.)

Open Ring - L relay does not operate. Deflection to left of approximately 30 mils.

Ring and Sleeve Crossed:

(a) Before operating hold magnet - deflection to left of approximately 7 mils.

(b) After operating hold magnet - deflection to right.

6. COIN LINES - NO GROUND ON TIP

6.1 Make test connections on isolate relay contacts as shown in paragraphs 5.1 and 5.2.

6.2 At the M.D.F. place the ITE-2370 or ITE-4046 fixture in contact with the tip and ring terminals of the line. The tester at the line link frame observes that the associated line (L) relay operates. The needle of the meter should deflect to the right approximately 35 mils. Any other deflection indicates a trouble condition. Refer to Paragraph 6.6 as a guide to the trouble indication.

6.3 To test the continuity of the tip wire, connect a single conductor lead to ground and touch the lead to the tip spring (#2) of the associated primary switch vertical. The meter should deflect to the left, (12 to 16 mils).

6.4 Remove the ground from the tip and operate the hold magnet. The meter needle restores to "0".

6.5 Repeat tests per Paragraphs 6.2 to 6.4 until all lines have been tested. Move 298A make busy plugs and change test connections (Paragraph 5.2) as required.

6.6 Trouble Indications

Open Ring - No reading. L relay fails to operate.

Tip and Ring Reverse - Deflection to left of approximately 48 mils when ground is connected to the tip.

False Ground on Tip - Deflection to left before applying ground to tip (see Paragraph 6.3).

False Ground on Ring - The L relay will be operated. If this is not noticed in advance, the meter indicates the same as a tip and ring reverse - see above.

Ring and Sleeve Crossed:

(a) Before hold magnet is operated - Practically full scale deflection to the right.

(b) After hold magnet is operated - deflection to the right of approximately 19 mils.

Tip and Sleeve Crossed - Hold magnet operates when contact is made to tip and ring at the M.D.F. Approximately 45 mils deflection to the right.

7. COIN FIRST LINES - CROSSED TIPS

7.1 Test for crosses between adjacent tips of coin first lines using either test per Paragraph 7.11 or 7.12 on all coin first lines.

7.11 Using bare strap wire, strap the tip terminals of coin first lines appearing at one HMDF terminal strip to ground. Using a test receiver or a test lamp, check that the ground is removed from each terminal when the strap is removed.

7.12 Using a test receiver or test lamp, check that no ground exists on the tip terminal at the HMDF of coin first lines when ground is applied to the tip of the next higher numbered line.

→ Arrowed lines indicate new or changed information.

R. E. RAHMES

Engineer of Installation.

Reason for Reissue:
To remove ITE-4026 Fixture.

Replaces Section 103 dated 1-18-51.