

CENTRAL OFFICE TRUNKS AND TIE TRUNKS - OPERATION TESTS 740AX PBX

1. GENERAL

1.01 This section describes methods of testing the operating features of central office trunks and tie trunks. The tests covered are:

- (A) Operation Test of Central Office Trunks and Tie Trunks from Selector Levels of Selector-Connectors
- (B) Operation Test of the Trunk Relay and Test of Trunk Jacks for Cut-outs
- (C) Trunk Jack Sleeve and Busy Lamp Circuit Test
- (D) Polarity Test—Two-Way Manual Central Office Trunks
- (E) Night Service Test
- (F) Test of Lamp Sockets for Crosses
- (G) Test of Dial Central Office P B X Hunting Feature

1.02 Any central office trunk or tie trunk on which a failure is encountered should be made busy until the trouble has been cleared.

1.03 Test (A) should be started from a different selector-connector each time the test is made, so that all trunks eventually will be tested from all switches.

2. APPARATUS

Test (A)

2.01 No. 375-A Make-Busy Tools, as required.

Tests (A) and (B)

2.02 Dial Hand Test Set equipped with a No. 4-CB Dial and a No. 240-A Plug.

Tests (B) and (C)

2.03 Test Plug (minimum size) equipped with a 53-A Cord or equivalent.

2.04 No. 760 Cord.

Tests (D) and (F)

2.05 Test Receiver (No. 528 or equivalent) equipped with Cords and Clips.

Tests (B) and (C)

2.06 Attendant's Telephone Set.

3. METHOD

(A) Operation Test of Central Office Trunks and Tie Trunks from Selector Levels of Selector-Connectors

3.01 Connect the dial hand test set to the test jack of an idle selector-connector and operate the C button. Dial the correct code to cause the switch to select an idle central office trunk or tie trunk.

3.02 **Trunk to Manual Office or Dial Selected Tie Trunk:** When the operator or attendant answers, check the central office trunk or tie trunk number. Proceed to 3.07, 3.08 and 3.09.

3.03 **Trunk to Dial Office:** Dial tone should be heard. Dial the permanently made busy number in the dial office. Note that the busy signal is heard in the receiver. Proceed to paragraphs 3.06, 3.07 and 3.08.

Note: If a permanently made busy number in a step-by-step office is not available, dial zero and when the operator answers, check the trunk number. Proceed to paragraphs 3.06, 3.07 and 3.08.

3.04 **Dial Repeating Tie Trunks:** Where the dial repeating tie trunks terminate at dial P B X 's having manual positions, proceed as in 3.01 and then dial zero. When the attendant answers at the distant P B X, check the tie trunk number. Proceed to paragraphs 3.06, 3.07 and 3.08.

Note: When these tie trunks terminate at a No. 702-A P B X the operator cannot check the tie trunk number.

3.05 Where dial repeating tie trunks terminate at an unattended P B X, proceed as in 3.01 and then dial the number of a dial station at the distant P B X for which arrangements have been previously made to have someone answer the necessary test calls. Note that an audible ringing signal is heard in the receiver. When an answer is received, check the extension number. Proceed to 3.06, 3.07 and 3.08.

3.06 Short-circuit test jack springs Nos. 1 and 2 of the selector-connector by means of a No. 375-A tool and then disconnect the hand test set from the test jack.

3.07 Connect the hand test set to the test jack of another idle selector-connector, dial the correct code to cause the switch to select the next central office trunk or tie trunk. Proceed as outlined in 3.01 to 3.05. Continue in this manner until all the trunks on the level have been tested.

3.08 After the last trunk has been tested, the No. 375-A tools should be removed immediately from the selector-connectors.

(B) Operation Test of the Trunk Relay and Test of Trunk Jacks for Cut-outs

3.09 Connect the dial hand test set to the tip and ring conductors of the cord attached to the test plug by inserting the tip and ring cord terminals between the tip and ring springs and the insulating separator of the No. 240-A plug attached to the hand test set. Connect the sleeve conductor of the cord attached to the test plug to the sleeve of an idle front cord, using a No. 760 cord. The C button of the dial hand test set must be held operated during this test.

3.10 **Two-Way Manual Trunks:** With the C button of the dial hand test set operated, insert the test plug in the jack of the trunk to be tested. In a manual central office district the operator should answer. Request a ring on the trunk. If connected to a dial office, note that dial tone is heard and dial zero. When the operator answers request a ring on the trunk. After requesting a ring, disconnect the test plug immediately in all cases. When the operator rings, the trunk and busy lamps should light steadily.

3.11 Answer the call with the test plug and request the operator to leave the plug in the trunk jack until a disconnect signal is received. Note that the line lamp is extinguished but the busy lamp remains lighted. Grasp the test plug at the cord end and while applying a sideward pressure (that is, away from the center of rotation), move the plug through a complete circle. Cut-outs will be indicated by clicks in the hand test set. Disconnect the test plug from the jack.

Note 1: When a reverting call circuit is available, dial the assigned number (instead of calling the operator and disconnecting). When the line and busy lamps light, indicating that the reverting call selector is ringing on the trunk, insert the test plug in the line jack and note that the line lamp is extinguished. Proceed to test for jack cut-outs as described.

Note 2: When the circuits at the DSA or combination toll and DSA board do not permit the operator to ring back on the connection, and a reverting call selector is not available, the operator should be requested to leave the plug in the trunk jack until a steady disconnect signal is received, and then proceed to test for jack cut-outs. The test of the operation of the trunk line lamps and associated equipment should then be made when testing the dial central office P B X hunting feature, test (G). When the trunks are arranged at the central office in a manner which will not permit test (G), the proper operation of the line lamps and associated equipment should be made with the central office test desk force.

3.12 **Two-Way Manual, One-Way Dialing Trunks:** Proceed as in 3.10 noting that, in this case, the trunk busy lamp lights when the test plug is inserted in the trunk jack, and remains lighted when the test plug is removed to permit the operator to ring. When

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testing trunks in a manual central office district the busy lamp will flash in case the operator changes cords in order to ring on the trunk.

3.13 Proceed as in 3.11.

(C) Trunk Jack Sleeve and Busy Lamp Circuit Test

3.14 To check that the sleeve is open at the local contact of the jack, make a busy test on the sleeve of the trunk jack in the usual manner. No click should be heard.

(D) Polarity Test—Two-Way Manual Central Office Trunks

3.15 Operate a night and through dial key of an idle cord circuit and insert the front plug into a jack of the trunk under test. Connect one clip of the test receiver to ground and touch the other clip alternately to the tip and ring terminals of the associated back plug. A louder click should be obtained on the ring of the back plug than on the tip. Disconnect the plug from the trunk jack and restore the night and through dial key.

(E) Night Service Test

3.16 If night jacks are provided, make the following test: Operate the night and through dial key of an idle cord circuit. Connect the front plug to the night jack of the trunk under test and the back plug to the jack of a nearby idle extension. Call the central office from this extension in the regular way. The call should go through satisfactorily. Obtain a ring on the trunk and note that the bell of the extension rings satisfactorily. Observe that the busy and trunk lamps do not light on this connection. Restore the cord circuit to normal.

Note: As it usually will be impractical to operate the battery cut-off key during the test, the front supervisory lamp of the cord circuit will light steadily and the back supervisory lamp will remain lighted except when the receiver is removed at the nearby extensions.

(F) Test of Lamp Sockets for Crosses

3.17 Connect one clip of the test receiver to the sleeve of an idle back plug and touch the other clip to the metal frame of each trunk lamp cap. No click should be heard. Repeat the test with one clip of the test receiver connected to the metal cam of a key in a cord circuit.

(G) Test of Dial Central Office P B X Hunting Feature

3.18 Operate the talk and dial key of an idle cord circuit and insert the front cord into the first idle trunk. When dial tone is heard, dial the number of that trunk in the P B X group. Ringing induction should be heard and the trunk lamp of the next higher idle trunk should light.

3.19 Disconnect the cord from the trunk jack on which the call was made, and insert the same cord into the trunk jack on which the call has appeared. Disconnect the cord when the trunk lamp is extinguished.

Note: The same front cord should be used in order to prevent charging the subscriber with a call.

3.20 Reinsert the cord into the trunk jack on which the call came in and when dial tone is heard, dial the number of that trunk. When ringing induction is heard, the trunk lamp of the next higher idle trunk should light.

3.21 Proceed as outlined in 3.18, 3.19 and 3.20. After the number of the highest numbered trunk in the P B X group is dialed on that trunk, the busy signal should be heard in the receiver.

Note: The trunks of certain of the larger boards may be arranged at the central office in a manner which will not permit the selection of the next higher idle terminal as outlined above. In such cases this test should be omitted.

4. REPORTS

4.01 The required record of the tests should be entered on the proper form.