TESTS AND INSPECTIONS AT TIME OF INSTALLATION 750A PBX

1. GENERAL

1.01 This section covers tests and inspections that are required when the No. 750-A P B X is installed.

1.02 This section is reissued to convert it to letter size and to incorporate material from the addendum in its proper location. In the process of this conversion, marginal arrows have been omitted.

1.03 The completed installation should be thoroughly checked in accordance with the verification requirements forming a part of the general installation practices.

1.04 Two persons are required at the P B X for conducting the tests under (D) and the control cabinet test under (E) in Part 8. Also, the assistance of a test-deskman is required in making all of the tests under (E).

1.05 Both the metallic return and ground return feeder arrangements are covered herein. To minimize noise effects on P B X stations and to prevent possible electrolysis damage to lead sheath cables or underground pipes, the ground return feeder arrangement should not be used when additions or changes in the P B X facilities are involved unless authorized by specific local instructions.

2. TOOLS

2.01 Dial Hand Test Set Equipped with a No. 4-CB Dial, Cords and two No. 59 Cord Tips.

2.02 Battery Feeder Test Set per KS-7114 or a Weston Volt-Ammeter Model 280 equipped with cords and clips. A meter having voltage scales of 150, 60 and 3 volts and current scales of 30, 0.6 and 0.06 amperes will be found most suitable.

3. INSPECTION OF CROSS-CONNECTING TERMINAL

3.01 The box should be firmly mounted.

3.02 Connecting blocks and fanning strips should be firmly mounted and properly lettered and numbered.

3.03 Cable extending to the apparatus cabinet should be properly terminated.

3.04 Cross-connections and wires to stations should be neatly dressed and firmly fastened to the connecting block terminals.

4. INSPECTION OF CABLE BETWEEN CROSS-CONNECTING TERMINAL AND APPARATUS CABINET

4.01 The cable should be securely fastened to the wall or ceiling when run on the surface and should be properly protected with two layers of friction tape where it may come in contact with the cabinet or where it may pass around such obstacles as gas pipes, electric light conduits, metal work, and foreign telephone, telegraph and signal conductors and the clearance is 1/2 inch or less.

5. INSPECTION OF APPARATUS CABINET

5.01 The cabinet should stand level so that the gate will swing freely.

5.02 The interior of the cabinet should be clean and free from wire clippings, etc., and the exterior should present a neat appearance without scratches or other defects.

5.03 The entering cable should be firmly laced to the pins on the terminal strip bracket. The transite guard should fit snugly around the entering cable and wires.

5.04 The individual cable conductors for each row of terminal punchings should be carried through the fanning holes and properly terminated. The punchings should be free from wire clippings and loose bits of solder.

5.05 The flexible local power cables and the inter-cell connectors should be properly connected to the storage battery terminals.

5.06 Each cell of the storage battery should be lined up opposite a vent hole in the back of the cabinet. The cover should slip over the battery without touching the terminals. See that the transite fits snugly around the flexible power cables and that it is fitted into the details provided for it on the right end of the cover.

5.07 Each of the four white charge indicators which are visible from the front should be at the top of its cage.

5.08 All bolts employed for fastening the frame to the cabinet should be tight.

5.09 All relay covers should be in place.

5.10 The proper fuse should be installed in each working circuit.

5.11 The ringing lamp should be installed in its receptacle when a control cabinet is provided.

5.12 The ground connection when required, should have a good electrical connection at the water pipe or ground rod and on the cabinet frame.

6. RELAY TESTS

6.01 The relays should not require the application of a current flow test at the time of installation, except when a cabinet is moved from one subscriber's premises to another without passing through the shop or storeroom for reconditioning. The testing and readjustment of individual relays, when necessary, should be conducted in accordance with the requirements for the particular type of relay involved.

7. UNGROUNDED CABINET TEST

7.01 When a metallic return central office battery supply is employed, ascertain by the following test that the cabinet is not grounded.

7.02 Disconnect the positive and negative charging conductors at a convenient place such as the cross-connecting terminal.

7.03 Connect the (—) terminal of the voltmeter to the top or upper right hand terminal punching on front of apparatus panel near bottom of the repeating coil stenciled "B". Then connect the (+) meter terminal to a grounded conductor such as a water pipe. Note that the pointer of the meter is not deflected.

7.04 Disconnect the meter and reconnect the central office charging conductors.

8. CIRCUIT OPERATION TEST

(A) Battery Charging Tests

8.01 Connect the (+) terminal of the ammeter to the top post of the protector mounting designated "RHEO" and the (—) meter terminal to the bottom post and remove the fuse. When the board is not equipped with a protector mounting designated "RHEO" connect the (—) and (+) terminals of the ammeter to the left and right-hand posts, respectively, of the protector mounting designated "CHG" and remove the fuse. See that the current indicated by the meter is the proper charging rate for the particular P B X

8.02 Replace the fuse and disconnect the meter.

8.03 When the relay method of charge control is provided connect the (+) and (—) terminals of the ammeter to the top and bottom posts, respectively, of the protector mounting designated "CHG" and remove the fuse. Remove the hand set from the mounting at one station and note that the current indicated by the meter is the proper increased charging rate for the P B X

#60

8.04 When an ampere-hour meter is used for charge control connect the ammeter as in 8.03. Remove the cover from the ampere-hour meter. Advance the pointer by hand in a clockwise direction, observing that when it is between 8 and 12 points on the dial the current indicated by the ammeter is the proper increased charging rate for the P B X Before replacing the cover on the ampere-hour meter make test of alarm circuit covered in 8.06.

8.05 Replace the fuse, disconnect the ammeter and replace the cover on the ampere-hour meter.

(B) Alarm Tests

8.06 The alarm circuits should be tested in accordance with the section covering Alarm Tests for the No. 750-A P.B.X.

(C) Link Operation Tests

8.07 Test the links for start and chain circuit operation and pulse relay failure in accordance with the section covering link operation tests for the No. 750-A P.B.X

Note: In case the dial hand test set used by the installer is provided with a condenser cut-in button instead of a condenser cut-out button, it will not be necessary to operate the C button before dialing.

(D) Line and Link Test for Dial Tone, Ringing, Tripping and Busy Condition

8.08 When making these tests the assistant will perform certain operations at each station while the tester remains at the apparatus cabinet to observe that the equipment functions properly and to direct the assistant as may be necessary.

8.09 Operate the CO keys of link two and link three, if provided, preparatory to the assistant commencing the test at the first station.

8.10 When ready to test, the assistant should depress the L button, remove the hand set from the mounting and listen for dial tone. When dial tone is heard he should dial 00 (zero-zero) after which busy tone should be heard in the receiver. When the busy tone is heard dial an additional digit and note that the switch does not step and that busy tone continues to be heard. The hand set should then be replaced on its mounting.

8.11 While the test in 8.10 is being made the tester should observe that the switch under test rotates to the twentieth terminal and then restores to the normal position when the station hand set is replaced.

8.12 The tester should then establish a connection to any working line, except the one at which the attendant is located, by connecting the dial hand test set to the T and R terminals on the incoming terminal strip, care being taken that the cord tips do not touch adjacent terminals. The station at which the assistant is located should then be dialed. The audible ringing signal should be heard while the station is being rung.

8.13 The assistant should answer by removing the hand set after he has ascertained that the bell rings properly. Both testers should make certain that the talking connection is satisfactory.

8.14 The tester should then instruct the assistant to repeat the tests covered in 8.10 to 8.13 inclusive. At the same time he should restore the second link CO key and operate the first link CO key. The third link CO key, if provided, should be kept operated, so that this test will be conducted through the second link.

8.15 If the third link is provided, its operation should also be checked by conducting the tests covered in 8.10 to 8.13 inclusive, but in this case the first and second link keys should be operated and the third link key restored before the test is begun.

8.16 Upon the completion of the above tests restore each link CO key to its normal position.

8.17 The tests covered in 8.09 to 8.15 should be conducted from each key and keyless station.

(E) Trunk Circuit Tests

8.18 At the time the tests given below are conducted the usual talking, dial and other station tests which are referred to in the station practices should also be made with the test deskman.

8.19 The following tests should be made on each trunk from each key station in so far as they apply to the particular installation.

Signal Operation Tests

8.20 Call the test deskman and give him the number of each trunk to the P B X and ask for a ring on the first. Replace the hand set to receive the ringing signal.

8.21 See that the trunk ringer operates properly. If a common ringer is provided, check its operation. Also see that the proper trunk lamp in the lamp indicator lights and remains lighted for slightly more than four seconds after ringing ceases and is then extinguished when manual ringing current is applied or remains lighted over the silent period when machine ringing is applied.

8.22 Depress the trunk button associated with the particular trunk on which the deskman is calling and remove the hand set. Talk to the deskman and arrange for additional ringing from the test desk, if required.

Note: See that each trunk appears on the corresponding button at each key station as it is tested.

Holding Test

8.23 Test the holding feature with the test-deskman by depressing the H button while he remains on the circuit.

8.24 Note that the trunk button does not release and that the talking connection with the deskman has been interrupted.

8.25 Depress the L button and note that the trunk button has restored to normal. When dial tone is heard in the receiver depress the trunk button originally depressed for reconnection to the test desk.

Note: The deskman will advise whether his cord circuit supervisory lamp remained extinguished during the test, which indicates that the holding circuit has functioned properly.

8.26 Repeat this test on each working trunk circuit.

Emergency Trunk Key Tests

8.27 The following tests should be made from the station associated with the emergency trunk key.

8.28 Operate the key, remove the hand set from its mounting and call the test deskman. When he is ready to test, depress in turn each trunk button, the holding button and the local button and observe that the central office connection is not interrupted during this procedure.

8.29 Request the deskman to ring on the trunk and replace the hand set to receive the ringing signal. See that this ringer operates properly.

8.30 When the tests with the test desk have been completed, leave the emergency key in the operated position and test from another key station to ascertain that the trunk cannot be picked up while the emergency key is in the operated position.

Control Cabinet Test

8.31 The tester should station himself at the control cabinet while the assistant proceeds to the first station connected to the control cabinet to be tested.

8.32 When ready to test the station the assistant should dial the number of the station associated with the control cabinet. The tester should answer the call and advise the assistant to hang up preparatory to being called back.

8.33 When the assistant has hung up, the tester should operate the proper TALK key in the control cabinet and then the associated RING key to ring the station at which the assistant is located. When the assistant answers, the tester should request him to hold the connection. Then restore the

TALK key to normal. Next operate the MON key momentarily and observe that dial tone is heard. After this depress the proper trunk button and call the test desk in the usual manner. When the deskman is ready to test, advise him that the assistant at the two wire extension will be connected to the trunk. Then operate the TALK key and remain on the connection until the deskman and assistant tester are ready to proceed with the station testing, at which time the tester should restore the hand set to disconnect his telephone from the connection.

Note: It will be necessary for the tester to listen in on the connection as prearranged with the deskman to ascertain when to repeat the switching operations which are required when testing other stations connected to the control cabinet.

(F) Trunk Connection Test

8.34 Call the central office from a key station in the usual manner and have the connection held until released upon the completion of the test.

8.35 Leave the hand set off the hand set mounting and go to a nearby key station. Depress the same trunk button at this station and observe that the proper operation as given below is obtained when the hand set is removed from the hand set mounting.

(a) If this station is arranged for lockout service it should not connect to the trunk and busy tone should be heard.

(b) If non-lockout service is provided this station should connect to the trunk.

8.36 Restore the hand set of the station being tested and proceed to the next station and repeat the test under paragraph 8.35. Each key station should be tested in this manner.

8.37 When the tests have been completed on the first trunk from all key stations, including the station at which the trunk has been held, release the central office connection.

8.38 If two or three trunks are installed repeat the tests under paragraph 8.35 on each trunk.

8.39 Each restricted service key station should be tested by attempting to place a trunk call. Busy tone should be heard when the hand set is lifted after depressing the proper trunk button.

8.40 This test should be repeated on each trunk that is restricted from the station.