TOLL SWITCHING TRUNKS TO STEP-BY-STEP OFFICES

OPERATION AND COIN CONTROL TESTS

USING CONNECTOR MULTIPLE TEST LINE SD-31636-01

NO. 1 TOLL SWITCHBOARD

1. GENERAL

1.01 This section describes an operation and coin control test of toll switching trunks to step-by-step offices from the No. 1 toll switchboard based upon the use of the connector multiple test line SD-31636-01.

1.02 This section has been reissued to cover trunks arranged for local type supervision and trunks arranged for automatic ringing.

1.03 If the toll switching trunks terminate in a selector preceding the toll transmission selectors, which is usually the case in repeated dialing toll trains, an assistant is required in the local office in order to steer the calls, provided it is desired to select specific toll transmission selectors for test. Also it will be necessary in such cases to have the test line multipled to the various "thousands" groups served by the transmission selectors and to provide a special talking line circuit as covered under 2. APPARATUS.

1.04 The tests should preferably be made from the end position of a lineup in order to include all multiple wiring, and in case more than one lineup is involved the tests should be scheduled so that they are fairly equally distributed between the lineups.

1.05 If a failure is encountered the trunk should be made busy in the approved manner until the trouble is cleared.

Note: If the toll transmission selector is not the first switch in the train, steps should also be taken to have the particular toll transmission selector involved in the connection made busy.

2. APPARATUS

Toll Office

2.01 Operator's Telephone Set.

Step-by-Step Office

2.02 In offices in which a selector precedes the toll transmission selector, and where it is desired to test specific toll transmission selectors, it will be necessary to use the talking line and apparatus covered by 2.03 to 2.05.

2.03 A special talking line circuit as shown in Fig. 1. The 238 type jacks designated (6) are the jacks now provided, for use with the wagon type test set, in accordance with Fig. 7 or Fig. 8 of drawing ES-241640 covering the connector test line and associated test jacks. (In some cases A.E. Co. type jacks may be provided in place of the 238 type jacks.) The leads, shown in Fig. 1 below, to be connected to a subscriber line circuit in the local office, should first be disconnected from the circuit to the toll office or from the circuit to the coin control switch frame as the case may be.

Note: If desired any convenient telephone in the office may be used in place of the No. 653A subscriber set.

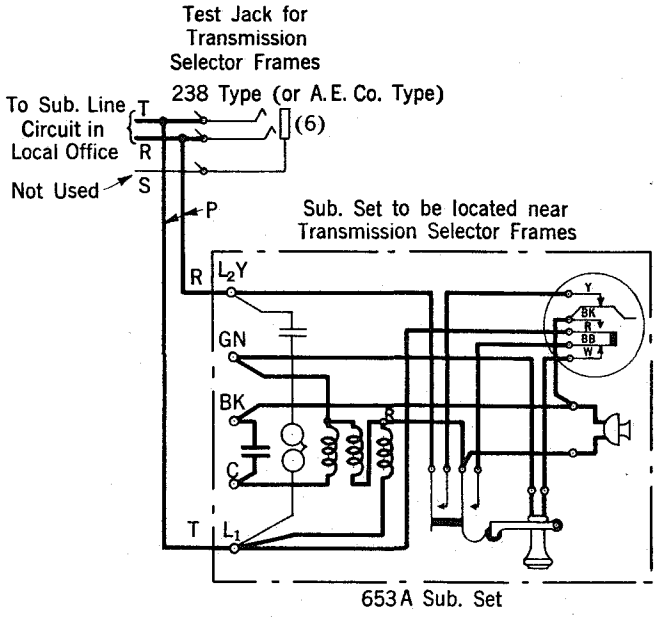

Fig. 1

2.04 One of the dial hand test sets listed below:

(a) Offices with talking lines equipped with 238 type jacks: One Dial Hand Test Set D-81763, or equivalent, modified to provide a No. 310 (or No. 110) Plug in place of the No. 240A Plug. This

2.04 (Continued)

modification is made as follows: Remove the existing cord tips from the connecting block. Insert two cord tips per D-97530 into the connecting block. Equip a W2W Cord with two 360 type Tools on one end and with a No. 310 (or No. 110) Plug, with tip and ring connections, on the other end (2W17A or 2W18A depending upon whether a 6 foot or 30 foot cord is required.) Connect the W2W Cord to the new cord tips by means of the 360 type Tools.

Note: If the hand set is equipped with a slider per D-96823, move the slider to the position in which the C button of the test set will be held operated.

(b) Offices with talking lines equipped with A. E. Co. type jacks. One Dial Hand Test Set D-81763 or equivalent.

Note: If the hand set is equipped with a slider per D-96823, move the slider to the position in which the C button of the test set will be held operated.

2.05 No. 477A (or No. 375A) Make-Busy Tools as required.

3. PREPARATION

3.01 Connect an operator's telephone set to the position at which the tests are to be made.

→ 3.02 When testing controlled ringing trunks, operate the position key to cancel the automatic ringing feature if such a key is provided.

3.03 When testing toll switching trunks in which a selector precedes the toll transmission selectors, and when it is desired to test specific toll transmission selectors, call the assistant tester over the line which terminates in the talking line jacks at the switch frame referred to in 1.03 and 2.03. The assistant tester should insert the plug associated with the dial hand test set into one of the talking line jacks at the toll transmission selector frame and then restore the receiver of the No. 653A subscriber set associated with the talking line, if the call was answered at that location. Maintain this talking connection until the test has been conducted on all of the toll transmission selectors it is desired to test.

4. METHOD

4.01 In each of the tests it is necessary to place calls for certain connector terminals. The method of making a call depends upon the type of equipment involved and is described under (1), (2) and (3) below. In each case a busy test should be made to avoid connecting to a busy trunk.

(1) Dialing Trunks - Using Cords Other Than Type A Cords: Connect a trunk cord to the trunk to be tested and operate the monitoring key or the position dialing key as required. Dial the desired number and then operate the talking key.

(2) Dialing Trunks - Using Type A Cords: Connect a trunk cord to the trunk to be tested and operate the talking key and the dialing key. Dial the desired number and then restore the dialing key to normal.

→ (3) Straightforward Trunks: Connect a trunk cord to the trunk to be tested, with the talking key operated, and listen for order tone. Upon hearing order tone give the "B" operator the desired number.

4.02 When testing toll switching trunks in which a selector precedes the toll transmission selectors, and when it is desired to test specific toll transmission selectors, it will be necessary to proceed as in (a) or (b) depending upon whether the test is being made on a routine basis or in connection with a specific case of trouble. In either case the arrangements should be made over the talking circuit established as in 3.03.

(a) When conducting tests on a routine basis, arrangements should be made so that the tester in the toll office will select the trunks and dial the test line number in the various "thousands" → groups as in (1) or (2) under 4.01 in such order that the assistant tester in the local office will know in advance which toll transmission selector will be chosen so that he can observe the switches and make them busy as required. This arrangement requires that the assistant tester, upon completion of the first test call as indicated by the release of the toll transmission selector, will make the switch busy by means of a No. 477A (or No. 375A) make-busy tool. The next trunk in the established sequence should then be selected at the toll office. This sequence should be such that by originating calls and busying the switches in this manner, all of the toll transmission selectors reached from a particular level of the preceding selectors in a trunk group should be selected in rotation. As soon as the last selector on that level is selected, the make-busy tools should be removed from the other selectors to free them for service. (There is no need to busy the last selector on the level.) Each group of selectors served by each level

4.02 (Continued)

of the preceding selectors should be tested in this manner. The arrangement which is set up should provide that not only all of the toll transmission selectors are tested, but also that each of the toll switching trunks is tested at least once.

(b) When making a test in connection with a specific case of trouble, it will be necessary for the assistant in the step-by-step office first to select a trunk over which the particular toll transmission selector can be reached. Then, after the first digit is dialed over this trunk from the toll office, as covered in (1) or (2) under 4.01, the assistant tester should remove the busy condition from the toll transmission selector to be tested and immediately step the first selector in the train to the position where the toll transmission selector to be tested is reached, by rapidly opening and closing the off-normal springs. The dialing operation should then be completed at the toll switchboard as covered in (1) or (2) under 4.01.

4.03 Test line SD-31636-01 is so designed that it automatically presents a sequence of suitable conditions for the various tests in the order indicated in the following paragraphs. Maximum intervals of 5.5 seconds each are provided for making the rering, coin return, and coin collect tests but if these tests are successful the test line circuit immediately advances. A 5.5 second interval is also provided for making the called party hold test but, being the last test in the sequence, no provision is made for a quick advance of the circuit. Each of the four tests, for which a 5.5 second interval is provided, should be made as soon as practicable after the beginning of this testing period in order to insure that the test is completed within the allotted time. A 2 second open interval occurs before and after each of the 5.5 second testing periods. By disconnecting at the originating end of the connection, the test line circuit will be restored to normal during the 2 second open interval.

Non-Coin Trunks

4.04 Place a call, as covered in 4.01 and 4.02, over the trunk to be tested for the number of the connector multiple test line.

4.05 Ringing Test - When the trunk is arranged for controlled ringing, operate and release the ringing key after the cord supervisory lamp has lighted. When the trunk is arranged for automatic ringing, no ringing key operation is required. Observe that audible ringing tone is heard for one or two short periods.

4.06 The ringing is then tripped. Observe that low tone is heard and that the cord supervisory lamp is extinguished for about a second.

Note: If tripping does not occur as outlined, the indication is that the connector is ringing on another terminal. In this case remain on the connection for a short time and if a subscriber or an operator answers, advise that a test is being made.

4.07 Supervision Test - At the end of the low tone interval observe that the cord supervisory lamp flashes once. After this observe that low tone is heard and the cord supervisory lamp is extinguished for about a second. Then observe that the supervisory lamp flashes three times, and then lights again for about 2 seconds. The low tone will be removed during this 2 second interval and may not be heard during the fast flashing.

4.08 Rering Test - With Bridge - Controlled Ringing Trunks Only - After the 2 second lighted interval, observe that low tone is heard and the cord supervisory lamp is extinguished. Immediately upon hearing the low tone, operate and release the ringing key. Directly following a successful test, the cord supervisory lamp lights again for about 2 seconds and no tone is heard.

4.09 Called Party Hold Test - This test is required only when the trunk under test is arranged to provide a busy condition on the sleeve of the jack, with the subscribers receiver off the hook and the cord removed from the trunk jack. After the 2 second lighted interval of the cord supervisory lamp, audible ringing tone is heard and the cord supervisory lamp is extinguished. Immediately upon hearing the audible ringing tone, remove the cord from the trunk jack and check that the trunk jack sleeve tests busy.

Coin Trunks

4.10 Place a call, as covered in 4.01 and 4.02, over the trunk to be tested for the number of the connector multiple test line.

4.11 Proceed as follows:

(a) In offices arranged for the associated jack method of coin control, connect the coin control cord to the coin control jack associated with the trunk to be tested.

(b) In offices arranged for the coin control selector method of coin control, connect the coin control cord to an idle coin control trunk. Operate the dialing key of the coin control cord and dial the toll switching trunk number. Restore the dialing key.

4.11 (Continued)

Note: A different coin control trunk should be used for each toll switching trunk tested until all coin control trunks to the office under test have been tested.

(c) In offices arranged for control of the coin by the local "A" operator, depress the proper call circuit key and when the "A" operator answers advise her that a test is being made, giving her the trunk number, and request that she be prepared first to "return" and then to "collect" as soon as advised to do so. This talking connection should be maintained until the collect test has been completed.

4.12 Proceed as in 4.05 to 4.08 and then as in 4.13 to 4.17.

4.13 Coin Return Test - With Bridge - After the 2 second lighted interval referred to in 4.08 observe that audible ringing tone is heard and the cord supervisory lamp is extinguished. Immediately upon hearing the audible ringing tone, proceed as follows:

(a) In associated jack method offices, depress the coin return key and observe that the coin pilot lamp lights. →Release the coin return key.

(b) In coin control selector method offices, depress the coin return key. Observe that high (coin return) tone is →heard. Release the coin return key.

(c) In offices arranged for control by the local "A" operator, say "Trunk - - - return", (giving the number of the trunk under test). High (coin return) tone should be heard.

4.14 Directly following a successful test, the cord supervisory lamp lights →again and no tone is heard.

4.15 Coin Collect Test - Without Bridge - After a 2 second interval, observe that interrupted low tone is heard and the cord supervisory lamp remains lighted. Immediately upon hearing the interrupted low tone, proceed as follows:

(a) In associated jack method offices, → depress the coin collect key and observe that the coin pilot lamp lights. →Release the coin collect key.

(b) In coin control selector method offices, depress the coin collect key. → Observe that low (coin collect) tone is →heard. Release the coin collect key.

(c) In offices arranged for control by the local "A" operator, say "Trunk - - - collect," (giving the number of the trunk under test). Low (coin collect) tone should be heard. Advise the "A" operator that the test is completed and release the call circuit key.

4.16 Directly following a successful test, the tone is removed and the cord supervisory lamp remains lighted.

4.17 Called Party Hold Test - This test is required only when the trunk under test is arranged to provide a busy condition on the sleeve of the jack with the subscribers receiver off the hook and the cord removed from the trunk jack. After a 2 second interval, low tone is heard and the cord supervisory lamp is extinguished. Immediately upon hearing the low-tone, remove the cord from the trunk jack and check that the trunk jack sleeve tests busy.

5. REPORTS

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