SUBSCRIBER CORD CIRCUITS

FEATURES OTHER THAN SUPERVISORY RELAYS

NO. 1 OFFICE

1. GENERAL

1.01 This section describes tests of subscriber cord circuits in No. 1 offices. The tests are as follows:

(A) A-C. Continuity Test

(B) Ringing Key Test

(C) Coin Control Test

(D) Message Register Key Test

(E) Busy Test

(F) Test of Ringing Key Contact Sequence

1.02 This section has been reissued primarily to provide improved methods of testing the contact sequence of ringing keys as covered in test (F). It also covers a change in the method of manipulating the cords and keys in test (A) and adds a check for the non-operation of the position message register in test (D).

1.03 When test (C) or (D) is made, advise the Chief Operator the number of registrations and the time of day for each position register.

1.04 Where the message register circuit is operated from the coin collect unit of the coin control key, tests (C) and (D) may be conducted at the same time by observing the operation of both the coin and message register pilot lamps.

1.05 Test (E) need be made only on cords having the busy test connection through a back contact of a relay in the sleeve of the cord circuit.

1.06 Test (F) need be made only on cords used for manual ringing on party lines.

2. APPARATUS

Tests (A), (C) and (F)

2.01 No. 528 Receiver equipped with a No. 712 Cord terminating in a No. 109 Plug (J99212B-L29) for use with switchboards equipped with No. 92 Jacks.

2.02 No. 528 Receiver equipped with an R2AC Cord (J99212B-L35) terminating in a No. 110 Plug, for use with switchboards equipped with No. 49 Jacks.

Test (D)

2.03 One P3D Cord equipped with two No. 109 Plugs (J99213A-L3) for use on switchboards equipped with No. 92 Jacks.

2.04 One P3E Cord equipped with two No. 110 Plugs (J99213A-L6) for use on switchboards equipped with No. 49 Jacks.

Tests (B) and (E)

2.05 Operator's Telephone Set.

Test (F)

2.06 Test line as shown in Fig. 1. Two spare O.G.T. or subscriber multiple jack circuits may be used. Resistances A and B should be approximately 500 ohms each. C may be a spare O.G.T. sleeve resistance. Resistance D should be approximately 6000 ohms of No. 18 or No. 19 type. This resistance may be decreased if the tone received on a properly adjusted key is not sufficiently audible.

3. METHOD

(A) A-C. Continuity Test

3.01 Insert the plug of the cord attached to the receiver into the REC jack of the test circuit.

3.02 Before making a test with the a-c continuity test circuit, check the operation of the tone circuit as follows: While listening in the receiver, partially insert the answering cord plug of the cord circuit to be tested into the CON jack, so that the tip of the plug makes contact with the ring spring of the jack and the sleeve of the plug makes contact with the sleeve of the jack. The cord supervisory lamp should light. If tone is received, it is an indication that the tone circuit is functioning properly.

Note: If the a-c continuity test circuit is arranged for tripping machine ringing, it is necessary to fully insert the plug of the answering cord into the CON jack and allow time for the tripping feature to operate and then withdraw it so that the tip and sleeve of the plug make contact with the ring spring and sleeve, respectively, of the jack.

3.03 Insert the plug completely into the CON jack of the testing circuit. It is probable that a slight tone will be heard in the receiver. This slight tone can be expected and is not an indication of trouble. After testing several cords, the tester should become familiar with the volume of the tone which is heard on normal cords. Cords on which this volume is increased appreciably should be considered in trouble.

3.04 Listen in the receiver during the operations of 3.05 to 3.07 for any clicks or changes in the volume of the tone which will indicate a cutout or other trouble condition.

3.05 Hold the plug in the jack with one hand and shake the cord with the other hand.

3.06 Turn the plug around in the jack so as to cause the jack springs to make contact at all possible points of the tip and ring of the plug.

Note: Scratchy noises heard while the plug is being rotated should be disregarded.

3.07 With the keys of the cord circuit under test in the normal position, tap lightly on the key top to detect loose connections or defective contacts in the talking circuit.

Note: If the answering cord is not equipped for coin control, omit this paragraph and 3.08.

3.08 On plunger type keys, check that an appreciable movement of the key is obtained before a click is heard, as an indication that the follow of the inside springs is satisfactory.

3.09 Disconnect the answering cord and test the calling cord according to 3.03 to 3.08, 3.10 and 3.11.

3.10 Move the levers of lever type keys slightly forward and backward while exerting a reasonable pressure to the left and to the right to take up any play or side lash, in order to detect faulty key adjustments that might cause clicks.

3.11 On cord circuits having a talk-ring lever type key combination, make a "non-click" test by operating the lever to the talk position and allowing it to restore unrestrained. Any clicks in the receiver indicate excessive overthrow of the lever.

(B) Ringing Key Test

3.12 Connect the operator's telephone set to the position at which the cords are to be tested. Operate the talking key of an idle cord circuit and connect the associated cord to a spare O.G.T. jack.

3.13 Insert the plug of the cord under test into the jack of the ringing test line. Connect the other cord of the circuit under test to a multiple jack of the spare O.G.T. used in 3.12.

3.14 Operate the ringing keys in succession. Listen in the receiver for clicks as each ringing key is operated. Sharp clicks heard usually indicate that the inner springs of the ringing key have excessive follow, that is, they do not break before the outer (ringing) springs make. On cord circuits equipped with the audible ringing feature, the ringing tone should be heard while the key is operated.

3.15 While the key is operated, note that the proper bell of the test line rings. Also, note that the bell starts ringing before the end of the movement of the key as an indication that the ringing springs have sufficient follow.

3.16 Where a master ringing key is provided for each position and only one ringing key is used for each cord, insert the plug of the calling cord under test into the jack connected to the ringing test line, depress the ringing key, operate the master ringing key in each ringing position and check that the proper bell rings. When testing the other cord circuits in the position, depress the ringing key and operate the master ringing key to one position only and note that the proper bell rings.

Note: If an emergency hand generator is provided operate the emergency ringing key and repeat 3.14 to 3.16 for one cord circuit in a position.

(C) Coin Control Test

3.17 Connect the test receiver to the REC jack of the test circuit.

3.18 Insert the plug of the answering cord under test into the COIN TEST jack.

3.19 Depress and release the associated coin collect and coin return keys one at a time. Note that the coin pilot lamp is lighted, and that high tone for coin collect and low tone for coin return is heard in the receiver while the respective keys are depressed.

(D) Message Register Key Test

3.20 Insert the plug of an answering cord into the COIN TEST jack of the test circuit.

3.21 Operate the message register key and observe that the message register pilot lamp does not light while the key is

depressed. (If the message register feature is associated with the coin collect key, operate that key.)

Note: If the line registers are of the single wound type, the message register pilot lamp should light. In this case repeat 3.20 and 3.21 with the remaining cords and disregard 3.22 to 3.24.

3.22 The procedure of 3.21 checks the position register for non-operation where the line registers are of the double wound type, and should be applied with the first cord tested in a position. Then follow the procedure outlined in 3.23 and test the first and remaining cords in the position according to 3.20 and 3.24.

3.23 Patch a spare O.G.T. jack equipped with a 37-ohm sleeve resistance to a multiple of the COIN TEST jack, using a P3D or a P3E cord.

3.24 Operate the message register key and observe that the message register pilot lamp lights while the key is depressed. (If the message register feature is associated with the coin collect key, operate that key. The coin control pilot lamp should also light.)

(E) Busy Test

3.25 Connect an operator's telephone set to the position.

3.26 With the associated listening key operated, touch the tip of each calling cord to the sleeve of any nearby cord in turn. Note that a distinct busy test is heard upon each cord.

(F) Test of Ringing Key Contact Sequence

3.27 Connect the test receiver to the LIST jack of the test line. Connect the cord to be tested to the RING jack. See Fig. 1. The cord supervisory lamp will usually be extinguished.

3.28 While listening in the receiver, very slowly operate the ringing key. A slight click will be heard and the cord lamp will light when either of the inside contacts breaks. When both the outside (ringing) contacts make, ringing tone will be heard at low volume.

3.29 If ringing tone at high volume is heard, it indicates that the key is not in proper adjustment, that is, the generator contact makes before the ground contact. In this case the outside springs should be adjusted so that the ground spring makes before the generator spring, except where a master ringing key is used.

3.30 Where a master ringing key is used the ringing springs of the cord circuit key should be adjusted so that they make, as nearly as possible, simultaneously. This adjustment will be indicated by absence of high volume ringing tone when ringing on each side of the line.

Note: This adjustment is in addition to the requirements specified in the section of the A400 Division covering the key. In meeting this requirement care should be exercised that all other requirements in the A400 section are maintained.

4. REPORTS

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

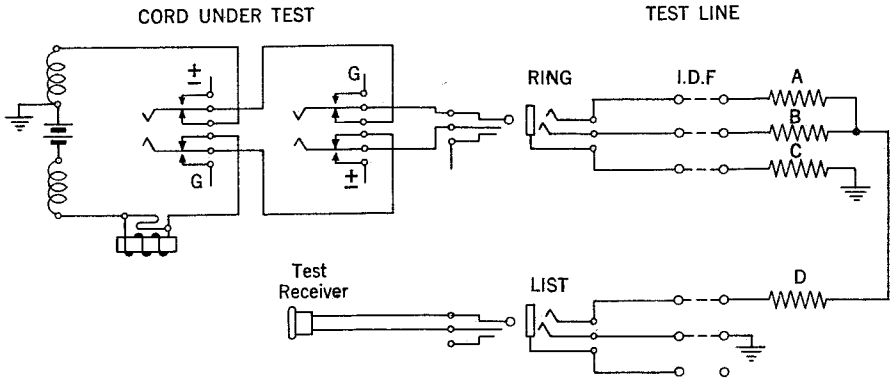

Fig. 1 - Test of Ringing Key Contacts.