TROUBLE POSITION, CORD CIRCUITS AND ASSOCIATED OPERATOR'S TELEPHONE CIRCUITS

1. GENERAL

1.01 This section covers the detailed methods to be followed in making transmission tests on trouble position cord circuits and associated operator's telephone circuits and replaces the information given in 3A(h) of Section K21.01.

1.02 Information covered in this section is listed as follows:

1. General
2. Testing Methods
   - (A) Single-ended Cord Circuits
   - (B) Double-ended Cord Circuits
   - (C) Operator's Telephone Circuits associated with Single-ended Cord Circuits
   - (D) Operator's Telephone Circuits associated with Double-ended Cord Circuits

1.03 Reference should be made to Section K20.01 for general testing instructions and to Section K20.11 for general testing apparatus requirements.

2. TESTING METHODS

(A) Single-ended Cord Circuits

2.01 Single-ended cord circuits should be tested in conjunction with the operator's telephone circuit associated with the position.

(B) Double-ended Cord Circuits

2.02 Obtain the proper sleeve condition for the cord circuit to be tested.

Note: This is accomplished by connecting the sleeve conductors of two switchboard cords having the same type of plug as the cord circuit under test respectively to the S_1 and S_2 terminals of the transmission measuring set. The plugs of these cords are inserted in spare switchboard jacks of the proper type to establish the cord circuit condition.

Where machine ringing and busy test relays are provided the proper sleeve connections are supplied as outlined above.

2.03 Insert the answering and calling cords of a cord circuit to be tested in the sending and receiving jacks of the transmission measuring set.

2.04 Figure 1 shows schematically the connections for the test.

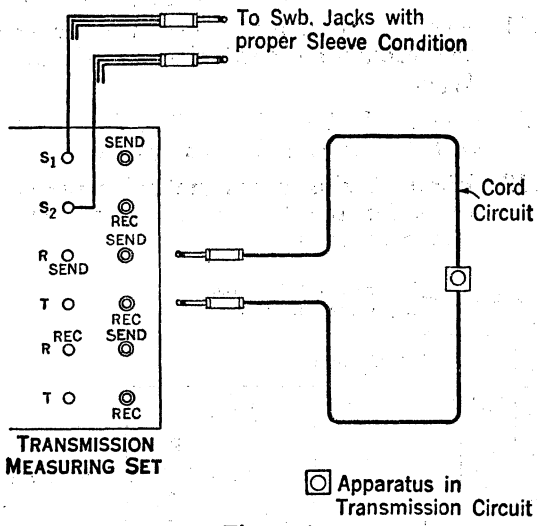

Figure 1

2.05 Restore to normal any keys associated with the cord circuits of the position under test.

2.06 With the transmission measuring set in the measuring condition perform the operations outlined in paragraphs 2.07 and 2.08.

Note: If A.C. continuity tests are regularly made on the cord circuits, these operations may be omitted.

2.07 Manipulate the cords and plugs in the following manner to detect possible cutouts or faulty connections: Pull on each cord directly downward and downward at an angle to the right and to the left and shake the cord. Hold the plug in the jack with one hand and grasp the cord with the other hand approximately four inches from the plug. Move the cord about the plug with a cranking motion. Turn the plug around in the jack so as to cause the jack springs to make contact at all possible points to the tip and ring of the plug.

2.08 Test all keys associated with the cord circuits for cutouts in the normal and operated position (except ringing and splitting keys in the operated position) by tapping the key top lightly using the rubber eraser end of a pencil.

For lever type keys, move the levers slightly forward and backward while exerting a slight pressure to the left and right to take up any play or side lash.

For plunger type keys, directly connected in the transmission circuit move the plungers with a circular motion and test

for plunger-spring clearance by depressing the plungers slightly.

2.09 Measure the transmission loss of the cord circuit with the keys normal.

2.10 Measure the current supply of each cord.

2.11 Repeat the above procedure for each of the remaining cord circuits of the same type.

(C) Operator's Telephone Circuits Associated with Single-ended Cord Circuits

2.12 Figure 2 shows schematically the connections for the test of the operator's telephone circuits.

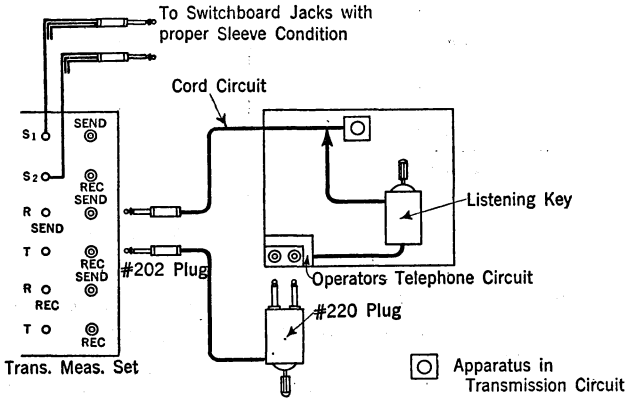

Figure 2

2.13 Insert the No. 220 plug in the telephone set jack associated with the position under test with the key of the plug in the normal position.

2.14 On the transmission measuring set connect the sending T and R terminals respectively to the receiving T and R terminals.

Note: When a transmission measuring set of the No. 3 type is used, these connections are made through the jack contacts of the set when a dummy plug is removed from a jack other than the one to be used in this test.

2.15 Insert the plug of the cord circuit in the sending jack of the transmission measuring set.

2.16 Operate the RCCI key and measure the transmission loss with all other keys of the cord circuit normal.

Note: Howler Cord Circuits are tested in the manner just outlined in paragraphs 2.14 to 2.16 inclusive except that the RCCI key need not be operated.

2.17 Restore the RCCI key to normal and operate the listening key associated with the cord circuit so that the operator's telephone circuit is connected across the cord circuit in the talking condition.

2.18 Measure the transmission loss.

Note: The difference between the measurements made in paragraphs 2.16 and 2.18 will be the loss of the operator's telephone circuit in the bridged talking condition.

2.19 With the listening key and the 3WO key operated, measure the transmission loss.

Note: The difference between the measurements made in paragraphs 2.16 and 2.19 will be the loss of the operator's telephone circuit in the bridged talking condition when it is shunted with a retardation coil.

2.20 Remove the strapping between the sending and receiving T and R terminals of the transmission measuring set.

2.21 Insert the No. 202 plug associated with the No. 220 plug in the receiving jack of the transmission measuring set and restore to 3WO key to normal.

2.22 Operate the key of the No. 220 plug to the T position.

2.23 Measure the transmission loss.

Note: The difference between the measurements made in paragraphs 2.16 and 2.23 will be the loss of the operator's telephone circuit in the transmitting condition.

2.24 When measuring the transmitting condition, test the cord circuits for cutouts as outlined in paragraphs 2.07 and 2.08.

Note: If A.C. continuity tests are regularly made on the cord circuits, these operations may be omitted.

(D) Operator's Telephone Circuits Associated with Double-ended Cord Circuits

2.25 These circuits are tested in the same manner as outlined in paragraphs 2.12 to 2.23 inclusive omitting paragraph 2.19. Since the RCCI key is not associated with double-ended cord circuits, the reference to the RCCI key in paragraphs 2.16 and 2.17 should be disregarded. For these tests a cord circuit should be chosen which from the results of the tests on the cord circuits of the position shows no transmission troubles, and the end of the cord circuit to which the operator's telephone circuit is connected when in the talking condition should be used.

Note: When machine ringing and busy test relays are provided, the proper sleeve connections for the cord circuit must be supplied and this is accomplished as outlined in paragraph 2.02.