MAGNETO 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 magneto cord circuits and associated operator's telephone circuits and replaces the information given in 3A (g) of Section K21.01.

1.02 Information covered in this section is listed as follows:

1. General
2. Testing Methods
   - (A) Cord Circuits
   - (B) Operator's Telephone Circuits not Equipped for Monitoring
   - (C) Operator's Telephone Circuits Equipped for Monitoring

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

2. TESTING METHODS

(A) Cord Circuits

2.01 Cord circuits used in magneto switchboards in some cases include a repeating coil for use on noisy connections. This coil may be cut in or out of the cord circuit by the operation of a key.

2.02 Where cord circuits include the repeating coil mentioned above, transmission tests should be made for both conditions, that is, with the coil cut in and with the coil cut out.

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

2.04 Figure 1 shows schematically the connections for the test.

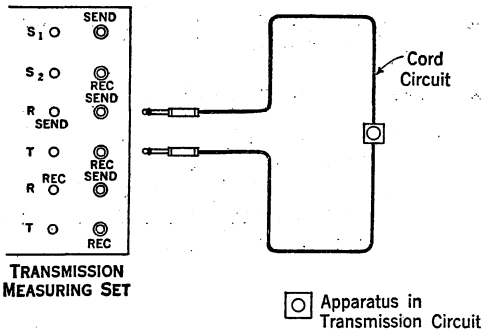

Figure 1

2.05 Restore to normal any keys associated with the cord circuit under test.

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

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 circuit 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.

(B) Operator's Telephone Circuits Not Equipped for Monitoring

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

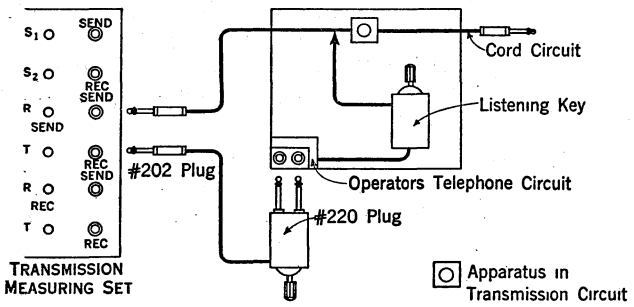

Figure 2

2.11 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.

2.12 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.

2.13 From the results of tests on the cord circuits of the position choose a cord circuit which shows no transmission troubles and use it to make the following tests of the operator's telephone circuit.

2.14 Insert the plug (answering or calling as the case may be) of the cord circuit to which the operator's telephone circuit is connected when in the talking position in the proper type sending jack of the transmission measuring set.

Note: When the listening key of a cord circuit is operated, the telephone circuit is bridged on one end of the cord circuit, depending on the wiring arrangement of the latter circuit. Transmission measurements of the telephone circuit wiring should be made using the cord adjacent to the telephone circuit bridge.

2.15 Measure the transmission loss with all keys of the cord circuit normal.

2.16 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.

2.17 Check for loose connections or defective jack contacts by moving the No. 220 plug up and down with slight pressure and by tapping lightly on the jack mounting.

2.18 Measure the transmission loss.

Note: The difference between the measurements made in Paragraphs 2.15 and 2.18 will be the loss of the operator's telephone circuit in the bridged talking condition.

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

2.20 Insert the No. 202 plug associated with the No. 220 plug in the receiving jack of the transmission measuring set.

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

2.22 Measure the transmission loss.

Note: The difference between the measurements made in Paragraphs 2.15 and 2.22 will be the loss of the operator's telephone circuit in the transmitting condition.

(C) Operator's Telephone Circuits Equipped for Monitoring

2.23 Follow the procedures outlined in Paragraphs 2.10 to 2.18, inclusive.

2.24 Operate the listening key to the monitoring position.

2.25 Measure the transmission loss.

Note: The difference between the measurements made in Paragraphs 2.15 to 2.25 will be the loss of the operator's telephone circuit in the bridged monitoring condition.

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

2.27 Insert the No. 202 plug associated with the No. 220 plug in the receiving jack of the transmission measuring set.

2.28 Operate the key of the No. 220 plug to the R position.

2.29 Measure the transmission loss.

Note: The difference between the measurements made in Paragraphs 2.15 and 2.29 will be the loss of the operator's telephone circuit in the receiving monitoring condition.

2.30 Operate the listening key of the cord circuit to the talking position.

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

2.32 Measure the transmission loss.

Note: The difference between the measurements made in Paragraphs 2.15 and 2.32 will be the loss of the operator's telephone circuit in the transmitting condition.