BELL SYSTEM PRACTICES
Outside Plant Construction and Maintenance

SECTION G50.213.1
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AT&T Co Standard

CABLE TESTING—GENERAL
IDENTIFYING CONDUCTORS—43A TEST SET

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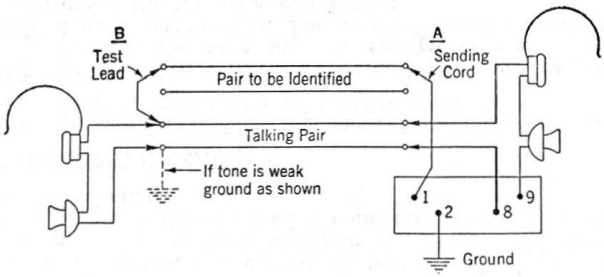
1. GENERAL

1.01 This section outlines the method of identifying conductors using tone from the modified 43A test set.

2. DEAD CABLES

2.01 In dead cables the tone on the pairs is identified by metallic connection to the wires. Make the connections at the sending end A and at the identifying end B as illustrated below, and proceed as follows:



(1) At A, select a pair that is to be identified and connect the sending cord to one wire of the pair. Operate switch S1 to the SIGNAL position. The tone will be heard in the talking circuit and thus indicate at B that a pair is to be identified. Then operate switch S1 to the SEND position.

(2) At B, run over the conductors under test until the pair with tone is located.

(3) After the pair has been located, identify each wire of the pair with tone.

2.02 If the cable is of very short length, the tone heard in the receivers may be too weak to identify the conductors. In this event, the volume of tone can be increased by placing a ground on the talking pair at B, on the side opposite the one to which the test lead is connected, as indicated in the preceding sketch.

3. WORKING CABLES

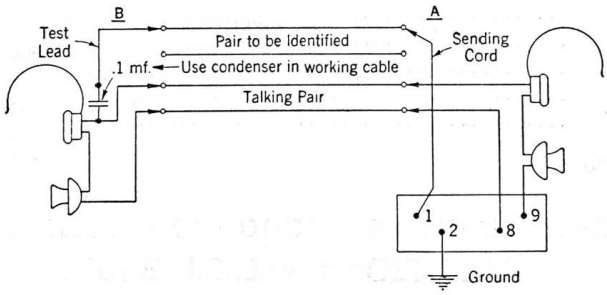
3.01 In working cables the method of identification will depend on the type of circuits involved.

3.02 In a **Cable or Complement Containing No Special Circuits** the tone may be sent from the splice and identified at a termination. The method described below can be used under the following conditions:

(a) In working cable that does not contain special circuits.

(b) In a complement that does not contain special circuits, provided that the complement can be identified and segregated from the other working complements.

3.03 Make the connections at the sending end A and at the identifying end B as illustrated below, and proceed as follows:



(1) At A, select a pair that is to be identified. With switch S1 in the LIS position, connect the sending cord to one wire of the pair and listen to determine if the pair is in use. If the pair is idle or spare, operate switch S1 to the

SIG position and then to the SND position. In the SIG position, tone will be heard on the talking circuit and thus indicate at B that a pair is to be identified.

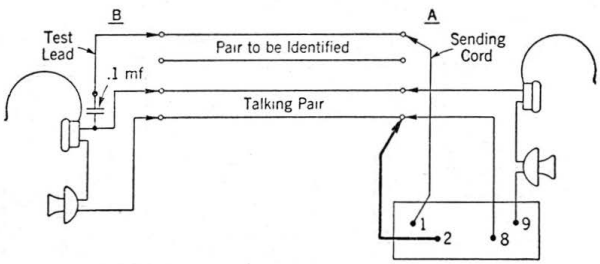
(2) At B, run over the conductors under test using the lead from the 1/10 mf condenser, until the pair with tone is located.

(3) After the pair has been located, identify each wire of the pair with tone.

3.04 If the conductors are being identified at a main frame by running the test point along the springs, avoid making contact between two adjacent springs, because it may cross two working circuits and result in service interruption.

3.05 In identifying conductors in a cable containing working pairs, care must be taken at both A and B to avoid contact with any wire in a complement that may contain special circuits.

3.06 If the cable is of very short length, the tone heard in the receivers may be too weak to identify the conductors. In this event, the volume of tone can be increased by connecting post 2 to one side of the talking circuit instead of to ground at A. As indicated below, the connection should be made to the side opposite the one to which the test lead is connected at B.

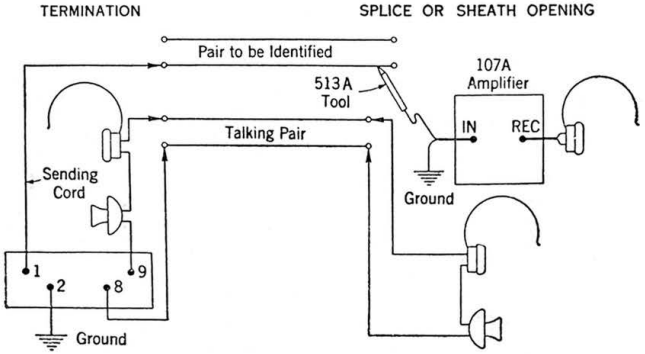


3.07 In a **Cable or Complement Containing Special Circuits,** the tone must be sent from a termination where the identity of the circuits is known. The method described below can be used under the following conditions:

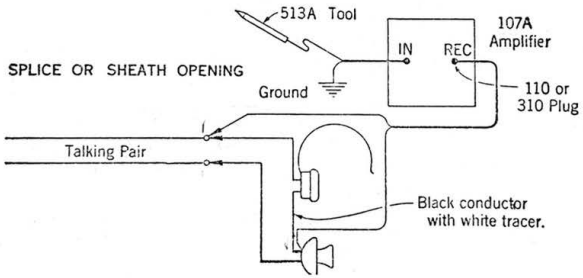
(a) After a listening test is made on spare conductors and on conductors used for subscriber circuits or interoffice trunk circuits.

(b) After authorization has been obtained to turn down or open conductors that are used for special circuits.

3.08 At the identifying end, the conductors must be identified by means of an amplifier and probe. The connections at the sending end A and at the identifying end B are made as illustrated below.



3.09 The above drawing shows the amplifier and the talking set at the identification end operated with separate receivers. For convenience the talking set and the amplifier can be connected as shown below which permits using one receiver.



3.10 The conductors should be identified as follows:

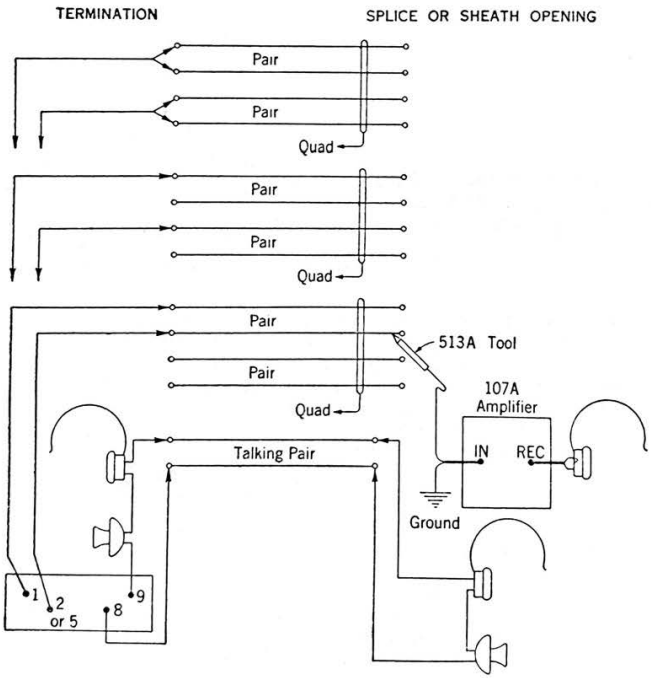
(1) At the sending end A, select a conductor to be identified. With switch S1 in the LIS position, connect the sending cord to one wire of the pair and if it is a working pair, listen to determine whether it is busy. If the pair is idle, operate the key to the SIG and then to the SND

position. In the SIG position the tone will be heard in the talking circuit and indicate to the man at the identifying end that a pair is ready to be identified.

(2) At the identifying end, probe through the conductors with the 513A tool until the conductor with tone is located.

(3) After the pair or quad has been located identify each wire with tone.

3.11 In long quadded cable it is advisable to use non-grounded (metallic) tone from posts 1 and 2 or posts 1 and 5. The tone from posts 1 and 5 should be used if it is found that the tone from posts 1 and 2 is hard to detect. The quad on which the tone is sent must be non-working, either a spare or one from which the circuits have been rerouted or turned down. The non-grounded tone can be sent in one of the following ways.



3.12 When grounded tone is sent in a long cable, particularly if the cable is loaded, or when tone is sent non-grounded, as in a long quadded cable, it may be impossible to distinguish the individual wires on which tone is sent. If the individual wires in the pair or quad must be identified it can be done by one of the methods given in the Section on **Identifying Long Conductors.**

4. TRANSPOSED CONDUCTORS

4.01 Care must be taken in identifying conductors that seem to be transposed with a pair in a different complement. If the identification is being done in a complement that does not contain special circuits and it is believed that a conductor is transposed with one in a complement that contains such circuits, the identification operations in the suspected complement must be done in accordance with the rules given in Paragraphs 3.07 to 3.09.

5. INTERCONNECTED CONDUCTORS

5.01 Interconnected conductors, such as battery feeders or those joined through signal lamps, as well as P.B.X. lines that have low resistance to ground, should be identified with the 79-type test set.