

81A TEST SET

1. GENERAL

1.01 This section covers the description, connections, and maintenance of the 81A test set.

1.02 This section is reissued:

- Revise instructions on buzzer adjustment. See 4.05.

- Add Fig. 2.



The 81A test set should not be used on working lines. The buzzer tones would interfere with subscriber's use of these lines and might result in customer trouble reports. If the test set, with the switch in the C position, is accidentally connected to a line that has not been disconnected from central office equipment, the buzzer is operated on 24 or 48 volts rather than 3 volts. This can produce an uncomfortable noise level in telephone sets or operators' sets.

1.03 The 81A test set may be used on inside wiring cable and drop, block, and inside wire to:

- Trace conductor pairs which cannot be traced readily by sight.
- Make continuity tests on conductor pairs.
- Supply talk battery for communicating between two or more terminations of wires or cable.

1.04 It is necessary to use a hand test set with the 81A set when tracing conductors or checking for grounded conductors. It may not be necessary to use a hand test set to detect shorted conductors.

2. DESCRIPTION

2.01 The 81A test set (Fig. 1) consists of a buzzer, capacitor, and switch which are contained in a case made of insulating material. The case is equipped with two spring-type binding posts to which the test leads may be connected. Space is provided within the case for two KS-6522 (standard flashlight) dry cells.

2.02 The switch has three positions: **OFF**, **C** for dc continuity tests, and **T** which furnishes buzzer tone.

2.03 Early model sets are black in color while later sets are gray.

Note: The 81A test set replaces the 38A and 66A test sets.

3. CONNECTIONS

3.01 Test buzzer for operation per 4.06 before using.

3.02 The 81A test set may be connected by means of a W2AK cord, ordered separately.

3.03 Testing for Shorted Conductors: (Fig. 2A)

- (1) With the switch in the **OFF** position, connect 81A test set across the pair of conductors to be tested.
- (2) Push switch to **C** position. If the buzzer buzzes, there is a short across the pair.
- (3) If buzzer does not buzz, (because of high conductor resistance) test for continuity by placing hand test set in series with 81A test set. If there is a click in the receiver, the pair is shorted.

3.04 Testing for Open Conductors: (Fig. 2B)

- (1) Connect 81A test set across the pair of conductors to be tested and push switch to the **T** position to start the buzzer.

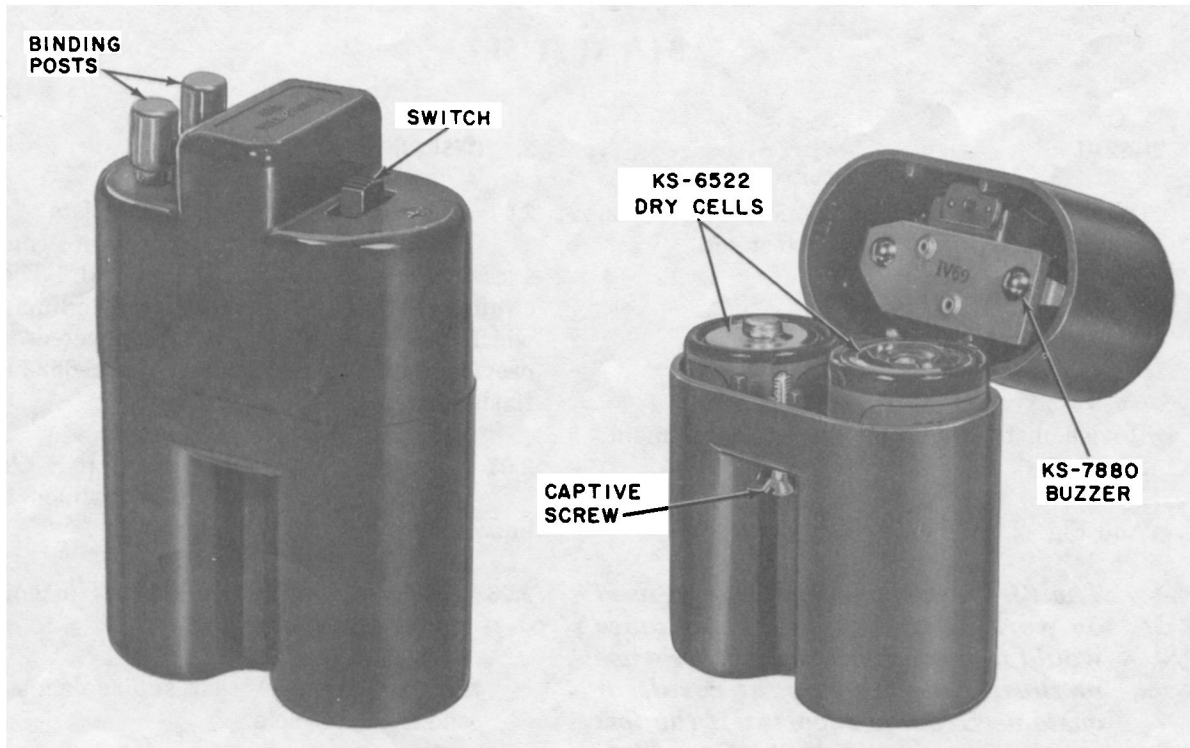


Fig. 1—The 81A Test Set, Closed and Open

(2) Assuming the location of both ends of the pair is known, go to the other end with a hand test set and connect it across the pair.

- If buzzer tone is heard, the pair is not open.
 - If buzzer tone is **not** heard, the pair is open on one side or both.
 - Each side can be checked if a good conductor is available between the two points.
- (3) Connect the 81A test set between one side of the pair being tested and the good conductor at one location.
- (4) Connect the hand test set between the side of the pair being tested and the good conductor at the other location.

- Buzzer tone is an indication that side is not open.
- No buzzer tone is an indication that the side is open.

- A good ground may be substituted for the good conductor.

3.05 Tracing Conductors: (Fig. 2C)

- (1) Connect the 81A test set across the pair of conductors to be traced and test to be sure there is not a short circuit.
- (2) Switch to the **T** position to start buzzer and go to the location at which it is desired to identify the wire.
- (3) Using a hand test set, bridge it across each pair of wires until tone is heard. If tone cannot be heard on any pair, either the pair does not appear at the particular point being tested, or one or both sides of the pair are open.

3.06 Talk Battery Supplied for Two or More Locations: (Fig. 2D)

- (1) Switch to the **C** position and connect a cord of the 81A test set to a cord of a hand test set.

- (2) Connect the other 81A test set cord to one of the conductors to be used for the talking path.
- (3) Connect the other hand test set cord to the second conductor to be used for the talking path.
- (4) The second hand test set may be connected to the same pair of conductors at the other termination.
- (5) A talking path may be established in this way for purposes such as cable transfers where no other supply of talk battery is available.
- (6) If the buzzer operates when using the 81A test set for talk battery supply, temporarily silence it by turning the buzzer adjusting screw in a counterclockwise direction.

4. MAINTENANCE

- 4.01 Test set should be stored in a dry location when not in use.
- 4.02 Replace weak batteries.
- 4.03 Do not drop or mishandle test set.
- 4.04 The battery cells must be placed in the test set in series: one right side up and the other upside down (Fig. 1). The battery contact

spring may be removed readily for cleaning if necessary.

4.05 ¶The buzzer should operate when the switch is moved to the *T* position. If it is found necessary to adjust the buzzer's tone, a hole is provided in the upper rear half of the case for access to the buzzer adjusting screw. Adjust buzzer as follows:

- (1) Adjust for maximum volume and pitch by turning adjusting screw in a counterclockwise direction *first*.
- (2) If the desired tone cannot be obtained counterclockwise, turn the screw in a clockwise direction.

Caution should be observed when turning screw clockwise to prevent overturning and permanent distortion of the armature contact spring.

- (3) When maximum volume and pitch are obtained, back screw (counterclockwise) one-eighth turn.¶

4.06 To test 81A test set:

- (1) Operate switch to *T* position; buzzer should operate.
- (2) Operate switch to *C* position; buzzer should not operate. Place short across the two binding posts; buzzer should operate.

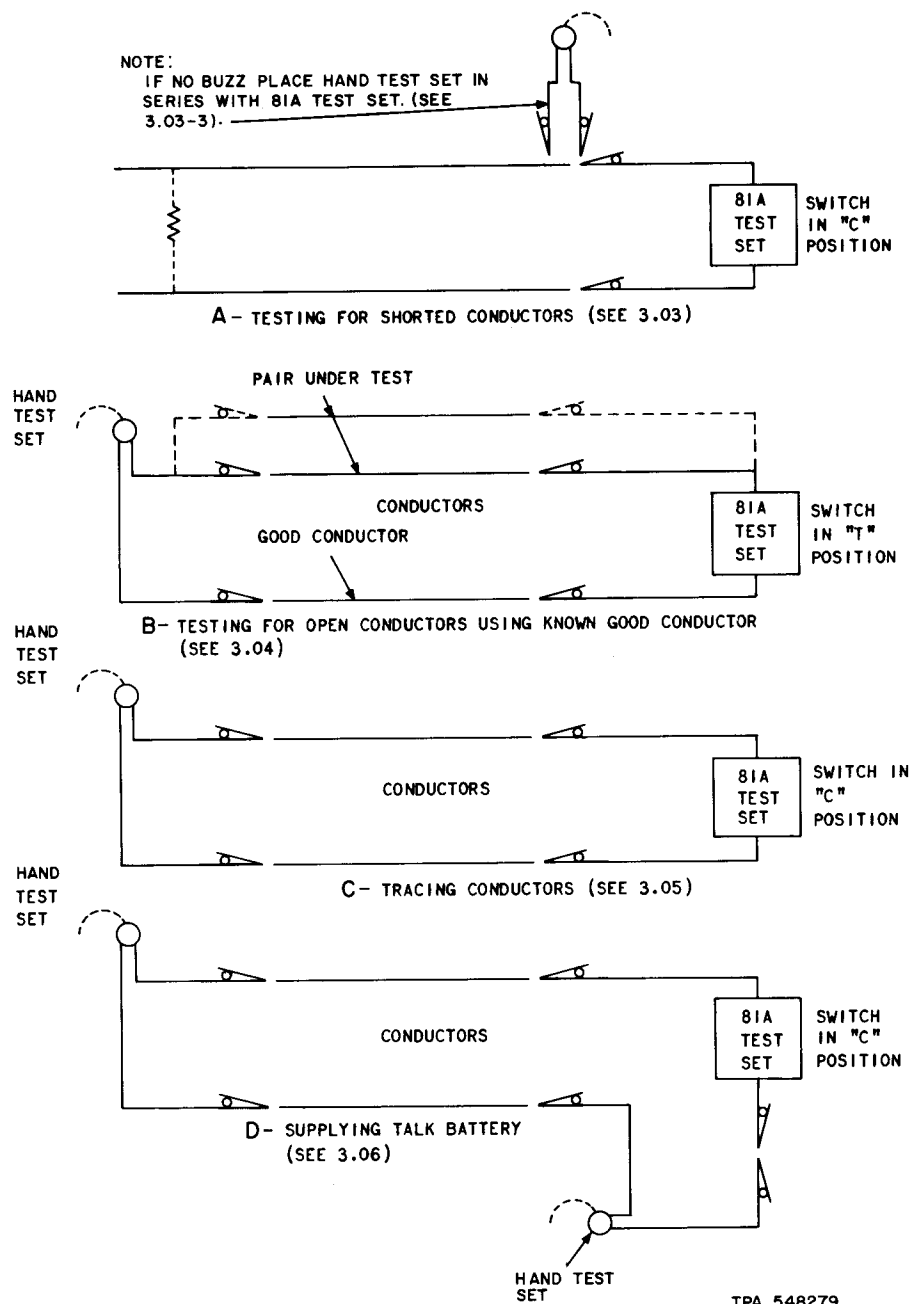


Fig. 2—Test Methods Using 81A Test Set

81A TEST SET

1.00 INTRODUCTION

This section covers the description, connections, and maintenance of the 81A test set.

2.00 GENERAL



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3.00 DESCRIPTION

3.01 The 81A test set, shown in Fig. 1, consists of a buzzer, capacitor, and switch which are contained in a case made of insulating material. The case is equipped with two spring-type binding posts to which the test leads may be connected. Space is provided within the case for two KS-6522 (standard flashlight) dry cells.

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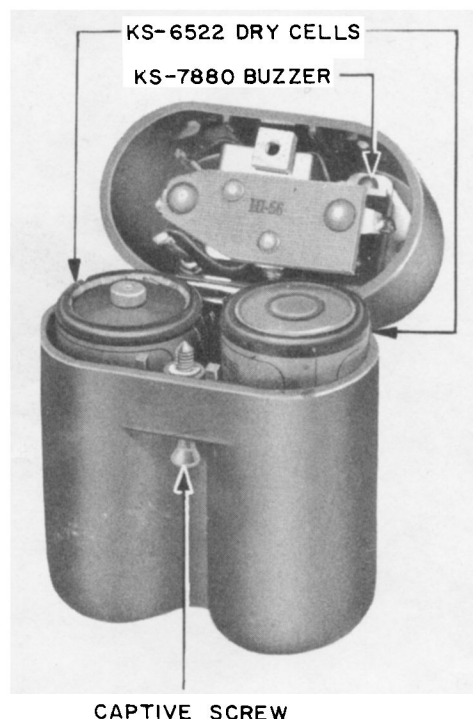
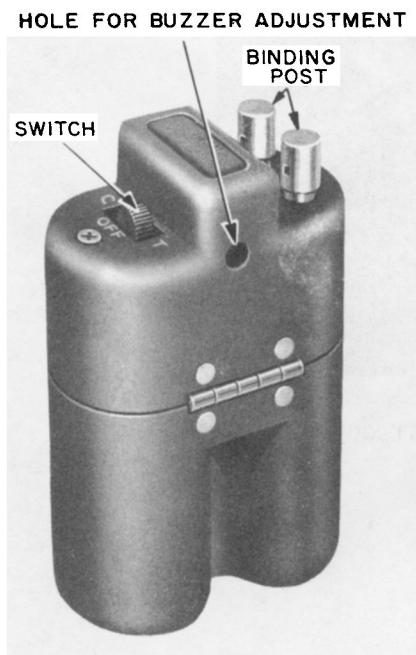


Fig. 1 — The 81A Test Set, Closed and Open

4.00 CONNECTIONS

4.01 The 81A test set may be connected by means of a W2AK cord, see Fig. 2.

4.02 Testing for Shorted Conductors

1. With the switch in the **OFF** position, connect 81A test set across the pair of conductors to be tested.
2. Push switch to **C** position.
 - If the buzzer buzzes, there is a short across the pair.
3. If buzzer does not buzz, test for continuity by placing hand test set in series with 81A test set. If there is a click in the receiver, the pair is shorted.

4.03 Testing for Open Conductors

1. Connect 81A test set across the pair of

conductors to be tested and push switch to the **T** position to start the buzzer.

2. Assuming the location of both ends of the pair is known, go to the other end with a hand test set and connect it across the pair.
 - If buzzer tone is heard, the pair is not open.
 - If buzzer tone is **not** heard, the pair is open on one side or both.
 - Each side can be checked if a good conductor is available between the two points.
3. Connect the 81A test set between one side of the pair being tested and the good conductor at one location.
4. Connect the hand test set between the side of the pair being tested and the good conductor at the other location.
 - Buzzer tone is an indication that side is not open.

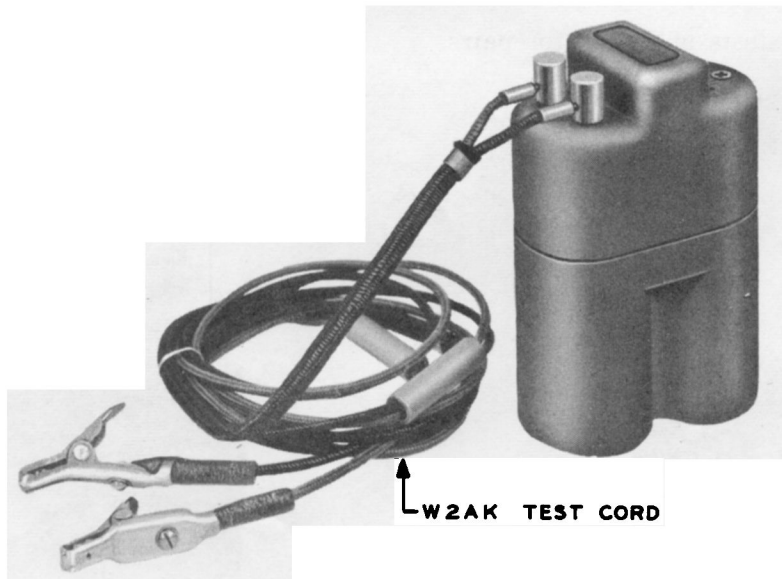


Fig. 2 – W2AK Cord

- No buzzer tone is an indication that the side is open.
- A good ground may be substituted for the good conductor.

4.04 Tracing Conductors

1. Connect the 81A test set across the pair of conductors to be traced and test to be sure there is not a short circuit.
2. Switch to the **T** position to start buzzer and go to the location at which it is desired to identify the wire.
3. Using a hand test set, bridge it across each pair of wires until tone is heard.
 - If tone cannot be heard on any pair, either the pair does not appear at the particular point being tested, or one or both sides of the pair are open.

4.05 Talk Battery Supplied for Two or More Locations

1. Switch to the **C** position and connect a cord of the 81A test set to a cord of a hand test set.
2. Connect the other 81A test set cord to one of the conductors to be used for the talking path.
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4. The second hand test set may be connected to the same pair of conductors at the other termination.
5. A talking path may be established in this way for purposes such as cable transfers where no other supply of talk battery is available.

6. If the buzzer operates when using the 81A test set for talk battery supply, temporarily silence it by turning the buzzer adjusting screw in a clockwise direction.

5.00 MAINTENANCE

- 5.01 Test set should be stored in a dry location when not in use.
- 5.02 Replace weak batteries.
- 5.03 Do not drop or mishandle test set.
- 5.04 The battery cells must be placed in the test set in series: one right side up and the other upside down, see Fig. 1. The battery contact spring may be removed readily for cleaning if necessary.
- 5.05 A hole is provided in upper half of the case at the rear to permit screw driver access to the buzzer adjusting screw. The correct adjustment of buzzer is as follows:
 1. Operate switch to **T** position; buzzer should operate.
 2. Adjust adjusting screw until the volume and pitch of the tone is at maximum.
 3. Back screw (counterclockwise) one-eighth turn.
- 5.06 To test 81A test set:
 1. Operate switch to **T** position; buzzer should operate.
 2. Operate switch to **C** position; buzzer should not operate.
 3. Place short across the two binding posts; buzzer should operate.