

188A TEST SET
(STOP LITE)
DESCRIPTION AND USE

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- Street light fixtures
- Mobile homes
- Metal frameworks
- Power cables
- Metallic conduit.
- Pedestals

1.02 Whenever this section is reissued, the reasons for reissue will be given in this paragraph.

1.03 The 188A test set is designed to test for hazardous voltages in the range from 50 to 20,000 volts, 60 Hz, ac. The test set does not indicate the amount of voltage but only indicates when a hazardous voltage is present. For ac testing, no ground wire is connected to the test set ground lug. When ac testing, the test set measures the voltage between the object and you. When the test set indicates energized plant, notify your supervisor and the power company. **Do not touch the energized plant.**

1.04 When used with a ground wire, the test set can safely test dc voltages up to 2000 volts.

1. GENERAL

1.01 This section covers the description and use of the 188A test set (Stop Lite). The test set is used to test the following for hazardous voltages:

- Power ground wires
- Strand

NOTICE

Not for use or disclosure outside the
Bell System except under written agreement

2. PRECAUTIONS

- 2.01** Do not drop the 188A test set as rough handling may damage the internal parts. If the test set develops any cracks, return for service.
- 2.02** Keep the cover over the probe end to prevent damage to the probe tip. Keep the test set clean.
- 2.03** Before climbing a pole, make a visual observation for potential hazards.
- 2.04** Perform a self-check before using the set to verify that the test set is operational.

- 2.05** When using the probe, keep fingers behind the flash guard at all times.



Do not take unnecessary risks when potential electrical hazards are present.

3. DESCRIPTION

- 3.01** The 188A test set (Fig. 1) is a yellow plastic two-piece unit that weighs approximately 1 pound. The front housing contains the carbide probe tip and the light emitting diode (LED) voltage indicators (one green and one red), Fig. 2.

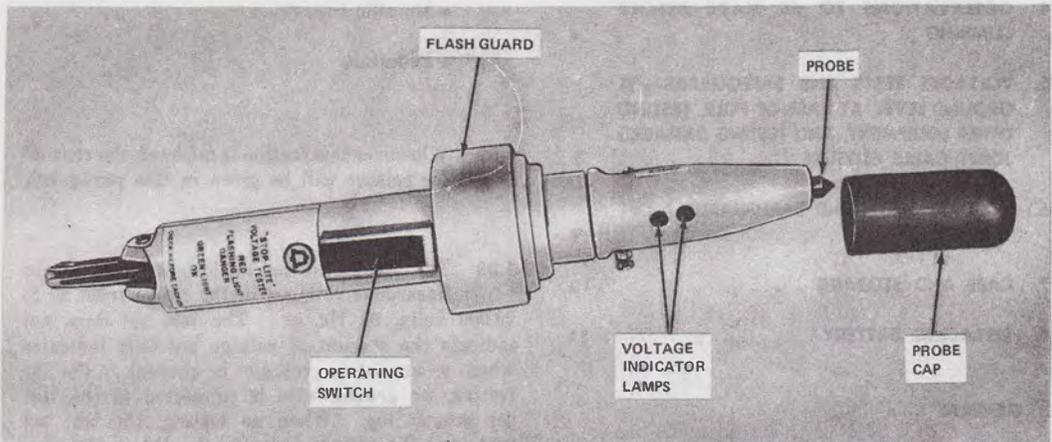


Fig. 1—188A Test Set

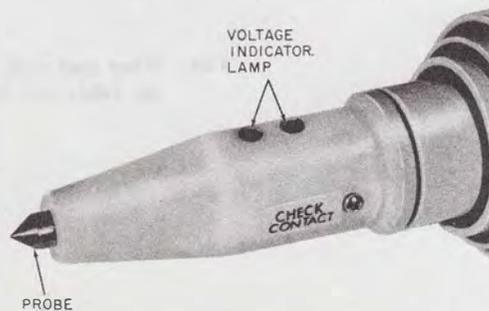


Fig. 2—Voltage Indicators

3.02 Once the red flashing indicator appears, it will be "locked up" as long as the switch is depressed. This allows the employee to remove the test set and read the LED display. The green LED indicates that the object is safe. The flashing red light indicates presence of a foreign voltage.

3.03 C Canvas Bag: An AT-8338 canvas bag is available to carry and store the 188A test set and B temporary bond (Fig. 3).

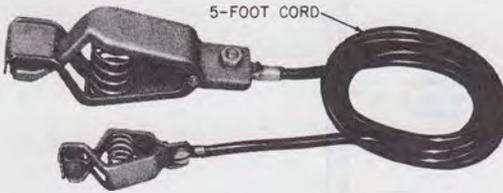


Fig. 3—B Temporary Bond

3.04 Shunting Capacitor: Refer to Section 081-705-103 for information on use of B shunting capacitor. Local rules govern use of the shunting capacitor.

3.05 The B shunting capacitor is not to be used for any other purpose except as described in Section 081-705-103.

3.06 B Temporary Bond: The B temporary bond (Fig. 3) is used to temporarily ground a light fixture, metallic conduit, power company hardware power ground wire, or other metallic objects in the telephone company work space which could become energized if a fault developed. The B temporary bond is placed on such attachments only after the metallic object has first been tested with the 188A test set and found to be free of a voltage potential. When placed, the bond is first attached (small clamp) to a reliable ground source and then to the metallic object. When the work is completed, the bond is removed from the metallic object and then the ground source. Should a fault develop when the B temporary bond is in place, the insulation may overheat and smoke which should alert the employee to descend the pole immediately and avoid contact with the bond.

4. OBSERVATIONS TO BE MADE BEFORE CLIMBING

4.01 Examine the pole for potential electrical hazards (Fig. 4) such as a vertical power ground wire, vertical metallic power conduit, street light fixture, power company primary disconnect hardware, or other foreign metal objects. Also,

observe the pole and adjacent spans for such hazards as improper clearance from power conductors or equipment, dangling power wires, inadequate clearance on pole-to-pole guys from power wires or energized attachments, etc. If none of these are present, the pole may be climbed providing no other hazard is evident.

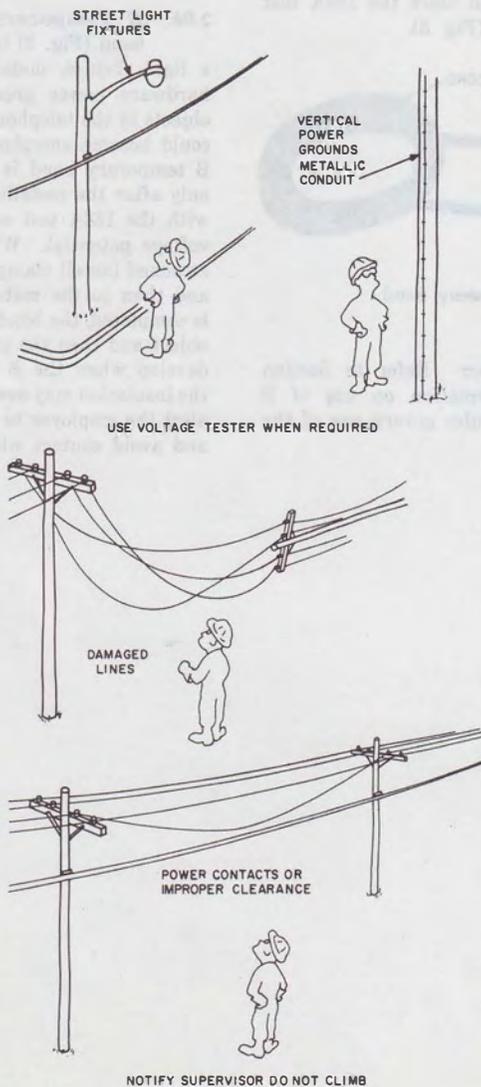


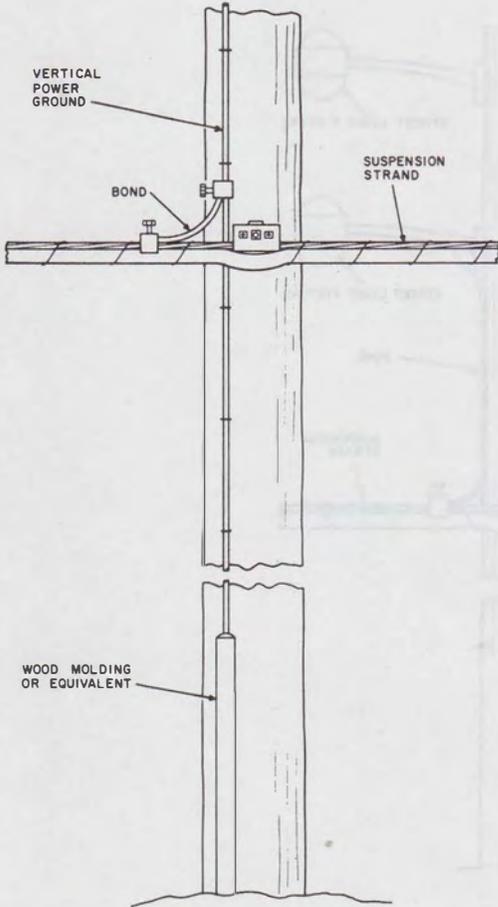
Fig. 4—Visual Inspection for Potential Electrical Hazards

4.02 If a vertical power ground wire is present, make a voltage test in accordance with Part 5 before climbing or working on the pole unless it can be clearly seen that the conduit or hardware is bonded to telephone cable strand.

4.03 If a vertical metallic power conduit or other power company hardware extends to the base of the pole, make a voltage test in accordance

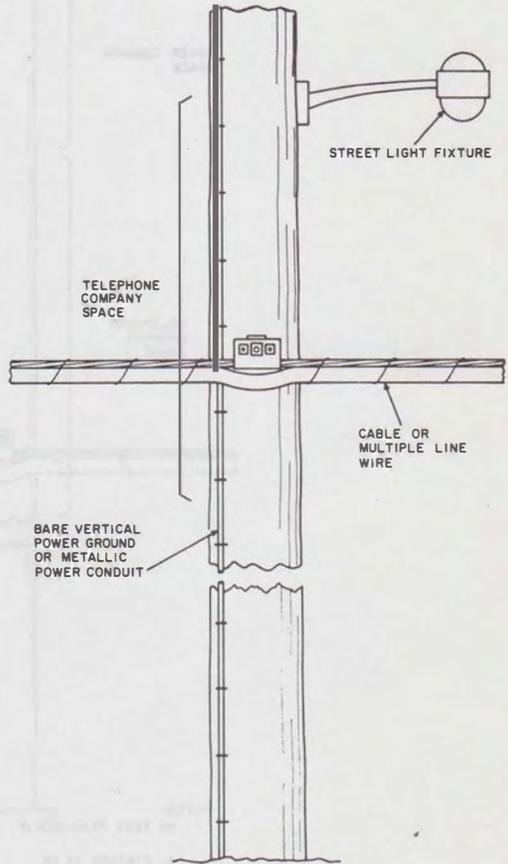
with Part 5 before climbing or working on the pole unless it can be clearly seen that the conduit or hardware is bonded to telephone cable strand.

4.04 When a pole carries multiple line wire, telephone cable, or a bare vertical power ground wire and a street light fixture (Fig. 6), test in accordance with Part 6.



NOTES:

1. NO TEST REQUIRED IF:
 - A. VERTICAL GROUND IS BONDED TO SUSPENSION STRAND
 - B. COVERED BY UNDAMAGED INSULATION
 - C. WOOD MOLDING EXTENDS THROUGH TELEPHONE COMPANY SPACE.
2. IN ALL OTHER CASES TESTER MUST BE USED.



NOTE:

- VOLTAGE TEST REQUIRED IF POLE ALSO CARRIES:
- A. TELEPHONE CABLE
 - B. MULTIPLE LINE WIRE
 - C. BARE VERTICAL POWER GROUND
 - D. METALLIC POWER CONDUIT

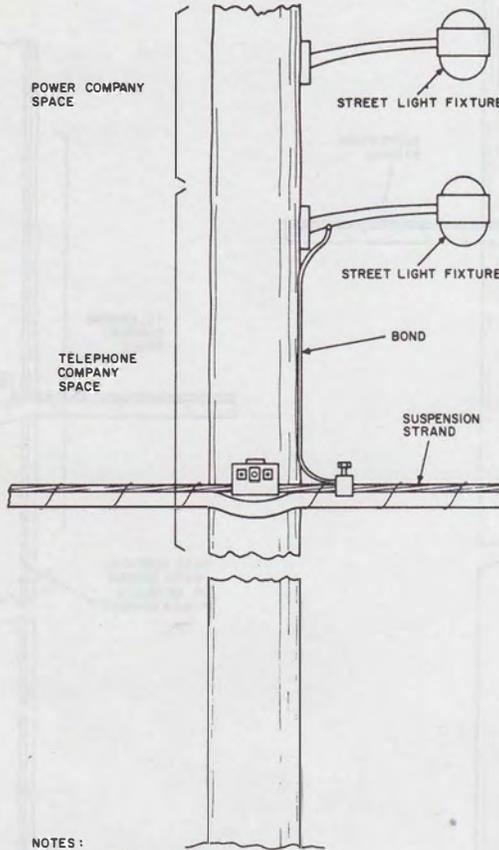
Fig. 5—Vertical Power Ground—Not Requiring Use of 188A Test Set

Fig. 6—Street Light Fixtures Requiring Use of 188A Test Set

4.05 If a street light fixture is present in the telephone space on a pole not carrying a telephone cable or a bare vertical power ground wire, wear insulating gloves and avoid contact with it or its wiring since it is not possible to place a temporary bond to an effective ground.

4.06 Voltage tests are not required at poles with street light fixtures as illustrated in Fig. 7.

DANGER: Do not contact supply wires going to the fixture.



- NOTES:
- 1. NO TEST REQUIRED IF:
 - A. FIXTURE IS IN POWER COMPANY SPACE
 - B. FIXTURE IS BONDED TO SUSPENSION STRAND
 - 2. IF FIXTURE IS BELOW TELEPHONE CABLE AND BONDED TO STRAND. INSULATING GLOVES MUST BE WORN UNLESS THE WIRES FROM THE LIGHT FIXTURE ARE 40 INCHES FROM THE POLE.

Fig. 7—Street Light Fixtures Not Requiring Use of 188A Test Set

5. VOLTAGE TESTS AND SAFEGUARDS—AT GROUND LEVEL, AT BASE OF POLE, TESTING OTHER EQUIPMENT, AND TESTING DAMAGED JOINT CABLE CLOSURE

5.01 At Pole—Vertical Ground Wire, Metallic Conduit, or Other Hardware—When a voltage test is required in accordance with paragraph 4.02 or 4.03, proceed as follows before climbing or working on the pole:

- (a) Examine the tester for cracks. If there are cracks in the plastic, the tester must *not* be used but returned for service. **Do not use.**
- (b) Depress the switch and verify that the green LED is lit. If green LED does not light, check batteries; replace if needed. Repeat verification check. If LED still does not light, do not use.

(c) With the switch depressed, touch both the probe end and “check contact” (Fig. 8). The red LED should flash. If it does not, **do not use.**

(d) The above test should be made before each use.

(e) When approaching a potentially hazardous object, rubber gloves may be worn when testing for high voltage. However, the final test must be performed without gloves.



Hold the handle of the tester and always keep your fingers behind the flash guard rings.

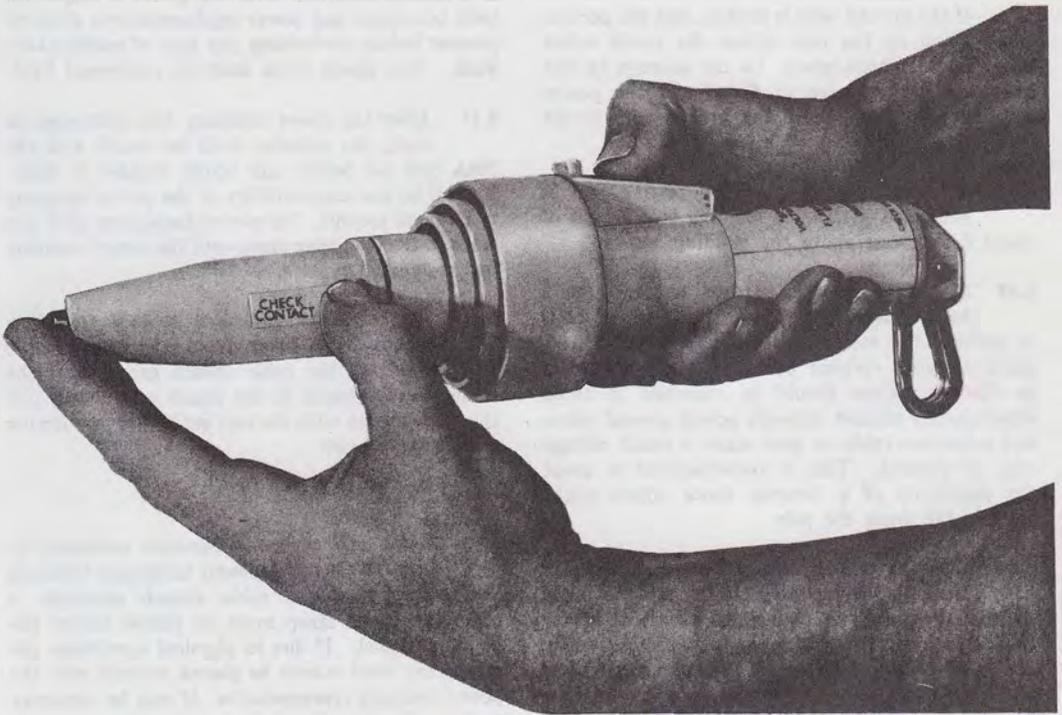


Fig. 8—Checking Test Set Before Use

5.02 Do not touch object suspected of having high voltage (strand, damaged pedestal, or object close to high kV line). Depress and hold switch down as you approach object. Should test set begin to vibrate, hiss, buzz, or red LED flash, immediately move away from object. **Do not touch; call your supervisor.** If none of the above occurs, complete test as outlined in paragraph 5.03.

5.03 First, press the probe end of the tester against the object to be checked for voltage. It may be necessary at times to turn the tester from side to side to break through paint or other surface finish. **Ensure that a reliable contact is made.**

5.04 Second, depress switch and hold down throughout the test. Still holding switch down, remove tester from object being tested. Green LED is safe; flashing red means danger. Call your supervisor.

5.05 If the ground wire is broken, test the portion going up the pole unless the break exists above the telephone space. Do not attempt to test a broken ground wire or fixture in the power company's space. Report any broken wire to the supervisor.

5.06 If a ground wire requires testing and is protected with wood molding to a height of about 8 feet, test above the molding.

5.07 If the voltage tester does not indicate a hazardous voltage by the flashing red LED in making the test described in paragraph 5.05, poles carrying vertical power ground wires may be climbed. Care should be exercised to avoid simultaneous contact between power ground wires and telephone cable or guys since a small voltage may be present. This is recommended to avoid the possibility of a surprise shock which might cause a fall from the pole.

5.08 Testing Other Equipment—Mobile homes, trailers, homes with metallic siding, exposed ends of temporary or abandoned electrical wiring in the immediate work area, joint-use pedestals, etc, could present a potential electrical hazard and are to be tested. If a voltage is detected on these objects, the property owner is to be notified so corrective action can be taken. The employee is to notify his supervisor of the detected fault on the object or on any joint-used pedestal. Do not

contact the potential hazard until all hazardous voltage has been removed and the voltage tester indicates a safe condition.

5.09 Voltage Test—Cable Sheath: When sheath continuity is to be interrupted in joint buried plant for the purpose of locating plant, locating faults, or making splices, it is necessary to test the sheath prior to and after opening it with the 188A test set in accordance with paragraphs 5.01 through 5.04.

5.10 Voltage Test—Damaged Cable Closure Used in Joint-Buried Plant: When a telephone or power pedestal closure (this applies to all closures used in joint-buried plant whether standing alone or mounted back to back with power) has been damaged or disturbed, eg, knocked over or driven into the earth by a motor vehicle or a trouble condition involving power is suspected, both telephone and power representatives shall be present before performing any type of maintenance work. Any power work shall be performed first.

5.11 After the power company has completed its work, the pedestal shall be tested with the 188A test set before any bodily contact is made. It shall be the responsibility of the power company to clear its trouble. Telephone employees shall not work on the telephone plant until the power company has completed repairs.

5.12 If the tester indicates a safe condition, remove the cover from the closure and visually inspect the cable sheath ground. If the cable sheath ground is not intact or is loose, test the cable sheath with the test set before performing maintenance work.

5.13 If for any reason it becomes necessary to open the bonds between telephone facilities and power or across cable sheath openings, a temporary bond strap must be placed before the bond is opened. If due to physical conditions the temporary bond cannot be placed, consult with the power company representative. If may be necessary to deenergize the power briefly for repair operations. When temporary or permanent bonds are placed or removed, **insulating gloves and eye protection must be worn.**

WARNING: *Electrical continuity of all bonds, including cable shield bonds in closures or at splice locations, must be preserved during the repair process. Until the permanent bond is installed, maintain continuity using a temporary bond strap.*

6. VOLTAGE TESTS AND SAFEGUARDS ALOFT

6.01 Street light fixtures, pole-to-pole guys extending near power company facilities, and power company hardware in the Telephone Company workspace must be tested for hazardous potential as follows:

- (a) Put on protective equipment including a hard hat, eye protection, etc, and climb to a convenient height to make the voltage test. Do not contact the suspected hardware, light fixture, or its wiring.
- (b) Test the object in accordance with paragraphs 5.01 through 5.04.
- (c) If the red LED is flashing, immediately remove the probe from contact with the

object being tested. Descend the pole and notify your supervisor. **Do not touch the energized plant.**

- (d) If after depressing the switch and touching the probe tip to the object, the green LED lights, you may proceed with your work after placing a temporary bond as specified in paragraph 6.03.

6.02 Use of B Shunting Capacitor: See paragraphs 3.04 and 3.05.

6.03 Use of the B Temporary Bond—A B temporary bond is used to temporarily ground a fixture, conduit, or bare vertical ground wire (Fig. 9) which has been tested for and found to be free from a voltage potential while working aloft. Should a fault develop, the B temporary bond will provide a direct path to ground for the foreign potential. The insulation on the bond may overheat and smoke which should alert the employee to descend the pole. Using insulating gloves, attach the bond in the following manner: Attach the

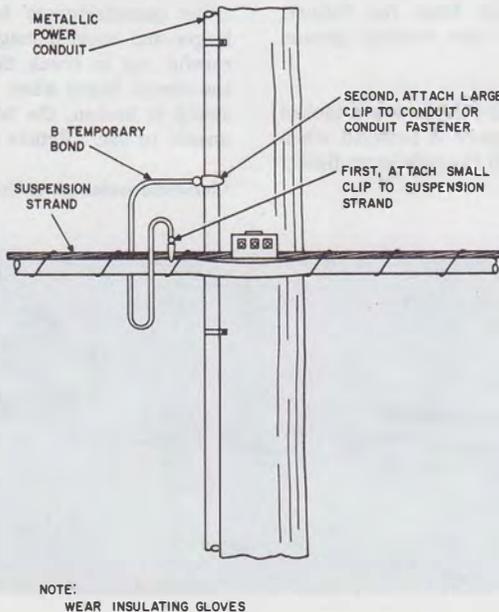


Fig. 9—B Temporary Bond Attachment to Metallic Power Conduit

small clip of the B temporary bond to the cable suspension strand in such a manner that it will not be in the way of work operations; then attach the large clip of the bond wire to the fixture, conduit, or bare vertical ground wire. Do not bond to a support bracket of multiple line wire or the suspension strand of isolated cable. Never attach to any street light wires or terminals to which they are attached or to a fixture which causes the red LED to flash.

6.04 The insulating gloves may be removed only after the temporary bond is in place, and then only if other protection requirements permit. Leave the B temporary bond in place until all work operations have been completed at this pole for the day. If the bond starts smoking, put on insulating gloves and descend the pole immediately. Avoid contact with the bond, the fixture, or its wiring. Notify your supervisor.

6.05 Upon completion of work operations on a pole, remove the B temporary bond as follows:

- (a) Put on insulating gloves.
- (b) First remove the clip from the fixture, metallic conduit, or bare vertical ground wire.
- (c) Remove the other clip which was attached to the strand. If a spark is detected when removing the bond, descend the pole immediately and notify the supervisor.

7. CARE AND STORAGE

7.01 The 188A test set should be handled and stored with reasonable care. Always store the test set in the AT-8838 C storage bag with the B bond clamp. Do not subject the test set to any pressure from other tools or material. Pressure may cause the switch to operate and discharge the battery.

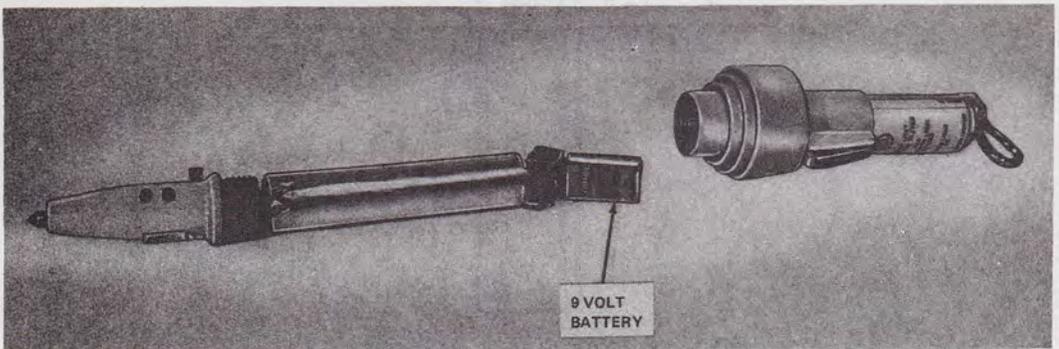
7.02 Remove any dampness or dirt with a clean cloth before using or storing. Keep the instrument free of grease or oil to prevent deterioration of insulation. Use mild soap solution to clean. **Do not use solvents on test set.**

7.03 Avoid exposing or storing the instrument in a hot area such as may be encountered near radiators, etc.

7.04 The instrument is to be carried down or lowered from poles, not dropped, as the impact may damage the internal wiring.

7.05 When replacing batteries (Fig. 10), always use a 9V alkaline such as Eveready* 522. Other manufacturers' batteries may be physically larger and could damage the test set if used. Be careful not to break the metal shield loose from the circuit board when changing batteries. If the shield is broken, the test set will test OK but is unsafe to use. Return the set for service.

*Registered trademark of Union Carbide Corp.



8. REPLACING BATTERY

8.01 To open probe body, unscrew handle in counterclockwise direction and slide handle back from nose piece.

8.02 Gently slide battery out of metal shield as shown in Fig. 10. Replace with new battery and slide into metal shield. Be careful not to get the battery wires between the metal shield and the side of the battery.

8.03 Slide handle over the shield and rotate in clockwise direction until a snug fit is secured. Make sure that the indicator lamp lens lines up with the trigger or the probes switch will not operate.

8.04 When replacing batteries, work in dry place. If water gets in the probe, it probably will not self-test. The O ring provides a watertight seal but does not form a part of the high voltage insulation.