

BELL SYSTEM PRACTICES
Outside Plant Construction
and Maintenance

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AT&T Co Standard

PRESSURE TESTING

B LEAK LOCATOR—POWER UNIT

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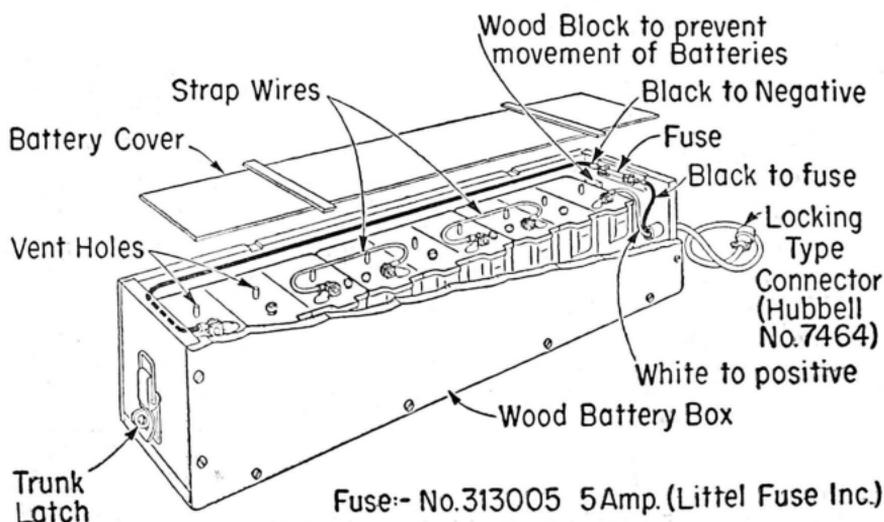
1. GENERAL

1.01 This section describes the power unit of the B Leak Locator and covers the use and maintenance of the lead acid storage batteries. The section also includes precautions on the handling of the batteries to prevent injury to personnel or damage to clothing, painted surfaces, etc., by the battery liquid.

2. DESCRIPTION

2.01 **Battery Box:** The power unit illustrated consists of a wooden box which holds the three small lead-acid storage batteries required to operate the detector. The storage batteries supply current for heating the cathode of the sensitive element and for operating the two blower motors in the detector, also the signal bell.

2.02 The lead-acid batteries are shipped separately in a special container for safe handling. The batteries should be assembled in the battery boxes and connected in series as illustrated.



2.03 The wooden box is equipped with a thin wooden cover as well as catches for fastening the box to the carrier assembly, and a cord for connecting the batteries to the control unit. A fuse is provided as illustrated.

2.04 A wooden block is provided for insertion between the battery and the fuse end of the box, to limit the movement of the batteries.

2.05 **Batteries:** Four sets of three 6-volt 15 ampere-hour capacity storage batteries are furnished with the B Leak Locator. Each set of batteries is connected in series to deliver 18 volts.

2.06 The individual 6-volt batteries consist of 3 cells housed in plastic jars with a raised vent hole and screw capped filling hole. The cells have a clearly marked liquid level line, and each cell has a gravity type charge indicator. The cells are of a non-spilling design, provided the indicated liquid level is maintained.

3. USE OF BATTERIES

3.01 The set of 3 batteries has a capacity of 15 ampere-hours and since the drain is about 3 amperes, each set provides for about 4 hours of continuous operation. Therefore, two sets of batteries are required for a full day of operation.

3.02 Lead-acid batteries gradually lose their charge while in storage and may not be fully charged when received. The batteries are suitable for use, however, provided the red and yellow balls are afloat.

3.03 In order to be sure that the batteries will last 4 hours, the green, white and red balls in the charge indicator should generally be afloat. However, the battery will usually serve if only the green ball has dropped to the bottom.

3.04 The batteries must not be used after the red balls have dropped to the bottom of the charge indicator, as this indicates full discharge.

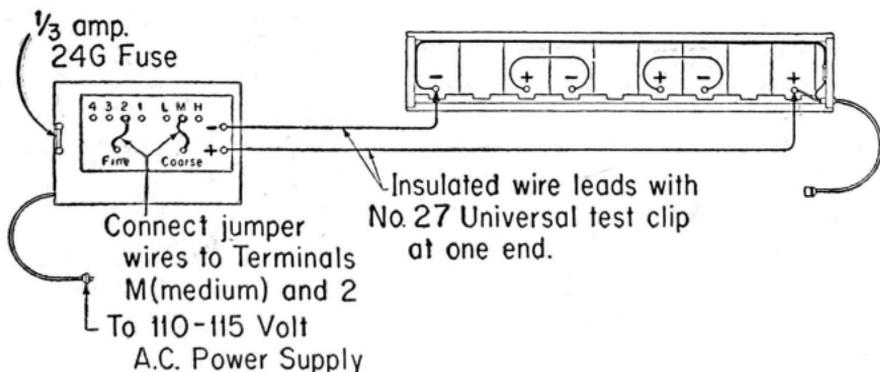
3.05 The change from one set of batteries to the other should generally be made at the middle of the day. Each evening, the discharged batteries should be put on charge. The other two sets are used the second day. This allows about 24 hours for charging.

3.06 While the normal charging period (15 ampere-hours divided by the average charging rate of .7 ampere) will ordinarily ensure adequate charge, the position of the gravity balls is the best indication of the condition of the battery. If the batteries have been idle for several days, be sure to check their condition on the charge indicator to avoid premature discharge.

4. CHARGING AND ADDING WATER

4.01 **Charger:** The standard J86205 B, List 3 Rectifier is used to charge each set of batteries. Since two sets of batteries are generally used each day, two rectifiers should be available. These rectifiers operate from 110-volt a-c power.

4.02 The rectifier has a terminal panel with jumper wires for adjusting the charging rate. The appropriate jumper connections are indicated in the illustration. This arrangement provides a charging rate tapering from about .8 ampere at the beginning of the charge to .6 ampere after 24 hours.

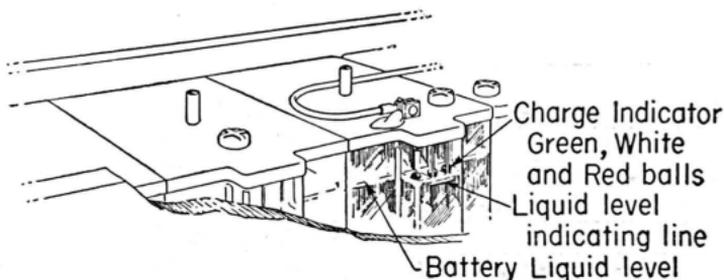


4.03 The rectifier is connected to the battery with 16 gauge tirex or equivalent lamp cord equipped at one end with No. 27 universal test clips and at the other with spade terminals.

4.04 The used batteries should be put on charge at the end of the day and allowed to charge for about 24 hours.

4.05 **Charge Indicator:** As illustrated below, each cell has a small chamber, with three colored balls of different density which indicate the degree of charge of the cell.

4.06 **Charging During Storage:** Lead-Acid batteries lose their charge during storage and deteriorate if not charged periodically. Batteries that are in storage should be charged about once a month.



| Condition of Battery | |
|----------------------|-----------------------------------|
| Full Charge | Green, White and Red balls afloat |
| Half Charge | White and Red balls afloat |
| Full Discharge | Red ball submerged |

4.07 **Liquid Level:** The batteries are charged at the factory and are shipped with electrolyte of the required density in the cells, and filled to the liquid level line. The cells **should not** be filled beyond this line; it is not necessary to have the lead connecting bars covered by the liquid.

4.08 Use only **Distilled Water** in these batteries.

4.09 If the liquid in any cell is not at the required level when received, add distilled water to the cell. This can be obtained at a telephone company garage or at an automobile battery service station.

4.10 **Adding Water:** The electrolyte loses some of its water during charging and by evaporation. When the batteries are in use, they should be lifted out of the box about once a week and distilled water should be added to each cell to bring the liquid level to normal.

4.11 The water should preferably be added just before charging in order to ensure mixing with the electrolyte; if it is added at other times and the battery is left standing at freezing temperatures, the water may freeze.

4.12 All cells will normally lose water at the same rate; if not examine them for possible leaks.

5. CLEANING

5.01 If there is any evidence of electrolyte on top of the battery or in the box, check to see that the liquid level is correct. Also examine the filling hole caps and tighten, if necessary. Clean the battery or box with a cloth wet with ammonia water (household cleaning ammonia will serve). This will neutralize the acid; then wash with a water soaked cloth.

5.02 If any corrosion appears on the metal parts or connections, scrape or brush off; then wash with ammonia and follow with plain water.

5.03 After drying, apply a thin coat of plain vaseline to protect metal surfaces. Lead parts do not corrode and need not be coated.

6. BOX MAINTENANCE

6.01 The battery box and metal catches may deteriorate due to mechanical wear or the action of spilled battery liquid. If either appears to be weak or shows evidence of serious deterioration, the box should be replaced.

6.02 If the finish of the interior of the box becomes worn, refinish with No. 2 Asphalt Paint.

6.03 If the outside finish is worn, refinish with aluminum paint or gray enamel.

7. REPLACEMENT PARTS

7.01 The standard listing of replacement parts is given below:

Battery, Storage, 6 volt, for (3 required per power unit)
B Leak Locator

Box, Battery, for
B Leak Locator

Fuse, No. 313005, 5 amps., (For power unit)
Littelfuse, Inc.

Fuse, 24G, 1/3 amp. (For J86205B List 3 Rectifier)