BELL SYSTEM PRACTICES
Outside Plant Construction
and Maintenance

SECTION G86.060.1
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AT&T Co Standard

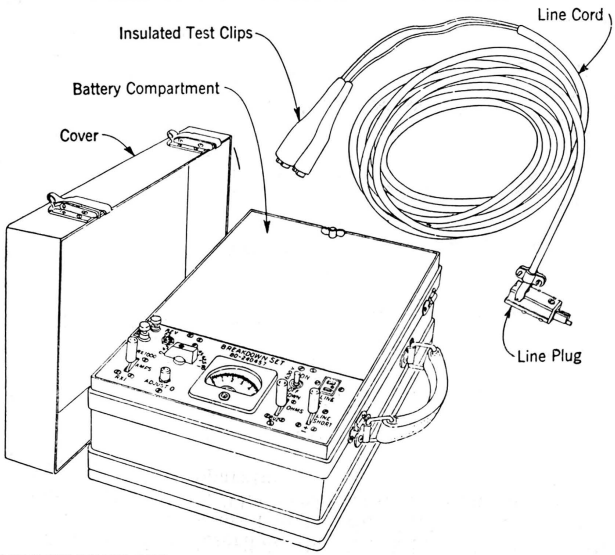
BREAKDOWN TEST SET BO-240457
DESCRIPTION AND MAINTENANCE

Contents

1. GENERAL

1.01 This section describes the Breakdown Test Set BO-240457 which is used in locating high resistance faults in exchange type cable. The section also contains instructions for maintaining this apparatus.

1.02 A sketch of the test set is shown below.



2. DESCRIPTION

2.01 The set contains a group of batteries connected in series to provide 630 volts output, a cut-off switch in series with the 630 volts, a switch for applying this voltage across the two defective wires, a key for reversing the polarity of the battery, a buzzer for use as a source of exploring coil tone and a meter for reading the current flowing through the fault. The meter can also be used to check the resistance of a faulty pair before and after the trouble is broken down.

2.02 The set contains 15 Eveready 738 (45 volt) batteries, two KS-6570 (4.5 volt) batteries and one Bright Star 262 (1-1/2 volt) battery. A diagram of the battery connections is fastened under the battery compartment cover. Instructions for operating the set are shown in the sketch in the cover of the test set.

2.03 The voltage of the buzzer circuit can be varied in steps from 4.5 to 90 by means of the selector switch.

2.04 The OHMS key applies breakdown voltage to the defective pair when pushed to BRKDWN (non-locking) position. When thrown to BUZ (locking) position, tone is

applied to the defective pair. This key must be in the center position when the ohmmeter circuit is used.

2.05 The LINE SHORT key is a three position battery reversing key which in the mid-position disconnects the battery from the line posts and short-circuits the pair. The forward and back positions are used to reverse the breakdown battery connections to the LINE jack.

2.06 The AMPS key (non-locking) controls the meter circuit. When this key is in the R x 1 position the line resistance can be read directly from the upper scale (0-2000 OHMS) of the meter; with the key in the RX1000 position the line resistance is 1000 times the reading on the upper scale (0-2 MEGOHMS) of the meter. With the key in the mid-position the current flow from the breakdown battery can be read directly on the lower scale (0-5 amperes) of the meter.

2.07 A special line cord is provided having a plug at one end and Universal test clips at the other end. Storage space for the cord is in the cover of the set.

2.08 Auxiliary battery for Wheatstone bridge measurements can be obtained from the BRDG-BAT binding posts on the set. This voltage is controlled by the selector switch, in steps from 4.5 to 90. The REV key can be used as a battery reversing key when the bridge is being employed for locating opens.

2.09 The ADJUST O knob is used for adjusting the ohmmeter. With the line cord clips short-circuited and the AMPS key in the R x 1 or R x 1000 position turn the knob until the ohmmeter reads zero.

3. MAINTENANCE

3.01 The batteries in the set should be tested about once a month and at any other time when their condition is doubtful. This test is made by short-circuiting the breakdown set leads, inserting the plug into the LINE jack and then, momentarily, throwing the OHMS key to the BRKDWN position. If the current flow is less than 1 ampere the batteries should be tested individually.

3.02 The individual Eveready 738 batteries should be tested by momentarily connecting a 5 ampere d-c ammeter across the terminals. Any battery that shows less than 1 ampere current on this test should be replaced.

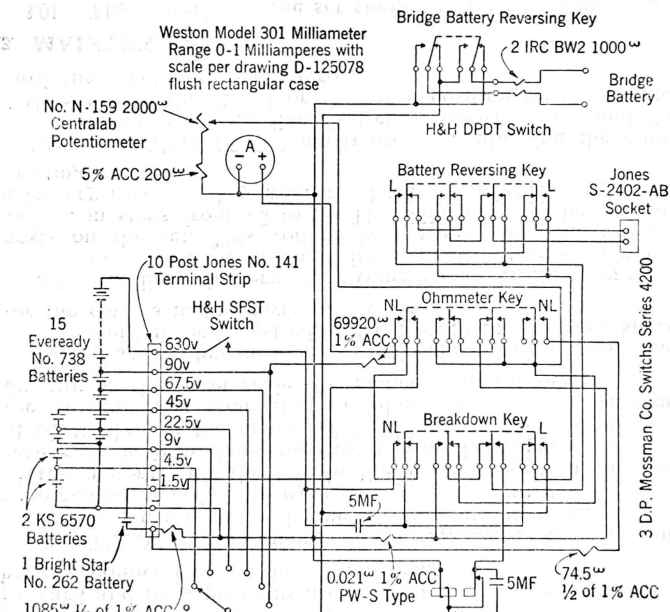
3.03 The 1-1/2 volt Bright Star 262 battery and the two 4-1/2 volt KS-6570 batteries should be tested with a KS-8455, 89-A test set or equivalent voltmeter. The 1-1/2 volt battery should be changed when the ohmmeter in the

breakdown set can not be adjusted to zero as outlined in Paragraph 2.09. To test the 4-1/2 volt batteries place a voltmeter across the terminals marked BRDG and BAT. Then short-circuit the clips of the line cord, set the selector switch to 9 volts and operate the OHMS key to BUZ. If the reading on the voltmeter is less than 7 volts the batteries should be changed.

4. DIAGRAM

4.01 A schematic circuit diagram of the Insulation Breakdown set is shown below.

BREAKDOWN TEST SET BO-240457
Schematic



NOTE
Resistances made by Precision Resistor Co.
all are type R except as noted