

## LOCAL TEST CABINET NO. 2

### DESCRIPTION OF EQUIPMENT

#### 1. GENERAL

1.01 This Section describes the Local Test Cabinet No. 2 per SD-96002-01 and J94717. This test cabinet is intended primarily for use in testing subscriber lines and trunks in magneto offices and in small common battery manual and dial offices. It is also suitable for use at the main distributing frame or protector frame in large offices as a supplementary testing facility.

1.02 The features of the Local Test Cabinet No. 2 are as follows:

(a) A voltmeter testing feature employing a 100,000 ohm voltmeter with a 60 line 120-volt scale affords means for detecting grounds, crosses and opens. It also enables measurements to be made of insulation resistance, line resistance and capacity.

(b) An insulation breakdown test feature affords means for detecting imperfect insulation. Where this feature is used, the necessary breakdown voltage is supplied from a 200-volt dry cell battery.

(c) Facility for removing generator ground from one side of a divided ringing line, while ringing, renders it possible to ring bells at stations when a receiver has been left off the hook.

(d) Connecting arrangements are such that the test cabinet may be connected to a line at the switchboard in a manual office by means of a patching cord or at the protectors in either a dial or manual office by means of an M.D.F. cord. The battery and ground supply may be permanently wired to the test cabinet or may be connected by means of a battery cord plugged into a jack in the test cabinet. In this case, the other end of the battery supply cord may be plugged into a battery supply jack or the cord may be equipped with clips and connected directly to the terminals of a dry cell battery block.

(e) The cabinet may be used as portable testing equipment or it may be mounted in a permanent location, as on an end panel of a manual switchboard or on a short main distributing frame or protector frame.

#### 2. EQUIPMENT ARRANGEMENTS OF TEST CABINET

2.01 The apparatus of the local Test Cabinet No. 2 is mounted in the "size A"

(hand size) standard portable test set housing. The approximate dimensions of this box are 6" x 4" x 4".

2.02 On the face of the top panel, as shown in Fig. 1, are mounted a KS-7024 voltmeter, three keys for controlling the tests and two jacks designated TLK and TST.

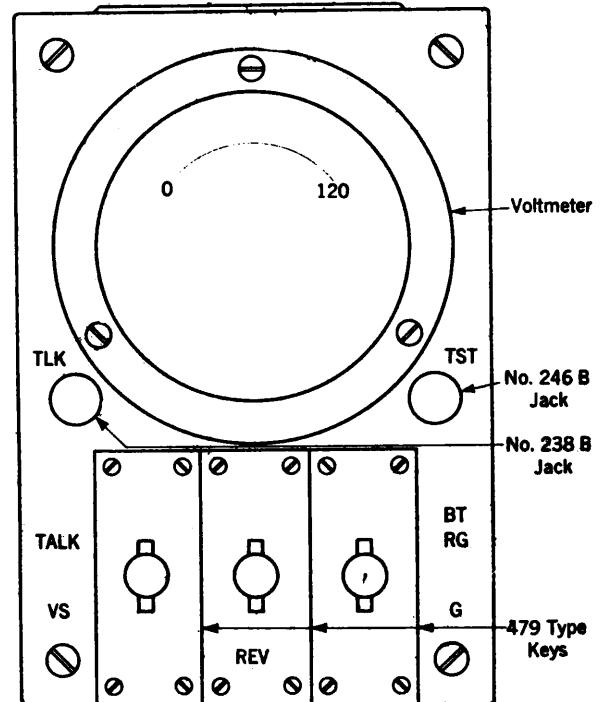


Fig. 1 - Arrangement of Equipment in the Top Panel.

2.03 The jack panel at the end of the test cabinet is equipped with the BAT G jack and the twin jacks MF 1 and MF 2. A hole is drilled in this panel to afford an entrance for the battery and ground leads where required. The arrangement of this equipment is shown in Fig. 2.

2.04 The jack designated TLK is for use with a switchboard cord and the jack designated TST is for use with a patching cord. As supplied by the manufacturer the test cabinet is wired and equipped for use with a switchboard having No. 110 plugs, the TLK jack taking a No. 110 plug and the TST jack, a No. 109 plug. Where No. 109 plugs are used at the switchboard, these two jacks are interchanged at the time of installation so that the switchboard cords with No. 109 plugs may be plugged into the TLK jack in the cabinet. The patching cord

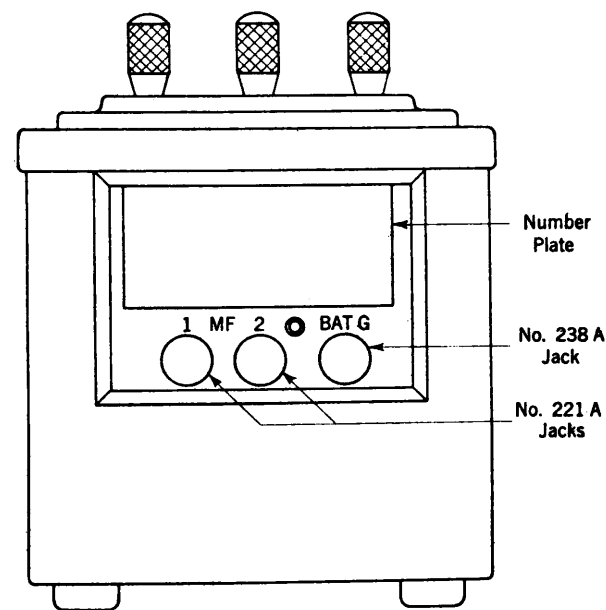


Fig. 2 - End View of Test Cabinet.

is then used in the reverse direction, the No. 110 plug being cared for by the TST jack in the test cabinet and the No. 109 plug fitting the jacks in the switchboard multiple.

2.05 In offices of sufficient size to warrant the provision of separate testing batteries but where the breakdown test feature is not required, the test battery supply is usually obtained from a 45-volt dry cell block per KS-6948 although in some cases a 100-volt testing battery may be used. Where the breakdown test feature is required, a 200-volt dry cell testing battery is installed. A 100-volt tap from this battery then cares for the test battery supply. The 200-volt battery is usually made up of from ten to twelve 22-1/2 volt dry cell blocks per KS-6573 connected in series using such taps as will give the proper voltage.

2.06 In very small offices having 48-volt central office batteries such as those having the No. 12 switchboard or small dial offices, a separate dry cell testing battery may not be provided. In such cases the central office battery is used for testing. Under this arrangement the leads to the voltmeter are interchanged.

2.07 In large offices where a test cabinet of this type supplements other testing facilities, the test battery supply of a local test desk in the building is usually employed instead of providing a separate test battery for the cabinet. In such cases the cabinet usually remains portable, and the battery and ground supply are wired to a multiple of battery supply jacks in

the M.D.F. jack boxes. In this case, 100-volt test battery is connected to the tip, 200-volt breakdown test battery to the ring and the sleeve is grounded.

2.08 To expose the equipment for maintenance purposes, the casing may be removed by taking out the nickel plated screws in the top panel.

3. FUNCTIONS OF JACKS AND PATCHING CORDS

3.01 Table 1 covers the designations and functions of the various jacks.

TABLE 1

Jacks	Function
BAT G	Battery-ground jack having test battery supply on the tip, 200-volt breakdown test on the ring, when provided, and ground connection on the sleeve.
TST	Connection is made to the line under test by means of a 3-conductor patching cord.
TLK	Connection is made by means of a switchboard cord for ringing and talking.
MF 1 and 2 (X wiring)	Connection is made by means of an M.D.F. cord for the same functions as TST and TLK jacks.
MF 1 (Y wiring)	In non-multiple magneto offices connection is made to the line under test by means of a 2-conductor patching cord.
MF 2 (Y wiring)	In non-multiple magneto offices, connection is made by means of a switchboard cord for ringing and talking.

3.02 Table 2 covers the various patching cords used with the Local Test Cabinet No. 2.

TABLE 2

Cord	Ends Equipped With	Function
W2M	No. 110 plug and two No. 59 cord tips.	Battery cord. One is required where battery is not wired to the test cabinet or obtained through an external battery supply jack.
P3E	Two No. 110 plugs.	Battery cord. One is required where the battery and ground are obtained from an external battery supply jack.

TABLE 2 (Cont'd)

Cord	Ends Equipped With	Function
P3F	No. 109 and No. 110 plugs.	Patching cord. One is required when the test cabinet is used at a switchboard equipped with No. 109 or No. 110 plugs.
P2A	Two No. 47 plugs.	Patching cord. One is required when the test cabinet is used at a non-multiple magneto switchboard.
W4N	No. 152, No. 252A and No. 252B plugs.	M.D.F. cord. One is required when the test cabinet is used at an M.D.F. or protector frame.

#### 4. CIRCUIT FEATURES

4.01 A schematic of the circuit of the Local Test Cabinet No. 2 is shown in Fig. 3. With the test cabinet connected for ringing, talking and testing and all keys normal, a source of testing battery (see 2.05 to 2.07) is connected through the voltmeter to the ring side of the line under test.

4.02 The TALK key, when operated, disconnects the testing battery and voltmeter and (if the BT-RG key is normal) con-

nects the tip and ring conductors of the line under test direct to the tip and ring of the calling cord of a manual switchboard or where the test cabinet is connected at the M.D.F. the line under test is closed through to its own tip and ring conductors on the central office side of the protector. In a manual office where the test cabinet is located at the switchboard, calls can be made to a station on a line under test from a switchboard position by associating the operator's telephone circuit with a cord connected to the test set. Calls can also be made from other points, such as a convenient wall set, by using a cord circuit to connect from the test set to a multiple appearance of the circuit from which the call is to be made. When the test cabinet is connected at the M.D.F., calls to the line under test can be made in the regular way through the switchboard or dial equipment multiple, from a wall set or other convenient station or by means of a hand set connected to a vacant line circuit.

4.03 The TALK key and BT RG key both operated remove the ringing generator ground from the line under test so that stations on lines with divided ringing may be rung under "Receiver Off Hook" conditions.

4.04 The REV (reverse) key transposes the tip and ring conductors between the test circuit and the line under test.

Note: In following paragraphs, it will be understood that the TALK key is normal.

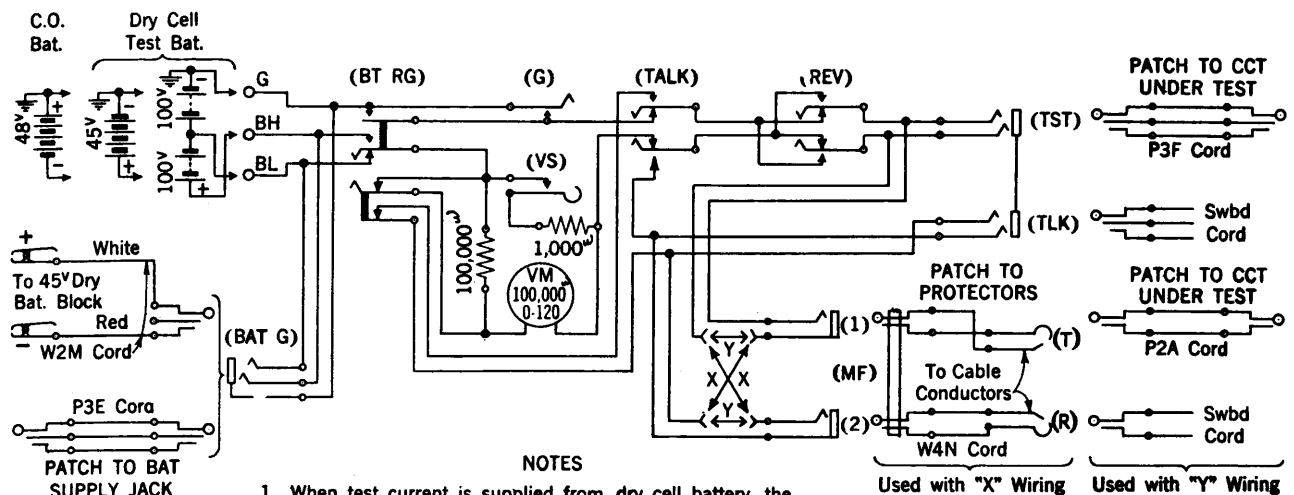


Fig. 3 - Circuit Arrangement of Local Test Cabinet No. 2.

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4.05 The G key when operated connects ground to the tip side of the line under test when the REV is normal. When the G and REV keys are both operated, ground is connected to the ring side of the line.

4.06 The BT RG key when operated connects a 200-volt breakdown test battery through the voltmeter to one side of the line under test and connects ground to the other side. At the same time the resistance of the voltmeter circuit is increased from 100,000 ohms to 200,000 ohms.

4.07 Operation of the VS key places a 1000 ohm shunt across the voltmeter (or across the voltmeter plus 100,000 ohms, see 4.06, when this key is used in connection with the breakdown test). The placing of this shunt across the meter causes it to

show appreciable differences in readings corresponding to grounds or crosses of low resistance. Without the shunt, the total resistance of the circuit would be so high that variations of several hundred ohms in the resistance of a ground or cross would have an almost negligible effect on the current flow and therefore the meter deflections would scarcely show the difference. With the shunt cut in, the total resistance of the circuit is reduced to a value where faults of slightly different resistance cause appreciable variations in the voltmeter indications.

### 5. CIRCUIT DESCRIPTION

5.01 The circuit drawing of the Local Test Cabinet No. 2 is SD-96002-01 and the detailed circuit description is covered in the associated CD sheet.