

LOCAL TEST CABINET NO. 3
DESCRIPTION OF EQUIPMENT

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Description of Cabinet Mounted at Main Distributing Frame	2	1.01 This section describes the No. 3 local test cabinet and associated equipment. The test cabinet (J94709B) is used in maintaining the customer line and trunk plant of local offices. It may be used for testing such parts of toll plant for which the testing facilities of the cabinet are suitable. The No. 3 cabinet is designed primarily for use in small offices.	
Description of Cabinet Mounted on Desk Without an Associated Jack Panel	2	1.02 This section is reissued to:	
Description of Cabinet Mounted on Desk with an Associated Jack Panel	2	• Add descriptive information in 2.15 on the features provided with the solid state test voltage power supply	
3. TALKING CIRCUITS	8	• Add Fig. 5 to show a block diagram of the test voltage power supply	
Call Circuit	8	• Revise 7.01 to include cords W4BR and W4CJ.	
Customer Line Connection	8	1.03 <i>Principal Features:</i> The principal features of the No. 3 local test cabinet are as follows:	
Trunks Terminating in Lever-Type Keys in Jack Panel	8	(a) A sensitive voltmilliammeter provides a means for making tests to determine trouble conditions. These conditions are shorts, crosses, grounds, resistance and capacitance measurements, current flow measurements, and in certain cases, for checking dial speed.	
4. TEST TRUNKS	8	(b) Miscellaneous testing features controlled by keys. These consist of the insulation breakdown feature, transmission test, test of coin relays, ringers, dial testing, receiver off hook tone, etc.	
Test Trunks with Lamp Signals . . .	8	(c) A flexible equipment setup permitting the cabinet to be portable, to be mounted permanently at the Main Distributing Frame	
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(MDF), or to be mounted permanently on a commercial single pedestal desk.

(d) A jack panel (ED-91465-31) which may be associated with the test cabinet when the cabinet is mounted on a desk. This panel is used to provide talking and test trunk channels in excess of those available in the cabinet alone.

2. GENERAL DESCRIPTION OF EQUIPMENT

2.01 General: Fig. 1 shows the arrangement on the test panel of the voltmeter, rheostat, dial, and the keys controlling the various tests. This equipment is the same, regardless of the manner in which the test cabinet is mounted.

2.02 Mounting Arrangements: The equipment for the No. 3 local test cabinet may be:

- (a) Portable
- (b) Permanently mounted at the MDF
- (c) Permanently mounted on a desk without an associated jack panel
- (d) Permanently mounted on a desk with an associated jack panel.

Description of Portable Cabinet

2.03 The test cabinet in this case is mounted in a standard size "D" test set casing and may be placed on the standard wagon for holding portable test sets.

2.04 End Panel: Fig. 2 shows the end panel with the power supply jacks, the telephone jacks, and the test jacks.

2.05 Power Supply for Portable Cabinet: The power supply jacks in the test cabinet are patched to similarly designated jacks located at the test point by means of patching cords. The central office battery and ringing supply jacks and coin control jacks, if required, are provided at the MDF. If the local test cabinet is used in portable form at locations other than the MDF, temporary supply circuits may be provided as required. The functions of the various jacks are described in 6.40.

Description of Cabinet Mounted at Main Distributing Frame

2.06 When the test cabinet is permanently located at the MDF by means of brackets, the test voltage, central office battery, ringing current, and coin current supply leads are wired directly to the terminal strip in the cabinet. The test trunk and talking trunk facilities are limited to one test distributor trunk, one test trunk to the switchboard, one test trunk to the MDF, and one talking trunk. These trunks contain no relay equipment and are wired directly to the terminal strip in the cabinet.

2.07 The test circuit is wired to corresponding jacks in the MDF jack boxes, from which the connection is made to the MDF protectors or jacks.

Description of Cabinet Mounted on Desk Without an Associated Jack Panel

2.08 The test cabinet may be mounted on a desk without the associated jack panel. In this case, the test trunk and talking trunk facilities are limited to one test distributor trunk, one test trunk to the switchboard, one test trunk to the MDF, and one talking trunk. These trunks contain no relay equipment and are wired directly to the terminal strip in the test cabinet. The test voltage supply is either obtained from batteries mounted in the pedestal drawers of the desk or from a test voltage power supply located on the miscellaneous equipment frame. The test voltage supply is wired directly to the terminal strip. The telephone jacks are located in the knee well or at the side of the desk.

Description of Cabinet Mounted on Desk with an Associated Jack Panel

2.09 When talking and test trunks are required in excess of those available when the cabinet is used alone, a jack panel of the same size as the test panel is mounted adjacent to it. One jack panel and one test panel mounted together constitute a testing position and, as such, are mounted on a commercial single pedestal desk. Two test panels can be mounted on two single pedestal desks with a jack panel, common to both test panels, mounted in between as shown in Fig. 3. This combination constitutes two test positions.

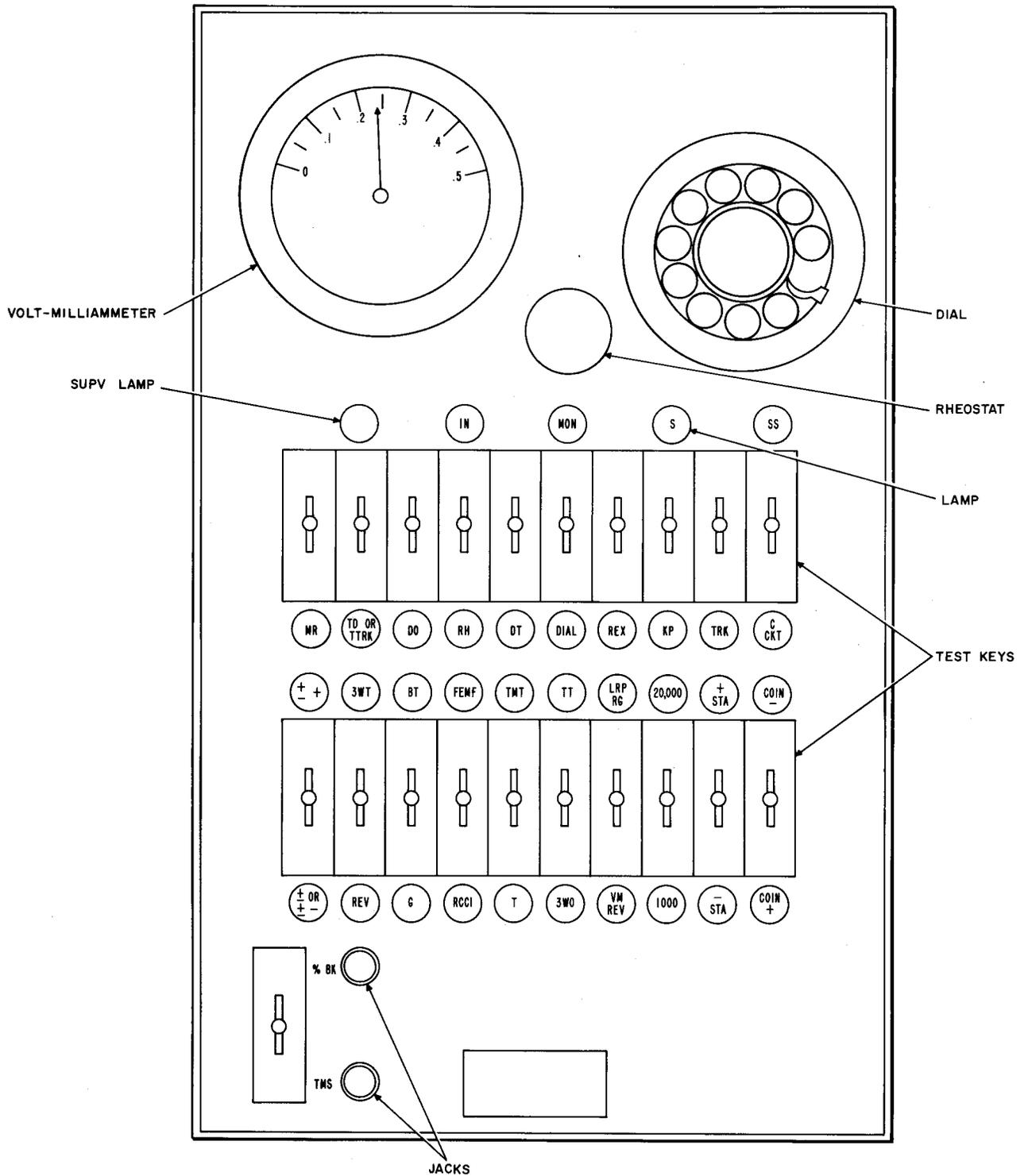


Fig. 1—Test Panel of No. 3 Local Test Cabinet

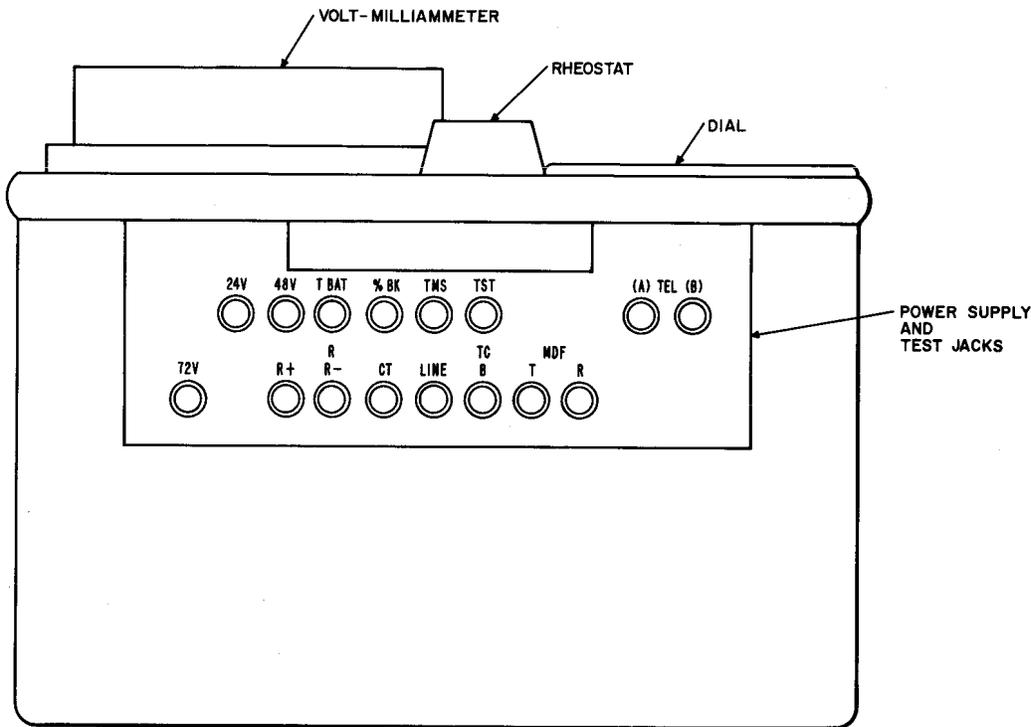


Fig. 2—End Panel of No. 3 Local Test Cabinet Arranged for Portable Use

2.10 Description of Jack Panel: A typical arrangement of a jack panel used in connection with the test cabinet mounted on a desk is shown in Fig. 4.

2.11 This equipment is arranged as follows:

(a) Lever-type keys and associated lamps for talking trunks and repair service trunks mounted at the top of the panel.

(b) Test circuit jacks to which the test cabinet circuit is wired, consisting of a single jack, and if test trunks to test distributors are required, two additional jacks for use with a twin plug.

(c) Test trunks consisting of:

(1) MDF test trunks terminating in two jacks, one designated IN and the other OUT (not shown in Fig. 4).

(2) MDF test trunks terminating in a single jack as shown in Fig. 4.

(3) Test trunks to test distributors (where required) terminating in a pair of jacks, two lamps, and a hold key.

(4) Other trunks terminating in one jack, two lamps, and a hold key.

(d) Dummy jacks which, when provided, are used to hold the test cords when not in use.

(e) Buzzer control (BUZ), transfer (TRNS), receiver off hook tone (ROHT) keys. (The transfer keys, when provided, are located in the panel below the jack field.)

(f) Test jacks to provide sending or receiving 1000 Hz, 1 MW tone from a 600-ohm or 900-ohm supply. The tone can be used for transmission testing of components and trunks.

2.12 The test circuit jacks are connected to the test trunk jacks with short test cords equipped with plugs at both ends. The test distributor test cord is equipped with twin plugs at each end. If the jack panel serves two test units, the test cords

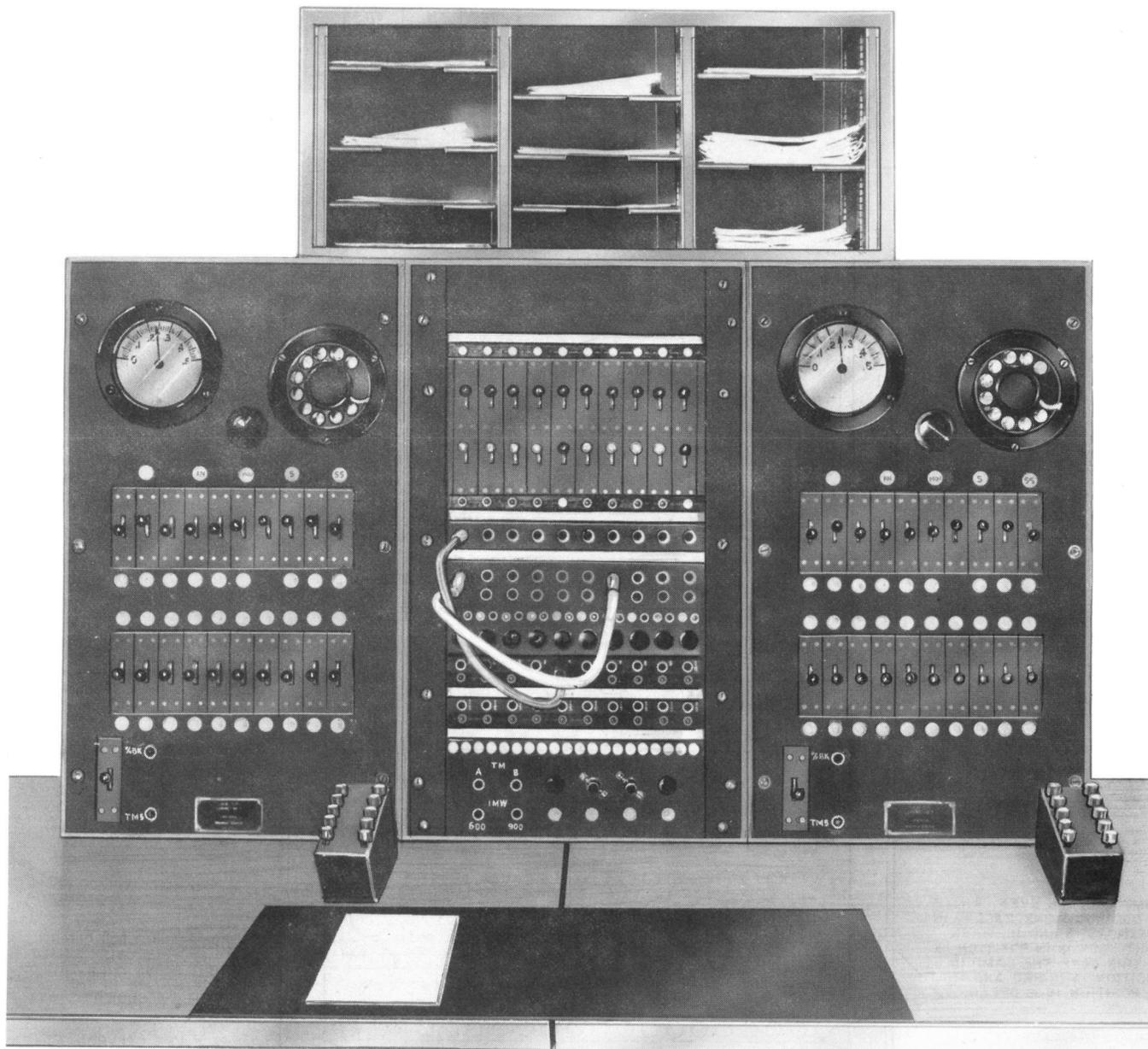


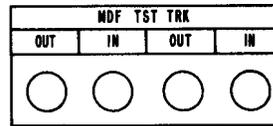
Fig. 3—Desk Mounted Arrangement of Two Test Cabinets and One Jack Panel

and test circuit jacks are required for each test unit.

2.13 When one jack panel serves two test panels, the talking trunk keys on the left of the centerline are wired to the telephone circuit of the test unit on the left, and the keys on the right side are associated with the test unit on the right. The corresponding keys are multiplied on the trunk side. When more than five talking trunk

keys are required, two rows of keys are provided. Keys on the left of the centerline in each row are wired to the test unit on the left, and the keys on the right in each row are wired to the test unit on the right.

2.14 When all available trunk positions are not required for the twin jacks used for test distributor trunks, they are sometimes used for trunks requiring only one jack. The other jack



FORMER ARRANGEMENT OF TEST TRUNKS

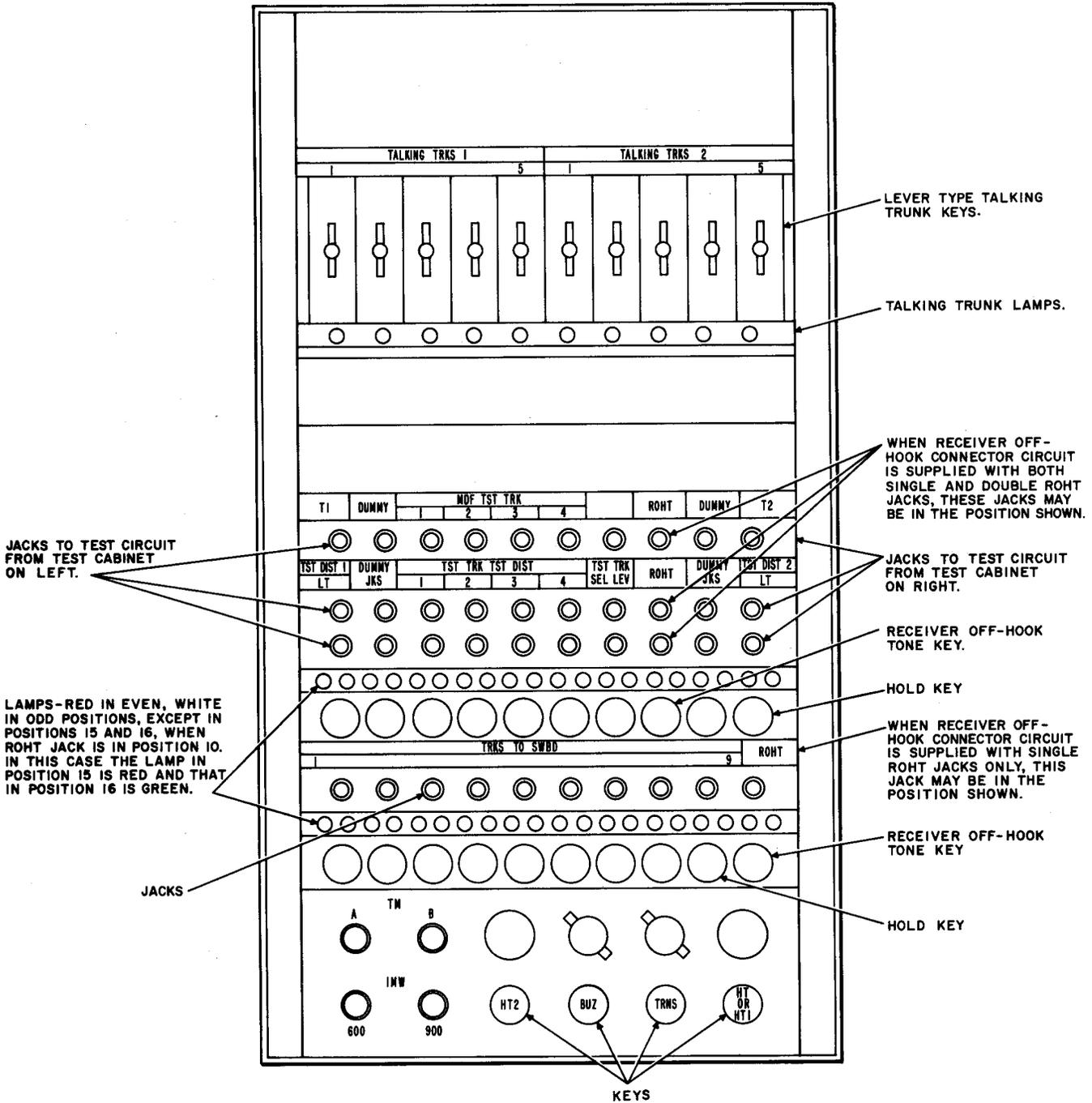


Fig. 4—Typical Jack Panel Arrangement

position is unequipped. These positions may be used in pairs for the MDF test trunks. If there is insufficient space for test trunks with two rows of talking keys equipped, another jack panel may be provided. In this case only one row of talking keys is equipped and wired to one of the test units, leaving the remaining space of the test panel unequipped.

2.15 Test Voltage Power Supply: The solid state test voltage power supply (J93016DN and/or J93016DM) is used with the No. 3 local test

cabinet. This circuit will replace dry cell batteries which are usually mounted in the pedestal drawers of the desk and wired directly to the terminal strip. The test voltage power supply units are located on the miscellaneous equipment frame. A block diagram of the test voltage power supply is shown in Fig. 5. The test voltage power supply consists of three units capable of being used together or independently to provide test voltages presently being supplied by batteries for the No. 3 local test cabinet.

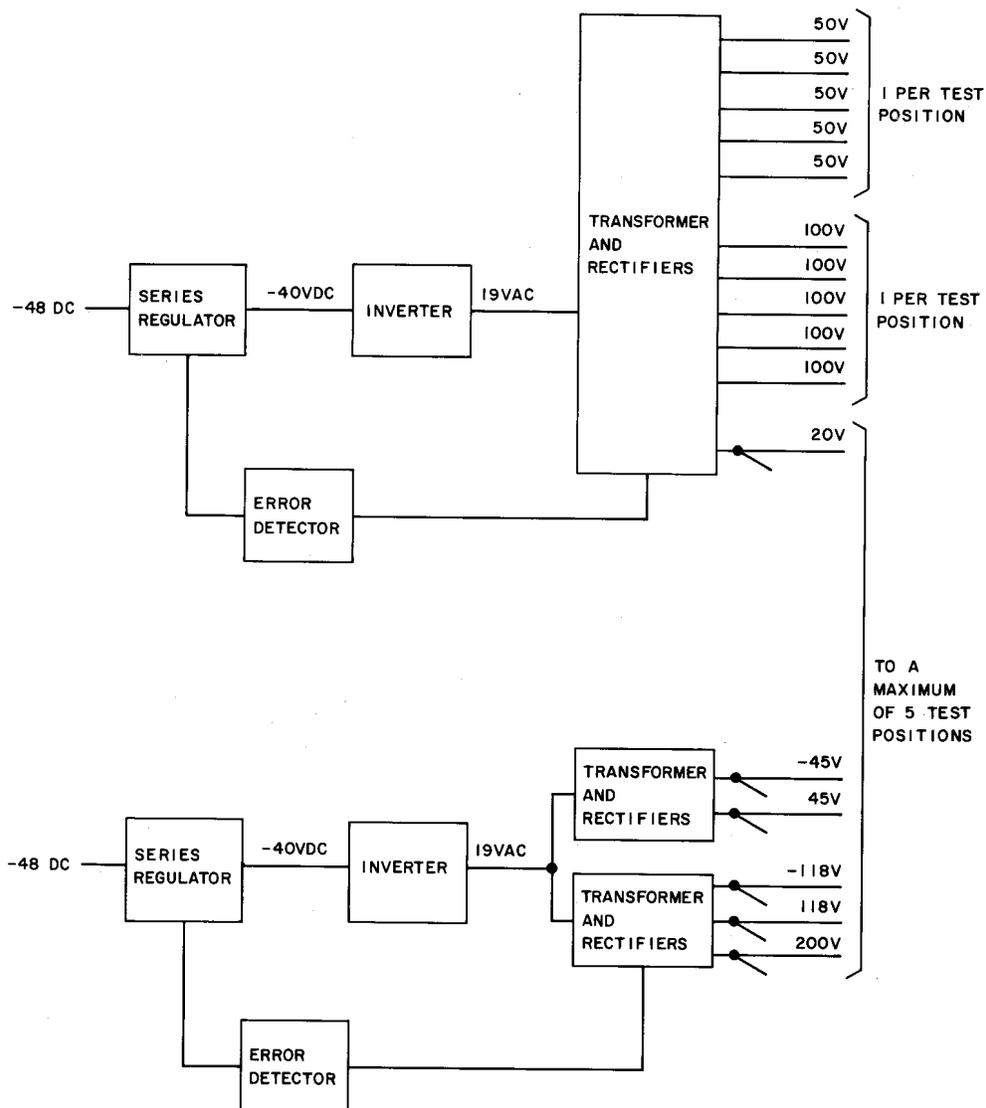


Fig. 5—Test Voltage Power Supply Block Diagram

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2.16 The test trunk and talking trunk relays are mounted on the relay rack. The telephone jacks are located in the knee well or at the side of the desk.

3. TALKING CIRCUITS

Call Circuit

3.01 The C-CKT (call circuit) key is located in the test panel and is connected to the incoming call circuit of switchboard positions equipped with an incoming call circuit for this purpose. In other cases it is connected to an answering jack or customer line circuit. This key is used for requesting an operator to establish test trunk connections, except where the trunk is arranged for signaling the operator.

Customer Line Connection

3.02 A *customer line* is usually wired directly to the cabinet with a telephone set located external to the cabinet when the test cabinet is permanently mounted without a jack panel. The telephone set is connected to the line by operating the TRK key at the test cabinet.

Trunks Terminating in Lever-Type Keys in Jack Panel

3.03 The talking trunks, each of which terminates in a lever-type key and a lamp, are of three general types. They may be direct trunks to a switchboard or desk, repair service trunks, or trunks to a customer line circuit. If the test cabinet is located in a step-by-step office, the employee talking line, if equipped, may also be connected to a lever-type key.

3.04 The trunks to customer line equipment are used by the telephone company employees in calling the test cabinet, and they also are used for communication between the test cabinet and other plant, traffic, or commercial desks to which direct trunks or tie lines are not provided. The trunks are used for receiving incoming calls and making outgoing calls through regular traffic channels.

4. TEST TRUNKS

4.01 *Trunk Compensation:* At installations employing 750-ohm range test trunks of different trunk conductor resistance to off-premises

offices, the shorter test trunks can be equipped with compensating resistance networks. These are wired to the tip and ring leads so that all test trunks to offices outside the building have approximately the same transmission qualities. This facilitates making resistance and capacity measurements and transmission tests. Where installations are equipped with 1500-ohm range test trunks, compensation of test trunks is eliminated. It is felt that the advantage gained in accuracy of testing by keeping the test trunk resistance as low as possible more than offsets the advantage of uniform test trunk resistance.

4.02 *Test Trunk Ringing Circuits:* If the test trunk to an office outside of the building is too long for making satisfactory ringing tests with ringing current sent out from the test cabinet, the terminating end of the trunk is equipped with a test trunk ringing circuit. The test trunk ringing circuit intercepts the ringing current from the test cabinet, then sends out ringing current of the proper type from the central office.

4.03 *Description of Test Trunks:* Test trunks terminate in the jack panel associated with the test cabinet in several ways as covered in 2.11(c). The other end of these trunks terminates as described in 4.04 through 4.10.

Test Trunks with Lamp Signals

4.04 Test trunks connected manually terminate in the central office either in a test cord or in a jack. These trunks are arranged for two-way signaling; that is, they may be ordered up from the test cabinet, or if connected at the terminating end, an incoming signal is received at the desk. The trunks terminate in:

- (a) A toll position for making connections to a toll line multiple or a toll switching trunk.
- (b) A manual "A" or "B" switchboard position for connection to a trunk or subscriber multiple jack or a plugging-up cord jack.
- (c) A Dial System "A" (DSA) position for making connection to a subscriber line or trunk multiple jack or plugging-up line to which a subscriber line is temporarily connected.

- (d) A plugging-up circuit panel in a dial office served by a central "A" board for connecting to a plugging-up line jack.

4.05 *Test trunks for establishing test connections through switches to the subscriber lines in step-by-step offices* consist of test trunks terminating in test distributors or test trunk selector circuits and test trunks from selector multiple. The test trunks to test distributors are used for establishing connections to subscriber lines where direct test trunks are provided to each office served from the test cabinet. The subscriber lines are reached through test connectors. The test distributor and test connector selections are controlled by the dial in the test cabinet. When a common group of test desk trunks is used for more than one off-premises office, each test cabinet trunk terminates in a test trunk selector circuit in one of the offices. The test trunks from each office served by the common group are wired to the bank multiple of the step-by-step selector in the test trunk selector circuit. One switch level is used for the trunks to each office. Connection is established by connecting to a trunk in the common group and dialing the digit corresponding to the level on which test trunks to the associated central office appear. Thereafter, the operation is the same as for a direct trunk to a central office. The test trunk from the selector multiple is used for establishing a test connection from the customer line when an employee calls the test cabinet from a station by dialing the test cabinet code.

4.06 *Test trunks for establishing test connections to customer lines in panel offices* consist of test trunks from district or office multiple and test trunks terminating in test trunk first selector circuits. The test trunk from district or office multiple is used for establishing a test connection from a customer line when an employee dials the test desk code. The test trunk terminating in a test trunk first selector circuit is used by the tester in establishing a test connection to a line. This trunk contains two selecting circuits called the "test trunk first selector" and "test trunk second selector" circuits, which have access to all lines through final selectors. These final selectors are also used for regular traffic purposes. There are two types of arrangements for controlling the test trunk switches and the final selectors associated therewith. If there is a "B" switchboard in the building, the test trunk first selector is associated with the "B" switchboard position and the tester passes the

number of the line on a straightforward basis to the "B" operator. The operator sets up the number and the "B" sender completes the selections. If there is no "B" switchboard in the office, test trunk senders are associated with the test trunks at the terminating end. A test connection is established over a trunk of this type by dialing the line number.

4.07 *Test trunks for establishing test connections to customer lines in crossbar offices* consist of test trunks to crossbar switches of the Incoming Link Frame in a No. 1 crossbar office of the Trunk Link Frame in a No. 5 crossbar office. Selection over this type of circuit is passed to the "B" operator on a straightforward basis. The operator sets up the number and the selection is completed through the "B" sender. If there is no "B" switchboard in the office, test connections are established by dialing the desired number which is completed through the dial terminating sender. In offices which operate with multifrequency key pulsing senders or registers, test connections are established by keying up the desired number on the MF keyset.

4.08 In the event the desired connection is busy, access to the line may be had by reordering, redialing or rekeying on a no-test trunk. If the second call finds the line idle, connection is established in the regular manner through the switches. If the second call finds the line busy, the connection is established through the no-test switches. Under this condition the circuit can be monitored but no tests can be made. As soon as the line becomes idle, the test connection to the line is released and alternate high and low tone is sent back to the test desk as an indication necessitating the reordering of the line before further tests can be made.

4.09 *Test trunks for establishing connections from customer lines in crossbar offices* consist of test trunks from crossbar switches in the Office Link Frame (No. 1 crossbar) or the Trunk Link Frame (No. 5 crossbar). These trunks are used by employees to establish a test connection by dialing a test code from the subscriber station.

Test Trunks Without Signals

4.10 The test trunks without signals terminate in jacks at the MDFs and toll testboards. When the test trunk is connected to a circuit at

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the toll testboard or at the MDF with a 4-conductor main frame cord (4W6A), the circuit under test remains closed through normally. The tester can test either inside or outside the office by connecting the test cord from the T jack to the IN or OUT jack, respectively. This trunk may also be used for making a bridging connection at the MDF by using a 2-conductor main frame cord (2W24A). If a single jack MDF or toll testboard trunk is provided, the IN and 3WO keys are used for testing IN and OUT and making bridging tests in conjunction with an IN-OUT cord at the MDF or toll testboard.

5. RECEIVER OFF HOOK TONE CIRCUIT

5.01 A receiver off hook tone (ROHT) connector circuit is sometimes provided where the No. 3 test cabinet is equipped with a jack panel. Receiver off hook tone can be connected to a customer line via a test trunk. Connection is made by connecting the ROHT jack to a test trunk jack with a short patching cord, 3P7D or equivalent. The ROHT connector provides a means of applying a series of tones to attract the attention of the customer when the receiver is left off-hook.

5.02 The jacks, keys and lamps associated with the ROHT connector circuit are mounted in the jack panel. A double ROHT jack is provided for connecting the ROHT connector circuit to test trunks to test distributors only. A single ROHT jack is provided for connecting the ROHT connector circuit to test trunks other than those to the test distributor. Either the single jack alone or both of these jacks may be available in the jack panel.

5.03 *The HT-HT1 and HT2 keys* are used for connecting the telephone and test circuit to the repeating coil in the ROHT connector circuit for listening and challenging before applying the tone to a line which has a receiver off the hook. When this circuit is used with one test cabinet, the HT-HT1 key is furnished; or if two adjacent cabinets are used, both this key and the HT2 key are provided.

5.04 *The ROHT key* is used for applying ROHT to the line. The tone is applied for a given cycle causing the red lamp to flash. When the ROHT key is restored to normal following receipt of a disconnect signal, the circuit is restored to normal. With the ROHT key operated and the BUZ key of the auxiliary signal circuit operated, the buzzer will sound if the customer goes on-hook.

6. TEST CIRCUIT

6.01 *General:* The test circuit equipment consists of a voltmilliammeter, rheostat, dial, test keys and test jacks (where provided). The following paragraphs will outline the tests for which this equipment is intended.

Voltmilliammeter Circuit

6.02 The test voltage for the voltmeter consists of a 100-volt and 20-volt supply. One side of the test voltage supply is grounded and the other side is connected to the voltmeter. The polarity connected to the voltmeter is opposite to the polarity of the central office battery. The 100,000-ohm winding of the voltmeter, which is associated with the 120-volt meter terminal, is normally connected to the ring side of the test circuit.

6.03 *The 20,000 key*, when operated, connects the 20-volt tap of the test voltage supply to the 20,000-ohm winding of the voltmeter.

6.04 *The 1000 key*, when operated, connects the 20-volt tap of the test voltage supply to the 20,000-ohm winding of the voltmeter shunted by an external resistance of 1053 ohms. This gives a combined resistance of 1000 ohms.

6.05 *The FEMF (Foreign EMF) key* is used for measuring potentials foreign to the test cabinet. The operation of the FEMF key disconnects the test voltage supply and substitutes ground through a contact of the VM REV key.

6.06 *The VM REV (Voltmeter Reverse) key* has two functions:

- (a) To reverse the voltmeter leads when measuring a foreign potential
- (b) To measure the potential of the test voltage supply.

6.07 *The milliammeter winding of the instrument* has a full scale deflection of 300 milliammeters. It is connected into the test circuit by the operation of the RCCI key and the coin control key as described in subsequent paragraphs.

6.08 *The rheostat* is located in the front of the test cabinet between the voltmilliammeter

and the dial. It can be adjusted to connect in resistances up to 3500 ohms in series with the voltmilliammeter.

6.09 *The RH key*, when operated, removes the normally closed shunt on the rheostat in series with the voltmilliammeter. This permits the regulation of the coin current or any other current to the desired value by adjusting the rheostat.

Test Keys

6.10 *The BT (breakdown test) key* is used, together with the 1000 key, for testing the dielectric strength of the line. The test is made by applying a test voltage of 200 volts through a 100,000-ohm resistance in series with the 100,000-ohm winding of the voltmeter and then, after an interval, through a 1053-ohm shunting resistance. When the BT key is operated and the REV key is normal, the breakdown test potential is applied to the ring side of the line and ground to the tip side of the line. If the REV key is operated, the breakdown test potential is connected to the tip side of the line and ground is connected to the ring side of the line.

6.11 *The COIN+ and COIN- keys* are used for testing a coin line and for collecting or returning a coin at the customer station. When the COIN+ key is operated, positive coin potential is applied to the tip side of the line. When the COIN- key is operated, negative coin potential is applied to the tip side of the line. Coin control potential is connected through the milliammeter winding of the voltmilliammeter and may be adjusted using the rheostat with the RH key operated.

6.12 *The DO (distant office) key* compensates for the test trunk resistance of test trunks to offices outside the building. Compensation applies to those test features which are affected by trunk resistance and capacity. This key is normal when testing offices inside the building and is operated when testing offices outside the building. The functions performed by the DO key are described under the features of the test circuit affected.

6.13 *The G (ground) key* has two functions:

- (a) When keys COIN- and COIN+ are both unoperated, the operated G key grounds

the tip with REV key unoperated and grounds the ring with REV key operated.

- (b) When the COIN- key is operated, the operated G key connects ground to the ring through a 1780-ohm resistor. This feature is used with coin lines arranged for dial tone first.

6.14 *The IN key* is used, when the jack panel is not provided, for testing over a connection made to the main frame protectors. When operated, this key connects the test cabinet to the central office equipment associated with the line or trunk, and the line or trunk conductors are disconnected from the test trunk.

6.15 *The LRP-RG (line relay prepayment remove ground) key* has two functions:

- (a) For use in operating the line relay of a prepayment coin line when the T and 3WO keys are operated.
- (b) For disconnecting the ringing ground from the ringing key. On lines having ringers connected through capacitors or cold cathode tubes to ground, the bells may be rung even if a receiver is off-hook at a station on the line.

6.16 *The MR (master ringing) key*, when operated, causes the test trunk ringing circuit to function so that on subsequent operation of the ringing key the proper ringing current is repeated to the line. The MR key is also used to signal the operator at a No. 12 switchboard not in the same building. After the test set jack has been patched to the test trunk jack to the No. 12 switchboard, the operator answers by operating the listening key and connects to the desired line for test. If the No. 12 switchboard operator is asked to ring on the trunk, the tester leaves the MR key operated until the customer answers. The restoral of this key retires the call signal at the No. 12 switchboard to indicate that ringing should end. In case connection at the No. 12 switchboard end has been made to a magneto or toll line, the MR key is again used to signal the switchboard operator to verbally request a disconnect.

6.17 *The RCCI (repeating coil cut-in) key* connects battery through the ring winding of the repeating coil and the milliammeter to the ring side of the test circuit. If the central office battery voltage is 24 volts, the total test circuit

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resistance in series with the instrument is approximately 65 ohms. If the central office battery voltage is 48 volts, the total circuit resistance in series with the resistance of the milliammeter is approximately 200 ohms.

6.18 *The REV (reverse) key* reverses the tip and ring leads of the test circuit.

6.19 *The -STA and +STA (- station and + station) keys* are used for making continuity tests on customer lines equipped with cold cathode tubes. The operation of the -STA or +STA key causes negative or positive potential, respectively, to be connected to the ring of the line in series with the 100,000-ohm voltmeter winding shunted by 8000 ohms. The operation of the REV key, as well as the -STA or +STA keys, connects the respective potentials to the tip. The presence of the station under test can be determined by the deflection of the instrument.

6.20 *The T (talking) key* bridges the telephone circuit across the tip and ring of the test circuit and closes the tip side of the test circuit to the tip winding of the repeating coil. With the T and RCCI keys operated, talking battery is applied to the line under test.

6.21 *The TD (test distributor) key* is used on a connection to a test distributor. When operated to the "dial" position, the dial is connected across the control leads of the test distributor. The operation of this key to the "hold" position holds the connection to the test distributor and frees the telephone circuit. This key is optional with the TTRK key (6.34).

6.22 *The TMT (transmission test) key* connects the telephone circuit to the secondary winding of the repeating coil through the transmission network. The network is of such a value that the transmission equivalent of the talking circuit is approximately that of a toll connection. It also connects the tip side of the test circuit to the repeating coil so that, with the RCCI key operated, talking battery is furnished to the customer line. Operation of the DO key shorts out an amount of the transmission pad having a loss approximately equal to the loss of a test trunk. In this way, the transmission level is approximately the same for all lines regardless of the length of the test trunk.

6.23 *The 3WO (third wire open) key* performs the following functions:

(a) On a test connection established over a test trunk with lamp signals to a customer line, the operation of the 3WO key releases the cutoff relay, except in crossbar offices. On connections to test distributors, the TD key must be operated to make the 3WO key effective. Subsequent operation of the T key places a bridge across the circuit to operate the line relay. For offices outside the building, the DO key disconnects a portion of bridge resistance approximately equal to the test trunk resistance.

(b) When the test cord is connected to a single jack test trunk to the main or protector frame or toll testboard, the operation of the 3WO key causes the test trunk circuit to connect the line to the office equipment and bridge the test circuit across the line conductors. This permits the tester to monitor on a circuit before making tests.

(c) Operation of the 3WO key conditions the test trunk to make a voltmeter check of the F cross-connection at the Block Relay Frame or Number Group Frame in crossbar offices.

6.24 *The 3WT (third wire test) key*, operated, connects the voltmeter to the sleeve (third wire) to test for grounds and crosses in those cases where the sleeve of the line is connected directly to the test circuit.

6.25 *The $\pm\pm$ key and the \pm or $\pm-$ key*, when operated, connects ringing current to the ring side of the line with the REV key normal and to the tip side of the line with the REV key operated. The $\pm\pm$ key is used for ringing positive stations on 4-party full selective and 8-party semiselective lines. The \pm or $\pm-$ key is used for ringing all other types of stations.

6.26 *The DT (dial test) key* operated to its "set" or first operated position connects central office battery and ground through a resistance to the voltmilliammeter. With the rheostat adjusted to set the voltage to a fixed value for later charging a capacitor in the dial testing circuit, the DT key in its "dial" or second operated position connects dial tone to the line notifying the customer or employee to dial zero. When the digit is dialed,

the dial speed is then read directly on the 24-volt scale of the meter.

6.27 *The MON (monitoring) key* connects the telephone circuit through a capacitor to the test circuit T and R leads for monitoring.

6.28 *The DIAL key* connects the dial pulse contacts across the T and R leads of the test circuit in series with the induction coil. This provides a means of dialing into dial pulse incoming registers in No. 5 crossbar and dial terminating senders in No. 1 crossbar and panel offices.

6.29 *The KP key*, when operated, transfers the tip and ring of the test cord to the MF keyset circuit. Also, it transfers the sleeve of the test cord to low resistance battery to operate a marginal relay in the test trunk terminating equipment.

6.30 *The MF keyset* circuit functions in conjunction with the test trunk terminating equipment in a crossbar office to summon and attach a sender or register and an MF receiver.

6.31 *The Slamp* is associated with the multifrequency pulsing circuit. It lights to indicate that the terminating equipment is prepared to receive numerical pulses.

6.32 *The TT (TOUCH-TONE®) key*, when operated, transfers the sleeve of the test cord to low-resistance positive battery. The resultant high-positive sleeve current transfers the customer line to the TOUCH-TONE frequency test circuit. The test cabinet will then be bridged across the line through a high-impedance monitoring amplifier in the TOUCH-TONE test circuit.

6.33 *The REX (unigauge range extension) key* controls the range extension feature of the test cabinet and, when operated, performs the following depending on which wiring option is provided in the telephone and test circuit:

- (a) Wiring option for local office testing:
 - (1) Increases to 72 volts the talking and supervisory battery supplied to the line under test.
 - (2) Limits the meter current to 480 ma.

(b) Wiring option for local and distant office testing:

- (1) Increases to 96 volts the talking and supervisory battery supplied to the line under test.
- (2) Cuts in a switched gain voice frequency amplifier with a gain of about 5 dB in either direction.
- (3) Limits the meter current to 480 ma.

This key is intended for use in No. 5 crossbar and No. 1 ESS offices that have been arranged for service with uniform gauge exchange cable plant.

6.34 *The TTRK (test trunk) key* is associated with the incoming or outgoing test trunk circuit. When provided, the TTRK key replaces the TD key on the test cabinet. The TTRK key provides direct key access to the test trunk circuit. The key has two operated positions. The first position connects the test cabinet to the trunk, and the second position returns the test cabinet to the TST jack but holds the trunk. This feature is provided for use in No. 2 ESS central offices and in offices required to test remote repeaters. Use of this feature is not limited to these two applications.

6.35 *The TMS key*, when provided, is used to transfer the line from the test circuit to the TMS jack. Test voltage and ground are disconnected from the line when the TMS key is operated. This feature is used to perform a transmission measurement of a test tone generated by a remote repeater.

6.36 *The % BK key*, when provided, is used to connect the line under test to the % BK jack. Test voltage and ground are disconnected from the line when the % BK key is operated. This feature is used to perform a percent break measurement of a simulated dial pulse signal generated by a remote repeater.

Miscellaneous Keys

6.37 *The C-CKT (call circuit) key*, when operated, permits the tester to communicate with an operator at a switchboard.

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6.38 *The TRK (trunk) key*, used only when a jack panel is not provided, when operated to the "talk" position bridges the telephone set across the talking line for originating or answering calls on the line. With the key operated to the "hold" position the connection may be held to free the telephone circuit.

6.39 *The SS (sleeve switching) key*, when provided, is used in its normal position to supply the sleeve condition required for test trunks to switchboards in the same building. When operated it supplies the sleeve condition required for MDF and toll testboard trunks and for test trunks to crossbar and panel offices in the same building with the test cabinet. This key is ineffective when the DO key is operated.

Miscellaneous Jacks

6.40 The following jacks are provided for the purposes indicated, when the test cabinet is used in portable form, and are mounted in the end panel.

DESIGNATION OF JACK	REMARKS
24V	For manual offices, except No. 12, and for panel offices in which 24V talking battery is supplied by the district selector.
48V	For step-by-step, crossbar, or manual No. 12 offices, and for panel offices in which 48V talking battery is supplied by the district selector.
T BAT	20-volt, 100-volt, and 200-volt test voltage supply.
CT	Coin collect and coin return current supply.
R+	Positive superimposed ringing supply in full selective ringing offices.
R or R-	Ringing supply in semiselective ringing offices or negative superimposed ringing supply in full selective ringing offices.

DESIGNATION OF JACK	REMARKS
TEL	The telephone set with a 289A plug is inserted into this jack.
MDF T-R	Test jacks used for patching to the MDF.
TST	Test jack for patching to a jack or trunk at the switchboard. Connection can also be made from this jack to a distributing frame in a manual office using a 3P18B cord.
LINE TC B	Test jack for patching to test connector test jack using a 6P4A cord. In a step-by-step office the TC B jack is also used to patch to an Intermediate Distributing Frame using a 3P18B cord.

72V	For testing Unigauge extended range customer lines. Permits raising the talking battery to either 72 or 96 volts.
TMS	Test jack for connecting a transmission measuring set to the line under test. This arrangement can be used to make transmission tests from pole-mounted repeaters, (J98619-D or E).
% BK	Test jack for connecting a percent break measuring set to the line under test. This arrangement is used to make percent break measurements from pole-mounted repeaters, (J-98619-D or E).

6.41 When the test cabinet is mounted on a desk with a jack panel, the T jack and the (TST DIST) L and T jacks are mounted on the jack panel. The T jack in this case is used to patch to the test jacks of other than test distributor trunks, and the (TST DIST) L and T jacks are used for patching to the test jacks of the test distributor trunks.

7. LIST OF CORDS

7.01 The following cords are required for use with the No. 3 test cabinet under various conditions. Cords and functions are as follows:

CORD	FUNCTION
2W24A	For patching from the cabinet MDF T and R jacks to the MDF protectors when required to test the line without opening the connection.
3P7A	For patching the 24V, 48V, 72V, T BAT, CT, R+, and R- jacks to the corresponding designated supply jacks. Also for patching to TST jack to a switchboard jack of the 49-type.
3P7D	For patching from the T and ROHT jacks in the jack panel to the jacks of test trunks other than test distributor trunks.
3P12E	For patching the TST jack to a switchboard jack of the 92 type.
3P18B	For patching from the TST and TC B jacks to a distributing frame other than the MDF.
4W6A	For patching from the MDF T and R jacks in the end panel to the MDF protectors where the MDF is equipped with other than 444-type jacks.
4W7A	For patching from the MDF T and R jacks in the end panel to the MDF protectors where the MDF is equipped with 444-type jacks.

CORD**FUNCTION**

4W11A	For patching from the MDF T and R jacks in the end panel to the MDF protectors where the MDF is equipped with 121-type protectors or 300-type connectors.
4P18A	For patching from the test distributor L and T jacks (or receiver off hook tone L and T jacks) in the jack panel to the jacks of the test distributor test trunks. May be used for patching the test distributor L and T jacks.
6P4A	For patching from the LINE and TC B jacks to test connector test jacks.
W2FM	For bridging tests at Protector Frame equipped with 302-type connectors and 3A-type protectors.
W4BK	For IN and OUT tests at Protector Frame equipped with 302-type connectors and 3A-type protectors.
W4BR	For IN and OUT tests at No. 1 ESS Protector Frames.
W4CJ	For IN and OUT tests at Protector Frames equipped with 303-type connectors.

7.02 A 52S head telephone set is required to monitor and talk over the line being tested.

8. DRAWINGS

8.01 The circuit drawings of the test cabinet are listed in the key sheet SD-96272-01.