GENERAL RADIO COMPANY

FOUNDED 1915

Manufacturers of RADIO AND ELECTRICAL LABORATORY APPARATUS

CABLE ADDRESS, GENRADCO, BOSTON
TELEPHONE TROWBRIDGE 4400

275 MASSACHUSETTS AVENUE
CAMBRIDGE 39, MASSACHUSETTS

QUOTATION

REFERENCE Your letter May 30, 1947 DATE June 6, 1947

To: Monsanto Chemical Company
Anniston
Alabama

GENTLEMEN: Attention: Mr. F. A. Barker, Chief Chemist

We solicit your purchase order on the basis of the following information:

ITEM	QUANTITY	MATERIAL	UNIT PRICE	TOTAL PRICE	SHIPMENT
	1	Type 544-P3 Power Supply	$104.50		November 1947

Prices quoted include a 10% increase over those in our current price lists. This increase is made necessary by rapidly rising costs.

It has always been our past practice to quote firm and guaranteed prices. Present conditions make this impossible and, although we hope that no further price increases will be necessary, we can guarantee the above prices only for deliveries which can be made on or before June 30, 1947. For shipments which cannot be made by that date, you will be advised prior to shipment if any price changes have been made, at which time you may, if you desire, cancel your order without obligation.

PRICES AND SHIPMENT F. O. B. FACTORY, CAMBRIDGE, MASSACHUSETTS

TERMS NET 30 DAYS, SUBJECT TO CREDIT APPROVAL.

PAYABLE AT PAR IN NEW YORK OR BOSTON FUNDS.

QUOTATION SUBJECT TO 30 DAYS ACCEPTANCE BY SUBMISSION OF YOUR PURCHASE ORDER.

UNLESS OTHERWISE SPECIFICALLY STATED, GUARANTEES ARE THOSE PUBLISHED IN OUR CURRENT CATALOG.

STENOGRAPHIC AND CLERICAL ERRORS ARE SUBJECT TO CORRECTION.

PRICES SHOWN WILL BE INCREASED BY THE AMOUNT OF ANY APPLICABLE FEDERAL, STATE, OR LOCAL TAX THAT MAY BE IMPOSED ON OR BECAUSE OF THIS TRANSACTION.

DETERMINATION OF PRICES, TERMS AND CONDITIONS OF SALE AND ACCEPTANCE OF ORDERS ARE MADE ONLY AT FACTORY, CAMBRIDGE, MASSACHUSETTS.

SHIPPING PROMISE DATES FROM ACCEPTANCE OF YOUR ORDER SUBJECT TO PRIOR SALES AND TO CONDITIONS BEYOND OUR CONTROL.

GENERAL RADIO COMPANY

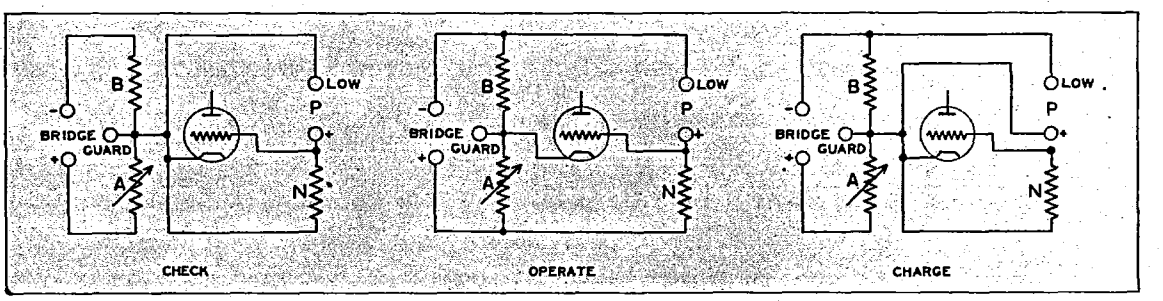
DSW 330849

BY Myron T. Smith

Myron T. Smith, Sales Engineering Manager

VLP
FORM 86

STLCOPCB4077493



These diagrams show the bridge connections for the three positions of the CHECK-OPERATE-CHARGE switch.

sistances up to 1,000,000 megohms. The resistance scale is approximately logarithmic over one decade, which gives a constant fractional accuracy, regardless of setting. The effective scale length for the range of 100,000 ohms to 10,000 megohms is 35 inches.

Approximately constant voltage is applied to the unknown resistor, a necessary condition for the proper measurement of insulation resistance. The a-c power supply is voltage stabilized. This eliminates surges in charging current when measuring the leakage resistance of condensers.

SPECIFICATIONS

Range: 0.1 megohm to 1,000,000 megohms, covered by a dial and a 5-position multiplier switch. A resistance of 1,000,000 megohms can be distinguished from infinity.

Accuracy:

Resistance	*Error*
.1 MΩ– 100 MΩ	± 3%
100 MΩ– 1000 MΩ	± 6%
1000 MΩ–10,000 MΩ	±10%

Above 10,000 megohms, the error is essentially that with which the scale on the MEGOHMS dial can be read.

Terminals: All high-voltage terminals are insulated as a protection to the operator. A maximum of 12 ma can be drawn on short circuit.

Power Supply: Two types of power supply are available: (1) an a-c unit delivering d-c test voltages of 500 volts and 100 volts to the bridge, and (2) a battery power supply of 90 volts. The a-c unit operates from a 105 to 125-volt or 210 to 250-volt, 40 to 60-cycle line. The battery power supply consists of 2 No. 6 Dry Cells and 3 Burgess No. 5308 45-volt batteries.

Operating Voltage: Terminals are provided so that the bridge voltage can be obtained from an external source if desired. Up to 500 volts can be applied.

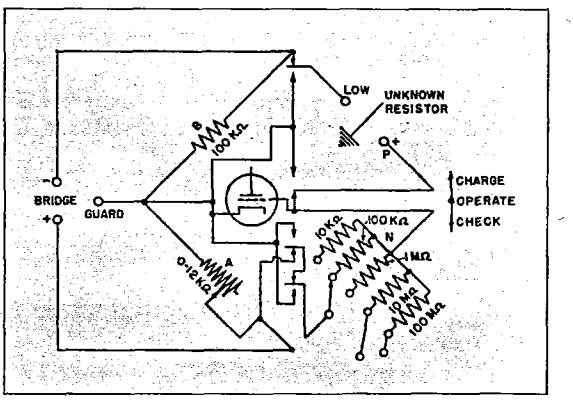
Vacuum Tubes: With battery power supply, a 1D5-G detector tube is used; the 500-volt power supply uses a 6K7-G detector, a 6X5-G rectifier, a 5U4-G rectifier, and, in the voltage regulators, a 6J5-G, a 6K6-G, a type 4A1 Ballast Tube, and two T-4½ neon lamps. All tubes are supplied.

Accessories Supplied: With a-c power supply, a seven-foot line-connector cord and spare fuses. Batteries are supplied with the battery-operated model.

Mounting: Shielded oak cabinet.

Dimensions: Cabinet with cover closed, (width) 8½ x (length) 22½ x (height) 8 inches, over-all.

Net Weight: With battery power supply, 29½ pounds; with a-c power supply, 26¼ pounds; TYPE 544-P10, 11 pounds; TYPE 544-P3, 14¼ pounds.

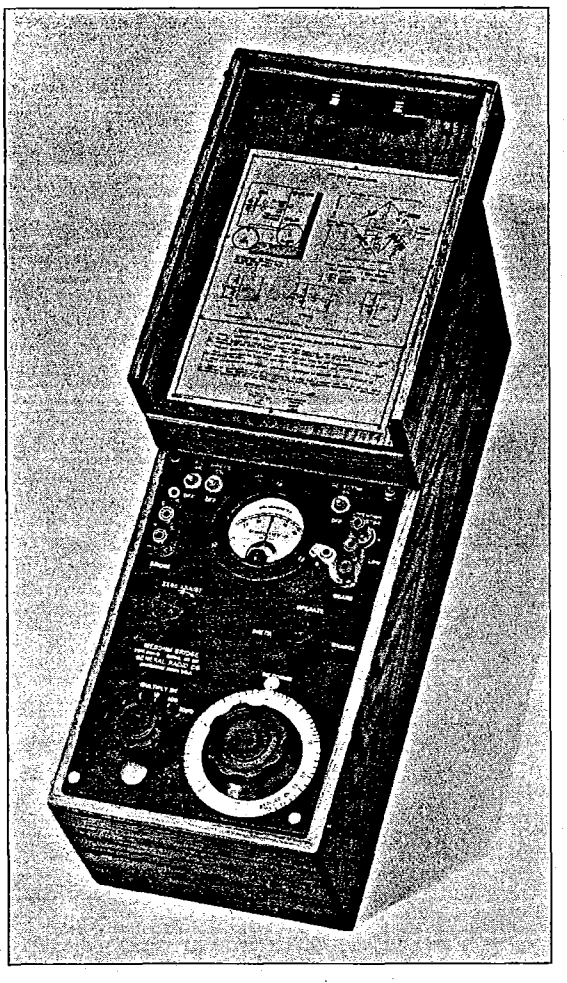


Schematic circuit diagram of the Megohm Bridge.

Type	*Description*	*Code Word*	*Price*
544-B	Megohm Bridge, A-C Operated	ALOOF	$275.00
544-B	Megohm Bridge, Battery Operated (Incl. Batteries)	AGREE	205.00
544-P3	A-C Power Supply Unit Only	ALOOFAPACK	95.00
544-P10	Battery Power Supply Unit Only	AGREEAPACK	20.00

TYPE 729-A and TYPE 1861-A Megohmmeters, direct-reading instruments operating on the ohmmeter principle, are described on pages 130 and 131.

TYPE 544-B MEGOHM BRIDGE



USES: The megohm bridge is very useful for measuring cartridge-type resistors in the megohm ranges, such as those used as grid leaks and coupling resistors in vacuum-tube circuits. It is also capable of measuring the insulation resistance of electrical machinery such as generators, motors, and transformers, of electrical equipment such as rheostats and household appliances, of single conductors, cables, and condensers; of sufficiently long sections of high-voltage cables; of paper condensers; and of slabs of insulating materials. Volume resistivity can be determined and its change with temperature and humidity. Guard connections are provided for the measurement of three-terminal resistors such as multi-wire cables, three-terminal condensers, networks, and guarded specimens of insulating materials.

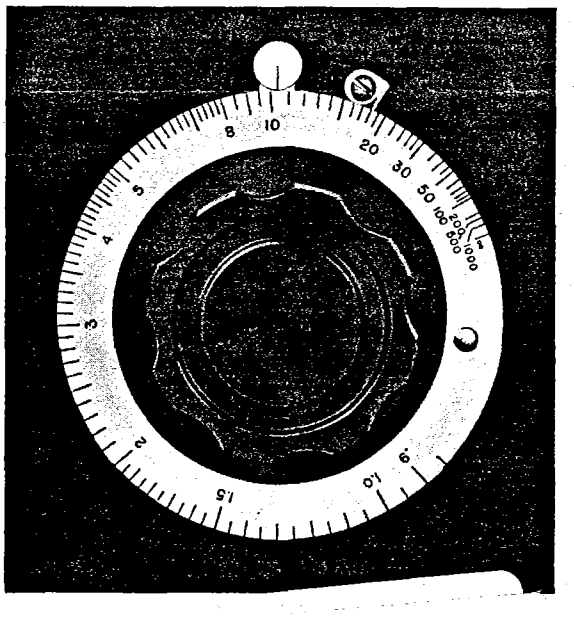
This bridge has been widely used for measuring the dielectric absorption effects in the insulation of electrical machinery, transformers, and cables. Charging-current curves can be easily obtained, over time intervals from one second to many hours.

DESCRIPTION: The TYPE 544-B Megohm Bridge is a combination of Wheatstone bridge and vacuum-tube voltmeter.

The bridge is composed of the four arms, *A*, *B*, *N*, *P*, as shown for the OPERATE position in the diagram at the top of the next page, with the power applied across the arms, *A* and *B*, and the vacuum-tube voltmeter connected across the conjugate pairs, *A-N* and *B-P*. For checking the galvanometer zero, the tube is isolated from the bridge voltage as shown in the CHECK position, with the high resistors, *N* and *P*, connected to the grid exactly as in the OPERATE position. The effects of any voltages, alternating or direct, in the unknown resistor, *P*, and of any grid current of the tube will not appear in the bridge balance because they are balanced out in the zero adjustment. There is also a CHARGE position, in which the unknown resistor, *P*, is placed across the arm, *B*. This is valuable in measuring the resistance of large condensers because full voltage is applied directly to the condenser which can then charge at a maximum rate. The zero of the galvanometer can also be checked at any time without being affected by the residual charge in the condenser.

FEATURES: The use of a vacuum tube detector, which absorbs a negligible amount of power, makes possible the direct measurement of re-

The MEGOHMS dial of TYPE 544-B Megohm Bridge. The scale is approximately logarithmic over the main decade from 1 to 10.



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