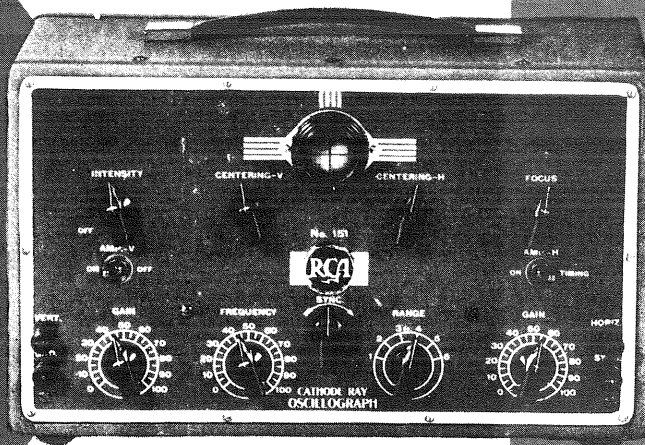


NEW RCA TEST EQUIPMENT

AT PRICES EVERY SERVICE ENGINEER CAN AFFORD

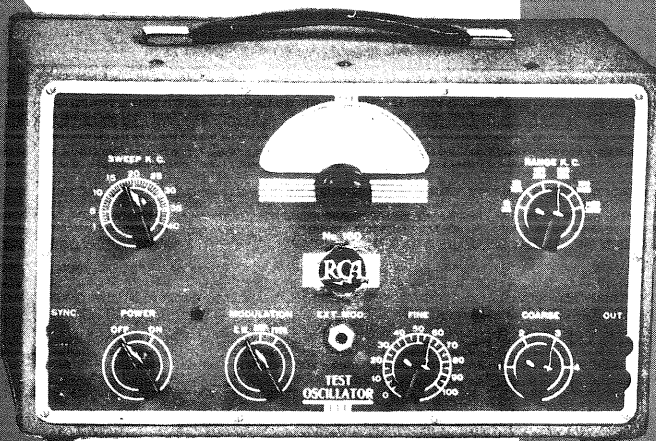
- Uses new RCA-913 Cathode Ray Tube. Built for every service application.
- High sensitivity—1.75 volts (RMS) for full-scale deflection.
- Vertical and horizontal amplifiers—Individual controls—Flat 30—10,000 cycles.
- Linear Timing Axis—Range 30—10,000 cycles.
- Small spot diameter, sharp focus—Individual centering controls.



RCA CATHODE RAY OSCILLOGRAPH

No. 151—Net Price **\$47⁵⁰**
Complete with All Tubes

- Variable electronic sweep—1 to 40 kcs.—Sweep rate, 120 times per second—No flicker.
- Wide frequency range—90 kcs. to 32,000 kcs.—Fundamental frequencies.
- Internal 400-cycle, or external amplitude modulation.
- Large dial—4 inches in diameter—Indirect illumination—No parallax—Two vernier ratios, 2:1 and 5:1.
- High r-f output—0.25 volts—Negligible leakage—Three-step attenuator plus continuously variable control.



RCA ELECTRONIC SWEEP TEST OSCILLATOR

No. 150—Net Price **\$64⁵⁰**
Complete with All Tubes



RADIO TEST EQUIPMENT FOR EVERY PURPOSE



Complete .. Portable .. A-C Operated!



CATHODE RAY OSCILLOGRAPH

Stock No. 9545

NET PRICE

\$84⁵⁰ *With RCA Tubes, Including
RCA-906 Cathode Ray Tube*

Complete . . .

The RCA Cathode Ray Oscillograph, Type TMV-122-B, is complete in every essential requirement for immediate use. It includes two power supplies (one for the Cathode Ray Tube and one for the amplifier), vertical and horizontal amplifiers, saw-tooth frequency generator and six tubes, including the RCA-906 Cathode Ray Tube (3-inch).

.7 Volts (RMS) per Inch . . .

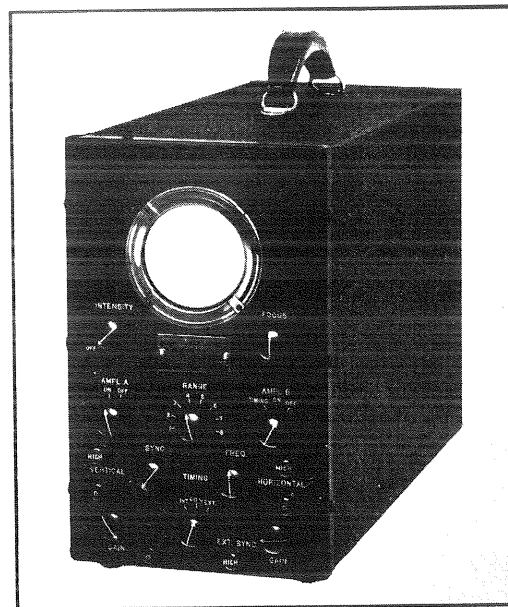
Through the use of two wide-frequency-range high-gain amplifiers, the sensitivity is guaranteed at 0.7 volts A. C. (RMS) per inch for both vertical and horizontal deflection. The amplifiers have flat frequency characteristics between 10 and 90,000 cycles \pm 10 per cent. The amplifier gain is approximately 40.

10-18,000 Cycles . . .

A linear saw-tooth timing frequency oscillator with a special synchronizing circuit is an integral part of the RCA Oscillograph. The frequency range extends from 10 to 15,000 cycles and permits the examination of a single cycle up to 18,000 cycles or the examination of six cycles up to the limit of the amplifier—90,000 cycles. Suitable switching is provided so that either the internal timing oscillator or an external source of frequency may be connected to the plates through the amplifier. The binding posts may be connected directly to the plates for operation above 90,000 cycles with a sensitivity of 35 (RMS) volts per inch.

Beam Centering . . .

Two screwdriver adjustments are provided for centering the beam on the fluorescent screen. This may be required because of changes in geographical location or variations in tubes and circuit constants.



● For Service Engineers

Visual alignment of tuned circuits, "flat-topping" I. F. circuits, measuring hum and checking distortion in audio amplifiers are but few of the problems which are easily solved through the use of the RCA Cathode Ray Oscillograph. A visual presentation of practically all alternating current circuit functions may be quickly and easily made.

● For Amateurs and Experimenters

The RCA Cathode Ray Oscillograph enables the amateur to monitor percentage modulation, to check modulated waveform for distortion and examine the phase shift in audio amplifiers. Through its use the experimenter may easily and quickly arrive at the solution of the most difficult problem.

● For High Schools and Universities

Now every high school and university may easily give students the benefit of visual presentation of alternating current phenomena through the use of an oscillograph. Studies of alternating current wave shapes and demonstrations of the effects of changing constants in circuits may be quickly and easily made.

● For Radio Dealers

The RCA Cathode Ray Oscillograph gives the Radio Dealer an instrument for comparison of receiver characteristics and for making extremely effective window displays. Selling-up from a low-priced instrument to a higher-priced one is much easier when the eye as well as the ear can note the difference in performance.

● For Manufacturers

The RCA Cathode Ray Oscillograph is a valuable instrument either for receiver development or production testing. Better engineering and quicker and better tests are a direct result of its use in the manufacturing field.

A Quality Product from the RCA Parts Division



Frequency Modulator

— FOR ALIGNING RECEIVERS WITH YOUR
RCA OSCILLOGRAPH

\$ **27.50**

NET PRICE

STOCK No. 9558



- ◆ **LOW PRICE**
- ◆ **SMALL SIZE**
- ◆ **LIGHT WEIGHT**

THE RCA FREQUENCY MODULATOR is a combined motor-driven capacitor and a-c generator designed primarily for aligning circuits with the RCA Oscillograph and the RCA Test Oscillator.

For visual alignment of r-f and i-f circuits in superheterodyne radio receivers with an oscillograph, it is necessary to have an r-f signal of varying frequency connected to the circuit under test and to generate an a-c synchronizing voltage simultaneously with such frequency variation.

The three conditions necessary for visual alignment are:

★ The unmodulated r-f signal frequency variation must slightly exceed the resonant fre-

quency of the circuit under test.

★ The variation of this unmodulated r-f signal must be at a greater rate than that discernible to the eye so that a flicker will not result.

★ The r-f oscillator sweeping frequency must be synchronized with the horizontal "saw-tooth" sweeping frequency of the oscillograph.

The RCA Frequency Modulator and a test oscillator, such as RCA Test Oscillator Stock No. 9595, satisfy these three conditions.

A QUALITY PRODUCT FROM THE RCA PARTS DIVISION

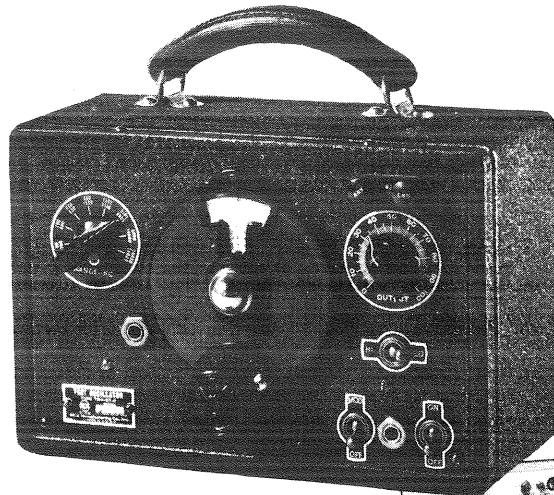


TEST OSCILLATOR

NEW

A

Laboratory Instrument for Service Engineers

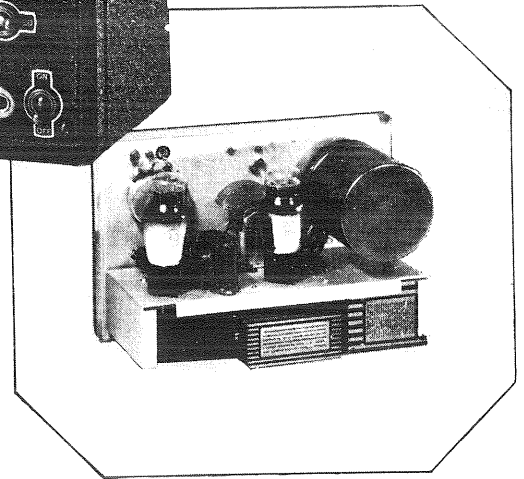


Type TMV-97-C

NET PRICE

\$34.50

STOCK No. 9595



No longer must you content yourself with a Test Oscillator having high leakage, poor calibration, unsymmetrical modulation or any of the usual undesirable features of most oscillators. The new RCA Test Oscillator overcomes these and all other features heretofore considered unavoidable in instruments of this type. While this new instrument retains the general appearance of its predecessors, its performance and flexibility have been improved to the point where it definitely gives laboratory type performance.

- ★ **90 KC. to 25,000 KC.** Frequency range covers all r-f and i-f alignment points of all receivers. Eight overlapping bands.
- ★ **High Output.** Check the table at the bottom of this page for the high output voltages available from this instrument.
- ★ **Low Leakage.** Copper shielding and scientific design give low leakage at the minimum output position.
- ★ **Oscillograph Jack.** Single circuit jack across tuning capacitor facilitates connection of Frequency Modulator for oscillograph operation.
- ★ **Frequency Meter.** Phone jack and switching gives operation as heterodyne frequency meter; useful for checking the unknown frequency of stations or oscillators.

FEATURES

FREQUENCY RANGE

The output frequency range extends from 90 KC. to 25,000 KC. by means of eight overlapping bands. This range covers all radio frequency and intermediate frequency line-up points of *all* receivers. The frequency range is covered entirely by the fundamental frequency of the oscillator, no harmonics being used.

MODULATION

A separate tube modulates the radio frequency output with a 400 cycle sine-wave voltage. Compare on your oscillograph this modulation with your present oscillator. There is a panel switch for operating the oscillator either with or without modulation. A panel jack permits applying an external modulating frequency voltage such as a beat frequency oscillator or phonograph output to the R.F. signal.

COMPARE THESE R. F. OUTPUT VOLTAGES

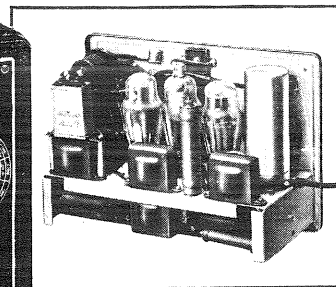
Range—KC.	Switch at Low Position		Switch at High Position
	Minimum	Maximum	Max. Volts
	Less Than		
90- 200	1 Microvolt	2 Millivolts	0.2
200- 400	1 Microvolt	2 Millivolts	0.2
400- 800	1 Microvolt	2 Millivolts	0.2
800- 1500	1 Microvolt	2 Millivolts	0.2
1500- 3100	5 Microvolts	1 Millivolt	0.1
3100- 6800	10 Microvolts	1 Millivolt	0.1
6800-14000	20 Microvolts	1 Millivolt	0.1
14000-25000	40 Microvolts	1 Millivolt	0.1

Again... RCA LEADS

WITH THE NEW...



UNIVERSAL A. C. BRIDGE



STOCK NO. 9600

NET PRICE

\$49⁶⁵

COMPLETE
With All Tubes and Standards

Speed up your work with this new RCA Universal Bridge. You can make accurate measurements (at 1,000 CPS) of the three basic properties of all electrical devices—inductance, capacity and resistance—quickly and easily. Has built-in precision standards.

MEASURES

- INDUCTANCE . . . 100 Microhenries to 10 Henries
- CAPACITY . . 10 Micro-microfarads to 10 Microfarads
- RESISTANCE 1 Ohm to 1 Megohm

Accuracy . . . 5% Overall at Full Scale

for

SERVICE ENGINEERS

•

EXPERIMENTERS

•

LABORATORY WORKERS

•

MANUFACTURERS

The new RCA Universal Bridge is the latest item of Test Equipment offered by the RCA Parts Division for the simplification and quick analysis of service or laboratory problems. This bridge gives a quick and accurate check of inductance, capacity and resistance over extremely wide ranges. These ranges include the low values that ordinary resistance and capacity meters do not check. The only additional equipment needed is a headphone for use as a null indicator.

While many laboratories are able to make measurements of inductance, resistance and capacitance, very few are permanently set up to cover the extremely wide ranges of the RCA Universal Bridge. A small portable bridge, having such wide ranges with built-in standards, is an extremely useful piece of apparatus, regardless of other equipment available.

In the Service Field, the necessity for making measurements of inductance, capacity and resistance arises every day. The addition of the RCA Universal Bridge to a service engineer's equipment lessens his work and increases the accuracy of observations.



BEAT FREQUENCY OSCILLATOR

RANGE 30 - 15,000 CYCLES



NET PRICE

\$ **64⁵⁰**

COMPLETE WITH ALL TUBES AND
POWER SUPPLY. STOCK No. 9633

Uses Four New Acorn Type Tubes

A variable frequency source of alternating current is a necessity for many radio service and laboratory uses. Fidelity measurements of receivers, loudspeaker testing, frequency measurements and many other applications are constantly requiring the use of a variable frequency A-C source.

The RCA Beat Frequency Oscillator is ideal for any application requiring a source of A-C of frequencies ranging from 30 to 15,000 cycles per second. Small, light in weight, and highly accurate, this unit incorporates design features found in only the highest priced laboratory oscillators.

Features of the RCA Beat Frequency Oscillator include the use of four RCA Acorn type tubes which greatly reduces space requirements and permits a more efficient component part arrangement. A neon lamp gives a quick means of checking the dial readings against the line frequency of 60 cycles—other checks may be

made at 120 and 180 cycles. For 50 cycles, reference points will be 100 and 150 cycles. The direct reading dial is controlled by a 5 to 1 vernier drive which permits easy and accurate adjustments to any desired frequency.

The entire instrument is contained in the standard RCA Service equipment case, made of solid steel and finished in black crackle lacquer. The case is fitted with a leather handle and the entire instrument weighs only 10³/₄ lbs.

APPLICATIONS

- Measuring Receiver Fidelity
- Measuring Audio Amplifier Fidelity
- Checking Transformer Frequency Characteristics
- Checking Filter Frequency Characteristics
- Making Frequency Measurements
- Stroboscopic Speed Measurements
- Testing Loudspeakers for rattles
- Testing Radio Cabinets for howl

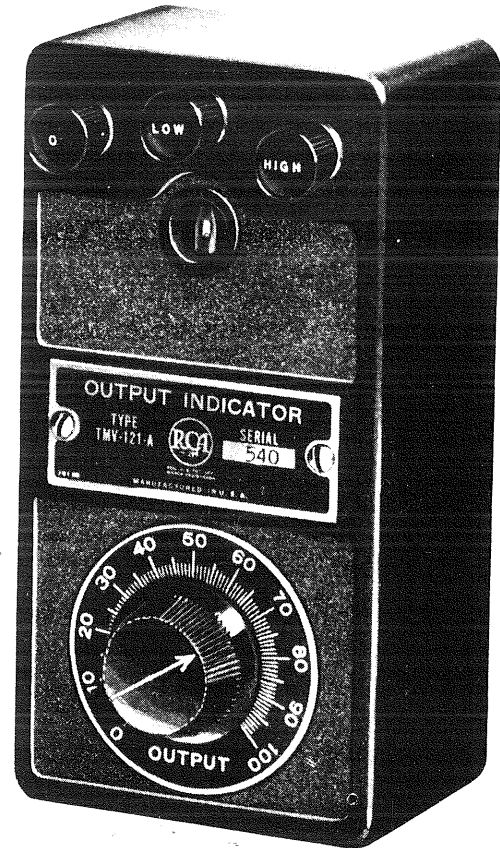


OUTPUT INDICATOR

Stock No. 4317

No Longer Need You
"Peak" Receivers by Ear.
Get an RCA Output
Indicator

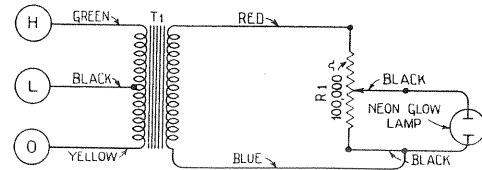
High Sensitivity
 No burn-outs in normal use
 Has three impedances
 Use it on any receiver
 Sturdy and foolproof
 No delicate parts
 For use with any oscillator
 Attractive bakelite case



The RCA Output Indicator is a small, compact, visual output indicator designed for use with an oscillator when aligning radio receivers. The instrument consists of a tapped step-up transformer, a potentiometer, a glow tube and three binding posts for connecting the output of the receiver to the transformer. Three input impedances are available, namely, 0.6 ohm, 1.5 ohms and 4 ohms, which cover practically all receivers manufactured.

The instrument is used by connecting it across the leads of the input to the voice coil of the loudspeaker. The speaker may or may not be connected, as desired by the user. So connected, the glow tube will glow when a signal is impressed on the output indicator. The glow of this lamp is very sensitive, following variations in frequency and intensity. Naturally, this provides a very sensitive indicator for adjusting trimmer capacitors to their optimum position.

The entire mechanism is housed in an attractive die-cast bakelite case.



SPECIFICATIONS

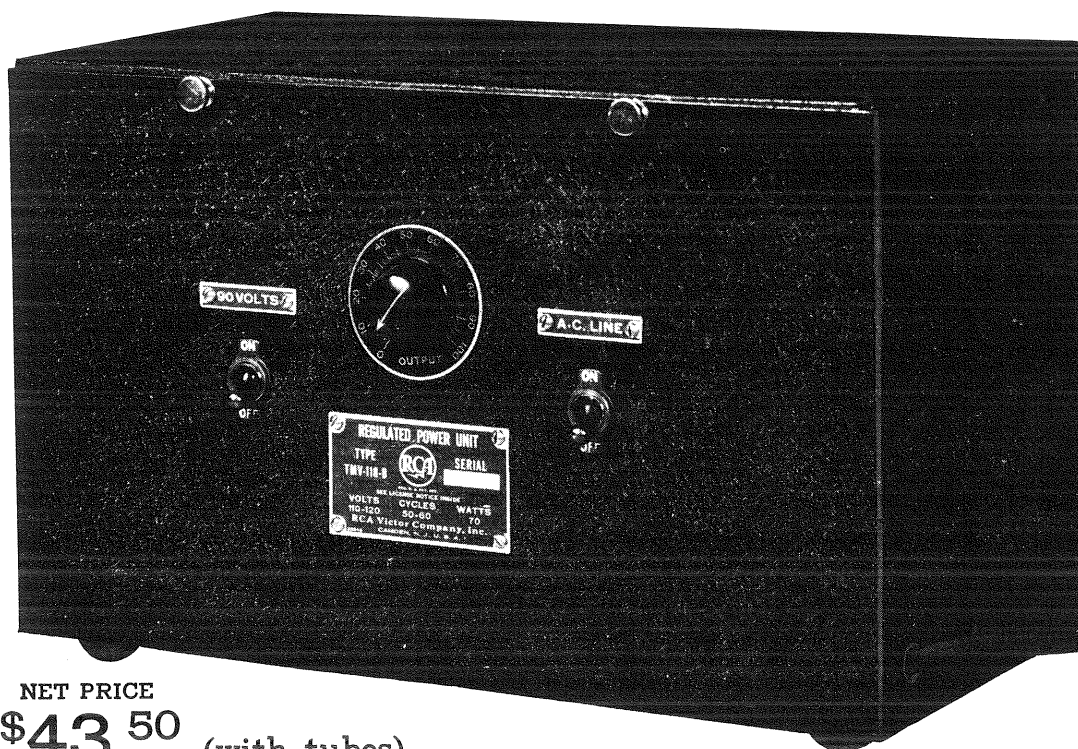
Dimensions - 5 3/8" x 2 7/8" x 2 3/8"
 Weight - - - - 13 Ounces
 Case - Die-cast moulded bakelite
 Lamp Rating 50-60 volts breakdown
 Transformer Rating 80:1 (maximum)
 Input Impedances O to H, 4 ohms,
 O to L, 1 1/2 ohms, H to L, .6 ohm
 Potentiometer Resistance
 100,000 ohms

NET PRICE \$4.00



Regulated Power Unit

TMV-118-B



NET PRICE
\$43.50 (with tubes)
F. O. B. CAMDEN, N. J.

A Constant Source of "B" Voltage

FOR

Designers, Development Laboratories, Electrical Laboratories, Experimenters, Engineers, Manufacturing Tests, Production Inspection, Physical Laboratories, School Demonstration Rooms, Scientific Service Organizations, Universities, etc., etc.

Supplies pure D. C. voltage without ripples . . . Automatically compensates for variation in load and in line voltage

Now You Can...

STUDY VIBRATION

Electrically

WITH THE



VIBRATION PICKUP



TMV-150-A

By means of the new RCA Vibration Pickup, any mechanical vibration or motion may be converted into electrical currents of identical characteristics. If this motion is recurrent in character, the resulting electrical currents may be presented visually on a Cathode Ray Oscillograph for study and analysis. The RCA Vibration Pickup, which functions through the piezo-electrical properties of a Rochelle Salt Crystal, is an instrument of great value to all physical, mechanical and sound laboratories. While the following list shows a few applications, many others will undoubtedly present themselves to all users.

STOCK NO. 9649
NET PRICE \$**20⁰⁰**

USES

A few of the many uses of this instrument are:

- 1 Study of vibration of motors or parts of motors.
- 2 Study of vibration of remote units, such as control boxes.
- 3 Study of vibration of wings of aircraft.
- 4 Study of vibration of buildings and foundations.
- 5 Transmission of vibration through material.
- 6 Checking frequency and force of air hammers.
- 7 Locating components of machine causing noise.
- 8 Comparing relative smoothness of several surfaces.

SPECIFICATIONS

OUTPUT VOLTAGE—0.25 volt per .001 inch movement at 250 cycles. (See curve on reverse side.)

FREQUENCY RANGE—10-3000 cycles (approximately a square law curve).

VIBRATION AXIS—Right angles to face of pickup.

WEIGHT—8 ounces.

DIAMETER—3 inches.

DEPTH—1½ inches.

LENGTH OF CONNECTING CORD—8 feet.

Check your frequency

... ACCURATELY! WITH THE



PIEZO-ELECTRIC CALIBRATOR

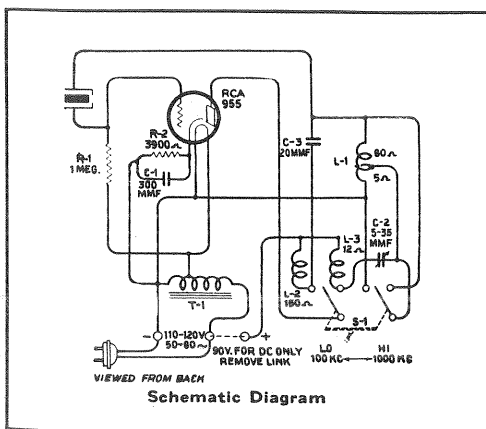
STOCK No. 9572

Give precision to your work by calibrating receivers, test oscillators and laboratory apparatus with the RCA Crystal Calibrator. It enables you to do a better job, guarantee the accuracy of your calibration and command a higher price for your work. . . A crystal oscillator, properly ground and accurately calibrated, maintains a more constant frequency than any other device known. The RCA Piezo-Electric Crystal Calibrator, which is a special crystal oscillator with two frequency modes, each having prolific harmonics, is an ideal standard for all accurate calibration work. Use it for better work.

NET PRICE **\$29⁹⁵** COMPLETE WITH CRYSTAL, TUBE and POWER SUPPLY

CHECKS FREQUENCIES FROM:—

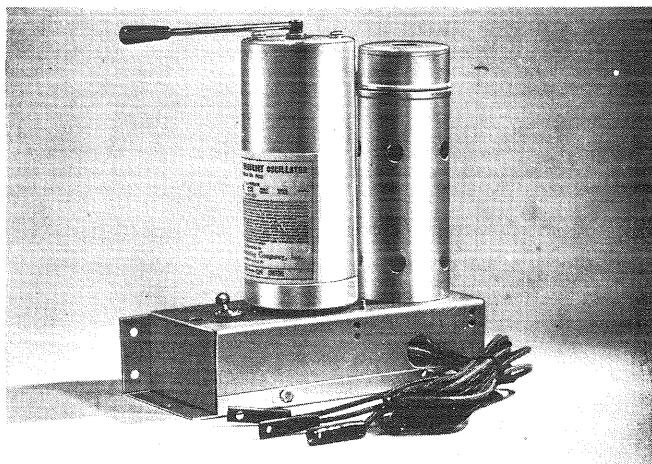
100 KC TO 20,000 KC IN 100 KC STEPS
1000 KC TO 50,000 KC IN 1000 KC STEPS
GUARANTEED ACCURACY 0.05 PERCENT OF 100 KC AND 1000 KC



INDIVIDUAL CRYSTAL CALIBRATION AND TEMPERATURE AT WHICH MADE, FURNISHED WITH EACH INSTRUMENT. ACCURACY—2 PARTS IN 1 MILLION.

Schematic diagram of RCA Piezo-Electric Calibrator showing values of parts and internal connections.

Listen to C-W Code Signals



With this instrument attached to a short wave super-heterodyne home receiver, anyone can listen to the many continuous wave code signals that would otherwise be inaudible. Also useful for tuning any weak signal by the sensitive "birdie" method.

with this

RCA BEAT OSCILLATOR

AND YOUR PRESENT SHORT WAVE RECEIVER

NET PRICE

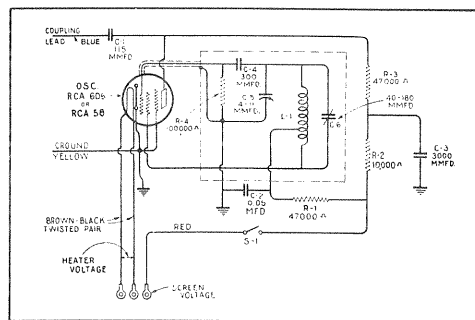
\$7.50

STOCK No. 9606

★ The RCA Beat Oscillator is a compact, un-modulated C-W oscillator having a frequency range from 415 kc. to 700 kc. It is designed to be used for the beat reception of continuous wave signals on either short wave or broadcast type receivers. Such reception is accomplished by the beat oscillator heterodyning the intermediate frequency signal, thereby creating an audio signal which is readily heard in the earphones or loudspeaker of any home receiver. A vernier adjustment, for controlling the frequency, or pitch, of the beat note, is fitted with a long handle, thus permitting fine adjustments. The oscillator may be operated with receivers using either 2.5-volt or 6.3-volt tubes, and is provided with easily attached terminals for obtaining plate and filament supply from the receiver.

Specifications

- ★ **CIRCUIT.** Electron-coupled, having excellent frequency stability.
- ★ **FREQUENCY RANGE.** 415 kc. to 700 kc.
- ★ **RADIOTRON REQUIRED.** 1 RCA-58 or 1 RCA-6D6 (not included).
- ★ **CONTROLS.** Fine frequency adjustment and "on-off" switch.
- ★ **SIZE.** Height, 7 inches; width, 2 $\frac{3}{4}$ inches; length, 7 inches. **WEIGHT:** 2 pounds.



Schematic Circuit Diagram



RCA MANUFACTURING CO., INC.,

CAMDEN, NEW JERSEY, U. S. A.

A miniature Broadcast Station for every receiver... profits for Service Engineers!

SHOW YOUR customers how to broadcast records to themselves with the RCA Phonograph Oscillator. Possessing all the appeal of a distinct novelty, but with RCA practicability and durability built in, the RCA Phonograph Oscillator will prove popular with Service Engineers and receiver owners.



RCA Phonograph Oscillator

For the Service Engineer: For the Service Man the RCA Phonograph Oscillator does two things. It makes additional profits for him through the sale of additional equipment and solves one of his toughest problems in phonograph modernization work. The output from the pickup coil modulates the oscillator which is coupled to the antenna of the receiver. This modulated signal is tuned in on the receiver just like any broadcasting station.

Only a few minutes are required to attach the RCA Phonograph Oscillator. No struggle is involved to get the grid bias right; no circuit changes to make; no impedance matching. Just a few simple connections are necessary, for which directions are supplied with the equipment.

For the Receiver Owner: The RCA Phonograph Oscillator provides a miniature broadcasting station for every receiver-owning home. Its fidelity of record reproduction is limited only by the qualities of the receiver to which it is attached. It enables the owner to hear his favorite artists whenever he wants and as often.

With the rapidly reviving interest in record reproduction, and low-priced Bluebird records now within the reach of all, a tremendous field for profits awaits the alert Service Man.

This unit presents one more RCA profit maker for Service Engineers—one more trouble saver. Watch for the announcements of new, interesting, money-making, labor-saving devices that RCA Parts Division Engineers are developing now. Keep in touch with your RCA Parts Distributor.

Stock No. 9554, List Price, (without tube) \$9.75

ORDER FROM YOUR RCA PARTS DISTRIBUTOR