

Bulletin 923

GENERAL RADIO

Quality Parts



Manufactured by the
GENERAL RADIO CO.
Cambridge, Mass., U. S. A.



H TYPE 247-H Cap. 500 MFD.
PANEL MOUNTING
VARIABLE AIR CONDENSER
WITH VERNIER ADJUSTMENT
PRICE \$5.00

F O R E W O R D

IN buying radio apparatus it is always well to remember that Radio is a Science depending upon definite electrical principles.

It, therefore, requires instruments that are scientifically correct — mechanically and electrically.

The radio apparatus described in this catalog has been developed by experienced radio engineers after extensive research and careful study of actual operating conditions. This development work has been conducted in the well-equipped electrical laboratories of the General Radio Company.

All General Radio parts are constructed to meet the most exacting requirements of radio broadcast reception, and are of the same high standard of materials and workmanship as the radio laboratory instruments manufactured by the General Radio Company.

The prices listed in this catalog are as low as the highest quality of materials, workmanship, and manufacturing methods permit. Prices are revised and correct to October 15, 1925. They are, however, subject to change without notice, due to market changes of raw materials and other conditions beyond our control.

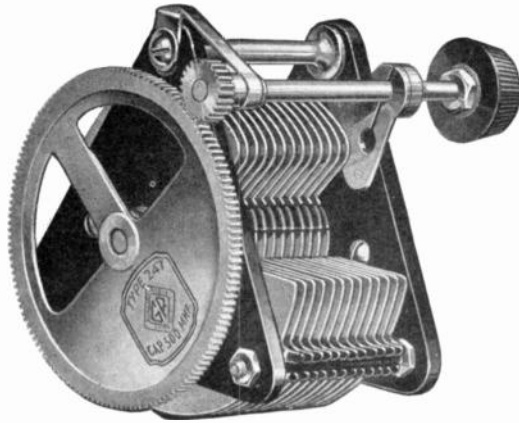
When ordering by telegraph specify quantity and our code word.

Unless otherwise instructed we shall use our own judgment regarding method of shipment.

GENERAL RADIO CO.

30 State Street

Cambridge, 39, Mass.



Type 247-H

VARIABLE CONDENSER

With Vernier Gear

No single instrument in a radio set has greater influence over the successful operation of a receiver than a variable condenser.

In order to obtain the degree of selectivity necessary to separate stations broadcasting on wavelengths only a few meters apart, it is essential that a condenser should have very low losses, correctly shaped plates, and a good vernier adjustment.

Particular care has been taken in designing the General Radio Type 247 Condensers to keep the losses at a minimum.

This is accomplished by interspacing the plates of the rotor and stator groups in a specially designed jig and soldering them while they are in perfect alignment. It can be readily understood why this method is far superior to the method of interspacing plates by means of metal spacers. It not only reduces the resistance losses to minimum, but makes the assembly as a whole much more rigid and insures perfect alignment of plates, which keeps the plate resistance and capacity values always constant.

The vernier adjustment used on Type 247 Condensers and recognized by radio engineers as the most efficient is the balanced gear method which provides for a minute adjustment of the whole rotor group.

Type 247-H, 500 M M F. Panel mounting, with gear.....\$5.00
Dimensions 4" x 4" x 4 $\frac{1}{8}$ ". Weight 1 $\frac{1}{8}$ lbs.
Code Word: "COMIC."

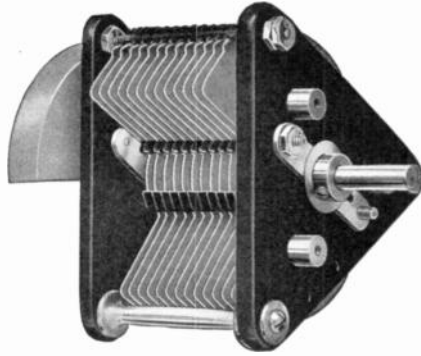
Type 247-P, 350 M M F. Panel mounting, with gear.....\$4.75
Dimensions 4" x 4" x 4 $\frac{1}{8}$ ". Weight 1 lb.
Code Word: "ABBAY."

Type 247-M, 250 M M F. Panel mounting, with gear.....\$4.50
Dimensions 4" x 4" x 4". Weight $\frac{7}{8}$ lb.
Code Word: "CIGAR."



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Type 247-F

VARIABLE CONDENSER With Counterweight

The construction of the counterweighted condenser shown above is the same as the vernier type with the exception that in place of the vernier gear attachment a counterweight is provided to balance the rotor plates.

A feature of this, as well as all Type 247 Condensers, is the special type of spring bearing which insures good contact being made with the rotor group. With this type of bearing the tension always remains the same, and there is no chance for the rotor shaft to loosen as the bearing wears. These bearings are so arranged that all the thrust is on one bearing, and there is no danger of the condenser short circuiting or changing its capacity should the distance between the bearings become changed.

This type of condenser is capable of very minute capacity variations when used with vernier dials shown on pages 9148 and 9149 of this catalog.

Type 247-F, 500 M M F. Panel mounting, without gear\$4.00

Dimensions 4" x 4" x 4 $\frac{1}{8}$ ". Weight 1 lb.

Code Word: "COCOA."

Type 247-N, 350 M M F. Panel mounting, without gear\$3.75

Dimensions 4" x 4" x 4 $\frac{1}{8}$ ". Weight $\frac{7}{8}$ lb.

Code Word: "ABASE."

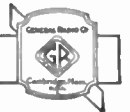
Type 247-K, 250 M M F. Panel mounting, without gear\$3.50

Dimensions 4" x 4" x 4". Weight $\frac{7}{8}$ lb.

Code Word: "CARGO."



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Type 247

MOUNTED VARIABLE CONDENSER

Experimental radio receiving sets require condensers capable of extreme accuracy in capacity variation. The Types 247-E, G, J, and L Condensers definitely meet this demand. They are mounted in a metal case finished with a black crystalline finish, the same as is used on expensive laboratory instruments. This case is grounded to the rotor plates, thus shielding the condenser and eliminating many of the disturbing effects due to bringing the hand near the condenser.

The minimum capacity of these condensers is approximately 20 micromicrofarads. This low value makes a wide range of wavelengths possible when the proper coils are used.

In addition to the regular degree graduations of the etched metal dial, this dial is marked with a scale to show capacity measurements in micromicrofarads. This is a unique and valuable feature for radio receiving condensers, and it enables the operator to know at all times just what capacity he is using.

- Type 247-E, 500 M M F. mounted, without gear \$6.25
 Dimensions 5" x 5" x 4½". Weight 2 lbs.
 Code Word: "COUPE."
- Type 247-G, 500 M M F. mounted, with gear \$7.25
 Dimensions 5" x 5" x 5½". Weight 2¼ lbs.
 Code Word: "COLIC."
- Type 247-J, 250 M M F. mounted, without gear \$5.75
 Dimensions 5" x 5" x 4½". Weight 1¾ lbs.
 Code Word: "CANON."
- Type 247-L, 250 M M F. mounted, with gear \$7.00
 Dimensions 5" x 5" x 4½". Weight 1¾ lbs.
 Code Word: "CAROM."



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Type 247-W

WAVEMETER AND FILTER

The selectivity of a receiving set is greatly improved by a radio filter. Interference from various sources may also be reduced to a minimum by use of a reliable filter.

The Type 247-W Wavemeter is ideally adapted to this purpose. The filter coil may be connected either in series or parallel with the receiving set. When used in series connection a single interfering broadcasting station may be eliminated. The parallel filter is used to eliminate several interfering stations simultaneously and accept only one station within the filter range.

The range of the 247-W Wavemeter is 200 to 600 meters. Wavelengths may be determined by direct readings from the condenser dial which is calibrated with an accuracy of 2%.

A full set of instructions accompanies each instrument.

Type 247-W Wavemeter and Filter \$10.00

Dimensions 5" x 4½" x 8". Weight 2½ lbs.

Code Word: "WAGON."

When longer or shorter wavelengths are desired Types 247-W2, 247-W½, and 247-W¼ Extension Coils may be used interchangeably.

Type 247-W2 Extension Coil (400-1200 meters) \$3.00

Dimensions 4" x 4" x 3". Weight 6 oz.

Code Word: "VOCAL."

Type 247-W½ Extension Coil (100-300 meters) \$3.00

Dimensions 4" x 4" x 3". Weight 6 oz.

Code Word: "VIZOR."

Type 247-W¼ Extension Coil (50-150 meters) \$3.00

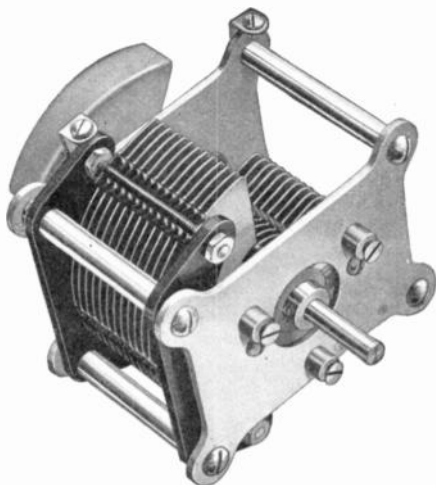
Dimensions 4" x 4" x 3". Weight 6 oz.

Code Word: "VIVID."



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Type 334-F

VARIABLE CONDENSER

Grounded Rotor Type

In many popular receiving circuits the shielding of a condenser is important. To meet this specific need the Type 334 Condensers have been designed which have metal end plates and grounded rotor.

Metal end plate condensers in general have higher radio frequency resistance losses than condensers with end plates of good dielectric. However, the eddy current losses from metal end plates in the Type 334 Condensers have been reduced to a minimum by placing the plates in a weak electromagnetic field. By the use of hard rubber insulating strips placed in a weak field of force the dielectric losses are also very low.

The rotor and stator units are the same as used in the Type 247 Condensers, and good conductivity is assured through solder-sealed contacts. The advantages of the soldered plate condenser are now well established in the minds of radio engineers.

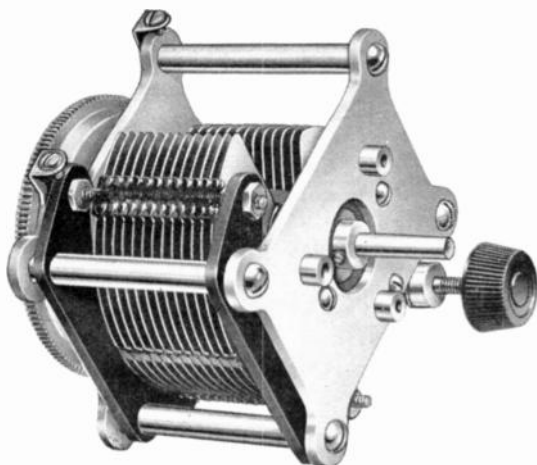
In assembling the rotor and stator groups of General Radio condensers the plates are placed in specially designed jigs which allow only flat plates to be used. Each plate must also be of proper thickness to fit into the jig. This method of assembly serves as a final plate inspection, as well as assuring perfect alignment of plates. It also guarantees absolutely uniform intervals between plates in all General Radio condensers. It may be easily understood, therefore, why capacities of all General Radio condensers are accurate and why any two condensers of the same type match almost identically.

When the plates are correctly arranged in the jig they are firmly soldered. This seals the contact and prevents the introduction of resistance through oxidation of contact surfaces or through the presence of any dirt which might become lodged between contacts. It also prevents any mechanical loosening of the rotor and stator plates which would vary the original capacity of the condenser.



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Type 334-H

VARIABLE CONDENSER

Grounded Rotor Type

After the plates are soldered they are given an acid cleaning and lacquering treatment which provides a permanent clean and bright finish. The bearings are smooth running and designed to compensate for wear, eliminating any possibility for introducing bearing noises from poor contact.

End plates are of aluminum and condenser plates are of brass.

The Type 334 Condensers are made in panel mounting models only, with and without geared vernier.

For manufacturing uses we are prepared to supply this condenser in multiple sections under Hogan patent No. 1,014,002.

The construction of the Type 247 and 334 Condensers is also protected under General Radio patent No. 1,542,995.

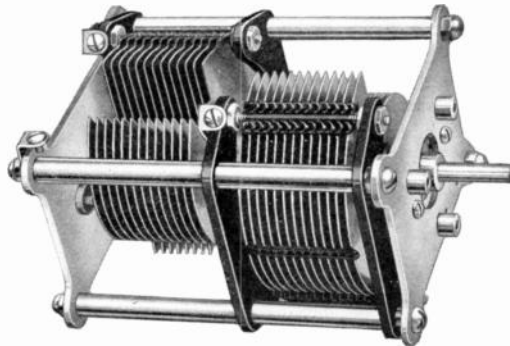
Type 334-F, 500 M M F. Panel mounting, without gear	\$4.25
Code Word: "BEGIN."	
Type 334-H, 500 M M F. Panel mounting, with gear	\$5.25
Code Word: "BELAY."	
Type 334-N, 350 M M F. Panel mounting, without gear	\$4.00
Code Word: "BESET."	
Type 334-P, 350 M M F. Panel mounting, with gear	\$5.00
Code Word: "BEVEL."	
Type 334-K, 250 M M F. Panel mounting, without gear	\$3.75
Code Word: "BELOW."	
Type 334-M, 250 M M F. Panel mounting, with gear	\$4.75
Code Word: "BERYL."	

Dimensions $3\frac{3}{4}$ " x $3\frac{3}{4}$ " x $4\frac{1}{2}$ ". Weight $1\frac{1}{2}$ lbs.



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Type 374-F

STRAIGHTLINE FREQUENCY CONDENSER

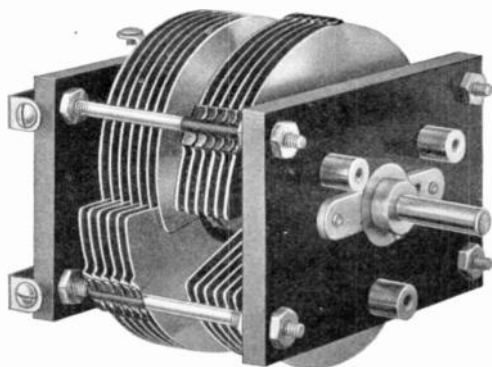
Grounded Rotor Type

With the increasing use of frequency instead of wavelength for dial settings, there has come a demand for a straight line frequency condenser. Such a condenser opens up the low wavelength end of the scale at the expense of the upper end. In order that the scale may be as uniform as possible, the straight line frequency curve has been somewhat modified in the Type 374 Condensers so that the scale is better adapted to actual working conditions.

The general design of these condensers is the same as the Type 334 illustrated and described on the preceding page. The smaller area of the rotor plates makes it necessary to use double the number of plates that are used in the straight line wavelength type to obtain the same capacity. In order to get the proper support, the 500 M M F. size is made as a tandem balanced rotor type. Particular attention is called to the fact that the panel space required is identical with that of the Type 334 Condensers. This economy of panel space is a very advantageous feature.

- Type 374-B, 125 M M F. capacity \$3.75
 Dimensions $3\frac{3}{4}$ " x $3\frac{3}{4}$ " x $3\frac{1}{4}$ ". Weight 1 lb.
 Code Word: "BONUS."
- Type 374-K, 250 M M F. capacity \$4.25
 Dimensions $3\frac{3}{4}$ " x $3\frac{3}{4}$ " x $4\frac{1}{4}$ ". Weight 1 lb. 2 oz.
 Code Word: "BOSOM."
- Type 374-N, 350 M M F. capacity \$6.50
 Dimensions $3\frac{3}{4}$ " x $3\frac{3}{4}$ " x 5". Weight 2 lbs.
 Code Word: "BOXER."
- Type 374-F, 500 M M F. capacity \$7.00
 Dimensions $3\frac{3}{4}$ " x $3\frac{3}{4}$ " x 6". Weight 2 lbs. 2 oz.
 Code Word: "BRAVO."





Type 248-K

TANDEM CONDENSER

The tendency in radio today is to simplify the operation of a receiving set by reducing its number of controls. The most popular method of accomplishing this is by the use of tandem condensers for the simultaneous tuning of two circuits, particularly in tuned radio frequency sets.

The Type 248 Tandem Condensers are assembled of rotor and stator units identical to those used in the Type 247 Condensers. This soldered type of construction insures that the capacities of both sections of the condensers will be very nearly identical — a most important point in multiple tuning.

The end plates are of hard rubber, rectangular in shape, and with the dielectric in a weak electrostatic field.

The rotor units are on opposite sides of the shaft and perfectly balanced.

Bearings are standard General Radio spring bearings, tight yet smooth in operation, and designed to compensate for wear.

These condensers are particularly compact and rugged. Terminals are so arranged that the capacities of the individual units may be connected to different circuits or the total capacity of both sections may be connected in one circuit.

Type 248-F, 2 units each of 500 M M F. capacity\$6.50

Dimensions $3\frac{1}{2}'' \times 3\frac{1}{4}'' \times 5\frac{1}{4}''$. Weight 1 lb. 4 oz.

Code Word: "ABODE."

Type 248-N, 2 units each of 350 M M F. capacity\$6.15

Dimensions $3\frac{1}{2}'' \times 3\frac{1}{4}'' \times 5\frac{1}{2}''$. Weight $1\frac{1}{2}$ lbs.

Code Word: "ACORN."

Type 248-K, 2 units each of 250 M M F. capacity\$5.75

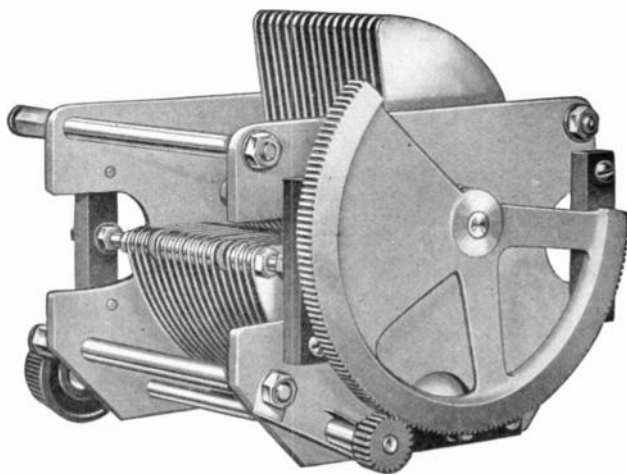
Dimensions $3\frac{1}{2}'' \times 3\frac{1}{4}'' \times 5\frac{1}{2}''$. Weight 1 lb. 10 oz.

Code Word: "ABUSE."



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Type 239

LABORATORY CONDENSER

To meet the most exacting requirements of carefully designed radio sets, and for general laboratory use, the above illustrated Type 239 Condenser is particularly recommended. It is somewhat similar in design to the General Radio precision condenser. It has metal end plates, locked cone bearings, and is rigidly supported. The only solid dielectric material used is in the form of supporting strips for the fixed plates. These strips are of selected hard rubber, and are placed in a weak and non-varying electrostatic field. This reduces the dielectric loss to a minimum.

The rotor plates are grounded to reduce body capacity. The plates are of aluminum and are so shaped as to give a nearly uniform wavelength variation.

The Type 239 Condensers are supplied either with slow motion gear or counterweight.

A precise vernier adjustment is made possible on the models with counterweights by use of vernier dials shown on pages 9148 and 9149.

Type 239-H, 1000 M M F. unmounted, without gear.....\$10.00
 Dimensions $4\frac{1}{2}$ " x $4\frac{3}{4}$ " x 6". Weight 2 lbs.

Code Word: "BARON."

Type 239-G, 1000 M M F. unmounted, with gear.....\$13.50
 Dimensions $4\frac{1}{2}$ " x $4\frac{3}{4}$ " x 6". Weight 2 lbs.

Code Word: "BASAL."

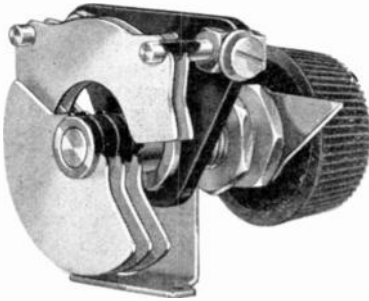
Type 239-M, 2000 M M F. unmounted, without gear.....\$13.00
 Dimensions $4\frac{1}{2}$ " x $4\frac{3}{4}$ " x 6". Weight 3 lbs.

Code Word: "BAYAN."

Type 239-L, 2000 M M F. unmounted, with gear.....\$16.50
 Dimensions $4\frac{1}{2}$ " x $4\frac{3}{4}$ " x 6". Weight 3 lbs.

Code Word: "BEFIT."





Type 368

MICRO-CONDENSER

A small balancing condenser is often required in sets employing the recently developed circuits. Such a condenser should be as small as practical, and the mounting should be simple, preferably of the one-hole type. Such a condenser is available in the Type 368. This condenser has a maximum capacity of 12 M M F. It is of our standard low-loss soldered-plate type.

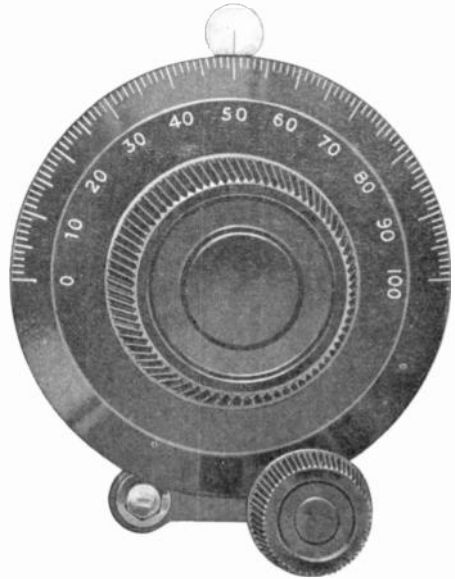
Type 368 Micro-Condenser. 12 M M F..... \$1.25
 Dimensions 2" x 2" x 1 1/8". Weight 2 oz.

Code Word: "BULLY."

BAKELITE DIAL With Geared Vernier

The Type 304 Dial is of genuine moulded bakelite. On the back of the dial is a moulded gear which provides for extremely accurate dial settings. A small fibroil pinion operates the gear and is kept in mesh with it by a specially designed spring arm. This combination makes a very efficient vernier control and is entirely free from backlash. The indicator button is of highly polished nickel finish. A template for drilling the panel for mounting the spring arm and indicator is supplied with each dial.

Type 304 Bakelite Vernier
 Dial..... \$2.00
 Dimensions 4" dia. x 1 1/8".
 Weight 6 oz.
 Code Word: "DELAY."



Type 304



GENERAL RADIO CO.

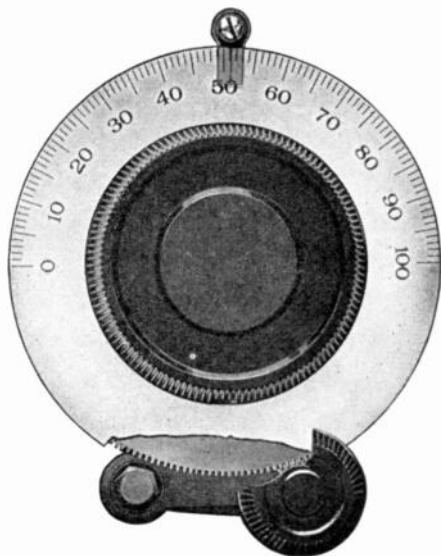




VERNIER DIALS

Frosted Silver Finish

The Types 302 and 303 Dials are provided with a specially designed vernier attachment. A brass gear with accurately machined teeth is swedged firmly to the back of the dial. A small fibroil pinion under the vernier knob is kept in tight contact with this gear by a spring arm. The finish of the dial is frosted silver with graduated scale in black. Extremely accurate adjustments are made possible by the use of this vernier dial, inasmuch as there is absolutely no backlash. Each dial is packed with a celluloid hair line indicator and template for drilling panel for mounting the spring arm.



Type 303

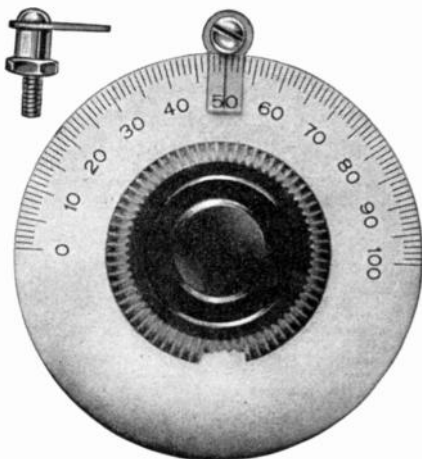
- Type 302— $2\frac{3}{4}$ in. Vernier Dial, for $\frac{1}{4}$ in. Shaft \$1.75
 Dimensions $3\frac{1}{2}$ " x $\frac{3}{4}$ ". Weight 6 oz. Code Word: "DAISY."
 Type 303—4 in. Vernier Dial, furnished for $\frac{1}{4}$ in. or $\frac{3}{8}$ in. Shaft . . . \$2.50
 Dimensions $4\frac{5}{8}$ " x $\frac{3}{4}$ ". Weight 10 oz. Code Word: "DALLY."

DIAL AND INDICATOR

Without Vernier

The Type 310 Dial and Indicator combination permits precise dial setting and is a great help in logging stations. The dial is of brass with a frosted silver finish and graduated scale in black. The knob is of bakelite. The indicator of transparent celluloid with fine line is mounted by a nickel finished screw and nut.

The construction features of the Type 317 Dial are similar to those of the Type 303 Dial, except that it is without vernier gear.



Type 310

- Type 310— $2\frac{3}{4}$ in. Dial and Indicator \$0.60
 Dimensions $2\frac{3}{4}$ " x $\frac{5}{8}$ ". Weight $3\frac{1}{2}$ oz. Code Word: "DANDY."
 Type 317—4 in. Dial and Indicator \$1.50
 Dimensions 4" x $\frac{3}{4}$ ". Weight $6\frac{1}{2}$ oz. Code Word: "DEBUT."





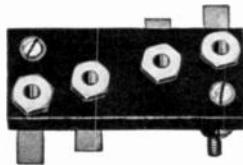
277-C



277-D $\frac{1}{2}$



277-D



274-B

INDUCTANCE AND COUPLING COILS

The Type 277 Coils are so shaped in ratio of diameter to length, the material so chosen, and the construction such that they have very low losses.

Models A, B, and C have single windings and are wound in two sections so that the mid point may be obtained or coupling turns added at the center point. Models D, D $\frac{1}{2}$, and D $\frac{1}{4}$ are coupling coils with a small primary winding.

The inductances of the 277-A, B, and C coils and of the large windings of the 277-D $\frac{1}{4}$, D $\frac{1}{2}$, and D coils are .014, .055, and .217 milli-henries respectively. When used with 440 M M F. condensers these coils have wavelength ranges of 50-150, 100-300, and 200-600 meters respectively.

Mounting holes are arranged so that Type 274-P Plugs may be inserted and coils may be used interchangeably in the coil mounting bases.

Type	Wavelength	Code Word	Price
277-A	50 to 150 meters	VALOR	\$1.25
277-B	100 to 300 meters	VAPID	1.25
277-C	200 to 600 meters	VENUS	1.25
277-E	300 to 900 meters	VIRUS	1.50
277-D	Coupling Coil, 200 to 600 meters	VIGIL	1.50
277-D $\frac{1}{2}$	Coupling Coil, 100 to 300 meters	VIPER	1.50
277-D $\frac{1}{4}$	Coupling Coil, 50 to 150 meters	VILLA	1.50
277-U	Unwound Coil Form	VIGOR	.75

Dimensions 3 $\frac{1}{2}$ " x 2 $\frac{1}{4}$ ". Weight 5 oz.

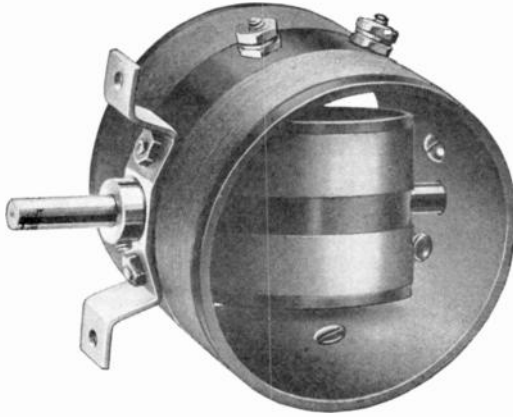
COIL MOUNTING ACCESSORIES

274-A	Base with 3 jacks	\$0.90
274-B	Base with 4 jacks	1.00
274-C	Base with 2 jacks	.75
274-P	Contact Plug	ea. .15
274-J	Jacks	per pair .25



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Type 268

VARIOCOUPLER

While it was formerly considered good practice to have a large number of taps in variocoupler primaries, in most recent receiving sets taps have been omitted entirely. With the condensers and circuits now in general use taps on a variocoupler are of little importance.

There are times, however, when a single tap is of advantage. Thus to make the Type 268 Variocoupler efficient, yet simple in operation, a single center tap has been brought out on the stator coil.

The Type 268 Variocoupler covers the band of wavelengths from 150 to 600 meters, which includes practically all popular radio broadcast reception. This instrument is especially compact and very efficient in circuits which require a high grade coupler.

Both the rotor and stator forms are of genuine moulded bakelite and are wound with green silk covered wire. The metal parts are of nickel finish.

The bearings are exceptionally accurate and smooth running, so as to insure uniform operation over long periods of use.

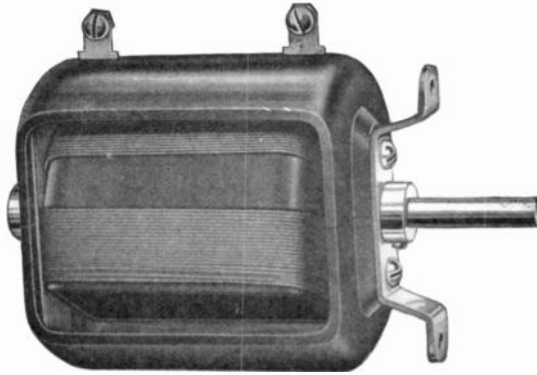
Mounting to panel is by means of a convenient and rugged mounting bracket. Necessary screws and nuts are provided with each instrument.

Type 268 Variocoupler \$2.75

Dimensions 4" x 4" x 2½". Weight 6 oz.

Code Word: "VALET."





Type 269

VARIOMETER

The outstanding features of the Type 269 Variometer are its size and its efficiency of operation.

It is much smaller than the average variometer, which gives it a decided advantage where compactness and portability of the set are considerations. It is equally efficient mechanically and electrically and has a maximum to minimum inductance range of 660 to 60 microhenries.

The stator and rotor forms are of genuine moulded bakelite, wound with green silk covered copper wire. Terminals are very accessible, and a soldering lug is provided for using the instrument in circuits requiring split variometer connections. The bearings are accurate and very smooth running.

All metal parts are brass with nickel finish. Panel installation is made easy by a convenient mounting bracket.

Necessary screws and nuts are provided for mounting.

The advantages of this variometer are readily appreciated by radio experimenters because of its unusual compactness and efficiency.

Type 269 Variometer.....\$5.00

Dimensions $4\frac{3}{4}$ " x 3" x $1\frac{3}{4}$ ". Weight 7 oz.

Code Word: "VALID."





Type 231-A

AUDIO AMPLIFYING TRANSFORMER

The Type 231-A Transformer is designed to produce the maximum amplification with good tone quality that is consistent with good performance and moderate price. It has no resonance point within the audio range, thus amplifying tones of high or low pitch to nearly the same degree. It has a ratio of $3\frac{1}{2}$ to 1 and is perfectly suited to all stages of multi-stage amplification with equal efficiency.

This transformer has a shell type closed core, constructed of a high grade of silicon steel. The coils are wound with No. 40 copper wire and are properly insulated and impregnated to prevent short circuited turns.

It is mounted by means of nickel brackets, and wiring connections are made easy by conveniently located binding posts. In addition to its excellent electrical characteristics this transformer is very compact and rugged. Each transformer is individually tested before leaving the factory and is guaranteed to be correct in every detail. Amplifier diagram with instructions for wiring is furnished with every instrument.

Type 231-A Amplifying Transformer \$5.00

Dimensions $2\frac{3}{8}$ " x $2\frac{1}{2}$ " x $2\frac{1}{2}$ ". Weight 1 lb.

Code Word: "TUTOR."





Type 285
1 to 6 ratio
For first stage

Type 285-L
1 to 2 ratio
For second stage

AUDIO AMPLIFYING TRANSFORMERS

The Type 285 Transformers mark a real advance in audio frequency transformer design.

With the recent improvements in reproducing equipment, particularly in loud speakers, it has become desirable to use transformers of higher quality.

This improvement in quality has been attained by designing the transformers to extend their amplification to higher and lower frequencies.

In order to improve both the upper and lower ends of the amplification curve, transformers must be designed in such a way that they will not have a high distributed capacity, but at the same time will have high inductance values.

This has been accomplished in the new Type 285 Transformers by using a larger core of a very high quality of selected steel and properly adjusting the coil turns.

For most uses a single stage of amplification using the 1 to 6 ratio transformer is satisfactory. Where additional amplification is required a second transformer having a lower ratio, 1 to 2, is provided. This combination gives an intense volume with amazing purity of tone.

Type 285 Amplifying Transformer 1 to 6 ratio.....\$6.00
Code Word: "TOKEN."

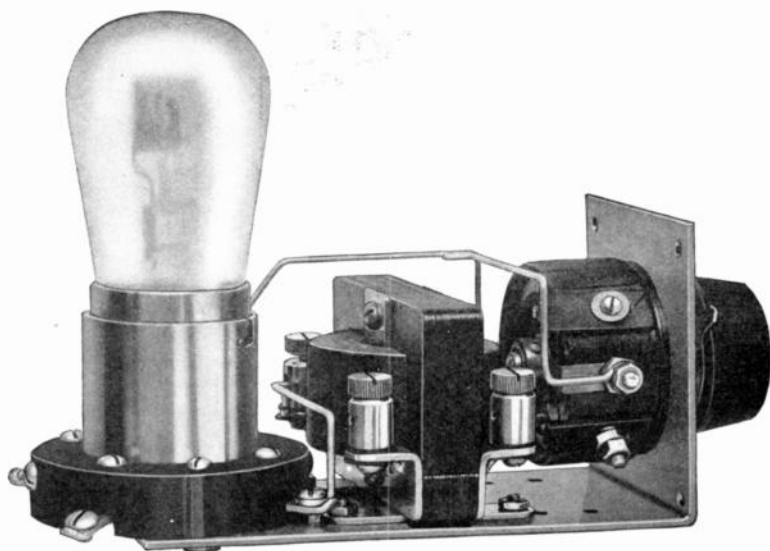
Type 285-L Amplifying Transformer 1 to 2 ratio.....\$6.00
Code Word: "TOPAZ."

Dimensions $3\frac{1}{2}$ " x $3\frac{1}{4}$ " x $2\frac{1}{2}$ ". Weight $1\frac{1}{2}$ lbs.



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Type 300-D

AUDIO AMPLIFIER UNIT

For persons building their own sets, especially for portable use, these amplifying units are very convenient, as they greatly simplify the construction of an audio frequency amplifier, and make the set more compact.

The unit is self contained except for tubes and batteries, and is ready for connection to either tube or crystal detector set. Provision is made for either table or panel mounting.

The instruments are securely mounted on the bracket and all internal wiring has been provided. The mounting bracket is of heavy brass with a white nickel finish.

This unit is supplied in two models, 300-D for standard base tubes such as the UV-201-A, and 300-E for the new UX tubes, the only difference being in the design of the socket. A sheet giving complete instructions for installation and operation is packed with each unit.

Type 300-C Amplifier unit for UV-199 tubes. \$7.75
 Dimensions 6½" x 2½" x 2¾". Weight 1½ lbs.
 Code Word: "ARROW."

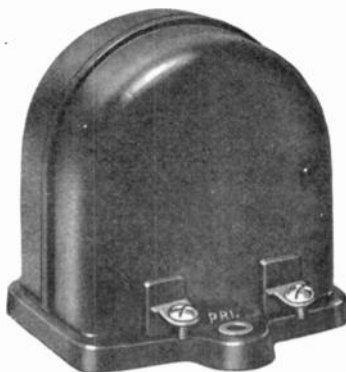
Type 300-D Amplifier unit for UV-201-A tubes. \$8.00
 Dimensions 6½" x 2½" x 2¾". Weight 1½ lbs.
 Code Word: "ARSON."

Type 300-E Amplifier unit for UX tubes \$8.00
 Dimensions 6½" x 2½" x 2¾". Weight 1½ lbs.
 Code Word: "AMEND."





Type 271



Type 331

MEDIUM FREQUENCY TRANSFORMERS

The 271 Transformer has been designed to meet the specific requirements of a medium frequency transformer for use in long wave reception and in superheterodyne circuits. The working range is from 7000 to 12,000 meters with a peak frequency of 10,000 meters.

The transformer is shielded both electrostatically and electromagnetically, making it possible to use several of these transformers in cascade with a separation as small as one inch.

The whole unit is enclosed in an attractively japanned metal case fitted with convenient mounting holes and terminal posts with binding screws.

Type 271 Medium Frequency Transformer.....\$5.00
 Dimensions $2\frac{1}{2}''$ x $2\frac{1}{4}''$ x $1\frac{1}{2}''$. Weight 6 oz.
 Code Word: "TULIP."

Type 331

TUNED TRANSFORMER

In some circuits amplification at the peak frequency of the medium frequency transformers is desirable. In order that this amplification may be over as narrow a band as it is practical to work, a tuned or filter transformer should be used in the output stage. The Type 331 Tuned Transformer provides the necessary tuning to enable the Type 271 Transformers to be used at their peak frequency. An excellent combination for 30 K. C. amplification is three Type 271 Transformers and one Type 331.

The Type 331 Transformer has an air core and has close coupling between the primary and secondary winding. The fixed tuning condenser is mounted inside of the attractive moulded bakelite case that encloses the unit. The mounting holes are the same as those of the Type 271 Transformer.

Type 331 Tuned (30 K. C.) Transformer.....\$5.00
 Dimensions $2\frac{3}{4}''$ x $2\frac{3}{4}''$ x $2\frac{1}{2}''$. Weight 8 oz.
 Code Word: "TABLE."





COUPLING IMPEDANCE



Type 369

Many experimenters are now engaged in a search for a perfect amplifier. While the greater efficiency of the transformer coupled amplifier counts heavily in its favor, somewhat better quality can be obtained by the use of other methods of coupling if one is willing to dispense with the gain in amplification due to the transformer.

The impedance method of coupling has much in its favor as compared to the use of resistances.

By using a choke of sufficiently high inductance, a quality of reproduction may be obtained which could not be distinguished from that obtained by the use of resistance, and a larger amplification per stage secured. The use of chokes has the added advantage that less "B" battery is required, thus reducing operating costs of the set.

Those who are familiar with the use of resistance or impedance coupled amplifiers will find in the Type 369 a coupling impedance that will give them a combination of amplification and quality they have long been waiting for.

The Type 369 Coupling Impedance is mounted in a black janned metal case, identical in size and appearance with the Type 285 Transformers.

Type 369 Coupling Impedance \$5.00

Dimensions 3½" x 3¼" x 2½". Weight 1½ lbs.

Code Word: "TONIC."

"RAYTHEON" RECTIFIER TUBE

While any satisfactory rectifying device may be used in conjunction with the Filter Transformer and Filter Choke, the Raytheon tube possesses characteristics which make it particularly well suited for this use. Unlike the thermionic tubes, the Raytheon tube has no filament.

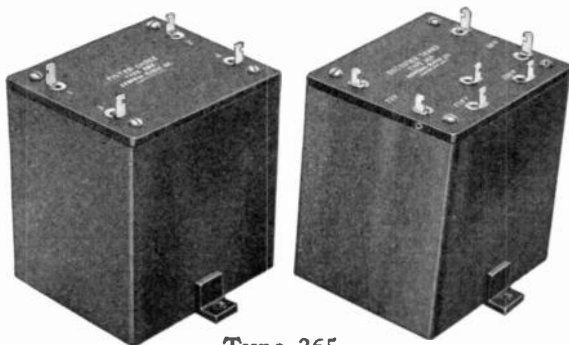
This feature not only removes a possibility of accidental damage to the tube, but also eliminates the limiting factor of the ordinary type of tube's life. The Raytheon tube, because of this feature, has practically unlimited life. It cannot be damaged except by breakage of the glass. It will supply enough current for multi-tube sets, its maximum output being 60 milli-amperes.

Another feature of this tube is that by the inclusion of of two cathodes, double wave rectification is secured in one tube. This results not only in a great increase in the efficiency of the device, but also reduces the amount of hum in the output.

"Raytheon" Rectifier Tube \$6.00

Code Word: "RAYTHEON."





Type 365
RECTIFIER TRANSFORMER

With the development of satisfactory and reliable rectifying devices there has arisen a demand for a suitable transformer for use in "B" battery eliminators. The Type 365 Transformer has been developed especially for this use and has a wide range of applicability to various rectifying devices.

The primary is designed for a 110-volt 60-cycle circuit. The high voltage secondary consists of two sections of 200 volts each. There is also a 7.5 volt secondary. This combination of windings makes the Type 365 Transformer adapted to either single or double wave rectifiers. The low-voltage winding may be used to light the filament of a thermionic rectifier, or in case the Raytheon tube is used as a rectifier it may be used as a filament supply for a power amplifier. It is possible to operate one stage of power amplification with unrectified filament supply.

The 365 Transformer is mounted in a black japanned metal case which provides both complete shielding and an attractive assembly.

Type 365 Rectifier Transformer..... \$10.00

Dimensions $4\frac{1}{4}''$ x $3\frac{5}{8}''$ x $4\frac{1}{2}''$. Weight $4\frac{1}{2}$ lbs.

Code Word: "TENOR."

Type 366
FILTER CHOKE

In conjunction with rectifiers used as battery eliminators some form of filter is necessary in order to eliminate the hum in the rectifier output. The Type 366 Filter Choke is designed to meet this need. It is actually two chokes assembled in one case. The resistance is low, reducing the voltage lost in the chokes to a minimum. Four terminals are brought out to the panel, so that the chokes may be connected in any type of filter system the constructor may desire.

The Type 366 Filter Choke is mounted in the same type and size of case as the 365 Transformer.

Type 366 Filter Choke..... \$10.00

Dimensions $4\frac{1}{4}''$ x $3\frac{5}{8}''$ x $4\frac{1}{2}''$. Weight $4\frac{3}{4}$ lbs.

Code Word: "TEPID."

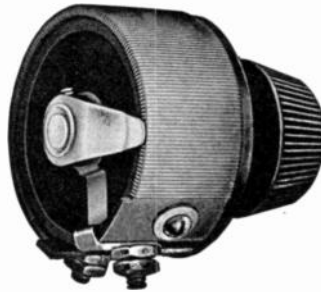
In addition to the rectifier transformer, filter choke, socket, and tube several fixed condensers are used in the "B" eliminator circuit. We are prepared to supply these condensers at the following prices:

0.1 M F., \$0.70; 1 M F., \$1.25; 2 M F., \$1.75; 4 M F., \$3.75



GENERAL RADIO CO.





Type 301

RHEOSTATS

Rheostats used in vacuum tube circuits must be so constructed and the contact so arranged that there is no possibility of a momentary opening of the circuit, or a sudden change of resistance in the circuit. Either of these would result in an objectionable click in the ear phones or loud speaker.

The resistance of the Type 301 Rheostat changes gradually and uniformly throughout its entire range, and thereby secures the same degree of control for all working conditions of the battery. With the tubes now available and with the gradual change of resistance provided by the Type 301 Rheostat no vernier attachment is necessary.

The resistance unit is tightly wound on a specially treated fiber strip. Genuine moulded bakelite is used for the base. A tapered knob with pointer indicates position of the contact arm. The shaft is $\frac{1}{4}$ " in diameter and is arranged to fit panels up to $\frac{3}{8}$ " thick.

Type 301 Rheostat.....\$1.25

Dimensions $2'' \times 1\frac{3}{4}'' \times 2\frac{1}{8}''$. Weight 4 oz.

Resistance	Current	Code Word
6 ohms	1.00 amp.	PALSY
10 "	0.75 "	REMIT
30 "	0.5 "	RENEW

In ordering be sure to specify resistance desired.

POTENTIOMETERS

The potentiometer is similar in general construction to the rheostat except that a third connection is provided and it has a greater resistance.

Type 301—200 ohm Potentiometer.....\$1.25

Dimensions $2'' \times 1\frac{3}{4}'' \times 2\frac{1}{8}''$. Weight 4 oz.

Code Word: "REBUS."



GENERAL RADIO CO.





Type 214

RHEOSTATS

Where the best in rheostat construction is desired, and for laboratory use, the Type 214 is particularly recommended. This rheostat is made in two types, 214-A for back of panel mounting and 214-B for front of panel or table mounting. The Type 214 Rheostats are larger than the Type 301 Rheostats, and are therefore capable of a more gradual and accurate resistance control. It is similar in general construction to the Type 301, and embodies the best of materials and workmanship.

Type 214 Rheostat.....\$2.25
 Dimensions 3" dia. x 2 1/4". Weight 7 oz.

CODE WORD

		Type 214-A Panel Mounting	Type 214-B Table Mounting
Resistance	Current		
2 ohms	2.5 amp.	RUDDY	RUMOR
7 ohms	1.5 amp.	RURAL	RUSTY
20 ohms	0.75 amp.	RAZOR	READY
50 ohms	0.5 amp.	RAPID	RAVEL

POTENTIOMETERS

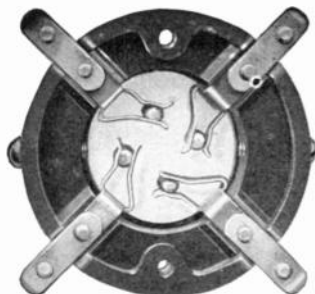
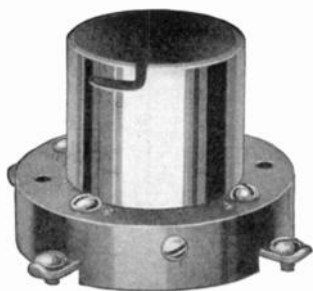
Many of the most efficient circuits now in common use require a potentiometer to control the grid potential. The Type 214 is supplied with a high resistance winding and a third connection which enables it to be used as a potentiometer capable of extremely fine voltage control.

Type 214—400 ohm Potentiometer.....\$3.00
 Dimensions 3" dia. x 2 1/4". Weight 7 oz.

Code Word, Type 214-A, panel mounting: "ROSIN."

Code Word, Type 214-B, table mounting: "ROWEL."





Type 156

A vacuum tube socket must be more than a tube mounting device. It must not only hold the tube securely to prevent vibration, but also must make firm electrical contact with the four tube prongs. In the design of all General Radio sockets care has been given in each case to make the socket meet specifically the requirements of the tube it is to be used with. This is the reason that the three types are distinctly different in their design.

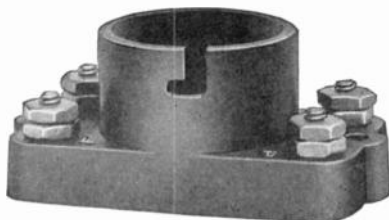
TYPE 156 SOCKET

This socket is designed for tubes using what was formerly known as the standard base. These tubes include the UV-200, UV-201-A, UV-202, and WD-12. The phosphor bronze contact springs are so arranged as to make positive contact on the sides of the tube prongs. The wiping action of these double contact springs assures a clean positive connection. The tube is of heavy brass with highly polished nickel finish and carefully grooved bayonet slot to take the tube base locking pin.

Type 156 Socket.....\$1.00

Dimensions $3\frac{1}{2}''$ x $2\frac{1}{2}''$ x $1\frac{3}{4}''$. Weight 4 oz.

Code Word: "SOBER."



TYPE 299 SOCKET

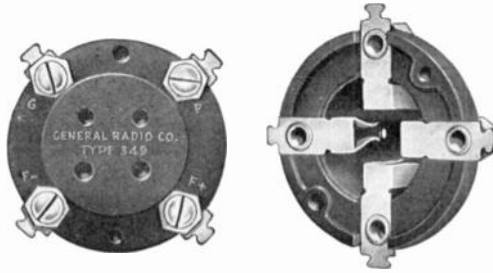
The springs of this socket, which is designed for the UV-199 tubes, are multiple, and make a spring contact to the bottom of the tube prongs. Special attention has been given to provide for a low resistance contact.

Type 299 Socket.....\$0.50

Dimensions $2\frac{3}{8}''$ x $1\frac{3}{8}''$ x $1''$. Weight 2 oz.

Code Word: "STORY."





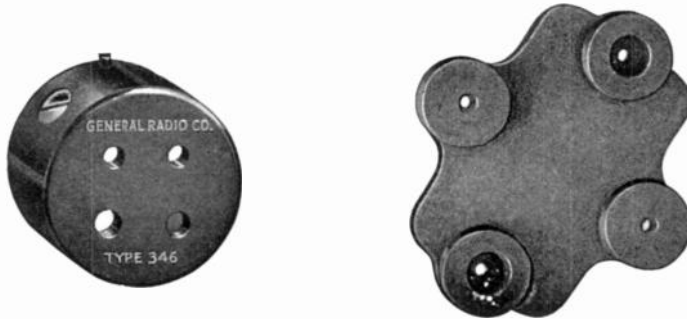
TYPE 349 SOCKET

This socket is designed for the UX types of tubes. Positive contacts are made with double gripping springs to the sides of the tube prongs. The base is of moulded bakelite.

Type 349 Socket.....\$0.50

Dimensions 2 1/4" x 2 1/4" x 3/4". Weight 2 oz.

Code Word: "SEDAN."



Type 346

Type 309

TYPE 346 ADAPTER

The Type 346 Adapter enables the UX-199 and UX-120 tubes to be used in standard tube sockets. The adapter is of moulded bakelite. A set-screw is provided for securing the tube base firmly in the adapter.

Type 346 Adapter.....\$0.30

Dimensions 1 1/2" x 1 1/2" x 1/8". Weight 1 oz.

Code Word: "AMASS."

TYPE 309 SOCKET CUSHION

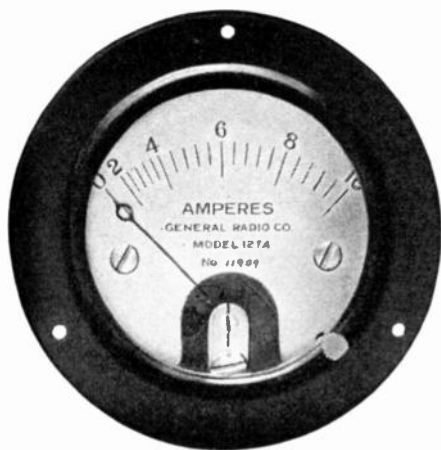
Many of the undesirable noises heard in a radio set are due to the microphonic action of the tubes. This condition can be eliminated by the use of the Type 309 Socket Cushion under the Types 156 and 299 Sockets. This cushion is of sponge rubber and gives complete protection. Mounting is from the tube socket to the cushion, then from the cushion to the panel.

Type 309 Socket Cushion.....\$0.35

Dimensions 2 1/4" x 2 1/2" x 3/8". Weight 1 oz.

Code Word: "SABER."





Type 127-A



Type 127-B

HOT WIRE AMMETERS

The Type 127 Hot Wire Ammeters are equally accurate on direct or alternating currents of any frequency. They may be used for measuring filament currents, storage battery charging rates, antenna radiation, and many other purposes.

The expanding strip of these meters is of thin platinum, so as to prevent oxidation. It is so proportioned that it works at a low temperature and is of low resistance. These are two highly desirable features, since the former permits reasonable overloading without burning out, and the latter minimizes the losses.

The type of multiplying action is such that a more uniform scale is obtained than with many hot wire meters. These meters have been corrected for temperature so that there is very little shift of zero, and this is easily taken care of by the knurled adjusting screw.

These instruments are made in three types, the flush mounting for use on panels, the front-of-board mounting for use on switch boards, and the portable type for general use. The flush type meters are mounted in metal cases finished in black japan, while the front-of-board and portable types have cases of moulded bakelite.



GENERAL RADIO CO.





Type 127-C

		Code Word		
Range		TYPE 127-A	TYPE 127-B	Price
		Flush Mounting	Front-of-Board	
100	Milli-Amps.	MEDAL	MAYOR	\$9.00
250	Milli-Amps.	MERCY	MADAM	7.75
500	Milli-Amps.	MERIT	MAJOR	7.75
1	Ampere	MERRY	MANOR	7.75
1.5	Amperes	MINUS	MISTY	7.75
2.5	Amperes	MINOR	MAPLE	7.75
5	Amperes	MINIM	MATIN	7.75
10	Amperes	MINNY	MAXIM	7.75
	Galvanometer	MITER	MAGIC	7.25

Dimensions 3" x 1½". Weight 9½ oz.

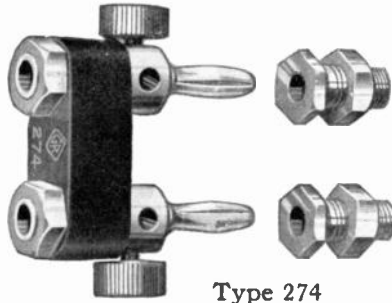
		TYPE 127-C		
Range		Code Word	Case	Price
100	Milli-Amps.	MUGGY	Portable	\$10.00
250	Milli-Amps.	MOCHA	Portable	9.00
500	Milli-Amps.	MOGUL	Portable	9.00
1	Ampere	MOLAR	Portable	9.00
2.5	Amperes	MOTOR	Portable	9.00
5	Amperes	MUMMY	Portable	9.00
10	Amperes	MUSTY	Portable	9.00
	Galvanometer	MOTTO	Portable	8.50

Dimensions 3" x 4" x 1½". Weight 10½ oz.



GENERAL RADIO CO.





Type 274

MULTI-CONNECTOR PLUG

The many uses of the Type 274 Multi-Connector Plug will be readily appreciated by radio experimenters.

One of these plugs mounted on the bakelite strip makes an excellent phone or loud-speaker plug, and any number of parallel or series connections may be made using several of these plugs.

The contact points consist of four springs which are squeezed together as the plug is inserted into the socket, thus making a perfect sliding contact.

A binding post is provided on the shank of the contact point for making external connections.

Type 274—Multi-Connector Plug Complete with jacks\$1.00

Dimensions $1\frac{1}{2}''$ x $1\frac{5}{8}''$ x $\frac{1}{2}''$. Weight 2 oz.

Code Word: "PAPER."



Type 283

TUBE PROTECTING RESISTANCE UNIT

The Type 283 Unit is designed to protect tubes from burning out should the "B" battery become accidentally connected across the filament terminals.

The unit consists of a specially wound resistance unit of 500 ohms enclosed in a bakelite tube. When connected in series with the negative terminal of the "B" battery, it not only affords absolute protection from tubes burning out, but protects the "B" battery from short circuits.

A Type 236-.5 MF. By-Pass Condenser should be used across both the "B" battery and resistance unit.

Type 283—Tube Protecting Resistance Unit.....\$0.60

Dimensions $1\frac{1}{2}''$ x $1''$ x $\frac{5}{8}''$. Weight $\frac{1}{2}$ oz.

Code Word: "PANIC."

Type 236—.5 M F. By-Pass Condenser.....\$1.00

Dimensions $4''$ x $1\frac{1}{8}''$ x $1\frac{1}{8}''$. Weight 5 oz.

Code Word: "PECAN."





Type 260

Type 280

PORCELAIN INSULATORS

ANTENNA INSULATOR

For antenna insulation, correctly designed porcelain strain insulators are to be preferred to other commercial types. The Type 280 Strain Insulator, illustrated above, will be found particularly satisfactory. It is made of carefully glazed brown porcelain and will withstand severe weather conditions.

Type 280—Strain Insulator \$0.15

Dimensions $4\frac{1}{2}''$ x $1\frac{1}{8}''$ x $1''$. Weight 4 oz.

Code Word: "CRULLER."

WALL INSULATOR

Another convenient insulator is the Type 260, illustrated above. It may be used inside to support wiring or instruments, or may be used outside for supporting lead-ins or ground wires. Two of these insulators with a threaded rod connecting them make an excellent lead-in combination. As they are also constructed of glazed brown porcelain they may be used either indoors or out.

Each insulator is equipped with nuts and washers assembled, as shown above.

Three polished nickel mounting screws are also provided.

Type 260—Insulator \$0.25

Dimensions $2\frac{1}{8}''$ x $2\frac{1}{8}''$ x $2''$. Weight 4 oz.

Code Word: "CONIC."





MODULATION AND COMPENSATING TRANSFORMERS

Type 231-M Modulation Transformer

This transformer is similar in general design to the Type 231-A and is for use with the low power transmitting tubes to adapt the telephone transmitter impedance to that of the input circuit of the tube.

Type 231-M Modulation Transformer.....\$5.00

Dimensions 2⁵/₈" x 2¹/₂" x 2¹/₂". Weight 1 lb.

Code Word: "TUNIC."

Type 231-W Compensating Transformer

The 231-W Transformer adapts the impedance of the 201-A and similar impedance tubes to the input of a Western Electric cone type loud speaker with the result that remarkably pure tone quality is obtained.

Type 231-W Compensating Transformer.....\$5.00

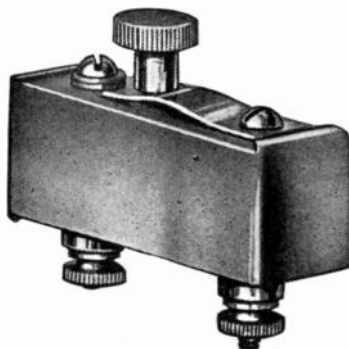
Dimensions 2⁵/₈" x 2¹/₂" x 2¹/₂". Weight 1 lb.

Code Word: "TRIAD."

HIGH FREQUENCY BUZZER

This buzzer has been designed for both laboratory and radio use. It combines pureness of tone, simplicity of adjustment, and durability.

The frequency is approximately 800 cycles, but depends on the setting of the knurled adjusting screw. As the current required for the operation of the buzzer is approximately only 30 milli-amperes it may be operated for long periods of time from small batteries. One dry cell will provide sufficient potential to operate this buzzer satisfactorily, and in no case should more than two be used. One of the noteworthy features of this buzzer is its freedom from sparking. This is important where pure tones are required. This feature makes the buzzer particularly adapted as a supply source for bridge measurements and for continuous wave telegraph modulation.



Type 178

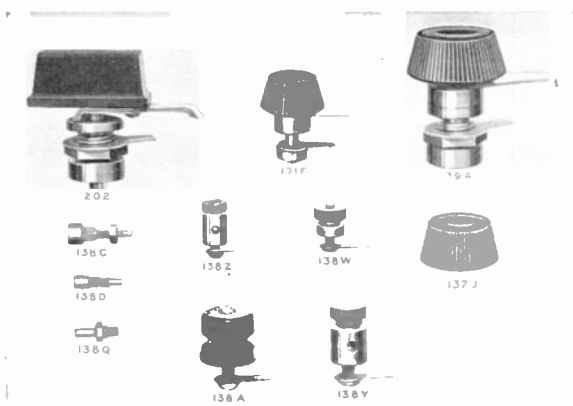
Type	Mounting	Code Word	Price
178A	Above Panel	BEFOG	\$2.00
178B	Below Panel	BEGET	2.00

Dimensions 2" x 1³/₄" x 1". Weight 3 oz.



GENERAL RADIO CO.





STANDARD PARTS

Experimental work frequently requires certain standard parts. Consequently we are listing for the convenience of experimenters many of the parts used in the assembly of General Radio instruments. These parts have the advantage of matching those used on instruments already installed.

BINDING POSTS

Type	Description	Diameter	Height	Screw Sizes	Price
138A	Bakelite	$\frac{3}{4}$ "	$\frac{5}{8}$ "	10-32	\$0.25
138W	N. P. Brass	$\frac{7}{8}$ "	$\frac{1}{2}$ "	6-32	.12
138Y	" "	$\frac{1}{2}$ "	$\frac{3}{4}$ "	10-32	.15
138Z	" "	$\frac{3}{8}$ "	$\frac{5}{8}$ "	6-32	.10

SWITCHES AND PARTS

Type	Description	Price
139A	Multiple Leaf Switch $1\frac{3}{8}$ " Radius	\$0.95
171F	Single Leaf Switch $\frac{7}{8}$ " Radius	.40
202	Low Contact Resistance Switch $1\frac{3}{8}$ " Radius	1.25
138C	$\frac{5}{8}$ " Contact for 139A or 202 Switches	.05
138D	$\frac{3}{8}$ " Contact for 171F Switch	.04
138Q	Switch Stop with Nut	.05
137D	Moulded Knob (same as used on 139A Switch)	.35
137H	Moulded Knob (same as used on 317 Dial)	.75
137J	Moulded Knob (same as used on 301 Rheostat)	.25
137K	Moulded Knob (same as used on 247 Vernier)	.25

The Types 137D and J Knobs are for $\frac{1}{4}$ " shaft, while the 137H may be supplied for either $\frac{1}{4}$ " or $\frac{3}{8}$ " shafts. The 137K Knob is tapped for a 10-32 thread. The Types 137D and 137J Knobs may be supplied with polished nickel pointers for five cents additional.





THE GENERAL RADIO COMPANY was incorporated in 1915 for the purpose of developing and manufacturing radio apparatus for use in laboratory experimental work and in radio transmission and reception.

Since 1915 the General Radio Company has done much in scientific research and development work to promote the present-day efficiency of broadcast reception.

Low loss condenser design has received much attention, and the General Radio Company was the first in this country to supply such condensers commercially. It was also the first company to supply closed core audio frequency amplifying transformers, and has been foremost in supplying audio frequency transformers to accompany the great improvements in broadcasting station quality of transmission and improved loud speaker reproduction.

The products of the General Radio Company include not only those listed in this catalog, but also radio and electrical laboratory apparatus.

Information and bulletins of special apparatus will be sent on request.

These instruments include:

Oscillograph	Galvanometer Shunt
Decade Condensers	Impedance Bridge
Precision Condensers	Capacity Bridge
Variometers	Audibility Meter
Standards of Inductance	Ratio Arm Box
Wavemeters	Hot Wire Ammeters

Low Loss Variable Air Condensers

Decade Resistance Boxes

Standards of Resistance

Recorders

Miscellaneous Apparatus

The instruments manufactured by the General Radio Company are the result of careful engineering design. In many cases they represent the result of years of development work and investigation in the General Radio laboratories.

It has been the aim of this company to contribute only quality instruments to the radio and electrical industry.

Every instrument is guaranteed.

This bulletin replaces Bulletin No. 922.



Quality Easily Recognized