

# RADIO

*and* **SHORT WAVE**  
**TREATISE**

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**27**

**1934**

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RADIO BARGAIN CATALOG  
FOR RADIO SERVICEMEN  
RADIOTRICIANS  
RADIO DEALERS  
AND EXPERIMENTERS



# RADIO TRADING CO.

100 PARK PLACE NEW YORK CITY



WE DO OUR PART

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World Radio History

# Your Attention, Please!

OUR new Catalog No. 27 now comes to you completely revised, not only with comparatively lower prices, but also with a considerable array of brand-new merchandise. Catalog No. 27 also contains an entirely new editorial section, which should be of lasting interest to you; since this makes it worthwhile for you to keep this cyclopedia-catalog on hand for months to come. This is the only catalog of its kind, which gives you such an immense variety of technical radio matter. For years it has been our policy, not only to give you a large editorial section, but to describe all articles and materials so minutely, that you would not have to write us for extra information.

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Already prices of raw materials have gone up. In every State, city and town—in every hamlet—prices are noticeably advancing each day. Even in this very catalog it was necessary to increase certain prices. While in many instances, where the increase in price has not been so great, we have ourselves absorbed the difference, it is obviously impossible for us to continue this policy in all cases. We are therefore forced to make the following reservation: **ALL PRICES IN THIS CATALOG ARE SUBJECT TO CHANGE WITHOUT NOTICE.**

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By far the largest class with whom we deal are independent radio Service Men. Second in line are radio dealers, not only in this country, but in foreign countries as well. Third, we have thousands of radio experimenters and fans who build sets and who EXPERIMENT IN RADIO RESEARCH, television, sound amplification, etc.; and this particular class is growing daily.

It may also be of interest to you to know that the RADIO TRADING COMPANY EXPORTS TO PRACTICALLY EVERY IMPORTANT COUNTRY OF THE GLOBE.

We also value as our customers, many broadcast radio stations who deal with us right along.

In addition to this, we deal with a large list of Government, State and Educational Institutions, and we print herewith a list of the more prominent of such institutions.

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" "	WGIM—Mississippi, Miss.
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# RADIO SERVICE TREATISE

VOL. 4

By The Radio Engineering Staff of The  
RADIO TRADING COMPANY

1934

## Fundamental Principles of Radio for the Beginner

### CHAPTER II—CAPACITY

#### FOREWORD

In the previous edition of our Radio And Short Wave Treatise (No. 26), we presented Chapter I of this series of articles. Although intended primarily for the radio beginner, it serves as a thorough review for the "ole timer." Every new edition of this book will contain a new chapter in proper sequence. It is advisable, therefore, to save the various issues as they come out. In a very short time you will have an invaluable and most practical textbook on "Fundamental Principles of Radio."

#### Capacity

Radio circuits are made up of certain qualities including three main items—resistances, capacities and inductances. We have considered the first of these three in the last issue of this Catalog. A complete knowledge of the action of condensers and capacity effects is essential to a complete understanding of radio circuits.

We learned in the first article of this series that the application of a potential difference (e.m.f.) to a conductor would cause a transfer or drift of electrons to take place. If the circuit formed by the conductor is continuous, the flow of electrons will continue as long as the potential difference remains. If the circuit is not continuous, but ends in two separate conductors separated from each other, a somewhat similar action takes place, but only for a short time. A general definition of a condenser might be: any two conductors between which a potential difference exists, and which are separated by an insulator. The ends of two wires held apart in air really form a condenser, but it will have a very small capacity, as we shall learn later.

Let us consider the circuit shown in Fig. 1A, consisting of two sheets of metal separated by some insulating material and joined by wires to a battery, with a switch in one wire to connect the battery at will, and a current indicating meter. This meter may be a sensitive millimeter or a galvanometer. The insulating material between the metal plates is known as the dielectric. If this material is air, then air is the dielectric; if it is mica, then mica is the dielectric, etc. The plates of a condenser act simply as storage places for the accumulations of electrons which drift through the circuit due to the potential difference; and to apply an electrical force to the dielectric material.

In the previous article (see previous issue of this Catalog) we learned that all materials are composed of molecules and atoms. These atoms consist of electrons revolving about a central portion which contains protons and possibly some electrons. The motion of these electrons about the nucleus act just like minute solar systems. In addition to the atoms, we find a certain number of electrons that are not attached to any atom; these might be likened to the comets in our universe. In materials which are good conductors of electricity, a large number of these free electrons are present. These free electrons, from time to time, bump into one of the "solar systems" and usually in such cases knock one or more electrons from the regular orbit. These liberated electrons become free to wander around and they, in turn, strike other atoms and knock other electrons loose. Each of these free electrons is a small negative charge and if a sufficiently large number of them are started in motion by the application of potential, we have an electric current flow. In some materials there are very few free electrons; the electrons being all tightly bound to their own orbits. Materials of this type are known as insulators.

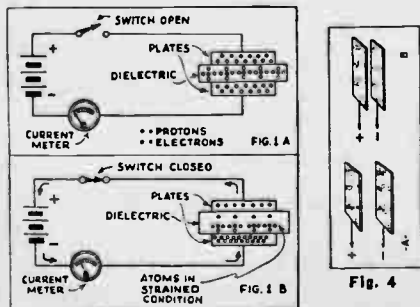
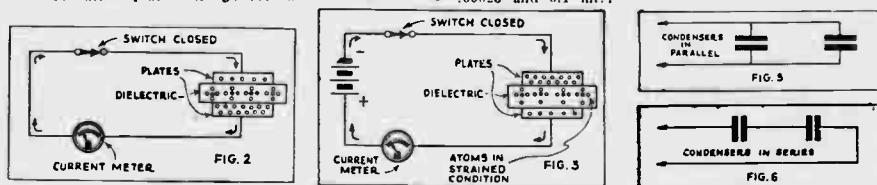


Figure 1A shows the conditions of a circuit having a condenser, where no potential difference exists, by virtue of the open switch. If the switch is closed as shown at Fig. 1B, a flow of electrons (an electric current) starts around the wire from negative to positive. A current-indicating meter in the circuit will show that a momentary current flows. The free electrons are removed from the plate marked + causing a deficiency of electrons, and hence a positive charge, and are moved to the plate marked —, causing an excess of electrons or a negative charge at this point.

This excess of electrons on the negative plate causes a charged condition to exist in the dielectric between the plates. We have learned that like charges repel each other. The excess of electrons causes a strained condition that has a tendency to force the electrons away from that side of the dielectric facing the negative plate. On the other side, the dearth of electrons causes a positive charge which attracts the electrons in the dielectric to that side. Since most of the electrons in the dielectric are bound tightly to their respective atoms, they cannot leave the dielectric material but are strained from their normal positions or orbits as shown in Fig. 1B. This operation is known as charging the condenser.

If the potential is removed and the terminals of the condenser are connected together as shown in Fig. 2, the electrons on the negative plate will rush back to the top plate, the electrons causing a returning current. The current meter will register another momentary current but in the opposite direction to the current which flowed when the condenser was charged. This is called discharging the condenser.

Suppose, now, we reverse the polarity of the potential by changing the connections of the battery to the circuit. This condition is shown in Fig. 3. Current will again flow through the circuit meter during charge and discharge, but in the reverse directions. If an alternating current were applied to the circuit instead of the battery this action would be repeated over and over. The stream of electrons would flow into one plate and out of the other for each reversal of current. Thus in an alternating current circuit with a condenser we see that it is possible to have a flow of current without having an actual closed circuit to the terminals of the source of potential. The current does not flow through the condenser, but in and out of the metal plates through the external circuit.



#### Factors Governing Capacity

The ability of a condenser for storing an electrical charge is called its capacity. Since the quantity of electrons that can be stored in a condenser depends upon the difference in potential which is applied to its terminals to keep the electrons crowded into the negative plate, it is only natural that the unit of capacity should be defined in terms of voltage (potential difference). The unit of capacity is the Farad which received its name from Michael Faraday.

The Farad is a very large unit, and a condenser having a capacity this large would be very large in physical size. The condensers used in ordinary radio work have capacities of only a few tenths of a farad or microfarads (abbreviated mf.). Still a smaller unit is often used, especially in short waves—this is the micro-microfarad or millionths of a microfarad, (abbreviated mmf.).

The capacity of a condenser depends on three factors; the surface area of the plates; the distance between the plates; or the thickness of the dielectric between them and thirdly the nature of the dielectric.

Suppose a potential of 1 volt were applied to a condenser, such as the one shown in Fig. 5A which we will assume has a capacity of 1 mf. This particular condenser has plates that are 1 foot square. Then, electrons will be transferred from the positive plate to the negative plate. These will distribute themselves uniformly over the surface of the negative plate and their combined charge will act on the dielectric. Now, suppose we had a condenser with plates 2 feet by 1 foot (twice the area of the first) and applied a potential of 1 volt to it. Since the electrons can now spread over a surface twice as large, twice as many electrons can be transferred from the positive plate before sufficient charge builds up to equal the potential applied to the condenser. Thus doubling the area of the plates doubles the capacity. In many condensers, a number of plates are used, instead of only two; however, the action is the same.

If the distance between the plates is reduced, or, to word it differently, if the thickness of the dielectric is reduced, the "strain" of the electrical potential is able to penetrate more deeply into the dielectric and affect a relatively greater quantity of atoms. Looking at it from yet another angle, we might say that since a greater number of dielectric atoms are now in a position to be strained, a greater quantity of electrons on one plate and a greater dearth of them on the other will be required to produce the additional strain. This in effect means the storage of a greater quantity of electrical energy—greater capacity. This effect is shown in Fig. 4A and B. The thickness of the metal plates has no effect on the capacity. The plates are ordinarily made as thin as possible to produce condensers small in size.

It has been found experimentally that by inserting different materials between plates to form condensers, that entirely different capacities result. Thus, by taking a condenser with air insulation, the capacity can be increased two or three times by slipping sheets or paraffined paper to fill the space between the plates. And by substituting mica for the waxed paper, the capacity can be increased 6 or 7 times. Thus the dielectric has a considerable effect on the capacity.

In actual practice, air is used as a dielectric for condensers where the capacity must be varied. By moving one of the plates in a parallel plane away from the other, the surface between the plates is diminished and the capacity decreases. Paraffined paper, mica, bakelite and certain liquids are used where larger capacities are needed, which do not have to be varied continually.

#### Condensers in Series and Parallel

When condensers are connected in parallel, as shown in Fig. 5 the effect is to increase the total surface area of the plates. The result is that the capacity is equal to the sum of the surface areas of both condensers and the capacity is also equal to the sum of the individual capacities connected in parallel. This may be stated arithmetically as follows:

$$C = C_1 + C_2 + C_3 + \text{Etc.}$$

where C is the combined capacity and C<sub>1</sub>, C<sub>2</sub>, C<sub>3</sub>, etc. are the individual capacities.

An example of this will help the reader to understand the principle:—What is the total capacity of the following condensers connected in parallel—.001; .0025 and 0.1 mf.?

$$C = .001 + .0025 + 0.1 = 10125 \text{ mf.}$$

This fact may be used to make up condensers of odd capacities, by connecting several condensers of odd size in parallel.

When two or more condensers are connected in series as shown in Fig. 6, the effect is really to increase the thickness of the dielectric which we know decreases the capacity. Thus, in Fig. 6, electrons are transferred from one outside plate through the external circuit to the other outside plate. The two center plates do not add to the capacity since the charges induced on them are electrically opposite and will naturally neutralize each other. The effect is as though the two inner plates were removed and the individual condensers replaced by a single condenser with a dielectric of the thickness of both condensers. (If the condensers are of unequal capacities, the plate area must also be considered.)

The total capacity of two or more condensers in series is found from the following expression:

$$\frac{1}{C} = \frac{1}{C_1} + \frac{1}{C_2} + \frac{1}{C_3} \text{ etc.}$$

This may be put into a more convenient form as follows:

$$C = \frac{1}{\frac{1}{C_1} + \frac{1}{C_2} + \frac{1}{C_3} \text{ etc.}}$$

An example of this calculation will assist the reader. What is the capacity of the following condensers connected in series? .0005; .0001; .001 and .01 mf.

$$\frac{1}{C} = \frac{1}{.0005} + \frac{1}{.0001} + \frac{1}{.001} + \frac{1}{.01} = .0008 \text{ mf}$$

Condensers with very thin dielectric are often connected in series for use on high voltages so that the high potential will not burn the insulation (dielectric) and thus ruin the condenser. The resultant capacity of such series combinations is less than that of the smallest condenser in the group.

# The New Tubes and Their Uses

It was not long ago when the only output tubes used in radio receivers were triode, operated in standard Class A circuits. The output of a Class A arrangement is characterized by high quality and relatively low efficiency. Later the pentode, while also of the Class A type, has a higher power output and sensitivity for a given plate dissipation than the triode Class A; but, unfortunately, the quality is inferior. This is inherently due to the mismatch of the plate impedance to the output load, in order to minimize distortion. Its optimum load value, critical and relatively low, varies with changing load. Furthermore, the predominate harmonic is the third, which, if large becomes disagreeable to the ear. Although pentodes may be connected in the push-pull arrangement, the distortion still persists, at a somewhat lower level, but this system does not eliminate the load problems; they are emphasized because while the second harmonics cancel in a push-pull arrangement, the third and higher order odd harmonics add, especially at high outputs.

Such tubes, however, found much favor among "midget" set manufacturers merely because they permitted large power outputs to be obtained with relatively small signal voltages. In the quest for more power, Class B tubes were designed with one main purpose in mind—to provide very high power output. The system has no improvement over the pentode with respect to quality, in fact in most applications it is worse. Due to its design complications (particularly the power pack requirements) and its high cost, the system is not readily adaptable to receivers.

Thus, it is seen that when one wants quality, the triode Class A system is the best, while if one wants power output with quality as a secondary object the Class B system should be used. For a happy compromise of power, sensitivity and cost, the pentode has offered the best solution to the problem until the introduction of the new 2B6. The 2B6 consists of two triodes, and is designed to provide high output at low signal voltages in triode Class A connection. Thus this tube, when properly used, is capable of combining the advantages of the high quality found in triode Class A systems and the high power output characteristic of Class B systems.

The schematic circuit of this tube is shown in Fig. 1. It is seen that a single heater supplies two separate cathodes, and that the output grid connects directly to the input cathode inside the tube. That triode section of the tube into which the signal is fed is called the input triode, or section; while that section of the tube which feeds the speaker is designated as the output section. The respective elements of each section are labeled accordingly.

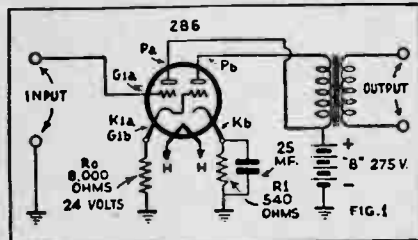


Fig. 1  
A schematic circuit of the 2B6.

An examination of this circuit shows that the grid bias for the output section is secured by the voltage across resistor  $R_1$ . Since the steady plate current of this tube is 3 ma. and its self biasing resistor has a value of 8,000 ohms, the steady D.C. bias is 24 volts. Note that this resistor has no bypass condenser across it. Furthermore, since the input grid is negative with respect to the cathode, no power is dissipated in the input grid circuit.

The output grid connects directly to the cathode as shown, and since the output cathode has a self-biasing resistor of 540 ohms, and since the steady D.C. current of the output section is 40 ma., the voltage drop across this resistor,  $R_1$  is 21.5 volts. The actual bias, with no signal at the input grid, therefore, is the difference between the voltage across  $R_1$  and 2.5 volts. With this small positive bias the output grid takes approximately 1 ma. current. When a signal is applied to the input section of the tube, an A.C. voltage is impressed on the output grid which, of course, swings this grid alternately more positive and then negative. Since the grid is normally a few volts positive, more grid power is consumed when it goes more positive during the positive part of the cycle. In other words, more grid current is required. This grid power is automatically supplied by the action of the input section. The inherent compensating feature of this particular direct coupling provides the A.C. voltage across  $R_1$  without distortion, irrespective of the changing grid resistance of the output section. It is significant to note that the D.C. power taken by the entire tube with no signal is in excess of that required under maximum excitation. Therefore the tube operates under Class A condition and no complications in power pack design are necessary—standard parts may be used. It should be noted that since the current from the input triode divides, part going through  $R_1$  and part going to the output section, the current for determining the input grid bias should be measured between the input cathode and  $R_1$ , not between input plate and "B plus."

The resistor  $R_1$ , in addition to supplying the required grid bias for the input section, also acts as the load impedance of the input section and, therefore, cannot be shunted by capacitance. In fact, the total load impedance of the first tube is the parallel combination of  $R_1$  and the grid impedance of the output section.

A particularly significant fact is that although the input grid is biased to 24 volts, a signal of 25 volts r.m.s. is required to deliver the rated output of 4 watts. Although the tube is a 3-ampere tube, the signal applied to the tube is approximately 35 volts; this grid does not draw current because of the degeneration taking place, due to the lack of bypass action across  $R_1$ .

## 2A7 and 6A7 Electron-Coupled Converters

These two tubes are 5-grid, electron-coupled detector-oscillators designed especially to replace the more conventional oscillator and detector tubes in superheterodyne receivers. These tubes are similar in electrical characteristics, except for the filament rating; the 2A7 is rated at 2.5 volts, 8-ampere and the 6A7, 6.3 volts, 3-ampere. Combining the functions of oscillator and detector into a single tube offers several advantages; first, the translation gain—intermediate-frequency voltage divided by the R.F. signal voltage—is greater in the 2A7 and 6A7 than when separate tubes are used; second, more complete isolation between the R.F., oscillator and I.F. circuits is secured; and third, the frequency of oscillation is much more stable than in the more conventional arrangements. This latter is due to the fact that the frequency of oscillation is independent of the load on the oscillator portion of the tube, a characteristic which is common to all electron-coupled oscillators.

It might be well to reconstruct this tube and analyze its action. Fig. 2 shows a heater, a grid, and a plate, similar in construction to a 2A7 tube, with which we are all familiar. In such a tube we know that the signal is applied between the grid and the cathode, and, furthermore, we know that the positive swings of the signal increase the plate current and the negative swings of the signal decrease the plate current. Instead of making the plate of a solid piece of metal, suppose we construct it of two rods, connected together as shown in B of Fig. 2. We know, of course, that these small rods will not collect as many electrons as would the solid plate shown in A, but we do know that this tube will function exactly as that shown at A. Our new tube may now be connected in the conventional oscillator arrangement, as shown at C of Fig. 2. So far, the only change made was in the physical construction of the plate. Suppose, we now put another grid and our old plate inside the tube, as shown at D. Our tube is now divided into two distinct parts; the triode unit shown at C, and another grid and plate. If we connect grid No. 1—shown at E in Fig. 2—to an oscillator circuit, connected as shown in Fig. 2 and Fig. 3 to a radio frequency signal, the final connection will be that shown at E. The two coils, shown to the left in this diagram, are the usual oscillator coils used in the conventional superheterodyne; and the two coils shown in the center, are the conventional first-detector R.F. coils, while the two coils at the extreme right constitute the first I.F. transformer.

Thus we see that grid No. 1 is the control grid for the oscillator while the two rods—called the anode grid—act as the plate of our simple 3-element tube, shown at B. These rods are known as grid No. 2. The third grid which we installed and which we connected to the R.F. coil is known as grid No. 4; the grids 3 and 5 merely surround grid No. 4 in order to shield the plate from the R.F. of grid No. 2. This shielding results in a high plate resistance, common to all tetrodes, giving a high gain and also preventing interaction between the signal section and the oscillator section.

We may now trace out the complete action of the

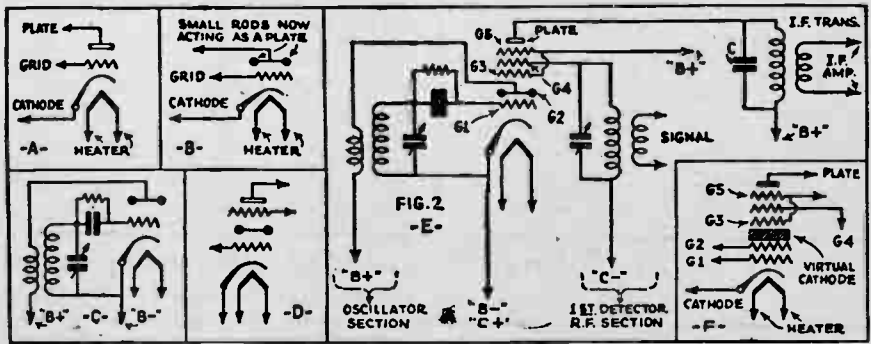


Fig. 2  
A series of drawings pictorially showing the construction and operation of the 2A7 and 6A7 tubes.

electron-coupled converter. The cathode emits a copious supply of electrons which are attracted most by the positive potential of grid No. 2. In most of the tubes, the fact that the cathode grid is not in producing oscillations, the electron stream passing through the two rods is varied at the frequency of oscillation of this section of the tube. Since grid 3 is interposed

between G2 and the plate, these electrons which do not pass it are further varied in intensity because of the signal applied to grid 4. Now, grid 1 is biased exactly as an amplifier, and because of the interaction of the signal and the oscillator, only one-half of the signal crosses current to flow to the actual plate. In this manner the electron stream to the plate—hence, the plate current—is varied; first, by the oscillator; and second, by the signal. Consequently, the I.F. produced is equal in frequency to the difference between the oscillator and the signal, and flows through the first I.F. transformer primary.

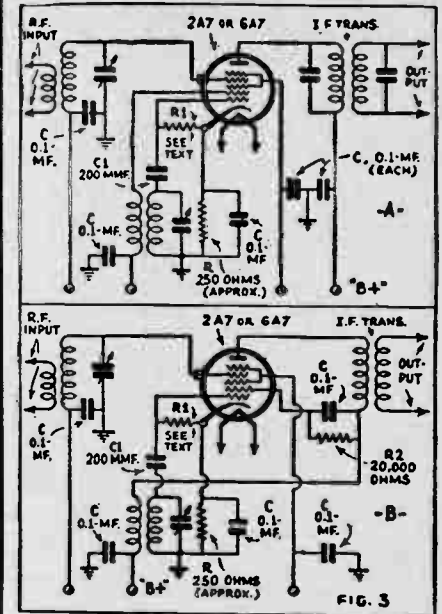
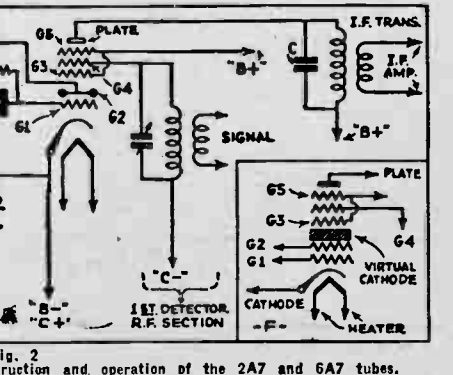


Fig. 3

Two circuits showing how the 2A7 or 6A7 tubes may be connected.

In connection with this theory, it should be pointed out that enough electrons must exist between grids 2 and 3 so that the plate current may be increased due to the positive parts of the signal even though the oscillator grid may be negative. In other words, that space in the tube between grids 2 and 3 becomes a virtual cathode for the signal portion of the tube. This idea is expressed by the sketch at F in Fig. 2. The signal grid G4, is so constructed that it has variable-mu characteristics. This condition enables the tube to be connected in the conventional A.V.C. circuits when other A.V.C.-controlled tubes are of the 5B type.

The range of control-grid bias required to control the I.F. signal should be generated by the screen grid—G2, and G3 voltage. With 100 volts on the screen grid and 3 volts on the signal grid, the range of the bias voltage may be from 3 to about 50. If the screen voltage is below 100 volts, then the maximum variation in signal grid bias must be somewhat less than 50.



Two circuits illustrating the use of this tube are shown in Fig. 3. The circuit of A is similar to that shown in Fig. 2E. The only difference lies in the use of additional resistors and condensers. Condensers C are 0.1-mf. bypass units; resistor R is the bias resistor for the modulator section, and its value depends on the screen voltage—voltage of grids 3 and

# The New Tubes and Their Uses—Continued

5. R1 should have a value between 10,000 and 25,000 ohms when the screen voltage is 50; a value between 25,000 and 50,020 ohms when the screen voltage is 75; and a value between 50,000 and 100,000 ohms when the screen voltage is 100. Resistor R2 should have a value of 20,000 ohms when the plate voltage is 250. This resistor is used to prevent the anode-grid, G2, from overheating and becoming red-hot—when the oscillations are feeble and the plate voltage is high.

The circuit at B of Fig. 2 is similar to that shown at A, except that the current for both screen and the plate flow through the anode-grid coil. This system results in increased stability of output especially at the low frequency end of the scale, although both systems 1 and 2 are very stable.

The following ratings and characteristics for this tube may be considered as normal:

Plate Voltage	250 max.	Volts
Screen Voltage (Grids Nos. 3 & 5)	100 max.	Volts
Anode-Grid (Grid No. 2)	250 max.	Volts
Control-Grid (Grid No. 4)	—3 min.	Volts
Total Cathode Current	14 max.	Ma.
Typical Operation:		
Heater Voltage	6.3	Volts
Plate Voltage	250	Volts
Screen Voltage	100	Volts
(Grids Nos. 3 and 5)	100	Volts
Anode-Grid (Grid No. 2)	250	Volts
Control-Grid (Grid No. 4)	—3	Volts
Oscillator-Grid (Grid No. 1)		
Resistor	50,000	Ohms
Plate Current	4.0	Ma.
Screen Current	2.0	Ma.
Anode-Grid Current	3.5	Ma.
Oscillator-Grid Current	0.5	Ma.
Plate Resistance	0.3	Megohm
Conversion Conductance	475	Micromhos
Conversion Conductance at —42.5 volts on Grid No. 4	2	Micromhos

## The 53—Twin Class B Amplifier

The 53 is a heater-cathode type of tube combining in one bulb two high-mu triodes designed for class B operation. It is intended primarily for use in the output stage of A.C. operated radio receivers. The triode units have separate external terminals for all electrodes except the cathodes and heaters, so that circuit design is similar to that of class B amplifiers utilizing individual tubes in the output stage. The 53 may be used as a class A amplifier (with triode units connected in parallel) or drive a 53 as a class B amplifier in the output stage.

The base pins of the 53 fit the standard seven-contact socket which may be installed to operate the tube in any position.

The heater is designed for A.C. operation at 2.5 volts. The cathode should preferably be connected directly to a mid-tap on the heater winding. In practice this is not followed, the heater may be biased negative with respect to the cathode by not more than 45 volts.

As a class B power amplifier, the 53 is used in circuits similar in design to those utilizing individual tubes in the output stage. It requires no grid bias, since the high- $\mu$  feature of the triode units reduces the steady plate current at zero bias to a relatively low value.

The D.C. plate current required in class B circuits fluctuates under normal operating conditions. The power supply, therefore, should have good regulation to maintain proper operating voltages regardless of the current drain. For this purpose, a suitably designed power unit should be employed. The designer should have reasonably good regulation over the operating range. In some circuit designs, a vacuum-type of rectifier tube can be used; while in others, a mercury-vapor type may be needed to provide the required regulation. As a factor in obtaining good regulation, the filter chokes and the transformer windings should have low resistance. In the design of a power supply for a class B amplifier, consideration should be given to economical distribution of losses. Also, the power supply should be designed to take care of the average power requirements with sufficient regulation to meet the peak power demands.

The grids of the 53 are alternately operated sufficient positive to cause grid current to flow in their input circuits. This feature imposes a further requirement on the preceding amplifier stage. It must supply not only the necessary input voltage, but it must be capable of doing so under conditions where appreciable power is taken by each grid of the class B amplifier tube. The design of a class B audio amplifier with its driver stage is, therefore, somewhat more involved than for a class A system and must be checked for each change in the component parts.

In the design of class B amplifiers, the interstage transformer is the link interconnecting the driver and the class B stage. It is usually of the step-down type; that is, the primary input voltage is higher than the secondary voltage supplied to the grids of the power output tubes. Depending upon conditions, the ratio of the interstage transformer primary is one-half its secondary and may range between 2.5/1 and 5.5/1. The transformer step-down ratio is dependent on the following factors: (1) type of driver tube; (2) type of power tube; (3) load on power tube; (4) permissible distortion; (5) transformer efficiency (peak power). The primary impedance of the interstage transformer should be essentially the same as if the transformer were to be operated with no load; that is, into an open grid. Since power is transferred, the transformer should have reasonable power efficiency.

The type of driver tube chosen should be capable of handling enough power to operate the class B amplifier stage. Allowance should be made for transformer efficiency. It is most important, if low distortion is desired, that the driver tube be worked well below its class A undistorted output rating, since distortion produced by the driver stage and the power stage will be present in the output.

As a class A amplifier triode, the 53 may be employed in the driver stage of class B amplifier circuits, and thus reduce the number of tube types necessary in a receiver. When operated in this way, with a plate supply of 300 volts and corresponding grid bias, and 53 is capable of supplying a power output of upwards of 400 milliwatts. The load into which the driver works will depend largely on the design factors of the class B amplifier. In general, however, the load will be between 20,000 and 40,000 ohms. For class A amplifier triode operation of the 53, the two grids are connected together at the socket; likewise, the two plates. These connections place the two triode units in parallel. Operation of the tube is then similar to any class A power amplifier triode.

The D.C. resistance in the grid circuit of the 53 when operated as a class A amplifier may be as high as 0.5 megohm with self-bias; with fixed bias, however, the resistance should not exceed .2-megohm.

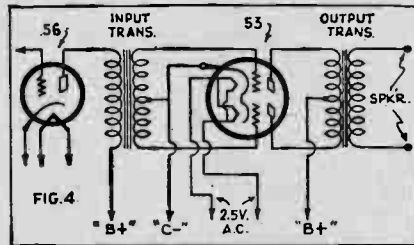


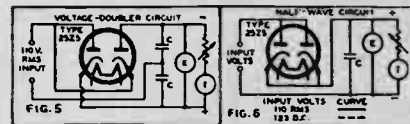
Figure 4 shows a typical circuit. The following ratings and characteristics are obtained:

Heater Voltage (A.C. or D.C.)	2.5	Volts
Heater Current	2.5	Amperes
As Class B Power Amplifier		
Plate Voltage	300 max.	Volts
Dynamic Peak Plate Current (Per plate)	125 max.	ma.
Average Plate Dissipation	10 max.	Watts
Typical Operation:		
Heater Voltage	2.5	Volts
Plate Voltage	250	300
Grid Voltage	0	0
Static Plate Current (Per plate)	14	17.5
Load Resistance (Plate-to-plate)	8,000	10,000
Nominal Power Output*	8	20
As Driver—Class A Amplifier		
(Both grids connected together at socket; likewise both plates.)		
Heater Voltage	2.5	Volts
Plate Voltage	250	294
Grid Voltage	-5	-6
Amplification Factor	35	35
Plate Resistance	11,200	11,000
Mutual Conductance	3,100	3,200
Plate Current	6	7

## The 25Z5: New Rectifier-Doubler Tube

The 25Z5 is a full-wave high vacuum rectifier of the heater-cathode type for use in suitable circuits designed to supply D.C. power from an A.C. power source. This tube is of particular interest because of its adaptability to the design of "transformerless" receivers of either the "universal" type or the more conventional A.C. operated type. For use in the "universal" or A.C.-D.C. types of receivers, the 25Z5 may be employed as a half-wave rectifier, while in the strictly A.C. operated type, it may be used as a voltage doubler to provide about twice the D.C. output voltage obtainable from the half-wave arrangement. This two-fold application is made possible by the use of separate pin connections for each cathode—there is one cathode for each half-wave arrangement.

The heater of this tube has been designed in order to facilitate its economical operation in series with the heaters of other tubes in the radio set. The employment of a 25-volt heater in this 25Z5 permits the construction of a receiver having reduced heat dissipation in the fixed series resistor which is almost always required in a series type filament connection.



Figs. 5 and 6

The voltage-doubling property of this tube will now be considered in more detail:

In rectifying circuits using tubes, current flows between cathode and plate only during the time when the voltage across the plate is positive. Such circuits, in their simplest form employ a single diode which rectifies the A.C. supply on alternate half-cycles. The output of a single diode consists of uni-directional pulses of current and voltage. These pulses may be smoothed by means of a suitable filter. If two diodes are employed, each half-cycle of the A.C. supply may be rectified. The conventional circuit using two diodes is known as a full-wave rectifier. The features of such a rectifier in comparison with a half-wave rectifier are: approximately twice the output current with essentially the same D.C. voltage output; and more economical filtering due to the doubled frequency of the output pulsations.

In comparison with the full-wave connection, another arrangement of two diodes is of interest. In this case, two diodes, one of which is reversed with respect to the other, are connected to two condensers as shown in Fig. 5. This arrangement provides rectification of each half-cycle of the A.C. supply. Furthermore, during the period that one diode is rectifying, the condenser across the other diode is discharging through the load and the conducting diode. As a result, the voltage across the load is the sum of the D.C. output voltage of the conducting tube and the discharge voltage of the condenser. The total D.C. voltage across the load, therefore, is approximately twice the D.C. voltage obtainable from a half-wave rectifier. For this reason, this circuit is known as a voltage-doubler. Like the full-wave circuit, the doubler circuit gives an output having a ripple frequency twice that of the supply line.

In the design of a voltage doubler using this circuit, large capacitances are necessary to give good regulation of the D.C. output at higher values of load current. A point of interest to the set designer, however, is that the voltage rating of these condensers is determined not by the D.C. output voltage, but by the peak value of the A.C. supply.

Figure 6 shows the circuit diagram of the 25Z5 when used as a half-wave rectifier, the purposes for which were explained above.

The following rating and characteristics obtain: Heater voltage, 25; heater current, 3-ampere; R.M.S. plate voltage per plate, 125; D.C. load current, 100 ma.

Refer to Pages 13, 14 and 15 for the most up-to-date Tube Characteristic Chart and Socket Connections.

<p><b>Riding the Air Waves</b></p> <p>by Eric Palmer, Jr. Cloth covers, size 7½x5½ ins., 328 pages.</p> <p>No radio amateur "ham" can afford to be without this book, written by the author of "Around the World with 5 Watts." No. 847.</p> <p><b>\$2.00</b></p>	<p><b>Radio Traffic Manual</b></p> <p>by R. L. Duncan and C. E. Drew. Flexible covers, size 9x6 ins., 186 pages.</p> <p>A live wire book for all radio amateurs, including how to learn code abbreviations. International Radiograph Convention, Radio Act of 1927, etc.</p> <p><b>\$2.00</b></p>	<p><b>The Radio Handbook</b></p> <p>by James A. Moyer and John F. Westroel. Flexible covers, size 5½x8 ins., 886 pages, 650 illustrations.</p> <p>Comprehensive data of shortwave apparatus, vacuum tubes, modern radio receivers, etc. No. 849.</p> <p><b>\$5.00</b></p>	<p><b>Television, Its Methods and Uses</b></p> <p>by Edgar H. Felix. Cloth covers, size 5½x7½ in., 272 pages, 73 illustrations.</p> <p>A practical complete cross-section of television today. One of the very best books on this important art in print.</p> <p>No. 827.</p> <p><b>\$2.50</b></p>
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6 RADIO TRADING COMPANY, 100 PARK PLACE, NEW YORK, N. Y.

# P. A. Systems—A New Field for the Service Man

Today, more than ever before, public address work offers money-making opportunities for wide-awake Service Men who have the gumption to go out after business. Amplifiers and accessories are available in great variety to suit numerous purposes, and their prices have reached levels that were considered impossible only a few years ago. You can quote reasonable figures for even large installations and still make a profit.

You must not expect business to fall into your lap without effort on your part. Acquaint yourself with the various public places of your city and consider them all as prospects. Even in very small towns there are many promising possibilities. As prospects for permanent indoor installations of small or large size, jot down the names and addresses of all the local establishments of the following classifications: churches, dance halls, skating rinks, lunch wagons, restaurants, schools, factories, lodge halls and auditoriums.

## How to Get Business

Go after the churches first. Because of their size and acoustics, their acoustics are usually poor, and many a good preacher finds himself handicapped by his inability to make his natural voice heard in the back rows and in the balcony. The use of a P. A. amplifier and a few judiciously placed loudspeakers has increased attendance at more than one house of worship.

Of course you want to make sure that any particular church would benefit by the addition of a P. A. unit. Simply attend yourself and make personal observations on the spot. This is the only way to prepare yourself for any sales campaign. In business, as in war, preliminary preparation is half the battle.

Dance halls and skating rinks, which are the main places of amusement in many towns, are "naturals" for the Service Man. Look up the places that now use only three- or four-piece bands or perhaps a radio receiver that is overloaded beyond the point of respectable quality. Talk to the owners and show how they can make their halls more attractive by playing selected, high-grade phonograph records, made by the most expensive bands in the country, instead of annoying the customer with a sour saxophone or an untuned piano.

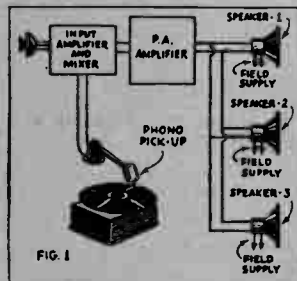


Fig. 1

Showing block layout of a typical Public Address installation. All installations follow this layout with varying degrees of modification.

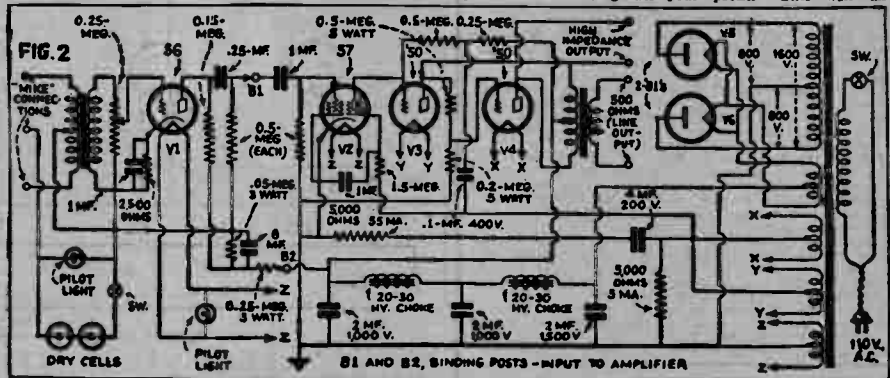
Most communities are very proud of their schools and will spend considerable money on them in preference to other municipal undertakings. Therefore by all means approach the school board and present the idea of a public address amplifier for general use throughout the school building or buildings. In many schools, a microphone is permanently located on the principal's desk, so that he can make announcements to all classes simultaneously through loudspeakers in the individual class rooms.

If the school auditorium is also the town meeting place and the center of political and social activities,

you have even a stronger argument. Always emphasize the fact that speakers, entertainers, etc., do not have to exert themselves in order to fill the hall; they merely speak or sing in their natural voices and the P. A. unit does the rest. Play up the microphone stuff. The "mike" has a magic, irresistible attraction that rarely fails to "get" people who step in from of it.

You may wonder why factors are included on the list of prospects. The answer is that they represent a veritable gold mine. While many plants are running at reduced capacity, there are plenty that are still busy, and there never has been any let up in some lines. For creating and maintaining employee morale, particularly in factories where the work is monotonous, there is nothing like a P. A. system reproducing phonograph music through a few scattered loudspeakers. Numerous companies are using this scheme and are finding it highly effective, especially if the workers are women and girls.

As in other fields of salesmanship, nothing is as effective as a demonstration. In the case of P. A. amplifiers you can "make them talk for themselves." People who have had no experience with such devices do not fully appreciate their possibilities, and they must be made to talk into a mike and also hear some



real phonograph music. This means you must have an amplifier available and must be prepared to demonstrate it on the prospects' own ground or in some other easily accessible place. You must not expect a man to buy something "sight unseen," or rather "sound unheard," in this case. Your purchase of one amplifier to start with represents your investment in a business. Once you have installed the first job you can then bring prospects around to hear it under actual working conditions, and things will be easier from then on.

Make sure the local papers know about that first installation. They are always anxious to get local news and may be able to give you extremely valuable publicity. Don't be modest; call 'em up and tell them all about it. If you don't blow your own horn no one else will.

Before you open your sales attack, you want to have a pretty good idea of what kind and size of amplifier and how many loudspeakers will meet the particular requirements. You should figure on a microphone, a phonograph turntable and pickup and plenty of outside wire. This latter detail is an important one, and many a Service Man has come to grief over it because he neglected to include it in his bill of materials. By the time you get finished draping wire around corners, up poles, over roof tops and down buildings, you may need several hundred feet.

## Installation Problems

Because the loudspeakers and sometimes the amplifier themselves are used outdoors and are therefore liable to damage by the elements, the question of service and maintenance in outdoor P. A. work is of paramount importance. Exposed horns should be tilted mouth downward to prevent rain and snow from accumulating. Dynamic speakers with baffles should be carefully boxed up or protected by false tops. Connecting wires must have thoroughly waterproof insulation, and all soldered joints must be made with resin-core solder. The humid atmosphere around swimming pools—particularly salt water pools—raises the very devil with poor connections and unprotected surfaces.

If possible, install the amplifier, the microphone and the phonograph turntable in the manager's office, where it will not be tampered with. Encourage the manager himself to make announcements via the "mike." He'll probably soon learn to like his own voice, and you'll have a strong local booster for P. A. systems.

## Free Service

Since the outdoor season is comparatively short, you can offer free service on your installation the first year without losing all your profit. This will un-

doubtedly appeal to the prospect, as he doesn't have to worry then about the apparatus, except for paying for it.

Figure 1 shows a block layout of a typical P. A. installation. As you will notice, it consists of an input from either a "mike" or a "phone pickup" into a mixing unit that serves to attenuate the current from either unit. From the attenuator or "mixer" the current is fed into the main amplifier which depends in size on the number of speakers required and the number of people to be served by the P. A. system.

For typical installations up to 8 speakers for medium sized auditoriums, churches, dance halls, etc., an amplifier such as No. PA-1 shown on page 2 of this catalog is ideal. The circuit of an amplifier of this type is shown in Fig. 2. It will be noticed that the input amplifier in this case is in a separate unit. This is not essential and in many amplifiers such as PA-1, the entire amplifier is housed in a single chassis.

In feeding from remote microphones to the amplifier or from the amplifier to remote speaker units, it may be necessary to use some means of matching the impedances of the two units. This is accomplished by the use of suitable matching transformers. The engineering staff of the RADIO TRADING CO. will be pleased to assist any Service Man in solving matching problems and in fact, any problem concerning the installation of a P. A. system.

# Revamping Six-Volt Battery Sets For Two-Volt Tubes

The Service Man located in rural districts will find a profitable source of income by modernizing battery sets. There are many of these radio receivers in use which can be made to compare favorably with modern

battery receivers by inserting tubes of the new two-volt types in place of the older six-volt varieties. The changes required to successfully convert battery sets to these tubes vary with the individual make and

circuit. Two examples are given below which will explain the general procedure followed in converting practical sets. These two receivers are very popular in districts where battery charging is necessary and for this reason, the details supplied will be found of actual use in practically all makes of old battery sets.

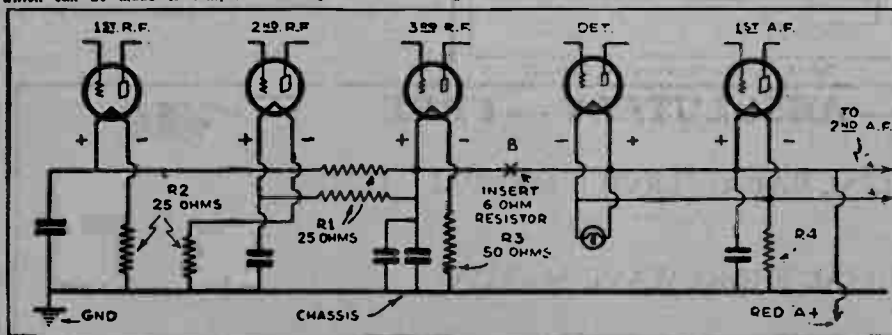


Fig. 3—Schematic Diagram of A. K. Model Q Receiver showing new resistors in place.

## R.C.A. — 22 Chassis

The RCA 22 is a five-tube battery set originally using two 32's and three 12A's (or two 12A's and one 71A). Replacing the 22's with 32's is a comparatively simple operation in this set. The owner saves money and the Service Man paves the way for a complete change to five, two-volt tubes and a little extra revenue. With two 32's, two 30's, and one 31 in place of the original layout, the total filament drain is cut to approximately one-third of its former value. This means, not only less cost for battery charging, but in the case of an owner located at a distance from a garage or radio service station, less inconvenience, since every battery charging operation means bother, and perhaps one or two days without reception.

## Installing Two-Volt Tubes

Take out the chassis and turn it over; have the back edge toward you. Near the center of the nearer edge is a flat resistance strip (R1 in Fig. 1A). This strip is the bias resistor of 6.5 ohms for the two R. E.

# Revamping 6-Volt Battery Sets For 2-Volt Tubes—Continued

tubes. It is grounded at one end. Disconnect the lead at the grounded end and insert an additional resistor of 6 ohms at XI, grounding, of course, the free end. See Fig. 2. These resistors are made of nichrome wire, wound on a fibre strip; No. 28 nichrome wire has a resistivity of 4.25 ohms to the foot. Allow a few extra inches above that required, so that a little may be added in the circuit if necessary on final voltage test. From 1.5 to 2 volts is the best all-around bias found by experience, and the added resistance is sufficient.

At the left-hand end of the same edge of the set are two resistance strips side by side; each is 1.95 ohm (R2 and R3). A yellow lead, A+ in the cable, is soldered to the junction of the two. Through one of these resistors, R3, flows the current for the power tube and the two R-F tubes. Make sure you have the correct one by tracing the lead (black) to the filament socket of the power tube. Take a one-ohm fixed resistor and short out one-quarter of it. Insert this resistor between the end of the resistance strip and the power-tube socket (at X2). When the 32's replace the 22's, the total current flowing through this all-around bias is reduced from 514 ma. to 370 ma., and the one volt drop required (for power tube 5-volt circuit) is given by the increased resistance. From the plus post on the power socket to which this lead is connected, two black leads through the chassis lead to the plus filaments of the R-F tubes. Break each (at X3 and X4) and insert a 25 ohm grid suppressor or a home wound resistance strip, 25 ohms each.

Using a fully charged storage battery and an accurate voltmeter, make a careful test of all filament voltages. Minor adjustments are taken care of by the extra length left available in the bias resistor. (This bias is not critical.) Then rebalance the set. The voltage amplification factor of these newer tubes is given as 440 as against 300 for the 22. Owners, for whom the change has been made, believe it an improvement. One of these owners, for whom we made the change eight months ago, and who keeps a careful check of his storage battery charging, insists that he is getting 30% or more extra service from the one charge though only the R.F.'s have been changed and the three 12A's are still in use. We judge this to be due, possibly, to the greater sensitivity of the 32 when the battery is below normal charge.

Little difficulty should be met in making the change. The leads are easy to trace, no "wrecking" of the chassis is required, and there is ample room for the added resistance strips.

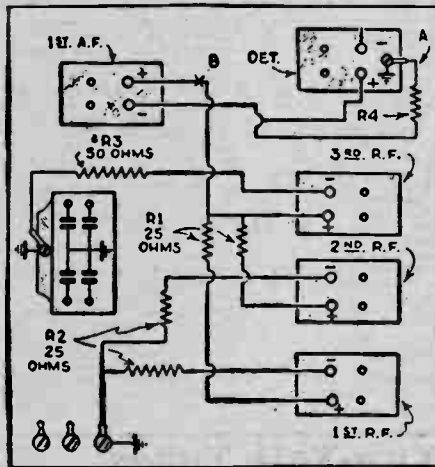


Fig. 4

## Changing the Audio End of the Set

When the time comes to change the audio end of the detector ends, proceed as follows: remove the three-quarter ohm resistor previously inserted at X2 and replace with one of two ohms. This assumes the use of a 31 in the power stage (filament drain, 13-amp.), therefore, four ohms (very nearly) in this lead gives the required one-volt drop. (Total filament current is

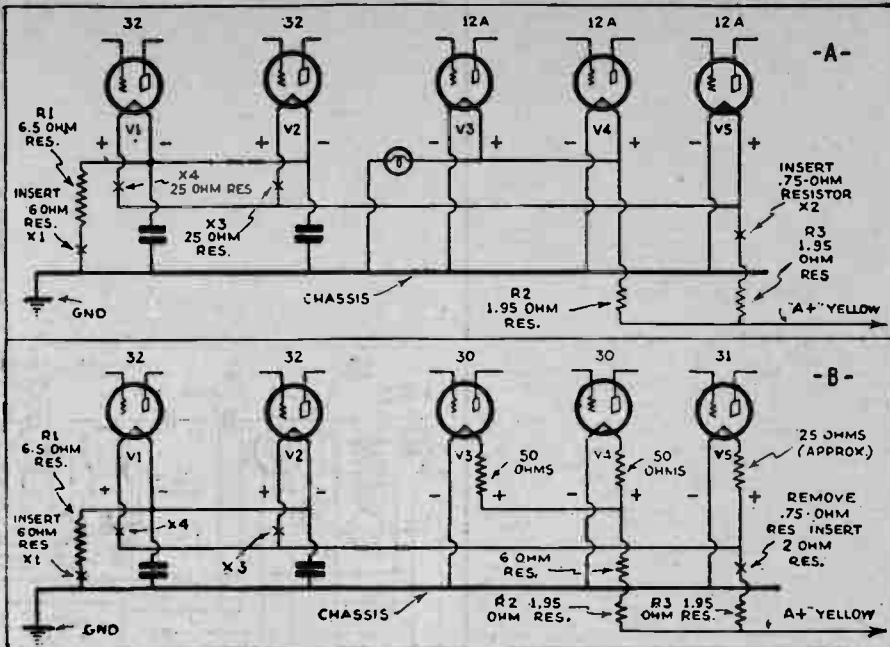


Fig. 1

The R. C. A. Chassis in various

stages of conversion to be .13- plus .12-amp. for 32's, which will give the required one-volt drop through the four ohms.) Thus, changes in the previously added R-F resistors are not needed. In series with the other 1.95 ohm resistance, R2, shown in Fig. 1A, add an additional six ohms. The total resistance, now eight ohms and the .12-amp. for the two 30's (detector and first audio), gives a one-volt drop. Now we need three volts drop for each of these last three tubes. Fifty-ohm grid suppressor (test them) for the plus leg of both detector and first audio tubes will supply this. For the 31, a 25-ohm resistor is a bit high, but can be "doctored" if required. As before, test everything carefully. It is not advisable to follow the original schematic and use a single resistor for two tubes; give each tube a resistor of its own, otherwise, if one blows, the other may follow suit. A diagram showing the changes to be made to alter the audio end is shown in Fig. 1B.

The owner of one of these sets complained of harshness at high volume but did not care to use the 71A with its added "B" drain. We added a .002-mf. fixed condenser in parallel with the one already across the

secondary of the first audio transformer and he was pleased. The 12A was retained.

When inserting the resistor in the plus lead of the detector tube, be careful to disconnect the pilot-lamp lead. Run a direct connection to yellow "A" plus and use a 6-volt lamp.

## Changing A. K. Type "Q" Chassis for 2-Volt Tubes

The R. F. end of the two Atwater-Kent Model Q chassis can be changed for two-volt tubes. This is a seven tube battery set originally using three 22's in the R. F. end. It is advisable to replace only the 22's in the R. F. end, leaving the audio end alone.

Remove the shields and tubes, and turn the chassis over. Remove the bottom cover plate. With the R. F. end to your left, you will note that near the front edge (away from you) of the chassis a short yellow-covered wire leading direct from the minus on the first audio to a grounded lug on the detector socket. This lead is carrying the filament current of the detector and audio tubes to ground. This lead need not be changed as the R. F. filament currents return to ground by other paths. Attached to the filament posts of the R. F. sockets will be seen the R. F. filament resistors and the R. F. bias resistors; they are long, thin, covered wires, black with white tracer. Remove them. They will be replaced by resistors (25- and 50-ohm suppressors) as indicated in Fig. 3. Break the wire connecting the first audio filament plus to the third R. F. filament plus at B (Figs. 3 and 4). Insert a six ohm resistor. This resistor will carry the current for the three R. F. tube filaments, .18-amp., and there will be a one-volt drop here. Now insert the 25- and 50-ohm suppressors as shown in Fig. 4. Note that the new resistance schematic follows the original one.

It is best to wind the six-ohm resistor inserted at B. Allow a little extra, as in the previous job. This will take care of any final adjustment.

Both these sets carry a tremendous punch and we had no trouble with oscillation. A third chassis of the same type required a 500-ohm grid suppressor in third grid lead. The sets mentioned have been in continuous use for many months.

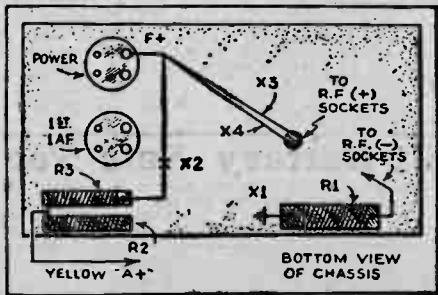


Fig. 2—Sub-chassis view of R. C. A. 22

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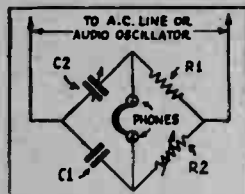
8 RADIO TRADING COMPANY, 100 PARK PLACE, NEW YORK, N. Y.



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The samples on these pages show you how to do it. Just send us a good suggestion that will be of benefit to other radio men, and if acceptable, we will publish it in our next issue. It is not necessary to make good drawings; a rough sketch will do. Our artist will make the final drawing. Each suggestion printed here will be paid for at the rate of \$3.00 upon publication. Preference is usually given to suggestions listing parts obtainable from this catalog. Address all suggestions to Editor, Radio Suggestions, c/o Radio Trading Company, 100 Park Place, New York.

## Measuring Condensers With An A.C. Capacity Bridge



This device uses the capacity bridge principle similar to that used in laboratory test equipment. It can be made to tell the capacity of condensers, either singly or in groups connected in series or parallel.

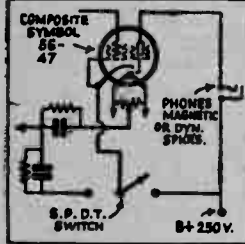
The circuit is shown here. In order to set the bridge in balance operation, it must first be balanced. This is done by inserting a fixed condenser of .001 mf. as C1. Vary the resistance R2 until the hum disappears. Resistor R2 should now be left permanently in this position. For future tests, place the condenser to be checked in the place of C1 and vary C2 until the hum disappears. At this point, the dial setting will indicate the capacity of the condenser under test. If a straight line capacity condenser is used for C2, with a 0-100 degree dial, the capacity can be read direct by finding the positions of zero hum for several condensers of known capacity.

R1 is an ordinary 25 watt lamp, R2 is any suitable high variable resistance, while C2 is a good straight line capacity condenser. Good results will be obtained with the device operated from the power line as shown, but better results will be obtained by using an audio oscillator instead.

Suggested by:

E. T. FIRTH,  
43 Roy Street,  
Wellington South, N. Z.

## Improving Short-Wave Receivers



Here is a kink that will please those fans who use both the "cans" and the speaker in bringing in the elusive short-wave stations.

Using one No. 481 UY socket, it enables the operator to enjoy reception with phones, using a 56 tube, or have loud speaker operation with a 47 pentode. For phone reception a type 56 tube is inserted in the socket; the single pole, double throw switch is thrown to connect the screen grid into the circuit and the phones are plugged into the jack. (No. 201)

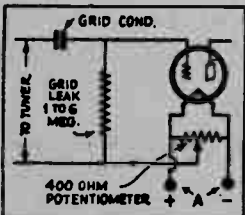
For speaker reception, a 47 pentode is placed in the socket, the switch is thrown to connect the screen grid into the circuit and the speaker is plugged into the jack. Of course, if desired, speaker operation may be accomplished with the 56 tube in the socket instead.

Do not operate the 47 pentode with phones plugged in, as the high plate current may injure their windings. The 47 pentode bias resistor and condenser remain in the circuit at all times as this bias circuit becomes inoperative when a cathode type tube like the 56 is inserted in the socket.

Suggested by:

CECIL A. HAASE,  
421 Dale Ave.,  
Roanoke, Va.

## Short-Wave Detector Improvement



Recently, in trying to make my short wave receiver regenerate more smoothly, I chanced to try the following method; with much success.

I shunted a 400 ohm potentiometer across the detector filament and connected the grid leak return directly to the arm of the potentiometer as shown in the diagram. With this system, the grid leak adjustment can be varied easily and the setting found for smoothest regeneration and best detection.

The grid leak may be almost any value between 1 and 6 megohms. The system is useful only for battery operated receivers—it cannot be used with sets using A.C. on the filaments.

Suggested by:

CLAUDE PRITCHARD,  
Proffit, Virginia.

## Connecting Earphones to a Receiver

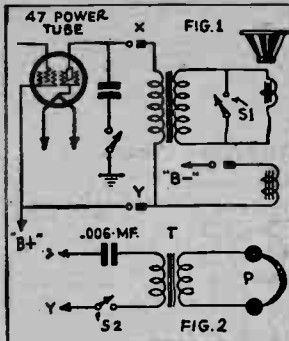


Fig. 1 gives the hookup of output of my No. 70 Philco. The plug of the speaker cord has three points, X, Y, Z. Hook in on X and Y either by splicing into speaker cord, or by putting an adapter under the power tube. Hook a switch in at S1 to silence speaker.

Fig. 2 shows the phone hookup. The .006 mfd. condenser eliminates the hum that has made such hook-

ups unworkable. T is a 3-to-1 audio transformer; it is not essential but improves the quality and removes noise.

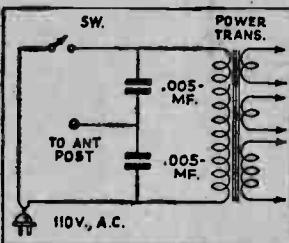
The switch S2 is necessary, if the phones ever are disconnected for other use, as the transformer will cause the loudspeaker to howl unless the phones are taking care of the output.

### LIST OF PARTS USED

	Cat. No.	
1	Audio Transformer	1455 \$0.55
1	Condenser .006	NM-1284 .27
2	Toggle Switches	1801 @ .18 .36
3	Set of Headphones	1678 1.30

Suggested by: T. HAROLD MACKINTOSH,  
31 Henrietta St.,  
Asheville, No. Car.

## Improved Light-Socket Antenna



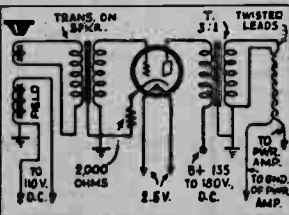
I have used many light-socket aerials with more or less success, but here is one I have made which out-performs any I have used before.

Two mica condensers size .005 mf. are used, one in series with each side of the line. The other two leads are fastened together and go to the Antenna post on the set.

For a built-in aerial, these condensers may be mounted on the chassis and connected to the cord near the power transformer and to the Antenna post of the set, all wiring being done under the sub-panel, eliminating the necessity for an external aerial connection. By using two condensers, uniform performance is secured which ever way the plug is inserted in the socket.

Suggested by: O. R. GOLLNICK,  
407 Caledonia St.,  
La Crosse, Wisconsin.

## A Microphone Substitute



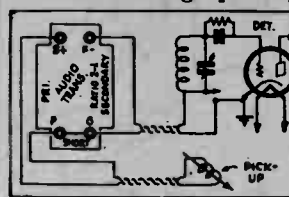
Not long ago, I wanted to do some public address work but not having a good microphone, I devised a substitute that worked very satisfactorily. It consisted of connecting a dynamic speaker to the P.A. amplifier, as shown in the accompanying diagram.

An extra amplifier tube was connected between the microphone and the regular P.A. amplifier, as a pre-amplifier. This supplied the full amplification desired, with fine tone quality.

The parts needed are as follows: one dynamic speaker; one audio transformer 3:1 ratio; one 200 ohm resistor; one 5-prong socket; one 56 tube. All these parts will be found in this catalog.

Suggested by: ELZA RUNKLE,  
5108 Wabash Street,  
Kansas City, Mo.

## Radio-Phonograph Reproduction



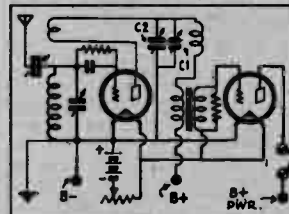
Those who are interested in phonograph amplification will find this suggestion of value. It consists of inserting a step-up transformer between the pickup and the amplifier. This increases the voltage supplied to the amplifier and in this manner increases the volume of the signals.

An ordinary audio transformer is used for the step-up transformer. Any good transformer, listed in this catalog may be used. Some pickup units are better adapted to this system than others. Those with a rather high impedance, which matches or is close to the primary impedance of the transformer work best.

Suggested by:

EARLE STARK,  
11716 Kinsman Rd.,  
Cleveland, Ohio.

## Improving Regeneration in Short-Wave Sets



Many times the control of a short-wave receiver runs up against the problem of making the receiver oscillate over the entire scale of the tuning dial, or entirely plug-in coil. This is especially true in cases where a variable condenser is used to control regeneration.

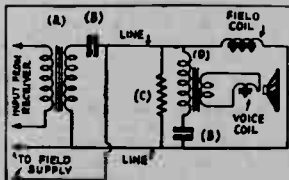
times, one finds that while using certain coils oscillation is "Nil" on the last 10 or 15 degrees on one or both ends of the dial.

This can be corrected and the receiver made to oscillate as it should, over the entire scale, by simply bridging the regeneration control variable condenser with a trimming condenser such as No. 1742 and 1743 as listed in the catalogue. This may be done entirely closed to make certain receivers oscillate as they should, but as it is adjustable it can be set at the desired point and left in this position. One setting is usually found that is satisfactory for all coils.

Suggested by:

J. M. TUBBS,  
Amateur Operator, W-8TF,  
Wallace, W. Va.

## Universal Transmission Line for Remote Dynamic Speakers



Sometimes in the installation of speakers it is not practical to run four lines or a four wire cable to supply the fields and voice coils of dynamic speakers located at remote points. This difficulty may be overcome by following the circuit shown.

Both D.C. field-exciting current and A.C. signal current pass over the same line without interference. The A.C. passes through the condensers but the D.C. is 1 mile in length; of course the line drop, resistance and impedance must be taken into consideration at such distances.

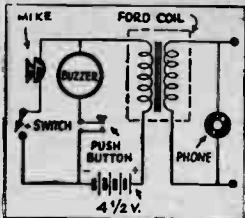
The values of the electrical components are: (A) output or tube to line transformer—line side 400 to 500 ohms; (B) 1 mf. condensers with 500 volt test; (C) resistor, 50,000 ohms; (D) line to speaker transformer, 400 to 500 ohm primary—15 ohm secondary. All these parts will be found in this catalog. Other values may be substituted if necessary.

Any number of speakers may be operated at the terminus of the line providing all line to speaker transformers have the proper impedance relation. The maximum number of speakers depends upon the output of the set or amplifier.

Suggested by:

BERNARD EPHRAIM,  
Box 17-160  
Repress, Calif.

## An Experimental Telephone Circuit



This is another of the myriad uses for the old Ford spark coils. First remove the case, then carefully chip away the sealing compound until you can remove the two coils and the iron core. Do not separate them, and be careful not to cut the fine wire of the secondary.

Now, mount this coil along with the other parts shown in the diagram in a suitable case, being sure to solder all connections.

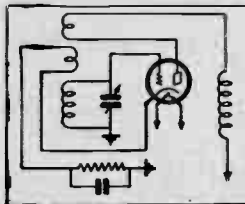
This unit can be used as an amplifier coupling unit, for P.A. work; as a code practice set; or two of them can be used to make an excellent two way telephone system. The buzzer is then used as a call signal. This telephone will give good results up to 1/2 mile.

The parts needed are as follows: One high frequency buzzer, No. B50; One 4 1/2 volt "C" battery, No. UB-3-D; One milliet microphone, No. 1655; One toggle switch, No. 1601; One head phone, No. 1847; One push button, No. 306.

Suggested by:

E. J. STEVENS, JR.  
615 Melrose Street,  
Kalamazoo, Mich.

## Automatic Regeneration Control



Here is an idea that should be of interest to serious short wave enthusiasts. The idea is to have a "bucking" coil coupled to the regular regenerative detector coils in such a manner that its field increases as the regeneration field gets stronger. The bucking coil could be made to have the correct inductance to counteract a regeneration field with a particular value of density as to give a high order of sensitivity.

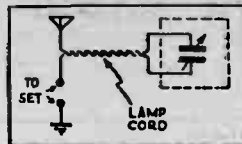
The bucking coil's field would get stronger with an increase in plate current flow and thus hold the regeneration at a constant level. With strong signals, we would have large plate current, as explained above and on weak signals with little plate current, the bucking coil would not have as large a field intensity and the regeneration would increase, thus increasing the signal strength. The only draw back would be that the bucking coil would also affect the tuning.

The latter effect could be minimized by winding the regeneration coil over the bucking coil and leave as much space as possible between the tuning and feed back coils. From experiments tried with the system, it was found that the bucking coil should have about 66 per cent of the turns on the regular plate coil, to give satisfactory action.

Suggested by:

JAMES MARTIN  
30 Clark Street,  
Auburn, N. Y.

## A Remote Volume Control

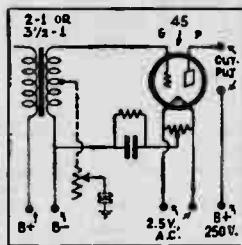


The volume of a radio set can be conveniently controlled at a distance from the set by this method.

The remote volume control consists of a 500 mmf. variable condenser mounted in a suitable box and connected between the radio and the aerial. It may be placed near the telephone, easy chair, etc., in fact, it may be placed anywhere near the aerial lead-in.

A novel use would be to connect the unit in the lead-in wire at the second floor (providing you have the whole house) so that it is not necessary to go down stairs to increase or decrease the volume of the set. Suggested by: SEISHI YASUNAGA, Torrance, California.

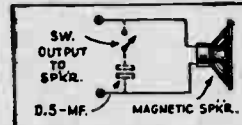
## A Better Tone Control



The second audio transformer is replaced with a push-pull input transformer. The center tap is connected to the 200,000 ohm variable resistor. This in turn is connected to a .01 mf. condenser which is grounded as shown.

I have tried this control with various power tubes, including the 12, the 71 and the 45 with equal success. Suggested by: HELMERS J. HEBNER, 714 Woodland St., Houston, Texas.

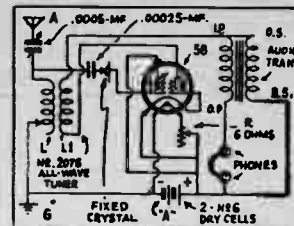
## Tone Control for Magnetic Speakers



While the superior handling capacity and quality of the dynamic speaker is not denied by anyone, there are still some fans, such as myself who use the magnetic speaker for one reason or another. The tone of a set using one of these speakers can be improved and "mellowed" by connecting a .5 mf. condenser across the output of the set to the speaker. A switch can be incorporated as shown in the diagram, to cut the condenser out when it is desired to remove it from the circuit.

By opening and closing the switch, you can have either high or low pitch response, as desired, by the use of this system. Suggested by R. YOUMANS, 520 N. Hughey Street, Orlando, Fla.

## An All-Wave Receiver Without "B" Power



Here is an inexpensive receiver which has given me very good service. It uses one of the all-wave coils listed in the catalogue as No. 3076.

As you will notice the circuit is one of the "Undyne" circuits which has no "B" battery. Either the

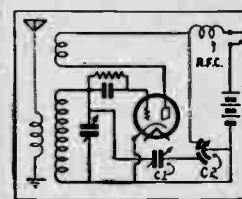
58 or 38 tube may be used, with equal results. The aerial condenser which tunes the set (C1) has a capacity of 500 mmf. The grid condenser, C2 has a capacity of 250 mmf. The filament resistor has a value of 6 ohms. The crystal (Cr.) is one of the B.M.S. type. The inside and outside of the windings on the audio transformer are marked as this is important in the operation of the set.

I have had very good success with this set and I am sure that anyone who builds it will be as satisfied as have been. The parts used are all listed in the catalogue.

Suggested by:

G. P. MATHEWS,  
Bloomington, N. J.

## De-tuning in Short-Wave Receivers



In controlling the regeneration of short-wave receivers, it is usually annoying to discover that any change in the adjustment of the regeneration condenser changes the tuning, thereby necessitating a second adjustment of the tuning condenser.

I have overcome this detuning, in my set, by using the system shown. The regular regeneration condenser is replaced by two condensers. The first is a double stator condenser and the second is a variable condenser C1, of about 150 mmf. capacity.

Once the condenser C1 is adjusted, it is not necessary to change it again, unless the detector tube is changed. Condenser C2 with a capacity of about 100 mmf. on each side at full capacity reading, is varied like any regeneration condenser, and when C1 is adjusted properly, no change in the tuning will be noted when the regeneration is changed.

If a condenser was previously used in your set for regeneration control, this condenser may be employed as C1.

Suggested by:

MONT HARRIS,  
3918 Bliss Street  
El Paso, Texas.

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# THE "RT" BEGINNER'S TRANSMITTER

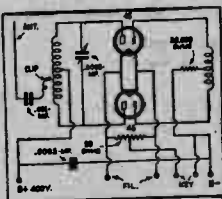
## FOR THE 20, 40, 80 AND 160 METER AMATEUR BANDS

The outfit described here uses two of the type 45 tubes as oscillators. This tube was used because of its low cost and the fact that it provides, practically as much output as the regular 210, at one third the cost. The transmitter is divided into two sections, namely, the radio frequency oscillator and power supply. The oscillator is mounted in bread-board fashion on a 7 by 15 inch plywood board which should be thoroughly dried and given a coat or two of shellac to prevent it from absorbing moisture in damp weather. The circuit is of the type using fixed-tuned grid and tuned plate. All grid coils are wound on one inch bakelite tubing with fine wire, so that their natural frequency response is near the center of each amateur band. The frequency peak of this type of coil is rather broad and for this reason the entire band can be covered with the plate circuit, without the two circuits getting out of resonance. This is a desirable feature as any part of a given band can be worked with the plate circuit being the only tuning control. To facilitate the changing of grid coils for the different bands, each coil is equipped with three small plugs that fit into corresponding jacks mounted on a strip of bakelite fastened to the baseboard.

### PLATE COILS OF COPPER

Next we have the plate circuit. The plate coils for the 20, 40 and 80 meter bands are constructed of one-quarter inch copper tubing. The 160 meter coil is of a different type. This coil is made by winding No. 12 antenna wire (solid enameled) on a two and one half inch bakelite tube, four and one half inches long. Wind 25 turns on this tube very tightly, and space the turns with string of approximately the same size as the diameter of the wire. This winding is then covered with clear lacquer or some such material that is a good insulator. The other coils are spaced so that they just fit on the two stand-off insulators, which are four and one half inches apart. A 500 mmf. receiving type condenser is used to tune the plate circuit and is shunted directly across the plate coil, causing both the rotor and stator to be at high R.F. (radio frequency) potential. This will cause noticeable hand capacity effects to be present when the condenser is adjusted and allowance should be made for this. Be sure to use a knob or dial that does not have its set screw exposed where the body will come in contact with it, or else a nasty burn will be the result.

From the diagram it will be seen that no grid or filament bypass condensers are used and the familiar "RT" choke is omitted from the plate circuit. No benefit was derived from their use and for that reason they were omitted. However there is no law against them; should the builder desire to incorporate them in the set, a .0005 mf. bypass condenser in the plate voltage supply lead is all that was found beneficial.

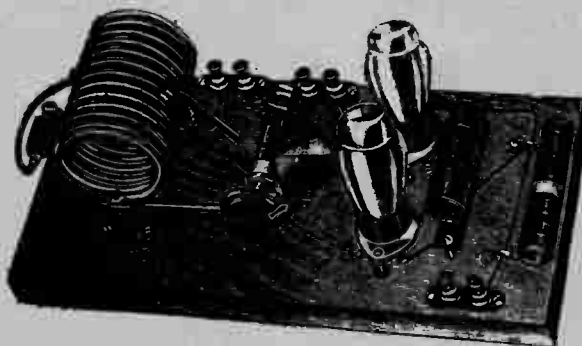


Circuit Diagram of "RT" transmitter.

### This Simple but Efficient Transmitter

was designed by the engineers of the Radio Trading Company and featured in the October 1933 issue of Short Wave Craft magazine. It is recommended not only for beginners but for "ole timers" as well. In actual tests it has "worked" many Foreign and Domestic stations in all corners of the globe. Turn to Page 51 for further information on this transmitter.

The method of coupling the antenna to the output circuit of the transmitter may cause some to wonder whether or not there is something wrong with the diagram. The transmitter was built with a pair of antenna coupling coils, one coupled to each side of the



The "RT" transmitter. Note the extreme simplicity of layout and construction.

plate tank and tuned with a variable condenser, just to see whether or not there was any difference in the output and the character of the signal. First one coil was eliminated and then both were taken out and the antenna connected directly to the plate coil with results the same in either case.

Wiring the high-frequency part of the transmitter is done with regular hook-up wire and all connections well soldered, except the two leads connecting the plate coil to the tuning condenser; these leads are made of the same size copper tubing as the coils.

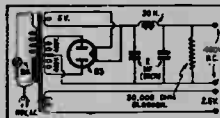
### POWER SUPPLY

The power supply to operate this transmitter delivers 400 volts at 150 mills (m.a.) for the plates of the tubes and 2.5 volts for the filaments. A type 83 mercury vapor rectifier is used because of its low voltage drop, which provides very good regulation. A filter consisting of a 30 henry iron core choke with a 2 mf. condenser on either side, produces very good "D.C."

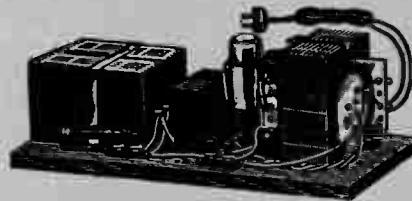
signal from the transmitter. A 30,000 ohm bleeder resistor is connected across the output of the filter to further aid in regulation, by not allowing the voltage to peak up at a very high value when there is no load on the power supply as is the case when the key is in the "off" position.

### PUTTING THE TRANSMITTER ON THE AIR

Getting the transmitter on the air is no difficult task if a few pains are taken in adjustment. After all wiring has been checked carefully to make sure that no wrong connections have been made, connect the power supply to the oscillator unit and insert a 0-100 milliammeter in the positive plate voltage lead. It is best to put a resistor in series with this lead, in order to start adjustments with a reduced plate voltage, because if the plate circuit is not in resonance with the grid circuit, the



Circuit diagram for "RT" Power Pack



Power Supply of "RT" Transmitter.

plate current will be very high and probably damage the tubes or meter. Do all tuning without the antenna connected. Insert all tubes allowing them to heat up sufficiently, using the 80 meter coils as a starter, close the key and be prepared to tune the plate condenser immediately for lowest plate current as indicated by the meter. When this point has been reached, the resistor can be removed from the plate circuit, allowing full plate voltage to be applied to the tubes. The plate current should now be in the order of about 50 milliamperes with no antenna load. All that remains is to check the frequency in the monitor, attach the antenna and we are "on the air".

### COIL DATA

Plate coils		
Band	Turns	Diameter
160	25	see text
80	12	2 3/4 in.
40	6	2 1/2 in.
20	4	2 1/2 in.
The 80, 40 and 20 meter coils—1/4 in. copper tubing.		
Grid coils		
Band	Turns	Size Wire
160	150	38 D.S.C.
80	78	36 D.S.C.
40	42	26 D.S.C.
20	18	26 D.S.C.
All grid coils wound on one-inch diameter bakelite tube with no spacing between turns.		

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IN our effort to give our readers the utmost for their money, we have made arrangements with the publishers of RADIO-CRAFT and SHORT WAVE CRAFT to give you these magazines absolutely free under the following arrangement:

As you will note from an announcement of these magazines appearing in one of the last few pages of this catalog, the two magazines RADIO-CRAFT and SHORT WAVE CRAFT sell under a special offer of \$1.98 per year (Canada and foreign 40c extra).

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RADIO TRADING COMPANY, 100 PARK PLACE, NEW YORK, N. Y.

# 1-TUBE TWINPLEX SHORT WAVE RECEIVER

EQUIVALENT TO A 2-TUBE RECEIVER

The average prospective constructor, becoming interested in short wave reception for the first time, prefers as simple a receiver as possible—consistent with satisfactory results. A one tube receiver is undoubtedly the ideal solution, but unfortunately such a receiver of the conventional regenerative variety will not produce sufficient volume for satisfactory headphone reception. However recent developments in tubes and circuits makes a one tube set a very practical one.

The schematic wiring diagram of such a receiver is shown in Fig. 1. The tube employed is the new 53 which really consists of two tubes in one. This tube was designed as a class B twin amplifier, but due to the comparatively large static plate current drawn, it can be readily adapted to detection and class A amplification.

As an audio frequency amplifier this tube is very effective, since its amplification factor is about 35. This permits an amplification approximating that of a pentode, without the latter's disadvantages of wiring complications and heavy plate current drain, which makes the use of an output coupling device practically a necessity. If possible damage to the headphones is to be avoided. The heater-cathode construction effectively reduces hum and obviates the necessity of employing a center-tapped resistor with its consequent wiring complications.

The use of this tube as a detector results in a substantially greater output than is possible from the usual low- $\mu$  triode, while maintaining the desirable characteristics of this type of regenerative detector; namely stable and foolproof operation and simplified construction.

Regeneration is controlled by varying the plate voltage by means of a 25,000 ohm potentiometer. Independent volume control is provided by a 200,000 ohm potentiometer across the audio frequency transformer secondary as the volume often becomes too great for comfortable headphone reception, particularly on strong amateur and 49 meter broadcasting stations.

The tuning condenser has a capacity of 140 mmf. and is employed in conjunction with a set of short wave plug-in coils.

## PLATE SUPPLY FROM BATTERIES OR "B" ELIMINATOR

It will be noted that a plate potential of 180 volts is required and this may be obtained either from dry batteries or a well filtered "B" supply. The heaters require 2½ volts A.C. which may be obtained from a suitable step down transformer.

The general layout of the various parts can be noted from the illustration. It will be seen that an aluminum panel is employed in conjunction with a metal baseboard. The variable condenser along with the two potentiometers are mounted on the front panel while the remaining apparatus is mounted to the sub-chassis.

## A Reliable Short-Wave Set

is one which is GUARANTEED to give results. When a manufacturer guarantees his products it must be good, otherwise he must suffer the loss of having it thrown back at him. See our guaranteed Short Wave Receivers and Transmitters in the Center Section of this Catalog.

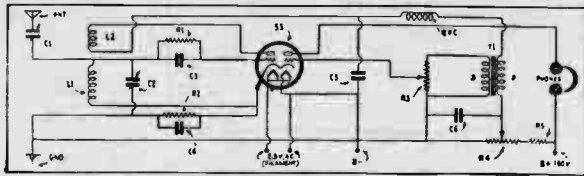
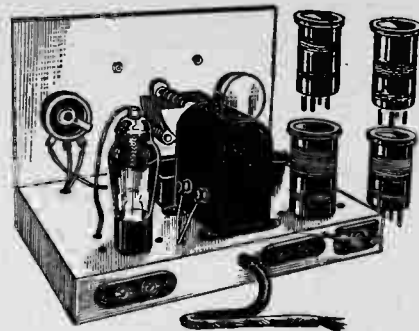


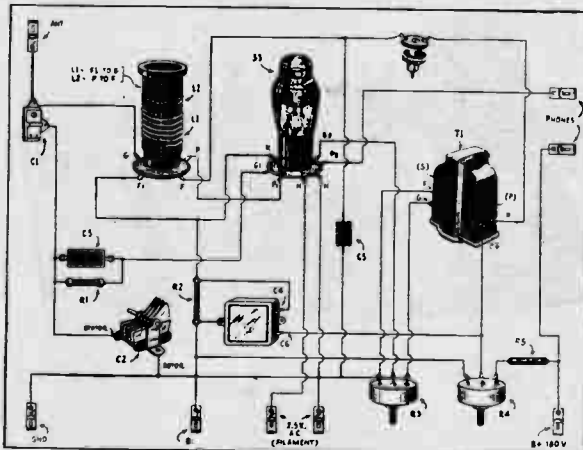
Fig. 1—Schematic Circuit of 1-Tube Twinplex



The antenna compensating condenser is a Hammarlund 32 mmf. trimming-type condenser. The adjustment of this condenser is not critical and for normal operation can be left "all in." When "dead spots" produced by antenna absorption are encountered, the condenser may be adjusted until the dead area is reduced to one or two dial divisions. As this results in decreased input it is advisable to increase this capacity when the "dead spot" area has been passed. When wiring the set it is absolutely essential to ground one of the heater lines, as shown, if satisfactory operation is to be obtained.

## OPERATION AND RESULTS OBTAINED

In operation, the set is exactly the same as the conventional two tube regenerative receiver and consequently it will not be necessary to go into detail regarding same. The results obtained during a week of testing have been exceedingly good. The foreign stations received during this period include EAQ, GSB, GSA, DJC, HKD and OXY. No listening was done during the daytime which accounts for the absence of 25 meter stations. The receiver is also very satisfactory for C.W. reception.



Pictorial Diagram of Twinplex Receiver.

# AMATEUR RADIO TRANSMITTER

Reprinted From Our No. 25 Radio & Short Wave Treatise by Popular Request.

## A Simple Amateur Transmitter

After listening in on the short waves for several months and hearing the interesting work carried on by amateur stations, you may become interested in amateur transmission yourself. This is a very fascinating angle of short-wave work, and, despite the popular impression to the contrary, it is no more difficult or involved than receiving. A very simple but efficient transmitter can be made with fewer parts than required for the average receiver, and is actually easier to adjust than the latter.

A one-tube transmitter that can be assembled in a single evening is shown in Fig. 1. You probably already have many of the required parts. The circuit is the well-known Hartley hook-up arranged for series-plate feed, an arrangement that makes the transmitter very simple in construction and stability in operation. It is designed to operate in the 1715 to 2000 kilocycle band (approximately 180 meters), as this is the best of the four amateur bands for beginners. A type 245 tube is used as the oscillator, as it is cheap and any standard receiver power pack may

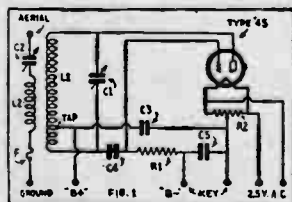


Fig. 1 Schematic Diagram of a one-tube short-wave Telegraph Transmitter.

to 2000 kilocycle band (approximately 180 meters), as this is the best of the four amateur bands for beginners. A type 245 tube is used as the oscillator, as it is cheap and any standard receiver power pack may

The parts are laid out on a 7 x 14 inch wooden baseboard with variable condensers C2 and C1 along the left section of the front edge, and coils L2 and L1 behind them. The tube sockets, fixed condensers, etc., occupy the right end of the board. The wiring is so very simple that no special precautions need be observed except that usual ones about soldering all connections thoroughly and keeping the leads short.

The tuning coils L1 and L2 are very important and should be wound carefully. Bakelite or other good tubing 2½ inches in diameter is used. Coil L1, the oscillator coil, contains 18 turns of No. 12 enameled wire, spaced out to occupy 2½ inches of room on a piece of tubing about 3½ inches long. It is tapped at the 8th turn. The antenna coil, L2, is about 2½ inches long and contains 12 turns of No. 12 wire. Be sure to wind both coils in the same direction. About 25 feet of wire is needed.

This transmitter will work with any ordinary single-wire aerial not less than 120 or more than 170 feet long, including the lead-in. The shape is of little importance, as long as the wire is strung free and clear and is well insulated. No complicated "feeders" or accurately measured wires are required. Make the ground connection to the usual cold water pipe.

To put the transmitter into operation, make the necessary connections to the filament and plate terminals of the power pack and to the transmitter key. Set the oscillator condenser C1 to full capacity and press the key. You can tell if the set is oscillating by touching a pencil to the stationary plates; an appreciable spark will appear at the point of contact. This circuit is of the "sure fire" type and will oscillate strongly.

If the specifications have been followed the low end of the 1715-2000 kc. band will be reached with condenser C1 nearly all closed in. The frequency must be checked with a frequency meter, or experimentally with the aid of another station having a calibrated receiver. To bring the antenna into resonance, simply rotate con-

denser C2 slowly until the flashlight bulb glows most brightly. After determining the best adjustment, short-circuit the lamp with a piece of jumper wire so that its resistance is removed from the circuit.

Under average conditions this little transmitter will cover about 100 miles during daylight and 500 miles or more at night. It is fine for local "rag chewing" because there is practically no skip-distance effect on the 1715 kc. range.

This transmitter has been designed for telegraph or key transmission, rather than voice, because phone transmitters are much more complicated in construction and critical in adjustment, and you must know the code anyway to obtain an amateur license. As you gain experience, you can add a power amplifier stage and modulate this for telephony. Incidentally, a practical amateur phone transmitter is full described on page 51 of this catalog.

Amateur licenses are not difficult to secure, and can be obtained through the mail if you cannot appear personally at the office of the nearest U. S. Supervisor of Radio for an examination.

## LIST OF PARTS FOR THE SIMPLE SHORT-WAVE CODE TRANSMITTER

Quantity	Description	Catalog No.	Your Price
1—C1	.0005 mf. variable condenser	ML-23	\$2.64
1—C2	.0005 mf. variable condenser	ML-23	2.64
1—C3	Polymet .005 mf. fixed mica condenser	NIC-1169	0.25
1—C4	Polymet .00025 mf. fixed mica condenser	MI-1159	0.12
1—C5	Polymet .005 mf. fixed mica condenser	NIC-1169	0.25
1—R1	Kroblak 50,000 ohm fixed resistor	3326	0.60
1—R2	Kroblak 20 ohm center tapped resistance	2296	0.30

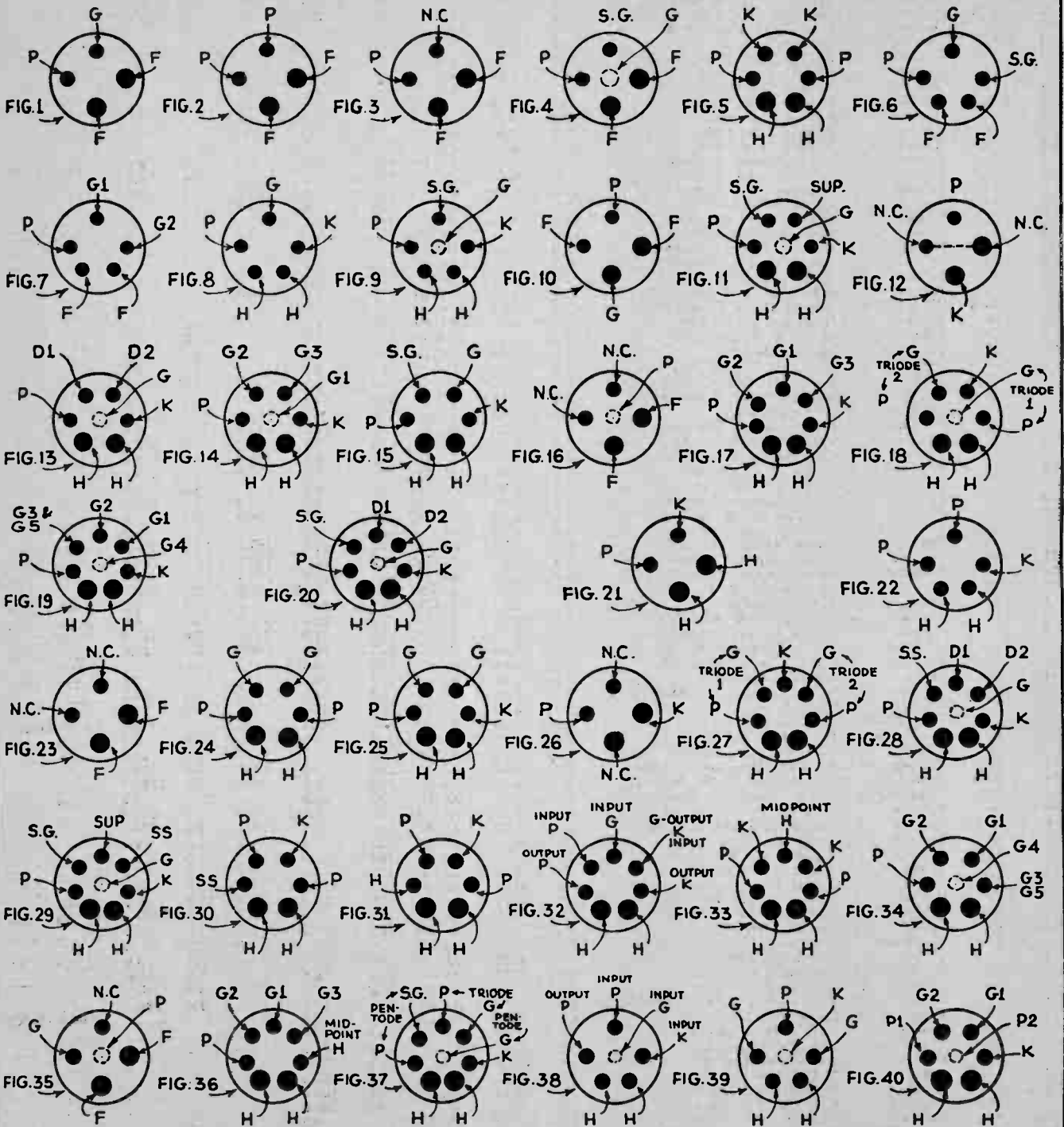
# SOCKET CONNECTIONS FOR ALL TUBES

(Underside View—See Tube Chart on Next Page)

F—Filament  
H—Heater  
P—Plate  
K—Cathode  
G—Control Grid

NOTE:—On tubes having more than three grids, or where the grids are used for other than normal purposes, such grids are referred to as G-1, G-2, etc. In all such cases G-1 is the innermost grid (nearest to filament or cathode), G-2 the second nearest, etc.

SC—Screen Grid  
SP—Suppressor Grid  
SS—Spray Shield  
D1—D2—Diode Plates  
NC—No Connection



# COMPLETE TUBE CHARACTERISTIC CHART

*Figure Numbers Refer to Socket Connection Diagrams on Preceding Page.*

See Fig.	Type No.	Element Type	Class of Use and Usual Applications	Fil. Voltg.	Fil. Cur't.	Fil. Supply	Plate Volts (Max.)	Plate Current (Max.)	Screen Volts (Max.)	Grid Bias	Amplification Factor	Output Load (Ohms)	Power Output (Milliwatts)
1	00A	Triode	Special Detector Only	5.0	0.25	DC	45	1.5	-----	Neg.	20.0	-----	-----
1	01A	Triode	Detector and Amp.	5.0	0.25	DC	135	3.0	-----	9.0	8.0	-----	-----
21	1	Diode	Half-Wave Mercury Rec.	6.3	0.30	AC	-----	-----	-----	-----	-----	-----	-----
23	2	Monode	Ballast Tube Only	9.0	0.30	DC	-----	-----	-----	-----	-----	-----	-----
23	3	Monode	Ballast Tube Only	128.0	0.30	DC	-----	-----	-----	-----	-----	-----	-----
23	4	Monode	Ballast Tube Only	117.0	0.40	DC	-----	-----	-----	-----	-----	-----	-----
23	5	Monode	Ballast Tube Only	117.0	0.40	DC	-----	-----	-----	-----	-----	-----	-----
23	6	Monode	Ballast Tube Only	3.0	0.70	DC	-----	-----	-----	-----	-----	-----	-----
23	7	Monode	Ballast Tube Only	176.0	0.30	DC	-----	-----	-----	-----	-----	-----	-----
23	8	Monode	Ballast Tube Only	132.0	0.80	DC	-----	-----	-----	-----	-----	-----	-----
23	9	Monode	Ballast Tube Only	50.0	0.30	DC	-----	-----	-----	-----	-----	-----	-----
1	10	Triode	Power Output Amplifier	7.5	1.25	AC-DC	425	18.0	-----	35.0	8.0	10,000	1,600
1	12A	Triode	Detector and Amplifier	5.0	0.25	DC	180	6.2	-----	9.0	8.5	-----	-----
9	14	Triode	Detector and Amplifier	14.0	0.30	DC	250	4.0	90.0	3.0	525.0	-----	-----
9	15	Pentode	1st Detector and Osc.	2.0	0.205	DC	135	1.85	67.5	1.5	530.0	-----	-----
8	17	Triode	Detector and Amplifier	14.0	0.30	DC	180	5.0	-----	13.5	9.0	-----	-----
15	18	Pentode	Power Output Pentode	14.0	0.30	AC-DC	250	34.0	250.0	16.5	220.0	9,000	3,000
24	19	Pentode	Class B Power Amplifier	2.0	0.26	DC	135	25.0	-----	3.0	16.0	20,000	1,900
1	20	Triode	Power Output Amplifier	3.3	0.132	DC	135	6.5	-----	22.5	3.3	6,500	110
4	22	Tetrode	R. F. Amplifier	3.3	0.132	DC	135	3.3	67.5	1.5	290.0	-----	-----
9	24A	Tetrode	R.F., A.F. and Detector	2.5	1.75	AC-DC	275	4.0	90.0	3.0	615.0	-----	-----
	25-S	Diode-Triode	Duplex Diode Triode Det.	2.0	0.20	DC	-----	-----	-----	-----	-----	-----	-----
1	26	Triode	R. F. and A. F. Amp.	1.5	1.05	AC-DC	180	6.2	-----	13.5	8.3	-----	-----
8	27	Triode	R. F., A. F. and Det.	2.5	1.75	AC-DC	250	5.2	-----	21.0	9.0	-----	-----
25	29	Triode	Special Detector	2.5	1.00	AC-DC	180	4.5	-----	3.0	30.0	-----	-----
1	30	Triode	R. F., A. F. and Det.	2.0	0.06	DC	180	3.1	-----	13.5	9.3	-----	-----
35	30(S)	Triode	For Short Wave Work	2.0	0.06	DC	180	3.1	-----	13.5	9.3	-----	-----
1	31	Triode	Output Power Amplifier	2.0	0.130	DC	180	12.3	-----	30.0	3.8	5,700	375
4	32	Tetrode	R. F. Amplifier	2.0	0.06	DC	180	1.7	67.5	3.0	780.0	-----	-----
6	33	Pentode	Power Output Pentode	2.0	0.26	DC	135	14.5	135.0	13.5	70.0	7,000	700
4	34	Pentode	Variable-mu R. F. Amp.	2.0	0.06	DC	180	2.8	67.5	3.0	620.0	-----	-----
9	35	Tetrode	Variable-mu R. F. Amp.	2.5	1.75	AC-DC	250	6.5	90.0	3.0	370.0	-----	-----
9	36	Tetrode	R. F., A. F. and Det.	6.3	0.30	AC-DC	180	3.1	90.0	3.0	370.0	-----	-----
8	37	Triode	A. F. Amplifier and Det.	6.3	0.30	AC-DC	180	4.7	-----	13.5	9.0	-----	-----
9	38	Pentode	Power Output Pentode	6.3	0.30	AC-DC	135	9.0	135.0	13.5	100.0	13,500	525
9	39	Pentode	Variable-mu R. F. Amp.	6.3	0.30	AC-DC	180	4.5	90.0	2.5	750.0	-----	-----
1	40	Triode	Voltage Amplifier	5.0	0.25	DC	180	0.2	-----	3.0	30.0	-----	-----
15	41	Pentode	Power Output Pentode	6.3	0.70	AC-DC	167	16.5	167.5	12.5	215.0	11,000	1,200
15	42	Pentode	Power Output Pentode	6.3	0.70	AC-DC	250	34.0	250.0	16.5	220.0	9,000	3,000
15	43	Pentode	Power Output Pentode	25.0	0.30	AC-DC	95	20.0	95.0	15.0	60.0	2,500	700
9	44	Tetrode	Variable-mu R. F. Det.	6.3	0.30	AC-DC	250	6.25	90.0	3.0	600.0	-----	-----
1	45	Triode	Power Amplifier	2.5	1.50	AC-DC	250	34.0	-----	48.5	3.6	3,900	1,600
7	46	Tetrode	Class A or B Amplifier	2.5	1.75	AC-DC	250	22.0	-----	31.5	5.8	6,400	1,250
6	47	Pentode	Power Output Amplifier	2.5	1.75	AC-DC	250	31.0	250.0	15.0	150.0	7,000	2,500
15	48	Pentode	Power Output Pentode	30.0	0.40	DC	125	50.0	100.0	22.5	28.0	2,000	2,500
7	49	Tetrode	Class A or B Amplifier	2.0	0.12	DC	180	4.0	-----	0.0	-----	12,000	-----
1	50	Triode	Power Amplifier	7.5	1.25	AC-DC	450	56.0	-----	80.0	3.8	4,350	4,600
9	51	Tetrode	Variable-mu R. F. Amp.	2.5	1.75	AC	250	6.3	90.0	3.0	400.0	-----	-----
14	52	Tetrode	Class B Only	6.3	0.30	AC-DC	100	42.0	-----	0.0	-----	-----	-----
27	53	Twin-Triode	Class B Only	2.5	2.00	AC-DC	300	125.0	-----	0.0	-----	10,000	10,000
13	55	Diode Triode	Det.—Amp.—AVC	2.5	1.00	AC-DC	250	8.0	-----	20.0	8.3	20,000	200
8	56	Triode	A.F., Osc. or Detector	2.5	1.00	AC-DC	250	5.0	-----	13.5	13.3	-----	-----
11	57	Tetrode	High-mu Detector or Amp.	2.5	1.00	AC-DC	250	2.0	100.0	3.0	1500	-----	-----
11	58	Pentode	Variable-mu R. F. Amplif.	2.5	1.00	AC-DC	250	8.2	100.0	2.0	1280.0	-----	-----
17	59	Triple Grids	Power Triode or Pentode	2.5	2.00	AC-DC	250	26.0	-----	28.0	6.0	5,000	1,250
9	64	Tetrode	Detector and Amplifier	6.3	0.40	AC-DC	135	3.0	67.5	1.5	370.0	-----	-----
9	64A	Tetrode	Screen Grid Det. & Amp.	6.3	0.30	AC-DC	180	3.1	90	3.0	370	-----	-----
9	65	Tetrode	A. F. Amplifier	6.3	0.40	AC-DC	135	3.5	-----	9.0	9.0	-----	-----
9	65A	Tetrode	Variable-mu R.F. Amp.	6.3	0.30	AC-DC	180	4.5	90	3.0	750	-----	-----
8	67	Triode	Detector and Amplifier	6.3	0.40	AC-DC	135	5.0	67.5	1.5	320.0	-----	-----
8	67A	Triode	Triode Det. or Amp.	6.3	0.30	AC-DC	180	4.7	-----	13.5	9.0	-----	-----
9	68	Pentode	Power Output Pentode	6.3	0.40	AC-DC	135	14.0	135.0	13.5	90.0	7,500	650
9	68A	Pentode	Power Output Pentode	6.3	0.30	AC-DC	135	9.0	135	13.5	100	13,500	525
25	69	Triode	Special Detector	6.3	0.20	AC-DC	180	4.5	-----	3.0	30.0	-----	-----
	70	Duo-Diode	Detector—AVC Only	6.3	0.20	AC-DC	-----	-----	180.0	6.0	-----	-----	-----
1	71A	Triode	Power Amplifier Only	5.0	0.25	AC-DC	180	20.0	-----	40.5	3.0	5,350	700
13	75	Diode-Triode	Detector—AVC Only	6.3	0.30	AC-DC	250	0.8	-----	2.0	100.0	-----	-----
11	77	Pentode	R. F. Pentode	6.3	0.30	AC-DC	250	2.3	100	3.0	1500	-----	-----
11	78	Pentode	Variable-mu R. F. Pentode	6.3	0.30	AC-DC	250	10.5	100	3.0	990	-----	-----
18	79	Twin-Triode	Class B Only	6.3	0.60	AC-DC	180	7.5	-----	-----	-----	7,000	5,500
2	80	Triode	Full-Wave Rectifier	5.0	2.00	AC	350	125.0	-----	-----	-----	-----	-----
2	80M	Triode	Full-Wave Rectifier	5.0	2.00	AC	450	125.0	-----	-----	-----	-----	-----
3	81	Diode	Half-Wave Rectifier	7.5	1.25	AC	700	85.0	-----	-----	-----	-----	-----
3	81M	Diode	Half-Wave Rectifier	7.5	1.25	AC	750	85.0	-----	-----	-----	-----	-----
2	82	Triode	Full-Wave Rectifier	2.5	3.00	AC	500	125.0	-----	-----	-----	-----	-----
2	83	Triode	Full-Wave Rectifier	5.0	3.00	AC	500	250.0	-----	-----	-----	-----	-----
22	84	Triode	Full-Wave Rectifier	6.3	0.50	AC-DC	225	70.0	-----	-----	-----	-----	-----
13	85	Diode-Triode	Detector—Amplifier AVC	6.3	0.30	AC-DC	250	8.0	-----	20.0	8.3	20,000	350

# COMPLETE TUBE CHARACTERISTIC CHART

*Figure Numbers Refer to Socket Connection Diagrams on Page 13.*

See Fig.	Type No.	Element Type	Class of Use and Usual Applications	Fil. Voltg.	Fil. Cur't.	Fil. Supply	Plate Volts (Max.)	Plate Current (Max.)	Screen Volts (Max.)	Grid Bias Neg.	Amplification Factor	Output Load (Ohms)	Power Output (milliwatts)
11	87	Pentode	R.F. Pentode	6.3	0.40	AC-DC	-----	-----	-----	-----	-----	-----	-----
11	88	Pentode	Variable- $\mu$ R. F. Pentode	6.3	0.40	AC-DC	-----	-----	-----	-----	-----	-----	-----
14	89	Pentode	Power Pentode or Class B	6.3	0.40	AC-DC	160	17.0	-----	20.0	4.7	7,000	300
39	90	Triode	Detector—Amplifier AVC	2.5	1.00	AC	-----	-----	-----	-----	-----	-----	-----
39	92	Triode	Det.—Amp.—AVC	6.2	0.40	AC-DC	-----	-----	-----	-----	-----	-----	-----
15	95	Pentode	Power Output Pentode	2.5	1.75	AC	-----	-----	-----	-----	-----	-----	-----
22	98	Triode	Full-Wave mercury rect.	6.3	0.50	AC	225	50.0	-----	-----	-----	-----	-----
1	99	Triode	R.F., A.F. and Det.	3.3	0.06	DC	90	2.5	-----	4.5	6.6	-----	-----
34	1A6	Pentagrid	Mixer and Oscillator	2.0	0.06	DC	180	1.3	-----	3.0	-----	2,500	3,500
1	2A3	Triode	Class A Power Amplifier	2.5	2.50	AC-DC	250	60.0	67.5	42.0	4.2	7,000	3,000
15	2A5	Pentode	Power Output Pentode	2.5	1.75	AC-DC	250	34.0	-----	16.5	220.0	-----	-----
13	2A6	Diode-Triode	Diode Det., High $\mu$ Ampl.	2.5	0.80	AC-DC	250	0.8	-----	3.0	100	-----	-----
19	2A7	Pentagrid	Mixer and Oscillator	2.5	0.80	AC-DC	250	4.0	100	3.0	-----	5,000	4,000
32	2B6	Triple-Twin	Double A-F Amplifier	2.5	2.25	AC-DC	250	40.0	-----	2.5	18	-----	-----
20	2B7	Diode-Pentode	Diode Detector, R-F Ampl.	2.5	0.80	AC-DC	250	9.0	125	3.0	730	-----	-----
22	2S	Duo-Diode	Diode Detector	2.5	1.75	AC-DC	20	11.0	-----	-----	-----	-----	-----
2	5Z3	Triode	Full-Wave Rectifier	5.0	3.00	AC	500	250.0	-----	-----	-----	8,000	1,400
6	6A4	Pentode	Auto-Radio Power Ampl.	6.3	0.30	AC-DC	180	22.0	180	12.0	100	-----	-----
19	6A7	Pentagrid	Mixer and Oscillator	6.3	0.30	AC-DC	250	4.0	100	3.0	-----	-----	-----
20	6B7	Diode-Pentode	Diode Detector, R-F Ampl.	6.3	0.30	AC-DC	250	9.0	125	3.0	780	-----	-----
11	6C6	Pentode	R-F Pentode	6.3	0.30	AC-DC	250	2.3	100	3.0	1500	-----	-----
28	6C7	Diode-Triode	Diode Detector & A-F Ampl.	6.3	0.30	AC-DC	250	5.5	-----	9.0	20	-----	-----
11	6D6	Pentode	R-F Pentode	6.3	0.30	AC-DC	250	7.5	100	3.0	1160	-----	-----
29	6D7	Pentode	R-F Pentode	6.3	0.30	AC-DC	250	2.3	100	3.0	1500	-----	-----
29	6E7	Pentode	R-F Pentode	6.3	0.30	AC-DC	250	7.5	100	3.0	1160	-----	-----
27	6F7	Triode-Pent.	Mixer and Oscillator	6.3	0.30	AC-DC	250	6.5	100	3.0	900	-----	-----
30	6Y5	Tetrode	Full-Wave Mercury Rect.	6.3	0.80	AC	-----	-----	-----	-----	-----	-----	-----
21	6Z3	Triode	Half-Wave Rectifier	6.3	0.30	AC-DC	350	50.0	-----	-----	-----	-----	-----
22	6Z4	Triode	Full-Wave Vacuum Rect.	6.3	0.60	AC	-----	-----	-----	-----	-----	-----	-----
31	6Z5	Tetrode	Full-Wave Rect.	6.3*	0.8*	AC	230	60.0	-----	-----	-----	4,500	2,800
36	12A5	Pentode	Pentode Power Tube	6.3*	0.6*	AC-DC	180	40.0	180	27.0	-----	-----	-----
33	12Z5	Tetrode	Full-Wave Rect. & Volt. Dbler.	6.3*	0.6*	AC	225	60.0	-----	-----	-----	-----	-----
5	25Z5	Double	Rectifier—Volt. Dbler.	25.0	0.30	AC-DC	125	100.0	-----	-----	-----	-----	-----
21	12Z3	Triode	Half-Wave Rectifier	12.6	0.30	AC-DC	230	60.0	-----	-----	-----	-----	-----
1	182B	Triode	Power Output Amplifier	5.0	1.25	AC	200	18.0	-----	29.0	5.0	-----	-----
1	183	Triode	Power Output Amplifier	5.0	1.25	AC	200	20.0	-----	45.0	3.0	-----	-----
8	227HM	Triode	Detector and Amplifier	2.5	1.75	AC-DC	180	-----	-----	-----	-----	-----	1,250
38	291	Triple-Twin	Double A. F. Amplifiers	12.3	0.30	DC	-----	-----	-----	-----	-----	-----	1,250
38	293	Triple-Twin	Double A. F. Amplifiers	6.3	0.60	AC-DC	-----	-----	-----	-----	-----	-----	4,500
38	295	Triple-Twin	Double A. F. Amplifiers	2.5	4.00	AC-DC	-----	-----	-----	-----	-----	-----	-----
1	401	Triode	Detector and Amplifier	3.0	1.35	AC-DC	180	8.0	-----	13.5	8.7	4,500	1,500
1	482A	Triode	Power Amplifier	5.0	0.80	DC	200	18.0	-----	45.0	3.0	4,500	1,750
1	482B	Triode	Power Amplifier	5.0	1.25	AC-DC	250	18.0	-----	32.5	5.0	-----	-----
1	483	Triode	A. F. Amplifier	5.0	1.35	AC	180	15.3	-----	40.5	3.3	-----	-----
1	484	Triode	Detector and Amplifier	3.0	1.50	AC	135	6.0	-----	6.0	12.5	-----	-----
1	484	Triode	Detector and Amplifier	3.0	1.60	AC	180	6.0	-----	9.0	12.5	-----	-----
1	484A	Triode	Detector and Amplifier	3.0	1.25	AC	90	5.0	-----	3.0	12.5	-----	-----
8	485	Triode	Detector and Amplifier	3.0	1.25	DC	90	3.0	-----	3.0	12.5	-----	-----
1	486	Triode	R. F. Amplifier	3.0	0.25	DC	90	3.0	-----	-----	3.8	4,350	4,600
1	586	Triode	Power Output Amplifier	7.5	1.25	AC-DC	450	55.0	-----	80.0	9.8	250,000	-----
1	841	Triode	Voltage Amplifier	7.5	1.25	AC-DC	425	2.2	-----	9.0	80.0	4,350	4,600
1	864	Triode	Detector or Amplifier	1.1	0.25	DC	135	3.5	-----	9.0	8.2	-----	-----
16	866	Diode	Half-Wave Rectifier	2.5	5.00	AC	7500	600.0	-----	-----	-----	5 megs.	-----
26	868	Diode	Phototube	-----	-----	-----	90	0.02	-----	-----	-----	-----	-----
12	874	Diode	Voltage Regulator	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
12	876	Monode	Ballast Tube	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
12	876	Monode	Ballast Tube	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
22	985	Triode	Full-Wave Rectifier	5.0	0.50	AC-DC	500	-----	-----	-----	-----	-----	-----
21	AD	Triode	Half-Wave Rectifier	6.3	0.30	AC	350	50.0	-----	-----	-----	13,500	400
15	AE	Tetrode	Power Output Pentode	12.6	0.30	AC-DC	100	8.5	100	13.5	20	-----	-----
2	AF	Triode	Full-Wave Rectifier	2.5	3.00	AC	500	250.0	-----	-----	-----	-----	-----
2	AG	Triode	Full-Wave Rectifier	5.0	3.00	AC	500	250.0	-----	-----	-----	7,000	800
6	GA	Pentode	Power Output Pentode	5.0	0.25	DC	180	25.0	180.0	10.0	60.0	-----	-----
21	KR1	Triode	Half-wave mercury rect.	6.3	0.30	AC-DC	350	200.0	-----	-----	-----	8,000	1,200
6	KR5	Pentode	Power Output Pentode	6.3	0.30	AC-DC	165	17.0	165.0	11.0	100.0	100,000	-----
13	KR20	Twin Grid	Special Detector and AVC	2.5	1.00	AC	250	3.5	-----	-----	14.0	100,000	-----
13	KR22	Twin Grid	Special Detector and AVC	6.3	0.40	AC-DC	250	3.5	-----	-----	14.0	9,000	3,000
15	KR25	Pentode	Power Output Pentode	2.5	1.75	AC	250	17.0	165.0	16.5	220.0	8,000	1,200
6	LA	Pentode	Power Output Pentode	6.3	0.30	AC-DC	165	17.0	-----	-----	100.0	-----	-----
22	P-861	Triode	Full-Wave Mercury Rect.	6.3	0.50	AC	225	50.0	-----	-----	-----	7,000	3,000
6	PZ	Pentode	Power Output Pentode	2.5	1.50	AC-DC	250	32.5	250.0	16.5	95.0	7,000	3,500
15	PZH	Pentode	Power Output Pentode	2.5	2.00	AC-DC	250	33.5	250.0	16.5	100.0	-----	-----
1	WD11	Triode	Detector and Amplifier	1.1	0.25	DC	135	3.0	-----	-----	10.5	6.5	-----
1	WD12	Triode	Detector and Amplifier	1.1	0.25	DC	135	3.0	-----	-----	10.5	6.6	-----
39	Wun.	Twin Grid	Special Detector and AVC	2.5	1.00	AC-DC	250	7.0	-----	16.5	9.26	-----	-----
25	Wun.A	Twin Grid	Special Detector and AVC	6.3	0.40	AC-DC	250	7.0	-----	16.5	9.26	-----	-----
40	Wun.B	Twin Grid	Special Detector and AVC	2.5	1.00	AC-DC	250	-----	-----	-----	-----	-----	-----



# DUAL-WAVE RECEIVER

200 TO 2000 METERS

NEW TUBES

FULL-RICH-TONE

*Air King*

POWERFUL-SELECTIVE

COMPLETE with **RCA**

This receiver is not a midget, but a full fledged six-tube super-tuned receiver, in a medium sized table cabinet. It incorporates the latest type triple-grid 57 and 58 tubes, which assure maximum sensitivity and selectivity under all operating conditions. The tone of this set is remarkably fine and may be controlled by the operator from high treble down to deep bass.

This new 1934 model incorporates all the new developments recently perfected. Has a wide reception range of from 200 to 2,000 meters, which makes it especially suitable for use in countries located in the Eastern Hemisphere, where programs are broadcast on two channels, viz., 200 to 550 meters, and 850 to 2000 meters.

**THE CIRCUIT**  
Incorporates three super-tuned circuits, using 2-58's in the R.F. stages and 1-57 as power detector. The output tubes are 2-47 power pentodes. These tubes are fed into a matched FULL DYNAMIC SPEAKER, having fine reproduction characteristics. The audio channel is of the RESISTANCE-COUPLED type, thereby giving reception comparable to a marked degree, with the original rendition. THE CHASSIS IS COMPLETELY SHIELDED AND CADMIUM PLATED. Provisions are made for attaching a PHONOGRAPH PICKUP FOR ELECTRICAL RECORDING and reproduction of recorded music. A unique arrangement is employed for switching from the regular broadcast band to the long wave band.

**THE CABINET**  
The cabinet is of beautiful, Georgian period design, made of butt walnut. Measures 20" high x 16" wide x 10 1/4" deep. Has recessed center panel with full vision illuminated "ghost-light" dial. (When the set is in operation, this "ghost-light" travels across the face of the dial when tuning—the remainder of the dial being in complete shadow.) This receiver is designed for use on 110-120 volts, but may be had for any other type of current at an additional charge of \$2.00. Domestic ship. wt., 35 lbs.  
No. 2500 Air-king 200 to 2,000 meter, 6 tube Receiver.

YOUR PRICE, complete with R.C.A. licensed tubes

**\$37.25**

NO GRIEF WITH THIS SET!

## "Pandora" Crystal Set



Remember the perfect tone quality of the old-fashioned crystal receiver! It hasn't changed a bit in all these years. Radio engineers, experimenters and Service Men admit that programs received on crystal sets are more natural and clear-cut than those reproduced by the most expensive electric receivers. As a matter of fact, crystal detectors are now considered ideal for the critical requirements of broadcast and television receivers. See the write-up on "Crystal Fixed Detectors" elsewhere on this page for a more thorough discussion on the method of employing these crystal detectors in modern broadcast and television receivers.

Here is an ideal "personal" radio for every individual; especially recommended for invalids. Practically all local stations can be tuned in with surprising volume and, conditions permitting, it is even possible to "pull in" distant stations. Tuning is smooth and simple. Requires no batteries at all to operate. The only expense involved is the initial one in purchasing it. Handsomely finished in rich russet bronze. Binding posts and trimmings are nickel plated to guard against rust. Size 4 1/2" dia. x 5" high. Shipping weight, 2 lbs. List Price \$1.75

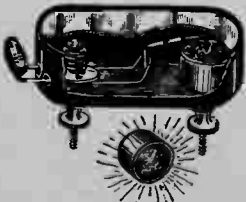
No. 985 "Pandora" Crystal Set

YOUR PRICE

**\$1.05**

## Puretone Adjustable Crystal Detector

Incorporates a sensitive, synthetic crystal, special catwhisker spring, and an ingenious Universal joint mounting—all mounted in a compact, Bakelite case, with protective glass window. The unique mounting arrangement of the catwhisker permits resetting in a fraction of a second by the touch of a finger.



The synthetic crystal employed in this detector is extremely more sensitive than the natural Galena type, and will pass more current without burning up.

Here is an ideal unit for constructing "personal" crystal receivers which, in tone and quality, are not surpassed by even the latest 10 and 11 tube electric receivers.

No. 1856 Puretone Adjustable Crystal Detector.

YOUR PRICE

**\$0.98**

## PURETONE SYNTHETIC CRYSTALS

These crystals are the same as those used in the Puretone Adjustable Crystal Detector listed above.

No. 1888 Puretone Synthetic Crystals.

YOUR PRICE, each

**\$0.10**

*Works Everywhere!* **A.C.-D.C.: 25-60 CYCLES!**  
**5 TUBE SUPERHETERODYNE**  
*This is*  
**YOUR PERSONAL RADIO**  
**SELECTIVITY!**  
**POWER!**  
**STONE!**

## Smallest Fine Radio on the Market!

This tiny radio which measures but 7 3/4" high x 10 1/4" wide and weighs but 8 lbs., is indeed the leader of all A.C.-D.C. sets, both in performance and in price. It is a 5-tube high quality receiver built around a true superheterodyne circuit. Only tubes of the very latest types are employed. This accounts for its remarkable performance which, indeed is, comparable to many 10-tube receivers. This set is really the ultimate in so-called "personal" radios. Place one in your own room or den and be independent of the regular home radio. Why wire an extension speaker into your room when, with a few dollars more you can have a radio all your own?

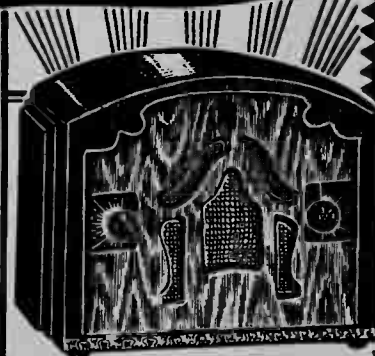
This receiver is equipped with a real dynamic speaker and reproduces the original broadcast with amazing clearness and fidelity of tone. The set will operate on either A.C. or D.C. 25 to 60 cycles at 110 volts. Employs the very latest type tubes, namely, 1-43, 1-44, 1-77, 1-78 and a 2525 mercury vapor full-wave rectifier. Has a built-in aerial which entirely eliminates the nuisance of putting one up on the outside. Furthermore, a special so-called voltage-doubling tube permits the same type of performance with this receiver as is obtainable on regular 110 A.C. sets. The chassis is fully shielded and is contained in a genuine walnut two-tone cabinet of unusual design. Shipping weight, 22 lbs.

List Price \$30.00

No. 505D A.C.-D.C. 5-tube Superheterodyne Receiver.

YOUR PRICE

**\$19.50**



LICENSED BY **RCA**  
**BUILT-IN AERIAL**  
**VOLTAGE DOUBLING**  
**WITH RCA TUBES**  
LICENSED

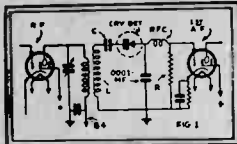


## B.M.S. Fixed Crystal Detectors

(Iron Pyrites type)



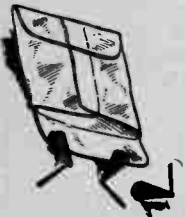
The demand for these fixed crystal detectors has actually increased despite the remarkable development of vacuum tubes. This is partly due to the fact that these crystals are now finding their way into modern television and broadcasting receivers. All experimenters remember when crystal detectors were used in the old broadcast receivers and the almost perfect quality of speech and music obtained from them. These same fine qualities of faithful reproduction have always been appreciated by radio engineers and experimenters. A crystal detector is more positive in its action than a vacuum tube detector. A vacuum tube, when operated as a detector, is not a very efficient device. Many troubles encountered in receiver construction, such as oscillation, motor-boating, and distortion can, in many cases, be traced directly to the use of an imperfect detector tube or a tube operated from the same "B" supply as the remainder of the tubes. **IT IS NOW PREFERABLE TO EMPLOY THE TUBE WHICH WOULD OTHERWISE BE THE DETECTOR AS AN ADDITIONAL STAGE OF R.F. AMPLIFICATION AND THEN EMPLOY A FIXED CRYSTAL AS A DETECTOR.** Even in a regenerative set, a crystal may be used, with a separate tube for regeneration. The diagram herewith shows a simple method of coupling a crystal detector to the first stage of a resistance-coupled audio amplifier.



Aside from the above, crystal detectors may of course be employed in their conventional capacity as detectors in building up crystal receivers and particularly, for use in the well-known Gernsback Interflex and Megadyne Circuits where the crystal detector is used instead of the condenser-grid-leak method. The fixed detector illustrated herewith is a particularly sensitive mineral of iron pyrites which is "permanently fixed" in the laboratory. Made to withstand high voltages. Small and compact; entirely enclosed in a bakelite housing. Shipping weight, 6 oz.

List Price \$1.00  
No. 318 Fixed Crystal Detector  
YOUR PRICE **\$0.54**

## "Catwhisker" Springs



These springs must be used in conjunction with the open type of crystal (listed on opposite page.) Made of tempered spring metal. Packed 3 to envelope. List Price \$0.35

No. 1658 Catwhisker Contacts,  
3 to Envelope **\$0.10**  
YOUR PRICE \_\_\_\_\_  
per envelope

# Air King SUPER HET RECEIVER

## 5 TUBES



This receiver is without question, the least expensive of standard super-heterodyne sets. It takes advantage of the latest type tubes in such a manner as to give ten-tube super-heterodyne performance. This is not an exaggeration but an actual fact. There is no grief with this receiver. It does everything we say it does.

### 10 Kilocycle Selectivity

Extremely sensitive and selective, having fully 10 kilocycle selectivity, this receiver will bring in more stations from greater distances than you have ever received before with your old radio. It is so radically priced that it can be used as a second radio in the home. We say this despite the fact that other sets are being sold on the market for as little as \$7.00. If you are to buy a so-called second home radio, why invest in a set which will last you only several months as these cheap ones no doubt will? We have a pleasant surprise in store for you when you purchase this superheterodyne. Placed side by side with your \$250 radio, you will hardly be able to distinguish the one from the other, judging by volume and tone alone.

### All Modern Features

The chassis is fully shielded and designed along modern lines and is contained in a beautifully simple cabinet, measuring 16" x 12 3/4" x 9 3/4". All modern features such as **TONE CONTROL, FULL DYNAMIC SPEAKER, ILLUMINATED VERNIER TUNING DIAL,** etc., are included. The receiver is LICENSED UNDER R.C.A. patents and is sold complete with R.C.A. (licensed) tubes. Designed for operation on 110-120 volts, 50-60 cycles A.C. Can also be had for 220 volts A.C. operation at an additional cost of \$2. If you live in a D.C. district, we can furnish this model for D.C. operation as well.

List Price \$35.00

No. "Super. 5-456" Air King 5-tube A.C. Super-Heterodyne with R.C.A. (licensed) tubes.

YOUR PRICE **\$22.75**

# TONE! POWER!

10-K-C Selectivity  
DYNAMIC SPEAKER  
10 TUBE Performance

# Air King SUPER HET RECEIVER



## FULL DYNAMIC SPEAKER

TREMENDOUS POWER  
TONE CONTROL PHONO PICK-UP  
AMAZING SELECTIVITY

## R.C.A. Licensed Automatic Volume Control

The latest development, the latest refinements, the latest features are incorporated in this high quality super-heterodyne receiver. The set uses the latest type A.V.C. (automatic volume control) tube which does the work of three individual tubes. This receiver therefore is actually the equivalent of a 10-tube superheterodyne.

Full advantage is taken of the **NEW TUBES** which have recently made their appearance. It is these tubes alone which make possible the perfection of a midget receiver—a perfection which reigns supreme in this super-heterodyne set. The tubes used are as follows: 2-58's; 2-57's (triple-grid tubes)—2-2A3's super-power pentode and 1-40 full wave rectifier. A 3-gang condenser 7 tuned circuits, ten kilocycle separation, full dynamic speaker, full vision spotlight tuning dial, full range tone control and A.C. line noise filter are several of its many features. Provisions are made for connecting a phonograph to the radio for electrical reproduction. One has to go far to surpass the performance of this receiver. Sold with a complete set of R. C. A. licensed tubes.

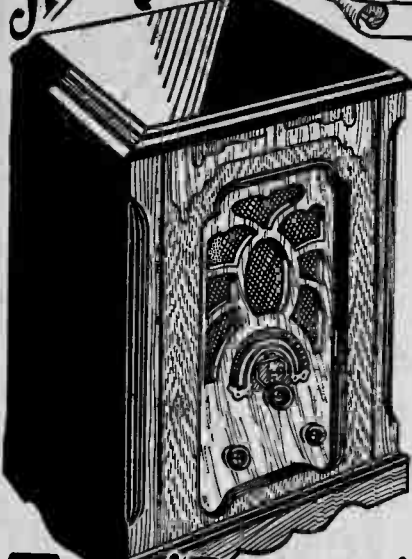
The cabinet is of unusual design, made of two-tone walnut. Measures 20" high x 15" wide x 10 1/2" deep. Ship. wt., 30 lbs.

List Price \$45.00

No. "Super 7" Air King 7-tube Superheterodyne set, including tubes. **\$35.00**  
YOUR PRICE \_\_\_\_\_

RADIO TRADING COMPANY, 100 PARK PLACE, NEW YORK, N. Y.

# Air-King TUBES TRIPLE-GRID RECEIVER



**Employs 5 New Tubes—190-550 Meters  
Full Dynamic Speaker—Full-Range  
Tone Control**

This Receiver is "miniature" in price and size only but is **COLOSSAL IN TONE AND GENERAL PERFORMANCE**. It should not be confused with the so-called "super-midget" receivers which are at the present time flooding the market. Such receivers, despite advertising ballyhoo to the contrary, will last only several months and no longer.

The set employs five of the newest type tubes, namely, 2 triple grid 58's, 1 triple grid 57, a super-power 47 pentode and the latest type 280 rectifier tube with the dome-shaped top. A full 8" dynamic reproducer which is perfectly matched to the receiver chassis, assures indiscriminate reproduction of both high and low notes.

Just what do these remarkable features mean? Interpreted in more simple terms, they mean that this powerful midget receiver offers considerably more in value and entertainment than do many more expensive receivers. They mean amazing selectivity, greater volume, finer tone, finer performance and more enjoyable reception. Interference from powerful stations, distortion of voice and music and internal set disturbances are entirely eliminated. **STATIONS WHICH YOU HAVE NEVER HEARD BEFORE ARE ADDED TO YOUR LOG BOOK.**

The chassis is solidly constructed and fully shielded, permitting no strange noises or extraneous signals but the one you desire to hear, from entering the circuit. The entire chassis is put up in an attractive, beautifully grained, two-tone cabinet. Beautiful because it is simple. No loud designs or gaudy carvings. These are eliminated. The illustration shows the Flat top model. Measures but 16" x 12 3/4" x 8 3/4". Shipping weight, 20 lbs. List Price \$40.00 complete with R.C.A. licensed tubes.

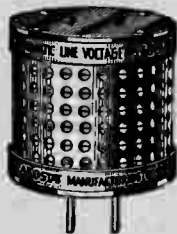
**\$22.60**

## TONE! POWER! BEAUTIFUL STANTON CABINET

Cabinets are available in either Gothic style or Flat top style. Tuning is accomplished with a high ratio vernier dial. Designed for operation on 110-120 volts, 50-60 cycles A.C. THIS RECEIVER MAY BE HAD FOR 110 VOLTS D.C. OPERATION IF SO DESIRED. Shipping weight, 20 lbs. List Price \$40.00 complete with R.C.A. licensed tubes.

**Prolong the Life of Your Receiver  
WITH A**

### Clarostat Automatic Line Voltage Regulator



The Clarostat Automatic Line Voltage Regulator, illustrated here, is designed for use with 110 volt socket power radio sets not equipped for line fluctuations. It is made in six types of different electrical characteristics, each type being designed to meet the requirements of various classes of receivers of different watt ratings.

At 110 volts, the resistance of the unit is low and the voltage drop across it is negligible. As the line voltage increases, however, the resistance of the unit increases with a consequent increase in voltage drop across it keeping the voltage across the primary of the power transformer of the set practically constant, even though the line voltage increases up to 140 volts.

To install this type of unit, all that is necessary is to insert the usual attachment plug of the radio set into the slots provided in the top of the unit. Then insert the prongs of the unit into the slots of the usual screw type plug or convenience outlet of the electric light system.

The body dimensions of this unit are only 1 1/4 ins. in diameter and 1 3/4 ins. in length. The prongs are 3/4 in. long. Shipping weight, 10 oz.

List Price \$1.75

No.	Rating Watts	For Use with Sets Consuming
A	50	Up to 60 Watts
B	100	60 to 100 Watts
C	150	100 to 150 Watts
D	200	150 to 200 Watts
E	250	200 to 250 Watts
F	100	60 to 100 Watts

Note\*: For use with 220 volt receivers.

**\$0.95**

YOUR PRICE

## Stromberg-Carlson Portable Pickup and Turntable For P.A. Systems and Home Recording

Now Enjoy Phonograph Records Reproduced Electrically Through Your Present Radio Receiver



This marvelous new instrument will double the value and pleasure of your present radio.

Takes but a second to attach. Just place the pickup on the record and hear the deep, clear, melodious strains electrically reproduced right through your own radio.

This electric victrola is powered by the famous Prime induction-type motor which is **GUARANTEED NOT TO CREATE ANY DISTURBANCES IN YOUR RADIO**. It is equipped with a genuine Stromberg-Carlson magnetic pickup—a unit which is being used throughout the world in large theatres, dance halls, etc., etc.

Furthermore, underneath the motor is mounted a special impedance-matching transformer which accurately matches the pickup unit to your radio so that there can be no possibility whatsoever of distortion. The entire outfit is put up in a handsome leatherette-covered carrying case, measuring 16 1/2" x 11 1/4" x 8". Not only can this phono-pickup outfit be used in the home, but it is excellently suited for sound trucks, open-air meetings, etc. Ship. wt., 22 lbs. List Price \$45.00

No. B7106 Stromberg-Carlson Pickup and Turntable.

YOUR PRICE

**\$16.95**

## A "Replacement" Receiver

**5 Tube Super-Heterodyne Complete With R.C.A. Licensed Tubes and Dynamic Speaker**

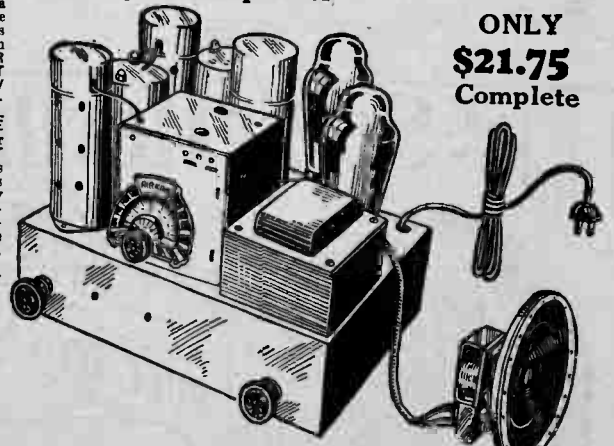
If YOU are among the many thousands of radio fans who, a few years back, bought expensive receivers in expensive cabinets ranging in price anywhere from \$200 to \$500, HERE IS YOUR CHANCE TO REPLACE THAT OLD RECEIVER WITH A NEW UP-TO-THE-MINUTE SUPER-HETERODYNE SET AND STILL RETAIN YOUR EXPENSIVE CABINET. This little receiver is so compact that it will FIT INTO ANY CABINET, regardless of size or make. Yet, small as it is, it will equal and in many cases surpass 10 tube ultra-modern receivers. The reason, naturally, lies in its use of the very latest type tubes, namely, 2-57's; 1-58; 1-47 and 1-80.

Its high degree of sensitivity and amazing selectivity will surprise you. It receives ALL the local stations and many distant ones. The set is so sensitive that a three foot dangling wire will serve as an antenna. Of course, the longer the antenna (up to a maximum of 100 ft.), the more powerful will reception be. The chassis measures but 8 1/2" wide x 6 1/4" deep x 6 1/2" high overall.

Unlike other super-heterodyne receivers, THIS SET WILL NOT OSCILLATE OR SQUEAL in the least. Radical changes both in design and construction have completely eliminated these "birdies". Furthermore, due to the absence of these squeals which, technically speaking, indicates an oscillating receiver, code stations cannot be intercepted and therefore cannot interfere with broadcast programs.

All component parts are of the highest possible quality and are mounted on a totally shielded chassis. Even the bottom of this chassis has a metal plate to prevent stray signals from entering the receiver.

Tuning is accomplished by means of an illuminated "ghost-light" dial; that is, instead of the usual pointer, a thin streak of light sweeps across the face of the



**ONLY  
\$21.75  
Complete**

dial and illuminates only that portion of the dial which is being read at the moment. The 3 controls which are provided serve respectively as volume control, station selector and combination power switch-control.

YOU WILL MARVEL AT THE NATURAL LIFE-LIKE ONE ISSUING FORTH. The chassis is sold complete with a set of R.C.A. licensed tubes and matched dynamic speaker. Shipping weight, 15 pounds. No. S-5-RPL 5 Tube Super-Heterodyne Replacement Chassis complete with R.C.A. licensed Tubes and Dynamic Speaker.

Speaker.  
YOUR PRICE

**\$21.75**

# THE TRUTH ABOUT ELIMINATION OF RADIO NOISE

## IT IS EASY, IF YOU KNOW HOW, TO KEEP RADIO NOISE OUT OF YOUR SET

Inasmuch as modern sets are fully shielded, there are but two channels through which man-made static, or radio noise can enter your receiver; namely through the antenna system and through the power line.

Man-made static is created by electrical machinery and appliances such as, motors, electric fans, vacuum cleaners, oil burners, etc., etc. The nature of the noise created is two-fold being both radio frequency and an audio frequency. Most of the radio frequency energy thus created is freely radiated into the air. A small portion of it is fed into the power or electric line. All of the audio frequency energy is fed directly into the power lines. Hence, your radio receiver may pick up this energy through one or both of the channels mentioned above. Let us consider first the antenna system.

Most of the radio frequency noise is not radiated very far, hence, the antenna proper which is on the roof of the building, is almost always out of the field of such noise. The lead-in wire on the other hand, is directly in the field and hence, picks up most all of it. It stands to reason therefore, that if a lead-in system could be devised which would be immune to the pick-up of such radio frequency noise, fully one half of the problem of noise pick up, would be solved.

Such a lead-in system has been devised and is sold in kit form. The Tobe Filterizer kit listed on this page is a very excellent example of such a system. High impedance lead-in lines are very sensitive to R.F. noise radiation, whereas low-impedance lines are extremely insensitive. The Tobe Filterizer kit which consists of two R.F. matched transformers connected by shielded wire, reduces the high impedance of the antenna proper to a very low impedance which is fed into the shielded lead-in wire. At the receiver, this low impedance is stepped-up

once more to the original high impedance of the antenna. Complete elimination of R.F. noise pick-up by the lead-in is thus achieved. The only other way through which noise can enter your set is the power line or electric outlet.

It is not always enough to place a so-called line filter between the radio set and the electric outlet. We must try to prevent noise from getting into the power line instead of attempting to eliminate it after it has entered. In order to prevent such noise from entering the power line it is necessary to place a line filter between each piece of electrical machinery causing the disturbance and its particular electric outlet.

For light duty motors or electrical appliances, a light duty line filter is sufficient. Such light duty devices usually consist of two or more condensers placed in series across the line and grounded at their center points. For heavy duty machinery and appliances, a larger line filter is desirable. Heavy duty line filters usually consist of a combination of two or more condensers and one or two choke coils. The combination of choke coil and condenser forms an oscillatory circuit which resonates to the frequency of the disturbance, thus "absorbing" or filtering them from the line.

To sum up, therefore, if you desire absolute noise-free reception, you will need a special antenna lead-in system and as many line filters as there are electrical appliances in the house. If the line noise is not too heavy or serious, a single filter (designed specially for the purpose, No. RF-2) placed between the radio and electric outlet, may eliminate it. Otherwise, if the noise is heavy, it must be eliminated at its various sources.

### TOBE Antenna Filterizer Kit



This Filter kit prevents radio noise from entering the receiver through the antenna and lead-in system. It comprises two matched R.F. Transformers, one attached directly to the aerial on the roof and the other to the receiver. A 75 ft. length of shielded transmission wire is furnished for connecting the two transformers.

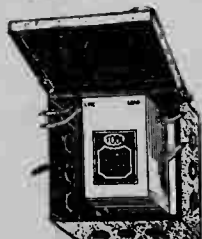
The antenna transformer is provided with weather-proof insulation so that the line characteristics are not affected by atmospheric conditions. The transmission wire is small and extremely flexible for easy and inconspicuous installation. The receiver transformer is provided with spring clips so that no tools are required for connecting it to the receiver. This latter unit has both high and low impedance taps to match all types of broadcast receivers. Try each of these taps for best results.

The Tobe Antenna Filterizer Kit may be used with all broadcast receivers and may be depended upon to provide maximum relief from local man-made static which usually enters an unprotected antenna system. This kit should preferably be used in conjunction with suitable line filters for complete elimination of noise. Ship. wt., 6 lbs.

List Price \$5.45

No. 23 Tobe Antenna Filterizer Kit. **\$3.20**  
YOUR PRICE

### TOBE Filterette OB-110 Line Filter



This Filterette is particularly designed for application to oil burners. It is contained in a metal cut-out box 7"x6 1/2"x3 1/4". Detachable clamps are provided so that the Filterette may be mounted either on a pipe standard or against a flat surface. Filterette OB-110 is equally suitable for application to all type burners using electric ignition (Williams Oil-O-Matic, Electrol, Silent Automatic, May and others) or to burners using a universal motor for driving the blower and atomizer. Maximum potential 110 volts A.C. or D.C. Maximum current 4 amperes. Ship. wt., 5 lbs.

List Price \$9.50

No. OB-110 Filterette Line Filter. **\$5.59**  
YOUR PRICE

### TOBE Filterette Junior Line Filter



A compact, easily installed Filterette for application to electrically operated household appliances. Vacuum cleaners, small hair driers, fans, cash registers and barber clippers are among the many appliances easily made interference-free by use of the Filterette Junior. Constructed in a bakelite case 1 1/2" in diameter and 2 1/2" long. Provided with a binding post to facilitate the connection of a short return wire from the Filterette to the frame of the appliance. May be used on either A.C. or D.C. Approved by Underwriters Laboratories. Maximum potential 110 volts A.C. or D.C. Ship. wt., 1/2 lb.

List Price \$2.25

No. "Filt. Jr." Filterette Junior Line Filter. **\$1.33**  
YOUR PRICE

### Tobe Filterette "JA" Line Filter

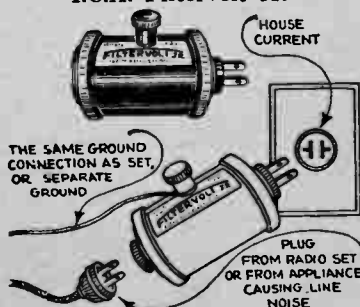


Designed for mounting directly on the frame of a small motor or electrical appliance. Provided with a metal bracket to allow this mounting. Contained in a bakelite tube 1 1/2" in diameter and 2" long. Three flexible leads are brought out of the Filterette. One of these connects to the frame of the appliance and the two remaining leads connect to the motor brushes. This Filterette is particularly recommended for application to appliances which are normally so used that there is a slight strain on the attachment cord. Portable electric tools are the appliances most commonly requiring this Filterette. May be used on either A.C. or D.C. Maximum potential 110 volts D.C. or A.C. Ship. wt., 1 lb.

List Price \$2.25

No. "JA" Tobe Filterette Line Filter. **\$1.33**  
YOUR PRICE

### I.C.A. Filtervolt Jr.



The I.C.A. FILTERVOLT, JR., is the now famous Light Duty Noise Eliminator that eliminates noises caused by electric blenders, switching on and off of lights, electric toasters, vacuum cleaners, small motors of 1/16 horsepower or less, and minor disturbances caused by electric appliances.

A small compact unit. Housing body made of black enameled metal with brass nickel plated end rings. Shipping weight, 1 lb.  
No. 2239 I.C.A. Filtervolt Jr. **\$1.70**  
YOUR PRICE

### TOBE Filterette 110-PO Line Filter



The application of this Filterette is similar to that of the Filterette Senior, except that it is used when the interfering apparatus is connected to an ungrounded supply line or is located at a considerable distance from the entrance of a grounded neutral wiring system. Recommended for electric refrigerators, heating pads, fruit juice extractors and adding machines. Mounted in a metal case 5 1/2"x3 3/4"x1 1/2" and provided with a receptacle and attachment cord for connection to the power receptacle and appliance. A binding post is provided to allow the use of a short return wire connecting the Filterette to the frame of the interfering appliance. May be used on either A.C. or D.C. Approved by Underwriters Laboratories. Maximum potential 110 volts A.C. or D.C. Maximum current 5 amperes. Ship. wt., 4 lbs.

List Price \$10.50

No. 110-PO Tobe Filterette Line Filter. **\$6.17**  
YOUR PRICE

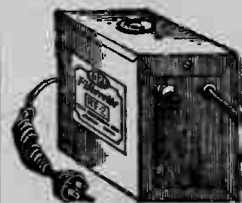
### Tobe Filterette Senior Line Filter

For application to portable electrical appliances causing a more intense type of interference than may be suppressed by the Filterette Junior. Most satisfactory for use on grounded neutral wiring systems. Contained in a cylindrical metal case 2" in diameter and 4" long. Connected between the power receptacle and the appliance by means of a standard attachment cap and receptacle. Provided with a binding post to simplify the connection of a short return wire from the Filterette to the frame of the appliance. May be used on either A.C. or D.C. Approved by Underwriters Laboratories. Maximum potential 110 volts A.C. or D.C. Maximum current, 5 amperes. Ship. wt., 1 lb.

List Price \$5.50

No. "Filt. Sr." Filterette Senior Line Filter. **\$3.23**  
YOUR PRICE

### TOBE Line Filterette RF-2 Line Filter



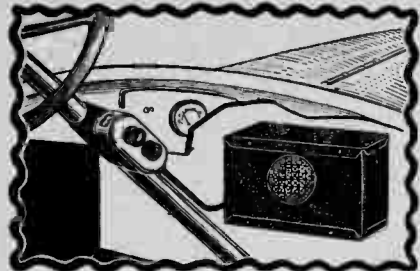
Tobe Line Filterette RF-2 is designed for use only in conjunction with the new Tobe Filterizer Kit, Type 33, when it is found that noise is entering the receiver through its power line connection. Connects between the receiver and power line. Not suitable for application to electrical appliances. Ship. wt., 4 lbs.

List Price \$4.95

No. RF-2 Tobe Line Filterette. **\$2.91**  
YOUR PRICE

# Performance That Thrills!

## STEINITE ALL-ELECTRIC AUTO RADIO



**6 TUBE SUPERHETERODYNE**  
**AUTOMATIC VOLUME CONTROL**  
**ONE-HOLE MOUNTING**

### Eighteen Star Points of Superiority

- \* Complete in One Unit
- \* All-Electric—No Batteries
- \* Superheterodyne Circuit
- \* Single Hole Mounting
- \* Dynamic Speaker
- \* 3-Gang Condenser
- \* 10 K.C. Selectivity
- \* Utah Remote Control
- \* Illuminated Dial
- \* Automatic Volume Control
- \* Newest Type Tubes
- \* Compact
- \* Completely Shielded
- \* 2 Microvolt Sensitivity
- \* 10-Tube Performance
- \* Beautiful Crackle Finish Case
- \* FREE FROM MOTOR NOISE
- \* Extremely Low Cost

The New SUPER-STEINITE 6-tube all-electric superheterodyne Auto Radio is the finest example of advanced automobile radio engineering. Nothing has been overlooked to make this set the supreme auto radio value in America today.

Its circuit is entirely new and furnishes performance that is sensational in every respect. It is completely electric in operation and requires no "B" batteries or "E" eliminators. Only one hole is required for mounting as it is absolutely self-contained except for the remote control.

The SUPER-STEINITE DE LUXE set has everything necessary to make it America's greatest value—AUTOMATIC VOLUME CONTROL, built-in VIBRATOR RECTIFIER POWER SUPPLY, a 5" heavy duty DYNAMIC SPEAKER built right in the set, a 3-GANG CONDENSER, 10 K.C. SELECTIVITY, ILLUMINATED DIAL and the very latest gear-driven steering column remote control.

It produces a beautiful, clear tone with ample volume, absolutely free from motor noise. The set is completely shielded and there is no back-lash from the remote control. The 3-gang condenser and 2 microvolt sensitivity, which is flat across the entire wave band, brings in reception clearly and without a trace of interference, from the most distant stations. The performance is equal to that of a 10-tube Home radio.

Here is the ultimate in auto radio performance. To really appreciate the remarkable value in this model, it is necessary to hear it in operation. Read over its 18 star points of superiority listed above and remember—IT IS PRICED WITHIN THE REACH OF ALL. If you are a service man, it offers you your greatest opportunity for profit since the start of auto radio development.

The set is compact, easily and quickly installed. Measures 11" x 6 1/4" x 7 3/4". Uses the very latest type of auto radio tubes: 2-6D6; 1-6A7, 1-6B7, 1-89 and 1-84. Shipping weight, 20 lbs.

List Price \$45.00  
 No. "Super-Steinlite" Steinite 6-tube Superheterodyne Auto Radio. Complete with tubes, suppressors and ignition condenser.  
**YOUR PRICE \$35.10**

### Tobe Auto Radio Filterizer



Keeps noise out of the automobile radio and boosts signal intensity. May be used with either roof aerial or under-car aerial. For use with any radio in any car. Complete kit includes one Auto Aerial Filterizer with 10 feet shielded lead-in, one ammeter or electric heater Filterette, one combination dome light or tail light Filterette and a complete set of installation instructions.

List Price \$4.95  
 No. 36 Tobe Auto Radio Filterizer.  
**YOUR PRICE \$2.91**

### Polymet Auto-Noise Eliminators

Specially designed condensers for use on automobiles carrying radios. Their function is to absorb the excess energy which causes sparking at the interrupter, and thus static in the radio. In use they are "shunted" across the contact breaker. Made to withstand all conditions of temperature and vibrations. Available in two sizes. Shipping weight, 1/4 lb.

No. C1050 Auto Condenser 0.5 Mfd; size 2 1/4" x 1 1/4" Diam. **\$0.42**  
 YOUR PRICE  
 No. C1051 Auto Condenser 1.0 Mfd; size 3 1/4" x 1 1/4" Diam. **\$0.54**  
 YOUR PRICE



### Deluxe Auto Running Board Antenna



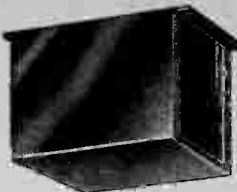
NOTE THESE FEATURES: Sturdily constructed, will not break or crush; impossible to "short" or "ground" to the metal chassis of the car; employs triple action spring suspension system; affords a permanent installation; easily installed in a few minutes by anyone; high tension non-shorting wire lead; all parts sturdily constructed and rust-proof; universally adaptable to every automobile; large copper surface, hence affords excellent reception under all conditions; special rubber splash guard furnished with each antenna; usually attached to the unders side of either running board. Shipping weight, 8 lbs.  
 No. 347 DeLuxe Auto Running Board Antenna **\$1.80**  
 YOUR PRICE

### Auto Roof Antenna

This Roof Antenna can be easily inserted in any automobile by opening the roof lining about a foot, inserting the aerial and running the lead wire down the corner post to the radio set. For open cars, the roof antenna can be slid between the folds. The Roof Antenna measures 13" x 33" and utilizes a fine grade of pure copper entirely encased in a specially prepared cloth. It provides ample pick up and selectivity for any automobile radio. Ship wt. 2 1/2 lbs.  
 List \$1.50  
 No. 342 Auto Roof Antenna **\$0.90**  
 YOUR PRICE



### Auto "B" Battery Box



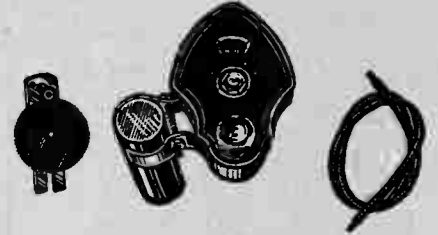
This neat-appearing, heavy-gauge, metal box was designed especially for housing three standard 45 volt "B" batteries for use with automobile radios. Measures 10 1/2" x 8 1/2" x 8" and is provided with two convenient mounting flanges and removable metal cover.

Not only can this box be used for "B" batteries, but it is an ideal housing for a home-made automobile radio. Both speaker and chassis may be attached to the removable cover and the whole thing then easily slid out of the metal container for easy service work. Sbp. wt. 8 lb.

List Price \$4.50  
 No. B7401 Auto "B" Battery Box.  
**YOUR PRICE \$1.00**

### "Universal" Remote Control For Auto Radios

Absolutely No "Back Lash" Or Play



One of the salient features of this remote control unit is the total absence of "back lash". Stations can be logged with absolute fidelity on the dial of this unit. The secret of this feature is a set of matched, high ratio vernier gears as well as a specially constructed flexible drive cable. Some of its other fine features are:

**LOCK SWITCH AND VOLUME CONTROL**—prevent tampering with battery and enables accurate volume adjustment without affecting tone quality.

**MICROMETER TUNING**—accurately calibrated, illuminated scale permits hair-line adjustment through proper gear reduction.

**ILLUMINATED DIAL**—indicates at a glance whether the set is on or off.

**DRIVE CABLE**—ingeniously designed, prevents "back lash" when tuning.

**ESCUTCHEON**—elegant, embossed, old bronze finish—blending with average car hardware and instruments.

**CONTROL HOUSING**—pressed steel, black Japanned, embodying exclusive engineering features.

Available in two models—type "L" control, is a SINGLE cable drive control for tuning the variable condenser. The volume control is a part of the remote control housing, functioning as a combined lock switch and volume control. Type "R" is a DOUBLE drive cable control. One cable for the tuning condensers and the other, operated by a key, for turning the volume control, when it is an integral part of the receiver itself. Ship. wt., 2 1/2 lbs.  
 List Price \$6.00

No. L Single Cable Remote Control.  
 No. R Double Cable Remote Control.  
**YOUR PRICE, each \$4.05**

### Lynch Automobile Spark Plug Noise Suppressors

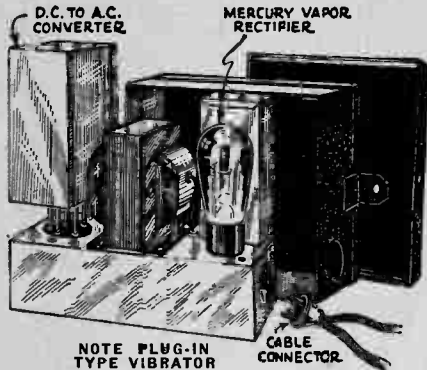
Lynch Suppressors for Auto Radio use are based on the famous Metallized principle which has proved its dependability where day in and day out performance is of paramount importance. These units are moisture proof, rugged and able to withstand heavy mechanical shocks. They have been subjected to exhaustive tests in the laboratories of leading manufacturers and have successfully passed examination under the most exacting conditions. These suppressors are absolutely essential to noise-free operation of automobile radio receivers. The capacity of these resistors is extremely low—less than 0.5 micro-microfarads. The resistance range is 15,000 ohms or optional.



No. SS Spark Plug Suppressor for connection to each Spark Plug  
 No. DS Distributor Suppressor for connection to common cable from distributor  
 No. CS Cable Type Suppressor for connection in each cable lead from distributor  
 List Price \$0.60  
**YOUR PRICE, each \$0.36**

# ELECTRIFY YOUR AUTOMOBILE RADIO!

## New Design Auto "B" Eliminator PLUG-IN TYPE VIBRATOR



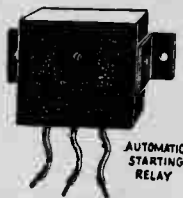
The most outstanding feature of this eliminator is its magnetic converter unit which changes the direct current of the storage battery to alternating current. This unit is of the FULL-WAVE VIBRATOR TYPE and is built into a SOUND-PROOF metal container, having standard tube prongs on the bottom so that the

entire unit may be replaced when worn out as easily as a tube.

The only part of any vibrator-type auto "B" eliminator that wears out is the magnetic vibrator. Why discard an expensive eliminator just because a single part has become worn out? In this eliminator you merely remove this unit and replace it with another as simply and as quickly as you would an ordinary radio tube.

This new eliminator is a proven and time tested power unit which insures uniform, dependable auto radio reception. It is simplified in construction and quiet in operation. Requires no oiling or greasing whatever. Easily installed in any part of the car. Has an output of 40 MILLIAMPERES AT 180 VOLTS WITH AN INTERMEDIATE TAP OF 90 VOLTS. Furnished with a special power relay which automatically turns on the eliminator when the auto radio is turned on. Measures but 7 1/4" x 6 3/4" x 3 1/4". Shipping weight, 12 lbs.

List Price \$15.50  
No. ATR-B Auto "B" Eliminator,  
including rectifier tube.  
YOUR PRICE **\$11.25**



## ELECTRIFY YOUR AUTO RADIO! With the Radiart Auto "B" Power Unit

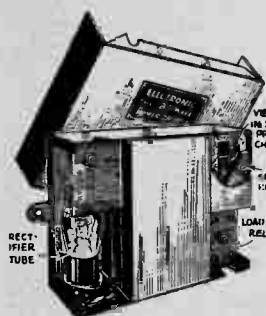
This "B" Power Unit does away entirely with cumbersome "B" batteries, as well as with the expense of replacing them from time to time. The Radiart Auto "B" provides an unwavering source of power—constant, reliable, it can be used on any make of auto radio. Incorporates no rotary parts whatsoever—requires no oiling, no attention. It is amazingly compact, measuring but 7 1/2" x 3" x 4 1/2" and hence can be placed in any inconspicuous part of the car. Its operation is amazingly quiet and entirely automatic. Sold complete with tube and instructions for installation.



SPECIFICATIONS: The Eliminator delivers 40 mls at 180 volts and consumes 2 1/2 amps. from the storage battery. Ship. wt., 8 lbs.

List Price \$15.75  
No. F-1 Radiart Auto "B" Power with tube.  
YOUR PRICE **\$9.26**

## New Electronic Full-Wave Auto "B" Eliminator



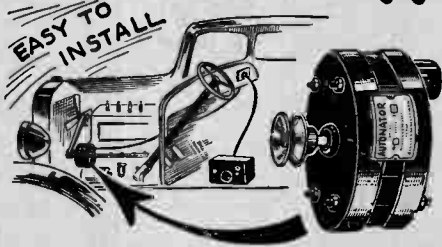
In design, as well as construction, the Electronic Full-Wave Auto "B" eliminator is without question the most advanced unit of its kind. It has an efficiency of better than 50%—A REMARKABLE ACHIEVEMENT IN EQUIPMENT OF THIS TYPE. The full-wave vibrator itself has an individual efficiency of 70%. This means that it never fails to operate immediately, that it

never "sticks" and that the output is steady and free from radio frequency hum. THIS FEATURE ALONE IS WORTH THE PRICE OF THE ENTIRE ELIMINATOR. If you are a radio or an electrical man you will understand what a "sticking vibrator" means—how quickly it will run down a car battery. An auto "B" eliminator is no better than its vibrator. The "Electronic" embodies features never before used in any eliminator unit—it has many important and advanced points of superiority enumerated below.

### SOME POINTS OF SUPERIORITY

**COMPLETELY AUTOMATIC.**—An automatic relay incorporated in unit turns on the Eliminator the minute the set itself is turned on. **NEW "AUTOMATIC LOAD DELAY" CIRCUIT.**—Its use gives full protection to and insures long life of the full-wave High Vacuum rectifier tube as well as the interrupter. **HIGH EFFICIENCY.**—The new "Eliminator" has an efficiency of more than 50%—higher efficiency than any other Eliminator on the market. **NO HUM OR INTERFERENCE.**—The "Electronic" creates no radio or mechanical disturbance. **NO ROTARY PARTS.**—The design and construction of the "Electronic" are such that there are no rotary parts whatever to require even occasional attention. **ELECTRICAL SPECIFICATIONS.**—This unit furnishes 35 mls at 200 volts and draws 2.35 amps from the storage battery. **SMALL IN SIZE.**—The entire unit measures but 7 1/2" long x 6 3/4" deep x 2 1/2" high, thus easily permitting installation in any part of the automobile. Shipping weight, 7 1/2 lbs. No. AA-4 "Electronic" Full Wave "B" Eliminator, including tube. **YOUR PRICE \$10.15**

## NEW! THE NEW AUTONATOR



Delivers  
110 VOLTS, 60 CYCLE A.C.  
IN YOUR CAR



## THE "AUTONATOR" 110 VOLT A.C. AUTO GENERATOR Excellent for Public Address Systems

This device is indeed the most outstanding development in automotive electrical engineering in years. A new source of economical electric power, right in your car! **ABSOLUTELY TROUBLE-PROOF—USES NO CURRENT FROM THE AUTOMOBILE BATTERY—NO COST TO OPERATE—NO BRUSHES OR COLLECTOR RINGS—CAN'T BURN OUT FROM OVERLOAD—DELIVERS STEADY REGULATED CURRENT.**

This generator mounts directly on the motor block and is driven by the fan belt. It is in no way connected to the ignition system of the car.

Imagine all the many possibilities of this new device. It will operate your house radio, vacuum cleaner to clean the car, electric fan for summer driving, portable electric drill for odd jobs and many other appliances. It can be USED TO OPERATE 110 VOLT A.C. PUBLIC ADDRESS SYSTEMS as well as advertising neon signs. For the camp or summer bungalow it affords a complete electric lighting system and gives you the same conveniences which you have at home. The generator operates only when the motor is running. The voltage is regulated between 90 and 120 volts, depending on the speed of the motor. It has been so designed, that the voltage cannot increase beyond 120 volts, regardless of motor speed.

The new Autonator, because it develops its own alternating current independently of the ignition system, gives remarkable automobile radio reception, free from

auto ignition noises. It makes possible better tone and improved reception. **THE AUTONATOR FURNISHES THE SAME TYPE OF ELECTRIC CURRENT IN THE AUTOMOBILE AS YOU HAVE IN YOUR HOME.** This device is EXTREMELY SIMPLE TO INSTALL—a half hour work for a handy mechanic. It is furnished complete with armored cables, standard double outlet box, switch and suitable mounting brackets. Available in several different sizes, as shown below. Make sure that you choose an Autonator with the proper power rating (watts) for your particular work. Shipping weights range from 20 to 45 lbs., depending upon size.

### SPECIFICATIONS

Cat. No.	Watts	Size Dim. XL.	YOUR PRICE
50 W	50	6 1/4 x 4 1/2	<b>\$21.95</b>
100 W	100	6 1/4 x 5	<b>25.31</b>
150 W	150	6 1/4 x 5 1/2	<b>27.93</b>
250 W	250	6 1/4 x 5 3/4	<b>47.04</b>
350 W	350	6 1/4 x 6 1/4	<b>60.45</b>
450 W	450	6 1/4 x 7	<b>75.94</b>



# Neontron Radio Tubes

GREATEST VARIETY

LOWEST PRICES



6 MONTHS GUARANTEE

OVER 100

DIFFERENT TYPES

We present on this page the greatest variety of radio tubes ever published in any catalog—more than 100 different types. Many tubes for special purposes are listed here that cannot be found elsewhere. Neontron tubes are of first grade, R.C.A.-Licensed quality and should not be confused with any of the many independent brands which have recently appeared on the market. Neontron tubes are guaranteed for six months. Any tube that fails to make good for ANY reason will be replaced free of charge within 6 months, providing the filament still lights. No replacements after six months.

## Free Tube Offer

With the purchase of tubes amounting to \$3.50 or more we will give—FREE OF CHARGE—a copy of the well known book "Modern Vacuum Tubes."

### Specifications

Cat. No.	Type	Description	Filament Voltage	YOUR PRICE
600	2A3	Power Amp. Triode	2.5	\$1.65
601	2A5	Power Amp. Pentode	2.5	.90
602	2A6	Power Amp. Pentode	2.5	.90
603	2A7	Pentagrid converter	2.5	1.28
604	2B7	Duplex-Diode pentode	2.5	1.10
605	6A7	Pentagrid converter	6.3	1.28
606	6B7	Duplex Diode pentode	6.3	1.10
607	UX-200A	Detector	5.0	.60
608	UX-201A	Detector amplifier	5.0	.36
609	UX-210	Power Amp. oscillator	7.5	1.65
610	WD-11	Detector amplifier	1.1	.90
611	WD-12	Detector amplifier	1.1	.90
612	UX-12A	Amplifier detector ¼ amp.	6.0	.60
613	UY-551	Super control R.F. amp.	2.5	.75
614	UX-120	Power amplifier	3.3	.60
615	UX-22	Screen Grid radio freq. amp.	3.3	1.10
616	UY-24	Screen grid R.F. amp.	2.5	.60
617	UX-26	Amplifier	1.5	.36
618	UY-27	Detector amplifier	2.5	.36
619	UX-30	Detector amplifier	2.0	.75
620	UX-31	Power amplifier	2.0	.75
621	UX-32	Screen grid R.F. amp.	2.0	.90
622	UY-33	Power amp. Pentode	2.0	1.10
623	UX-34	Super control R.F. amp. pentode	2.0	1.10
624	UY-35	Super control R.F. amp.	2.5	.75
625	UY-36	Screen grid R.F. amp.	6.3	.90
626	UY-37	Detector amp.	6.3	.70
627	UY-38	Power amp. pentode	6.3	.85
628	UY-39	R.F. amp. pentode	6.3	.85
629	UX-240	Voltage amp. detector	5.0	.60
630	41	Power amp. pentode	6.3	.90
631	42	Power amp. pentode	6.3	.90
632	43	Power amp. pentode	25.0	1.28
633	44	R.F. amp. pentode	6.3	.85
634	UX-45	Power amplifier	2.5	.36
635	UY-46	Dual grid power amp.	2.5	.90
636	UY-47	Power amp. pentode	2.5	.75
637	48	Power amp. tetrode	30.0	1.65
638	49	Dual grid power amp.	2.0	.90
639	UX-50	Power amp.	7.5	1.65
639A	53	Class B Twin Amplifier, Tetrode...	2.5	.90
640	55	Duplex diode triode	2.5	.90
641	56	Super triode amp.	2.5	.70
642	57	Triplegrid detector amp.	2.5	.90
643	58	Triplegrid R.F. amp.	2.5	.90
644	59	Triplegrid power amp.	2.5	.90
645	UX-71A	Power amp. ¼ amp.	5.0	.45
646	75	Duplex diode triode	6.3	.60
647	77	Triplegrid detector amp.	6.3	.90
648	78	Triplegrid R.F. amp.	6.3	.90
649	79	Class B Twin amp.	6.3	1.28
650	85	Duplex diode triode	6.3	.90
651	89	Triple grid power amp.	6.3	.90
652	UV-199	Detector amp. short prongs	3.3	.60
653	UX-199	Detector amp. long prongs	3.3	.60
654	UV-199	Detector amp. standard 201A base	3.3	.60
655	UX-112	Amp. detector ¼ amp.	5.0	.60
656	UX-171	Power amplifier ½ amp.	5.0	.45
657	UX-200A	Special Detector, recommended for weak signals	5.0	.75
658	UX-201B	Detector amp. low battery drainage ½ amp.	5.0	.90
659	UY-227A	Detector amp. (quick heater).	2.5	.75
660	UY-224A	Screen grid R.F. amp. (quick heater)	2.5	.75

### Specifications

Cat. No.	Type	Description	Filament Voltage	YOUR PRICE
661	12H	Power amp. pentode	2.5	.90
662	UY-257	Power amp. pentode D.C. fil.	2.5	.90
663	UX-201A	Special Radio frequency	5.0	.75
664	UX-201A	Special Audio frequency	5.0	.75
665	UX-271AC	Special platinum filament power tube	5.0	.90
666	UX-T14	Special (high mu) 201A	5.0	.90
667	UX-201A	Special switch tube double life	5.0	.90
668	UX-182	Sparton type power amp.	5.0	.90
669	UX-183	Sparton type power amp.	5.0	.90
670	UY-484	Sparton type detector amp.	3.0	.90
671	UY-485	Sparton type detector amp.	3.0	.90
672	UX-585	Sparton type power amp.	7.5	2.63
673	UY-686	Sparton type amplifier	3.0	.90
674	UX-401	Kellogg type triode	3.0	1.35
675	UX-403	Kellogg type output triode	3.0	.75
676		Ballast tube to prevent your tubes in set from blowing out		1.35
680	UX-210C	Oscillator and amplifier 15 watts	7.5	3.40



Type 58 Triple Grid Superphonic tube. Heater 2.5 volts at 1 ampere either A.C. or D.C.



Charger Bulb — 2, 5 and 6 ampers. Available in both old and new types for all style chargers.

### Rectifier Tubes and Charger Bulbs

Cat. No.	Type	Description	Filament Voltage	YOUR PRICE
681	2525	Rectifier doubler	25.0	\$0.90
682	1	Half wave rectifier	6.3	.90
683	573	Heavy duty full wave rectifier voltage	5.0	.85
684	UX-280	Full wave rectifier	5.0	.40
685	UX-281	Half wave rectifier	7.5	1.65
686	UX-282	Full wave mercury vapor rec.	2.5	.70
687	UX-283	Heavy duty full wave mercury vapor rec.	5.0	.90
688	UY-84	Full wave rectifier	6.3	.90
689	UX-866	Half wave mercury rec. (heavy duty)	2.5	4.13
690	UX280M	Full wave mercury vapor rectifier	5.0	1.35
691	UX-281M	Half wave mercury vapor rectifier	7.5	1.88
692	UX-871	Half wave mercury vapor rectifier	2.5	1.35
693	UX-872	7500 volts		15.00
694	UX-213	Full wave rectifier	5.0	.90
695	UX-216B	Half wave rectifier	7.5	.90
696	UX-588	Full wave mercury vapor rectifier	5.0	1.35
697		125 ml. rectifier tube B.H. (Raytheon type)		1.73
698		6/10 amp. trickle charger bulb (Tungar type)		2.48
699		2 amp. charger bulb (old type tungar type)		2.48
700		2 amp. charger bulb (new type tungar type)		2.48
701		5 and 6 amp. charger bulb (tungar type)		4.88
702		15 amp. charger bulb (tungar type)		9.38
1223		Half-wave Rectifier	12.6	.90

### Television Tubes and Photo Electric Cells

Cat. No.	Description	YOUR PRICE
704	Photo electric cell from 1½ to 3½" (potassium type)	\$3.38
705	Photo electric cell from 3½ to 6" (potassium type)	5.85
706	Photo electric cell from 1½ to 3½" (caesium type)	5.85
707	Photo electric cell from 3½ to 4½" (caesium type)	8.85
708	Crater tube-size erator from .010 to .250 (cold cathode)	5.63
709	Television Neon tube 1 sq. in. cathode	2.63
710	Television Neon tube ½ sq. in. cathode	3.38
711	Television reflectron 1 sq. in. window 50-60 mils	3.38

GENUINE

GUARANTEED

# Radiotron AND Cunningham TUBES

## Free Tube Offer

We take pleasure in offering with a purchase of tubes amounting to \$3.50 or more from this or any other page in the catalog—FREE OF CHARGE—a copy of the well-known and up-to-date book "Modern Vacuum Tubes." This book is one of the most authoritative on the subject and will be of infinite value to its owners.

## Guaranteed For Six Months

These Radiotrons and Cunningham tubes bear the double guarantee of this company and that of the manufacturer. We guarantee that they will give efficient service for six months. If they "stand up" faithfully during that period of time, there is no question but what they will perform perfectly for the remainder of their natural life. We have yet to receive our first com-

plaint from a customer who has not received satisfaction on our guarantee. We make one exception in that we cannot accept any tube whose filament has burnt out or whose glass envelope is broken. **IF MANUFACTURERS CHANGE PRICES AFTER THIS BOOK GOES TO PRESS THESE PRICES WILL CHANGE ACCORDINGLY.**

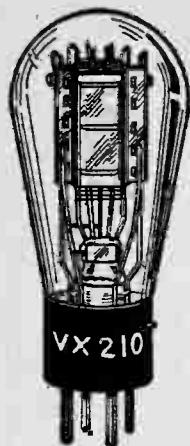


<b>C-2A3</b> POWER AMPLIFIER TRIODE List \$4.00 Your Price <b>\$2.35</b>	<b>C-19</b> TWIN AMPLIFIER List \$1.50 Your Price <b>\$0.88</b>	<b>C-41</b> POWER AMPLIFIER PENTODE List \$1.60 Your Price <b>\$0.94</b>	<b>C-71-A</b> POWER AMPLIFIER TRIODE List \$0.75 Your Price <b>\$0.44</b>
<b>C-2A5</b> POWER AMPLIFIER PENTODE List \$1.60 Your Price <b>\$0.94</b>	<b>C-22</b> R-F AMPLIFIER TETRODE List \$2.00 Your Price <b>\$1.18</b>	<b>C-42</b> POWER AMPLIFIER PENTODE List \$1.60 Your Price <b>\$0.94</b>	<b>C-75</b> DUPLEX-DIODE HI-MU TRIODE List \$1.60 Your Price <b>\$0.94</b>
<b>C-2A6</b> DUPLEX-DIODE HIGH-MU TRIODE List \$1.60 Your Price <b>\$0.94</b>	<b>C-24-A</b> R-F AMPLIFIER TETRODE List \$1.20 Your Price <b>\$0.70</b>	<b>C-43</b> POWER AMPLIFIER PENTODE List \$2.50 Your Price <b>\$1.47</b>	<b>C-77</b> TRIPLE-GRID AMP. DETECTOR List \$1.80 Your Price <b>\$1.06</b>
<b>C-2A7</b> PENTAGRID CONVERTER List \$2.20 Your Price <b>\$1.30</b>	<b>C-26</b> AMPLIFIER TRIODE List \$0.65 Your Price <b>\$0.38</b>	<b>C-44-39</b> SUPER-CON. R-F AMP. PENTODE List \$1.50 Your Price <b>\$0.88</b>	<b>C-78</b> TRIPLE-GRID SUPER-CON. AMP. List \$1.80 Your Price <b>\$1.06</b>
<b>C-2B7</b> DUPLEX-DIODE PENTODE List \$2.00 Your Price <b>\$1.18</b>	<b>C-27</b> DETECTOR AMPLIFIER TRIODE List \$0.70 Your Price <b>\$0.41</b>	<b>C-45</b> POWER AMPLIFIER TRIODE List \$0.75 Your Price <b>\$0.44</b>	<b>C-79</b> TWIN-TRIODE AMPLIFIER List \$2.80 Your Price <b>\$1.53</b>
<b>C-5Z3</b> FULL-WAVE RECTIFIER List \$1.50 Your Price <b>\$0.88</b>	<b>C-30</b> DETECTOR AMPLIFIER TRIODE List \$1.30 Your Price <b>\$0.76</b>	<b>C-46</b> DUAL-GRID POWER AMPLIFIER List \$1.55 Your Price <b>\$0.91</b>	<b>C-80</b> FULL-WAVE RECTIFIER List \$0.70 Your Price <b>\$0.41</b>
<b>C-6A4</b> POWER AMPLIFIER PENTODE List \$1.60 Your Price <b>\$0.94</b>	<b>C-31</b> POWER AMPLIFIER TRIODE List \$1.30 Your Price <b>\$0.76</b>	<b>C-47</b> POWER AMPLIFIER PENTODE List \$1.30 Your Price <b>\$0.76</b>	<b>C-81</b> HALF-WAVE RECTIFIER List \$3.50 Your Price <b>\$2.05</b>
<b>C-6A7</b> PENTAGRID CONVERTER List \$2.20 Your Price <b>\$1.30</b>	<b>C-32</b> R-F AMPLIFIER TETRODE List \$1.90 Your Price <b>\$1.12</b>	<b>C-48</b> POWER AMPLIFIER TETRODE List \$3.00 Your Price <b>\$1.75</b>	<b>C-82</b> FULL-WAVE RECTIFIER List \$1.20 Your Price <b>\$0.71</b>
<b>C-6B7</b> DUPLEX-DIODE PENTODE List \$2.00 Your Price <b>\$1.18</b>	<b>C-33</b> POWER AMPLIFIER PENTODE List \$2.10 Your Price <b>\$1.24</b>	<b>C-49</b> DUAL-GRID POWER AMPLIFIER List \$1.70 Your Price <b>\$1.00</b>	<b>C-83</b> FULL-WAVE RECTIFIER List \$1.55 Your Price <b>\$0.91</b>
<b>C-6F7</b> TRIODE PENTODE List \$1.80 Your Price <b>\$1.06</b>	<b>C-34</b> SUPER-CON. R-F AMP. PENTODE List \$2.15 Your Price <b>\$1.27</b>	<b>C-50</b> POWER AMPLIFIER TRIODE List \$4.00 Your Price <b>\$2.35</b>	<b>C-84</b> FULL-WAVE RECTIFIER List \$1.75 Your Price <b>\$1.03</b>
<b>C-12Z3</b> HALF-WAVE RECTIFIER List \$1.20 Your Price <b>\$0.70</b>	<b>C-35</b> SUPER-CON. R-F AMP. TETRODE List \$1.30 Your Price <b>\$0.76</b>	<b>C-53</b> TWIN-TRIODE AMPLIFIER List \$1.80 Your Price <b>\$1.06</b>	<b>C-85</b> DUPLEX DIODE TRIODE List \$1.60 Your Price <b>\$0.94</b>
<b>C-25Z5</b> RECTIFIER-DOUBLER List \$2.00 Your Price <b>\$1.18</b>	<b>C-36</b> R-F AMPLIFIER TETRODE List \$1.50 Your Price <b>\$0.88</b>	<b>C-55</b> DUPLEX-DIODE TRIODE List \$1.60 Your Price <b>\$0.94</b>	<b>C-89</b> TRIPLE-GRID POWER AMP. List \$1.80 Your Price <b>\$1.06</b>
<b>C-01A</b> DETECTOR AMPLIFIER List \$0.60 Your Price <b>\$0.35</b>	<b>C-37</b> DETECTOR AMPLIFIER TRIODE List \$1.20 Your Price <b>\$0.70</b>	<b>C-56</b> SUPER-TRIODE AMP. DETECTOR List \$1.20 Your Price <b>\$0.70</b>	<b>C-X199</b> DETECTOR AMPLIFIER TRIODE List \$1.50 Your Price <b>\$0.88</b>
<b>C-1</b> HALF-WAVE MER. VAPOR REC. List \$1.50 Your Price <b>\$0.88</b>	<b>C-38</b> POWER AMPLIFIER PENTODE List \$1.45 Your Price <b>\$0.85</b>	<b>C-57</b> TRIPLE-GRID AMP. DETECTOR List \$1.65 Your Price <b>\$0.97</b>	<b>C-864</b> AMPLIFIER TRIODE List \$2.10 Your Price <b>\$1.55</b>
<b>C-1-V</b> HALF-WAVE RECTIFIER List \$1.25 Your Price <b>\$0.73</b>	<b>C-39-44</b> SUPER-CON. R-F AMP. PENTODE List \$1.50 Your Price <b>\$0.88</b>	<b>C-58</b> TRIPLE-GRID SUPER-CON. AMP. List \$1.65 Your Price <b>\$0.97</b>	<b>C-874</b> VOLTAGE REG. List \$4.90 Your Price <b>\$2.79</b>
<b>C-10</b> POWER AMPLIFIER TRIODE List \$5.00 Your Price <b>\$2.94</b>	<b>C-40</b> VOLTAGE AMPLIFIER TRIODE List \$2.00 Your Price <b>\$1.18</b>	<b>C-59</b> TRIPLE-GRID POWER AMPLIFIER List \$2.00 Your Price <b>\$1.18</b>	<b>C-876</b> BALLAST TUBE List \$6.70 Your Price <b>\$3.94</b>
<b>C-12-A</b> DETECTOR AMPLIFIER TRIODE List \$1.30 Your Price <b>\$0.76</b>			<b>C-886</b> BALLAST TUBE List \$6.75 Your Price <b>\$3.97</b>

RADIO TRADING COMPANY, 100 PARK PLACE, NEW YORK, N. Y.

# PERFECT RADIO TUBES

SOLD ONLY IN LOTS OF 12 OR MORE



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RADIO TRADING CO.

## LOW PRICED TUBES. FACTS YOU SHOULD KNOW ABOUT "TUBE SECONDS"

To meet competition we list these tubes. For some time the market has been flooded with low priced tubes; the so-called "35c" tube. The intelligent radio man should know the true facts about such tubes, and govern himself accordingly.

Every reputable radio tube manufacturer, with few exceptions, rejects in the course of manufacture, a vast amount of tubes that have slight imperfections. These tubes may be 80% or 90% perfect, but they are not sufficiently perfect to pass all the different rigid meter tests, and for that reason, they are discarded and sold in the market as SECONDS. In practically all cases, such tubes are not the nationally known and advertised tubes, but are marketed under various private brand names, which names do not mean a gosh darned thing. Sometimes these "brand" names are highly euphonious and high sounding, but you will not see these brands advertised in a reputable radio magazine, nor for that matter, in any magazine.

Of course, these tubes are not junk, and they really do give surprising service in the majority of cases, but no first class radio tube manufacturer would wish to palm them off to the trade as a first grade tube. Hence, these

Cat. No.	Type	Your Price	Cat. No.	Type	Your Price
700	200A	\$.40	728	50	\$.90
701	201A	.36	729	551	.45
702	1	.53	730	53	.68
703	210	.80	731	55	.53
704	12'A	.36	732	56	.53
705	120	.40	733	57	.53
706	22	.75	734	58	.80
707	24	.36	735	59	.53
708	26	.30	736	71A	.36
709	27	.30	737	75	.60
710	30	.45	738	77	.60
711	31	.45	739	78	.60
712	32	.45	740	280	.36
713	33	.60	741	289M	1.05
714	34	.68	742	281	.75
715	35	.45	743	282	.53
716	36	.69	744	283	.60
717	37	.60	745	84	.60
718	38	.60	746	85	.60
719	39	.60	747	89	.60
720	40	.40	748	X199	.40
721	41	.60	749	V199	.40
722	42	.60	750	245	.60
723	44	.69	751	1223	.60
724	45	.36	752	2525	.60
725	46	.53	753	182B	.60
726	47	.45	754	183	.60
727	49	.60	755	586	1.65
			756	866	2.25

## WHY GOOD TUBES CAN BE SOLD AT THESE PRICES

orphans of the waves are put into nice boxes and sold under various brand names. Such tubes are never accompanied by any sort of a guarantee that means anything, but are usually marketed under a "five-day guarantee," which means that if the tube blows out after five days you are stuck with it, and have no redress. This, of course, is the extreme case, because as stated before, some of these tubes do manage frequently to give a surprising performance. As a matter of fact, they do not burn out quicker than a first grade tube, but when it does happen, you have no redress. This is quite properly so, because after all, when you pay for tubes at a discount of 90% or more off the list prices, you cannot expect more.

Remember, THESE TUBES ARE NOT SECOND HAND. They haven't been used before. They are all new tubes and at the prices they are sold you really do not take a fearful chance.

We have been brutally frank with you, and have explained the situation just as it exists. We extend the usual guarantee on these tubes, that is,

USE THE TUBES FOR FIVE DAYS, AND IF THEY ARE NOT FULLY SATISFACTORY WE WILL STILL MAKE GOOD. After five days our guarantee ceases.

## Police Radio Stations in U. S.

Courtesy "SHORT WAVE CRAFT"

Wave-length (Meters)	Frequency (Kilo-cycles)	Call Letters	Location
121.5	2,470	KGOZ	Cedar Rapids, Ia.
		KGPN	Davenport, Ia.
		WPDZ	Fort Wayne, Ind.
		WPDY	Kokomo, Ind.
		WPEC	Memphis, Tenn.
		KGPI	Omaha, Neb.
		WPDP	Philadelphia, Pa.
		KGPD	San Francisco, Cal.
		KGPM	San Jose, Cal.
		WRDQ	Toledo, Ohio
122.0	2,458	WPDO	Akron, Ohio
		WPDN	Auburn, N. Y.
		WPDV	Charlotte, N. C.
		WRDH	Cleveland, Ohio
		WPDR	Rochester, N. Y.
		WPEA	Syracuse, N. Y.
122.4	2,450	WPKD	Milwaukee, Wis.
		WREE	New York, N. Y.
		WPEF	New York, N. Y.
		WPEG	New York, N. Y.
		KGPO	Okla. City, Okla.
		KGPO	Tulsa, Okla.
		KGPZ	Wichita, Kans.

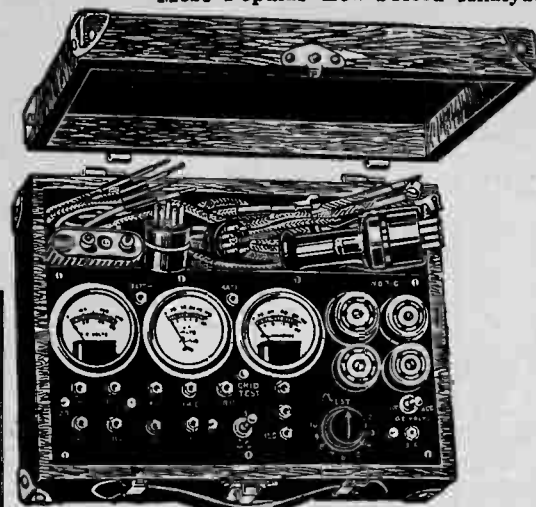
Wave-length (Meters)	Frequency (Kilo-cycles)	Call Letters	Location
122.8	2,422	KGPX	Denver, Col.
		WPDF	Flint, Mich.
		WPEB	Gr'd Rapids, Mich.
		WMDZ	Indianapolis, Ind.
		WPDL	Lansing, Mich.
		WPDE	Louisville, Ky.
		KGPP	Portland, Ore.
		WPDH	Richmond, Ind.
123.4	2,430	WPDI	Columbus, Ohio
123.8	2,422	KSW	Berkeley, Cal.
		WMJ	Buffalo, N. Y.
		KGPE	Kansas City, Mo.
		KGPG	Vallejo, Cal.
		WPDW	Washington, D. C.
124.1	2,416	KGPB	Minneapolis, Minn.
		WPDS	St. Paul, Minn.
124.2	2,414	WPDY	Atlanta, Ga.
		KGPS	Bakersfield, Cal.
		WCK	Belle Island, Mich.
		WPDX	Detroit, Mich.
		WRDR	Grosse Pointe Village, Mich.

Wave-length (Meters)	Frequency (Kilo-cycles)	Call Letters	Location
124.2	2,414	WMO	Highland Park, Mich.
		KGPA	Seattle, Wash.
		WPDA	Tulare, Cal.
175.15	1,712	KGPJ	Beaumont, Tex.
		WPDB	Chicago, Ill.
		WPDC	Chicago, Ill.
		WPDD	Chicago, Ill.
		WKDU	Cincinnati, Ohio
		KVP	Dallas, Tex.
		KGPL	Los Angeles, Cal.
		KGJX	Pasadena, Cal.
		WPDU	Pittsburgh, Pa.
		KGPC	St. Louis, Mo.
189.5	1,574	WRDS	E. Lansing, Mich.
		WMP	Framingham, Mass.
		KGPY	Shreveport, La.
1123	257	WBR	Butler, Pa.
		WJL	Greensburg, Pa.
		WBA	Harrisburg, Pa.
		WMB	W. Reading, Pa.
		WDX	Wyoming, Pa.



# THE LATEST IMPROVED READRITE MODEL 710 ANALYZER

Tests Latest Type 6 and 7 Prong Tubes  
Expensive Instruments Can Do No More  
Most Popular Low-Priced Analyzer On the Market



### CONVENIENT SELECTOR SWITCH

This latest model does not have a maze of individual switches for making various tests. Instead it has a 12 position bi-polar selector switch which automatically throws one circuit after another into position for analysis. Some of the tests which can be made with this instrument are as follows: (1) Voltage between control grid and cathode; (2) Screen grid voltage; (3) Positive heater bias and p-nitode screen voltage; (4) Negative heater bias; (5) Plate voltages of all types of tube; (6) Voltage between grid and filament of tube; (7) Voltage between suppressor grid and cathode, etc., etc.

A 4 1/2 volt battery is supplied with the analyzer to provide for continuity tests.

### MEASURES RESISTANCES AND CAPACITIES

By referring to the handy charts supplied with each tester it is possible to make accurate external measurements of resistances and capacities encountered in radio receivers and assorted equipment. This feature alone is well worth the price of the instrument. All service stations generally have a quantity of spare resistors and condensers lying around useless, merely because their ratings are unknown. By using this analyzer, however, these units become useful once more. All necessary adapters for testing 4, 5, 6 and 7 prong circuits are furnished with the analyzer.

The cover of the carrying case is entirely removable, which makes it possible to hang up the analyzer on the wall or merely leave it on the counter for convenient analysis. In other words it is both a portable instrument and a counter instrument. In addition

This Readrite analyzer has always been our best selling test instrument. The reason lies in its extreme practicability and in its low price. This new Readrite instrument embodies features which have always been desired in any instrument built for service work, viz.: (1) Low cost; (2) Simplicity of design; (3) Accuracy of measurements; (4) Ruggedness of the complete unit; (5) Portability; (6) Impressive professional appearance. It is needless to say that this instrument is capable of testing any receiver from the old battery models to the latest type screen grid, pentode, Multi-Mu and super-phonic super-heterodynes.

### 9 METER SCALES AVAILABLE

Model 710 Analyzer is an extremely flexible device. Fully 9 meter scales are available both for analysis of receiver conditions as well as for external work. The instrument incorporates a D.C. volt meter, A.C. volt meter and D.C. milliammeter. The D.C. volt meter has four ranges; 0 to 20, 0 to 60, 0 to 300, 0 to 600. The A.C. meter has three ranges; 0 to 10, 0 to 140, 0 to 1400 volts. The milliammeter has two ranges, 0 to 15; and 0 to 150 mils. These various ranges are available for external use and are controlled by push button shunts and toggle switches. The entire instrument is extremely compact—being contained in a carrying case which measures only 10 1/2" by 7 1/2" by 3 1/4".

(Continued at left)

to this the entire analyzer in its case weighs so little that it can be carried for long distances without causing fatigue. This feature will be welcomed by those service men who do not own automobiles.

### TREMENDOUS SAVING FOR YOU

This type of service instrument usually sells for \$25.00 to \$45.00. Judging by its performance alone, it is equivalent to some of the most expensive test equipment on the market. It is accurate, dependable, and extremely practical. Only the enormous demand for an instrument of such character permits its sale at so remarkably low a price. Furthermore the professional appearance of this set adds considerably to its value in its effect upon the customer.

FURNISHED COMPLETE WITH TEST LEADS, CONNECTING CABLES, 4 1/2 VOLT TEST BATTERY, BATTERY LEAD, ADAPTERS, TUBE CHARACTERISTIC CHARTS AND RESISTANCE AND CAPACITY CHARTS. Shipping weight 9 lbs.

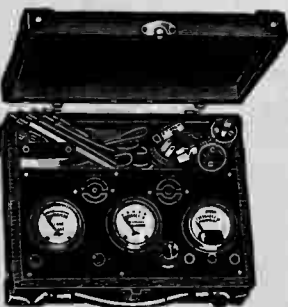
No. 710 Latest Improved Readrite Analyzer.  
**YOUR PRICE \$16.17**

Available With Triplet Moving-Coil Meter

The above analyzer may be supplied with a Triplet volt meter of the D'Arsonval, moving-coil type. This meter has voltage ranges of 0 to 15—60—300 and 600 volts and has a resistance of 1000 ohms per volt. With a 4 1/2 volt battery it will accurately measure resistances up to 300,000 ohms. A special chart is furnished for testing resistances up to 5 megohms.

No. 711 Readrite Analyzer with Triplet Meter.  
**YOUR PRICE \$24.25**

## Readrite Household Utility Tester



This instrument was designed to meet the needs of the Junior electrician, handyman and experimenter. Used for servicing electrically operated refrigerators, ironing machines, water pumps, oil burners, stoves, ventilating systems, electric ranges and all other electrical household and shop appliances. Contains input and output receptacles for measuring voltage and current of appliances, etc., A.C. ammeter reading up to 20 amperes, A.C. voltmeter reading up to 300 volts and complete direct-reading ohmmeter of 0-40 and 0-13,000 ohms. This ohmmeter is excellently suited for continuity testing. The instrument is put up in a neat, professional-appearing leatherette case, measuring 10 1/2" x 8 3/4". Ship. wt., 10 lbs.

Note Detachable Cover

tarbles for measuring voltage and current of appliances, etc., A.C. ammeter reading up to 20 amperes, A.C. voltmeter reading up to 300 volts and complete direct-reading ohmmeter of 0-40 and 0-13,000 ohms. This ohmmeter is excellently suited for continuity testing. The instrument is put up in a neat, professional-appearing leatherette case, measuring 10 1/2" x 8 3/4". Ship. wt., 10 lbs.

List Price \$24.75

No. 900 Readrite Household Utility Tester

**YOUR PRICE \$14.55**

## READRITE Direct Reading Ohmmeter



This instrument is a complete direct reading ohmmeter mounted in a baked lacquer steel case. Accurate resistance measurements up to 10,000 ohms are possible. The instrument will also act as a 0-4.5 volt meter. Zero adjustment is obtained by shorting the two leads and adjusting the rheostat. The instrument is provided with 5 foot probe leads for continuity tests. This instrument is indispensable in service work. High resistance shorts are readily shown up with this device. A small 4.5 volt flashlight battery is self contained. Case is 4 in. in diameter. Shipping weight, 2 lbs.

No. 500 Readrite Direct Reading Ohmmeter.  
**YOUR PRICE \$3.82**

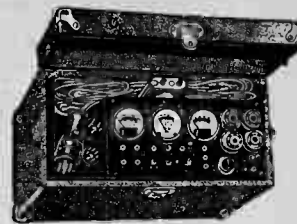
## READRITE Resistance Meter

This is the same meter as is used in the No. 500 Readrite Direct Reading Ohmmeter. This is a high grade 0-4.5 volt D.C. meter with a secondary scale calibrated directly in ohms. In operation the meter is connected in series with a 4.5 volt flashlight battery and the apparatus to be tested. Range 0-10,000 ohms. Instrument is in a flush mounting case with black flange and nickel bezel, 4 in. diameter. Shipping Weight, 2 lbs. List Price \$2.75

No. 501 Readrite Resistance Meter only.  
**YOUR PRICE \$1.62**

## No. 610 Readrite Analyzer

Tests Latest Type 6 and 7 Prong Tubes



The No. 610 contains the same equipment as No. 710. The carrying case is larger, with leatherette covering and equipped with lock. Room is provided for carrying tubes, tools and supplies. The test equipment and parts is in a removable tray in the top of the case. The tray equipment may be used separately as complete test panel for shop purposes. With each purchase the new radio publication "Radio Set Analyzers" will be given Free of charge. Read more about this offer in the description of the No. 710 Analyzer listed elsewhere. Size 14 1/2" x 7 1/4". Shipping weight, 12 lbs.

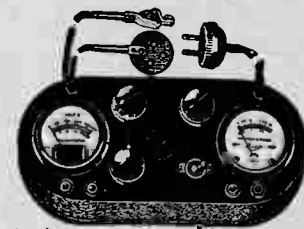
List Price \$33.00

No. 610 Readrite Analyzers  
**YOUR PRICE**

**\$19.40**

## Readrite No. 850 Capacity Tester

A Direct Reading 0.008-10 mf. Instrument



This Capacity Tester contains one A.C. and one D.C. Meter. BOTH KINDS OF PAPER AND ELECTROLYTIC CONDENSERS MAY BE TESTED. The A.C. meter will test the capacity of paper or mica type condensers from .008 to 10 mfa. Connects to A.C. supply line of 100-135 volts, 60 cycles. A rheostat adjusts the full scale voltage to 100. A toggle switch connects meter for reading upper or lower scale. Test leads plug into jacks directly under meter for connecting to condenser. Meter reads directly in microfarads.

to A.C. supply line of 100-135 volts, 60 cycles. A rheostat adjusts the full scale voltage to 100. A toggle switch connects meter for reading upper or lower scale. Test leads plug into jacks directly under meter for connecting to condenser. Meter reads directly in microfarads.

### SPECIAL PROVISIONS FOR TESTING ELECTROLYTIC CONDENSERS

The D.C. Volt-Milliammeter is used for testing and "forming" electrolytic condensers. Connection is made with the water adapter to the plate of a rectifier tube and the clip attached to the set chassis. The selector switch is moved to the "VOLTS" position and the meter set to 300 volts with the use of the Rheostat. The next position of the selector switch provides for forming the condenser. ELECTROLYTIC CONDENSERS WHEN NEW OR LEFT OUT OF SERVICE FOR A PERIOD OF TIME REQUIRE FROM 15-20 MINUTES CONNECTION IN CIRCUIT TO PROPERLY FORM ITS CHEMICAL DIELECTRIC FILM BEFORE TESTING. The plus (+) jack connects to the anode and the minus (-) jack to the can container of the condenser. Test one anode at a time. The "FORM" position of the selector switch connects meter for reading corresponding to 100 M.A. full scale. Condensers starting to form in excess of 100 M.A. (electrolytic condensers, both wet and dry, will pass a gradually diminishing current until fully "formed" when the current ceases entirely) are defective with a short. A good electrolytic condenser should start forming at about the "HIGH" position on the meter scale and gradually reduce as the forming continues until no further change in meter takes place. After the re-meter reading stops as near zero the exact M.A. reading should be taken by moving the selector switch to the MIL-AMPS position. Electrolytic condensers should show up to 2 M.A. per microfarad. Variable or fluctuating meter reading would indicate a defective condenser. Attractively put up in baked enamel steel case.

List Price \$16.50

No. 850 Readrite Capacity Tester—less cover and handle  
**YOUR PRICE \$9.70**

List Price \$18.75

No. 851 Readrite Capacity Tester—with cover and handle  
**YOUR PRICE \$11.02**

Gentlemen: I received my Readrite No. 700 radio set tester and after checking it over, I can say that I am well pleased with it.  
C. E. SOULIN, Columbus, Ohio.

## READRITE RESISTANCE, CONTINUITY AND CAPACITY TESTER

For Set Analyzing, Resistance and Capacity Testing, Voltages, Milliamperes



This tester is complete with two standard 22½ volt batteries, one small flash light cell, cables and cords, all necessary small size adapters for the new sets, and complete simple instructions.

The No. 1000 Tester with its exclusive cable, two plugs and selector switch combination is so outstanding as to make no comparison with other continuity tester methods. Case is strong and covered with fabri-

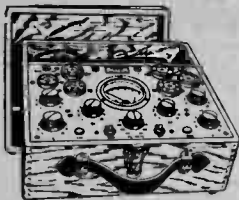
roid. The cover is removable. Battery compartment has separate panel. The No. 1000 Tester will bring your service procedure up-to-the-minute, simplifying sev analysis by this latest method. Ship. wt., 18 lbs.

List Price \$50.00

No. 1000 Readrite Tester.  
YOUR PRICE

**\$29.40**

### Supreme Model 45 Portable Universal Tube Checker



Here at last is a real tube tester for the service man. It is a tester which will never grow old because it has provisions for taking care of any tube which might come out in the future. Each element in the tube is connected to the contact arm of an individual selector switch so that proper

circuit connections can be made to each element REGARDLESS OF ITS TERMINAL CONNECTION AT THE BASE OR METAL CAP. All socket holes and rotary switch contacts are numbered correspondingly on the panel so that by rotating the arms of the rotary switches the tube element located at any particular numbered terminal corresponds to the number on the switch setting. Any particular element can be connected to any voltage desired.

In this manner if a tube has a plate for example where a Cathode is usually located, this plate element at the cathode location can be connected to a suitable plate voltage instead of to the "B" minus position in the circuit to which the cathode is ordinarily connected. A COMPLETE CHANGE IN THE LOCATION OF THE TUBE ELEMENTS MAKES ENTIRELY NO DIFFERENCE TO MODEL 45 TUBE TESTER; HENCE WE REPEAT, "IT CAN NEVER GROW OLD."

This checker tests all new tubes at their proper voltages. It is the first professional instrument designed to take care of new tube developments as they come out. Analyzes all the 4, 5, 6 and small and large 7 prong tubes without adapters. All filaments from 1.5 to 30 volts, including top-heater types. Makes tests for gassy tubes. Will test all of the new tubes in the A, B, C, D, Y and Z series including the duo-diode tube. The instrument is designed for 60 cycle operation. It is contained in a handsome wooden carrying case with polished trimmings. Measures 9½" by 11" by 5". Shipping weight, 13 pounds.

No. 45 Portable Tube Checker.  
YOUR PRICE

**\$28.91**

### READRITE COUNTER TUBE TESTERS

Test All Tubes Without Adapters, Including 25Z5—53—43—79—2B7—6B7—2A4—2A6, etc.

Dealers and servicemen use the No. 410 Tester for checking all new and old tubes used in receiving sets. Test card gives simple instructions. Anyone can operate it. A push button provides two plate current readings for determining the conductance and worth of a tube. A new and outstanding feature applies the same test to rectifier as with all other types of tubes. A separate push button provides for testing both plates of double plate tubes. Has combination socket for large and small 7 prong tubes. Illuminated dial with detachable meter. The correct tube filament voltages applied are, 1½, 2, 2½, 3.3, 5, 6.3, 7.5, 14.7 and 25.

In a strong leatherette-covered case with removable cover, excellently suited to either store or portable use. Ship. wt., 10 pounds.

List Price \$27.50

No. 410 Readrite Counter Tube Tester, 60 cycle.

YOUR PRICE **\$16.17**

List Price \$40.25

No. 412 Combination Tube Tester and Short Tester, 60 cycle.

YOUR PRICE **\$23.67**

#### WITH TRIPLETT MOVING COIL METER

For those wanting a longer scale precision instrument, the Model 416 tester with a Triplett moving-coil meter is offered. This instrument does not have illuminated dial, but in other respects is same as No. 410.

List Price \$35.75



No. 416 Triplett meter Tube Tester, 60 cycle.

YOUR PRICE **\$21.02**

List Price \$48.50

No. 418 Combination Tube and Short Tester, 60 cycle, with moving-coil meter.

YOUR PRICE **\$28.52**

### Universal Multidapter

Tests All the Latest As Well As Forthcoming Tubes

PLUG TO DY SOCKET IN TUBE CHECKER OR ANALYZER



No. 204

EFFICIENT AND SIMPLE TO USE. The Multidapter combines many adapters in one. You need only one Multidapter but without it you need many adapters.

PROVIDES FOR THE FUTURE. The Multidapter is a perpetual type of adapter as provision is made for testing all new tubes that might be brought out in the future in either of the 4, 5, 6 or 7 prong types. It will be up to date in the future as well as the present time.

Available in two models; one which plugs directly into either the tube tester or analyzer and the other which has an extension plug. Used in connection with such instruments which do not have enough room for plugging in the adapter directly. Complete instructions for using this adapter is furnished free with each unit. Ship. wt., 2 lbs.

No. 204 Multidapter with Extension Plug  
YOUR PRICE **\$1.95**

Here is a unit which every dealer, Service Man or technician should have on hand at all times.

It is an adapter which completely modernizes old or obsolete tube checkers and analyzers by enabling them to test not only the maze of new tubes which have recently appeared on the market but tubes which will be forthcoming in the future as well.

TESTS All the new tubes including types 29-33-39-41-42-43-46-47-55-57-58-64-65-69-82-83-89 and second plate of 80, etc.

### Radio Amateur's Handbook

(New Revised Edition), by A. Frederick Collins. Cloth covers, size 5½x7¾ ins., 394 pages, 116 illustrations.

If you wish to become a radio amateur this book tells you how.

No. 844 PRICE **\$2.00**

### Short Waves

by C. R. Leutz and R. B. Gable. Stiff Covers. Size 6½x9 ins., 384 pages, 258 illustrations.

The biggest and most complete book Covers every imaginable phase, including S.W. Superheterodynes.

No. 845 PRICE, prepaid **\$3.00**

### How To Pass U. S. Radio License Examinations

by R. L. Duncan and C. E. Drew. Flexible covers, size 9½x7 ins., 170 pages, 92 illustrations, appendix.

Will help you to pass a radio license examination successfully.

No. 846—PRICE **\$2.00**

### How To Build and Operate Short-Wave Receivers

by the Editors of SHORT WAVE CRAFT. Stiff Paper covers, size 7¼x9¾ ins., 76 pages, 250 illustrations.

No. 830 PRICE, prepaid **\$0.40**

## Acrocycle Direct Reading Oscillator

Calibrated in Kilocycles—No Charts Required



The Acrocycle oscillator is a high grade instrument which is indispensable for testing radio receivers, neutralizing alignment tuned circuits in hand pass sets, tuned radio frequency receivers and intermediate stages of super-heterodynes. It may be used to check comparative ranges of sensitivity and selectivity.

**THE ACROCYCLE OSCILLATOR IS VIRTUALLY A SMALL BROADCAST TRANSMITTER** which can be adjusted accurately to any frequency or signal strength. The main difference however, is that the modulated signal is always steady. For instance if an output meter is connected to a receiver which is tuned to a broadcast station, the meter would show a fluctuating reading depending upon the pitch of the sound. With the signal generated by this oscillator however, the output meter reading would be steady because the pitch modulating the signal is always the same. This modulation is 100% and is pitched to give a sound of approximately 200 cycles.

### CALIBRATED DIRECTLY IN KILOCYCLES

The scale of the Acrocycle oscillator is its most important feature. It is calibrated exactly in KILOCYCLES. There are two dial windows, one for the intermediate and other for the broadcast frequencies. The combined dial gives a continuous scale of frequencies from 100 to 1500 K.C. The calibration from 100 to 200 is one K.C. per division, from 200 to 400, 2 K.C. per division and from 400 to 1500 ten K.C. per division. All frequencies higher than 200 K.C. are indicated as harmonics. The accuracy will average within one-half division. Frequencies higher than 1500 K.C. can easily be calculated. For instance 2000 K.C. would be the 10th harmonic of 200-F etc.

The Acrocycle oscillator is self contained and fully shielded in a steel, copper-clad casing, the outside of which is beautifully finished in CHROMIUM PLATE. It is very compact, measuring only 5 1/2" x 9 1/2" x 3". It is a quality instrument that any serviceman will be proud to own and use. Not only will it give prestige to the service man but will lend confidence to customers.

The oscillator employs a No. 30 tube and requires the following batteries for operation, one 2 1/2 volt "B" battery and two No. 2 1/2 volt dry cells. The carrying case measures 10 1/2" x 6 1/2" x 4 1/2", with handsome leatherette covering. The cover is entirely removable. The oscillator is sold complete with test leads, carrying case, type 30 tube and all necessary batteries. Shipping weight, 9 lbs.

No. B Acrocycle Oscillator.  
YOUR PRICE

**\$16.53**

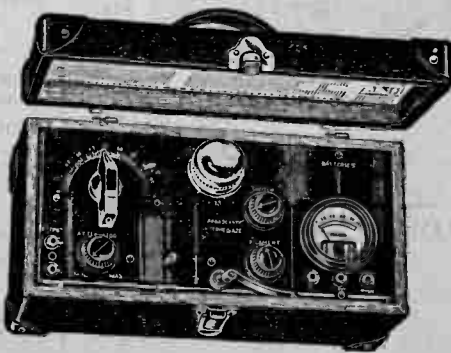
## READRITE SERVICE TEST OSCILLATOR

### New 1934 Model

A completely shielded oscillator, self modulated. Furnished with batteries and one 30 type tube. Covers entire broadcast and intermediate bands. The tuning dial is hand calibrated from 110 to 1000 kilocycles. Shielded antenna lead wire furnished. Test leads and break-in adapter supplied when bought with output meter.

The heavy metal panel contains the tuning control, and 0 to 100 range dial, making possible an accurate, hand-calibrated chart. Two switches control the circuits. The rotating switch has two positions for Broadcast and Intermediate ranges. The toggle switch controls the batteries, and prevents undue drain when not in use. Cannot close cover when battery switch is ON. The attenuator control, like the tube and battery compartments is separately shielded. Calibration is controlled by the trimmer condenser, accessible through the panel. The Oscillator is carefully calibrated at the factory. In a minute's time the trimmer condenser can be adjusted and the instrument rechecked.

The instrument is extremely compact in a strong leatherette covered case with removable cover, leather handle and rubber feet. Full operating instructions, with connecting wires are carried in the cover. Weighs but 3 pounds. Size 6 x 12 x 5". The instrument is made not only of the best of material throughout, and assembled for lasting durability, but it's beautiful and trim appearance will be the pride of every serviceman to own and use. It is one of the serviceman's most important instruments. Used to align r.f. gang condensers, locate defective r.f. transformers, adjust i.f. transformers, check oscillator stage, compare gain in tubes and determine the sensitivity of a receiver. Furnished with or without output meter in the panel. Harmonics of the broadcast frequency can be



used to check short wave converters and short wave sets. A truly remarkable instrument at a remarkable price. Licensed under patents of the American Telephone and Telegraph Company.

List Price \$35.00

No. 550 Service Test Oscillator with Panel Output Meter.

YOUR PRICE **\$20.58**

No. 551 Service Test Oscillator without Panel Output Meter.

YOUR PRICE **\$17.64**

## READRITE COMBINATION TEST SETS

Tube Tester — Set Tester — Oscillator — All In One Case  
Complete Portable Laboratories Test All the Latest Type Tubes Directly



No. 410-710

Tube Tester, Tube-Short Tester (Set Analyzer)

Note: Cover Detachable

For the first time in the history of radio, complete portable testing equipment is being sold in the low-priced meter field. Every conceivable test necessary for radio, television and general electrical work may be made with any of these two units. The 410-710 (illustrated) combines in a single case, 21" x 14" x 7 1/2" the No. 410 Tube Tester and the No. 710 Set Analyzer. (Both of these instruments are described elsewhere in this catalog.) Every radio tube that has so far been brought out can easily be tested by either of these two outfits.

There used to be a time when the announcement of a new tube meant that a complete analyzer or tube tester had to be discarded. Today, however, we have the so-called Universal Tube Testing Adapter (listed elsewhere) which will take care of all the new tubes either present or future. Hence, there is no fear that any of these instruments will become antiquated or depreciate in value.



No. 576

Tube Tester, Tube-Short Tester (Set Analyzer Oscillator)

Note: Cover Detachable

The No. 576 (illustrated) combines the No. 410 Tube and Short Tester, No. 710 Set Analyzer and No. 550 Oscillator (all of which is listed elsewhere in this catalog). The oscillator and Tube Tester are on one panel and the Set Tester in a drawer underneath. Closing the case cover automatically locks this drawer in place. Size of case 22 1/2" x 6 1/2" x 8 1/2". The No. 579 is essentially the same as the No. 576 with the exception that the 710 analyzer incorporates a Triplet moving coil, 1000 ohms per volt meter. Ship. wt., 22 lbs.

Cat. No.	List Price	YOUR PRICE
410-710	\$55.00	<b>\$32.34</b>
416-711	Same as above, but with moving coil meter. List \$77.00	<b>\$45.13</b>
576	85.00	<b>\$49.98</b>
579	Same as above, but with moving coil meter. List \$107.00	<b>\$62.92</b>

## Readrite No. 800 Capacity Meter

For Testing Paper and Mica Condensers



A simple but accurate instrument for determining the capacity of any condenser up to 10 mfd. An indispensable meter that should be incorporated in all radio servicemen's analyzers and testers.

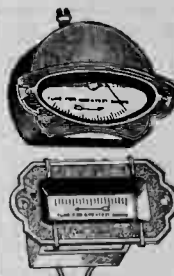
### TWO CAPACITY RANGES

The lower range measures 0.008 to 0.25 mfd. while the upper range measures 0.1 to 10 mfd. Connects to 100-130 volt 60 cycle A.C. supply line. Contains a rheostat to set full scale at 100 volts. Put up in a neat black enamel finished steel case and furnished with flexible test leads. Shipping weight, 1 lb. List Price \$8.75

No. 800 Readrite No. 800 Capacity Meter  
YOUR PRICE

**\$5.14**

## Readrite Resonance Tuning Meters



With present day sharp tuning receiving sets, silent tuning and automatic volume control, the resonance tuning meter has come to be one of the most important adjuncts in the design of the modern receiver. These meters are offered in a variety of styles and sizes. The best use of the tuning meter is in conjunction with automatic volume control. Usually furnished with full scale deflection 0-5, 0-7, 0-10, 0-12, 0-15 m.a. (specify which when ordering).

**SERVICEMEN MAY PROFIT BY INSTALLING THESE METERS IN SETS NOT SO EQUIPPED.** Can also be

equipped with bracket and flash lamp at 20c additional. Escutcheon Plate 18c additional. Shipping weights, 1/2 lb. each.

No. TM-103 Has opaque dial with lighting thru window at flat side of case for lighting over the dial.

No. TM-102 Style case same as TM-103 for rear lighting thru translucent dial.

No. TM-104 Style same as TM-103 but with translucent dial and side lighting below the dial.

No. TM-106 is a needle shadow type corresponding in style to the above. The translucent dial is placed all the way to the front of the case. The meter needle shadow is clearly visible thru the dial. Lighting is thru the flat side of the case.

No. TM-107 Case is circular. May be had for rear, side or front lighting.

No. TM-108 is a small rectangular edgewise case, of the needle-shadow type, having a spring clamp for attaching to bracket. The needle shadow is clearly visible thru the translucent dial and moves in a straight line over the scale. The escutcheon opening therefore, is rectangular. This meter occupies minimum space and is a very popular mod-1.  
**YOUR PRICE \$0.88**

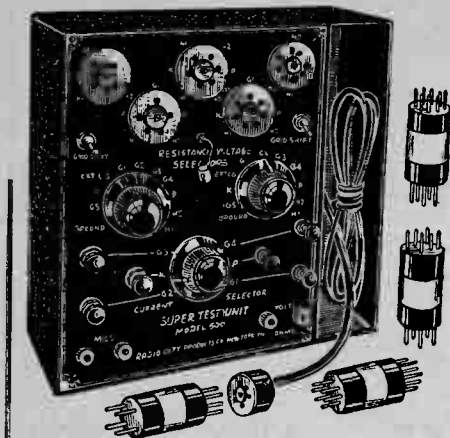
ESCUTCHEONS furnished are of two kinds—One for the TM-108 straight scale, and one for circular dial.  
List \$0.30 Each  
**YOUR PRICE—Each \$0.13**

Gentlemen: Congratulations on your Treatise! Great—Huh, wouldn't take a 5 spot for it. Do not fail to send me subsequent issues of same. I have found many new radio items as well as technical information in your gold mine.

WALTER G. BURDINE, Hope, Indiana.

## RADIO CITY MODEL 500 TEST UNIT

May Be Had Either Wired Or In Kit Form  
Ultra-Modern — Up-to-the-Minute



This instrument is the most complete and up to date analyzer on the market. Not only does it provide for testing 7 and 8 prong tube circuits but 9 prong circuits as well. Although the 8 and 9 prong tubes have not yet made their appearance on the market, provisions are made in this analyzer to take care of them when they do come out. The 9-prong socket is combined with the 8, the 9th prong being in the form of a special snap fastener in the center of the socket. **THIS UNIQUE INSTRUMENT HAS NO METERS AT ALL.** That, in part, is the reason why it is

available at so low a figure. It makes provisions however, through the medium of convenient pin jacks for the purchaser to plug in his own meter, either milliammeter or volt meter, any type which he may have on hand. Why buy an expensive analyzer which contains meters when you may already have a number of useable meters in your home or laboratory?

Here are some of the high lights of this ultra-modern instrument. **EXTREMELY SIMPLE TO USE.** No complicated directions required—no plugging of connectors into jacks—all switching is entirely automatic and is accomplished with three calibrated selector switches. All sockets, terminals and circuits are clearly etched on the panel.

**WILL NEVER BECOME OBSOLETE.** Incorporates provisions for testing 8 and 9 prong tube circuits—has additional selector points for reserve capacity—sold complete with new 4, 5, 6 and 7 prong "sure-pull-out" adapters for the special analyzer plug which it uses.

**RESISTANCE—VOLTAGE SELECTORS** provide complete resistance and voltage analysis between any two points on any given chassis.

**CURRENT SELECTOR** provides for current measurements in six different circuits for the usual current voltage analysis. Momentary contact switches protect meters from accidental contacts. Meters read only when switch buttons are pressed.

**TUBE TESTING PROVISIONS.** The usual tube testing features of regular analyzers are incorporated here.

When used in conjunction with The Multi-tester instrument listed at right of this page you have a most modern and up-to-date analyzing instrument which is better than **ANY OTHER INSTRUMENT** on the market **AT ANY PRICE.** Shipping weight, 12 lbs. List Price \$25.00

No. 500 Super-Test Unit, completely wired, ready to use.  
**YOUR PRICE \$13.85**

No. 500A Super-Test Unit in kit form with instructions.  
**YOUR PRICE \$10.85**

## THIS ANALYZER WILL NEVER BECOME OBSOLETE! RADIO CITY MODEL 5400 ANALYZER

If you will read the description of the Radio City No. 500 Super-Test Unit and Radio City No. 401 Multi-Tester described somewhere on this page you will understand why we say that this analyzer will never become obsolete.

This instrument consists of the No. 401 Multi-Tester and No. 500 Super-Test Unit in a single, leatherette-covered carrying case. The Super-Test unit will not only test the 7 and 8-prong tubes but even the 9-prong tubes, whenever they make their appearance on the market. Neither the 8 nor the 9 prong tubes have made their appearance as yet, but when they do, you will be ready for them.

The Multi-Tester is really a volt—ohmmeter—milliammeter, which can never grow old. It has such a variety of scales for making the usual voltage, resistance and current tests that no matter what the latest developments in radio are, or may be, it will always be a useful instrument. The usual maze of tip jacks for gaining access to the various parts of the testing equipment is conspicuously absent in this unit. All the necessary switching from scale to scale or from voltage to current test, etc., is automatically accomplished through the use of convenient selector switches which rotate on calibrated scales. In the Super-Test unit, momentary contact switches are used to prevent meters from burning out through accidental contact.

The analyzer is furnished complete with a ten-wire cable and special plug as well as all the necessary adapters that go with it. If you desire to make a **SAFE INVESTMENT IN TEST EQUIPMENT**—equipment which will never become obsolete—while it will always be serviceable despite the various trends in radio, **THIS ANALYZER IS YOUR BEST BET.** Available both wired and in kit form. Ship. wt., 10 lbs.



List Price \$55.00

No. 5400 Radio City Perpetual Analyzer, completely wired ready to use.  
**YOUR PRICE \$34.50**

No. 5400A Radio City Perpetual Analyzer in kit form with instructions.  
**YOUR PRICE \$26.00**

## SUPREME MODEL 333 RADIO ANALYZER



Here is the most economical **PROFESSIONAL** radio set analyzer on the market. The new Supreme Model 333 is a modern analyzer combined with a point-to-point tester. It employs a novel circuit which compensates for the effects of temperature and other variations of the full-wave meter rectifier unit. It

utilizes a rugged D'Arsonval meter for AC and DC measurements on a single unit scale. This feature eliminates the confusion of off-set scales or of scales with crowded divisions at the lower end.

Furthermore, it enables (1) complete point-to-point

resistance, voltage, and current analysis; (2) tube testing from radio sockets with self-contained grid-shift battery; (3) condenser leakage tests, including electrolytic condensers; (4) use of head-phones, loud speaker, microphone connections, etc., for all miscellaneous tests and (5) a six range output meter for convenient use without the necessity of using troublesome adapters.

Has provisions for DC Milliamperes and A.C. and D.C. voltage ranges of 0 to 5—25—125—250—500—1250 volts; resistance ranges of 0 to 1000—10,000—100,000—1,000,000 Ohms; and capacity ranges of 0 to 0.125—1.25—12.5 microfarads. **ALL THESE READINGS ARE DIRECTLY ON THE METER—NO CHARTS REQUIRED.** Uses Supreme's exclusive **FREE REFERENCE POINT SYSTEM OF ANALYSIS.** AC ranges calibrated for 60 cycles. The entire unit is put up in a professional appearing wooden carrying case with polished trimmings. Measures 9 1/2" by 11" by 5 1/2". Ship. wt., 12 lbs.

No. 333 Radio Analyzer.  
**YOUR PRICE \$38.71**

## Radio City Multi Tester—Volt—Ohmmeter—Milliammeter



Regardless of changes that have taken place in test equipment in the past, due to new developments in tubes and circuits, it is logical to believe that any meter which will measure voltage, current and resistance in a successive series of scales, will **ALWAYS** be of maximum utility. It will never have to be replaced or changed, due to any developments in a radio. This multitester is so designed that a **GREAT FLEXIBILITY** is available for modern testing methods, with maximum economy and efficiency so that it

can always be used as a multi-purpose meter regardless of what changes may take place in the future. In short, it is a **MULTI-RANGE** combination ohmmeter, voltmeter and milliammeter all self-contained in a compact case.

The ohmmeter has a triple range: the low-scale reading is from 0 to 2,000 ohms, the first division representing 1/2 ohm. The ability to indicate resistance values of 1/2 ohm and less is of considerable value in testing r.f. circuits; the second ohmmeter scale is from 0 to 200,000; the third, or high, range is from 0 to 2,000,000 or 2 megohms. It is possible to measure even higher values of resistance up to 6 megohms and higher by using external batteries in series with the meters.

All voltages are indicated directly on the meter, which has a sensitivity of 1000 ohms per volt. There are four voltmeter scales: the lowest range is from 0 to 5 volts. Voltages of the order of 1/10 volt may easily be read; the other volt meter ranges are 0 to 50; 0 to 250; 0 to 750 respectively. This gives a higher range and better arrangement of intermediate scales than is available in some of the most modern commercial instruments.

The multi-tester is also a milliammeter and has ranges of from 0 to 5, 0 to 50 and 0 to 250 milliamperes. There is no question about selecting the proper terminals or tip jacks for making various measurements as only one set of terminals for each purpose is available for all scales. In other words, the two terminals marked "volts" will take care of all voltage scales just as the terminals marked "ohms" will take care of all resistance scales, etc. Switching from scale to scale and from ohm, volts or mA, is accomplished through the medium of a single selector switch revolving on a calibrated scale. This instrument is indeed the most versatile ever placed on the market and will outlast any other type of analyzing equipment so far as up-to-the-minute measurements are concerned. **IT WILL ALWAYS BE USEFUL AND WILL NEVER GROW OLD.**

List Price \$37.50

No. 401 Multi-Tester, Volt—Ohmmeter—Milliammeter.

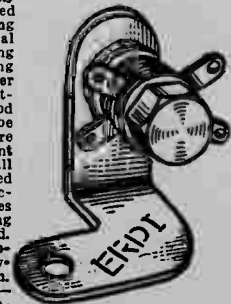
**YOUR PRICE \$20.00**

## "Erdi" Copper-Oxide Meter Rectifiers

These small but highly efficient rectifiers are used extensively for converting DC meters into universal range types for measuring both direct and alternating currents. By the proper choice of multiplier resistance and shunts any good grade milliammeter may be made to accurately measure DC voltage and current values of practically all ranges; and when equipped with this copper oxide rectifier these same values and ranges of alternating current may be ascertained. The unit consists of 4 copper oxide coated discs giving full wave rectification. Operates instantaneously—no time lag between impressed voltage and resulting current. The rectifier will pass 15 mls.

No. "15-M.A." Copper Oxide Meter Rectifier.

**YOUR PRICE \$2.50**







# COMPLETE LINE OF LABORATORY ACCESSORIES

If you have a laboratory, work-shop or any place at all where you perform radio and electrical experiments and tests you cannot fully appreciate how handicapped you are without a full complement of these test prods and accessories. In fact after purchasing some of these necessities you will wonder how you were ever able to get along without them. Listed on this page is every conceivable test prod, binding post, plug, jack, pin, coupling, etc., that can possibly be used around by the laboratory. Connections in experimental circuits need no longer be made by

soldering or winding wires around terminals. These laboratory accessories enable you to make such connections immediately, without any fuses or fuses. Many of these units are ideal for building test bench panels, tube checkers and analyzers and other testing equipment. The handles of all plugs and the rims of most of the jacks are made of highly polished insulated material which is available in six different colors, namely red, blue, black, green, yellow and purple. Please specify your particular color when ordering.

**#2** Set screw to hold wire. Size 1/8"x4" O. D. \_\_\_\_\_ 6c

**#3** Same as No. 2 but has a ribbed handle. \_\_\_\_\_ 9c

**#4** Small diameter tip set screw for wire: 1/16"x4" O. D. Fits Jacks No. 64, 65, 67 \_\_\_\_\_ 6c

**#10** Spade with set screw for wire, will fit binding posts. 1 1/2"x1 1/2" \_\_\_\_\_ 9c

**#11** Same as No. 10 but has a clamp terminal. \_\_\_\_\_ 9c

**#12** Same as No. 10 but has straight spade. \_\_\_\_\_ 9c

**#13** Same as No. 11 but without set screw as the plugs of the line fit it. \_\_\_\_\_ 9c

**#14** Spade bit, shank with chuck to hold wire, which fits an internal collar insuring a perfect hold on wire: 1 1/2"x2 1/2" O.D. B-B \_\_\_\_\_ 12c

**#15** Same as No. 14 but has a straight terminal B-B \_\_\_\_\_ 12c

**#16** Spade with round shank which pulls up the external collet chuck and holds any ordinary size of wire used: 1 1/2" x 2 1/2" O. D. \_\_\_\_\_ 9c

**#17** Same as No. 16 but has a round shank. B-B \_\_\_\_\_ 12c

**#18** Same as No. 17 but has straight upper like No. 16 \_\_\_\_\_ 12c

**#20** Most popular type of the line. Set screw holds O.D. wire: 1 1/2"x1 1/2" O.D. \_\_\_\_\_ 9c

**#21** Same as No. 20 but has a ribbed handle. \_\_\_\_\_ 9c

**#22** Like No. 21, but has a set screw with a laminated colored head \_\_\_\_\_ 11c

**#24** Has simple chuck, split tip, low priced, can be used as prod: 3/4"x4" B-B \_\_\_\_\_ 9c

**#25** Has internal collet chuck. By inserting a phone needle into it a fine test prod can be made out of it as in our No. 125 Kit: 1 1/2"x4" \_\_\_\_\_ 9c

**#26** Same as No. 25 but has a bob on side to tap off another plug \_\_\_\_\_ 9c

**#28** Set screw holds wire and hole on side to tap off another plug: 1 1/2"x4" \_\_\_\_\_ 9c

**#29** A divider plug will divide one jack into four wires. Has no hole at end for plug or wire: 1 1/2"x1 1/2" \_\_\_\_\_ 12c

**#30** Coupling for two plugs 1 1/2"x1 1/2" Except No. 4 \_\_\_\_\_ 9c

**#31** Coupling to be inserted in lead with two internal collet chucks, and a hole to tap off another plug: 3/4"x4" \_\_\_\_\_ 12c

**#32** Coupling to couple a wire lead to a plug: 1"x1 1/2" \_\_\_\_\_ 9c

**#33** Coupling will couple three plugs or one two way plug to a binding post: 1 1/2"x1 1/2" wide and comes in black only \_\_\_\_\_ 21c

**#36** Test prod, phone tip end, built for heavy duty and will not lose color or warp from preparation of the handle. Any of our plugs will fit it except No. 4. 4"x1 1/2" B-B \_\_\_\_\_ 15c

**#38** Coupling that fits an important need to this line, will couple any phone tip jack on meters, etc., to most of our plugs, except 4 and 63: 1 1/2"x1 1/2" \_\_\_\_\_ 9c

**#42** Has set screw under an insulated collar, milled end: 3/4"x4" \_\_\_\_\_ 17c

**#43** Same as No. 42 but has a banana spring plug at end \_\_\_\_\_ 12c

**#44** Has chuck and milled tip: 3/4"x4" \_\_\_\_\_ 15c

**#45** Heavier type will hold larger wire and carry heavier currents: 3/4"x4" \_\_\_\_\_ 18c

**#46** Milled tip, an excellent type for quick connection. By simply pushing the wire into the end the connection is made and will not release till the tip is unbarreled and the end pulled forward: 1 1/2"x4" \_\_\_\_\_ 24c

**#47** Vibration proof plug, also fits oversized jacks. By pressing down, the plug seats the jack and spreads the plug apart. Two hardened set screws insure a positive connection with the wire. Aircraft need this type: 1 1/2"x4" comes in a red-black combination only \_\_\_\_\_ 24c

**#31** Plug Post fits No. 64, 65, 66, 67: 1 1/2"x4" Nickelplated \_\_\_\_\_ 9c

**#32** Plug Post fits No. 64, 65, 67: 1 1/2"x4" Nickelplated \_\_\_\_\_ 6c

**#33** Plate Post, will fit chassis and battery leads: 1 1/2"x4" \_\_\_\_\_ 6c

**#34** Posts, colored, take our plugs, phone tips and wire: 1 1/2"x4" \_\_\_\_\_ 6c

**#35** Same as No. 34 but supplied with stampings, viz: Green marked "Button 1" Red marked "Ground" Blue marked "Button 2" Black marked "Input" Violet marked "Pickup" Yellow marked "Output" \_\_\_\_\_ 6c

**#55** Larger type, head unremovable, can't slip on panel, takes plugs, etc. Supplied as follows: Aerial Ground, A+, A-, B+, B-, B+Power, B+AMP, B-Det, C-Amp, C-Power, C+, Loudspeaker, Loudspeaker+, Plain, screen colors, All in Red. All - in Black. Note: - is minus, + is positive: 1 1/2"x4" \_\_\_\_\_ 9c

**#56** Press in bushing for metal panels: 1 1/2"x1 1/2" long B-B \_\_\_\_\_ 2c

**#57** Colored rings, fit No. 64, 65, 67: 1 1/2" O.D. x 1/2" I.D. \_\_\_\_\_ 1c

**#58** Colored rings, fit No. 64, 65, 67: 1 1/2" O.D. x 1/2" I.D. \_\_\_\_\_ 1c

**#59** Same as No. 58 but have "Aerial" and "Ground" stampings. Aerial in Blue, Ground in Red \_\_\_\_\_ 1c

**#60** Colored jacks for metal panels, 3 size and soldering socket, fits all thicknesses of metal panels used: 1 1/2"x4" \_\_\_\_\_ 9c

**#61** Same as No. 60 but intruded for insulation panels only \_\_\_\_\_ 9c

**#64** Colored Jacks, small diameter for No. 4, 63: 1 1/2"x4" \_\_\_\_\_ 6c

**#66** Nickelplated Jack, with soldering socket, fits No. 4, 63: 1 1/2"x4" \_\_\_\_\_ 5c

**#67** Same as No. 66 but without soldering socket for wire \_\_\_\_\_ 5c

**#68** Nickelplated Jack for the larger plugs, soldering socket: 1 1/2"x4" \_\_\_\_\_ 6c

**#69** Same as No. 68 but without soldering socket for wire \_\_\_\_\_ 5c

**#70** Shorting Plug, will short circuit two No. 64, 65, 66, 67, 68, 69: 1 1/2"x1 1/2" handle in black \_\_\_\_\_ 12c

**#78** Multiplying, consists of two parts, the body and a cap that covers the other part holding the plugs and set screws: 1 1/2"x1 1/2"x4" Black \_\_\_\_\_ 30c

**#79** Same as No. 78 but has three plugs and is polarized to insure proper connection: 1 1/2"x1 1/2"x4" Recommended for microphone work Black \_\_\_\_\_ 36c

**#80** Multiplying, has thumb knob, set screw each side holds wire, etc.: 1 1/2"x1 1/2"x4" Black only \_\_\_\_\_ 27c

**#81** Multiplying, has three plugs, polarized, makes ideal microphone plug: 1 1/2"x1 1/2"x4" Black only \_\_\_\_\_ 33c

**#82** As above in red, no markings \_\_\_\_\_ 33c

**#83** Four Plugs: 1 1/2"x4" \_\_\_\_\_ 36c

**#84** Five Plugs: 1 1/2"x4" \_\_\_\_\_ 42c

**#85** Six Plugs: 1 1/2"x4" \_\_\_\_\_ 48c

**#86** Seven Plugs: 1 1/2"x4" \_\_\_\_\_ 54c

**#87** Eight Plugs: 1 1/2"x4" Recommended for vacuum microphone, etc. \_\_\_\_\_ 60c

Above are all 1/2" thick and come in black only \_\_\_\_\_ 27c

**Extension:**

**#90** Two Plug: 1 1/2"x4" \_\_\_\_\_ 33c

**#91** Three Plug: 1 1/2"x4" \_\_\_\_\_ 36c

**#92** Four Plug: 1 1/2"x4" \_\_\_\_\_ 36c

**#93** Five Plug: 1 1/2"x4" \_\_\_\_\_ 42c

**#94** Six Plug: 1 1/2"x4" \_\_\_\_\_ 48c

**#95** Seven Plug: 1 1/2"x4" \_\_\_\_\_ 54c

**#96** Eight Plug: 1 1/2"x4" \_\_\_\_\_ 60c

All above are 1/2" thick and come in black only \_\_\_\_\_ 60c

**#101** Coupling Plug for two No. 64 and many other uses \_\_\_\_\_ 2c

**#110** Coll Plug, round shank, spring driven, set to internal shank: 1 1/2" \_\_\_\_\_ 9c

**#111** Same as No. 110 but has hexagon shank \_\_\_\_\_ 9c

**#112** Coll Plug, banana springs, held by hexagon shank. A far superior plug to any now on the market: 1 1/2" \_\_\_\_\_ 6c

Ideal for 5-Meter Work and Crystal Holders

**#113** Coll Plug, milled type without shank, hole in end to solder wire in. Ideal for transmitter use: 1 1/2" \_\_\_\_\_ 6c

**UNIVERSAL TEST KIT**

**#125** Universal Test Kit: Contains fourteen pieces, use each Nos. 25 and 30; two each Nos. 13, 24, 25, 26, 28, 42. All pieces are supplied in Red and Black for Positive and Negative respectively; except Nos. 30 and 25 which are yellow, and the clip No. 33 is highly nichel plated \_\_\_\_\_ 1.20

Use of Set: Place a No. 28 and a No. 42 plug at each end of a wire; at the No. 42 end use the No. 33 with the No. 25 inserted into it, with a phone screw in No. 25. Or use the No. 25, 30 parts if needed. On the No. 28 end use the No. 13 for meter posts, or the No. 26 for phone tip jacks on meters, etc.

**#156** Bushing: Highly polished nickel, colored and supplied with hex. nut 1/4" long x 1/2" O.D. x 1/2" I.D. \_\_\_\_\_ 4c

Smaller than No. 126: 1/2" long x 1/2" O.D. 7/32" I.D. \_\_\_\_\_ 3c

# DON'T JUNK YOUR OLD ANALYZER!

## Here's How To Modernize It

Here is an inexpensive way of bringing it right up to the minute! Contrary to popular belief, the advent of the new 7-prong tubes has NOT rendered your set analyzer obsolete. One—7-prong analyzer plug and its associated adapters will completely modernize it so that ALL CIRCUITS, including the very latest may be accurately analyzed. Here's how!

Replace your present plug and cable with the 907WLC and its associated adapters (listed directly below); viz., 974DS, 7 to 4-prong adapter; 975DS, 7 to 5-prong adapter; 976DS, 7 to 6-prong adapter and 977DS, 7 to 7-prong adapter. Then, replace your analyzer panel sockets with the new composite type sockets, Nos. 456 and 437 (listed elsewhere in this catalog). That's all there is to it! Your analyzer is then as modern as those which are now being produced by manufacturers. Simple—Isn't it?

### Na-Ald "Lock Feature" 7-Prong Analyzer Plug

The No. 907WL is the last word in small size analyzer plugs. It enables you, with the aid of its associated adapters, to completely modernize your old set analyzer for the 7-prong tubes. The plug has a latch, actuated by a spring, which locks the associated adapters to the plug, so that the adapters cannot stick in inaccessible sockets.



907WL



974DS

List Price \$3.50  
YOUR PRICE **\$2.06**

List Price \$5.50  
YOUR PRICE **\$3.23**

### Associate Adapters

List Price \$1.25  
YOUR PRICE **\$0.74**

List Price \$1.25  
YOUR PRICE **\$0.74**

List Price \$1.25  
YOUR PRICE **\$0.74**

List Price \$1.25  
YOUR PRICE **\$0.74**

List Price \$1.00  
YOUR PRICE **\$0.59**



975DS



976DS



977DS

## Economical Analyzer Adapter Kit

HERE IS THE 977P KIT for those desiring the lowest possible price. Uses the Hand-Handle Plug with the wired type "Make-Your-Own" small diameter associate adapters. No locking device is provided for attaching the adapter to the plug but the increased adapter height permits easy removal when left in set socket. Control grid stud supplied.

Now is the time to modernize all of your test equipment. Don't delay any longer. Here are kits priced to fit every serviceman. Directions and diagrams included with every outfit. Each adapter has a bi-color ring with distinctive color between heater holes to permit quickly joining any adapter to the analyzer plug. Kit consists of:

977W 7-prong Plain-type Analyzer Plug  
974W 7 to 4 prong Wired Adapter  
975W 7 to 5 prong Wired Adapter  
976W 7 to 6 prong Wired Adapter  
977WA 7 to 7A prong Wired Adapter

No. 977P YOUR PRICE **\$1.53**

## Adapter For Testing High Filament Voltage Tubes

What are you going to do when you get one of the 25Z5, 43, 48, etc., etc., high filament voltage tubes to check? Here is how. Just use this brand new 950TR adapter in the 24 socket of your present tube checker. The self-contained transformer and switch in the 950TR is designed for testing ALL 10, 12.6, 14, 15, 25 and 30 volt tubes. It will test the following tubes: 12Z3, 14, 17, 18, 25Z3, 25Z5 (each plate), 43, 48, 86, 262A, 272A, A22, A26, A28, A30, A32, A40, A48, AE, HZ50, KAI etc.

List Price \$6.00  
No. 950TR Special Tube Checking Adapter  
YOUR PRICE **\$3.52**

## Na-Ald Simple Code Practice Set

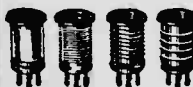


This set is the most inexpensive code instrument on the market! Has an adjustable pitch buzzer and will operate from the smallest type flashlight battery. All metal parts are nickel plated and are mounted on a beautifully molded Makalot base. The Morse Continental Code is molded on each side of the key. Clips can be placed in the binding post to hold fountain-pen flashlight battery. It is an excellent set for practicing code with someone else—each party having an individual code set. Will work efficiently up to 1,000 feet.

May be connected to the antenna post of your radio receiver to produce clear, loud, signals from the loud-speaker. The box in which each set is packed illustrates with diagrams many interesting ways of using this code set. Ship. wt., 1/2 lb.

No. "Shear" Na-Ald Simple Code Practice Set.  
List Price \$0.75  
YOUR PRICE **\$0.44**

## Na-Ald Short-Wave Plug-In Coils



We recommend these coils in all short-wave circuits which are critical to so-called "R.F. losses". These coils will cover the wave range of from 20 to 200 meters with a .00014 mf. condenser. Each coil has a special rim on top which serves the dual purpose of easy gripping and color coding. The color of each rim, on each coil is different so that at a glance, you can tell the wave range which each particular coil will cover. They are precision wound on low-loss Bakelite forms. Ship. wt. 1/4 lb.

List Price \$2.00  
No. 704SWS Na-Ald Short-Wave Plug-In Coils.  
YOUR PRICE, per set of 4 **\$1.18**

# DON'T JUNK YOUR OLD RECEIVER!

## Here's an Easy Way to Modernize It

With the aid of these adapters you can completely modernize your receiver without so much as changing a single connection. The new tubes which have recently been placed on the market will undoubtedly MAKE YOUR RECEIVER EXTREMELY MORE SENSITIVE AND SELECTIVE, and will create a HIGHER POWER OUTPUT so that additional speakers may be employed. You will readily appreciate that a new receiver using these new tubes will cost considerably more than the few adapters necessary to bring it up-to-the-minute.

Let's take an example: if you desire to add additional speakers to your receiver, which at the present time utilizes a single 45 in the output stage, it will be necessary for you to replace the 45 with a tube affording greater power output such as a 47 pentode. The proper adapter for such a change would be the No. 954-47. The operation is extremely simple, namely, you remove the old 45, plug in the new adapter and finally replace the 47 tube in the socket of the adapter. Ship. wt., 1/4 lb. ea.



965-58



954-47



927



964-403



974-403



964KSPR



965GKR

No. 965-58 Replaces 24 tubes with 57 or places the 58 in a 35 or 51 socket.  
YOUR PRICE **\$0.29**

No. 954-47 Replaces 45 tubes with 46 or 47 pentodes.  
YOUR PRICE **\$0.29**

No. 927 Replaces Kellogg overhead heater type tubes with the 27.  
YOUR PRICE **\$0.74**

No. 419X Places the 2 volt tubes in old UV sockets.  
YOUR PRICE **\$0.21**

No. 999 Places any UX-base tube in a UV199 socket.  
YOUR PRICE **\$0.44**

No. 954-401 Replaces the Kellogg 401 with the new 56. Increases volume—lowers tube replacement cost.  
YOUR PRICE **\$0.88**

No. 964-403 Replaces the Kellogg 403 with the new 2A5 pentode. Increases volume—lowers tube replacement cost.  
YOUR PRICE **\$0.88**

No. 974-403 Replaces the Kellogg 403 with the new 7-prong 59 pentode. Makes great improvement.  
YOUR PRICE **\$0.88**

No. 964KSPR Replaces 45 tubes with new 6-prong 2A5 pentode. Special resistance eliminates hum.  
YOUR PRICE **\$0.74**

No. 965GKR Replaces 47 pentodes with new 6-prong 2A5 pentode. Increases output—reduces hum.  
YOUR PRICE **\$0.74**

No. 974GGR Replaces 45 tubes with latest 7-prong 59 pentode.  
YOUR PRICE **\$0.74**

No. 975KSPR Replaces 47 with 59 tube.  
YOUR PRICE **\$0.74**



975KSPR



999



419X





# Adapters

## New 6 - 7 Prong Adapters—Sockets FOR TUBE CHECKERS—ANALYZERS—LABORATORIES

### "HUNDRED-IN-ONE" UNIVERSAL TESTING ADAPTER

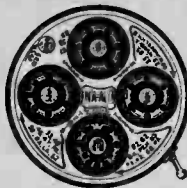
Brings Up to Date All Types of Old and Antiquated Tube Testers Tests All of the New Tubes—100 of Them



Side-view of adapter.

This new Universal tube checking adapter is undoubtedly the best article put out on the market in the adapter field. It will save thousands of Service Men and experimenters the expense of buying new tube checkers to analyze the 100 and some odd new tubes which have recently appeared. Consists of a bakelite case with 4 sockets (two of them being composite 4-5-6 prong ones) on top, which will engage all the tubes which have ever been manufactured. The bottom of this bakelite case comprises a 5-prong plug. Convenient switch on the side of case permits the testing of both plates of full wave rectifying tubes.

This new 950XYL Universal Tube Checking Adapter enables any standard tube checker to test the 29, '33, '36, '37, '38, '39, 41, 42, 44, 46, 47, 49, 52, 55 (Duo-diode-triode), 57, 58, 59, 64, 65, 67, 68, 69, 70, 80, 82, 83, 85 (Duo-diode-triode), 88, 89, 985, 986, G-2S, G-4S, GA, LA, PA, PZ, PZH, Wunderlich, "A" and Wunderlich "B" tubes. All of these 40 tubes and their equivalents are checked in this adapter when used in the UY screen-grid socket of any tube checker. Automatic tubes are checked in a UX five volt socket by using a No. 954, five or four, adapter. Complete instructions are on the bottom of the adapter. Very simple to operate. Has only one toggle switch for use with the double plate tubes to test each plate separately. No leads, plugs or jacks to fuss with or lose. Has the proper resistance network to protect the sensitive diode tubes from ionization while under test, as well as the delicate instrument movements from the high current of the mercury vapor rectifier tubes.

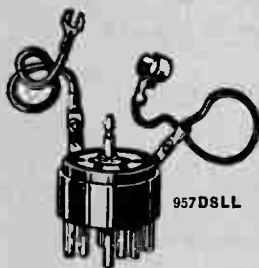


Top-view showing the Tube markings.

List Price \$6.00  
No. 950XYL "Hundred-in-one" Universal Testing Adapter. **YOUR PRICE \$3.53**

### Seven-Prong Adapters for Modernizing ALL Styles and Models Tube Testers and Set Analyzers

#### 5 to 7 Prong Adapter



957DSLL

This adapter is for the early models of Supreme AAA-1 Set Analyzers. For analyzing 7-prong tube circuits. Spade terminal engages the machine screw R.F. pentode binding post on side of analyzer plug. The grid clip lead engages grid stud on test plug.

With this adapter on UY test plugs and the 975SLGL adapter in the UY analyzer socket, complete tests may be made of all 7-prong tube circuits.

No. 957DSLL Analyzer Plug Adapter **YOUR PRICE \$1.04**  
No. 975SLGL Analyzer Socket Adapter **YOUR PRICE \$0.90**

#### 6 to 7 Prong Adapter

For use with ALDEN No 906L or 906WL "Latch-lock" Analyzer plugs. All connections through, except control grid prong which connects to center locking post. Simply connect latch in 906 plugs, to the control grid studs. This adapter will analyze all 7 prong tube circuits.



967SS

List Price \$1.25  
No. 967SS 6 to 7 Prong Adapter **YOUR PRICE \$0.75**

#### Duplex Diode—Triode Adapter

Tests 55 and 85 Tubes



965-55

No. 965-55 Duplex Diode Triode Adapter **YOUR PRICE \$2.70**

To thoroughly analyze the Duplex Diode—Triode tubes, it is necessary to test both the Triode and the Diode sections. The Diode section requires low voltage for testing or else damage or ionization may occur. All these conditions are taken into consideration in the construction of the new 965-55 adapter, illustrated herewith. The 55 and 85 tubes are tested in the '27 and '37 tube checker sockets respectively. The lead from the adapter connects to the tube caps while the tube itself in the adapter is tested like a '27 with the toggle switch in the "diode" position. The Triode section is tested by throwing the switch in the other direction.

#### 6 to 7 Prong Adapter



967DSGL

No. 967DSGL Analyzer Socket Adapter **YOUR PRICE \$0.75**

With this Adapter, the NA-ALD 906 Analyzer Plug can test the circuits of the new 59-7-prong tubes. Used with Weston No. 660 Set Analyzer. The control grid prong of the 7 pin base is connected to a flexible lead with a clip which engages the grid cap on an analyzer plug. Center locking-stud dead. All other connections through. Used with No. 967GL Adapter in 6-hole socket to take 59-7-prong tubes.

No. 967DSGL Analyzer Plug Adapter **YOUR PRICE \$0.90**  
No. 975GL Analyzer Socket Adapter **YOUR PRICE \$0.75**

#### 4 to 7 Prong Adapter

This adapter is for Supreme Analyzers Models 90-1J and 2J series and 400B-N4 series. Locks on to UX test plug with spade terminal engaging the RF pentode binding screw and the grid clip lead engaging the control grid stud. Analyzes all 7-prong tube circuits. Used with 975SLGL in 5-hole analyzer socket. The green lead engages the control grid-pin jack and the black lead the RF pentode grid-pin jack.

No. 947SIHL Analyzer Plug Adapter **YOUR PRICE \$1.04**  
No. 975SLGL Analyzer Socket Adapter **YOUR PRICE \$0.90**



947SIHL

#### 4 to 7 Prong Adapter



947SLLL

No. 947SLLL Analyzer Plug Adapter **YOUR PRICE \$1.04**  
No. 975SLGL Analyzer Socket Adapter **YOUR PRICE \$0.90**

This adapter used with Supreme Models 90-3J, 4J and 5J series. For circuit analysis of all 7-prong tubes. Adapter locks on to analyzer plug, the spade terminal engaging the R.F. pentode binding screw and the control grid clip lead engaging the grid stud of the analyzer plug. With this adapter on the UX test plug and the UX 975SLGL adapter in the UY analyzer socket, complete tests may be made of all 7-prong tube circuits.

#### 4 to 6 Prong Adapter



946DSIH

Used with Supreme Model 90-1J, 2J series and 400B-N4 series. For analyzing all 6 prong tube circuits. Adapter locks on to test plug with lock stud. Grid clip lead engages grid stud on analyzer plug. Will analyze 41, 42 and PA tube circuits. Will also test 57, 58 and 89 tubes having control grid caps. The adapter grid clip is fastened to the R.F. pentode binding screw and the grid clip from the set slipped on to the grid stud of the analyzer plug. Used with the No. 965SL which holds the 6-prong tube in the 5-hole analyzer socket, the flexible lead being inserted in the R.F. pentode grid pin jack. **YOUR PRICE \$0.90**  
No. 946DSIH Analyzer Plug Adapter **YOUR PRICE \$0.75**

#### 4 to 6 Prong Adapter



946SS

No. 946SS Analyzer Plug Adapter **YOUR PRICE \$0.90**  
No. 965SL Analyzer Socket Adapter **YOUR PRICE \$0.75**

Used with Supreme Model 90-3J, 4J, 5J series and 400B-N4 series. Attaches to 4-prong analyzer plug with lead connected to pentode grid binding screw. For testing 57, 58 and 89 tubes, the grid clip lead from receiver connects to grid stud on test plug. For testing 41, 42, PA and PZH tubes, the adapter lead attaches to the grid stud on the analyzer handle. Used with 965SL Adapter in the UY analyzer socket.

No. 946SS Analyzer Plug Adapter **YOUR PRICE \$0.90**

#### 5 to 6 Prong Adapter

For early Models, AAA-1 Supreme Set Analyzers. Adapter attaches to UY Analyzer Plug. For testing 57, 58 and 89 tubes, the adapter lead engages the R.F. pentode grid. For testing 41, 42, PA and PZH tubes. Adapter lead attaches to grid stud of analyzer plug. Used with 965SL Adapter in 5-hole analyzer socket.



956SS

No. 956SS Analyzer Plug Adapter **YOUR PRICE \$0.90**  
No. 965SL Analyzer Socket Adapter **YOUR PRICE \$0.75**

#### Composite "Three-In-One" Tube Socket

Takes 4, 5 and 6 Prong Tubes



456

This single socket will contact the prongs of either a UX, UY or 6 prong tube. Heater and filament clips are common to all tubes. All other prongs have individual connections thereby making 9 terminals in all. This socket is for replacing test sockets which already exist in old analyzers or tube checkers so that the latest type tubes may be checked without using adapters. No. 456 has a mounting hole spacing of 1-19/32" and a panel hole of 1-3/16". No. 456E has a mounting hole spacing of 1-11/16" and a panel hole of 1 3/8". No. 456 Composite Socket **YOUR PRICE \$0.60**  
No. 456E Composite Socket **YOUR PRICE \$0.74**

#### 7-Hole Sockets

No. 437 7 Hole Socket—mounting holes 1-19/32 **YOUR PRICE \$0.20**  
No. 437E 7 Hole Socket—mounting holes 1-11/16 **YOUR PRICE \$0.30**

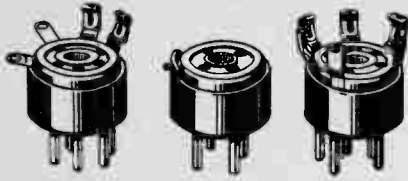


# Adapters

## General Purpose Adapters SOCKETS — COIL FORMS — SPEAKER PLUGS

### General Purpose Adapters

Neutralizing — Oscillation Control — Testing — Experimenting



- |            |  |               |
|------------|--|---------------|
| No. 944N   | UX neutralizing adapter with one filament dead, for balancing oscillating receivers  | <b>\$0.59</b> |
| No. 955N   | UY neutralizing adapter used same as above   | <b>\$0.59</b> |
| No. 944GP  | UX adapter, makes detector circuit of any UX R.F. stage, breaking grid circuit for grid leak and condenser. Also breaks plate with phone tip terminals for head phones | <b>\$0.73</b> |
| No. 955GP  | UY Adapter used same as above  | <b>\$0.73</b> |
| No. 944GPL | For measuring voltages of both plates of 280 rectifier tube  | <b>\$0.88</b> |
| No. 944JY  | UX Adapter with plate and grid crossed   | <b>\$0.88</b> |
| No. 955GS  | For testing A.C. screen-grid tubes   | <b>\$0.88</b> |
| No. 972    | For adapting Westing Electric type 215A tubes to UX or UY sockets  | <b>\$0.73</b> |
| No. 973    | For adapting UV or UX tubes to Westing Electric type 215A sockets  | <b>\$0.73</b> |
| No. 944PTT | UX Universal testing adapter with plate-break. All other connections brought out to phone tip terminals  | <b>\$0.73</b> |
| No. 955PTT | UY Universal testing adapter used same as above  | <b>\$0.73</b> |
| No. 934U   | UX Oscillation Suppressor Adapter with 6 ft. cords. For Supreme instruments  | <b>\$0.88</b> |
| No. 944UP  | UX Adapter with grid and plate connections crossed. For Supreme instruments  | <b>\$0.75</b> |
| No. 945U   | UX tube in UY socket. Grid and plate connections through. Heater minus to cathode. Heater plus hole and 2 heater prongs dead. For Supreme instruments                  | <b>\$0.75</b> |
| No. 945H   | UX tube in UY socket. Plate and grid connections through. Heater plus through as well as to cathode prong  | <b>\$0.90</b> |
| No. 951U   | UX adapter with split plate and 6 ft. leads  | <b>\$0.90</b> |
| No. 954H   | UY tube in UX socket. Heater adjacent to cathode dead. For Supreme instruments   | <b>\$0.60</b> |

### Complete Cable Connector Units

Fiber plate containing prongs attaches directly to speaker chassis. Female plug attached to speaker cable. Convenient, safe, positive connections.



Less Cord	With 18" Cord
No. 204FP 4 Prongs No. 205FP 5 Prongs No. 206FP 6 Prongs YOUR PRICE <b>\$0.15</b>	No. 204FPH 4 Prongs No. 205FPH 5 Prongs No. 206FPH 6 Prongs YOUR PRICE <b>\$0.30</b>



### Tube Base Coil Forms

Genuine molded Bakelite, phosphor bronze prongs. UX only. 1 3/8 ins. high x 1-3/16 ins. diameter. Molded Bakelite base in center permits utilizing all types of adapters in conjunction with our No. 421, 423 and 426 sockets listed above.

No. 944JY Tube Base Coil Forms  
YOUR PRICE, each **\$0.15**  
Plain Tube Bases, Either UX or UY  
YOUR PRICE, each **\$0.06**



### TUBE SOCKETS FOR ALL PURPOSES

#### General Purpose Sockets



Provided with knurled nut binding posts for convenient connections. Excellent for regular as well as experimental work. Made of molded Bakelite throughout with bronze contact prongs.

Available for either 4, 5 or 6 prong tubes.  
No. 481 UX Socket  
481 UY Socket  
Each **\$0.21**  
486 6 prong  
487 7 prong  
Each **\$0.22**

#### UX Spring-Cushioned Sockets



Genuine molded Bakelite sockets with phosphor bronze spring contacts. Ideal for automobile and portable receivers in which the tubes are always subjected to jarring. All shocks and jars are taken up by

Excellent For Portable Sets  
the spring action of the socket and absorbed before they reach the tube. Available only for the UX four-prong tubes.  
No. 481 UX Socket  
YOUR PRICE **\$0.14** each

#### Universal Mounting Sockets



Genuine molded Bakelite with phosphor bronze spring contacts. For mounting either above or below sub-panel. Equipped with insulated mounting flanges and holes. Ideal for building adapters in conjunction with tube bases listed elsewhere on this page.

No. 424 UX Sockets  
424 UY Sockets  
425 6-Prongs  
436 6-Prongs  
437 7-Prongs  
YOUR PRICE ea. **\$0.17**

#### Sub-Panel Sockets

Ideal where space is at a premium. Small and compact.



No. 422 UX Socket  
No. 423 UY Socket  
No. 426 6 Prong  
No. 427 7 Prong  
each **\$0.16**

#### Wafer Tube Sockets

Available for either 4, 5 or 6 prong tubes. Mounting 1-11/16" centers.



No. 474 UX Socket  
475 UY Socket  
476 6-Prong Socket  
YOUR PRICE **\$0.14**

### SPEAKER ANALYZER PLUGS

#### "Sure Grip" Plugs



Genuine molded Bakelite with phosphor bronze prongs. Cover threads on base for easy connections. Available either with or without cord attached.

Less Cord	With Cord
94-UX Plug Your Price <b>\$0.21</b>	94H-UX Plug Your Price <b>\$0.73</b>
95-UY Plug	95H-UY Plug
96-6 prong plug	96H-6 prong
97-7 prong plug	97H-7 prong

#### Flat Type Speaker Plugs



Genuine molded Bakelite bases with phosphor bronze prongs. Excellent for dynamic speaker cables. Usually employed with our No. 984F, 985F and 986F Female Connector Plugs.

Less Cord	With Cord
No. 104 4 Prong Plug	No. 104H 4 Prong Plug
No. 105 5 Prong Plug	No. 105H 5 Prong Plug
No. 106 6 Prong Plug	No. 106H 6 Prong Plug
YOUR PRICE <b>\$0.06</b>	YOUR PRICE <b>\$0.68</b>

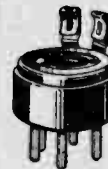
#### Female Connector Plug



Used in conjunction with our Nos. 104, 105 and 106 Flat Type Speaker Plugs to form complete connector units.

Less Cord	With Cord
No. 984F 4 Prongs	984FH 4 Prongs
No. 985F 5 Prongs	985FH 5 Prongs
No. 986F 6 Prongs	986FH 6 Prongs
No. 987F 7 Prongs	987FH 7 Prongs
YOUR PRICE <b>\$0.33</b>	YOUR PRICE <b>\$1.03</b>

### "PHONO"—"MIKE" AND TONE CONTROL ADAPTERS Phono-Pickup Five Prong Adapter



This adapter connects all types of phonograph pickups into the grid and cathode circuit of receivers employing type 227 detector tubes. May also be used for connecting microphones through a microphone transformer. Grid and cathode brought to external pin jacks.

No. 955KT Adapter  
YOUR PRICE, each **\$0.73**

### Universal Purpose Adapter

FOR 4 AND 5 PRONG TUBES

For connecting phonograph pickups and microphone to A.C., D.C. and battery sets. Fits either UY or UX tubes. Grid and cathode prongs brought out to tip jacks.



No. 949 Adapter  
YOUR PRICE, each **\$0.35**

### Extra Speaker—Headset & Tone Control Adapters



Sold in Pairs  
Connects to plate prongs of power tubes in sets having push pull amplification. Fiber base with soldering lugs for connecting extra speakers, tone controls and head phones. Sold only in pairs.

No. 949SP Adapters  
YOUR PRICE, per pair **\$0.44**

### '82 Mercury Rectifier Testing Adapter



Tests 82 in '45 socket of any tube checker. Also tests 83, 985 and 986 tubes in '80 socket.

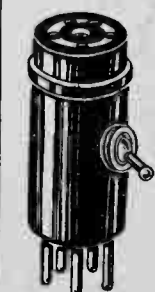
Toggle switch permits readings of both plates of rectifier tube.  
No. 982 Adapter  
YOUR PRICE each **\$1.76**

### Color Coded Plug-in Coil Forms



Genuine molded Bakelite with phosphor bronze contact prongs. Overall length 2-11/16 ins., 1 1/4 ins. outside diameter. Top rim colored for identification of different wavelengths. Specify either blue, green, yellow or red rims when ordering. Specify UX or UY.  
No. 1864 Coil Forms  
YOUR PRICE, ea **\$0.16**

### G-2 Diode Tube Adapter



Tests G-2-S and G-4-S in '27 socket of any tube checker. Toggle switch permits readings of both sides of tubes. Made with proper resistances, having sufficient current-carrying capacity.  
No. 955G-2 Adapter  
YOUR PRICE each **\$1.76**



# Adapters

## For Every Purpose and Use

SET ANALYZERS — NEW TUBES — TUBE CHECKERS

### Na-ald "Lock Feature"

#### Analyzer Plug

Here is the latest, most ingenious and most practical development in the field of radio plugs and adapters; a development which is the outcome of a crying need of Service Men and experimenters. A new handle plug with an ingenious locking feature which COMPLETELY ELIMINATES THE OLD TIME-CONSUMING PROCESS OF ATTACHING ADAPTERS TO HANDLE PLUGS WITH SCREWS. Simply insert the plug into the adapter. It locks itself securely and automatically. Snap the release button in the handle of the plug and the adapter slides off; simple yet efficient. Every Service Man should equip his analyzer or test bench with this new plug. Available in the UX and UY types, both with and without test cables. Cable for the UX type comprises 6 braided wires. Four wires connected to prongs, one to screen grid and sixth to center latch. The cable for UY type comprises six wires too, five to prongs and the sixth to screen grid. Shipping weight 1 lb.



- No. 904L New Analyzer Plug UX Type. **\$1.76**
- No. 995L New Analyzer Plug UY Type. **\$1.76**
- No. 904LC—New Analyzer Plug UX Type with 5 Ft. Cord. **\$2.94**
- No. 905LC New Analyzer Plug UY Type with 5 Ft. Cord. **\$2.94**
- No. 1894 Additional Cable for New Plug. **\$0.18**
- No. 945DS UX to UY Adapter for use with UX Type Handle Plug. Cathode Circuit Connected to Center Post. **\$0.75**
- No. 4954DS UY to UX Adapters for use with UY Type Handle Plug. **\$0.75**
- No. 956DKS 5 to 6 Prong Adapter for UY Analyzer Plugs—to test 57 and 58 circuits—Stud dead—Suppressor to cathode. **\$0.73**
- No. 956DSL 5 to 6 Prong Adapter for UY Analyzer Plugs—to test 41 and 42 circuits. **\$0.88**

### Additional Units for Adapting any Analyzer Plug or Tube to any Style Socket



UX TO UX  
Fits 5 prong tubes into 4 prong sockets. Cathode hole to heater prong.

No. 954 Adapter **YOUR PRICE \$0.59**

X'99 TO V'O1A



UX TO UY  
Fits 4 prong tubes into 5 prong sockets. Cathode prong dead.

No. 945 Adapter **YOUR PRICE \$0.59**

X'99 TO V'99



Adapts UX 199 tubes to UV 201A sockets.

No. 419X Adapter **YOUR PRICE \$0.19**

V'99 TO V OR X'O1A



Adapts UV 199 tubes to either UV or UX201A sockets.

No. 429 Adapter **YOUR PRICE \$0.44**



Adapts UX 199 long prong tubes to UV (short prong) 199 sockets.

No. 999 Adapter **YOUR PRICE \$0.59**

WD11 TO UV OR UX



Adapts WD11 tubes to either UV or UX sockets.

No. 958 Adapter **YOUR PRICE \$0.73**

### 6 Prong Adapters and Analyzer Plugs

#### Modernizing All Types of Tube Checkers and Set Analyzers

The new line of adapters presented herewith were designed to bring up to the minute all old type tube checkers and set analyzers which cannot at the present time test the latest type 57 and 58 triple-grid

#### "Lock-Feature" 6 Prong Analyzer Plug



For building new analyzers and modernizing old ones to test the latest type 57 and 58 6 prong, triple-grid tubes. Has screen-grid contact on side. May be had either with or without 7 wire cable. No. 906L Plug

**YOUR PRICE \$2.06**  
No. 906LC Plug with 5 ft. cable **YOUR PRICE \$3.23**

#### 6 to 5 Prong



For use with No. 906L 6-prong analyzer plug above. Six holes to P with center stud 5 prong bottom. All connections through. Suppressor grid

contact dead. No. 965DS Adapter **YOUR PRICE \$0.73**

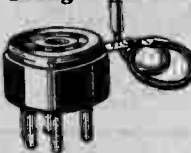
#### 6 to 4 Prong



For use with new 906L 6-prong analyzer plug. 6 hole top with center stud, 4 prong bottom. All connections through. Suppressor dead. Filament minus prong connected to cathode hole. No. 964DS Adapter

**YOUR PRICE \$0.73**

#### 6 to 5 Prong



For use with Hickok AC-47 and Radio Products instruments. All connections through. Suppressor grid brought out to six inch lead with phone tip. Tests 57 and 58 tubes in '24 socket with lead inserted in cathode hole of '27 socket. Tests 41 and 42 tubes in '24 socket with 6.3 volts applied and lead-in grid hole of '27 socket. No. 965KS Adapter

**YOUR PRICE \$0.73**

### Twin Adapters for Testing 6 Prong Tubes in Tube Checkers and Set Analyzers

With these twin adapters, any style or model of set analyzer may be made to test the latest type 57 and 58 6-prong tubes. The 6-prong adapter is attached to the 5-prong analyzer plug and then inserted in the 6-hole socket of the set. The other or 5-prong adapter is inserted in the five hole socket of the analyzer and then engages the 6-prong tube which is



to be tested. Adapter with 6 hole top is connected by a wire lead to suppressor grid contact of analyzer plug. Available for use with either "Lock-Feature" or old style analyzer

plugs. No. 965DSW Twin Adapter for Lock-feature" Plug **YOUR PRICE \$1.47**  
No. 965DW Twin Adapter for Old Style Analyzer Plug **YOUR PRICE \$1.47**

### 6 to 5 Prong Tube Checker Adapter

For testing 57 and 58 tubes in '24 socket of old type tube checker. 5 prong bottom six hole top. Suppressor grid contact in top connected to cathode prong of UY base.



No. 965KS Adapter **YOUR PRICE \$0.59**

### 6 Prong Adapter for Supreme Analyzers

For recent models of Supreme analyzers which have extra wire in their cables connected to the center latch of "lock-feature" analyzer plugs. Five hole top, six-prong bottom, suppressor grid connected to center stud.



No. 965DS Adapter **YOUR PRICE \$0.73**

### New Adapters for Testing Pentode Tubes

The reason adapters or wiring changes are necessary to test pentode tubes is that the elements of the tube are connected to the base prongs in a way differing from standard practice. Any set analyzer or tube tester,

however, may be brought up to date by the use of the adapters presented herewith—which adapters of course automatically make the required circuit changes.

### For Replacing '45's with Pentodes



4-prong bottom, 5-hole top. Current to screen circuit obtained internally from plate prong.

Used for replacing type 245 power tubes with 247 pentodes. Two adapters used for push pull circuits. No. 94KPC Adapter

**YOUR PRICE \$0.59**

### Twin Adapters for Set Analyzers

With these twin adapters, all styles and models of set analyzers may be made to test any of the pentode tubes. One adapter is attached to the 5 prong analyzer plug and then inserted into the pentode tube socket of the receiver while the other is inserted



in the 5 tube socket of the analyzer and is then engaged by the pentode tube. A flexible lead connects the screen-grid prong of the first adapter to the screen-grid hole of the second. No. 974 Twin Adapter

**YOUR PRICE \$1.47**

### 4 to 5 Prong

Used on plugs of Supreme 90 and 1-21 series and 400-N4 series with No. 976 Adapter in UY analyzer socket. Grid plate and heater plus connections through. Heater minus prong connected to center stud. No. 977 Adapter



**YOUR PRICE \$1.03**

### 5 to 4 Prong

For use with Weston No. 547, 565 and 566 analyzers. Placed in UY socket with No. 945GL on Analyzer plug. Plate and filament connections through. Cathode hole connected to grid prong. No. 954GL Adapter



**YOUR PRICE \$0.88**

### 4 to 5 Prong—Weston Instruments



Filament and plate connections through. Grid hole connected to cathode prong. For Weston 547, 565 and 566 tube checkers and analyzers. Attaches to analyzer plug—used with 954GL Adapter. No. 945GL **YOUR PRICE \$0.88**

### 5 to 4 Prong Adapter

Grid, plate and heater connections through. Cathode circuit brought out for tube checkers and set analyzers. No. 954K **YOUR PRICE \$0.73**



# ADAPTERS AND SOCKETS

## Radio Servicemen's Universal Adapter and Trouble Finder

10 Adapters Built into One Compact Unit



1860



1861

**BREAKING OR SOLDERING  
REMOVING THE CHASSIS.**



1862



1863

you would appear that the prong receptacle and its respective prongs are directly connected right through the adapter. They are not; and that's the whole essence of the thing. Prong receptacle and prong are two completely independent units. Wire leads from each one of them, however, are brought out to external pin jacks on the periphery of the adapter. For this purpose you may use either the connecting cords shown above our Nos. 1862 and 1863 which are equipped with the special connecting link tips or else any other wire or cord which will fit the pin jacks.

For example, if the connecting link marked "P" on the adapter, is removed, the plate circuit of the tube is opened. With the plate open it becomes a simple matter to insert a milliammeter by merely making contact with the two pin jacks vacated by the connecting link. For this purpose you may use either the connecting cords shown above our Nos. 1862 and 1863 which are equipped with the special connecting link tips or else any other wire or cord which will fit the pin jacks.

To balance squealing, oscillating receivers, all that is necessary is to insert the proper adapter, either UX or UY in the R.F. sockets, remove the grid connecting links and insert the ends of flexible grid suppressors in the vacated pin jacks.

If it is desired to make an electrical contact with any of the tube circuits, the grid for instance, merely pull out the connecting link (i.e. break the circuit) of the grid prong and insert the connecting link of our No. 1863 Dual Connector Cord. This automatically completes the circuit once more, but in addition establishes an electrical connection to the grid of that tube.

Prong receptacles and prongs are made of tempered phosphor-bronze metal and are firmly set into a disc of heavy insulating fibre. The most ingenious, most efficient, most useful piece of apparatus ever developed since the advent of radio. Two models are available; a four prong UX adapter and a five prong UY adapter. Two types of connecting cords specially manufactured for these adapters are also available; single and dual connecting cords. Shipping weights of cords and adapters are 8 oz. each.

List Price \$1.75

No. 1860 UY Universal Adapter and Trouble Finder  
**YOUR PRICE \$0.95**

List Price \$1.75

No. 1861 UX Universal Adapter and Trouble Finder  
**YOUR PRICE \$0.95**

List Price \$0.40

No. 1862 Single Connector Cord  
**YOUR PRICE \$0.20**

List Price \$0.50

No. 1863 Dual Connector Cord  
**YOUR PRICE \$0.25**

## Polymet Phone Plugs



Polymet Phone Plugs are the leaders in their field. Made in two types, composition Bakelite. They are the most popular and convenient plugs on the market. Automatic Action, Fool Proof, Positive Contact at all times, Polarity marked on sleeve.

List Price \$0.35

No. PP-2 Composition Plug  
**YOUR PRICE \$0.20**

## Belden 8 Ft. Line Cord

A heavy-duty line cord made especially for large size power amplifiers and allied equipment.



Each conductor has four layers of insulation. The cable measures more than 8 feet long and terminates in a Belden soft-rubber plug which defies breakage.

May be used for heavy duty electrical appliances, heaters, and all other equipment using a large amount of current. Ship. wt. 1 lb.  
List Price \$1.25  
No. B721 Belden 8 Ft. Line Cord.  
**YOUR PRICE \$0.40**

## Three-Wire Microphone Cable



Measures more than 5 1/2 feet long and comprises three rubber-covered flexible conductors, terminating in standard telephone tips.

The three conductors are color-coded. Ship. wt. 1/2 lb.  
No. B7219 Three-Wire Microphone Cable.  
**YOUR PRICE \$0.10**

## REMINDER

Order Blank Complete Index  
on Page 104 on Page 106

## New Pentode Adapter

Replaces Type '45 Tubes with Pentodes

A new and simple device for replacing the old '45 type power tube with the latest super-power pentode. The replacement is effected without rewiring or changing any part of any circuit of the receiver or amplifier. All the necessary changes are ingeniously incorporated in the adapter unit itself. All that is necessary is to remove the '45 power tube, insert the adapter in the vacated socket and then place a pentode tube in the socket of the adapter. Gives added life and power to old receivers and amplifiers as well as better fidelity of tone. Measures 1 1/2"x1 3/4" diam. Shipping weight, 1/2 lb.

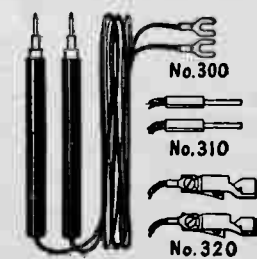
List Price \$1.50

No. 1873 New Pentode Adapter  
**YOUR PRICE \$0.40**



## Heavy Duty Laboratory Testing Prods

With Needle Point Phone Tips



No. 300

No. 310

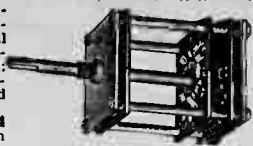
No. 320

wire and long black and red fibre handles. Measure 5 1/2 ins. long and 3/4 in. diameter. The needle plus phone tip is made of the highest grade hard bronze. The other extremities of the wires are available with 3 different styles of connecting ends. Shipping weight, 1/2 lb.

No.	Type	List Price	YOUR PRICE
300	Equipped with U-shaped Terminal Lugs	\$1.50	<b>\$0.45</b>
310	Equipped with Standard Phone Tip	1.50	<b>\$0.45</b>
320	Equipped with Spring Clip	2.00	<b>\$0.60</b>

## Three-Pole Ten-Point Selector Switch

This sturdily constructed switch, originally made for a special purpose, has the following characteristics: two sections of 10 contact points and a third of 6 points.



The switch has 4 positions. In position No. 1—4 points are contacted on each section. In all other positions, 5 points are contacted on two of the sections and only 3 on the third section.

This unit lends itself to a multiplicity of uses. May be used as a shunting switch, channel-selecting switch, for long and short-wave receivers, etc., etc.

Requires a single 1/2" hole for mounting. Switch measures 2 1/4" square x 3" back-of-panel depth. Ship. wt. 1 lb.  
List Price \$3.50  
No. B7218 Three Pole Ten Point Rotary Selector Switch.  
**YOUR PRICE \$0.55**

## Five Wire Color-Coded Connecting Cable



This cable is four feet long, and contains five heavy-duty color-coded wires.

It is ideal for connecting dynamic speakers to radio chassis, power amplifiers to associated equipment, batteries to battery sets, etc., etc.

The tips of all wires are thoroughly tinned and solder-dipped for convenient connections. Ship. wt. 1/2 lb.  
List Price \$0.75

No. B7228 Five Wire Color-Coded Connecting Cable.  
**YOUR PRICE \$0.10**

## Remote Control Cable

16 Wires—50 ft.

A cable of many uses! Ideal for remote control for radio receivers or for supplying voltages to condenser microphones in broadcast studios. May be used for supplying portable input amplifier in public address systems. This fifty foot cable has 16 wires—two of them shielded against interference. Fully color-coded and covered with high quality woven fabric. Shipping weight, 10 lbs.



List Price \$5.00

No. 1674 Remote Control Cable  
**YOUR PRICE \$1.75**

## I.C.A. Ear Phone Adapter



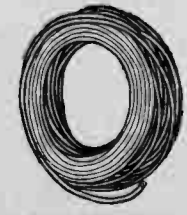
A new Ear Phone Adapter specially designed for use with the new electric sets. Can also be used with battery model sets. One can now listen to DX at any time without disturbing the rest of the family. In order to put the Ear Phone Adapter in use, take out the Power Tube of set, insert the Ear Phone Adapter in place of tube, and then insert phone tips of ear phones in specially provided connector. The volume desired, either loud or soft, can be regulated from the volume control of the set. In cases where the set has two Power Tubes in Push Pull, take out both Power Tubes, insert the adapter in either socket and operate accordingly. Finished in Black Bakelite, complete with Cord and Connector. Specify 4 or 5 prongs. Shipping weight, 1/2 lb.

List Price \$1.50

No. 1696 I.C.A. Ear Phone Adapter  
**YOUR PRICE \$0.88**

## 100 Ft. Roll Rubber Insulating Tubing

An excellent tubing for high power work. Will stand considerably higher voltage than the ordinary spaghetti. It is especially useful for covering hook-up wire (even insulated hook-up wire) at points where they pass through holes in a metal chassis.



List Price \$2.00  
No. 101 Rubber Insulating Tubing.  
**YOUR PRICE \$0.85**

## Miles Giant Dynamic Horn Unit

Type No. M100



This unit must not be confused with other so-called Giant Units. Even a cursory comparison will bring out the marked advantages of our M100. It is in reality a GIANT, for its net weight is 21 lbs. and its net dimensions are 5 1/2" x 5 1/2" x 5 1/2". The diaphragm—the heart of the unit—is absolutely unbreakable which is an exclusive feature only found in MILES.

Designed especially for theatres, parks and all kinds of Public Address installations, indoors and outdoors. For use in conjunction with large exponential horns.

### TREMENDOUS POWER OUTPUT

This Giant Dynamic Horn Unit is capable of handling any power output of 10 to 30 watts undistorted. Field supply is 1.1 amps. at 6 volts D.C. Source of supply may be either a 6 volt storage battery or a Miles Exciter No. M102 for 110 A.C. listed below. The voice coil has an impedance of 10 ohms at 50 cycles. Special output transformers Nos. 103 and 104 are available for matching this unit to the power amplifier. (Transformer M103 for 250 power amplifiers, Transformer M104 for 245, or 210 power amplifiers.) Shipping weight, 23 lbs.

List Price \$60.00

No. 100 Miles Giant Dynamic Horn Unit **\$35.28**  
YOUR PRICE

## Miles Exponential Trumpets

3 1/2 Ft. Trumpet

These trumpets when used in conjunction with loud speaker or phonograph units, especially those of the magnetic motor-drive type (as our Baldwin Rival units, make excellent directional, power speakers of exceptional tone quality. Bell 22 in. diameter, 42 in. long. Acoustically correct. Mounting rings included. Shipping weight, 8 lbs.

List Price \$20.00

No. M-3 3 1/2 Ft. Exponential Trumpet **\$11.25**  
YOUR PRICE

List Price \$25.00

No. MH-3 Heat and Water-proof Model **\$13.50**  
YOUR PRICE

### 6 FT. EXPONENTIAL TRUMPET

For indoor or outdoor application. Will carry for a distance of about 2,000 ft. Mounting rings included.

List Price \$45.00

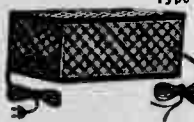
No. M-6 6 Ft. Exponential Trumpet **\$26.46**  
YOUR PRICE

List Price \$55.00

No. MH-6 Heat and Water-Proof Model **\$32.34**  
YOUR PRICE

## Exciter for Horn Unit

Type No. M-200



Used with above dynamic unit on 110 A.C. 50 to 60 cycles. Size 6 1/2 in. x 6 in. x 4 in. Humless! All Electric! All dry Exciter! Will not overheat! Good for 1 to 2 horn units. Shipping weight, 12 lbs.

List Price—\$20.00

No. M-102 Exciter for Giant or Junior Horn Unit **\$11.76**  
YOUR PRICE

## Colonial 10" Dynamic Loudspeaker

Here is a speaker made for one of the famous Colonial receivers. Has a 10 inch cone, suspended in an unusual manner. The core of the field coil is continued up in a conical shape that supports the center of the cone by means of a flexible fibre "spider." It is almost impossible to knock the voice coil out of adjustment because of this rugged mounting. Five wire, 2 ft. cable with plug attached included. This plug fits a standard socket of the UX type. The speaker is neatly aluminum finished and has a fibre ring cemented to the rim of the cone to prevent rattling.

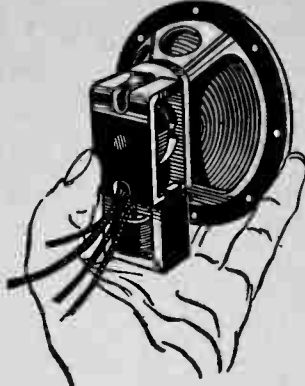


Designed for use with two '45 tubes connected in push-pull. Field coil impedance, 9000 ohms. May be used in place of one of the filter choke coils in sets requiring this resistance; or a separate current supply, such as a transformer, an '80 tube and dry-disc rectifier may be employed for A.C. operation. Overall size 10 1/2 x 10 1/2 x 6 inches. Shipping weight 7 lbs.

No. F7101 Colonial Dynamic Speaker. **\$2.80**  
YOUR PRICE

## 5-Inch Ultra-Midget Dynamic Speaker

Designed Especially for Midget AC-DC Receivers



This speaker is without question the greatest value in its class. Although designed especially for the new AC-DC receivers, it can be very readily adapted to a host of other purposes. Small in size, big in performance, sturdy in construction, this speaker compares favorably with many of the larger brethren. Has a field resistance of 3,000 ohms and an output transformer for a single 43 tube. This speaker is ideal for use in portable receivers where the field coil is used as a filter choke. The speaker measures 5" in outside diameter, 4" across the cone, and 2 1/4" deep. Although small in size it will handle considerable power.

Inasmuch as these units have been closed out by the manufacturer, the supply is limited. Had it not been for this close-out sale, its normal price would be approximately \$3.00. Buy now while they are still available.

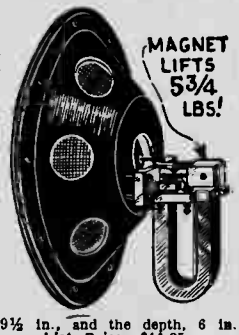
No. 120 5-inch Ultra Midget Dynamic Speaker. **\$1.75**  
YOUR PRICE

## B.B.L. 9" Cone-Magnetic Reproducer

This reproducer is recommended for its enormous sensitivity. That is, where output power is limited, and maximum volume is desired. At the same time, this "balanced-armature" 10 u speaker handles without rattling the power output of large radio sets.

Cast aluminum frame. Laminated pole pieces. An important feature is the provision of four adjusting screws which make it convenient to compensate the armature. The cone-cup is adjustably fastened to the 9 in. Burtex acoustic-fabric cone. A special super-tungsten magnet is used. The diameter is 9 1/2 in., and the depth 6 in. Shipping weight, 4 lbs. List Price, \$14.85.

No. 1509A B.B.L. Speaker. **\$3.15**  
YOUR PRICE



## Magnavox 9" Dynamic Speaker

2500 Ohm Field—P.P. 245 Output Transformer

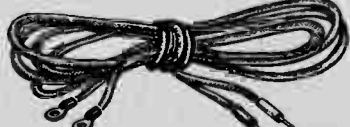


This is a 9 inch dynamic speaker made by one of the leading loudspeaker manufacturers. Designed especially for use with sets employing two '71A, '45 or '50 tubes connected in push-pull. A five wire cable, two feet long, is provided for connections to the receiver and the power supply for the field coil. The field winding has a resistance of 2500 ohms which is suitable for use as a filter choke in the power supply section of most receivers. It is particularly suited to midget receivers, due to its compact size. The frame of the speaker is neatly finished in aluminum. The front of the cone is protected by a black metal grill which entirely covers it. Size 10 1/2 x 10 1/2 x 5 inches. Shipping weight 7 lbs.

List Price \$26.00

No. F7100 Magnavox 9 inch Speaker. **\$3.40**  
YOUR PRICE

## Loud Speaker Cord



A fabric covered double conductor cord equipped with attachment lugs and tips. Obtainable in six foot lengths. Coded for polarity. Shipping weight, 4 oz.

No. 1671 Loud Speaker Cord. **\$0.10**  
YOUR PRICE

## Eveready "Vibrating" Mending Cement

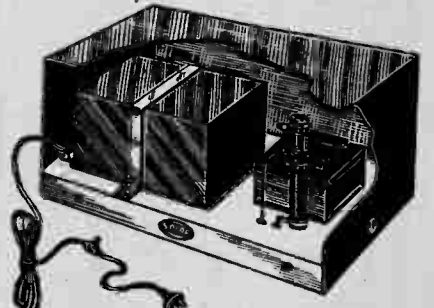


Until now radio servicemen have really been handicapped by the absence of a suitable cement to repair speaker cones, voice coil mountings and other vibrating equipment. The tendency of ordinary cement is to dry up and crack under such severe conditions. This Eveready "Vibrating" Mending Cement has been compounded, especially to fill this need. Unexcelled for repairing rattling cones in speakers, cementing loose tube bases and caps, or any other articles in vibration. Aside from these features, it is ENTIRELY WATER-PROOF and DRIES IN A FEW MINUTES. Sold in 2 oz. glass bottles with threaded metal caps which have a spreading rod attached to them. Ship. wt. 1/2 lb. No. 1085 Eveready "Vibrating" Mending Cement.

YOUR PRICE **\$0.33**

## NEW! D.C. to A.C. Power Inverters

Converts D.C. into A.C. in the Most Inexpensive Manner



It is no longer necessary to have an A.C. receiver remade into a less efficient D.C. type. People living in D.C. districts can now enjoy the full benefits of A.C. receivers. Engineers throughout the world admit that A.C. sets are far superior and more reliable than the D.C. ones. If you live in a direct current district, you merely use one of these Inverters between your supply line and the A.C. radio.

This new power inverter is a proven engineering achievement, giving 110 volts alternating current from direct current lines of various voltages. It has no rotating parts whatsoever; is quiet, efficient and extremely economical. With one of these Inverters, you need no longer worry about moving to A.C. or D.C. districts. YOUR RADIO WILL NOW WORK ON EITHER TYPE OF CURRENT.

The inverter incorporates a magnetic unit—the only moving (not rotating) part in the machine—a time proven device which, in average use in the home, will require replacement only after a long period of use. It is as easily replaced as a tube in a receiver. You merely pull out the old one and plug in the new. These replacement magnetic units may be had at a nominal cost, \$2.70, plus old unit.

**SELECTION OF THE PROPER INVERTER**

To select the proper type of power inverter for use with your radio receiver, ascertain first the direct current voltage available and second, the power rating (in watts) of the radio receiver. Many receivers have a nameplate in the rear with this power rating stamped on it. If you cannot locate this information, the following is an approximate guide: For receivers using 7 tubes, the power rating is 75 watts, 9 tubes—90 watts, 10 tubes—100 watts, and 12 tubes—130 watts. Receivers of over 9 tubes will generally require the 150 watt inverter but certain 10 tube receivers using class B amplifiers will operate with the standard 100 watt inverter listed below. Radio-phonograph combinations require the 150 watt machine.

**FULLY GUARANTEED FOR SIX MONTHS**

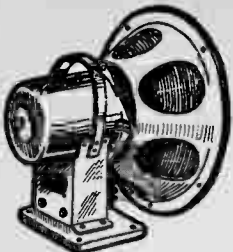
These Inverters are guaranteed to perform satisfactorily when used under proper conditions. Any inverter not so performing will be replaced free of charge within six months from date of sale if returned to us. This guarantee does not cover the magnetic unit, the life of which is dependent on use, and which is replaceable at a nominal charge as stated above. Physical dimensions of inverter, 11" long x 8 1/4" wide x 7 1/4" high. Sold complete with 7 ft. connection cord, "on-off" switch and plug. Ship. wt., 20 lbs.

Con. No.	Input Line Voltage	Watts Rating	YOUR PRICE
UT-1	110 Volts D.C.	100	<b>\$19.50</b>
UT-2	220 Volts D.C.	100	<b>\$20.50</b>
UT-3	32 Volts D.C.	75	<b>\$19.50</b>
UT-7	110 Volts D.C.	150	<b>\$21.00</b>
UT-8	220 Volts D.C.	150	<b>\$22.50</b>

# "FARADAY" NATURAL-TONE

## Lowest Prices — Highest Quality A Speaker For Every Purpose

## DYNAMIC SPEAKERS



**CONCERT  
D.C.**

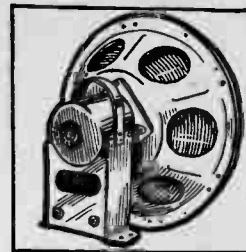
Listed on this page are the most recently developed speakers on the market. Just as magnetic speakers have been superseded by the more powerful dynamic types and just as the early electric sets have given way to the present up-to-date models so are the early type dynamic speakers being replaced by these modern "Natural Tone" units. Electrical and acoustic engineers have discovered a great many principles since the dynamic speaker first became the rage of the radio industry. All these new designs and principles have been incorporated in the new Faraday dynamic speaker.

Music and voice issuing forth from these instruments are as clear and natural as the original renditions at the studio. A REAL PLEASANT SURPRISE AWAITS THE PURCHASER OF THESE EXCELLENT REPRODUCERS.

THERE IS A SPEAKER LISTED HERE FOR EVERY CONCEIVABLE RADIO PURPOSE. If you do not see listed below the speaker with your particular specifications (field resistance and output transformer) choose the one nearest to it, add

35c to its price, and you will have the speaker which you want. Please make sure however, that you give us the exact specifications when ordering.

For instance, if you desire an 11" D.C. dynamic speaker having a field resistance of 2000 Ohms, and an output transformer for a single 47 tube, you would take the price of the No. 1121 (since that particular speaker approaches most closely your Ohm specifications), and add 35c to it and we will send you the speaker with your particular characteristics. For special requirements such as A.C. speakers at odd frequencies, etc., please write us for quotations. **EACH SPEAKER IS FULLY GUARANTEED AND WILL BE EXCHANGED WITHOUT QUESTION IF DEFECTIVE WHEN RECEIVED.** The complete line of reproducers listed here gives a model for every purpose, from the largest auditorium type down to the diminutive storage battery type used with automobile receivers. Each unit is ruggedly constructed of high grade material and is equipped with an output transformer. A.C. models are designed to be used with a 280 tube. This tube is not supplied at the prices listed below.

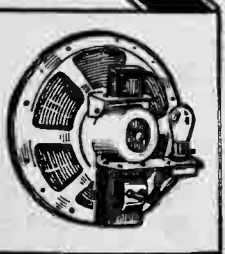


**12 1/2" SERIES  
D.C.**

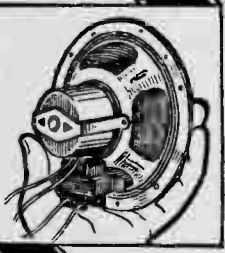
### SPECIFICATIONS

Cat. No.	Type	Field Resistance	Frame Dia. Spkr. Size.	Output Trans.	Cone Dia.	Depth Overall	Pkd. Wgt. Slightly	YOUR PRICE
511	DC	1000	6 1/2"	1-247	4 1/2"	3 3/4"	3 1/2	\$2.18
521	DC	2500	6 1/2"	1-247	4 1/2"	3 3/4"	3 1/2	2.18
612	DC	1000	6 1/2"	PP-247	4 1/2"	3 3/4"	3 1/2	2.18
622	DC	2500	6 1/2"	PP-247	4 1/2"	3 3/4"	3 1/2	2.18
623	DC	2500	6 1/2"	1-245	4 1/2"	3 3/4"	3 1/2	2.18
624	DC	2500	6 1/2"	PP-245	4 1/2"	3 3/4"	3 1/2	2.18
811	DC	1000	8 1/2"	1-247	6"	4 1/2"	5 1/4	3.38
821	DC	2500	8 1/2"	1-247	6"	4 1/2"	5 1/4	3.38
812	DC	1000	8 1/2"	PP-247	6"	4 1/2"	5 1/4	3.38
822	DC	2500	8 1/2"	PP-247	6"	4 1/2"	5 1/4	3.38
823	DC	2500	8 1/2"	1-245	6"	4 1/2"	5 1/4	3.38
824	DC	2500	8 1/2"	PP-245	6"	4 1/2"	5 1/4	3.38
850	110V AC	60 cy.	8 1/2"	PP-245	6"	5 1/2"	9	6.45
855	110V AC	60 cy.	8 1/2"	PP-247	6"	5 1/2"	9	6.45
860	110V AC	25 cy.	8 1/2"	PP-245	6"	5 1/2"	9	7.65
865	110V AC	25 cy.	8 1/2"	PP-247	6"	5 1/2"	9	7.65
880	Dual DC	2500 Total	8 1/2"	1-247	6"	4 1/2"	10 1/2	5.85
881	Dual DC	2500	8 1/2"	PP-247	6"	4 1/2"	10 1/2	5.85
882	Dual DC	2500	8 1/2"	1-245	6"	4 1/2"	10 1/2	5.85
883	Dual DC	2500	8 1/2"	PP-245	6"	4 1/2"	10 1/2	5.85
680	Dual DC	2500	6 1/2"	1-247	4 1/2"	3 3/4"	7	4.50
681	Dual DC	2500	6 1/2"	PP-247	4 1/2"	3 3/4"	7	4.50
682	Dual DC	2500	6 1/2"	1-245	4 1/2"	3 3/4"	7	4.50
683	Dual DC	2500	6 1/2"	PP-245	4 1/2"	3 3/4"	7	4.50
1111	DC	1000	11"	1-247	8 3/4"	5 1/2"	6 1/4	3.83
1121	DC	2500	11"	1-247	8 3/4"	5 1/2"	6 1/4	3.83
1112	DC	1000	11"	PP-247	8 3/4"	5 1/2"	6 1/4	3.83
1122	DC	2500	11"	PP-247	8 3/4"	5 1/2"	6 1/4	3.83
1123	DC	2500	11"	1-245	8 3/4"	5 1/2"	6 1/4	3.83
1124	DC	2500	11"	PP-245	8 3/4"	5 1/2"	6 1/4	3.83
1130	110V AC	60 cy.	11"	PP-245	8 3/4"	6"	10	7.35
1135	110V AC	60 cy.	11"	PP-247	8 3/4"	6"	10	7.35
1160	110V AC	25 cy.	11"	PP-245	8 3/4"	6"	10	8.45
1165	110V AC	25 cy.	11"	PP-247	8 3/4"	6"	10	8.45
1180	Dual DC	2500 Total	11"	1-247	8 3/4"	5 1/2"	12 1/2	7.15
1181	Dual DC	2500	11"	PP-247	8 3/4"	5 1/2"	12 1/2	7.15
1182	Dual DC	2500	11"	1-245	8 3/4"	5 1/2"	12 1/2	7.15
1183	Dual DC	2500	11"	PP-245	8 3/4"	5 1/2"	12 1/2	7.15
1500	DC	2500	12 1/2"	PP-250	9 1/2"	9 1/2"	18	9.00
1501	AC 110	60 cy.	12 1/2"	PP-250	9 1/2"	9 1/2"	18	13.88
1502	AC 110	25 cy.	12 1/2"	PP-250	9 1/2"	9 1/2"	18	15.08
Concert	DC	2500	12 1/2"	PP-250	9 1/2"	10 1/2"	23	11.33
Con.No.1	110V AC	60 cy.	12 1/2"	PP-250	9 1/2"	10 1/2"	23	16.35
Con.No.7	110V AC	25 cy.	12 1/2"	PP-250	9 1/2"	10 1/2"	23	17.63
<b>Midget Speakers for AC-DC Receivers</b>								
7500	Auto	4 1/2"	7 1/2"	PP-38	4 1/2"	4"	5 1/4	3.23
7501	Auto	4 1/2"	7 1/2"	1-238	4 1/2"	4"	5 1/4	3.23
7502	Auto	4 1/2"	7 1/2"	PP-171	4 1/2"	4"	5 1/4	3.23
7503	Auto	4 1/2"	7 1/2"	1-171	4 1/2"	4"	5 1/4	3.23
8500	Auto	4 1/2"	8 1/2"	PP-39	6"	4 1/2"	8	3.90
8501	Auto	4 1/2"	8 1/2"	1-238	6"	4 1/2"	8	3.90
8502	Auto	4 1/2"	8 1/2"	PP-171	6"	4 1/2"	8	3.90
8503	Auto	4 1/2"	8 1/2"	1-171	6"	4 1/2"	8	3.90
<b>Speakers for Automobile Receivers</b>								
421	DC	2500	5"	1-247	3 1/2"	2 1/2"	2 1/4	2.11
422	DC	2500	5"	1-245	3 1/2"	2 1/2"	2 1/4	2.11
435	DC	3000	5"	1-243	3 1/2"	2 1/2"	2 1/4	2.11
436	DC	3000	5"	1-238	3 1/2"	2 1/2"	2 1/4	2.11
445	DC	4000	5"	1-243	3 1/2"	2 1/2"	2 1/4	2.11
446	DC	4000	5"	1-238	3 1/2"	2 1/2"	2 1/4	2.11

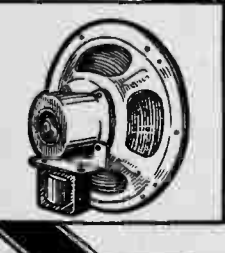
\*Cone diameter refers to shortest distance from ridge to ridge.



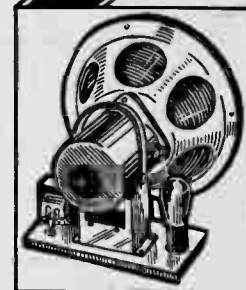
**11" SERIES  
A.C.**



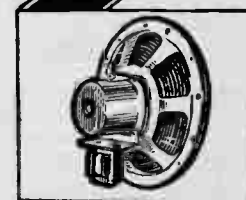
**6" SERIES  
D.C.**



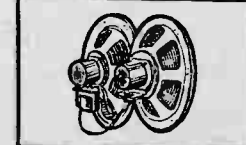
**8 1/2" SERIES  
D.C.**



**CONCERT  
A.C.**



**11" SERIES  
D.C.**



**11" MODEL  
DUAL SPEAKERS**



**8 1/2" AUTO  
SERIES**



## Be Assured that Our Public Address Equipment Is Entirely Reliable

Every one of the public address amplifiers and associated equipment in this catalog is listed with a full set of accurate characteristics.

When we claim, for example, that an amplifier will put out 10 watts of undistorted power. **WE MEAN 10 watts.** This very same amplifier may perhaps be listed in another catalog as having a "power output of 15 watts." Such a rating, however is not of **UNDISTORTED POWER**, but rather **PEAK** or **DISTORTED** power output, which of course, is of no significance whatsoever for practical purposes.

Furthermore, when a rating of "gain per stage" is given, it may be entirely out of proportion to what conditions actually are. The ratings of our amplifiers are absolutely conservative and are obtained under actual working conditions. It is for this reason that we can **GUARANTEE** them to be exactly as represented.

**YOU HAVE OUR WORD!**



## Never Before in Radio History The New 48 Tubes Make This Amplifier Possible!

Will Operate 4 to 5 Full Dynamic Speakers

The power output of direct-current amplifiers in the past has been rather limited due to the fact that the highest available voltage on the plates of the tubes is 120 (except of course, in D.C. amplifiers designed to work from a 220 volt service line).

With this comparatively low voltage, it has been quite difficult in the past to design a circuit with sufficient gain per stage to assure a high degree of volume for public address work.

Now, with the advent of the new 48 tube—a tube designed especially for 110-120 volt work, an amplifier with a power output of 5 watts has been made available. The amplifier illustrated here, employs two of these new type 48 tetrode tubes in push pull arrangement. The amplifier may be entirely depended upon to give faithful service even under continuous operation.

The amplifier "picks a real wallop". You can be assured that it will fulfill your highest expectations. Three stages of amplification are employed. A type 36 tube is capacitively coupled to a 37 which in turn feeds into a pair of 48's in push pull arrangement. All component parts are mounted on a heavy metal chassis, finished in black crackle. Convenient binding posts are provided for easy connections.

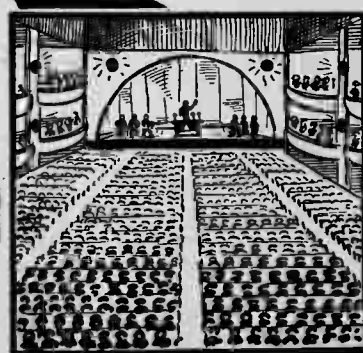
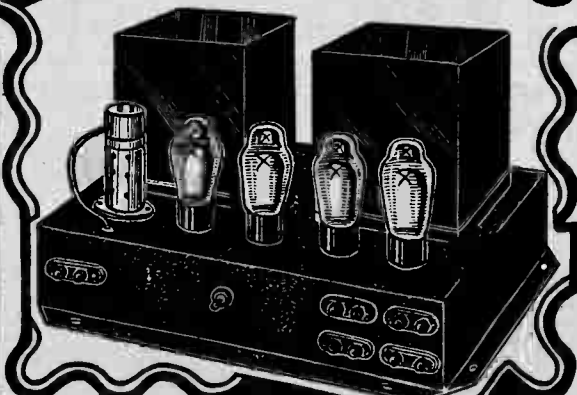
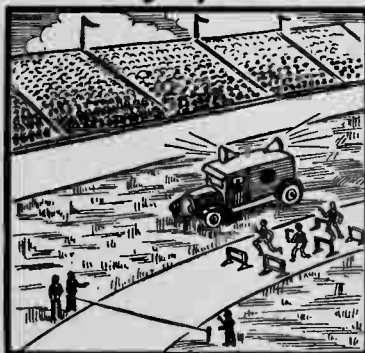
**SPECIFICATIONS:**  
Power Consumption—50 watts; Power Output, Undistorted—5 watts; Input Impedance—200,000 ohms; Output Impedance—5 and 15 to voice coils of dynamic speakers and 500 ohms to transmission line; Size—10" long x 9" wide x 8" high; Tubes—1-36, 1-37 and 2-48's; Current Supply—110-120 volts, D. C. Ship. wt., 15 lbs.

List Price \$50.00

No. 755 5 Watt D.C. Amplifier.  
YOUR PRICE—less tubes

**\$19.50**

# Will OPERATE 20 DYNAMIC SPEAKERS



## 28 WATT CLASS B AMPLIFIER Will Operate 20 Full-Sized Dynamic Speakers

The early class B amplifiers were famous for their inconsistency of reproduction on the higher frequencies. In other words, the high pitch of the violin, for example, or the clarinet were completely lost when amplified with a class B unit.

This difficulty, however, has been overcome in the design of this particular amplifier, through the use of a direct-coupled driver stage. Such an arrangement causes the high frequencies to be more accentuated, thereby flattening out the frequency response characteristics over the entire range of audio frequencies. It is an excellent amplifier for public address installation, in assembly halls, ball parks, airports or on a temporary basis for political meetings, carnivals, athletic meets, etc. **TWENTY FULL-SIZED DYNAMIC SPEAKERS CAN BE OPERATED** at good volume, if necessary. Under no circumstances should the average single speaker be connected to the output of this amplifier.

The circuit comprises a single type 58 tube, directly coupled to a 59, which in turn, drives a pair of 59's in class "B" arrangement. A new type mercury vapor rectifier, the 83, supplies all plate current. All parts going into the construction of this heavy-duty outfit will safely stand reasonable overloads without breaking down. Furthermore, they are all mounted on an extra-heavy metal base which is beautifully finished in black crackle. All the necessary connections to the amplifier are made through convenient binding posts on the base.

**SPECIFICATIONS:**  
Power Consumption—only 125 watts; Power Output, undistorted—28 watts; Overall Gain—80 decibels; Input Impedance—250,000 ohms; Output Impedance—4, 8, and 15 ohms for voice coils of dynamic speakers and 500 ohms for transmission line; Size—14" long x 12" wide x 10" high; Tubes—3-59's, 1-83 and 2-58; Current Supply—110-125 volts, 50-60 cycles; A.C. Shipping weight, 65 lbs.

List Price \$100.00

No. 756 28 Watt Class B Amplifier.  
YOUR PRICE, less tubes

**\$42.00**



# A REAL "Professional" JOB OPERATES

## 12 DYNAMIC SPEAKERS

### USES-2A3's in PUSH-PULL



A distortionless Amplifier which sacrifices some of its power for tone fidelity. The advent of the new man-sized, 3 element tubes, such as the 2A3's take us back to the tone quality obtainable before the days of the pentode and class "B" amplifiers.

This is an amplifier which gives REAL music—music which is hardly distinguishable from the original rendition. The power output is lower than some of the "A Prime" and class "B" outfits, but the relative power against distortion gives a considerably greater coverage per watt inasmuch as the distortion need not be taken into consideration in an amplifier of this type.

This amplifier is capable of serving a gathering of more than 4,000 people. The frequency response over the entire audio range is practically flat, which explains the fine tonal qualities. The circuit comprises 1-57 triple grid input tube, feeding a 59 power tube, which in turn, is coupled to the 2-2A3's in push pull. A type

523 mercury-vapor rectifier supplies all plate current. All component parts are mounted on a heavy gauge metal chassis, beautifully finished in black crackle. Convenient binding posts are provided for easy connections to input and output circuits.

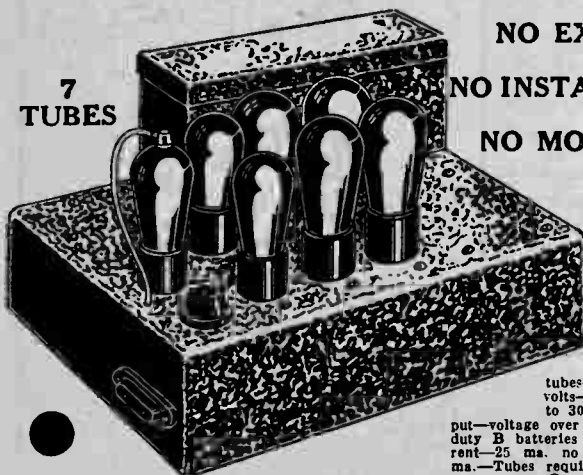
#### SPECIFICATIONS:

Power Consumption—115 watts; Power Output—15 watts; Overall Gain—80 decibels; Input Impedance—250,000 ohms; Output Impedance—4, 8 and 15 ohms to voice coils of dynamic speakers. (May be had for other impedances at no additional cost.); Size—12" wide x 18" long x 10" high; Tubes—1-57, 1-59, 2-2A3's, 1-523; Current Supply—110-125 volts, 50-60 cycles, A.C.; Shipping weight, 55 lbs. List Price \$100.00

No. P-940 15 Watt 2A3 Push Pull Power Amplifier.  
YOUR PRICE, less tubes

**\$30.00**

## A 20-WATT BATTERY AMPLIFIER



7 TUBES

NO EXPENSIVE TUBES  
NO INSTALLATION PROBLEM  
NO MOTOR GENERATOR

#### SPECIFICATIONS

Output—20 watts, 5% distortion—3.8% in 3rd harmonic—Gain—50.9 D.B. at 60 cycles—Input required for 20 watts output, 0.25 volt—Input impedance 100,000 ohms—Output impedance, 5-20 ohms—maximum output at 8 ohms—Filament voltage 6 volts D.C. or A.C., any frequency—Filament voltage may be varied between 5 and 7 volts without detrimental effect on tubes—Filament current, 3 amperes at 6 volts—Plate voltage—300 volts—(from 180 to 300 may be used with corresponding output—voltage over 300 is not recommended.)—Six heavy duty B batteries may be used economically—Plate current—25 ma. no signal—average drain with signal 60 ma.—Tubes required: 1-238, 2-237, 4-112A.

Power amplification of a new principle now made available for automobile Public Address work—giving enormous undistorted output; ENOUGH POWER TO HANDLE 20 SPEAKERS AT SUFFICIENTLY GREAT VOLUME. The amplifier is very small and compact, measuring but 9 1/4" wide x 7" high x 12" long. The input is 100,000 ohms and the output directly to an 8 ohm voice coil. This output, however, may be modified to meet special requirements. The frequency characteristics are excellent—within 4 decibels between 60 and 8,000 cycles and 10 decibels between 40 and 10,000 cycles. Voltage input required is less than 0.2 volts for maximum undistorted power output. Gain is 100 decibels. Will operate from pick-up, microphone or radio. Excellent for Public Address work in churches, schools, theatres and all portable installations.

This amplifier weighs about 12 pounds, takes 2.9 amperes from a 6 volt storage battery, obtains sufficient plate supply from 6 heavy duty B batteries to operate for 6 months under normal usage. The filaments

may be supplied from any 6 volt source capable of furnishing 2.9 amperes. May be operated from A.C. line with an inexpensive rectifier and filter system. This amplifier lists for \$65.00 and gives an output of 18 watts with 270 volts of plate supply and 20 watts with 300 volts. The gain is sufficient that the amplifier may be used without additional amplification with two button microphone, phonograph pickup, or radio. Superlative workmanship and materials make this amplifier sturdy and reliable, capable of performing the most exacting tasks under the most trying conditions. Its simplicity, its tremendous power output, and its low cost, makes the Victory Amplifier an answer to your amplification problems. Ship. wt., 15 lbs.

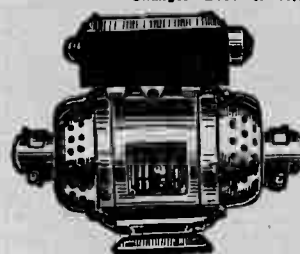
List Price \$65.00

No. D20 "Victory" 7 Tube 20 Watt Power Amplifier for Portable Public Address Work  
YOUR PRICE **\$43.50**

COMPLETE WITH R.C.A. LICENSED TUBES

## "Esco" Rotary Converters

Changes D.C. to A.C.



These devices are a necessity in those metropolitan and suburban areas which are supplied with only direct current electricity. In order for residents of those areas to fully reap the benefits of the modern, highly developed A.C. operated radio receivers, it is

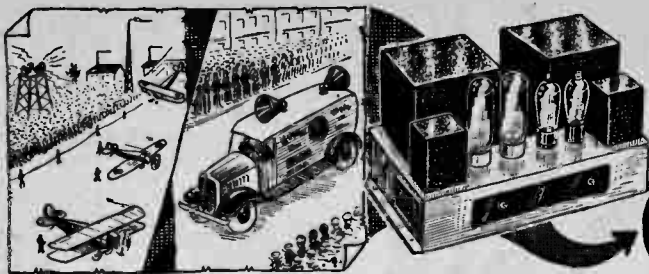
Necessary for them to convert their direct current to alternating current. For that purpose, we have chosen and without regard for price, that machine likely to prove most efficient in operation over a long period of time.

THE "ESCO" CONVERTER UNITS ARE SPECIALLY DESIGNED FOR RADIO OPERATION; steel frame, double-wound armature, laminated steel pole-pieces, dynamic balance and perfect filtering. It is quiet and compact and may be kept in any out-of-the-way corner of clothes closet or attic. Requires practically no attention. Shipped complete with cord and plug. Furnished in sizes of from 60 to 500 watts output. Standard input voltages are 6, 12, 32, 115 and 230 volts D.C. Standard output current is 110 volts, 60 cycles A.C.

#### MOST POPULAR TYPES

32 Volts D.C. to 110 Volts 60 Cycles A.C.				
No.	Output Watts	Ship. Wt.	List Price	YOUR PRICE
R181	120	41 lbs.	\$49.50	\$36.25
R181	150	43 lbs.	58.00	38.15
R183	300	55 lbs.	80.00	50.25
LF85	500	80 lbs.	95.00	77.15
110-115 Volt D.C. to 110 Volts 60 Cycles A.C.				
H182	120	40 lbs.	49.50	34.25
R183	150	43 lbs.	58.00	38.15
R182	300	55 lbs.	80.00	48.15
R184	500	80 lbs.	100.00	60.75
220-230 Volts D.C. to 110 Volts 60 Cycles A.C.				
H182	120	40 lbs.	51.50	39.25
R183	150	43 lbs.	60.00	40.15
R182	300	55 lbs.	82.00	52.25
R184	500	70 lbs.	110.00	79.15
6 Volts D.C. to 110 Volts 60 Cycles A.C.				
H183	150	43 lbs.	65.00	36.40
RL184	150	43 lbs.	85.00	54.05
12 Volts D.C. to 110 Volts 60 Cycles A.C.				
R181	80	24 lbs.	70.00	37.15

RADIO TRADING COMPANY, 100 PARK PLACE, NEW YORK, N. Y.



# 50 WATTS of POWER for COLOSSAL GATHERINGS

USES HIGH-POWERED TRANSMITTING TUBES

## A "CLASS A" AMPLIFIER USING TYPE 845 SUPER-POWER TUBES

This unit is essentially an "output" amplifier, which can be coupled to any existing public address amplifier (supplying at least 1 watt of power) in order to step up its volume to tremendous proportions.

It finds applications where exceptionally high volume is required, such as at AIRPORTS, ATHLETIC FIELDS, OUT-OF-DOOR GATHERINGS and in other places where the extraneous noise level is very high and must be overhauled by the volume of the amplifier. It is applicable to some of the largest of outdoor installations. This amplifier is composed of absolutely the finest parts and will reproduce music and speech with perfect fidelity. Its frequency response over the entire audio range is practically flat.

The circuit comprises two-type 845 transmitting tubes in a standard Class A push pull circuit. All component parts are rigidly mounted to the heavy metal

base which is beautifully finished in black crackle. All connections to the amplifier are made through conveniently mounted terminal posts on the base. We must stress at this point that this amplifier must be operated by a "driver" amplifier of at least two stages.

### SPECIFICATIONS:

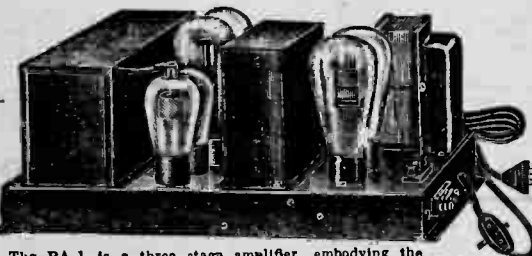
Power Output—50 watts; Input Impedance—500 ohms; Output Impedance—500 ohms and 125 ohms (special impedances on order); Size—16" x 16" x 12" high; Tubes—2-845's, and 2-566's; Current Supply—120-125 volts, 50-60 cycles, A.C.; Ship. wt. 65 lbs.

List Price \$175.00

No. 9845 50 Watt "Auxiliary" Heavy-Duty Amplifier  
In "Class A" Arrangement.  
YOUR PRICE—less tubes

**\$96.53**

## "250" PUSH PULL POWER AMPLIFIER



13.8 WATTS POWER

NO DISTORTION

LATEST TUBES

WILL OPERATE 8 DYNAMIC SPEAKERS

The PA-1 is a three stage amplifier, embodying the new 58 and 56 tubes, and push pull 250's. The extremely high gain of these new tubes, low hum level and unusually fine frequency response results in an amplifier with an undistorted power output of nearly 14 watts. Many fine P.A. installations in theatres, auditoriums, dance halls, stadiums, and other public places incorporate this fine amplifier as the fundamental amplifying unit.

One of the noteworthy features of this instrument is its extremely flat frequency response from 45 to 15,000 cycles—in other words, a frequency response which is flat throughout the entire range of audio sound. This results in a quality of reproduction which parallels the original rendition. Other salient features are fine volume adjustment, protective fuse, logarithmic-tapered volume control, master feed-through switch, Belden line cord with unbreakable rubber plug. Field current is provided for the field coil of a large dynamic speaker—or an A.C. speaker may be connected without the use of external chokes or resistors as usually required by most amplifiers which supply field current.

The amplifier is constructed on a heavy steel base, all parts being mechanically and electrically shielded. The finish throughout is smooth, black lacquer. General instructions for hooking up this amplifier are regularly furnished.

### SPECIFICATIONS

TUBES—1st stage 1-58, 2nd stage 1-56, 3rd stage 2-250 push pull, rectifier 2-281 full wave.

INPUT—To any high impedance pickup. Coupling transformer should be used for microphone input or low impedance pickup.

OUTPUT—Low impedance output direct to standard 10 or 15 ohm voice coil. High impedance output to couple to 4000 ohm input transformer.

MAXIMUM UNDISTORTED POWER OUTPUT—13.8 watts.

INPUT SIGNAL TO OBTAIN MAX. U. P. O.—0.6 volts.

GAIN AT 1000 CYCLES—58 db.

HUM LEVEL—1.3% or 45 db. below maximum undistorted output.

SPEAKERS—Will supply up to 8 large dynamic speakers, or 25 magnetic speakers.

FIELD SUPPLY—Will furnish current to a large dynamic field of 750 ohms.

POWER CONSUMPTION—150 watts.

SIZE (overall)—17 1/4" long, 11 1/4" wide, 7 1/4" high.

SHIP. WEIGHT—42 lbs. List Price \$35.00

No. PA-1 "250" Push Pull Power Amplifier.

**\$19.75**

YOUR PRICE

## COMPLETE PORTABLE PUBLIC ADDRESS SYSTEM

Comprises Microphone, Loftin-White Direct-Coupled Amplifier and Full Dynamic Speaker

**\$24.95**



A recently completed all-electric A.C. development incorporating all the features and advantages of the direct-coupled Loftin-White amplifier principle. THE AMPLIFIER IS A HIGH QUALITY TWO STAGE JOB HAVING SOME RADICALLY NEW IDEAS IN AUDIO FREQUENCY AMPLIFICATION and employing 1-27, 1-45 power tube and 1-80 full-wave rectifier. When used with a microphone, no additional amplification is necessary. This is due to the inherent characteristics of the Loftin-White circuit. The high impedance secondary of the "mike" transformer automatically increases the gain and compensates for the low input voltage of the microphone.

The design is adaptable to all purposes, i.e., microphone, radio and phonograph. Has an undistorted output of approximately 3.5 watts—SUFFICIENT POWER TO OPERATE FROM TWO TO THREE ADDITIONAL SPEAKERS. COMPLETE WITH R.C.A.-VICTOR "MIKE".

This high gain Portable Public Address system is sold complete with the new R.C.A. Victor Hand Microphone—a sturdily constructed unit which will withstand a lot of rough handling. This microphone was originally part of the expensive R.C.A.—Victor Radio-Phonograph—Home Recording outfit—an extremely sensitive instrument excellently suited for Public Address work.

PUT UP IN A COMPACT, PERFECTLY BALANCED CARRYING CASE, the front of which is utilized as a baffle for the self-contained full dynamic speaker. Designed for operation on 110-20 volts, 50-60 cycles A.C. EXCELLENT FOR USE ON AUTOMOBILE ADVERTISING INSTALLATIONS.

In order to do this however, it is necessary to employ a Six-Volt Rotary Converter for changing the direct current of the car storage battery to 110 volts, 60 cycles A.C. We recommend for this purpose our "Ecco"—R-181, 80-Watt Rotary Converter, listed elsewhere in this catalog. Shipping weight, 38 lbs. No. 9063 Versatile Portable Public Address System

Complete with Microphone  
YOUR PRICE, less tubes **\$24.95**

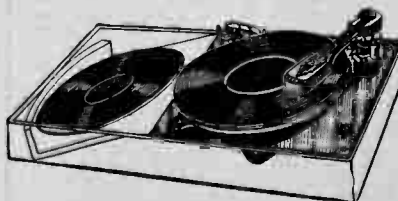
## "PACKARD" AUTOMATIC RECORD CHANGER

Plays 8 Records Continuously—Automatically

You can now, at practically the same cost as straight turntables, make all of your installations with the "Packard" Automatic Record Changer. The illustration at right suggest the proper method for mounting this apparatus.

The Record Changer mechanism is extremely simple and, therefore, FOOL PROOF. Performs the same work as more expensive apparatus and yet requires considerably less space for mounting. The smallest space into which the "Packard" Record Changer may be installed (inside measurements) is 17 1/2" long x 5 1/2" high x 13 1/2" wide. This includes sufficient space for record tray. Overall height above base plate 3 1/2". Overall depth below base plate 3 1/4".

The "Packard" Changer is of steel construction, heavily copper-plated and finished in stately bronze. It plays eight 10" records automatically and will repeat any of these records as many times as required when properly adjusted. Will also play 12" records, but only manually, not automatically. Incorporates a high-quality two-speed MOTOR FOR 78 AND 33-1/3 R.P.M. RECORDS. The electric phonograph pickup is a carefully-constructed instrument, incorporating volume control and weight-pressure adjustment. This Changer is an excellent device for converting obsolete radio-phonograph combinations into modern up-to-date automatic instruments. Used extensively in theatres, res-



taurants, ballrooms, etc. Operates on 110-20 volts, 50/60 cycles, A.C., but may be had for other voltages and frequencies at a small additional cost. "Packard" Record Changer is shipped express collect, directly from the factory at Elyria, Ohio. Ship. wt., approximately 22 lbs.

List Price \$50.00

No. 8 "Packard" Automatic Record Changer.

**\$28.95**

YOUR PRICE

# 3 1/2 WATT MIDGET AMPLIFIER

This amplifier due to its extreme compactness and humfree operation lends itself to a variety of uses; among them being inter-office communication systems. It has sufficient power to fully energize **THREE DYNAMIC SPEAKERS**. Restaurants, offices and hotels can use this fine little outfit for paging systems. A real neat, little job which may be depended upon to give continuous, reliable service, day in and day out. Many of our customers are utilizing this amplifier to completely electrify their present phonographs. The only additional unit required is a phonograph pickup, many of which are listed elsewhere in this catalog. The fine quality of electrical reproduction of records with such an outfit is undoubtedly worth the expense of installation.

All component parts are neatly mounted on a heavy-gauge metal chassis, beautifully finished in black crackle. Convenient terminal strips give access to both input and output circuits.

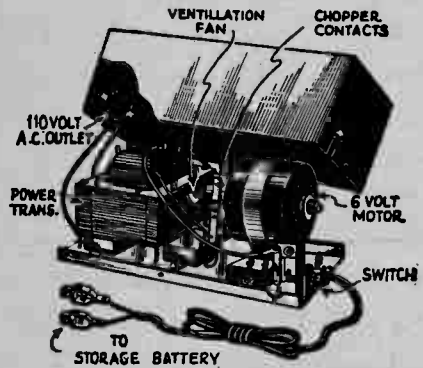
**NEW TUBES**  
**ECONOMICAL**  
**OPERATES - 3**  
**DYNAMIC SPEAKERS**

**SPECIFICATIONS:**  
 Power Consumption—60 watts.  
 Power Output—3 1/2 watts.  
 Overall Gain—90 decibels.  
 Input Impedance—200,000 ohms.  
 Output Impedance—5,000 ohms.  
 Size—10" long x 9" wide x 8" high.  
 Tubes—1 - 57, 1 - 59 and 1 - 83.  
 Current Supply—100 - 125 volts, 50 - 60 cycles, AC.  
 Ship. wt., 18 lbs.

List Price \$30.00  
 No. 754 3 1/2 Watt Mighty Midget Amplifier.  
**YOUR PRICE, less tubes \$9.90**

## These Universal Converters Generate 110 Volts A.C. From 6 Volt Storage Batteries

Excellent for Public Address Trucks, Etc.



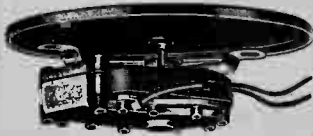
These units have been scientifically engineered and represent the most efficient and economical means of converting low voltage D.C. sources, such as storage batteries and the like into 110 volts, A.C. Recommended for operation of any 110 volt A.C. device, particularly sound amplifiers for trucks and for all portable uses where commercial current is not available.

Many uses, other than for operation of sound devices, will present themselves; such as Neon signs, Portable Transmitters, etc. Within their rated capacities, Universal Battery Converters will be found highly efficient in operation, well-constructed mechanically, and extremely reliable. Incorporates a minimum of moving parts to wear out or require frequent adjustment. Therefore, the expense of replacing worn parts through constant use is amazingly low. These converters are shipped via express collect, directly from the factory in California.

**MODEL 60—60 WATTS**, operates from 6-volt storage battery and has an output of 60 watts. The battery drain is 90 watts, (6 volts at 15 amps.). Recommended for operation of 3-stage push pull power amplifiers, using 45, 46 or 47 tubes, or an amplifier requiring less energy than above plus a loud speaker field. Size 4 1/2" x 5" x 10 1/2". Ship. wt. 15 lbs.  
**YOUR PRICE \$19.95**

**MODEL 150—150 WATTS**, operates from a 12-volt storage battery (two 6-volt storage batteries in series) and has an output of 150 watts. The battery drain is 216 watts (12 volts at 18 amps.) and is recommended for operation of 3-stage sound amplifiers, using push pull 250 output tubes; and in addition, will operate power speaker field. Size 5 1/2" x 6 1/2" x 22". Ship. wt., 26 lbs.  
**YOUR PRICE \$35.28**

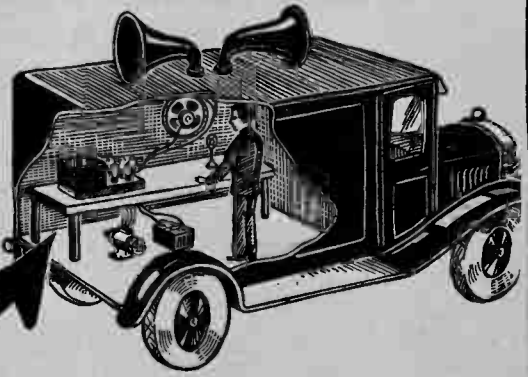
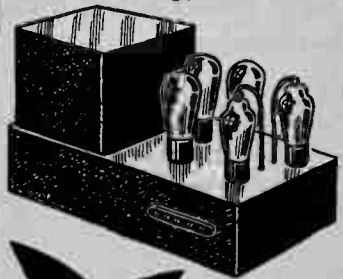
## Allen Hough A.C. Phonograph ROTOR SYNCHRONOUS MOTOR



A new, all purpose A.C. silent electric synchronous phonograph motor equipped with turntable. Sturdy and compact, only 1 1/4 inches thick. Starts and stops at the mere touch of a finger. A MARVEL OF ELECTRICAL ENGINEERING. Regardless of voltage fluctuations, the turntable REVOLVES EXACTLY 80 TIMES IN ONE MINUTE. For 110 volt, 60 cycle A.C. Ship. wt., 7 lbs. Complete with fine felt turntable.

No. 2000 A. H. Phonograph Motor.  
**YOUR PRICE \$3.35**

## A 10 Watt 245 Dual Push-Pull "A Prime" Power Amplifier Recommended for Mobile Public Address Work



This amplifier is capable of covering indoor or outdoor gatherings, up to 2,500 people. When used in conjunction with a 60 watt converter, which operates from the storage battery of the car, it can very economically be used as a Mobile Public Address outfit. Employing as it does, two triple grid 57's, feeding into push pull 245's, it is capable of delivering fully 10 watts—ENOUGH TO OPERATE 8 FULL DYNAMIC SPEAKERS.

The amplifier has self-contained input and output transformers and may be used in conjunction with either single or double-button microphones, low or high-impedance pickups and radio tuners. Through the use of capacity coupling between the push pull stages, the frequency characteristic is practically flat. The amplifier is equipped with a dual gain control, giving perfect attenuation. Employs either a 280 or a 523 rectifier. (Specify which when ordering.) The amplifier is a professional-appearing job, being constructed on a heavy metal base, finished in black crackle.

**SPECIFICATIONS:**  
 Power Consumption—55 watts.  
 Power Output—Undistorted—10 watts.  
 Overall Gain—Over 85 decibels.  
 Input Impedance for 1 and 2-button microphones and low or high-impedance pickups.  
 Output Impedance—4, 8 and 15 ohms to voice coils of dynamic speakers.  
 Size—11 1/4" long x 6 1/2" wide x 7" high.  
 Tubes—2 - 57's, 2 - 45's, 1 - 80 or 1 - 523.  
 Current Supply—110-125 volts, 50-60 cycles, A.C.  
 Ship. wt., 35 lbs.

List Price \$45.00  
 No. P-939 10 Watt 245 Dual Push Pull "A Prime" Power Amplifier.  
**YOUR PRICE, less tubes \$17.85**

## GREEN FLYER TWO-SPEED PHONOGRAPH MOTOR

33-1/3 and 78 R.P.M.



A very fine and powerful motor for combination radios and phonographs, portable electric pick-up sets, portable address systems and for all other purposes where a rugged, hum-free motor is required.

These models will play the latest type long playing records as well as the standard ones. The speed is easily and smoothly controlled by a governor. Presents **ABSOLUTE UNIFORMITY OF SPEED** under extreme voltage and frequency variations. Will not overheat in closed cases or cabinets. Has silent, spiral-cut fibre gears and long over-size SELF-LUBRICATING BEARINGS. Sold complete with 10 in. turntable, speed indicator dial, speed indicator pointer, speed change escutcheon plate, speed change pointer and mounting hardware. Shipping weight, 15 lbs.  
 List Price \$15.00  
 No. 2008 Green Flyer Two-Speed Phono-Motor—60 cycles, A.C. **YOUR PRICE \$11.25**  
 List Price \$17.50  
 No. 2009 Green Flyer Two-Speed Phono-Motor—25 cycles A.C. **YOUR PRICE \$12.00**  
 Add 70c more for 12" turntable

## Six Volt D.C. Phonograph Motor

Designed Especially for Portable Public Address Work



Here at last is a six volt D.C. Electric Phonograph motor for use on sound trucks and various other portable public address outfits. This unit is made by the makers of the famous Blue and Green Flyer motors which is an assurance of its reliability under continuous operating conditions. Will play latest type 33-1/3 R.P.M. records as well as the old style 78 R.P.M. records. The change from 33-1/3 to 78 R.P.M. is easily accomplished by a convenient lever. The motor is furnished complete, mounted on a plate ready for installation. Its open construction allows perfect ventilation. Absolute uniformity of speed against voltage variation and record drag is guaranteed. Ship. wt., 15 lbs.  
 List Price \$25.00  
 No. "6-V" 6-volt D.C. Phonograph Motor.

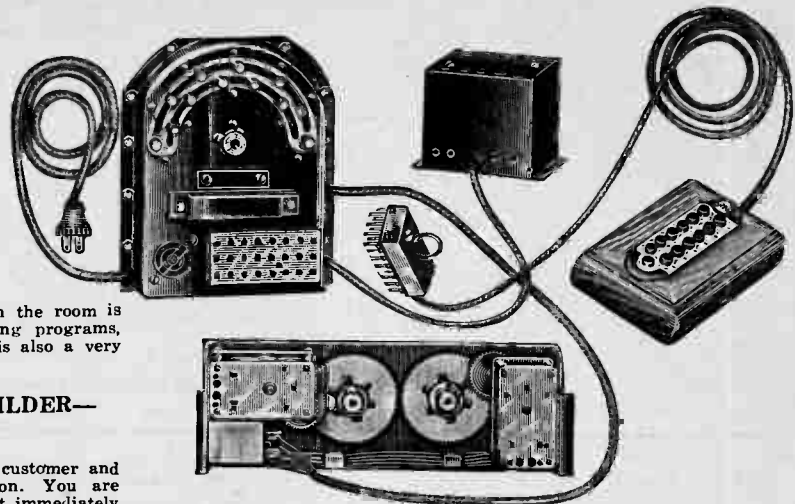
**YOUR PRICE \$17.87**

# COLONIAL REMOTE CONTROL ATTACHMENT

COMPLETE . . . NOTHING ELSE TO BUY

Imagine the convenience of just sitting back in an easy chair or lying in bed and merely by pressing a series of buttons, starting the radio located in a far off room or hidden away in the basement. Not only that, but selecting one of ten stations from a remote point. If this is the machine age, it is also the age of convenience. The remote control is a machine designed to tune your radio automatically. Why not take advantage of it, especially when it is priced more than 300% below its original list value.

This remote control outfit was used on one of the Colonial Remote Control receivers which sold for more than \$300.00; yet you or anyone at all handy with tools can attach it to your own radio. You can then hide the radio either in the closet, basement, or some other out-of-the-way place and extend wires to any number of speakers strategically located in various parts of your apartment. Imagine the surprise of your friends or guests at dinner or at special gatherings, when, by merely pressing a button the room is gradually flooded with beautiful music or other entertaining programs, by the hidden speakers. Aside from being a novel idea it is also a very practical one.



## RADIO SERVICE MAN & CUSTOM SET BUILDER— HERE IS YOUR OPPORTUNITY

You need but mention the word "remote control" to your customer and immediately you command his entire interest and attention. You are able to do this because the idea to him, is new and because it immediately implies expensive equipment. However when you inform him that you can construct or ADAPT HIS RECEIVER FOR REMOTE CONTROL OPERATION for only a few dollars more, his interest will most certainly materialize into an order. We need not give YOU any more talking points on this subject because you probably can muster up more than we.

### EXTREMELY SIMPLE TO OPERATE

The outfit comprises two small motors (one for turning the tuning condenser and the other for turning the volume control), a 10-position commutator switch for selecting 10 different stations, a step-down transformer for energizing the motors and a 13 button control board (10 buttons for the 10 stations, two buttons for increasing or decreasing the volume and one button for silent tuning). A pilot light in this control board indicates when the receiver is operating.

If the shafts of the tuning condenser and volume control of your present receiver can be extended so that the commutator switch section and one of the motor gears can be slipped over the tuning condenser shaft and the other motor gear on the volume control shaft then you can easily adapt this outfit to your receiver DIRECTLY, without any further changes. With some sets it may be necessary to remove the volume control entirely from the chassis and mount it directly on the gear of the volume control motor. Custom set builders need have no headaches about this remote control, inasmuch as they can design the physical layouts of their sets to conform with this equipment. The illustration clearly shows all component parts of this complete remote control system. Shipping weight 18 lbs.

No. 1789 Colonial Complete Remote Control Outfit

YOUR PRICE, Only

**\$6.00**

## Professional Dual Speaker Portable Public Address System

A DOUBLE CASE OUTFIT WHICH QUICKLY PAYS FOR ITSELF

15 Watts of Power . . . Will Operate Ten Additional Speakers if Necessary

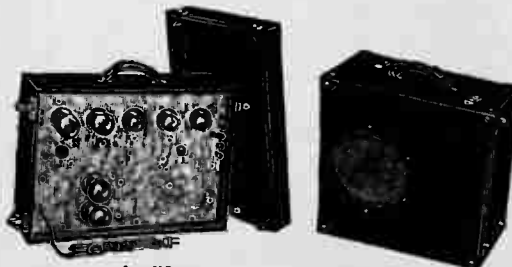
The most convenient form of public address outfits is the portable type. It can be picked up at a moment's notice and taken anywhere for regular or emergency use. Takes but a minute to set up and get going. Servicemen and dealers are now renting and selling amplifiers for use in schools, clubs, hotels, banquets, plays, lectures, dances, etc. Portable amplifiers are the most convenient types for such rental service.

The outfit offered here is very compact. The complete system comprises a power amplifier in one case and two theatre type dynamic speakers mounted on the two detachable halves of another case. The amplifier is a 3 stage job having an undistorted output of fully 15 watts. It is a distortionless amplifier which sacrifices some of its power for true tone fidelity. It is an amplifier which gives REAL music—music which is natural, life-like. The power output is lower than some of the "A Prime" and "Class B" units, but the relative power against distortion gives a considerably greater coverage per watt inasmuch as the distortion need not be taken into consideration in an amplifier of this type.

This amplifier is capable of serving a gathering of more than 4,000 people. The frequency response over the entire audio range is practically flat, a fact which explains its exceptional tonal qualities. The circuit comprises 7 tubes namely, 2-58's, 2-56's, 2-2A3's



Duo-Speaker Unit—Opened



Amplifier

Duo-Speaker Unit—Closed

and 1-5Z3 mercury vapor rectifier. IT IS A TRIPLE PUSH-PULL AMPLIFIER WITH A GAIN PER STAGE OF MORE THAN 90 DECIBELS. Has an input impedance of 200 ohms and output impedances to match 125, 250 and 500 ohm lines.

The speaker assembly is composed of 2 theatre type dynamic speakers, assembled in a sturdy leather case which can be separated in the center and located in various positions. The speakers have an interconnecting cable and a 50 foot cable which connects with the amplifier. The case sections in which the speakers are mounted are cut on the bias so that they are self-supporting.

These units can be used with a suitable turntable and phonograph pickup for the reproduction of records or for the recording of music and voice. Can also be used in conjunction with radio tuners, motion picture projectors and for a variety of other useful purposes. Shipping weight of amplifier in carrying case 80 lbs. Shipping weight of double speaker unit in carrying case 40 lbs. List Price \$250.00.

No. P-1905 Professional Dual Speaker Portable Public Address System.

YOUR PRICE

**\$90.00**

# GUARANTEED MICROPHONE REPAIR SERVICE

We take pleasure in announcing that we now maintain a repair and overhaul department for all makes of carbon and condenser microphones. All work is done in a well-equipped laboratory by skilled workmen and is fully guaranteed.

The complete overhauling of one or two button carbon microphones includes a NEW DURALUMIN DIAPHRAGM with NEW GOLD CONTACTS under each button, NEW BUTTONS, NEW CARBON GRANULES and a COMPLETE REPOLISHING. Condenser microphones require a new diaphragm and complete readjustment and repolishing.

Your microphones will look and perform as though it were brand new. All microphones are carefully tested for frequency response and general performance, under actual working conditions.

### YOUR PRICES ARE AS FOLLOWS:

- |   |               |
|---|---------------|
| Class A Service—for single button carbon microphones        | <b>\$1.50</b> |
| Class B Service—for unstretched double buttoned microphones | <b>\$3.00</b> |
| Class C Service—for stretched double buttoned microphones   | <b>\$7.50</b> |
| Class D Service—for condenser microphones                   | <b>\$7.00</b> |
- IMPORTANT NOTICE.** Ship all microphones, carefully packed, by prepaid express or parcel post. They will be promptly returned to you via express, charges collect. Remittance must accompany all orders. NO C. O. D. SHIPMENTS MADE.

### Shure Two-Button Microphone



A large sized high quality two button microphone for public address systems and amateur broadcasting. Incorporates many high quality features not available in cheaper models. New glazed carbon buttons, adjustable button, gold-plated diaphragm tuned and clamped by a special process. Each unit is individually assembled and tested by experts in the laboratory. Has all the new Shure features including the new "Quickway" hooks (for easy attachment of microphone springs), a screen across the face of the microphone to eliminate the need of covers. Designed along modernistic lines with bevelled edge and many other features which have made these microphones so well known for quality and performance.

Operates best at 6 to 8 mls per button. Any greater current than 12 mls will ruin the microphone. Total internal resistance 200 ohms, per button. Diameter over all 3-9/16", diameter of frame 3" thickness over all 1 1/4". Individually packed and including wiring diagram. Guaranteed if not abused. Shipping weight, 2 1/2 lbs.

No. 22-N Shure Two Button Microphone, Chromium Finish. **YOUR PRICE \$14.70**

### Shure Two-Button Hand Microphone

This particular microphone has been designed especially for transmission of voice. It is not recommended for music. The case of the microphone is provided with covers and screen and is highly nickel plated. The handle is finished in black rubberized japan and is designed along modernistic lines. A hook is provided on the top for suspending the microphone. The unit is especially useful for industrial and home talking picture machines, home recording, public address outfits, etc., etc. Operates best at 6 to 8 mls per button. Limit of guarantee, 12 mls per button. Total internal resistance 400 ohms or 200 ohms per button. Thickness overall 1 1/4", diameter overall 3 1/4", diameter of frame 2 3/4". Each microphone packed individually with wiring diagram and instructions. Finished in nickel. Shipping weight, 1 1/4 lbs. No. 11-N Shure Two Button Hand Microphone.

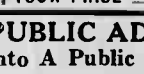


**YOUR PRICE \$8.82**

### Skinderviken Microphone Button

Smallest microphone made, measuring only 3/4 in. in diameter. By means of this microphone button a great many experiments can be made. It can be used as a detector (dctophone) to listen-in secretly on conversations, etc., and to amplify phonograph music at a distance. Very good sensitivity. We furnish directions to make some twenty-five different experiments.

No. 1630 Mike Button. **YOUR PRICE \$0.65**



### Faraday Type "BF" Double Button Microphone



Here is a REAL microphone available at the price of a toy model. It is the largest and heaviest microphone in its class. Uses a separate bridge, holding the front button, which in other microphones, is used only in the more expensive types. Has a frequency response of from 70 to over 3,800 cycles—sufficient coverage for voice and semi-professional music recording. It is excellent

for use on sound trucks and with other public address outfits. Low price and really fine quality, together with professional appearance and workmanship make this microphone one of the most desired in the market. The diaphragm is made from specially heat-treated duralium with 24 Karat gold center contacts. This microphone can be furnished for either 100 or 200 ohms per button and either sensitive or damped. (PLEASE SPECIFY WHICH WHEN ORDERING.)

#### SPECIFICATIONS:

Size—3 1/4" diameter x 1 1/4" thick. Bridge—Separate casting, beautiful Chrome finish. Diaphragm—Heat-treated duralium, 24 Karat gold contacts.

Frequency—70 to over 3,800 cycles. Weight—net 1 1/4 lbs.; packed 2 lbs.

No. "BF" Double Button Microphone. **YOUR PRICE \$4.95**

### Universal Pre-Grooved Recording Disc

For Home Recording

A well-made disc which incorporates all the latest improvements of both sound and acoustical engineering. Universal pre-grooved, aluminum discs assure greater volume, brilliancy and durability.



Discs are double-faced, permitting recording on both sides. Available in three sizes—6 in., 8 in., and 10 in. diameter.

Records may be made with ordinary blunt home-recording needles and played back with wood or fibre needles. To secure best results, a suitable weight, depending upon the power of the turn-table, must be applied to the top of the pickup while recording. Also furnished ungrooved at the same prices.

No.	Size	List Price	YOUR PRICE
"REM"	6 inches	\$0.50	<b>\$0.28</b>
"REMET"	8 inches	.75	<b>\$0.44</b>
"REMAX"	10 inches	1.00	<b>\$0.50</b>

### Faraday Professional Two-Button Microphone



This microphone was designed especially for broadcast purposes and has a fine frequency response of from 50 to 6,000 cycles. Furthermore, the microphone has been so designed that its natural period of resonance is well outside its frequency response range. This characteristic is extremely important and should not be taken lightly. A microphone whose natural period of resonance falls within its frequency response range will tend to accentuate certain frequencies more than others, thereby introducing distortion.

Size—3 1/4" diameter x 2 3/4" thick. Damping—Accomplished by airclosed chamber. Finish—Either chromium or gold. (SPECIFY WHICH WHEN ORDERING.) Diaphragm—.00175" thick, stretched, 24 Karat gold contacts.

Frequency Response—50 to 6,000 cycles with less than 2 decibels variation. Current—5 to 15 MA. per button.

No. "G" Faraday Professional Two-Button Microphone. **YOUR PRICE \$11.25**

## THE "RADIO MODULATOR" PUBLIC ADDRESS CONVERTER

Converts Every Radio Set Into A Public Address System

Here is the most radical, the most revolutionary device in the public address field. It will take any 110 volt AC or DC radio and convert it into a full fledged public address system. It is actually a miniature transmitting station connected directly to your radio. Not only can it be used as an emergency public address outfit for professional work but also for home entertainment. It is the ideal method of reproducing one's own voice or music through a radio receiver. Neither the voice or music is distorted, nor does it sound "tinny". In fact the tone and fidelity of reproduction is indistinguishable from that received over the air.

The "Radio Modulator" is very easily and SAFELY connected to ANY radio set. Only four operations are necessary, namely: (1) plug the Radio Modulator in the AC or DC line. (2) Disconnect the aerial wire from the set and in its place connect one wire from the "Radio Modulator". (3) Connect the other wire to the ground post. (4) Set the tuning control of the radio at about the middle of the dial. The entire system is now ready for operation.

IT IS NOT NECESSARY TO USE PLUG-IN ADAPTERS, REMOVE ANTENNA TUBES OR TAMPERS WITH THE RADIO CHASSIS IN ANY WAY. TWO CONNECTIONS, TO THE AERIAL AND GROUND POSTS OF THE RADIO RECEIVER IS ALL THAT IS NECESSARY.

THE "RADIO MODULATOR" IS NOT A TOY. It is a REAL professional outfit which may be used in professional set ups. When used in conjunction with any good AO or DC operated radio, it is the equivalent of any public address system, designed particularly for public address work. The power output of the combination of the "Radio Modulator" and radio receiver depends entirely upon the power output of the



receiver with which it is being employed. Many radio sets have fine quality and plenty of power, so that when the "Radio Modulator" is used with them an excellent public address system is the result.

#### TECHNICAL DESCRIPTION

Those who are technically inclined will be interested in knowing how the Modulator works. It employs a highly developed modulated oscillator circuit, designed by microphone experts. The sounds picked up by the microphone modulate the entire radio set from the Antenna post to the loud speaker. No part of the radio is omitted from this hook-up; radio frequency, detector and audio stages are all utilized. The Radio Modulator operates from any 110 volt AC or DC light socket. All the component parts are contained in a grained walnut cabinet which will enhance the appearance of any room or radio cabinet. The entire "Radio Modulator" consists of the modulator, 2 button microphone, stand, 3 tubes and 50 feet of microphone cable. Ship. wt., 25 lbs.

List Price \$39.50  
No. 99 "Radio Modulator" Public Address Converter. **YOUR PRICE \$23.23**

# Universal Microphones and Pre-Amplifiers

## Model "K" Desk Type Stand

Model "K" is 5 inches in diameter and is used for mounting Model "A", or Model "BB" microphones on 4 points of suspension, using 8 springs—the ideal way to suspend a microphone. The base is set in a moulded rubber ring, forming a cushion against vibration and preventing damage to polished surfaces.

The entire unit is beautifully plated in deep maroon stately bronze. Provided with a finger ring for carrying. Cable passes through the hollow base. This stand is also available with attractive covers as illustrated.

Desirable protection from the curious is secured by employing the beautifully turned and screened covers. The covers are sprung into position, eliminating trick mechanisms which are liable to rattle. Makes a substantial and businesslike appearance. Measures 8 ins. high and sold complete with 8 suspension springs. Shipping weight of stand alone—3½ lbs., stand with covers—4½ lbs.

No. "KIND" Model "K" Desk Stand Less Covers  
YOUR PRICE \$2.35

No. "KINDNESS" Model "K" Desk Stand With Covers...YOUR PRICE \$4.53

## Universal "BB" Two-Button "Mike"

The masterpiece in two-button microphone construction Model "BB" is nearly twice as heavy as any other microphone in its class. Built to hair-line precision. An idea of the ruggedness can be obtained by the fact that Model "BB" is 3 ins. in diameter by 2 ins. thick.

It is built especially for voice-pickup, public address work and for amateur broadcasters, experimenters, halls, ballrooms, speaker wagons, etc. Made in beautifully finished, highly polished chrome-plate.

Model "BB" has extra heavy 24-Kt. pure Gold-Spot Centered, Duralumin diaphragm. Has a frequency range of from 70 to well over 4,000 cycles; 200 ohms per button. Shipping weight, 2 lbs.

No. "BET" Universal "BB" Two-Button Microphone.  
YOUR PRICE \$14.70

## Universal Two-Button Midget "Mike"

A REAL Instrument

In appearance and operation, this sensitive instrument is essentially similar to its larger and more expensive brethren. Its reduced size, however, makes it much sturdier and more convenient for use in Portable Public Address and other outfits. Is of the standard 200 ohms per button. Has non-breakable duralumin diaphragm which is gold-plated where it makes contact with the microphone buttons. Non-corrosive—scientifically damped—laboratory tested—its reproducing voice and music frequencies with truly natural tone will surprise you. Can be mounted in any type of microphone stand. Measures 2½ ins. in diameter x 1 in. thick. Furnished in non-tarnishing, non-corroding chromium plate. Shipping weight, 1½ lbs.

No. "X" Universal Two-Button Midget Microphone.  
YOUR PRICE \$5.88

## Universal Model X Pre-amplifier

For 2-Button Microphones

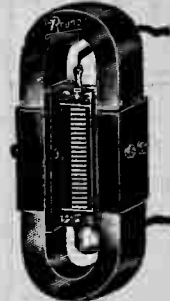
An extremely compact and efficient unit designed to "boost" the weak microphonic currents to proportions which will correctly match the input stages of all type amplifiers. May be used with either one or two button microphones. This pre-amplifier unit provides a "pusher" circuit with transformer, variable volume control and battery receptacle and switch, all contained in a neat compact case, finished in russet leatherette lacquer and complete with 4 rubber feet in the base. The volume control potentiometer is across the secondary of the transformer, and incorporates a switch which turns the battery off when not in use. All connections are plainly marked. Measures 5x3x7 ins. Shipping weight, 2½ lbs.

No. "X" Universal Model X Pre-amplifier.  
YOUR PRICE \$4.12

## Build Your Own Microphones! Latest Types - - - Just Released

### Bruno Ribbon-Type Velocity Microphone

Available Either in Kit Form Or Assembled



Here indeed is the ULTIMATE in microphones. May be subjected to all extremes of weather or submerged in water and still it will perform perfectly. Responds uniformly to a frequency range of from 30 to 14,000 cycles. IT IS FREE FROM RESONANT PEAKS. It will not pick up extraneous noise or cause feedback due to its highly directional quality. In other words it is the "PERFECT MICROPHONE".

This microphone GENERATES ITS OWN CURRENT and is therefore absolutely quiet in operation; no hiss, no carbon rushing noise. Can be used at a distance from preamplifier. OPERATES WITH FULL EFFICIENCY IN FRIGID NORTH OR TORRID SOUTH. Not affected by altitude or humidity. Its construction is so rugged that if handled roughly or even if dropped there is no danger of major injury. This fine instrument is available either in kit form or completely wired ready to use. All component parts are finely machined and accurately matched so that they can be assembled in less than one hour's time. Complete instructions and amplifier diagram furnished FREE with each instrument.

## BUILD YOUR OWN CONDENSER MICROPHONE!

### A Real Professional Unit

Anyone with a n y knowledge at all of radio is aware of the advantage of the condenser microphone over the carbon mike. No hiss—no noise. Everything is natural, life-like. The Bruno condenser microphone is a full fledged professional instrument which is daily replacing the now antiquated carbon microphone. It is made with microscopic precision and tested over the entire audible range of frequencies. Just listen to a Bruno! It is clear pitched, free from hisses and other interferences; no distortion, no frequency cut-off.

### EASY TO ASSEMBLE

Anyone at all can assemble this condenser microphone kit in less than an hour. The parts are simple and easily handled. All the parts are carefully made and machined so accurately that they fit perfectly in assembly. Once assembled, the microphone is fully encased and, therefore, free from dust, dirt and climatic conditions. This microphone may be had fully assembled, ready to use at the additional price shown below. A complete and detailed diagram as well as a full set of instructions for assembling the microphone and for building its associated amplifier circuit is furnished FREE with each outfit. Ship. wt., 4 lbs.

List Price \$5.00  
No. 1617 Bruno Condenser Microphone Kit. \$2.94

List Price \$10.00  
No. 1618 Bruno Condenser Microphone Assembled Ready to Use. \$5.88

## Universal Single Button "Handi-Mike"



A sturdily constructed, remarkably sensitive hand microphone for use where quality reproduction of all speech frequencies is essential. Intended for voice only. This microphone is standard equipment on many of the more expensive home recording and radio combination outfits. Finished in gummetal and equipped with an "on-off" toggle switch, 15-foot cord, and metal eye at the extreme top for hanging while in or out of use.

The unit itself is scientifically constructed with gold-plated button and mounted in sound-damping resilient felt. The entire assembly is the result of exhaustive study and tests to produce the most efficient general utility microphone on the market. Packed in individual boxes. Measures 2½ ins. across the head and 6 ins. long. Complete instructions for hooking up are included with each unit. Shipping weight, 2 lbs.

No. "Hander" Universal Single Button "Handi-Mike"  
YOUR PRICE \$5.88

## Universal Double Button "Handi-Mike"

A highly damped, exceptionally clear hand microphone for many uses; ideal where clarity of reproduction plus general adaptability and portability are prime requisites. This assembly is outstanding because of its superior reproduction qualities. The general make-up of this unit is in all respects similar to our "Single Button Handi-Mike", except of course that a three conductor cord is used and the switch breaks the circuit in the center conductor. This microphone is 200 ohms per button and is furnished with a six foot silk braid covered cable. Finished in attractive stately bronze. Individually boxed. Shipping weight, 2 lbs.

No. "Handex" Universal Double Button "Handi-Mike"  
YOUR PRICE \$8.82

## Universal "Mike" Tone Control

### A "Voice To Mike" Adapter

Here is a device which actually adapts vari-pitched voices to particular microphones;—a new accessory that means much added value. The tone control is used across the buttons of any microphone to change the tone to fit adverse conditions. Shrill, high pitched voices may be toned down to normal, and gruff, deep voices may be tuned to more pleasing positions in the voice frequencies.

The tone control also permits an adjustment in public address and loudspeaker installations to eliminate the "feed back" resonance or ringing echo, following the pronunciation of certain words. It provides a flexible, adjustable element against these drawbacks when work-

ing in a building having bad acoustics. Size 2½ ins. x 2½ ins. x 4½ ins. Net weight, 1 lb. Shipping weight, 1½ lbs.

No. "Toner" Universal "Mike" Tone Control.  
YOUR PRICE \$4.70

## Universal "Baby Mike"

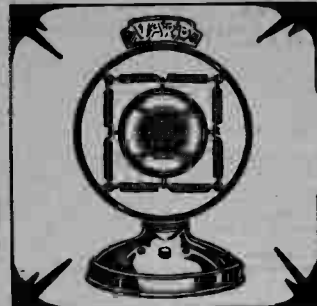
### A Real Microphone

"Baby Mike" is a genuine single button carbon microphone of 200 ohms resistance. Mounted in a die cast mounting 3½ inches high,—a replica of the regular broadcast models. It may be connected to amplifiers or direct to almost any set on the market, the manner of connection depends upon the circuit and tube in set. A detailed instruction sheet accompanies each unit.

An endless amount of home entertainment is afforded by the use of the "Baby Mike". The natural tone quality obtainable by a microphone of this size is really surprising.

A feature of "Baby Mike" is the circuit adjusting screw on top of the case for leaving circuit "open" or "closed" when mike is not being used. Another feature is the cushioning of the diaphragm to prevent excessive "feed back" from speaker. Complete with prong adapter, 25 ft. cord and detailed instruction sheet. Shipping weight, 1½ lbs.

No. "Bam" Universal "Baby Mike"  
YOUR PRICE \$2.55



# The GLOBE TROTTER



## Excellent for Home Broadcasting

These professional-looking microphones, despite their extremely low prices, are REAL instruments. For actual tonal reproduction and fine workmanship, they have yet to be surpassed by any microphone in their class.

There is no end to the amount of amusement made possible by connecting these instruments to the house radio and reproducing the results. Available in two models, viz., the desk type and the ring type. Both models incorporate convenient toggle switch for switching from radio to microphone. Ship. wt. 2 lbs.

one's voice through the loudspeaker. Complete instructions for connecting them to ANY TYPE OF RECEIVER are furnished with each unit. Installation is extremely simple. Finished in chrome nickel and provided with long connecting cord and lugs. Available in two models, viz., the desk type and the ring type. Both models incorporate convenient toggle switch for switching from radio to microphone. Ship. wt. 2 lbs.

No. 100 Desk-Type Globe Trotter. **\$0.79**  
 YOUR PRICE  
 No. 150 Ring Type Globe Trotter, complete with Stand and Suspension Springs. **\$1.18**  
 YOUR PRICE

## Adjustable Floor Stands

Properly balanced floor stands of conventional size for suspension-type microphones. The top ring is 6 1/2" inside diameter, base 8 1/2". Smooth in operation. Extends to about 5 1/2 ft. by means of a positive, easily-operated clamp lock. Hundreds of these stands are in use in all parts of the world. Constructed of durable metal and beautifully finished in either lacquered brown or gold color.

All stems are bored to permit free passage of the microphone wires which reappear through an insulated aperture in the base of the stand. Available in either the universal or modernistic designs. Shipping weight, 15 lbs.

List Price \$15.00  
 No. 2353 Universal Floor Stand  
 YOUR PRICE **\$4.50**

List Price \$20.00  
 No. 2354 Modernistic Floor Stand  
 YOUR PRICE **\$6.75**



## Banquet Microphone Stands

Half-height stands for use on tables, at banquets, desks, pulpits, etc. Specially suitable for amateur and studio announcer's use. Top ring 6 1/2" inside diameter furnished with four eyes for suspension springs.

Available in two models, rigid and adjustable. The rigid type measures 19 1/2" high and is 8 1/2" wide at the base. Adjustable stand measures 23 1/2" minimum and 35 1/2" maximum height. Base is 8 1/2" wide. May be had in either brown or gold lacquered finish.

The top ring alone with the four spring eyes and suspension hook can be readily furnished.

No.	Style	Shpg. Wt.	List Price	YOUR PRICE
2350	Fixed Banquet	5 1/2 lbs.	\$8.50	<b>\$2.75</b>
2351	Adjustable Banquet	6 lbs.	10.00	<b>\$4.00</b>
2352	Top Ring only	3 lbs.	4.00	<b>\$1.47</b>

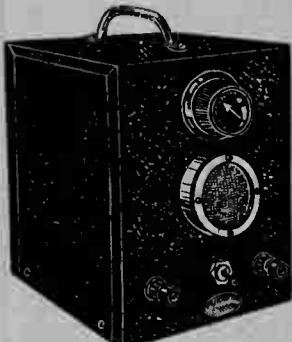
## Carbon Microphone Diaphragms

These diaphragms are used in the construction of microphones for hearing instruments for the deaf. They should be used in conjunction with the carbon buttons and carbon grains or balls listed elsewhere on this page. Experimenters should keep a number of these diaphragms on hand for their own personal experimental circuits. Measure 2 1/2 ins. diameter and 0.016 in. thick.

No. 1877 Carbon Microphone Diaphragms **\$0.25**  
 YOUR PRICE, each



## Portable Microphone and Pre-Amplifier



This compact, highly efficient unit consists of a single button carbon microphone of the mid-gate type, described elsewhere on this page, microphone input transformer, potentiometer, battery compartment and batteries and "on-off" toggle switch.

All these compactly installed in a neat metal cabinet attractively finished, black enamel stucco. JUST THE UNIT FOR PUBLIC ADDRESS, PAGING AND

HOME RECORDING SYSTEMS. Will match the input impedance of all type amplifiers and radio receivers. Easily used with the latter by connecting the two terminals, with a flexible double wire lead across the grid and cathode of the detector irrespective of type of tube used. This device is excellently suited for inter-communication and private detective systems. Full instructions accompanies each unit. Complete with batteries. Shipping weight, 4 lbs.

No. 1854 Portable Microphone and Pre-Amplifier Unit.  
 YOUR PRICE **\$7.15**

## "Faraday" Sr. Microphone Impedance-Matching Input Stage

For Two Button Microphones  
 Complete with "Gain" Control

An extremely compact, efficient unit designed to "boost" the weak microphone currents to proportions which will correctly match the input stages of all type amplifiers. May be used with either one or two button microphones. This pre-amplifier unit provides "booster" circuit with transformer, variable "gain" control, battery receptacle and switch—all contained in a neat, compact, metal case, finished in brown crackle. The "gain" control potentiometer is across the secondary of the transformer and incorporates a switch which turns the battery off when not in use. Ship. wt. 3 1/2 lbs. List Price \$6.00

No. 1561 Sr. Microphone Impedance-Matching Input Stage  
 YOUR PRICE **\$4.41**

List Price \$5.00  
 No. 1562 Jr. Microphone Impedance-Matching Input Stage for one-button microphones  
 YOUR PRICE **\$3.81**



## UPCO PROFESSIONAL PHONOGRAPH PICK-UPS

Upco Pick-Ups are known the world over for their true tone fidelity. They are being used everywhere for professional work; in theatres, dance halls, public address work, etc. These pick-ups are available with various impedances from 3 to 10,000 ohms. Please be sure to specify the impedance of pick-up you desire when ordering.

### Model 25 Phonograph Pick-Up

ONLY **\$6.53**



MODEL 25

The arm of this Pick-Up is perfectly balanced and is adjustable to any weight on the record. Every moving part is on ball-bearing suspension. Will play with 78 or 33-1/3 r.p.m. records. Furnished complete with volume control built into the base. The pick-up head employs a special English Cobalt magnet and special solid-steel pole pieces and armature. Shipping weight, 5 lbs.

List Price \$17.50  
 No. 25 "Upco" Professional Phonograph Pick-Up  
 with volume control. **\$6.53**  
 YOUR PRICE

No. 25A Pick-Up without volume control. **\$5.75**  
 YOUR PRICE

### Model "E" Phonograph Pick-Up

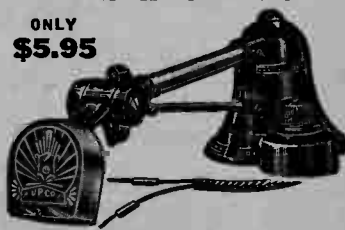
No. E "Upco" Pick-Up, same as Model 25 above, but does not have balancing weight on end, complete with volume control.  
 YOUR PRICE **\$5.95**

No. "B" Pick-Up, same as No. "E" above, but with detachable Pick-Up head, complete with volume control.  
 MODEL E **\$7.33**  
 YOUR PRICE

No. "Symphony" New Symphony Model with long arm to accommodate 16" broadcast records; detachable head and with Volume Control. **\$11.25**  
 YOUR PRICE

### Model "A" Chromatic

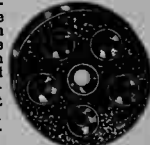
ONLY **\$5.95**



Fine chromatic unit with built-in volume control. Used extensively in theatres, public address systems and portable amplifier units. A good value at full list price of \$11.50. Ship. wt., 5 lbs.  
 No. "A" Upco Chromatic Pick-Up. **\$5.95**  
 YOUR PRICE

### Carbon Microphone Buttons

These buttons are used in conjunction with the carbon microphone diaphragms listed elsewhere on this page, for amplifiers and phone instruments for the deaf. Carbon grains or carbon balls are placed in the circular depressions. Diaphragm and button must be about 1/16 in. apart for best results. Diameter of button 1/4 in.; thickness 3/16 in.; center hole 1/8 in.  
 No. 1876 Carbon Microphone Buttons **\$0.20**  
 YOUR PRICE



Gentlemen:  
 I received my first order of parts from your firm; THEY WERE ALL O. K.  
 Your catalog is certainly a complete one. A. N. Brink, New York.

# Western Electric Rebuilt Phone Equipment

## AT PRICES NEVER OFFERED BEFORE - - - FULLY GUARANTEED

At these prevailing prices you can now install a REAL TELEPHONE INTER-COMMUNICATING SYSTEM, be it between office and office, home and garage, neighboring homes or what have you. We all know that cheap equipment is expensive in the long run. There are any number of inexpensive intercommunicating telephones (toys compared to the equipment we list here) on the market. In fact we ourselves list two or three different types of these in this very catalog. If, however, you desire to install a real dependable system—a system as dependable as your regular telephone—it is only logical to use real dependable telephone apparatus—that was designed specifically for that purpose. This is the same type of equipment which is used universally for regular telephone work.

### EXTREMELY SIMPLE TO INSTALL

These telephone outfits are just as simple to install as any set of toy phones. They require but three standard 1½ volt dry cells to operate. All ringers are energized by hand generators. A set of batteries, with ordinary use will last more than a year.

We especially recommend this equipment for permanent installations; for there is nothing whatever to get out of order—no rotating parts that require oiling. Everything is ruggedly constructed for continuous service under all conditions.

### GUARANTEED—EXACTLY LIKE NEW

In price this equipment is naturally considerably lower than new material. IN PERFORMANCE HOWEVER THEY ARE IDENTICAL. In fact we guarantee these telephones in the same way that new phones are guaranteed—for, actually they ARE new. The old saying that "A rebuilt typewriter is as good as new" holds true in this case. The microphones are re-carboned the receiver pole pieces re-magnetized, defective or worn parts completely replaced and the containers refinished and repolished, in fact you cannot tell it from new merchandise. For continuous, reliable telephone work use reliable telephone equipment.

### Western Electric Compact Wall Set

Complete With Four Bar Magneto and 1000 Ohm Ringer



This is the same type of wall set which a few years back, was used almost universally in hotels, apartment buildings, general stores, etc. Each set includes a genuine Western Electric transmitter and receiver as well as a four bar generator, three inch gongs, 1000 ohm ringer and retardation coil. Requires but three standard No. 6 dry cells to operate. These cells are hidden in the interior of the of which in case, the front of which swings back on hinges. It is an excellent unit for reliable inter-communication work. It may be raised up in such a way as to be able to contact two or three different parties. Extremely simple to install. These sets have conveniently located terminals on the inside. Service men can reap a young fortune installing these sets for their various customers. Many of these customers probably have intercommunication problems to be solved but can not know either get the equipment or how to go about the entire matter. There is no question but what these REAL telephone outfits can be sold to prospective customers in place of the inexpensive type which are more or less, toys in comparison. Each wall set measures 23 x 12½ x 9½" and weighs 28 lbs. List Price \$50.00

no. WE-317 Western Electric Four Bar 1000 Ohm Building Wall Set. **YOUR PRICE—Each \$12.00**

Bought In Pairs \$23.00  
no. WE-317A Western Electric 3 Bar 1000 Ohm Building Wall Set. **YOUR PRICE—Each \$9.90**

Bought In Pairs \$19.00

### Telephone Induction Coils

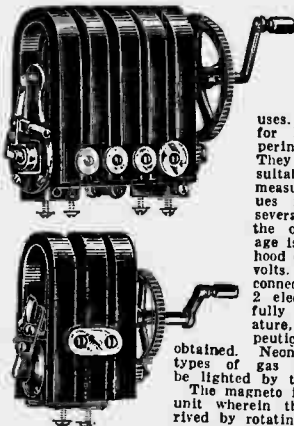
Although designed to match the telephone transmitter to the telephone line, these units may be used for a multiplicity of other purposes. The telephone induction coil is of the earliest type of laboratory apparatus. It comprises a primary and secondary wound over an iron core. The units listed herewith have a primary D.C. resistance of approximately 1 ohm and a secondary resistance of about 15 ohms.

HERE ARE SOME OF THE USES TO WHICH THESE INDUCTION COILS MAY BE PLACED. By putting a vibrator on the coil and connecting the vibrator in series with the primary winding and a battery, the combination may be used as an electrical shocking machine for therapeutic purposes. With the same type of construction, an excellent high voltage "B" unit may be made for supplying raw A.C. to the plate of a low-powered terminal tube such as the type 30.

They may also be used as low-power step-up transformers by connecting the primaries to the low voltage output of an adjustable toy transformer. There is a considerable amount of wire on these coils—wire which may be used advantageously for winding various type of experimental equipment. Shipping wt., 1 lb.

no. WE-20 Western Electric Induction Coil. **YOUR PRICE \$0.65**  
no. K-51 Kellogg Induction Coil. **YOUR PRICE \$0.65**

### Telephone Magneto Generators



Although these units were designed originally to be used in conjunction with telephone equipment, they have a considerable number of other uses. They may be used for laboratory or experimental purposes. They are particularly suitable for use in measuring resistor values in the region of several megohms since the output peak voltage is in the neighborhood of several hundred volts. Then again by connecting the output to 2 electrodes and the carefully rotating the armature, excellent therapeutic results may be obtained. Neon tubes and other types of gas filled tubes may be lighted by these magnetos.

The magneto is a self-contained unit wherein the energy is derived by rotating an armature in a magnetic field of permanent magnets. This armature is rotated by means of a crank handle and a set of gears having a ratio of 5 to 1. This means that every time the crank handle is turned one complete revolution, the armature makes 5 complete revolutions. In this way the armature may be made to revolve at very high speeds, thus producing high frequency alternating current in the output. These particular magnetos, under no load, produce high voltages which under load, rapidly fall down to from 6 to 8 volts. The magneto is excellently suited for ringing bells at remote points. The armature is automatically disconnected from the circuit by means of a trust contact, when the magneto stops revolving.

These magnetos are actually generators, differing therefrom only in the type of field excitation used. The generator, as we know it today, has a field coil which requires current for excitation. The magnetos employ permanent magnets instead. BY FEEDING ALTERNATING CURRENT THROUGH THE ARMATURE AND REMOVING THE RATIO GEARS, THE MAGNETO BECOMES A MOTOR. There are hundreds upon hundreds of uses and experiments which may be performed with these little units. These magnetos are available with 3, 4, and 5 permanent magnets as listed below. Shipping weights vary from 8 to 14 lbs. according to size.

no. HC-3 Holtzer-Cabot 3 Bar Magneto. **YOUR PRICE \$1.00**  
no. SC-4 Stromberg-Carlson 4 bar Magneto. **YOUR PRICE \$1.50**  
no. HC-5 Holtzer Cabot 3 Bar Magneto. **YOUR PRICE \$2.50**

### Western Electric No. 240 Signal Set

This set is not a complete telephone outfit. It contains merely the magneto (generator) and the ringer. Provisions are made however for connecting a microphone to terminals conveniently located outside of the lacquered wooden case. It may be used in conjunction with any desk type telephone set which you may have on hand. The magneto is of the 3 bar type designed to ring the 2500 ohm ringer. Measures 11" x 6¾" x 5¾" overall. Shipping weight, 14 lbs.

no. WE-240 Western Electric Signal Set. **YOUR PRICE \$6.35**



### Western Electric No. 240 Wall Set

Complete With Three Bar Magneto and 2500 Ohm Ringer



This desk set originally sold for as high as \$25.00. Now look what the price has come down to—only \$7.15 for the complete outfit. This includes transmitter, receiver generator (magneto), retardation coil and a handsome wooden cabinet, lacquered finish. The generator is of the three bar type and is accurately matched with a 2500 ohm ringer. The microphone and receiver are of genuine Western Electric construction, which speaks for their quality.

Two of these sets, one at either end constitutes a most reliable intercommunication system. Extremely simple to install. There are no such things as "booster stations," attenuators or central stations required. Three No. 6 dry cells at each end of the lines do the trick. The generator rings the bell and the batteries energize the microphones and receivers. That is all there is to it. ONLY TWO WIRES ARE REQUIRED BETWEEN THE TWO STATIONS. Ordinary lamp cord works very nicely.

These telephones will work over long distances. It should be understood, however, that the longer the distance the more batteries will be required and the heavier the two wires should be. Once installed, such a system requires practically no attention whatever except for the rather infrequent replacement of the dry cells. Under normal operation these cells should last for a year or more. Each set measures 11x8x5½" deep. There are seven terminal posts on the outside of each box. Their connections are as follows: the two marked "T" are for the receiver (telephone) tips; the two marked "B" are for the batteries (anywhere from 4½ to 6 volts depending upon the distance); the two marked "L-1" and "L-2" respectively are for the line connections and finally the one marked "G" is connected to the nearest water pipe or other grounded object. Shipping weight, 14 lbs.

List Price \$25.00  
no. WE-240 Western Electric Three Bar 2500 Ohm Wall Set. **YOUR PRICE—Each \$7.15**

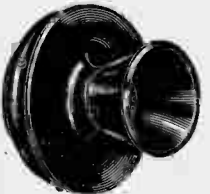
Bought In Pairs \$13.75

### Western Electric Telephone Transmitter

This fine quality transmitter, although designed especially for telephone work, (which ordinarily means for voice frequencies) will work excellently in radio service. For instance, it may be used for home broadcasting purposes by connecting it, through the medium of a microphone transformer, to the home radio. Or it may be used for public address work where only speech is to be reproduced. In fact this type of microphone is a bit more desirable than the open type inasmuch as it is more directional and therefore will not pick up extraneous noise.

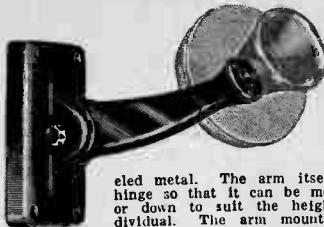
Has a D.C. resistance of 100 ohms. It is an easy matter to suspend this microphone in a regular mike stand. This is accomplished by slipping a lug under each of the four screws which holds the back plate in place and then using ordinary microphone springs. Shipping weight, 2 lbs.

no. WE-250 Western Electric Telephone Transmitter. **YOUR PRICE \$2.00**  
no. K-22 Kellogg Telephone Transmitter. **YOUR PRICE \$2.20**





## Western Electric Telephone Transmitter Arm



This sturdy constructed arm will fit all types of Western Electric telephone transmitters. It is made of black enameled metal. The arm itself works on a hinge so that it can be moved either up or down to suit the height of the individual. The arm mounts through the medium of four holes in each corner of the base. Measures 6" x 4" x 1 3/4" overall. Ship. wt., 2 lbs. No. WE-Arm Western Electric Telephone Transmitter Arm. **YOUR PRICE \$0.45**

## Stoppani Jewelled Compass



A genuine Belgian Stoppani Compass; solid bronze. Par-kerized; graduated in 1/10; Ruby Jewelled. Has surveyor's elevated sights; set screw in corner to hold needle rigid when not in use. Said to have cost U. S. Government \$29.00. Sportsmen can never hope to equal this wonderful value. Very highly calibrated for direction and extremely accurate. Size: 3 1/4 x 3" in mahogany case.

### LENDS SELF TO MANY RADIO USES

The Stoppani Compass, being a precision instrument, lends itself admirably for use in the Radio experimenters test laboratory. It affords an ideal means of determining the polarity of magnets, electro-magnets and solenoids carrying current. Since the compass needle is itself a magnet having a North-Seeking (really the South) and South-Seeking (really the North) pole; and since as we all know, like poles repel each other and unlike poles attract each other, it is but necessary to bring the compass in the vicinity of the magnet under test. The North pole of the compass needle will then point to the North pole of the magnet under test or the South pole of the needle will point to the South pole of the magnet depending of course, upon their relative positions.

### MAY BE USED AS A GALVANOMETER

Because of its uniform magnetic properties, high sensitivity, and delicate frictionless bearings the Stoppani compass may be utilized to advantage as a galvanometer for detecting electric currents in experimental or conventional radio circuits. The compass is easily and readily converted into said galvanometer by merely winding several turns of ordinary radio wire completely around the face of the compass, leaving small spaces between turns to observe the movements of the needle. The ends of the wire are brought out as test leads to be inserted in series in circuits under test. A deflection of the compass needle in either direction indicates the presence of an electric current. Incidentally the intensity of the current may be closely approximated since the force with which the needle reacts is proportional to the strength of the current.

Excellent for the automobilist, camper, tourist, Radio service man, experimenter, etc., and will make a good item for you to sell at a nice profit.

No. 1637 Stoppani Compass. **YOUR PRICE \$3.75**

## Improved Neutralizing and Compensating Tools



The main purpose of this handy set of tools is to accurately adjust trimmer or neutralizing condensers without being hindered by troublesome body capacity. The highly sensitive modern receivers of today are so critically balanced that the comparatively minute capacity of .00001 mfd. is sufficient to cause them to squeal and oscillate. Now when you take into consideration the fact that body capacity (which always results through the use of ordinary screw drivers and wrenches) is at times twice and even thrice this value, you immediately realize how essential these tools really are.

This set of improved tools consists of a small, special screw driver, a 3/4" nut wrench and a key slot all on one piece of insulated tubing. This unit screws into a second unit which is again equipped with a 5/16" nut wrench and a holding clip. Measures 6" long by 7/16" in diameter. Ship. wt., 8 oz.

No. 1880 Improved Neutralizing and Compensating Tools **YOUR PRICE \$0.75**

## Acme "Feather-Weight" Headphones

An exceptionally efficient, small, low priced head set for amateurs, experimenters and for all other uses where a high grade, light-weight, comfortable head set is required. The complete head set weighs but 5 ounces. Magnets made of high-grade chrome steel. Standard 2,000 ohms per phone. Excellent for use on short waves. Shipping weight, 1 1/2 lbs.



No. 1679-A Acme "Feather-Weight" Headphones. **YOUR PRICE \$1.05**

## Genuine Brandes Matched Headset



An accurately matched set of headphones, each unit consisting of high-flux magnets surrounded by field windings of 2000 ohms resistance. Ruggedly constructed of light weight metal and highly polished imitation Bakelite ear caps. Can be worn for hours at a time without fatigue. Excellently suited for DX work. Complete with 6 ft. cord. Shipping weight 2 lbs.

No.	Type	List Price	YOUR PRICE
1678	Brandes Matched Headset	\$6.50	\$1.35
1845	Cannonball Dixie Headset	2.25	1.10
1846	Master Cannonball Headset	3.50	1.50
1847	Single Dixie with Cord	1.25	.60
1848	Single Dixie with Cord and Headband	1.50	.75

## Little Gem Midget Cone Speaker



Primarily designed to be used as an advertising novelty and as a decorative addition to a regular speaker; this Little Gem works surprisingly well for one of its size. Has all the features of regular cone speakers; adjustability of armature, flexibility of paper cone and universality of mounting bracket. Measures barely five inches in diameter and 1 1/2 inches in depth. A beautifully antique-finished cone useful and pleasing ornament to have around. It will afford you a considerable source of amusement and satisfaction. Shipping weight, 2 lb. List Price \$2.00

No. 1552 Little Gem Midget Cone Speaker. **YOUR PRICE \$0.95**

## Nathaniel Baldwin Units



This is the world famous standard for use with horn type speakers or phonograph sound chambers. All units completely enclosed in metallic shell. No better units made. Shipping weight, 1 lb. Overall dimensions, 3x3x2".

No. 1521 Baldwin H-I Unit. List Price \$5.00. **YOUR PRICE \$0.50**  
 No. 1523 Baldwin Standard Unit. List Price \$6.00. **YOUR PRICE \$0.45**  
 No. 1524 Standard Phono-Speaker Unit with felt bottomed metal base. **YOUR PRICE \$0.75**

## Winchester Feather-Weight Headphones



Total Weight 6 Ounces  
 Here indeed is the champion featherweight headset of the world!—A full-fledged, lusty-throated midget which equals and even surpasses some of the larger and more expensive headphones. Can be worn for hours and hours at a stretch without even so much as feeling them—in fact, so unaware does one become of their presence that he may, forgetfully, attempt to leave the room while wearing them until abruptly reminded by the sudden jerking of the phone cord.

This headset is the answer to the prayers of thousands of Service Men, amateurs, experimenters and radio enthusiasts. No more fatigue—no more pressing pains around the ears and top of the head. The total weight of these phones is 6 ounces—imagine, lighter than the lightest hat, cap or other headset ever manufactured. Each earphone measures 2 3/8 ins. diameter x 1 in. thick, is of standard 2000 ohms impedance and is compactly built into a light, non-magnetic aluminum case, finished in a dark-bronze crackle design. The magnets are of "chrome" steel and will maintain their magnetic strength for many years to come. A 1/2 in. wide spring metal headband holds both earpieces (which are adjustable) firmly pressed against the ears. Earphone covers are made of genuine moulded brown bakelite. These headsets are excellently suited for portable receivers, hearing-aid devices, hospitals, music distribution systems and for all other purposes where high quality, non-fatiguing, standard impedance headsets are required. Complete with 3 1/2 ft. cord and phone tips. Shipping weight, 1 lb.

No. 1693 Featherweight Headphones **YOUR PRICE \$1.55**

## Miles Connectophones An Inter-Communication System



No. 401 Professional Connectophones  
 No. 400 Portable Connectophones

Convenient—Saves Time, Money, Labor—Simple to Use—Easy to Install—Low in Price—First Cost is Last Cost—100% Portable—Use It Anywhere—Move It at Will—Talk with 1 or 100 People at One Time—Messages Cannot be Overheard or Interrupted—No Switchboard or Operator.

Just pick up the microphone and speak instantly to the person or persons you want. Miles CONNECTOPHONES operate as simply as that. Yet they are the result of years of laboratory work—a triumph of modern radio engineering. Miles CONNECTOPHONES are precision instruments; built to give years of service. Housed in a useful case, CONNECTOPHONES are in keeping with the most luxurious offices. Compact, convenient. Intercommunication convenience at an amazingly low cost.

### CONFIDENTIAL COMMUNICATION

So sensitive are microphone and receiver that you can be heard clearly and distinctly by the person with whom you are communicating, yet be entirely inaudible to one a few feet from you. CONNECTOPHONE messages are private. For the reception room to announce visitors for the filing department, to request material; for the shipping room; for executive communication; for dictating; for speaking to your secretary while in conference; for closer contact with every department of your business use Miles CONNECTOPHONES.

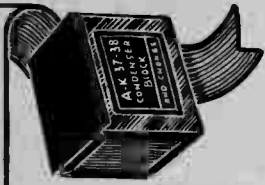
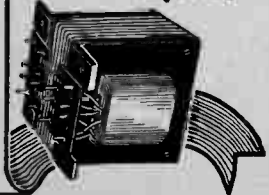
You don't even have to talk directly into the microphone. Your voice is picked up clearly and distinctly even though you are several feet from the CONNECTOPHONE! The microphone can be worn on your coat lapel, held in your hand, or used from a stand. CONNECTOPHONES are flexible—designed to meet your needs.

These CONNECTOPHONES are available in two different models, viz., Portable Connectophone and Professional Connectophone, both illustrated above. The Portable Connectophone outfit comprises lapel microphone, matched earphone, battery, on-off switch and cable. Sold complete in hinged cover box. The Professional Connectophone outfit comprises microphone in neat desk or wall cabinet, earphone, batteries, switch and necessary push button for signalling various departments. Ship. wt., 8 lbs.

No. 400 Portable Connectophone **YOUR PRICE \$5.15**  
 No. 401 Professional Connectophone **YOUR PRICE \$7.50**

# GUARANTEED REPLACEMENT CONDENSER BLOCKS AND POWER TRANSFORMERS

*Exact Duplicates*  
**PHYSICALLY AND ELECTRICALLY**



Name	Model	Power Transformation	Condenser Block	Origin	Model	Power Transformation	Condenser Block
N.C.	N.C.	N.C.	N.C.	N.C.	N.C.	N.C.	N.C.
All-Atlantic	D-44	3.37	7808	Ohio	3XT	3.37	7808
A.C. Dayton	48-41	3.37	7809	Ohio	Reed Grid P	3.37	7809
Acme	48-42	3.37	7810	Ohio	8 in line	3.37	7810
Acme	48-43	3.37	7811	Ohio	8 in X 20	3.37	7811
Acme	48-44	3.37	7812	Ohio	15-15	3.37	7812
Acme	48-45	3.37	7813	Ohio	15-15	3.37	7813
Acme	48-46	3.37	7814	Ohio	15-15	3.37	7814
Acme	48-47	3.37	7815	Ohio	15-15	3.37	7815
Acme	48-48	3.37	7816	Ohio	15-15	3.37	7816
Acme	48-49	3.37	7817	Ohio	15-15	3.37	7817
Acme	48-50	3.37	7818	Ohio	15-15	3.37	7818
Acme	48-51	3.37	7819	Ohio	15-15	3.37	7819
Acme	48-52	3.37	7820	Ohio	15-15	3.37	7820
Acme	48-53	3.37	7821	Ohio	15-15	3.37	7821
Acme	48-54	3.37	7822	Ohio	15-15	3.37	7822
Acme	48-55	3.37	7823	Ohio	15-15	3.37	7823
Acme	48-56	3.37	7824	Ohio	15-15	3.37	7824
Acme	48-57	3.37	7825	Ohio	15-15	3.37	7825
Acme	48-58	3.37	7826	Ohio	15-15	3.37	7826
Acme	48-59	3.37	7827	Ohio	15-15	3.37	7827
Acme	48-60	3.37	7828	Ohio	15-15	3.37	7828
Acme	48-61	3.37	7829	Ohio	15-15	3.37	7829
Acme	48-62	3.37	7830	Ohio	15-15	3.37	7830
Acme	48-63	3.37	7831	Ohio	15-15	3.37	7831
Acme	48-64	3.37	7832	Ohio	15-15	3.37	7832
Acme	48-65	3.37	7833	Ohio	15-15	3.37	7833
Acme	48-66	3.37	7834	Ohio	15-15	3.37	7834
Acme	48-67	3.37	7835	Ohio	15-15	3.37	7835
Acme	48-68	3.37	7836	Ohio	15-15	3.37	7836
Acme	48-69	3.37	7837	Ohio	15-15	3.37	7837
Acme	48-70	3.37	7838	Ohio	15-15	3.37	7838
Acme	48-71	3.37	7839	Ohio	15-15	3.37	7839
Acme	48-72	3.37	7840	Ohio	15-15	3.37	7840
Acme	48-73	3.37	7841	Ohio	15-15	3.37	7841
Acme	48-74	3.37	7842	Ohio	15-15	3.37	7842
Acme	48-75	3.37	7843	Ohio	15-15	3.37	7843
Acme	48-76	3.37	7844	Ohio	15-15	3.37	7844
Acme	48-77	3.37	7845	Ohio	15-15	3.37	7845
Acme	48-78	3.37	7846	Ohio	15-15	3.37	7846
Acme	48-79	3.37	7847	Ohio	15-15	3.37	7847
Acme	48-80	3.37	7848	Ohio	15-15	3.37	7848
Acme	48-81	3.37	7849	Ohio	15-15	3.37	7849
Acme	48-82	3.37	7850	Ohio	15-15	3.37	7850
Acme	48-83	3.37	7851	Ohio	15-15	3.37	7851
Acme	48-84	3.37	7852	Ohio	15-15	3.37	7852
Acme	48-85	3.37	7853	Ohio	15-15	3.37	7853
Acme	48-86	3.37	7854	Ohio	15-15	3.37	7854
Acme	48-87	3.37	7855	Ohio	15-15	3.37	7855
Acme	48-88	3.37	7856	Ohio	15-15	3.37	7856
Acme	48-89	3.37	7857	Ohio	15-15	3.37	7857
Acme	48-90	3.37	7858	Ohio	15-15	3.37	7858
Acme	48-91	3.37	7859	Ohio	15-15	3.37	7859
Acme	48-92	3.37	7860	Ohio	15-15	3.37	7860
Acme	48-93	3.37	7861	Ohio	15-15	3.37	7861
Acme	48-94	3.37	7862	Ohio	15-15	3.37	7862
Acme	48-95	3.37	7863	Ohio	15-15	3.37	7863
Acme	48-96	3.37	7864	Ohio	15-15	3.37	7864
Acme	48-97	3.37	7865	Ohio	15-15	3.37	7865
Acme	48-98	3.37	7866	Ohio	15-15	3.37	7866
Acme	48-99	3.37	7867	Ohio	15-15	3.37	7867
Acme	48-100	3.37	7868	Ohio	15-15	3.37	7868

RADIO TRADING COMPANY, 100 PARK PLACE, NEW YORK, N. Y.

# SHORT WAVE SECTION

## "R. T." AMATEUR C.W. PUSH-PULL TRANSMITTER

Only \$5.95

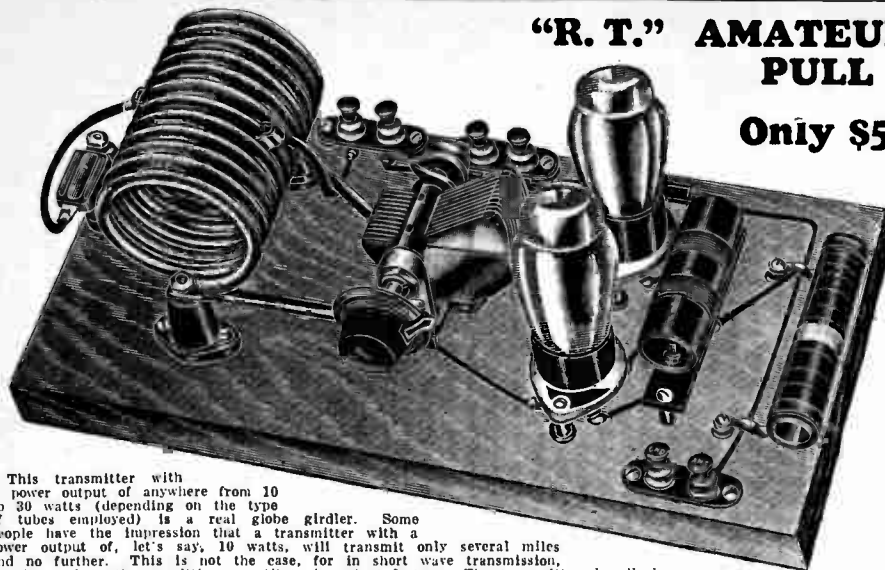
Featured in Short Wave Craft Magazine Oct. 1933

15 to 30 WATTS

ALL AMATEUR BANDS

A REAL GLOBE GIRDLER

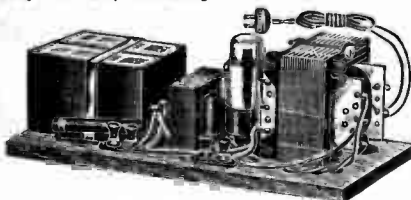
It's Fool Proof—Because It's Simple



This transmitter with a power output of anywhere from 10 to 30 watts (depending on the type of tubes employed) is a real globe girder. Some people have the impression that a transmitter with a power output of, let's say, 10 watts, will transmit only several miles and no further. This is not the case, for in short wave transmission, location and weather conditions constitute important factors. The transmitter described herewith has actually "worked" amateurs in the far corners of the earth. A LOW POWER TRANSMITTER IN A GOOD LOCATION IS, PRACTICALLY SPEAKING, MORE "POWERFUL" THAN A HIGH POWER TRANSMITTER IN A POOR LOCATION.

The transmitter illustrated, is essentially low powered, low cost, outfit for the beginner. It is not, however, confined to the beginner. Many dyed-in-the-wool amateurs have one or more of these transmitters handy as auxiliaries. Two type 45 tubes are used as oscillators. These tubes are used because of their low cost and because, in actual operation, they have practically the same output as the type 210 tubes, at one-third their cost. The circuit is of the type using fixed-tuned grid, tuned plate.

All grid coils are wound on one inch bakelite tubing with fine wire so that their natural frequency response is near the center of each amateur band. The frequency peaks of these coils are rather broad which means that THE ENTIRE BAND OF ANY GIVEN COIL CAN BE COVERED WITH THE PLATE CIRCUIT, WITHOUT THE TWO CIRCUITS GETTING OUT OF RESONANCE. These grid coils are of the 3-prong plug-in type. The plate coils are of copper tubing and are mounted on stand-off insulators. They are easily interchangeable for the various bands.



Heavy-Duty Power Pack

The construction of this transmitter is the simplest ever devised. From the diagram printed in the editorial section of this catalog it can be seen that no grid or filament by-pass condensers are used and that the usual R.F. choke has been omitted from the plate circuit. No benefit was derived from their employment and hence they were not used. The method of coupling the antenna to the output circuit is unique, and is a desirable feature. The antenna suggested for use with this transmitter is the single wire-feed Hertz. THE TRANSMITTER IS SUPPLIED WITH A SET OF 80 METER COILS. Coil sets to cover the other amateur bands can be had at the additional prices shown below.

### POWER SUPPLY

The power supply to operate this transmitter delivers 400 volts at 150 milliamperes for the plates of the tubes and 2.5 volts for the filaments. A type 83 mercury vapor rectifier is used because of its low voltage drop which permits excellent regulation. The filter consists of a 30 Henry iron-core choke with two 2 mf. 1000 volts resistor is connected across the output filter to further aid in regulation by suppressing the high voltage peaks when there is no load on the power pack as is the case when the key is in the "off" position. Ship. wt., 8 lbs., for transmitter and 18 lbs. for power pack.

No. 2121 "R.T." Push-Pull Transmitter, complete with 80 meter coils, but less tubes. **\$5.95**

YOUR PRICE No. 2122 Power Pack for R.T. Transmitter, less tube. **\$8.50**

YOUR PRICE No. 2123-A Plug-In Coils for 20 Meter Band. **\$1.80**

YOUR PRICE No. 2123-B Plug-In Coils for 40 Meter Band. **\$1.80**

YOUR PRICE No. 2123-C Plug-In Coils for 160 Meter Band. **\$1.80**

YOUR PRICE

## A Versatile One Tube "Push-Pull" Ten Meter Transmitter

Will Serve Any Number of Useful Purposes

Paradoxical as it may sound, this ten meter transmitter EMPLOYS A SINGLE TUBE IN PUSH-PULL ARRANGEMENT. Heretofore the word "push-pull" automatically implied the use of two tubes, yet here we are with a one tube push-pull transmitter.

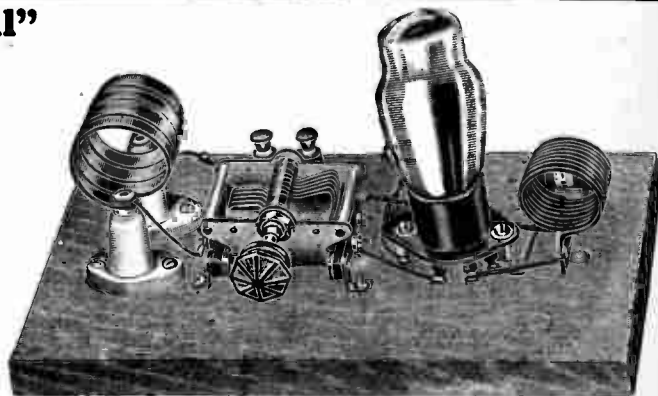
It is the advent of the new type 53 tube, which makes this feat possible. This tube is actually "TWO" tubes, in one glass envelope. It was designed primarily as a class "B" twin amplifier. So versatile is this new tube that not only can it be used for power amplification, but for detection and amplification as well. In fact we list in this very catalog a so called "One-tube 'Twinplex' receiver which is a ONE TUBE "TWO TUBE" SHORT WAVE RECEIVER. This single 53 tube is made to detect as well as amplify short wave signals.

The ultra short wave bands starting from ten meters and down are now buzzing with activity. It was not so long ago that experts considered this extreme high frequency channel impractical, yet, it will not be long before many commercial stations including television stations will be using these channels regularly. The radio fraternity thanks to the short wave amateur is rapidly unearthing the secrets of successful ultra short wave transmission and reception.

This transmitter is not a high power job, for high power is not necessary on ultra short wave work. When properly coupled to a suitable antenna system such as a single-wire-feed Hertz or the familiar "Zeppelin" antenna, it will, under favorable conditions, girdle the globe. The circuit is of the fixed-tuned grid, tuned plate type and utilizes a solenoid of solid copper ribbon as the plate coil. All component parts are of the highest possible quality, since R.F. losses in ultra short wave work are fatal.

EXCELLENT FOR PHONE WORK  
A SINGLE BUTTON MICROPHONE CAN BE INSERTED IN SERIES WITH THE GRID RETURN LEAD (USING NO TRANSFORMER), OBTAINING FROM 50 TO 75% MODULATION.

There are any number of uses to which a compact unit of this type may be placed. For instance it can be used as a master oscillator for multi-stage high



frequency transmitters OR two such units may be connected together to produce a complete master oscillator—R.F. amplifier transmitter. Neutralizing condenser must be added when used as an R.F. amplifier. The transmitter requires 2½ volts either A.C. or D.C. for the filament of the 53 tube and anywhere from 180 to 350 volts "B" supply. A key circuit is in the cathode lead. The transmitter on its neat bread-board measures 11" long x 6¼" wide x 6" high overall. Furnished complete with a set of 10 meter coils. Shipping-weight, 6 pounds.  
No. 10-M Versatile 10 Meter Transmitter Less Tube. **\$4.50**

YOUR PRICE

RADIO TRADING COMPANY, 100 PARK PLACE, NEW YORK, N. Y.

# We Have Been For Years Headquarters For Short-Wave Receivers

## RECEIVERS WHICH WORK WHEN YOU WANT THEM TO WORK

### Every Set Guaranteed To Perform Exactly As Represented

Listed in this section is a collection of some of the finest and most fool-proof short-wave receivers ever made. They are fool-proof because they are simple.

All the receivers are built around the old reliable regenerative principle which assures an almost unlimited amount of amplification.

THEY EMPLOY A MINIMUM NUMBER OF PARTS TO MAKE THEIR RESPECTIVE CIRCUITS OPERATIVE—WITH ALL FANCY EMBELLISHMENTS USUALLY FOUND ON "EXPENSIVE" SETS, ELIMINATED.

If properly adjusted and carefully tuned, they WILL BRING IN MOST ANYTHING ON SHORT WAVES WORTH HEARING, not only in this country, but ANYWHERE.

All the battery sets employ the new low-current-drain two-volt tubes, which, when used in conjunction with No. 6 dry cells, will permit those cells to last for months, even with frequent use.

The A.C. receivers, aside from employing the latest type special-purpose tubes, incorporate highly specialized power packs, designed particularly for use with short-wave apparatus. This assures almost complete elimination of parasitic noises which usually mar short-wave reception with A.C. equipment.

There has been a great deal of skepticism on the part of the public regarding the performance of short-wave equipment. This skepticism is, of course, justifiable to a certain extent. Many short-wave receivers have been manufactured in the past; some good, some bad. The so-called "bad" ones usually performed excellently under the manufacturer's laboratory conditions while being tested but very often failed to function at all in the home of the purchaser.

We, however, have eliminated this difficulty by testing all our receivers UNDER ACTUAL WORKING CONDITIONS—rather than under laboratory conditions.

All the receivers listed in this section are engineered by our own staff of competent short-wave experts. That is the reason why we can actually guarantee excellent performance!

**ONLY FIRST-CLASS PARTS ARE USED THROUGHOUT**

We realize that a short-wave receiver is no better than its cheapest component part just as a chain is no stronger than its weakest link.

We have, therefore, spared neither expense nor time in collecting the correct parts for each particular set.

It may be possible for you to buy similar receivers elsewhere at a lower price; but unless you, too, wish to join the ranks of the skeptical short-wave fans, you will insist on sets incorporating only first-grade parts.

The Doerle short-wave receivers listed elsewhere in this section, are proof of the quality and performance of the short-wave sets which we manufacture. We have, without exaggeration, sold thousands of these sets—and they are still going strong!

**FREE BOOK OFFER**

With the purchase of any short-wave receiver listed in this section, we will give—**FREE OF CHARGE**—a copy of either "How To Become An Amateur Radio Operator" or "How To Build and Operate Short-wave Receivers."

The former book covers literally everything on the subject of preparation for obtaining an amateur license. All explanations are presented in a clear and lucid manner that will be of great value to all prospective amateurs. It covers lessons on learning code, rules and regulations governing transmission, theory and operation of transmitters and associated equipment, etc., etc.

The other book is the best and most up to date on the subject. It contains a wealth of material on the building and operation, not only of typical short-wave receivers, but short-wave converters as well. If you are at all interested in short waves, you will not wish to do without this book.

### A TWO-TUBE BATTERY RECEIVER FOR SHORT-WAVE BEGINNERS Range 15 to 200 Meters

We have received many requests from our customers and friends who are starting in the field of short waves, to sell a receiver which is built around a simple, fool-proof design, and one which does not have a mass of complicated controls for tuning.

The set described herewith complies with those requests. It incorporates a straight-forward, regenerative circuit, incorporating but one tuning control and one regeneration control.

It is a set which is so simple in construction and operation that it cannot be anything else but fool-proof!

The circuit employs one regenerative type 30 detector followed by a single stage of A.F. amplification using another 30 tube. Under actual test the set has brought in a great many foreign programs, both speech and code.

Only high-grade parts have been used throughout its construction. This is essential to the satisfactory performance of any short-wave set. All component parts with the exception of the tuning and regeneration control condensers are mounted on an aluminum sub-chassis; these condensers being mounted on the aluminum front panel.

**HAND CAPACITY EFFECTS HAVE BEEN ENTIRELY ELIMINATED**, thereby making possible the accurate logging of all stations.

The panel measures 10 1/4" long x 7" wide; the base is 8" deep. Aerial, ground and phone connections are made to convenient binding posts. Battery connections are made through the medium of a convenient color-coded cable. The receiver is sold with a complete set of 4 low-loss plug-in coils having a range of from 15 to 200 meters. Ship. wt. 7 lbs.

List Price \$27.90

No. B7351 Beginner's Two-Tube Short-Wave Battery

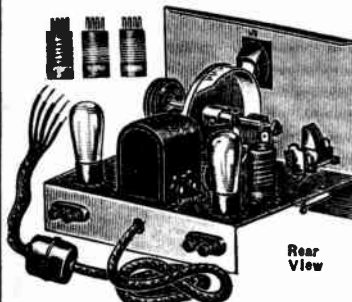
**\$11.50**

**YOUR PRICE**

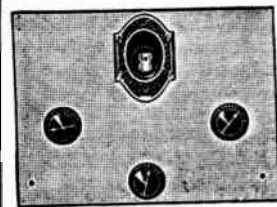
No. B7352 Complete accessories for the above receiver, including two-6 months' guaranteed Neontron 230 tubes; one pair of Brandes earphones; two-No. 6 dry cells; two-standard 45 volt "B" batteries. Ship. wt. 22 lbs.

**\$6.25**

**YOUR PRICE**



Rear View



Front View

### "FARADAY" THREE-TUBE SHORT-WAVE BATTERY RECEIVER

Range 15 to 200 Meters



Stations thousands of miles away are well within the range of this receiver. All local stations as well as many distant ones will be heard on the loudspeaker.

The chassis is housed in a handsome black, crackle-finish, metal cabinet, having a full-vision vernier dial and three control knobs which are viz., tuning, regeneration control, and filament control.

Takes but a few minutes to connect this receiver without even the use of tools. A 7-wire color-coded Belden fused battery cable is used for making the few simple connections.

The circuit itself is of the regenerative type, featuring simplicity of tuning while retaining the advantage of radio frequency amplification ahead of the regenerative detector. The R.F. amplifier tube is a type 34 screen-grid tube, assuring extremely high gain.

Regeneration is easily and smoothly controlled by means of a variable condenser in the detector plate circuit.

The other tubes required are two-30's, one detector, and the other an A.F. amplifier. Batteries required for operation are two-No. 6 dry cells and three-45 volt "B" Batteries.

The receiver is sold complete with two sets (4 coils to a set) of low-loss short-wave plug-in coils. Cabinet dimensions with cover closed are 11" x 6 1/2" x 8". Ship. wt. 10 1/2 lbs.

No. B7353 Faraday Three-Tube Short-Wave Battery Set.

**\$13.45**

**YOUR PRICE**

No. B7354 Complete set of accessories for above set including two-6 months' guaranteed Neontron 230 tubes; one Neontron type 34 tube; one pair of Brandes earphones; two-No. 6 dry cells; three-standard 45 volt "B" batteries.

**\$7.15**

**YOUR PRICE**

### SIX PRONG PLUG-IN SHORT-WAVE COILS Range 15-200 Meters

The set consists of four plug-in coils, each having THREE separate windings. Each winding is connected to a separate pair of base prongs thereby allowing great flexibility of application. The secondary winding is intended for tuning with a short wave tuning condenser, preferably of .00014 mf. (140 mmf.). The primary is wound between turns of the secondary for efficient close coupling.

The complete isolation of all windings permits the use of these coils in circuits requiring only a primary and secondary, or a tickler and secondary such as the Doerle Short-Wave sets and many others. All secondary windings are space-wound and all forms are of low loss construction. When used with a .00014 mf. condenser, coils will tune over short wave bands as follows:—Blue rim coils, 15 to 25 meter; Red rim, 25 to 50 meters; Yellow rim, 50 to 100 meters; Green rim, 100 to 200 meters. Ship. wt. 1 lb.

No. 708 SWS Six Prong Plug-in S.W. Coils.

**\$1.85**

**YOUR PRICE—per set**



### Special Short-Wave R.F. Choke

This R.F. choke is made especially for short-wave receivers. Wound on a special low-loss Bakelite form and requires but one screw for mounting. Incidentally, the metal mounting screw is never in the magnetic field of the choke inasmuch as the mounting hole is at a safe distance below the end of the winding. Ship. wt. 4 oz.



No. B7359 Short-Wave R.F. Choke

List Price \$1.25

**YOUR PRICE**

**\$0.20**

RIDE THE  
LO-WAVES with the

OFFICIAL  
**DOERLE**  
WORLD-WIDE  
Receivers

**READ THIS—**  
We are the ONLY Company authorized to manufacture and sell these Official Doerle Short-Wave Receivers. We, therefore, feel obligated to caution you against the purchase of so-called "Doerle" Receivers or receivers merely designated as "12,500 MILE SHORT-WAVE SET," "THREE TUBE SIGNAL GRIPPER" or any other names which were originally associated with the Official Doerle Circuit. These sets are sold at lower prices, because they contain inferior parts.

**Two Tube 12,500 Mile Doerle Receiver**



**\$9.90** ABSOLUTELY  
FOOL-PROOF!

Short-wave sets have come and gone but never have there been produced short-wave receivers which have taken the whole country by storm as have the DOERLE RECEIVERS. Mr. Doerle described his first receiver, the now famous 2-TUBE 12,500 MILE RECEIVER in the December January issue of SHORT WAVE CRAFT. If you are a reader of this magazine, you have undoubtedly been surprised at the great number of fan letters published in SHORT WAVE CRAFT, praising this receiver to the skies, and for a good reason. It is a low-priced receiver, yet pulls in short-wave stations from all over the world, REGULARLY, in practically ANY LOCATION, not only in this country, but ANYWHERE.

If all commercial short-wave receivers were built along the same lines as these Doerle sets, a good deal of the skepticism on the part of the public concerning such equipment, would be eradicated. Thousands of experimenters have built their own and have obtained MIRACULOUS RESULTS as hundreds of glowing testimonial letters (several of which are printed on this page) from radio fans testify. Recently, Mr. Doerle brought out another receiver, THE 3-TUBE SIGNAL GRIPPER, which has already started to make history. There is no question but what this 3-tube job will also make its triumphant tour all over the world.

**IMPROVED CIRCUIT AND DESIGN**

Despite the remarkable performance of these two receivers, our technical staff felt that they could obtain even better results by making slight modifications of the circuit. This is especially true of the 3-Tube Signal Gripper. The first type 30 R.F. tube in this set was replaced by a type 34 which is a special purpose, screen-grid R.F. pentode amplifier. Furthermore, we have done away with the wooden base, and in its place are supplying a completely drilled and punched metal chassis which helps to do away with inter-coupling effects. About 16 or 18 inches of wiring has also been eliminated, thereby assuring the shortest possible connections between the component parts. This has increased the sensitivity and selectivity of these receivers considerably; yet despite these changes, we have not increased the price of these instruments to you.

In the course of a year, we received many requests for these receivers, but did not undertake to build them or even supply them in kit form until we were absolutely sure that we could obtain the correct parts essential to perfect operation.

By special arrangement with the publishers of SHORT WAVE CRAFT, we have been given the exclusive right to manufacture and sell these Official Doerle Receivers, so that now all short-wave enthusiasts who have ever wished to own either of these fine sets, can buy them without the slightest doubt in their minds but what they WILL PERFORM 100%. This means that all the usual "bugs" have been ironed out by us in such a way that you may order any receiver with full confidence that in practically every location, anywhere, "they will do their stuff."

**ONLY FIRST CLASS PARTS USED**

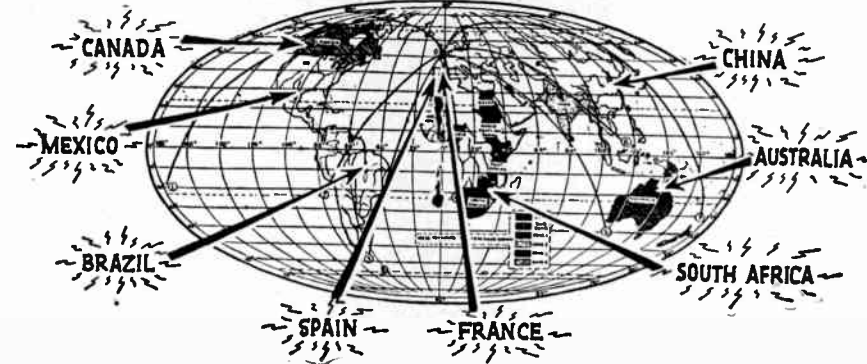
It may be possible to buy the parts of the completed sets at a lower price. We admit this at once. But if you will look over our parts list, you will find that only first class material is used. We have done away with all losses. There is no "hand capacity." IN THESE TWO SETS ONLY THE BEST CONDENSERS—AND THAT MEANS HAMMARLUND—ARE USED. The sets could be produced for a considerably less amount if we used cheaper condensers. (Continued on top of extreme right column)

**TWO TUBE 12,500 MILE SHORT-WAVE RECEIVER**

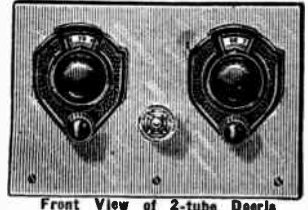
Every 2-tube receiver, whether assembled and wired or in kit form contains the following parts:  
**HERE IS WHAT YOU GET:** 1—Panel, drilled; 1 Base, completely drilled and punched; 2—Hammarlund .00014 mf. condensers; 1—filament rheostat with switch; 2—Kurz Kasch vernier dials; 1—Bakelite Knob; 1—Audio Transformer; 1—Special R.F. choke; 1—.0001 mf. fixed condenser; 1—5 meg. grid-leak; 2—Sets of double binding posts; 1—color-coded battery cable; 1—Coil Socket; 2—Type 30 tube sockets; 1—Equalizer (antenna) condenser; 1—Roll hookup wire; 1—Set of 4 plug-in coils, 15 to 200 meters, and assorted hardware. No. 2140 Two Tube 12,500 Mile Doerle Short-Wave Receiver, completely wired and tested as per above specifications. Shipping weight 5 lbs.  
**YOUR PRICE \$9.90**

No. 2141 Two Tube 12,500 Mile Doerle Short-Wave Receiver Kit, with all parts as specified above, but not wired, with blueprint connections and instructions for operation. Shipping weight, 5 lbs.  
**YOUR PRICE \$8.70**

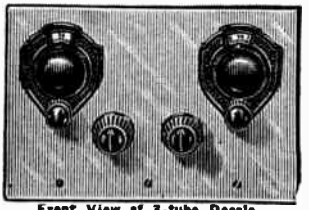
No. 2142—Complete set of accessories, including the following: 2 six months guaranteed Neontron type No. 230 tubes; one set of standard Matched Headphones; 2 No. 6 standard dry cells; 2 standard 45-volt "B" batteries. Shipping weight 22 lbs.  
**YOUR PRICE \$5.45**



**WORLD WIDE D-X**



Front View of 2-tube Doerle



Front View of 3-tube Doerle

FREE  
BLUEPRINTS  
and  
INSTRUCTION  
PAMPHLET  
WITH EVERY  
SET

**If You Are Skeptical—Read These Letters**

Some List!  
I have just completed your Doerle two-tube. I received the following on the loudspeaker: XDA, LQA, GMB, VESDR, VEGW, KQ, WXXZ, WXXA, WXXAL, WXXAU, WXXK, WXXAL, WXXF, WXXAA, Bermuda, Honolulu, Budapest, Hungary, and "hams" in 38 states.  
Maurice Kraay, R.F.D. 1, Hammond, Ind.  
This is going some!  
Today is my third day for working the Doerle set, and to date I have received over fifty stations. Some of the more distant ones I shall list. From my home in Maplewood, N. J., I received the following: WVR, Atlanta, Ga.; WGG, Ohio; W9BHM, Ft. Wayne, Ind.; W9AYS, Elgin, Ill.; W9EBK, Girard, Ohio; and best of all, XDA, Mexico; PZA, Surinam, South America; TIR, Cartago, Costa Rica; G2WM, Leicester, England. I have also received stations WDC and PJC, which I have not found listed in the call book.  
Jack Prior, 9 Mosswood Terrace, Maplewood, N. J.  
A Doerle Enthusiast  
I have just completed my two-tube Doerle, and it surely is a great receiver! It works fine on all the wavebands. Nobody could wish for any better job than this one. I received W9BHM and W9XAA to work on the loudspeaker at night, and the code stations come in with a wallop behind them.  
Samuel E. Smith, Lock Box 241, Graving, Mich.

France, Spain, etc., on Loudspeaker  
I hooked up my two tube Doerle Kit and I received France, Rome, Spain, Germany and England on the loudspeaker as well as over 100 amateur phone stations.  
I am very pleased with the receiver and would not part with it for anything. I have listened to many factory built short-wave receivers, but believe me, my DOERLE is the set for me.  
Arthur W. Smith, Springfield, Mass.  
Regular Foreign Reception  
A few days ago, I purchased one of your TWO TUBE DOERLE WORLD WIDE SHORT WAVE RECEIVERS. I just want to tell you that this set does all you claim. In the short time I have had the set, I have brought in stations in England, Germany, France and South America. Denmark, England, and Nauen, Germany can be picked up daily with very strong volume. THE DOERLE IS WINE SET.  
Arthur C. Gluck, Brooklyn, New York.  
Thrilled By Doerle Performance  
I am very much pleased with the DOERLE S.W. radio I received; the local amateur stations come in loud and clear. The first foreign station I received was DJA, Zeessen, Germany. I certainly received this station with a thrill. Tours for success.  
Randolph Gray, Quincy, Mass.

**FREE Short-Wave BOOKS**



Book No. 1

In order that our short-wave friends who purchase these receivers may better understand the phenomena of short-waves, and become more acquainted with various short-wave circuits and sets, we are offering—FREE OF CHARGE—with each purchase of a short-wave receiver, the choice of one of two excellent short-wave books; viz., How to Build and Operate Short-Wave Receivers and How to Become An Amateur Radio Operator.  
The one book is a comprehensive and thorough compilation of the most prominent short-wave receiver circuits published during a period of two years. The other explains, in a most thorough-going manner, the ways and means of obtaining an Amateur transmitting license. Furthermore, it explains all the rules governing amateur transmissions, etc.  
Both are generously illustrated with photographs and diagrams. Be sure to mention, when ordering your Doerle Receiver just which book you desire. Order by the Book Number under each illustration.



Book No. 2

**Improved 3-Tube Doerle Signal Gripper**

ABSOLUTELY  
RELIABLE! **\$12.85**



Rear View

We refrained from doing so because then we could not maintain our GUARANTEE OF PERFORMANCE. And this goes for everything else in the sets. They are low in price, yet the quality is excellent considering the low price. Thus, for instance we are using Kurz-Kasch dials because we found them excellent for their purpose, and as everyone knows, they are real first class verniers. The sub-chassis is made of cadmium-plated metal and is completely drilled and punched. The metal panels on which the variable condensers mount are cadmium-plated. These panels do away with hand capacity. The plug-in coils are of Bakelite, wound with enamel wire for low losses. In short, despite the exceedingly low price of these sets, we give you quality. Bakelite sockets only are used. Even the aerial condensers are of the Micamold Equalizing type. We have even included long, color-coded battery cable for easy connections, rheostats with "off" positions and binding strips of Bakelite to keep down losses. In short, realizing that successful short-wave operation depends mainly upon the quality of the component parts, we have stopped at nothing to supply the best.  
**ONLY BY MAKING THESE SETS IN QUANTITIES CAN WE AFFORD TO SELL THEM AT THE EXTREMELY LOW PRICES QUOTED.**  
Note the testimonials printed on this page. They will give you an idea what can be expected from these great sets.

**HOW DO THE TWO SETS DIFFER?**

The TWO TUBE 12,500 MILE SHORT-WAVE SET is intended to be used, with headphones, although it is bringing in right along, stations on the loudspeaker. We, however, do not make such a claim. For instance, stations 5,000 and 10,000 miles away come in only on headphones. This set uses two 230 two-volt battery type tubes.  
The Improved THREE TUBE SIGNAL GRIPPER, as its name indicates, is a three tube set. It uses a type 34 screen grid R.F. amplifier followed by a Type 30 regenerative detector and finally a type 30 A.F. Amplifier. It is a great deal more powerful than the smaller set and will bring in stations from great distances on the loudspeaker. A good magnetic loudspeaker should be used. Thus, for instance, stations from all over the country come in on the loudspeaker, but, of course, stations 12,000 miles distant require the use of earphones. The price of the two sets include all necessary plug-in coils. Both sets are operated from ordinary dry cells. The "B" battery supply can be either 90 volts or 135 volts for the THREE TUBE SIGNAL GRIPPER. For the TWO TUBE SET, 90 volts is sufficient.  
Both sets tune exceedingly easy, and oscillation is always under full control of the operator. The vernier dials are accurate so that the stations can be logged and found in their allotted positions every time you use the set.

**OUR OWN TESTS**

Every one of these Doerle Receivers without exception is tested in our laboratory under actual operating conditions. The map illustrated above shows only a few of the countries received during these tests.  
We refrain from giving you the astonishing list of stations which we, ourselves, have logged because we do not wish to let our enthusiasm run away with us, and because you might wax skeptical over these actual results. We would much rather have you and our many other short-wave fans talk about the results.  
Incidentally, we have yet to receive a single complaint on these sets although without exaggeration, we have sold many hundreds of them.

**IMPROVED THREE TUBE SIGNAL GRIPPER**

Every 3-tube receiver, whether assembled and wired or in kit form contains the following parts:  
**HERE IS WHAT YOU GET:** 1—Panel, drilled; 1 Base, completely drilled and punched; 3—Hammarlund .00014 mf. condensers; 1—filament rheostat with switch; 2—Kurz Kasch vernier dials; 2—Bakelite Knobs; .01 mf. tubular condenser; 1—Special R.F. choke; 1—.0001 mf. fixed condenser; 1—.01 mf. mica condenser; 1—2—Coll Sockets; 2—Type 30 tube sockets; 1—Type 34 tube socket; 1—Screen-grid clip; 1—Equalizer (antenna) condenser; 1—Roll hookup wire; 2—Sets of plug-in coils, 15 to 200 meters (4 per set), and assorted hardware. Shipping weight 7 lbs.  
No. 2143 Improved THREE TUBE DOERLE SET, completely wired, ready to use.  
**YOUR PRICE \$12.85**

No. 2144 Improved THREE TUBE DOERLE SET IN KIT FORM with all parts as specified above, but not wired—with blueprint connections and instructions for operation. Shipping weight 7 lbs.  
**YOUR PRICE \$11.50**

No. 2145 Complete set of accessories, including the following: 2 six months guaranteed Neontron type 230 tubes; one type 34; one set of standard headphones; 2 No. 6 standard dry cells; 3 standard 45-volt "B" batteries, 1 B.B.L. 9-inch Cone Magnetic loudspeaker. Shipping weight 32 lbs.  
**YOUR PRICE \$11.50**



# WAVE HEADQUARTERS

## Sets Which Work At Your Command

And Now! **The Electrified Official Doerle**

ONLY  
**\$15.20**

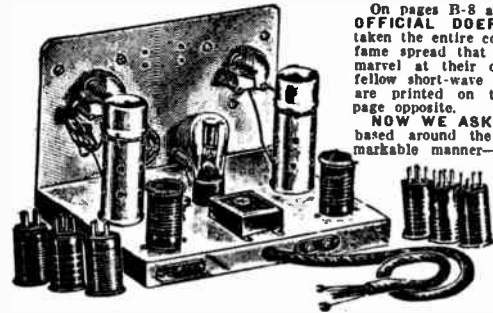
### 2 and 3-Tube Receivers

Operate Either On A.C. or Batteries

On pages B-8 and B-9 of this section are described the famous OFFICIAL DOERLE SHORT-WAVE RECEIVERS which have taken the entire country by storm. So far and so wide have their fame spread that now the entire realm of short-wave enthusiasts marvel at their outstanding performing records. Read what your own fellow short-wave fans say about these sets—some of their letters are printed on the above-mentioned pages and others on the page opposite.

**NOW WE ASK YOU**—If these original Doerle sets, which are based around the 2-volt battery tubes, perform in such a remarkable manner—what results can be expected after these sets have been COMPLETELY REWired AND MODERNIZED TO USE THE VERY LATEST A.C. TRIPLE-GRID HIGH-GAIN TUBES?—THE ANSWER IS IN OUR NEW ELECTRIFIED 2 AND 3 TUBE OFFICIAL DOERLE RECEIVERS

And are they POWERFUL—BOY! The 2-tube receiver brings in stations—REGULARLY—and loud enough to operate a loudspeaker. Practically all local stations and many favorably-located foreign ones are thus received. This set uses 1-57 tube as detector and 1-56 as the audio amplifier tube. It is known as the 2-TUBE 12,500 MILE DOERLE RECEIVER.



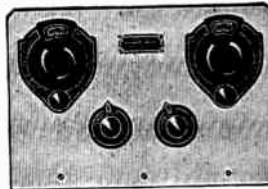
Rear View of 3-tube Electrified Signal Gripper.

The 3-tube receiver, known as the DOERLE SIGNAL GRIPPER, employs 1-58 tube as R.F. amplifier, 1-57 as detector and 1-56 as the audio amplifier tube. The antenna trimming condenser in this model has been eliminated through the use of INDUCTIVE COUPLING. This feature does away with the necessity of continually adjusting this antenna condenser for the different wavelengths. Two sets of plug-in coils are employed; one set being of the 6-wrong type and the other the standard 4-prong type. THE COILS WITH THE SIX PRONGS HAVE THREE SEPARATE WINDINGS, which means that the R.F. tube is inductively coupled to the detector, thereby doing away with the coupling condenser which, if even slightly defective, will cause considerable noise and distortion. This 3-tube receiver will receive ALL local short-wave stations and a considerable number of foreign ones on the loudspeaker—REGULARLY—NIGHT AFTER NIGHT—whenever they are on the air. In other words, no matter how weak a signal may be, if it has sufficient power to reach your antenna, it will be intercepted and reproduced with loudspeaker volume by this receiver.

By special arrangements with the publishers of Short Wave Craft, we have been given the exclusive right to manufacture and sell the Electrified Official Doerle Receivers—so that now, if you have wished to own any of these fine sets, you may buy them without the slightest doubt in your mind but what they will perform 100%. This means that all usual "bugs" have been ironed out by us in such a way that in practically any location, not only in this country, but anywhere, they will "do their stuff."

#### Only First-Class Parts Are Used

We fully appreciate that it is possible for you to buy the parts or the completed sets at a lower price elsewhere, but unless you, too, wish to join the ranks of skeptical short-wave fans, you will insist upon receivers employing only the best parts. For you must not forget that in short waves, it takes as little as a poorly made socket or improper layout of wiring to render a set inoperative. We have done away with all usual "losses" which are incidental to the use of poor components. In these receivers, only the best tuning condensers, and that means Hammarlund—are used. We, too, could have employed cheaper parts, but we refrained from doing so because then, we COULD NOT GUARANTEE RESULTS.



Front View of 3-tube Doerle Signal Gripper.

## Special Short-Wave Hum-Free A.C. Power Pack

Designed Especially For The Doerle Receivers

Everyone knows that an A.C. short-wave set is no better than the power pack which supplies it power! A power supply for short-wave work, must be constructed with extreme care. It must be absolutely free from hum or other disturbances caused by insufficient filtering, poor wiring, or faulty equipment.

This unit has a two-section filter circuit, employing two—30 Henry chokes and a tremendous amount of capacity. This assures PURE D.C. with practically no ripple at all.

The power pack supplies 250 volts at 50 mills for the plates of the tubes, 22½ volts for the screens, and 2½ volts at 5 amperes for the filaments. These various voltages are obtained from convenient binding posts on the side of the pack. Furthermore, provisions are made for energizing the field of a dynamic speaker. Any speaker having a field resistance of from 1500 to 2500 ohms may be thus energized. All the component parts of this pack are built into a sturdy, metal base which is black, crackle finished. The power transformer and one of the chokes are the parts of the chassis. The pack employs a type 280 full-wave rectifier which is mounted on a convenient on-off switch is mounted on the side. The pack is sold complete with 280 tube. Ship. wt., 10 lbs.

only units which are mounted on top of the base. A convenient on-off switch is mounted on the side. The pack is sold complete with 280 tube. Ship. wt., 10 lbs.

YOUR PRICE

**\$7.25**



Rear View of 2-tube Electrified 12,500 Mile Receiver.

**ONLY \$10.45**

#### Our Own Tests

Every one of these Doerle receivers, without exception, is tested in our laboratory UNDER ACTUAL OPERATING CONDITIONS. During the course of our tests, we have logged a great many foreign stations, but we refrain from giving you this astonishing list for fear of inviting skepticism. We would much rather have you and our many other short-wave fans talk about the results yourselves. EACH RECEIVER IS ACCOMPANIED BY SCHEMATIC AND WIRING DIAGRAMS AS WELL AS A PAMPHLET OF COMPLETE AND DETAILED INSTRUCTIONS.

#### May Be Used With Batteries Too!

The circuits of these receivers are so designed that without any change in wiring, they may be used in conjunction with either a power pack or batteries. The only requirement is a change of tubes. In the 2-tube receiver, the 57 tube is replaced with a 77 and the 56 with a 37. In the 3-tube receiver, the 58 is replaced with a 78, the 57 with a 77 and the 56 with a 37. The color code of the power cable in either case is the same with the exception of the filament wires. For A.C. operation, 2½ volts must be supplied to these wires whereas 6 volts are required for battery operation.

**CAUTION**—If you have an A.C. power pack of your own which you intend using with these Electrified Doerle Receivers, we must caution you to make certain that it is as noiseless and hum-free as possible, otherwise you will find that the reception of foreign stations will be impossible.

#### Please Note

The tubes specified below are Neontron or Triad—both guaranteed for 6 months.

#### Specifications

- No. 2174 Electrified 2 Tube 12,500 Mile Doerle Receiver, completely wired and tested; less tubes. Ship. wt., 5 lbs. **\$10.45**
- No. 2175 Electrified 2 Tube 12,500 Mile Doerle Receiver in kit form, less tubes, but including blueprints and instructions. Ship. wt., 5 lbs. **\$9.25**
- YOUR PRICE**
- No. 2176 Complete set of tubes for above; either one—57 and one—56 for A.C. operation, or one—77 and one—37 for battery operation. **\$1.80**
- YOUR PRICE**
- No. 2177 Electrified 3 Tube Doerle Signal Gripper, completely wired and tested; less tubes. Ship. wt., 7 lbs. **\$15.20**
- YOUR PRICE**
- No. 2178 Electrified 3 Tube Doerle Signal Gripper in kit form, including blueprints and instructions; less tubes. Ship. wt., 7 lbs. **\$13.75**
- YOUR PRICE**
- No. 2179 Complete set of tubes; either one—58, one—57 and one—56 for A.C. operation or one—78, one—77 and one—37 for battery operation. **\$2.55**
- YOUR PRICE**

## FREE Short Wave BOOKS

Your Choice of either one of the books illustrated herewith—**FREE OF CHARGE**—with the purchase of any of the short-wave receivers listed in this short-wave section.



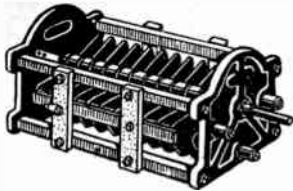
Book No. 866



Book No. 830

Book No. 866 explains in a most thorough-going manner the ways and means of obtaining an amateur transmitting license. Furthermore, all government rules regulating amateur transmission are reviewed. Book No. 830 is a comprehensive and thorough compilation of the most prominent short-wave receiver circuits published during a period of two years. Build up your radio library with one of these books!

# NEW HAMMARLUND TRANSMITTING CONDENSERS



Incorporating features usually associated only with high power transmitters, these condensers represent a marked advance in both design and construction for medium and low power installations. Wider spacing and rounded plate edges permit

The TC-350-C and TC-500-C types are overspaced receiving condensers designed for 210 tube transmitters and for laboratory use. The TC-225-X type is a specially designed low-cost condenser intended for medium power work.

**GENERAL SPECIFICATIONS:** The following general specifications cover all of the standard condensers listed herewith. Overall width 4-11/16", overall height 3-3/16", overall lengths as per table. Shafts are 3/4" diameter and extend 1 1/2" beyond panel mounting bushings. All metal parts are aluminum except shaft, bearings, and contact surfaces. Steel parts are heavily cadmium plated. Lock washers used under all screws. Extruded Isolantite (15-100 compound) used throughout for insulation. Bearings are accurately fitted and consist of a long split bearing at the front end and a rear ball bearing. Rotor contact is by means of a phosphor bronze self cleaning brush. Three panel mounting bushings for No. 8-32 screws are packed with each condenser. End frames are also drilled and tapped for table or shelf mounting. Condensers are fully guaranteed and for protection are packed individually in strong corrugated cartons. Ship. wt. 5 lb.

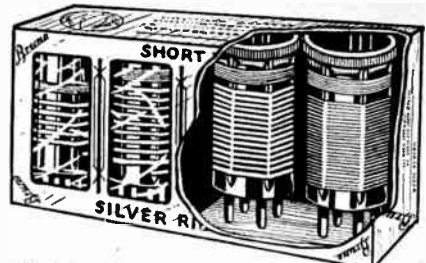
greatly increased voltages. The use of extruded ISOLANTITE FOR INSULATION ASSURES HIGHEST EFFICIENCY. Greater rigidity and freedom from vibration provide for absolute steadiness of signal. These features combined with very light weight and good appearance, make HAMMARLUND Transmitting Condensers ideally suited to the requirements of the professional, amateur and laboratory.

No.	Capacity mmf.	Number Plates	Plate Thickness	Plate Edges	*Plate Spacing	Voltage Rating	Overall Rating	List Price	YOUR PRICE
TC-30-A	30	7	.010"	Rounded	.192"	6500 V.	3 3/8"	\$5.00	\$2.94
TC-50-A	50	11	.040"	Rounded	.192"	6500 V.	4-5/16"	6.50	3.82
TC-100-A	100	21	.040"	Rounded	.192"	6500 V.	6"	9.50	5.58
TC-150-A	150	31	.040"	Rounded	.192"	6500 V.	8-15/16"	12.50	7.35
TC-225-A	225	47	.040"	Rounded	.192"	6500 V.	12-21/32"	16.00	9.41
TC-100-B	100	11	.040"	Rounded	.080"	3000 V.	3-3/16"	5.50	3.23
TC-150-B	150	17	.010"	Rounded	.080"	3000 V.	3 3/8"	6.50	3.82
TC-225-B	225	23	.040"	Rounded	.100"	3500 V.	7 1/4"	8.00	4.70
TC-335-BX	335	43	.040"	Rounded	.080"	3000 V.	7 1/4"	12.00	7.06
TC-450-B	450	47	.040"	Rounded	.080"	3000 V.	7 1/4"	12.00	7.06
TC-225-X	225	23	.025"	Plain	.080"	2000 V.	4-8/32"	6.00	3.53
TC-350-C	350	19	.025"	Plain	.038"	1000 V.	3-3/32"	5.00	2.94
TC-500-C	500	27	.025"	Plain	.038"	1000 V.	3 3/8"	5.50	3.23

\*Actual Air Gap between adjacent rotor and stator plates.

# Bruno Ribbon-Wound Short Wave Plug-In Coils

Range 15 to 200 Meters



The latest development in the short wave field! In place of ordinary magnet wire these coils use a special uncovered ribbon wire which reduces the distributed capacity thereby increasing the effective inductance in the tuned circuits.

All coils are wound on an octagonal-shaped, ribbed form which assures low loss performance. Designed to tune with a .00014 m.f. condenser. Ship. wt., 3 lbs.

No. B-SWC Bruno Ribbon-wound Short Wave Plug-In Coils.

YOUR PRICE, per set **\$2.94**

# Hammarlund Isolantite Coil Forms

For Ultra Short Waves



These forms are designed for maximum efficiency at ultra high frequencies, or within the 28 to 56 megacycle band. Being made of Isolantite, and having correct form factor, high frequency resistance is at a maximum and absolute stability is achieved. The number and location of holes facilitates securing the exact inductance desired and permits of almost any conceivable type of experimental winding.

Form is 1 1/4" in diameter and 2" long exclusive of prongs.

Made only in five prong type to fit standard sockets. Ship. wt., 4 oz. No. CF-5-M New Hammarlund Isolantite Coil Forms For Ultra Short Waves. YOUR PRICE **\$0.51**

# Television Lenses for Scanning Discs

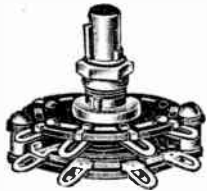
The latest in television scanning systems are lens discs. These discs make possible the projection of television images on a screen very much the same as moving pictures are projected.



They are of the plano-convex type and measure 13/16 in. diameter x 5/32 in. thick.

No. 3935 Television Lenses for Scanning Discs. YOUR PRICE, each **\$0.12** In lots of 25, each 9c

# Best Sectional Rotary Switches



Are ruggedly and accurately constructed to give exacting service. They may be furnished with any number of sections with either non-shortening or shortening make contacts, or with break contacts; also any combination of these contacts with as many as 9 contacts to each section. All current-carrying parts are well insulated with Bakelite from the shaft, mounting base and each other. Made for mounting on

any thickness panel and for switching any number of circuits desired. May be used as inductance switches, selector switches; speaker relay switches, and for many other purposes.

# ELIMINATES SHORT WAVE PLUG-IN COILS

One of these switches (the 3 or 5 polar-non-shortening type) with as many contacts as there are short-wave coils) when properly connected will entirely eliminate the necessity and bother of plugging in different coils for different wavelength bands. Merely mount the coils permanently on the chassis, connect the circuit leads to the moving switch arms and the coil leads to their respective contacts, when at a turn of the single knob the various wavelength coils may be switched in and out of the circuit at will. Convenient, compact, efficient. Switches may be constructed according to your own specifications for switching as many as 600 circuits.

# MOST POPULAR SIZES

No.	No. of Poles	Type*	No. of Contacts	List Price	YOUR PRICE
1964	1	N.S.	4	\$0.85	\$0.55
1965	1	N.S.	9	1.10	\$0.70
1966	1	S	4	.85	\$0.55
1967	1	S	9	1.10	\$0.70
1968	2	N.S.	4	1.45	\$0.90
1969	2	N.S.	9	1.95	\$1.20
1970	2	S	4	1.45	\$0.90
1971	2	S	9	1.95	\$1.20
1972	3	N.S.	4	2.30	\$1.41
1973	3	S	4	2.30	\$1.41

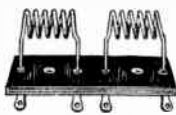
\*Note: N.S.—Non-Shortening; S—Shortening.

# 7-Pole Double-Throw Rotary Switch

There are any number of purposes for which a switch of this type can be used. Contains seven individual decks, each having five contacts, one for the rotor and four for external connections. This switch is of the shorting type, the rotor making contact with two points at a given position. It is an ideal switch for use in hanging wave bands on short wave receivers. Designed for single hole mounting. Measures 2 1/2" in diameter over all x 1 1/4" back-of-panel depth. Ship. wt. 1/2 lb. No. 2243 Best 7-Pole Double Throw Sectional Rotary Switch. YOUR PRICE **\$1.10**



# Gen-Win 5-Meter Super-Regenerative Coil Kit



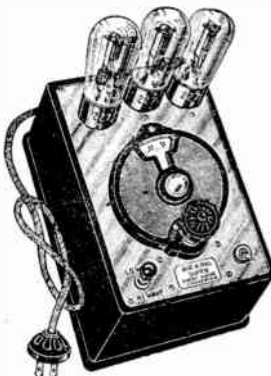
Here's your chance to build a REAL 5-meter super-regenerative receiver. A detailed blueprint for constructing such a receiver is furnished FREE with each kit. These coils are specially designed for the 5-meter band and will, therefore, produce surpris-

ingly good results. A large percentage of amateur and practically all television transmissions are now being broadcast over the extremely high frequency (low wave length) ranges. High frequency transmission channels will in our opinion be the ultimate wave length band over which all regular television transmissions will take place. Already there are quite a number of television stations and thousands of amateur stations broadcasting regularly in these ultra-low waves.

The Gen-Win 5 meter coil kit consists of double tuning coil, special radio frequency choke coil, and special oscillator coil. Shipping weight, 1 lb.

List Price \$4.50. No. 555 Gen-Win 5 Meter Coil Kit. YOUR PRICE **\$2.70**

# Air King Superheterodyne Short-Wave Converter



The Air King converter is the most simple and inexpensive form of the world-renowned, supersensitive superheterodyne circuit; and its use in this device enables "short-wave" stations between 20 and 115 meters to be heard on any standard "broadcast-wave" receiver. THIS ADAPTER TURNS ANY BROADCAST RECEIVER INTO A SHORT-WAVE SUPER HETERO-DYNE.

Do you know that during most of the summer — when King Static rides the broadcast band from 200 to 545 meters — stations are heard without static interference on the waves below 100 meters? One demonstration of the clear reception of the short-wave transmitter of a well-

known broadcast station, such as WJAF, WLW, WENR, or KDKA, makes a sale and a friend. Many owners report loud speaker volume of music from England, Holland, France, Germany, Mexico, Canada and South America.

Three type 27 tubes are required. A snap-switch-controlled filament transformer, which connects to the 110-volt light line by means of a 4-ft. cable, with plug, supplies their "A" current; while the "B" potential is supplied by the radio broadcast set.

Tuning is single dial control; and without "hand capacity," NO PLUG-IN COILS; a 2-way switch being used for wave-changing. Well made (good soldered joints; pre-tested parts; high-grade components; accurate units; special R.F. chokes), each adapter is tested before shipment. It presents a neat appearance with its variable ratio vernier variable condenser for easy tuning; engraved, gold lettered, bakelite panel; numbered, insulated binding posts.

Installed by connecting your aerial to the adapter; and its four binding posts to antenna, ground, and "B" supply on your set. Now insert tubes and plug the power line connection into the light line. Turn on the power switch, tune the broadcast set to its highest wave silent point, with the volume control opened wide, and "go to it!"

Adapter measures 7x10x5 1/2 in. high, overall. Full directions come with it. Shipping weight, 8 lbs.

NO. 1814 Air King Superhet Converter. YOUR PRICE (without tubes) **\$4.95**

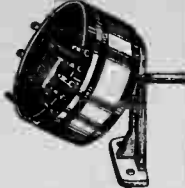


## All-Wave Coil Kit

Range 25 to 550 Meters



FREE  
PLANS  
WITH  
KIT



A newly developed all-wave coil kit comprising a 3 coil tuner and an R.F. coil, both having tapped secondaries, which permits you to enjoy **SHORT WAVE AND BROADCAST PROGRAMS.** By means of a simple shorting-switch arrangement, a portion of the secondary coils may be cut out of the circuit thereby making it resonant to the higher frequencies i.e. lower wave lengths.

Wound on sturdy Bakelite forms provided with suitable soldering lugs. The tickler coil of the tuner revolves smoothly on its own Bakelite form, at a predetermined distance from the secondary, thereby permitting very fine regeneration control. Kit may be had for use with either .00035 or .0005 mf. condenser. Specify when ordering. Our No. 1970 Sectional Rotary Switch is excellently suited for use with this kit. Either of these units may be bought separately. Blueprint furnished free. Ship. wt., 2 lbs.

No. 2075 All-Wave Coil Kit **YOUR PRICE \$1.50**  
No. 2076 All-Wave 3 Circuit Tuner **YOUR PRICE \$0.90**  
No. 2077 All-Wave R.F. Coil **YOUR PRICE \$0.75**

## Hammarlund Heavy Duty Transmitting R.F. Choke



This choke is ideal for use in the plate circuits of high power transmitting tubes where the continuous plate current does not exceed 500 milliamperes. For intermittent operation this value may be exceeded by at least 50%. Although the self-inductance of this choke is 2.3 millihenries,

its distributed capacity has been held to the extremely low value of 1.5 micro-microfarads. Thus it is **SUITABLE FOR USE IN TRANSMITTERS OPERATING IN ANY OF THE SHORT WAVE BANDS.**

Mounting brackets are secured to the Isolantite core with short machine screws and are insulated from the choke terminals. The mounting brackets may be removed and the choke mounted on a metal base or panel by means of a single machine screw. Overall size (without brackets) 1-5/16" diameter by 2 3/4" long. D.C. resistance, 12 ohms.

No. CH-500 Heavy Duty R.F. Choke **YOUR PRICE \$1.35**

## Hammarlund Isolantite R.F. Chokes

This low-loss radio frequency choke is designed particularly for short wave and ultra short wave receivers and transmitters, but its efficiency actually extends well above the regular broadcast band. Its compactness permits mounting in isolated positions well removed from stray R.F. fields. Its load characteristics make it specially suited as a grid choke for multi-stage transmitters. Both standard leads and terminals are provided to permit the choke being either base mounted or suspended in the circuit wiring. No metal screw passes through the choke to increase losses and disturbed capacity. The choke measures 1 3/4" x 7/8", has an inductance of 8 millihenries, a D.C. resistance of 70 ohms, a distributed capacity of 3 mmf., and a current carrying capacity of 125 milliamperes.

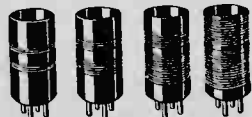


Code SH-8 Ship. wt., 4 oz. **YOUR PRICE \$0.66**

## Gen-Win Short Wave Plug-In Coils

Tuning Range 16 to 225 Meters

### LITZ-WIRE WOUND

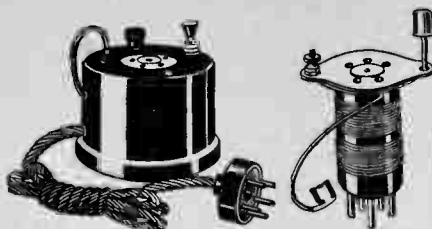


COIL IS WOUND ON A DIFFERENT COLORED FORM FOR QUICK IDENTIFICATION OF THE DIFFERENT WAVELENGTH RANGES. The design of the secondary winding is such that maximum clarity and selectivity are easily achieved. The tickler wind-

ings are properly related to the secondaries thus affording smooth regeneration over the entire range. **RECEIVERS AND CONVERTERS EMPLOYING THESE COILS WILL NOT "PLOP" IN AND OUT OF OSCILLATION** or produce any other disturbing effects. Designed to tune with either a .00014 or .00015 mf. variable condenser. **LITZ WIRE USED THROUGHOUT.** Blueprints of Short Wave Receiver using these coils included. Shipping weight, 1 1/2 lbs. List Price \$3.75

No. 404 Gen-Win Short Wave Plug-In Coils Employing Litz Wire **YOUR PRICE \$2.25**  
No. 404E Gen-Win Short Wave Plug-In Coils Employing Enamelled Wire **YOUR PRICE \$1.50**

## GEN-WIN POLICE AND SHORT WAVE ADAPTERS



Types 204 & 205

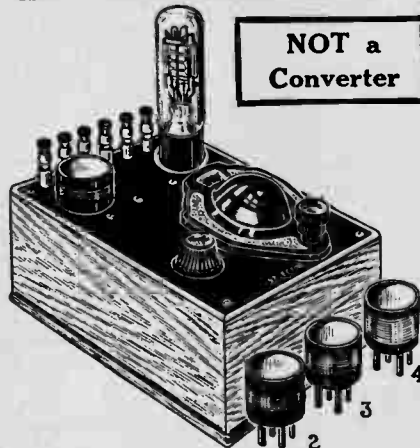
Types 200 & 201

At last some one has come through with a Police Adapter that actually works when you want it to work! Not only will these units intercept police messages but they actually bring in short wave phone and code stations as well. The three types listed below make these adapters applicable to all types of receivers whether A.C., D.C. or battery operated. Imagine receiving first-hand information on underworld activities and their suppression by the police. **NOT ONLY ARE THESE POLICE SIGNALS HEARD FROM YOUR IMMEDIATE VICINITY BUT FROM STATIONS HUNDREDS OF MILES DISTANT.** These signals are the most thrilling and most interesting yet made available by the wonders of radio today. These Gen-Win

Police and Short Wave Adapters are guaranteed to give you complete satisfaction. They are made in three different types, depending upon the type of detector tube employed in your receiver. Any of these types can be easily installed in a few minutes. No technical knowledge or experience whatsoever is required. Merely remove the detector tube from your set, insert the special plug furnished with each adapter, replace the tube in the socket of the adapter and bring the antenna lead to the antenna post of the adapter. That is all. The socket type adapter listed below plugs directly into the socket of the detector tube. The external type is encased in a beautiful antique-bronzed finished copper casing with felt bottom. Shipping weight of external type, 2 lbs.; socket type, 1 lb.

SOCKET TYPE			YOUR PRICE
No.	Det. Tube	List Price	
200	227	\$2.50	<b>\$1.39</b>
201	224	2.50	<b>\$1.39</b>
EXTERNAL TYPE			YOUR PRICE
No.	Det. Tube	List Price	
202	227	3.50	<b>\$2.05</b>
203	224	3.50	<b>\$2.05</b>
EXTERNAL TYPE WITH OSCILLATION CONTROL			YOUR PRICE
No.	Det. Tube	List Price	
204	227	5.00	<b>\$2.75</b>
205	224	5.00	<b>\$2.75</b>

## Around-the-World Short-Wave Set



NOT a  
Converter

A perfect radio short-wave receiver for use between 18 and 200 meters. To put into operation, connect antenna ground, 45 volt "B" and 2 volt "A" dry cells, and headphones to the posts provided, plug in a type 230 tube, and tune in! The 230 tube was chosen because of its extremely low current consumption and economy of operation. An ingenious circuit makes possible a 4-coil single-winding plug-in design. Provides for a maximum amount of grid-plate feedback which is easily and smoothly controlled by a small variable condenser. A very stable arrangement insuring comparatively great volume.

This little instrument has the same sensitivity as many big, shielded short-wave receivers costing ten times as much. A power amplifier may be added for any degree of volume. Complete with 4 plug-in coils. Fine Wood Cabinet. Bakelite Panel. Has fine vernier dial for precision tuning. Never has a first class short-wave set sold for so little money. This short-wave set measures 5 1/2"x7 1/4" in. high over all. Shipping weight, 3 lbs.

No. 1666 Around-the-World S. W. Set. **YOUR PRICE (Less tube) \$6.25**

## New Hammarlund Isolantite Short Wave Coil Forms



These new coil forms answer the demand for a winding form meeting the many exacting requirements of efficient reception at very high frequencies. The material used is extruded Isolantite (Low Permeability Material) which closely approximates the qualities of fused quartz. Lowest losses and absolute stability assure maximum sensitivity and selectivity. Equipped with black enamelled wooden handle. Surface of form is "non-skid", eliminating troubles encountered in winding on slippery surfaces. Abundance of wire terminal holes makes drilling unnecessary. Form is 1 1/4 in. in diameter and 2 1/4 in. long, exclusive of knob and prongs. Made in four, five and six prong types to fit standard sockets. Shipping weight 1/2 lb.

List Price \$1.00 **YOUR PRICE \$0.58**

No. CF-4 Four Prong Coil Forms  
No. CF-5 Five Prong Coil Forms  
No. CF-6 Six Prong Coil Forms

## New Hammarlund Isolantite Sockets

Low loss sockets are just as important as low loss coils or low loss condensers. In these new sockets, Hammarlund has combined low cost with low loss, making improved short wave reception available to everyone.

Made of Isolantite (low permeability material) for lowest losses and highest surface resistivity. Glazed top and sides, rust proof slide gripping contacts. Sub-panel or base mounting. Four, five and six prong types. 2 1/4 ins. long x 1 1/4 ins. wide, standard 1-27/32 ins. mounting centers. Mounting spacers and washers packed with each socket.

Hammarlund Isolantite Sockets and Coil Forms provide a short wave combination guaranteeing maximum sensitivity and selectivity. Shipping weight, 4 oz.

No. S-4 (four prong) Sockets **YOUR PRICE \$0.36**  
No. S-5 (five prong) Sockets  
No. S-6 (six prong) Sockets  
No. S-7 (seven prong) Sockets

## Hammarlund High Impedance R.F. Choke Coils

85 and 250 MIII-Henries—60 ma.  
Standard in the industry for years.



A special process of helical winding and impregnating, enables the forming of a very large inductance with very low distributed capacity. Have no natural resonance period within broadcast band. Their unusually low distributed capacity makes them exceptionally effective in short-wave work.

Ideally suited for detector plate circuitry B-1 and grid return leads and for R.F. filtering in general. Current carrying capacity of both sizes is 60 milliamperes. Shipping weight, 4 oz.

List Price \$2.00  
No. RFC-85—Inductance 85 millihenries, capacity 3 mmf., D.C. resistance 215 ohms. **YOUR PRICE \$1.18**  
List Price \$2.25  
No. RFC-250—Inductance 250 millihenries, capacity 2 mmf., D.C. resistance 420 ohms. **YOUR PRICE \$1.32**

# TELEGRAPH KEYS AND PRACTICE SETS

## Junior Key



with two brass binding posts. Shipping weight, 2 lbs.  
No. 112-K Junior Key  
YOUR PRICE

**\$1.35**

## Code Practice Set



printed on a little brass plate. Key is made of solid brass and is mounted on a beautifully finished base board together with the buzzer and three brass binding posts for battery and ear phone connections. Shipping weight, 2 lb.  
No. R-63 Signal Practice Set  
YOUR PRICE

**\$2.03**

## Bunnell Telegraph Key



type of key is used almost exclusively by the large telegraph companies. Knob made of genuine black bakelite.

No. "BU-KEY" Bunnell Telegraph Key.  
YOUR PRICE

**\$0.80**

## Legless Key



used exclusively by Western Union.  
List Price \$2.75  
No. M-100 Legless Key  
YOUR PRICE

**\$2.09**

## Standard Wireless Keys



cast lacquered brass. Contact points are of coin silver and will not arc. Are available in three different sizes of contact points. Shipping weight 1 1/2 lbs.

No.	Size of Contacts	List Price	YOUR PRICE
R62	3/16"	\$3.50	<b>\$1.98</b>
R63	1/4"	3.70	<b>\$2.21</b>
R64	3/8"	3.90	<b>\$2.30</b>

## Speed-X Automatic Telegraph Key

Saves Time, Labor and Fatigue  
Unconditionally Guaranteed



these new keys, saving themselves energy. It is absolutely the simplest thing in the world to operate once you become accustomed to it. A slight pressure of the key to one side produces a series of dots until released. Repeating the operation in the other direction produces dashes.

**NOTE THESE EXCEPTIONAL FEATURES:** Fully adjustable—can be slowed down to 8 words per minute or geared to as high a rate of speed as desired; standard construction throughout; precision adjustments at all pivot points; contacts 1/4" diameter—made of coin silver; heavy, sturdy construction throughout—will hold adjustment at all speeds; base of bright black enamel—all nickel parts highly polished. **EVERY SPEED-X KEY IS MANUFACTURED TO THE HIGHEST STANDARD OF QUALITY AND IS UNCONDITIONALLY GUARANTEED.** List Price \$12.50  
No. 100 "HI-SPEED" Speed-X Telegraph Key.

YOUR PRICE **\$9.35**

## Sematic Key

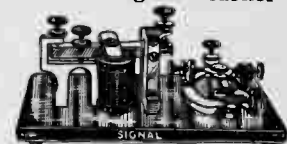


dots; on the other, the dashes. Code transmitted with this instrument is legible at much greater speeds, since the characters are perfectly formed. Eliminates fatigue and telegraphers paralysis. Contact points are heavy enough to use in most radio circuits without relay, although one should be used if current to be interrupted is very high.

Made of nickel plated brass parts on a heavy, black cast base. Is easily mastered by anyone in a short time. No trouble to put in circuit in place of the old style key. Shipping weight, 3 lbs.  
List Price \$18.00

No. M-200 Sematic Key  
YOUR PRICE **\$12.15**

## Signal Learner Set



bride is brass and sounding bar is aluminum. Key is mounted on a mahogany finished wood base.

No. M-110 4 Ohm. Learner Set.  
YOUR PRICE **\$3.04**  
No. M-111 20 Ohm. Learner Set.  
YOUR PRICE **\$3.20**

## Detecto-Light



A neon test lamp for testing fuses, ignition, polarity in D.C. circuits, etc. and for indicating A.C. and D.C. currents. With a little practice one can differentiate between sixty and 25 cycle A.C. with the use of this little pocket test lamp. 6" long. Well made. Shipping weight, 1/2 lb.  
List Price \$2.00

No. 1511 Detecto-Light.  
YOUR PRICE **\$0.98**

## Radio Wall Plates



These wall-plates are ideal for making convenient aerial and speaker connections. A speaker wall-plate can be mounted in each room. They are manufactured of brass with a brush finish. Available in

No. 2890 "Speaker" Plate  
YOUR PRICE, each **\$0.25**  
No. 2891 "Aerial & Ground" Plate.  
YOUR PRICE, each **\$0.25**

## VIS-O-GLOW LIGHTNING ARRESTER

A Genuine Fire-Hazard Eliminator

At last, we have a lightning arrester which actually "arrests" this fire hazard. Notwithstanding the Underwriter's requiring radio arresters to function at 500 volts and less, the average commercial radio arrester barely meets these requirements. In VIS-O-GLOW, by reason of a NEON TUBE, we are able to obtain a sensitiveness far greater than any other radio protector. In fact, so sensitive is this arrester that the slightest induction is readily shunted to ground. With the



approach of every  
YOUR PRICE

lightning storm, the VIS-O-GLOW arrester will by its neon glow, indicate its presence. At the same time it will eliminate the fire hazard to the radio set because this current which lights up the arrester is diverted harmlessly away to ground. With any other type of arrester at least part of this current would enter into the delicate wiring of the set and subject it to damaging effects. Ship. wt. 1 lb.  
No. 2164 Vis-O-Glow Lightning Arrester **\$0.59**

## S. Gernsback's RADIO ENCYCLOPEDIA Second Edition. Contents Entirely New!

THIS book is the Latest Edition of the Famous First Radio Encyclopedia by S. Gernsback, the first book of its kind ever published in America.

The new Second Edition—just off the press—is fully revised, rewritten, and enlarged. It is the absolutely up-to-the-minute new model of the pioneer First Radio Encyclopedia, which became the stand-by of all radio men in every part of the world. Over 39,000 copies of the first edition were sold.

WHAT THE NEW SECOND EDITION  
RADIO ENCYCLOPEDIA GIVES  
YOU

It gives you an explanation of every word used in radio. These explanations—or, rather definitions—are not brief outline information like those of an ordinary dictionary, but they give in fullest detail, and at considerable

length, the meaning and application of every word, phrase, general and special term used in the science of radio. They are written in plain, everyday English, easily understood by anyone.

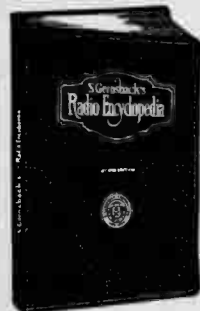
Practically every definition in the book is illustrated by drawings, photographs, diagrams, or charts. All you need to do is to look up as you would in a dictionary, the word or phrase about which you are seeking information. Furthermore, each page is key-indexed, for greater convenience and speed in locating any definition. All the Subject-Matter is Arranged in Alphabetical Order.

This greatly enlarged Second Edition Radio Encyclopedia is an absolute necessity to every one interested in Radio. It answers all radio questions, increases your knowledge, and saves your time. It covers every known radio problem, and is a goldmine of practical information for every radio man.

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2,201 Radio Definitions  
1,253 Technical Illustrations  
34 Tables and Charts  
24 Pages of Appendix  
Size of Book:  
9 In. wide by 12 in. high  
352 PAGES  
Weight, 3 lbs.

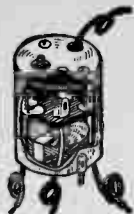
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Printed on strong ledger paper  
Loose-Leaf Arrangement



List Price \$3.95  
No. 814  
S. Gernsback's  
ENCYCLOPEDIA

YOUR PRICE **\$3.10**

## GEN-WIN COIL KIT COMBINATIONS



Listed below is a whole series of coil kits for constructing every conceivable radio circuit. Each coil embodies latest developments in coil design and construction. Every kit is FURNISHED WITH A DETAILED DIAGRAM showing you how to construct that particular set. All circuits employ the latest type tubes and are indeed up-to-the-minute. Super-heterodyne, T.R.F.'s, A.C.-D.C. sets, etc., are all listed below. Ship. wts., vary from 1/4 to 1 1/2 lbs.

### Kit No. 1

Four tube—T.R.F. circuit using 2-gang .00035 Mfd. condenser. Kit contains: 1 high gain Antenna coil, 1 high gain Interstage coil, 1 Radio Frequency choke coil.

**YOUR PRICE \$1.19**

### Kit No. 2

Six Tube—T.R.F. circuit using 3-gang .00035 Mfd. condenser. Kit contains: 1 high gain Antenna coil, 2 high gain Interstage coils, 1 Radio Frequency choke coil.

**YOUR PRICE \$1.79**

### Kit No. 3

Four Tube—Superhet. automobile receiver using 2 gang .00035 Mfd. tracking condenser (with a 456 Kc. cut plate section). Kit contains 1 high gain Antenna coil, 1 Composite Unit, 1 Single tuned I.F. Transformer.

**YOUR PRICE \$2.65**

### Kit No. 4

Five Tube—Superhet circuit using 3-gang .00035 Mfd. tuning condenser (all sections alike). Kit contains 1 Preflector coil, 1 Composite Unit, 1 Single tuned I.F. Transformer.

**YOUR PRICE \$2.95**

### Kit No. 5

Six Tube—Superhet circuit using 3-gang .00035 Mfd. tuning condenser (all sections alike). Kit contains: 1 high gain Antenna coil, 1 high gain Interstage coil, 1 Composite Unit, 1 Single tuned I.F. Transformer.

**YOUR PRICE \$3.25**

### Kit No. 6

Seven Tube—Superhet circuit using 3 gang .00035 Mfd. tuning condenser (all sections alike). Kit contains: 1 Antenna coil, 1 Interstage coil, 1 Oscillator (3 winding) coil, 2 double tuned I.F. transformers, 1 R.P. choke coil.

**YOUR PRICE \$3.85**

### Kit No. 7

Nine Tube—superhet circuit using 4-gang .00035 Mfd. tuning condenser (all sections alike). Kit contains: 1 Preflector coil, 1 Translator coil, 3 double tuned 175 kc. I.F. transformers.

**YOUR PRICE \$4.95**

### Kit No. 8

Ten-Tube—Superhet circuit using 4 gang .00035 Mfd. tuning condenser (all sections alike). Kit contains: 1 Band Pass and Antenna coil, 1 Detector and Oscillator coil, 3 double tuned 175 Kc. I.F. Transformers, 1 Radio frequency choke coil.

**YOUR PRICE \$5.95**

### Kit No. 9

Four Tube AC-DC tuned radio frequency miniature sets. Kit contains: 1 high gain antenna coil, 1 high gain interstage coil.

**YOUR PRICE \$0.95**

### Kit No. 10

Five Tube—456 K.C. for AC-DC Superheterodyne miniature set using 2 gang .00035 Mfd. tuning condenser (with a 456 K.C. cut plate section). Kit contains: 1 High gain Antenna coil, 1 Composite Unit, 1 single tuned I.F. Transformer.

**YOUR PRICE \$2.65**

### Kit No. 11

Five Tube 456 Kc. superheterodyne for AC-DC miniature set. Using 2 gang .00035 Mfd. tuning condenser (all sections alike). Kit contains: 1 High gain Antenna coil, 1 Composite Unit, 1 single tuned I.F. Transformer.

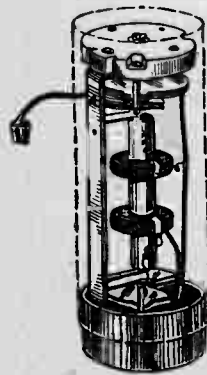
**YOUR PRICE \$2.55**

### Kit No. 12

Five Tube 456 K.C. Superheterodyne for AC-DC Miniature Midget Set using 2 gang .00035 Mfd. tuning condenser (with a 456 K.C. cut plate section). Kit contains: 1 Translator Coil, 1 Double tuned I.F. Transformer, 1 Single Tuned I.F. Transformer.

**YOUR PRICE \$2.49**

## Hammarlund "Air Tuned" Intermediate Transformers



These new precision I.F. transformers are of the tuned primary; tuned secondary type with both plate and grid coils of Litz wire. They are tuned to resonance by means of air dielectric variable condensers of special design. Each R.F. transformer provides a gain in excess of 200 per stage. The use of air condensers eliminates the variations in gain and selectivity inherent in I.F. transformers using compression type mica condensers. Even when such condensers are built on Isolantite bases and the highest grade mica is used, variations in temperature and relative humidity affect and lower factor, sufficient to render them unfit for use as precision equipment.

Tapped units are available for tubes requiring split input circuits such as Wunderlich tubes 55's, 75's, 85's, 2A6's, etc. The shield can measure 2-3/32" in diameter by 5" high and mounts by two screws through the bottom of the shield. Shipping weight, one pound.

No.	Type	YOUR PRICE
ATT-175	175 K.C. I.F. Transformer	<b>\$2.65</b>
ATT-465	465 K.C. I.F. Transformer	
ATT-525	525 K.C. I.F. Transformer	
ATT-175-CT	Center-Tapped 175 K.C.	
ATT-465-CT	Center-Tapped 465 K.C.	
ATT-525-CT	Center-Tapped 525 K.C.	

## Peerless Screen Grid R.F. Coils



A set of four matched tuning coils of superlative excellence for use in Peerless receivers or in constructional work. An ideal transformer for use with the screen grid or new variable mu tube. Has two primary windings so designed as to increase sensitivity at low frequency end of tuning range. For use with .00035 tuning condensers. Four coils to the set. Complete with mounting bracket. Shipping weight, 1/2 lb. Each Coil, 1 1/4" x 3".

No. 1667 Peerless R.F. Tuning Coils. **\$0.60**  
(Set of 4) YOUR PRICE

## Hammarlund Triple-Grid Tube Shields



For Latest Type 56, 57 and 58 Tubes  
The complete isolation afforded by this shield permits full use of the enormous amplification possibilities of the new '50 series' tubes, such as 56's and 57's.

A special drawn-in neck completes the shielding between grid and plate and a removable top is used to entirely shield the control grid cap. Body, cap and base are all made of heavy aluminum and designed for maximum cooling. These tubes may also be used for the smallest automobile type tubes such as the '36, '37, '38, etc. Measures 4 1/2" high by 1 1/2" diameter.

No. TS-50 Triple-Grid Tube Shield **\$0.24**  
YOUR PRICE

## BUILD YOUR OWN AUTOMOBILE RECEIVER!

Gen-Win Four Tube Super-Het. Coil Kit for Automobile Receivers



You can probably save yourself quite a bit of money by building your own automobile radio receiver. With this coil kit as a start, and with the wiring diagram furnished FREE with each kit you can construct a modern, up-to-the-minute receiver based on a super sensitive, super-heterodyne circuit employing the latest type tubes. Although this receiver uses but four tubes it has the performance and volume of a 7 or 8 tube super-heterodyne. The use of the new tubes makes this achievement possible for each of the tubes is made to serve two or three functions. The type 78 tube for instance, acts both as an oscillator and first detector. The other tubes employed are another 78 as I.F. a 77 as second detector and a 41 as a power output tube.

Through the use of 456 kilocycles in the intermediate frequency stage, exceptional selectivity is achieved. The tuning condenser should be a 2 gang job of .00035 Mf. capacity and should have a 456 Kc. cut-plate section.

Uniform oscillator output and high gain in the I.F. stage is procured through carefully designed coils. With the use of these small coils it is possible to build this receiver in the small space measuring less than 6" cube—which is an ideal size for an automobile receiver. The kit consists of a high gain antenna coil, a composite oscillator and first I.F. coil and a single-tuned I.F. transformer in which only the secondary is tuned. These coils may be bought separately if so desired. Shipping weight, per coil, 4 oz.

No. 381 GEN-WIN 4 Tube Super-het Coil Kit. **\$2.65**  
YOUR PRICE

## GenWin "Figure 8" Lemnis Coil Kit

Designed For Screen-Grid Receivers

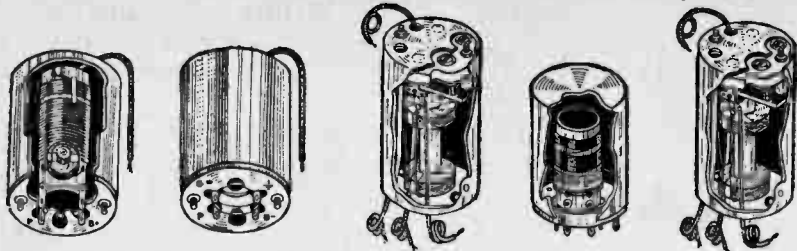


Probably the only reason why these coils have not been adopted universally by manufacturers is their high cost of production. Great strides have been made in the design of efficient coils in the last few years but these Lemnis "figure 8" coils reach the pinnacle of perfection.

HERE ARE SOME OF THE ADVANTAGES OF THESE COILS: One—Wound with an elongated reverse curve of the "figure 8" type. This form confines the electro magnetic field and neutralizes the tendency toward oscillation. The extraordinary length of the curve reduces the resistance otherwise encountered in small diameter coils. Two—Lemnis Coils have no "peak". They afford high, uniform amplification on all wave lengths in the broadcast band. They do not cause distortion. Three—Lemnis Coils amplify only what is received from the preceding stage. Their non-peak-up qualities reduces the annoyance of static and other interference. Four—They are kept free from dust by means of sealed bakelite cases, thus retaining their full efficiency always. Study these essential features, they are quite important. If you have an old radio which is not performing satisfactorily, revamp it to use these new type Lemnis coils. You will be surprised at the results obtained. A detailed schematic diagram showing how to construct a 5-tube screen-grid receiver with these coils is furnished FREE with each kit. The coils are designed to be used in conjunction with a .00035 mf. ganged variable condenser. Measures 4 1/4" by 1 1/2" by 3/8".

List Price \$12.00  
No. 304 Lemnis Coil Kit. **\$2.25**  
YOUR PRICE

## GEN-WIN 7-TUBE SUPER-HETERODYNE COIL KIT



A 7-tube super-heterodyne coil kit of excellent design and outstanding performance. Designed to tune with a 3 gang .00035 mfd. Variable Condenser. Kit consists of 1 Shielded antenna coil; 1 Shielded high-gain capacity coupled interstage coil; 1 Shielded Oscillator coil; 2 double tuned I.F. transformers of 175 K.C.

A detailed diagram, furnished FREE with each kit, will show you how to build an ultra-modern 7 tube super-heterodyne receiver with these coils.

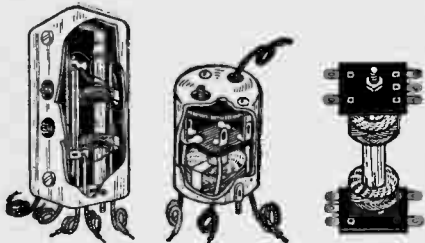
One of the features of this circuit is that it uses the 55 Diode Triode which serves three distinct purposes, namely, diode detector, voltage amplifier and automatic volume control. The antenna stage employs a 58 tube. The oscillator coil uses a 56 tube (excellent for that purpose). The Power Amplifier uses the new 39 tube which has recently made its appearance, and which supercedes the 47 pentode. The 59 being a Cathode type tube, prevents the A.C. hum in the filament circuit from mixing with the radio signal.

The GEN-WIN 7-tube Super-Het coil kit, when used in conjunction with fairly good parts and carefully constructed, will result in this circuit giving sensitivity of better than 10 Microvolts per meter and selectivity that meets all requirements. The total audio voltage gain of this receiver is over ninety times. Due to the special construction of the coils the signal level and sensitivity is practically uniform over the entire broadcast band. We highly recommend the building of this receiver for dependable, long distance and consistent cross-country reception.

No. 107 GEN-WIN 7-tube super-heterodyne Coil Kit.

YOUR PRICE **\$4.20**

## Gen-Win 5 Tube AC-DC Super-Het Coil Kit



This kit of small, up-to-date coils has been especially designed for the new AC-DC super-heterodyne midrange receivers which have recently made their appearance on the market. A wiring diagram which is supplied FREE shows you how to construct a sensitive and highly selective 5-tube super-heterodyne receiver.

The circuit incorporates the latest 6.3 volt tubes, and uses a special coil in conjunction with a 78 tube as combined first detector and oscillator in an AUTO-DYNE CIRCUIT. The use of this special coil assures a constant oscillator output throughout the entire tuning scale thereby resulting in uniform sensitivity and selectivity. The first I.F. stage consists of a single tuned, closely coupled transformer which feeds into a type 77 tube. The close coupling of this coil still further INCREASES THE GAIN and DECREASES to an absolute minimum the "losses" which usually manifest themselves in the ordinary I.F. transformer. The fine quality and performance of this receiver is assured through the use of the type 77 tube as a power detector. The output tube is the new type 43.

These coils are designed to be tuned with a two gang .00035 Mf. condenser having a 456 kilocycle cut-plate tracking section. The kit consists of one special coil (combination detector and oscillator), one double-tuned I.F. transformer, 456 K.C. measuring 1 3/4" square by 3 3/4" high; and one single-tuned I.F. transformer measuring 1 1/4" in diameter by 1 3/4" high. Ship. wt., 2 lb.

List Price \$4.15

No. 390 GEN-WIN 5 Tube AC DC Super-Het Coil Kit

YOUR PRICE **\$2.49**

## Gen-Win R.F. Filter Chokes

For Type 82 Mercury-Vapor Rectifiers These heavy duty filter chokes are positively essential in circuits employing the mercury-vapor rectifier tube type 82. The choke consists of 2 coils, each of which should be connected in series with each plate of the tube.

When the mercury in the rectifier tube becomes ionized and creates miniature radio frequency discharges which cause disturbances in the receiver. These chokes will entirely eliminate such disturbances by smothering them out. The coils are approximately 2 millihenries each and will stand at least 250 Mils. They are wound with double silk covered wire and are thoroughly impregnated for high voltages.

List Price \$1.50

No. 615 R.F. Filter Chokes for 82 Rectifiers.

YOUR PRICE **\$0.95**

## Gen-Win 4 Tube AC-DC Midget Litz Wire—Bank-wound Coil Kit

For use with 2-gang .00035 M.F. condenser

The new AC-DC receivers, which have recently flooded the market, are extremely simple to build. These coils are the very ones used in a large percentage of these receivers. The kit consists of 2 very efficient high gain coils, the secondaries of which are bank-wound with genuine Litz wire. Extremely small and compact, these coils will fit anywhere on the chassis. It is advisable when constructing such a receiver, to mount one coil above the base and the other beneath. If this is impossible and both coils

have to be placed either above or below the base, they should be mounted at right angles to each other. A 2-gang .00035 Mf. condenser is required to tune these coils. Shipping weight, 3/4 pound.

No. 1164—5 Four Tube AC-DC Midget Coil Kit.

YOUR PRICE **\$0.95**

## Gen-Win Shielded R.F. Chokes

These R.F. choke coils are indeed the ultimate in radio frequency choke construction. Because of the peculiar arrangement of the windings, known as three pie windings, there is an absolute minimum amount of distributed capacity per unit of inductance. The illustration here, clearly shows the unique manner in which this choke is wound. It is being adapted very rapidly by manufacturers and research laboratories as standard choke equipment.

\*The entire unit is housed and shielded in a small aluminum can with terminals protruding conveniently from the sides. Suitable provisions are made for mounting the chokes. These chokes are made in a variety of sizes for all circuit requirements. Ship. wt., 6 oz.

Cat. No.	Description	YOUR PRICE
610	1 Millihenry (for short wave sets)	\$.80
611	4.25 Millihenry (gen. purpose short wave choke)	.85
612	8.8 Millihenry (screen-grid tube circuits)	.90
613	18 Millihenry (for plate circuits of second detector in 175 KC super-het circuits)	.95
614	27.5 Millihenry (for detector plate in T.R.F. circuits)	1.05
615	50 Millihenry (for special purposes)	1.15
616	85 Millihenry (general purpose broadcast receiver choke)	1.25

## 85 Millihenry Choke Coil

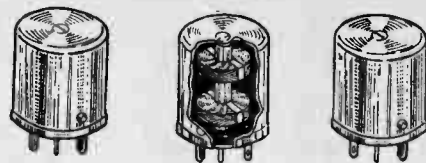
This choke coil is recommended for short-wave work inasmuch as its distributed capacity is extremely low. Its natural period of resonance does not fall within the broadcast band—this being a highly desirable feature inasmuch as it does not introduce "cut-off" disturbances. Consists of 1800 turn of helically wound enameled wire. Measures 1 1/4" in diameter x 3/4" thick. Ship. wt. 4 ozs.

No. 1681—85 Millihenry Choke Coil

YOUR PRICE **\$0.12**

## Gen-Win "Mighty Midget" T.R.F. Coils

Shielded—High Gain



These tiny T.R.F. coils incorporate the most modern advancements in radio frequency coil construction. Although extremely small, physically, they are "big" in performance. If you are planning to build a new midget or automobile receiver using the very latest tubes we highly recommend these T.R.F. coils. They are small, precision-built and afford the highest possible gain between stages.

The primary windings of these coils are virtually R.F. choke coils which accurately match the plate impedance of the tubes with which they are to be used, thus assuring maximum amplification per tube. Furthermore these primary windings are capacitively coupled to the secondaries—a feature which makes possible uniform amplification on all wave lengths. The coils are designed to be used with a ganged tuning condenser of .00035 mf. per section. Their range is from 200 to 500 meters. Physical dimensions 1 1/2" in diameter by 1 1/2" high. All coil connections are clearly marked on the bakelite base. They may be had in kits of either three or four or individually as listed below. Shipping weight, 3 oz. per coil.

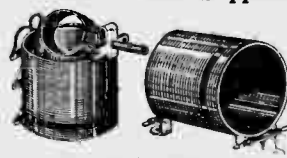
Cat. No.	Description	YOUR PRICE
350-A	Mighty Midget Antenna Coil	\$.51
350-R	Mighty Midget R.F. Coil	.59
350-K	Kit of 3 coils, 1 Antenna 2 R.F. Coils	1.50
350-F	Kit of 4 coils, 1 Antenna 3 R.F. Coils	2.00

## Gen-Win Precision Lattice Wound R.F. Choke Coils

Gen-Win choke coils are undoubtedly among the finest in the industry. They are precision wound with the best grade of material thoroughly impregnated by the new electrical-oven heat process. Ship. wt., 4 oz.

No.	Description	YOUR PRICE
600	1 Millihenry (for short wave sets)	\$.40
601	4.25 Millihenries (general purpose short wave choke)	.48
602	8.8 Millihenries (for screen grid tube circuits)	.55
603	18 Millihenries (for plate circuits of second detectors in 175 K.C. superhet circuits)	.60
604	27.5 Millihenries (for detector plate in T.R.F. circuits)	.70
605	85 Millihenries (general purpose broadcast receiver choke)	.80

## Genwin Self Supporting Coils



These coils cover the band from 200 to 585 meters when used with .00035 condensers. They are ideal for use in the Browning-Drake, Universal and similar circuits calling for regeneration in the detector stage. Wound on circular forms with cellulose binder leaving no dielectric within the field of the coil. These may be used to advantage in the construction of battery operated and portable receivers requiring a high sensitivity with few tubes. Both coils have handy soldering lugs. Shipping weight, 1 lb.

No. 1682 Genwin Two Circuit Antenna Coil. **\$0.55**

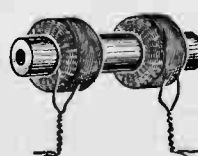
Overall size, 2 1/2" x 2 1/2" x 2 3/4"

No. 1683 Genwin Detector and Ticker Coil—Three Circuit. **\$0.95**

Overall size, 3 1/2" x 2 1/2" x 3 1/2"

## 175 KC I. F. Transformer

Mounted on Isolantite tubing



Employed in all Majestic superheterodyne receivers. The Isolantite core prevents high frequency losses thereby improving sensitivity and selectivity considerably. May be used for R.F. choke work by separating the two coils. Ship. wt., 8 oz.

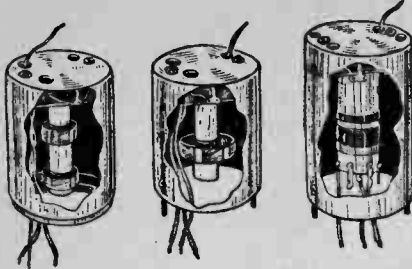
No. 1675 175 KC I.F. Transformer

YOUR PRICE **\$0.20**

# GEN-WIN RADIO FREQUENCY COILS

## Gen-Win Complete 5 Tube Super-Het. Coil Kit

For Constructing Superheterodyne Receivers

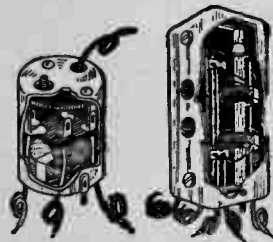


These coils in conjunction with a 3-gang .00035 mf. tuning condenser, small power transformer, a few condensers and resistors, will permit the construction of a five-tube superheterodyne receiver with extremely high sensitivity, selectivity and DX range—a receiver equivalent to and perhaps even better than many of the 10-tube superheterodyne receivers on the market today. BRINGS IN DISTANT STATIONS AS CLEAR AND AS NATURAL AS THOUGH THEY WERE AROUND THE CORNER. No experience or technical knowledge whatsoever is required to build or operate it. Can be easily constructed in an hour's time. These coils are assembled in the small metal shield cases which are of a compact and neat design. Constructed with the finest materials available. They follow a coil design which is quite radical from all previous principles of coil construction. NO DOUBLE SPOT TUNING OR SQUEALING—10 KILOCYCLE SELECTIVITY—DESIGNED FOR THE LATEST TYPE VARIABLE-MU AND PENTODE TUBES. Comprises three shielded coils—one combination pre-selector and detector coil (175 K.C.) and one second I.F. transformer (175 K.C.). Sold complete with full descriptive and constructional data as well as excellent wiring diagram. Dimensions: 2 x 2 1/2 ins., 2 x 3 1/2 ins., 2 x 2 1/2 ins. respectively. Shipping weight, 4 lbs.

No. 193 Gen-Win Complete 5-tube Super-het Coil Kit  
**YOUR PRICE \$3.90**

## Gen-Win "Mighty Midget" I.F. Transformers

Both Double Tuned and Single Tuned



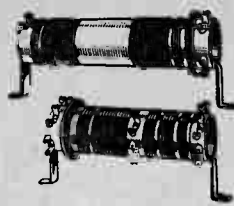
Although extremely small in size, they will far surpass in actual performance the old-fashioned giant sized I.F. transformers. If it is your intention to build a small, compact super-het, especially of the automobile type, then you have no choice in picking your I.F. transformer. You will have to purchase one of these small units. Consider what a saving in space it would mean to you. Single tuned units are only 1 1/2" in diameter by 1 1/2" high—hardly larger than a good sized walnut.

The coils are lattice wound with silk covered wire. The padding condensers are of the new low-loss type. Adjustment of these condensers is made on top of the aluminum shield case. All transformers are accurately packed at the factory and are therefore, easily adjusted in your set. They are available for either 175 kc. or 465 kc. as well as with center-tapped secondaries for use with the new Wunderlich and type 55 tubes. Furthermore they may be had with only the secondary windings tuned or with both windings tuned. Shipping weight, 3 oz. each.

Cat. No.	Frequency	Description	YOUR PRICE
360	175 kc.	Standard, single-tuned	\$0.80
360-CT	175 kc.	Secondary center-tapped, single-tuned	1.10
370	465 kc.	Standard, single-tuned	.90
370-CT	465 kc.	Secondary center-tapped, single-tuned	1.10
380	175 kc.	Standard, double-tuned	1.15
380-CT	175 kc.	Secondary center-tapped, double-tuned	1.35
390	465 kc.	Standard, double-tuned	1.15
390-CT	465 kc.	Secondary center-tapped, double-tuned	1.35

## Band-Pass Superhet. Coil Set

For Constructing Extremely Sensitive Superheterodyne Receivers



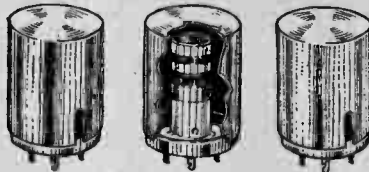
One of the finest superheterodyne receivers can easily and quickly be constructed with this set of accurately matched coils—a super-het so sensitive and selective that it will cover the entire country at any hour of the day. A SPECIAL FEATURE OF THESE COILS IS THE TAPPED OSCILLATOR COIL WHICH REMOVES ALL SEMBLANCES OF IMAGE FREQUENCIES AND HARMONICS. Comprises one pre-selector coil, one antenna coil and one detector-oscillator combination coil. Another feature is the 10 kilocycle bandpass coil combination which they possess. When used with a four gang .00035 mf. variable condenser, they will cover the entire broadcast range in a most efficient manner—forming a perfect selectivity curve. When used in conjunction with the Gen-Win No. 101 I. F. transformers, for 175 K.C., one of the finest and most advanced superheterodyne receivers may be constructed. We recommend this coil set to the most exacting radio fan and experimenter, with the guaranty that extreme sensitivity, perfect selectivity, unlimited pickup range, noiseless operation, perfect tonal quality, tremendous gain per stage without R.F. distortion which is incidental to side band cutting, will be characteristics of a superheterodyne constructed around them. Complete schematic diagram for constructing a superheterodyne receiver included with each kit. Shipping weight, 2 lbs.

No. 100 Gen-Win Band-Pass Superheterodyne Coil Set  
**YOUR PRICE \$2.25**

## Shielded Radio Frequency Coils

FOR SCREEN-GRID AND VARIABLE-MU TUBES

Accurately Matched to Within 1/10 of 1%



These coils are ideal for building selective tuned radio frequency receivers employing the latest type screen-grid and multi-mu tubes. They are precision made, both electrically and mechanically. The primary windings are of silk covered wire wound over the secondaries in proper inductive relationship. Terminal lugs protrude about 3/8 inch beyond the mounting base, making for swift and convenient sub-panel wiring. Also protruding from the base are two screws 1-11/16 inches apart for mounting purposes. The aluminum shield covers are 2 inches in diameter and 2 1/2 inches long. These coils are accurately matched to tune with .00035 mf. variable condensers. Wavelength range 200—585 meters. Coils may be bought either singly or in matched sets of 3 or 4. Ship. wt., per coil, 3 oz.

No.	Description	YOUR PRICE
310A	Antenna Coil	\$0.38
310R	Radio Frequency Coil	.38
310K	Three Coil Kit—1 Ant. Coil and 2 R.F. Coils	1.10
310F	Four Coil Kit—1 Ant. Coil and 3 R.F. Coils	1.50

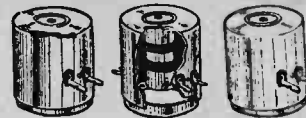
## Gen-Win Full Size I.F. Transformers

If you are planning to build a full-size superheterodyne receiver (not the mighty midget) or if you are planning to convert your old T.R.F. into a super-het., we recommend that you use these full-sized high gain intermediate frequency transformers. The primary and secondary windings are properly coupled to insure maximum gain, and consequently, uniform volume on all wave lengths. The coils are lattice-wound with silk-covered enameled wire. The padding condensers are assembled on genuine Isolomite forms to eliminate all possible I.F. losses. These units are easily peaked under all circuit conditions. They are available for both 175 kc. and 465 kc. and may also be had with center tapped secondary windings for use with the Wunderlich or type 55 tubes. Shipping weight, 3/4 pound each. Dimensions 2-3/32" in diameter x 2 1/2" high.

No.	Frequency	Description	YOUR PRICE
101	175 kc.	Standard	\$1.20
101-CT	175 kc.	Secondary center-tapped	1.30
102	465 kc.	Standard	1.25
102-CT	465 kc.	Secondary center-tapped	1.35

## Gen-Win Shielded High Gain R.F. Coil Kit

Automobile and Portable Receivers

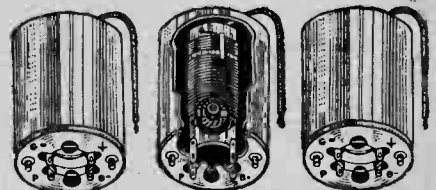


These coils are the latest and most advanced designed—being made especially for automobile and portable receivers. They are exceptionally small and compact in size measuring but 2 1/2 ins. wide by 2 ins. high. The secondary windings are bank-wound making them capable of extreme selectivity and sensitivity and high gain per stage. This latter feature is highly desirable in automobile receivers where space is at a premium, making it possible to eliminate one or two stages of r.f. without sacrificing selectivity to any appreciable amount. Designed for use with a .00035 mf. variable condenser. Wavelength range 200—585 meters. Coils may be bought either singly or in accurately matched sets of 3 or 4. Shipping weight per coil, 3 oz.

No.	Description	YOUR PRICE
312A	Antenna Coil	\$0.50
312R	Radio Frequency Coil	.50
312K	3 coil kit—1 Ant. coil—2 R.F. coils	1.50
312F	4 coil kit—1 Ant. coil—3 R.F. coils	2.00

## Gen-Win Shielded Radio Frequency Coil

For Screen-Grid and Variable-Mu Tube

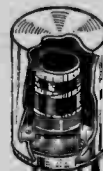


ACCURATELY MATCHED TO WITHIN 1/10th OF 1% these coils are ideal for building selective, tuned radio-frequency receivers employing the latest type screen-grid and multi-mu tubes—they are precision built, both electrically and mechanically. These coils have a high impedance (choke coil) primary winding which accurately matches the plate of the tube with which it is being used, thereby securing maximum amplification per stage. The choke coil primary is capacitively coupled to the secondary winding producing a flat amplification curve. This means that stations on the lower wave lengths will come in with the same degree of volume, intensity and selectivity as those on the higher wave lengths. These coils are designed to tune with a .00035 mf. variable condenser gang. They may be bought either singly or in matched sets of three or four. Furthermore if so specified any of these coils may be tapped so that short wave reception from 80 to 200 meters may be obtained. Shipping weight, 3/4 pound each.

No.	Description	YOUR PRICE
330-A	Antenna Coil	\$0.55
330-R	R.F. Coil	.55
330-K	Three coil kit (1 Antenna 2 R.F. coils)	1.65
330-F	Four coil Kit (1 Antenna 3 R.F. coils)	2.20
340-A	Antenna coil tapped at 80 Meters	.65
340-R	R.F. coil tapped at 80 Meters	.65
340-F	4 Coil Kit tapped at 80 Meters	2.60

## Gen-Win Shielded Oscillator Coils

175 KC. and 465 KC.



These coils are not of the miniature type but are full-sized, made for full-sized receivers. It is of the three winding type namely, cathode pick-up winding, tickler winding and secondary winding. Superheterodyne circuits these days are employing this type of oscillator coupling for three reasons; which are: EASE OF ADJUSTMENT, EXTREME STABILITY AND FREEDOM FROM HARMONICS. The coil is fully shielded in an aluminum can, measuring 2 1/2" in diameter by 2 1/2" high and having mounting screws 1-27/32" between centers. The coil is designed for sub-panel connections, having six terminal lugs protruding from the base. Available for 175 kc., 175 kc., and 465 kc. Ship. wt., 3/4 lb. each.

No.	Description	YOUR PRICE
406	Gen-Win 115 kc. Oscillator Coil	\$0.48
407	Gen-Win 175 kc. Oscillator Coil	.48
408	Gen-Win 465 kc. Oscillator Coil	.48





# Flechthiem Superior Paper Dielectric Condensers

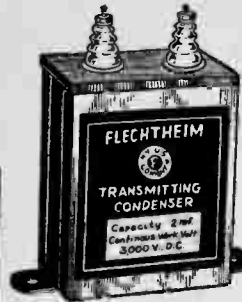
## Flechthiem Non-Inductive Transmitting Condensers

For High Tension Work—1000 to 3000 Volts D.C.

Where a transmitting condenser is called upon to perform under conditions of continuous duty and strain, as in the case of many broadcast and commercial stations as well as amateur stations.

Flechthiem Non-Inductive Transmitting Condensers will be found to work silently and dependably, playing their role without danger or trouble in the high voltage filter circuits.

THESE CONDENSERS ARE ALL CONSERVATIVELY RATED FOR CONTINUOUS DUTY, D.C. (direct current motor-generator) and r.m.s.,



r.a.c., (root means square, rectified alternating current).

High grade porcelain stand-off insulators are used throughout to protect the scientifically designed terminals thereby eliminating all possibility of either arcing or leakage. All transmitting condensers are encased in strong, metal, weatherproof containers which protect them from heat and mechanical damage. The guaranty of the Flechthiem name, together with that of our own, is your assurance that you cannot find better condensers anywhere at any price. Shipping weights vary from 2 to 11 lbs. according to size.

Type TC—1,000 v. d.c.—750 v. r.a.c., r.m.s.		List YOUR PRICE	
Cat. No.	Cap. Mf.	Size in Inches	Price
TC-100	1.0	4 1/2" x 1 1/2"	\$3.50
TC-200	2.0	4 1/2" x 3 1/2"	6.00
TC-400	4.0	4 1/2" x 3 3/4"	11.00

Type T—1,500 v. d.c.—1,000 v. r.a.c., r.m.s.		List YOUR PRICE	
Cat. No.	Cap. Mf.	Size in Inches	Price
T-100	1.0	5 1/2" x 1 1/2"	4.50
T-200	2.0	5 1/2" x 4 1/2"	8.00
T-400	4.0	5 1/2" x 4 1/4"	14.00

Type TH—2,000 v. d.c.—1,600 v. r.a.c., r.m.s.		List YOUR PRICE	
Cat. No.	Cap. Mf.	Size in Inches	Price
TH-100	1.0	6" x 3 1/4"	9.00
TH-200	2.0	6" x 3 1/2"	15.50
TH-400	4.0	6" x 3 1/2"	27.50

## Flechthiem Shielded By-Pass and Filter Condensers

Rated at 200 to 400 Volts D.C.



These condensers are enclosed in inverted drawn-metal shells provided with integral mounting feet and convenient soldering lugs.

The importance of proper by-passing and filtering in radio receivers and amplifiers has resulted in the use of a large number of this type of condensers. Service Men everywhere should be prepared to replace defective units with Flechthiem condensers in order to eliminate all further condenser troubles. These units are especially designed for by-passing, filtering and coupling work and provide minimum impedance at radio and audio frequencies. The 200 volt condensers are recommended for by-pass work while the 400 volt units are usually reserved for filtering. Ship. weights vary from 4 to 8 oz.

Type GB—200 v. d.c.—120 v. a.c., r.m.s.		List YOUR PRICE	
Cat. No.	Cap. Mf.	Size in Inches	Price
GB-10	.1	1 1/8" x 1 1/8"	\$0.45
GB-25	.25	1 1/8" x 1 1/8"	.65
GB-50	.5	1 1/8" x 1 1/8"	.85
GB-100	1.0	2" x 1 1/8"	1.10
GB-200	2.0	2" x 1 1/2"	1.30
GB-400	4.0	2" x 1 3/8"	2.35

Type GF—400 v. d.c.—220 v. a.c., r.m.s.		List YOUR PRICE	
Cat. No.	Cap. Mf.	Size in Inches	Price
GF-10	.1	1 1/8" x 1 1/8"	.50
GF-25	.25	1 1/8" x 1 1/8"	.75
GF-50	.5	1 1/8" x 1 1/8"	1.05
GF-100	1.0	2" x 1 1/8"	1.55
GF-200	2.0	2" x 1 1/2"	3.10
GF-400	4.0	2" x 1 3/8"	6.17

## Flechthiem "Puncture-Proof" Filter Condenser Units

Non Inductive—Rated at 500 Volts D.C.



We recommend that Service Men and radioicians keep on hand a number of such units of various capacities to meet all emergency cases for replacement condensers. These condensers are without doubt, the neatest, smallest and most efficient ever made.

They are wound non-inductively, impregnated in a special non-hygroscopic compound, and are fully enclosed in a final shell of wax paper wrapping. This construction renders these condensers absolutely moisture and weather proof. Equipped with 8" lengths of tinned wire leads which are guaranteed not to pull out. If you are looking for a thoroughly dependable, uncased condenser to employ in your repair work, we unconditionally recommend these units as the finest obtainable. Shipping weights vary from 4 to 12 oz.

Typicaly recommend these units as the finest obtainable. Shipping weights vary from 4 to 12 oz.

Type NU—500 v. d.c.—440 v. a.c., r.m.s.		List YOUR PRICE	
Cat. No.	Cap. Mf.	Size in Inches	Price
NU-10	.1	1-1/16" x 3/16"	\$0.50
NU-25	.25	1 1/8" x 3/8"	.55
NU-50	.5	1 1/8" x 3/8"	.70
NU-100	1.0	2" x 1 1/8"	1.10
NU-200	2.0	2" x 1 1/2"	1.70
NU-400	4.0	2" x 1-13/16" x 3-1/16"	2.90

## Heavy Duty Filter Condensers

Rated at 1000 Volts D.C. Extremely Light and Compact



These condensers represent the highest perfection in the art of making comparatively high voltage condensers for heavy duty amplifiers. Every unit in this series is conservatively rated at 1,000 volts, continuous D.C. operation and 660 volts A.C. r.m.s. THEY HAVE A HIGH INSULATION RESISTANCE OF OVER 1,000 MEGOHMS PER MICROFARAD, extremely low power factor and non-inductive windings. Capacity tolerance 5% plus or minus. Flash breakdown rating of 3,000 volt D.C. These extremely efficient units are ideally suited for laboratory and experimental work. Shipping weights vary from 1/2 to 5 lbs.

Type HC—1,000 v. d.c.—660 v. a.c., r.m.s.		List YOUR PRICE	
Cat. No.	Cap. Mf.	Size in Inches	Price
HSM-5	.05	1-3/16" x 11/16"	\$1.25
HSM-10	.1	1-3/16" x 11/16"	1.35
HSM-25	.25	1-3/16" x 11/16"	1.50
HSM-50	.5	1-3/16" x 11/16"	1.65
HSM-100	1.0	1-3/16" x 1-3/16"	2.25
HSM-200	2.0	2" x 1 1/8"	3.50
HSM-400	4.0	2" x 1 1/2"	3.50
HSM-800	8.0	2" x 1-3/16"	5.60
HSM-1600	16.0	2 1/2" x 2"	5.60

## Midget Bypass Condensers

These beautifully made, highly efficient midget condensers are the most versatile, handiest and most economical units available, especially for work on midget receivers where space is at a premium. They are being employed universally for by-passing, coupling, grid-blocking, compensating, neutralizing and many other purposes. Shipping weights vary from 1/4 to 1/2 oz.



Type M—500 v. d.c.—250 v. a.c., r.m.s.		List YOUR PRICE	
Cat. No.	Cap. Mf.	Size in Inches	Price
M-A	.0001	1-15/16" x 5/16"	\$0.40
M-B	.00025	1-15/16" x 5/16"	.40
M-C	.0005	1-15/16" x 5/16"	.40
M-E	.001	1-15/16" x 5/16"	.45
M-F	.002	1-15/16" x 5/16"	.45
M-G	.004	1-15/16" x 5/16"	.50
M-H	.005	1-15/16" x 5/16"	.50
M-I	.006	1-15/16" x 5/16"	.60
M-K	.01	1-15/16" x 5/16"	.65
M-L	.02	1-15/16" x 5/16"	.70
M-M	.05	1-15/16" x 5/16"	.85

## Zenith Replacement Condenser Block—

Part No. PL-1145

10 1/2 Mf.

Consists of six sections, each represented by a color-coded flexible lead and distributed as follows: black lead, common; yellow, 2 mf. at 800 volts; green, 3 mf. at 600 volts; blue, 3 mf. at 400 volts; red, 1 mf. at 200 volts. The condenser block also contains one separate condenser, terminating in two white leads and having a capacity of .25 mf. at 400 volts. This condenser block will fulfill the requirements of all power packs for receivers and amplifiers. Put up in a strong, black enameled metal case and provided with suitable mounting flanges. Overall dimensions 8 1/2" long x 5 1/4" high x 2 1/4" wide. Ship. wt. 1.0 lb. No. B7016 Zenith Replacement Condenser Block—

YOUR PRICE **\$2.50**

## 1/2 Mf. Transmitting Condenser

Working Voltage 1,000 Volts D.C.

This unit is thoroughly impregnated in moisture-proof sealing compound, and will, therefore, retain its rated capacity under all operating conditions. Conservatively rated at 1,000 volts, D.C. Excellent for use as a replacement unit in transmitters, high-powered sound equipment. Measures 5 1/2" long x 2" wide x 3 1/2" deep. Ship. wt. 1 lb. List Price \$1.25. No. B7015 1/2 Mf. Transmitting Condenser—

YOUR PRICE **\$0.20**

## One Hundred Assorted Tubular and Flat Paper Condensers

From .0007 Mf. to .1 Mf.

Have you ever cursed, growled or bemoaned the fact that you did not have the .001 mf. condenser handy to complete a service job?



This assortment of condensers will save you time—and temper! CONTAINS PRACTICALLY EVERY VALUE OF CAPACITY NECESSARY FOR BY-PASSING, COUPLING, BUFFER WORK AND FOR MANY OTHER RADIO PURPOSES.

The smaller values are the so-called "postage-stamp" condensers. The higher values are of the tubular type.

If these condensers were sold separately, you would have to pay more than \$14.00 for them. Our tremendous stock of these units, however, enables us to sell them to you at the extremely low prices quoted below. If ever there was a STUPENDOUS SALE on condensers, this is it! Ship. wt. 3 lb. List Price \$15.00.

No. B7035 One Hundred Assorted Tubular and Flat Paper Condensers. YOUR PRICE **\$3.50**



## Stromberg Carlson 3.9 Mfd. Condenser

A 1000 volt filter condenser for replacement purposes in Brunswick, RCA and Victor Electro-Static Capacities. Comes in strong metal case. Shipping Weight, 2 lbs. Overall Size, 5 1/4" x 1 1/2" in. No. 1738 Stromberg Carlson 3.9 mfd. Condenser.

YOUR PRICE **\$1.50**

## Micamold Multiple Section By-Pass Condenser

2-.1 mf. Sections and 1-.5 mf.

A handy little unit for by-pass work. Will fit almost anywhere, in both large and midget receivers. Contained in a metal shell case with 13 protruding terminal lugs. Comprises 2-.1 mf. section and one section of 1/2 mf. working voltage is 250 volts. No. 112 Micamold Multiple Section By-Pass Condenser

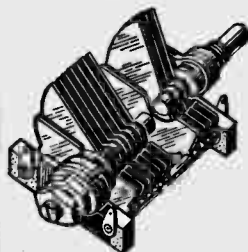
YOUR PRICE **\$0.24**





## HAMMARLUND VARIABLE CONDENSERS

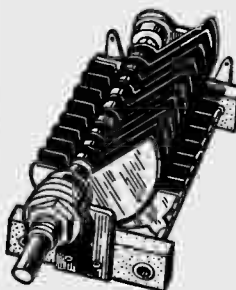
### Band-Spread Condensers



These condensers are designed for use as "band spread" tuning condensers for short wave receivers and for use in amateur band frequency meters. The "tank" section can be set and locked at any desired capacity permitting the tuning section to spread narrow frequency ranges over the entire dial, regardless of the range of the band or the coils used. Ship. wt., 2 lbs.

No.	Tank Capacity	Tuning Capacity	YOUR PRICE
MC-120-B	100 mmf.	20 mmf.	\$1.76
MC-150-B	100 mmf.	50 mmf.	\$1.90
MC-175-B	100 mmf.	75 mmf.	\$2.06

### Double-Spaced Midget Condensers

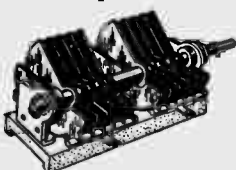


Wide spacing, special bearings and isolantite make these condensers particularly SUITABLE FOR ULTRA SHORT WAVE RECEIVERS AND TRANSMITTERS. Air gap between plates is .0715".

Their small size adapts them to the compact types of transmitters now so much in vogue. For tuning amplifier stages in crystal controlled transmitters and for neutralizers up to 210's and 50 watters. Ship. wt., 2 lbs.

No.	Maximum	Minimum	YOUR PRICE
MC-35X	35 mmf.	6 mmf.	\$1.35
MC-50X	50 mmf.	7 mmf.	\$1.65

### Double-Spaced Dual Midget Condensers



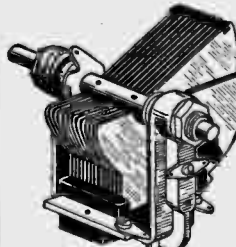
This condenser is specially designed for efficiency at ultra high frequencies and may be used for either receiving or transmitting. The wide spacing between plates materially aids frequency stability and the use of Isolantite insulation assures the low-loss factor so necessary in 5 meter work.

**AN IDEAL CONDENSER FOR COMPACT 5 METER TRANSMITTERS USING TUBES UP TO 245'S OR 210'S IN PUSH-PULL.**

Actual air-gap between adjacent rotor and stator plates is .0715". Capacity per section, 33 mmf. max., 6 mmf. min. Ship. wt., 1 1/2 lbs.

No. MCD-35X Double-spaced Dual Midget Condenser  
**YOUR PRICE \$2.10**

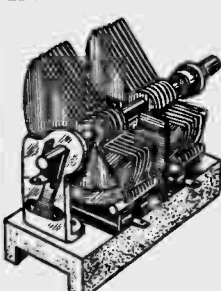
### Hammarlund "Midline" Condensers



Years of leadership attest the remarkable engineering perfection of "Midline" Condensers. Special brass plates, full floating rotor, removable shaft, perfect bearings and contact, rib-reinforced aluminum alloy frame. "Parnica" low loss insulation.

No.	Maximum Capacity	YOUR PRICE
ML-23	.0005 mf.	\$2.64
ML-17	.00035 mf.	\$2.48
ML-11	.00025 mf.	\$2.25

### Hammarlund Dual Midget Condensers



Like Hammarlund Single Midget Condensers, these new duals incorporate in their design every requirement of a high quality small size two-gang condenser. Their rigidity, low losses and careful construction provide for great electrical and mechanical efficiency in all types of short wave receivers employing two-gang tuning condensers.

The entire condenser is BUILT ON A STRONG ISOLANTITE BASE, including a shield plate between the stators. Other specifications are the same as for the single midget condensers described on the

opposite page. Made for single hole panel mounting. Overall length behind panel is 3 3/4". Stock sizes are listed below. Ship. wt., 2 lbs. **YOUR PRICE**

No. MCD-140M (140 mmf. capacity per section) \$2.40

MCD-100M (100 mmf. capacity per section) \$2.10

### Improved Hammarlund Midget Condensers

"Midline" and Straight Line Capacity Types

The marked efficiency of Hammarlund Condensers at ultra high frequencies is attested by their dominant position in amateur and experimental fields and their use by the more prominent manufacturers of short wave receivers, television equipment and high frequency apparatus in general.

In such work, with frequencies running up to 50 ad 60 megacycles, unusual electrical efficiency is demanded.

Every feature of Hammarlund Condensers is designed to meet these strict demands. General Specifications—Plates are .0245" brass with .0245" airgap between plates. Shafts are 1/4" diameter and extend 5/16" beyond the rear frame to facilitate ganging. Standard condensers include stops and are made to increase capacity by clockwise rotation. Individually tested for breakdown on 500 volts A.C. and packed with 1 1/2" bakelite knob. Quality fully guaranteed. Ship. wt. 3/4 lb.



Cat. No.	No. of Min. Max.		Cap. Mmf.	Back of Panel Size	List Price	Your Price
	Plates	Plates				
MC-325-M	43	12	320	2 23/32"	\$3.50	\$2.10
MC-250-M	34	10	260	2 3/8"	3.00	1.80
MC-200-M	27	10	200	1 19/32"	2.75	1.65
MC-140-M	19	7	140	1 13/32"	2.50	1.50
MC-100-M	14	6	100	1 13/32"	2.25	1.35
MC-100-S	14	6	100	1 13/32"	2.25	1.35
MC-75M	11	6	80	1 7/32"	2.00	1.20
MC-75-S	11	6	80	1 7/32"	2.00	1.20
MC-50-S	7	5	50	1 7/32"	1.80	.96
MC-35-S	5	4	35	1 7/32"	1.50	.90
MC-20-S	3	3	20	1 7/32"	1.40	.84

"M"—Midline Plates. "S"—Semi-Circular Plates

### New Hammarlund Midget Trimming Condensers



These midget trimmers are principally used in automobile, A/C/D/C and other compact types of chassis for purposes of I.F. tuning and the padding or trimming of oscillator and other circuits. Best quality mica and low loss bakelite provide for high efficiency. Adjusting screws are conveniently slotted at both ends.

Standard capacities are listed below. Single units are 1 3/16" in diameter with 4/32" tapping holes. In 15/16" centers and fit in 1 1/4" diameter round cans. Dual units measure 1 1/4" x 2 1/4" with 4/32" tapped mounting holes on 1-25/32" centers and fit in the new type square I.F. transformer caps designed for side mounting tuning condensers. Ship. wt., 1/2 lb.

Cat. No.	Type	SINGLE CONDENSERS	
		List Price	YOUR PRICE
BBT-70	25-70 mmf. Trimming Cond.	\$0.40	\$0.24
BBT-140	70-140 mmf. Trimming Cond.	.50	.29
BBT-220	140-220 mmf. Trimming Cond.	.60	.35
DUAL CONDENSERS			
BBT-70-D	25-70 mmf. Trimming Cond.	.70	.41
BBT-140-D	70-140 mmf. Trimming Cond.	.80	.47
BBT-220-D	140-220 mmf. Trimming Cond.	.90	.53

### S.L.W. Midget Variable Condensers

For Ultra Short Wave Work



These condensers were designed to meet the difficult requirements of Ultra High Frequency Service. They embody a number of unusual refinements—such as—Insulac Insulation properly placed to reduce electric losses to an absolute minimum, constant impedance, dual pig-tail rotor connections, and thick non-

resonant brass plates to prevent microphone feed-back caused by acoustic vibration. Both rotor and stator plates are completely insulated from the frame, thus entirely eliminating the possibility of shorted turn effect or changes in reactance due to loose contact of shaft when the rotor plates are turned.

All models are furnished with the shaft extending through the rear bearing for ganging purposes.

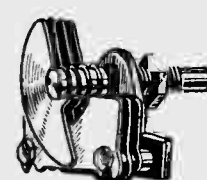
The frame of the condenser is constructed with a slotted keyway, which facilitates mounting two or more condensers as a unit, through the use of a bar of any length which can be slipped and fastened in the keyway. Therefore, the sections may be spaced at any distance, and at all times maintain perfect alignment. Ship. wt., 1 lb.

Cat.	Cap. Mmf.	Air Gap	Plates	List Price	YOUR PRICE
100	.026	5	5	\$0.73	.89
101	.028	11	11	1.50	.80
102	.028	15	15	1.75	1.03
103	.028	20	20	2.00	1.18
104	.028	29	29	2.25	1.33
105	.028	37	37	2.50	1.47
106	.028	22	22	2.75	1.62

Standard Shaft Length 1 1/4"

### Midget Variable Condensers

Rugged—Dependable—Accurate



These variable condensers are used extensively for vernier tuning, compensating, building test oscillators, laboratory equipment and for a host of other purposes. THEY ARE EXCELLENTLY SUITED FOR SHORT-WAVE WORK, where they are usually employed in the antenna circuit making the short-wave receiver highly selective and sensitive and

bringing in DX STATIONS never before received. When used for controlling regeneration in short-wave receivers, they afford a smooth unfalling control—a highly desirable feature. The plates are rigidly maintained in their respective slots to insure against mechanical vibration at the extremely high frequencies. Designed for one hole mounting. Individually boxed. Shipping weight, 1 lb.

No.	Capacities		List Price	YOUR PRICE
	No. of Plates	Less Knob		
2192	3	15 mmf. 3 mmf.	\$0.50	\$0.36
2193	5	30 mmf. 4 mmf.	.60	\$0.38
2194	7	40 mmf. 5 mmf.	.60	\$0.42
2195	11	60 mmf. 6 mmf.	.70	\$0.45
2196	15	100 mmf. 7 mmf.	.80	\$0.47

### Amsco Siamese Tuning Condensers

An accurately aligned 2-gang condenser which embodies all the fine principles of construction and operation of Amsco low-loss products. Designed for panel mounting. Measures 3 1/4" long x 1 1/4" wide x 3 1/4" back-of-panel depth. Its straight line-frequency characteristics make it especially suitable for use in calibrated instruments, such as wavemeters, beat-frequency oscillators, etc., etc. Each section has a maximum capacity of .00035 mf. Ship. wt., 2 lbs. List Price \$3.75



No. B7040 Amsco Siamese Tuning Condensers.  
**YOUR PRICE \$0.70**

### Hammarlund Flexible Couplings

This coupling saves time, money and temper for radio constructors as it permits operation of any number of variable units in tandem without requiring exact shaft alignment. The sides of coupling are insulated from each other allowing instruments in gang to be operated as independent electrical units. Made of tough bakelized canvas brass bushings and hardened steel. Shipping wt., 4 oz. List Price

No. FC-3 Hammarlund Flexible Couplings (for shafts)  
**YOUR PRICE**

### "Zenith" Four Gang Die Cast Condenser



This is a sturdy die cast condenser for use in the construction of all radio receivers where .00035 mfd. units are prescribed. Built with large space between elements and with electrostatic shielding. Mechanical construction is such that the condenser plates cannot possibly get out of alignment. Each plate is made a full 1/16th of an inch thick to avoid the warping found in instruments of less sturdy nature. Shipping weight, 8 lbs.

No. 1750 "Zenith" Four Gang Die Cast Condenser  
**YOUR PRICE \$1.00**

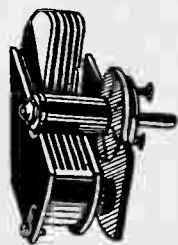
### Stewart Warner Four Gang .00035 Mfd. S.L.F. Condenser

A sturdy condenser unit for use with all circuits requiring a four gang tuning condenser. Straight Line Frequency Characteristics for ease in tuning. Shaft 3/8 in. in diameter for strength. These condensers are made from the finest brass stock with positive contact adjustable bearings. One of the finest condensers made. Designed to last a lifetime; built of very heavy gauge metal. Perfectly aligned throughout entire tuning range. The very finest condenser made. Shipping Weight, 8 lbs. Overall Size, 7 1/2 x 2 1/2 x 1 in.



No. 1752 Stewart Warner Four Gang Condenser  
**YOUR PRICE \$0.95**

### Bradley Brass-Plated Variable Condenser



These units are probably the finest constructed of all variable condensers. It is thoroughly shielded throughout and is brass plated to guard against weather corrosion. It will maintain its calibration always. The spaces between plates are extra large so that it may be used for low power transmitting work. Available in the following capacities, .0005, .00025, .00035 and .001. Many service men use these units for making oscillators which must be accurately calibrated. It mounts on a front panel with two screws and has 3/4" shaft. Measures 3 3/4" wide by 1 1/4" high by 1 1/2" deep overall. Ship. wt., 2 lbs.

No. 103 Bradley Brass Plated Variable Condenser  
**YOUR PRICE, each \$0.50**

### Hammarlund Compensating Condenser



These are the standard Hammarlund compensating or trimmer condensers for use in ganging circuits or neutralizing. An item for which a thousand uses may be found. Variable from 2 to 35 mmfd. and from 20 to 100 mmf.

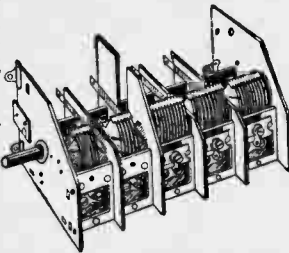
Shipping weight, 1 oz. Overall size, 1/2 x 1 1/2 x 1 1/4 in.  
**AN IDEAL ANTENNA-COUPLING CONDENSER FOR SHORT-WAVE RECEPTION**

Makes the receiver highly selective and sensitive, bringing in DX STATIONS never before received. Adjustment of center screw provides smooth noise-free variation of capacity. May be attached directly to binding post of socket or condenser.

No. 1742 Compensating Condenser 2 to 32 mmf.  
**YOUR PRICE \$0.12**  
No. 1743 Compensating Condenser 20 to 100 mmf.  
**YOUR PRICE \$0.30**

### 5-Gang All-Wave Variable Condenser

This condenser was originally designed for a full-fledged all-wave receiver. It consists of three sections of standard .00035 mf. capacity to cover the regular broadcast range and two sections of .00014 mf. to cover the short wave bands.

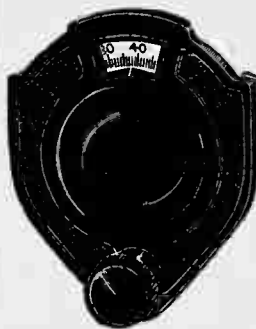


**JUST STOP TO CONSIDER THE POSSIBILITIES OF SUCH AN INSTRUMENT.** Ten and eleven tube all-wave super-heterodyne receivers can easily be constructed around it. Special experimental circuits may be tried out with it. In building all-wave sets around this unit, it is possible to have two separate receivers built on the same chassis—one for regular broadcast reception and the other for short waves, yet each is independent of the other.

This condenser is of the ball-bearing type and each section is fully shielded from the other. All rotors are grounded to the shaft. The three broadcast sections each have trimmers. The unit measures 6 1/2" long x 3 1/2" wide x 4 1/2" high. The shaft is 3/8" in diameter. Circuit connections to the rotors are made through special friction springs, thereby eliminating the usual radio interference when the rotors are tuned. Provisions are made for mounting the condenser in every conceivable way. Ship. wt., 3 lbs.

List Price \$7.00  
No. 1782 5 Gang All Wave Variable Condenser.  
**YOUR PRICE \$1.95**

### Kurz-Kasch Vernier Dial



The dial attaches to the shaft of the instrument to be tuned by the famous Kurz-Kasch Split Bushing method. Friction action employed—with a spring ever ready to compensate for wear. Vernier ratio 14 to 1.

**Excellent For Short Waves**

Short wave stations tune in very sharply and unless a high ratio vernier dial is used to rotate the tuning condensers, may be entirely missed by unnoticed. With the Kurz-Kasch Vernier Dial, the knob must be rotated 14 times before the calibrated scale revolves once, thus insuring extremely fine tuning results. Available in 3" and 4" sizes (specify which).

The outside of the dial is handsomely chased in a very decorative effect. Shipping weight, 1 lb.  
List Price \$2.00

No. 1580 Kurz-Kasch Vernier Dial  
**YOUR PRICE \$0.55**

### General Instrument .00035-Mf. 3 and 4 Gang Condensers

Complete with Trimmers—Ball Bearing Rotors

Present day receivers with their multi-tuned stages and carefully balanced circuits necessitate the use of variable condensers with supreme accuracy, compactness, and rugged construction—the latter to insure the maintenance of their calibration under varying conditions. All coupling effects have been eliminated in designing these gang condensers.



Each section is separated from the others by the solid metal frame and the rotors which are mounted on the 1/2 inch shaft are equipped with ball bearings at each end. Trimming condensers for aligning the tuned circuits are provided for each section. To insure noiseless operation, each rotor section is individually grounded with tension springs.

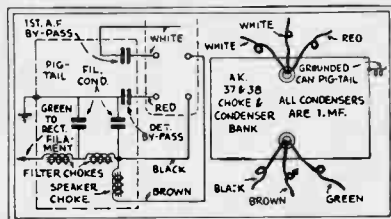
These condensers can be furnished in either three or four gang units. Each section has a 0.00035 mf. maximum capacity. The 3 gang units are 5 x 3 1/2 x 2 1/2 inches and the 4 gang units 6 1/2 x 3 1/2 x 2 1/2 inches. Shipping weights, 3 and 4 lbs respectively.

List Price—3 gang \$5.00 — 4 gang \$6.50  
No. F7008 General Instrument 3 gang Con. **\$1.10**  
**YOUR PRICE**  
No. F7014 General Instrument 4 gang Con. **\$1.50**  
**YOUR PRICE**

### Atwater-Kent 37-38 Filter Choke and Condenser Block



power pack for a receiver using a type 71A output tube you will need only a rectifier tube socket, a voltage divider, a power transformer, and this complete filter block; containing as it does the full complement of filters and by-pass units. It is of special interest that the filter chokes used in this pack have very high inductance. Consequently, to obtain a hum-free output it is not necessary to use higher value filter condensers than the two 450-volt, working potential, 1. mf. condensers supplied. The by-pass condensers also are 1. mf., but 300 volts working potential. The color code is as follows: Red leads, detector; "B", by-pass; green, to rectifier filament; black, to "B" plus of R.F. tubes; brown, to plate of power tube; two white leads, first A.F. "B" plus by-pass, the second or return white lead connecting to the center-tap on the first A.F. filament resistor. Dimensions, 3 1/4 x 1 1/2 x 5 in. Shipping weight, 6 lbs.



List Price, \$7.50

No. 1800-283 A. K. 37-38 Condenser Choke. **\$1.85**  
**YOUR PRICE**

### Hammarlund Padding Condenser

Used for trimming, aligning, compensating, and padding purposes wherever a high-quality, compact, adjustable condenser is required.



Mounted on special low-loss Isolantite base and adjusted by means of convenient machine screw. Two solder-dipped terminals provide for easy connections. Range 600 to 1,000 mmf. Ship. wt., 6 oz.  
List Price \$2.00

No. B7023 Hammarlund Adjustable Padding Condenser.  
**YOUR PRICE \$0.30**

### Peerless 7 Mfd. Replacement Block



May be used for replacement or in any receiver using 45 output tubes. Working voltage 500 volts. Coding is as follows: Red—2 mfd. 600 v., Blue—2 mfd. 400 v., White—High Voltage Common, Green—1 mfd. 300 v., Brown—1 mfd. 300 v., Yellow—5 mfd. 200 v., Orange—5 mfd. 200 v., Black—Low voltage common. Shipping Weight, 3 lbs. Overall Size, 5 1/2 x 2 1/2 x 3 1/4".

No. 1718 Peerless Replacement Condenser Block

**YOUR PRICE \$0.75**

**RADIO TRADING COMPANY, 100 PARK PLACE, NEW YORK, N. Y.**



# SILVER-MARSHALL AND PILOT POWER EQUIPMENT

NEVER BEFORE SOLD AT THESE PRICES and Probably NEVER AGAIN

## Silver-Marshall 220 Audio Transformer



Ratio 3 to 1  
Provides substantially straight amplification from 30 to 5000 cycles. After 5000 cycles the amplification falls off rapidly to compensate against static, regeneration squeals and noise level beyond the musical range. The turns ratio 3:1. For both first and second audio stage operation with all standard tubes. Completely shielded in case 4 x 3 1/4 x 3 1/4 inches. Shipping weight 6 lbs. List Price \$8.00

No. F7055 Silver-Marshall Audio Transformer. **YOUR PRICE \$0.70**

## Pilot Double 30 Henry Filter Choke

D.C. Resistance 500 Ohms Per Choke

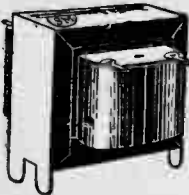


Every one is familiar with the quality of Pilot products. They are made to give reliable service for a lifetime. Two 30 Henry filter chokes, each capable of carrying as much as 60 mls are contained in a neat crackle finished metal case, measuring 5 1/4 ins. high by 4 1/4 ins. wide by 2 3/4 ins. deep. Three taps, brought out to a bakelite strip. Shipping weight 10 lbs. List Price \$3.00

No. P-395 Pilot Double 30 Henry Choke Unit. **YOUR PRICE \$1.75**

## Silver-Marshall Audio Transformer

Ratio 1.5 to 1



This audio transformer is useful as a replacement transformer for most sets. They are small in size, but have remarkably flat characteristics. Equipped with four mounting flanges to clamp on to chassis. The turns ratio is 1.5:1 which is suitable for either the first or second stage of an amplifier. The windings are sufficiently heavy to stand the plate voltages used on all standard tubes. Measures 2 1/2 x 2 x 2 inches. Shipping weight 2 lbs. List Price \$3.50

No. F7052 Silver-Marshall Audio Transformer. **YOUR PRICE \$0.60**

## Silver-Marshall 256 Audio Transformer

Ratio 3.5 to 1

This is a small completely shielded audio transformer especially designed for use between the first and second audio tubes. Has a turns ratio of 3.5 to 1. Its small size and high quality of design make it a useful piece of apparatus for the standard or the midjet type of receivers. Enclosed in an olive-green metal case with contacts on one side. May be used with any of the standard tubes in the position mentioned above. Size 2 1/2 x 2 1/2 x 2 inches. Shipping weight 2 lbs. List Price \$6.00

No. F7063 Silver-Marshall Audio Transformer. **YOUR PRICE \$0.75**

## Silver-Marshall 10121 Output Transformer



This output transformer is designed to couple the output of a '45 tube or a '50 tube to a dynamic speaker. Provided with tapped secondary to match impedance of different makes of speakers. Secondary may be used with 15, 30 or 60 ohm voice-coil speakers, by simply choosing the correct terminals.

In common with all transformers of this make, it shows fine workmanship and material. The core is unusually large for an output transformer, which measures only 3 x 2 1/4 inches and the weight of the complete unit shows indicated clearly the plentiful amount of core iron and winding length. This transformer is so well made that we recommend its use in place of the transformer supplied with your speaker. If you are not satisfied with its tone quality, provided of course, that the output tube in your set is one of those mentioned above. Overall dimensions 2 1/2 x 2 1/4 x 3 1/4 inches. Ship. wt. 3 lbs. List Price \$8.00

No. F7066 Silver-Marshall Output Transformer. **YOUR PRICE \$0.75**

## Silver-Marshall 7-Tube Power Transformer



No. 360  
For use with the '80 rectifier to energize a seven tube receiver. Transformer made to be used in Jackson-Bell receivers but is equally suitable for any medium-sized set. Like all other Silver-Marshall transformers, it has been made with extra heavy windings and core to guarantee uninterrupted service. Fully shielded in aluminum finished case. For 110 volt 60 cycle A.C. line.

Specifications: 350 volt high voltage center-tapped winding; 5 volt 2 amp. for '80 rectifier; and one 2 1/2 volt winding at 12 ampers. Bakelite strips on the bottom contain soldering lugs for connecting purposes. Equipped with electrostatic shield to prevent line noises from entering set. Measures 4 1/4 x 4 x 3 1/4 inches. Shipping weight 8 lbs. List Price \$15.00

No. F7060 Silver-Marshall Power Transformer. **YOUR PRICE \$3.75**

## Silver-Marshall 10-Tube Power Transformer

No. 346 — 25 or 60 Cycles

Heavy duty power transformer that will supply currents for sets up to 10 tubes. Here is just the transformer you have been looking for to complete that large Super-het receiver. For 110 volt A.C. line, either 60 OR 25 CYCLES.

These transformers have long been popular with radio constructors because of their generous design, conservative rating and hum-free operation. This transformer has a 375 volt plate supply, and contains one 2 1/2 volt 14 ampere winding as well as a 5 volt 2 ampere winding for the '80 rectifier.

In appearance the transformer is completely shielded in an aluminum finished case 5 1/2 x 4 1/2 x 4 inches. Two bakelite strips on the bottom contain the necessary soldering lugs for connections below the sub-panel or chassis. This is a Real transformer for the large receiver, one that can be depended upon to give uninterrupted operation without showing any heating effects. Shipping weight 13 lbs. List Price \$15.00

No. F7057 Silver-Marshall Power Transformer. **YOUR PRICE \$3.75**

## Pilot Filament Transformer

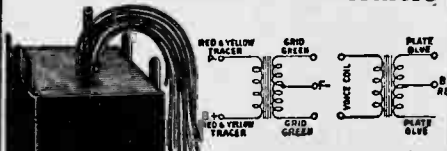
Supplies 1 1/2, 2 1/2 and 5 Volts



This is the filament transformer which was so popular two years ago when thousands of battery sets were being converted to the early electric models. It used to sell for as high as \$12.00. Now you can have it for only a fraction of that amount. This sturdily constructed transformer is capable of supplying 2 1/2 volts at 5 amperes center tapped, 1 1/2 volts at 4.2 amperes center tapped, and 5 volts at .8 amperes center tapped. The entire transformer is encased in a black crackle finished metal can, measuring 5 1/4 ins. high by 4 ins. wide by 3 ins. deep. Shipping weight 8 lbs.

No. P-388 Pilot Filament Transformer. **YOUR PRICE \$2.25**

## R.C.A. Push-Pull Transformers



Both input and output transformers of exceptional quality encased in a single shielded housing. To work from a single '27 tube into push-pull '71s or '45s. Output winding matches the average dynamic speaker voice coil. This unit is an exceptional opportunity for those desiring high quality coupled with the maximum compactness. Shipping weight, 4 lbs.

Overall Dimensions, 5 1/2 x 3 1/2 x 2 1/2". No. 1440 R.C.A. Input-Output Transformer Unit.

**YOUR PRICE \$1.45**

## Silver-Marshall 222 Output Transformer



Ratio 1 to 1  
For use between last power tube and magnetic loudspeaker to prevent "blasting" or damage to the speaker from direct current. Brings out the absent low notes, by virtue of the primary winding impedance being matched to the output impedance of the power tubes, and the secondary winding matching the impedance of standard magnetic speakers.

The transformer is completely shielded in a heavy metal container 4 x 3 1/4 x 3 1/4 inches and is equipped with four phone tip jacks for connection. Shipping weight 6 lbs. List Price \$8.00

No. F7054 Silver-Marshall Output Transformer. **YOUR PRICE \$0.60**

## Silver-Marshall 255S Audio Transformer

Designed for use between any standard detector and first stage audio amplifier to provide a desired rising curve of 65 to 8000 cycles, the same amplification at 55 cycles as at 1000 cycles, and a flat curve up to 5000 cycles. The effective ratio is 4.2 to 1. An ideal impedance matching transformer for coupling any magnetic phonograph pickup to an amplifying tube. When so used, it will boost the volume tremendously. Cased in a small black enameled shield can 2 1/2 x 2 1/4 x 2 inches. Shipping weight 2 lbs. List Price \$6.00



No. F7050 Silver-Marshall Audio Transformer. **YOUR PRICE \$0.75**

## Silver-Marshall Audio and Phono Coupling Transformer

No. 225R — Ratio 3.5 to 1

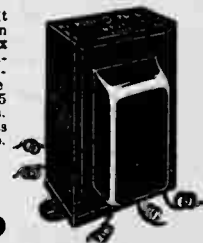
This transformer has the double purpose of being used as a coupling transformer for audio amplifiers and as a means of coupling a phonograph pickup to the amplifier. Same sturdy construction as the other models of this manufacturer. Has TWO SECONDARY WINDINGS, one for the amplifier and the other which acts as a coupling coil for the pickup when used. Five contacts are provided for the necessary connections. The transformer is cased in a heavy black-enameled shield can 3 1/4 x 2 1/2 x 2 inches. Ratio of primary to secondary 3.5:1. Shipping weight 3 lbs. List Price \$6.00



No. F7067 Silver-Marshall Audio and Phono Transformers. **YOUR PRICE \$0.90**

## Patent Shielded Push-Pull Input Transformer

A sturdily constructed unit designed for high precision work. Measures 3 1/2" high x 2 1/2" wide x 2 1/2" deep. Fully shielded in a black enameled metal case from the bottom of which protrude 5 highly insulated flexible leads. Will work into push-pull grids of practically all tubes. Ship. wt., 2 lbs.



No. 1682 Patent Shielded Push-Pull Input Transformer.

**YOUR PRICE \$1.50**

## T.C.A. Replacement Audio Transformer

This T.C.A. (Transformer Corp. of America) audio transformer is one of the finest ever made. Employs special heavy gauge iron core laminations which are more than three times the thickness of ordinary laminations. This assures high efficiency in operation. Has a ratio of approximately 5 to 1. Measures overall—2" high x 2 1/4" wide x 1 1/4" deep.

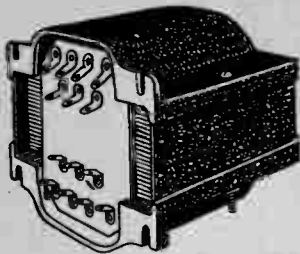
Provided with four long, flexible leads for convenient connections. The unit is semi-shielded by a wide metal strap which also provides for convenient mounting. Ship. wt., 3 lb.

List Price \$4.50  
No. B7082 T.C.A. Replacement Audio Transformer. **YOUR PRICE \$0.50**

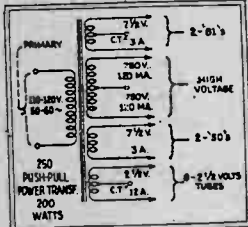
## Franklin 250 Push-Pull A.C. Power Transformer

200 Watts

EXCELLENT FOR TRANSMITTERS AND HIGH POWER APPARATUS



This large power transformer is designed to supply the current for 2-50's in push-pull, 2-81 rectifiers and 6 to 8-27's, 24's, or any other combination of eight 2 1/2-volt tubes. Provides for full-wave rectification of "B" and "C" voltages. The high voltage secondary provides the high potential of 1500



voltages obtainable from this power transformer, is approximately 12 watts.) No expensive line filter is required since the primary is already provided for 110-120 volts, 50-60 cycles. An ordinary voltage regulator of suitable wattage will tend to maintain an even voltage quite effectively. This is just the power transformer for building up theatre "talkie," outdoor public address, and large auditorium amplifiers. Has enough power to operate 6-8 dynamic speakers. Entirely shielded in metal case with insulated terminal strip at the bottom for sub-chassis wiring. Rating 250 watts. Dimensions, 4 1/2 x 4 1/2 x 4 1/2 ins. high. Weight, 10 lbs. For 110-120 volts, 50-60 cycles.

List Price \$20.00

No. 1434 Franklin 250 Push-Pull Power Transformer.

**\$4.95**

YOUR PRICE

## R. C. A. — VICTOR Replacement Power Transformer

For Radiola 80—82—86 Series



A sturdily constructed power transformer put up in a heavy metal shield case with convenient mounting flanges. Designed for concealed sub-chassis wiring.

Its universal characteristics makes it suitable for replacement work in the following receivers: Radiola 80—82—86; Victor 81—89—87; General Electric 31—51—71; Westinghouse WVR 5—6 and 7; Graybar 700—770 and 900.

Will handle the following tubes, four—224's two—227's, two—245's and one—280. Ship. wt. 8 lbs.

List Price \$15.00

No. 1088C R.C.A.—Victor Replacement Power Transformer.

**\$1.75**

YOUR PRICE

## Pilot Audio Transformers

Pilot audio transformers are classed among those which are so precisely engineered, as not to cut out at the higher frequencies and cause distortion. It is a unit to be recommended for all types of high quality work where tone quality is one of the prime requisites. Not only may it be used as an audio transformer but as an impedance matching or coupling choke by using either one of the 2 windings according to particular requirements. The entire unit measures 2 1/2 ins. high by 2 1/2 ins. wide by 3 ins. deep overall. Shipping weight 2 lbs.



YOUR PRICE

No. P-413 Pilot Audio Transformer Ratio 3 1/2 to 1

**\$0.80**

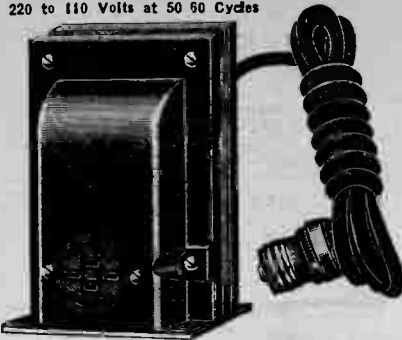
No. P-412 Pilot Audio Transformer Ratio 2 1/2 to 1

each

No. P-418 Pilot Audio Transformer Ratio 1 to 1. Used For Coupling Magnetic Speakers to Receivers.

## Radiart Step-Down Transformer

220 to 110 Volts at 50 60 Cycles



A fully shielded, ruggedly constructed stepdown transformer for use in conjunction with A.C. radio receivers, amplifiers, public address systems, and other radio and electrical apparatus rated at 110 volts 50-60 cycle where only 220 volts are available. Enables Canadians, Suburbanites and foreign radio enthusiasts restricted until now to reap the full benefits of the latest 110 volt A.C. radio developments. Accurately constructed with the proper turns ratio and fully shielded in beautiful black-enameled case.

May Be Used as Step-Up Transformer Too

By reversing the transformer, i.e., by using the secondary as the primary and the primary as the secondary it is possible to step up 110 volts at 50-60 cycles to 220 volts. It should be understood, however, that when used this way the transformer should not be subjected to as heavy a load as it would ordinarily stand when used to step down voltages. Sold complete with polarized bakelite outlet receptacle, 6 ft. heavy duty electric cable and two piece male-female plug. Guaranteed to give perfect results. Available in two sizes 75 and 150 watts. Shipping weight 7 lbs.

No. 1477 Radiart 75 W. Step-Down Transformer.

YOUR PRICE **\$2.45**

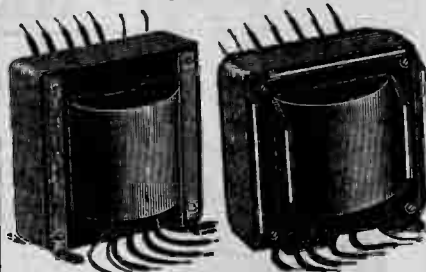
No. 1478 Radiart 150 W. Step-Down Transformer.

YOUR PRICE **\$2.95**

List Price \$10.00

## Amrad "245" Power Transformer

For "Bel Canto Model 81" Receiver  
90 Watts



A big, husky, power transformer of excellent design, particularly recommended to those technicians constructing or re-building radio sets where a case or cover of finished appearance is not a requisite, is Amrad Part No. 4189, a unit designed for the well-known "Bel Canto Model 81" series of radio sets.

When anyone speaks of a "standard screen-grid radio set," it is almost certain that the reference is a receiver having three stages of R.F. amplification, using type '24 screen-grid tubes; a detector,

using a type '27 tube; a first stage of A.F., using a type '27 tube; and an output stage using two type '45 tubes in push-pull. (The high voltage D.C. being obtained from a type '80 rectifier.) It is just this combination for which this Amrad power transformer is designed.

An electro-static shield (one of the flexible-wire leads) is situated between the primary and the secondaries. It is effective in preventing an objectionable "light-line antenna" action. This effect is manifest, in sets having power transformers not equipped with the shield, as clicks, fading, weak signals, or interference between stations; conditions well recognized by prominent engineers.

Available in two mountings: special, as "Model 81" replacement; and standard, for all other uses. For 110-120 volts, 50-60 cycles. Both measure, overall, 3 1/2 x 4 1/2 ins. high. Shipping weight, 10 lbs.

No. 8188 Amrad Power Transformer. **\$3.30**

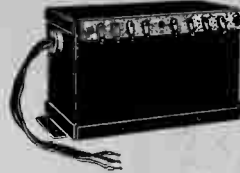
YOUR PRICE

No. 8189 General Power Transformer. **\$2.25**

YOUR PRICE

## Jefferson Power Pack—Choke Unit

For '26, '27, '71A and '80 Tubes



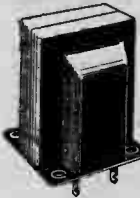
This unit consists of a standard Jefferson Power transformer and a 30 Henry 500 ohm filter choke. Both are mounted in a sturdy, compact, metal case, equipped with convenient terminal strips and mounting flanges. JUST THE THING TO CON-

VERT OLD TYPE BATTERY SETS INTO MODERN ALL-ELECTRIC AC RECEIVERS. The power transformer will safely handle 5-226's, 2-227's, 2-171A's and an '39 rectifier. The filter choke is of standard design and has sufficient DC resistance to cut down the high voltage to the requisite 180 volts for the plates of the 171A power tubes. The only additional parts necessary to construct a complete power pack for AC receivers, power amplifiers or public address systems are a filter condenser bank and a voltage divider. The transformer is designed for 110-120 volts 50-60 cycle operation, and has the following specifications 5 volts at 2 amps, 5 volts C.T. at 0.5 amps, 1 1/2 volts at 5.25 amps, 2 1/2 volts C.T. at 3.5 amps, and 500 volts C.T. at 60 mills. Complete instructions for hooking up and wiring are supplied with each unit. Ship. wt. 10 lbs.

No. F1499 Jefferson Power Pack—Choke Unit **\$2.45**

YOUR PRICE

## Philco Replacement Filter Chokes



Housed in attractive black metal cases, with contacts projecting through the bottom for concealed sub-panel wiring.

Has a resistance of 1500 ohms and inductance of 80 henries. An excellent replacement unit for Service Men. Useful in many ways both for set construction and repair work. Measures 2 1/4 x 2 1/4 x 3 1/4 inches. Shipping weight 3 lbs. List Price \$3.50

No. F7070 Philco Replacement Choke **\$0.38**

YOUR PRICE

## Genuine Kolster Power Transformer

Original Kolster Units—Not Substitutes

These transformers may be used either for replacement work in the models listed below or else for constructional uses wherever their specifications fit in. Sturdily constructed and made of extra heavy wire.

Equipped with a generous supply of iron core laminations to insure cool performance under heavy loads. All leads from the coils are brought out to soldering lugs on a bakelite strip at the bottom of the transformer. This arrangement is quite convenient for sub-chassis wiring.

Ship. wt., 12 lbs.

No.	Set	List Price	YOUR PRICE
3473	K20	\$10.00	\$4.50
5517	B15, K24		
	B15, K48	10.50	4.70
4204	K43, K48	11.00	5.40
4570	K38	11.00	6.00
2699	6H or K5	11.00	6.00
5412	K44	12.00	6.75
5772	K45	14.00	7.50

## Crosley Power Transformer

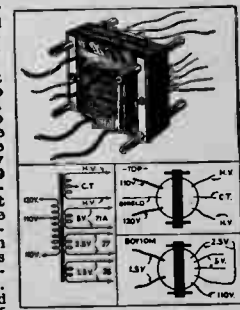
For 26—27—71-A Tubes

This heavy duty power transformer was designed for Crosley No. 104 power pack used in conjunction with the Crosley No. 602 band box receiver. It has sufficient capacity to take care of four 226's, one or two 227's, two 71-A's in a Raytheon type BH rectifier tube. The high voltage secondary winding supplies 250 volts each side of the center tapped at 60 mills. It is an exceptionally large transformer with an unusual amount of silicon steel core laminations which assures cool operation under heavy loads. The transformer should be used on 110 to 125 volts, 60 cycles A. C.

Eight corner posts make provisions for mounting the transformer on either side. The job measures 4 1/2 x 3 1/2 overall. Ship. wt. 12 lbs.

No. 1480 Crosley Power Transformer. **\$1.10**

YOUR PRICE



## Dumont Superior Built "B" Eliminator



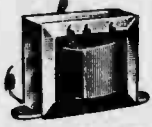
A sturdily constructed "B" eliminator employing ample filtration for the reduction of hum. Uses one '80 type tube for full wave rectification. Provides "B" power for receivers employing '71A tubes in push-pull. A "B" eliminator for the Service Man at an unheard of price. Provided with long connecting cord and ON-OFF snap switch, but no rectifier tube which must be bought separately. Shipping weight, 9 lbs. Overall dimensions 4x11x10".

List Price \$25.00  
No. 1648 Dumont Superior Built "B" Eliminator

**YOUR PRICE \$7.50**

## Peerless Push-Pull Output Transformer

Although designed primarily to work with 245 tubes in push pull arrangement, this high quality transformer will match perfectly the output of a single 247. When used in the latter capacity, the center tap of the primary is not used. Sturdily constructed on a heavy metal core. The secondary is designed to feed into any 8 to 12 ohm dynamic voice coil. Provided with convenient mounting brackets. Ship. wt., 6 lbs.



List Price \$6.00  
No. 81459 Peerless Push Pull Output Transformer.

**YOUR PRICE \$0.75**

## Majestic 70-90 Push Pull Output Transformer

Designed originally for use in Majestic models 70 and 90, this shielded, sturdily constructed output transformer can be used in any circuit employing push pull 71, 45 and 50 power tubes.

The secondary winding will feed into any type of dynamic speaker voice coil with an impedance of from 4 to 34 ohms. May also be used as an output transformer for a single 47 pentode by disregarding the center tap of the primary.

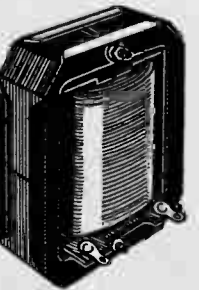
The entire unit is set up in a compact, metal can, measuring 3 1/2" x 2 1/2" x 2 1/2". Six flexible leads are provided for convenient connections: three for the primary, two for the secondary, and the remaining lead to ground. Ship. wt., 5 lb.

List Price \$7.00  
No. R7078 Majestic 70-90 Push Pull Output Transformer.

**YOUR PRICE \$0.50**

## Peerless 30 Henry Power Choke

A heavy duty power choke which will handle 150 mills without even getting warm. Designed especially for the old time large Peerless sets which drew a tremendous amount of current. Has a resistance of 500 ohms—a very convenient value for high power work where the voltage drop through the choke must not be too great. Excellent for public address power amplifiers and low power transmitters. It measures 3 1/2" by 2 1/2" by 3 1/2" overall. Equipped with two convenient strong lugs for easy connections. Shipping weight, 10 lbs.



No. 116 Peerless 30 Henry Power Choke.

**YOUR PRICE \$0.80**

## Eby Twin Tip Jacks

Here is just the thing for connecting an additional speaker to your set or for the aerial ground-connections. It consists of two phone tip jacks conveniently mounted in a bakelite form that can be mounted into a metal chassis without "shorting". It will accommodate either phone tips or heavy wire. List Price \$0.50



No. F7203 Eby Twin Tip Jacks.

**YOUR PRICE \$0.04**

## Heavy Duty Compression Type Variable Resistors



Type CSP

The Type CSP Super Clarostats are designed for heavy duty applications where variable resistors of high current handling capacity and wattage rating are required. They are available in three resistance ranges all rated at 250 watts.

All CSP units have a casing which is 3/8 in. in diameter and 2 1/2 in. in depth overall. Mounting bushing is 1/2 in. in diameter for mounting in a 1/2 in. or 9/16 in. hole and is long enough to permit mounting on a panel 5/16 in. thick. Because of the high wattage dissipation, however, it is desirable to mount the units away from the panel to permit maximum ventilation. These units are therefore provided with a special mounting bracket which sets the unit 1 1/2 in. back from the panel, making the distance between the panel and the rear of the unit (terminals included) 3 1/2 in.

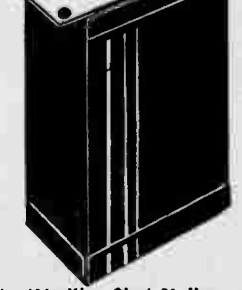
The Type CSP-1 Filament Range Super-power Clarostat has a resistance range of from 1/2 to 10 ohms, and is especially suited for speed control of variable speed motors up to 1/4 H.P. where a comparatively small variation of speed is required and where voltage does not exceed 200 volts.

The Type CSP-2 Low Range Super-Power Clarostat has a resistance range of from 25 to 500 ohms. Designed for use as a motor speed control for motors up to 1/4 H.P. where a fairly wide range of adjustment is required and where voltage does not exceed 300 volts. CSP-1 1/2 to 10 Ohm Variable Resistor.

The CSP-3 Universal Range Super-Power Clarostat has a resistance range of from 200 to 100,000 ohms. Ideally suited for heavy duty volume control applications, plate voltage control, and as a variable grid-leak in fairly high power amateur transmitters. Can be used in all circuits where the voltage does not exceed 500 volts. Shipping weight, 8 lbs.

CSP-1 1/2 to 10 Ohm Variable Resistor, YOUR PRICE \$3.15  
CSP-2 25 to 500 Ohm Variable Resistor.  
CSP-3 200 to 100,000 Ohm Resistor.

## King Giant 30 Henry Filter Choke



No. 104 King Giant 30 Henry Filter Choke.

**YOUR PRICE \$0.55**

## Crosley Double 30 Henry Filter Choke



The compact units were originally designed to be used in the Crosley No. 104 power pack. Although small in size they can stand a lot of gaff. It is an excellent unit for use in small public address amplifiers where space is at a premium. The unit is fully shielded and therefore may be placed in any position in either receiver or amplifier. Four conveniently located terminal lugs protrude from the side of each unit for easy connections. Each choke is read at 30 henries and has a D.C. resistance of 150 ohms at 60 mls. Ship. wt., 4 lbs.

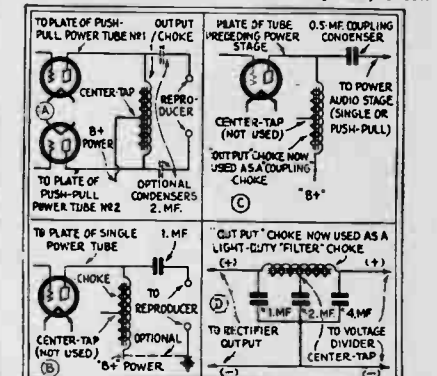
No. M-150 Crosley 30 Henry Double Filter Choke.

**YOUR PRICE \$0.75**

## Earl Output Choke



Center-tapped. May be connected push-pull, using '71A power tubes, with speaker wired from plate to plate (as in Earl Model 21 A. C.); or in plate circuit of single power tube, with speaker connected shunting the choke (as in Freshman Model 121). Current rating, 30 ma. May be used as the coupling choke in detector or first audio plate; or as the plate impedance in a "parallel-plate-feed" audio system, by using the full winding. A suitable filter choke, where only a few tubes are used. May be used to filter the plate supply to R. F., detector, or A. F. when by-passed by a condenser of at least 1.0 mF. capacity. Enameled wire, each layer insulated. Comes with mounting brackets. Core of high-grade iron laminations. Dimensions, 3x3x3 in. Ship. wt., 3 lbs.

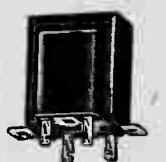


No. 1407 Earl Choke.

**YOUR PRICE \$0.75**

## Thordarson 3 to 1 Ratio Audio Transformer

A genuine Thordarson product, sturdily constructed. Has an extremely high degree of efficiency. May be used in all circuits where an interstage coupling transformer is needed. So compactly is it made that it may be used to advantage in nidget receivers. The unit is totally shielded in a black enameled metal can and has 4 long soldering terminals protruding from the bottom for concealed sub-chassis wiring. Two flanges on either side of the case permits easy mounting. Shipping weight, 2 lbs.



No. M-31 Thordarson 3 to 1 Ratio Audio Transformer.

**YOUR PRICE \$0.50**

## Genuine Crosley Power Pack

Here is your chance to own that auxiliary power supply that you have always wanted for your work bench. This pack was originally designed for use with the Crosley hand box receiver. Has provisions for supplying filament and plate voltages to the following tubes, 4-22's, 1-227, 2-71A's, and a BH type 14aytheon rectifier. This power pack originally sold for as high as \$22.00 but was forced down to its present low price by the advent of the new tubes. It is a first quality pack, never used before. It comes to you just as it was packed at the factory. Delivers approximately 225 volts pure D.C. without the slightest trace of hum.

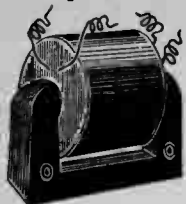


It is ideally suited to be used in conjunction with short wave receivers, low power transmitters and for many other purposes. All component parts are mounted in a handsome brown crackle finished metal case with hinged cover. Measures 10 1/2 x 14 1/2" overall. Ship. wt. 20 lbs.

No. C-602 Genuine Crosley Power Pack.

**YOUR PRICE \$3.95**

### Replacement Audio Transformer



This transformer is for replacement in the Ware receivers or in any other sets employing this type of mounting. 3/4 to 1-ratio. Shipping weight, 1 lb. List Price \$1.00

No. 1475 Replacement Audio Transformer.

YOUR PRICE **\$0.40**

### Fada Replacement Audio Transformer

This high quality audio transformer may be used for replacement in all FADA receivers or in other sets where a small but efficient transformer is required. Mounted in shielded case with soldering lugs for easy connection. Ratio 3/4 to 1. Shipping weight, 2 lbs.



List Price \$3.00

No. 1476 FADA Replacement Transformer

YOUR PRICE **\$0.45**

### Erla A. F. Transformer



This Erla product may be used for general service replacement in all radio receivers. With mounting feet and four binding posts at top for connections. Shipping weight, 1 1/2 lb. Overall size, 1 1/2 x 2 1/2 x 2 1/2".

No. 1424 Erla A.F. Transformer.

YOUR PRICE **\$0.75**

### Kolster Cylindrical Audio Transformer

This transformer may be used for replacement in those Kolster receivers employing the cylindrical type of transformer shield. They may be used as interstage transformers for replacement purposes in any receiver requiring a high quality device. Overall size 3/4 x 3 1/4" long. Shipping weight 3/4 lb.



List Price \$4.00

No. 1445 Kolster Cylindrical Audio Transformer

YOUR PRICE **\$0.65**

### Liberty Bell Ringing Transformer

110 V.A.C. to 8 Volts

Specially manufactured for energizing door bells, buzzers, etc. Aside from its conventional use however, the ingenious radiotician, serviceman or experimenter can adapt this unit to a variety of radio uses. **MULTIPLICITY OF RADIO USES**

Can be used as a microphone input transformer by using the low voltage winding as the primary. With the proper resistance in series it will easily light one of almost any type of radio tubes. Using this transformer (which incidentally is a featherweight compared to most filament transformers) as the "A" supply; one can readily build a portable one tube short wave or broadcast receiver. The transformer weighs less than even one ordinary dry "A" cell.

Ruggedly constructed of the finest material available, with heavy iron core laminations to reduce eddy current losses to a minimum. Equipped with two heavily insulated leads for the 110 volt A.C. line and two binding posts for the 8 volt A.C. secondary winding. Put up in an enameled metal shield case. Shipping weight, 1 lb.

List Price \$1.75

No. 1470 Bell Ringing Transformer

YOUR PRICE **\$0.60**

### Mignon Audio Transformers

Midget Sizes



Mignon audio transformers are precision instruments of advanced design and construction. The experience of more than 20 years of scientific development are in the construction of these transformers.

For use on any type receiver or amplifier.

Sealed in enamel metal case to prevent moisture from getting into the coils. Highest grade materials are used in the manufacture of these transformers. Special laminated core and also nicked binding posts mounted on Bakelite insulation. This midget type is for sub-panel mounting. Shipping weight, 2 lbs.

List Price \$2.50

No. 1438 Mignon Cub Transformer

YOUR PRICE **\$0.70**

### Thordarson 30 Henry Choke



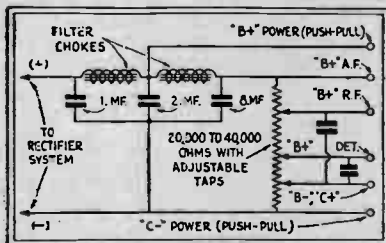
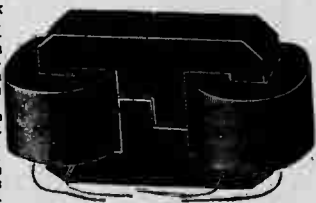
A 30 Henry choke for use in coupling output tubes to magnetic speakers or in small "B" eliminators or midget receivers as a filter choke. Complete with mounting brackets and provided with soldering lugs for connection. A general purpose replacement choke for any receiver where a 30 Henry choke is required. Shipping Weight, 1 lb. Overall Size, 2 1/2 x 2 1/2 x 3 1/2 in.

No. 1442 Thordarson Choke.

YOUR PRICE **\$0.65**

### Earl 30 Henry Double-Choke

Power pack filter choke. Two enameled-wire windings on a "B"-shaped iron core. Use in packs for single and double "71A" output tube receivers. Very compact. Fine for jobs where space is at a premium. Maximum current, series connected, 45 ma.; if parallel connected, 90 ma. Suitable for filtering the supply to a photoelectric pre-amplifier, a small microphone or phonograph pick-up amplifier, or a single-stage power amplifier using a single "16" or "45". Adjustable air-gap. Dimensions, 2 1/2 x 2 1/2 x 4 1/2 in. Shipping weight, 3 lbs.

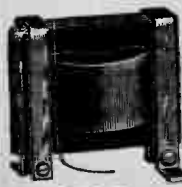


List Price, \$6.50

No. 1406 Earl Double Choke.

YOUR PRICE **\$1.00**

### Earl 30 Henry Filter Chokes



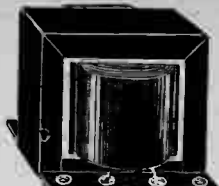
A neat filter choke of small dimensions. May be used in all "B" supply units up to 250 volts where the current does not exceed approximately 80 m. a. Laminated iron core having air gap; impregnated as a protection against atmospheric action. Equipped with pig-tail leads one of which is timed for identification. Two strap irons hold laminations in place and provide two mounting feet. Shipping Weight, 1 lb. Overall Size, 1 1/2 x 3 x 3 in. high.



No. 1443 Earl 30 Henry Filter

Choke. YOUR PRICE **\$0.60**

### Kolster High Inductance Audio Transformer



This is an unshielded transformer having a high primary inductance for working from a "bias" detector into the first A.F. stage. It is excellent for use in any receiver using this type of detection where a high inductance winding is necessary for good quality. Kolster part No. 1937B.

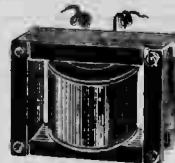
Either the primary or secondary of this unit when used in conjunction with a 1 mfd. condenser may be employed as an output filter system which improves the tonal qualities of any receiver or amplifier and which protects the loud speaker from the injurious direct plate current. Shipping weight, 3 lbs.

List Price \$4.00

No. 1439 Kolster High Inductance Audio Transformer.

YOUR PRICE **\$0.75**

### RCA 15 Henry Filter Chokes

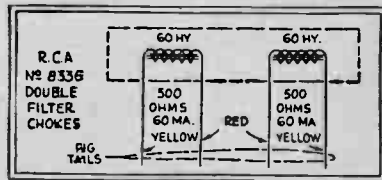


These filter chokes have an inductance of 15 hy. at 40 M.A. and have a D.C. resistance of 500 ohms. Two of these chokes connected in series give a total inductance of 30 hy. They may be used to effect an inexpensive replacement in most "B" eliminators or electric sets. Shipping weight, 2 lbs.

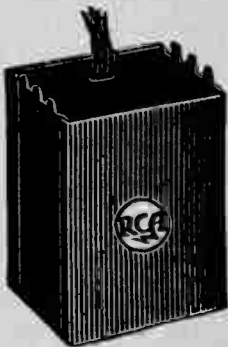
No. 1417 RCA 15 Henry Filter Choke.

YOUR PRICE **\$0.25**

### R.C.A. Double Filter Choke No. 8336



This heavy-duty, extremely strong, double filter choke can be used for all types of filter circuits, experimental work, power amplifiers, receivers, eliminators, power packs, converted sets, etc. Known as R. C. A. replacement part for all Radiola models, particularly Nos. 33, 51, 17 and 18. Each choke is designed for 1,000 volts, D. C. resistance, 500 ohms. Connected in parallel, these double filter chokes have a capacity of 15 Henries at 160 Mills; connected in series, 60 Henries at 80 Mills. Fully shielded in heavy metal case with special insulating compound. Size, 5 1/2 x 3 1/2 x 2 1/2. Shipping weight, 6 lbs.



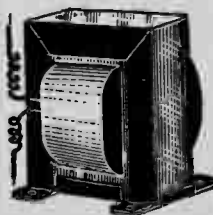
List Price, \$10.05.

No. 8336 RCA Choke.

YOUR PRICE **\$0.60**

### Kolster Heavy Duty Filter Choke

30 Henries—110 Mills



Manufactured by the Kolster Co. for their 210 and 250 push-pull receivers. Will safely handle 110 mills plus an overload of 15%. Replacement for Kolster models 20, 21, 22, 23 and for Columbia models C-1, 2, 3 and 4. Standard 30 Henry filter choke with a D.C. resistance of 500 ohms. Sturdily constructed and provided with excellent mounting facilities. Measures 3 1/2 x 2 1/2 x 1 3/4". Shipping weight, 3 lbs.

List Price \$2.75

No. 1488 Kolster Heavy Duty Filter Choke

YOUR PRICE **\$0.75**









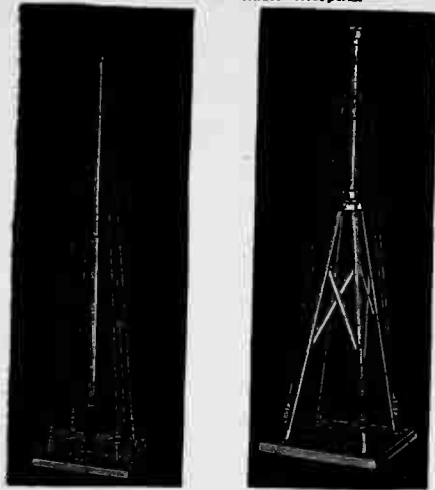






## Morris Umbrella Antennas

The Ultimate in Radio Reception



It is a well established physical fact that in order to absorb a maximum amount of energy from passing electro-magnetic radio waves, a conductor (aerial) must be absolutely perpendicular i.e. at right angles to them. The smaller the angle of incidence with respect to the wave front i.e. the further the antenna is brought away from the perpendicular, the smaller is the amount of current induced in it.

The nearest approach to the ideal vertical antenna are the Morris Umbrella Aerials as illustrated above. These consist of either a single mast or a tower, supported by four well insulated guy wires which constitute the antennas.

**INCREASES SELECTIVITY—SENSITIVITY—RANGE**  
Antennas such as these are absolutely non-directional. Improve reception, increase selectivity, treble distance range and reduce static interference. Easily and quickly mounted in a minimum of space. Constructed of the finest material available in two different types.

**No. 2151 MORRIS UMBRELLA MAST**, complete with wires, insulators, roof bracket for pipe, etc., approximately 6 ft. high; mast is adjustable. Shipping weight, 6 lbs.

**YOUR PRICE** List Price \$3.00 **\$1.92**

**No. 2152 MORRIS UMBRELLA TOWER**, complete with tower extension pipe, insulators, pick-up wires and lead-in wires. Can be extended any length by adding section of 1/2" pipe. Shipped in collapsible form. Shipping weight, 7 lbs.

**YOUR PRICE** List Price \$4.00 **\$2.65**



### Copper Aerial Wire

100 Ft. Coils

Seven stranded, highly tensile copper antenna wire. Manufactured to withstand safely all conditions of antenna strain. Sold only in 100 ft. rolls. Shipping wt. 2 1/2 lbs.

No.	Description	List Price	YOUR PRICE
1950	7/25, 7 strand, bare	\$0.35	<b>\$0.20</b>
1951	7/24, 7 strand, bare	.45	<b>\$0.30</b>
1952	7/22, 7 strand, bare	.55	<b>\$0.38</b>
1953	7/22, 7 strand, enameled	.60	<b>\$0.42</b>
1954	7/22, 7 strand, tinned	.60	<b>\$0.42</b>

### Window Lead-in Strip



A soft copper lead-in strip, heavily insulated with flexible weatherproof sleeving. Easily bent into any size or shape window sash. Will not interfere with the closing of windows. Equipped with two Fahnestock binding posts for making easy connections. Absolutely essential for noise-free reception. Shipping wt., 2 oz.

No.	Size	List Price	YOUR PRICE
2153	12"x3/4"	\$0.25	<b>\$0.04</b>
2154	15"x3/4"	.30	<b>\$0.06</b>

## Standard Aerial Kit



A complete antenna kit packed in a strong two piece box. Contains the following items: 50 ft. solid copper, rubber covered lead in wire; 100 ft. 7 strand copper antenna wire; 2 Porcelain Nail Knobs; 2 Porcelain Insulators; 1 Lightning Arrester; 1 9-inch copper ground clamp; 1 12-inch window strip lead-in. Shipping weight, 3 lbs.

List Price \$1.00  
No. 1633 Aerial Kit  
**YOUR PRICE** **\$0.65**

## Indoor Aerial Ribbon

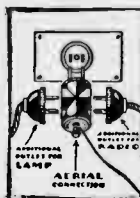


**Superior Grade**  
We do not sell a second, and cheaper grade.

A woven metallic tape for stringing behind picture moulding or under rugs in making indoor installations. A boon to the service man who has to make indoor antenna installations. In 100 ft. rolls.

Shipping weight, 1 lb. List Price, \$1.00.  
No. 1632 Indoor Aerial Ribbon.  
**YOUR PRICE** **\$0.33**

## Dumont Socketenna



This device is equipped for either plug or screw connection to the electric light line and has two receptacles for the radio receiver and such other equipment as must be connected to the line. Utilizes the radio frequency energy picked up in the power supply line and has two receptacles for the usual outside antenna. Away with a portion of the static interference so annoying in some localities. May be used on A.C. or D.C. circuits. Shipping weight, 1/2 lb.

List Price \$1.25

No. 1647 Dumont Socketenna  
**YOUR PRICE** **\$0.69**

## Hook-Up Wire



Hook-up wire of the same kind that is used in all manufactured receivers. Push-Bak feature eliminates the necessity for stripping and definitely speeds up work in wiring receivers or amplifiers. Core of No. 18 tinned copper wire for easy soldering covered with two layers of impregnated fabric which will not unravel. Shipping weight, 1 lb.

No. 1660 Hook-Up Wire. 25 foot coil. **\$0.17**  
No. 1661 Hook-Up Wire. 50 foot coil. **\$0.33**

## Rubber-Covered Hook-Up Wire

For ordinary and high voltage work. Stranded copper wire (tinned for easy soldering) covered with flexible rubber insulation which will not become brittle and crack under any conditions of surrounding heat or weather. Recommended for 250. pentode and transmitter construction and repair work. Shipping weight, 1 1/2 lbs.

List Price \$0.50  
No. 1663 Rubber-Covered Hook-Up Wire 25 ft. Coil. **\$0.18**  
List Price \$1.00  
No. 1664 Rubber-Covered Hook-Up Wire 50 ft. Coil. **\$0.35**

## Pipe Ground Clamp



This clamp is, without reservation, the truly ultimate in ground clamps. The most handy, most efficient, most popular and most easily-mounted ground clamp that has ever been produced. Affords a solid, positive electrical connection right through paint, dust, oil or grit. Is provided with screw binding post for making easy connections. Shipping weight, 4 oz.

List Price \$0.10  
No. 2161 Pipe Ground Clamp **\$0.06**  
List Price \$0.55  
10 for \$0.55

## I.C.A. Insultenna-Aerial Eliminator

NO MORE OUTDOOR AERIAL



Here is an amazing development, the result of painstaking and indefatigable engineering research, which completely eliminates the necessity for either outdoor or indoor antennas. The principle of the Insultenna is as unique and novel as it is radical. Hidden inside its neat, compact case is a new type filtered aerial wire and several condensers all of which give it the capacity of 75 feet of ordinary antenna wire. Here is an item which every serviceman should carry in his kit and demonstrate to his clients. It requires no sales ability or explanations. Merely hook it up and it's sold. No more hazardous adventures on the roof, installing aerials, no more blown down or snapped antennas; install an Insultenna and then forget about it. It requires no attention or servicing.

**NOT A LIGHT-SOCKET ANTENNA**  
Insultenna is not a light-socket antenna and has no connection whatsoever with the electric light current line, hence eliminating any possibility of A. C. hum. It is quite free from interference and man-made static; a 100% efficient, fool-proof model aerial substitute. Small (5"x2 1/4"x1"), neat, compact. Shipping weight, 2 lbs.

List Price \$2.50  
No. 2150 I.C.A. Insultenna  
**YOUR PRICE** **\$1.47**

## Aerial Insulators



Made of extremely tensile porcelain compound. Will not snap under any conditions of antenna strain. Sheds water easily, and therefore will not short antenna to ground in rainy weather. Sold only in lots of 10. Shipping weight, 3 lbs. for 10.

No.	Description	List Price per 10	YOUR PRICE per 10
2155	Porcelain Insulators 2 1/2"	\$0.50	<b>\$0.19</b>
2156	Glass Insulators 3 1/2"	.65	<b>\$0.35</b>
2157	Nailit Knobs Insulators	.40	<b>\$0.15</b>

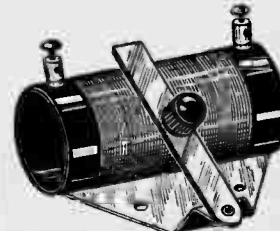
## Approved Lightning Arrester



An accurately built, highly efficient lightning arrester, permanently sealed in a high grade heat-resisting enameled porcelain cast. Equipped with antenna-ground binding posts and two mounting holes. Approved by Underwriters Laboratories. Each arrester is individually boxed. Shipping weight, 1 lb.

List Price \$0.25  
No. 2159 Approved Lightning Arrester **\$0.06**  
**YOUR PRICE** 12 for \$0.65

## Radio Klear-Tuner



A simple but effective wave trap for minimizing interference and noise. Consists of a fixed condenser together with an inductance varied by means of a slider. A readily saleable article for the service man in congested districts.

Shipping Weight, 1 lb.  
List Price \$1.00  
No. 1634 Radio Klear-Tuner. **\$0.60**  
**YOUR PRICE**

## Porcelain Screw Eyes



For insulating or "standing off" lead-in wires, antennas, communication wires, etc., from buildings, trees, and other grounded objects. Helps eliminate static and other objectionable noises. Sold only in 25 lots. Shipping weight, 4 lbs.

No.	Description	List Price per 25	YOUR PRICE per 25
2162	Screw Eyes, porcelain 3"	\$0.95	<b>\$0.66</b>
2163	Screw Eyes, porcelain 6"	1.20	<b>\$0.90</b>



## PORCELAIN BASE KNIFE SWITCHES

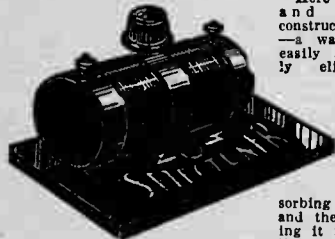


Fine quality porcelain base knife switches with highly tempered non-corrosive spring contacts. Under side of base is properly grooved to permit the passage of wires without interfering with the mounting of the switch. Do not confuse with cheaper and lower grade switches of this type. Shipping weight, 1/4 lb.

No.	Type	List Price	YOUR PRICE
2050	S.P.S.T.	\$0.30	\$0.10
2051	S.P.D.T.	.40	\$0.14
2052	D.P.S.T.	.50	\$0.18
2053	D.P.D.T.	.60	\$0.22

## I.C.A. Selectuner

Station Selector and Static Reducer Cuts Through Locals for DX Reception



Here is a unique and scientifically constructed device—a wave trap—that easily and effectively eliminates all traces of interference. Tunes accurately to the wave-length of the interfering station, completely absorbing its energy and thereby preventing it from reaching the receiver.

Selectuner separates stations over entire wave band on any type of receiver and cuts through the locals and enhances the quality of reception. Installed without the use of tools and does not require any circuit changes. Made of genuine Bakelite handsomely finished in gold and black. Small and compact. Can be installed in any convenient place. Shipping weight, 3/4 lb.

List Price \$1.50

No. 1885 I.C.A. Selectuner  
YOUR PRICE

\$0.88

## Ground Clamp



Provides good, clean electrical contact. Shipping weight, 2 oz.

List Price \$0.10

No. 2158 Ground Clamp  
YOUR PRICE

\$0.04

## "Super" Aerial Eliminator



This aerial eliminator equals and in some cases actually surpasses ordinary outdoor antenna installations. No current whatsoever is required for its operation. This is not merely another socket antenna but rather a specially designed unit which has an actual capacity of the average outdoor 75 ft. antenna strung at a height of 50 feet. Increases sensitivity and fidelity of reception on both local and long distance stations. ABSOLUTELY GUARANTEED TO PRODUCE EXCELLENT RESULTS. Completely does away with the outdoor aerial and its attendant lightning dangers, unsightly poles, guy wires, mutilation of woodwork when bringing in lead-in wires, etc.

The "Super" Aerial Eliminator is easily installed by anyone without tools in a minute's time, and is fully concealed within the set. Full instructions for installing furnished with each set. Measures 3 1/2 in. x 2 in. diam. Shipping weight, 1 1/2 lbs.

List Price \$3.00

No. 1887 "Super" Aerial Eliminator  
YOUR PRICE

\$0.79

## Pearl-Top Push Button Switches

Excellent suited for bell circuits, test panels, analyzers, etc. All metal parts nickel plated to guard against rust. Measures 1/2 in. diameter. Contact blades made of tempered spring metal, assuring fool-proof action at all times.

No. 306 Pearl Push Button Switches  
YOUR PRICE, each

\$0.18

## Two-Conductor Tinned Electric Cable



A highly flexible, two-conductor cable excellently suited for speaker and remote control extension work. 18 strands of finely tinned copper wire per conductor. Heavily insulated with rubber, then twisted and finally covered with black cotton covering. Sold in coils of not less than 25 feet. Shipping weight, 4 oz. per ft.

List Price \$0.08 per ft.

No. 1985 Two-Conductor Tinned Electric Cable  
YOUR PRICE, per 25 feet

\$0.75

## Heavy Duty Twelve-Conductor Power Cable



This power cable was designed originally to connect A.C. receivers to their power packs. The early A.C. receivers employed separate power packs, placed at a distance in order to minimize radio noises. This cable was the connecting link between power pack and receiver. Incorporates, in addition to the usual sets of twisted heavy-duty wire for carrying large amount currents. One pair of twisted wires in particular, will carry more than 15 amperes. The other wires are for various "B" and "C" voltages.

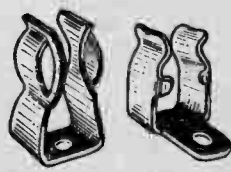
All wires are color-coded for easy identification. The cable is ideal for connecting heavy duty power amplifiers to associated equipment, etc. Ship. wt. 2 lbs.

List Price \$2.50

No. B7220 Heavy Duty Twelve-Conductor Power Cable.  
YOUR PRICE

\$0.40

## Fuse and Panel Clips



The fuse clips are made of highly tempered phosphor-bronze alloy and will not tarnish or corrode under any circumstances. Aside from their conventional use as fuse mounts, they are admirably suited for and will tenaciously engage all grid leak type resistors. Most service men and experimenters prefer this type of resistor mounting to that of the pigtail type since they make a neat, professional-like appearance.

The panel clips are made of tempered spring metal and are a bit smaller than the fuse mounts. In actual use, however, they serve the same purposes as the fuse clips. Shipping weight, 4 oz. Sold in envelope of 12 or larger quantities.

No.	Type	Envelope of 12 YOUR PRICE
2062	Fuse Clips	\$0.24
2063	Panel Clips	\$0.10

## REMINDER

Complete Index on Page 106

Rush Order Blank on Page 104

## Celotex Baffle Boards

For All Dynamic and Magnetic Reproducers



Radiotricians, experimenters and fans! Here is a sure cure for speaker distortion. Distortion is caused by the "mixing" or "beating" of the two trains of oscillation which are set up by the reciprocal motion of the speaker cone.

**EXCELLENT SOUND INSULATOR**  
"Insulate" these two sets of vibrations from each other and you automatically cure your speaker troubles. Celotex is the best, least expensive sound insulator ever developed—guaranteed to be sound proof.

Fit a celotex baffle board into your speaker cabinet—set the cone of the speaker firmly against the edge of the hole and then turn on the radio. Rich, mellow music—deep, soothing speech will flow from your speaker. You will be amazed.

No.	Size	List Price	YOUR PRICE
1584	12 x 12"	\$0.60	\$0.30
1585	18 x 18"	1.40	\$0.80
1586	21 x 24"	2.40	\$1.40

No.	Size	List Price	YOUR PRICE
1592	12 x 12"	\$0.50	\$0.28
1593	18 x 18"	1.00	\$0.60
1594	24 x 24"	2.00	\$1.20

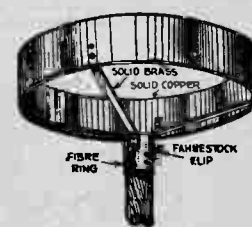
All above sizes are with 7/8" holes. Special sizes cut to order at 60¢ per square foot.

To compute the shipping weight of the various sizes proceed as follows: Convert the dimensions given above, which are in inches, to feet; multiply them together and then since 1 square foot weighs 1 lb. you automatically have your weight of the baffle board. To this weight add 1 lb. for packing material; this final result is your shipping weight.

For example 12" x 12" of a 1 1/4" thick baffle board is equivalent to 1' x 1' or 1 square foot, which weighs 1 lb. To this add 1 lb. for shipping material and you have the shipping weight of 2 lbs.

Order by catalog number and size of baffle board.

## R.T.C. Non-Directional Antenna



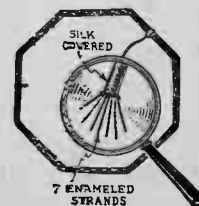
An excellent circular antenna for short wave, broadcast and television reception comprising 133 square inches of solid sheet copper. Approaches the ultimate in neat, compact, easily installed antenna systems. RECEIVES ALL WAVE LENGTHS UNDER ALL CONDITIONS FROM ALL DIRECTIONS. Affords clearer radio reception from greater distances with remarkable volume.

Provided with insulated mounting ring for attaching to flag pole or any other type pole of either wood or iron. The lead-in wire is connected to the antenna through the medium of a Fahnestock phosphor-bronze spring clip, affording perfect electrical contact. Measures 14" in diameter and 6 1/2" deep. Shipping weight, 2 lbs.

List Price \$3.50  
No. 2170 R.T.C. Non-Directional Antenna  
YOUR PRICE

## Litz Wire for High Frequency Work

For Short Wave Work



It is generally understood that high frequency currents travel along the surface of a conductor. It is therefore, better to use stranded wire (which offers considerably more surface than solid wire) for all RF and antenna circuits. Litz wire has been universally accepted as the best type adaptable to short wave work. This wire consists of 7 strands, each of which is individual silk-waxed to prevent losses. We unhesitatingly recommend it for the construction of short-

wave as well as broadcast RF coils. Sold only in 100 ft. roll. Ship. wt., 8 oz.  
No. 1459 100 Ft. Roll of Litz Wire  
YOUR PRICE

\$0.30



## Lynch Noise-Reducing Antenna Equipment

### Transposition Blocks



It may be safely said that nine-tenths of all noise reproduced by a radio is picked up by the antenna system. A recent intensive study of the causes of antenna noise has brought the discovery that the antenna lead-in wire was alone responsible for practically all noise pick-up.

By transposing the lead-in wire, however, all extraneous noise was immediately eliminated. (See the front part or editorial section of this catalog for a detailed discussion on the method of antenna noise elimination.)

The mechanical design of these transposition blocks reduces electrical losses in the antenna circuit to an absolute minimum and offsets the ravages of weather and moisture, thus assuring the greatest possible signal strength.

Greatest attention has been given to the design to enable the transposition blocks to be placed in service with the least possible effort but with the greatest amount of security. Although extremely light, they are exceedingly durable and tensile. Sold in kits of 10 blocks. One kit is sufficient for a lead-in of 1 1/2 feet long; 2 kits for 2 3/4 feet long; 3 kits for 3 3/4 feet long; 4 kits for 4 3/4 feet long; 5 kits for 5 3/4 feet long, etc. Shipping weight, 3 lbs. List Price \$2.75 per kit.

No. 2165 Kit of 10 Transposition Blocks **\$1.65**  
YOUR PRICE

### Lynch Cage-Aerial Spreaders



Where the cage type aerial is to be used, in order to take advantage of its great pickup qualities and non-directional properties, the new Lynch cage-aerial spreaders are highly desirable.

They are made of a new low-loss insulation material called Lynchite. Cage-antenna systems are widely employed by many large radio broadcast transmitting companies. Such antenna

systems are in regular use in connection with international broadcasts which are picked up on short waves and re-broadcast over the regular networks. These improved spreaders now available to the broadcast listener, the short wave and television experimenter and the amateur for the first time. May be used advantageously in amateur transmitting systems. Sold only in kits of 10 spreaders. Ship. wt. 2 lbs. List Price \$2.75 per kit.

No. 2166 Kit of 10 Cage-Aerial Spreaders **\$1.65**  
YOUR PRICE

### Lynch "U. S. Navy Standard" Antenna Insulators



There is, next to the reduction of the interference which is usually picked up by the lead-in wire, one other serious drawback encountered with ordinary receivers. It is the loss in the antenna circuit, resulting from the electrical "leakage" across the antenna insulators. These Lynch insulators are made of the new Lynchite material which has an extremely high tensile strength and low high frequency "leakage" losses. Insulators of this type are in constant use in the Navy Signal Wave Experimental Laboratory as well as in many of the most important commercial services of the world. Sold only in kits of 8. Shipping weight, 2 lbs. List Price \$2.00.

No. 2167 Kit of 8 Lynch Insulators **\$1.20**  
YOUR PRICE

### Lynch "Commercial" Antenna Insulators

For installations which do not require the tensile strength of the Lynch "U. S. Navy Standard" Antenna Insulators, Lynch "Commercial" type insulators are ideal. They are made of a high grade moulded and pulled vulcanite. These insulators have a highly polished surface, which resists the accumulation and absorption of moisture, they are so designed as to assume a position perpendicular to the earth and high frequency losses are reduced to a marked degree. Sold only in kits of 8. Shipping weight, 2 lbs. List Price \$1.25 per kit.

No. 2168 Lynch "Commercial" Antenna Insulators **\$0.75**  
YOUR PRICE

Gentlemen: Allow me to compliment you on your method of depicting diagrams in your catalog under the heading Radio Service Treatise. It is indeed a privilege and a pleasure to look over the different book-ups, etc. Let me congratulate you for being a pioneer in diagrams. Your radio technical editor who is responsible for those splendid diagrams is a thoroughly trained radio man.

L. H. MARSHALL, Stamford, Conn.

## UNEEDIT DRY-CELL BATTERIES



UV-30F



UV-3-D



No. 6

For All Types of "A"—"B"—"C" Work  
Uneedit batteries are made of the highest grade ingredients under careful and scientific supervision. The chemical formula employed in constructing these batteries is such that the operating life imparted to them is far beyond that of most batteries on the market. The standard, 45 volt battery is usually employed on receivers using from 1 to 4 tubes. The standard 45 volt heavy duty battery is employed with receivers and amplifiers using more than 4 tubes. The small 22 1/2 volt battery is excellently suited as a "B" supply for portable receivers and amplifiers. It may also be employed as "C" potential for power tubes. We recommend that these batteries be shipped via express collect rather than parcel post due to their purpose unit for radio and all other types of service.

Cat. No.	Description	Shp. Wt.	YOUR PRICE
UV-30-D	Standard 45 Volt "B" Battery	9 3/4 lbs.	<b>\$0.98</b>
UV-30-F	Heavy Duty 45 Volt "B" Battery	13 3/4 lbs.	<b>\$1.44</b>
UV-3-D	4 1/2 Volt "C" Battery	1 lb.	<b>\$0.40</b>
6	No. 6 Dry Cell	2 lbs.	<b>\$0.30</b>
UH-15-B	22 1/2 Volt "B" & "C" Battery	1 lb.	<b>\$0.80</b>

### Lynch "All-Wave" Antenna Coupler



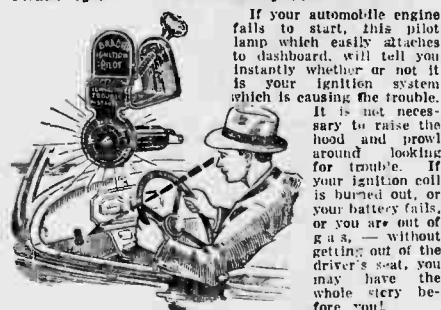
While it is possible to secure much more satisfactory results by the application of the transposed lead-in, alone, over the usual ground and aerial system, the best results are obtained when there is no connection between the receiver itself and the regular ground. The best way to accomplish this result is to have a winding which is connected with the two leads of the transposed lead-in system and placed in inductive relation to the first tuned circuit in the receiver. There are many receivers, in which this connection cannot be made without considerable trouble. The two leads of the antenna system, itself should be balanced. In the Lynch "All-Wave" antenna Coupler, all these functions are brought about automatically. It enables us to secure the best possible results from the various noise-reducing antenna systems, without regard to the wave length on which we desire to receive. Shipping weight, 1 lb. List Price \$1.75.

No. 2169 Lynch "All-Wave" Antenna Coupler **\$1.05**  
YOUR PRICE

## A NEW INVENTION

### Neon Automobile Ignition Pilot

Locates Ignition Troubles Instantly From Driver's Seat



### ADDS SAFETY TO FREE WHEELING

Many people object to free wheeling because of the danger of discovering too late that the motor has gone dead while coasting. This neon ignition pilot is the only practical solution of this condition. If you have a radio in your car and the ignition system affects your reception, it may be improved by bypassing this interference through the neon ignition pilot. This simple, but effective unit, cannot cause the slightest trouble or shocks because here is absolutely NO CONNECTION to any live operating part of any electrical circuit in the car. It operates entirely through insulation on the waste current escaping through the insulation from your ignition system. May be used on all types of cars, trucks, buses, motor boats, etc. The neon ignition pilot is installed in a few minutes without the use of tools. Easily understood instruction on how to install as well as further information on its many uses accompany each unit. List Price \$1.70.

No. 2542 Neon Automobile Ignition Pilot **\$1.25**  
YOUR PRICE

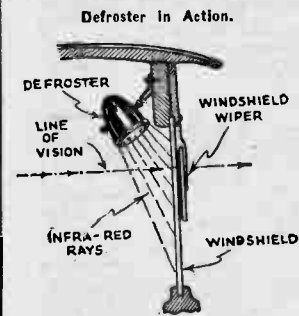
DEALER'S PRICE—In lots of 6 or more; each **\$0.98**

### Auto-Windshield Defroster

Generates Infra-Red Heat Rays  
FOR USE ON ALL TYPES OF CARS



Here is a device without which no autoist should drive his car in the winter time. It is a cleverly constructed unit which operates on the same scientific principles as the numerous health-ray machines used in hospitals, health resorts, etc. The infra-red rays generated by this instrument have the property of passing through air and glass without radiating heat. As soon as they strike an obstruction, however, such as sleet, snow, etc., they immediately produce sufficient heat, to melt the snow on the outside and defrost the windshield on the inside, thereby insuring perfect vision for the driver at all times. This operation is practically instantaneous—just as quiet as a light beam and equally



X-section showing method of mounting. as safe. There is nothing in this device to get out of order. Once installed, no further trouble or adjustment is required. There are no moving parts to get out of order.

### NO DRAIN ON THE BATTERY

This defroster uses about the same amount of current as a set of headlamps—no more. Only one connection is required to install it—a wire leading to the generator. Such a connection permits the device to be USED ONLY WHEN THE ENGINE IS IN OPERATION. Since this is true, under no circumstances can it act as a load upon the battery inasmuch as the latter is always being charged by the generator while the engine is running. The Defroster cannot be seen from the outside of the car. By mounting it on the header bar inside the car above the windshield, it is entirely out of vision of the driver.

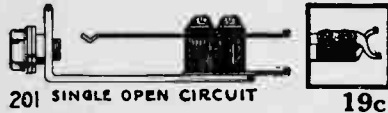
### IMPORTANT

Do not confuse this device with any other "defrosting" mechanism, such as a heater or lamp for the purpose of clearing the windshield. This Defroster utilizes principally the invisible infra-red rays and will therefore, not crack or discolor the glass under any conditions.

List Price \$2.50  
No. 2541. Auto-Windshield Defroster. **\$1.25**  
YOUR PRICE  
DEALER'S PRICE—In lots of 6 or more, Each **\$0.80**

## Fan Tail Circuit Jacks

These convenient jacks are used in large numbers nowadays as additional speaker outlets, phonograph pickup connection, television neon tube connections and for special circuits. They undoubtedly constitute the most convenient and most positive method of securing good electrical contact. The tails of each jack are spread out fan-wise both for the sake of easy soldering as well as to insure against accidental short circuits. Service Men will do well to carry a number of these jacks in their kits. One never knows when he will have occasion to use them. Experimenters, too, will find a large variety of uses for these handy units. Available in 9 different styles. Shipping weight, 4 oz. each.



201 SINGLE OPEN CIRCUIT 19c



202 SINGLE CIRCUIT CLOSED 20c



204 DOUBLE CIRCUIT CLOSED 21c



404 SINGLE OPEN CIRCUIT FILAMENT CONTROL (PLAIN) 27c



405 SINGLE CLOSED CIRCUIT FILAMENT CONTROL (PLAIN) 29c



406 DOUBLE CIRCUIT FILAMENT CONTROL (PLAIN) 31c



304 SINGLE OPEN CIRCUIT FILAMENT CONTROL (1/2" AUDIO NEUTRODINE) 35c



305 SINGLE CLOSED CIRCUIT FILAMENT CONTROL (1/2" AUDIO NEUTRODINE) 38c



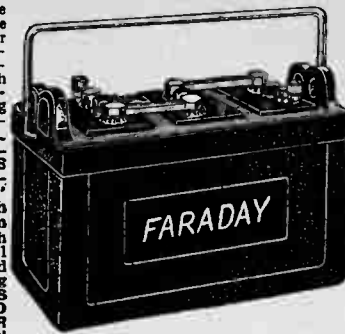
306 DOUBLE CIRCUIT FILAMENT CONTROL (DETECTOR NEUTRODINE) 41c

Gentlemen: Just received your new catalog! It surely is the greatest book in print for the radio man. Your previous issue was valuable but your latest—priceless.

E. E. OMOHUNDA  
Pittsburgh, Pa.

## "Faraday" Radio Storage Batteries

Guaranteed For 12 Months



140-180 Amp.



85-100 Amp.

"Faraday" storage batteries are undoubtedly the finest, most stable and most enduring "A" supply for battery receivers. Will easily outlast other batteries of similar rating on the market. Equipped with heavy lead plates, separated by selected cedar spaces thereby assuring maximum power and reliability under all operating conditions. WILL SAFELY WITHSTAND TEMPORARY HEAVY OVERLOADS WITHOUT PERCEPTIBLE INJURY. "Faraday" Radio "A" Batteries are available in high grade composition containers in four popular sizes. Equipped with ball handles and rubber terminal nuts, one of which is colored red (positive pole —) for indicating polarity. THESE BATTERIES ARE CONSERVATIVELY RATED AND WILL MAINTAIN THEIR CHARGE MUCH LONGER THAN OTHER BATTERIES. "Charge

leakage" has been reduced to an absolute minimum. When not used, these batteries will maintain their charge over long period.

For your convenience, we have arranged with the manufacturer to ship these batteries from any of the 23 shipping points; the one closest to you. This arrangement, aside from enabling us to handle all orders promptly and properly, constitutes a considerable saving in transportation cost for our customers. Our batteries are shipped at the prices quoted below from any one of our network of shipping points listed here-with:

No.	Capacity Amp. Hours	Shp. Wt.	List Price	YOUR PRICE
613 YF	85-100	45 lbs.	\$8.50	<b>\$5.39</b>
613 RF	100-120	49 lbs.	9.50	<b>\$6.21</b>

NOTE. While we list these batteries as Radio "A" batteries, it is of course understood that they can be used for automobile work—there is no difference in the two types.

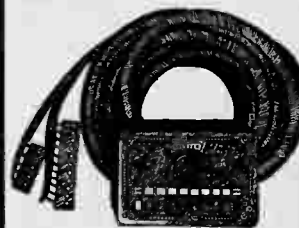
### LOW SHIPPING EXPENSE

ders promptly and properly, constitutes a considerable saving in transportation cost for our customers. Our batteries are shipped at the prices quoted below from any one of our network of shipping points listed here-with:

No.	Capacity Amp. Hours	Shp. Wt.	List Price	YOUR PRICE
615 RF	120-140	55 lbs.	\$11.75	<b>\$7.55</b>
617 RF	140-180	64 lbs.	13.50	<b>\$8.45</b>

### ALL BATTERIES LISTED ARE 3 CELLS, 6 VOLTS

## Kolster Remote Control Cable and Box



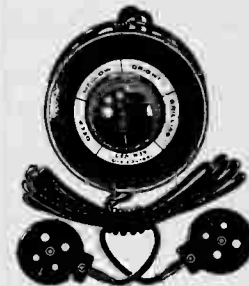
This equipment was originally designed for one of the Kolster receivers operated by remote control. This unit is not a complete remote control outfit in itself. We do not sell it as a remote control outfit for to operate a radio by remote control you would need besides this a

set of relays, induction motors and other miscellaneous apparatus. This control box however, and its 50 ft. of 16 wire cable can be used for a large variety of other purposes. For instance, it can be placed on the desk of an executive and used as a calling system or it may be used as an annunciator system in hotels, restaurants, etc. It has ten push buttons, so that ten different stations or signals may be called.

Amateurs will recognize in this apparatus a remote control which can easily be wired to start or stop their transmitters, high frequency alternators, short wave receivers and other apparatus at a distance. The box itself is made of heavy cast metal, beautifully finished in gun-metal. It contains ten push buttons, a power rheostat and two pilot lights, (one green and one red). A handsome escutcheon plate is provided for each button so that particular signals and calls may be logged. There is hardly a limit to the uses to which this fine instrument can be placed. Ship. wt., 10 lbs.  
No. 7240 Kolster Remote Control.  
YOUR PRICE **\$3.00**

## Famous Gen-Win Tone Controls

Both Panel and Table Models

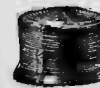


A scientifically designed instrument which by the mere turning of a knob will effectively control the tone of a radio receiver from the very highest treble down to the lowest bass notes. For instance, when dancing, the low frequency tempo notes may be easily emphasized by turning the knob "deep" thus making it a simple matter to keep in step with the music. Gen-Win Tone Controls are accurately calibrated so that any group of notes in the entire musical range may be either

emphasized or softened at the will of the operator. THERE IS ABSOLUTELY NOTHING IN THESE TONE CONTROLS TO GET OUT OF ORDER. Adaptable to all types of receivers both battery and A.C. Takes only a few seconds to install—requires no tools. The table model unit is assembled in a beautiful antique-bronze finish, ropper case with felt bottom and genuine bakelite walnut knob. Extra long adapter cords and wafer adapters are included. Solid constructed with calibrated tone control dial. The panel mount model is, in operation, similar to the table model and is also furnished with a calibrated tone control dial. Shipping weight, 1 lb.  
No. 500 Table Model Tone Control **\$1.20**  
YOUR PRICE  
No. 501 Panel Mount Tone Control **\$0.90**  
YOUR PRICE

## Signal High Frequency Buzzer

This type buzzer is the same as used on our No. 2377 Signal Practice Set. Has a standard resistance of 2 ohms. The frequency of the buzz emitted is adjustable. Furnished in black, crystallized lacquer finish, metal case. The ingenious experimenter will find a large variety of uses for this clever little instrument. Shipping weight, 8 oz.



List Price \$1.25

No. R60 Signal High Frequency Buzzer **\$0.75**  
YOUR PRICE

## Edwards High Frequency Buzzer

An excellent high frequency buzzer which can be employed in the construction of numerous radio testing devices. Capacitance Bridges, Ganging Oscillators, Neutralizing Oscillators, etc., to name but a few. Will operate on a single dry cell or on a 6 volt storage battery. Easily adjusted to give a pure high pitched note of excellent characteristics for use with radio circuits. Entirely nickel plated and polished. Shipping weight, 3 oz. Overall size, 2 1/2 x 3 1/2 x 1 1/2.  
List Price, \$2.50.  
No. 1670 High Frequency Buzzer. **\$0.85**  
YOUR PRICE





# Official Radio Service Kit.

Several months ago we sent out a questionnaire to 2,000 radio service men and asked them what their ideas were on a radio service kit. 865 answered us, and their ideas are now embodied in the Official Radio Service Kit which we herewith present to you.

This kit is a marvel in compactness, a marvel in price, a marvel in time saving. For the first time you are offered a comprehensive kit that contains EVERYTHING that the service man requires in making calls.

## ARE YOU A 50 PER CENT SERVICE MAN?

Too often so-called service men go on a job with an analyzer and a pair of pliers. Nine times out of ten they have to run back to the shop to get tools, and thus their usefulness is cut down, as a rule, 50% and over. Why not take along, on every job, a complete, neat-appearing service kit that looks just as business-like as your analyzer?

When you call upon a prospect and you arrive with this fine-looking kit, your prospect knows that you mean business. It gives you a professional appearance that every service man requires more than anything else today.

## AND YOU CAN COMMAND MORE MONEY ON YOUR SERVICE CALLS WITH THIS KIT

because the prospect will look upon you as a professional, and not as a tinkerer.

When you visit a medical specialist today, you are impressed by his instruments for which you pay. An ordinary doctor commands no such fees. It should be clear to you that if you are a professional, you can get professional prices today too. Even in the face of the "50c-A-Service-Call" chain organizations that have come into being recently. That is why this marvelous kit will pay for itself inside of three months or less.

Herewith are the Official Radio Service Kit specifications: Size, small and compact, not larger than a good analyzer; 17 in. long, 6 1/2 in. wide and 10 in. high.

Construction, wood veneer throughout, entirely covered with black leatherette, all nickel trimmings, giving outfit a beautiful professional appearance.

There are two trays which lift out. See list of items in center column.

## WHAT THEY SAY

Gentlemen:—

The Service Kit has arrived and I AM WELL PLEASED WITH IT. The Kit contains practically everything a service man would require.

Looking forward to further dealings with your concern and trusting that future service will be as excellent as the value I have received from you in this Service Kit. I remain,  
O. H. Schussler  
North Warren, Pa.

Dear Sir:—

Today I received the Official Radio Service-man's Kit, WITH WHICH I AM VERY PLEASED, because it contains everything that there is in need for a service man. I will do my best to sell a few kits, because I know IT IS WORTH THE MONEY I PAID FOR IT.

Gottfried Hartman  
Ann Arbor, Mich.

Originated and Guaranteed by  
**RADIO TRADING CO.**

**IMPORTANT**

There is sufficient room in the bottom of the kit to place the Official Radio Service Manual, as well as other data sheets (but at the price quoted manual is not included).

The construction of the case and removable trays is such that when the case is being carried not a single screw or lug can fall out of their respective compartments.

Both trays, as well as inside cover, are lined with blue felt, giving kit a beautiful appearance.

Nothing similar has ever been offered before. Only by buying the various materials in tremendous quantities are we enabled to sell this kit at such an extremely low price.

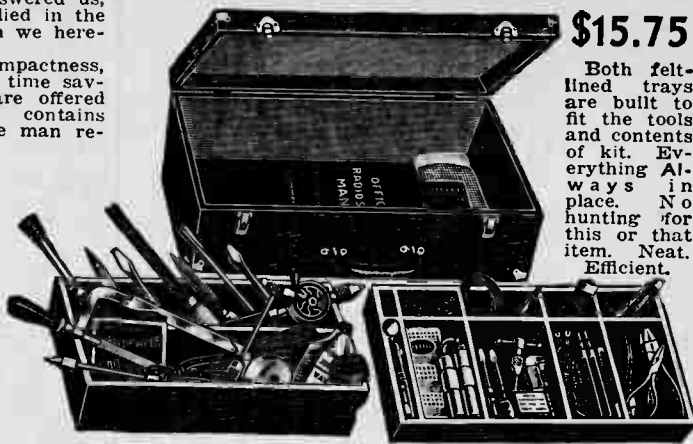
If you were to buy all of the articles separately, in the open market, you would have to pay between \$30.00 and \$35.00 for them.

Due to the present depression, we are enabled to buy quantities of these materials at exceedingly low prices. For that reason, our production cost is exceedingly low, but there is no question that this price will have to be increased later.

Size, 17 in. long, 6 1/2 in. wide and 10 in. high; net weight, 16 lbs.; shipping weight, 18 lbs.

**\$15.75**

Both felt-lined trays are built to fit the tools and contents of kit. Everything Always in place. No hunting for this or that item. Neat. Efficient.



### TOP TRAY CONTAINS:

- 1 Pen Flashlight, complete with magnifying dentist's mirror (to look underneath chassis, etc.).
- 1 Automatic alcohol blow torch.
- 1 Box containing 300 assorted screws, nuts, washers, lugs, etc.
- 1 Nickel Bicycle wrench
- 1 Tap holder with one 6/32 tap and one 8-32 tap.
- 1 Set of Test prods with 6 ft. cord.
- 1 Telephone type pliers.
- 1 Diagonal pliers.
- 1 Insulated (5,000 volt insulated handle) heavy pliers.
- 1 Electrician's knife.
- 1 Set of 8 drill points.
- 10 Ft. of Phosphor bronze drum dial cable.
- 1 Neutralizing socket.
- 1 Pack extra size condenser cleaners.
- 3 Small screw drivers.

### LOWER TRAY CONTAINS:

- 1 Electric soldering iron, with 1 extra tip.
- 1 Large and 1 Medium imported screw drivers.
- 2 Small files with handles.
- 1 Large file with handle.
- 1 1/4 in. Star drill, 1 1/2 in. long.
- 1 Electrician's metal hammer.
- 1 Hand drill, 1/4 in. chuck, 10 in. long.
- 1 Hack saw and blade.
- 1 Package Sand papers and emery papers.
- 1 Roll 50 ft. solid push back wire.
- 1 Can genuine Kester radio solder.
- 1/4 lb. of 3/4 in. electrician's tape.
- 1 Bottle Furniture polish.
- 1 Package Furniture cheese-cloth.
- 1 Bottle Nujol (for lubricating purposes).
- 1 Tube special cement (to mend cones, etc.).
- 1 Socket tool to straighten socket prongs.

**FREE!**

## With Every Radio Service Kit



We take pleasure in offering with the purchase of every complete Official Radio Service Kit — ABSOLUTELY FREE OF CHARGE — ONE OF THE RADIO PUBLICATIONS OF THE "RADIO CRAFT" LIBRARY — BOOK No. 5. This book is one of the most important of its kind ever issued. To many it may mean the turning over of a new leaf in their life, entrance into a new and profitable profession.

answers such questions as: DO YOU KNOW HOW TO GET STARTED IN THE RADIO SERVICE BUSINESS? Do you know how to "sell" your services to the community? How would you go about picking a location for your service business? What do you know about building your own service equipment? Do you know the purpose of the various parts in a radio set? These are only a few of the many intimate questions which this instructive book will answer in a most thorough-going and convincing manner. For that reason, we do not hesitate to state that this book "HOW TO BECOME A RADIO SERVICE MAN" is the most outstanding ever published.

Only  
No. 1000—Official Radio Service Kit. **15.75**  
YOUR PRICE

## CARRYING CASE

For Official Radio Service Kit

We are prepared to furnish you with the Official Radio Service Case only, without con-

tents, as described above, just the case and the two empty trays, size 17 in. long, 6 1/2 in. wide and 10 in. high.

This case is made entirely of light veneered wood, nickel trimmings, covered entirely with leatherette, inside of case covered in blue felt.

No. 1001—Official Radio Service Carrying Case only.

This case is just the thing to build in a radio set, as a portable.

Service men who wish to build their own analyzers will find this case just the one they have been looking for. There is room enough for the analyzer as well as tools.



Net weight, 4 lbs. Shipping weight, 5 lbs.

View of kit, closed

See illustration above for open view of kit.

YOUR PRICE **\$4.50**

## PARTS OF THE OFFICIAL RADIO SERVICE KIT — ALL ARTICLES CAN BE BOUGHT SEPARATELY

No. 1695 PEN FLASHLIGHT with batteries for trouble shooting in dark recesses of radio chassis and cabinets.

YOUR PRICE            List Price \$1.25 **\$0.35**

No. K1005 DENTIST'S MAGNIFYING MIRROR with clip for attaching to the Pen Flashlight. Enables one to look under inaccessible radio chassis and around corners.

YOUR PRICE            List Price \$0.75 **\$0.25**

No. K1006 AUTOMATIC BLOW TORCH for heavy duty soldering and many other purposes (e.g.) melting impregnating compound in power repair work, etc.

YOUR PRICE            List Price \$1.50 **\$0.75**

86 **RADIO TRADING COMPANY, 100 PARK PLACE, NEW YORK, N. Y.**

No. K1007 GENEROUS SCREW ASSORTMENT every size screw nut, washer, insulating washers, lock-washers, etc. ever used in radio work.  
List Price \$1.25

**YOUR PRICE \$0.28**  
No. K1008 BICYCLE WRENCH a sturdy monkey wrench that will engage every type nut encountered in radio work.  
List Price \$0.35

**YOUR PRICE \$0.20**  
No. K1009 TAP WRENCH handy tool made of die-cast steel with oil-tempered jaws that will engage any size tap up to 1/4 inch.  
List Price \$0.50

**YOUR PRICE \$0.20**  
No. K1010 6/32" TAP BIT for use with tap wrench above.  
List Price \$0.45

**YOUR PRICE \$0.15**  
No. K1011 8/32" TAP BIT for use with tap wrench above.  
List Price \$0.45

**YOUR PRICE \$0.15**  
No. 1626 TEST LEADS our catalogue No. 1626 listed elsewhere. Five foot flexible, coded leads with insulator—handled, solderless tips.  
List Price \$1.00

**YOUR PRICE \$0.25**

No. K1012 TELEPHONE PLIERS 5 1/2" long. Made of fine carbon steel. Has long tapered nose and wire cutting edges. Serves a variety of radio repair purposes.  
List Price \$1.25

**YOUR PRICE \$0.39**  
No. K1013 DIAGONAL PLIERS 5 1/2" long. Made of fine carbon steel. Will cut both fine and heavy wire.  
List Price \$1.50

**YOUR PRICE \$0.39**  
No. K1014 INSULATED PLIERS, handles are insulated to withstand 5000 volts. Constructed of carbon steel with heavy gripping jaws and wire cutter.  
List Price \$1.75

**YOUR PRICE \$0.58**  
No. K1015 ELECTRICIAN'S KNIFE sturdily built, steel bladed knife with a multiplicity of uses. Wire stripper and cutter, wood and fibre cutter, screw-driver, etc. A real handy tool to have around.  
List Price \$1.25

**YOUR PRICE \$0.50**  
No. K1016 SET OF 8 DRILL POINTS contains all the popular sized drills used in radio construction and repair work. Made of highly-tempered carbon steel.  
List Price \$0.50

**YOUR PRICE \$0.20**

No. K1017-18 NEUTRALIZING ADAPTERS listed elsewhere. For balancing oscillating receivers, etc. Set of two, UX and UY.  
List Price \$1.00 ea.

**YOUR PRICE \$1.18**  
No. K1019 CONDENSER CLEANERS for getting the dust and grit from between the plates of variable condensers.  
Package contains 25 cleaners.  
List Price \$0.25

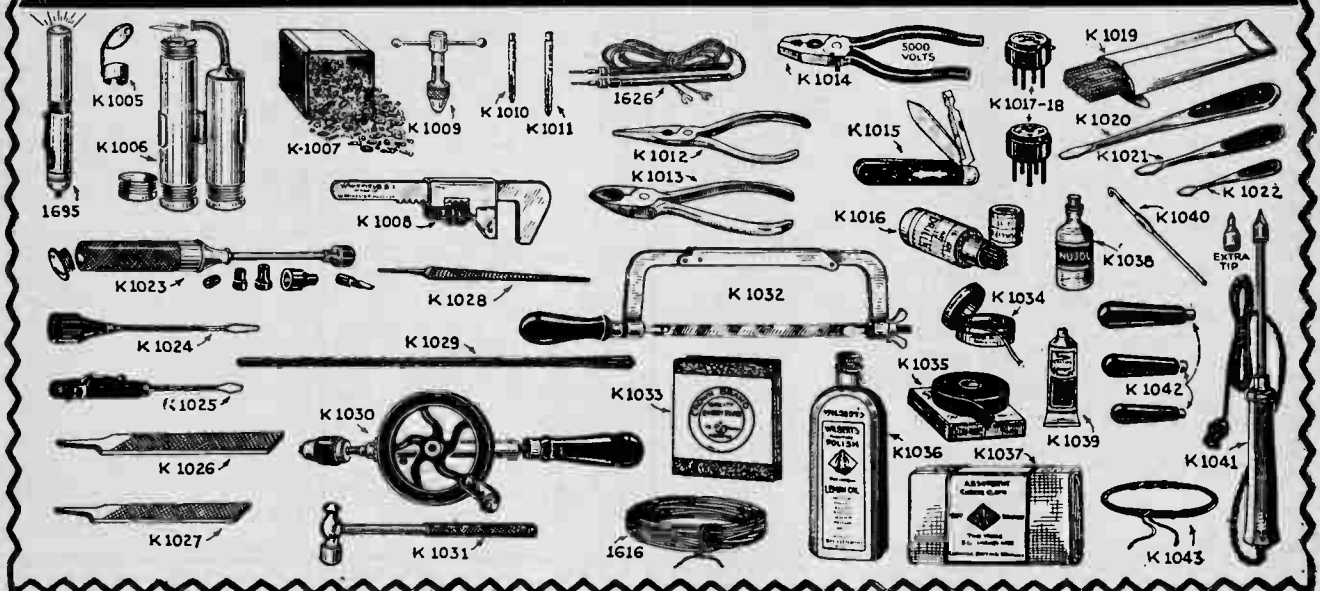
**YOUR PRICE \$0.12**  
No. K1020 10" SCREW DRIVER, heavy steel screw driver ruggedly constructed of one piece throughout. Handle comfortably rounded with hard wood.  
List Price \$0.50

**YOUR PRICE \$0.25**  
No. K1021 6" SCREW DRIVER, same as above but of medium size and duty.  
List Price \$0.35

**YOUR PRICE \$0.15**  
No. K1022 4" SCREW DRIVER, same as above but of small size and light duty.  
List Price \$0.25

**YOUR PRICE \$0.10**

## PARTS OF THE OFFICIAL RADIO SERVICE KIT



No. K1023 SOCKET WRENCH KIT, complete set of socket wrenches made of high grade steel with case-hardened sockets. Will fit all size nuts.  
List Price \$1.25

**YOUR PRICE \$0.45**

No. K1024 LARGE THIN SCREW DRIVER for light duty work. Made especially for set screws of dials and knobs.  
List Price \$0.15

**YOUR PRICE \$0.08**

No. K1025 POCKET SCREW DRIVER for use on set screws and other light duty work. Provided with a pen clip.  
List Price \$0.20

**YOUR PRICE \$0.12**

No. K1026 LARGE FILE, 7" bastard file constructed of highly tempered steel for use on either metal or wood.  
List Price \$0.50

**YOUR PRICE \$0.20**

No. K1027 MEDIUM FILE, same as above except smaller.  
List Price \$0.45

**YOUR PRICE \$0.15**

No. K1028 HALF-ROUND FILE, 4" half round bastard file constructed of same material as above.  
List Price \$0.40

**YOUR PRICE \$0.10**

No. K1029 1/4" STAR DRILL an 8" drill for hammering or drilling 1/4" holes in brick or stone.  
List Price \$0.50

**YOUR PRICE \$0.26**

No. K1030 HAND DRILL, 10" long all-steel drill that will engage all size bits up to 1/4" diameter. Collapsible model. Can be taken apart and reset.  
List Price \$1.50

**YOUR PRICE \$0.75**

No. K1031 METAL HAMMER, all steel, ball top hammer for all purposes. Taken nails without denting.  
List Price \$0.50

**YOUR PRICE \$0.20**

No. K1032 HACK SAW complete with saw blade. An all-steel, well made tool with sure-grip wooden handle. Adjustable frame.  
List Price \$0.75

**YOUR PRICE \$0.23**

No. K1033 SAND PAPER, medium sized sand paper firmly embedded in tough cloth material. For cleaning radio chassis and other work.  
List Price \$0.25

**YOUR PRICE \$0.10**

No. 1616 HOOK-UP WIRE, roll of 50 feet push-back wire for radio construction and repair purposes.  
List Price \$0.50

**YOUR PRICE \$0.33**

No. K1034 FLUX-CORE SOLDER listed elsewhere. Requires no acids or resins, merely heat.  
List Price \$0.18

**YOUR PRICE \$0.18**

No. K1035 FRICTION TAPE, a 1/4 lb. roll best electric friction tape for insulating exposed or spliced wires and for many other purposes.  
List Price \$0.50

**YOUR PRICE \$0.12**

No. K1037 WASTE CLOTH, package cheese cloth as waste in conjunction with the furniture polish above and for many other purposes.  
List Price \$0.20

**YOUR PRICE \$0.15**

No. K1038 RADIO LUBRICANT, bottle of special Nujol lubricating oil for lubricating radio parts.  
List Price \$0.15

**YOUR PRICE \$0.10**

No. K1039 MENDING CEMENT, an approved cement for mending speaker cones, clipped furniture, etc.  
List Price \$0.50

**YOUR PRICE \$0.15**

No. K1040 SOCKET TOOL, a heavy-tipped crochet needle adapted to radio use. Handy for bending socket springs into shape.  
List Price \$0.25

**YOUR PRICE \$0.15**

No. K1041 SOLDERING IRON sturdily constructed, quick heating iron with heat insulated wooden handle. Complete with heat resisting cord, two-piece plug and extra soldering tip.  
List Price \$1.50

**YOUR PRICE \$0.85**

No. 1001 CARRYING CASE listed elsewhere. Sturdily built with two removable trays.  
List Price \$8.00

**YOUR PRICE \$4.50**

No. K1042 FILE HANDLES, set of 3 handles to be used in conjunction with the 3 files above or with any similar tool.  
List Price \$0.35

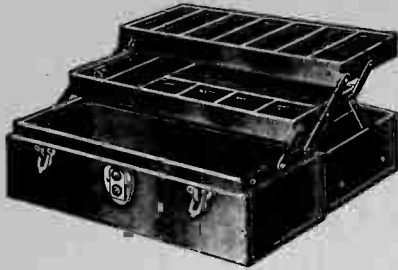
**YOUR PRICE \$0.15**

No. K1043 DRUM DIAL CABLE, roll of 10 feet phosphor bronze cable; extremely strong and tensile.  
List Price \$0.35

**YOUR PRICE \$0.20**



## Radio Carrying Cases



The cases here shown are a new development. They are made in metal throughout with baked olive green enamel finish. These cases are beautifully and strongly made, and will give you a professional appearance. Lock and side locks are Cadmium Plated.

Smaller illustration shows dimensions and closed view of the cases. As you open the cover, two trays automatically fold out in position, as shown. As you tilt the cover back, the trays fold automatically into the case. The trays are provided with a number of compartments for tools and all other radio appliances that you may wish to carry. The large box accommodates about eight radio tubes in the bottom compartment. The smaller case accommodates about four tubes.

Cases are strong and rugged, and when closed, nothing can spill. They are marvels of ingenuity, and will pay for themselves many times over.

Large size measures 21 1/2" long, 7 1/2" high and 7" wide. Net weight 8 lbs. Shipping weight 10 lbs.

List Price \$8.50

No. B-21 Carrying Case. **\$2.75**  
YOUR PRICE

## Easy Soldering Phone Tips



Here is a neat time-saving phone tip that requires but one drop of solder to be attached. Merely insert bared wire and drop solder in the side hole; a clean business-like, and permanent job. Can be used on all car phones, loud speakers, battery cables, etc. Made of polished non-corrosive metal. Will fit all standard tip jacks and plugs. Shipping weight, 1/4 lb.

List Price \$0.25 per envelope of 10

No. 1597 Easy Soldering Phone Tips **\$0.10**  
YOUR PRICE, per envelope

12 for **\$1.00**

## Plain Soldering Phone Tips



These Phone Tips are mostly used on cords and special leads. They are packed 14 tips to an envelope which is sufficient quantity for the average experimenter.

No. 2886 **\$0.10**  
YOUR PRICE, per envelope

## Phone Tip Jacks



A reliable tip jack with a heavily constructed contact spring, designed to hold the phone tip firmly and insure a good electrical contact. Will take any standard type phone tip or No. 14 gauge wire. Lends dignity to any test bench or panel, amplifier, transmitter or receiver. Neat, compact, efficient. Come two to a card. Shipping weight, 1/4 lb.

List Price \$0.13 per card

No. 1598 Phone Tip Jacks **\$0.06**  
YOUR PRICE, per card

12 for \$0.80

## Battery Clips



Sure-grip battery clips with non-corrosive properly tensioned set springs. Ideal for battery cables, test cords, test panel leads, as screen-grid caps, transmitting coil caps and for many other purposes. The handiest, most useful clips ever manufactured.

Are available in two sizes, medium and large. Shipping weight, 2 oz.

No. Description List Price **YOUR PRICE**

2060 Battery Clips medium size \$0.15 **\$0.06**

2061 Battery Clips large size .25 **\$0.10**

## "Handy-Man" Carrying Case

For the Radio Service Man



An all-steel carrying case that all but says, "Here it is." Contains on a sturdily built removable tray with sufficient compartments to accommodate all the screws, lugs, drills, resistors, condensers and other necessary paraphernalia of the service man. The main box will easily house a complete servicing tool kit including large drill and soldering iron. The Handy-Man carrying case will save you time and money by keeping your tools where you can find them and by keeping them in good condition. Neither heat nor moisture can penetrate the case. Built of steel throughout with olive green baked enamel finish. Main and side locks are cadmium plated. A neat, compact, business-like carrying case. Measures 14"x6 1/2"x6 1/4". Shipping weight, 9 lbs.

List Price \$2.00

No. S-14 Handy-Man Carrying Case. **\$1.05**  
YOUR PRICE

## Hexagon Nuts, Knurled Nuts and Washers



No.	Size	Quantity
2850	6/32x1/4"	20 Hexagon nuts per envelope
2851	3/32x1/4"	20 Hexagon nuts per envelope
2852	6/32x5/16"	15 Hexagon nuts per envelope
2853	3/32x5/16"	15 Hexagon nuts per envelope
2854	3/32x3/8"	6 Knurled nuts per envelope
2855	No. 6 Washers	20 Washers per envelope
2856	No. 3 Washers	20 Washers per envelope

Packed in brown kraft envelopes with illustrations of the products on the front side; also the quantity. Shipping weight, 1/4 lb.

List Price \$0.15 per envelope

**\$0.06**  
YOUR PRICE, per envelope

12 envelopes for **\$0.68**

## Brass and Copper Tinned Terminal Lugs



Essential for clean, solid electrical contacts. Take solder easily. Note: Lug No. 3 requires no solder. Merely insert wire in slotted groove and clamp shut with pliers.

Put up 24 to an envelope. Use lug and catalog numbers when ordering. Shipping weight, 1/4 lb.

List Price \$0.15 per envelope

No.	Terminal Lugs No.	YOUR PRICE
2871	Terminal Lugs No. 1	<b>\$0.05</b>
2872	Terminal Lugs No. 2	
2873	Terminal Lugs No. 3	
2874	Terminal Lugs No. 4	12 envelopes for <b>\$0.55</b>
2875	Terminal Lugs No. 5	

## Aluminum Sub-Panel Brackets

Made of Non-Magnetic Aluminum

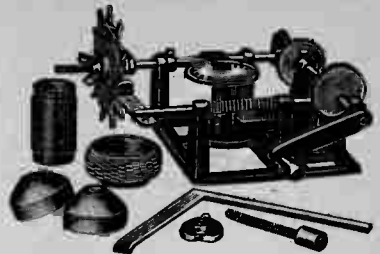


These sub-panel brackets are designed to accommodate bypass condensers, sockets, wiring, etc., beneath the sub-panel. Brackets will even accommodate R.F. transformers of the midget type and their shields. Brackets are constructed of light, durable, non-magnetic aluminum and are perforated, and machine drilled ready for use. Shipping weight, 1 lb.

No.	Size	List Price	YOUR PRICE
2877	2 1/2"x6 1/4"	\$0.40	<b>\$0.27</b>
2878	1 x8 1/2"	.40	<b>\$0.27</b>
2879	2 x9"	.60	<b>\$0.41</b>
2881	2 x11"	.80	<b>\$0.54</b>

## Morris Universal Coil Winder

Winds All Type Coils



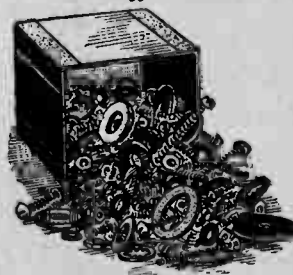
A practical, ruggedly constructed coil-winding machine that will wind all the various typed R.F. Coils used in radio construction and repair work; honey comb, spider web, solenoid, double layer coils, etc.; all of different widths and diameters. A practical and satisfactory machine for the radio service man, experimenter and custom set builder. Coils can be made as neat and as accurate as though they were factory built. Sold complete with all necessary accessories and special recorder with adjustable pointer for counting the number of turns of wire. Suitable for small factory production jobs, etc. Shipping weight, 4 lbs.

List Price \$12.50

No. 1051 Morris Universal Coil Winder. **\$4.35**  
YOUR PRICE

## Service Men's Screw Assortment

Biggest Value Ever Offered



A generous screw assortment comprising several hundred sized machine screws, nuts, insulating washers both bakelite and fiber, set screws, mica washers, special screws with both round and flat heads,—in short, every conceivable piece of hardware ever used in radio construction and repair work. It is the answer to a Service Man's

or Experimenter's prayers. Fully one pound of useful hardware, a great asset to every service kit. Shipping weight, 1 1/4 lbs.

List Price \$0.75

No. K1007 Service Men's Screw Assortment **\$0.28**  
YOUR PRICE

## Fahnestock Spring Binding Posts



No. 2810 No. 2815

A favorite with all experimenters. Absolute contact at all times—simply press down prong, insert wire and the connection is made. Too well known to require much description. All finished in phosphor bronze nickel-plated. Only sold in dozen lots.



No. 2845 No. 2804

No. 2810. Takes No. 14 B. and S. wire. Width 5/16" length 3/4", screw hole clears 6/32 screw.



No. 2815. Takes No. 18 B. and S. wire; has lug to which wire can be soldered. Width 7/32, length 1/2".

PER DOZEN **\$0.18**

PER DOZEN **\$0.20**

**PANEL POSTS**  
No. 2809C. Can be mounted on panels. Stands upright. One of the handiest connectors made. Has threaded hole which takes an 8/32 screw. Furnished with post.

PER DOZEN **\$0.35**

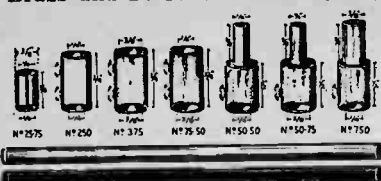
No. 2804. Takes No. 10 wire. Length overall 1" width 3/4" screw hole threaded for 8/32 screw.

PER DOZEN **\$0.28**

**DOUBLE CONNECTOR**  
No. 2809C. Takes No. 10 B. and S. wire. Length overall 1 1/2", width 3/4", screw hole passes 8/32 screw. Extra long size—not to be confused with much shorter "similar" connectors.

PER DOZEN **\$0.35**

## Condenser Shaft Couplings & Adapters and Brass and Fibre Condenser Shafts



These Shaft Couplings are just the thing for connecting variable condensers, switches and rheostats in various arrangements; reducing larger shafts to smaller ones; for fitting tuning dials, etc. All the dimensions of the bushings, couplings, shaft extenders and reducers are illustrated. They are made of brass and have a bright finish. The brass shafting is used for extension purposes or replacements. The fibre shafting is used for insulating variable condensers, etc.

No. 25-75 3/8" long 1/4" hole I.D.* 3/8" O.D.** Dial Bushing	<b>\$0.15</b>
No. 250 3/4" long 1/4" hole I.D. 1/2" O.D. Coupling	<b>\$0.15</b>
No. 375 3/4" long 3/8" hole I.D. 9/16" O.D. Coupling	<b>\$0.15</b>
No. 75-50 3/4" long 3/8-1/4" hole I.D. 9/16" O.D. Coupling	<b>\$0.15</b>
No. 50-50 1 1/8" long 1/4" hole I.D. 1/2" O.D. Reducer	<b>\$0.15</b>
No. 50-75 1 1/8" long 3/8" hole I.D. 9/16" O.D. Reducer	<b>\$0.15</b>
No. 750 1 1/8" long 1/4" hole I.D. 1/2" O.D. Reducer	<b>\$0.15</b>
No. 6250 6" long 1/4" diameter Brass Shafting	<b>\$0.15</b>
No. 12250 12" long 1/4" diameter Brass Shafting	<b>\$0.15</b>
No. 637 6" long 1/4" diameter Fibre Shafting	<b>\$0.20</b>
No. 1237 12" long 1/4" diameter Fibre Shafting	<b>\$0.20</b>

## Test Leads with "Alligator" Clips



These leads are made of flexible wire and are equipped with special Alligator clips at each end. The wires are color-coded for easy identification. Ideal for laboratory and experimental purposes. Does away completely with the necessity for soldering in experimental circuits. Available in four sizes, as listed below.

No. 400 12" Test Leads & Clips	<b>\$0.30</b>
No. 420 24" Test Leads & Clips	<b>\$0.40</b>
No. 430 36" Test Leads & Clips	<b>\$0.50</b>
No. 440 48" Test Leads & Clips	<b>\$0.60</b>

## I.C.A. Neutralizing and Aligning Tool Kit



The new I. C. A. Service Men's Neutralizing and Aligning Tool Kit has been prepared to include every possible combination of convenient tools which a service man MUST HAVE in order to make adjustments on all types of modern radio receivers. The kit consists of twelve separate and distinct parts, some of which can be employed for several operations. These units telescope into each other, forming four separate tools when assembled. An attractive black leatherette vest pocket carrying case holds them all conveniently.

The four different sections constitute the following:

1. Alligator side wrench; 6" insulated screw driver with metal nib; metal 5/16" nut wrench and metal 1/4" nut wrench.
2. 3/4" square nut insulated wrench; 3/4" hexagon metal side wrench and 2 1/2" insulated screw driver with metal nib.
3. 3/4" hexagon slotted insulated wrench; metal screw driver; insulated nut wrench; 5" insulated screw driver with metal nib.
4. 6" insulated screw driver. Ship. wt. 1 lb.

List Price \$4.00  
No. 998 I.C.A. Neutralizing Tool Kit, complete with carrying case. **\$2.35**  
YOUR PRICE

## Eliminates Noise and Cross-Talk



Service men throughout the world are beginning to realize the importance as well as the advantages obtained through the use of a shielded lead-in wire from antenna to radio receiver. More than 75 per cent of the complaints of "noisy" and "unselective" receivers may be eliminated by merely replacing the old unshielded wire that leads from the aerial on the roof to the radio set with this new type of wire. Not only does it help to clear radio noises but to a certain extent, it makes the receiver more selective due to the capacity effect between the wire core and the metal shield. Easily installed. The wire core is connected between aerial on the roof and antenna post on receiver. The outer shield is connected to ground. Every service man should carry at least one spare roll of this wire in his service kit. We feel quite confident that we will be thanked by many for this suggestion. Sold in 50 and 100 ft. rolls, ready cut.

No. 1665 50 ft. Roll Shielded Lead-in Wire	<b>\$0.45</b>
No. 1668 100 ft. Roll Shielded Lead-in Wire	<b>\$0.85</b>

## Special Tapered Terminal Lugs



These lugs are wide, at their mouths and gradually taper down in the back. The advantage of this type of construction is that one set of such lugs will fit many size screws, up to No. 10. Ideal for connections for various size screws. Have barrel shaped ends which will engage any of the plug-in prongs listed elsewhere on this page. A bridge, located inside the barrel, makes for easy soldering. Measures 1/2" wide x 1 1/4" long. Sold only in lots of one dozen.

No. 14 Special Tapered Terminal Lugs	<b>\$0.12</b>
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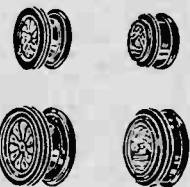
## New Hammarlund Screen-Grid Tube Shields



The new Hammarlund Screen Grid Tube Shield is designed with special cutouts for maximum cooling of the tube by up-drafts of air and at the same time provides the full extent of shielding required for most efficient operation. Aluminum shell and base with large hole at the top for access to control grid of tube. Designed for use with subpanel sockets. Mounting screws and control grid connector packed with each shield. Shipping weight, 6 oz. List Price \$0.40

No. TS-35 New Hammarlund Screen-Grid Tube Shields	<b>\$0.24</b>
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## Wood Tuning Knobs



Carved wooden Knobs for use on radio receiver tuning controls. Carved in tasteful designs and finished in dark oak. Complete with set screw. These knobs are obtainable singly or in sets of three.

No. 1635 Wood Knobs	<b>\$0.15</b> ea.
No. 1636 Wood Knobs	<b>\$0.40</b>

## Sealing Compound



Service filling, sealing and insulating compound. Can be used for condenser dipping transformer sealing or any service need that requires a compound that flows easily at normal heat. All repaired condenser blocks should be covered with this pitch which protects them from moisture. Just place the pall on an electric or gas stove and it is ready to pour. This item is indispensable to the service man, and will pay for itself in no time. Put up in two sizes. Shipping weights 8 1/2 lbs. and 1 lb. respectively.

No.	Size	List Price	<b>YOUR PRICE</b>
1691	1 gallon can	\$2.00	<b>\$0.95</b>
1692	1 quart can	.90	<b>\$0.40</b>

## Professional Test Prods with Interchangeable Tip Ends



This new type of test prod is in large demand due to its serviceability and special features, such as the interchangeable tip end and long testing prod handle. Spring prongs located at the flexible end of the test prods allow you to change from spade lugs, to phone tips, or Alligator Spring Clips. A tight and sturdy connection is the result at all times. The handles are 6" long and 1/4" in diameter. This type of handle is ideal for getting into tight places between transformers, condensers, etc.

The new type needle-point phone tip is used for piercing through insulated wire. These points will also engage standard phone tip jacks. Equipped with five feet of black and red flexible wire. Each set comes complete with two Alligator Clips, two Needle-Point Phone Tips, and two special tapered lugs. These lugs will fit all types of screws up to a No. 10 in diameter. Packed one complete set with all attachments in individual, attractive boxes. Ship. wt., 1 lb. No. 500 Professional Test Prods with Interchangeable Tip Ends. **YOUR PRICE, per set \$0.88**

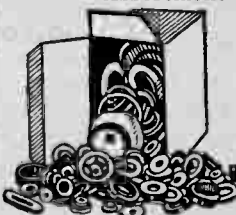
## Drum Dial Cable



Most of the modern radio receivers which employ single dial control utilize drum dial cable for "gauging" the individual tuning condenser units. Very often these cords break; and while this condition is merely a mechanical difficulty it nevertheless renders the receiver inoperative or at least makes it impossible to tune in different stations. Service Men ought not at any time be without a supply of drum dial cables for emergency repairs. These cables are available in two different types, viz., 42 strand phosphor bronze twisted and 18 strand phosphor bronze braided. Available in 100 and 50 foot spools as well as in loose footage.

No.	42 Strand Phosphor Bronze Cable	FT. Per Spool	<b>YOUR PRICE</b>
3181	100		<b>\$3.80</b>
3182	50		<b>\$2.20</b>
3183	Sold loose per ft.		<b>\$0.05</b>
	18 Strand Braided Phosphor Bronze Cable		<b>\$1.30</b>
3184	100		<b>\$0.80</b>
3185	50		<b>\$0.03</b>
3186	Sold loose per ft.		<b>\$0.03</b>

## The Service Man's Insulated Washer Assortment



This fine assortment will prove to be indispensable to the service man. It contains every conceivable washer and bushing for insulating purposes. Hard fibre, bakelite and hard rubber are some of the insulating materials used in constructing these washers. Many asbestos and rubber washers are also included. Each box contains a generous supply. Place one of these assortments in your service kit; it will last a long while. If bought separately these various washers would cost you approximately \$1.50. Take advantage of this offer now, while it lasts.

No. 110 Service Man's Insulated Washer Assortment	<b>\$0.35</b>
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## "Alligator" Testing Clips



These clips, as their name indicates are long and thin—ideal for getting into tight places. Constructed with a strong, metal spring to assure positive contact. Have a round barrel on one end, designed to engage any one of the plug-in prongs, listed elsewhere on this page. However, for easy soldering, a special bridge is provided inside this barrel which firmly clamps the wire before the solder is applied. Ideal for making convenient test leads—indispensable to a test laboratory. Measures only 1/4" wide and 2" long. No. 45AT "Alligator" Test Clips. **YOUR PRICE, each \$0.05**



## "Jiffy-Tite" Screw-Holding Screw Driver

Senior Model—Built for Service

Here is an important addition to every mechanic's and Service Man's tool kit—a tool which enables one to do quickly many tasks which were heretofore extremely difficult or impossible.

"Jiffy-Tite" is **NON-MAGNETIC** and will firmly hold screws of any material, such as brass, copper, aluminum, wood, rubber, fibre, etc., by their slots, a most important feature. Its generous-sized enameled hardwood hexagon handle gives a powerful grip for the heaviest kind of work. Measures 9½ ins. long with 5/16 in. wide blade; a size which experience has shown meets all ordinary needs.

**MECHANICALLY SIMPLE.** The operating principle of the "Jiffy-Tite" Screw-Holding Screw Driver is extremely simple. **THERE ARE ONLY TWO MOVING PARTS**—the gripping lever which moves in and out of a slot cut in the blade, and the knurled slide which operates this gripping lever. A simple quick movement of the knurled slide up or down with the finger is all that is required to grip and release the screw. Ship. wt., 1 lb.

List Price \$2.00

No. 1067 Jiffy-Tite Screw-Holding Screw Driver  
YOUR PRICE **\$0.98**

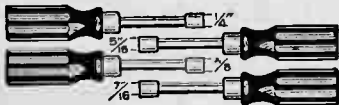
### Junior Model

"Jiffy-Tite" Junior is especially built for those dinky little screws in typewriters, radios, sewing machines, electric devices, etc.; in fact, for any use where it is difficult, and often impossible, to insert and remove a screw with an ordinary screw-driver. The handle is of knurled bakelite with a shock-proof test of 10,000 volts. The heat-treated and tempered blade with its powerful gripping lever insures long service. Size 8½ ins. long over all, 4/16 in. diameter shank, 3/16 in. width blade. Shipping weight, ½ lb.

List Price \$2.00

No. 1068 "Jiffy-Tite" Junior Screw-Holding Screw Driver  
YOUR PRICE **\$0.98**

### Spin Type Socket Wrenches



These hollow shank socket wrenches permit the removal of nuts from long, projecting screws. Will take long screws, any size up to No. 10 diameter. Furnished with ribbed, wooden handles. Shank is cadmium plated and will not rust. Available in two lengths, viz., the 6" length for general use and the 9" length for use where the ordinary socket wrench will not reach. One set of four wrenches consist of the following sizes: ¼", 5/16", ¾", and 7/16". No. 50123 Set of 4—6" Long Spin Type Wrenches.

YOUR PRICE **\$0.42**

WHEN BOUGHT INDIVIDUALLY

No. 50 6" Long, 1/4" size Wrench YOUR PRICE  
No. 51 6" Long, 5/16" size Wrench **\$0.12**  
No. 52 6" Long, 3/8" size Wrench  
No. 53 6" Long, 7/16" size Wrench each  
No. 54567 Set of 4—9" Long, Spin Type Wrenches.

YOUR PRICE **\$0.65**

WHEN BOUGHT INDIVIDUALLY

No. 54 9" Long, 1/4" size Wrench YOUR PRICE  
No. 55 9" Long, 5/16" size Wrench **\$0.18**  
No. 56 9" Long, 3/8" size Wrench  
No. 57 9" Long, 7/16" size Wrench each

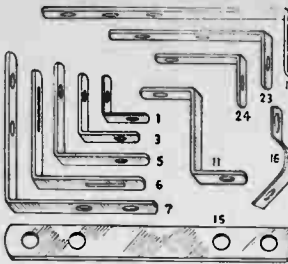
### 50 Watt Soldering Iron



This soldering iron is exceptionally suited for radio work, inasmuch as it has a long finely tapered tip. It is a quick heating iron which rises rapidly to the proper temperature and then remains there until the current is shut off. Constructed of heavy metal with removable copper tip and wood handle. Sold complete with asbestos-covered heat resisting cord and plug. Shipping weight, 3 pounds. No. 106 Heavy Duty Soldering Iron.

YOUR PRICE **\$0.95**

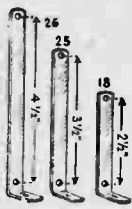
## ANGLES AND BRACKETS BRASS NICKEL PLATED



These Angles and Brackets are used by radio experimenters and Service Men in a variety of places. Their uses are numerous. A complete set of at least two or more should be owned by every radio experimenter and Service Man. They are available in the following sizes:

No.	Size	YOUR PRICE	No.	Size	YOUR PRICE
1	½"x½"	4 for 5c	10	½"x2¼"	2 for 7c
3	¾"x¾"	2 for 5c	11	½"x¾"x½"	2 for 5c
5	1"x1"	2 for 7c	16	¾"x¾"	4 for 5c
6	1½"x1½"	2 for 7c	17	¾"x1"x½"	2 for 7c
7	1½"x1½"	2 for 10c	23	½"x1½"	2 for 7c
20	2"x2"	5c each	24	½"x¾"	4 for 7c
			15	Strip 3"	2 for 7c

### Transformer Brackets for Audio and Power Also Chokes



These brackets are manufactured of brass and are neatly nickel plated. They are available in the following sizes as illustrated. Dimensions from center to center of the hole are as per illustration. Sold only in sets of four or more of each size.

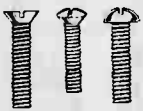
No.	YOUR PRICE each
18	<b>\$0.05</b>
25	<b>\$0.08</b>
26	<b>\$0.12</b>

### Solderless Phone Tips

These Solderless Phone Tips are ideal for all temporary connections such as aerial, ground, speaker, etc.

No. 2885  
YOUR PRICE, each **\$0.05**  
50c dozen \$4.00 per 100

### Machine Screws in Packages



These machine screws are packed 10 screws to an envelope and are available in round, flat, or oval head. When ordering, mention head and length desired. Available in the following sizes:

No.	Size	Machine Screws
2830	¾"x6/32	Machine Screws
2831	¾"x6/32	Machine Screws
2832	¾"x6/32	Machine Screws
2833	¾"x6/32	Machine Screws
2834	1"x6/32	Machine Screws

YOUR PRICE, per envelope **\$0.06**

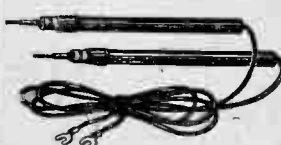
### Wood Screws in Packages

These wood screws are packed 10 screws to an envelope and are available in round, flat, or oval head. When ordering, kindly mention head and length desired. Available in the following sizes:

No.	Size	Wood Screws
2835	¾"x No. 4	Wood Screws
2836	¾"x No. 5	Wood Screws
2837	¾"x No. 5	Wood Screws
2838	1"x No. 5	Wood Screws

YOUR PRICE, per envelope **\$0.06**

### Test Leads



3½ foot flexible leads equipped with test probes colored for polarity. This is one piece of equipment which no service man can afford to be without. The tips are made of non-corrosive metal and are inserted for special purposes without much bother or waste of time. Insulated grips made of high quality fibre protect operator from shock when making measurements in high voltage circuits. May be had with either lugs, phone tips or spring clips. Shipping weight, ½ lb.

No.	Type	YOUR PRICE
1626	Test Leads with Lugs	<b>\$0.25</b>
1726	Test Leads with Tips	<b>\$0.25</b>
1727	Test Leads with Clips	<b>\$0.35</b>

### Screen-Grid Caps



Screen-Grid Caps, where special length wires are required or for replacement purposes. They are manufactured of spring brass and are tinned for easy soldering.

No. 1672  
YOUR PRICE, each **\$0.02**  
6 for 10c

### Buddy "Rosette" Panel Decorations

For Covering Undesired Holes in Panels and Cabinets Decorative—Inexpensive

Did you ever spend \$2.00 or \$3.00 for a new front panel when installing a new chassis in an old cabinet just because a small ½ in. hole insisted upon being where it was? Our **BUDDY ROSETTES** will cover up that hole to make it look as if it were made in the factory.

(Can also be used to liven up some large blank spaces. You can be your own artist in placing them where they will do most good.)

Come in mahogany, walnut, antique gold (18 karats) and antique silver. (Specify which when ordering). **ORDER A FEW TODAY; MUST BE SEEN TO BE APPRECIATED.**

No.	Diameter	YOUR PRICE
2091	¼"	<b>\$0.12</b>
2092	½"	<b>\$0.16</b>
2093	¾"	<b>\$0.20</b>
2094	1" (oval)	<b>\$0.20</b>

### Handy Scratch Remover

Touches Up Furniture Like New



It is really important that Service Men carry with them the necessary equipment for touching up furniture in the event that they accidentally scratch either the radio cabinet on which they are working or some other close by piece of furniture. Many a fine-paying job has been lost through some such carelessness which could not be rectified. The Handy Scratch Remover, illustrated herewith, removes scratches and all other scars so completely that it is hard to tell whether the furniture had even been scratched at all. The Handy Scratch Remover is packed in a permanent case which is easily carried in the vest pocket or tool kit. **ALWAYS READY TO USE and SUITABLE FOR ANY TYPE OF FINISH.** With reasonable care, the Handy Scratch Remover should last for years.

No. 4440 Handy Scratch Remover  
YOUR PRICE **\$0.35**  
Display Carton of 1 dozen **\$3.60**

Gentlemen:

I have obtained such splendid results from your Air King Superheterodyne Short Wave Converter that I have recommended it to all radio owners I know. You will soon hear from them. FEDERICO ACEVEDO VAZQUEZ, Santurce, Porto Rico.



# ELECTRICAL SPECIALTIES

## "Under-the-Rug" Cord Set

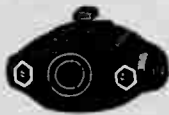


A specially manufactured, extremely thin, two-conductor cord, designed as an extension cord to run under the parlor or living-room rug for energizing floor lamps, radios, etc., in far corners of the room. Lies flush with the floor and is not noticeable through the rug, which lies as smoothly as though there were nothing under it. Ideal for extension systems where it is necessary to tack the cord on the wall. Gives a neat, professional-like appearance. Sold in complete sets consisting of special flat two-conductor cord, Bakelite cube tap and Bakelite wall outlet. Both tap and wall outlet match the color of the cord. Packed one set to a box. Shipping weight, 1 lb.

No.	Size	List Price	YOUR PRICE
3003	12 ft. length	\$1.50	<b>\$1.13</b>
3004	15 ft. length	1.65	<b>\$1.28</b>

## Feed-Thru Bakelite Switch

A general utility toggle switch, made of genuine moulded Bakelite. Ideal for use on soldering irons, eliminators, power packs, receivers and all electrical appliances which do not already have built in on-off switches. Neatly engages all standard electrical feed cords. Shipping weight, 1/2 lb.



List Price \$0.35  
**YOUR PRICE \$0.20**

No. 3009 Feed Thru Bakelite Switch

## Bakelite Handle Plug

A genuine Bakelite male plug with a sure-grip handle feature. Contact prongs are made of highly tempered, non-corrosive brass which insures perfect electrical contact. Shipping weight, 1/4 lb.



List Price \$0.20  
**YOUR PRICE \$0.06**

No. 3011 Bakelite Handle Plug

Box of 10 — \$0.65

## Elmenco Fused Plugs

The new Elmenco Fused Plug is the simplest and most effective means so far developed for minimizing the inconvenience and danger resulting from short circuits and overloads which occur in all manner of electrical appliances and their connecting cords.



Elmenco Fused Plugs are equipped with two standard glass fuses of the automobile or radio type. When electrical faults occur in appliances, which are protected by Elmenco Fused Plugs, a fuse in the plug will blow instead of the inconveniently located branch circuit fuse or perhaps the main service fuse which is even more inaccessible. The trouble is thereby localized to the appliance or appliances connected to one convenience outlet.

It is a simple matter to replace a blown fuse. You simply remove the old cartridge, slip in another and presto!—you have light once more. Available in two styles, viz., a three-way cube tap and a one-way cord plug.

No. 3024 Elmenco Three Way Fused Cube Tap  
**YOUR PRICE, each \$0.18**  
 No. 3025 Elmenco Fused Cord Plug.  
**YOUR PRICE, each \$0.18**

## FREE REPLACEMENT FUSES

With the purchase of 12 or more of any of the above fused plugs, five replacement cartridge fuses will be given free. These fuses are available in ampere ratings of from 6 to 10 amps., as well as 15 amps. (SPECIFY WHICH WHEN ORDERING.) They may also be bought separately if desired. Put up four fuses to an attractive metal box.

No. 3026 Replacement Cartridge Fuses, per box of four.  
**YOUR PRICE \$0.10**

## Bakelite Current Tap



A useful combination of electric taps which makes it possible to light an electric light bulb and make two external plug connections, all at the same time and from the same socket. Made of one piece genuine Bakelite construction and provided with a standard Edison screw base. Shipping weight, 1 lb.

List Price \$0.25

No. 3013 Bakelite Current Tap  
**YOUR PRICE \$0.16**

## Cube Tap Cord Set

Here is a very convenient device for supplying current to one or more lamps, radio sets, ornament light, etc., without the bother of splicing wires, or attaching additional outlets to the walls. Comes complete with 6 ft. 2/13 silk parallel cord with inner braid, approved by Underwriters, and two piece male-female connection plug. Cube tap is made of moulded Bakelite and will engage any standard male plug. Shipping weight, 1/2 lb.



List Price \$0.75

No. 3014 Triple Outlet Cube Tap  
**YOUR PRICE \$0.26**

## Electric Cube Tap

A convenient three-way electric light outlet consisting of highly tempered contact springs firmly embedded in a genuine Bakelite housing. Will engage any standard female plug or wall receptacle. Shipping weight, 4 oz.



List Price \$0.15 ea.

No. 3015 Electric Cube Tap  
**YOUR PRICE ea. \$0.08**

12 for \$0.68

## Heater Switch Plug

Heavy duty, heat-resisting heater plug with built-in on-off switch conveniently located. Made of durable moulded imitation Bakelite. Complete with cord-protecting spring. Shipping weight, 1 lb.



List Price \$0.35

No. 3016 Heater Switch Plug  
**YOUR PRICE \$0.19**

Box of 10 — \$2.00

## Heater Plug

Heavy duty, heat-resisting plug, made of moulded imitation Bakelite. Contact jacks are of the highly tempered spring-action type which insure positive electrical contact. Complete with cord-protecting spring. Shipping weight, 1 lb.



List Price \$0.15

No. 3017 Heater Plug  
**YOUR PRICE \$0.08**

Box of 10 — \$0.75

## Switch Plug and Cord Set

Six feet of asbestos covered, heat resisting, high current, electric cord with shut-off switch built into the attachment plug which is of armoured Bakelite. Complete with two piece male-female connection plug. Shipping weight 1/2 lb.



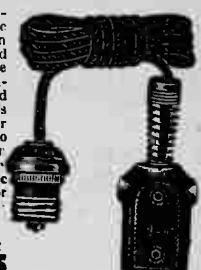
List Price, \$0.75

No. 3018 Switch Plug and  
 Cord Set  
**YOUR PRICE \$0.32**

12 for \$3.60

## Heater Cord Set

Six feet of asbestos covered, heat resisting electric cord with polished, imitation Bakelite attachment plug and two piece male and female connection plug. The ingenious serviceman will find many other uses for this quality heater cord set other than for its application to electrical appliances; it can be used for example, for supplying current to dynamic speaker field coils and for many other purposes. Shipping weight 1/2 lb.



List Price \$0.60

No. 3019 Heater Cord Set  
**YOUR PRICE \$0.25**

## Brand New! Radio Mirror Penlite

Latest and Cleverest Tool for Radio Servicemen. The only device that enables you to LOOK AROUND CORNERS or UNDERNEATH inaccessible spots. Your vision is ONLY in a straight line, but with the Mirror-Penlite you can look around a 45 degree angle. You can now look under the whole chassis and see every nut, every wire, every socket, behind condensers, transformers, etc. This is made possible by the powerful pocket flashlight to which is attached a GENUINE DENTAL MAGNIFYING MIRROR. Mirror clips on or off so flashlight can be used alone if desired. The cleverest device yet. Complete with battery and bulb. Shipping weight, 6 ozs.

List Price \$2.50  
 No. 1695 Mirror-Penlite with Battery and Mirror.  
**YOUR PRICE \$0.55**

## Bakelite Electric Wall Outlet

A handsome, well-made, genuine brown Bakelite electric wall outlet. Excellent for use as speaker outlets where several speakers are used simultaneously in different rooms. Easily attached with one wood screw. Shipping weight, 1/2 lb.



List Price \$0.20  
 No. 3021 Bakelite Electric Wall Outlet  
**YOUR PRICE \$0.11**

Carton of 20 — \$1.85

## Porcelain Double-Outlet

A popular, two-way electric tap made of high grade porcelain, properly grooved at the bottom to permit free passage of wires. Mounts to wall with single wood screw. Shipping weight, 1/2 lb.



List Price \$0.25

No. 3022 Porcelain Double-Outlet  
**YOUR PRICE \$0.15**

## Midget Cord Connector

A well-built, flat-terminal cord connector for light duty work. Recommended for light motors, machines, testing instruments such as tube checkers, electric oscillators, portable electric sets, etc. Made of imitation dull-finished Bakelite with countersunk bolts and nuts. Shipping weight 4 oz.



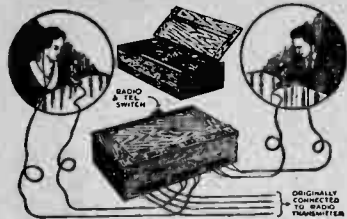
List Price \$0.30

No. 3010 Midget Cord Connector  
**YOUR PRICE \$0.18**

Box of 10 \$1.65

## U. S. SIGNAL CORPS INTERPHONE SYSTEM

Easily Adaptable to Home Use



This compact device was designed originally by Western Electric for the U. S. Army Signal Corps for airplane use to afford telephonic conversation between the pilots and observers cock-pits. It is but necessary to plug in the two microphones and two head sets to get it working. The illustration above depicts but one of the myriad number of uses to which it may be applied. A complete and detailed diagram, both schematic and pictorial, is pasted into the cover of each unit.

Provisions are made for the insertion of six ordinary flash-light coils (3 for the pilots circuit and 3 for the observers circuit). The entire compact unit consists of two impedance matching telephone type transformers. One specially constructed 4-pole double-throw rotary switch (for switching to either telephonic or radio communication) 3 small Western Electric condensers, specially constructed battery contacts and cradles, and 3 sets of tip jacks. All these units are self-contained in a beautifully constructed dorretailed box with solid brass hardware. A provision of brass name-plates makes the operation of this unit self-explanatory. The case measures 10 1/4 ins. long by 6 3/4 ins. wide by 2 3/4 ins. deep. Any type of microphone and earphone will work with this unit or complete with two microphones and two head sets as illustrated herewith.

**B-7270 Airplane Type Telephone System Less Microphones, Head Sets and Batteries. \$1.50**

**B-7271 Airplane Type Telephone System Complete with Microphones and Head Sets but less Batteries. \$3.95**

YOUR PRICE

### Cigar Lighter Unit



A genuine cigar lighter replacement unit, the size and shape of a fuse but with a high grade nichrome heating element built in. Has a standard electric light screw base. Screw one into any light socket, turn on the current and presto! you have a dull-red glowing element ready to light any cigar or cigarette. Many Servicemen keep a supply of these units in their service kits and demonstrate them to their clients. Every lighter is a sure seller. Shipping weight, 4 oz.

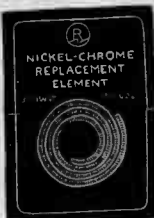
List Price \$3.30.

**No. 1980 Cigar Lighter Unit. \$0.12**

YOUR PRICE

### Nichrome Heater-Wire

600 Watts. A replacement unit for all electrical appliances using nichrome or other resistance wire as the heating element. Servicemen can earn extra money by making incidental repairs on electric stoves, toasters and other heating appliances while working on a job. May also be used as regular resistance wire in radio and allied circuits. Will safely dissipate a tremendous amount of heat. Keep several units on hand in case of emergency. Put up one element to a card. Shipping weight, 1/2 lb.



List Price \$2.25

**No. 1981 Nichrome Heater Wire. \$0.12**

YOUR PRICE, per card

### Socket Type Flasher



An ingenious device that makes and breaks electrical circuits regularly and automatically. Remove electric bulb from any socket, insert the flasher in its place and then reserve the bulb in the flasher receptacle. In a few seconds the bulb starts to flash, on and off at regular intervals. Ideal for flashing Christmas tree lights, display lights and electrical signs. Shipping weight, 1/2 lb.

No.	Type	List Price	YOUR PRICE
3001	110 volts	\$0.25	<b>\$0.12</b>
3002	120 volts	.40	<b>\$0.16</b>

### Flat Iron Replacement Elements

Made of flat genuine nichrome resistance wire. Will fit over 90% of all flat irons on the market, including Hot Point, Sunbeam, G.E., etc. Available for either three or six pound irons.

**No. E-76 6 lb. Flat Iron Element \$0.22**

YOUR PRICE

### Nickel Plated Hot Plate Stove



A sturdily built, heavy duty electric hot plate which lends itself readily to a variety of uses. Do not compare with cheaper grade enamel style. Made of heavy steel with genuine nichrome wire element embedded in high-grade porcelain tracks. Servicemen find these electric stoves quite useful for melting pitch and other impregnating materials, softening hard rubber products for moulding purposes and for many other uses. Hot plates are 8 1/2" in diameter and 4 1/2" high. For 110-115 volts A.C. or D.C. Shipping weight, 3 lbs.

List Price \$3.50

**No. 1978 Nickel Plated Hot Plate Stove. \$0.98**

YOUR PRICE

### One-Piece Attachment Plug

Male and female plugs combined into one unit. Will safely handle 600 watts without heating. Engages all standard Edison screw type receptacles and sockets. Shipping weight 1/4 lb.

List Price \$0.25

**No. 3012 One-Piece Attachment Plug. \$0.10**

YOUR PRICE



### "Hydro-Electric" Running-Water Heater

Entirely Automatic—Safe to Use—Fully Guaranteed



Running hot water direct from your cold water faucet, instantly, continuously. Requires no re-wiring or extra work of any kind. Merely attach one to any faucet and plug into the nearest electric light outlet. When you turn the faucet, water flows over the element and AUTOMATICALLY TURNS ON THE CURRENT. When you close the faucet, the current is automatically turned off. Seems paradoxical to you, just as it seemed to us; until we actually had it demonstrated for us; it worked! Boiling hot water flowed from the nozzle just as soon as the water was turned on.

Now it's Automatic—Fool-proof. The old water heater used to burn out if by accident or through forgetfulness you first turned on the current and then the water. The process had to be in proper sequence, viz., first turn on water, secondly, turn on current. If you failed to follow these instructions, the element immediately burned up. Through a marvelous new discovery, utilizing non-corrosive metals and completely eliminating the old resistance coil ele-

ments, the Eagle Hydro-electric water heater gives a flow of hot water instantaneously and shuts itself off automatically when you stop the flow of water. This is the only water heater which has this fool-proof feature. CONSUMES NO MORE ELECTRICITY THAN YOUR HOUSEHOLD IRON. USES CURRENT ONLY WHILE GIVING HOT WATER. Fits all types of faucets. Sold complete, ready to use with 25 ft. rubber-insulated, heat-resisting cord and 2 piece plug. Operates only on alternating current—110-125 volts. Models for 220-240 volts A.C., may be had at an additional cost of 25 cents.

#### Choice of Several Models

Drinking water in various parts of this and foreign countries vary considerably in their degree of hardness, i.e., in the amount of mineral and other foreign matter contained therein. To take care of this condition, this water heater is made in the various models listed below. Before ordering, we suggest that you call your local Water Department and request the "parts per million hardness" contained in your water. With this information, you can then choose the proper model and rest assured that it will work at its maximum efficiency. Two fuses are included with each heater. It is important that these fuses replace the ones which are now in the fuse box. Unless we have the above information, it will be necessary for us to delay shipment until we have hunted up the information as to the degree of hardness in your particular locality. Ship. wt. 5 lbs.

List Price \$5.00

No. (0-50)	for soft water, 0-50 parts per million.
No. (51-100)	for soft water, 51-100 parts per million.
No. (111-150)	for soft water, 111-150 parts per million.
No. (151-200)	for hard water, 151-200 parts per million.
No. (201-460)	for hard water, 201-460 parts per million.

**YOUR PRICE \$2.25**

### G. E. Remindo Switch-Buzzer

Works in series with 110 volt. A.C. line



An ingenious device, which when placed in series with any electrical instrument or equipment working directly from the 110 volt. A.C. line will emit a low, pleasant buzz while the switch is "on". Intended mainly for the purpose which its name "Remindo" suggests; that is, to remind one that some particular instrument or apparatus is still in operation. Recommended for soldering irons, regular buzzing system (in which capacity it entirely eliminates the usual stepdown transformer), etc.

The ingenious serviceman or experimenter will find many other uses for this little unit. The buzzer and rotary switch are mounted on a porcelain base and are fully shielded with nickel-plated metal jackets. Measures 3 1/4"x2"x1 1/4". Shipping weight, 1 lb. List Price \$1.50

**No. 2070 G.E. Remindo Switch-Buzzer \$0.60**

YOUR PRICE

### Twin Flasher

Works on the same principle as the socket Type Flasher with the exception that it engages two male plugs simultaneously. Made of genuine moulded Bakelite with two protruding prongs which fit all standard type female receptacles. Shipping weight, 1/2 lb. List Price \$0.40

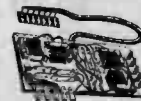


**No. 3000 Twin Flasher \$0.21**

YOUR PRICE

### Kolster Remote Control Quadruple Relay

Applicable to Myriads of Interesting Experiments



An unusually fine bargain for the man interested in controlling radio or electrical apparatus from distant points. The arrangement of "operate" and "release" currents and a sufficient number of contacts are provided to meet most circuit conditions. The relays will operate with an applied potential of as little as 3 volts; although voltages as high as 20 volts may be applied without injury to the instrument.

This remote control consists of two sets of locking relays, with four electromagnets, each provided with laminated cores and sturdy copper-plated armatures. A current applied to the "set" relay locks the armature and contacts in one position and a current applied to the "release" relay returns the circuit to its original condition. One of these relay devices is employed in our very plant for starting and stopping an A.C. generator and controlling the field current of a remote dynamic speaker.

The relays are mounted on a bakelite panel 4 x 7 1/4 inches and a four foot 7 wire cable is included. Shipping weight 1 1/2 lbs. List Price \$18.00

**No. F7211 Kolster Remote Control Unit. \$1.50**

YOUR PRICE

# NATIONALLY KNOWN VACUUM CLEANERS

AT PRICES NEVER OFFERED BEFORE  
FULLY GUARANTEED

These machines are so thoroughly inspected, and rebuilt at the factory that we unhesitatingly place upon them an

## UNCONDITIONAL 6 MONTHS GUARANTEE

Should they prove defective during that period of time we shall cheerfully repair or if necessary, even replace them without extra charge.

When a machine, a typewriter for instance, (which has an intricate maze of moving parts) is renovated in such a way as to have ALL MOVING PARTS REPLACED WITH NEW ONES it will naturally, and actually perform as smoothly and as easily as though it were new; for, practically speaking, IT IS A NEW MACHINE. The metal castings and other rigid parts need not be replaced since they are merely supporting structures which never "age" or wear. These "new" machines are resold to the public at a tremendously large saving. All this is true, and even more so, with vacuum cleaners which have considerably less moving parts than a typewriter.

## BRAND NEW PARTS

Our vacuum cleaners are thoroughly and carefully remanufactured. All component parts, no matter how slightly worn, are replaced with new ones; we supply new bags, cords, brushes, handles and other parts. Even the chassis itself is replated and polished. We carry 9 different models in stock.

No. 1991 WESTERN-ELECTRIC—Gear Shift in housing gives either straight suction or suction with motor-driven brush. Pistol grip handle. Switch in handle. Black enamel steel housing. 13 inch polished aluminum nozzle. Shipping weight, 17 lbs.

List Price \$57.50.

YOUR PRICE

**\$14.25**

No. 1992 UNIVERSAL—Straight suction. No brush. Pistol grip handle. Switch in handle. Polished aluminum housing. 13 inch nozzle. Shipping weight, 20 lbs. List Price \$59.50.

YOUR PRICE

**\$12.75**



**\$12.75 \$14.25**

No. 1993 HAMILTON-BEACH—Motor Driven Brush. Pistol grip handle. Switch in handle. Polished aluminum housing. 12 inch nozzle. Shipping weight, 20 lbs. List Price \$39.50.

YOUR PRICE

**\$12.75**

No. 1994 EUREKA—Straight suction. Fixed brush. Pistol grip handle. Switch in handle. Polished aluminum housing. 13 inch nozzle. Shipping weight, 20 lbs. List Price \$52.50.

YOUR PRICE

**\$14.25**

No. 1995 HOOVER—Motor driven brush. Foot control switch. Black enameled steel motor housing. 12 inch nozzle. Shipping weight, 24 lbs. List Price \$63.50.

YOUR PRICE

**\$14.25**

No. 1996 PREMIER DUPLEX—Motor driven brush. Pistol grip handle. Switch trigger in handle. Polished aluminum housing. 13 inch nozzle. Shipping weight, 20 lbs. List Price \$60.00.

YOUR PRICE

**\$18.50**

No. 1997—BEE-VAC—Straight suction. Fixed brush. Pistol grip handle. Switch in handle. Polished aluminum housing. 13 inch nozzle. Shipping weight, 17 lbs. List Price \$39.50.

YOUR PRICE

**\$9.75**

No. 1998 PREMIER—Straight suction. Fixed brush. Pistol grip handle. Switch in handle. Polished aluminum housing. 13 inch nozzle. Shipping weight, 17 lbs. List Price \$40.00.

YOUR PRICE

**\$11.75**

No. 1999 ROYAL—Straight suction. Fixed brush. Pistol grip handle. Switch in handle. Polished aluminum housing. 14 inch nozzle. Shipping weight, 18 lbs. List Price \$55.00.

YOUR PRICE

**\$12.75**

Attachment accessories comprising suction coupling unit, extension rod, extra-long suction hose, upholstery nozzle, upholstery brush, and radiator nozzle may be had at an additional cost of \$5.00.

# NEW!

## G-M Photo-Electric Relay Switch

# NEW!

The Ideal Photoelectric Relay for Experimental Work and Commercial Applications

FOOL PROOF OPERATION — RAPID-FIRE ACTION

The G-M Photo-Switch is an electro-magnetic switch which is operated through the medium of a beam of light. It is a REAL photo-electric relay, the first fool-proof device of its kind ever manufactured. Every part in the photo-switch has been individually designed to function at its maximum efficiency when operating in unison with the other component parts of the unit.

Just think of the many interesting, unusual and profitable things you can do with this photo-switch. One radio amateur uses the photo-switch to send his call letters, another automatically turns on his garage lights, photoelectrically when he enters his driveway; a third man uses the photo-switch to warn him of approaching intruders.

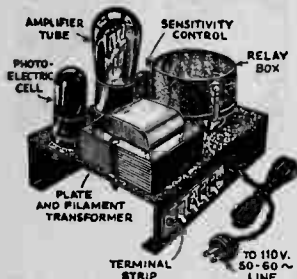
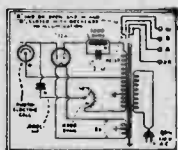
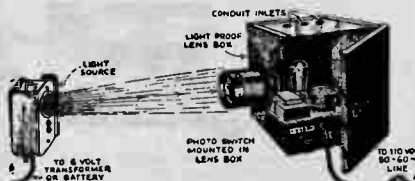


Photo-Switch without Lens-Box



Schematic Circuit of Switch



Typical Set-Up of Photo-Switch in Lens-Box



Opening garage doors

EVERY PHOTO-SWITCH COMES WITH FULL INSTRUCTIONS, LIST OF PARTS, CIRCUIT DIAGRAMS AND SUGGESTIONS FOR USE.

The G-M photo switch comes equipped with the Vistron type B photoelectric cells.

In order to more fully concentrate the beam of light from the light source, a SPECIAL LENS BOX was manufactured which focuses the light beam directly upon the window of the photoelectric cell.

The entire photo switch mounts inside this box in such a way as to have the window of the photoelectric cell placed squarely in back of the lens hood. This arrangement is particularly applicable to commercial installations. The photoelectric switch requires one 112A amplifier tube. All of these units may be bought separately — as desired.



Counting patrons as they file into theatres

## Service Men and Experimenters—A Vast Profitable Field For You

On the practical side, consider the tremendous commercial possibilities of the Photo-Switch. Radio at one time offered the same opportunities. Just recall the amateur radio fans who not only received employment from the new radio industry but turned it into a lucrative profession.

While the development of the radio art was limited only to the radio industry, the applications of photoelectricity are universal. The use of photoelectric cells is still in its infancy. To the man who is interested in earning money through his technical knowledge and skill, the photo switch opens up many channels. Stores, apartment buildings, service stations, restaurants, public buildings—ALL are logical prospects for the Photo-Switch. How many progressive up-to-date stores are there in your city or neighborhood? Ask them how valuable their display windows are to them. Then ask if they will be interested in increasing their value. The answer to this question is of course—yes. You can then point out to them the advantage of leaving their windows dimly lighted (or not lighted at all—at night) until a pedestrian approaches and then have it automatically flooded with light. The attraction value of the sudden illumination is tremendous—people simply MUST look! It's natural for them to do so!

## Applications of the Photo-Switch

1. Opening garage doors.
2. Automatically sending and repeating amateur call letters.
3. Street light control; traffic control; electric sign control.
4. Opening and closing doors in restaurants, warehouses, etc.
5. Fire alarms; burglar alarms.
6. Protection against trespassing.
7. Detection of noxious fumes.
8. Automatic control of illumination in schools, offices, stores, etc.
9. Photoelectric engraving.
10. Counting and sorting devices for production work.
11. Controlling the level of liquids in tanks, or grain and coal in bins and shipholds.
12. Turning lights on at dusk or off at dawn. And an untold number of other uses.

No. 1222B — Photo-Switch, fully assembled and wired but less 112A tube.

YOUR PRICE

**\$19.36**

No. 1227A — Six Volt Light Source. Overall dimensions 4 1/2" high x 3" wide x 5 1/4" deep.

YOUR PRICE

**\$5.43**

No. 27-3A — Lens Box for 1222B. Size of Box 8" cube.

YOUR PRICE

**\$8.10**

RADIO TRADING COMPANY, 100 PARK PLACE, NEW YORK, N. Y.

## NEW SHUTTER-TYPE ELECTRIC CLOCKS

### New Revolutionary Electric Timepieces

The clocks presented herewith are the most outstanding on the market, they represent the most revolutionary advancements in electric clock design. All are equipped with a newly developed "silent motor" and are guaranteed for one year against mechanical and electrical defects. **IN COMPARISON WITH THIS NEW CLOCK THE OLD ELECTRIC TIMEPIECES NOW SOUND LIKE BOILER FACTORIES.** Their motors are of the synchronous type and are oiled for life at the factory—once set into operation they require no further attention for the entire period of their life. These clocks will not stop when picked up or when the starting button is accidentally touched. All models listed here, except model 46105, may be had with electrical alarms.

List Price \$4.40

**MODEL 46102** (see illustration) **SPECIFICATIONS.** CASE—Wood; **FINISH**—Walnut; **DIMENSIONS**—5 1/2" high, 4" wide; **DIAL**—Two-tone frosted silver and polished brass; **INDICATOR**—Rotating disc with arrow; **LENS**—Clear crystal. Equipped with 6 ft. approved cord and plug. **Ship. wt., 3 lbs.**  
**No. 46102 Shutter Electric Clock.**

**YOUR PRICE \$2.97**

List Price \$5.50

**No. 6701** Same as above with illuminated dial and buzzer alarm.

**YOUR PRICE \$3.72**

List Price \$2.75

**No. 4601** (see illustration) **SPECIFICATIONS.** CASE—Die cast metal; **FINISH**—Black gloss enamel, with nickel feet; **DIMENSIONS**—Height 4 1/4" width, 3 1/2" depth, 2 1/4"; **DIAL**—Two-tone frosted silver and polished brass; **INDICATOR**—Rotating disc with arrow; **LENS**—Clear crystal; Equipped with 6 ft. approved cord and plug. **Ship. wt., 2 lbs.**  
**No. 4601 Shutter Electric Clock.**

**YOUR PRICE \$1.86**

List Price \$3.30

**No. 4701** Same as above with buzzer type alarm.

**YOUR PRICE \$2.22**

List Price \$5.50

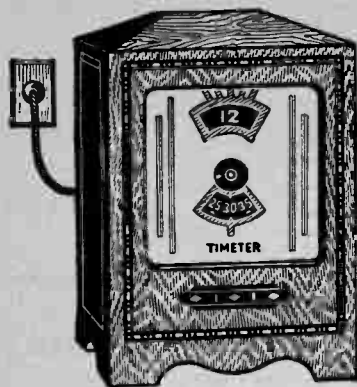
**No. 46105** Tambour Model (see illustration) **SPECIFICATIONS.** CASE—Wood; **FINISH**—Walnut with marquetry inlay; **DIMENSIONS**—1 1/2" long 6 1/2" high; **DIAL**—Two-tone frosted silver and polished brass; **INDICATED**—Rotating disc with arrow; **LENS**—Clear crystal; Equipped with 6 ft. approved cord and plug. **Ship. wt., 4 lbs.**  
**No. 46105 Tambour Shutter Electric Clock.**

**YOUR PRICE \$3.72**

List Price \$6.05

**No. 6603** Tambour. Same as above, No. 46105, except has illuminated dial.

**YOUR PRICE \$4.10**

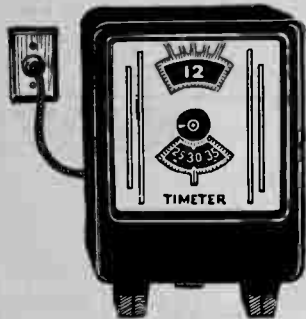


No. 46102

Every Clock

Guaranteed for

One Year



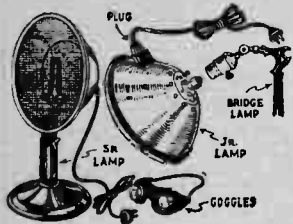
No. 4601



No. 46105

## Ultra-Violet Sunshine at the Lowest Price in the World

Expensive Sun Lamps Can Do No More



These full-strength therapeutic health lamps, radiate not only ultra-violet rays, but infra-red as well. Consider what this means—the infra-red or heat rays first open the pores of the skin, thereby paving the way for the ultra-violet rays to enter and deliver

their full benefits without any hindrance. **THIS IS EXACTLY WHAT MORE EXPENSIVE SUN LAMPS DO—so why pay more.** In fact, some of these expensive lamps do not even have the infra-red radiators, but only the ultra-violet.

These lamps are constructed in such a simple manner that nothing can possibly go wrong with them. There is no complicated mechanism whatever to get out of order. Available in two models; viz., the **SUN-MITE JR.**, or screw-in type, which utilizes an ordinary floor or table lamp for support, and the **SUN-MITE SR.**, which has a base of its own. Both types use 8 mm. carbons and operate on 110-120 volts, either A.C. or D.C. The **SUN-MIT JR.** measures 6 1/4" high x 6 1/4" wide x 5" deep. An ordinary appliance cord set may be used for current supply. The **SUN-MITE SR.** measures 15" high overall x 6 1/4" wide x 6" deep. Both models are furnished complete with carbons and goggles. The Jr. model is less cord; the Sr. model includes cord. **Ship. wt., 3 lbs. each.**

**No. 1983 SUN-MITE JR. Sun Lamps. \$1.65**

**YOUR PRICE, each**

**No. 1984 SUN-MITE SR. Sun Lamps. \$2.25**

**YOUR PRICE**

## Special Focusing Spotlight

The same finger which operates the switch on this flashlight may also adjust the focusing range. This is its special feature. Beautifully finished in highly polished, ribbed chromium. Has an octagonal head to prevent rolling. Equipped with convenient ring hanger on the bottom. Sold complete with 2 standard cells and 2.5 volt bulb. **Ship. wt., 1 lb.**

**No. 200 Special Focusing Spotlight. \$0.62**

**YOUR PRICE**

## Powerful Focusing Searchlight

The flashlight listed herewith is made of the finest material available, and will give maximum life under ordinary operating conditions. The No. 500 uses 5 regular dry cell units in conjunction with a six-volt bulb and throws a brilliant 1800 ft. beam. The No. 526 uses 3 regular cells in conjunction with a 3.5 volt bulb and throws a 1500 ft. beam. Both are finished in highly polished, ribbed nickel and have special lockswitch contacts. A convenient ring hanger on the bottom of each flashlight provides for carrying on one's belt or on wall. Both flashlights are furnished complete with cells. **Ship. wt., approximately 3 lbs.**

**No. 500 1800 Ft. Beam Flashlight, complete with Cells \$1.30**

**YOUR PRICE**

**No. 526 1500 Ft. Beam Flashlight, complete with cells. \$0.93**

**YOUR PRICE**

## "Measured-Time" Electric Time Switch

A Veritable Electrical Robot



"Measured Time" is an instrument of wide and varied service. Although primarily a precision electric clock, on a predetermined minute it gives a clear-toned signal indicating that the cooking is ready or that the toast is just starting to burn. There are indeed innumerable uses to which this precision timekeeper may be placed. These "Measured Time" clocks were developed and precision-built to meet the requirements of scientific laboratories, hospitals, schoolrooms and home kitchens. All over the nation they are standing watch over various processes where the slightest lapse in time means ruination of something or other. Any one of the thousands of uses will tell you of the host of duties these instruments perform day in and day out with accurate, dependable precision.

The signal which "Measured Time" emits may be adjusted as to pitch and duration. A specially calibrated dial on the front of the clock permits pre-setting of the signal gong to any predetermined minute. Has guaranteed precision movement. "Measured Time" simply won't let you forget. It will help you get that job done on time. This instrument is housed in a beautiful and sturdily constructed moulded case and may be had with either black, smooth ivory or beautiful onyx finish.

This clock is available in a spring-powered model as well. This model is just as accurate as the electric one and is guaranteed against poor workmanship for a period of two years. **Shipping weight, 6 lbs.**

**List Price \$9.50**  
**No. 1889 "Measured Time" Electric Clock. \$9.50**

**YOUR PRICE**

List Price \$4.95

**No. 1647 "Measured Time" Spring-Powered Clock. \$4.95**

**YOUR PRICE**

## "Paris" Electric Alarm Clock

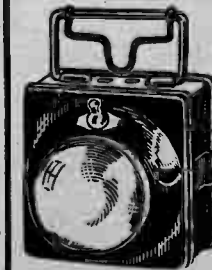
Manufactured by the Hammond Clock Company

Here is a genuine Hammond manufactured electric clock made to the exacting specifications of the more expensive Hammond models. The price being so extremely low there is no longer any reason why anyone should consider buying the old-fashioned ticking alarm clocks. This model will deliver synchronous electric accuracy not possible with the ordinary spring clock. **BUILT TO LAST MANY, MANY YEARS.** It is indeed a good investment at twice its price. The case is walnut colored Bakelite with a large, clear dial, trimmed with brass finished Bezel. **THE ALARM BUZZER WILL RING FOR 45 MINUTES, STEADILY**—unless it is turned off by means of a control switch in back of the clock. Quantity production alone makes it possible to offer this amazing value. Each clock is individually packed in a beautiful gift box. Size 3 1/4" wide x 4 1/4" high. Diameter of dial, 3". **Ship. wt., 2 lbs.**

**No. 1688 Paris (Hammond) Electric Alarm Clock. \$2.75**

**YOUR PRICE**

## New Lantern Flashlight

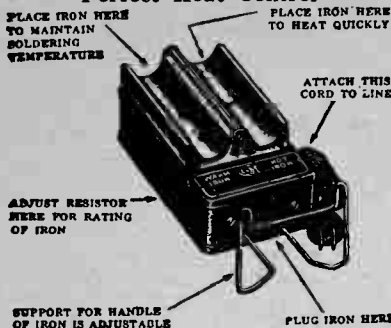


Requires 2 standard cells and ordinary bulb to operate. Throws a strong, steady beam of light. Has device for fastening to bicycle, hanging on wall, or coat-button. Excellent for use as an emergency light on automobiles. Small, compact, and well built. **Ship. wt., 1 1/2 lbs.**

**No. 1000 New Lantern Flashlight.**

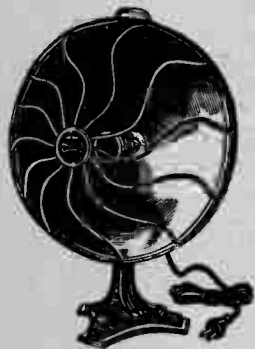
**YOUR PRICE \$0.43**

## Electric Soldering Iron Stand for Perfect Heat Control



Soldering troubles arise primarily from irons becoming overheated, while tinning.  
 This new and ingenious device completely eliminates these troubles, thereby increasing the life of the iron indefinitely.  
 The illustration shown herewith speaks for itself. The use of this stand reduces power consumption by 30 to 40 per cent; eliminates the necessity for frequent cleaning of tip; prevents overheating and pitting of copper tip; keeps the iron tinned for weeks at a time and unquestionably improves soldering connections. The stand is complete in every respect—ready for immediate use. Will accommodate practically all types and sizes of irons. Completely eliminates the fire hazard. Ship. wt., 4 lbs.  
**No. 3520 Electric Soldering Iron Stand. \$3.96**  
**YOUR PRICE**

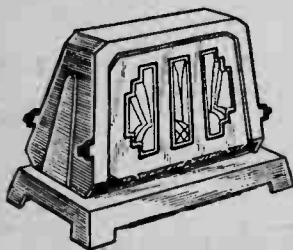
## "Eagle" Sun Bowl Glow Heater



No home, office or laboratory should be without one of these useful heaters. 14" heavy coppered bowl, highly polished and lacquered. Heavy ornamental, cast-iron base prevents heater from tipping over. Removable copper-plated, lacquered guard for easy cleaning. Adjustable pivot enables user to focus heat at any desirable angle. Base and back finished in rich, antique bronze. Sold complete with cord and glowcoil element. Designed for 110-120 volts, either A.C. or D.C. May also be had for 32, 220, 240 and 250 volts at an additional cost of 20c.

**No. 500 "Eagle" Sun Bowl Glow Heater \$2.40**  
**YOUR PRICE**

## New Modernistic Electric Toaster

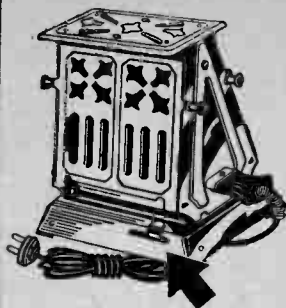


Toasts Both Sides  
 This smartly designed toaster includes all modern improvements such as mica elements, special cold-rolled steel, copper flashed and heavy chrome or nickel plated. The toaster is beautifully designed a long modernistic and futuristic lines. By merely turning the sides the toast is automatically flipped over from one side to the other.

Here indeed is a toaster for which the public has been waiting for a long time. It is beautifully designed and low priced.  
**HERE ARE SOME OF ITS SPECIFICATIONS.** Mica element. Underwriter's approved heater cord, terminal connections, standard plug cap with disc, cool fibre handles and fibre insulation bushing in base, steel terminal guard. Measures 7½" by 6¾" by 5½". Each toaster is individually packed. May be had either nickel or chrome plated, please specify which when ordering. Shipping weight, 2½ lbs.  
 List Price \$3.00  
**No. A-825-N Nickel Plated Modernistic Toaster. \$1.35**  
**YOUR PRICE**  
**No. A-825-C Chrome Plated Modernistic Toaster. \$1.50**  
**YOUR PRICE**

## "E-Z Kleen" Electric Toaster

Toasts Both Sides



The opening and closing of the side doors. The unit is thoroughly constructed of the finest component parts. A heavy duty mica element is used.  
**SPECIFICATIONS.** Made of high grade steel, copper flashed and heavy plated with heavy nickel, a highly polished finish of lasting luster. Contains a special heavy duty mica element. Underwriter's approved heater cord, standard plug cap with disc, large fibre insulating feet, etc. Measures 8" by 7" by 5½". Shipping wt., 2¾ lbs.  
**List Price \$3.00**  
**No. 840 Nickel Plated "E-Z KLEEN" Toaster, \$1.72**  
**YOUR PRICE**

## REMINDER

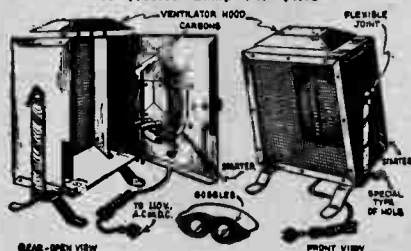
USE RUSH ORDER BLANK ON PAGE 104.

## Replacement Cone Glowcoils

Genuine nichrome replacement elements for electric bowl heaters, porcelain supporting structure with standard Edison screw base. Shipping weight, ½ lb.  
 List Price \$0.35  
**No. 3902 Replacement Glow Coils. \$0.21**  
**YOUR PRICE**

## Genuine Ultra-Violet Sunshine Lamp

New 1934 Model  
 Guaranteed For One Year  
 A \$100.00 Lamp For \$4.05



This health-ray lamp is a remarkable bargain. Users of this lamp receive the same benefits which are derived from lamps which cost from \$100.00 to \$150.00. They are equivalent in strength to the machines which are used in many large hospitals. **IT IS REALLY TWO LAMPS IN ONE.** Not only does it produce ultra-violet rays, those invigorating rays which destroy germ life and stimulate glandular functioning, but an especially designed generator produces **AT THE SAME TIME THE WARM INFRA-RED RAYS** which stimulate circulation, soothe, comfort and penetrate deeply into the living body tissues—healing and preventing illness.  
 A few minutes in the morning or evening with this lamp will keep you physically fit. The lamp is rated at 1,000 watts and is designed to operate from 110-120 volt source, either A.C. or D.C. May be used with either 6, 7 or 8 mm. carbons. The resistance coil (infra-red radiator) is of the very best nickel chrome wire and operates with a wide margin of safety. Complete instructions for the care and operation of this machine are included with each unit. Every lamp is sold complete with goggles, carbons, and guarantee registration card.  
 This lamp is available in both a table and floor model as illustrated above.  
 List Price \$4.50  
**No. 15T Table Model Health-Ray Lamp. \$3.60**  
**YOUR PRICE**  
 List Price \$7.00  
**No. 15F Floor Model Health-Ray Lamp. \$5.60**  
**YOUR PRICE**

## New "Hospital-Type" Sun Lamp

Generates Both Ultra-Violet and Infra-Red Rays



This oversized sun ray lamp does more than what the ordinary lamp will do. It produces not only ultra-violet rays but infra-red as well. These latter rays are heat rays which open the pores of the body, thereby preparing an easy path for the ultra violet rays (which are the true health-giving rays), to enter and be most effective. The only difference between this and \$100.00 lamps lies in its construction. But so far as the benefits derived are concerned, there is no difference whatsoever.  
 A lamp of this type is simply constructed but will last for many years. The only parts that require attention are the carbon elements which necessarily wear out even in more expensive lamps. Provisions are made to easily replace these carbons when burnt out.  
 It is an easy matter to operate this machine. You merely plug in the line cord which is furnished and bring the two carbon pole pieces together by means of an external bakelite knob. Then merely releasing the knob, immediately starts the lamp. The heat rays are produced by a special wire element in the rear of the lamp.  
 In operation it is normal for the carbons to flake off at the tips. A screen cover is provided to prevent these carbon flakes from leaving the lamp reflector. The machine is mounted on a heavy cast metal base and operates on swivel points so that it may be used in any position desired. Sold complete with a set of carbons, goggles and line cord. Ship. wt., 10 lbs.  
**No. 1356 New "Hospital-Type" Sun Lamp. \$3.38**  
**YOUR PRICE**

## New Infra-Red Hair Dryer and Health Lamp



Here is a practical lamp at a practical price—an Infra-Red lamp of ample size to be highly efficient both as a body stimulator and as a hair dryer. It is an indispensable item around sick rooms, hospitals or training camps. Used extensively in treating colds and similar ailments and for making salve and ointment applications more effective. It is simply but sturdily constructed and has a special handle which permits it to be used either as a hand machine or, through the use of a special base which is furnished with it, as a table lamp.  
**SPECIFICATIONS.** Has a highly finished and adjustable 7½" reflector, coiled Chromel element for 110 to 120 volts—450 watts. Sold complete with Underwriter's approved cord and black enameled handle and stand. Measures 7½" by 4½" by 14". Packed individually. Ship. wt., 2½ lbs.  
 List Price \$3.00  
**No. 300 Infra-Red Health Lamp. \$1.50**  
**YOUR PRICE**

## THE CLOK-TROLA RADIO SWITCH

### An Electrical Robot

Of all electrical time switches ever devised, this Clok-Trola is the most ingenious and most foolproof yet. While primarily an electric clock in a beautiful walnut-finish bakelite case, it will do many things in addition to giving you the correct time. It keeps perfect time and is well worth the price as a clock alone. Furthermore, it acts as a sentinel to start or stop your radio at the desired time. **YOU MAY SET THE CLOCK FOR AN ENTIRE DAY'S PROGRAM AND THEN FORGET ENTIRELY ABOUT IT.** The clock will then turn on and off the stations which you have preselected, all at the proper time. For instance—stock reports 6 A.M. till 6:30, cooking lessons from 10 A.M. to 10:40 A.M.; noon program from 12 to 1 P.M.; something else at 3 P.M. and so on 'round the clock. Your radio turns on and off automatically.



**THE CLOK-TROLA IS A DEPENDABLE SERVANT** The Clok-Trola may be used to automatically control any electrical device. It will turn on or shut off a furnace, refrigerator, percolator, or bottle warmer at any desired hour with equal dependability. Just connect Clok-Trola to any electric heating device—set the time wanted and, lo and behold, it's done. The bed-warmer pad can also be regulated to just the temperature desired. The Clok-Trola is really an electrical memory which never fails to turn on the radio or any other electrical device at exactly the right moment and never forgets to turn it off when the program is concluded.

**ITS USES ARE INNUMERABLE** There are so many little jobs this device can perform. It is impossible to list them all. It allows the radio to be used as an alarm clock in the morning or as a musical sleep inducer at night. It obviates the nuisance of listening to a poor program for fear of missing the desirable program following. In a business office, the Clok-Trola may be used to turn on a radio automatically for market reports and news broadcasts and shut it off when they are over.

Do you ever feel uneasy about the house being dark, and a temptation to a burglar when you go visiting? Why not connect a lamp stand to Clok-Trola, set it for the time you wish the light to come on, and the time to go off, and you need to have no more worries over a dark house. In fact, it can be set for one night, or for every night until you return home. This little robot not only saves many steps, but will also relieve you of many worries.

### HOW THE CLOK-TROLA OPERATES

It is equipped with 36 small keys set in a circle around the dial at 20-minute intervals. These keys control an automatic electric switch.

The operation is very simple. The clock is plugged into an electric socket in the ordinary way. A radio or any electrical device is plugged into the receptacle on the back of the clock.

To set the Clok-Trola for automatic operation of the radio at any particular time, the key opposite that time is turned. One key operates the radio from the time chosen until 20 minutes after the time. Any number of keys may be turned simultaneously. Thus, to set the Clok-Trola for operating the radio from 8 to 9 the 8.00, 8.20 and 8.40 keys are turned. When 8 o'clock arrives the radio will turn on and at 9 o'clock it will turn off.

**SPECIFICATIONS:** A small switch on the base allows the automatic control to be cut out at any time.

**CASE—**Of beautiful walnut finished bakelite moulded in a handsome shape.

**MOTOR—**High Grade electric motor assuring long trouble free service and accurate time-keeping.

**DIAL—**Fine silver finish with 3 1/2 inch concave lens. Full sweep second hand and large easily seen hour markings. Ship. wt., 5 lbs.

**DIMENSIONS—**The Clok-Trola stands 7 inches high by 7 1/2 inches wide.

No. "M" Clok-Trola Radio Switch **YOUR PRICE \$7.50**

NEW! NEW! NEW!

## Vaculator Coffee Brewer

AN AMAZING NEW WAY TO MAKE COFFEE

Saves Money! Gives Finer Flavor! Non-Injurious!



The outstanding and most popular beverage everywhere is a cup of coffee. Its method of preparation, however, is very often a case of "hit or miss"—guess work!

When coffee is boiled the old-fashioned way, the boiling process is invariably overdone. Not only is the rich flavor of the coffee boiled away, but the excess heat precipitates a chemical reaction which forms tannic acid and an excess of caffeine. These two compounds combined give the coffee a bitter, puckering taste, which aside from being disagreeable is quite harmful. This is also true of coffee prepared in a metallic percolator.

The **VACULATOR** brews coffee in a manner which is superior to any other known method or principle. This is due to the fact that the coffee is brewed at a controlled temperature of approximately 190°F. to 200°F.

Coffee contains approximately 90 per cent fibre and 10 per cent aromatic oils. These aromatic oils are the substances which impart the pleasing flavor to coffee. Now, when the coffee is boiled at a temperature of 212°F. (the boiling point of water) or higher, these aromatic oils are volatilized and driven off and at the same time the caffeine-tannin (very undesirable) is extracted from the coffee bean and left in the solution.

With the **VACULATOR**, however, the temperature of the coffee is controlled **BELOW THE BOILING POINT** thereby permitting the valuable oil to remain in the coffee. This method of making coffee is, therefore, aside from being highly efficient, quite economical inasmuch as none of the ingredients are boiled off. These is actually a saving of one half cent on each cup of coffee made by the **VACULATOR**. All the glassware is made of Pyrex glass which will not crack upon sudden heating. Metal trimmings are chromium plated and will not tarnish.

### EASY TO OPERATE

You place enough water, (either hot or cold) to give you the desired amount of coffee, in the bottom vessel. In the top vessel you place the coffee grains. When the water in the bottom is heated, a steam pressure is created which gradually forces the water up a funnel-like tube into the upper vessel. When all the water in the bottom has been forced to the top (where the coffee brewing actually takes place), the heat is removed. As soon as this is done, the sudden decrease in temperature creates a vacuum in the lower section of the **VACULATOR**, ("Vaculator" is derived from the two words vacuum and percolator), which sucks down the coffee solution through a filter in the neck of the upper chamber. This upper chamber is then removed and the coffee served from the lower vessel (called a "Decanter"). A handle is provided for this purpose. Full instructions for using the **VACULATOR** accompanies each unit. Available in two sizes, viz., one with a capacity of 7 cups (32 liquid ounces) and another with a capacity of 10 cups or 42 liquid ounces). These **VACULATORS** may be used either on a gas flame or with an electric-heating unit. Ship. wt., 12 lbs.

List Price \$3.95  
No. "Fireside" 7 Cup Vaculator Brewer **YOUR PRICE \$4.47**

List Price \$6.75  
No. V 10 Cup Vaculator Brewer **YOUR PRICE \$4.80**

List Price \$2.50  
No. EHSW Electric Burner. For above Vaculators, 860 Watts, 110 Volts, complete with attachment plug and cord. **YOUR PRICE \$1.95**

## Speaker Grill Cloth

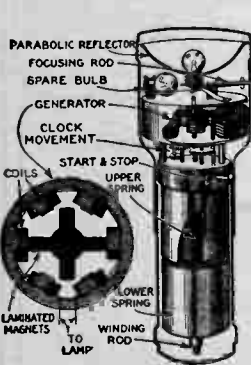
Exceptionally well woven metallic fabric cloth 10 1/2" square for gracing speaker grill openings of both regular and midget type consoles and cabinets. Once set in place it will neither sag nor stretch but will retain its same fine appearance throughout the life of the console. An attractive futuristic design is permanently woven into the fabric with silver-colored silk thread.



No. 1569 Speaker Grill Cloth. **YOUR PRICE \$0.20**

## NEW! NEW! NEW! Batteryless Dynamo Flashlight

A Power Plant in a Flashlight



Here is the most ingenious electrical device ever manufactured — a complete electric-generating plant condensed into the confines of an ordinary flashlight holder. Requires no batteries of any kind; needs no adjustments whatsoever; always ready to make its own light; a most useful and indispensable companion for a lifetime. Long service does not hurt it — **IN FACT, THE MORE IT IS USED, THE MORE EFFICIENT IT BECOMES.** The material and workmanship are the very best obtainable. **GUARANTEED**

**AGAINST MECHANICAL AND MATERIAL DEFECTS FOR A PERIOD OF ONE YEAR.** Can be kept running indefinitely and will give a strong dependable light for as long as it is necessary by merely turning the handle occasionally. The motor generator equipment is operated by a double-duck spring which is wound by twisting the handle. Pressing the button sets the motor in motion and operates a wonderful, small and compact dynamo which produces the current for a 2 1/2 volt light. There is absolutely nothing whatsoever to get out of order and nothing to deteriorate. A small adjustment is provided in the head of the flashlight to focus the beam of light. Should the bulb, by any chance, burn out, a spare one is cleverly tucked away beneath the deflector for just such an emergency. Put up in a neat baked-enamel case which will resist rust and corrosion. Measures 7 1/2 in. long x 3 in. across the head. Shipping weight, 7 lbs.

List Price \$10.00  
No. 4401 Batteryless Dynamo Flashlight. **YOUR PRICE \$7.00**

## "Housephone" Telephone Set



These telephones are not toys but honest-to-goodness phone equipment which compare excellently with standard telephones. They will operate efficiently up to 250 feet with three No. 6 dry cells. For each additional 300 feet an extra dry cell must be added. **NO TECHNICAL KNOWLEDGE WHATSOEVER IS REQUIRED TO INSTALL THEM.** Not connected in any way with any power line. The telephones are well made, attractively finished, and individually boxed. Each telephone incorporates an extremely sensitive microphone and equally sensitive ear piece.

40 feet of 3-conductor wire is furnished free with each set. Each telephone is finished in beautiful olive-green enamel and contains a red push-button switch for signalling the other end of the line. The entire outfit presents a dignified, professional appearance when mounted on the wall. Ship. wt., 7 lbs.

List Price \$6.00  
No. 4441 "Housephone" Telephone Set. **YOUR PRICE \$5.25**

Gentlemen:  
I have received the automobile set and eliminator, and now have them mounted in my car. **THE RECEPTION IS PERFECT.**

ALTON FISCHER,  
Dallas, Texas.

Gentlemen:  
I am very pleased with my Short Wave Set. Already I have picked up Police Calls and have received WXAL in New Jersey and KDKA in Pittsburgh.  
I am entirely satisfied with my set and think it is a cheap one at the price I paid.

RAYMOND MILLARD,  
Washington, D. C.

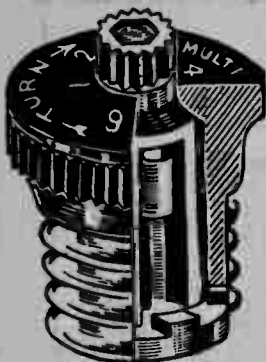


# LATEST NOVELTIES AND INVENTIONS

NEW! NEW! NEW!

## Six-in-One Fuse Plugs

The Fuse With Six Lives



Every unit is actually the equivalent of 6 house fuses—yet is no larger than the ordinary fuse. Convenient, safe, always ready to use in an emergency. Has six times the life of an ordinary fuse.

Fuses blow out at most unexpected moments—it happens to everyone. Guests may be visiting. There may be a party or a gathering—perhaps a sick person relying upon electricity. Suddenly—no light—no power—and worse yet—no fuses!

Avoid those unfortunate, embarrassing moments by having Six-in-One Fuses in the fuse box. Then, when the room is suddenly thrown into darkness, take hold of the little knob, turn it once—and click—"a turn to the right brings back the light"—and power.

**CONVENIENT—SAFE—ECONOMICAL.** This amazing device is worth its weight in gold. Saves time, trouble and temper. By comparison it costs less than six ordinary fuses.

**EXTRA MONEY FOR THE SERVICE MAN**  
Wide awake Service Men will fully realize the potentialities of this new and truly ingenious device as a medium for earning extra money incidental to their regular service work. Six-in-One Fuses are sturdily and scientifically constructed of improved materials and are guaranteed to perform perfectly under all weather conditions. **APPROVED BY UNDERWRITERS LABORATORIES.** Available in 15 amp.—125 volt sizes for ordinary household use and 30 amp.—125 volt sizes for heavy duty work. Fit all standard fuse sockets. Sold only in lots of four or more. Shipping weight, 12 oz. per four units. List Price \$0.25 ea.

No. 3023 Six-in-One Fuse Plugs. **YOUR PRICE, each 12 for \$1.65 \$0.15**

## Golf Caddy Cigar Lighter

Entirely Automatic—Never Misses



A modern, ornamental cigar lighter made of the most durable material and construction. The lighting mechanism is guaranteed to be absolutely fool-proof, employing hard steel against flint at the striking point. Merely press the handle of the golf bag and up flies the top of the bag revealing a cheerful flame, ready to serve.

Made for a lifetime of unflinching service; nothing but the flint to wear out. Incorporates a large, practically airtight fuel chamber which reduces fuel evaporation to an absolute minimum—one good filling will last for weeks.

Here indeed is the most practical and most beautiful ornament ever created. A remarkable life-like reproduction of a golf caddy in burnished bronze finish. It is not necessary to lift the entire statue when using. The golf bag is so designed that it easily slips off its concentric base and is as easily put back. Measures 9 1/4 ins. high. Shipping wt. 7 lbs.

List Price \$6.00.

No. 4408 Golf Caddy Lighter. **YOUR PRICE \$4.10**

Gentlemen:

I received the order O.K. I am very much satisfied with the material you handle and which you sent me in my recent order.  
D. E. ROBY, Moorcroft, Wyoming.

NEW! NEW! NEW!

## Electric Writing Pencil



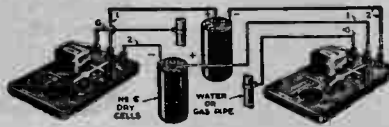
And now write by electricity! Imagine engraving your name or initials in silver or gold on practically any material. As easy and as simple as writing with an ordinary pencil. The writing or lettering you do with the new Electric Pencil is impressed with heat right into the leather, paper or other material, and therefore, does not smudge or rub off as is the case with other methods of writing or printing. The imprint is clean and sharp. Lines may be thin or broad, just as desired. Will "write" on practically all material; wood, paper, leather, cellophane, etc.

Using the Electric Pencil is the simplest thing in the world. Merely attach the cord to any light socket, AC or DC, lay a piece of gold foil (furnished with the pencil) on the greeting card or other object, and write or print exactly as you would if tracing a drawing with carbon paper.

The heating element is an improved design which automatically controls the temperature. **THERE IS NO DANGER OF BURNING OR OVERHEATING.** It is light, and well balanced in the hand. You can safely grasp the pencil to within a short distance of the point. This makes for easy, natural and smooth writing. Sold complete with a 3/4 ins. x 100 ins. roll of gold foil. Additional rolls may be had for 25c each. Shipping weight, 2 lbs.

No. 4407 Electric Writing Pencil **\$1.75**  
**YOUR PRICE**

## Signal Twin Wireless Practice Set



Here is a practical, instructive and scientific device that every modern boy, man and prospective radio "bug" should have! The set operates efficiently up to 1,000 feet on any standard dry cell battery. Will operate greater distance however, provided a sufficient number of batteries are added. **EACH INSTRUMENT IS A COMPLETE SENDING AND RECEIVING UNIT,** equipped with a key, buzzer and code plate mounted on a metal base. Rubber feet on the base protects table tops. Full instructions for connecting and operating are included with each set. The buzzer on each key is accurately set at the factory to oscillate at very high frequency—one which closely imitates the actual pitch of the signal received through the air. One of these sets is actually used in our very offices for inter-office communication. Attractively enameled in maroon with gold trimmings. Each set is individually boxed. Furnished with 75 feet of wire.

List Price \$3.00

No. R-70. Signal Twin Wireless Practice Set. **YOUR PRICE \$2.03**

## "Vogue" Thermometer

Easy Reading Thermometer

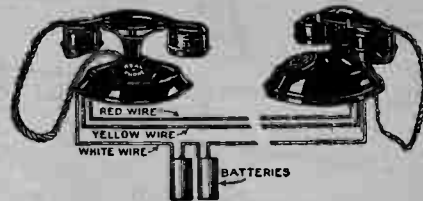


A new type of thermometer unsurpassed for beauty, utility and remarkable performance. Thermostatically controlled and more accurate than the average room thermometer. Requires no adjusting what so ever. Makes a fitting necessity for the home or office as well as serving a highly utilitarian purpose. The case is made of porcelain with a new kind of durable finish in two-tone color effects. One of its outstanding features is its beautifully silvered dial with large black numerals which are easily read from a great distance. The dial and pointer are protected from injury and dust by a frontal glass pane. Measures 5 1/4 ins. long at the base, 3 1/4 ins. high and 1 1/4 ins. wide. Shipping weight, 3 lbs.

No. 4404 "Vogue" Thermometer **YOUR PRICE \$0.98**

## "Real Phone" Inter-Communication Telephones

French Style Phones—Work with Dry Cell Batteries!



These telephones are the result of 37 years of manufacturing and specializing in telephone engineering and are fully guaranteed for one year against electrical or mechanical defects. They afford the easiest, simplest and most inexpensive means of communication between two neighboring points. **WILL OPERATE EFFICIENTLY UP TO 4500 FEET. NO TECHNICAL KNOWLEDGE WHATSOEVER IS REQUIRED TO INSTALL THEM. NOT CONNECTED IN ANY WAY TO ANY POWER LINES. OPERATE FROM TWO DRY CELL BATTERIES.** These dry cells will last from 8 to 10 months with average use. The phones are compact and good-looking—French desk-type style—available in either ivory, green or black. Incorporate extremely sensitive microphones and receivers which will maintain their efficiency over long periods. These telephones are shipped directly from the factory which is centrally located in Chicago to insure prompt and proper deliveries and avoid excessive shipping charges. Packed in a strong attractively-labeled carton with 35 feet of 3 wire cable. Complete instructions for installing and operating included with each set. Shipping weight, 8 lbs.

No. 4411 "Real Phone" Inter-Communication Telephones **YOUR PRICE, per set (less batteries) \$4.50**

## "EHO" Midget Box Camera

Picture Size 1 1/2 ins. x 1 1/4 ins.

Here, indeed, is the smallest box camera ever made commensurate with faithful photography under even adverse conditions. Measures but 2 1/4 ins. square. The "Eho" is very economical to operate. Takes 16 pictures on vest pocket size film which are obtainable everywhere as a standard size. **MANIPULATION IS SO SIMPLE THAT A CHILD CAN EASILY LEARN TO TAKE PICTURES IN A VERY SHORT TIME.** The "Eho" is a dependable, well constructed instrument, equipped with an exceptionally fine double lens which is very much superior to, and faster than the single type lens usually supplied with ordinary box cameras—in fact so much so that **ADVERSE WEATHER CONDITIONS NEED NO LONGER PRESENT AN INSURMOUNTABLE DETERMENT TO THE PHOTOGRAPHER.** The "Eho" is a beautifully made instrument covered with leatherette with bright metal trimmings. Provided with two exceptionally clear range-finders for snapping pictures either in vertical or horizontal positions. Will make either snapshots or time exposures. Produces clear cut negatives capable of enlargement without apparent loss of detail. Shipping weight, 1 lb. Uses standard film V127—1 1/4 x 2 1/4 ins. No. 182 "Eho" Midget Box Camera **YOUR PRICE \$3.42**

## "Ray-Bud" Combination Ash Tray and Easy-Reading Thermometer



Here is something that every man (and many women) will want! Something entirely new—decorative—useful. A combination ash tray and easy-reading thermometer. The case is made of cast metal with stately bronze finish. The thermometer is thermo-statically controlled and is more accurate than the average room thermometer. Requires no adjusting whatsoever. One of its outstanding features is its beautifully silvered dial with large black numerals which are easily read from a great distance. Both dial and hand are protected by glass. Entire bottom covered with felt. Packed in attractive gift box.

List Price \$2.50

No. 4412 "Ray-Bud" Combination Ash Tray and Easy-Reading Thermometer **YOUR PRICE \$1.35**

# RADIO BOOKS that are ESSENTIAL

## 1934 Official Radio Service Manual

Volume I, 1934 Edition  
Size 9 x 12 inches  
Over 400 Pages  
Flexible, Looseleaf Leatherette Binder  
Over 2000 Illustrations

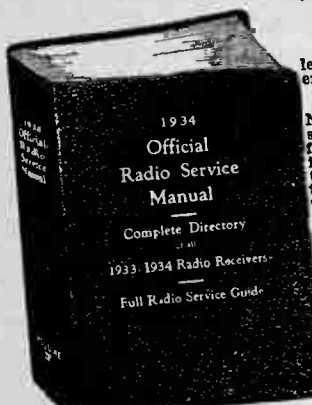
Edited by HUGO GERNSBACK  
BOOK IS SENT COMPLETE WITH SUPPLEMENTS  
The GERNSBACK Manuals have been constantly used in reference work by leading radio set manufacturers, mail-order houses, jobbers, dealers and, most extensively, by Service Men, for whom these books are invaluable.

Contents of the 1934 Manual in Brief  
Diagrams and service notes, more complete than ever before in any MANUAL. Not merely the schematic hook-ups will be found, but also chassis drawings showing parts layouts, positions of trimmers, neutralizers, etc.; Voltage readings for practically all sets, as an aid in checking tubes and wiring; All values of intermediate-frequency transformers used in superheterodynes, with the manufacturer's own suggestions as to correct balancing; Detailed trouble-shooting suggestions and procedure as outlined by the manufacturers' own engineers—in other words, authentic "dope" right from headquarters. Values of all parts indicated directly on all diagrams. THERE ARE POSITIVELY NO DIAGRAMS FOR SPECIAL PARTS VALUES CANNOT BE OBTAINED.  
Special sections for reference to A.C.-D.C. cigar box midrets; automobile radio; public-address amplifiers; short-wave receivers; remote-control systems, etc.; complete compilation of radio tube data, covering both the old and new types; complete list of American broadcast stations with their frequencies in kilocycles; Free question and answer service, the same as in our last two Manuals. Absolutely no duplication of any diagrams; nothing that appeared in any of the previous Manuals will appear in the 1934 MANUAL. This we unconditionally guarantee.

List Price \$3.50

**\$3.00**

No. G-867 New 1934 Official Radio Service Manual, Vol. I.  
YOUR PRICE



## New 1933 Official Auto-Radio Service Manual



Volume I 1932-1933 Over 200 Pages  
Over 500 Illustrations Size 9 x 12"  
Flexible, Looseleaf Leatherette Binder  
Edited by HUGO GERNSBACK  
COMPLETE IN EVERY WAY—

Official  
Auto-Radio  
Service Manual  
Complete Directory  
of  
Automobile Radio Receivers  
Full Installation and  
Trouble Shooting Guide

Every man connected in any way with the booming auto-radio business needs a copy of this book immediately. It is devoted exclusively to auto-radio service "dope," in complete, understandable form. The OFFICIAL AUTO-RADIO SERVICE MANUAL contains schematic diagrams, chassis layouts, mounting instructions, and trouble-shooting hints on all 1933 and many older model auto-radio receivers. This Manual contains a "gold-mine" of information.

LIST OF MANUFACTURERS  
By now will be found a list of manufacturers whose auto-radios have been included in the Official Auto-Radio Service Manual. It is the only complete book published which contains information on the sets now in use. Of course some of the older models are included.

The auto-radios made by—Atwater Kent Mfg. Co., Autocrat Radio Co., Automatic Radio Mfg. Co., Chevrolet Motor Co., Crosley Radio Corp., Delco Appliance Corp., Fada Radio & Electric Corp., Galvin Mfg. Corp., Franklin Radio Corp., Ford-Majestic, Franklin Radio Corp., General Motors Corp., General Electric Co., General Radio Co., Grigsby-Grunow Co., Chas. Hoodwin Co., Montgomery Ward Co., National Co., Inc., Philco Radio & Television Corp., Pierre, Airo, Inc., Premier Electric Co., RCA-Victor Co., Inc., Sentional Radio Corp., Sparks-Washington, Inc., Stewart Radio & Television Co., United American Radio Corp., United Motors Service, Inc., Radio & Television Corp., Wells-Gardner Co., and Zenith Radio Corp.

List Price \$2.50  
No. G-868 1933 Official Auto-Radio Service Manual.  
YOUR PRICE **\$2.00**

## 1933 Official Radio Service Manual

Volume III, 1932-1933  
Size 9 x 12 inches  
700 Pages  
Flexible, Looseleaf Leatherette Binder  
2,000 Illustrations

Edited by HUGO GERNSBACK  
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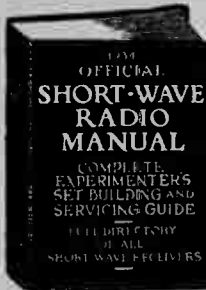
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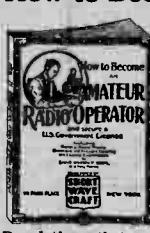
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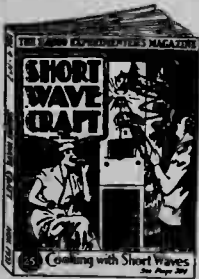
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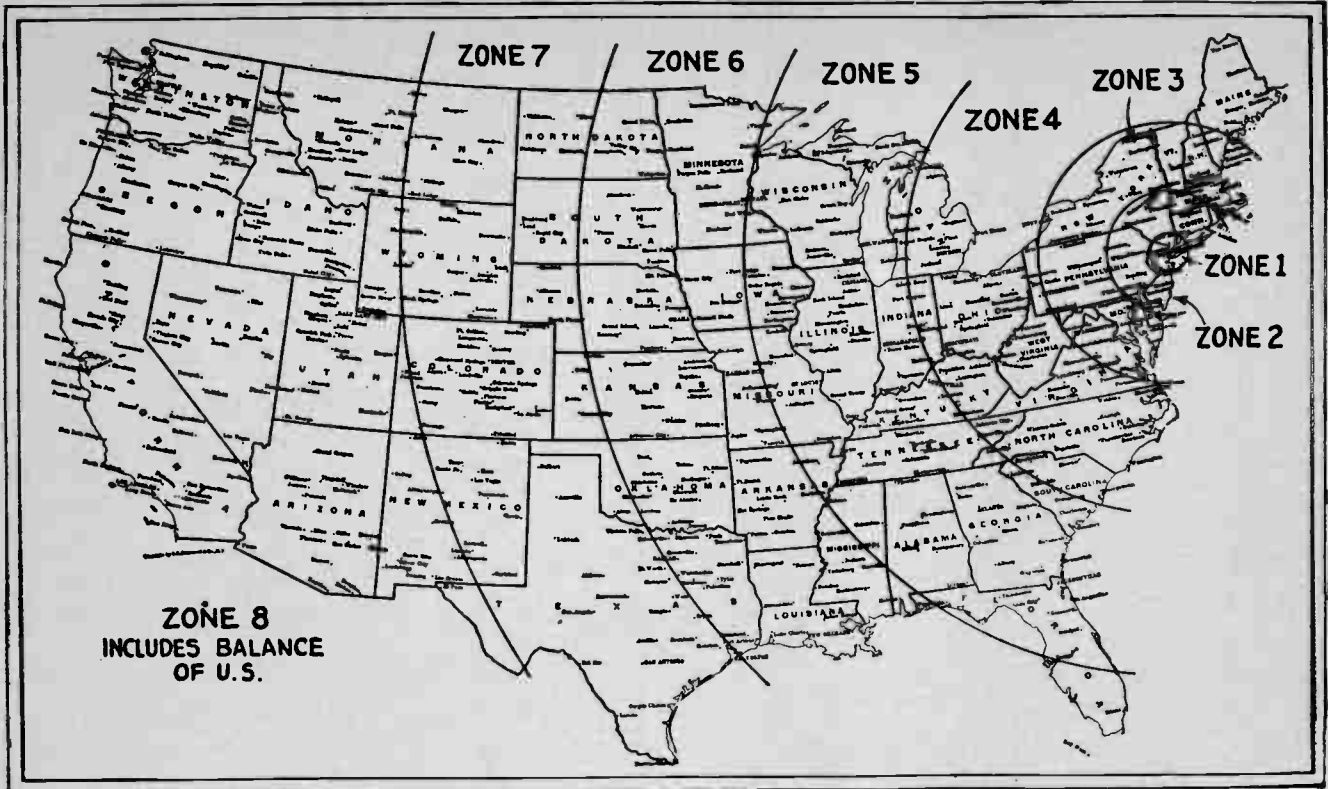
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12	.13	.21	.21	.31	.49	.70	.89	1.13	1.36
13	.13	.22	.22	.33	.52	.75	.96	1.22	1.47
14	.14	.23	.23	.35	.56	.80	1.03	1.31	1.58
15	.14	.24	.24	.37	.59	.86	1.10	1.40	1.69
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32	.23	.43	.43	.71	1.19	1.76	2.29	2.93	3.56
34	.24	.45	.45	.75	1.26	1.86	2.43	3.11	3.78
36	.25	.47	.47	.79	1.33	1.97	2.57	3.29	4.00
38	.26	.49	.49	.83	1.40	2.08	2.71	3.47	4.22
40	.27	.51	.51	.87	1.47	2.18	2.85	3.65	4.44
44	.29	.56	.56	.95	1.61	2.39	3.13	4.01	4.88
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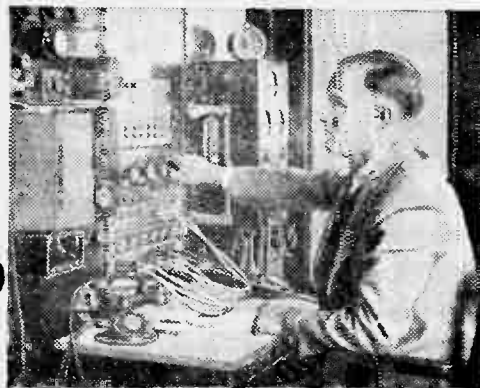
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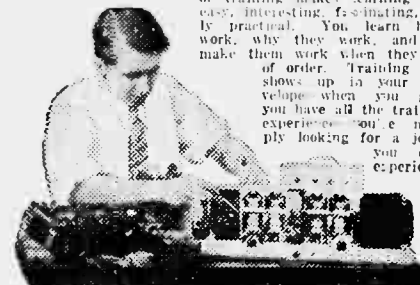
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J. E. SMITH, President  
National Radio Institute, Dept. 3MT8  
Washington, D. C.

I want to take advantage of your offer. Send me your Free Sample Lesson and your book, "Rich Rewards in Radio." I understand this request does not obligate me. (Please Print Plainly.)

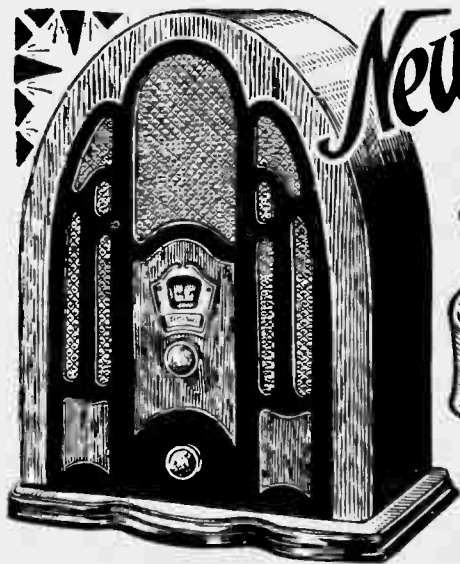
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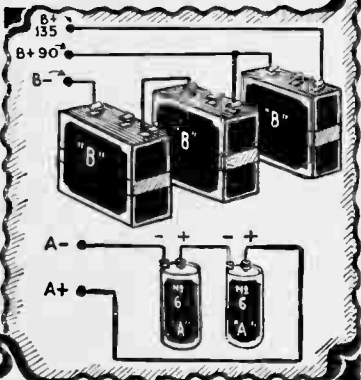
"R"

**The Famous Course That Pays For Itself**



# New! 2-VOLT "SUPERHETERODYNE" BATTERY SET

**5 TUBE**  
**10-KC. SELECTIVITY**  
**10-TUBE PERFORMANCE**  
**ECONOMICAL**  
**OPERATION**



No, we have not neglected our many rural friends who live in far-away or suburban homes where electric service is, as yet, not available. Accordingly we present here-with, a modern, up-to-the-minute receiver using the low-current-consumption 2-volt tubes—a set which equals and, in many cases, even surpasses the fine performance of modern all-electric receivers. The tubes employed in this receiver consume so little current from the batteries that, basing our figures on recent battery prices, it will cost you only 2¢ to operate this receiver for three hours each day. **JUST IMAGINE, ONLY 2¢ FOR THREE SOLID HOURS OF ENTERTAINMENT.** Isn't that economical?

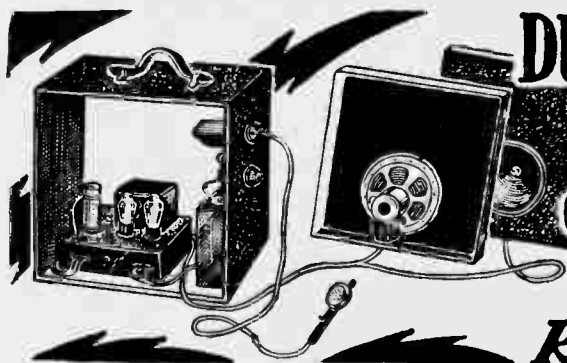
The wonderful sensitivity and selectivity of this receiver enables it to master great distances and bring in stations from far off metropolitan districts. The large speaker produces a full, rich tone equal to that of the most powerful electrically-operated receivers. Its sensitivity curve is flat across the entire dial range thereby assuring ample volume and clear tone on all stations. Requires 3-4½ volt B batteries and 2 No. 6 dry cells for operation. In place of the two No. 6 dry cells, the new type 2-volt air cell may be used.

**COVERS WAVE LENGTH RANGE OF FROM 175-550 METERS.** This means that not only will you be able to receive regular broadcast programs but **SHORT WAVE SIGNALS AS WELL.**

The entire chassis is fully shielded and constructed along modern lines. It fits snugly into an attractively designed, two-tone walnut cabinet which measures 13½" high by 12" wide by 6" deep. The set employs 1-30, 1-32, 1-33 and 2-34 tubes. Sold complete with set of genuine R.C.A. licensed tubes.

**SERVICE MEN IN RURAL DISTRICTS.** Here indeed, is the set you have been waiting for. A large part of the territory you cover cannot be served by electric sets. Use this new type battery set—the very latest development in radio engineering—to cash in on the big profits awaiting you. Write to us for special prices on quantities of more than three sets. Shipping weight, 10½ lbs.

List Price \$35.00  
**No. 507 5 Tube, 2-volt Battery Receiver with R.C.A. licensed tubes, but less batteries. \$20.93**  
**YOUR PRICE**

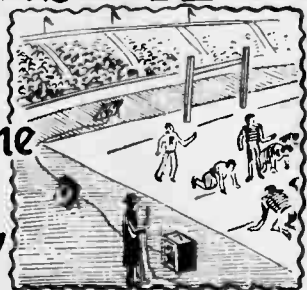


## DUAL SPEAKER P.A. SYSTEMS

**4 WATTS - 10 WATTS**

**Complete with Microphone  
 INPUT STAGE**

**READY TO USE!**



### Dual Speaker Portable Public Address Systems Develops Fully 4 and 10 Watts Of Undistorted Power Respectively

These outfits, being primarily for portable work, is comparatively light and extremely compact. Yet, despite these desirable features, they are capable of delivering **FULLY 4 AND 10 WATTS OF UNDISTORTED POWER—ENOUGH TO OPERATE 4 AND 10 FULL DYNAMIC SPEAKERS** at good volume.

These complete portable systems can be carried around and set up in short order for outdoor meetings, political and business rallies, lectures, etc., etc. The 4 watt job is a high-quality 2 stage job, having some radically new ideas in audio frequency amplification. It comprises a specially designed circuit, giving exceptionally high gain with excellent tone quality, and is **REMARKABLY FREE FROM A.C. HUM. A COMPLETE MICROPHONE INPUT CIRCUIT INCLUDING MICROPHONE BATTERY AND TRANSFORMER, IS INCORPORATED** in the amplifier. The 10 watt job employs 2-58's, 2-59's and a 5Z3 rectifier.

The design of all models is adaptable to all purposes, viz., microphone, radio, phonograph recording, etc. A convenient terminal strip as well as a volume control, mounted on the outside of the case, permits easy attachment and control of the microphone. Either a single or a double button microphone may be employed.

These circuits make use of the latest type power amplifier tubes; viz., 57, 55 and 59's. The two sides of the case are easily detached and act as baffles for the 2 dynamic speakers, which are mounted on them. These detachable sides

are made in such a manner that they will stand upright without any further support. All connections, however, are to the amplifier.

In order to operate these outfits, it is merely necessary to plug the line cord into any 110-125 volt, 50-60 cycle A.C. line and plug in the microphone. This is the entire setting up process. Simple, isn't it?

#### AVAILABLE IN FOUR MODELS

This same amplifier may be had in four separate models (as listed below), viz., a 4 watt outfit, employing only one dynamic speaker on a single removable side panel; a 10 WATT dual speaker portable public address system, using 2-58's, 2-245's, and 1-523's, and a 10 watt single speaker P.A. system.

#### SPECIFICATIONS:

- No. P853C 4 Watt Dual Speaker P.A. system, using 1-57, 1-59 and 1-523.  
 Overall Gain—90 DB. Shipping weight, 40 lbs.  
**YOUR PRICE—less tubes \$37.50**
- No. P853B 4 Watt Single Speaker P.A. system, same specifications as above.  
 Shipping weight, 35 lbs.  
**YOUR PRICE—less tubes \$33.50**
- No. P853 10 Watt Dual Speaker P.A. system, using 2-58's and 2-59's in "A Prime" arrangement and 1-523.  
 Overall Gain—80 DB. Shipping weight, 55 lbs.  
**YOUR PRICE—less tubes \$43.50**
- No. P853A 10 Watt Single Speaker P.A. system, same specifications as above.  
 Shipping weight, 50 lbs.  
**YOUR PRICE—less tubes \$39.50**

**RADIO TRADING COMPANY, 100 PARK PLACE, NEW YORK, N. Y.**