We Pay the Postage When Cash Accompanies Order

(This Applies Only to the United States, Its Possessions and Canada)

WHEN we opened our Amateur Department it was the idea of giving the best quality merchandise at the lowest possible price and at the same time making prompt shipments.

We invite you to compare our prices. If you will then consider how much we save you by paying the postage you can readily see that it will pay you to deal with us.

We will gladly ship your order C.O.D. and do not ask for a deposit, however, we do charge you for the postage and C.O.D. fee in that case. Whenever possible, remit with order. It means a saving to you.

GUARANTEE

All merchandise sold by us is guaranteed against mechanical and electric defects.

We are here to stand back of all merchandise sold by us and if for any reason you are not satisfied, please write and let us know.

SPECIAL PRICES ON SETS BUILT TO ORDER

We will gladly quote you our prices on any transmitter or receiver which you may want built to your own specifications. All our work is guaranteed and is sure to please you. We have been Amateurs since the spark days and feel sure that we are fully qualified to do first class work that will please you.

CONCLUSION

In this, the second edition of our catalogue, we believe that we have brought together the finest collection of high grade merchandise that it is possible to obtain. We have built up our short wave department so that anything you may need is contained here in this catalogue. We respectfully solicit your patronage.

PRICES SUBJECT TO CHANGE WITHOUT NOTICE

HALL'S

222 Chestnut St. Harrisburg, Pa.

De Forest Transmitting Audions

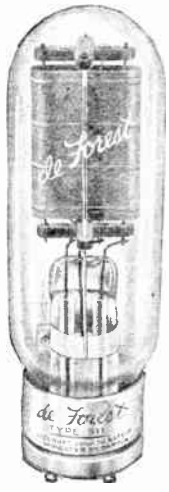
The De Forest reputation for engineering skill and painstaking precision has been zealously guarded in the manufacture of the De Forest Transmitting Audions. The De Forest script etched on each transmitting tube is assurance that your investment is fully protected by a guarantee of satisfactory performance.

DE FOREST AUDION 510
(15 Watts)

An extremely stable oscillator of high output, up to and above 30 megacycles, being exceptionally efficient in crystal controlled oscillators, since its normal output is high (normal output of the 510 is 15 watts against 7.5 watts for the UX210). Specially treated plate makes for high plate dissipation and consequently small expansion and contraction, thus overcoming "creeping" when used as a self-excited oscillator. The special construction maintains higher voltage breakdown and lower leakage.

Audion 510 is especially valuable in circuits which are in use twenty-four hours a day, maintaining absolute stability. Interchangeable with UX210. **Your Cost, $6.17 Net.**

DE FOREST AUDION 503A
(50 Watts)



This is the standard amateur 50 Watter. It is a particularly stable oscillator and R.F. power amplifier, developed for general use in amateur transmitters, or where high voltage gain is desired. They can be used in parallel, providing resistance of approximately 100 ohms is used in the grid circuit to prevent parasitic oscillations. The plate resistance is sufficiently high to prevent damage in event tube stops oscillating. It can also be used as a modulator or audio frequency amplifier, providing plate dissipation does not exceed 75 watts. A grid bias of 25 volts will limit output if plate voltage does not exceed 1200 volts D.C. Interchangeable with UV203A. **Your Cost, $29.40 Net.**

DE FOREST AUDION 552
(75 Watts)

The design of this Audion permits its use as an oscillator or radio frequency power amplifier or frequencies above 30 megacycles wavelengths below 10 meters. While the base permits mounting in the standard UX socket, the plate lead is brought out of the side, thereby reducing interelectrode capacity to a low point. At the same time, insulation is very high and leakage reduced to a most desirable minimum. Due to a low internal capacity, shifting of the elements due to heating effects does not alter the frequency to any great extent. This is a great tube for 14 megacycle operation. Interchangeable with UX852. **Your Cost, $23.77 Net.**

DE FOREST AUDION 511
(50 Watts)

This is indeed a general purpose medium power tube, as it functions well as an oscillator, modulator, radio or audio frequency power amplifier. Due to its relatively low impedance, loss of negative grid bias will seriously damage the 511, therefore, no fuse should be used in the grid circuit. Normal grid bias, as an oscillator, can be obtained with a grid leak of about 5000 ohms resistance. While the undistorted audio output is less than Audion 545, it has considerable merit as an audio frequency amplifier, especially where push-pull is employed. Interchangeable with UV211. **Your Cost, $29.40 Net.**

DE FOREST AUDION 545
(50 Watts)

This tube is essentially an audio frequency amplifier, such as the output tube in an audio system, or as a modulator. It has a low amplification factor (5), likewise a low plate resistance (2100 ohms) and a grid swing of 145 volts. Due to the extremely low plate impedance of Audion 545, great care must be exercised to prevent loss of grid bias or the tube will be wrecked. It is not generally suited as an oscillator or radio frequency amplifier. (Use either 503A or 511). Interchangeable with UV845.

Your Cost, $33.07 Net.

DE FOREST AUDION 500

Audion 500 is an oscillator designed especially for use in tube bombarders and radio frequency furnaces. It has very rigid construction and is suitable for use in high frequency oscillators as the inter-electrode capacity is kept at a minimum by bringing the leads through the side of the envelope instead of through high dielectric bases.

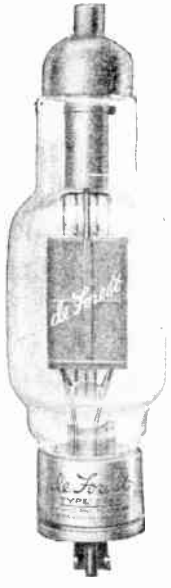
While not designed particularly for use on higher frequencies, Audion 500 is a stable oscillator, capable of rather high plate dissipation on the higher frequencies. It is entirely possible to operate this tube as a self-excited oscillator on frequencies of the order of 15 megacycles. The rigid four point support prevents the plate and grid from shifting such as is common in the larger air cooled tubes and makes for less expansion and contraction upon heating and keeps the frequency from shifting.

Audion 500 is not recommended for use as a radio frequency power amplifier.

Audion 500 is designed expressly for use in De Forest tube bombarders and is not interchangeable with any existing tube as it is not based, but may be easily mounted on a bakelite bracket with a large hole drilled in same. Its characteristics, both filament and plate, are essentially different from other similar tubes.

Your Cost, $95.55 Net.

DE FOREST AUDION 504A
(250 Watts)



This is the standard "250 Watter," both in commercial and amateur circles. It is essentially an oscillator and radio frequency power amplifier, but it can be used also as a modulator. It has an amplification factor of 25 and it is designed to give long and constant life under heavy service conditions. Due to its low resistance, Audion 504A will be seriously damaged if it stops oscillating or loses its negative grid bias. A grid leak of approximately 5000 ohms, or a fixed negative grid bias of about 175 volts are considered normal, although neither value is critical and can be varied to accommodate different circuit conditions. Intelligently handled, Audion 504A can be operated as a self-excited oscillator, or as a radio frequency power amplifier up to frequencies in the order of 15 megacycles. Extreme care should be taken, however, to prevent excessive grid currents at the higher frequencies. Interchangeable with UV204A. **Your Cost, $102.90.**

DE FOREST AUDION 565 (7.5 WATTS)
Screen-Grid

A four electrode (screen-grid) transmitting tube developed primarily as a power amplifier at radio frequencies, especially at 3000 kilocycles or higher (100 meters or less), or as a crystal controlled oscillator. It is most useful as a "buffer" amplifier in telephone transmitters. The internal shielding elminates the necessity for neutralizing against feed-back and self-oscillation. Interchangeable with UX865.

Your Cost, $16.17 Net.

DE FOREST AUDION 560 (75 WATTS
Screen-Grid

Audion 560 is the medium power four electrode (screen-grid) tube designed primarily for use as a radio-frequency power amplifier particularly at frequencies in excess of 3000 K.C. Due to its extremely low control grid-plate capacity, which is inherent, there is no necessity for neutralizing as this is taken care of by the internal shielding. Interchangeable with UX860.

Your Cost, $36.75 Net.

DE FOREST AUDION 572
Mercury Vapor Rectifier

This is also a "half wave" hot cathode, mercury vapor rectifier, but of greater current capacity than Audion 566. Its construction tends to raise the flash over break-down point beyond the usual—72 type. The same qualities and merit as a rectifier tube for supplying D.C. power from an A.C. supply given for the 566 obtain for the 572 but under heavier service conditions. Interchangeable with UV872.

Your Cost, $22.05 Net.

DE FOREST AUDION 566
Mercury Vapor Rectifier

A "half wave" hot cathode, mercury vapor rectifier tube. To be used in suitable rectifying circuit arrangement to supply D.C. power from A.C. supply. Two tubes will supply full wave rectification. It provides a means of setting up an ideal plate supply source for transmitting purposes and kindred work. It is efficient, quiet in operation, self starting, long life, and low in cost. The maximum inverse voltage to be applied to the anode is 7500 volts, and this should not be exceeded. Where voltages of 2500 or more are employed, it is better to light filament for 30 seconds before applying the plate voltage. Due to the special cathode construction, the flash over voltage rating is much higher than the usual—66 tube. Interchangeable with UX866.

Your Cost, $8.82 Net.

DE FOREST AUDION 561 (500 WATTS)
Screen-Grid Amplifier

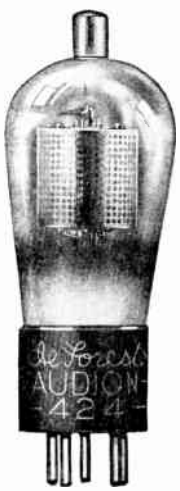
This tube is designed for use as a power amplifier particularly at radio frequencies above 3000 K.C. Like the "560" it requires no neutralizing due to the inherent low control grid-plate capacity as this is taken care of by the internal shielding. The screen serves as an electrostatic shield between the plate and the control-grid. The plate resistance of the "561" is sufficiently high to prevent destruction of the tube in the event it stopped oscillating for any reason. A ten ampere fuse in the plate circuit is a sensible precaution. This is indeed a splendid tube for high power short wave work and, if used intelligently, will give very satisfactory performance. Interchangeable with UV861.

Your Cost, $286.65 Net.

De Forest Receiving Tubes

GUARANTEE

The De Forest Receiving and Transmitting Audions are guaranteed to be mechanically and electrically perfect. They should give complete satisfaction in performance and life if used under the operating voltages specified in this catalog.



AUDION 401A
Standard Battery Tube. Fila. V. 5; Fila. Amps. .25. **Your Cost, 73c.**

AUDION 412A
Battery Amplifier Tube. Fila. V. 5; Fila. Amps. .25. **Your Cost, $1.32.**

AUDION 471B
Replaces 271A Tubes. Fila. V. 5; Fila. Amps. .25. **Your Cost, $1.32.**

AUDION 422
D.C. Screen-Grid Tube. Fila. V. 3.3; Amps. .132. **Your Cost, $2.37**

AUDION 424
A.C. Screen-Grid Tube. Fila. V. 2.5; Fila. Amps. 1.75. **Your Cost, $1.76**

AUDION 427
A.C. Detector. Fila. V. 2.5; Fila. Amps. 1.75. **Your Cost, $1.16**

AUDION 480
Full-wave Rectifier. Maximum A.C. V. per plate, 400. **Your Cost, $1.12**

AUDION 481
Half-Wave Rectifier. Maximum A.C. V. 750. **Your Cost, $3.81**

AUDION 445
A.C. Amplifier. Fila. V. 2.5. **Your Cost, $1.18**

AUDION 450
A.C. Amplifier. Fila. V. 7.5; Amps. 1.5. **Your Cost, $5.88**

AUDION 410
A.C. Amplifier and Oscillator. Fila. V. 7.5. **Your Cost, $5.29**

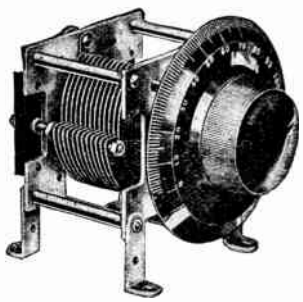
ALL TUBES SENT PREPAID

Carefully Packed

NATIONAL

NATIONAL Variable Condensers

National Equimeter Condenser
(Straight Wave Line)



Catalog Symbol	Size	Your Cost
EM 50	50 MMF	$1.47
EM 100	100 MMF	1.47
EM 150	150 MMF	1.76
EM 200	200 MMF	2.06
EM 250	250 MMF	2.06
EM 350	350 MMF	2.20
EM 500	500 MMF	2.31
EM 1000	1000 MMF	3.23

With Velvet Vernier Dial—$1.47 Extra

Equicycle Condensers

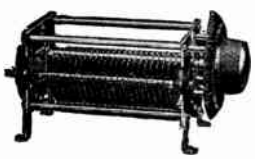
These Short-Wave, Type EC Condensers are of a straight frequency type, 270 degrees, built into a girder frame. The spacing between plates has been doubled in the smaller sizes and a non-inductive pigtail added to insure positive and silent operation without detuning.

Type	Capacity	No. Plates	Your Cost
EC 15	.000015	3	$2.35
EC 50	.00005	9	2.50
EC 75	.000075	11	2.50
EC 100	.0001	15	2.65
EC 125	.000125	19	2.65
EC 150	.00015	9	2.35
EC 250	.00025	17	2.65
EC 350	.00035	23	2.79
EC 500	.0005	31	2.94

These Prices Do Not Include Dials

Transmitting Condensers

Straight Line Capacity



The NATIONAL Transmitting Condensers are widely used by the U. S. Government, broadcasting stations and amateur transmitters, and are designed to be mechanically and electrically correct.

The condensers listed below are standard sizes and are supplied with either 3/16" or 3/8" spacing between adjacent Stator Plates for high voltage work. Standard insulation for all TM type condensers is crolite.

List of Standard Sizes of Stock Condensers for Transmitting Sets

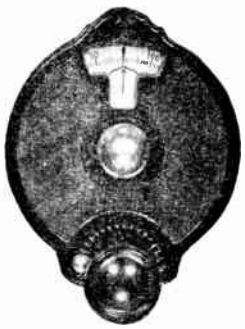
Type	Capacity	Voltage	No. Plates	Spacing	Your Cost
TM 35	.000035	6000v.	7	3/8"	$4.70
TM 50	.00005	6000v.	12	3/8"	5.68
TM 100	.0001	3000v	11	3/16"	4.12
TM 100A	.0001	6000v.	23	3/8"	7.35
TM 150	.00015	3000v.	17	3/16"	4.41
TM 150A	.00015	6000v.	35	3/8"	11.02
TM 230	.00023-5	3000v	23	3/16"	6.76
TM 230A	.00023-5	6000v.	51	3/8"	13.23
TM 350	.00035	3000v.	35	3/16"	8.82
TM 450	.00045	3000v.	43	3/16"	9.71

These Prices Include NATIONAL Velvet Vernier "Type A" Dials
Condensers Without Dials—$1.47 Less

NATIONAL

NATIONAL VELVET VERNIER DIALS, "TYPES B AND C"

Type B—Without Lamp Type C—Illuminated



These dials embody a modified application of our "Velvet Vernier" mechanism and are designed to be mounted front of panel on the ¼" shaft of any standard variable Condenser. No special tools are required and anyone can easily make a good looking job of them.

The type B and C dials are the only ones available with a changeable ratio of from 6-1 to 20-1, a very valuable feature.

The illuminated "National Velvet Vernier Dial," Type C, has a small 6-volt concealed lamp which brilliantly lights up the dial and is wired either with the filaments, acting as a tell-tale, or separately switched.

Catalog Symbol	Specifications			Type Nickel	Type C complete with bulb, Nickel
VB C	Clockwise	(200-0)	360°	Your Cost	$1.47	$1.76
VB CC	Counter Clockwise	(0-200)	360°			
VB D	Dual Range	(0-100-0)	180°			

Illuminator may be ordered separately—Your Cost 30c

PRECISION VELVET VERNIER DIAL

Type N

This four-inch solid German silver NATIONAL Velvet Vernier Dial, Type N, has been developed for use in amateur and other radio equipment requiring the utmost precision of logging. It is equipped with a real Vernier making accurate reading possible to one-tenth of a division. The mechanism is the original and unexcelled NATIONAL Velvet Vernier design, approved and used by transmitting and receiving amateurs all over the world.

Dial attaches to the face of panel at three points making accurate mounting exceedingly easy and simple.

Type VND	(100-0)	180°	Your Cost $3.82
Type VNE	(150-0)	270°	
Type VNC	(200-0)	360°	

Special Precision Vernier Dials of 6-inch diameter furnished for Transmitting and Laboratory use on special order. Prices on application.

NATIONAL "A" DIAL

A Smoothe, Friction Dial. No Backlash

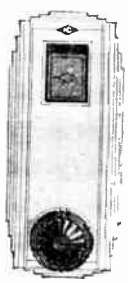
Type	Dia.	Range	Your Cost
VAC C4	4"	(0-100) 180°	$1.47
VAC 4	4"	(200-0) 360°	1.47
VAC E4	4"	(150-0) 270°	1.47

Type A

NATIONAL "H" DIAL

A beautiful drum dial. No backlash. The scale is projected on a ground glass screen. Can be furnished with a rainbow effect, showing red, green yellow, purple, orange and blue on the screens. The change and play of colors on the dial add to its beauty.

Type HC with Rainbow feature ..... Your Cost $3.23
Type H without Rainbow feature ..... Your Cost 2.94



Type H

NATIONAL "E" DIAL

This dial has a disc mechanism similar to Type B but is designed for those who desire an artistic and distinctive dial. Condenser mounts perpendicular to panel.

Type	Range	Your Cost
VED	(0-100-0)	$1.62
VEC	(200-0)	1.62

Type E-F

NATIONAL "F" DIAL

A drum dial with the same mechanism as Type H but having the same escutcheon plate as Type E. Automatic spring take-up insures positive drive at all times.

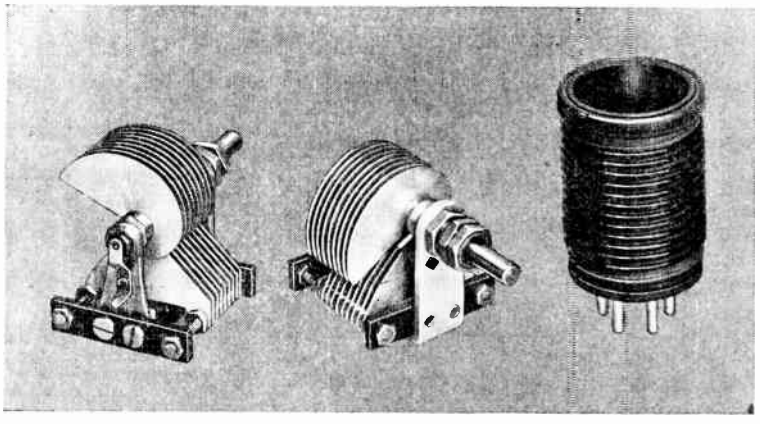
Type VFCC (0-100) 180°
Type VFR (0-200) 360° ..... Your Cost $2.35

Type 28 Illuminator for E and F Dials 30c

NATIONAL

New NATIONAL Coils

Especially Designed for Short Wave Use



TYPE R-39 INDUCTANCES

Moulded of the new low-loss coil form material developed by the Radio Frequency Laboratories.

The coils listed below are the same as used in the new NATIONAL SW-5 and are 6 prong.

Forms only—4 prong UX base—**Your Cost 88c**
Forms only—5 prong UY base—**Your Cost 88c**
Forms only—6 prong Special — **Your Cost 88c**

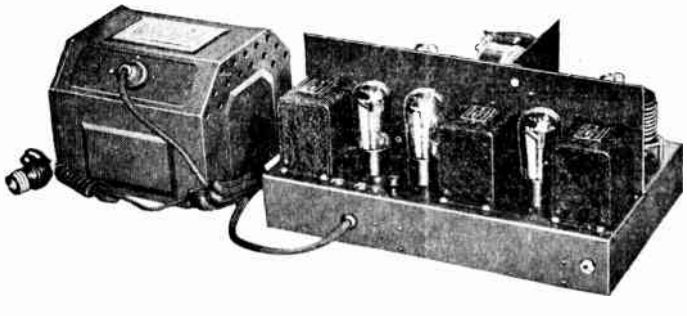
TYPE SE CONDENSERS

The new NATIONAL Type SE Variable Condenser has been designed especially for short wave work and is not of the "cut down" broadcast variety. Among the outstanding features is the use of the 270% rotation equicycle plates, insulated front bearing, constant impedance pigtail, single hole panel mounting, as well as provision for baseboard mounting, ¼" shaft and low loss insulation. Size—1½"x1¾"x2". Plates removable for special capacities.

Type SE-100—Capacity .0001 ..... **Your Cost $2.20**
Type SE- 50—Capacity .00005 ..... **Your Cost 2.05**

The New NATIONAL Short Wave Receiver

With Screen-Grid Detector



This set uses a screen-grid tuned R.F. amplifier ahead of a screen-grid detector, making it one of the most efficient short wave sets on the market today. The audio stages have push-pull in the output. SINGLE DIAL control, resistance regeneration and absolutely no hum in the A.C. set. Each unit thoroughly shielded from the rest. New NATIONAL Short Wave Condensers and Coils listed at top of this page are used in this set. If you want the best in the short wave reception, we recommend this set. Range 14.5 to 115 meters.

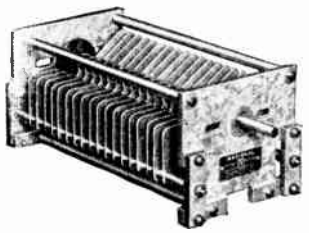
NATIONAL A.C. SW-5—Complete Kit of Parts including 8 Coils and Cabinet ..... **Your Cost $47.15**
Type AB Power Pack for above, completely assembled ..... **Your Cost 20.29**
NATIONAL D.C. SW-5—Kit for battery operation, using new 2-volt tubes, with Cabinet, **Your Cost 44.10**

Wiring charge for either of the above kits—**Your Cost $6.00**

NATIONAL

Transmitting Condensers

New Series — Type TMU



Designed especially to meet the demand for moderate priced stock transmitting condensers for higher power work than covered by our standard DXT Type and yet smaller and less expensive than our NAVY Type is the new NATIONAL Series TMU 5000 volt and 7500 volt transmitting condensers.

These condensers embody all the very latest features for efficiency, steadiness of signal and rigidity of construction. The end plates are rugged cast aluminum; all rotor and stator plates have rounded and polished edges; the shaft is ⅜" in diameter and operates in special accurately machined conical and ball bearings. A special high current, low impedance, rotary brush type of rotor contactor is also incorporated in the design.

Genuine MICALEX Insulation

For several years, it has been quite well known that Micalex is one of the most satisfactory insulations for use in connection with transmitting condenser construction, and as a result of special arrangements made with the Radio Corporation of America, Micalex insulation is employed as standard equipment with the Type TMU Condensers.

As Micalex is a patented material, NATIONAL Condensers embodying this insulation are sold subject to the limitations of a license agreement with the Radio Corporation of America, which does not license their use for any purpose except, (1) home talking machine uses, (2) radio amateur uses, (3) radio experimental uses, and (4) radio broadcast reception; and only where no business features are involved" and "also under claims of patents which are owned by or under which the Radio Corporation of America has the right to grant licenses and which claims apply to this device itself and not to the combination with still other devices."

R39 LOW-LOSS Insulation

R-39 low-loss insulation material, as developed by the Radio Frequency Laboratories for use in transmitting circuits, can be supplied in place of Micalex where the use of Micalex equipped condensers would not be covered by the above mentioned license arrangement with the Radio Corporation of America.

List of Standard Sizes of Stock Condensers

Type	Capacity	Voltage	No. of Plates	Spacing Between Adj. Rotor or Stator Plates	Overall Length Excluding Shaft Extensions	Your Cost Micalex
TMU 500	.0005	5000	57	⅜"	14¾"	$47.50
TMU 400	.0004	5000	45	⅜"	14¾"	46.00
TMU 300	.0003	5000	35	⅜"	10 1/16"	44.50
TMU 200	.0002	5000	23	⅜"	10 1/16"	42.50
TMU 100	.0001	5000	12	⅜"	6¼"	41.00
TMU .50	.00005	5000	7	⅜"	6¼"	40.00
TMU 300A	.0003	7500	45	½"	14⅞"	47.50
TMU 250A	.00025	7500	37	½"	14⅞"	46.00
TMU 200A	.0002	7500	31	½"	11"	44.50
TMU 150A	.00015	7500	23	½"	11"	43.00
TMU 100A	.0001	7500	15	½"	6⅝"	42.00
TMU 50A	.00005	7500	8	½"	6⅝"	41.00

NOTE: End plates, 5x4½". Center of rotor shaft 3 1/16" above bottom of condenser. Overall lengths given in table above. Shaft diameter ⅜". The above prices do not include dials. When using NATIONAL 6" Type Velvet Vernier Precision Dials, the Type TA adapter must also be employed, as this dial is made for ¼" shafts only. It will also be noted that the prices quoted on the Type TMU transmitting condensers are strictly net and not subject to the same discounts as our standard line of transmitting condensers.

NATIONAL Radio Frequency Choke

Type 90

The NATIONAL Type 90 Radio Frequency Choke is an especially compact unit, so built as to fit into any standard grid-leak mounting. It is of the proper value for use in all by-passing work on the screen-grid or plate circuits of screen-grid tubes and between the detector and the first audio tube, in accordance with the best audio-amplifier practice. The multi-section winding makes this choke suitable for short wave as well as broadcast work. **Your Cost, 73c.**

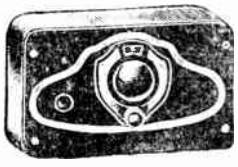
NATIONAL Grid-Grip

This remarkably convenient little Grid-Grip is the most simple method we have seen of attaching a wire to the screen-grid terminal of AC or DC screen-grid tubes. Easy to operate, never works loose, makes continuous electrical contact. **Your Cost, 6c.**

AERO

AERO 1931 LISTENING MONITOR

A Real Necessity for Every Ham



The Listening Monitor has been designed to check the note of the transmitter, to determine the character of the transmitted wave with respect to note and stability. A completely shielded unit, housed in an attractive black crackled metal cabinet, 9x5½x2½ inches. Provided with coils to cover 20, 40 and 80 meter bands. Furnished complete with dry batteries, but less UX-199 tube.

Your Price, $11.03

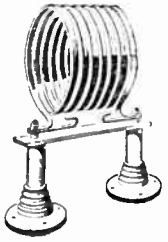
AERO AMATEUR SHORT-WAVE RECEIVING COILS

1931 Type—Selectivity—Low Losses

The new bands are narrower—to cut QRM, now only the most selective receivers can be used. Designed especially for the new amateur bands. A new and better space wound primary is also provided. The same base, with the isolated grid terminal, is employed.

NEW AERO TRANSMITTING COILS

Plug-in Feature for UX852, UX860, 250-Watt and 500-Watt Transmitters



The new Aero High-power Transmitting Coils, designed to be as closely as possible in accord with "1931" practice as outlined in recent issues of Q.S.T.

For the first time "plug-in" coils can be used for high power. Newly designed plugs will carry up to 75 amperes with safety. Heavy aluminum rod is used for the completely self-supporting coil. A new material with asbestos basing, superior in electrical characteristics to glass, without its fragility, is used for the spacing bar. Porcelain insulators assure the user against leakage, and electro-static shields and other points of design previously limited in use to variable condensers, have been incorporated in these coils. Coils are designed for 450 mmfd. condensers.

Kits of Two Coils, complete with plug-in mounts	Your Cost
TEL. 12K—9.6 to 27 meters	$8.82
TEL. 24K—14.2 to 43 meters	8.82
TEL. 48K—31.8 to 90.3 meters	8.82

Single Coils—Without Bases	Your Cost
12C—9.6 to 27 meters	$4.41
24C—14.2 to 43 meters	4.41
48C—31.8 to 90.3 meters	4.41
Plug-in mountings only, per pair	2.06
Plugs only, with nuts, per pair	1.18

AMATEUR SPECIAL KIT No. LWT13

Covering 20, 40 and 80 meter bands with .00003 condenser, including plug-in base with new design of adjustable space-wound primary. **Your Price, $7.35.**

These coils must be tuned with a .00003 condenser which is shunted with a .00008 mfd. fixed condenser.

Additional Coil No. 1NT-AO—Range 8.2 to 12.6 meters—**Your Cost, $2.35**

BROKEN KITS	Your Cost
Amateur Special Coil No. 1NT-A1—Range 19.5 to 21.5 meters	$2.35
Amateur Special Coil No. 1NT-A2—Range 40 to 45 meters	2.35
Amateur Special Coil No. 1NT-A3—Range 75 to 86 meters	2.35
Plug-in base, with new space-wound Primary. Type LWT100-P	2.77
Aero A-942 Variable Condenser .00003	88c

AERO NO-SKIP CHOKE

	Your Cost
Type 60—Especially designed for short wave receivers	88c
Type 65—For use in aerial circuit of untuned R.F. amplifiers	88c
Type 248—Transmitter Choke similar in appearance to Types 60 and 65, but wound with heavier wire	88c

AERO WAVEMETER

A wavemeter designed primarily for the transmitting amateur and experimenter. Of rugged mechanical and electrical construction. Incorporates the "series gap" condenser principle. Covers amateur high frequency bands—3500 to 4000 kilocycles; 7000 to 7300 and 14,000 to 14,400 kilocycles. 20, 40 and 80 meter coils included.

Your Cost, $21.17

AERO HI PEAK CHOKE

The Hi Peak Choke is a tuned audio choke especially designed for the amateur who wants that extreme selectivity which so many amateur receivers lack. The amplification is many times greater than just ordinary transformer amplification. It is mounted in a heavy bakelite case, 2⅝" high and 2¼" across the mounting support.

Your Cost, $4.70

STANDARD TYPE—(500 Volts)

Sangamo fixed condensers are standard among amateurs. Made of finest mica enclosed in a bakelite moulded case, which keeps out moisture.

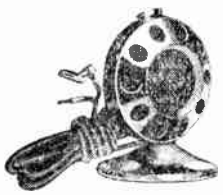
			Your Cost
0.00004	0.0001		
0.00005	0.00015		
0.00006	0.0002	Your Cost, 24c	
0.00007	0.00025		
0.00008	0.0005		
		0.001	29c
		0.002	29c
		0.004	35c
		0.005	41c
		0.006	50c
		0.01	68c

HIGH VOLTAGE TYPE—(5000 Volts) 0.001 0.002 0.00025 0.0005 **Your Cost, $1.18**

UNIVERSAL

Used by Thousands of Amateurs the World Over. Without a Doubt the Finest Microphones on the Market. A Trial Will Convince You.

UNIVERSAL BABY MIKE

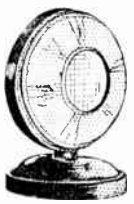


Baby Mike is a real Microphone, single button with circuit switch and a 6-foot cord. The case is 3 inches high. The diaphram is gold plated and the response of far better quality than would be expected for the low price. Book of instructions included.

Your Cost—$4.90

DESK MOUNTINGS

MODEL K—Without Covers



For Model A BB or KK Mikes. 5" diameter. Base is set in a moulded rubber ring forming a cushion against vibration. Ring is brass, plated in bronze.

Your Cost—$4.58

MODEL K—With Covers

Same as above but with spun brass covers. Suspension rings included in both models.

Your Cost—$7.86

MODEL L

Larger, built for Model LL Mikes, without covers. Suspension rings included.

Your Cost—$9.90

MODEL L

Same as above but with covers.

Your Cost—$14.38

UNIVERSAL HANDI-MIKE

A single button hand microphone of highest quality. Thumb switch conveniently located on handle. Responds to frequencies from 70 to 2000 cycles. Button resistance 200 ohms.

Your Cost—$6.54

New and Improved MODEL BB

Compare this model with any $45.00 microphone on the market. A two-button Mike built especially for voice pick-up. Frequency range 50 to 4000 cycles, 200 ohms per button. Accurately machined and silver plated. Carefully tested before shipment.

Your Cost—$16.34

MICROPHONE CABLES

In 6, 12 and 25 ft. lengths with eye terminals to exactly fit microphone connections on one end, and large spade terminals on the other.

6-foot cord—Your Cost, 95c
12-foot cord—Your Cost, $1.51
25-foot cord—Your Cost, $3.28

New MODEL KK

All Steel—Turned from the Solid Bar

A rugged, solid two-button microphone, with a very minimum of hiss; a gold plated diaphragm of only .001 thickness is used.

Only the finest of materials and workmanship enter into the construction of Model "KK," and its frequency range is all that can be desired in a carbon microphone, namely from 35 to 6000 cycles; the buttons are of 200 ohms resistance each.

Many of these "KK" models are in use and are giving more than satisfactory service.

Model "KK" is beautifully gold plated. Each unit is carefully tested before shipment. Diameter, 2½ inches; thickness, 1¼ inches.

Made in three sensitivities: S—very sensitive; M—medium sensitive (standard); D—highly damped.

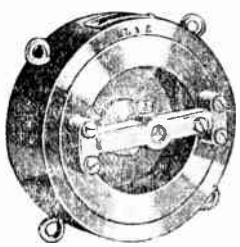
Compare this Model "KK" with any $75.00 microphone on the market.

Your Cost—$32.67

New MODEL LL

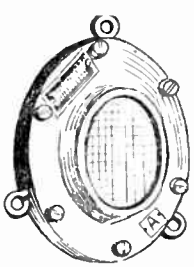
All Steel—Turned from the Solid Bar

Extra heavy type broadcast two-button carbon microphone. The materials, workmanship and finish combine to make this model stand apart from all others as the superlative microphone. The entire assembly is of high carbon steel, ground to within .001 in accuracy. The diaphragm is alloy of exactly the proper hardness and has pure gold contacts on each surface. Model "LL" is 3¼ inches in diameter by 1¾ inches thick and is standard 200 ohm per button. Perfectly damped and reproduces from 30 to 7000 cycles.



Your Cost—$49.00

New MODEL A



This is a beautiful silver plated Mike fitting in the ring stands listed below. Handles 70 to 3000 cycles. Diaphragm is damped. 3 inches in diameter. **Your Cost—$9.90.**

Microphone Suspension Springs

A much needed small part always handy to have and sometimes hard to get. Special heads are made of very best spring steel wire. **Your Cost—5c each.**

SUSPENSION RINGS

Made of solid brass, 5¼" diameter, ½" wide, ⅛" thick—for suspending mikes. For Model A, BB or KK units. Statuary bronze finish. Code—Fris.

Your Cost—$2.62

The Famous JEWELL Trio

The Jewell Trio of Miniature Radio Instruments is popular alike with servicemen for building up special test panels, experimenters for laboratory apparatus, and amateurs for radio broadcasting service.

A valuable addition to the Jewell Trio is a new series consisting of the same instruments in flush type bakelite cases.

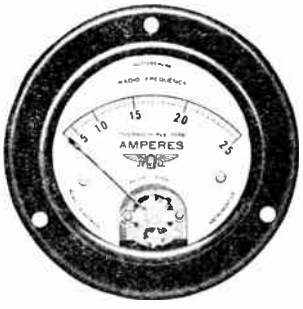
Pattern No. 54
Flange diameter, 3¾ inches.
Case diameter, 3 inches.

Patterns 54 and 88 DC Instruments

Ranges for both Patterns 54 and 88:

	Your Cost		Your Cost
0-8, 10, 15, 30, 50 volts	$ 5.52	3, 5, 10, 15, 25, 50, 100, 150, 200,	
0-150 volts	6.99	250, 300, 500 milliamperes	$ 5.52
0-300 volts	8.82	0-1 milliamperes	6.61
0-500 volts	11.40	0-1.5 milliamperes	6.25
0-750 volts	13.97	0-2 milliamperes	5.88
0-1000 volts	16.54	0-200, 300, 500 microamperes	17.64
0-1500 volts	20.95	0-1, 1.5, 2, 3, 5, 10, 15 amperes	5.52
0-2000 volts	25.37	50-0-50 galvanometer	6.61

Pattern 88 includes the same movement as 54 in a bakelite case, flush type only. Flange diameter, 3½ inches. Case diameter, 2¾ inches.



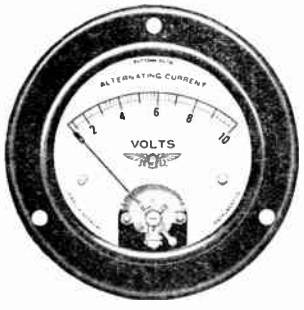
Pattern No. 68
These instruments are thermocouple type.

Patterns 64 and 68 Radio Frequency Instruments

Approximate shipping weight, 3 lbs. Pattern 68 furnished in bakelite cases, flush type only. Flange diameter, 3½ inches. Case diameter, 2¾ inches.

Ranges for both Patterns 64 and 68:

	Your Cost
0-.5, 1, 1.5, 2, 2.5, 3, 5, 10, 15 amperes	$ 9.81
0-100 galvanometer	11.02



Pattern No. 74
Flange diameter, 3¾ inches.
Case diameter, 3 inches.

Patterns 74 and 78 AC Instruments

Flange diameter, 3½ inches. Case diameter, 2¾ inches.

Ranges for both Patterns 74 and 78:

	Your Cost
0-3, 5, 10, 15, 20, 30 volts	$5.52
0-150 volts	6.99
0-300 volts	8.82
0-3-15-150 Triple Range volts	9.93
0-25, 50, 100, 200, 300, 500 milliamperes	5.52
0-1, 2, 3, 5, 10, 15 amperes	5.52

JEWELL PANEL CUTTERS

Furnished in the following sizes—2, 2½ and 3 inches. Cutter and shaft complete ..... **Your Cost—65c**
Extra Cutters, each. **Your Cost—48c**

Information on Other Jewell Products Furnished on Request. Write for Jewell Literature.

YAXLEY

Junior Rheostats

Junior Rheostat

Standard Yaxley Construction. Small in size, big in efficiency.

Much could be written about the features of the Junior Rheostat. The fact that it is used as standard equipment in so many of the outstanding receivers today is the best recommendation for the all around dependability and desirability of this distinctive product. And the Yaxley Junior Rheostat has won this remarkable leadership in the face of keen competition.

A little extra metal and a little extra care in manufacture, an extremely fine adjustment, and other features, make this the choice of small Rheostats for lasting satisfaction.

Mount in a single 7/16" panel hole.

No. 500—SWITCH—For Junior Rheostat

A very convenient switch to fit any Yaxley Junior Rheostat. **Your Cost—24c.**

Catalog Numbers and Ratings

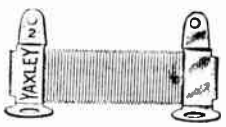
Rating in Ohms	Carrying Capacity in Amperes	RHEOSTATS Standard Mounting	RHEOSTATS Price with Knob	POTENTIOMETERS Standard Mounting	POTENTIOMETERS Price with Knob
1	2.1	501	44c	——	——
2	1.6	502	44c	——	——
3	1.2	503	44c	——	——
4	.9	504	44c	——	——
6	.75	506	44c	506P	59c
10	.6	510	44c	510P	59c
15	.7	515	44c	515P	59c
20	.5	520	44c	520P	59c
25	.4	525	44c	525P	59c
30	.350	530	44c	530P	59c
40	.325	540	44c	540P	59c
50	.310	550	44c	550P	59c
60	.275	560	44c	560P	59c
75	.250	575	44c	575P	59c
100	.225	599	44c	599P	59c
200	.190	——	——	5200P	59c
400	.100	——	——	5400P	59c
1000	.060	51000	59c	51000P	73c
2000	.040	——	——	52000P	73c
3000	.025	——	——	53000P	73c
5000	.020	——	——	55000P	88c
10000	.015	——	——	10MJP	88c

Prices include Knobs.
Insulating Washers for Metal Panels, extra, per set, 5c.

The Junior Rheostats and Potentiometers in all ratings listed above are also furnished for sub-panel mounting. The price for the sub-panel mounting type is uniformly 15c less than the price the equivalent rating in either the Rheostat or Potentiometer style.

Resistance Units

In the new construction, Yaxley Dependable Wire Wound Resistance Units have the decided advantage of lugs riveted to and through the resistance wire and the core and a core of bakelite. This type of construction insures first a permanent and splendid contact. The heat of a soldering iron will not break contact between the lug and the resistance. The bakelite core is not affected by moisture nor changes in temperature met with in service.



Each resistance unit is space wound. In the center tap style, the center tap is accurately placed in the electrical center of the resistance—not necessarily the dead center of the unit.

800 Type Wire Wound Resistance Units

Catalog Number	Resistance in Ohms	Carrying Capacity in Amperes	Mounting Centers	YOUR COST
801	1	1	1 3/32"	9c
802	2	1	1 17/32"	9c
803	3	.75	1 1/32"	9c
804	4	.6	1 1/32"	9c
805	5	.6	1 13/32"	9c
806	6	.5	1 7/16"	9c
807	7	.4	27/32"	9c
808	8	.4	15/16"	9c
809	9	.4	1 1/16"	9c
810	10	.4	1⅛"	9c
815	15	.35	1 9/16"	9c
820	20	.3	1½"	9c
825	25	.275	1 25/32"	9c
830	30	.275	2 1/16"	9c
840	40	.275	2 9/16"	9c
850	50	.150	15/16"	9c
860	60	.150	1 3/32"	9c
8100	100	.125	1 23/32"	15c
8200	200	.080	1 29/32"	15c
8300	300	.075	2 15/16"	15c
8400	400	.075	3¾"	15c

Yaxley resistance units are individually made to insure accuracy. The resistances run true to wire rating. The tables here give the most frequently used ratings. Other resistances furnished on request.

Same construction as the 800 type Resistors. The letter "C" in the catalog number indicates tapped in the center. No. 815T5 is tapped at 5 Ohms.

Catalog Number	Resistance in Ohms	Carrying Capacity in Amperes	Mounting Centers	YOUR COST
806C	6	——	1⅞"	18c
810C	10	——	1 5/16"	18c
812C	12	——	1 9/16"	18c
815C	15	——	1 25/32"	18c
815T5	15	——	1 25/32"	18c
820C	20	——	1 11/16"	18c
830C	30	——	2 9/32"	18c
850C	50	——	1 5/32"	18c
864C	64	——	1⅜"	18c
8100C	100	——	2⅜"	24c
8400C	400	——	2"	24c

YAXLEY

Switches

With the widening of the radio field, there is an increasing demand for special or multi-spring switches. The Yaxley line of switches has been broadened to take care of the requirements for special switches.

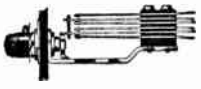
Particular attention is called to the selector type switches and also the push-button switches. Both types are now carried as standard stock items and are available at nominal prices.

General Construction Features

All Yaxley Jack Switches are made under Yaxley Patent No. 1,433,604. Each Switch has the distinctive one nut mounting in a single panel hole. Fit standard thickness panels. Also furnished for thicker panels. Insulating washers for metal panels, 5 cents extra.

Springs equipped with pure silver, self-cleaning contact points. All bakelite insulation. Insulated from frame. Standard finish nickel. Gold plate, 25 cents extra. Standard knob black, Mahogany knob, 5 cents extra.

No. 10—MIDGET BATTERY SWITCH*



The ever popular Midget Battery Switch. Over 1,500,000 in service. Single Pole, Single Throw. Complete with name plate, as illustrated.

Your Cost—50c

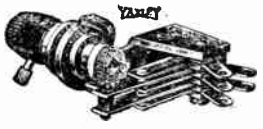
JACK SWITCHES

Jack Switches up to six springs, No. 60, are regularly of the off-on, two position type. The Nos. 63 and 64 are three position, with neutral in the center.

No. 20*—Single Pole, Single Throw	**Your Cost—44c**
No. 30*—Single Pole, Double Throw	**Your Cost—53c**
No. 40*—Double Pole, Single Throw	**Your Cost—59c**
No. 60*—Double Pole, Double Throw	**Your Cost—74c**
No. 63 —Three Pole, Double Throw	**Your Cost—35c**
No. 64 —Four Pole, Double Throw	**Your Cost—$1.00**

JUNIOR JACK SWITCHES

The Junior Jack Switches are exactly the same in every respect excepting size as the standard Yaxley Jack Switch. For use in sets where space is at a premium. Illustration is half size.



No. 720*—Battery Switch	**Your Cost—42c**
No. 730*—Two Circuit	**Your Cost—50c**
No. 740*—Double Circuit	**Your Cost—56c**
No. 745*—Five Spring	**Your Cost—65c**
No. 760*—Two Way Two Circuit	**Your Cost—71c**

See Standard Jack Switches for spring combinations.

Grid Resistances

Wire wound for the grid line. Mount directly to socket. As illustrated.

Catalog Number	Resistance in Ohms	Carrying Capacity in Amperes	Mounting Centers	YOUR COST
7100	100	.040	1 3/16″	15c
7200	200	.040	1 7/16″	15c
7300	300	.025	1 1/32″	15c
7400	400	.025	1 21/32″	15c
7500	500	.025	1 17/32″	15c
7600	600	.025	1 9/16″	21c
7700	700	.025	1 21/32″	21c
7800	800	.025	1¾″	21c
71000	1000	.025	1 15/16″	21c
71500	1500	.025	2 13/32″	21c
72000	2000	.025	3 13/16″	21c
73000	3000	.025	4″	21c

I. C. A.

Pup Jacks

Solidly constructed of brass, nickel plated, and will accommodate any phone cord tip. The heavy contact springs insure positive connection. Mounts in ¼″ hole on panels. Small and compact.

Your Cost—5c each

Spaghetti

The finest Spaghetti on the market today. Breakdown test approximately 5000 volts. Furnished in 30″ lengths. For No. 12 or No. 14 wire.

Your Cost, per length—6c

Spaghetti Covered Wire

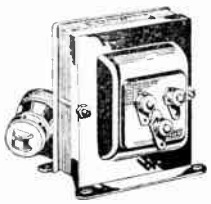
A superior radio bus bar made of No. 14 tinned copper wire with non-inflammable spaghetti insulation. Can be bent and re-bent without cracking. It is thoroughly moisture-proof and has a high insulation value. Strips easily for soldering. Furnished in 30″ lengths.

Your Cost, per length—6c

THORDARSON
TRANSMISSION EQUIPMENT

Filament Supply Transformers

Completely Shielded



T-2382

T-2230 ..... Your Cost $4.90
Secondary: 7½ V. center tapped—2½ amps.

T-2382—Code word "Transcend" ..... Your Cost $6.54
Secondary: 12 V. center tapped.
Capacity: 80 V. A.

T-2383—Code word "Transcribe" ..... Your Cost $9.90
Secondary: 12 V. center tapped.
Capacity: 175 V. A.

T-4307—572 Type Tube Filament Transformer designed to supply the filament voltage for two 572 type rectifiers. Extra large with terminals. Brought out with stand-off insulators ..... Your Cost $26.14

T-3680—Code word "Filing" ..... Your Cost $7.84
A filament supply transformer to supply two UX-866 rectifier tubes.
Primary: 110 volts, 50-60 cycles.
Secondary: 2.5 volts, 10 amps, center tapped.
Insulation: 5000 volts to case.

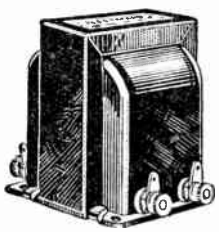
Microphone Transformers

T-3180 Microphone Transformer

A microphone coupling transformer of the highest quality for use with double button Western Electric, Kellogg or other similar microphones. Both primary and secondary are perfectly balanced circuits; center tap at exact electrical centers. Frequency response independent of resonance.

Primary Impedance: 200 ohms each side. Impedance ratio: 750 to 1.
Turns ratio: 27 to 1. Dimensions: 3¾"x3"x3¾" high. Weight, 3 lb.

T-3180—Code word "Mico" ..... Your Cost $13.07



T-2357

T-3020 Microphone Transformer

A microphone coupling transformer built to meet the need for a less expensive unit than Type T-3180. The windings of this transformer closely approximate perfect balance. Designed for use with 2 button microphones.

Primary Impedance: 200 ohms each side. Impedance ratio: 2000 to 1.
Turns ratio: 45 to 1. Dimensions: 2½"x2½"x3" high. Weight, 2 lb.

T-3020—Code word "Microcosm" ..... Your Cost $6.54

T-2357 Microphone Transformer

A small, inexpensive coupling transformer for single button microphones designed for amateur use in telephone transmitters.

Primary Impedance: 200 ohms at 500 cycles. Impedance ratio: 4000 to 1.
Turns ratio: 64 to 1. Dimensions: 2¼"x2¼"x2½" high. Weight, 1 lb.

T-2357—Code word "Microbe" ..... Your Cost $3.27

Combination Plate and Filament Supply Transformers

STEEL CASE, CRACKLE FINISHED COMPOUND FILLED

T-2900
T-2950

T-2900 Transformer

A power supply transformer designed primarily to supply A-B-C current to a single 250 type power amplifying tube and B-current to the receiver. To be used with two 281 type rectifier tubes. Conservatively rated, cool in operation. An ideal XMTR supply.

Primary: 110 volts, 50-60 cycles.
Secondary No. 1: 550 volts each side of center tap. Capacity of winding: 150 M.A.
Secondary No. 2: 7½ volts, center tapped. 2½ amps.
Secondary No. 3: 7½ volts, center tapped. 2½ amps.
Dimensions: 4½"x5¼"x5¾" high. Weight, 15¼ lb.

T-2900—Code word "Pompous" ..... Your Cost $13.34

T-2950 Transformer

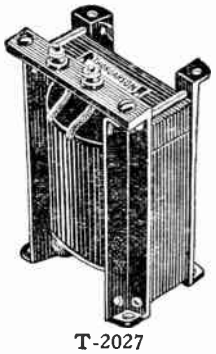
A power supply transformer designed primarily to supply A-B-C current to two 250 type power tubes and B-current to the receiver. To be used with two 281 type rectifier tubes. Conservatively rated, cool in operation. An ideal XMTR supply.

Primary: 110 volts, 50-60 cycles.
Secondary No. 1: 675 volts, each side of center tap.
Secondary No. 2: 7½ volts, center tapped. 2½ amps.
Secondary No. 3: 7½volts, center tapped. 2½ amps.
Dimensions: 4¾"x6¼"x5¾" high, overall. Weight, 18 lb.

T-2950—Code word "Poncho" ..... Your Cost $19.28

THORDARSON
TRANSMISSION EQUIPMENT

Filter and Plate Reactors



T-2027
T-2071
T-2073
T-2353

R-196—Code word "Polar" ..... Your Cost $3.28
30 Henry, 80 M. A., 1000 V. insulation, shielded.
Dimensions: 2½"x2½"x3" high. Weight, 2 lb.

T-2353—Code word "Transit" ..... Your Cost $4.90
6 Henry, 150 M. A., 3000 V. insulation, open frame.
Dimensions: 3"x3¼"x3¾" high. Weight, 3 lb.

T-2071—Code word "Transition" ..... Your Cost $10.45
30 Henry, 150 M. A., 3000 V. insulation, open frame.
Dimensions: 2¾"x3½"x6" high. Weight, 5 lb.

T-2027—Code word "Transitive" ..... Your Cost $14.38
30 Henry, 300 M. A., 3000 V. insulation, open frame.
Dimensions: 5"x3½"x8" high. Weight, 14 lb.

T-2073—Code word "Transitory" ..... Your Cost $19.60
30 Henry, 500 M. A., 3000 V. insulation, open frame.
Dimensions: 4½"x5½"x9½" high. Weight, 20 lb.

Plate Supply Transformers

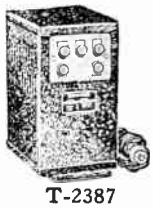
Steel Case, Crackle Finished, Compound Filled

T-2385 ..... Your Cost $10.45
Secondary: 550 V. and 750 V. each side center tap.

T-2387—Code word "Transfuse" ..... Your Cost $14.38
Secondary: 1000 V. and 1500 V. each side of center tap.
Capacity: 300 V. A.
Dimensions: 7½"x5¾"x7½" high. Weight, 20 lb.

T-2388—Code word "Transgress" ..... Your Cost $19.60
Secondary: 1500 V. and 2000 V. each side of center tap.
Capacity: 500 V. A.
Dimensions: 7½"x6½"x8½" high. Weight, 27 lb.

T-2389—Code word "Transient" ..... Your Cost $26.39
Secondary: 1500 V. and 2000 V. each side of center tap.
Capacity: 1000 V. A.
Dimensions: 7½"x7"x9½" high. Weight, 40 lb.



T-2387
T-2388
T-2389

PIEZO CRYSTALS

American Piezo Guaranteed Power Crystals

These crystals are large and square. Ground to within 1/10 of 1% accuracy. A certificate is given with each crystal giving the exact frequency. Can be used up to 400 volts on plate of tube. Each crystal is guaranteed to oscillate or will be replaced free of charge. Any further information will be furnished on request. Only blanks and holders carried in stock. Ground crystals delivered in one week after receipt of order.

1715	2000 KC	Your Cost $ 9.80 net
3500	4000 KC	Your Cost 14.70 net
7000	7300 KC	Your Cost 19.60 net

Crystal Blank including grinding instructions—Your Cost $3.92 net
Dust-proof Crystal Holder—Your Cost $5.88 net

AMATEUR CALL BOOKS

Always the latest edition carried in stock ..... Your Cost $1.00

HAND BOOKS

Worth much more than the price asked. The amateurs reference book and without a doubt the best on the market today ..... Your Cost $1.00

FLECHTHEIM
SUPERIOR CONDENSERS

TYPE HS—FOR THE '50 TUBE AMPLIFIERS

For Continuous Operating Voltages up to 1000 Volts D.C. (660rms. RAC.)

Here is the finest achievement in a high voltage filter condenser, yet perfected. Remarkable for its exceedingly small size, light weight and high electrical efficiency, this new condenser, the result of five years' research and experimentation, has found immediate favor. Its uses are unlimited—in power packs, amplifiers, portable receivers and transmitters, aircraft radio, and a host of other uses where a dependable condenser of small physical size must be used.

Types HV and HS excel in electrical characteristics. With a resistance value of 600 to 1000 megohms per microfarad, an accuracy of capacity within 5%, power factor considerably less than 1% and proved by fatigue tests to have longer life, these non-inductively wound condensers are creating unprecedented demand.

Type	Capacity	Size	Your Cost
HS 100	1 Mfd.	2x1⅛x1⅛	$2.06
HS 200	2 Mfd.	2x1⅛x2⅜	3.57
HS 400	4 Mfd.	2x2⅜x2⅜	5.88

An entirely new process in making paper-dielectric high voltage condensers is used in the manufacture of these units. The very best paper obtainable, the finest foil, the most expensive impregnating materials and the very latest, secret-process encasing methods combine to make these condensers remarkable in so many outstanding points.

TYPE HV—FOR THE '45 TUBE AMPLIFIERS

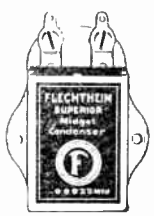
For Continuous Operating Voltages up to 800 Volts D.C. (440 rms. RAC.)

Instrumental in making famous the Flechtheim name in the Radio field, types HV are also well known for their excellence in use in the Loftin-White direct coupled amplifier employing type '45 tubes. These units were widely employed in the Loftin-White Lab., and with the highest degree of success in the development of their world-renowned amplifier circuit. Therefore, they had to be, not only good, but the best condensers available. Likewise, types HV are chosen by radio men who recognize Flechtheim's leadership in condenser quality.

Type	Capacity	Size	Your Cost
HV 5	.05 Mfd.	2x1⅛x ⅝	$1.03
HV 10	.10 Mfd.	2x1⅛x ⅝	1.18
HV 25	.25 Mfd.	2x1⅛x ⅝	1.32
HV 50	.50 Mfd.	2x1⅛x ⅝	1.47
HV 100	1 Mfd.	2x1⅛x ⅝	1.76
HV 200	2 Mfd.	2x1⅛x1⅛	2.94
HV 400	4 Mfd.	2x1⅛x2⅜	5.29
HV 244	0-2-4-4 Mfd.	3 3/16x4 x2¾	11.76

SUPERIOR MIDGET CONDENSERS

Unexcelled for their superiority of design, performance and efficiency, Flechtheim Superior Midget Condensers are being widely used as grid condensers; for plate by-pass, stopping, or blocking, impedance and resistance coupling, series antenna, compensating and neutralizing functions. In fact, wherever a high grade small size condenser to withstand voltages up to 500 D.C. is required, the Midgets can be relied upon to do the work with highest efficiency —power factor and radio frequency losses being negligible.



(Half Size)

Type	Capacity	Your Cost
M-A	.0001 Mfd.	$0.24
M-B	.0002 Mfd.	.24
M-C	.00025 Mfd.	.24
M-D	.0005 Mfd.	.24
M-E	.001 Mfd.	.26
M-F	.002 Mfd.	.26
M-G	.004 Mfd.	.26
M-H	.005 Mfd.	.29
M-J	.006 Mfd.	.32
M-K	.01 Mfd.	.35
M-L	.02 Mfd.	.38
M-M	.05 Mfd.	.44

SUPERIOR GRID AND PLATE CONDENSERS

For Continuous Operating Voltages up to 2000 Volts D.C.

Whether one needs a high voltage grid condenser or a plate stopping condenser, these units will stand the long and intermittent strains imposed upon them in the usual radio transmitting installations.

Type	Capacity	Your Cost
CP 250	.00025 Mfd.	$1.76
CP 10	.001 Mfd.	1.91
CP 20	.002 Mfd.	2.06

These excellent little units are just the thing for improving the efficiency of the transmitter. Preventing even the smallest leakage of the plate current, but offering an unobstructed path for the radio frequency energy generated by the oscillator, there are none better for the purpose.

FLECHTHEIM
SUPERIOR CONDENSERS

BY-PASS CONDENSERS

Wherever a low voltage by-pass condenser is required a Flechtheim Superior By-pass will fulfill its duty with absolute satisfaction. Having high grade insulating qualities, Flechtheim condensers provide against Direct Current leakage and also afford an unobstructed path for Radio Frequency currents. Accurately made, with a capacity value within 5% of the rating, Flechtheim condensers have an insulation resistance of approximately 150 Megohms per Microfarad. Flechtheim Superior Condensers can always be recognized by the neat silver-finished case with the deep blue label.

Type B 100

For Continuous Operating Voltages up to 250 Volts D.C. (120 rms. A.C.)

Type	Capacity	Size	Your Cost
B 10	.10 Mfd.	2x1¾x 9/16	$0.38
B 25	.25 Mfd.	2x1¾x 9/16	.44
B 50	.50 Mfd.	2x1¾x 9/16	.47
B 100	1 Mfd.	2x1¾x 9/16	.56
B 200	2 Mfd.	2x1¾x1⅜	.88
B 400	4 Mfd.	2x1¾x1¾	1.76

FILTER CONDENSERS

Type F 401

For Continuous Operating Voltages up to 450 Volts D.C. (220 rms. A.C.)

Type	Capacity	Size	Your Cost
F 10	.10 Mfd.	2 x1¾x 9/16	$0.44
F 25	.25 Mfd.	2 x1¾x 9/16	.47
F 50	.50 Mfd.	2 x1¾x 9/16	.50
F 100	1 Mfd.	2 x1¾x1	.73
F 200	2 Mfd.	2 x1¾x1⅜	1.18
F 400	4 Mfd.	4½x1¾x1¾	2.08
F 401	4 Mfd.	2 x1¾x2 9/16	2.08

For shunting the resistances in the output circuit of an eliminator, Flechtheim Superior Filter Condensers are without equal. Capable of withstanding the extremes of temperature without deterioration, they can be used safely where a neat and efficient condenser is required for heavy duty at voltages under 450 D.C. For use in conjunction with choke coils, or across a source of A.C. supply, to filter out line noises, commutator ripples and eliminate A.C. interference, Flechtheim Superior Filter Condensers can be relied upon to give dependable and unexcelled service. In power packs, amplifiers, impedance and resistance coupling, use Flechtheim's.

HIGH TENSION TRANSMITTING CONDENSERS

Type TC: For Continuous Operating Voltages up to 1000 Volts D.C. (750 rms. RAC)

When it comes to transmitting condensers, Flechtheim jobs actually SHINE! As proof, over 50% of the broadcasting stations in the country are using them exclusively in their filters, whether for motor-generator or rectified A.C. And as for the amateurs, an ever-increasing number (there are about 18,000 of 'em) are praising the wonderful success they are having by using Flechtheim condensers.

Type	Capacity	Size	Your Cost
TC 100	1 Mfd.	5½x4¾x1	$2.21
TC 200	2 Mfd.	5½x4¾x2	3.81
TC 400	4 Mfd.	5½x4¾x4	6.47

The 1930-31 Season brings out a number of important improvements and we wish to emphasize the VERY CONSERVATIVE RATINGS of our condensers.

Types TC have been improved, so that they can be used at 1000 volts D.C. (motor-generator) or 750 volts rms. rectified A.C. in low-powered transmitters employing 5, 7½, 10, 25 or 50 watt tubes.

Type T: For Continuous Operating Voltages up to 1500 Volts D.C. (1000 rms. RAC)

Long familiar to amateurs as the classical condensers to use in their low-powered short wave transmitters, type T has also been perfected to operate at 1500 volts D.C. or 1000 volts rms. rectified A.C. Thus with 1000 volts A.C. on either side of a center tap, or else with 1000 volts single secondary on the plate of the rectifier, one can depend upon type T doing the job well. Attention is called to the new and improved manner of attaching the glazed porcelain insulators to the heavy insulating strip underneath the cover of the condenser, a feature which makes grounding or short-circuit to container impossible.

Type	Capacity	Size	Your Cost
T 100	1 Mfd.	5¼x4¾x1	$2.65
T 200	2 Mfd.	5¼x4¾x2	5.00
T 400	4 Mfd.	5¼x4¾x4	8.53

Shunt resistors are recommended for use across the output of the rectifier. In this position, they are most effective, as the greater strains due to the pulsation D.C. are placed on the first condenser at this point. Again, a resistor placed across the output of the filter tends to keep the current output more constant. It must be kept in mind that the total current consumed by employing one or more shunt resistors in the filter, should not exceed more than one-fifth of the current consumed by the oscillator and modulator tubes supplied by the filter. For example, the tubes draw 100 mils, then the shunt resistor should pass a maximum of 20 mils. A heavier current will tend to burn out the resistor, and place an undue load on the plate supply. To figure the correct rating of a shunt resistor, simply use Ohm's Law. If the output voltage is 1500 v. D.C. then a unit of 25,000 ohms resistance rated at 30 watts is correct.

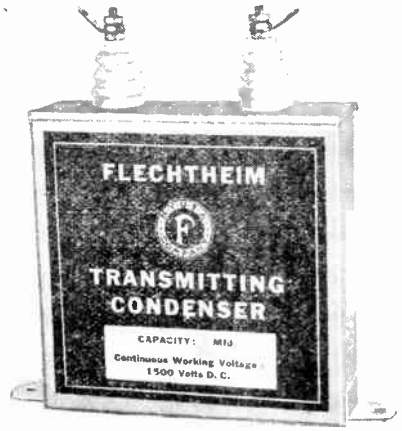
Type T 200

FLECHTHEIM

High Tension Transmitting Condensers

For Continuous Operating Voltages up to 2000 Volts D.C. (1600 rms. RAC)

Type	Capacity	Size	Your Cost
TH 100	1 Mfd.	6x3¼x3¼	$5.88
TH 200	2 Mfd.	6x6 x3½	8.82
TH 400	4 Mfd.	6x8 x6	15.25



Designed for use in amateur and broadcast transmitters up to 500 watts, these condensers are being used by many of the largest stations in the country, giving excellent service. Built to withstand the heat from the modulator and oscillator tubes, these condensers are best suited for use with motor-generator units delivering up to 2000 Volts D.C. Or if a source of rectified A.C. is employed, the rms. transformer rating should be no greater than 1600 Volts A.C. Fitted with large porcelain insulators, these condensers are insulated in a way to prevent short-circuit to grounded case.

For Continuous Operating Voltages up to 3000 Volts D.C. (2200 rms. RAC)

Type	Capacity	Size	Your Cost
HP 100	1 Mfd.	6x4⅜x4⅜	$11.76
HP 200	2 Mfd.	6x8¾x4⅜	19.10
HP 400	4 Mfd.	6x8¾x8¾	35.27

These highly perfected condensers are for use in "brute force" filters where the maximum A.C. voltage supply is 2200 Volts, or 3000 Volts D.C. from a motor-generator and will smooth out the last vestige of a ripple.

While high tension transmitting condensers for voltages up to 3000 Volts D.C. have been a very difficult task to manufacture these singular units, with their new-process paper dielectric of high specific inductivity have withstood "flash" re-tests at 8000 Volts D.C. This is a feat never before achieved in a paper-insulated condenser, and Flechtheim is again the first in the field to offer them and at very reasonable prices. A real job, with heavy porcelain insulators, compact yet with large cooling surface, these condensers are doing their work with amazing effectiveness and complete satisfaction.

For Continuous Operating Voltages up to 5000 Volts D.C. (3300 rms. RAC)

These new transmitting condensers are the result of many years of research and the product of intensive experimentation. Having a test voltage of 12,000 volts D.C., the rating of 5000 Volts D.C. is very safe and hence the condensers can be relied upon to stand up under long periods of constant operation at full voltage. A condenser that will receive the same wide commendation and general use, as our other types.

Type	Capacity	Size	Your Cost
VM 100	1 Mfd.	6x4⅜x4⅜	$17.64
VM 200	2 Mfd.	6x8¾x4⅜	28.52
VM 400	4 Mfd.	6x8¾x8¾	49.90

A new type of transmitting condenser, offered by Flechtheim—type VM, rated very conservatively at 5000 Volts D.C. or 3300 rms. rectified A.C.

Bakelite and Aluminum Panels

We carry nothing but the best grade Bakelite obtainable. Don't confuse this paneling with cheaper grades on the market selling for less. The finish is black with high gloss. Cut to any size in either ⅛" or 3/16" thickness. Smooth sawed edges. About one week required for delivery.

⅛" thickness—**Your Cost 1¼c** per sq. inch—Not Postpaid
3/16" thickness—**Your Cost 1¾c** per sq. inch—Not Postpaid
(Prices quoted on any thickness up to ½")

GENUINE ALCOA ALUMINUM SHEETING

Beautiful Silver Dipped 3/32" thick, cut to any size . . . . . **Your Cost 72c** per sq. foot—Not Postpaid

ALCOA MOULDED CORNER PIECES

Just the thing for cabinet corners, sheeting slides in grooves . . . . . **Your Cost 1c** per inch—Not Postpaid

OHMITE

Vitreous Enameled Resistance Units

TRANSMITTING GRID LEAKS

Large

Size of unit 8½"x1¼". Furnished with brackets.

Stock Number	Resistance Ohms	Maximum Current in Milliamperes	Your Cost
0801	5,000	200	$2.06
0802	10,000	141	2.35
0803	20,000	100	2.65
0804	30,000	81	2.94
0805	50,000	63	3.82
0806	15,000 tapped at 5,000 and 10,000	115	2.65

Small

For Stations up to 50 Watt Input

Size of Unit 4"x11/16". Furnished with brackets.

Stock Number	Resistance Ohms	Maximum Current in Milliamperes	Your Cost
0441	5,000	95	$1.03
0442	10,000	67	1.18
0241	100 center tapped unit 2"x11/16"	500	.73
0242	200 center tapped unit 2"x11/16"	300	.73

STANDARD LUG TYPE
4"x11/16"—48 Watt
Code Word: ABZUG

Mounting Brackets can be furnished at ten cents per pair.

Stock Number	Resistance Ohms	Maximum Current in Milliamperes	Your Cost
0401	250	438	$0.58
0402	500	310	.58
0403	750	253	.58
0404	800	237	.58
0405	1,000	210	.64
0406	1,500	170	.64
0407	2,000	150	.64
0408	2,500	133	.64
0409	2,000	120	.73
0410	4,000	105	.73
0411	5,000	95	.88
0412	7,500	77	.88
0413	8,000	75	.88
0414	10,000	67	.88
0415	12,000	61	1.03
0416	15,000	54	1.03
0417	20,000	43	1.18
0418	25,000	38	1.32
0419	35,000	29	1.47
0420	50,000	25	1.62
0421	75,000	18	1.76
0422	100,000	13	1.91
0423	125,000	11	2.06
0424	150,000	9	2.20
0425	175,000	7	2.35
0426	200 000	7	2.50
0427	225,000	6	2.65
0428	250,000	6	2.65

STANDARD LUG TYPE
2"x11/16"—30 Watt
Code Word: ACKER

Mounting Brackets can be furnished at ten cents per pair.

Stock Number	Resistance Ohms	Maximum Current in Milliamperes	Your Cost
0201	250	315	$0.53
0202	500	220	.53
0203	750	180	.53
0204	800	177	.53
0205	1,000	155	.58
0206	1,500	125	.58
0207	2,000	110	.58
0208	2,500	100	.58
0209	3,000	90	.58
0210	3,500	84	.58
0211	4,000	78	.58
0212	5,000	70	.64
0213	6,000	64	.64
0214	7,500	57	.64
0215	10,000	46	.73
0216	12,000	41	.73
0217	15,000	34	.88
0218	20,000	26	.88
0219	25,000	23	1.03
0220	30,000	21	1.03
0221	35,000	16	1.18
0222	40,000	15	1.18
0223	45,000	14	1.32
0224	50,000	13	1.32
0225	60,000	9	1.47
0226	70,000	8	1.47
0227	80,000	8	1.62
0228	90,000	7	1.76
0229	100,000	7	1.91

CARTRIDGE TYPE
1 13/16"x½"—10 Watt
Code Word: CARIB

Will fit standard Grid Leak Clips, or Bus Wire may be soldered directly into holes in the copper caps.

Stock Number	Resistance Ohms	Maximum Current in Milliamperes	Your Cost
0101	250	200	$0.53
0102	400	155	.53
0103	500	140	.53
0104	600	125	.53
0105	750	115	.53
0106	1,000	100	.58
0107	1,200	91	.58
0108	1,500	81	.58
0109	2,000	70	.58
0110	2,500	63	.58
0111	3,000	57	.64
0112	3,500	53	.64
0113	4,000	50	.64
0114	5,000	42	.73
0115	6,000	38	.73
0116	7,500	35	.73
0117	8,000	30	.73
0118	10,000	26	.73
0119	12,000	24	.88
0120	15,000	18	.88
0121	20,000	16	.88
0122	25,000	11	.88
0123	30,000	10	.88
0124	35,000	9	1.03
0125	40,000	7	1.03
0126	45,000	7	1.18
0127	50,000	6	1.18
0128	55,000	5	1.32
0129	60,000	5	1.32

New Series 100 and 200 Watt Resistors Just Out — Prices on Request

MUNZIG

TRANSMITTING COILS

Designed for .00045 mfd high C circuits, lacquered ½" heavy brass ribbon wound on slotted framework of bakelite. Low loss. The ideal inductance.

Type P-20 (14,000 KC) ..... Your Cost $2.65
Type P-40 (7,000 KC) ..... Your Cost 2.94
Type P-80 (3,500 KC) ..... Your Cost 3.53

ANTENNA COIL

Heavy ¼" brass ribbon on slotted bakelite frame. Provided with mounting brackets. Coil contains 8 turns.

Your Cost—$2.65

FEEDER SPREADERS

A new spreader for Zeppelin antennes constructed of genuine bakelite with a hole and slot with set screw to tighten either No. 12 or No. 14 wire. Feeder wires are slipped through holes and by tightening set screw the spreader is firmly clamped to the wire. Size—7¼"x½"x¼".

Your Cost—24c each

SPRAGUE

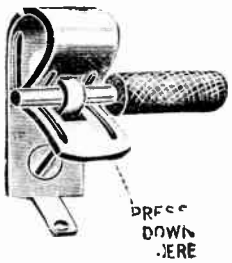
MIDGET ELECTROLYTIC CONDENSERS

8 mfd—430-Volts D.C.

One of the most popular condensers on the market. Size 1⅜" diameter by 4 11/16" high over all. A one-piece rolled edged anode of pure aluminum without welded joint or soldering. Individual screw socket mounting that makes attachment or adjustment almost instantaneous. The lug on the top is positive and the can negative.

Your Cost—$1.47

FAHNESTOCK CLIPS



NO. 5

Length over all not including lug ..... 1 1/16"
Width ..... ⅜"

Price ..... Your Cost—2 for 5c
Per dozen ..... Your Cost 25c
Per 100 ..... Your Cost $1.95

NO. 10

Length overall ..... ¾"
Width ..... 5/16"
Price ..... Your Cost—2 for 5c
Per dozen ..... Your Cost 25c
Per 100 ..... Your Cost $1.95

NO. 15

Length over all not including lug ..... ½"
Width ..... 7/32"
Price ..... Your Cost 3 for 5c
Per dozen ..... Your Cost 15c
Per 100 ..... Your Cost $1.15

R. E. L.

Transmitting Inductances

THE STANDARD OF QUALITY

Type S—3" diameter, 6" long, 11 2/3 turns Type L—5" diameter, 6" long, 11 2/3 turns

These inductances are wound with flat, nickel-plated copper ribbon. Moulded crystal glass spaces eliminating losses.

Frequency Readings for Above Coils

Shunt Cap. in Mmfd.	One Type S	One Type L
0	13050 (23)	7900 (38)
50	7690 (39)	4550 (66)
132	5875 (51)	3370 (89)
289	4050 (74)	2400 (125)
448	3370 (89)	1960 (153)

Your Cost—$4.40 each $7.70 Pair

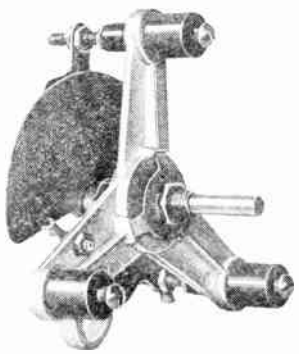
Type S

Amateur Band Coil Kit

These coils are space wound on a composition form. When used with Type 187E condenser each band is spread over the entire dial.

No. 182—Coil Kit (a kit consists of three coils and base) ..... **Your Cost—$8.33**

Tank and Vernier Condenser



The large semi-variable capacity is rotated by means of a bakelite disc. This disc may be notched and marked with what band the adjustment is for, thereby enabling the operator to always have the same adjustment. The single plate enables the band to cover the entire dial when used with the above coil kit, an ideal amateur band receiver may be assembled.

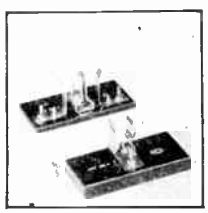
Type 187E Tank and Vernier Condenser 0.000115 mfds. ..... **Your Cost—$5.21**

50 Watt Socket ..... **Your Cost—$1.57**
(Special low loss socket with positive contacts on tube)

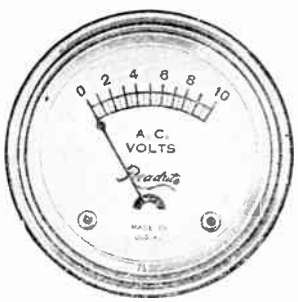
75 Watt Socket ..... **Your Cost—$1.80**

250 Watt Tube End Mountings ..... **Your Cost—$3.53**

We will gladly quote you prices on any other of the R. E. L. Products.

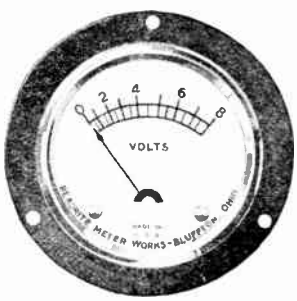


Readrite Meters



Narrow Flange

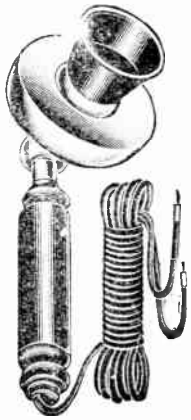
These meters are used by many amateurs in preference to more expensive ones. Panel meters are supplied either in narrow rim or in wide flange type. Either type requires 2 5/64" hole. Narrow rim type is held in place by clamp back panel. Finish is full nickel. Flange type has flange 2 11/16" diameter, with three holes for attaching to panel. Standard finish this type, black flange and nickeled bevel. Dials are metal—silvered.



Wide Flange

No. 390—0-100 D.C. Milliammeter, **Your Cost—59c**
No. 399—0-300 D.C. Milliammeter, **Your Cost—59c**
No. 352—0-10 A.C. Voltmeter ..... **Your Cost—$1.47**
No. 351—0-15 A.C. Voltmeter ..... **Your Cost—$1.47**

Frost Microphones



Frost Radio Microphones enjoy an enviable reputation for their excellent performance and appearance. Their design is based on over thirty years' experience in the telephone manufacturing field and they are guaranteed to give complete satisfaction when used in the proper circuits. These Microphones are of the solid back carbon type and will reproduce faithfully voice and musical frequencies over the full range. They are intended for commercial broadcasting use but are designed for amateur radio fans and general apparatus work. All microphones are equipped with cords and are extremely sensitive and rugged in construction.

Frost Radio No. 155 Hand Microphone ..... **Your Cost—$3.58**

Frost Radio No. 159 Desk Microphone ..... **Your Cost—$5.15**

Frost Radio No. 157 Pony Arm Microphone for mounting on panel of transmitter or wall—
Your Cost—$2.55

Frost Phones

Frost Fones continue to maintain their popularity with the radio public. There is a very definite demand for thoroughly high grade phones at a reasonable price and Frost Fones satisfy the exacting demands of the most critical customer. They are extremely sensitive, light in weight, comfortable to wear and easily adjustable.

All materials used in Frost Fones are the best money can buy and Frost Fones are made in a plant which for over thirty years has specialized in the manufacture of high grade telephone equipment.

When you want to hear clearly every word of some important speech or announcement—when you want to enjoy your radio late at night—when you want the thrill of "fishing" for distant stations—that is when you want a good pair of phones. For testing radio parts or complete sets—for lining up condensers—for peaking intermediate transformers—the custom set builder will find a good pair of phones indispensable.

No. 174—2000 ohm phones with polished aluminum shells and composition caps ..... **Your Cost—$1.76**

Signal Wireless Keys

Standard Wireless Key
Brass Base

R-62—3/16" contacts ..... **Your Cost—$2.06**
R-63—¼" contacts ..... **Your Cost—$2.18**
R-64—⅜" contacts ..... **Your Cost—$2.27**

Made very sturdy. Coin silver contact. Polished and lacquered brass parts.

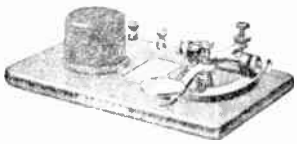
R-48—¼ K.W. Wireless Key

Your Cost—$1.65

M-200—Seinatic Key

Semi-automatic and double action. This is a professional key of the latest design with a minimum number of adjustments. Can be used as double-action or semi-automatic key. Heavy black case bakelite, nickeled parts.

Your Cost—$10.50



R-68—Wireless Practice Set

Just the instrument for those who want to learn the code. Equipped with Type R-60 Buzzer.

Your Cost—$2.00

Type R-60—High Frequency Buzzer

Black crystalized, lacquer finish. High pitch. **Your Cost—73c.**

MODEL 112-K

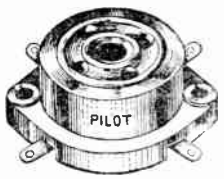
A dandy key mounted on wood base. Has shorting lever. A high grade key in every respect. **Your Cost—$1.18.**

Fleron Lead-In Bushing

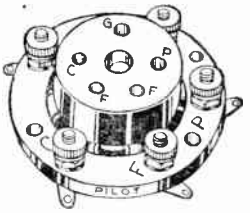
Made of porcelain—14" long. Porcelain sections slide off brass rod to any wall thickness up to 9¾". Threaded rod can be cut at any desired point. **Your Cost—65c.**

PILOT

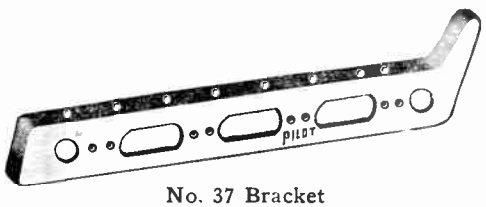
Tube Sockets



Pilot sockets are made of genuine molded bakelite and hold the tubes firmly but not too tightly. The contact springs and soldering lugs are actually one piece, so there are no losses in the sockets themselves. The No. 212 socket is very popular as a receptacle for the Pilot plug-in coil forms. The No. 216 and No. 217 sockets have a circular trough cut in their tops, to guide the pins of the tube into the holes. All binding posts and terminal lugs are marked by letters molded right into the bakelite.



Base type socket, UY tubes (5 prongs)—No. 212 ..... Your Cost—25c
Base type socket, UX and UV tubes (4 prongs)—No. 213 ..... Your Cost—25c
Universal socket, UX and UV tubes (4 prongs)—No. 216 ..... Your Cost—15c
Universal socket, UY tubes (5 prongs)—No. 217 ..... Your Cost—15c



No. 37 Bracket

Metal Sub-Panel Bracket

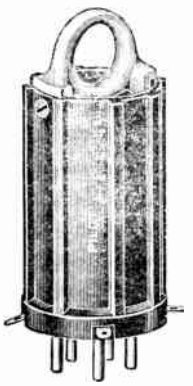
The No. 37 metal shelf bracket is ideal for all sets. It is strong and rigid, and drilled with numerous holes for the mounting of the sub-panel and small parts. It is 9" long, stands 1¼" high and is ⅜" wide. It is neatly nickel-plated.

Metal Bracket—No. 37 ..... Your Cost—25c

Blank Plug-In Coil Form

Amateurs who prefer to wind their own short-wave coils, for band-covering tuners, superheterodynes and other special sets, will find the Pilot blank plug-in coil forms very convenient. They have five pins in the base, and fit any standard five-prong UY socket. They also have a handy ring at the top to facilitate withdrawal from the socket. Contact pins and handle are removable. The The forms are of genuine bakelite, with ribs on the surface to keep the wire as free as possible. Length of form is 2½", diameter 1⅜".

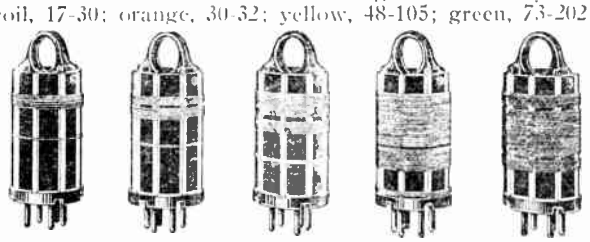
Blank Coil Form, with pins and handle—No. 185 ..... Your Cost—35c



No. 185 Blank

Short-Wave Plug-In Coils

This set of short-wave plug-in coils consists of five of the No. 185 forms, each wound with a primary winding, a secondary and a tickler. When used in a straight regenerative circuit, with a .00016 mf. variable condenser tuning the secondary, the wavelength ranges are as follows: red ring coil, 17-30; orange, 30-32; yellow, 48-105; green, 73-202; and blue, 200-500 meters. They take in all the short-wave channels, and the regular broadcast band as well. These coils are in use all over the world, and are without question the most convenient coils of their kind.



Set of five coils as described—No. 180-4 ..... Your Cost $4.45
Red handle coil alone—No. 180 ..... Your Cost—89c
Orange coil alone—No. 181 ..... Your Cost—89c
Yellow coil alone—No. 182 ..... Your Cost—89c
Green coil alone—No. 183 ..... Your Cost—89c
Blue coil alone—No. 184 ..... Your Cost—89c

Super-Wasp Plug-In Coils

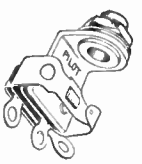
These are the coils supplied with the K-110 and K-115 kits. The No. 601A are the antenna coils, which contain a single winding apiece. The No. 601D are the detector coils, which have a grid winding and a tickler apiece. There are five coils to each set, fitted with handles of different colors. These coils were designed especially for the Super-Wasp, and will work satisfactorily in other receivers only if their circuits and constants closely match those of the Super-Wasp. These coils also use the No. 185 forms.

Super-Wasp antenna coils—No. 601A ..... Your Cost—$4.95 Super-Wasp detector coils—No. 601D ..... Your Cost—$4.95

Midget Phone Jack

A small, convenient telephone jack for general use in conjunction with phone plugs. Can be mounted on the front panel of a set for a phonograph pick-up, or in the rear for loud speaker or earphone connection. It is of the single closed circuit type, adaptable to practically all circuits. Mounts in a single hole, and is 1 inch deep. Because of its small size, this jack is easily installed on low sub-panels, or on front panels where room is at a premium. Its connections lugs are of generous size and spaced so as to avoid short circuits.

Phone Jack—No. 1165 ..... Your Cost—25c



No. 1165

PILOT

No. 350 Resistograd

Resistograd—Universal Range Resistance

The Resistograd is a variable resistance having a "jumpless" range from 40 to about 10,000,000 ohms, which is covered by four turns of the knob. Absolutely non-inductive and non-packing. Will handle 20 watts of power. The case is turned out of solid brass and is ribbed to radiate the heat generated during normal operation. The Resistograd is highly useful for control of output voltages in "B" power units, and also for general oscillation and volume control. Dimensions: 2 7/16" long overall and 1 7/16" in diameter. Mounts in a single hole. Bakelite adjusting knob furnished.

Resistograd—No. 350 ..... Your Cost—49c

Bakelite Top Binding Posts

Binding Post

These binding posts have non-removable tops of genuine bakelite. The drilled shanks take phone tips as well as lugs and plain wires. Handsome and durable, these posts will last a lifetime.

Your Cost—10c each

Pilotohms—Grid Leaks

The Pilotohm metal grid leaks are dependable resistances that will not change in value with currents of different strength passing through them. Every leak is marked with its resistance in ohms. Sealed airtight as protection against moisture. Grid leaks are 1 13/16" long and ¼" in diameter.

.03 meg.	.75 meg.		3. meg.	7. meg.
.1 meg.	1. meg.		3.5 meg.	8. meg.
.2 meg.	1.5 meg.		4. meg.	9. meg.
.25 meg.	2. meg.		5. meg.	10. meg.
.5 meg.	2.5 meg.		6. meg.	

Your Cost—10c each

Rheostats and Potentiometers

The Pilot rheostats and potentiometers have molded bakelite bases and wire-wound resistance strips. The rheostats are equipped with two binding posts, the potentiometers with three. Single hole mounting. Furnished with bakelite knob. Dimensions: 2" in diameter, 9/16" thick.

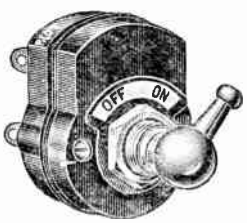
RHEOSTATS

Rheostat, 2 ohms—No. 902 ..... Your Cost—49c each
Rheostat, 4 ohms, for 6 to 8 201A's—No. 904 ..... Your Cost—49c each
Rheostat, 6 ohms, for 3 or more 201A's—No. 906 ..... Your Cost—49c each
Rheostat, 10 ohms, for 3 or more 199's—No. 910 ..... Your Cost—49c each
Rheostat, 20 ohms, for 2 199's or 1 201A—No. 920 ..... Your Cost—49c each
Rheostat, 30 ohms, for 1 199—No. 930 ..... Your Cost—49c each
Rheostat, 1,000 ohms—No. 931 ..... Your Cost—49c each
Rheostat, 2,000 ohms—No. 932 ..... Your Cost—49c each
Rheostat, 400 ohms—No. 935 ..... Your Cost—49c each

POTENTIOMETERS

Potentiometer, 200 ohms—No. 200 ..... Your Cost—49c ea.
Potentiometer, 400 ohms—No. 400 ..... Your Cost—49c ea.
Potentiometer, 4 ohms—No. 904-P ..... Your Cost—49c ea.
Potentiometer, 6 ohms—No. 906-P ..... Your Cost—49c ea.
Potentiometer, 10 ohms—No. 910-P ..... Your Cost—49c ea.
Potentiometer, 20 ohms—No. 920-P ..... Your Cost—49c ea.
Potentiometer, 30 ohms—No. 930-P ..... Your Cost—49c ea.
Potentiometer, 1,000 ohms—No. 931-P ..... Your Cost—49c ea.
Potentiometer, 2,000 ohms—No. 932-P ..... Your Cost—49c ea.
Potentiometer, 3,000 ohms—No. 3,000 ..... Your Cost—49c ea.

Power Switches



No. 46

The No. 44 is of the snap type, and will handle 3 amperes at 220 volts. It is supplied with a round bakelite on-off knob, and mounts a single hole. The No. 46 is exactly like the No. 44, except that a little lever is furnished instead of a knob. Switches are suitable for battery or house current sets.

Knob Switch—No. 44 ..... Your Cost—35c
Lever Switch—No. 46 ..... Your Cost—30c

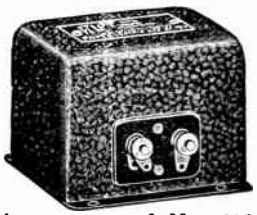
PILOT

Fixed Resistors—Wire Wound Type

All Pilot wire resistors are wound with Nichrome wire on porcelain tubes, and are impregnated with a black elastic coating that protects them against dampness and corrosion. The resistors are equipped with removable feet, and can be mounted either vertically or horizontally.

The No. 961 is a special filament resistor for *222* type tubes, being supplied with a tap for "C" bias. The next eleven sizes are intended for use as "C" bias resistors. The 3,000 and 10,000 ohm sizes can be used as loading resistors in power packs and for numerous other purposes. The No. 960 is a "B" power-pack output resistor, for use with any unit that supplies 180-200 volts to it. Taps to give lower voltages are fitted to the resistor. The first twelve resistors are ⅜" in diameter and 1¾" long; the No. 953 is ⅜" by 2" long, and the No. 960 ¾" in diameter and 4½" long.

	Your Cost Each
Resistor, 15 ohms, tapped (for *222* tubes)—No. 961	25c
Resistor, 225 ohms—No. 967	25c
Resistor, 450 ohms—No. 966	25c
Resistor, 900 ohms, center-tapped—No. 959	25c
Resistor, 650 ohms—No. 954	25c
Resistor, 750 ohms—No. 965	25c
Resistor, 850 ohms—No. 955	25c
Resistor, 1,000 ohms—No. 962	25c
Resistor, 1,500 ohms—No. 963	25c
Resistor, 1,200 ohms—No. 956	25c
Resistor, 2,000 ohms—No. 958	25c
Resistor, 2,250 ohms—No. 951	25c
Resistor, 3,000 ohms—No. 964	25c
Resistor, 10,000 ohms—No. 953	25c
"B" Power Pack Resistor, 12,700 ohms—No. 960	75c



Appearance of No. 412 Series Transformers and Chokes

No. 412 Series Transformers and Chokes

These small audio transformers and chokes will appeal to the constructor because they can be mounted on the underside of sub-panels, the one-piece steel cases bring only 2⅞" square and 2⅛" high. They are neatly finished in black lacquer, and have mounting feet. Their tone quality is of the highest order.

The advantage of sub-panel mounting of the audio transformers is that the heaviest units of the set are placed very low, making it very stable mechanically. Some constructors arrange the transformers so that they act as supporting feet for the receiver, being suitable for this purpose because of their strong steel cases.

The best circuit combination for these transformers consists of a No. 413 in the first stage, working into a *227*-type tube in A.C. sets or a 201A in battery sets, with a No. 412 in the second stage, feeding a 171A. This latter may be operated on either batteries or alternating current. The loud speaker should be connected to the 171A through a protective filter consisting of a No. 414 or 415 choke coil and a No. 9302 2 mf. fixed condenser, or through a No. 418 output transformer.

Small Metal Case Audio Transformer, 2-1 ratio—No. 412	Your Cost—$1.32
Small Metal Case Audio Transformer, 3½-1 ratio—No. 413	Your Cost—$1.32
Audio Output Filter (choke and condenser)—No. 392	Your Cost—$1.47
Audio Output Transformer—No. 418	Your Cost—$2.94
30-henry Choke, 45 milliamperes capacity—No. 414	Your Cost—$1.32
30-henry Output Choke—No. 415	Your Cost—$1.32

No. 422 Transformers and Chokes

These instruments are similar to the units of the No. 412 series, but are larger and heavier in construction, and include a push-pull combination. The one-piece steel cases are 4" long, 2½" wide and 2⅞" high.

The large metal case audio units may be used in any standard amplifier circuits calling for either 171A or 245 tubes in the output stage. Where the amplifier is required to handle a medium amount of volume, a straight two-stage circuit with a single 171A output tube should be used, with a No. 423 in the first stage and a No. 422 in the second. A single 245 may also be used. In either case an output filter consisting of a No. 424 or 425 choke and a 2 mf. condenser must be used.

A push-pull output stage is necessary when high volume levels must be handled. The first stage may use either a No. 423 or a No. 422, followed by the Nos. 426 and 427 push-pull units. Tubes of the 245 type are preferable as the output tubes. No output filter is necessary, as the push-pull output transformer serves the same protective purpose.

Large Metal Case Transformer, 2-1 ratio—No. 422	Your Cost—$2.45
Large Metal Case Transformer, 3½-1 ratio—No. 423	Your Cost—$2.45
Push-pull Input Transformer, 2-1 ratio—No. 426	Your Cost—$2.84
Push-pull Output Transformer—No. 427	Your Cost—$2.84
30-henry Filter Choke, 60 milliamperes capacity—No. 424	Your Cost—$2.45

PILOT

Jumbo Power Units for 245 Tubes

The Pilot No. 411 power transformer, the No. 421 filter condenser block and the No. 431 double choke coil are husky "Jumbo" instruments designed for the 245-type tube.

The three units have the same size steel case, 5½" high, 5" long and 3" wide, beautifully finished in black Japanese lacquer. All connections are brought out to screw-type binding posts on molded bakelite terminal plates.

The No. 411 transformer has three filament windings (not center-tapped) and one plate winding. The first filament secondary gives 2½ volts at a maximum of 12 amperes (enough for as many as seven 224's or 227's; the second, 2½ volts at 3.6 amperes (enough for two 245's); and the third, 5 volts at 2 amperes (for the 280 rectifier tube filament. The plate secondary develops 330 volts across each side of the center tap (660 volts altogether) and will deliver 90 milliamperes of current through a filter system using a No. 421 filter block and a No. 431 choke.

The grid biases for the various tubes are furnished by fixed resistances connected in the cathode leads, in the case of the 224's and 227's, and to the center-tapped resistance in the case of the 245's. Use a 450 ohm resistance for each 224 (A.C. screen-grid tube), and a 2000-ohm for each 227. For a single 245 tube use 1500 ohms, and for two 245's in push-pull, 750 ohms. A 227 used as a detector does not require any biasing. Each biasing resistor used with an R.F. tube should be bypassed by a .006 mf. condenser; each resistor for an A.F. tube by a 1.0 mf. condenser.

The No. 421 filter block has a total capacity of 11 microfarads. Two of the sections, of 2 and 3 mf. capacity each, are rated at 400 volts working voltage, and are flash tested at 1000 volts. The other four sections, of 3, 1, 1 and 1 mf. each are rated at 300 volts working and 1250 volts flash test. The double choke has a total inductance of 50 henries. The first section, which carries the plate current of the 245 tubes, is rated at 25 henries at the maximum load of 90 milliamperes; the second is rated at 35 henries at 45 milliamperes.

Jumbo Power Transformer for 245 tubes—No. 411 (for 110 volts 50-60 cycles A.C.) ... **Your Cost—$5.79**
Jumbo Filter Condenser Block for 245 tubes—No. 421 ... **Your Cost—$5.88**
Jumbo Double Choke Coil for 245 tubes—No. 431 ... **Your Cost—$3.92**

Jumbo Power Units for 171A Tubes

The No. 398 power transformer, the No. 396 filter condenser block and the No. 395 double choke coil fulfill the power supply requirements of receivers employing a combination of A.C. tubes of the 226, 227 and 171A type. The units are mounted in strong steel cases having a black Japanese lacquered finish, and are all 5½" high, 5" long and 3" wide. All connections are brought out to screw binding posts on molded bakelite panels. This series of units is identical in appearance with the Nos. 411, 421 and 431.

The No. 398 transformer has five secondary windings, all with center-tap connections. They are rated as follows: 1½ volts at 6 amperes; 5 volts at .8 amperes; 5 volts at 2 amperes; 500 volts at 60 milliamperes.

The No. 396 filter condenser block comprises section 1, 1, 3, 3 and 6 mf. capacity, and also two .1 mf. sections, giving a total of over 14 microfarads. The block is rated at 300 volts working voltage.

The No. 395 double choke coil unit consists of two individual coils connected in series, with an additional connection provided for a center cap. The total overall inductance is 60 henries each coil having 30 henries. This is sufficient to provide an effective A.C. transient surge reduction (or choking) effect in filter circuits carrying rectified A.C. voltages, where not more than 60 milliamperes of direct current is required.

NOTE:—The Nos. 398, 396 and 395 cannot be used for sets employing the 245 tube.

Jumbo Power Transformer for 171A tubes—No. 398 (for 110 volts, 50-60 cycles A.C.) ... **Your Cost—$4.90**
Jumbo Condenser Block—No. 396 ... **Your Cost—$4.90**
Jumbo Double Choke—No. 395 ... **Your Cost—$3.43**

Volumgrad

The Volumgrad is a smooth action variable resistor designed especially for volume and oscillation control purposes. It is made in the four resistance ranges listed below, the four models being exactly alike in size and appearance. The volume can be adjusted from zero to maximum with one turn of the knob. The case is molded bakelite, 2" in diameter. A special arrangement of the contact arm prevents the resistance strip from wearing out. The arm is insulated from the shaft, so the Volumgrad can be mounted directly on a metal panel.

0 - 50,000 ohms—No. 940 ... **Your Cost—73c each**
0 - 100,000 ohms—No. 941 ... **Your Cost—73c each**
0 - 200,000 ohms—No. 942 ... **Your Cost—73c each**
0 - 500,000 ohms—No. 945 ... **Your Cost—73c each**

Resistoblock

No. 500 Resistoblock

The Pilot Resistoblock is designed to fit the requirements of any circuit employing resistance coupling. The molded bakelite base has a depression in which any 50 series fixed condenser can be fastened. Any combination of capacity and resistance can be had. Dimensions: 2¼" long, 1 25/32" wide and 1⅝" high.

Resistoblock, with .01 mf. condenser—No. 500 ... **Your Cost—49c**

PILOT

R.F. Choke Coil

The No. 130 is an 80-millihenry radio-frequency choke coil for general use in short wave and regular broadcast receivers. Its choking effect extends from about 20 meters up to 600, its distributed capacity being very low. Dimensions: 1½" high, 1" diameter. R.F. Choke Coil—No. 130 ..... Your Cost—50c

Filter and By-Pass Condensers

These are carefully made condensers, and are tested four times before they are released for sale. They are thoroughly impregnated and are absolutely impervious to moisture. For heavy duty power packs the Nos. 9501 and 9651 are recommended. These have a capacity of 1 mf. each. The first is rated at 500 volts D.C. working voltage, and flash tested at 2400 volts. The second 650 volts working and 3600 volts flash test. The No. 9302 is a 2 mf. condenser, for 300 volts D.C. working voltage, and is flash tested at 1200 volts. As many as nine of them may be mounted together into a convenient block by means of the No. 9000 mounting clamps. The No. 9110 is a buffer condenser consisting of two .1 mf. sections; 400 volts working voltage, 2000 volts flash test. The Nos. 800 and 801, ½ and 1 mf. respectfully, are rated at 180 volts working, 750 volts flash test. They are furnished with mounting feet.

All these condensers have pressed steel cases, finished in durable black enamel. The 800 and 801 are 2½ inches high, 2 inches wide and ⅞ inch thick. The other four are all 5 inches high, 2 inches wide and ⅞ inch thick.

1 mf. Filter, 650 v.—No. 9651 ..... Your Cost—98c
1 mf. Filter, 500 v.—No. 9501 ..... Your Cost—73c
2 mf. Filter, 300 v.—No. 9302 ..... Your Cost—73c
.1 - .1 Buffer—No. 9110 ..... Your Cost—73c
½ mf. By-Pass—No. 800 ..... Your Cost—34c
1 mf. By-Pass—No. 801 ..... Your Cost—34c

Isograd—Mica Fixed Condensers

Pilot mica fixed condensers are hermetically sealed in genuine bakelite, and are absolutely constant in capacity under all normal conditions of temperature and humidity, connections are made to threaded brass bushings set in the bakelite, so there is no squeezing effect by the terminal screws to alter the capacity. Separate screw holes for mounting are provided.

.0001 mf.—No. 50B ..... Your Cost—25c each
.00015 mf.—No. 50C ..... Your Cost—25c each
.0002 mf.—No. 50D ..... Your Cost—25c each
.00025 mf.—No. 51 ..... Your Cost—25c each
.0005 mf.—No. 52 ..... Your Cost—25c each
.001 mf.—No. 53 ..... Your Cost—25c each
.002 mf.—No. 54 ..... Your Cost—25c each
.003 mf.—No. 55 ..... Your Cost—25c each
.004 mf.—No. 56 ..... Your Cost—25c each
.005 mf.—No. 57 ..... Your Cost—25c each
.006 mf.—No. 58 ..... Your Cost—25c each
.01 mf.—No. 59 ..... Your Cost—25c each

Grid Leak Clips—No. 50 ..... Your Cost—5c per pair

Appearance of Nos. 387, 407, 411 and 386 Transformers

No. 387 "B" Transformer for 171A Tubes

The No. 387 "B" Transformer is designed for power pack using either the 280 or Raytheon type rectifier tubes. It has two secondary windings, one giving 5 volts at 2 amperes for lighting the filament of the 280 tube, or the 171A's in the receiver; and the other giving 275 volts across each of two sections for the plate voltage. The latter winding will deliver 60 milliamperes of current. The primary winding is tapped, so that the right secondary voltages will be delivered for whichever type of rectifier tube is used. This transformer is identical in size and appearance with the No. 421 filter condenser block.

Note that this transformer supplies only "B" power; it has no filament windings other than the one for the rectifier tube.

"B" Power Transformer for 171A tubes—No. 387 (110 volts, 50-60 cycles) ..... Your Cost—$2.94

Nos. 386 and 407 Filament Lighting Transformers

There is a wide demand for separate transformers for heating the filaments of A.C. tubes. They are particularly useful for "electrifying" old battery type receivers. Pilot makes two such transformers.

The first transformer, the 386, is intended primarily for sets using a combination of 226, 227 and 171A tubes. It has three windings (center-tapped). One delivers 1½ volts at a maximum of 4.2 amperes, enough for four 226 tubes; the second gives 2½ volts at 5 amperes, for three or four 227 tubes; and the third 5 volts at .8 amperes, enough for three 171A's. This transformer has the same case and terminal plate as the No. 411.

The second transformer, the 407, is intended for the more modern combinations of 224, 227 and 245 tubes. It has two 2½ volt windings, one delivering a maximum of 3.6 amperes, enough for a pair of 245's in push-pull, and the other a maximum of 10 amperes, enough for six or seven 224's or 227's. The third winding develops 5 volts at ½ ampere. These windings are not center-tapped. This transformer has the same case and terminal plate as the No. 421 condenser block.

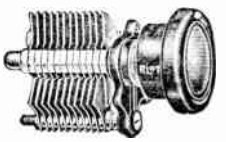
Filament Lighting Transformer for 171A tubes—No. 386 (for 110 volts, 50-60 cycles A.C.) ..... Your Cost—$2.94
Filament Lighting Transformer for 245 tubes—No. 407 (for 110 volts, 50-60 cycles A.C.) ..... Your Cost—$3.66

PILOT

Pilot Super Wasp Short Wave Receiver

(See Inside Page of Back Cover)

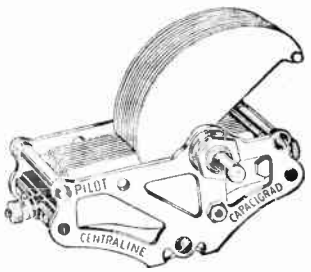
Neutrograd—Midget Variable Condensers



The extremely handy midget variable condenser has a molded bakelite frame and rigid brass plates. It mounts in a single hole, and is supplied with a bakelite knob. Made in four sizes: 5, 7, 13 and 23 plates, respectively. Useful for a wide variety of purposes, such as neutralizing R. F. amplifiers, antenna coupling, tuning verniers, regeneration control, short-wave tuning, etc. Every radio experimenter should have a few on hand. Only 1½" wide, 1" to 1¾" deep, depending on capacity.

.000015 mf. maximum—No. J 5 ..... Your Cost—49c
.000025 mf. maximum—No. J 7 ..... Your Cost—49c
.000050 mf. maximum—No. J13 ..... Your Cost—49c
.000100 mf. maximum—No. J23 ..... Your Cost—59c

Centraline Variable Condensers—1600 Series



The Pilot variable condensers are made of non-corroding brass parts, gold finished, with highly polished aluminum plates. They are manufactured by automatic machines of the highest precision.

The 1600 series is of a modified straight line frequency type. They open up the lower end of the tuning scale without crowding the upper end too much, as many S.L.F. condensers do. The instruments are supplied with mounting feet and removable shafts, and because of their reversible feature can be mounted on either clockwise or counterclockwise dials. The insulation is of molded bakelite. They mount in a single hole and can be secured against turning by additional panel screws. Two or more can be "ganged" together by means of a long ¼" shaft, or by No. 12A couplings.

The steel shafts are held in place by two set screws, and may be removed in an instant. This is a valuable feature, as it allows a number of condensers to be controlled by one long shaft, and also permits the use of insulated shafts when a particular circuit calls for them.

Connection to the rotor plates is made by a brass "pigtail", which insures noiseless contact.

The No. 1611 condenser is recommended for short wave receivers, as it has especially wide spacing between the plates.

These condensers are the handiest ones made, and are suitable for use in any kind of a receiver, short wave or long wave.

.00016 mf. maximum—No. 1611 ..... Your Cost—98c
.00025 mf. maximum—No. 1613 ..... Your Cost—98c
.00035 mf. maximum—No. 1617 ..... Your Cost—98c
.00050 mf. maximum—No. 1623 ..... Your Cost—98c

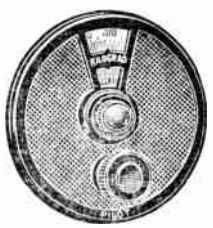
No. 1274 Plain Bakelite Dial

No. 1274

For many purposes a plain flat dial may be used to good advantage instead of more expensive and complicated vernier dials, particularly when the adjustments to be made are not critical. The No. 1274 dial fills this need. It is made of genuine black bakelite, and is 4 inches in diameter. The bushing is fitted with a set screw for tightening against the shaft of the condenser or other instrument; it takes shafts only of ¼-inch diameter. This dial has white graduations from 0 to 100, the readings going in the counterclockwise direction.

Plain Bakelite Dial—No. 1274 ..... Your Cost—34c

No. 1275 Kilograd Vernier Dial



No. 1275

The Kilograd is a quick mounting dial. It is made of black molded bakelite, and presents a handsome appearance. Both knob and scale turn in the same direction, and there is no slipping or backlash. Two scales are provided, one reading clockwise and the other counterclockwise; the dial may thus be used with any type of variable condenser. It is held securely against the panel by a single inconspicuous machine screw. The dial is 4 inches in diameter.

Kilograd Dial—No. 1275 ..... Your Cost—49c

Center Tapped Resistance

Pilot center tapped resistances are only 1½" long and are enclosed in moulded composition making them free from moisture.

Center tapped resistance 10 ohms No. 352 ..... Your Cost—15c
Center tapped resistance 20 ohms No. 354 ..... Your Cost—15c
Center tapped resistance 50 ohms No. 356 ..... Your Cost—15c
Center tapped resistance 75 ohms No. 358 ..... Your Cost—15c

PACENT

Pacent Electrovox

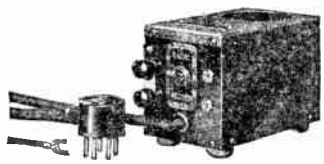
The PACENT Electrovox in its handsome cabinet, blends with any type of home surroundings. It is easily portable too, and may be used anywhere indoors or out, as your particular whims and demand dictate. Volume is readily adjusted to any level from that required for a large dance to a subdued musical background so enjoyable when reading.

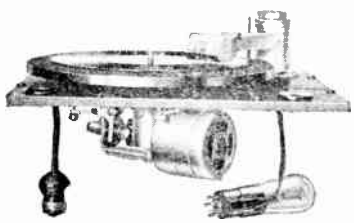
Pacent Electrovox No. 310—complete with cabinet **Your Cost—$44.10**

Electric Pick-Up Booster

Gives tremendous volume with superb quality from records played through one stage audio sets.

Your Cost (less tube)—$5.88





Electric Phonograph Motor

Catalogue No. 140

Silent—Trouble Free—Economical. Includes 12" turutable, mounting screws and springs.

Your Cost—$14.70

New Master Phonovox

Catalogue No. 107

Radically different design, resulting in improved operation. Built in volume control and switch.

Your Cost—$8.82

New SPECIAL Hi-Output Phonovox

This pick up gives the highest output of any electric pick up on the market. Recently developed by the Pacent laboratories, resulting in the most perfect electrical reproduction of records now available.

Furnished in Following Models

Model 107

Special Hi-Output with standard tone arm, (impedance, 16,000 ohms at 1000 cycles).

Your Cost—$11.76

Model 107-HL

Same as 107 except low impedance (impedance 200 ohms at 400 cycles).

Your Cost—$11.76

Model *107-HT

Special Hi-Output with long arm for playing 16" records (impedance 16,000 ohms at 1000 cycles).

Your Cost—$17.64

Model *107-HTL

Same as 107-HT except low impedance.

Your Cost—$17.64

* Combined volume control and record-radio change over switch included.

PACENT Oil Damped Phonovox

Used by all broadcasting stations. Absolutely eliminates needle jumping. Needle pressure may be varied to suit all requirements by turning thumb screw on top of tone arm.

Models of 108 Oil Damped Phonovox

108-A—Oil Damped Phonovox head only (impedance 2000 ohms at 1000 cycles).

Your Cost—$11.76

Model 108-B

Oil damped head with adjustable tone arm (includes volume control).

Your Cost—$14.70

Model 108-AL

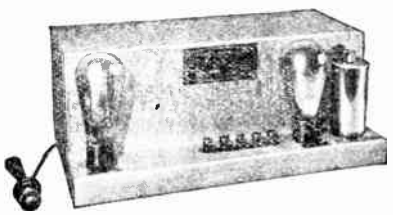
Same as 108-A but low impedance (impedance 200 ohms at 400 cycles).

Your Cost—$11.76

Model 108-BL

Same as 108-B except low impedance (volume control not included).

Your Cost—$14.70



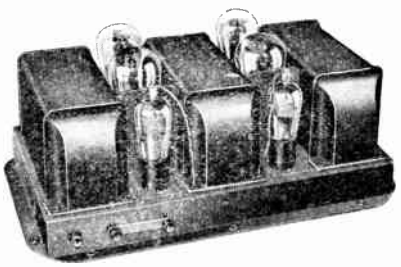
PACENT Power Amplifiers

We will gladly send literature on the PACENT line of amplifiers. Prices range from **$52.92** to **$79.38.**

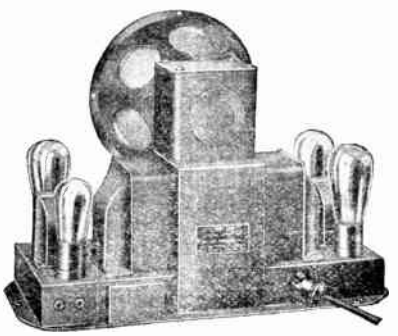
Wright DeCoster Speakers

The Speaker of the year, both for home and auditorium uses.
Literature on Request.

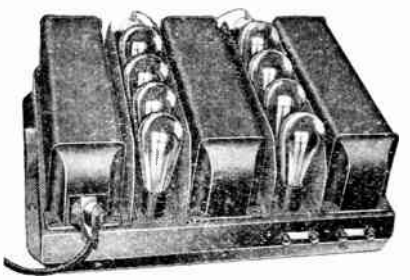
Samson Power Amplifiers



Comprises 1 stage 224 tubes in push-pull—1 stage 250 in push-pull, and 2-281 rectifiers. Output 9.3 watts.



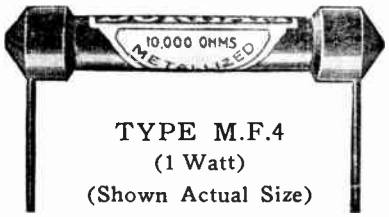
Complete public address speaker in carrying case. The latest in PAM engineering.



1 stage 224 tubes in push-pull, and 2 stages of 250 push-pull. Requires 4-281 tubes for rectifiers.

Literature and Special Prices on PAM AMPLIFIERS on Request.

Durham Resistors



TYPE M.F.4
(1 Watt)
(Shown Actual Size)

This Powerohm has tinned pigtail copper wires simultaneously moulded with the assembly of the unit at the end. A very rugged and substantial resistor used by many manufacturers for soldering into the circuit. Supplied in all practical ranges from 100 ohms to 5 megohms.

TYPE M.R.1 (1 Watt.)

For Clip Mounting or may be soldered in circuit to moulded end. Same as M.F.4, except without end wires.

RESISTANCE VALUES

M.F.4 — M.R.1 (1 Watt)		M.F.4½ (½ Watt)
100 ohms	10,000 ohms	.5 megohms
250 ohms	12,500 ohms	1.0 megohms
500 ohms	15,000 ohms	1.5 megohms
1,000 ohms	17,500 ohms	2.0 megohms
1,500 ohms	20,000 ohms	2.5 megohms
2,000 ohms	25,000 ohms	3.0 megohms
2,250 ohms	30,000 ohms	
2,500 ohms	40,000 ohms	Only MR1 - MF4
3,000 ohms	50,000 ohms	3.5 megohms
3,500 ohms	75,000 ohms	4.0 megohms
4,000 ohms	100,000 ohms	5.0 megohms
5,000 ohms	150,000 ohms	6.0 megohms
6,000 ohms	200,000 ohms	7.0 megohms
7,000 ohms	250,000 ohms	8.0 megohms
8,000 ohms	300,000 ohms	9.0 megohms
9,000 ohms	400,000 ohms	10.0 megohms

Your Cost—29c each

Metallized

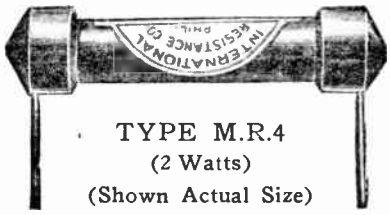
The largest radio set makers, the most important engineers, have learned the value of standardizing on DURHAM RESISTANCES. In these well known units you are assured of accuracy in construction and in ratings.

Precision Resistors

An entirely new resistor introduced after considerable experimentation to meet the demand for accurate, high value, non-inductive, low distributed capacity resistors. Accuracy 1% unless otherwise requested. Closer tolerance charged for at slightly higher prices. Intermediate ranges may be obtained if required.

PRICE LIST
(Resistance in Ohms)

500 Ohms	Your Cost— 92c
750 Ohms	Your Cost— 92c
1,000 Ohms	Your Cost— 92c
5,000 Ohms	Your Cost—$1.12
10,000 Ohms	Your Cost—$1.12
12,500 Ohms	Your Cost—$1.12
15,000 Ohms	Your Cost—$1.12
20,000 Ohms	Your Cost—$1.12
25,000 Ohms	Your Cost—$1.12
30,000 Ohms	Your Cost—$1.12
35,000 Ohms	Your Cost—$1.12
40,000 Ohms	Your Cost—$1.12
45,000 Ohms	Your Cost—$1.12
50,000 Ohms	Your Cost—$1.12
60,000 Ohms	Your Cost—$1.12
75,000 Ohms	Your Cost—$1.12
100,000 Ohms	Your Cost—$1.49
125,000 Ohms	Your Cost—$1.49
150,000 Ohms	Your Cost—$1.88
175,000 Ohms	Your Cost—$1.88
200,000 Ohms	Your Cost—$1.88
225,000 Ohms	Your Cost—$1.88
250,000 Ohms	Your Cost—$2.06
300,000 Ohms	Your Cost—$2.20
400,000 Ohms	Your Cost—$2.57
500,000 Ohms	Your Cost—$2.94



TYPE M.R.4
(2 Watts)
(Shown Actual Size)

Designed to be soldered directly into circuit. This type of unit is conservatively rated at 2 watts, and is used by many manufacturers in the power pack and in amplifier circuits. Supplied in all ranges from 100 ohms to 200,000.

TYPE M.R.3 (2 Watts)

Used in connection with resistance coupling and power amplifier circuits using the higher power UX-210, 245 and UX-250 type tubes; in battery eliminating devices and in alternating current receivers where the resistance method of obtaining a voltage drop is used. This unit is conservatively rated and will stand a maximum load for any continuous period. Same as M.R.4, except for clip mounting.

RESISTANCE VALUES
M.R.3 — M.R.4
(2 Watts)

100 ohms	4,000 ohms	25,000 ohms
250 ohms	5,000 ohms	30,000 ohms
500 ohms	6,000 ohms	40,000 ohms
1,000 ohms	7,000 ohms	50,000 ohms
1,250 ohms	8,000 ohms	75,000 ohms
1,500 ohms	9,000 ohms	100,000 ohms
1,750 ohms	10,000 ohms	125,000 ohms
2,000 ohms	12,500 ohms	150,000 ohms
2,250 ohms	15,000 ohms	175,000 ohms
2,500 ohms	20,000 ohms	200,000 ohms
3,000 ohms		
3,500 ohms		

NOTE: Above list indicates resistance ranges carried in stock for immediate delivery. Intermediate values may be obtained in all types at no increase in price.

Your Cost—44c each

Flat Copper Braid

We carry in stock this convenient necessity for low loss connections on variable taps for transmitters. The larger sizes can be opened with a pencil and wires pushed through making excellent shielded covering for the wires.

⅛" wide . . . . . **Your Cost—2 ft. for 5c** ¼" — 3/16" wide (either size) . **Your Cost—1 ft. for 5c**

Knox Porcelain Stand-Offs

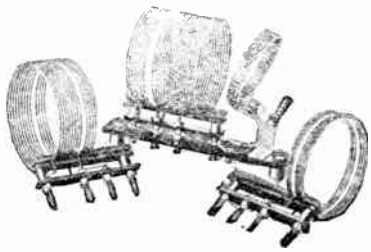
Similar to General Radio—1½" high, brown glazed porcelain. **Your Cost—12c each.**

Specials

Double Chokes—18 henries, 250 mils. each section . . . . . **Your Cost—$6.25 (Not Postpaid)**

Hammarlund

Hammarlund Short-Wave Coil



Made for .00014 mfd. Tuning Condensers

HAMMARLUND Short-Wave Plug-in Coils are built around a special self-supporting space wound coil material developed four years ago, and which has become standard for low resistance at very high frequencies.

These coils are wound with a definite space between turns and supported by a thin flat strong, efficient dielectric material. By firmly anchoring the wire to the dielectric, short circuits are impossible.

Distributed capacity and resistance are at a minimum, making for extreme sensitivity and sharp tuning. To further minimize losses and to keep down the stray circuit capacity which limits the frequency range of each coil, the coil mounts and plug in terminals have been widely spaced.

The standard LWT-4 coil set covers the 15-107 meter range with a .00014 mfd. condenser. There is ample overlap, making tuning very smooth over the whole wavelength range. Other coils are available which extend the range down to 8 meters and up to 215 meters.

The primary coil is adjustable, and held in position by friction.

LWT-4—including LWT-B base with variable primary and LWT-20, 30, 40 and 80 meter coils ..... Your Cost—$7.35
LWT-B base only ..... Your Cost—$1.77
LWC-4—including WC-B base without variable primary and LWT-20, 30, 40 and 80 meter coils ..... Your Cost—$6.48

LWI Series

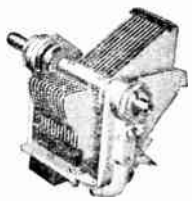
(These Coils have only the secondary. Useful when used in screen grid R.F. circuits)

LWI-B—Base only ..... Your Cost—59c
LWI-20—Coil for 14-24 meters ..... Your Cost—88c
LWI-30—Coil for 22-40 meters ..... Your Cost—88c
LWI-40—Coil for 36-65 meters ..... Your Cost—88c
LWI-80 Coil for 60-110 meters ..... Your Cost—$1.18
LWI-80—Coil for 60-110 meters ..... Your Cost—$1.18
LWI-120 Coil for 105-205 meters ..... Your Cost—$1.18

LWT Series

LWC—B base only ..... Your Cost— 88c
LWT-20—coil only for 14-20 meters ..... Your Cost—$1.47
LWT-30—coil only for 22-40 meters ..... Your Cost—$1.47
LWT-40—coil only for 36-65 meters ..... Your Cost—$1.47
LWT-80—coil only for 60-110 meters ..... Your Cost—$1.47
LWT-120—coil only for 105-205 meters ..... Your Cost—$1.77

Hammarlund Special Short-Wave Condensers

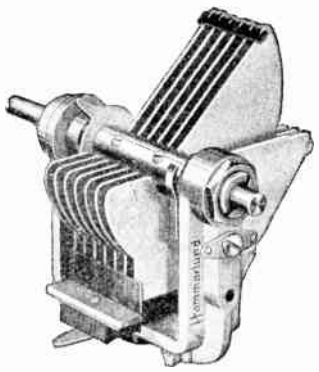


These are new, special type condensers, developed especially for use on short waves. Utilizes extra heavy brass plates, with twice the standard spacing between the plates. Also use the lowest loss insulation material obtainable, a new substance, known as PARMICA, making it truly an outstanding condenser for short waves. Have one-tenth the frequency losses of the ordinary condensers.

MLW-150—Short Wave Condenser, .00015 ..... Your Cost—$2.94
MLW-125—Short Wave Condenser, .000125 ..... Your Cost—$2.94
MLW-100—Short Wave Condenser, .0001 ..... Your Cost—$2.94

The "MIDLINE" Condenser

Three Years of Leadership



Licensed Under Lowenstein Patent No. 1,258,423

The HAMMARLUND "Midline" Condenser is radio's finest capacity tuning instrument. Far in advance of similar products when first introduced three years ago, it is today more firmly than ever entrenched in its position of world leadership.

Special shaped plates avoid crowding of stations on either the upper or lower bands and retain normal separation in the middle of the scale.

Its outstanding features are: soldered, non-corrosive brass plates with tie-bars; rib-reinforced aluminum alloy frame; minimum dielectric; one-hole mounting with anchoring screw; bronze clock-spring pigtail; friction band brake; adjustable ball and cone bearings and a full-floating rotor shaft. This shaft supports no weight. Its length may be adjusted without cutting to accommodate any type of dial. It may be entirely removed and replaced by a longer shaft (metal or bakelite) for coupling other condensers in tandem.

The standard HAMMARLUND "Straight Frequency-Line" Condenser also incorporates all the above mechanical features and will be supplied in the same capacities and at the same prices as the "Midline" Condenser.

All condensers are accurately matched in capacity rating and are tested for breakdown on 1000 volts A.C. Quality of workmanship and materials guaranteed.

* Code Number	Maximum Capacity	YOUR PRICE
ML-23	.0005 mfd.	$3.24
ML-17	.00035 mfd.	3.09

* In ordering Straight-Frequency-Line type, substitute Code "SFL" for "ML"

FOR SHORT WAVE RECEPTION

* Code Number	Maximum Capacity	YOUR PRICE
ML-11	.00025 mfd.	$2.97
ML- 7	.00014 mfd.	2.80
ML- 5	.0001 mfd.	2.80

Hammarlund

Hammarlund Equalizer

A neutralizing, balancing, or "trimming" condenser—very small and compact—having an exceptionally wide capacity range. Very useful as a compensator for equalizing the units of a multiple-tuning condenser. Adjustment of the center screw provides even gradual capacity change. May be attached directly to binding posts of socket or condenser. Bakelite base mount, mica diaelectric, heavy phosphor-bronze spring plate.

Code EC-35 (capacity 2 to 35 mmfds.) ..... **Your Cost—29c Each**
Code EC-80 (capacity 20 to 100 mmfds.) ..... **Your Cost—35c Each**

Hammarlund Master Shield

The sheet aluminum sides of the shield are clamped together by aluminum corner pieces which slide into place and make positive contact, reducing eddy-current losses to a minimum. A durable, efficient, easily assembled shield allowing ample space for coil, condenser, socket and tube. Inside measurements 6"x8"x5⅜" high. Supplied knocked down.

Your Cost—$1.32

"Hammarlund Jr." Midget

Code No.		
MC— 5,	16 mmfd.	**Your Cost— 88c**
MC— 9,	32 mmfd.	**Your Cost— 88c**
MC—11,	50 mmfd.	**Your Cost—$1.03**
MC—15,	65 mmfd.	**Your Cost—$1.16**
MC—23,	100 mmfd.	**Your Cost—$1.32**

(Including Bakelite Knob)

Soldered brass plates, cone bearings, Bakelite diaelectric. A high-ratio midget condenser with all of the distinctive earmarks of Hammarlund design and workmanship—plus sturdier, simplified construction. One-hole or baseboard mounting. Has a new locking device for fixing the rotor plates in any position. Many uses are shown in circular packed with each condenser.

Hammarlund Screen Grid Tube Shield

Insures full advantages of the great amplification of '22 and '24 type shield grid tubes. Completely encloses tube and base. Aluminum shell, with a soft rubber grommet at the top to protect the control grid outlet. Designed for use with sub-panel socket. Mounting screws and control grid connector packed with each shield.

Your Cost—47c

The NEW Hammarlund Shielded Polarized R. F. Choke Coil

This new Hammarlund R.F. Choke Coil has been developed by Hammarlund engineers specially for modern high-gain shield-grid receivers. It represents the culmination of more than two years of intensive "shield-grid" laboratory experimentation covering all phases of shield-grid tube operation and control.

The coil unit is thoroughly shielded in an aluminum shell and polarized, resulting in a minimum external inductance field. High impedance to all frequencies within the broadcast range—low distributed capacity. Designed to have no natural resonance period within the broadcast band. Efficient—compact. Connections are to lugs extending below the sub-panel. No undesired coupling to cause circuit instability or feed-back. Hardware for mounting packed with each coil.

Your Cost—88c

Hammarlund Standard R. F. Choke Coil

Originally introduced last season, this R. F. Choke Coil has amply proved its superior qualities in the test of actual use.

A specially developed method of winding and impregnating produces a coil of minimum distributed capacity for a given inductance, thereby providing an extremely high impedance to all frequencies in the broadcast band. Its effective resistance is such that it has no natural resonance period, resulting in uniform action throughout the entire broadcast range of frequencies.

The current-carrying capacity of both sizes is 60 milliamperes.

Hammarlund R.F. Choke Coils are advantageously used in the plate circuits of detector tubes, in the B plus and grid leads of radio frequency tubes and in many other ways.

RFC-85 has an inductance of 85 millihenries, a capacity of 3 mmfds. and a D.C. resistance of 215 ohms ..... **Your Cost—$1.18**
RFC-250 has an inductance of 250 millihenries, a capacity of 2mmfds. and a D.C. resistance of 420 ohms ..... **Your Cost—$1.32**

Hammarlund Transmitting Condensers

HAMMARLUND Engineers have developed this condenser with the same care and precision that is embodied in all other Hammarlund products. All rotor plates securely soldered on shaft making a very rigid job. The ideal condenser for the low or medium power transmitter.

TC-12—Capacity .0001 mfd. ..... **Your Cost—$3.53**
TC-22—Capacity .0002 mfd. ..... **Your Cost—$4.12**
TC-43—Capacity .0004 mfd. ..... **Your Cost—$5.88**

Allen Bradley

Radiostat

Capable of carrying 500 watts. A large size control for the primary transformers. Excellent for filament transformers.

Your Cost—$5.74

Fenoline Tubing

Not affected by weather conditions, does not absorb moisture. Will not shrink or expand. Drills and machines easily. Coils wound on Fenoline tubing under satisfactory, consistent service.

Finish—Polished Black
1/16" Wall Thickness

Cat. No.	Outside Dia.	
161	¼"	Your Cost per inch—4c
163	½"	Your Cost per inch—4c
165	¾"	Your Cost per inch—4c
134	1"	Your Cost per inch—5c
136	1½"	Your Cost per inch—5c
138	2"	Your Cost per inch—6c
140	2½"	Your Cost per inch—7c

Cornish Wire Company

MAGNET WIRE

The very best wire obtainable. Each spool contains one piece of wire. The prices below are for ¼-lb. spools.

Gauge		Enamel	Double Cotton	Double Silk
14	Your Cost—	—	16c	—
16	Your Cost—	—	16c	—
18	Your Cost—	15c	17c	28c
20	Your Cost—	15c	19c	32c
22	Your Cost—	16c	21c	37c
24	Your Cost—	17c	25c	44c
26	Your Cost—	20c	29c	54c
28	Your Cost—	21c	35c	68c
30	Your Cost—	23c	41c	88c
32	Your Cost—	—	51c	$1.11

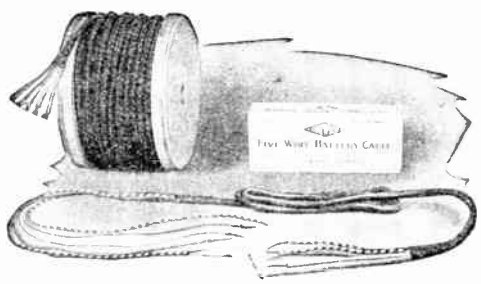
STRANDED RUBBER-COVERED HOOK-UP WIRE

Best grade obtainable. Comes in blue, yellow, black, red.

Your Cost—25 ft. for 21c

LEAD-IN STRIPS (12" Long)

Your Cost—6c each



BATTERY CABLES

Cut to Any Length

5-Wire Cable ... **Your Cost per ft.—7c**
7-Wire Cable ... **Your Cost per ft.—8½c**

PUSH-BACK WIRE

Comes either in stranded or solid. When making connection, simply push insulation back on wire. No skinning required.

Your Cost—25 ft. for 21c

TINNED BUS WIRE

Comes in either No. 12 or No. 14 round. 24" lengths.

Your Cost (either size; 3 lengths)—5c

CENTRALAB

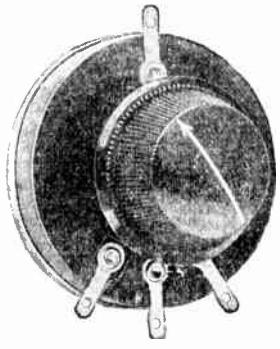
CENTRALAB Volume Controls will not develope dead spots, and will afford smoothe and complete control at all times. Replace with them now.

Centralab JUNIOR

This control is 1¾" in diameter. A very convenient size for all needs. Furnished without knob.

No. 72-100	10,000 Ohms
No. 72-101	2,000 Ohms
No. 72-102	25,000 Ohms
No. 72-103	50,000 Ohms
No. 72-104	100,000 Ohms
No. 72-105	500,000 Ohms

Your Cost—$1.06

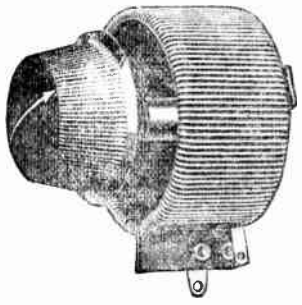


T Type FADERS

Prices and Information on Request

We will gladly supply information on other Centralab products on request.

GIANT POWER Rheostat



Power dissipation of 50 watts. Wire wound on steel core 1" wide which is insulated with asbestos. Two inches in diameter.

Two Terminals

No. 47-031	30 Ohms	**Your Cost—$1.03**
No. 47-066	60 Ohms	**Your Cost—$1.03**
No. 47-156	150 Ohms	**Your Cost—$1.03**
No. 47-401	400 Ohms	**Your Cost—$1.03**
No. 47-501	500 Ohms	**Your Cost—$1.03**
No. 47-811	1,600 Ohms	**Your Cost—$1.30**
No. 47-821	2,000 Ohms	**Your Cost—$1.30**
No. 47-851	5,000 Ohms	**Your Cost—$1.47**
No. 47-881	8,600 Ohms	**Your Cost—$1.47**

Three Terminals

No. 48-025	25 Ohms	**Your Cost—$1.18**
No. 48-060	60 Ohms	**Your Cost—$1.18**
No. 48-151	150 Ohms	**Your Cost—$1.18**
No. 48-401	400 Ohms	**Your Cost—$1.18**
No. 48-501	500 Ohms	**Your Cost—$1.18**
No. 48-811	1,000 Ohms	**Your Cost—$1.32**
No. 48-821	2,600 Ohms	**Your Cost—$1.32**
No. 48-851	5,600 Ohms	**Your Cost—$1.61**
No. 48-881	8,600 Ohms	**Your Cost—$1.61**

Mueller Battery Clips

PEE WEE CLIP—No. 45

A small test clip with 9-lb. spring assuring good contact. 1½" long, jaw spread ⅜". Cadmium plated.

Your Cost—5c each

CLIP—No. 48-B

A larger clip than No. 45. 10-lb. spring with a jaw spread of 9/16". 1¾" long. Cadmium plated.

Your Cost—5c each

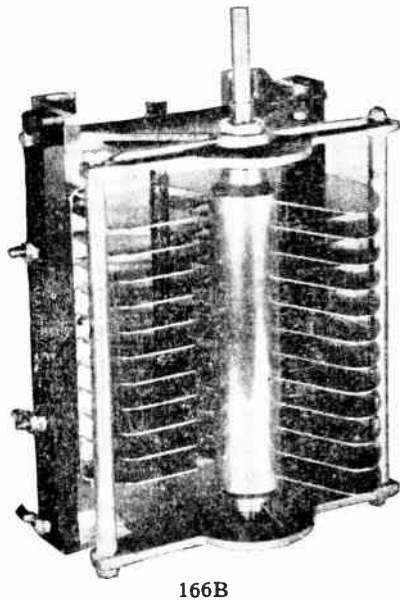
CLIP—No. 24-A

25 ampere capacity. Medium sized clip for storage batteries. 17-lb. spring with jaw spread of 1". Lead plated. 2½" long.

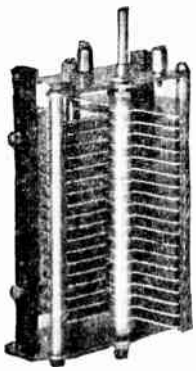
Your Cost—10c each

CARDWELL

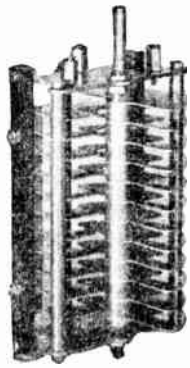
Cardwell Condensers FOR AMATEUR USE



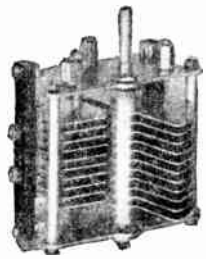
166B



T-199



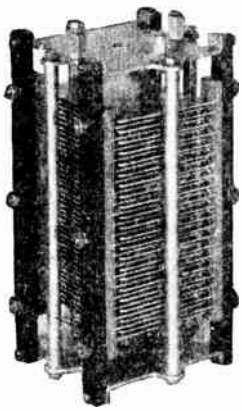
T-183



164-B

Suggestions for Selecting Transmitting Condensers

Transmitting Condensers



503 (fixed)

General Specifications (excepting 166B and 1666B)

Overall mounting space, square inches—4.00; radius of rotor plates, inches—1.44; shaft diameter, inches—.25; shaft length, from back of panel, inches—1.00; material of plates—aluminum; material of frame—brass nickeled; material of insulation—radion; frame assembly method—machine screws.

INDIVIDUAL CHARACTERISTICS

Maximum Capacity	Air Gap Bet, Rotor and Stator Plate	Type	No. Plates	YOUR COST
.00025	.030″	X141B	11	$2.50
.00048	.030″	X123B	21	2.94
.00048*	.030″	X156B	21*	4.12
.00096	.030″	X137B	41	3.53
.00008*	.070″	197B	9*	7.00
.00011	.171″	T183‡	23	7.00
.00022	.070″	164B	21	4.90
.00022*	.070″	157B	21*	8.40
.00033	.084″	T199‡	37	7.00
.00044	.070″	147B	43	7.00
.0003	.219″	166B‡	23	67.50

‡ Rounded and Polished Plates
* Two Stators—figures apply to each side.

The following table shows condensers which will stand up in any position with types and voltages shown. For grid or antenna tuning the next smaller airgap will usually suffice, and if the condensers shown in the table are considered as plate tuning condensers the proper one for other positions can usually be determined.

Plate Voltage CW	Plone	UX171 or Smaller	UX210 UV242 VT2	"H" Tube	UV203 UV203A 211D	UX852 UV204 UV204A	Up to 1KW	Higher Power
200	200	*A	*A					
500	500	*B	*B	*B	*B			
800	600		*C	*C	*C	*C		
1000	800			*C	*C	T199	T199	
1500	1000			*C	T199	T183	T183	
2000				T199	T199	T183	166B	166B
	1,500			T199	T183	166B	166B	*D
3000	2000					*D	*D	*D
For Higher Voltages— Send for special folder.						*D	D	*D

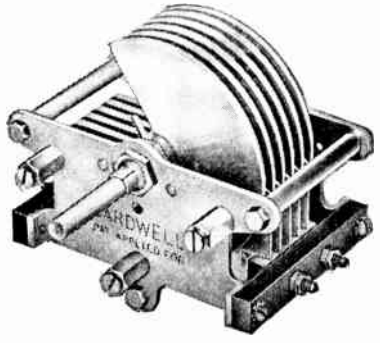
FIXED CONDENSERS

Type	Capacity	Air Gap	No. Plates	COST YOUR
501	.00025	.070″	12	$3.09
502	.00044	.070″	20	4.85
503	.00097	.070″	42	6.86
504	.00025	.153″	22	10.29

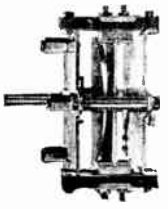
*A Any type of Cardwell Receiving Condenser. *B—Any .030″ Air Gap Cardwell Condenser. *C Any .070″ Air Gap Cardwell Condenser. *D—Special model of 166B or 1666B Cardwell Condenser.

Cardwell Receiving Condensers

Taper Plate Condensers

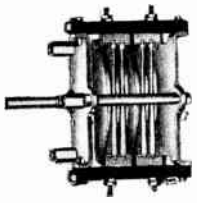


192 E



201 E

With movable stator capacities from 50 to 10 mmfds., constant minimum 7 mmfds.



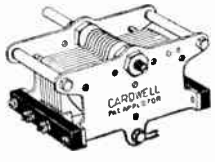
New Type Condenser 202 E

Type 202 E Split Stator Taper Plate—.0003 mfd. sections and multiple, .000075 mfd. section in series, .00015 mfd. per section.

The Taper Plate Type "E" Cardwell Condenser, which introduced the Ideal Tuning Curve midway between straight wavelength and straight frequency, was the first logical answer to the demand for a condenser which will give ample separation on all wavelengths.

TYPE "E" CONDENSERS

No. Type	Capacity (Rated)	No. Plates	Your Cost
201 E	See note under cut	2	$2.35
202 E	See note under cut	—	2.50
191 E	.000075	3	2.35
167 E	.00015	5	2.35
168 E	.00022	7	2.50
169 E	.00035	11	2.79
192 E	.0005	15	2.97



TYPE "B" CONDENSERS

No. Plates	Capacity	Type	Your Cost
3	.00005	159 B	$2.35
5	.0001	188 B	2.35
7	.00015	154 B	2.35
11	.00025	141 B	2.50
17	.00035	152 B	2.79
21	.0005	123 B	2.97
41	.001	137 B	3.53

The Latest Cardwell Creation

COMPACTNESS

The MIDWAY is a small and compact variable air condenser which, without doubt, should find considerable application for many purposes where extremely light weight and reduction of bulk are desirable in receivers, transmitters and oscillator-amplifier outfits. Condensers of this description having a breakdown rating sufficient for transmitters using up to 75 watt tubes may be had in capacities as high as 150 mmfds. A panel surface of only 2¾"x2⅛" is required and the condensers weigh only 4 to 7 ounces.

"Standard" Size Cardwell Transmitting Condenser

Midway Transmitting Condenser

Note difference in bulk and panel space required. Both condensers are shown to same scale.

"MIDWAY" Condensers

RECEIVING
(.031" Airgap)
(Also suitable for low power transmitters using '10-type tube)

Type	Plates	Depth Behind Panel	Max. Cap.	Min. Cap.	Weight (Approx.)	YOUR COST
401-B	3	2 9/16"	26	7	4 oz.	$1.24
402-B	5	2 9/16"	50	8	4¼ oz.	$1.30
403-B	7	2 9/16"	70	9	4½ oz.	$1.35
404-B	11	2 9/16"	105	10	5 oz.	$1.41
405-B	15	2 9/16"	150	11	5½ oz.	$1.47
406-B	25	3 9/16"	260	13	6 oz.	$1.62
407-B	35	3 9/16"	365	14	7 oz.	$1.77

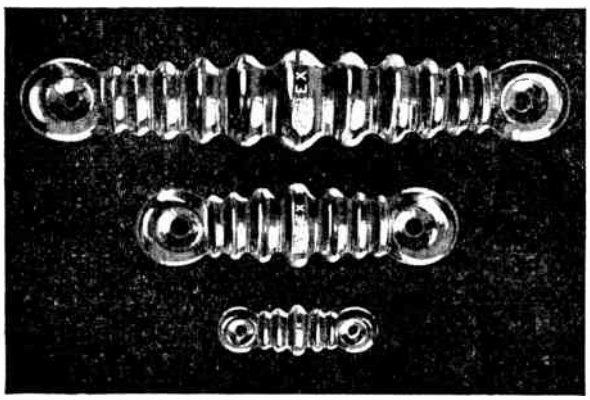
*TRANSMITTING
(.070" Airgap)
(Suitable for transmitters using up to 75-watt tube)

Type	Plates	Depth Behind Panel	Max. Cap.	Min. Cap.	Weight (Approx.)	YOUR COST
408-B	5	2 9/16"	22	6	4 oz.	$1.79
409-B	7	2 9/16"	35	9	4½ oz.	$1.93
410-B	11	2 9/16"	50	11	5 oz.	$2.20
411-B	15	3 9/16"	70	13	5½ oz.	$2.47
412-B	21	3 9/16"	100	15	6 oz.	$2.94
413-B	31	4½"	150	18	7 oz.	$3.78

* Rotor and Stator plates of Transmitting Condensers have edges well rounded and are highly polished overall.

PYREX

The accepted standard for short-wave transmission and reception. Used by Admiral Byrd in his Arctic and Antarctic explorations and other expeditions in the far north or the wilds of the Amazon.



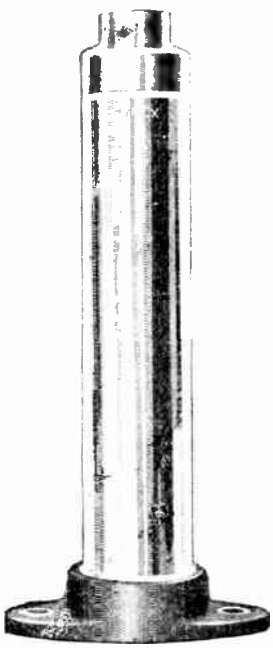
Aerial Insulators

	Broadcast Reception	Amateur Transmitting	Strain Insulator
	No. 67007	No. 67017	No. 67021
Length	3⅝"	7¼"	12¼"
Weight	302	13½ oz.	1 lb 1402
Strength	450 lb	1000 lb	1000 lb
Your Cost—Each	20c	98c	$2.28

Pillar Insulators

	No. 67059	No. 67060
Height	2"	3"
Outside Diameter Pyrex Pillar	⅝"	¾"
Outside Diameter Brass Cap	1"	1¼"
Leakage Path	1⅜"	2"
Your Cost—Each	58c	74c

No. 67059 — No. 67060



Stand-Offs

	No. 67018	No. 67019
Height	3"	7"
Dia. Pyrex	1¼"	1¼"
Weight	1002	1702
Flashover Wet (KV)	7	32.5
Flashover Dry (KV)	21.5	56
Your Cost—Each	$1.78	$1.94

No. 67018 — No. 67019

We will be glad to quote prices on other PYREX products.

ELECTRAD

Truvolt Wire Grid Resistances

All wire grid resistance—covered with varnished cambric. Can be bent any shape. No mounting necessary. Small, compact, practically non-inductive.

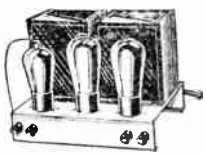
Resistance Ohms	Mil.	Resistance Ohms	Mil.
5	386	900	29
10	273	1000	27
15	223	1100	26
25	173	1200	25
40	137	1300	24
50	122	1400	23
75	100	1500	22
100	86	1600	21
200	61	1700	20
300	50	1500	20
400	43	1900	19.8
500	38	2000	19.3
600	35	2500	17.5
700	32	3000	16
800	30	5000	14

Your Cost (5 to 1000 ohms)—15c

Your Cost (1100 to 3000 ohms)—24c

Loftin White A-25

Direct Coupled Amplifier Kit



This kit contains complete parts (including drilled metal chassis) for constructing a two-stage power amplifier for 110 volt A.C. operation, utilizing the revolutionary Loftin White Direct Couple System.

Amplifier requires one 24, one 45, and one 80 tube, and provides tremendous amplification with a rich vibrant tone. Unusually easy to assemble and operate.

Complete parts (less tubes), with assembly and operating instructions.

Your Cost—$20.58

Electrad Royalty Variable

Non-Inductive High Resistances

Type A—Variable Grid-leak 1/10 to 7 megs.
Type B—Variable 0 to 100,000 ohms
Type C—Variable 0 to 50,000 ohms
Type D—Variable 0 to 700,000 ohms
Type F—Variable 0 to 2,000 ohms
Type G—Variable 0 to 10,000 ohms
Type H—Variable 0 to 25,000 ohms
Type J—Variable 0 to 200,000 ohms
Type K—Variable 0 to 5,000 ohms
Type L—Variable 0 to 500,000 ohms

Your Cost—88c

Wire Wound Resistors

Types B, C and D

TYPE B—25 Watts (2" long)

Type	Resistance in Ohms	Current Milli-amperes	YOUR COST
B-1	100	500	50c
B-2	200	353	50c
R-3	300	289	50c
B-4	400	250	50c
B-5	500	224	50c
B-7.5	750	182	50c
B-8	800	177	50c
B-8.5	850	165	50c
B-10	1000	158	50c
B-12.5	1250	141	50c
B-15	1500	129	50c
B-20	2000	112	50c
B-22.5	2250	105	50c
B-25	2500	100	50c
B-30	3000	91	50c
B-35	3500	84	50c
B-40	4000	79	50c
B-45	4500	75	50c
B-50	5000	71	50c
B-60	6000	64	50c
B-70	7000	60	50c
B-72	7200	59	50c
B-75	7500	58	50c
B-80	8000	56	53c
B-90	9000	53	56c
B-100	10000	50	59c
B-120	12000	45	59c
B-150	15000	41	59c
B-200	20000	35	68c
B-250	25000	32	68c
B-300	30000	29	74c
B-400	40000	25	74c
B-500	50000	22.5	83c

TYPE C—50 Watts (4" long)

Type	Resistance in Ohms	Current Milli-amperes	YOUR COST
C-1	100	700	79c
C-2	200	500	79c
C-3	300	406	79c
C-4	400	353	79c
C-5	500	316	79c
C-7.5	750	259	79c
C-8	800	252	79c
C-10	1000	224	79c
C-12.5	1250	200	79c
C-15	1500	182	79c
C-20	2000	158	79c
C-22.5	2250	149	79c
C-25	2500	141	79c
C-30	3000	129	79c
C-35	3500	119	79c
C-40	4000	112	79c
C-45	4500	105	79c
C-50	5000	100	79c
C-60	6000	91	88c
C-70	7000	84	88c
C-72	7200	83	88c
C-75	7500	82	88c
C-80	8000	79	88c
C-90	9000	74	88c
C-100	10000	71	97c
C-120	12000	65	97c
C-150	15000	58	97c
C-200	20000	50	$1.06
C-250	25000	45	$1.09
C-300	30000	41	$1.12
C-400	40000	35	$1.15
C-500	50000	32	$1.18
C-600	60000	29	$1.23
C-800	80000	25	$1.32
C-1000	100000	22.5	$1.62

TYPE D— 75 Watts (6" long)

Type	Resistance in Ohms	Current Milli-amperes	YOUR COST
D-1	100	865	$1.09
D-2	200	610	$1.09
D-3	300	500	$1.09
D-4	400	432	$1.09
D-5	500	387	$1.09
D-7.5	750	316	$1.09
D-8	800	306	$1.09
D-10	1000	274	$1.09
D-12.5	1250	245	$1.09
D-15	1500	224	$1.09
D-20	2000	194	$1.09
D-22.5	2250	182	$1.09
D-25	2500	173	$1.09
D-30	3000	158	$1.09
D-35	3500	146	$1.09
D-40	4000	137	$1.09
D-45	4500	129	$1.09
D-50	5000	122	$1.09
D-60	6000	112	$1.12
D-70	7000	103	$1.15
D-72	7200	102	$1.15
D-75	7500	100	$1.18
D-80	8000	97	$1.18
D-90	9000	91	$1.24
D-100	10000	87	$1.32
D-120	12000	79	$1.32
D-150	15000	71	$1.47
D-200	20000	61	$1.47
D-250	25000	55	$1.56
D-300	30000	50	$1.56
D-400	40000	43	$1.56
D-500	50000	39	$1.62
D-600	60000	35	$1.65
D-800	80000	31	$1.70
D-1000	100000	27	$1.76

AEROVOX

Bakelite Moulded Mica Condensers

These condensers are moulded in genuine bakelite. The capacity of the condenser element is predetermined by a patented process. The bakelite seals and protects the condenser against extreme temperature, moisture or chemical action. The dielectric is of the finest grade of India Ruby Mica.

Type 1450

STOCK CAPACITIES

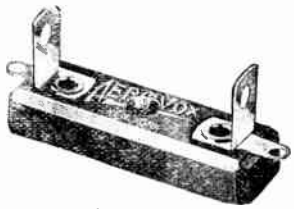
.0001	Your Cost—18c
.00015	Your Cost—18c
.0002	Your Cost—18c
.00025	Your Cost—18c
.0005	Your Cost—18c
.001	Your Cost—21c
.002	Your Cost—24c
.004	Your Cost—27c
.005	Your Cost—30c
.006	Your Cost—30c

Type 1460

STOCK CAPACITIES

.0001	Your Cost—12c
.00015	Your Cost—12c
.00025	Your Cost—12c
.0005	Your Cost—12c
.001	Your Cost—15c
.002	Your Cost—21c

Grid Leak Mounting



Type 1049
Your Cost—15c

Metallized Resistors

Type 1092

Resistance Ohms	Resistance Meg.	
10,000	.25	5.0
25,000	.5	6.0
50,000	.75	7.0
75,000	1.0	8.0
100,000	2.0	9.0
	3.0	10.0
	4.0	

Your Cost—15c

Metal Case Condensers

Type 260

Small 200 Volt D.C. Condensers

Cap. Mfds.	
.1	Your Cost—41c
.25	Your Cost—44c
.5	Your Cost—50c

Type 207

200 D.C. Working Volts

Cap. Mfds.	
.1	Your Cost—41c
.25	Your Cost—44c
.5	Your Cost—50c
1.0	Your Cost—59c

New Carbon Pigtail Resistors (1 Watt)

Resistance—250, 500, 750, 1,000, 2,500, 5,000, 7,500, 10,000, 25,000, 50,000, 75,000, 100,000, 150,000, 200,000
Your Cost—18c each

New Aerovox Transmitting Plate Blocking Condensers

Designed to carry high current, these new units fill a long want. Types 1771 and 1881 are designed for use in low voltage applications of high power circuits where high current carrying capacity is required. Types 1773 and 1883 are designed for use in higher voltage high power circuits employing UX504A type tubes.

TYPE No.	1771	1773	1881	1883
D.C. Test Volt.	1000	5000	1000	5000
Cap. Mfd.	YOUR COST	YOUR COST	YOUR COST	YOUR COST
.0001	$1.62	$2.35	$4.12	$4.71
.00025	$1.62	$2.35	$4.12	$4.71
.0005	$1.62	$2.35	$4.12	$4.71
.001	$1.77	$2.50	$4.27	$4.86
.002	$1.77	$2.50	$4.27	$5.00

CONSTRUCTION NOTES:—Both the 17 and 18 Series are made of best grade mica. The 17 Series have rubber covered wire leads coming out of the top of the condensers.

The 18 Series have porcelain stand-offs coming out of the top for the connections.

Sizes overall: Series 17—1¼" thick, 1" high, and 3" long. Series 18—1 1/16" thick 2⅞" high, and 3⅝" long.

INTERNATIONAL PREFIXES

AC	CHINA
AU	SIBERIA
CE	CHILE
CM	CUBA
CN	FR. MOROCCO
CP	BOLIVIA
CR4	CAPE VERDE
CR5	PORT. GUINEA
CR6	ANGOLA
CR7	MOZAMBIQUE
CR8	PORT. INDIA
CR9	MACAO
CR10	TIMOR
CT1	PORTUGAL
CT2	AZORES
CT3	MADEIRA
CV	ROUMANIA
CX	URUGUAY
CZ	MONACO
D	GERMANY
EAR	SPAIN
EI	IRISH FREE STATE
EL	LIBERIA
ES	ESTONIA
ET	ETHIOPIA
F	FRANCE, TAHITI
FI	FR. INDO-CHINA
FM	ALGERIA & N. AFRICA
G	GREAT BRITAIN
GI	NORTH IRELAND
HA	HUNGARY
HB	SWITZERLAND
HC	ECUADOR
HH	HAYTI
HI	DOMINICAN REP.
HJ	COLOMBIAN REP.
HR	HONDURAS
HS	SIAM
I	ITALY & COLONIES
J	JAPAN
K4	PORTO RICO, VIRGIN ISLANDS
K6	HAWAII
K7	ALASKA
KA	PHILIPPINE ISLANDS
LA	NORWAY
LU	ARGENTINA
LZ	BULGARIA
NN	NICARAGUA
OA	PERU
OH	FINLAND
OK	CZECHOSLOVAKIA
OM	GUAM
ON	BELGIUM
OZ	DENMARK
PA	NETHERLANDS
PJ	CURACAO
PK	DUTCH EAST INDIES (Java, Sumatra)
PY	BRAZIL
PZ	SURINAM
RV	PERSIA
RX	PANAMA
RY	LITHUANIA
SM	SWEDEN
SP	POLAND
SU	EGYPT
SV	GREECE
TA	TURKEY
TF	ICELAND
TG	GUATEMALA
TI	COSTA RICA
TS	SAAR
UH	HEDJAZ
UL	LUXEMBOURG
UN	JUGOSLAVIA
UO	AUSTRIA
VE	CANADA
VK	AUSTRALIA
VO	NEWFOUNDLAND
VP	BERMUDA, BR. GUIANA, S. RHODESIA, ZANZIBAR
VQ1	FANNING ISLAND
VQ2	NORTHERN RHODESIA
VQ3	TANGANYIKA
VQ4	KENYA
VQ5	UGANDA
VS1, VS2, VS3	MALAYA
VS6	HONGKONG
VS7	CEYLON
VU	INDIA
W	UNITED STATES
X	MEXICO
YA	AFGHANISTAN
YH	NEW HEBRIDES
YI	IRAQ
YK	FORMOSA
YL	LATVIA
YM	DANZIG
YS	SALVADOR
YV	VENEZUELA
ZA	ALBANIA
ZK	COOK ISLANDS
ZL	NEW ZEALAND
ZM	SAMOA (British)
ZP	PARAGUAY
ZS, ZT, ZU	UNION OF SOUTH AFRICA

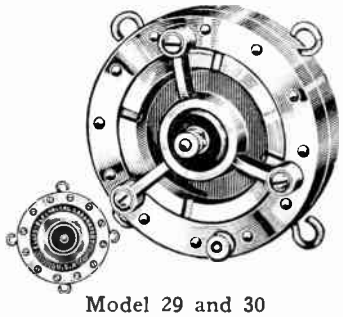
"Q" Readability System

QSA1—Hardly perceptible; unreadable.
QSA2—Weak; readable only now and then.
QSA3—Fairly good; readable with difficulty.
QSA4—Good readable sigs.
QSA5—Very good signals; perfectly readable.

"R" Audibility System

R1—Faint signals; just readable
R2—Weak signals; barely readable.
R3—Weak signals; but can be copied.
R4—Fair signals; easily readable.
R5—Moderately strong signals.
R6—Good signals.
R7—Good strong signals, that come thru QRM & QRN.
R8—Very strong signals; heard several feet from the fones.
R9—Extremely strong sigs.

Ellis Microphones



Model 29 and 30

This microphone employs a new type button. This improved feature is patented and is used only in the Ellis Microphones. Gives uniform response from 30 to 7500 cycles. Rigid laboratory inspection given each unit.

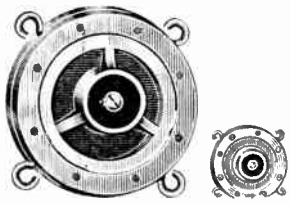
Diameter overall 4¼", thickness 2". Model 29 is recommended for public address, while Model 30 is for broadcast station work where both voice and music are combined.

Your Cost—$44.10

Model 10

Ellis latest development. A high grade, low priced, double button microphone. Highest grade in every respect.

Your Cost—$15.00



Model 20-N

A precision instrument. Rigid 3-pillar construction; has no harmonics and will not distort. Diameter 2⅞" overall, thickness 1⅝".

Your Cost—$26.54

Ellis Microphone Stands

12½" high with 6" diameter ring. Eight springs included with each stand.

No. 51 Stand (without covers)
Your Cost—$8.82

No. 51

INDEX

PILOT
SUPER WASP

14.2 TO 500 METERS—AC or DC

This set without a doubt is one of the leading short wave sets on the market today.

It comes either knocked down in kit form or we will build it for you at a nominal charge.

The Super Wasp has a tuned stage of screen grid radio frequency amplification, one detector and two stages of audio amplification.

The front panel and sub panel are of metal, the former being finished to resemble walnut graining. Along with the shield cans, they are accurately drilled with all the necessary mounting holes, and fit together perfectly. The set can be assembled with a screwdriver and a pair of pliers. The front panel is 18" long and 7½" high.

The super wasp kit contains everything necessary for the assembly of the set including ten special plug in coils.

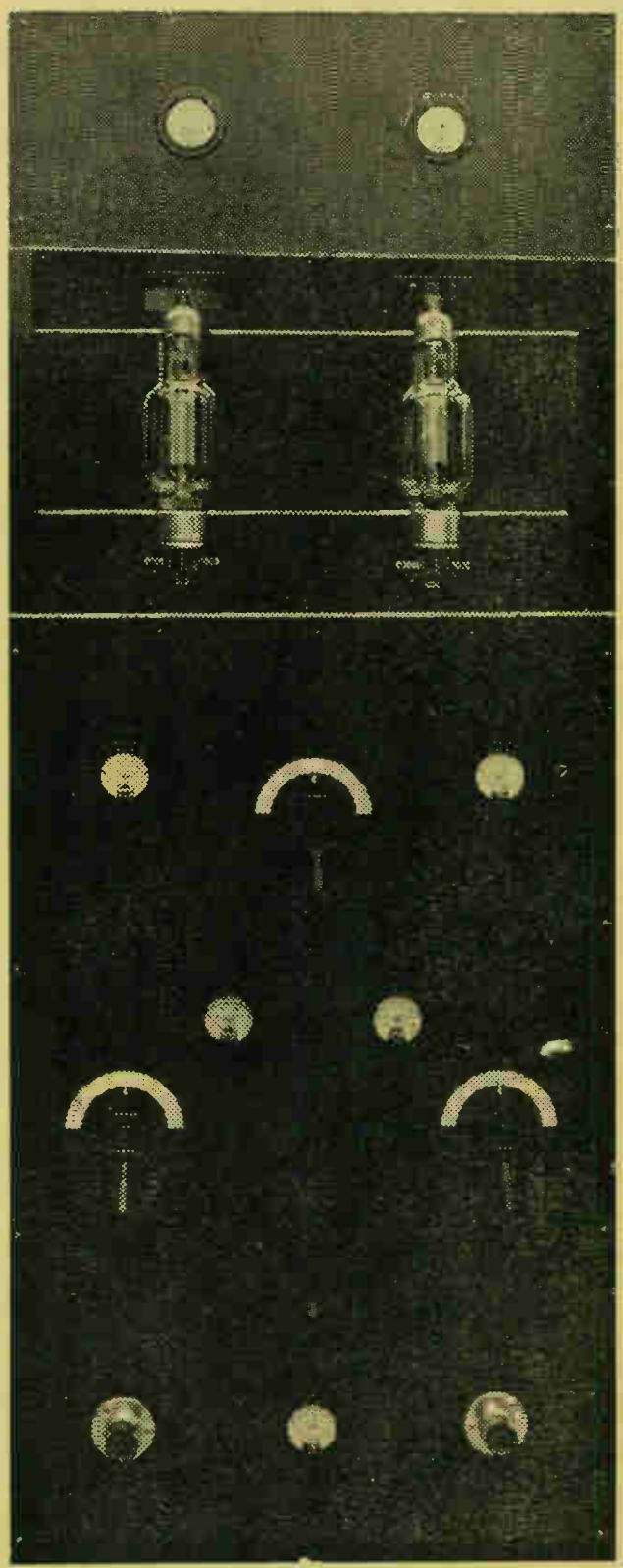
Super Wasp Kit for A.C. operation, Cat. No. K115 . . . YOUR COST—$33.81
Wired power pack for the above, Cat. No. K111 . . . YOUR COST—$16.17
Super Wasp Kit for D.C. operation, Cat. No. K110 . YOUR COST—$28.91

Wiring charge for above kits—$6.00 net

W3AKX

250-Watt Crystal Controlled Phone Transmitter

Working on a Frequency of 3520 KC



Constructed in Our Laboratory

CIRCUIT

510 XTAL Stage
503A Buffer
504A Class C Modulated Amplifier
2—504A Modulators
2—572 Rectifiers
350 Volts XTAL
1000 Volts Buffer
1500 Volts Amplifier
2000 Volts Modulators
50 Mils XTAL
50 Mils Buffer
110 Mils Amplifier
60 Mils Each Modulator
Pam 39 Speech
2 Stages Push-Pull, 424s and 450s
2—481 Rectifiers

Use Both Zepp and Single Wire—Single Feed

EQUIPMENT USED

National Condensers
National Dials
Jewell Meters
De Forest Tubes
Thordarson Transformers
Thordarson Chokes
R.E.L. Inductances
Bradley Radiostats
Alcoa Shielding
R.E.L. Sockets
American Piezo Crystal
American Piezo Holder
Pam 39 Speech Amplifier
Universal BB Microphone

During initial tests worked all districts and received reports on signals from England.

We will be glad to furnish you information on this transmitter or any other transmitter you may contemplate building.

OUR TECHNICAL SERVICE IS FREE