

M & H 1931

WHOLESALE RADIO CATALOGUE

SPECIALIZING IN RADIO EQUIPMENT
 FOR
 PUBLIC ADDRESS INSTALLATIONS
 SHORT WAVE EXPERIMENTORS
 SERVICE MEN
 BROADCASTING STATIONS
 THEATRES
 SCHOOLS
 COLLEGES

*Also special section of
 Sporting Goods and Toys*

*Supplies for Physics
 Laboratories*

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Celebra

M & H SPORTING GOODS CO.
512 MARKET ST. PHILADELPHIA, PA.

Our Guarantee

Every transaction is guaranteed to be satisfactory to the customer. We want you to be completely pleased with everything you purchase from us.

All items listed in this catalogue are made by leading manufacturers and are guaranteed by them and by us.

Every order is given the same courteous, prompt and careful attention regardless of its size or amount.

Our justly earned reputation of fair dealing has been established for more than 30 years—and is an additional assurance that everything purchased from us is first class, dependable merchandise and is sold at the lowest possible fair price.



INDEX

	Page No.		Page No.
A		Durham	57
"A" Eliminators	64	Dynamic Speakers—	See Speakers
Acme Products	56, 61, 62	E	
Adapters	53	Eby	58
Aerial Kits	61	Electrad Products	43, 50, 51
Airport Horns	30, 31, B.C.	Electric Clocks	65
Amateur Supplies,	25, 41 to 48, 63, 64	Electric Trains	65
Amperites	57	Electric Toys	70
Amertran Audio Products,	24, 25, 26	Eliminators	8, 13, 18, 64
Amplifiers,	6, 13, 15, 18, 25, 28, 32, 33, 50	Elkon	40
Akra-ohm	56	Ellis Mike	35
Aleoa	55	Equalizers	11, 62
Aluminum Shields	55	ExStat Ignition Auto Fil-	ters
Analizers for Service Men,	2, 3, 4, 5	F	
Anti-Capacity Switches	64	Fader	37, 50, 60
Automobile Ignition Kit	49, 62	Filters	39, 55, 62
Automatic Stop	39	Filterettes	49
Automobiles	66	Flechheim	42
Automobile Radio	9, 15	Feron Products	61
Audak Pickups	37	Football Supplies	68
Arcturus Tubes	53	Frequency Meter	48
B		Frost	35, 59
"B" Eliminators	8, 13, 18	G	
Battery Clips	62	Galvanometer	5, 42
Battery Chargers	62	Golfers' Supplies	72
Baird Products	64	H	
Ball Aerial	61	Hammarlund	10, 11, 12, 16, 43
Benches	17	Headphones	64
Beldon Products	61	HiQ-31	10
Benjamin	62	Hook-up Wire	61
Bicycles	69	Horns	30, 31, B.C.
Baffle Board	63	I	
Boxing Supplies	68	Ice Skate and Shoe	Combinations
B. B. L.	29	Inductance Coils	42
Billiard Tables	71	Interference Filters	49, 62
Books	45	Insulators	44, 61
Bud	55	Insuline Corp. Products—	Inside Back Cover
Burgess Batteries	62	Instruments, Testing,	2, 3, 4, 5, 42, 48
Bus Wire	62	J	
Bodine	39	Jacks	54, 58
Binding Posts	58	Jack Switches	51
C		Janette	39
Cables	35, 54	Jensen Speakers	29
Cabinets and Combinations,	17	Jewel Radio Instruments,	3, 42
Capelhart Amperion Record	Changer	K	
Cardwell	16, 44	Kester Solder	40
Carter Products	60	Kinematic Remote Control,	9
Celotex	63	Kits, 6, 7, 9, 10, 12, 13, 15, 18, 33,	48—Inside Back Cover
Centralab	60	Kit, Bud Aerial	61
CeCo Tubes	52	Kodaks	67
Clocks	65	L	
Clarostat	59	Lavites	56
Condensers,	7, 8, 12, 14, 16, 21, 22, 40,	Loftin White	50
42, 43, 44, 48, 49, 56, 62, 63		Lightning Arresters	61
Chargers	62	Lionel Electric Trains	65
Convenience Outlets	55	M	
Chokes	11, 19, 25, 26, 28	Magnavox Speakers	29
Coils	7, 11, 12, 14, 16, 21, 48, 64	Majestic A and B Block	40
Cunningham Tubes	52	M. B. 29 and M. B. 30	6
D		Mershon	63
Deforest	47	Meters	2, 3, 4, 5, 42, 48
Desk and Chair Sets	71	Microphone Supplies,	33, 34, 35, 36
Dials	8, 11, 16, 22, 64	Midget Sets, Inside Back Cover	
Diehl	39	M	
Doll Coaches	69	Mike Stands	31
Dubilier Duratran	16	Mixer Transformers	24
		Mike Transformers 14, 20, 24, 46	
		Motors	39
		Motor Generators	39
		Moviegraphs	67
		Munzig	64
		N	
		Na-Ald	58, 64
		National M.B. 30	6
		National M.B. 29A	6
		National Products,	6, 7, 8, 9, 39, 43
		National Short Wave	7
		National Velvetone	6
		Neutralizing Wrench Set	58
		Novomike	35
		O	
		Octocoils	64
		Ohmmeters	2, 3, 4, 5
		Omnigraph	45
		P	
		Pacnet	37, 38
		Pams	32
		Panels	55, 64
		Parvott	56
		Phones	61
		Pickups	37, 38, 39
		Pickup Booster	39
		Portable Amplifier	33
		Pilot Kits and Parts	18
		Pilot Products	18, 19, 20, 21
		Pilotrons	52
		Phone Plug	5, 20
		Photolytic Cells	53
		Pool and Billiard Tables	70
		Power Apparatus	7
		Public Address Systems,	33, 51
		Presto Pickups and Home	Recording
		Pyrex	38
		Push Pull Trans.,	11, 14, 19, 20, 24, 26, 27
		Q	
		Qualpensator	32
		R	
		Racon Horns and Units	30
		Rack and Panel Amplifier	33
		RCA Tubes	52
		Radio Cabinets	17
		Readrite Instruments and	Meters
		Record Changer	38
		Recording Attachment	38
		Rectifiers	40
		Relays	41
		R-E-L	48
		Receivers	6, 10, 12, 13, 18
		Remote Control	9
		Replacement Parts	15, 40
		Reproducers, Dynamic	31
		Resistances	51, 55, 59
		Resistors	21, 43, 44, 56, 57
		S	
		Samson	32
		Sangamo	43, 56
		Scratch Filters	39
		Screen-Grid, Coils	14, 16
		Screen-Grid, New Dubilier	16
		Set Analyzers	2, 3, 4, 5
		Service Men's Specials	40, 64
		S	
		Shields	12, 55
		Short Wave	7, 12
		Signal Instruments	41
		Silver-Marshall Products,	13, 14, 15, 16
		Sockets	22, 58, 62
		Soldering Irons	40
		Speakers	10, 13, 29, 30, 31, 61
		Spreaders	61
		Sprague	63
		Sporting Goods	65 to 72
		Sundries	40, 54 to 61
		Super Wasp	18
		Super Heterodynes	13
		Sticktaps	61
		Stevens DC Motor	39
		Supreme Testing Instruments	4
		Switches	22, 54, 62, 64
		T	
		Telerad	60
		Telex	45
		Television, Inside Back Cover	
		Testing Instruments,	2, 3, 4, 5, 47
		Thordarson	27, 28, 46
		Tobe Products	40, 49, 63
		Tomatrol	50
		Tone Control	55
		Toys	70
		Transformers,	19, 24, 25, 26, 27, 28, 46
		Transmitting Apparatus,	2, 41, 42, 43, 44, 45, 46, 47, 61
		Truvolt	51
		Trickle Charger	62
		Tubes	47, 52, 53
		Tube Checkers	2, 3, 4, 5
		Turntables	37, 38, 39
		U	
		Uncased Condensers	63
		Units for Speakers	30
		Universal Mikes and Sup-	plies
		V	
		Velocipedes	69
		Velvet B Eliminator	8
		Velvetone Amplifiers	8
		Vibreflex	45
		Vitrohm	63
		Voltage Regulations for	A-C
		Volume Controls	55
		W	
		Wall Speakers	29
		Wave-meters	48
		Ward Leonard	44, 63
		Weston Radio Instruments,	5
		Wires	61, 63, 64
		Wrenches (neutralizing)	58
		Wright de Coster	31
		Y	
		Yaxley Products	37, 54, 55

M & H 1931 Wholesale Radio and Sporting Goods Catalogue

THIS catalogue is issued to give users of Radio Parts and Apparatus the very latest available information for 1931. We list the best standard Radio now on the market and will be pleased to furnish any additional information desired on items described herein or that may be introduced before our next catalogue is issued.

RADIO IN SCHOOLS AND COLLEGES

Radio is attracting many young men to its experimental field. Schools and colleges are giving this fascinating subject greater consideration. We have supplied the apparatus to many institutions adding the physical study of this science to their curriculum.

Make it a habit to send to M & H for all your Radio and Sporting Goods needs. You will thereby be always assured of receiving the best the market offers at the lowest possible fair price. Our reputation for fair dealing has been established by more than 30 years of friend-making with the Radio and Sporting Goods users in this country and all parts of the world.

Service: Our Service and Laboratory men have been affiliated with the wireless field for the past seventeen years and are associated with the Institute of Radio Engineers. You will usually be able to get advance information on the newest in radio here, as well as having your radio problems solved. Write or come in about any problem in Radio that is troubling you. We are recognized as the official service station for practically all the popular kits and power packs, and those appearing in Radio Periodicals..

TWENTY-FOUR HOUR SERVICE If You Note the Following When Ordering

1. Send all mail orders to our Philadelphia store, 512 Market Street.
2. We appreciate your business, and every order is handled with the desire of holding your good will.
3. Mention the catalogue page number as well as the name of the article you are ordering.
4. All prices quoted are F. O. B. Philadelphia and are subject to change with market fluctuations.
5. Our terms are cash with order, or C. O. D., if sufficient deposit is sent to cover transportation charges both ways.
6. Remittances may be made by check, Post Office or Express Money Order, or currency in Registered Letter.
7. Please specify whether Parcel Post or Express shipment is desired. If Parcel Post is specified, enclose postage with your order, or merchandise will be shipped by Express. Parcel Post rates may be procured from your local Post Office.

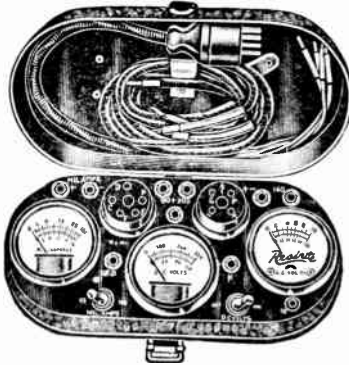
M & H
is the ORIGINAL
Kit Shop



If it is a kit
or any part of a kit—
We Have It.

READRITE Instruments and Meters

"Readrite" 245 Tube Tester and Set Analyzer



Has 3 meters each with double scale, giving the service man in all 6 meters. Has a milliammeter with a range of 0-20 to 0-100; D.C. voltmeter range 0-60 to 0-300; A.C. voltmeter

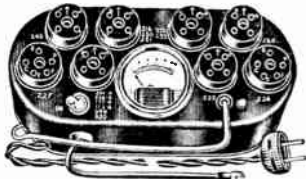
0-10 to 0-140. New type meters giving accuracy of 2 1/2% plus or minus. A complete set analyzer and tube tester, you can locate trouble in a radio set when plugging into each socket, all 3 meters read telling just how the circuit is around each tube. Using the current from the set the tubes are also tested. Tests A.C. or D.C. tubes including the new screen grid.

Tests: "A" Filament, plate voltage, plate milliamperes. "B" Grid volts. "C" Cathode volts. "D" Screen grid volts. "E" Controlled grid conditions. "F" Line voltage A.C. or D.C. "G" Continuity tests, etc.

List Price, \$20.00 Your Cost, \$11.70

"Readrite" Model 400 Counter Tube Tester

No. 400 contains new type milliammeter reading 0-30—has eight sockets on tester for every type of tube made, including screen grid, pentode, rectifier, etc. Contains battery for mutual conductance test. This is the most inexpensive counter tester of this type on the market. It is very accurate.



List Price, \$20.00 Your Cost, \$11.70

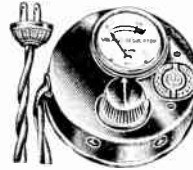
"Readrite" 450 Tube Short Tester 3 Light



Companion to the above is the No. 450 used for testing "shorts" in tubes before the electrical tests are made. Plugs directly into socket on No. 400 tester or may be connected to any 4 1/2 v. battery. Lights burn only when a short exists between two elements in tube. Speedy. Handy. Saves time and trouble. Complete with lamps and plug.

List Price, \$3.50 Your Cost, \$2.06

"Readrite" No. 218 AC Voltage Regulator



Needed by every set using A.C. tubes. Equipped with A.C. voltmeter and giant rheostat. Protect your investment in these high priced tubes.

List Price, \$6.50 Your Cost, \$3.82



No. 500 Ohmmeter and DC Voltmeter

Tests resistance up to 10,000 ohms, also D.C. volts 0-4.5. Contains small 3-cell flashlight battery; current drain is negligible. Adjusts to zero by shorting the two jacks and turning rheostat knob. Supplied with two wire leads five feet long for use in continuity and resistance testing. 4" dia. Indispensable for service work.

List Price, \$6.00 Your Cost, \$3.60

No. 501 Resistance Meter and DC Voltmeter 0-4.5 V.



As used in No. 500 ohmmeter. A thoroughly reliable instrument. Requires three small flashlight cells, which, with resistance to be measured, are connected in series with meter. Used for testing resistances in radio receiving sets, and circuits. Fine for continuity tests.

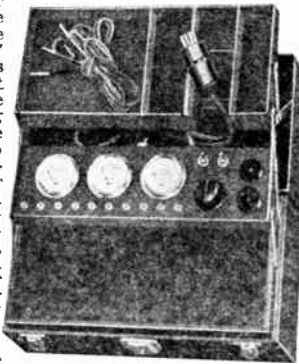
List Price, \$2.50 Your Cost, \$1.47

"Readrite" Model 15 Set Analyzer and Service Kit

Be your own trouble shooter. The "Readrite" Analyzer is an efficient sure device for searching out the cause of radio faults. Services either A.C. or D.C. sets. Equipped with regular adapters, and also a new adapter for testing screen grid tubes and a special switch adapter for full wave rectifying tubes. Instrument ranges: D.C. volts 0-60, 0-300; A.C. volts 0-10 and 0-140; milliamperes 0-20 and 0-100. Special tip jack connections with 2-5-ft. cords permit individual use of these meters for a wide variety of testing, including transformers, chokes, condensers, etc.

Compartments for tools and extra tubes. A single motion opens case ready for use. Size closed, 7x7 1/4 x 14 inches. Metal case finished in dark brown enamel.

List Price, \$33.00 Your Cost, \$19.11



"Readrite" Panel Meters

Check your circuits accurately with "Readrite" Panel Meters. Require 2 5/64 inch hole. Rim is 2 5/16 inches diameter. Back clamps furnished. Metal silvered dials.



D.C. Panel Type Voltmeters

Type	Description	List Price	YOUR COST
326	0-6 volts	\$1.00	\$0.59
310	0-10 volts	1.00	.59
312	0-150 volts	1.50	.88
341	0-80-150 volts	2.00	1.18

Ammeter

Ammeter for measuring filament current.

338	0-10 amps.	\$1.00	\$0.59
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Milliammeters

Milliammeters for measuring plate current.

311	0-10 milliam.	\$1.75	\$1.03
325	0-25 milliam.	1.00	.59
390	0-100 milliam.	1.00	.59
394	0-400 milliam.	1.00	.59
395	0-20-0-100 millia.	1.75	1.03

D.C. or A.C. Voltmeters

314	0-4 volts	\$2.50	\$1.47
352	0-10 volts	2.50	1.47
355P	0-10-140 volts	4.00	2.35

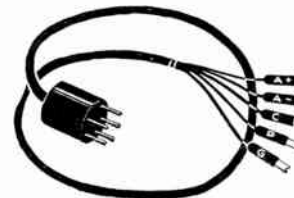
Type 349—0-300 Volt A.C. or D.C.

List Price, \$5.00 Your Cost, \$2.94

Type 246—0-60-300 Volt for D.C. Only

List Price, \$4.00 Your Cost, \$2.35

"Readrite" Adapter Cable



No. 25

List Price, \$1.50

No. 25—Cable 3 ft. long with 5 conductors connected one end to 5 prong plug. Marked terminals other end. Used for Short Wave, also as a 5-lead battery cable.

Your Cost, 88c

No. 27—Cable same as No. 25 except with pin jack tips. Used with No. 245 tester.

List Price, \$1.50

Your Cost, 88c

No. 503 Adapter

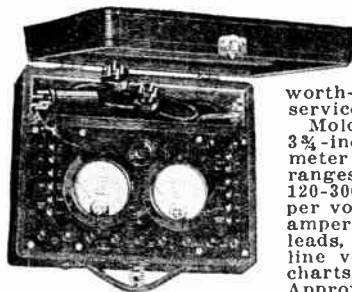
For increasing range of 500 and 501 ohmmeters to 60,000 ohms.

List Price, \$1.50

Your Cost, 90c

JEWELL Radio Instruments

"Jewell" 199 AC-DC Set Analyzer



Services Screen Grid Sets

Testing equipment of the highest caliber at the lowest possible cost; makes every worth-while field test, yet reduces service testing to its simplest form. Molded bakelite panel carries two 3 1/4-inch Jewell instruments. The AC meter has 0-4-8-16-160-800 volt ranges. The DC meter has 0-6-30-60-120-300-600 (resistance 1000 ohms per volt) volt and 0-12-60-300 milli-ampere ranges. Furnished with test leads, 4 and 5 prong tube adapters, line voltage loads, pad of analyzer charts, and complete instructions. Approximate shipping weight, 13 lbs. Pad of 50 analysis charts, per

Adapter Set for Kellogg AC tubes.....\$0.25
Shunts for .6 3.0 or 6.0 amperes, each..... 2.50

List Price, \$97.50

Your Cost, \$72.98

Pattern 209 Tube Checker



Developed for radio dealers who require an accurate and effective tube checker at a moderate price.

Has a DC meter with six tube sockets in a case of molded bakelite. The sockets provide filament voltages of 1.5, 2, 2.5, 3.3, 5, and 7.5 to 4 prong sockets, and 2.5 to a 5 prong socket. Terminals are provided for tubes with terminals at the top.

Tests Screen-Grid Tubes

The grid test is accomplished by shifting the grid from one position in the network to another, thereby giving a definite change in plate current corresponding to the difference between the two grid polarities. Correct values of readings are given in an engraved chart on the face of the tube checker.

Filament voltages are obtained from a full size transformer with turns very accurately adjusted so that at 115 volts input the various filament values are exactly as marked. A vitrified porcelain resistor is supplied in the circuit large enough to prevent damage in most cases of short circuited tubes, but of a sufficiently low value to avoid affecting the readings.

Tests Carden and the new 230 Series.

List Price, \$30.00

Your Cost, \$21.65

Pattern 409, 4-Instrument Set Analyzer



Pattern 409 is unequalled in a portable set tester for accuracy, speed, and convenience. Plate, grid, and filament voltages, as well as plate current, are registered simultaneously on the four 3 1/4-inch face Jewell instruments mounted on the panel. The following ranges are provided: for plate voltages, 0-120-300-600 volts; for plate current, 0-12-60-300 milliamperes; for screen current, 5 milliamperes; for grid, filament and cathode voltages, 0-10-100 volts, and for alternating current voltages, 0-4-8-16-160-800 volts. Same accessories as Pattern 199. Approximate shipping weight, 18 lbs.

List Price, \$122.50

Your Cost, \$90.05

Pattern 408

Same as Pattern 409, except that a case with compartments is provided for carrying tools and extra tubes.

List Price, \$137.50

Your Cost, \$101.13

Pattern 210 Tube Checker



Gives direct readings on all tubes from UX199 to UX250, and also tests both half and full wave rectifier and screen grid tubes.

In operation the net change in plate current is read directly from the instrument, absolutely eliminating the reading of two values and the subtraction of one from the other.

The pattern 210 carries an AC voltmeter, a direct current instrument, and a transformer for supplying filament energy of 1.1, 1.5, 2.5, 3, 5 and 7.5 volts. Both 4 and 5 prong tube sockets are provided.

A high resistance rheostat compensates for line variations between 100 and 130 volts; also disconnects all apparatus.

List Price, \$65.00 Your Cost, \$47.04

Pattern 574 Voltohmmeter

This instrument has been developed especially for radio servicing in connection with charts furnished by manufacturers, showing voltage and resistance values of various sections of radio receivers. Accurate resistance tests are an effective method of locating causes of faulty operation, and the Pattern 574 with manufacturers' charts makes such tests easy.

The Pattern 574 consists of a Jewell Pattern 88 Bakelite Case Meter mounted in a bakelite panel which carries jacks, push buttons, and a 4 1/2 volt battery.

The battery is used for making resistance measurements and testing circuits.

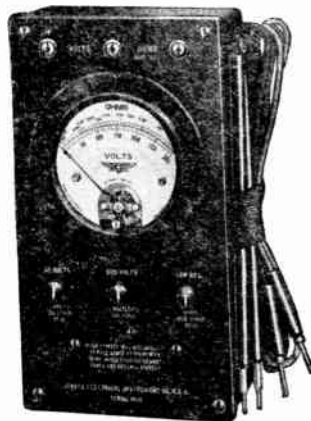
The meter has a double scale; the upper scale reading 0 to 100,000 ohms; the lower scale reading 0 to 300 volts. The resistance range can be decreased to one-tenth its value. The voltage range can likewise be reduced to one-tenth the scale reading and increased to 600 volts.

As a voltmeter the Pattern 574 has a resistance of 1,000 ohms per volt in each of its ranges. Consequently it measures plate voltage without distortion. Approximate shipping weight, 5 lbs.

Pattern 574 Voltohmmeter, with battery and test leads.

List Price, \$35.00

Your Cost, \$25.75



Pattern 89 Ohmmeter

Same in general appearance as Pattern 574 Voltohmmeter

Pattern 89 Ohmmeter, with either 0-1,000, 0-3,000, 0-10,000, or 0-30,000 ohm ranges, including battery, test leads, and prods.

List Price, \$18.50

Your Cost, \$13.61

Pattern 89 Voltmeter

Same in general appearance as Pattern 574 Voltohmmeter

The Pattern 89 Voltmeter for radio service is a three-range instrument with scales of 30, 300, and 600 volts. The meter has a resistance of 1,000 ohms per volt; consequently it shows the true voltage of B power supply.

Pattern 89 Voltmeter, with 0-30-300-600 scales, test leads, and prods.

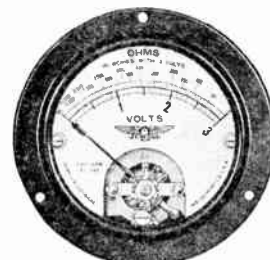
List Price, \$25.00

Your Cost, \$18.29

"Jewell" Direct Reading Resistance Meter

Pattern 135 Ohmmeter—A Pattern 135 DC Instrument with double scale calibrated for voltage measurements and direct reading of resistances. Furnished with flange for mounting in box or panel. Available in the three following ranges:

	List Price	Your Cost
0-3 volts, 0-10,000 ohms (for use with 3-volt battery)	\$7.00	\$5.25
0-4.5 volts, 0-15,000 ohms (for use with 4 1/2-volt battery)	7.00	5.25
0-4.5 volts, 0-100,000 ohms (for use with 4 1/2-volt battery)	10.00	7.50



No. 135 Ohmmeter

SUPREME Testing Instruments "Supreme by Comparison"

Diagnometer 400 B

Makes ever conceivable test on any Radio Set

The only complete portable testing laboratory

Recognized by radio technicians as the outstanding service instrument in the radio field. Provides service departments or service shops with an expert service, yet the instrument is so simple and fool-proof in design that the beginner in radio work can immediately enjoy its advantages. No other instrument or combination of several portable instruments in any way compares with it or even remotely approaches its marvelous range, efficiency and elasticity.



Standard Instrument—50-60 Cycles

Your Cost, \$136.70

Size 7½ x 12½ x 18½

"Supreme" Features of 400-B "Supreme" Diagnometer

Only a few of its demonstrated amazing functions and features can be here enumerated.

The "Supreme" oscillation test gives the only, easily made, dependable test on tubes; tubes tested under radio frequency dynamic operating conditions.

Tests all types of tubes, including screen-grid, and overhead heater and pentode types.

Affords a mutual conductance test of tubes.

Tests both plates of '80 type full-wave rectifier tubes.

All tubes tested independent of radio. Locates unbalanced transformer secondaries.

Reads either positive or negative cathode bias.

Furnishes modulated signal for testing, synchronizing, neutralizing, etc.

Provides means for aligning of condensers by Thermocouple meter or A-C meter.

Neutralizing with tubes used in the set; only accurate method.

Tests gain of audio amplifiers.

Provides D-C continuity tests without batteries.

Indicate resistances without the use of batteries, in four ranges. .1 to 25 ohms, 10 to 200 ohms, 150 to 30,000 ohms (calibration curve furnished), 5000 ohms to 5 megohms.

High resistance continuity for checking voltage dividers, insulation leakage, by-pass and filter condenser leakages, bias resistors, grid leaks, etc.

Low resistance continuity for checking rosin joints, shorted variable condensers (without disconnecting R-F Coil), center tapped filament resistors, etc.

Three precision meters; one four-scale D-C voltmeter, 0/750/250/100/10 volts, resistance 1000 ohms per volt. One four-scale A-C voltmeter 0/750/150/16/4 volts. One three-scale mil-ammeter 0/125/25 mills. 0/2½ amps.

Set Analyzer—Model 90



Size 4¼ x 9¼ x 11¼—6 lbs.

Your Cost, \$76.93

25 Testing Instruments in 1 ONLY ONE METER TO READ

A smaller, lighter, quicker, simpler ultramodern Set Analyzer that revolutionizes standard design. The single meter employed is a special design, used only in costly laboratory equipment heretofore. Makes available a vastly greater number of tests and functions than any other set tester or analyzer, regardless of the number of meters employed. Model 90 provides 79 distinct readings and ranges as compared with a maximum of 20 readings and ranges by the set tester that is the nearest approach to the "Supreme."

FEATURES OF MODEL 90

(1) Speed; (2) Simplicity; (3) Unapproached range and elasticity; (4) Insurance against obsolescence; (5) Unexcelled construction. Tests Pentode Tubes.

Ohmmeter—Model 10

Size 2 x 2½ x 4¼"

Capacity 0 to 10,000 Ohms

Your Cost, \$18.13



Designed for the rapid and direct indications of resistances. The dial of the meter is directly calibrated in ohms and the meter is amply protected from damage against short circuits. Contains a single cell of an ordinary flashlight battery, which provides the small amount of current required for a meter movement.

"Supreme" Test Panel

Size 18" x 30"

Your Cost, \$46.55

Makes your Diagnometer a dual-purpose instrument — shop or portable service. Fastens to back of work bench. Demountable in a jiffy. Most practical radio laboratory test panel.

Tube Checker—Model 19

Size 3¼" x 9¾" x 6½". Weight, 6 lbs.



Counter Model without lid. Your Cost, \$26.41

Portable Model for either counter or portable use, with lid mounted on slip hinges, handle and detachable flexible cord.

Your Cost, \$29.35

Extreme simplicity. Any layman can check tubes with accuracy and speed, yet instrument meets the most exacting demands of the skilled technician.

Large 3½" D'Arsonval type meter in full bakelite case. Each socket plainly marked with type of tube and average readings. All tests made without the use of adapters. Housed in a handsome hardwood case that is almost indestructible and affords maximum protection to instrument.

No other tube checker selling below \$40.00 provides all of the following features:

Tests pentode tubes and the new 2-volt '30 series tubes. Tests screen grid tubes with voltage closely approaching operating conditions. Double scale meter, both scales calibrated. Large size transformer—from 50% to 100% greater capacity than is generally used in moderate-priced tube checkers. Unbreakable case.

Tube Tester—Model 50

Size 5¼" x 10½" x 7½"

Your Cost, \$96.53

A super efficient instrument invaluable to laboratories, public address systems, sound picture equipment and others requiring scientific analysis.

Equipped with automatic voltage regulator, manufactured under license from Ward Leonard Electric Company. Its design, construction and the quality of materials used appeal to the better informed radio man accustomed to selecting highest type of precision instruments for his work.

FEATURES OF MODEL 50

(1) Automatic voltage regulation; (2) Direct reading of amplification factor; (3) Mutual conductance; (4) Emission; (5) Normal plate current; (6) Both plates of full wave rectifier; (7) Meter indication of presence of gas.

Megohmmeter—Model 80

Similar in appearance to Model 10 Ohmmeter

Your Cost, \$23.27

The "Supreme" Megohmmeter Model 80 provides the most convenient means of testing condensers and other radio or electrical parts.

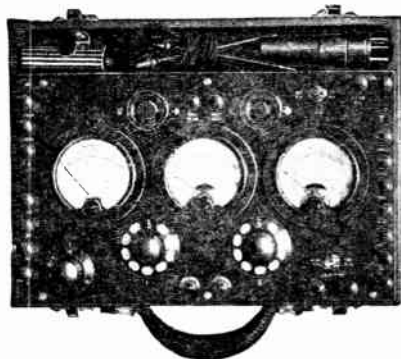
It can be used for checking high resistances, such as grid leaks, high resistance plate resistors, resistance leakages, etc.

Of particular value in determining the leakages of condensers. Measures power resistances and gives approximate values of capacity.

WESTON RADIO INSTRUMENTS

A.C.-D.C. Radio Set Tester

Model 547



A complete AC-DC Set Tester housed in a black bakelite case measuring 12 3/4 x 9 x 3 3/4 inches. Weighs approximately 10 pounds and is equipped with a removable snap-on cover. The panel mounts three 3 1/4" diameter "Weston" models—an eight range DC Model 301 for 750/250/100/50/10/5 volts, 100/5 milliamperes—a double range DC Model 301 for 100/20 milliamperes and a five range AC Model 476 for 750/150/16/8/4

volts. All tests are made with the use of three rotary switches, tester plug with five prong adapter, several selective switches and binding posts.

List Price, \$125.00

Your Cost, \$93.75

Counter Tube Checker

Model 555

Checks all AC or DC tubes having filament voltages of 1.5, 2, 2.5, 3.3, 5 or 7.5 volts including '80 and '81 types of rectifier tubes. Both plates of the '80 type full wave rectifier tube can be tested without the use of an adapter.

It operates from any 110 volt 50 cycle AC lighting circuit and has an Input Voltage Regulator to take care of changes in line voltage from 90 to 130 volts. A replaceable fuse protects the instrument against shorts.

The Checker is equipped with 1 UX and 2 UY sockets, 2 binding posts for heater connections for the overhead heater tube and a post for connection to the control grid of Screen Grid tubes, a line voltage adjusting dial, a 6 point filament voltage dial, 4 push buttons and 2 instruments (3 1/4" diameter)—an AC Voltage Indicator and a double range "Tube Check" meter.

Checking a tube is very simple. Two readings are taken and the condition of the tube determined by comparing the values with those given on the instruction card.

If it is desired to test tubes which have other than the standard UX or UY base, adapters can be furnished as follows: Large UY (order by No. D-55715), \$2.00 (net). Small UV (order by No. ND-17640), 60c (net). DC Screen Grid (order by D-19294), 40c (net).

List Price, \$67.50

Your Cost, \$50.63



A.C.-D.C. Radio Set Tester

Model 565

A complete AC-DC Set Tester similar in operating scope to the Model 547 described above but embodying the added features of a Tube Checker operative from the AC line, a modulated R.F. Oscillator (three frequencies) and a double range ohmmeter and continuity set tester. The set is completely housed in

an oak case measuring 11 x 13 1/2 x 4 1/4 inches, weighs approximately 13 pounds and has removable snap-on cover. Model 565 is equipped with three 3 1/4-inch diameter instruments—an 8 range AC Model 476 for 100/200 16/8/4 volts, 100-20 milliamperes and 4 amperes—a 13 range DC Model 301 for 1000/250/100/50/25/10/5 volts, 0-100,000/0-10,000 ohms and 100/25/2.5/1 milliamperes and a double range DC Model 301 for 100/20 milliamperes.

All tests are made using one 23 and one 7 position Selector Switch, tester plug with five prong adapter, several selective switches and binding posts.

List Price, \$187.50

Your Cost, \$141.63

Portable Volt-Ohmmeter Model 564

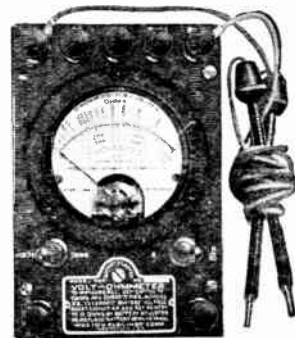
Model 564 is a very useful instrument for measuring resistance, voltage and for continuity testing. It is an especially valuable aid in radio service work and in radio laboratories when extreme accuracy is not of prime importance.

Its equipment consists of a Model 301 3 1/4-inch diameter meter with ranges of 600, 300, 30 and 3 volts and two resistance ranges of 0-10,000/0-100,000 ohms. All six ranges are brought out to binding posts, two toggle switches serving to connect the meter in circuit. All voltage ranges have a resistance of 1000 ohms per volt. A pair of 30-inch cables with test prods is provided with each Model 564.

To compensate for changes in potential of the self-contained 4.5 volt battery it is simply necessary to short circuit the Binding Posts X-X and adjust the pointer on the meter to the zero ohm position by turning the voltage adjuster located at the top of the name plate.

List Price, \$37.50

Your Cost, \$28.13



PLUSH TYPE 3 1/4" PANEL INSTRUMENTS

DC, AC AND THERMOCOUPLE INSTRUMENTS

DC Filament or Plate

Voltmeters—Model 301

	List Price	YOUR COST
Voltmeters:		
1, 1.5, 2, 3, 5, 7, 8, 10, 15, 20, 25, 30 volts (Resistance 62 ohms per volt)	\$8.00	\$6.00
50 or 100 volts (Resistance 200 ohms per volt).	8.00	6.00
150 volts (Resistance 200 ohms per volt)	11.00	8.25
200 volts (Resistance 250 ohms per volt)	11.00	8.25

Model 301 Voltmeters can be supplied High Resistance Type (1000 ohms per volt) in single, double or triple ranges. Prices on request.

DC Plate Milliammeters—Model 301

Milliammeters: 1, 1.5 or 2 milliamperes	\$10.00	\$7.50
5, 10, 15, 20, 25, 30, 50, 100, 150, 200, 300, 500 or 800 milliamperes	8.00	6.00

DC Microammeters—Model 301

Microammeters: 200 microamperes	17.50	13.12
500 microamperes	15.00	11.25

Volt-Ohmmeter—Model 301

Volt-Ohmmeters: 4.5 volts, 100,000 ohms or 15 volts, 500,000 ohms	13.00	9.75
Resistance, volt ranges, 1000 ohms per volt		

Thermo-Ammeters—Model 425

Ammeters: 1, 1.5, 2, 2.5, 3, 4 or 5 amperes	13.50	10.13
6, 8, 10, 15 or 20 amperes	14.50	10.88

Wavemeter—Galvanometer—Model 425

Galvanometers: 115 milliamperes (Resistance 5.2 ohms)	15.00	11.25
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Bakelite cases are supplied on Model 301 voltmeters above 300 volts and can also be supplied on the other instruments (Models 301 and 425) to match voltmeters at an additional cost of 75c each. Case diameter, 3 3/8 inches.

AC Voltmeters and Milliammeters—Model 476

Voltmeters: 1.5, 2, 3, 5, 10, 15, 25 or 50 volts	\$8.00	\$6.00
150 volts	10.00	7.50
250 or 300 volts	12.00	9.00
180/8/4 volts	15.00	11.25
Milliammeters: 15, 25, 50, 100, 250 or 500 milliamperes	8.00	6.00

"Weston" Radio Plug

Instant change radio plug. Licensed under U. S. Patent 1,498,196.

List Price, 60c

Your Cost, 45c

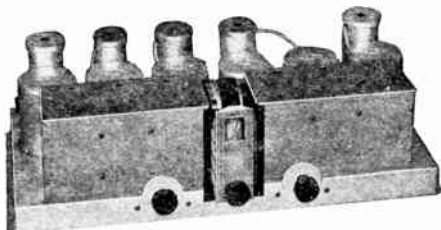


NEW
NATIONAL

DeLuxe MB-30 Screen-Grid-Tuner

Incorporating the Latest Developments of
Glenn H. Browning

and
James Millen



Four Screen-Grid Stages

High Selectivity—no tendency to cross talk. Extreme sensitivity (approximately uniform sensitivity of one micro-volt per meter over entire broadcast band).

Absolute freedom from oscillation. Elimination of tube hiss and other background noises. Rugged construction. Thorough shielding. Easy to wire. Designed for the person who wants "the best." Makes an ideal "radio pick-up" for theatres, hotels, and public address power amplifier systems. Especially designed for use with "National" Velvetone Power Amplifier, but will give excellent performance with any good power amplifier.

Three California stations were received with good regularity on short antenna at Prof. Browning's laboratory near Boston during early Spring tests with a production model of the MB-30.

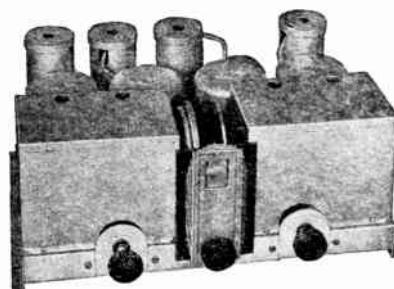
All parts mounted on chassis ready for wiring. Set of parts includes wire and everything necessary for assembly.

	List Price	YOUR COST
MB-30 "National" complete set of parts for 5-Tube Screen-Grid Tuner as listed above (less tubes)	\$85.00	\$49.98

MB-30W "National"—We can have the above set of parts, of the MB-30 "National" Screen-Grid 5-Tube Tuner wired up for you by the Jackson Laboratory, whose work we recommend, at an additional price of	10.00	6.00
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REVISED
NATIONAL

MB-29A Screen-Grid-Tuner



Three Screen-Grid Stages

While neither as sensitive nor as selective as the DeLuxe MB-30, the MB-29A is a very able performer. Fundamentally it is a revised version of the well-known MB-29, incorporating many of the features of the MB-30, such as pre-selector circuit for elimination of the cross-talk tendency encountered with the average screen-grid receiver in areas of strong signal intensity. Complete shielding and special RF by-pass circuits for completely eliminating any tendency toward oscillation when adjusted for greatest sensitivity and the untuned "leveling" stage designed especially for the MB-30 to secure uniform gain over entire broadcast band without loss of selectivity.

Covers Enormous Range on Indoor Antenna

Such tremendously high, yet balanced RF amplification is obtained by the "National" MB-29A Tuner that 54 stations have been logged in one evening on a six-foot antenna.

Built for A.C. Operation

The new tuner circuit employs three Screen-Grid A.C. Tubes, which are even better amplifiers than the D.C. Screen-Grid Tubes.

The "National" MB-29A will pull in distant stations directly through closely crowded locals.

All parts mounted on chassis ready for wiring. Set of parts includes wire and everything necessary for assembly.

	List Price	YOUR COST
MB-29A "National" complete set of parts for 4-Tube Screen-Grid Tuner as listed above (less tubes)	\$69.50	\$40.87

MB-29AW "National"—We can have the above set of parts of the MB-29A "National" Screen-Grid 5-Tube Tuner wired up for you by the Jackson Laboratory, whose work we recommend, at an additional price of	10.00	6.00
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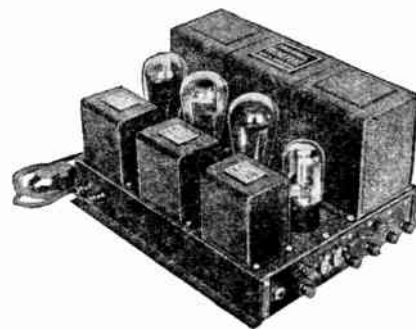
"National" Velvetone Power Amplifier

The "National" Power Amplifier has been developed and built to get the very most out of the new MB-29A and 30 Screen-Grid Tuners. It is a combination power supply and audio amplifier, using a 280-tube for a rectifier, one stage of transformer audio with a 227-tube and a stage of push-pull amplification with two 245's.

The "National" Velvetone Power Amplifier is sold completely wired and assembled and ready for use. It is licensed under RCA patents.

List Price, completely wired and equipped with phonograph jack (less tubes), \$97.50.

Your Cost, \$57.34



1931 SHORT WAVE NATIONAL

DOUBLE SCREEN-GRID

5-Tube Thrill Box—Type SW5—A.C. and D.C. Models



The new "National" 5-tube short-wave tuner or "Thrill Box," Type SW5, has been designed in response to a continuous demand for a highly sensitive yet easily tuned (single dial control) short-wave receiver, capable of giving consistent loudspeaker reception from the various foreign short-wave broadcasting stations, as well as meeting all of the stringent requirements of both the amateur and commercial operator.

Both Battery and A.C. power models are available. This eliminates the necessity for both A and B batteries in the majority of installations. For camps, boats, expeditions, etc., where A.C. power is not available, the battery model has been designed. This model makes use of the new non-microphonic battery type Radiotrons UX230, UX231, UX232, just placed on the market for this particular type of service. As a result, it is exceedingly economical on both A and B batteries.

The A.C. model uses heater type tubes throughout—essential for humless operation when employing headphones as in communication work. The tubes are two UY224 screen-grids and three UY227's. Provision is also made in the A.C. model for the use of a Pentode, if desired, in the R.F. stage.

Previous difficulties encountered in the design of satisfactory A.C. short-wave receivers, that would be completely humless even when used with headphones, have been overcome as a result of the intensive research work of the National Company's engineers during the past year, in collaboration with Robert S. Kruse and other well-known short-wave engineering authorities.

The power pack is a separate unit, in order to avoid any possible hum resulting from its location inside of the tuning cabinet, and this is furnished with a handy cable and connector plug to facilitate connection. The power pack uses a UX280 rectifier tube and is licensed under R.C.A. patents.

Complete Parts

Catalog Symbol	Name of Parts	List Price	YOUR COST
ACSW5	"National" complete set of parts for 5-tube A.C. Short-Wave Thrill Box.....	\$79.50	\$46.75
Type 5880	AB Power Supply (less tube) for use with above A.C. Short-Wave Thrill Box.....	34.50	20.29
(Licensed under R.C.A. patents)			
DCSW5	"National" complete set of parts for 5-tube Battery operated Short-Wave Thrill Box.....	75.00	44.10
We can have either of the above sets of parts wired up for you by Jackson Research Laboratories at an additional list price of			
		10.00	6.00

Special Power Unit No. 5880AB for AC Short Wave Reception

One of the essentials for humless A.C. short-wave reception is the use of a power unit designed especially for that purpose, such as the "National" Type No. 5880-AB. This power unit has a double section hum filter, an R.F. filter, an electrostatic shield around the primary and special balancing resistors across the filament windings. It is provided with standard four-prong UX socket for ready connection to set by means of a four-wire cable and "National" Connector Plug. There is no potentiometer across the high voltage supply, as this resistor for best results should be included in the set.

Plate Voltage 180 at 30 mils. Filament 2.5 volts 8 3/4 amperes, maximum continuous. (5 heater tubes.) Licensed under R.C.A. patents. Uses 280 rectifier tube.

List Price, completely wired (less tubes), \$34.50

Your Cost, \$20.29

NEW

Tuning Condensers

and Plug-in Type Inductances

Especially Designed for Short-Wave Use

Type R-39 Inductances

Moulded of "R-39," the new low-loss coil form material developed by the Radio Frequency Laboratories for short-wave use. Forms available with UX four-prong, UY five-prong, or special six-prong base, for use in standard sockets.

The coils listed below are designed for use in the new "National" SW5 "Thrill Box."

		List Price	YOUR COST
"Brown"	No. 10 Range 9. to 15. meters.....	\$2.75	\$1.65
"Black"	No. 11 Range 14.5 to 25. meters.....	2.50	1.50
"Red"	No. 12 Range 23. to 41. meters.....	2.50	1.50
"White"	No. 13 Range 40. to 70. meters.....	2.50	1.50
"Green"	No. 14 Range 65. to 115. meters.....	2.50	1.50
"Blue"	No. 15 Range 115. to 200. meters.....	2.75	1.65
"Orange"	No. 16 Range 200. to 360. meters.....	2.75	1.65
"Yellow"	No. 17 Range 350. to 550. meters.....	2.75	1.65
Forms only—	4-prong UX base	1.50	.90
	5-prong UY base	1.50	.90
	6-prong Special	1.50	.90

Type SE-100 Condensers

The new "National" Type SE-100 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 equecycle plates, insulated front bearing, constant impedance pigtail, single hole panel mounting, as well as provision for baseboard mounting, 1/4 inch shaft and R-39 low-loss insulation. (Also available with equitune plates, 180° rotation, Type ST-100.)

Size 1 1/2" x 1 3/4" x 2". Standard SE-100, capacity 100 mmf., 10 rotor and 10 stator plates. Rotor and stator plates readily removable to alter capacity range to meet special circuit requirements.

	List Price	YOUR COST
Type SE-100, 100 mmf. equi-cycle 270°	\$3.75	\$2.25
Type SE-50, 50 mmf. equi-cycle 270°	3.50	2.10
Type ST-100, 100 mmf. equitune 180°	3.75	2.25
Type ST-50, 50 mmf. equitune 180°	3.50	2.10

Either type available with capacities up to 150 mmfd. Prices quoted upon request.

NATIONAL PRODUCTS

"National" B and AB Power Units



A number of detailed improvements have been worked into the "National" power units for 1930 - 1931. National Co. offers both completely assembled and cased units, or separate components for the construction of power-packs.

Velvet-B Type 3580

A "National" B-Eliminator designed for reliable service. Operates 1 to 6-tube sets, including power tube.

This rugged unit has been designed with liberal factors of safety in all component parts. It is the only power-supply, at this price, employing the long-lived R. C. A. UX-280 full-wave rectifier tube.

Provided with Protective Voltage Adjustments

Adjustable Taps give the following voltages:

- 22-45 V. for detector.
- 45-90 V. for R.F.
- 90-135 V. for A.F.

Full 180 V. at 35 M.A. for power tube, non-adjustable.

It is impossible to put harmful or excessive plate voltages on tubes by accident.

Licensed under R. C. A. and Associated Companies Patents.

Silent, Hum-free Output

List Price, less tube, \$26.50

Your Cost, \$15.59

Super-Velvet-B Type 7180

A strictly heavy duty unit with output of 70 MA at 180 volts. Insulated terminals are conveniently located at the top on a sloping panel, giving easiest connections for the cable running to the set. Uses the long-lived UX-280 or CX-380 full-wave rectifying tube.

Provided with completely adjustable voltages.

- 22-45 V. for detector.
- 45-90 V. for R.F.
- 90-135 V. for A.F.

180 V. adjustable for power tube.

Only voltages in these ranges are obtainable so that it is impossible to put harmful or excessive plate voltages on the tubes.

Will supply voltage for any type of radio receiver requiring not over 180 volts.

Licensed under patents of R. C. A. and Associated Companies.

Cased in beautiful black, moire-finish steel.

List Price, with cord, switch and plug (less tube), \$39.50

Your Cost, \$23.23

"AB" 7180 for AC Tubes

This "National" power unit incorporates all of the features and advantages of the "National" Super-Velvet-B, Type 7180, and also has two 2½-volt and one 5-volt filament windings for AC tubes. Easily attached to present battery sets either by rewiring the filament circuit or by a set of cable and adapters. Licensed under patents of R. C. A. and Associated Companies.

List Price, with cord and plug (less tube), \$44.50

Your Cost, \$26.17

Filament Transformers Type F-227 (Cased)

Provides two filament winding for 2.5 volts and one for 5 volts. Will handle 7 UX-227, 2 UX-245 and 2 UX-171 tubes.

List Price, with cord and plug, \$10.00
Your Cost, \$5.88

Type 227-U

Uncased transformer, mounted, without cord and plug, but soldering, terminals provided for two 2½ volt windings.

List Price, \$6.50
Your Cost, \$3.83



"National" Velvet Vernier Dials

The most artistic dial yet designed. These new "National" Velvet Vernier Dials—Types G and H—employ a beautiful brushed silver finish escutcheon of simple and dignified yet extremely modern design, harmonizing with the most modern cabinet work and furniture, yet free from freakish and radical characteristics.

Type G—Disc Dial

This dial employs a disc mechanism and is designed for use when the tuning condenser shaft is at right angles to the front panel. This is a monocolor projector dial, standard color is green.

Catalog Symbol	List Price	YOUR COST
VGCC Counter Clockwise (0-100) (180°).....	\$3.75	\$2.21
VGC Clockwise (100-0) (180°).....	3.75	2.21
VGE Clockwise (150-0) (270°).....	3.75	2.21

Type H—Drum Dial

The Type H Dial employs the proved and popular "National" Velvet Vernier drum mechanism with its powerful non-conducting drive and spring take-up. When furnished as a monocolor projector dial, standard color is green.

Catalog Symbol	List Price	YOUR COST
VHCC Monocolor—counter clockwise (0-100) (180°)..	\$5.00	\$2.94
VHC Monocolor—clockwise (100-0) (180°)..	5.00	2.94
VHCCR Rainbow—counter clockwise (0-100) (180°)..	5.50	3.24
VHCR Rainbow—clockwise (100-0) (180°)..	5.50	3.24

"National" Velvet Vernier Dials

Types B and C

Both types are identical, except that Type B is without light, and Type C includes the illuminator.

Type B



Catalog Symbol	List Price	YOUR COST
VB C—Clockwise (200-0) (360°)		
VB CC—Counter clockwise (0-200) (360°)		
VB-D—Dual Range (0-100-0) (180°)		

List Price, \$2.50
Your Cost, \$1.47

Dial Illuminator and Bracket, complete

List Price, 50c
Your Cost, 30c

Precision Velvet Vernier Dial

This 4-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° } List Price, \$6.50
Type VNE (150-0) 270° } Your Cost, \$3.83
Type VNC (200-0) 260° }

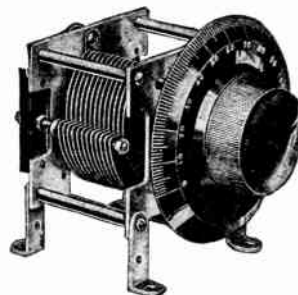
"National" Velvet Vernier Dials

This is the original "National" Velvet Vernier Dial with its smooth, matchless mechanism, which gives perfect control for highly selective circuits. This development of a new form of Gearless Transmission permits a motion that is even and regular throughout its range. No backlash exists—none can develop.



Catalog Symbol	Dia.	List Price	YOUR COST
VAC C3	3 3/8" Counter clockwise (0-100) (180°)	\$2.50	\$1.47
VAC C4	4" Counter Clockwise (0-100) (180°)	2.50	1.47
VAC 4	4" Clockwise (200-0) (360°)	2.50	1.47
VACE4	4" Clockwise (150-0) (270°)	2.50	1.47

National Equimeter Condenser (Straight Wave Line)



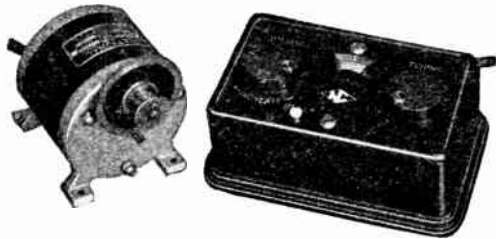
These prices do not include NATIONAL Velvet Vernier "Type A" Dials. Condensers with Dials, extra.

List \$2.50
YOUR COST \$1.47

Catalog Symbol	Size	List Price	YOUR COST
EM 50	50 MMF	\$2.50	\$1.47
EM 100	100 MMF	2.50	1.47
EM 150	150 MMF	3.00	1.77
EM 200	200 MMF	3.50	2.06
EM 250	250 MMF	3.50	2.06
EM 350	350 MMF	3.75	2.21
EM 500	500 MMF	4.00	2.36
EM 1000	1000 MMF	5.50	3.24

NATIONAL

Kinematic Remote Control



The new "National" Kinematic Remote Control device was developed to permit accurate tuning of any type of radio receiver at a distance from the set itself. It is not limited in its operation to the selection of a few predetermined stations, but comprises a conventional type tuning knob and dial which may be tuned in exactly the same manner as the dial on the set. The second knob controls the volume. This remote volume control is also quite unique in that it permits remote operation of the volume control device built into the set by the manufacturer. It is not merely a variable resistor with long leads for controlling the volume in a different electrical manner than was originally intended by the receiver or chassis manufacturer. Thus the installation of "National" Kinematic Remote Control in no way affects or changes the performance of the receiver itself. It merely makes possible the accurate tuning from any convenient place within hearing of the speaker, or by the addition of a separate speaker at any desired distance.

Due to an ingenious switching mechanism the motor power circuits are automatically open when the control box knobs are not being turned so that there is no switch to forget to turn off.

A small diameter seven-wire cable is required. The maximum voltage in this cable is but twenty-five volts A.C. so that it may be run under rugs without violating wiring regulations as would be the case were a higher voltage employed.

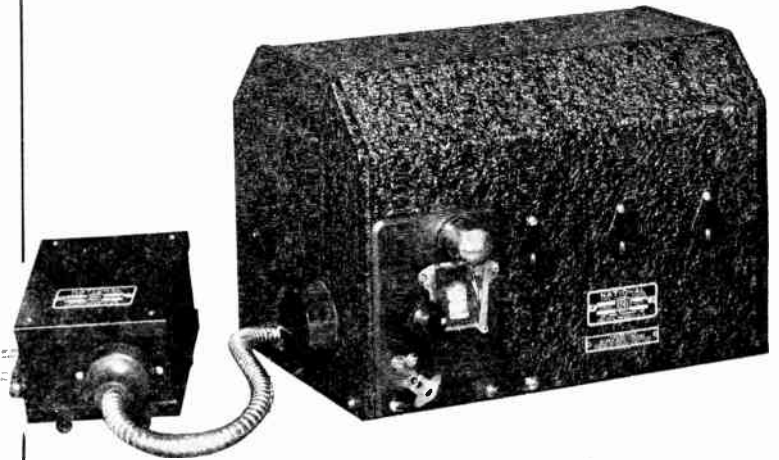
Any number of control boxes may be used with the one installation. In many cases in addition to a control box with a twenty-foot cable in the living room with the receiver it will be found desirable to have an additional control box and speaker in the bedroom. The control boxes are made of attractive molded bakelite and measure 3 3/4 x 5 1/2 x 2 1/2.

Installation of "National" Kinematic Remote Control on any of the standard types of commercial sets, as well as home-made receivers, is not a difficult job. Should, however, you prefer to have it done by a radio service station specializing in such work, write us for further details.

Price List

	List Price	YOUR COST
"National" Kinematic Remote Control Kit comprising two motors, control box, twenty-foot shielded cable and mounting plate.....	\$37.50	\$22.05
Additional Control Boxes, Molded Bakelite Walnut finish	15.00	8.82
Separate Kinematic Motor with reduction gear (state whether tuning or volume control motor is desired)	12.50	7.35
Special 110 to 25 volt step down transformer—50/60 cycle	4.75	2.80
Condenser filter block—used for elimination of "clicking" during tuning of extremely sensitive receivers with volume control turned on full (6.1 mfd. in single shielded case).....	4.75	2.80

New "National" Parts for Automobile Radio



Quite a number of unusual conditions must be met in the design of a satisfactory receiver for use in an automobile. Mechanically, it must be compact, dust and waterproof, as well as vibration proof: Electrically, it must possess considerable sensitivity, due to the small pick up obtainable with the type of concealed antenna now in general use for this purpose.

Its power output, however, need not be large, as the volume required from the speaker at any time is very materially less than that required from the average radio set.

In addition, the current consumption from both A and B batteries must be small.

The cast aluminum speaker is supplied with a standard unit with dust and waterproof cover. The flange at the mouth of the speaker is provided so that it may be mounted behind the dashboard.

The receiver employs five tubes—four of the UY224 heater type Screen-Grids and one UX171-A tube arranged with filaments and heaters in series parallel so as to minimize the drain on the storage battery.

The circuits comprise three stages Screen-Grid R.F., Screen Grid detector, and a UX171-A power audio stage.

The single tuning control operates through a "National" Type "A" Velvet Vernier mechanism, which not only results in extremely fine tuning, but also serves as a lock to prevent vibration and jars from detuning the receiver.

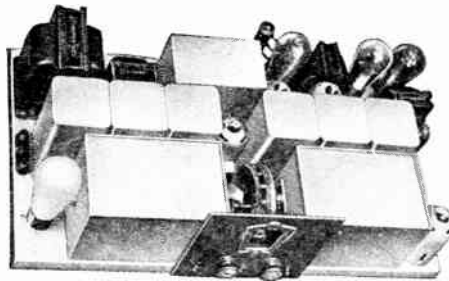
The filament switch is of the "key" type to prevent use of the set by unauthorized persons.

The receiver is designed so that it may be readily removed when desired, by means of the handy cable and plug system illustrated.

Catalog Symbol		List Price	YOUR COST
ARR	Complete set of parts.....	\$62.50	\$36.75
AJB	Junction Box. (2)—Complete with plug receptacle, fuses, mounting screws, etc., with sufficient length of armored cable for use between batteries and junction boxes	12.00	7.05
AAB	Battery Box: (3)—Complete with cover and necessary screws, hardware, etc. . .	6.00	3.53
ARS	Speaker: (4)—Cast aluminum horn with Standard unit enclosed in dustproof case	10.00	6.00
ARC	Complete set of all parts (less tubes) ..	89.50	52.63
We can have parts for tuner No. ARR wired up for you by The Jackson Research Laboratory, whose work we recommend, at the additional price of			
		10.00	6.00

The New HiQ-31 Receiver by Hammarlund

New Throughout
Superb in Every
Feature
Custom-Radio
Built from Complete
Factory-Wired Units



Greater Selectivity—Increased Sensitivity — Humless Power Supply — Screen-Grid Power Detector—Local and Distance Volume Control—High Frequency Noise Filter and Tone Regulator—AC and Battery Models.

List Price, \$159.80

Your Cost, \$93.98

Radio history records many achievements of Hammarlund engineering genius—radio progress owes much to the pioneering development of the organization behind HiQ Custom Radio.

The New "Hammarlund" HiQ-31 is a radio instrument worthy of its designers and of the glorious records of earlier HiQ models—a receiver with unusual brilliance and realism—with unsurpassed beauty of cabinetry — featured throughout by the advanced design and high quality of components characteristic of radio apparatus bearing the name "Hammarlund."

The new HiQ-31 is a completely perfected receiver. It retains in fully developed form the proved principles of the HiQ-30 and includes many improvements which another year of research has developed. Nine tubes are employed, including four '24 screen grids, one '27, two '45's, one '80 full-wave rectifier and a voltage regulator tube.

Perfected Band Filter

Greatly increased selectivity is achieved through the perfection of the famous "Hammarlund" 3-stage Pre-Selecting Band Filter Unit. New type R.F. transformers are employed in the 3-stage Screen Grid Amplifier. These transformers provide substantially uniform amplification over the entire broadcast band, and in addition, attain greatly increased selectivity, particularly on the shorter waves.

New Screen-Grid Detector

Linear power detection, employing the screen-grid tube with automatic bias, eliminates all possibility of detector overloading.

New Audio System

The audio-frequency amplifying system consists of a resistance-coupled first stage and a push-pull output stage using '45 type tubes. This audio channel assures perfectly faithful reproduction of all audible frequencies and delivers over 5 watts of undistorted output.

New Power Supply

The new Power Supply has great reserve power resulting in cool, humless operation. Absolutely dependable and trouble-proof. Employs '80 full-wave rectifier tube.

New Dynamic Speaker

Although any desired speaker can be used, a special speaker has been designed to display the full tonal perfection of the receiver and to handle the full output power without introducing parasitic hum.

New Volume and Tone Control

A local-distance switch on the panel permits smooth, noiseless adjustment of volume regardless of receiving conditions.

A new tone control and high-frequency noise filter has been added which greatly improves the clarity of distant reception and varies the tone depth according to the taste of the listener.

Phonograph connection is controlled simply and effectively by the tuning dial without extra switch. Dial graduated in kilocycles. Operates on long or short or small copper screen antenna.

Chassis 7" x 12 $\frac{3}{4}$ " x 2 $\frac{3}{8}$ "

Each kit contains complete parts including drilled metal chassis, wire, screws, etc., and complete assembly and operating instructions.

Code No.	List Price	YOUR COST
AC-31-R—AC Receiver	\$159.80	\$93.98
AC-31-TPS—AC Tuner with Power Supply.....	148.55	87.35
AC-31-T—AC Tuner for External Power Supply	107.20	63.04
BAT-31-R—Battery Receiver	119.55	70.31
BAT-31-T—Battery Tuner	102.95	60.55

All tuner kits include the resistance-coupled first stage amplifier required for proper operation of the screen-grid detector. External power amplifiers connect to the output of this first audio stage.

If the HiQ-31 AC Receiver is to be used with any speaker other than the special HiQ Dynamic Speaker, an extra choke (Code C-40, \$6.00) will be required. This takes the place of a field winding of the HiQ Dynamic Speaker used as part of the filter system in the standard AC Receiver Kit (Code AC-31-R).

HiQ-31 Manual

Contains 48 pages of information on all models of HiQ-31 Receivers and a 12-page gravure insert illustrating a complete line of fine cabinets chosen for acoustical perfection as well as styling and quality of materials and construction.

Contains much general information on receiver design, testing, installation, radio house wiring, power-amplifiers, accessories, etc., etc.

This Manual will prove invaluable to amateurs and custom-builders.

25 cents

The New Hammarlund Hi-Q Dynamic Speaker

The new "Hammarlund" HiQ Dynamic Speaker has been especially designed for use with the HiQ-31 AC Receiver, deriving from the receiver all necessary power for energizing its field coil. It provides exceptional tone quality and realism throughout the audible-frequency range and has a flatter than usual 10 $\frac{1}{2}$ " cone for rounding out the lower notes of the musical scale without sacrificing any of the beauty of the higher frequencies.

Specially developed, double field coil, with one winding of 3000 ohms and one of 850 ohms. The 3000 ohm coil acts as the second choke of the "B" filter



List Price,
\$24.50
Your Cost,
\$14.41

system. The 850 ohm coil acts as the grid-biasing resistance for the push-pull '45's. This arrangement provides about 8 watts of substantially pure DC for field energy without putting any additional strain on the rectifier tube or filter system, at the same time eliminating any hum due to imperfectly rectified or filtered current.

Sturdy metal frame—permanently-aligned, laterally-suspended voice coil—specially selected fibre cone, chosen for its rigidity, light weight and sensitivity of response.

See Cabinets on Page 17

Hammarlund Precision Products Used in HiQ-31

"Hammarlund" Audio Transformers Including Push-Pull



All "Hammarlund" Audio Transformers are designed for fidelity of reproduction over the entire range of audible frequencies, with a sharp cut-off at the high-frequency noise level.

Large cross section cores of specially treated laminations permit high primary currents without saturation. High inductance primaries provide unusually fine low frequency response. Each transformer tested and guaranteed perfect.

Completely shielded in a handsome black-enamelled steel case, with terminal lugs at the bottom of the transformer for sub-panel connections.

	List Price	YOUR COST
Code AF-1 —Push-Pull Input Transformer. A balanced input transformer to work into two '45 tubes. Amplification ratio 1 to 1.....	\$8.00	\$4.71
Code AF-4 —Push-Pull Input Transformer. Same as AF-1 except 2 to 1 amplification ratio.....	8.00	4.71
Code AF-3 —A 3 to 1 ratio transformer with unusually fine frequency response. For use in both 1st and 2nd audio stages.....	8.00	4.71
Code AF-M —Push-Pull Output Transformer. An impedance matching push-pull output transformer for most efficiently coupling the output of two '45 tubes to magnetic type speakers and dynamic speakers with input transformers.....	8.00	4.71
Code AF-D —Push-Pull Output Transformer. Designed to work directly into the voice coil of a dynamic speaker, having a voice coil impedance of the order of 5 to 10 ohms. Takes the place of the input transformer usually provided with such speakers.....	8.00	4.71

"Hammarlund" Filter Chokes

"Hammarlund" Filter Chokes are correctly designed, have heavy cores with fixed air-gap, and oversize wire windings to prevent overheating and to insure efficient filtering action. Ratings are conservative. Shielded in pressed-steel cases with lugs underneath for sub-panel connections.

	List Price	YOUR COST
C-100 Filter Choke —30 henries—100 M.A. 320 ohms D.C. Res.....	\$6.00	\$3.53
C-40 Filter Choke —40 henries—40 M.A. 600 ohms D.C. Res. 6.00	6.00	3.53

"Hammarlund" Power Transformer

Designed for use with HiQ-31 Receivers, but equally suitable in other circuits having similar power requirements. Has 110-volt primary tapped at 90 volts for use with voltage regulator tube if desired. Has 750 V. 105 ml center-tapped secondary, 5 V. 2 Amp. center-tapped secondary for filament of 280 rectifier, 2.5 V. 3 Amp. center-tapped secondary for filaments of two 245's, 2.5 V. 9 Amp. secondary for heaters of five 224's or 227's. Soldering lugs for sub-panel connections. Pressed-steel case.

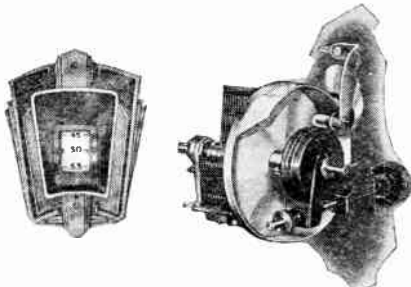
Code PT-31—List Price, \$16.00
Your Cost, \$9.41

"Hammarlund" Filter Condenser Block

Contains all filter and by-pass condensers required for the HiQ-31 Power Supply or similar power plant. Six sections of 2, 4, 4, 1, 1, 2 mfd. rated at 600, 500, 400, 200, 200, 200 volts respectively. Mounted in an aluminum finished steel case with pig-tail leads for subpanel connection.

Code CHQ-31—List Price, \$16.50
Your Cost, \$9.71

"Hammarlund" Illuminated Knob-Control Drum Dial With a Panel Plate of Rare Beauty



A translucent celluloid scale, illuminated from behind by an electric light facilitates easy dial reading at all times.

Code No.	List Price	YOUR COST
SDH-1 —With black knob.....	\$4.00	\$2.36
SDW-1 —With walnut knob....	4.00	2.36

Including escutcheon plate, template, electric bulb, mounting screws, instructions.

"Hammarlund" Shielded, Polarized R.F. Choke Coil

Introduced last season, the "Hammarlund" Shielded Polarized R.F. Choke Coil so ably proved itself superior for use in high-gain screen-grid receivers its acceptance was immediate.

Code SPC
List Price, \$1.50
Your Cost, 88c



"Hammarlund" High Impedance R.F. Choke Coils

The current carrying capacity of both sizes is 60 milliamperes.

Code No.	List Price	YOUR COST
RFC-85 —Has an inductance of 85 millihenries, a capacity of 3 mmf. and a D.C. resistance of 215 ohms.....	\$2.00	\$1.18
RFC-250 —Has an inductance of 250 millihenries, a capacity of 2 mmf. and a D.C. resistance of 420 ohms.....	2.25	1.30

"Hammarlund" Voltage Dividers

Designed for the HiQ-31 Power Supply. An accurately tapped enamel-coated resistor of 30 watts capacity with sections of 2400, 2800, 1850, 3750 and 850 ohms. The RHQ-31T is a similar resistor with sections of 2800, 1850 and 3750 ohms.

Code No.	List Price	YOUR COST
RHQ-31	\$2.50	\$1.47
RHQ-31T	1.50	.87

"Hammarlund" Radio-Phonograph Accessories

HiQ Electric Phonograph Motor and Turn-Table (110 V., 60 cycle A.C.).

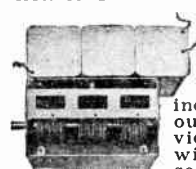
Code HQPM—List Price, \$35.00
Your Cost, \$20.60

HiQ Phonograph Pickup with volume control.

Code HQPU—List Price, \$17.50
Your Cost, \$10.29

"Hammarlund" Pre-Selecting Three-Section Band Filter Unit

The "Hammarlund" Three Stage Pre-Selecting Band Filter Unit is completely assembled, wired and tested in the Hammarlund Laboratories. Illustration shows bottom view. Similar in general construction to Code RF-31.



The New "Hammarlund" Pre-Selecting Band Filter Unit presents many new and important refinements, resulting in greatly increased selectivity without side-band cutting. Provides flat-top tuning curve with 10 K.C. cut-off. Preserves all the radio-frequency characteristics necessary for perfect tone—reduces background noises—eliminates cross talk. The unit includes the famous Hammarlund "Battleship" Matched Triple Condenser in a specially constructed aluminum shield, three R.F. Filter coils sealed in individual copper shield cans. Pigtail leads from bottom of unit enable quick sub-panel connections.

Used in the HiQ-31 Receiver. Designed to provide a high degree of selectivity before the first tube of any receiver, particularly those operated very close to a high powered station.

Code BS-31—Complete—List Price, \$27.00.
Your Cost, \$15.88

"Hammarlund" Three-Stage Screen-Grid Amplifier Unit

The new "Hammarlund" three-stage R.F. Amplifier Unit is built around the super-selective high-gain R.F. Transformers, originated and exclusively used by Hammarlund in the new HiQ-31, giving increased selectivity and greater gain from each tube.

Designed to provide maximum and uniform amplification over the whole broadcast wave-band. Absolutely stable with consequent absence of regenerative distortion. Designed for use with screen grid detector.

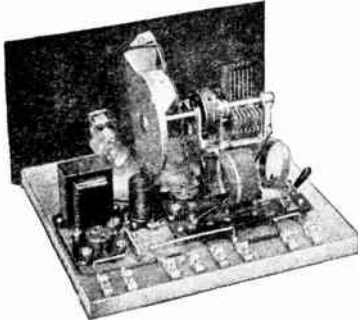
The unit is comprised of the famous Hammarlund Matched Triple "Battleship" Condenser, completely shielded; three R.F. Transformers, individually shielded in sealed copper cans. A shielded, Polarized Choke is mounted in the can with each R.F. Transformer to prevent R.F. feedback. Pigtail leads from bottom of unit for sub-panel connections.

May be used wherever a high quality, high gain r.f. amplifier is required. Experimental adaptation includes its use as an intermediate-frequency amplifier in broadcast and short wave superheterodynes.

The "Hammarlund" Three-Stage Screen-Grid Amplifier is completely assembled, wired and tested in the Hammarlund Laboratories. Aluminum cover (not illustrated) is provided for top of condenser shield can.

Code RF-31—List Price, \$35.00.
Your Cost, \$20.60

"HAMMARLUND" SHORT WAVE
"Hammarlund" Two-Tube, Short-Wave Receiver Kit

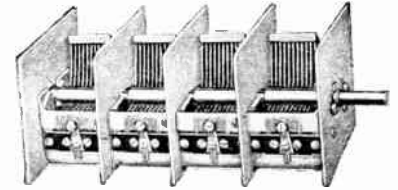


A remarkable two-tube distance-getter, consisting of a regenerative detector and one stage of audio amplification. Designed to use the new 230 type battery tubes, operating on only 2 volts and drawing 60 milliamperes, but any other storage battery or dry cell tubes may be used. For years thousands of amateurs have employed this most reliable of all circuits in consistent reception from the entire world. Primarily designed for phone reception but an additional stage of audio can be added to operate a loud speaker, if this is desired. Covers the range of 15 to 105 meters.

The use of improved coils and condensers with "Parmica," the new low loss insulation increases sensitivity without complicating operation in any way. A quickly assembled Kit containing complete parts of very highest quality. Includes panel, base board, full sized picture wiring diagram and all necessary hardware.

Code SWR-2—Complete (less tubes).
 List Price, \$36.00 Your Cost, \$21.18

New Multiple "Midline" Condenser
Completely Shielded—Two, Three and Four-Gang Models



The New Multiple "Midline" Condenser offers builders of radio apparatus many new and desirable constructional features, plus accurate matching of capacities and extremely high electrical efficiency.

Each section is shielded with rigid 1/16" aluminum plates which may be easily removed if not required. The rib-reinforced, diecast aluminum frame provides maximum structural strength with unusually light weight.

The use of the new Hammarlund dielectric, "Parmica," with but 10% of the losses of usual insulation, insures lowest R.F. resistance and consequent increased selectivity and sensitivity.

Permanently aligned aluminum plates with tie-bars; individual bronze wiping contacts for each section. Each section has its own trimming condenser for equalizing circuit capacity. Sections are matched to plus or minus 1/2 of 1 per cent.

All models are supplied with 1/4" shaft, unless specially ordered. Capacity increases with counter clockwise rotation of rotor.

All condensers are tested for breakdown on 1000 volts AC.

Overall Dimensions
 (Exclusive of Shaft)

3 3/4" high 4 3/4" wide
 Quadruple, 8 1/2" long. Triple, 6 1/2" long;
 Dual, 4 1/2" long.

Code No.	List Price	YOUR COST
MDS—2 units, 370 mmfd....	\$6.50	\$3.87
MTS—3 units, 370 mmfd....	9.50	5.59
MQS—4 units, 370 mmfd....	12.50	7.35

"HQS" Shields

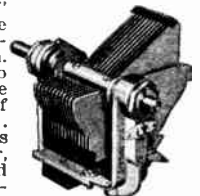
Made in two handy sizes for laboratory and experimenter. Partition of HQS-2 can be removed to form one large compartment, if desired. Heavy sheet aluminum sides, sliding into grooved aluminum posts, held firmly by screws.

The HQS-2 Shield has two compartments, 3 1/4" x 8 1/2" x 5 1/2" high, inside measurements. The HQS-1 Shield has only one compartment of same overall size. Supplied knocked down. Easily assembled.

Code No.	List Price	YOUR COST
HQS-2	\$4.00	\$2.35
HQS-1	2.50	1.47

Improved "Midline" Condensers

The Improved "Midline" Condenser utilizes the newly perfected "Parmica" low loss insulation. Four years of leadership attest to the remarkable engineering perfection of "Midline" Condensers. Special shaped brass plates, full floating rotor, removable shaft, ball and cone bearings, bronze pig-tail, rib-reinforced aluminum alloy frame. Tested on 1000 volts AC.



Code No.	Capacity	Maximum	List Price	YOUR COST
ML-23	—0005 mfd.	.....	\$5.50	\$3.24
ML-17	—00035 mfd.	.....	5.25	3.09
ML-11	—00025 mfd.	.....	5.00	2.94

"Hammarlund" Short-Wave Manual

Complete descriptions of the new "Hammarlund" De Luxe Short-Wave Kit and other circuits for AC and battery operation. Contains 32 pages of Short-Wave data of general utility. Includes list of short-wave broadcasting stations, world time chart, wave-length-frequency conversion table, operating hints and short-wave theory and diagrams.

Code SWM—10c

Improved Short-Wave Condensers

New and Better in Every Feature



"Hammarlund" Short-Wave condensers have always been preferred by short-wave experts. Now, with the perfection of new features their leadership is more firmly established than ever before as they possess many advantages hitherto unavailable.

Extra Heavy Wide-Spaced Plates. Smooth, Easy Tuning.

A constant impedance, double-wiping contact does away with the objectionable inductive reactance of the conventional pigtail. Provides absolutely noiseless adjustment of capacity. "Midline" shaped plates facilitate station separation.

Code No.	List Price	YOUR COST
MLW-150—150 mmf.	\$5.00	\$2.94
MLW-125—125 mmf.	5.00	2.94
MLW-100—100 mmf.	5.00	2.94

Equalizer

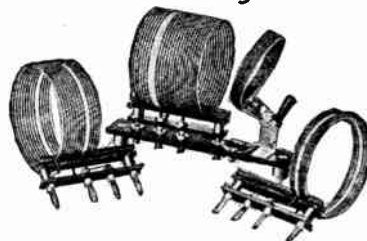


A sturdy, accurate neutralizing, balancing or trimming condenser—very small and compact—for use in balancing multiple-tuned circuits or equalizing separate condensers "ganged" for single control.

Adjustment of center screw provides even, gradual capacity change over a wide range. Fits into recesses in multiple condenser frames or may be attached directly to binding post of socket or condenser. Parmica base, mica dielectric, heavy phosphor-bronze spring plate.

Code No.	Capacity	List Price	YOUR COST
EC-35	—Capacity 2 to 35 mmfds., each	.....	\$0.50 \$0.30
EC-80	—Capacity 20 to 100 mmfds., each	.....	.60 .36

Short-Wave Plug-In Coils



The LWT-4 Coil Set, with adjustable primary, covers the 15-110 meter range with a 125 mmfd. condenser. Four coils are used to provide more liberal overlap and to permit the use of a smaller tuning condenser and consequently affording the higher L to C ratio required for greatest receiver efficiency. A special coil is available to extend the range to 200 meters.

Superior results will be obtained using the "Hammarlund" MLW-125 Short-Wave condenser but any condenser of this approximate size may be used.

Code No.	Description	List Price	YOUR COST
LWT-4	Base and Tuning Coil for 20, 30, 40 and 80 meter bands	\$12.50	\$7.35
LWT-B	Base only	3.00	1.77
LWC-1	Coil set consisting of LWC-B Base and 1 each LWT-20, 30, 40 and 80 coils	11.00	6.17
LWC-B	Same as LWT-B but without variable primary. Takes 4 prong coils of the LWT type	1.50	.88
LWT-20	Tuning Coil for 20 m. band, 14-24 meters	2.50	1.17
LWT-30	Tuning Coil for 30 m. band, 22-40 meters	2.50	1.17
LWT-40	Tuning Coil for 40 m. band, 36-65 meters	2.50	1.47
LWT-60	Tuning Coil for 80 m. band, 60-110 meters	2.50	1.47
LWT-120	Tuning Coil for 120 m. band, 105-205 meters	3.00	1.77

Short-Wave Plug-In Inductor Coils

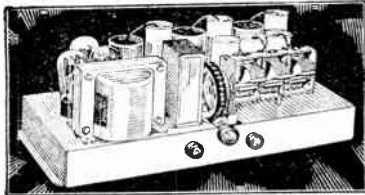
Constructed like coils above, but without tickler or variable primary. Windings correspond to secondary windings of tuning coils. Designed for sets with a stage of R.F. amplification, using standard or "Shield-Grid" tubes.

Code No.	Description	List Price	YOUR COST
LWI-1	Base and inductors for 20, 30, 40 and 80 meter bands	\$7.50	\$4.41
LWI-B	Base only	1.00	.59
LWI-20	Inductor for 20 m. band, 14-24 meters	1.50	.88
LWI-30	Inductor for 30 m. band, 22-40 meters	1.50	.88
LWI-40	Inductor for 40 m. band, 36-65 meters	1.50	.88
LWI-80	Inductor for 80 m. band, 60-110 meters	2.00	1.18
LWI-120	Inductor for 120 m. band, 105-205 meters	2.00	1.18

SM

SILVER MARSHALL PRODUCTS

New Silver 724 Screen-Grid Super



A smashing new Silver Marshall achievement. A superheterodyne Receiver with five 224 screen grid tubes. Eight tuned circuits, two radio frequency and six intermediate frequency. Accurately built circuit assures uniform gain over entire band. An equalized oscillator furnishes uniform output over the whole frequency range.

FINE SELECTIVITY

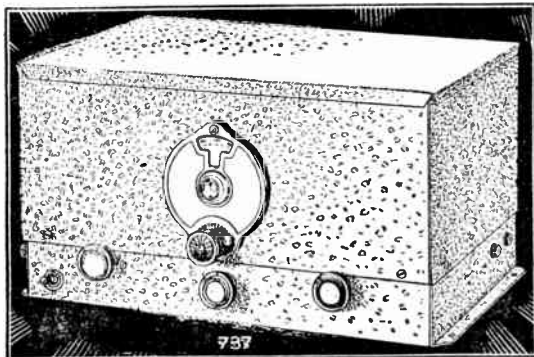
Superheterodyne principles of selectivity and gain with double tuned circuits give unusually high selectivity and remarkable fidelity. Incorporates one 224 in R.F., one as first detector, two in intermediate, one as second detector, one 227 oscillator, two 245 in push pull and one 280. 20 1/2" wide, 10" deep and 7 3/4" high.

ACCURATE TUNING

The intermediate frequency amplifier is assembled as a separate unit, assuring careful tuning and eliminating all possibility of detuning due to variations in the circuit capacity.

	List Price	YOUR COST
Complete kit of parts	\$87.50	\$51.45
SM 724 Factory Wired	99.50	58.50
SM 724 DC Kit	68.50	40.28
SM 724 DC Set Wired	82.50	48.50

SM 737 Short Wave Bearcat



ALL ELECTRIC SHORT WAVE RECEPTION

A new development in AC Short Wave Reception. Built on a rugged steel chassis with all circuits completely shielded. Chokes and filter condensers and power supply circuit are well filtered and hum free. A midge condenser built right into the circuit makes possible spreading of the crowded "ham" bands. The addition of two pairs of 131P and 131Q coils adapts the 737 for performance on the regular broadcast band.

SCREEN GRID AMPLIFICATION

Increased amplification is assured due to the incorporation of the tuned radio frequency screen grid stage and also the screen grid first audio stage, all operated under the convenience of single dial control. Tubes required: two 224, one 227, one 245 and one 280.

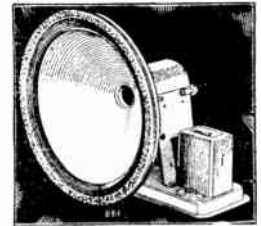
737 KIT PARTS

738 chassis, 315 dual .00014 condenser, two 638 shields, 336 U transformer, four sockets, two 342B condensers, 343 condenser, choke, National Vernier dial, knobs, by-pass condensers, resistors, switch, binding posts, hardware, hook-up wire and table cabinet.

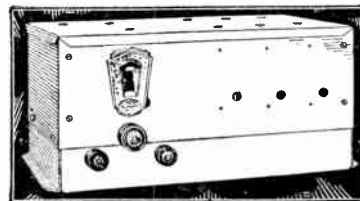
	List Price	YOUR COST
SM 737 Battery Operated DC Kit parts with coils	\$69.50	\$40.86
SM 737 Battery Operated, completely wired and tested, with coils	94.50	55.57
Set of 8 short wave coils for SM 737 covering wave band from 16 to 200 meters	10.00	5.88
SM 737 AC Kit Parts Complete, less coils	119.50	70.27
SM 737 AC Factory Wired and Tested with Built-in Power Supply, Cabinet and eight plug-in coils ranging from 16.6 to 200 meters, less tubes	139.60	82.09

**SM Electro Dynamic Speakers
The 850 Line**

	List Price	YOUR COST
SM 850. For AC. Requires UX 280 rectifier. Without tube	\$45.00	\$26.46
SM 851. For DC requiring field current from 70 to 120 volt DC	33.50	19.70
860 DYNAMICS		
SM 860 Dynamic for AC	60.00	35.28
SM 861. Same as above but for DC	48.50	28.52



SM 714 Tuner



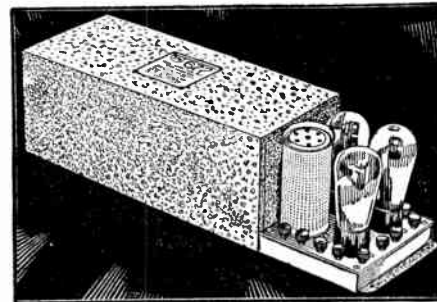
A Superheterodyne tuner only, the output of which may be fed into any standard amplifier although 677B listed below is recommended. The external power supply unit must be capable of giving 16 M.A. at 180 v. and 12 amps. at 2 1/4 v. Ten tuned circuits, four of which are R.F.

EXTREMELY SENSITIVE

Skillfully designed Superheterodyne circuit assures extreme sensitivity and selectivity. Two 224 in the R.F. stage, one as a first detector, and two in the intermediate frequency amplifier. Two 227 in the oscillator second detector.

	List Price	YOUR COST
Complete kit parts	\$76.50	\$44.98
Factory wired and tested. Shielding plates are built up to a clean cut metal cabinet for console installation	87.50	51.45

New SM 677B Two Stage Amplifiers



A combination two stage amplifier and power supply designed especially for use with the 714 tuner. Will supply field excitation for any speaker with resistance of 1800-2000 ohms. Uses one 227, two 245 and one 280.

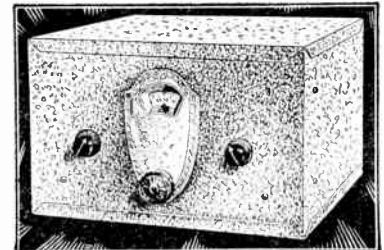
SM 677B Power Amplifier, wired. Less Tubes.

List Price,	\$82.50
YOUR COST,	\$48.50
SM 677B Conversion Kit for converting a 677 amplifier to the "B" type.	
List Price,	\$8.75
YOUR COST,	\$5.14

SM 738 Super Short Wave Converter

Converts any standard receiver for superheterodyne short wave reception. Employs a 224 first detector, 227 oscillator and 226 as rectifier. With four pairs of plug-in coils. Short wave range 18 to 260 meters. SM 738. Wired, less tubes.

List Price,	\$69.50
YOUR COST,	\$40.87
Kit Parts assortment.	
List Price,	\$50.50
YOUR COST,	\$34.99



SM 679 Auditorium Amplifier

A two-stage amplifier. Operates direct from detector output of any standard set and phonograph pickup or single or double button microphone. Operates from four to eight dynamos. Covers two thousand people indoors; five thousand outdoors. Requires one UX 226, one UX 250 and two UX 281 tubes. Factory wired.

List Price,	\$98.50
Your Cost,	\$57.90
(Same in general appearance as 677B, only larger)	

SM SILVER-MARSHALL PRODUCTS



List Price, \$9.00

★225 First Stage Audio Transformer—for use between any standard detector and first audio stage, providing a flat curve up to 5,000 cycles with greater amplification at 32 cycles than at 1,000 cycles. Effective voltage gain 4.3 to 1. Unquestionably the finest A.F. transformer ever manufactured.

Your Cost, \$5.30

★226 Second Stage Audio Transformer—for use with 225, above, between first and second stages, with same characteristics except that it gives a rise in amplifications between 32 and 100 cycles and has a voltage gain of 3.5 to 1. Sharp cut-off between 5,000 and 8,000 cycles. One 225 and one 226 will unconditionally give finer tone quality than any other known audio system used with any standard tubes.

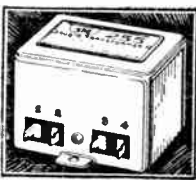
List Price, \$9.00

Your Cost, \$5.30

★223 Hi-Mu Audio Transformer—for use between UX-222 first stage screen grid tube, space charge detection and any standard power tube. Provides absolutely flat curve from 32 to 5,000 cycles with average voltage gain of 42 per stage.

List Price, \$9.00

Your Cost, \$5.30



transformer except ratio 4.2 to 1.

List Price, \$6.00

Your Cost, \$3.53

★255 First Stage Audio Transformer—Used between detector and first audio stage, it provides a rise in amplification between 65 and 300 cycles and is then a perfectly flat characteristic to 8,000 cycles. Guaranteed superior to any other S-M 225. Effective

★256 Second Stage Audio Transformer—A companion to 255 for use in second stage to provide a similar curve. Effective ratio 3.5 to 1. One 255 and one 256 will give finer reproduction than any other known audio system excepting only the S-M 225 and 226.

List Price, \$6.00

Your Cost, \$3.53

★255R Transformer—Similar to the S-M 255, S-M 255R has an extra primary tap for use with 2,000-ohm phonograph pickups.

List Price, \$7.00

Your Cost, \$4.12

★255M Transformer—The 255M is exactly the same as the 255 standard except for the addition of a midtap microphone winding, which may be used with either single or double-button 200-ohm microphone. It may, therefore, be used with either pickup, radio, or microphone input and is in fact used in this manner in the 630 amplifier.

List Price, \$8.00

Your Cost, \$4.71

★255P Transformer—Same as 255R but for phonograph pickup use only.

List Price, \$6.00

Your Cost, \$3.53

★270 Push-Pull Input—With its extremely low 1 to 1 ratio, this transformer is ideal for working out of the first audio tube into power tubes. The curve is practically flat from 40 to 8,000 cycles—a truly remarkable achievement, permitting astonishing tone fidelity in any amplifier in which it is used.

List Price, \$5.00

Your Cost, \$2.94

★257 Push-Pull Input Transformer—A push-pull input transformer designed to operate between one standard amplifier tube and two voltage or power amplifier tubes of any standard type. Its effective transformation ratio is 1.8 to 1 and its frequency characteristic is flat from 45 to 8,000 cycles when operated out of one standard amplifier tube and when feeding into two standard power tubes. Housed in same case as type 227. Shipping weight, 2 lbs.

Price List, \$7.00

Your Cost, \$4.12

★258 Push-Pull Output Choke—Specifically designed to couple two UX171A or UX245 tubes in push-pull to any standard loud speakers. The core will not saturate at plate currents of the UX171A, or of the UX245 power tubes. Constructed to obtain maximum undistorted power output. Fully mounted in 255 case. Shipping weight, 2 lbs.

Price List, \$5.00

Your Cost, \$2.94

★227 Push-Pull Interstage—Couples two standard tubes to two power tubes.

List Price, \$8.00

Your Cost, \$4.70

★228 Output Choke—Couples Push-Pull output to 1 to 8 speakers.

List Price, \$8.00

Your Cost, \$4.70

★229 Dynamic Speaker Output Transformer—A Universal output transformer designed to couple one or two standard power tubes singly or in push-pull to the moving or voice coil of any standard dynamic speaker under conditions of maximum undistorted power output. It is equipped with impedance matching taps, allowing it to operate out of one 112, 171, 210, 245 or 250 type tube, or if preferred, out of two of any of the above type tubes in push-pull. Housed in same case as type 227 transformer. Shipping weight, 2½ lbs.

Price List, \$8.00

Your Cost, \$4.71

★233U Universal Output—Three windings and twelve lugs for matching impedance. Will work out of '71, '45 or '50 tubes singly or push-pull and into voice coils on up to 8 speakers. Also line output transformer.

List Price, \$12.00

Your Cost, \$7.06

★234 Push-Pull Output—For '71, '45, or '50 type tubes. Low impedance. Open core type.

List Price, \$8.00

Your Cost, \$4.70

★ Denotes Clough System Transformers

New Shielded Coils

Efficient low loss design. Adaptable to all circuits and wave lengths up to 3000.

Type and Range	YOUR COST
113 Coil Form only with springs and rotor	\$1.03
121, 200 to 550 meters, .00035 mfd.	1.53
122, 200 to 550 meters, .00035 mfd.	1.18
123, 200 to 550 meters, .00035 mfd.	1.53
124, 200 to 550 meters, .00035 mfd.	1.53
125, 200 to 550 meters, .00035 mfd.	1.53
126, 200 to 550 meters, .00035 mfd.	1.53
130 P Plain Coil form with contact pins	.38
130 T Coil Form 98½ threads	.38
131 L 16.6—31.0 meters, .00014 mfd.	.73
131 M 30.0 to 56.7 meters, .00014 mfd.	.73
131 N 55 to 104 meters, .00014 mfd.	.73
131 Q 103 to 195 meters, .00014 mfd.	.73
131 P 163 to 343 meters, .00014 mfd.	.73
131 Q 273—592 meters, .00014 mfd.	.88

S-M 314 Variable Condenser

For short wave work. Single unit. Capacity, .00014 mfd.

List Price, \$3.75

Your Cost, \$2.21

★315 Dual Condenser—Two gang; modified SLF-SLW; variable condenser. Capacity each sec., .00014. 2¼ x 3½ x 5½ in.

List Price, \$7.50

Your Cost, \$4.41

★325 Triple Condenser—SLF-SLW, each sec., .000007 to .00035.

List Price, \$10.50

Your Cost, \$6.17

★316 New 5-Gang Condenser—A .00035 variable condenser.

List Price, \$15.50

Your Cost, \$9.11

★337U Power Transformer—S-M 337U has a 115-volt primary tapped for 75 volts, and a 750 volt, mid tapped, 100 m.a. secondary, also one 5-volt, 2 amperes; one 2.5-volt 9 amperes; and one 2.5-volt, 3.5 ampere secondaries. The 75-volt tap permits operation with primary voltage regulator. The transformer will supply 100 m.a. at 400 volts into suitable filter circuit or enough for a receiver and speaker field. Weight, 9 lbs., 4½" long.

List Price, \$16.50

Your Cost, \$9.71

★338U—High inductance filter choke with resistance of 2100 ohms, inductance 40 henries at 20 m.a. 2½ x 2 x 2".

List Price, \$3.50

Your Cost, \$2.06

★339U—Low inductance filter choke with DC resistance of 108 ohms. Inductance 4 henries at 50 m.a. 2½ x 2 x 2".

List Price, \$3.50

Your Cost, \$2.06

★331 Unichoke—A two-winding high inductance filter choke licensed under the Clough Patent Application. Its filtration when properly used is guaranteed to be superior to that of any other standard filters. Tuned section eliminates 120 cycle ripple. Only 7 mfd. condenser capacity necessary instead of the usual 12 used by others. May also be used as a line output transformer for coupling an amplifier tube to a telephone line. Inductance of primary 2 henries; secondary 30 henries at 110 m.a. load. Air gap prevents saturation. Continuous rating of 125 m.a. may be doubled for short periods. DC resistance of primary 4.85 ohms; secondary 395 ohms. With electrostatic shield and soldering lugs as illustrated. Shipping weight, 5 pounds.

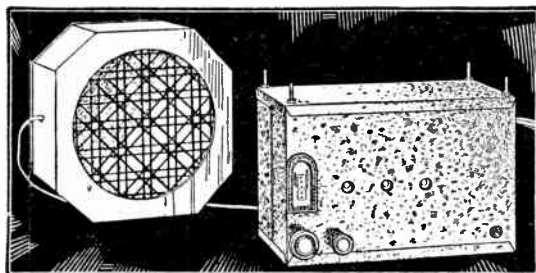
List Price, \$8.00

Your Cost, \$4.71

We Can Furnish Anything Silver-Marshall Makes—Send Us Your Order

SM THE OUTSTANDING AUTOMOBILE RADIO

No. 770 Auto Set and Speaker



A battery operated auto receiver, built to stand the gaff and give real reception. 6 1/4 in. deep, Only 12 in. long, 7 1/2 in. high and snugly fitting under

cowl, mounted on brackets—no mutilation of instrument panel. Sensitive and selective, with positive direct control. Convenient, highly decorative illuminated dial. Ideal for motorboat and aeroplane installation where a remote control coupling unit is not necessary.

The 770 "Auto-Set" kit—Chassis, cabinet and shielding assembly, 3-gang condenser, condenser block, 2 chokes, R.F. coils, cable, key switch, dial, transformer, escutcheon, knobs, sockets, resistors, .025 condensers, by-pass condensers, potentiometer, and all necessary hardware. Uses three 224, one 112A and one 171A tubes.

The S.M. 770 "Auto-Set" kit of parts.

List Price, \$61.40 **Your Cost, \$36.11**
770 "Auto-Set," factory wired and tested.

List Price, \$79.50 **Your Cost, \$46.75**
771 "Auto-Set" accessories: eight suppressors, one ignition coil, mounting brackets, wire and filter condensers.

List Price, \$17.50 **Your Cost, \$10.29**
771R—Same as 771, but with four inch longer mounting brackets.

List Price, \$18.00 **Your Cost, \$10.58**
870 "Auto" Magnetic Speaker

Designed for use with 770 "Auto-Set." Takes maximum output of 171A tube. Octagonal case of three-ply brown mahogany. 9 1/2" wide, 3" deep.

List Price, \$15.00 **Your Cost, \$8.82**

Extra Resistors

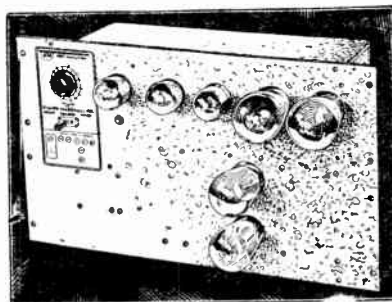
4765 resistor with terminal arrangement for quick connection to ignition coil or distributor head.

List Price, \$1.50 **Your Cost, 88c**

4766 resistor as suppressor on spark plugs.

List Price, \$1.25 **Your Cost, 73c**

SM 690 Power Amplifier



The popular Theatre Amplifier, AC operated on three stages, two of which are push-pull. The 690 provides the possibility of covering hundreds, or even thousands of people, indoors and outdoors, with amazing tone fidelity and volume. Obtains its operating power from any 105 to 120 volt, 50 to 60 cycle source.

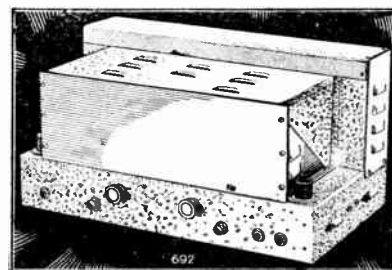
For Record-Radio and Public Address

The 690 Amplifier is intended for voice, radio or record reproduction. It is equipped for connection to radio, pickup or a single or double button microphone. Will develop an undistorted power output of approximately 15 to 16 watts and will operate from 1 to 20 electro-dynamic speakers, or up to 300 magnetic speakers. Requires one 227, two 226, two 250 and two 281 tubes.

	List Price	YOUR COST
S.M. 690 factory wired and tested, less tubes.	\$215.00	\$126.42
Identical to 690 but with low impedance output for working directly into dynamic speaker voice coils. Less tubes.	215.00	126.42

692 Auditorium Amplifier

The new all-electric power amplifier, having an undistorted output of 15 to 16 watts. Tubes shielded by heavy gauge guard. Power equipment is mounted on upper side of chassis, minimizing hum.



Fidelity of Reproduction

Perfect fidelity of reproduction assured through uniform amplification of the higher harmonics in the range of from 5000 to 10,000 cycles. "Universal" input; no distortion. Uses one 224, one 245, two 250 and two 281 tubes.

	List Price	YOUR COST
S.M. 692—Wired and tested, less tubes....	\$245.00	\$144.00
Same as 692, but with panel for rack mounting	250.00	147.00
10x21" black panel for 692 amplifier.....	5.00	2.94

Replacement Parts

251 Output Transformer or Impedance—A combination output unit adjustable to match any standard power tube and giving a new standard of performance to any amplifier with 112 or 171 type tubes.

List Price, \$6.00 **Your Cost, \$3.53**

220 Audio Transformer—An all-stage transformer providing substantially straight line amplification from 30 to 5,000 cycles. Ratio 3 to 1. Sharp cut-off above 5,000 cycles. The largest selling high grade transformer ever made! Shipping weight, 4 lbs. 6 oz.

List Price, \$8.00 **Your Cost, \$4.71**

221 Output Transformer—For use between speaker and power tube in any radio receiver to prevent blasting and damage to speaker, and to improve reproduction. Ratio 1. to 1.89. Shipping weight, 4 lbs. 4 oz.

List Price, \$7.50 **Your Cost, \$4.41**

275 R.F. Choke—To keep R.F. currents from going astray. Polished moulded bakelite case. Impregnated winding. Inductance 2 1/2 Mh. For use up to 600 meters. Shipping weight, 2 oz.

List Price, 90c **Your Cost, 54c**

276 R.F. Choke—Same as 275 except for use above 600 meters. Inductance 10 Mh. Shipping weight, 2 oz.

List Price, \$1.00 **Your Cost, 60c**

277 R.F. Choke—Specially designed for use below 200 meters. Low distributed capacity and better short wave qualities than any competitive choke. Used in S-M "Round the World Four" Kit. Shipping weight, 2 oz.

List Price, \$1.50 **Your Cost, 88c**

278 Needle Scratch Choke—With .0075 mfd. condenser. Cuts out needle scratch of phono pickup.

List Price, \$1.50 **Your Cost, 88c**

281U R.F. Choke—An unmounted choke coil having an inductance of 2 millihenries. Used in the 724 and 714 receivers. One hole mounting with two lugs.

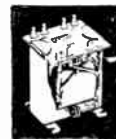
List Price, 75c **Your Cost, 45c**

247 Filament Transformer—For use in heating A.C. tube filaments. Supplies 1.5 volts at 5 amps.; 2 1/2 volts at 3 1/2 amps., and 5 volts at 1 amp. Ideal for use with A.C. harnesses. Shipping weight, 2 1/2 lbs.

List Price, \$5.00 **Your Cost, \$2.94**

249 Filament Transformer—Has two 2 1/2-volt secondaries only, one of 3 amperes capacity and one having 9 amperes capacity. Fine for furnishing necessary additional filament supply for converting battery sets to AC type, or for changing early AC type receivers to use of screen-grid tubes and 245 type power tubes as both types use 2 1/2-volt AC supply. Same size as 247.

List Price, \$5.00 **Your Cost, \$2.94**



"HAMMARLUND" SCREEN-GRID COILS

"Hammarlund" Screen-Grid R.F. Transformers are made from the famous low-resistance Hammarlund space-wound, self-supporting coil material. They are designed to meet the most exacting standards. Three taps on primary enable the balancing of selectivity against usable amplification and permit easy adaptation to all Screen Grid Circuits. The Antenna Coupler has three primary taps for varying degrees of selectivity and pick up.

Code No.	Shield Grid R.F. Transf. for .0005 mfd. condenser ...	List Price	YOUR COST
SGT-23	Shield Grid R.F. Transf. for .0005 mfd. condenser ...	\$2.50	\$1.47
SGT-17	Shield Grid R.F. Transf. for .00035 mfd. condenser ...	2.50	1.47
AC-23	Antenna Coupler for .0005 mfd. condenser ...	2.50	1.47
AC-17	Antenna Coupler for .00035 mfd. condenser ...	2.50	1.47

New Screen-Grid Tube Shield



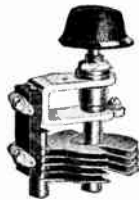
The new "Hammarlund" Screen-Grid Tube Shield is designed with special cutouts for maximum cooling of the tube by up-draft of air and at the same time provides the full extent of shielding required for most efficient operation. Aluminum shell and base, with soft rubber grommet at the top to protect the control grid outlet. Designed for use with subpanel sockets.

Mounting screws and control grid connector packed with each shield.

Code TS—List Price, 80c each.
Your Cost, 47c

Jr. Midget Condenser

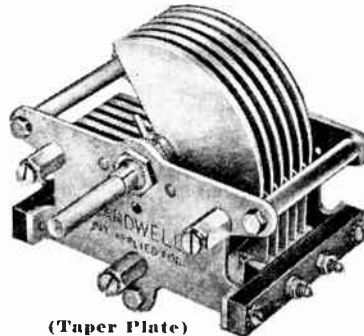
The ever popular "Hammarlund, Jr." Midget Condenser, greatly improved with Hammarlund "Far-mica" dielectric. Soldered brass plates—cone bearing—one hole panel or baseboard mounting. Locking device fixes rotor plates in any position. Many uses are shown in circular packed with each condenser.



Code No.	List Price	YOUR COST
MC-5 16 mmfd.	\$1.50	\$0.88
MC-9 32 mmfd.	1.50	.88
MC-11 50 mmfd.	1.75	1.03
MC-15 65 mmfd.	2.00	1.18
MC-23 100 mmfd.	2.25	1.33

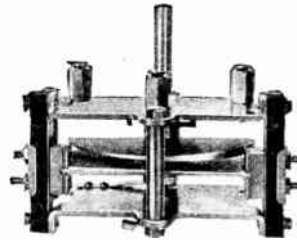
(Price includes Bakelite Knob)

CARDWELL RECEIVING CONDENSERS Type "E" Condensers



(Taper Plate)

In the Type "E" condenser, a stiffness is obtained which has heretofore been unequalled and the calibration or log of a set using these condensers will remain absolutely the same for all time. This condenser is particularly well adapted for short wave receivers due to the extreme rigidity of the plates.



Type 201-E

The 201E—The Stator Plate is adjustable to afford capacities from 50 to 10 mmfds. (Constant minimum, 7 mmfds.)

FOR SHORT WAVE RECEIVERS

We recommend for short wave receivers the Types 201-E, 191-E, 167-E, 159-B, 188-B, 154-B, 191-C, 167-C, 168-C, and call to your attention particularly the 201-E with two plates which may be double spaced, affording a low capacity with the rigid construction that makes the Taper Plate Condenser unequalled for short wave receivers.

Type No.	No. Plates	Capacity	List Price	YOUR COST
201-E	2	.000050	\$4.00	\$2.36
191-E	3	.000010	4.00	2.36
167-E	5	.00015	4.00	2.36
168-E	7	.00022	4.25	2.50
169-E	11	.00035	4.75	2.80
192-E	15	.0005	5.00	2.94

*Stator plate adjustable.
*Double units special and subject to quotation.

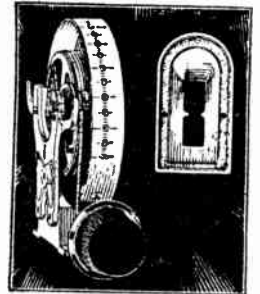
Single units with extended shaft for single control of gangs.

\$1.50 extra. Your Cost, 90c
Mounting feet for baseboard mounting
Your Cost, 20c pair

SILVER MARSHALL

S-M Drum Dial—810R or 810L

A vernier drum dial. Die cast metal drum, and translucent scale and light socket 4" diam., 1 1/8" wide. With knob, but less escutcheon plate and light. Bracket at right. Bracket at left.



List Price, \$3.75
Your Cost, \$2.21
807 Drum Dial Window

List Price YOUR COST

For above dial. Antique brass. 2 3/4" x 1 1/8". \$0.50 \$0.29

812 Escutcheon Plate. For above dial. Bronze. Modernistic design 1.25 .73

626 Tube Shield. Round pierced type with base. 5" high; 2 1/8" diameter.50 .29

638 Stage Shield. Compact copper 4 1/2 x 5 1/2 x 2 3/8". Pierced bottom; removable sides and top 1.50 .88

511 Tube Socket. 4 prong moulded bakelite socket for UX tubes50 .29

512 Tube Socket. Like 511, but for 5-prong A.C. tubes and SM-130 type coils.60 .35

340 Midget Condenser. For compensating, balancing, antenna coupling, etc. .000003 to .000025 1.50 .88

342B Midget Condenser. Like 340, but .000004 to .000075. 1.75 1.03

343 Midget Condenser. A small three plate condenser. Similar to 340. With knob. 1.25 .73

Type 337U Power Transformer. With secondary voltages of 750 volts at 110 M.A., 5 volts for 80 type rectifier tube, 2 1/2 volts at 9 M.A., 2 1/2 volts at 3 M.A. Open mounting 16.00 9.41

Type 346. Shielded power transformer used in the S.M.-724. Secondary voltages 820 v. at 110 M.A., 5 v. for 80 type rectifier 15.00 8.82

Type 329BU. With secondary of 440 v. at 85 M.A., 5 v. at 2 amps., 2 1/2 v. at 3.5 amps., and 1 1/2 v. at 5 amps. 10.00 5.88

THE NEW DUBILIER SCREEN-GRID DURATRAN

(Untuned Radio Frequency Transformer)

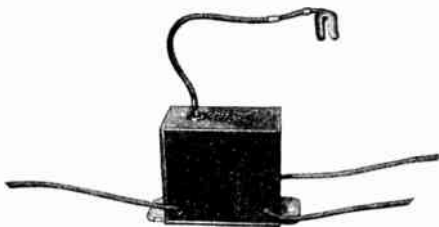
A new development in untuned radio-frequency transformer construction, of particular interest to set-builders.

Features:

- (1) An untuned interstage radio-frequency transformer for use with screen-grid tubes—Types 222 and 224.
- (2) Relatively high gain per stage.
- (3) Uniform amplification over broadcast waveband.
- (4) Amplification equivalent to that of a tuned radio frequency amplifier system.

- (5) Costly shielding problems practically eliminated.
- (6) Elimination of after-assembly service-charges that are usually encountered with unbalanced tuned R.F. stages.
- (7) Savings in balancing, testing, and shielding, permit large manufacturing economies.
- (8) For use in standard receiving sets for home, portable, automotive, and marine use.

List Price, \$4.50 Your Cost, \$2.70



PL-200
The New Dubilier Screen-Grid Duratran

Beautiful Cabinets and Combinations for Phonographs

Fairfax Model 177



Furniture which is useful for other purposes in combination with radio has recently shown a decided popularity, particularly in the apartment sections of the larger cities. This Governor Winthrop desk is an ideal combination of a most useful desk and radio cabinet. Dimensions: 40" high. Set compartment: 9" high, 23½" wide, 13" deep.

List Price, \$87.50
Your Cost, \$51.45

Chalet Model 173

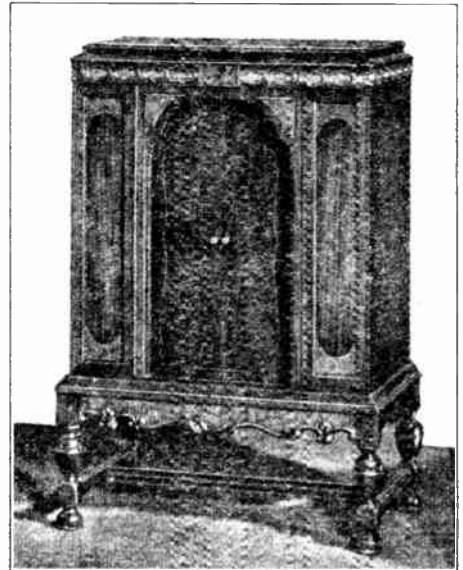


A small radio chest in French Provincial design made of Beech and finished in the manner peculiar to that period—now the most popular of all period designs.

Dimensions: Overall height, 31". Set compartment: 8" high, 22" wide, 13" deep. With provision for speaker at the bottom.

List Price, \$37.50
Your Cost, \$22.05

Model 162



Model 162—The lowboy cabinet of standard type with sliding doors is still one of the most popular types of radio cabinet. This model, massive in design—well constructed and beautifully finished—is adaptable to most any set. Dimensions 43" high. Set compartment: 13½" high, 26" wide, 13½" deep.
List Price, \$75.00
Your Cost, \$44.10

Blackstone Model

In this fine console we have the traditional sturdiness and massive ornamentation of the Jacobean period. Superbly finished body of specially selected Walnut with swirling Burl Walnut grain in a lighter tone on the doors. Especially approved by Hammarlund acoustical experts. 49½" high, 29" wide, 18" deep.



List Price, \$120.00
Your Cost, \$70.56

Windsor Model

This rugged cabinet of Tudor design is the special choice of Hammarlund engineers for the "HiQ-30" Radio-Phonograph combination. Contains record compartment and ample space for all mechanism. Original Walnut body with lighter toned side-panels and Burl Walnut sliding doors. Richly carved and beautifully finished. 49½" high, 32" wide, 20" deep.



List Price, \$140.00
Your Cost, \$82.32

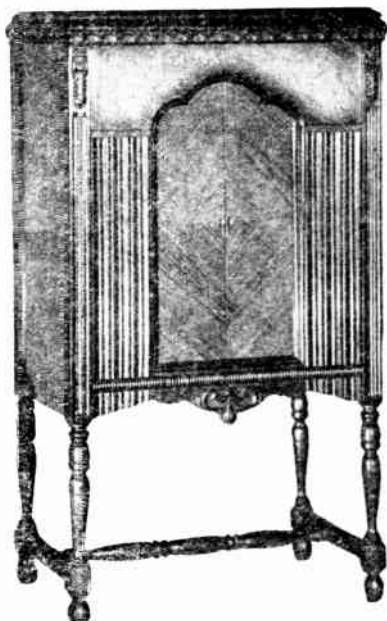
Duncan Model 178

A most unusual, decorative and original type of furniture for use with radio. Ideal for those with limited space where the radio cabinet must serve a dual purpose. Duncan Phyfe design in Mahogany. Dimensions: 33" high. Set compartment: 12" high, 29" wide, 13" deep.



List Price, \$65.00
Your Cost, \$38.22

Superior Combination Cabinet



This cabinet is very finely constructed from Walnut Veneer. The sides and top are of Striped Walnut. The doors are sliding doors and contain Diamond Match Walnut with an overlay of Birdseye Maple, while the side pilasters are linen fold moulding.

The top is built to receive the pickup and phonograph motor, while the record compartment is on the lower right hand side of the cabinet, opening outward.

The set compartment is on the top and the speaker compartment, having a beautiful tapestry grill, is on the bottom.

List Price, \$70.00
Your Cost, \$41.16

Same cabinet, furnished without compartment for pickup and motor—

List Price, \$55.00
Your Cost, \$32.34

Queen Anne Metal Bench

A Worthy Home Addition

The Queen Anne Bench lends an air of luxurious distinction to the most handsomely appointed modern-day room. The seat measures 12 x 22 in. and is padded to a thickness of 3 in. The over-all height is 26 in. Beauty and comfort at a small investment.

List Price, \$9.00
Your Cost, \$4.35



PILOT KITS and PARTS



Super Wasp A.C. and D.C. Short Wave Kits Bring in "The World"



This latest Pilot Super Wasp Kit has all the features of the earlier models plus the new screen-grid tube circuit. The parts are well made, and can be assembled with a screw driver and a pair of pliers. The kit includes all parts necessary for assembly, including screws, nuts, washers, wire, hardware and a complete set of ten coils. (14 to 500 meters) suitable for either short wave or regular broadcast reception.

Have the thrill of listening to radio stations in all parts of the world. Pilot has refined short wave so that it can be operated by anyone, no technical knowledge needed. Panel and base are metal accurately drilled. Front panel is 18x7½ inches with walnut finish.

Satisfied owners attest that the Super Wasp is the best short-wave receiver because of these qualities: Full A.C. operation; no hand capacity; increased sensitivity and selectivity; and last, but not least, ability to bring in short-wave stations better than all previous receivers. Model K-115—AC model uses SG224 and 3-227 tubes.

List Price, without power pack, \$64.50
Your Cost, \$34.50

Battery model uses 1 S.G. 222 and 3-201A tubes. Requires 6 volt storage battery and 135 volts of B current.

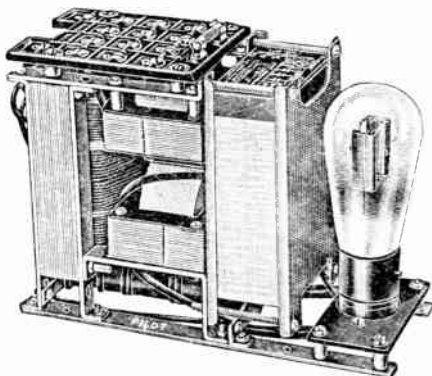
Your Cost, \$29.50

Booster Unit for A.C. Super Wasp

Supplies additional audio stage to A.C. Super Wasp. Increases volume on distant stations and gives exceptional performance on broadcast bands. Uses 171A tube and draws power direct from power pack. All parts supplied for easy wiring.

Model K-120—List Price, \$15.00
Your Cost, \$7.50

K-111 Power Pack, for 171A Tubes



Inside view of K-111 Power Pack, showing rectifier tube in place.

The Pilot K-111 power pack is suitable for use with any receiver employing either A.C. or D.C. tubes in which the total plate current load is not more than 60 milliamperes. It will furnish plate current for one or two 171A's in the last audio position, and for five or six 201A's, 226's or 227's. The direct current output is thoroughly filtered and will cause no noticeable hum in the loud speaker. The maximum available voltage is 220, lower values of 180, 135, 90 and 45 volts also being available. The output resistor which gives these voltages is carefully by-passed by fixed condensers of suitable size.

The power transformer in the pack has three low voltage windings for the lighting of A.C. tubes. The first gives 5 volts at .8 ampere, and will heat three 171A's. The second gives 2½ volts at 6 amperes, and will handle four 227's, or five if the third winding is left idle. This latter winding delivers 1½ volts at 4 amperes, for four 226's.

Power pack for 110 volts, 50-60 cycles—No. K-111, less tube.

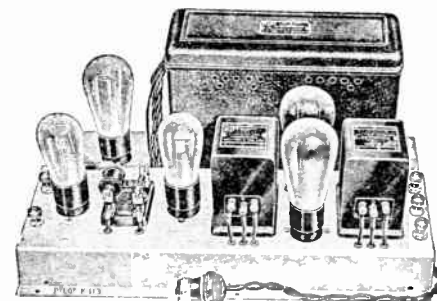
List Price, \$30.00 Your Cost, \$16.50

K-112 for 245 Tubes

Similar to above except larger. Plate voltages at 90 mils—300—180—135—90—45. Provides 5 v. at 2 amps.; 2½ v. at 12 amp., and 2½ v. at 3.6 amp. Requires 280 tube.

List Price, \$39.00 Your Cost, \$19.50

K-113 Push-Pull Amplifier Kit for 245 Tubes



For use in homes or small places where the Public Address Amplifier would be too powerful, we recommend the K-113 amplifier, supplied in kit form. This consists of the K-112 power pack, which is already wired, and an aluminum base panel, drilled for five tube sockets, two push-pull transformers, a Resistoblock, a grid-leak mounting and six binding posts. Despite its lightness, the base panel is extremely rigid, because of the manner in which it is formed. It is 16 inches long and 9¾ inches wide. When the amplifier is completely assembled, it stands 8 inches high.

The first amplifier tube, a 227, is not accompanied by any coupling device, the choice of the input system being left to the constructor.

List Price, \$69.50 Your Cost, \$39.00
Tubes Required—2-P 227, 2-P 245, 1-P 280

"Pre-Selector" Broadcast Receiver



Supplied in kit or "knockdown" form for home assembly, is a deluxe broadcast receiver of the latest and most advanced design.

All the parts of the set are mounted on a formed and drilled aluminum foundation unit or chassis, which already has a fully assembled and wired power pack mounted permanently in place at the left end. Tubes required: Three P-224, one P-227, two P-245, one P-280.

K-126—Complete Pre-Selector A.C. Kit, Chassis only

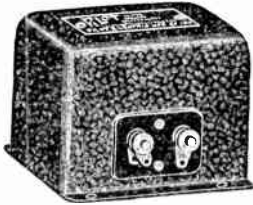
List Price, \$90.00 Your Cost, \$49.50

K-128—Complete Pre-Selector Kit, including Cabinet as pictured

List Price, \$98.50 Your Cost, \$55.50

PILOT PRODUCTS

No. 412 Series Transformers and Chokes



Can be mounted on the underside of sub-panels, the one-piece steel cases being only 2 7/8" square and 2 1/2" high. They are neatly finished in black lacquer, and have mounting feet.

No.	Description	List Price	YOUR COST
No. 412	Audio Transformer, 2-1 ratio	\$2.50	\$1.35
No. 413	Audio Transformer, 3 1/2-1 ratio	2.50	1.35
No. 392	Audio Output (Choke and Cond.)	3.25	1.75
No. 418	Output Transformer	2.50	1.35
No. 414	30-henry 45 M.A. Choke	2.50	1.35
No. 415	30-henry Output Choke	2.50	1.35

No. 422 Series 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, 2 1/2" wide and 2 7/8" 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.

No.	Description	List Price	YOUR COST
No. 422	Large metal case transformer, 2-1 ratio	\$4.50	\$2.50
No. 423	Large metal case transformer, 3 1/2-1 ratio	4.50	2.50
No. 426	Push-pull input transformer, 2-1 ratio	5.25	2.90
No. 427	Push-pull output transformer	5.25	2.90
No. 424	30-henry filter choke, 60 milliamperes cap.	3.60	2.50

No. 381 Series Transformers

The No. 381, No. 408 and No. 409 transformers are the same electrically as the No. 422, No. 426 and No. 427, but are supplied in a case that is 2 7/8" square and 3 1/4" high. The smaller base area makes them useful in many sets where sub-panel space is limited.

No.	Description	List Price	YOUR COST
No. 381	Large metal case audio transformer, 2-1 ratio	\$5.00	\$2.75
No. 408	Large metal case push-pull input transformer, 2-1 ratio	6.00	3.50
No. 409	Large metal case push-pull output transformer	6.00	3.50

Write for Information on New Pilot Auto Receiver

"JUMBO" POWER UNITS FOR 245 TUBES

"JUMBO" TRANSFORMER No. 411 (Same in appearance as No. 398)

The No. 411 transformer has three filament windings (not center-tapped) and one plate winding. The first filament secondary gives 2 1/2 volts at a maximum of 12 amperes (enough for as many as seven 224's or 227's); the second, 2 1/2 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.

List Price, \$11.50 Your Cost, \$5.90

"JUMBO" FILTER CONDENSER BLOCK FOR 245 TUBES

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.

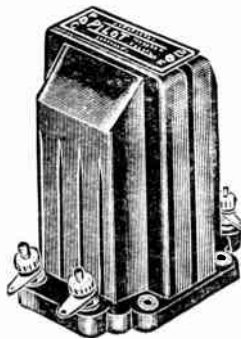
List Price, \$11.50 Your Cost, \$6.00

"JUMBO" DOUBLE CHOKE No. 431 FOR 245 TUBES

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.

List Price, \$9.00 Your Cost, \$4.00

No. 390 Series Transformers and Chokes



For a straight 2-stage amplifier, the best combination is a No. 391 in the first stage and a No. 390 in the second, with a P-171A output tube. A better combination would use a No. 391 in the first stage, with a No. 399 feeding two P-171A's in push-pull and the tubes feeding the loud speaker through a No. 401 output impedance.

The bakelite case is 3 1/4" high and approximately 2 3/8" square.

No.	Description	List Price	YOUR COST
No. 390	Audio transformer, 2-1 ratio	\$2.75	\$1.50
No. 391	Audio transformer, 3 1/2-1 ratio	2.75	1.50
No. 394	Audio output transformer	2.50	1.95
No. 399	Push-pull input transformer	3.00	1.75
No. 401	Push-pull output impedance	3.00	1.75

"JUMBO" POWER UNITS FOR 171A TUBES

Ideal for Replacement Units in Commercial Sets

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. Are all 5 1/2" high, 5" long and 3" wide.



The No. 398 transformer has five secondary windings, all with center-tap connections. They are rated as follows: 1 1/2 volts at 6 amperes; 5 volts at .8 ampere; 5 volts at 2 amperes; 500 volts at 60 milliamperes.

List Price, \$9.50 Your Cost, \$5.00

The No. 396 filter condenser block comprises sections of 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.

List Price, \$9.50 Your Cost, \$5.00

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.

List Price, \$6.50 Your Cost, \$3.50

No. 387 "B" Transformer for 171A Tubes

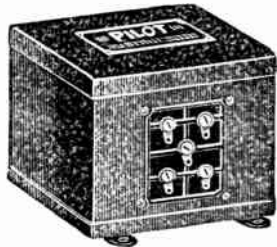
The No. 387 "B" transformer is designed for power packs using either the 280 or Raytheon type of rectifier tubes. It has two secondary windings, one giving 5 volts at 2 amperes for lighting the filament of the 280 tube, or the 171A's in the receiver; and the other giving 275 volts across each of two 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 which every 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.

List Price, \$6.00 Your Cost, \$3.00

PILOT PRODUCTS

"Jumbo" Power Units for 250 Tubes



No. 441 transformer has two secondaries: 7½ volts, at 3½ amperes, to light the filaments of the 281's, and 1200 volts, center-tapped, at 140 milliamperes,

for the plate voltage of one or two 210 or 250 tubes. If a suitable output resistor is used the power pack can also supply plate current to the tubes used in the tuner portion of the receiver.

List Price, \$23.00 Your Cost, \$12.00

No. 444

(Same in appearance as No. 441)

No. 444 condenser block has three sections: 2 mf. and 3 mf., 900-volt working, 5,000-volt flash test, and 3 mf., 650-volt working, 3,600-volt flash test. These high working voltage ratings guard against breakdowns in service when peak voltages are encountered.

List Price, \$23.00 Your Cost, \$12.00



The No. 443 choke has an inductance of 32 henries at 145 milliamperes.

List Price, \$13.50
Your Cost, \$7.00



Resistors for "Jumbo" Power Units

To complete a power pack using the new 250 units, it is necessary to have special heavy-duty resistors. The main dividing resistor used in the Public Address Amplifier has a total resistance of 39,000 ohms, with a tap which divides the units into two sections of 12,000 and 27,000 ohms. The second resistor has a resistance of 47,000 ohms and has no taps. Both resistors are wound on insulating tubing 4½ inches long and ¾ inch in diameter. Connections to the wire are made by means of straps encircling the tubes.

List Price YOUR COST

No. 970—Tapped resistor, 39,000 ohms	1.50	.75
No. 969—Resistor, 47,000 ohms	1.50	.75

Filament Lighting Transformers

No. 386—There is a wide demand for separate transformers for heating the filaments of AC tubes. They are particularly useful for "electrifying" old battery type receivers. Pilot makes two such transformers.

The first transformer, the No. 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.

List Price, \$6.00 Your Cost, \$3.00

No. 407—The second transformer, the No. 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.

List Price, \$6.00 Your Cost, \$3.75

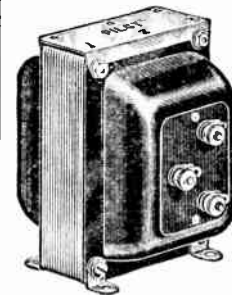
Filament Lighting Transformer No. 446 for 250 Tubes

The No. 441 power transformer is not provided with filament windings for the 250 tubes, the use of a separate heating transformer being very advisable because of the possibility of leakage in a common transformer. The No. 446 transformer serves the purpose. It has the same size can as the No. 411 transformer, and gives 7½ volts at 3½ amperes, for one or two 210's or 250's, and 2½ volts at 8 amperes, for four or five 227's. A separate filament transformer has another advantage in that it can be turned on independently of the plate transformer, thus allowing the tubes to warm up before the high voltage is thrown on. If the two circuits are turned on together, the plate voltage runs very high until the tubes warm properly, endangering the filter condensers and the tubes themselves.

Filament Lighting Transformer for 250 Tubes, AC. No. 446.

List Price, \$11.50 Your Cost, \$6.00

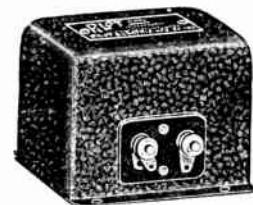
Push-Pull Transformers for 250 Tubes



No. 430—Push-pull Output Transformer. The output transformer is contained in a special large case which is 3¾" high, 2¾" wide, and 3⅝" thick. The secondary winding has a total impedance of 2,000 ohms and is

center-tapped. The impedance between the center-tap and either of the outside connections is 500 ohms. This arrangement permits the most advantageous connection of from one to six dynamic speakers.

List Price, \$15.50 Your Cost, \$8.00



No. 429—Push-pull Input Transformer. Ratio 1:1¼.

List Price, \$10.00 Your Cost, \$5.00

Microphone Coupling Transformer No. 428

Same appearance as 429 above

The No. 428 transformer is used to couple any standard two-button microphone to the first amplifying tube. The primary is accurately center-tapped; the secondary connects directly to the input side of the first tube. This is the same transformer used in the Public Address Amplifier.

List Price, \$10.00 Your Cost, \$5.00

Bakelite Phone Plug No. 275

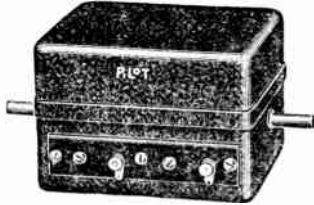
A simple, sturdy plug, to which phone and loud speaker cord tips can be connected in an instant without tools. Will work in all standard jacks. The insulation between the contacts will withstand 500 volts.



List Price, 45c Your Cost, 25c

« « PILOT PRODUCTS » »

“Vaultype” Variable Condensers



The new Pilot “Vaultype” variable condensers are the heaviest and best condensers ever brought out for the set constructor. They are made in single, double, triple and quadruple units, the maximum capacity per section being .000365 mf. The calibration curve is of the “centraline” type, which strikes the best balance for tuning purposes in a broadcast receiver.

Each .000365 mf. section is provided with a balancing condenser, which, because it is grounded to the frame, may be adjusted with the fingers while the set is in actual operation. This feature is a great improvement over older methods which required special long insulated screw-drivers. The insulation between the rotor and the stator is of molded bakelite.

The “Vaultype” condensers are 4” wide and 3 3/8” high, and vary in length as follows: single condenser, 2 7/8”; double, 4 1/8”; triple, 6 1/8”; quadruple, 8 1/8”. The 3/8” shaft extends 3/8” from each end. Any combination of these condensers may be “ganged” by means of the No. 12A condenser couplings.

	List Price	YOUR COST
No. 3021—Single Vaultype condenser	\$3.00	\$1.50
No. 3042—Double Vaultype condenser	6.00	3.00
No. 3063—Triple Vaultype condenser	9.00	4.50
No. 3084—Quadruple Vaultype condenser	12.00	6.00

No. 230 Screen-Grid Plug-in Coils

The No. 230 combination includes four coils in one box. One in an antenna coupler, the other three interstage transformers. The actual coils are enclosed in polished, round aluminum cans, 2 1/2” in diameter and 3 1/2” high, which shield them fully. The bottoms of the cans are equipped with prongs, which fit standard tube sockets. Coming through the tops are short lengths of flexible wire, fitted with caps to snap on the cap electrodes of screen-grid tubes. The antenna coil plugs into a five-prong socket; the others into four-prong sockets. These coils must be tuned by .00035 mf. condensers.

Set of four screen-grid plug-in coils.
List Price, \$9.00 per Set
Your Cost, \$5.00 per set

No. 235 Screen-Grid Coils

The No. 235 coils are similar to the No. 230, being intended for two-stage R.F. circuits. There are three coils to the set; an antenna coupler and two interstage transformers. The tuning condensers must be .00035 mf. each. The shield cans are 2” in diameter and 4” high. The antenna coupler requires a five-prong socket, the others, four-prong sockets.

Set of three screen-grid plug-in coils.
List Price, \$7.50 Your Cost, \$5.00

Condenser Coupling

The No. 12A is made for 3/8” shafts only.

	List Price	YOUR COST
No. 12A—Insulated flexible coupling	\$0.45	\$0.25

Neutrograd Midget Variable Condenser

This 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. Only 1 1/2” wide, 1” to 1 3/4” deep, depending on capacity.

	List Price	YOUR COST
No. J5—.000015 mf. max.	\$0.90	\$0.50
No. J7—.000025 mf. max.	.90	.50
No. J13—.000050 mf. max.	.95	.50
No. J23—.000100 mf. max.	1.40	.60

Micrograd Compression Type Condenser

This is a mica dielectric compression condenser, the capacity being varied by a small slotted knob which can be turned by hand or by a screw driver. Once adjusted, it will hold its capacity indefinitely. Molded bakelite case, 2 1/8” long, 1 1/4” wide, 1 1/2” high, maximum. The VM82 is intended as a variable by-pass condenser.

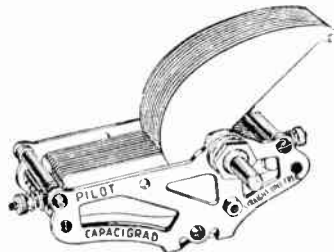
	List Price	YOUR COST
No. VM80—.000006 to .00005 mf.	\$0.90	\$0.50
No. VM81—.000045 to .0005 mf.	1.00	.50
No. VM82—.00015 to .001 mf.	1.25	.50

Adjustograd

The Pilot adjustograd is a small variable resistance with a range from 0 to 1,000 ohms, and is intended for use as an oscillation “suppressor” in tuned R.F. circuits. Dimensions 2 1/8” long, 5/8” wide, 1” high.

Adjustograph, 0-1,000 ohms—No. 1001.
List Price, 50c Your Cost, 30c

Centraline Variable Condensers—1600 Series



The Pilot variable condensers are made of non-corroding brass parts, gold finished, with highly polished aluminum end plates.

The 1600 series is of a modified straight line frequency type. The instruments are supplied with mounting feet and removable shafts, can be mounted on either clockwise or counterclockwise dials. Two or more can be “ganged.”

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.

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.

	List Price	YOUR COST
No. 1611—.00016 mf. max.	\$1.85	\$1.00
No. 1613—.00025 mf. max.	1.95	1.00
No. 1617—.00035 mf. max.	2.20	1.00
No. 1623—.00050 mf. max.	2.10	1.00

No. 236 “Pre-Selector” Coils

The special coils used in the Pre-Selector receiver. The set of four includes one antenna, one band-pass and two interstage coils, wound on Formalite tubes 2 1/2” long and 1” in diameter, and also the four special aluminum shields designed for the coils. These shields are 4” long and 2” square on end, being open on the long side. The coils must be tuned by condensers of .000365 mf. capacity.

Pre-Selector Coils, with Shields.
List Price, \$7.50 Your Cost, \$4.00

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.



	List Price	YOUR COST
No. 601A—Super-Wasp Antenna Coils	\$8.50	\$4.95
No. 601D—Super-Wasp Detector Coils	8.50	4.95

No. 185 Blank Coil Form

With pins and handle. Will fit any standard UY socket.

List Price, \$1.20 Your Cost, 60c

R.F. Choke Coil

The No. 130 is an 80-millihenry radio-frequency choke coil for general use in shortwave and regular broadcast receivers. Its choking effect extends from about 20 meters up to 600, its distributed capacity being very low.

No. 130—List Price, \$1.00
Your Cost, 50c

Fixed Resistors Wire Wound Type



	List Price
No. 961—Resistor, 15 ohms, tapped (for 222 tubes)	\$0.60
No. 967—Resistor, 225 ohms	.60
No. 966—Resistor, 450 ohms	.60
No. 950—Resistor, 900 ohms, center tapped	.60
No. 954—Resistor, 650 ohms	.60
No. 965—Resistor, 750 ohms	.60
No. 955—Resistor, 850 ohms	.60
No. 962—Resistor, 1,000 ohms	.60
No. 963—Resistor, 1,500 ohms	.60
No. 956—Resistor, 1,200 ohms	.60
No. 958—Resistor, 2,000 ohms	.60
No. 951—Resistor, 2,250 ohms	.60
No. 964—Resistor, 3,000 ohms	.60
No. 953—Resistor, 10,000 ohms	.60

Your Cost, 25c each

No. 960—“B” power pack resistor, 12,700 ohms
Your Cost, 90c

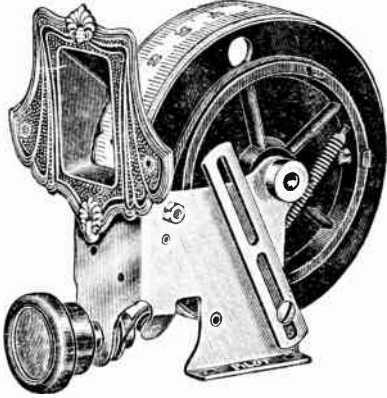
Center-Tapped Resistances

No. 352—Center-tapped resistance, 10 ohms	
No. 354—Center-tapped resistance, 20 ohms	
No. 356—Center-tapped resistance, 50 ohms	
No. 358—Center-tapped resistance, 75 ohms	

List Price, 25c Your Cost, 15c

PILOT KITS and PARTS

Nos. 1285 and 1286 Single Drum Dial



The Nos. 1285 and 1286 are the newest and finest of the Pilot single illuminated drum dials. The mechanism in the two models is the same, the panel plates being different. In the No. 1285 the plate is more or less oblong in shape, while in the No. 1286 it is bell shaped. The plates are of genuine bronze, beautifully decorated with scroll work.

The dial turns easily and smoothly, yet there is absolutely no backlash, even with the largest and heaviest "bath-tub" condensers.

The dial is equipped with a mounting foot, by means of which it can be fastened to the sub-panel or baseboard, in addition to the front panel.

The scale is of white material, with clear, black letters, and is removable. It is illuminated by a small flashlight bulb set in a clamp which is insulated from the frame of the dial.

	List Price	YOUR COST
No. 1285—Single drum dial, oblong panel plate, without lamp	\$2.75	\$1.50
No. 1285L—Single drum dial, with lamp	3.00	1.95
No. 1286—Single drum dial, bell shaped panel plate, without lamp	2.75	1.50
No. 1286L—Single drum, with lamp	3.00	1.95

No. 1283 Illuminated Drum Dial

The No. 1283 dial is smooth running and free of backlash. The panel plate is of rich bronze and looks well against either black or walnut panels. The scale is indirectly illuminated by a small bulb that works off the power transformer of the set. The bearings are substantial and will support the heaviest condensers. The dial will take practically all types and makes of condensers, in single, double or triple-gang units.

	List Price	YOUR COST
No. 1283—Double illuminated drum dial, without bulb	\$5.50	\$2.75
No. 1283L—Double illuminated drum, with bulb	5.75	2.95

Special Non-Inductive Condensers

	List Price	YOUR COST
No. 805—Single non-inductive condenser, 2 mf.	\$0.75	\$0.25
No. 806—Three section condenser, 2 mf. per section	1.50	.75
No. 807—Single .6 mf. size	1.50	.75
No. 808—Single .1 mf. size	.70	.35

Isograds 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. Series 50 supplied in any capacity from .00002 mf. to .01 mf.

List Price, 40c Your Cost, 25c

Volumgrad

The Volumgrad is a smooth action variable resistor designed especially for volume and oscillation control purposes. The case is of molded bakelite, 2" in diameter. The Volumgrad can be mounted directly on a metal panel.

	List Price	YOUR COST
No. 940—0-50,000 ohms	\$1.50	\$0.75
No. 941—0-100,000 ohms	1.50	.75
No. 942—0-200,000 ohms	1.50	.75
No. 945—0-500,000 ohms	1.50	.75

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, 1/2" thick.

	List Price
No. 902—Rheostat, 2 ohms	\$.70
No. 904—Rheostat, 4 ohms, for 6 to 8 201A's	.70
No. 906—Rheostat, 6 ohms, for 3 or more 201A's	.70
No. 910—Rheostat, 10 ohms, for 3 or more 199's	.70
No. 920—Rheostat, 20 ohms, for 2 199's or 1 201A	.70
No. 930—Rheostat, 30 ohms, for 1 199.	.70
No. 931—Rheostat, 1,000 ohms	1.00
No. 932—Rheostat, 2,000 ohms	1.00
No. 935—Rheostat, 400 ohms	.90
No. 200—Potentiometer, 200 ohms	.95
No. 400—Potentiometer, 400 ohms	.95
No. 904-P—Potentiometer, 4 ohms	.70
No. 906-P—Potentiometer, 6 ohms	.70
No. 910-P—Potentiometer, 10 ohms	.70
No. 920-P—Potentiometer, 20 ohms	.70
No. 930-P—Potentiometer, 30 ohms	.70
No. 931-P—Potentiometer, 1,000 ohms	1.20
No. 932-P—Potentiometer, 2,000 ohms	1.20
No. 3,000—Potentiometer, 3,000 ohms	1.00

Your Cost, 50c each

Resistograd Universal Range Resistance



The Resistograd is a variable resistance having a "jumpless" range from 40 to 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 Resistograd is highly used for control of output voltages in "B" power units, and also for general oscillation and volume control. Dimensions: 2 7/8" long overall and 1 1/8" in diameter. Mounts in a single hole. Bakelite adjusting knob furnished.

Resistograd—No. 350
List Price, 95c Your Cost, 50c

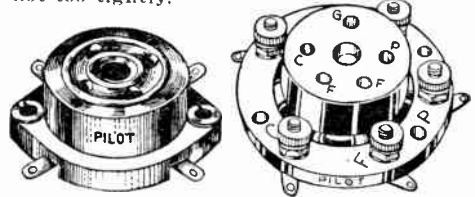
Filter and By-Pass Condensers

All these condensers have pressed steel cases, finished in durable black enamel. The 800 and 801 are 2 1/2" high, 2" wide and 3/8" thick. The other four are all 5" high, 2" wide and 3/8" thick.

	List Price	YOUR COST
No. 9654—1 mf. filter, 650 v.	\$2.00	\$1.00
No. 9501—1 mf. filter, 500 v.	1.75	.75
No. 9302—2 mf. filter, 300 v.	1.75	.75
No. 9110—1-.1 buffer	1.65	.75
No. 800—1/2 mf. by-pass	.75	.35
No. 801—1 mf. by-pass	.90	.35
No. 9000—Mounting clamps	.90	.50

Tube Sockets

Pilot sockets are made of genuine molded bakelite and hold the tubes firmly but not too tightly.



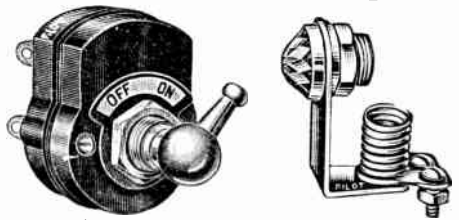
	List Price	YOUR COST
No. 206—Shock-proof socket, UX and UV tubes (4 prongs)	\$0.50	\$0.25
No. 212—Base type socket, UY tubes (5 prongs)	.50	.25
No. 213—Base type socket, UX and UV tubes (4 prongs)	.40	.25
No. 214—Set builders' socket screw contacts, for UX and UV tubes (4 prongs)	.25	.10
No. 215—Set builders' socket screw contacts, for UY tubes (5 prongs)	.25	.15
No. 216—Universal socket, UX and UV tubes (4 prongs)	.35	.15
No. 217—Universal socket, UY tubes (5 prongs)	.40	.15



"Pilot" Midet Jack

Single closed circuit type, practically adaptable for all circuits.
Your Cost, 25c

Switches and Pilot Light



	YOUR COST
No. 42—Toggle switch, black case	\$0.25
No. 42W—Toggle switch, walnut case	.25
No. 44—Knob switch (same as 46, except with knob)	.35
No. 46—Lever switch	.30
No. 40—Jeweled pilot light	.25

We have a complete stock of "Pilot" Kits and Parts. If there is anything in the "Pilot" line that you want—we have it. Send us your order.

There are **BIG PROFITS** in the installation of **PUBLIC ADDRESS SYSTEMS**

Power amplification has a vast variety of applications. We are listing a few of the various places that such installations may be placed to advantage
IN YOUR COMMUNITY

Motion Pictures, Theatres, Churches, Tea Rooms, Dance Halls, Schools, Cabarets, Clubs, Paging Systems for Hotels, Railroads, etc., Apartment Houses, Conventions, Political Gatherings, Fairs, Open-Air Assemblies, Race Tracks, Athletic Meets, Rebroadcasting of World's Series, Football Games, Auto Camps, Big Fights, and other events and arrangements too numerous to mention.

This is a specialty field in Radio that is making big money for those who are devoting their time to it.

Outfits can be profitably rented out for special occasions or built to the needs of many businesses in your community.

We carry a complete line of equipment necessary for the building and installing of these systems and also build special equipment to order. Should you have any demand for this type of apparatus we will be glad to co-operate with you in designing and furnishing the installation needed.

Our Technical and Engineering Department invites your correspondence on any sort of public address or any other Radio problem relating to anything in our Catalogue.

We list the main items most used of the various manufacturers' lines. Each article listed we consider the best for its particular purpose, but will be pleased to quote you on any item not listed as it is impossible to catalogue our complete stock.

Many of our customers have built public address apparatus, costing approximately \$250, which they are renting out at \$25 to \$35 per day. You can do the same.



AMERTRAN AUDIO PRODUCTS



"THE ACCEPTED STANDARD OF EXCELLENCE"



Fig. 1

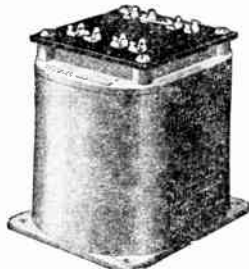


Fig. 2



Fig. 3

AMERTRAN AUDIO TRANSFORMERS

Since 1921 "AmerTran" Audio-Frequency Transformers have been manufactured to satisfy the demand for amplifier equipment of the highest quality. In every respect the best obtainable materials and workmanship are utilized in their construction, and the finished products represent the closest possible approach to the ideal that engineering genius can provide. Everywhere they are considered the "Standard of Excellence for Sound Reproduction."

All "AmerTran" Audio Transformers are made with core laminations of the best quality high-permeability alloy and a core structure which provides low distributed capacity, low capacity coupling, and high inductance coupling. Where center-tap connections are employed these are brought out between sections or coils which are so arranged as to give absolute magnetic and inductive symmetry and balance. All moisture is thoroughly removed from the windings during manufacture and a special moistureproof insulating compound provides absolute protection against corrosion in all climates.

Interstage Audio Transformers

	Type No.	List Price	YOUR COST
AmerTran De Luxe for 1st-stage use, ratio 3:1 (Fig. 1)	1st Stage	\$8.00	\$4.71
AmerTran De Luxe for 2nd-stage use, ratio 4:1 (Fig. 1)	2nd Stage	8.00	4.71
Between output of 1 tube and 2 grids, ratio 2.5:1 (Fig. 1)	151	12.00	7.06
Between output of 2 tubes and 2 grids, ratio 1.75:1 (Fig. 2)	710	20.00	11.76

Output Transformers (Fig. 1)

Two 210-type tubes to 2,000-4,000-ohm magnetic speaker	152	12.00	7.06
Two 210-type tubes to 10-15 ohm dynamic speaker	200	12.00	7.06
Two 245- or 171-type tubes to 2,000-4,000-ohm speaker	442	12.00	7.06
Two 245- or 171-type tubes to 10-15-ohm dynamic speaker	443	12.00	7.06
One 250-, 210-, 245-, or 171-type tube to 10-15-ohm speaker	115	15.00	8.82
Two 250-type tubes to 1-9 dyn. speakers in series parallel	678	22.00	12.94

Detector-to-Line Transformers (Fig. 1)

Detector to 500-ohm line—level 10 db.	994	15.00	8.82
Detector to 200-ohm line—level 10 db.	805	15.00	8.82

Phonograph Pick-up Transformers (Fig. 1)

5,000-, 6,000-, or 8,000-ohm pick-up to 1st-stage De Luxe	389	8.00	4.71
500-, 1,000-, or 2,000-ohm pick-up to grid of tube	406A	15.00	8.82
500-, 1,000-, or 2,000-ohm pick-up to 200- or 500-ohm line	806A	18.00	10.59

Line-to-Grid Transformers

500-ohm line to grid of tube (150,000 ohms)—level 0 db. (Fig. 1)	547A	15.00	8.82
200-ohm line to grid of tube (150,000 ohms)—level 0 db. (Fig. 1)	923A	15.00	8.82
500-ohm line to two 50,000-ohm grids (211- or 845-type tubes) — level +20 db. (Fig. 2)	3664	22.00	12.94

Tube-to-Line Transformers

	Type No.	List Price	YOUR COST
Two 250- or 245-type tubes to 200-ohm line or 1-9 15-ohm dynamic speakers in series parallel (Fig. 2)	678	\$22.00	\$12.94
Two 250- or 245-type tubes to 500-ohm line—15-ohm monitor winding (Fig. 2)	3332	22.00	12.94
Two 210- or 112-type tubes to 500-ohm line—15-ohm monitor winding (Fig. 2)	3332	22.00	12.94
20,000 ohms to 500-ohm line, 2 mA. d.c. in pri., low level (Fig. 1)	993	12.00	7.06
Two 211-type tubes to 500-ohm line (Fig. 3)	3810A	68.00	40.00
Two 845-type tubes to 500-ohm line (Fig. 3)	4116A	68.00	40.00

Line-to-Speaker Auto Transformers (Fig. 2)

500-ohm line to 0.16-16 ohms (12 steps) 12 watts	3377	28.00	16.47
500-ohm line to 4,000-333 ohms (12 steps) 12 watts	3132	28.00	16.47
500- or 200-ohm line to 3.75-60 ohms (6 steps)—4.5 watts	3576	20.00	11.76
4,000- or 500-ohm line to 3.75-15 ohms (4 steps)—4.5 watts	4293	25.00	14.70

Mixer Transformers (Fig. 1)

200 ohms to 200 ohms—level —20 db.	095	15.00	8.82
200 ohms to 200 ohms—level 0 db.	999	15.00	8.82
200 ohms to 500 ohms—level 0 db.	4338	15.00	8.82
500 ohms to 500 ohms—level 0 db.	4339	15.00	8.82
67 ohms to 200 ohms—level 0 db.	3246	15.00	8.82
100 ohms to 200 ohms—level 0 db.	3259	15.00	8.82

Special Audio Transformers

The American Transformer Company is prepared to manufacture special audio transformers to any desired specifications. Such units are usually identical in appearance and construction to standard transformers and can be supplied promptly at reasonable prices.

AMERTRAN PRODUCTS

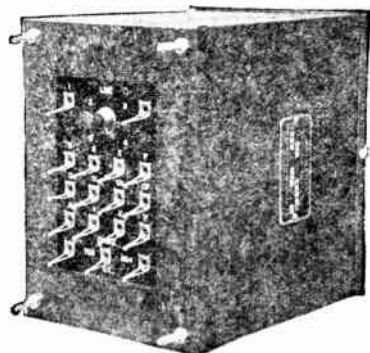
Double "AmerChoke" Type 709-854



Double Amer-Choke Type 709-854 has been especially designed for use in the filter circuits of standard A.C. operated radio receivers. It contains two standard Amer-Chokes (types 709 and 854) and when used with the proper condensers provides adequate filter. The terminal panel contains four soldering lugs so that the chokes may be connected in any desired manner.

List Price, \$12.00 Your Cost, \$7.06

"AmerTran" Power Blocks



AmerTran Power Blocks consist of a standard AmerTran power transformer and two AmerChokes mounted in a compact metal case. Thus one of these units is the essential part of a power-supply unit for a radio receiver, filter condensers and a rectifier tube being the only additional parts required. Units operate from standard 110-volt, 60-cycle lighting circuits and provide plate voltage, rectifier tube filament current and power tube filament current. In addition, Type 245 provides filament current for the entire receiver.

	List Price	YOUR COST
Type 245 Power Block...	\$32.50	\$19.11
Type 250 Power Block...	35.00	20.58

AF-8 Transformer

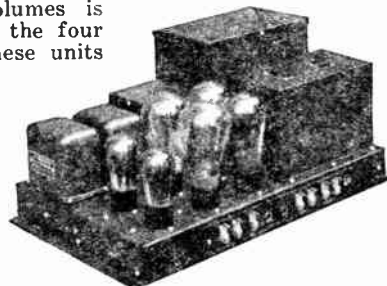


Audio Transformer Type AF-8 is a moderately priced unit with very satisfactory frequency characteristics. It has a turns ratio of 3.5 to 1 and may be used in either the first or second audio stage. High permeability alloy is used in the core and the entire unit is shielded and sealed with a moisture-proof compound.

List Price, \$5.00 Your Cost, \$2.94

AMERTRAN Series 80 AMPLIFIERS

Quality reproduction of sound in large volumes is obtainable economically through use of one of the four standard "AmerTran" series 80 amplifiers. These units are of the chassis type with all parts and wiring completely enclosed. They operate directly from standard 110-volt, 60-cycle circuits and are equipped with convenient controls for compensating line voltage variations and adjusting grid bias to the power tubes. Although special units can be supplied to satisfy other impedance specifications, standard models have 500-ohm input and output circuits. All types are equipped with jacks to permit measurement of power tube plate current. They may be installed on standard 19-inch mounting racks.



Type PA-86 Amplifier

Type PA-83—Two-stage, push-pull amplifier—output 4.5 watts. Uses one 226-, two 245-, and one 280-type tubes.

List Price, \$145.00

Your Cost, \$85.26

Type PA-84—Three-stage, push-pull amplifier—output 4.5 watts. Uses two 226-, two 245-, and one 280-type tubes.

List Price, \$160.00

Your Cost, \$94.08

Type PA-85—Two-stage, push-pull amplifier—output 12 watts. Uses one 226-, two 250-, and two 281-type tubes.

List Price, \$180.00

Your Cost, \$105.84

Type PA-86—Three-stage, push-pull amplifier—output 12 watts. Uses two 226-, two 250-, and two 281-type tubes.

List Price, \$195.00

Your Cost, \$114.66

ALL PRICES LESS TUBES

AMERTRAN TRANSMITTING

Filament Transformers

AmerTran Filament-Heating Transformers have been especially designed for use in radio transmitters and rectifying circuits where mercury-vapor or argon-gas-filled tubes are used. All transformers have center tapped secondaries.



Fig. 18
(Fig. 3 on page 24)

In all cases a low-voltage tap is provided to permit use of a rheostat in series with the line for closer regulation.

Sizes are available for the most commonly used rectifier tubes and larger outputs may be obtained, if required, by connecting two or more transformers in parallel.

Va. Rating	Line Volts	Sec. Volts	Sec. Amps.	Test Volts	Illustration	Type No.	List Price	YOUR COST
25	100/115	2.5/1.25	10	12,000	Fig. 3	H-66A	\$16.00	\$9.41
50	100/115	5/2.5	10	12,000	Fig. 18	H-4650	20.00	11.76
90	100/115	{ 10/5 2.5/1.25 }	6.5	12,000	Fig. 18	H-4201	25.00	14.70
100	100/115	5/2.5	20	12,000	Fig. 18	H-4652	24.00	14.12

Plate-Supply Transformers

These units have two-section, high-tension windings which may be connected in series or parallel to obtain full voltage at rated current or half voltage at double current. The primary windings are designed for operation from a 60-cycle, 115-volt supply and have four taps to permit compensation of voltage variations.

Va. Rating	Line Volts	Sec. Volts	D. C. Amps.	Test Volts	Type No.	List Price	YOUR COST
195/275	100/108/115/125	2360/1180	0.175	7,000	P-4656*	\$42.00	\$24.70
250/350	100/108/115/125	2300/1150	0.175	7,000	P-4202†	65.00	38.22

*Impedance input to filter. †Condenser input to filter.

Bulletin 1066, describing the applications of these transformers in actual circuits, will be sent promptly upon request.

AMERTRAN PRODUCTS

"AmerChoke" Reactors



Fig. 1



Fig. 2

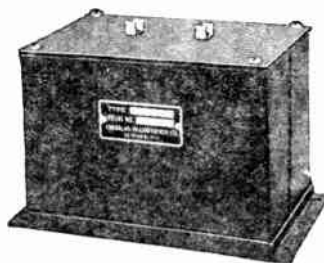


Fig. 3

"AmerChoke" is the name identifying a complete line of impedances (choke coils) manufactured by the American Transformer Company. The standard models available are of three types—**audio**, **filter**, and **modulation**—and satisfy practically every requirement in the circuits of radio receivers, amplifiers, power-supply devices, and radio transmitters.

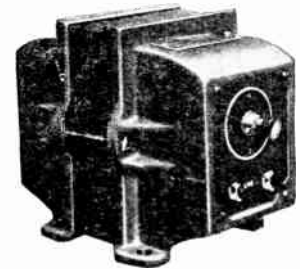
AmerChokes are mounted in strong, black-crackle-finished metal boxes which are equipped with conveniently located mounting holes. Tinned soldering lug terminals are located on a bakelite panel which forms the top of the case. Every unit is thoroughly protected against climatic conditions by a special moisture-proof insulating compound.

The tabulation below contains specifications of standard sized units which are available from stock. In addition special AmerChokes can be made to fit your exact specifications.

Plate Filter "AmerChokes"								
Henries	Amps. D.C.	D.C. Ohms	See Notes	Test Volts	Illustration	Type No.	List Price	YOUR COST
8	0.350	65	...	2,500	Fig. 3	4725	\$16.00	\$9.41
10	0.160	105	...	2,500	Fig. 2	4724	6.00	3.53
13	0.250	130	...	2,500	Fig. 3	557A	16.00	9.41
15	0.120	210	...	2,500	Fig. 2	709	6.00	3.53
40	0.060	625	...	2,500	Fig. 2	854	6.00	3.53
"A" Filter "AmerChoke"								
0.16	2.5	0.5	...	2,500	Fig. 2	418	6.00	3.53
Parallel-Feed "AmerChoke"								
125	0.005	674	2	2,500	Fig. 1	103	10.00	5.88
300	0.003	6,000	1 & 4	2,500		3842	8.00	4.71
650	0.005	674	1 & 2	2,500	Fig. 3	988A	20.00	11.76
Output "AmerChokes"								
40	0.006	674	...	2,500	Fig. 1	101	10.00	5.88
400	0.006	674	3	2,500	Fig. 1	641	10.00	5.88
Grid Impedance "AmerChoke"								
1500	None	6,000	1 & 4	2,500		3793	8.00	4.71

Notes: 1—Alloy Core. 2—Size wire sufficient to carry 50-m.A.
3—Centertapped winding. 4—Aluminum mounting (see AF-8 transformer)

"AmerTran" Power Transformers



Four AmerTran power transformers are manufactured to satisfy the requirements in power circuits of radio receivers and amplifiers. These units operate from 110-volt, 60-cycle circuits and have a four-point primary switch to permit compensation of primary voltages. The filament windings supplying power to the rectifier and output tubes and also the high-tension winding have center-tap connections. Another feature is the copper ground shield which is placed between the primary and secondary windings. All models have a low core density, thus assuring minimum hum, freedom from mechanical vibrations, and low core losses.

Type PF-52A—For D.C. outputs approximating 450 volts, 100 mA., with a half-wave 281-type rectifier or 220 volts, 100 mA. with a 280-type full-wave rectifier; two 7.5-volt filament windings.

List Price, \$18.00 Your Cost, \$10.59

Type PF-281A—Same as Type PF-52A except that high-tension winding is not centertapped; also two 2.5-volt windings are provided for supplying r.f. and detector filament power.

List Price, \$22.00 Your Cost, \$12.94

Type PF-250A—For D.C. outputs of 400 to 450 volts, 200 mA., with two 281-type rectifying tubes, full wave; also two 7.5-volt filament windings.

List Price, \$25.00 Your Cost, \$14.70

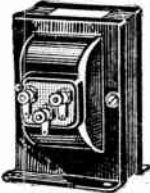
Type PF-245A—For supplying plate and filament power to standard sets employing 245-type output tubes; 730/365-volt, 110-m.A. plate winding, three 2.5-volt filament windings, and one 5-volt filament winding.

List Price, \$22.00 Your Cost, \$12.94

Thordarson--A Transformer for Every Purpose

"Thordarson" Push-Pull Input and Interstage Transformers

T-2408 Push-Pull Input Transformer



Designed to couple a stage of straight audio amplification into a stage of power push-pull using any of the existing types of power amplifying tubes. Ratio 1 to 1. Dimensions: 2½" x 2½" x 3" high.

List Price, \$8.00
Your Cost, \$5.26

T-2922 Push-Pull Input Transformer

A transformer serving the same purpose as Type T-2408 but possessing a ratio of 2 to 1. May be used following a screen grid power detector having parallel plate feed. Built primarily for use with 210, 245 and 250 types of power tubes in the push-pull stage. Dimensions: 3½" x 3" x 3¾" high. Weight: 3½ lbs.

List Price, \$12.00
Your Cost, \$7.84

T-2973 Push-Pull Interstage Transformer

A special audio transformer to couple two stages of push-pull amplification. Especially applicable for use in power amplifiers for public address work to prevent tube distortion in the first stages of the audio amplifier. Ideal for use with the Type 245 and 250 power tubes in the output stage. Dimensions: 3½" x 3" x 3¾" high. Weight: 3½ lbs.

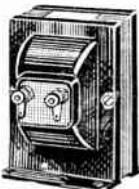
List Price, \$12.00
Your Cost, \$7.84

"Thordarson" Speaker Coupling Transformers

T-2876 Transformer



A quality output transformer designed to protect the speaker winding against the high plate current of power tubes.



Designed especially for coupling a single 171, 210 or 245 type power tube into a horn or cone type high-impedance speaker. Dimensions: 2½" x 2½" x 3" high. Weight: 2 lbs.

List Price, \$6.00
Your Cost, \$3.94

T-2629 Transformer

A special push-pull output transformer designed to couple the output of a 210 or 245 push-pull stage into a dynamic speaker. This transformer replaces the transformer in the base of the speaker. Secondary connects directly to the movable coil. Dimensions: 3½" x 3" x 3¾". Weight: 3½ lbs.

List Price, \$10.00
Your Cost, \$6.54

T-2420 Output Choke

A carefully balanced, center-tapped choke unit, designed to couple the output of 171, 210 or 245 types push-pull tubes directly into a high impedance speaker. Dimensions: 2½" x 2½" x 3" high. Weight: 2 lbs.

List Price, \$8.00
Your Cost, \$5.26

T-196 Choke Coil

This choke is designed to be used in filter circuits or as an output choke to keep the direct current out of the speaker unit. Use this in choke-condenser coupling with the new 245 or other power tubes. Current carrying capacity, 75 milliamperes. Inductance, 30 henries. DC resistance, 360 ohms. Dimensions: 2½" x 2½" x 3" high. Weight: 2 lbs.

List Price, \$5.00
Your Cost, \$3.29

T-2901 Transformer

A special output transformer designed to couple the output of a single UX-245 or UX-250 power tube into a high impedance speaker. Primary is carefully matched to the plate impedance of the power tube. Will easily carry the high output current and voltage of amplifiers of this type. Dimensions: 3½" x 3" x 3¾" high. Weight: 3½ lbs.

List Price, \$12.00
Your Cost, \$7.84

T-2902 Transformer

An output transformer similar to Type T-2901 but designed for use with dynamic speakers. Replaces coupling transformer mounted in base of speaker. Secondary should be connected direct to the movable coil of the dynamic speaker. Dimensions: 3½" x 3" x 3¾" high. Weight: 3½ lbs.

List Price, \$12.00
Your Cost, \$7.84

T-2903 Transformer

A special push-pull output transformer designed to couple the output of two 245 or 250 type power tubes into a dynamic speaker. The secondary of this transformer connects directly into the movable coil of the dynamic unit. This transformer is conservatively rated to carry the high output current and voltage of amplifiers of this type. Dimensions: 3½" x 3" x 3¾" high. Weight: 3½ lbs.

List Price, \$12.00
Your Cost, \$7.84

T-2880 Transformer

A special push-pull output transformer, similar to Type T-2903, designed to couple the output of a stage of push-pull 245 or 250 type power tubes into one or more high-impedance speakers. Dimensions: 3½" x 3" x 3¾" high. Weight: 3½ lbs.

List Price, \$12.00
Your Cost, \$7.84

T-4152 Transformer

T-4152—Designed to couple 250 tubes singly, in push-pull or in parallel to any load having impedance of 12 to 8700 ohms. Primary consists of two identical coils. Can be connected in series or in parallel. Seven separate secondaries can be used in various combinations. May be used with larger power tubes if chokes are used, making it ideal for all types of public address and hotel installations. Dimensions: 4" x 5¼" x 6¼". Mounting holes: 1½" x 5¼".

List Price, \$25.00
Your Cost, \$16.33

R-245 Compact

This compact contains a high voltage supply of 350 volts (no load) each side of center and a 5-volt (center-tapped) filament supply for a 280 type full wave rectifier—a 2.5 volt (center-tapped) filament supply for the two 245 type power tubes—and two 30 henry circuit. Capacity of high choke coils for the filter circuit. Capacity of high voltage winding and chokes, 100 M.A. This compact is exceedingly efficient in design and will operate continuously without objectionable heating or hum. Designed for use on 60 cycle, 110 volt current only. Dimensions: 4¼" x 6¼" x 5¼" high, overall. Weight: 18 lbs.



Price List, \$24.00
Your Cost, \$15.68

"Thordarson" Power Supply Transformers

T-2098 Transformer

A power supply transformer designed primarily to supply A B C current to two 210 type power amplifying tubes and B-current to the receiver. To be used with two 281 type rectifier tubes. Conservatively rated, cool in operation. Primary: 110 volts, 50-60 cycles. Secondary No. 1: 550 volts each side of center tap. Capacity of winding: 130 M.A. Secondary No. 2: 7½ volts, center tapped. 2½ amps. Secondary No. 3: 7½ volts, center tapped. 2½ amps. Dimensions: 4½" x 5¼" x 5¼" high. Weight: 13¼ lbs.



List Price, \$20.00
Your Cost, \$13.14

T-2900 Transformer

A power supply transformer designed primarily to supply A B C current to a single 250 type amplifying tube and B-current to the receiver. To be used with two 281 type rectifier tubes. Conservatively rated, cool in operation. Primary: 110 volts, 50-60 cycles. Secondary No. 1: 575 volts each side of center tap. Capacity of winding: 130 M.A. Secondary No. 2: 7½ volts, center tapped. 2½ amps. Secondary No. 3: 7½ volts, center tapped. 2½ amps. Dimensions: 4½" x 5¼" x 5¼". Weight: 15¼ lbs.

List Price, \$20.00
Your Cost, \$13.14

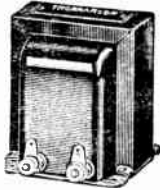
T-2950 Transformer

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. Primary: 110 volts, 50-60 cycles. Secondary No. 1: 610 volts, each side of center tap. Secondary No. 2: 7½ volts, center tapped. 2½ amps. Secondary No. 3: 7½ volts, center tapped. 2½ amps. Dimensions: 4¼" x 6¼" x 5¼" high, overall. Weight: 18 lbs.

List Price, \$29.50
Your Cost, \$19.38

THORDARSON Power Apparatus

"Thordarson" R-400 Audio Transformer

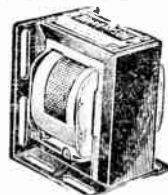


The R-400 is the only audio transformer designed expressly for use with A.C. tubes. It is practically identical with the R-300 in general performance and possesses the same flat amplification response extending over the entire audible band and with a high frequency cut-off at 8000 cycles for scratch elimination. It differs from the R-300 only in that it has a better inductance characteristic at the high current conditions encountered in coupling the first and second stages of an audio amplifier using A.C. tubes. The R-400 makes an ideal input transformer for a 245 power tube. Dimensions: 2½"x2½"x3" high.

List Price, \$9.00 Your Cost, \$5.88

R-300 High Quality Audio Transformer

List Price, \$8.00 Your Cost, \$5.26



R-100 Replacement Audio

A quality replacement audio transformer designed for the service man in reconditioning radio receivers with obsolete or burned-out audio transformers. Possesses the same high quality of performance that characterizes all "Thordarson" Audio Transformers. 2½"x1½"x2".

List Price, \$2.25 Your Cost, \$1.47

R-101 Push-Pull Input Replacement Transformer

For all types of servicing and reconditioning. Uniform response over the effective range of audio frequencies. Mounted in the "Thordarson" universal bracket, making it adaptable to mounting in present panel holes. Equipped with terminal board and lugs. 1½"x2"x2¾".

List Price, \$3.50 Your Cost, \$2.29

"Thordarson" R-105 Replacement Filter Choke

Designed to replace defective filter or speaker coupling chokes where it is not required to carry more than 75 m.a. of current. Mounted same as R-101 transformer.

List Price, \$2.00 Your Cost, \$1.31

Type T-3381 Replacement Transformer For Single 71 Tube in Output Stage

Primary 115 volts 50-60 cycle. Secondary 1-5 volts @ ¼ amp. (1-171A); 2-1.5 volts @ 2 amp. (2-226 audio); 3-5 volts ct. @ 2 amp. (280 fl.); 4-600 volts ct. 60 m.a. (high voltage); 5-1.5 volts @ 3 amp. (3-226 R.F.); 6-2.5 volts @ 2 amp. (227 detector). Overall 3¾" wide, 4" deep, 4" high. Mounting holes 2⅝"x3¼".

List Price, \$10.00 Your Cost, \$6.57

Type T-2971-E Replacement Transformer For 171 Push-Pull Tubes in Output Stage

Primary 115 volts 50-60 cycle. Secondary 1-5 volts ct. ½ amp. (for 2-171A tubes); 2-2.5 volts @ 2 amp. (227 detector); 3-1.5 volts @ 1 amp. (226 first audio); 4-1.5 volts @ 3 amp. (226 R.F.); 5-5 volts ct. 2 amp. (a filament 280); 6-650 volts ct. 70 m.a. Overall 3¾" wide, 4" deep, 4" high. Mounting dimensions 2⅝"x3¼".

List Price, \$10.00 Your Cost, \$6.57

If Thordarson makes it—we can supply it. Send your order for items not listed.

Type T-3624-E Replacement Transformer For 245 Push-Pull Tubes in Output Stage

Primary 120 volts—50-60 cycle tapped at 110. Secondary 1-730 volts ct. 100 m.a. (high voltage); 2-5 volts ct. 2 amp. (280 filament); 3-2.5 volts ct. 3 amp. (2-215 filament); 4-2.5 volts @ 9 amp. (5-227 or 224). Overall 3¾" wide, 4½" deep, 4¾" high. Mounting holes 2⅝"x2¾".

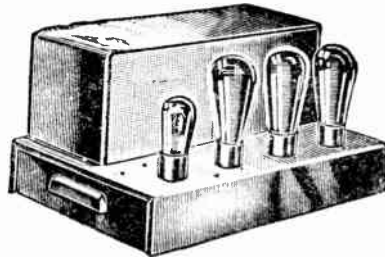
List Price, \$12.00 Your Cost, \$7.84

"Thordarson" Voltage Changer 220 to 110 Volts—T-2604

For changing line voltages of 220 volts to 110 volts. Enables 110 volt A.C. sets to be used on 220 v. current. Equipped with cord and plug. Primary, 220-230 volts, 50-60 cycles. Secondary, 110-115 volts.

List Price, \$10.00 Your Cost, \$6.57

"Thordarson" Amplifiers



Designed for direct connection to ordinary dynamic speaker with self-contained coupling transformer or directly to magnetic speaker.

The amplifiers designed for connection at detector tube. With each amplifier we furnish two adapters, one for four-prong tubes and another for five-prong types. The detector tube is inserted in the adapter, the adapter placed in the detector socket and a single wire carried from adapter to amplifier. Detector tube plate voltage is furnished by the amplifier through a movable link providing 45 volts or 90 volts as may be required.

A series of taps provides receiver plate supply for radio frequency tubes, control tubes, first detectors, oscillators, etc., at voltages between 45 and 150. Proper connections are made at the time of installation and there are no adjustments by means of which an operator may later on upset the correct operating conditions.

Both amplifiers are built upon the same steel base and have the same outside dimensions. The "250" amplifier, T-3715, weighs thirty-five pounds and the "245" amplifier, T-3714, weighs thirty-two pounds. The overall length is 15¾", the width front to back is 10¼", and the overall height is 8¾".

"250" Amplifier, Type T-3715

Voltage amplification 275 times the input with maximum power of 4,650 milliwatts. A two-stage amplifier for heater type, 227, tube in first stage and a 250 type of power tube in the second stage. Uses two 281 type rectifier tubes.

List Price, Less Tubes, \$89.50 Your Cost, \$58.47

"245" Amplifier, Type T-3714

Voltage amplification 335 times the input with maximum power of 3,500 milliwatts. A two-stage amplifier for heater type, 227, tube in first stage and two 245 type power tubes in push-pull for second stage. One 280 type rectifier tube.

List Price, Less Tubes, \$84.00 Your Cost, \$54.88

"Thordarson" Filament Supply Transformers



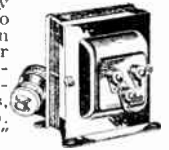
T-2445 Filament Transformer

A transformer designed to supply the filaments of complete receivers using 226, 227 and 5-volt filament power tubes. Primary: 110 volts, 50-60 cycles. Secondary No. 1: 1.5 volts, will supply from one to six 226 type AC tubes. Secondary No. 2: 2.5 volts, will supply one or two 227 or 224 type AC tubes. Secondary No. 3: 5.0 volts, will supply two 5-volt power tubes. Receptacle provided for B-supply plug. Dimensions: 2¾"x5¼"x4¼" high. Weight: 5 lbs.

List Price, \$10.00 Your Cost, \$6.57

T-3660 Filament Transformer

A small filament supply transformer designed to heat up to six 224 screen grid tubes, or six 227 or similar type tubes. Primary: 110 volts, 50-60 cycles. Secondary: 2.5 volts, 10.5 amps. (center-tapped). Dimensions: 3¼"x3"x3¾" high. Weight: 3¼ lbs.



List Price, \$9.00 Your Cost, \$5.88

T-3081 Filament Transformer

Designed to fill a need for a filament transformer to supply the first stages of a power amplifier, and also small four tube receivers using two 224 or two 227 type tubes together with two 226 type tubes. Primary: 110 volts, 50-60 cycles. Secondary No. 1: 1.25 volts, 3 amperes. Secondary No. 2: 2.5 volts, 3½ amperes. Dimensions: 2½"x3"x3¼" high. Weight: 2¼ lbs.

List Price, \$6.00 Your Cost, \$3.92

"Thordarson" Double Choke Units

The double choke units listed below are designed primarily for use in the filter circuit of power supply devices employing transformers T-2098, T-2900, and T-2950 respectively. These units are of excellent design with a proper balance between winding, core material, and core gap, so as to provide an excellent regulation with practically equal inductance over the current range for which they are intended. Each unit contains two 30 henry chokes in a crackle finished compound filled case.



T-2099—Capacity, 130 M.A., D.C. Resistance each choke, 250 ohms. Dimensions: 4½"x3¾"x5¾" high. Weight: 9 lbs.

List Price, \$14.00 Your Cost, \$9.20

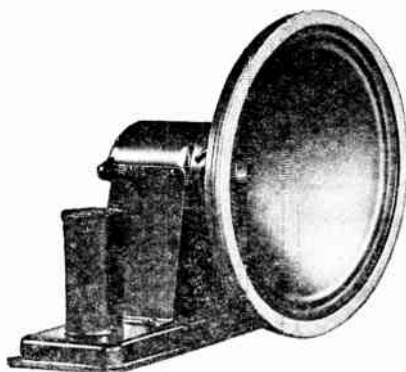
T-3099—Capacity, 160 M.A., D.C. Resistance each choke, 190 ohms. Dimensions: 4½"x3¾"x6¾" high. Weight: 12 lbs.

List Price, \$16.00 Your Cost, \$10.42

T-3100—Capacity, 200 M.A., D.C. Resistance each choke, 125 ohms. Dimensions: 4½"x3¾"x7" high. Weight: 13¼ lbs.

List Price, \$18.00 Your Cost, \$11.76

JENSEN Dynamic Speakers



Jensen sets the pace. By every test — tone quality, sensitivity, volume — Jensen speakers rank with the finest. They have consistently been the choice of radio manufacturers who seek for their receivers a reproducer that stands up and delivers even under the most trying conditions. They handle the entire audible range with absolute fidelity even at high volume levels.

Auditorium Dynamic

The standard Jensen unit for theatre and out-of-doors. Meets every requirement—brilliant tone—tremendous volume. Uses 280 rectifier tube. 12" cone.

For 110 Volt D. C. **Your Cost, \$26.46**
List Price, \$45.00

For 110 Volt A. C. **Your Cost, \$35.28**
List Price, \$60.00

Auditorium Junior

The latest Jensen. Similar to Auditorium type electro-dynamic speaker only smaller. Fine for theatre installations. Uses 280 rectifier tube. 10" cone.

For 110 Volt D. C. **Your Cost, \$17.64**
List Price, \$30.00

For 110 Volt A. C. **Your Cost, \$26.46**
List Price, \$45.00

Concert Dynamic

Reproduces with enormous volume and great tonal beauty. Extremely sensitive. Handles all audible tones with an even degree of brilliance. Measures 7 $\frac{1}{2}$ " deep and 11 $\frac{1}{2}$ " high. 10" cone.

For 110 Volt D. C. **Your Cost, \$16.17**
List Price, \$27.50

For 110 Volt A. C. (Dry Rectifier) **Your Cost, \$20.58**
List Price, \$35.00

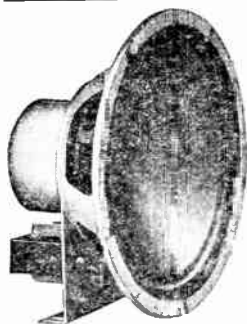
Midget Dynamic

Same size as Midget Auto but of heavier construction and of greater sensitivity.

For 6 Volt D. C.—List Price, \$18.50
Your Cost, \$10.88

For 110 Volt D. C.—List Price, \$18.50
Your Cost, \$10.88

This model is being used extensively in new mantel sets.



Midget Auto

Mighty in efficiency—small in size. A dynamic for the auto; 4" deep, 8 $\frac{1}{2}$ " cone.

For 6 Volt D. C. **Your Cost, \$8.82**
List Price, \$15.00

Imperial Speaker Console

Front and sides are made of one-piece solid walnut with pressed walnut grille and overlay. Ornamental legs and top band. Height, 23 $\frac{1}{2}$ "; width, 29". A suitable housing for Jensen Auditorium Dynamic or Auditorium Junior speaker. Designed for home or theatre.

Your Cost, \$26.46
List Price, \$45.00

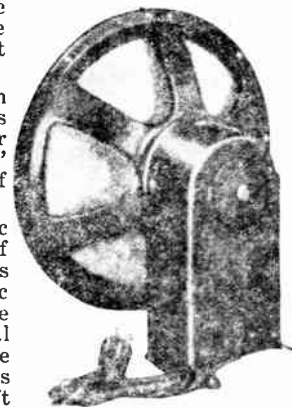
MAGNAVOX Dynamic Speakers

The new 1931 Magnavox X-Core Dynamic Speakers represent the culmination of intense development in this type of reproducer.

No longer is it necessary to listen to unnatural and harsh bass notes in a dynamic speaker — no longer do you need listen to "barreled" bass notes to the near exclusion of the higher frequencies.

The new Magnavox Dynamic definitely inaugurates a new era of tone quality, just as definitely as did the first Magnavox Dynamic obsolete the magnetic speaker. The entire range of voice and musical frequencies is reproduced with the same degree of brilliance. The bass notes (as low as 25 cycle) are soft and musical in their quality and treble notes have a firmness and brilliance never heard before away from the studio or the stage of the concert hall.

All A.C. Units are equipped with Dry Type Rectifier and plugs directly into lighting socket.



Type	Cone Dia.	FOR	List Price	YOUR COST
116	7 $\frac{1}{4}$ "	110-190 V. D.C.	\$16.00	\$9.60
117B	10 $\frac{1}{2}$ "	110-190 V. D.C.	17.00	10.20
211B	10 $\frac{1}{2}$ "	6-12 V. D.C.	18.00	10.80
410	7 $\frac{1}{4}$ "	105-120 V. A.C., 60 Cycle....	27.00	16.20
411B	10 $\frac{1}{2}$ "	105-120 V. A.C., 60 Cycle....	28.00	16.80
412	7 $\frac{1}{4}$ "	105-120 V. A.C., 25 Cycle....	27.00	16.20
413B	10 $\frac{1}{2}$ "	105-120 V. A.C., 25 Cycle....	28.00	16.80

Famous B.B.L. Speakers

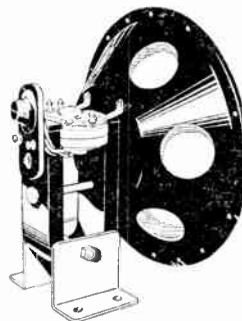
B.B.L. Electric Motor With Tapped Impedances

Realistic reproduction over the entire tone range with the use of the B.B.L. Tapped impedance is only one of the many features of this remarkable speaker. The motor is four times the size of the regular B.B.L. motor and the magnet is much larger than usual.

Three Tapped Windings

You can match the output of your receiver perfectly by the twist of the 3 tap impedance switch. Tremendous volume and faithful reproduction with all the advantages of a dynamic and all conveniences of a magnetic are offered.

	List Price	YOUR COST
Model E-3—Equipped with 10 $\frac{1}{2}$ " diaphragm...	\$16.00	\$9.41
Model E-4—Equipped with 12" diaphragm....	18.00	10.59



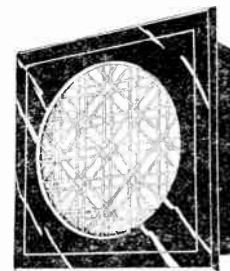
B.B.L. Flush Type Wall Speaker

The ideal speaker for wall installation in hotels, schools, apartments, etc. Beautiful metal grille finished in walnut. Box size, 10 $\frac{1}{4}$ "x12 $\frac{1}{4}$ "x3 $\frac{1}{8}$ ".

Model W-1—Equipped with volume control and 3 station selector mounted on front panel.
List Price, \$35.00

Your Cost, \$20.58
Model W-2—Same as above without station selector or volume control.
List Price, \$25.00

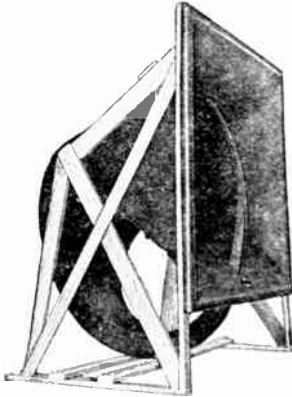
Your Cost, \$14.70
Model W-3—A smaller model without selector or volume control. Box size 9 $\frac{3}{8}$ "x9 $\frac{3}{8}$ "x3 $\frac{1}{8}$ ".
List Price, \$22.00
Your Cost, \$11.76



RACON Horns and Dynamic Units

FOR PUBLIC ADDRESS AND THEATRE USE

"Racon" Horns are uniform, are guaranteed to withstand all climatic temperatures and moistures without effect, and will withstand all ordinary abuse without damage; they are light in weight and non-porous. All air columns in "Racon" are designed along lines accepted as standard by expert acoustical engineers.



No. 4320

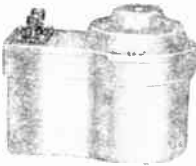
This horn has a cut-off on the low end of 75 cycles and on the upper end of over 5,000. It has great projection power in addition to distribution, and in combination with the Racon Dynamic Horn Unit, it has four times the efficiency of a

dynamic cone, and for theatre use will take the place of from four to six cone speakers. This horn is an excellent reproducer both on music and voice and gives faithful reproduction without surface noise and without over-emphasis on either bass or high frequencies.

Air column, 10 feet; depth, 34 inches; bell, 40 inches by 40 inches. Weight, 45 lbs.

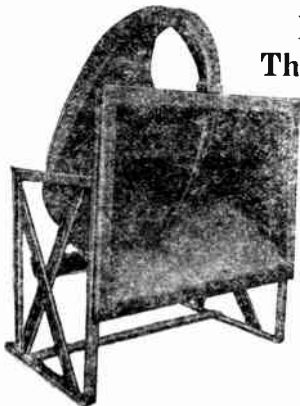
List Price, \$175.00, including Framework
Your Cost, \$102.90

High-Powered Magnetic Unit



This unit is a high powered magnetic unit designed to operate off an amplifier having a high voltage output. It will take 3 watts input without blasting and is recommended for public address use where great volume and projection are required.

List Price, \$35.00 **Your Cost \$20.58**



No. 5325 Theatre Horn

Air column: Slightly less than 10 feet. Bell: 30" x 40". Depth: 30". Weight: 30 lbs.

List Price, \$125.00

Your Cost, \$73.50

Giant Dynamic Horn Unit



The unit is an electro dynamic moving coil type and can be used only with long air column horns. It will handle the undistorted output of a 15-watt amplifier without rattling. It is sturdily constructed and is not subject to damage. It is reasonably priced, and is an item which has been long sought for but up to recently unobtainable. The dynamic unit has an input capacity of 30 watts and an output of from 200 to 350 times greater than any unit manufactured, and has a cut-off of 7500 cycles. The dynamic cone unit will carry from 2 to 5 watts with a frequency cut-off of about 4000 cycles, in addition to which the dynamic unit is three times as efficient as a dynamic cone.

List Price, \$120.00 **Your Cost, \$70.56**

The field consumption of giant unit is 1.1 amps at 6 volts. The field can be excited by either a 6-volt storage battery or by a special exciter for 110 AC, which exciter has absolutely no hum whatsoever.

List Price of Exciter, \$30.00
Your Cost, \$17.64

Baby Electro-Dynamic Type Horn Unit



Capable of handling the undistorted output of 10 watts without rattling, is extremely efficient and has a complete frequency response. Its field consumption is .8 amp. at 6 volts. Weight, 6 1/4 lbs.; overall height, 3 in.; diameter, 4 3/4 in.

With Matching Transformer

List Price, \$35.00 **Your Cost, \$20.58**

Junior Dynamic Unit



This unit is designed to take 15 watts input from a high power amplifier without rattling, and is particularly recommended for use for public address horns or for radio. Its field consumption is approximately 1 1/4 amps. at 6 volts.

With Matching Transformer

List Price, \$50.00 **Your Cost, \$29.40**

6-Foot Trumpet

This is a highly efficient projectional horn for public address for indoors or outdoors. It will carry for a distance from 1000 feet to about 2000 feet, depending upon the power of the unit employed to drive the air column. Having a cut-off of about 112 cycles, it is very efficient on musical reproduction besides being the last word in horn design for voice. This horn is supplied with bushings to take either the standard type magnetic unit, the "Racon" High Powered Magnetic Unit or the "Racon" Dynamic Horn Unit.



List Price of Trumpet, without Unit, \$55.00

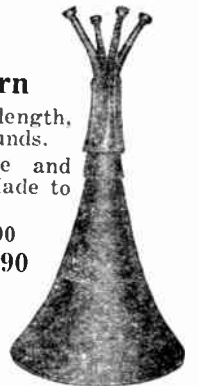
Your Cost, \$32.34

3 1/2-Foot Trumpet (same type as above)
List Price, \$25.00 **Your Cost, \$14.70**

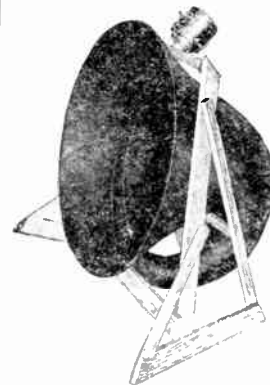
Aeroplane Horn

Bell, 30 in. round; length, 6 feet; weight, 28 pounds. Horn for aeroplane and public address use. Made to take four units.

List Price, \$175.00
Your Cost, \$102.90



7 1/2-Foot Trumpet



No. 3320

This horn is designed to reinforce the ordinary type theatre horn on speech reproduction, and at the same time is built to occupy a small space. Bell, 34 inches round; weight, 35 lbs.

List Price, less Unit, \$100.00
Your Cost, \$58.80

New Wright-DeCoster Dynamic Reproducer

For Theatres, Auditoriums and Outdoor Use

No Hum—Powerful—Truthful Reproducer

An operating flux of 145,000 magnetic lines in the air gap insures extreme sensitivity and no distortion at great power.

Dimensions: 12 inches wide; 9¼ inches deep; 12½ inches high. Cone 10 inches in diameter. Requiring 11 inch baffle hole.

On official tests the Wright-DeCoster Reproducers have handled amplifiers having an undistorted output of 45 watts without developing any rattles or showing any signs of breaking down. These models have moisture-proof cone.

Model 208—110 volt A.C.-25-50-60 cycle without output transformer.

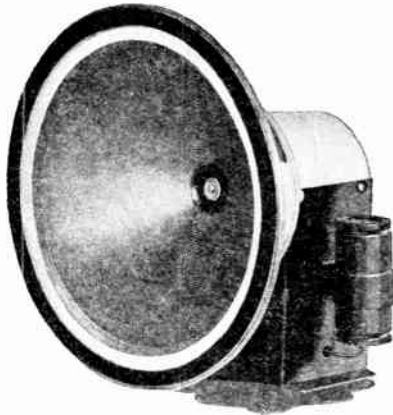
List Price, \$68.50

Your Cost, \$40.28

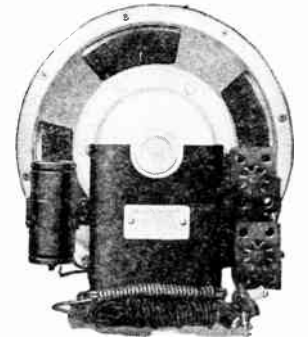
Model 207—110 volt A.C.-25-50-60 cycle with output transformer.

List Price, \$72.50

Your Cost, \$42.63



Front View



Back View

Other Models

	List Price	YOUR COST
Model No. 205—D.C. unit, 6 volt; with output transformer; drain, 1½ amperes; field resistance, 4 ohms; minimum field requirement, 9 watts—Code Word Wound	\$50.00	\$29.40
Model No. 205X—D.C. unit, 110 volt; with output transformer; field resistance, 750 ohms	52.00	30.58

Wright-DeCoster "75"—"The Horn with a Voice like a Cannon"

Places the Broadcasting Just Where You Want It

Mounted on a swivel and turn table the Wright-DeCoster "75" may be turned and raised or lowered in any direction. It veritably hurls the sound across space yet despite the tremendous volume every utterance is distinct and clear.

The horn is made of thick, strong, non-resonant material, reinforced with heavy metal wherever needed and finished with many coats of the finest water-proofing material, which will withstand the severest kind of weather and abuse. The color is bright yellow which makes it visible for a long distance from the air. Installed in the metal water-proof compartment of the "75" is the Wright-DeCoster Model 207 chassis equipped with a weather-proof cone which is protected by a copper screen. When operating this unit with 15 to 30 watts, the horn can easily be heard for two or three miles.

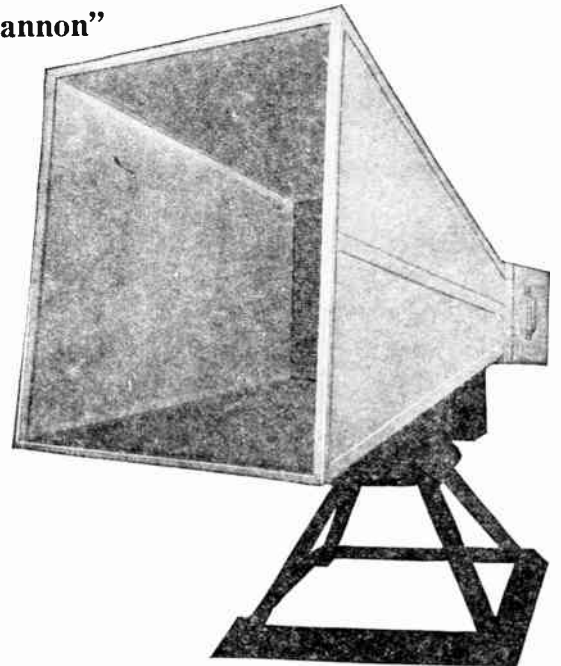
An inside control which enables the operator to turn the horn in any direction from the room below is furnished free.

Recommended for use in parks, stadiums, aviation fields, steamship piers and, in fact, any place where distances, volume and clearness are required.

Length of horn, 7 feet; height from bottom of base to top of horn, 6 feet; width of opening, 4 feet 1 inch.; width of back, 16 inches. Weight, packed one to a box, 480 pounds.

	List Price	YOUR COST
No. 75 Horn complete with turn table.....	\$225.00	\$132.30
Horn without turn table, for permanent stationary installation	125.00	73.50

We furnished the Griffith baseball stadium, Washington, D. C., with six of these horns.



Wright-DeCoster Baffle Horn No. 9

These horns are theoretically correct and give excellent results in both indoor and outdoor installations. The chassis compartment is made to protect the unit against moisture and weather.

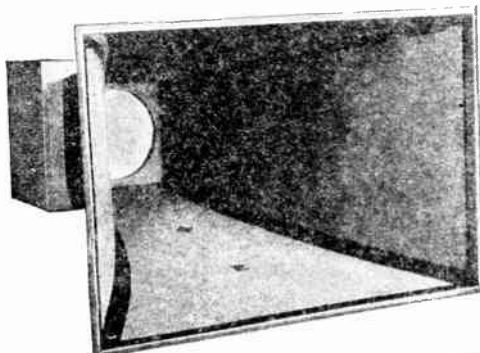
Horn No. 9 has a flare on both sides. It is used extensively in theatres to be placed above or below the solid screens or back of the sound screens. Also for outside installations where a large area is to be covered at not too great a distance.

If painted occasionally, should last many years under most any conditions, as they are very substantially manufactured.

Outside measurements: Length overall, 48 inches. Bell at opening, 30 inches by 21½ inches. Weight, crated, 71 pounds.

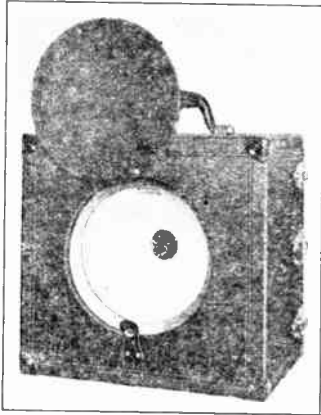
List Price, \$30.00.

Your Cost, \$17.64



SAMSON PAM AMPLIFIERS

The New PAM 100

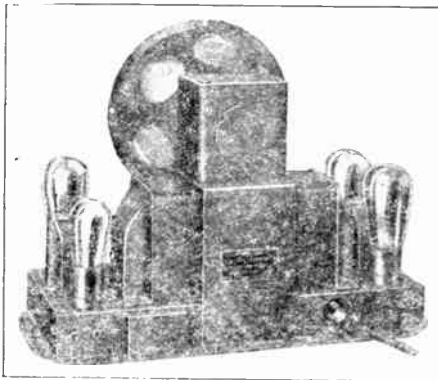


The PAM 100 is a small speaker-amplifier combination. It can be used in tea-rooms, clubs, roadside stands, filling-stations, concessions, etc. It is particularly suitable because of its low cost and economical operation.

If you have a home talking motion picture projector, the PAM 100 will supply the volume and quality reproduction necessary. It is also designed to connect to a recording cutting head for making your own phonograph records.

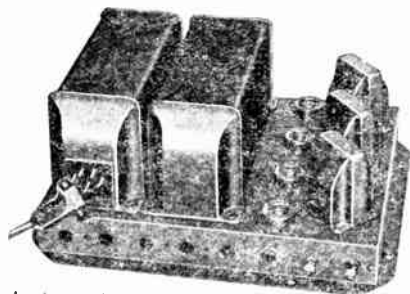
When used with a microphone and portable microphone amplifier, the PAM 100 forms a low-power portable group address unit.

Tubes required—one 227, two 215's, one 280.



List Price, chassis only, \$125.00
List Price, in carrying case, \$150.00
Less customary discount

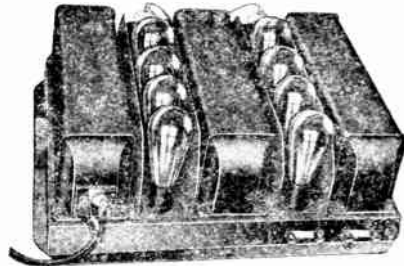
PAM 16



A two-stage amplifier using one 227, two 210's and one 281 tubes. Has undistorted output of 6 watts.

List Price, \$125.00
Less customary discount

New PAM 29



Latest Samson creation with an undistorted output of 18.6 watts. Tubes required two 224's (screen grid), four 281's and four 250's. This job is without a parallel for both inside and outside amplification requirements, where tremendous volume and undistorted tone quality is desired. Will easily handle one to fifteen dynamic speakers or units. Output impedance, 2000 or 500 ohms.

This amplifier is designed to be operated from the output of the detector tube of a radio set, the output from a magnetic phonograph pick-up, or any pre-amplifier unit, such as the MIK 1.

List Price, \$225.00
Less customary discount

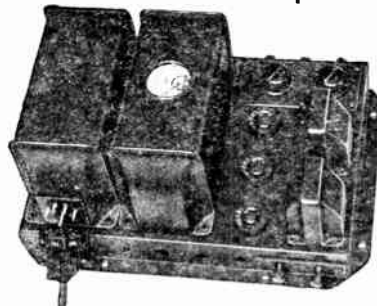
PAM 19

3 Stages Push-Pull 250 Tubes

Will deliver 15 watts undistorted, adequate for theatres or outdoor use. Uses two 227, two 281 and two 250 tubes. Overall size, 11½" x 20" x 7½". Weight, 36 lbs.

List Price, \$175.00
Less customary discount

Samson MIK 1 Amplifier



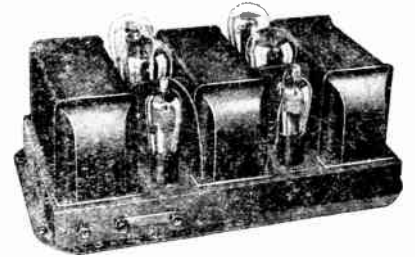
Is designed to furnish button current to a double button carbon microphone and amplify the output of the microphone sufficiently to supply input voltage to any of the standard PAM amplifiers. Entirely AC operated, including current supply to mike. Two stages. Uses one 280, two 227 tubes.

List Price, \$150.00
Less customary discount

Whatever your requirements are in Samson equipment, we have it. Send us your order.

Tubes Not Included in Above Prices

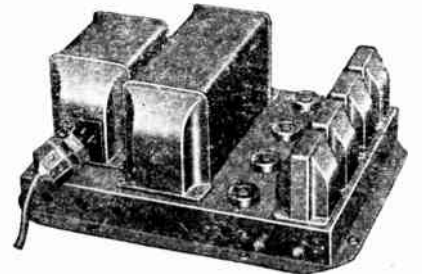
PAM 39



This amplifier is ruggedly constructed, is designed to give long service, high quality of reproduction and a minimum of trouble. Tubes required: 2 UX-224, 2 UX-250, 2 UX-281. Rated maximum undistorted output 9.3 watts. Output impedance, 2,000 ohm or 500 ohm. Dimensions overall: Length, 18¾"; width, 11"; height, 7½".

List Price, \$130.00
Less customary discount

Samson PAM 9 Amplifier



Is designed to be operated from the output of the detector tube of a radio set or magnetic phono, pickup or any pre-amplifier unit such as the MIK 1. Will deliver up to 15 watts undistorted. 2 stages. One 227, two 281 and two 250 tubes.

List Price, \$137.50
Less customary discount

The Samson Qualpensator

Audio frequency reproduction very often leaves much to be desired. There may be a lack of brilliance, depth, or fullness. There may be excessive noises, such as scratch or hiss from records, films, static, or microphones. The Samson Qualpensator has been developed to facilitate the correction of such undesirable conditions. As the name indicates, it is a device for quality compensation.

Compensation may be accomplished by the insertion of the Qualpensator between two proper circuit elements of a reproducing system. In general, the Qualpensator should immediately precede the main amplifier, following pick-ups, head amplifiers, microphone amplifiers, or radio set detectors. Under no circumstances should direct current be permitted in the Qualpensator. Transformers may be used where direct current is to be eliminated.

The Qualpensator is provided with three switches which select the frequency range or ranges to be softened. The degree of softening depends upon the setting of the variable compensation control. Volume, as a whole, is subject to the remaining control.

List Price, \$25.00
Less customary discount

Write for
Samson PAM Amplifier Booklet — Free

M & H PUBLIC ADDRESS SYSTEMS

M & H REMOTE CONTROL PANEL

Control your amplifier or P. A. system, which may be concealed in a closet or some hidden spot from your office, stage or any given point. This panel gives you full control of phonograph, microphone, radio and monitor speaker and may be built to fit your specific installation.

Some Outstanding Features

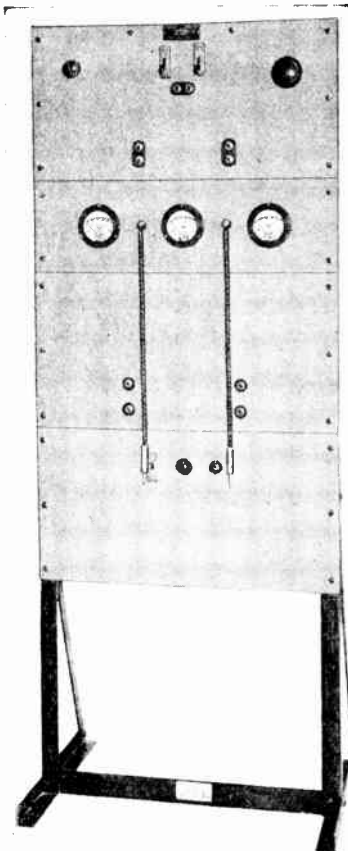
Milliammeter for reading button current consumption. Single or double button

mike may be used. Master AC switch. Has external AC outlet and tip jacks so that a separate speaker can be plugged in any time during operation of the other speakers. Large indicating pilot light. Finest equipment used throughout. Separate potentiometer volume control for pickup and microphone button current control. Let us estimate on your requirements.



Prices on Application

M & H RACK AND PANEL AMPLIFIER



Designed for airports, theatres, hotels, schools, churches or anywhere a P.A. system is required.

Capable of handling 20 dynamic speakers or 30 dynamic units.

Special anti capacity switches enable to throw either microphone, radio or phonograph into the input.

It is equipped with meters so that the operator can tell at a glance the condition of the tubes and working of amplifier—really contains a veritable built-in analyzer. A special laboratory inter-stage gain control is used to control the volume.

Has large red bullseye with master control switch—circuit used is the latest parallel feed type. For the filter circuit the new Sprague Electrolytic self-healing condensers are used—Amplifier is built up of individual $\frac{3}{8}$ " aluminum panels all mounted substantially on heavy $\frac{1}{8}$ " structural iron rack. Finest material used throughout. Designed and built in the M & H Lab.

Tubes Required

Three '27's, two '50's, two '81's. Overall dimensions, 25" wide, 61" high.

Prices on Application

M & H ADDRESS D.C. AMPLIFIER

The ideal system for use where 110v. AC current cannot be used. It is built in such a way that it may be placed in any automobile, truck, boat or any vehicle and can be operated while vehicle is in motion.

There are quite a number of these amplifiers constructed by us being used for advertising and political campaigns.

Some Outstanding Features

Has microphone, radio or phonograph input with toggle switches to throw in either one of the three at the will of the operator.

It is equipped with hand microphone, pickup and automatic turntable which is driven by a 6v. storage battery.

Milliammeter shows current draw of microphone, or any tube in the circuit. Has pilot light and master switch.

Heavy 5-ply substantial wooden cabinet with iron handles at sides so it can easily be transported. Aluminum panel. Best transformers and equipment used throughout.

This amplifier can be used with either B batteries to supply the plate voltage on the tubes or a dynamotor, which is used in conjunction with storage batteries. Amplifier pictured is equipped with dynamotor and requires no other outside equipment but three 6v. batteries and speakers.

Tubes required: One '40, one '12 and two '45's.

Price on Application

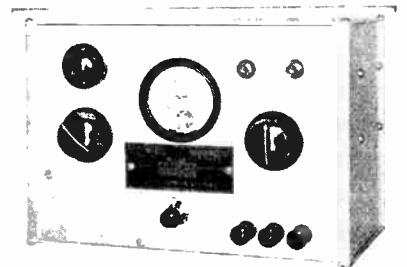


M & H MICROPHONE PREAMPLIFIER

A portable, flexible microphone one-stage amplifier using a '99 tube. It is just the thing to boost your mike output.

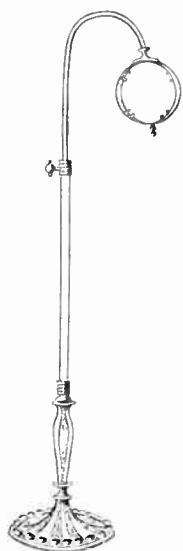
To protect your microphone, a highly sensitive delicate instrument, a zero to 15 Weston or Jewell milliammeter is used to show current consumption of each button and a potentiometer to vary this current draw to your desired need. This amplifier makes possible the use of a microphone on any radio set or amplifier. Entirely self contained, in a sturdy 5" x 6" x 9" aluminum cabinet, it is really something you cannot afford to be without.

Prices on Application



M & H MICROPHONE STANDS

COMPLY WITH STUDIO STANDARDS



No. 107

No. 107—Studio Goose-neck Stand (adjustable), very rigid extends from 40" to 65". Large set screw holds extension in place, solid cast-metal base. Can be swung to any handy position. Equipped with four open suspension hooks.

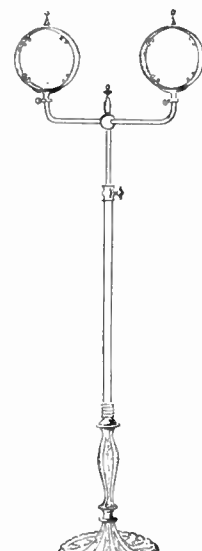
List Price, \$30.00

Your Cost, \$17.64

No. 108—Duplex Floor Stand (adjustable), same in construction and dimensions as our single floor stand. Shipping weight, 22 lbs.

List Price, \$34.00

Your Cost, \$20.00



No. 108

No. 100 — Standard size Mike Ring. Equipped with four open suspension hooks and hang hook.

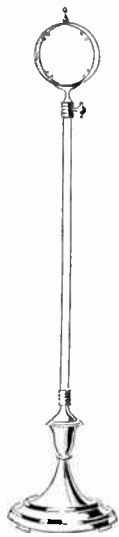
List Price, \$6.00
Your Cost, \$3.53



No. 102

No. 102 — Desk Stand, standard design, bronze finish.

List Price, \$9.00
Your Cost, \$5.30



No. 105

No. 105 — Studio Floor Stand, adjustable, very rigid. Extends from 40" to 65". Stamped metal base, large set screw prevents any possibility of its dropping and damaging microphone. Shipping weight, 20 lbs.

List Price, \$20.00
Your Cost, \$11.76



No. 103

No. 103—Banquet Stand (adjustable desk stand), adjustable from 15" to 22" extra heavy base.

List Price, \$11.00
Your Cost, \$8.24

No. 104—Banquet stand (adjustable desk stand), adjustable from 15" to 22". Extra heavy cast bronze finish base.

List Price, \$11.00
Your Cost, \$8.24



No. 104

No. 106—Same in design and construction as our No. 105, excepting heavier, due to heavier artistic designed cast bronze finish base.

List Price, \$20.00
Your Cost, \$11.76



No. 106



No. 101

No. 101—Hand Microphone Ring. Just the thing for outdoor advertising purposes. Standard size ring, equipped with 4 open suspension hooks and solid blackwood handle.

List Price, \$8.00

Your Cost, \$4.71

M & H Microphone Desk Stand



This Desk Stand contains a ring 6 1/4" in diameter. Ample room is allowed between the covers and units so that no damage can be caused in concealed wire connections, and in moving. The microphone cable passes through the base of the stand. Finger rings are provided at an extra charge of 50 cents per stand.

List Price YOUR
Price COST

Stand with springs, no covers	\$12.00	\$8.24
Stand with springs and covers	18.00	12.35

Microphone Suspension Springs

A much needed small part, always handy to have and sometimes hard to get. Special heads as shown, and made of very best spring steel wire.



Your Cost, 5c each

"Hubble" Plugs



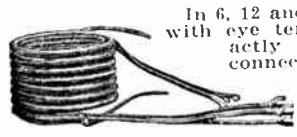
We carry a full line of Hubble three-prong microphone plugs and sockets, with cable clamps. Prompt shipment can be made on this item at any time.

Plugs, each	.....	\$0.75	\$0.53
Sockets, each	.....	1.00	.70

List Price YOUR
Price COST

M & H CABLES

Made Up Cables
Unshielded

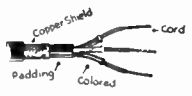


In 6, 12 and 25 ft. lengths with eye terminals to exactly fit microphone connections on one end and large spade terminals on the other. Three conductor color coded.

	List Price	YOUR COST
6-ft. lengths	\$1.50	\$0.90
12-ft. lengths	2.10	1.44
25-ft. lengths	5.00	3.00

M & H Mike Cable 3 Wire Shielded

Standard flexible 3 conductor microphone shielded cable, the finest obtainable. Consists of 3 individual insulated cables, coded, rubber insulated and cotton covered. Woven metal shield surrounds cables and is itself heavy black cotton covered.



	List Price	YOUR COST
12-ft. cable	\$3.00	\$1.80
25-ft. cable	6.25	3.75
50-ft. cable	12.50	7.35

(Can be supplied in any length desired.)

M & H Mike Cable 2 Wire Shielded

With the same general characteristics as above with only 2 wires and the metal shield acting as the third or ground connection.

	List Price	YOUR COST
12-ft. length	\$2.10	\$1.41
25-ft. length	5.00	2.94
50-ft. length	10.00	5.88

(Can be supplied in any length desired.)

Potentiometer and Switch

In microphone circuits a potentiometer is generally used.

The one here illustrated is a Junior model listing at a very low price and is furnished with knob. The switch cuts current from and applies current to microphone buttons at the lowest possible milliamps. This is a safety feature and prevents burning of buttons and damage to microphone, aside from noise of sudden current surge.



Two higher ohm models are used for volume control across the secondary of transformers.

	List Price	YOUR COST
400 ohm	\$1.30	\$0.78
25,000 ohm	2.00	1.40
250,000 ohm	2.40	1.68

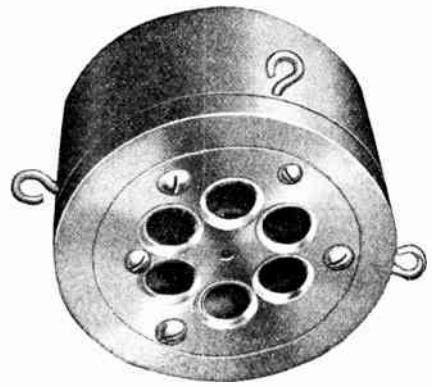
"Yaxley" Cable Plugs

Yaxley cable plugs and sockets are furnished with seven point contact pins to be used for condenser microphones. Can also be used for carbon microphones, using only three pins. A pilot prevents improper assembly.

Plugs, each	\$1.00
Sockets, each	1.00

"GENERAL INDUSTRIES" TWO-BUTTON CARBON MICROPHONE

With Pack Filter Attached



Front View

The frequency response curve is uniformly flat from 30 cycles to 7000 cycles per second, thus giving faithful reproduction on voice and musical frequencies.

The level of the carbon hiss is extremely low.

This microphone is recommended highly for the reproduction of voice and music.

A microphone whose quality, together with its appearance, places it in a class by itself.

A distinct improvement. Made of a slightly heavier material with a dull nickel finish.

Typical of all our products, it is built for hard service. A quality microphone sold entirely on its merit.

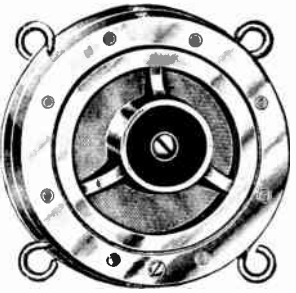
The pack filter protects the instrument against damage due to accidents or improper handling, and thereby lengthens the life of the microphone.

All terminals for connections are located at the back of the instrument.

List Price, \$75.00. Your Cost, \$56.25

"Ellis" Model 30 Microphone

The Ellis Model 30 is a two-button microphone whose radical design sets new standards for carbon microphone performance. Most outstanding of all is the new type button employed. It permits micrometer adjustment of the button, an adjustment infinitely finer than on any other microphone made today.



A precision instrument throughout, it renders true, natural reproduction. Gives a uniform response at all audible frequencies from 30 to 7,500 cycles. Has no harmonics of its own, never distorts. Diameter overall, 1 1/2". Thickness, 2". Nickel finish. Can be mounted in any stand.

List Price, \$75.00. Your Cost, \$45.00

"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 not 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.

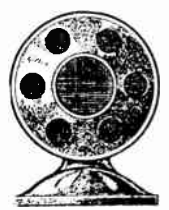
	List Price	YOUR COST
Frost Radio No. 155 Hand Microphone	\$6.00	\$3.60
Frost Radio No. 159 Desk Microphone	8.75	5.25
Frost Radio No. 157 Pony Arm Microphone for mounting on panel of transmitter or wall	4.50	2.70

For Home Broadcasting

NOVO-MIKE

The "Novo-Mike" is designed for broadcasting a program over your own radio in your own home.

The "Novo-Mike" is the life of the party. Broadcast your jokes and stories to the surprise of your guests. Imagine the thrills you can give your friends when you announce some distant or foreign station broadcasting a program in their honor, mentioning their names and making personal remarks.



All the time they will believe it to be a program coming from a real station.

Let your favorite station play the music and you do the announcing.

To cut out studio program, press push button on back of microphone. While holding button in that position, anything spoken into "Novo-Mike" will be reproduced over your radio.

Upon release of button, station program immediately continues.

List Price, \$12.50. Your Cost, \$7.35

UNIVERSAL MICROPHONES

New Model "A"



A single button microphone built of high-class material and finished in satin silver.

An ever-increasing demand for a quality single button unit has caused us to treble production on Model A.

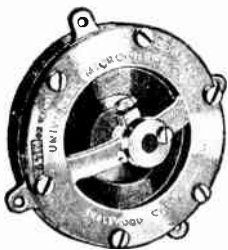
Model A will handle frequencies from 70 to 3000 cycles—the single button is 200-ohm resistance. The diaphragm is damped. Model A is 3" in diameter by 1 1/4" thick.

List Price of Model A Only, \$15.00
Your Cost, \$10.28

New and Improved Model "BB" Microphone

With Gold-Plated Metal Diaphragm

Compare this Model "BB"—listing at \$25.00—with any \$45.00 to \$50.00 microphone on the market.



A two-button microphone built especially for voice pick-up, public address work and for amateur broadcasters and experimenters. Its frequency range is from 50 to 4000 cycles, 200 ohms per button. A split primary microphone input transformer must be used with this microphone. Accurately machined, and silver plated. Each unit carefully tested before shipment. Diameter, 3"; thickness, 1 1/2".

List Price, Microphone Only, \$25.00
Your Cost, \$17.15

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.

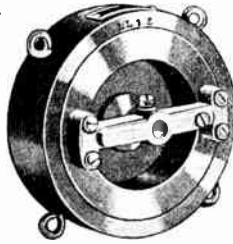
Model "KK" is beautifully gold-plated. Each unit is carefully tested before shipment. Diameter, 2 1/2"; thickness, 1 1/4".

List Price, Microphone Only, \$50.00
Your Cost, \$34.30

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 3 1/4" in diameter by 1 3/4" thick and is standard 200-ohm per button. Perfectly damped and reproduces from 30 to 7000 cycles.



List Price, Model "LL," Unit Only, \$75.00
Your Cost, \$51.48

"Universal" Microphone Input Transformer

No. 1089—This unit is the result of many months of designing and tests. The frequency curve is exceptionally flat, from 30 to over 7000 cycles. Primary is split—200 ohms each side and the secondary impedance is of the order of 400,000 ohms.

A larger unit than others listing for the same price, the size is 2 3/4" x 3 1/2" x 3 1/2". Matches impedance of all standard type carbon two-button microphones.



List Price, \$10.00
Your Cost, \$6.86

No. 1152—A matching transformer that can be used as microphone input or tube to line and in many other ways. Primary impedance combinations, 50 ohms, 100 ohms, 200 ohms; secondary impedance combinations, 2500 ohms, 5000 ohms, 10,000 ohms.

Same size and weight as No. 1089.

List Price, \$12.00
Your Cost, \$8.24

"Universal" Aeroplane Type



This model is constructed especially for use in aeroplanes or other installations where outside noises must be excluded and voice reproduction kept clear and natural.

A single button is used and the metal diaphragm is gold-plated.

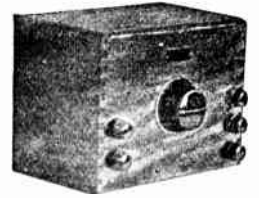
Weight, 8 oz.

List Price, \$20.00
Your Cost, \$13.72

Senior Radio and Amplifier Input Stage

completely assembled in neat box. For use with Models "B," "KK," "LL," or any two-button microphone. Consists of No. 1089 transformer, Potentiometer volume control, switch and battery receptacle. All connections plainly marked. Twenty-five foot two-conductor cord and full directions.

Size 3" x 3" x 7".



List Price, \$15.00
Your Cost, \$10.28

"Universal Handi-Mike"

A single button hand microphone for radio receiving set operation, for personal call systems, etc. Equipped with thumb switch and 6-foot cord. Handi-Mike is decidedly a microphone in both appearance and operation, and responds to frequencies from 70 to 2000 cycles. The button is 200 ohms. Packed in individual boxes. Size head: diameter 2 1/4"; length overall, 6".

List Price, \$10.00

Your Cost, \$6.86



"Handi-Mike" Stand

Designed for Handi-Mike, allowing it to be used as a desk announcer's microphone. Furnished with a rubber covered base and finished in gun metal.

List Price, Stand Only, \$5.00

Your Cost, \$3.43



"Universal" Baby Mike

Use It for Home Broadcasting

Baby Mike is a real microphone, single button with circuit switch and 6-ft. cord. The case is 3" high. The metal diaphragm is gold plated and the response of far better quality than would be expected for this low price. A book of instructions is included.

Can be plugged into any radio set allowing you to amplify your voice out through speaker. Button on top of mike throws it in or out of circuit. Do your own broadcasting.



List Price, \$7.50

Your Cost, \$5.15

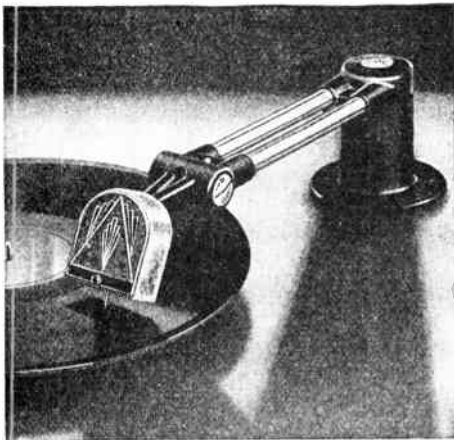
The New AUDAK Electro-Chromatic PICK-UPS

"The Standard by Which Others Are Judged and Valued"

The absolute leaders in tone fidelity, volume, responsiveness... adopted as standard equipment by manufacturers whose products must have nothing less than the best obtainable. It took years to achieve the sensitivity and reliability embodied in these marvelous instruments.

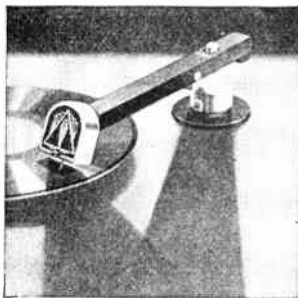
The Tuned Pick-Up

Any of these models may be had with the revolutionary patented audio-tuning system, enabling you to rectify your pick-ups as you would your watch... this insures 100% accuracy at all times, regardless of climatic or other conditions. This remarkable feature is hailed throughout the radio-music industry as the solution of the problems which heretofore beset pick-up apparatus.



New—No. 30

Priced at \$21.00 Your Cost, \$12.35
Tuned, \$24.50 Your Cost, \$14.41



New—No. 20

Priced at \$17.50
Your Cost, \$10.29

No. 20
Tuned, \$19.50
Your Cost, \$11.47



New — The Professional, the standard pick-up for talking movies. Made expressly for talking picture theatres.

Priced at \$100.00
Special Theatre Price, \$44.10

Audak Musichrome

Equipped with the Famous "Electro-Chromatic" Pick-up



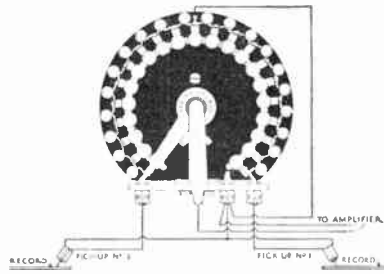
Weights less than 14 lbs. This marvelous little cabinet holds the secret of finest home and public entertainment through your radio... via Records.

The identical outfit used by broadcasting stations, talking picture theatres and exclusive radio shops, for electrically transcribing music. Solid mahogany cabinet, walnut finished. High grade electric motor. Full length, genuine "Electro-Chromatic" Pick-up. Just plug in, use and enjoy it, then tuck it out of the way till you want it again!

scribing music. Solid mahogany cabinet, walnut finished. High grade electric motor. Full length, genuine "Electro-Chromatic" Pick-up. Just plug in, use and enjoy it, then tuck it out of the way till you want it again!

List Price, \$58.00 Your Cost, \$34.10

"YAXLEY" ELECTRIC PICK-UP FADER



For Controlling Volume of Phonograph Record

The Yaxley Fader is used in connection with a Double Phonograph Pick-Up to control the volume of each phonograph record, fading out from one to the other without breaking the circuits so that there are no clicks or irregularities in the sound reproduction. The Fader allows the operator to reduce volume from one record to zero and then in continuous motion increase in accurately graduated steps the volume from the other record. It is essentially a volume control for each pick-up.

The Fader is designed and constructed with the greatest accuracy, and the careful selection of material and margin of safety assure dependable operation without deterioration over long periods of service.

This Fader has a total resistance of 50,000 ohms with 25,000 ohms on each side of the center.

No. 325—Fader, uncased, less knob, for single hole mounting in 3/4" hole.

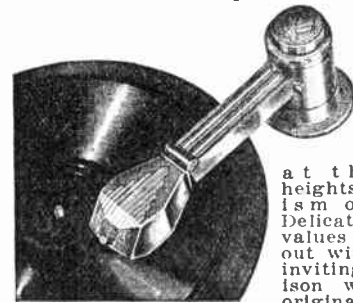
List Price, \$17.50 Your Cost, \$10.50

No. 325-B—Fader, in metal case, with knob.

List Price, \$22.50 Your Cost, \$13.50

New 1931 PACENT

Super-PHONOVOX Pick-up
A Great Pick-up Made Greater



No. 107

With Built-in Volume Control and Radio Record Switch

Master Phonovox design features; built-in volume control—no external control necessary; full swing back head, 36% Cobalt English magnets and ball-bearing swivel tone arm.

Complete with Adapter

Each Phonovox furnished with an adapter for ease in installation. The Master 107 complete in a beautiful, modernistic design, delicately embossed, and of a golden bronze finished case.

List Price, \$15.00 Your Cost, \$8.72

Pacent Oil-Damped Pick-Up



This new Pacent 108 is designed to meet the needs of broadcasting stations and talking pictures. No rubber is used in dampening this pick-up, thus no adjustments are ever necessary. The elimination of needle jumping is now a reality. A step-up transformer (Pacent No. 123) is needed when playing the 108 for best results.

	List Price	YOUR COST
108-A—Oil damped head only	\$20.00	\$11.70
108-B—Complete with adjustable tone arm, volume control and adapter	25.00	14.70
108-T—For playing 16" records. Complete, ready to operate...	35.00	20.58

Pacent New Phono Motor

A new squirrel cage induction type motor for electric phonograph operation. All bearings are phosphor bronze, cast integral with main frame casting. Gears completely housed in dust-proof case. Positive lubrication. Spring suspended to insure quiet operation. 12" felt turntable is friction cone driven. Operates on 110 volts, 50-60 cycle A.C.

List Price, \$25.00 Your Cost, \$14.70

PRESTO Electro Magnetic Pickups

Perfection Model
For Home Use



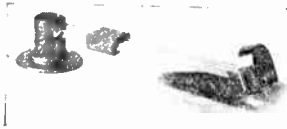
From the engineering conception to the detailed manufacturing process of every precise part, the

new line of "Presto" electro-magnetic pickups has been based on the highest practical efficiency factor that could be coordinated with a maximum quality of reproduction. All ball-bearing movement.

List Price, \$15.00. Your Cost, \$8.82

Auditorium Model
For Theatre Use

To meet the special and practical considerations involved in theatre and similar auditorium applications two models of pick-up arms have been developed which will at once be found to adapt themselves to the projectionist's use.



List Price, \$20.00. Your Cost, \$11.76

Projectionist Model
For Theatre Use



List Price, \$35.00 Your Cost, \$20.58

Additional Practical Features for Both Application Contained in Auditorium and Projectionist Models

1. Adjustable needle pressure weight for 33 1/3 records.
2. Rugged and permanently aligned bearing construction to withstand rough professional use.
3. Instantly replaceable head, mechanically and electrically, without need of tools.
4. Low or high impedance units to match given amplifiers.

"Presto" Separate Heads

As will be seen, 2 models of heads are provided, the design of which are such as to make them readily applicable to practically any form of arm that may be desired.

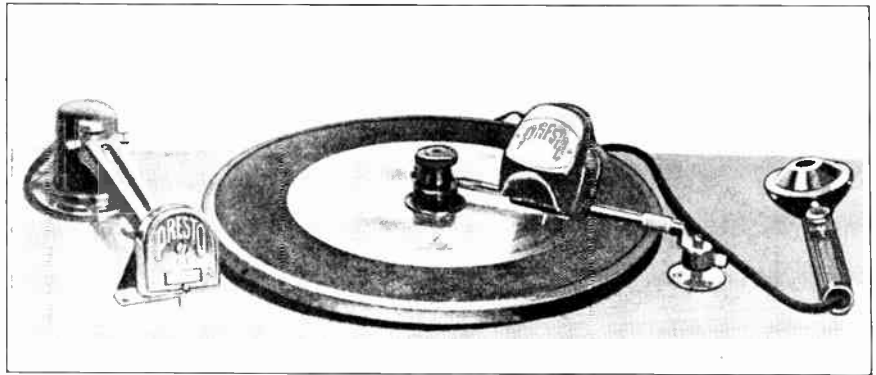


One type of head has a perfectly flat back which can be provided with tapped holes at any required location for bracket assembly while the other is provided with an adjustable bushing to fit standard phonograph tone arms.

List Price, \$10.50. Your Cost, \$6.30

Home Recording Attachment

Device by PRESTO May Be Attached to Any Receiving Set



For the first time, we present an attachment that transforms any radio-phonograph combination or coupled radio and portable electric turntable into a recording machine . . . reducing the intricate art of recording to a fundamentally simple mechanism.

This product is the result of a sound recording and sound reproducing organization, pre-eminent in the independent phonograph industry for fifteen years. This device will record radio broadcast programs or personal expression at will! Easy to attach . . . easy to operate. "One Switch Does All the Work."

Complete outfit consists of Hand Mike, Control Box (which switches from phonograph to microphone or to radio), Feed and Cutting Head.

List Price, \$39.50

YOUR COST, \$23.70

	List Price	YOUR COST
Blank records for recording program on both sides, good for 100 playings, per dozen	\$1.50	\$0.90
Special Recording Needles, good for recording 6 records, per dozen . . . . .	.50	.30
Playback Needles, good for 200 playings, each . . . . .	.25	.15

Model 115

"Capehart" Amperion Record Changing Device

in Attractive Cabinet

This model has been developed to meet the demand for an automatic record changing device for use in conjunction with amplification and speaker equipment ordinarily installed, or in combination with standard AC radio receiving sets. Model 115 is the standard Amperion record changing device with standard "Capehart" pick-up with high impedance type.

It is designed for use on 110 Volt AC current. Many standard AC radio sets are equipped with jacks for pick-up intake.

Pick-ups of low impedance (200-500 ohms) can be supplied on special order for use with radio sets requiring low impedance intake.

This instrument is capable of playing twenty records on both sides, averaging approximately four minutes to a selection. This means forty selections or one hundred and sixty minutes without repeating itself.

Cabinet: Walnut. Dimensions: Height, 45 1/4"; width, 33"; depth, 20".

Discount on Application

List Price, \$395.00

"Pacent" Non-Synchronous Double Turntable and Pickups

The No. 183 Pacent Non-Synchronous Reproducer has a number of features which stamp it as a distinct step forward in units of this type. There is a most remarkable coverage of frequency range of records through use of latest series No. 107 Pacent Phonovox Pickups. The electric motors are of the silent, induction type, entirely free from stray noises.

Has special Fader to fade out one record into the other.

Individual volume control for each table also provided, giving extreme flexibility of operation. Designed to operate at 78 R.P.M., which is recorded speed of all non-synchronous records.

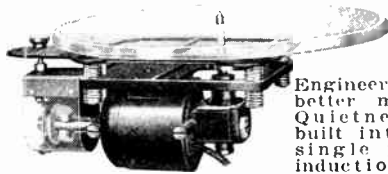
Housed in rugged steel case, rich finish, with hinged cover and supporting chain. Compact and readily portable.

AC specifications: 110v. 60 cycles. Size overall, 35 1/2" x 13 3/4" x 10".

List Price, \$175.00.

Your Cost, \$102.90

NEW "BODINE" ELECTRIC TURNTABLE TYPE R.C. 12



Engineered for better music. Quietness is built into the single phase induction motor which em-

ploys no commutator or brushes. Increased efficiency provides for more power and cooler running. Has double contact governor.

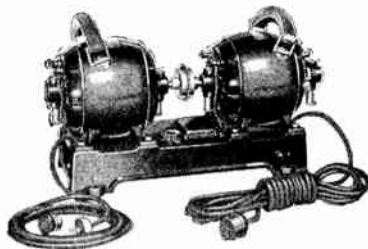
Supported by Springs

To intercept frequency hum or other vibration from being communicated to the cabinet or amplifier and thereby cause interference in the speaker, the Bodine Type RC 12 Electric Turntable and motor are supported by double plate, four point spring suspension. A special resilient damper within each upper spring makes the top plate absolutely "dead." For 50-60 cycle 110 volt AC.

List Price, \$25.00

Your Cost, \$14.70

The "Bodine" Radio Motor Generator Set



The new Bodine Radio Motor-Generator Set as pictured above has a very efficient filter system built into the machine itself which entirely eliminates the disagreeable noises and furnishes a pure 60 cycle alternating current which will operate any AC radio set.

The Bodine set consists of a direct current motor coupled directly to a 60 cycle alternating current generator. The output of the generator is 250 watts which is ample to operate any radio set or radio and phonograph combination. The machine is equipped with carrying handles and rubber padded feet. A small rheostat is provided to take care of variations in DC line voltage and insure exactly the right AC voltage at the set.

All that is necessary to do is to plug the motor cord into the DC socket and the AC output cord into the radio set.

Catalog No. 1031-R Radio-Motor Generator Set for converting 110 volts DC to 110 volts cycle AC.

List Price, \$170.00

Your Cost, \$110.50

"Stevens" D.C. Motor

A DC motor which will operate from 3 dry cells or a 6-volt storage battery with a drain of only .25 ampere. All winding, as with spring motors, is eliminated and the phonograph may be played anywhere, even in your car or canoe. Just the thing for an automobile public address installation.

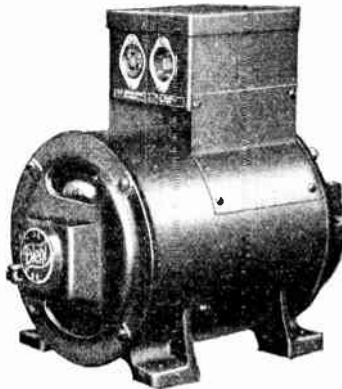
List Price, \$20.00

Your Cost, \$10.50

The "Diehl" Inductor Current Supply Unit

Supplies Alternating Current from Direct Current Source for Radio Use

DISTINCTIVE FOR QUIETNESS OF OPERATION



The Diehl "Inductor" Current Supply Unit is the most compact outfit on the market for its rated output and is distinctive for quietness of operation. The unit consists of a direct current motor driving an inductor type alternator, both machines housed in one frame. The alternator does not have any rotating winding, hence there are no slip rings or brushes. This is an ideal arrangement for radio work, providing the nearest approach to public utility current by eliminating disturbing noises and interference with radio reception. The motor is carefully designed to operate without sparking at the motor commutator and the motor brush circuit is filtered, entirely eliminating the line disturbances which cause the crackling noises in reception.

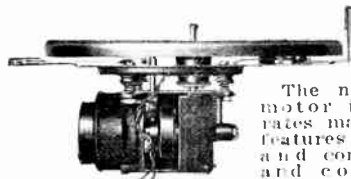
Supplies alternating current 110 volt, 50-60 cycle, single phase. Capacity, 100 to 150 watts. Obtainable for 32, 115 or 230 volts direct current.

List Price, \$100.00

Your Cost, \$60.00

Diehl "Aristocrat" Turntable Motor

For Phonographs, Combination Radio-Phonographs and Sound Projection Machines



The new Diehl motor incorporates many novel features of design and construction and combines small size and

lightness of weight with a power output considerably in excess of all normal requirements. Some outstanding features: Silent operation, quick starting, no vibration, consumption only 18 watts, no radio interference and has 12" turntable.

List Price, \$18.25

Your Cost, \$10.74

Same motor equipped with automatic stop.

List Price, \$19.50

Your Cost, \$11.47

Motor for 33 1/3 R.P.M. for Vitaphone use.

List Price, \$29.00

Your Cost, \$17.16

"Janette" Rotary Converter

What It Does

The function of a Janette Rotary Converter is simple. It takes direct current in on one side and puts out alternating current on the other side. In appearance it is much like an electric motor. Absolutely no hum.

Ideal for public address systems and automobiles, boats or bus studios which travel the streets and highways where there is not a 110 volt AC supply. This converter can also be supplied where it is necessary to change 110 volt DC to 110 volt AC at 60 cycles. Makes possible the use of a standard AC set in a DC district.

There is a Janette Converter for every purpose to fit your needs.

Type	DC Volts	Capacity Watts	List Price	YOUR COST
C-16-F	32	105	\$90.00	\$67.50
C-16-FRV	32	105	115.00	\$6.25
C-16-F	110/115	135	90.00	\$7.50
C-16-F	220/230	135	92.00	\$9.00
C-13-F	32	210	100.00	\$75.00
C-13-FRV	32	210	125.00	\$93.75
C-13-F	110/115	250	100.00	\$75.00
C-13-F	220/230	250	102.00	\$76.50
CB-11-F	32	315	140.00	\$105.00
CB-11-FRV	32	315	165.00	\$123.75

"National" Scratch Filter

The "National" Scratch Filter greatly reduces the needle-scratch heard in the loud speaker when using an electrical phonograph pick-up in connection with a radio set or power amplifier when reproducing phonograph records, electrically.



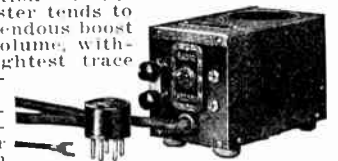
List Price, \$5.50
Your Cost, \$3.30

Connection is exceedingly simple, the terminals of the filter being wired across the output of the phonograph pick-up. The design suppresses the greatest possible amount of needle-scratch with as little effect as possible on the upper musical notes.

"Pacent" Electric Pickup Booster

The addition of the Pacent Booster tends to give a tremendous boost to pickup volume, without the slightest trace of distortion.

Recommended especially for use with the following receivers: Bosch, Majestic, Philco, Radiola and Sparton. Easy to install. No circuit changes necessary. Requires 227 tube for operation.



Price List, less tube, \$10.00

Your Cost, \$5.88

Automatic Stop

Automatic switch for electric phonomotors. Current is shut off when turntable is stopped—protects motor. Works with all tone arms.

List Price, \$3.00

Your Cost, \$1.58

SERVICE MEN, ATTENTION!

Replacement Transformers Condensers



Replacement Parts

Mayo replacement parts are made in duplicate of the original as far as external appearance, size, and hook-up. All parts allow a larger margin of safety than the manufacturer's original specifications. Service men find Mayo simple to install and low in cost.

The Mayo Laboratories are the largest exclusive manufacturer of replacement parts, and has built its reputation by building parts that do not have to be replaced.

"Mayo Parts Are Guaranteed"

Condensers for

	List Price	YOUR COST
Majestic A	\$7.50	\$4.41
Kodel (3 condensers)	10.00	5.88
Kodel (2 condensers)	7.50	4.41
Kuprox (same as Kodel)		
Knapp (uses 3 this type)	4.00	2.36
Elkon (replacement)	4.00	2.36
Fada (ABC)	4.00	2.36
Mayo 4000 mfd. can be used as replacement in most any A eliminator	6.00	3.53

Condenser Blocks for

	List Price	YOUR COST
Majestic B	\$6.00	\$3.53
Majestic Special	6.50	3.83
Willard B	6.00	3.53
Zenith	7.00	4.12
Atwater Kent No. 37	10.00	5.88
Majestic Set (1928)	10.00	5.88

Transformers for

	List Price	YOUR COST
Majestic B	\$5.00	\$2.94
Majestic A	9.00	5.30
Zenith, Mohawk, Stewart Warner and all packs made by Majestic	9.00	5.30
Atwater Kent	8.00	4.71

NOTICE

We can build to order any special replacement part not listed here, giving 48 hours service. Send us the defective part and we will duplicate it.

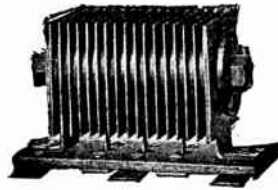
"Use Mayo Parts and Be Sure."

Benwood-Lenz Rectifier

For Tobe and other A eliminators. Also used for dynamic speakers.

List Price, \$5.00. Your Cost, \$2.94

UNITS



"Elkon" M 16

Replacement Rectifier

Officially recognized by Grisby-Grunow as the proper replacement unit for the Majestic "A" eliminator. May be used on the following "A" eliminators:

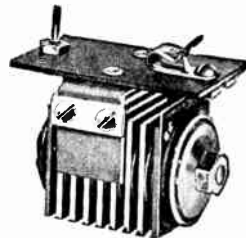
Majestic, Mayolian, Elkon, Philco, Webster, Knapp, Gen. Inst., Metro, Fada, Bernard, Sentinel, Elkon, and Briggs and Stratton.

New Type with Base

List Price, \$7.00.

Your Cost, \$4.12

Replacement Rectifier for Philcatron A and AA



This new Elkon all-dry metallic rectifier is so designed that it replaces the wet jar rectifiers in Philco units designated as Philcatron A and Philcatron AA used in Philco Trickle Chargers, Philco A Powers and Philco A and B combinations.

Very simple to attach, only two wires to connect. May be done in a minute by anyone. No liquids to bother with—no attention—just satisfaction.

To replace all Philco 4 or 6 volt liquid rectifiers use the Elkon Dry Rectifier.

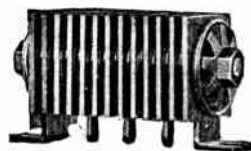
For the Philco "A" Powers factory equipped with the dry Elkon rectifier use the Elkon M-16 for replacement.

Type UP-8—List Price, each, \$4.00.

Your Cost, \$2.36

Replacement Rectifier for the "Elkon," "WLS"

and Many Other Trickle Chargers



Type U-12

List Price, \$4.00.

Your Cost, \$2.36

PARTS

Replacement Jars

for Philco "B" Eliminators

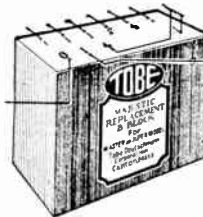
"Repleno" Rectifier Cells are guaranteed to give satisfactory service and full charging rates in Power Units properly designed for their use.

List Price, \$4.00

Your Cost, \$2.00



"Tobe" Majestic A and B Eliminator Replacement Units



For "A"
Outside dimensions
7 1/2" x 3" x 4 1/2"

List Price, \$10.00

Your Cost, \$5.88

For "B"
Outside dimensions

5 3/4" x 2 3/8" x 4"

4-4-2-1-1-1-1-1

mfd.

Master or Super Models.

List Price, \$10.00

Your Cost, \$5.88

Dry high-capacity condensers fully guaranteed for one year.

"AMERICAN BEAUTY" SOLDERING IRONS



No. 3138

The only dependable electric iron for the laboratory or service shop. Complete with 3/8" tip for standard shop use. 12 1/4" long. 100 watt. Weight, 2 lbs.

List Price, \$8.00

Your Cost, \$5.95

Extra 3/8" Tip: Your Cost, 45c



No. 576

New model 50-watt lightweight American Beauty with removable tip. A handy tool for the outside service man. Weight, 14 oz.

List Price, \$4.50

Your Cost, \$3.69

"Kester" Solder



The well known non-corrosive rosincore radio solder—use it once and you will use it always.

Your Cost, per tin, 19c

Your Cost, 1-lb. spools, 65c

AMATEUR SECTION

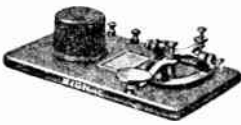
Our "Hams" Amateur Department is complete; we have been catering to the amateur trade for the past ten years. Here you will always find those parts you need so bad, and so-called hard to get, always

in stock. DON'T FAIL TO FOLLOW our up-to-the-minute "ADS" and announcements which appear monthly in QST, the only radio periodical written exclusively by and for the amateur.

We Carry a Complete Line of
Transmitting Insulators, Thordarson, AmerTran, Flechtheim, Acme Parvolt, National, R.E.L., Jewel and Weston Meters, Signal Keys and Relays, Vibroplex, Frost and Universal Mikes, Baldwin Phones, Sangamo, Microphone Stands and G. I. Double Button Mikes

SIGNAL INSTRUMENTS

Wireless Practice Set



R-68 "Signal" Wireless Practice Set

Just the instrument for those who want to learn the code. The code is printed on a little brass plate fastened to base. Equipped with our Type R-60

High Frequency Buzzer.

List Price, \$3.40 Your Cost, \$2.04

High Frequency Buzzer



Type R-60

This type buzzer is the same as used on our R-68 practice set. It is adjustable. Has standard resistance of 2 ohms. Can be furnished in special resistances on quantity orders. Black crystalized lacquer finish.

List Price, \$1.25

Your Cost, 75c



R-48
1/4 K. W.
Wireless
Key

List Price, \$2.80

Your Cost, \$1.68

Signal Heavy Duty Standard Transmitting Keys

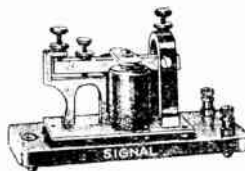


Standard Wireless Key Brass Base

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

	List Price	YOUR COST
R-62— ³ / ₁₆ " contacts	\$3.50	\$2.10
R-63— ¹ / ₄ " contacts	3.70	2.22
R-64— ³ / ₈ " contacts	3.90	2.34

Sounders



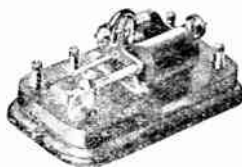
Sounder

Sounding plate, bar frame and bridge of lacquered brass. Aluminum sounding bar and rubber covered coils. Mounted on mahogany finish base.

	List Price	YOUR COST
M-102—4 ohm	\$3.25	\$2.28
M-103—20 ohm	3.50	2.45

Black enamel bar frame. Aluminum sounding bar and brass bridge. Mahogany finished base.

	List Price	YOUR COST
112S—4 ohm	\$2.50	\$1.75
113S—20 ohm	2.75	1.93



Relay

Relay

Our commercial standard relay is used extensively with W. U. and Postal lines. Heel iron and armature of Norway iron, coils rubber covered and adjustable. Mahogany base, mounted on black enamel sub base.

	List Price	YOUR COST
916—150 ohm	\$9.50	\$6.65
917—250 ohm	10.00	7.00

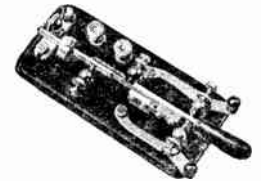
Pony Relay

Metal parts are gold lacquered brass. Mounted on mahogany and black enamel base.

	List Price	YOUR COST
M-104—4 ohm	\$4.25	\$2.98
M-105—20 ohm	4.50	3.15
M-106—50 ohm	4.75	3.33
M-107—75 ohm	5.00	3.50

Sematic Key

Semi-Automatic and Double Action
Type M-200



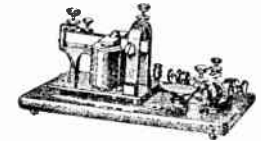
M-200

This is a professional key of the latest design with a minimum number of adjustments. It can be used as a double action or semi-automatic key. Heavy black cast base with nickel-plated brass parts.

List Price, \$16.00 Your Cost, \$10.98

Sr. Learner Set

Golden finish brass bar frame, sounding plate and key base. Aluminum sounding bar, nickel-plated key lever, rubber covered coils and mahogany finish base.



Sr. Learner Set

	List Price	YOUR COST
M-108—4 ohm	\$6.25	\$4.38
M-109—20 ohm	6.50	4.55
M-110—4 ohm	5.00	3.50
M-111—20 ohm	5.25	3.68

M-110 and M-111 same as M-108 and M-109 except sounder plate is steel and key base is black enamel.

Jr. Learner Set

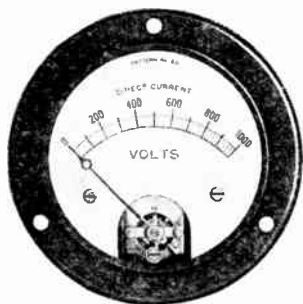
Black enamel key base and bar frame. Brass bridge and aluminum sounding bar. Nickel-plated lever, mahogany finish base.

	List Price	YOUR COST
M-112—4 ohm	\$4.00	\$2.80
M-113—20 ohm	4.25	2.98

The Famous "Jewell" Trio

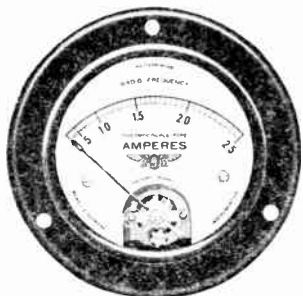
The "Jewell" Trio of Miniature Radio Instruments is popular alike with servicemen for building up special test panels, experimenters for laboratory apparatus, and amateurs for radio broadcasting service.

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



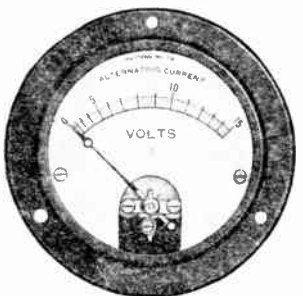
Pattern No. 54

Flange diameter, 3 3/4 inches
Case diameter, 3 inches



Pattern No. 68

These instruments are thermo-couple type.



Pattern No. 74

Flange diameter, 3 3/4 inches
Case diameter, 3 inches

WE CAN SUPPLY ANY "JEWELL" PRODUCT

Patterns 54 and 88 D.C. Instruments

Ranges for both Patterns 54 and 88:

	List Price	YOUR COST
0-8, 10, 15, 30, 50 volts	\$7.50	\$5.62
0-150 volts	9.50	7.12
0-300 volts	12.00	9.00
0-500 volts	15.50	11.62
0-750 volts	19.00	14.25
0-1000 volts	22.50	16.87
0-1500 volts	28.50	20.37
0-2000 volts	34.50	25.87
3, 5, 10, 15, 25, 50, 100, 150, 200, 250, 300, 500 milliamperes ..	7.50	5.62
0-1 milliamperes ..	9.00	6.75
0-1.5 milliamperes ..	9.00	6.75
0-2 milliamperes ..	9.00	6.75
0-200, 300, 500 microamperes ...	24.00	18.00
0-1, 1.5, 2, 3, 5, 10, 15 amperes ...	7.50	5.62
50-0-50 galvanometer	9.00	6.75

Pattern 88 includes the same movement as 54 in a bakelite case, flush type only.

Flange diameter, 3 1/2 inches.
Case diameter, 2 3/4 inches. Approximate shipping weight, 3 lbs.

Patterns 64 and 68 Radio Frequency Instruments

Approximate shipping weight, 3 lbs.

Pattern 68 furnished in bakelite cases, flush type only. Flange diameter, 3 1/2 inches. Case diameter, 2 3/4 inches. Approximate shipping weight, 3 lbs.

Ranges for both Patterns 64 and 68:

	List Price	YOUR COST
0-.5, 1, 1.5, 2, 2.5, 3, 5, 10, 15 amperes	\$13.35	\$10.00
0-100 galvanometer	15.00	11.25

Patterns 74 and 78 A.C. Instruments

Flange diameter, 3 1/2 inches. Case diameter, 2 3/4 inches. Approximate shipping weight, 3 lbs.

Ranges for both Patterns 74 and 78:

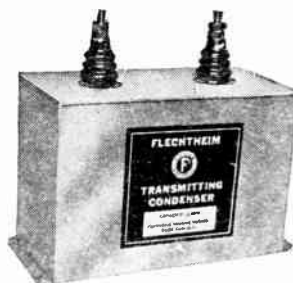
	List Price	YOUR COST
0-3, 5, 10, 15, 20, 30 volts	\$7.50	\$5.62
0-150 volts	9.50	7.12
0-300 volts	12.00	9.00
0-3-15-150 Triple Range volts ...	13.50	10.13
0-25, 50, 100, 200, 300, 500 milliamperes	7.50	5.62
0-1, 2, 3, 5, 10, 15 amperes	7.50	5.62

FLECHTHEIM Transmitting Condensers

High Tension Transmitting Condensers

Type TC: For Continuous Operating Voltages up to 1000 Volts D.C.

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.



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 DC (motor-generator) or 750 volts rms. rectified AC in low-powered transmitters

employing 5, 7 1/2, 10, 25 or 50 watt tubes.

Type	Capacity	Size	List Price	YOUR COST
TC 100	1 Mfd.	5 1/2 x 4 3/4 x 1	\$3.75	\$2.20
TC 200	2 Mfd.	5 1/2 x 4 3/4 x 2	6.50	3.82
TC 400	4 Mfd.	5 1/2 x 4 3/4 x 4	11.00	6.47

1500 Volts D.C. Rating

Type	Capacity	Size	List Price	YOUR COST
T 100	1 Mfd.	5 1/4 x 4 3/4 x 1	\$4.50	\$2.65
T 200	2 Mfd.	5 1/4 x 4 3/4 x 2	8.50	5.00
T 400	4 Mfd.	5 1/4 x 4 3/4 x 4	14.50	8.61

2000 Volts D.C. Rating

Type	Capacity	Size	List Price	YOUR COST
TH 100	1 Mfd.	6 x 3 1/4 x 3 1/4	\$10.00	\$5.88
TH 200	2 Mfd.	6 x 6 x 3 1/4	15.00	8.82
TH 400	4 Mfd.	6 x 8 x 6	26.00	15.29

Copper Edgewise Wound Inductance (1/4" x 1 1/8" stock)

5 1/4" O.D.—10c turn

9" O.D.—15c turn

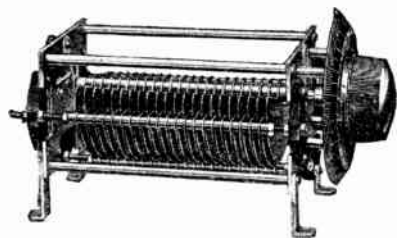
Copper Ribbon (Flat)

1/4" x 1 1/8"—8c per ft.

Note—Inductance Coils can be supplied in both sizes up to 50 turns to a coil only, no larger.

« « TRANSMITTING APPARATUS » »

“National” Transmitting Condensers



“National” Transmitting Condensers are widely used by U. S. Government Broadcasting Stations and amateur transmitters.

Transmitting condensers of any size and capacity can be supplied for voltages of from 2,000 to 20,000. Prices upon request.

List of Standard Sizes of Stock Condensers for Transmitting Sets

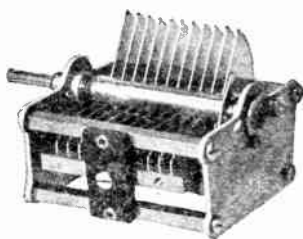
Type	Capacity	Voltage	No. Plates	Spacing	List Price	YOUR COST
TM 35A	.000035	6000v.	7	3/8"	\$8.00	\$4.72
TM 50A	.00005	6000v.	12	3/8"	10.00	5.88
TM 100	.0001	3000v.	11	1/8"	7.00	4.12
TM 100A	.0001	6000v.	23	3/8"	12.50	7.35
TM 150	.00015	3000v.	17	1/8"	7.50	4.41
TM 150A	.00015	6000v.	35	3/8"	18.75	11.03
TM 230	.00023-5	3000v.	23	1/8"	11.50	6.76
TM 230A	.00023-5	6000v.	51	3/8"	22.50	13.23
TM 350	.00035	3000v.	35	1/8"	15.00	8.82
TM 450	.00045	3000v.	43	1/8"	16.50	9.71

These prices include “National” Velvet Vernier “Type A” Dials. Condensers without dials, \$2.50 less.

Note—Prices on Navy type Condensers for high voltage work will be quoted upon receipt of specifications. The Navy type Condenser, built to order, has a ball bearing rotor shaft and pyrex insulators.

New Type TMU “National” Transmitting Condensers Prices on Application

“Hammarlund” Transmitting Condensers



Transmission over short wavelengths is recognized as the most efficient medium for long-distance amateur communication. The very low losses and high quality of “Hammarlund” Transmitting Condensers are emphasized in this class of work where ordinary condensers are impossible. Now further improved by the use of “Parmica,” the new Hammarlund low-loss

insulation. Spacing between plates .083". Breakdown voltage, 3500 volts at 500 K.C. using 500 cycle alternator.

Used in famous flights including those of the “Southern Cross,” “Yankee Doodle” and the Byrd Expedition.

Code No.	Capacity	List Price	YOUR COST
TC-12-105	mmfd.	\$6.00	\$3.60
TC-22-200	mmfd.	7.00	4.20
TC-43-390	mmfd.	10.00	6.00

“Electrad” Wire-Wound Grid Leaks for Transmitters



The unique construction of these resistance allows for use of larger diameter wire than is used in other types of enameled wire wound resistors. The contacts between wire and lugs are positive. They are guaranteed not to develop noise or open circuits in use.

TYPE TL—40 WATT—1" x 6"

Type	Total Resistance Ohms	Resistance of Sections-Ohms	Maximum Working Current in Milli-amperes	List Price	YOUR COST
TL 50	5000	2500-2500	90	\$2.50	\$1.50
TL 100	10000	5000-5000	63	2.75	1.65

TYPE TG—100 WATT—1 1/4" x 10"

Type	Total Resistance Ohms	Resistance of Sections-Ohms	Maximum Working Current in Milli-amperes	List Price	YOUR COST
TG 50	5000	2500-2500	141	\$3.00	\$1.80
TG 100	10000	5000-5000	100	3.50	2.10
TG 150	15000	5000-5000-5000	82	4.50	2.70
TG 200	20000	10000-10000	71	4.25	2.55
TG 300	30000	15000-15000	58	5.00	3.00
TG 500	50000	25000-25000	45	5.50	3.30

TYPE CF—15 WATT—1/2" x 4"

Type	Total Resistance Ohms	Resistance of Sections-Ohms	Maximum Working Current in Milli-amperes	List Price	YOUR COST
CF 1	10	5-5	12	\$1.50	\$0.90
CF 2	200	100-100	50	1.50	.90

“Sangamo” High Voltage Condensers

Same appearance as “Sangamo” Condensers on Page 56

Small mica condensers capable of withstanding high voltages are required in many radio transmitting sets. To supply the need for a unit of this type, Sangamo has developed a special line of high voltage mica condensers that will withstand a breakdown test up to 5000 volts direct current, and at the same time meet the stringent requirements as to capacity that are maintained on the standard line of condensers.

Many years of experimental work was necessary before the Sangamo high voltage condenser was perfected. This unit has the same physical dimensions as the standard line of condensers, and is available in the following classes:

Class	Test Voltage	Capacities	List Price	YOUR COST
Class 2	Direct current test 2500 volts.	Capacities .003 to .01	\$1.75	\$1.05
Class 3	Direct current test 5000 volts.	Capacities .00004 to .002	2.00	1.20

TRANSMITTING PRODUCTS

"Ward Leonard" Transmitting Grid Leaks



Type 507-2 — Center-tapped grid leak for use in circuits up to and including 50 watts input. 4" long, 5000 ohms, 44 watts, 90 M.A.

List Price, \$1.60

Your Cost, 96c

Type 507-3—Center-tapped grid leak for use in circuits up to and including 1000 watts input. 8½" long, 5000 ohms, 200 watts, 200 M.A.

List Price, \$3.75

Your Cost, \$2.25

Type 507-4—For use in circuits using the De Forest or R.C.A. UX852 tubes. 50,000 ohms, 200 watts, 60 M.A.

List Price, \$8.75

Your Cost, \$5.25

Type 507-5—Heavy duty Resistor, 20,000 ohms, 95 M.A. 200 watts.

List Price, \$4.50

Your Cost, \$2.70

Type 507-66—A heavy duty Resistor, 15,000 ohms, with 3 taps, 5000 each 120 M.A., 200 watts.

List Price, \$4.25

Your Cost, \$2.55

Type 507-8—A Resistor that can be used in 50-watt circuits, 10,000 ohms. 65 M.A. 44 watts.

List Price, \$1.60

Your Cost, 96c

Type 507-36—Center tap resistance, heavy circuit carrying capacity. May be used in grid biasing circuits of large transformer tubes without danger of burnouts. 6" long, 140 ohms, 100 watts, 830 M.A.

List Price, \$3.10

Your Cost, \$1.86

Type 507-51—Center-tapped grid leak for circuits up to 500 watts input. 8½" long, 10,000 ohms, 200 watts, 135 M.A.

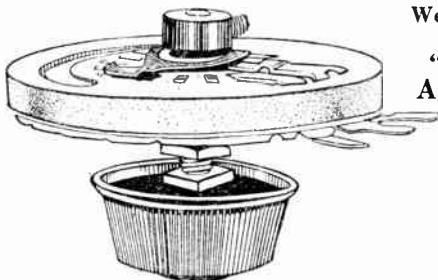
List Price, \$3.85

Your Cost, \$2.31

Type 507-53—Center-tapped resistor for obtaining accurately the electrical center of low voltage filament transformers. 2" long, 200 ohms, 10 watts, 220 M.A.

List Price, \$1.10

Your Cost, 66c



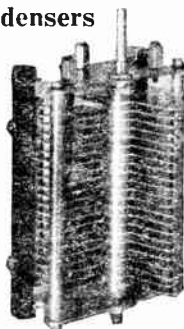
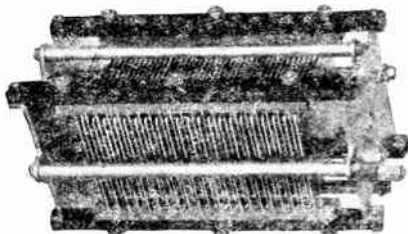
We Carry a Complete Line of "Ward Leonard" Adjustats in Stock

New Volume Controls and Faders in Stock

Write for Prices

"Cardwell" Transmitting Condensers

for Amateur Use and Medium-Sized Broadcast Installations



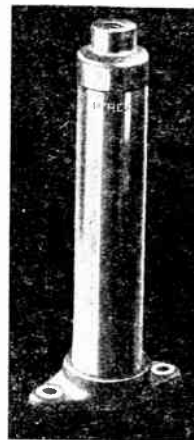
Type	Maximum Capacity	Air Gap	Number of Plates	List Price	YOUR COST
141B	.00025	.030"	11	\$4.25	\$2.95
123B	.00048	.430"	21	5.00	3.43
156B	.00018	.030"	21	7.00	4.81
137B	.00096	.030"	41	6.00	4.12
197B	.00008	.070"	9	10.00	6.86
T183	.00011	.171"	23	10.00	6.86
164B	.00022	.070"	21	7.00	4.81
157B	.00022	.070"	21	12.00	8.24
T199	.00033	.084"	37	10.00	6.86
147B	.00044	.070"	43	10.00	6.86
166B	.0003	.219"	23	75.00	67.50

"Bee Hive" Type Stand-Off Insulators

Metal parts are heavy cadmium plated. A porcelain standoff insulator used by the "hams" in building their own coils and useful in many other ways where high voltage is used.

Diameter, 2". Height, 2¼".

Your Cost, 20c each



"PYREX" Insulators

Used by Admiral Byrd on his Arctic and Antarctic expeditions.

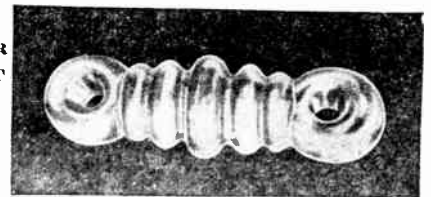
NO LEAD CONTENT

Stand-Off Insulators
Brass Fittings

	List Price	YOUR COST
3"	\$2.75	\$1.92
7"	3.00	2.10

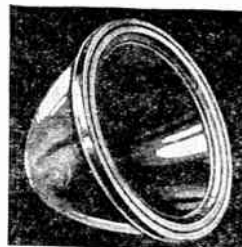
Antenna Transmitting Insulators

	List Price	YOUR COST
3¾" ..	\$0.30	\$0.21
7¾" ..	1.50	1.05
12½" ..	3.50	2.45



"Pyrex" Entering Insulators Navy Type

No.	67009	67037
Navy Type	SE-1846	SE-2202
Weight	1 lb. 11 oz.	2 lb.
Height overall ...	4¾ in.	4¾ in.
Outside diam. at base	6 ⅞ in.	6 ⅞ in.
List Price, each ..	\$1.50	\$1.50
Your Cost	\$1.05	\$1.05



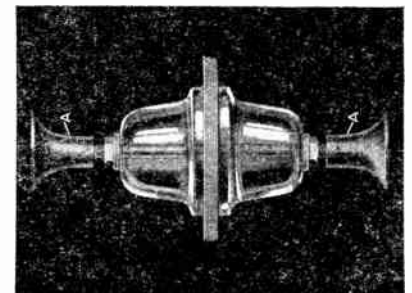
Type SE-2202 can be furnished with three types of brass fittings and aluminum shield.

Airplane Entering Insulator

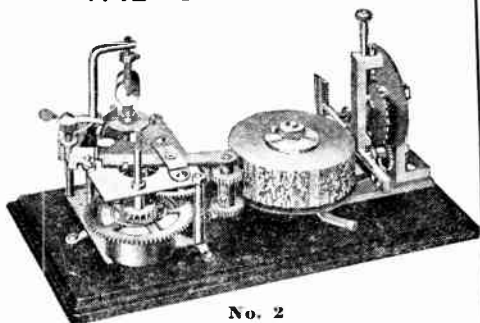
No. 67079—With solid brass fittings. 2½x6½".

List Price, \$5.00

Your Cost, \$4.25



THE OMNIGRAPH



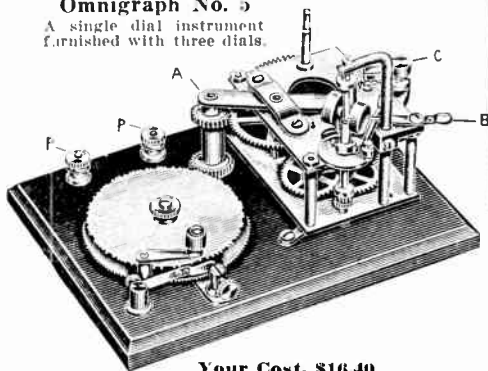
No. 2

The Omnigraph has been known and used for over 25 years. The world's foremost operators used this ingenious self-instructor in their early days. It works automatically and brings into your home an expert operator, ready at all times to send you messages by the hour, at any speed, in either Morse or Continental (Wireless) Code. The Omnigraph No. 2 is the standard model, comes complete with 15 aluminum dials, which will last forever. Each of these dials is divided into 5 parts, making an equivalent of 75 dials, each with a different message. The Omnigraph is used by the United States Government and in almost every technical and trade college in the country. Speed may be controlled from 5 to 50 words per minute. Advanced as well as beginner can use the Omnigraph to distinct advantage.

Omnigraph No. 2—List Price, \$35.00
Your Cost, \$31.50

Omnigraph No. 5

A single dial instrument furnished with three dials.



Your Cost, \$16.40

GENUINE TELEPLEX

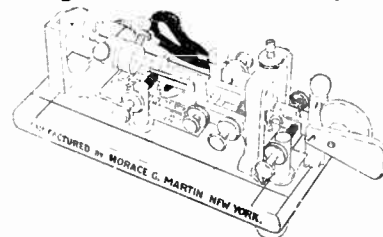
The Perfect Self-Instructor



Teleplex is the student's perfect aid in developing speed in both sending and receiving. It is equally helpful to the advanced student and the beginner. Many experienced operators are using Teleplex to attain absolute perfection. Dots and dashes are perforated in the lesson tape. A mechanical motor pulls the tape and sounds the dots and dashes for you. The speed may be regulated from 5 to over 80 words per minute. The only other equipment necessary is either a key and buzzer or an Audion Oscillator. The key and buzzer are necessary for the American Morse Code. Either equipment may be used for the Radio Code.

Teleplex
Your Cost, \$26.95
Audion Oscillator
Your Cost, \$5.39

The New Improved Original Martin Vibroplex



Suitable for all classes of transmitting work where speed and perfect Morse are prime essentials. Old style, single lever. Two pairs of contact points; one for dots, the other for dashes. Weight, 3 lbs. 8 oz. Japanned base. A handsome and efficient transmitting machine, with unlimited sending possibilities. Can be furnished in red, green or blue.

List Price, \$17.00

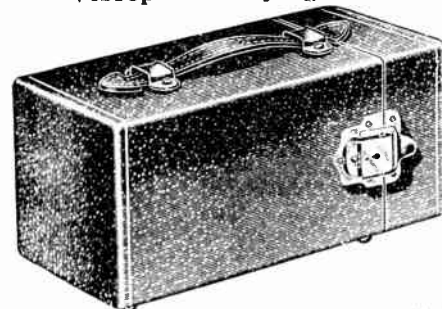
The New Improved Radio Transmitter
Same Appearance as Above

A single lever Vibroplex with two pairs of extra heavy contact points, to break high current, without use of relay, one pair for dots, the other for dashes. Weight, 3 lbs. 8 oz. Japanned base, or nickel-plated base.

List Price, \$25.00

All Vibroplex models carried in stock.

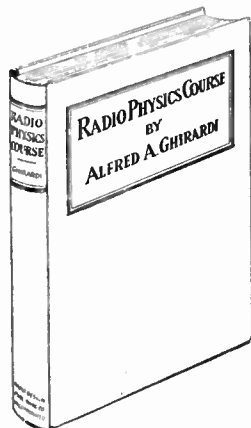
Vibroplex Carrying Case



A plush-lined case, finished in handsome black morocco. Corners are reinforced, adding to its durability and attractiveness. A flexible leather handle makes it more convenient to carry. Has lock and key. Keeps the machine free from dust, dirt and moisture. Insures safe-keeping when not in use.

List Price, \$3.00

BOOKS ON RADIO



"Radio Physics Course"

By Alfred A. Ghirardi

Used as a textbook by the R C A School. A complete course, simple enough for the novice, yet technically correct, covering the entire range from radio fundamentals to short waves, television, and the "talkies." A valuable reference work of 362 pages with 300 illustrations.

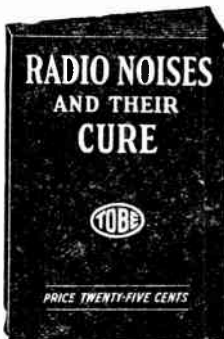
Postpaid
Anywhere, \$2.50

"Theory of Radio Communication"

By Lieut. John T. Filgate

Formerly Instructor at U. S. Army Signal School. Published with approval of U. S. War Department, this is first public printing of the officers' radio manual used by the U. S. Army Signal Corps. A splendid technical textbook for advanced radio amateurs. 250 pages, 200 illustrations.

Postpaid anywhere, \$2.00



Radio Noises and Their Cure

72-Page Book

telling all about what causes the noises in your set, and how to stop them. Plenty of photographs, diagrams, and charts. Arranged in simple question and answer form.

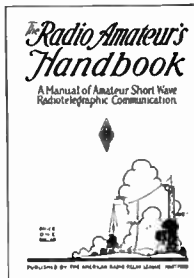
"Keep a Copy Near Your Set"

Your Cost, 25c

Radio Amateur Hand Book

A book every amateur should have. This is the sixth and latest edition of a book that has become so popular that it is generally referred to as the amateur's "Bible." More than 75,000 copies have been sold to radio fans all over the world, and orders for it continue to arrive in every mail.

Your Cost, \$1.00



Amateur Call Book

with a complete list of all amateur stations. Brought up to date four times a year.

Your Cost, \$1.00

Citizen's Radio Call Book

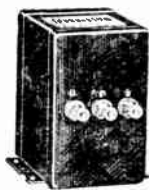
Contains complete up-to-date list of all broadcasting stations in the world, a complete picture section, and beautifully illustrated construction articles showing how to build test circuits.

Your Cost, 50c



THORDARSON Transmission Equipment

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 free from resonant peaks.

Primary impedance: 200 ohms each side. Turns ratio: 27 to 1. Impedance ratio: 750 to 1. Dimensions: 3 3/4" x 3" x 3 3/4" high.

List Price, \$20.00 Your Cost, \$13.14

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. Turns ratio: 45 to 1. Impedance ratio: 2000 to 1. Dimensions: 2 1/2" x 2 1/2" x 3 1/2" high.

List Price, \$10.00 Your Cost, \$6.57

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. Turns ratio: 64 to 1. Impedance ratio: 4000 to 1. Dimensions: 2 1/4 x 2 1/4 x 2 1/2" high.

List Price, \$5.00 Your Cost, \$3.29

T-3474 Tube to Line Transformer

A quality line input transformer designed to couple the output of a single 210 or single or push-pull 171 type tube into a line of 600 ohms. Dimensions: 3 1/2" x 3 1/2" x 4 5/8" high.

List Price, \$25.00 Your Cost, \$16.42

T-3475 Line to Tube Transformer

A quality line output transformer designed to couple the output of a 600 ohm line into any standard voltage amplifying tube. Dimensions: 3 1/2" x 3 1/2" x 4 5/8" high.

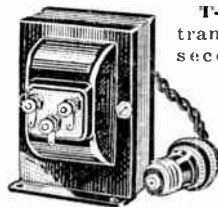
List Price, \$25.00 Your Cost, \$16.42

T-3476 Line to Line or Mixing Transformer

This transformer is primarily designed to be used as a line to line transformer, but also is an excellent mixing transformer. Dimensions: 3 1/2" x 3 1/2" x 4 5/8" high.

List Price, \$25.00 Your Cost, \$16.42

Filament Supply Transformers



T-2383 — A filament transformer with a split secondary center tap brought out at exact electrical center. Transformer completely shielded. Primary: 110 volts, 50-60 cycles. Secondary: 12 volts, center tapped. Capacity: 175 V.A. Dimensions: 4 1/2" x 5".

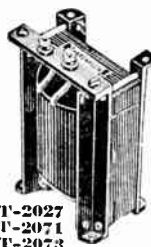
List Price, \$15.00 Your Cost, \$9.80

T-4307 — Designed to supply filament current to one or two type 872 mercury vapor rectifier tubes. Primary designed for 110 volts 50-60 cycles, secondary supplies 5 volts at 20 amperes. Secondary is center tapped by winding it in two identical coils. Insulation between windings and ground tested at 10,000 volts. Mounted in compound filled case, impervious to moisture. Primary fitted with porcelain connector block, and secondary terminals are brought out through high voltage bushings. Finished in black crystalline, 5 1/2" high by 5 5/8" wide by 6 1/2" long. Mounting bracket project at the side. Weight—21 pounds.

List Price, \$40.00 Your Cost, \$26.12

T-3080—A filament supply transformer to supply two UX-866 rectifier tubes. Primary: 110 volts, 50-60 cycles. Secondary: 2.5 volts, 5 amps. (center-tapped). Insulation: 5000 volts to case. Dimensions: 3 1/2" x 3" x 3 3/4" high.

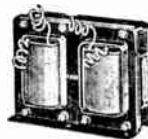
List Price, \$12.00 Your Cost, \$7.84



Filter Reactors

1.5 henry choke, 200 mils, 1600 V. insulation. Filter choke in key circuits.

T-2027
T-2071
T-2073



T-2458

T-2376—List Price, \$5.00 Your Cost, \$3.29

T-2353—A single open-frame choke, 6 henry, 150 M.A. D.C. Resistance, 100 ohms. 3000 volt insulation. Dimensions: 3" x 3 1/4" x 3 3/4" high.

List Price, \$7.50 Your Cost, \$4.90

T-2071—A single open-frame choke, 30 henry, 150 M.A., D.C. Resistance, 290 ohms, 3000 volt insulation. Dimensions: 2 3/4" x 3 1/2" x 6" high.

List Price, \$16.00 Your Cost, \$10.51

T-2458—Double choke, open mounting. Each choke 18 henry, 250 M.A., D.C. 2000 V. insulation. 108-5 ohms each choke. Dimensions: 3" x 7" x 5 1/2" high.

List Price, \$19.50 Your Cost, \$12.80

T-2027—A single open-frame choke, 30 henry, 300 M.A., D.C. Resistance, 160 ohms, 3000 volt insulation. Dimensions: 5" x 3 1/2" x 8" high.

List Price, \$22.00 Your Cost, \$14.45

T-2073—A single open-frame choke, 30 henry, 500 M.A., 3000 volt insulation. Dimensions: 4 1/2" x 5 1/2" x 9 1/2" high.

List Price, \$30.00 Your Cost, \$19.60

Plate Supply Transformers

T-2385—A conservatively rated plate supply transformer, center tapped with two high voltage taps. Furnished in compound filled case. Primary: 110 volts, 50-60 cycles. Secondary: 500 and 750 volts each side of center tap. Capacity: 100 V.A. Dimensions: 5" x 5 1/4" x 6" high.

List Price, \$16.00 Your Cost, \$10.52

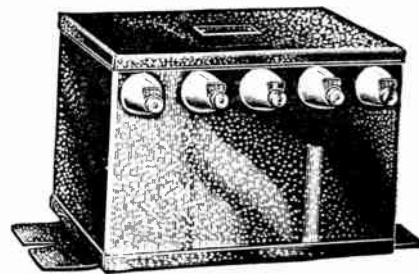
T-2387—Similar to above with following specifications—Primary: 110 volts, 50-60 cycles. Secondary: 1000 and 1500 volts each side of center tap. Capacity: 300 V.A. Dimensions: 7 1/2" x 5 5/8" x 7 1/2" high.

List Price, \$22.00 Your Cost, \$14.45

T-2388—Similar to above but with following specifications—Primary: 110 volts, 50-60 cycles. Secondary: 1500 and 2000 volts each side of center tap. Capacity: high.

500 V.A. Dimensions: 7 1/2" x 6 1/2" x 8 1/2"
List Price, \$30.00 Your Cost, \$19.60

Thordarson T-2389 A-Plate Supply Transformer

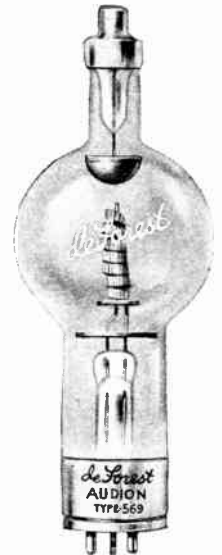
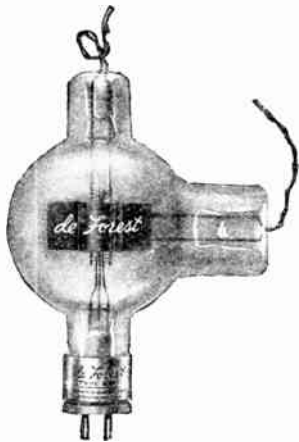


115 volt, 50-60 cycle primary. Secondary: 2000 volts each side of center, tapped at 1500 volts. Capacity: 1000 volt-amperes. Compound filled case impervious to moisture and climatic conditions. Primary terminals in a porcelain connector block, secondary screw terminals are brought out through high voltage porcelain bushings, making breakdown impossible, except in case of abuse. Size: 7" x 7 1/4" x 10" Weight: 54 pounds.

List Price, \$40.00 Your Cost, \$26.12

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.

Tubes	DESCRIPTION	YOUR COST
510	15 Watt Oscillator. Specially treated plate gives high plate dissipation. No "creeping." High voltage breakdown. Low leakage. Ideal for crystal control Oscillators.....	\$9.00
503-A	50 Watt Oscillator and R.F. Power Amplifier. The standard "50 Watter"	30.00
511	50 Watt Oscillator, R.F. Amplifier, Modulator or R.F. Power Amplifier. Indeed a general purpose tube	30.00
545	50 Watt A.F. Amplifier and Modulator. Not generally suited as an Oscillator or R.F. Amplifier	33.75
552	75 Watt Oscillator and R.F. Amplifier. Low internal capacity between elements. Low "frequency shifting"	24.25
504-A	250 Watt Oscillator, Modulator or R.F. Power Amplifier, standard "250 Watter" in general use	105.00
500	500 Watt Special Oscillator. No base. Flexible leads through envelope. Low inter-electrode capacity	97.50
520-B	5000 Watt Oscillator—water cooled. Water jacket integral part of tube, merely make water connections	187.50
565	7½ Watt Screen Grid R.F. Amplifier. Useful as "Buffer" Amplifier in telephone transmitters. Extremely low control grid plate capacity. Requires no neutralizing.....	16.50
560	75 Watt Screen Grid R.F. Amplifier. Extremely low control grid plate capacity. Requires no neutralizing	37.50
561	500 Watt Screen Grid R.F. Amplifier. Extremely low control grid plate capacity. Requires no neutralizing	292.50
566	A "half wave" hot cathode, mercury vapor rectifier, 2.5 volts, 5 amperes on filament. Maximum peak inverse voltage 7500. Anode current 0.6 amperes. Especially valuable for amateur transmitter plate supply.....	9.00
572	A "half wave" hot cathode, mercury vapor rectifier, 5 volts, 10 amperes on filament, 7500 maximum peak inverse volts, anode current 2.5 amperes. Especially useful for broadcast transmitter	22.50

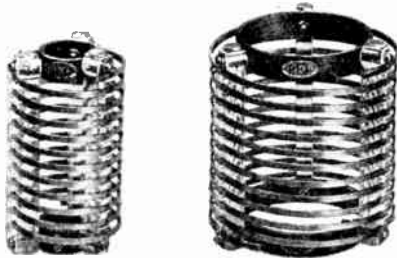


Guarantee

The De Forest 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.

R. E. L. AMATEUR EQUIPMENT

Transmitting Inductances



Type S

Type L

The finest of low-loss construction. Pyrex glass insulation between turns; flatwise wound nickel-plated copper strip. Suitable for anything from a receiving tube transmitter to a one kilowatt set. Made in two sizes, Type L, 5" in diameter, for 40, 80 and 150 meter bands; Type S, 2 3/4" in diameter for 20 meter band and lower. Single units have three positive contact clips. Double units have primary and secondary with two glass coupling rods and six clips.

	List Price	YOUR COST
Type L—Single unit.....	\$5.50	\$3.75
Type S—Single unit.....	5.50	3.75
Type L—Double unit.....	11.00	7.60
Type S—Double unit.....	11.00	7.60

Also supplied in Type LL, 8" diameter, 6" long, 1 1/2 turns—specially designed for transmitters operating above 200 meters.

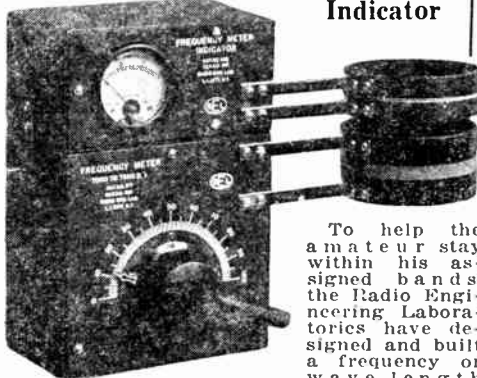
	List Price	YOUR COST
Type LL—Single unit.....	\$11.00	\$7.60

R.E.L. Sockets

50-Watt sockets for Type -03A, -11, -15 and -72 tubes; for V.E. Type -11 tubes and for complete line of new DeForest 50-watt tubes, all connections plainly engraved. Spring bayonet prongs. Low capacity between prongs.

Cat. No. 131—List Price, \$2.00
Your Cost, \$1.40

Amateur Frequency Meter and Indicator

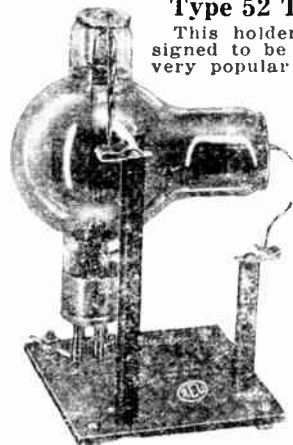


To help the amateur stay within his assigned bands, the Radio Engineering Laboratories have designed and built a frequency or wave length measuring instrument whose merits are such that its use in amateur transmitting stations will overcome this problem. It is of radically different design.

The above illustration shows an R.E.L. frequency meter coupled and mechanically fastened to an R.E.L. frequency meter unit. The same indicator unit may be used with any number of different R.E.L. frequency meters. The indicator should always be fastened to the meter when taking readings.

	YOUR COST
No. 173—Frequency meter, 3,500 to 4,000 KC. (85 to 75 mt.).....	\$13.50
No. 177—Frequency meter, 7,000 to 7,300 KC. (42.8 to 41 mt.).....	13.50
No. 178—Frequency mt., 14,000 to 14,400 KC. (21.4 to 20.8 mt.).....	13.50
No. 179—Frequency mt., 28,000 to 30,000 KC. (10.7 to 10.0 mt.).....	13.50
No. 180—Frequency indicator	14.40

Type 52 Tube Holder

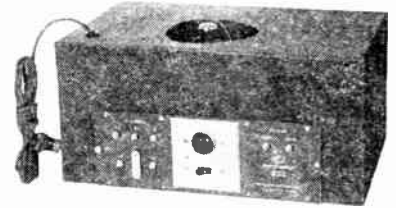


No. 129

No danger of vibration.
List Price, \$2.50
Your Cost, \$1.70

This holder has been designed to be used with this very popular amateur short wave tube. It is adapted for use with Types 52 and 60 tubes. These are of the 75-watt type either with or without screen grid. When ordering for Type 60 please specify. Has heavy base with engraved terminals. Filament contacts plug into rigid prongs. Holds tube tightly in position.

Power Supply Units for Transmitters



No. 172

Output Rating

Plate Supply 2,000 Volts D.C. at 300 Watts (150 Mils.)
Filament Supply of 10 Volts A.C. at 80 Watts (8 Amps.)

Comprises plate transformer, separate filament transformer, two 30-henry filter choke coils, three 2 mfd. 2,000 volt filter condensers, one tube holder, pilot light control switch, 8-ft. connecting cord and plug. Housed in heavily constructed metal case which is finished in black crystalline lacquer. Plainly marked terminal panel. Employs one standard UX-866 tube in a conventional half wave rectifier circuit. Dimensions: 20" x 9 1/2" front x 13" deep. Weight, 70 lbs. net.

Price does not include UX-866 Tube.
Your Cost, \$81.50

Power Supply No. 185

A complete power supply unit for low power transmitters using one or two UX-210, 7 1/2-watt tubes or any tubes having similar characteristics. Uses UX-281 half wave rectifier.

Power Supply, less tube
Your Cost, \$36.50

R.E.L.-R.F. Choke

To make your short wave circuits operate properly you must have the proper radio frequency choke coils. Here is a choke designed especially to meet the problem of the amateur. They effectively eliminate the dead spots in a receiver due to antenna harmonics. They also protect the valuable meters in your transmitting circuits. These chokes are wound with triple covered paraffin wire on a small diameter. Designed to carry 1,000 milliamperes. Shipping weight, 8 oz.

Your Cost, 75c

R.E.L. Variable Condensers

Standard Type 181

No. 181A comprises one stator and one rotor plate; the stator plate is movable so that any maximum capacity may be secured.

List Price, \$1.00
Your Cost, \$2.80



No. 181B comprises four stator and three rotor plates; spacing between stator plates 3/8"; max. cap. 115 mmfds.; break down voltage, 1,000 volts.

List Price, \$1.25
Your Cost, \$2.95

No. 181C comprises seven stator and six rotor plates; spacing between stator plates 1/4"; maximum capacity 100 mmfds.; break down voltage, 2,000 volts.

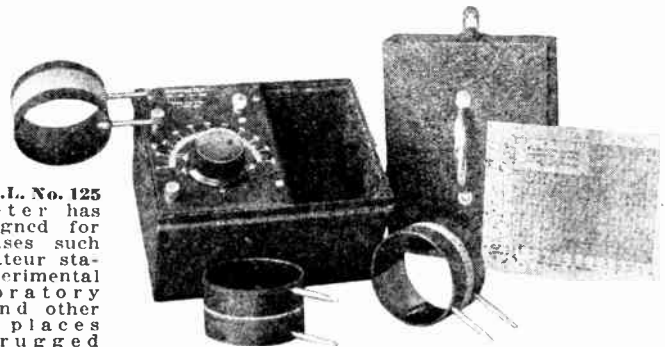
List Price, \$1.50
Your Cost, \$3.15

No. 181D comprises seven stator and six rotor plates; spacing between stator plates 1/4"; maximum capacity 210 mmfds.; break down voltage, 1,000 volts.

List Price, \$1.50
Your Cost, \$3.15

Wavemeter No. 125 (Type A)

Range 17.5 to 560 Meters



The R.E.L. No. 125 wavemeter has been designed for general uses such as in amateur stations, experimental and laboratory work and other similar places where a rugged and well constructed wavemeter is required. May be used for tuning the transmitter, checking the transmitter, locating antenna and counterpoise nodes, locating coil fields, calibrating an oscillator, wavetrapping—absorption or induction method, calibrating a receiver, measuring capacity, measuring inductance.

Completely mounted in a metal case with easily removable cover—three grooved bakelite coils supplied with each meter—wavelength range 17.5 to 560 meters—each meter individually calibrated and supplied with easy reading curve chart—Neon tube resonance indicator.

No. 125—Weight, 5 lbs. Dimensions: 7" x 9 1/2" x 7 1/2" deep.... \$22.00
Additional Neon tubes \$16.25
Your Cost 1.25

TOBE PRODUCTS

"Tobe" Filterette Junior

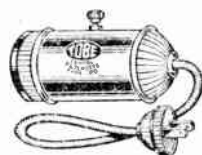


An ideal Filter for small motors such as are used for electric fans, hair dryers, barbers' clippers, vacuum cleaners, cash registers, etc. Plugs into the line, and it is necessary only to run a small wire from the binding post on the Filterette to any part of the motor frame. Interference is eliminated at once.

Maximum potential: 110 volts A.C. or D.C.
Maximum load: 500 watts

List Price, \$3.50 Your Cost, \$2.06

Filterette Senior



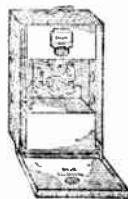
Designed for application to household apparatus creating a more intense type of interference than that which may be suppressed by use of a Filterette Junior. This unit is provided with a cord and attachment

plug to facilitate connection to the power line. Electrical disturbances which enter the electric set through the power line may be eliminated by connecting a Senior or No. 110-P.O. Filterette into the cord which supplies the power to radio set.

Maximum potential: 110 volts D.C. or A.C.
Maximum current: 5 amperes

List Price, \$7.50 Your Cost, \$4.41

"Tobe" Filterette No. 110



For all types of 110 A.C. or D.C. electrical apparatus which requires a combined inductive and capacitive type filter. Essential for certain types of refrigerators, oil burners, chargers, electric signs or blinkers, electric heating pads, dental motors, and properly shielded violet ray and diathermy apparatus.

Maximum current: 5 amperes
Maximum load: 500 watts
Outside dimensions: 10"x6"x3 3/4"

List Price, \$25.00 Your Cost, \$14.70

"Tobe" Filterette No. 110 P.O.



Is designed for application to all types of 110 volt A.C. or D.C. apparatus, which require a combined capacitive or inductive type Filterette. This Filterette is recommended for application to certain types of refrigerators, battery

chargers, electric signs, heating pads, dish washers, barbers' clippers, drink mixers, washing machines, and other types of household apparatus.

Maximum potential: 110 volts A.C. or D.C.
Maximum load: 500 watts
Maximum current: 5 amperes

List Price, \$10.00 Your Cost, \$5.88



Filterette No. 110 P.L.

Same in appearance as 110 P.O.

Maximum potential: 110 volts A.C. or D.C.
Maximum current: 5 amperes

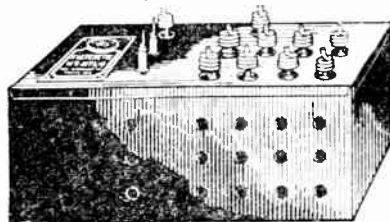
List Price, \$12.50 Your Cost, \$7.35

Auto Ignition Filterette Kits

"Tobe" Ignition Filterette Kits come boxed complete, containing the necessary units for four, six or eight cylinder cars. All essential capacity and resistance is included and a graphic diagram showing exactly where connections should be made. Various suggestions are also included telling how best to obtain complete suppression of interference and precautions to be taken in order to insure an efficient job.

	List Price	YOUR COST
For 4 cylinder cars.....	\$10.00	\$6.00
For 6 cylinder cars.....	12.00	7.20
For 8 cylinder cars.....	14.00	8.40

Filterette for Motor-Driven Sign Flashers



Maximum potential: 110 volts A.C. or D.C.

For 110 volt motor driven sign flashers to suppress radio disturbances set up by the motor and rotary contacts of such flashers. May be used for any application, within the rating of the unit, which requires a combined inductive and capacitive type filter.

No.	Max. Current in amps.	Max. Load in watts	List Price	YOUR COST
131	10	1,000	\$20.00	\$11.71
132	20	2,000	30.00	17.64
133	30	3,000	42.50	25.00
134	40	4,000	57.50	33.81
135	50	5,000	75.00	44.10

Send for Filterette Booklet "Radio Noises and Their Cure"
Your Cost, 25c

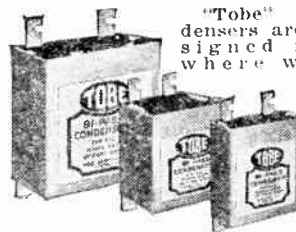
By-Pass Filter Condenser

300 volts D.C. operating voltage.

Type 350A—.5 Mfd.
List Price, 90c
YOUR COST, 54c
Type 301A—1.0 Mfd.
List Price, \$1.25
YOUR COST, 75c



By-Pass Condenser and Filter Condensers



"Tobe" By-Pass Condensers are specially designed for operation where working voltage does not exceed 200 volts, D.C. "Tobe" Filter Condensers are for use where the D.C. working voltages run up to 300 volts.

Bi-Pass

Types	Sizes	List Price	YOUR COST
210	0.1 Mfd.	\$0.60	\$0.36
225	0.25 Mfd.	.70	.42
250	0.5 Mfd.	.75	.45
201	1.0 Mfd.	1.00	.60
202	2.0 Mfd.	1.75	1.03
204	4.0 Mfd.	3.50	2.06

Filter

Types	Sizes	List Price	YOUR COST
310	0.1 Mfd.	\$0.70	\$0.42
325	0.25 Mfd.	.75	.45
350	0.5 Mfd.	.90	.54
301	1.0 Mfd.	1.25	.75
302	2.0 Mfd.	1.75	1.03
304	4.0 Mfd.	3.50	2.06

400 Line Short-Path High Voltage Condensers

"Tobe" 400 Line Condensers are of short-path type, cased in the characteristic silvered metal container, and of compact shape occupying minimum space on the baseboard with strong lugs for attachment. For 400 volts D.C.

No.	List Price	YOUR COST
401 1 Mfd.	\$2.00	\$1.18
402 2 Mfd.	2.75	1.62
404 4 Mfd.	4.50	2.61
411 2x0.1 Mfd..	2.00	1.18



600 Line High-Voltage Condensers

For use in power units for operation of UX245 or UX210 power tubes.

Maximum Voltage rating 1000 volts D.C.

No.	List Price	YOUR COST
650 0.5 Mfd.	\$2.00	\$1.18
601 1.0 Mfd.	2.50	1.47
602 2.0 Mfd.	4.50	2.67
604 4.0 Mfd.	7.50	4.41



1300 Line High-Voltage Surgproof Condensers

Self-Healing Condensers, particularly suitable for use in power units for operation of UX250 power tubes. Maximum voltage rating 1300 volts D.C.

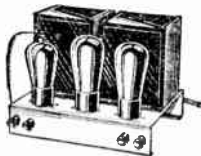
These condensers are not designed for use in transmitting circuits.

No.	List Price	YOUR COST
No. 1301 1.0 Mfd.	\$ 3.50	\$2.06
No. 1302 2.0 Mfd.	6.00	3.53
No. 1304 4.0 Mfd.	11.00	6.47



ELECTRAD PRODUCTS

The Famous "Electrad" Loftin-White A-245 Power Amplifier



Utilizes one '24, one '45 type tube in the revolutionary Loftin-White direct-coupled amplifier circuit and gives tremendous volume with unrivalled tone quality.

Self-contained power supply, with 280 Full Wave Rectifier provides all power for amplifier and the New Electrad L-W Tuner described below.

No output coupling device is included, as it is assumed that a dynamic speaker will be used which is generally equipped with an input coupling transformer. If other devices are used, they should possess an impedance of the order of 2,500 ohms.

List Price \$35.00 Your Cost, \$20.58

New "Super-Tonatrol"

Types

- 25,000 ohm potentiometer recommended for antenna volume control.
- 10,000 ohm potentiometer recommended for screen-grid or plate voltage volume control.
- 50,000 ohm rheostat recommended for R.F. grid bias control.
- 10,000 ohm rheostat recommended for R.F. plate voltage shunt control.
- 100,000 ohm potentiometer recommended for grid voltage control from secondary of audio transformer.
- 25,000 ohm potentiometer recommended for volume control of output from one electrical phonograph pickup.
- 50,000 ohm four terminal potentiometer with 25,000 ohms tapered from each side of center terminal, recommended as fader and volume control with two electrical phonograph pickups.



All above types have resistance tapers that are particularly adaptable when used in circuits recommended by us. Special resistance values and tapers can be made on order.

Circular on Request. List Price YOUR Price COST
 Types No. 1 to No. 6.....\$2.40 \$1.40
 Type No. 7.....3.50 2.10
 Dissipation 5 Watts

"Tonatrol"—Type U

Constant Resistance Volume Control\$2.00 \$1.20

The constant resistance volume control has been designed primarily to control the volume of phonograph pick-ups.

Complete "Tonatrol" folder on request.

NOTE—The Duratrol Principle, described in column three under "The New Electrad," is especially suitable for graduating light changes of stage lights, illuminated fountains, advertising displays and for any other purpose requiring smooth, stepless variation of voltage. Any number of units with different resistance curves can be made to operate on one shaft—manually or mechanically.

Loftin-White Tuner



The tuner the radio world is waiting for. Designed specifically for use with Electrad Loftin-White A-245 Direct Coupled Amplifier, or any direct-coupled amplifier with similar characteristics.

Owing to the great public interest in the revolutionary Loftin-White Direct-Coupled Amplifying System, Electrad engineers have developed a carefully matched radio frequency tuner to work with this type of circuit. Utilizes the power supply of the Electrad A-245 amplifier for A, B and C current, through a convenient plug-in cable. Two tuned stages with—one-dial operation—complete shielding with all wiring below metal chassis—simple but efficient volume control—system—unusual ease of assembly are outstanding features.

Complete parts (except tubes) including assembly and operating instructions—\$40.00.

List Price, \$40.00 Your Cost, \$23.52

"Tonatrol"

The ideal volume control for sets using A.C. tubes. Variable resistances of the famous Royalty type, especially designed to meet the volume and sensitivity control requirements of different radio circuits. "Tonatrols" provide smooth, efficient control of volume when used in their proper circuits.



Made in plain, battery switch, and power switch types.

For Oscillating Receivers

	List Price	YOUR COST
Type R—Radio Frequency Secondary Tonatrol	\$1.50	\$0.90
Type RS—(with filament switch)	2.00	1.20
Type RP—(with power switch)	2.50	1.50
Type P—Radio Frequency Primary Tonatrol	1.50	.90
Type PS—(with filament switch)	2.00	1.20
Type PP—(with power switch)	2.50	1.50

For Non-Oscillating Receivers

	List Price	YOUR COST
Type S—Audio Frequency Secondary Tonatrol	\$1.50	\$0.90
Type WS—(with filament switch)	2.00	1.20
Type SP—(with power switch)	2.50	1.50
Type A—Antenna potentiometer Tonatrol	2.00	1.20
Type AS—(with filament switch)	2.50	1.50
Type AP—with power switch	3.00	1.80

A BIG M & H SPECIAL

Build a Real Public Address System at Low Cost

The following material will enable you to build up an exceptionally fine public address system at a low price: List Price

- 1 High Grade 2 Button Microphone with 12 ft. Cable—Microphone Stand \$34.40
- 1 Electrad 400 ohm Potentiometer with Switch..... 1.30
- 3 1½ Volt Dry Cells, Burgess... 1.35
- 2 Yaxley No. 702 Jacks..... 1.10
- 1 15 M.A. Meter, Jewell or Weston 7.50
- 1 Phone Plug75
- 1 Electrad Table Tonatrol..... 2.50
- 1 Loftin-White Amplifier Wired. 40.00
- 1 Microphone Transformer 10.00
- 1 A.C. Dynamic Speaker Matched 25.00
- Arcturus Tubes 10.50

List Price \$134.40

Your Cost, \$80.64

The New "Electrad"

Constant Impedance "Super-Tonatrol" The Efficient Volume Control for Microphones, Phonographs and Talking Picture Amplifiers

The new Electrad Super-Tonatrol Constant Impedance "T" Pad and "L" Pad Controls offer manufacturers of electrical sound reproducing apparatus, phonographs, talking picture and similar equipment, a most effective solution to their volume control problems.

Efficient volume control between the pickup and the amplifier is made possible with this unit without unbalancing the impedance of the circuits.

Constant Impedance Controls

"T" Type Attenuators

(Three Units in Tandem)

Royalty Type

Line Impedance	Impedance of Attenuator	Type No.
15 ohms	15 ohms	TR-15
200 ohms	200 ohms	TR-200
500 ohms	500 ohms	TR-500
3,000 ohms	3,000 ohms	TR-3,000
5,000 ohms	5,000 ohms	TR-5,000

List Price, \$12.50 Your Cost, \$7.50

Super-Tonatrol Type

Line Impedance	Impedance of Attenuator	Type No.
200 ohms	200 ohms	TS-200
500 ohms	500 ohms	TS-500
3,000 ohms	3,000 ohms	TS-3,000
5,000 ohms	5,000 ohms	TS-5,000

List Price, \$16.50 ea. Your Cost, \$9.90

Dual Control "L" Type Attenuator

Super-Tonatrol

Line Impedance	Impedance of Attenuator	Type No.
200 ohms	200 ohms	LS-200
500 ohms	500 ohms	LS-500
3,000 ohms	3,000 ohms	LS-3,000
5,000 ohms	5,000 ohms	LS-5,000

List Price, \$12.50 Your Cost, \$7.50

(See Note, bottom column 1, this page)

ELECTRAD PRODUCTS

Type B—25 Watts—2 inches long

Type	Resistance in Ohms	Current Milli-amperes	List Price	YOUR COST
B-.05	5	2225	\$0.85	\$0.51
B-.075	7.5	1800	.85	.51
B-.1	10	1500	.85	.51
B-.15	15	1250	.85	.51
B-.2	20	1100	.85	.51
B-.25	25	1000	.85	.51
B-.5	50	700	.85	.51
B-.75	75	575	.85	.51
B-1	100	500	.85	.51
B-2	200	353	.85	.51
B-3	300	289	.85	.51
B-4	400	250	.85	.51
B-5	500	224	.85	.51
B-7.5	750	182	.85	.51
B-8	800	177	.85	.51
B-8.5	850	165	.85	.51
B-10	1000	158	.85	.51
B-12.5	1250	141	.85	.51
B-15	1500	129	.85	.51
B-20	2000	112	.85	.51
B-22.5	2250	105	.85	.51
B-25	2500	100	.85	.51
B-30	3000	91	.85	.51
B-35	3500	84	.85	.51
B-40	4000	79	.85	.51
B-45	4500	75	.85	.51
B-50	5000	71	.85	.51
B-60	6000	64	.85	.51
B-70	7000	60	.85	.51
B-72	7200	59	.85	.51
B-75	7500	58	.85	.51
B-80	8000	56	.90	.54
B-90	9000	53	.95	.57
B-100	10000	50	1.00	.60
B-120	12000	45	1.00	.60
B-150	15000	41	1.00	.60
B-200	20000	35	1.15	.69
B-250	25000	32	1.15	.69
B-300	30000	29	1.25	.69
B-400	40000	25	1.30	.75
B-500	50000	22.5	1.40	.84

ALL-WIRE RESISTANCES for All Purposes. Unusual Patented Air Cool Construction, Longer Life, Greater Accuracy

Type D—75 Watts—6 inches long

Type	Resistance in Ohms	Current Milli-amperes	List Price	YOUR COST
D-2	200	610	\$1.85	\$1.11
D-3	300	500	1.85	1.11
D-4	400	432	1.85	1.11
D-5	500	387	1.85	1.11
D-7.5	750	316	1.85	1.11
D-8	800	306	1.85	1.11
D-10	1000	274	1.85	1.11
D-12.5	1250	245	1.85	1.11
D-15	1500	224	1.85	1.11
D-20	2000	191	1.85	1.11
D-22.5	2250	182	1.85	1.11
D-25	2500	173	1.85	1.11
D-30	3000	158	1.85	1.11
D-35	3500	146	1.85	1.11
D-40	4000	137	1.85	1.11
D-45	4500	129	1.85	1.11
D-50	5000	122	1.85	1.11
D-60	6000	112	1.90	1.14
D-70	7000	103	1.95	1.17
D-72	7200	102	1.95	1.17
D-75	7500	100	2.00	1.20
D-80	8000	97	2.00	1.20
D-90	9000	91	2.10	1.26
D-100	10000	87	2.25	1.35
D-120	12000	79	2.25	1.35
D-150	15000	71	2.50	1.50
D-200	20000	61	2.50	1.50
D-250	25000	55	2.65	1.59
D-300	30000	50	2.65	1.59
D-400	40000	43	2.65	1.59
D-500	50000	39	2.75	1.65
D-600	60000	35	2.80	1.68
D-800	80000	31	2.90	1.74
D-1000	100000	27	3.00	1.80

Type C—50 Watts—4 inches long

Type	Resistance in Ohms	Current Milli-amperes	List Price	YOUR COST
C-2	200	500	\$1.35	\$0.81
C-3	300	406	1.35	.81
C-4	400	353	1.35	.81
C-5	500	316	1.35	.81
C-7.5	750	259	1.35	.81
C-8	800	252	1.35	.81
C-10	1000	224	1.35	.81
C-12.5	1250	200	1.35	.81
C-15	1500	182	1.35	.81
C-20	2000	158	1.35	.81
C-22.5	2250	149	1.35	.81
C-25	2500	141	1.35	.81
C-30	3000	129	1.35	.81

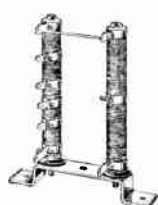


Adjustable Sliding Clip

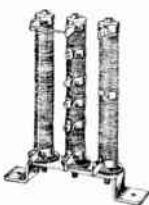
Type	Resistance in Ohms	Current Milli-amperes	List Price	YOUR COST
C-35	3500	119	\$1.35	\$0.81
C-40	4000	112	1.35	.81
C-45	4500	105	1.35	.81
C-50	5000	100	1.35	.81
C-60	6000	91	1.50	.90
C-70	7000	84	1.50	.90
C-72	7200	83	1.50	.90
C-75	7500	82	1.50	.90
C-80	8000	79	1.50	.90
C-90	9000	74	1.50	.90
C-100	10000	71	1.65	.99
C-120	12000	65	1.65	.99
C-150	15000	58	1.65	.99
C-200	20000	50	1.80	1.08
C-250	25000	45	1.85	1.11
C-300	30000	41	1.90	1.14
C-400	40000	35	1.95	1.17
C-500	50000	32	2.00	1.20
C-600	60000	29	2.10	1.26
C-800	80000	25	2.25	1.35
C-1000	100000	22.5	2.75	1.65

Note—Above wattage and current ratings apply only when units are suspended in free air, otherwise loads exceeding 50 per cent of their ratings should not be applied. Voltages greater than 400 DC should not be applied across the terminals of any one resistance unit. For high voltages it is advisable to use two or more units in series. Extra sliders, 10c each. Net Price, 6c each

Truvolt Air-Cooled Resistance Banks



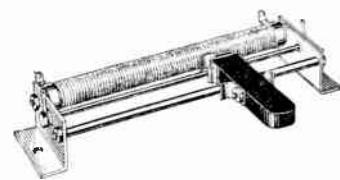
Type 250B3 Three "Truvolt" type C units mounted on an insulated bracket. For use as voltage divider with any 250 or 210 amplifier or plate supply device. Easily adjusted taps provide all voltages required. 8 resistance sections—21,000 ohms total resistance. Weight—One unit in carton, 8 ozs.



Type C245B2 — Two "Truvolt" type C units. For use with any receiver or power amplifier using 245 type tubes. 7 resistance sections—14,700 ohms total resistance. Weight—One unit in carton, 7 ozs.

List Price, \$5.00 Your Cost, \$3.00
List Price, \$3.50 Your Cost, \$2.10

Truvolt Sliding Contact Resistance



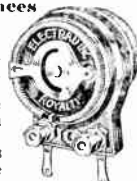
Patented "Truvolt" air-cooled resistance unit mounted with sliding contact arm. Made particularly for general laboratory use, to control line voltages, speed of small motors, etc. Made on order to any resistance value up to 5,000 ohm maximum. Overall length — 7 3/4 inches. Weight, one unit in carton, 7 1/2 ozs.

List Price, \$4.75 Your Cost, \$2.80

Electrad Royalty Variable

Non-Inductive High Resistances Note these important exclusive features:

1. Resistance element not impaired by mechanical operations.
2. Electrical contact made positive by metallic arm on wire-wound strip.
3. The same resistance is always obtained at the same setting.



Type	Resistance	Working Current	List Price	YOUR COST
Type A—Variable Grid Leak, 1/10 to 7 megohms		.2	\$1.50	\$0.90
Type B—Variable High Resistance, 0 to 100,000 ohms...		5.0	1.50	.90
Type C—Variable High Resistance, 0 to 50,000 ohms...		7.5	1.50	.90
Type D—Variable High Resistance, 0 to 700,000 ohms...		2.0	1.50	.90
Type E—Compensator, 500,000 ohms, Potentiometer		2.5	2.00	1.20
Type F—Variable High Resistance, 0 to 2,000 ohms...		37.5	1.50	.90
Type G—Variable High Resistance, 0 to 10,000 ohms...		16.5	1.50	.90
Type H—Variable High Resistance, 0 to 25,000 ohms...		10.5	1.50	.90
Type J—Variable High Resistance, 0 to 200,000 ohms...		4.0	1.50	.90
Type K—Variable High Resistance, 0 to 5,000 ohms...		23.0	1.50	.90
Type L—Variable High Resistance, 0 to 500,000 ohms...		2.5	1.50	.90
Special Ranges to Order Potentiometer in Any of Above Sizes			\$2.00	
Your Cost, \$1.20				

Truvolt Wire Grid Resistances



All-wire grid resistance—covered with varnished cambric—can be bent any shape. No mounting necessary. Small—compact—practically noninductive.

Resistance in Ohms	Cap. in Millim-peres	Resistance in Ohms	Cap. in Millim-peres	Resistance in Ohms	Cap. in Millim-peres
5	386	300	50	1300	24
10	273	400	43	1400	23
15	223	500	38	1500	22
25	173	600	35	1600	21
40	137	700	32	1700	20
50	122	800	30	1800	20
75	100	900	29	1900	19.8
100	86	1000	27	2000	19.3
200	61	1100	26	2500	17.5
		1200	25	3000	16

These Units can also be used for other purposes provided the above working current is not exceeded.

Sizes	List Price	YOUR COST
Sizes 5 to 1000 ohms	\$0.25	\$0.15
Sizes 1100 to 3000 ohms	.40	.24

Truvolt Divider

Wire-wound resistance bank, five calibrated knobs for instant adjustment of B and C voltages from any eliminator. Simple adjustment of knobs from a chart gives voltages desired. Handsome molded Bakelite case. Compact—easily mounted. A great time saver in laboratory work.

List Price, \$10.00 Your Cost, \$5.88

NEW PILOTRON TUBES



Before the Pilot company decided to announce its line of radio tubes, its engineers spent more than a year in a specially constructed laboratory, making experimental tubes and observing their behavior under severe test conditions. They made and discarded thousands of tubes until they finally were able to say, "We can produce good tubes, uniformly, and in any quantity."

If you have used Pilot parts in the past, you can buy Pilot tubes with the assurance that you will obtain the same high quality of manufacture and the same full measure of satisfactory service.

P-227 Special Short-Wave Detector and General Purpose Detector and Amplifier—When the Pilot engineers were engaged in developing the A.C. Super-Wasp, they discovered that none of the 227 type tubes on the market would work quietly in short-wave circuits. Accordingly, they designed a tube of their own, the Pilotron P-227, which works smoothly and without hum. Outside of its special short-wave features, the P-227 is a superlative tube for any regular broadcast receiver, in any socket calling for a tube of standard 227 characteristics. It has a five-prong base, and the filament takes 1 3/4 amperes at 2 1/2 volts.

List Price, \$2.20 Your Cost, \$1.30

P-224 A.C. Screen-Grid Amplifier and Detector—A sensitive, strongly built tube for use in present-day A.C. screen-grid receivers of any make. The cap electrode is securely cemented to the top of the glass bulb, and will not work loose. Five-prong base, filament takes 1 3/4 amperes at 2 1/2 volts, A.C.

List Price, \$3.30 Your Cost, \$1.92

P-245's, Pilotron "Twins" Matched for Push-Pull—All the advantages of push-pull audio amplification are lost if the two tubes are not exactly alike in characteristics. Four-prong base, filament takes 1 1/2 amperes at 2 1/2 volts, A.C.

List Price, \$2.00 Your Cost, \$1.18

P-171A Power Tube—Although the P-245 is now the standard power amplifier tube, the P-171A is still a favorite among many radio fans, and is needed for many receivers of both the A.C. and battery types. Four-prong base, filament takes 1/4 ampere at 5 volts, either D.C. or A.C.

List Price, \$2.25 Your Cost, \$1.33

P-280 Full-Wave Rectifier Tube—For all power packs designed for 171A or 245 tubes. Required for the K-111 and K-112 units. Capable of supplying a maximum of 125 milliamperes of current, enough for the largest receiver. Four-prong base, filament takes 2 amperes at 5 volts, A.C.

List Price, \$1.90 Your Cost, \$1.12

P-226 General Purpose Amplifier—Although the 226 type of tube has been replaced entirely in 1929-1930 sets by the 227, there are many older receivers still in use that require it for the R.F. and first stage A.F. sockets. The Pilotrons P-226 is desirable for such use. Four-prong base, filament takes 1 ampere at 1 1/2 volts, A.C.

List Price, \$1.75 Your Cost, \$1.03

P-112A General Purpose Tube—Generally used as an audio output tube, but also makes an excellent R.F. amplifier on broadcast frequencies and a sensitive detector. Four-prong base, filament takes 1/4 ampere at 5 volts, direct current.

List Price, \$2.25 Your Cost, \$1.33

P-201A General Purpose Detector and Amplifier—Many thousands of battery-operated receivers of the short-wave and broadcast type are in active use, and the P-201A finds application in them. Four-prong base, filament takes 1/4 ampere at 5 volts.

List Price, \$1.25 Your Cost 75c

CeCo TUBES SEVEN OUTSTANDING ADVANTAGES



1. There are over 10,000,000 CeCo Radio Tubes in daily use.
2. The U. S. Government uses CeCo Radio Tubes in coast guard stations, on ships, etc.
3. The CeCo Manufacturing Company is the largest exclusive producer of radio tubes in the world.
4. Forty-two specialty engineers are constantly

5. working to improve CeCo Radio Tubes.
6. Every CeCo Radio Tube undergoes 64 separate tests before it leaves the factory.
7. CeCo pioneered in producing several types of tubes in general use today, including the 224 and the A.C. Pentode.
7. The Modern CeCo factory contains 3 1/2 acres of floor space and employs over 1,000 people.

Type	List Price	YOUR COST
201-A	\$1.25	\$0.74
226	1.75	1.03
227	2.20	1.30
112-A	2.25	1.33
171-A	2.25	1.33
250	11.00	6.47

P-1—SCREEN-GRID PENTODE for radio frequency amplification or detection. May be used as power detector. For use only in special circuits designed for it.

List Price, \$8.00 Your Cost, \$4.71

Type	List Price	YOUR COST
281	\$7.25	\$4.27
280	1.90	1.12
240	3.00	1.77
200-A	4.00	2.38
222	4.50	2.65
224	3.30	1.95

P-5—OUTPUT POWER PENTODE which delivers 2.4 watts undistorted output when operated directly out of a power detector.

List Price, \$11.00 Your Cost, \$6.47



R.C.A. & CUNNINGHAM TUBES

ALL OF THE LATEST TYPES ALWAYS CARRIED IN STOCK





No
Inherent
Tube
Noises
Longer
Life

ARCTURUS

BLUE A-C LONG-LIFE TUBES

Thermal
Lag
Within
Seven
Seconds



Reception in Seven Seconds

"Arcturus" Blue Tubes in your radio set bring in programs in just 7 seconds—no annoying wait for programs to begin. Just flip the switch, and by the time you turn the dial, the program is there—quick, certain—as compared to the usual 30 seconds, or more, wait.

"Arcturus" pioneered the first standard AC tube and the first quick-acting AC tubes. Other pioneering achievements stamp "Arcturus" Blue Tubes as the leader in performance and quality reception.

Your present radio can give you this better, life-like reproduction if you use "Arcturus" Tubes. Try a complete set of "Arcturus" Blue Tubes in your radio and get all the enjoyment you hoped for when you bought your receiver.

World's Record for Long Life

Throughout the world, "Arcturus" Blue Tubes are proving themselves to be the tubes that have established a world's record for l-o-n-g life. Because they withstand exceptional overloads that often burn out other tubes, "Arcturus" Blue Tubes assure the user of long, satisfactory service.



LIFE-LIKE TONE

"Arcturus" Photolytic Cells for the Improved Operation of Every Photo-Electric Device



Such as sound picture equipment; sorting, checking and matching equipment, railway and highway signal systems; chemical and medicinal analysis; burglar alarms, and dozens of other mechanical and electrical devices.

On the horizon of industry looms a new giant. Scientists have harnessed the waters, the heavens, and the earth—but it remains for the Photo-Electric Cell to harness light and make possible the further mastery of the earth's elements. The "Arcturus" Photolytic Cell transforms light energy into electrical energy. It is destined to open new possibilities in art, science and industry.

"The Electric Eye for Every Industry"

List Price, \$31.50

Your Cost, \$18.35

Booklet showing circuit diagrams and different uses for Photolytic Cell—Your Cost, 25c

A-C Tubes

- No. 127**
Detector and Amplifier
Filament Volts AC 2.5
Filament Current 1.75
Plate Volts (Rec. Det.) 45
Plate Volts (Max.) 180
List Price, \$2.20
Your Cost, \$1.30
- No. 145—Power Amplifier**
Filament Volts AC 2.5
Filament Current 1.5
Plate Volts 250
Grid Bias (—) 50
List Price, \$2.00
Your Cost, \$1.18
- No. 150—Power Amplifier**
Filament Volts 7.5
Filament Amperes 1.25
Plate Volts 250—450
Grid Volts 45—84
Plate M.A. 28—55
List Price, \$11.00
Your Cost, \$6.47
- No. 180—Full Wave Rectifier**
Filament Volts AC 5.0
Filament Current 2.0
Plate Volts (Max.) 300
DC Output:
Volts 260
Current Mill. Amp. 125
List Price, \$1.90
Your Cost, \$1.12

- No. 124—Screen-Grid**
Detector and Amplifier
Filament Volts AC 2.5
Filament Current 1.75
Plate Volts 180
Grid Volts (—) 1.5
Shield Grid Volts 75
List Price, \$3.30
Your Cost, \$1.94
- No. 126—Amplifier**
Filament Volts AC 1.5
Filament Current 1.05
Plate Volts 67.5 to 135
Grid Volts (—) 4.5
List Price, \$1.75
Your Cost, \$1.03
- No. 071A—Power Amplifier**
Filament Volts AC 5.0
Filament Current25
Plate Volts 180
Grid Volts (—) 10.5
List Price, \$2.25
Your Cost, \$1.33
- No. 181**
Half Wave Rectifier
Filament Volts 7.5
Filament Amperes 1.25
Plate Volts 750 Max.
DC Output Current 110
DC Output Voltage 620
List Price, \$7.25
Your Cost, \$4.27

D-C Tubes

- No. 012A—Power Amplifier,**
Detector and Amplifier
Filament Volts 5.
Filament Amperes25
Plate Volts 90—157
Grid Volts 7—10.5
Plate M.A. 3—9.5
List Price, \$2.25
Your Cost, \$1.33
- No. 071A—Power Amplifier**
Filament Volts 5.
Filament Amperes25
Plate Volts 135—180
Grid Volts 27—40
Plate M.A. 16—20
List Price, \$2.25
Your Cost, \$1.33
- No. UV099**
Detector and Amplifier
List Price, \$2.75
Your Cost, \$1.62
- No. 101A—Detector and**
Amplifier
Filament Volts —5.
Filament Amperes25
Plate Volts 45—135
Grid Volts 4.5—9
Plate M.A. 2.5—3
List Price, \$1.25
Your Cost, 74c
- No. 122**
D.C. Screen-Grid Amplifier
Filament Volts 3.3
Filament Amperes132
Plate Volts 135
List Price, \$1.50
Your Cost, \$2.65
- No. UX099**
Detector and Amplifier
List Price, \$2.50
Your Cost, \$1.47

15 Volt A-C Type

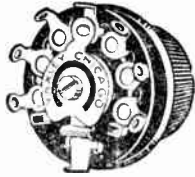
The tubes below all take fifteen volts for lighting the filament.

	List Price	YOUR COST		List Price	YOUR COST
30—Power Amplifier	\$3.00	\$1.77	26—Detector	\$4.00	\$2.38
32—High Mu	3.00	1.77	28—Amplifier	3.00	1.77
22—Screen Grid	7.50	4.41	48—Amplifier	3.00	1.77

YAXLEY

APPROVED RADIO PRODUCTS

Selector Switches



Tap Switches as illustrated can be furnished in tandem. Each switch is completely insulated from the other, but they are controlled by a single knob. In this way, a multi-contact switch that breaks both sides of the line is available.

Used for radio wiring in hotels, apartments, and the like where a selection of two or more programs is offered. Also used in a variety of ways where both sides of the line are to be broken.

SINGLE SWITCHES		List Price	YOUR COST
No. 33B	3 Point Tap Switch with break between contacts	\$0.65	\$0.39
No. 44B	4 Point Tap Switch with break between contacts	.75	.45
No. 55B	5 Point Tap Switch with break between contacts	.65	.39
No. 66B	6 Point Tap Switch with break between contacts	.65	.39
No. 70B	7 Point Tap Switch with break between contacts	.80	.48
No. 88B	8 Point Tap Switch with break between contacts	.80	.48
No. 90B	9 Point Tap Switch with break between contacts	.90	.54
No. 150	15 Point Tap Switch—large size	1.00	.60

Push Button Switches



Though frequently used and even more frequently desirable, it has been difficult to obtain a standard push button switch in the multi-spring combination. Now, Push Button Switches are available in a wide range of spring combinations. The Push Button Switches are made on the Junior frame illustrated above and are standard Yaxley construction throughout.

standard push button switch in the multi-spring combination. Now, Push Button Switches are available in a wide range of spring combinations. The Push Button Switches are made on the Junior frame illustrated above and are standard Yaxley construction throughout.

		List Price	YOUR COST
No. 2001	Make Contact	\$1.00	\$0.60
No. 2002	Break Contact	1.00	.60
No. 2003	Single Pole, Double Throw	1.15	.69
No. 2004	Two Make Contacts	1.30	.78
No. 2005	Two Break Contacts	1.30	.78
No. 2006	Double Pole, Double Throw	1.60	.96

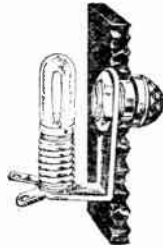
Junior Jack Switches



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.

		List Price	YOUR COST
No. 720	Battery Switch, Single Pole, Single Throw	\$0.70	\$0.42
No. 730	Two Circuit, Single Pole, Double Throw	.85	.51
No. 740	Double Circuit, Double Pole, Single Throw	.95	.57
No. 745	Five Spring, Combined 720 and 740	1.10	.66
No. 760	Two Way Two Circuit, Double Pole, Double Throw	1.20	.72

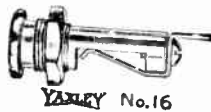
Pilot Light Bracket



Have you ever left your set turned on all night? The pilot light signal is to tell you if your set is on or off. No matter if a station has signed off, or if the set is accidentally turned on, the pilot shines out as signal to turn off the set to save the needless use of tubes. And the signal light is as attractive and cheerful as it is useful.

		List Price	YOUR COST
No. 310	Pilot Light Bracket, Lamps extra	\$0.50	\$0.30
		.20	.12

Midget Jack Midget Plug



Serve the same purposes as the Pup Jacks and Plugs, only larger in size. Mount in 3/8" panel hole.

		List Price	YOUR COST
No. 16	Midget Jack	\$0.30	\$0.18
No. 15	Midget Plug	.15	.09

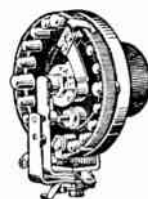
Junior Jacks



Here is a Jack for use in sets where space is at a premium. Extends 1 1/4" behind panel. Takes any standard radio plug. Comes in all spring combinations as follows:

		List Price	YOUR COST
No. 701	Open Circuit	\$0.40	\$0.24
No. 702	Circuit Closing	.55	.33
No. 702A	Two Circuit	.55	.33
No. 703	Single Circuit Filament Control	.65	.39
No. 703A	Circuit Reversing	.65	.39
No. 703C	Double Circuit	.65	.39
No. 704	Interstage	.75	.45
No. 704A	Two Circuit Filament Control	.75	.45
No. 705	Two Circuit Filament Lighting	.85	.51
No. 706	Interstage Filament Control	.95	.57
No. 707	Interstage Filament Lighting	1.05	.63

Original Air-Cooled Rheostat



The Yaxley Air-Cooled Rheostat has a velvet-smooth action and the fine adjustment of a master instrument which permits filament voltages to be built up slowly and held at exactly the right point. The base is of bakelite.

		List Price	YOUR COST
Rheostat complete with Knob; any resistance		\$1.35	\$0.81

Yaxley Potentiometers

		List Price	YOUR COST
No. 200	200 ohms	\$1.75	\$1.05
No. 400	400 ohms	1.75	1.05

Automatic Power Control

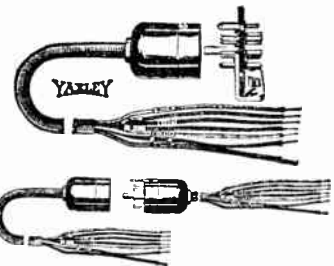
Every owner or purchaser of a battery operated set can be sold one of these Yaxley Automatic Power Controls. It has advantages that guarantee their easy sale because no one will want to be without. It practically makes the battery-operated set a power operated set.



The Series Type Automatic Power Control is designed primarily for use in conjunction with a trickle or low-rate charger, where there is little or no chance of overcharging the A battery. Now furnished with new construction, exclusively Yaxley, that keeps the voltage drop less than two-tenths (2/10) volts when used with DC sets having a current draw equivalent to six 199 type of tubes up to eleven 201 type of tubes. Complete instructions for installing packed in each box.

		List Price	YOUR COST
No. 441	Series Type Automatic Power Control	\$5.00	\$3.00
No. 445	Multiple Type Automatic Power Control	6.00	3.60

"Yaxley" Cable Connectors



Cable Connector Plug—7 Conductors

Yaxley Cable Connector Devices will give complete satisfaction with either AC or DC sets. The chassis may be connected or disconnected quickly and conveniently from the power pack or batteries.

Complete with 5-foot cable and cable markers. Mounting plate mounts on base panel by means of bracket or bracket may be removed and plate fastened to sub or back panel.

		List Price	YOUR COST
No. 660	Complete	\$3.00	\$1.80
No. 669	With 2 extra jacks	3.25	1.95

Cable Connector Plug—12 Conductors

Has the same characteristics as the No. 660, excepting 12 conductors. Cable length, 4 feet. Six conductors, two pair being twisted, for AC leads are No. 14 wire.

No. 612	Complete	5.00	3.00
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Tapped Resistances

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

Cat. No.	Ohms	YOUR COST
806C	6	\$0.18
810C	10	.18
812C	12	.18
815C	15	.18
815T5	15	.18
820C	20	.18
830C	30	.18
850C	50	.18
861C	64	.18
8100C	100	.24
8400C	400	.24

YAXLEY

APPROVED RADIO PRODUCTS

Junior Rheostats and Potentiometers

Small in Size



Sturdily Built

Cat. No.	Ohms	List Price	YOUR COST
591	1	\$0.75	\$0.45
592	2	.75	.15
593	3	.75	.15
594	4	.75	.15
596	6	.75	.15
510	10	.75	.15
515	15	.75	.15
520	20	.75	.15
525	25	.75	.15
530	30	.75	.15
540	40	.75	.15
550	50	.75	.15
560	60	.75	.15
575	75	.75	.15
599	100	.75	.15
500	Switch for Junior Rheostat	.40	.24

Volume Controls

Cat. No.	Ohms	List Price	YOUR COST
59625	600	\$1.50	\$0.90
51010	1,000	1.50	.90
52025	2,000	1.50	.90
53025	3,000	1.50	.90

Junior Potentiometers

Cat. No.	Ohms	List Price	YOUR COST
506P	6	\$1.00	\$0.60
510P	10	1.00	.60
515P	15	1.00	.60
520P	20	1.00	.60
525P	25	1.00	.60
530P	30	1.00	.60
550P	50	1.00	.60
560P	60	1.00	.60
575P	75	1.00	.60
599P	100	1.00	.60
5200P	200	1.00	.60
5400P	400	1.00	.60
51000P	1,000	1.25	.75
52000P	2,000	1.25	.75
53000P	3,000	1.25	.75
55000P	5,000	1.50	.90
10MJP	10,000	1.50	.90

Prices include knobs

Junior Rheostats and Potentiometers are made in all ratings for sub-panel mounting.

Wire-Wound Resistance Units

Type



800

Cat. No.	Ohms	YOUR COST
801	1	\$0.09
802	2	.09
803	3	.09
804	4	.09
805	5	.09
806	6	.09
807	7	.09
809	9	.09
810	10	.09
815	15	.09
820	20	.09
825	25	.09
830	30	.09
840	40	.09
850	50	.09
860	60	.09
8100	100	.15
8200	200	.15
8300	300	.15
8400	400	.15

"Yaxley" Radio Convenience Outlets



No. 135—For loudspeakers or headphones in brushed brass... \$1.00 \$0.60

No. 136—For aerial and ground wire 1.00 .60

No. 241—Combination for aerial and ground and electrical connections. One AC receptacle for set, other for power speaker or lamp, etc.

List Price, \$2.00
YOUR COST, \$1.20



No. 242—Combination for loud speaker and two electrical receptacles.

List Price, \$2.00
YOUR COST, \$1.20



No. 238—Combination for speaker, aerial and ground.

List Price, \$2.00
YOUR COST, \$1.20



No. 142—Outlet same as 135 except it has two speaker-jacks on single plate.

List Price, \$1.75
YOUR COST, \$1.05

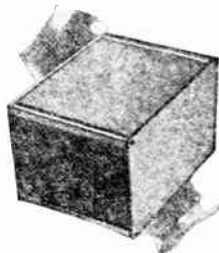


No. 138—Outlet plate with duplex receptacle, has many convenient uses.

List Price, \$1.00
YOUR COST, .60c

"Alcoa" Aluminum Box Shields

Size 9" x 5" x 6"



Assembled

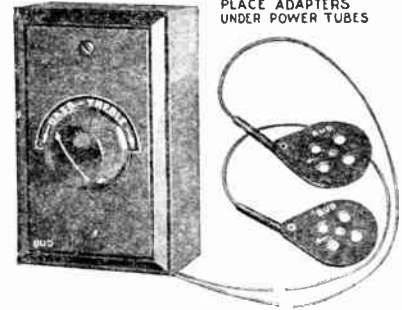
An Aluminum Company of America product. Isolates the various electrical forces within all R.F. stages that would otherwise adversely influence one another. Are made of heavy "Alcoa" aluminum sheet—No. 12 B & S gauge—.080" thick so that they can be used for oscillators and transmitters as well as inter-stage shields. Dip finish gives a fine appearance. The design permits altering the size by a few simple operations. The shields are of fine appearance, strong mechanically and require no soldering—only a screw driver for assembling. Large enough to permit housing of all parts belonging to an R.F. stage, i.e., R.F. transformer, variable condenser, socket, rheostat (if used), by-pass condenser, tube, etc., etc. Size over-all, 5" wide by 9" long by 6" high.

List Price, \$3.50 Your Cost, \$2.06

Aluminum and Bakelite

Cut to any size you desire

Bring your set up-to-date with the new "Bud" Tone Control



PLACE ADAPTERS UNDER POWER TUBES

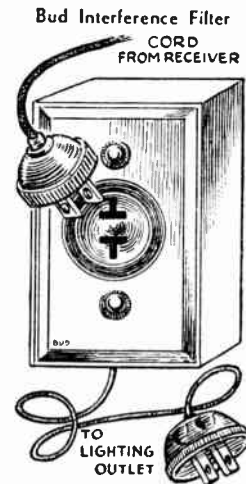
Brilliant, bright, mellow, or deep tone is at your command. You change speech or music to suit your individual taste. You have personal control over the tone sent you by the station. You operate it yourself by turning the knob on Bud Tone Control.

It is very easily attached to the radio set. All that is necessary is to place the Adapters which are suspended from the bakelite box under the two power tubes in your radio set. Should your set have only one power tube, place one Adapter under the power tube and cut the Adapter off of the other wire and attach the wire to the ground post of the radio set. Then place the Bud Tone Control where it can easily be reached, and then turn the knob to change the tone of the set.

Also rids your radio set of crackles, buzzes and background noises.

List Price, \$3.85 Your Cost, \$2.27

"Bud" Interference Filter



Here's a highly serviceable filter that does away with "man-made static" caused by motors, elevators, bells, refrigerators, and other electrical appliances. Allows your set to function to the best possible advantage.

Capacity Type

As the Bud Interference Filter is a pure capacity filter, there is no danger of burn-outs, no matter how much current is drawn by the device to which it is connected. Built into a neatly finished, all-bakelite box.

List Price, \$2.85 Your Cost, \$1.67



"ACME" PARVOLT FILTER CONDENSERS

The "Acme" system of eternal vigilance is used to produce a family of filter condensers that give constant service and withstand the sudden voltage surges common to electric-powered radio.

Each unit must at least equal the standards of the I. M. A. and the N. E. M. A. in every detail, and are slightly underrated to withstand any surge in voltage.

PLAY SAFE WITH PARVOLTS

Specifications and Prices

Series	Mfd.	Depth	List Price	YOUR COST
200	1	9/16"	\$1.25	\$0.75
200	2	9/16"	2.25	1.35
200	4	9/16"	4.00	2.40
400	1/2	9/16"	2.00	1.20
400	1	9/16"	2.50	1.50
400	2	15/16"	3.50	2.10
400	4	1-5/16"	6.00	3.60
600	1	9/16"	3.00	1.80
600	2	15/16"	5.50	3.30
600	4	1-11/16"	8.00	4.80
1000	1	15/16"	5.00	3.00
1000	2	1-11/16"	7.00	4.20
1000	4	3-1/4"	12.00	7.20
1500	1	1-5/16"	6.50	3.90
1500	2	1-13/16"	12.00	7.20
1500	4	3-1/2"	20.00	12.00

"ACME" PARVOLT BY-PASS CONDENSERS

These condensers are wound from papers and foils of the finest quality specially treated for the purpose, then pressed under heavy load, and housed in compact metal containers.

"Acme" Parvolt By-Pass Condensers are designed for operation in direct current circuits in which a maximum working voltage of 200 is present and in alternating currents in which the working voltage does not exceed 100.

Specifications and Prices

Series	Mfd.	Height	Width	Depth	List Price	YOUR COST
200	0.1	1-15/16"	1-1/2"	5/8"	\$0.85	\$0.51
200	0.25	1-15/16"	1-1/2"	5/8"	.95	.57
200	0.5	1-15/16"	1-1/2"	5/8"	1.00	.60
200	1.0	1-15/16"	1-7/8"	15/16"	1.25	.75
200	2.0	1-15/16"	1-13/16"	1-3/4"	2.25	1.35
200	4.0	1-15/16"	2-3/16"	2-13/16"	4.00	2.40

Buffer Condensers

400	2 condensers, 0.1 mfd., in series in a can					
	1-15/16" x 1-7/8" x 15/16"	1.75			1.05	
1000	1 condenser, 0.1 mfd., in a can					
	1-15/16" x 1-7/8" x 15/16"	1.75			1.05	

Two of these required.



"SANGAMO" MOULDED BAKELITE CONDENSERS

Maintains accuracy. Sealed to exclude moisture and acid fumes.

Capacity Mfd.	List Price	YOUR COST
.0001	\$0.40	\$0.24
.00015	.40	.24
.00025	.40	.24
.0005	.40	.24
.001	.50	.30
.002	.50	.30
.0025	.50	.30
.003	.60	.36
.004	.60	.36
.005	.70	.42
.006	.85	.51
.0075	.95	.57
.01	1.15	.69
.012	1.20	.72
.015	1.25	.75

With Resistor Clips, 10c extra.

Other Sizes Also in Stock

"SUPER AKRA-OHM" (Wire Wound) ACCURATE RESISTORS



Especially recommended for:

Electrical Instruments, Television Amplifiers, Telephone Equipment, Burglar Alarm Equipment, Resistance Amplifiers, Talking Picture Equipment, Broadcasting Station Equipment, Fire Alarm Equipment, Voltmeter Multipliers, Attenuators and Fading Controls, and other high-grade apparatus.

The "Super-Akra-Ohm" is a very popular resistance unit for many reasons. Non-inductive; minimum distributed capacity; tolerance of accuracy 1% plus or minus, and closer tolerances when ordered special; temperature coefficient .0001; will dissipate 1 watt, greater wattage dissipation on special order.

Can be used in the commonplace grid leak mounting, or in the standard cartridge fuse clips, or the 8-32 screw terminals as can be used in any convenient manner, as well as soldering.

They are also adapted as multipliers for voltmeters, analyzers, etc.

Type 6 M or 6 T One Watt Rating

Resistance in Ohms	Current in M. A.	Voltage Drop	List Price	YOUR COST
1	1000	1.00	\$2.00	\$1.50
10	316	3.16	1.50	1.13
50	141	7.07	1.25	.94
100	100.0	10.0	1.25	.94
500	44.7	22.3	1.25	.94
1,000	31.6	31.6	1.25	.94
1,500	25.8	38.7	1.25	.94
2,000	22.4	44.7	1.25	.94
2,500	20.0	50.0	1.25	.94
3,000	18.3	54.5	1.25	.94
4,000	15.8	63.2	1.25	.94
5,000	14.1	70.7	1.25	.94
10,000	10.0	100	1.50	1.13
15,000	8.17	123	1.50	1.13
20,000	7.07	141.4	1.50	1.13
25,000	6.32	157.5	1.50	1.13
30,000	5.78	173.2	1.50	1.13
40,000	5.00	200	1.50	1.13
50,000	4.47	223	1.50	1.13
60,000	4.08	244	1.50	1.13
75,000	3.65	274	1.50	1.13
90,000	3.33	300	2.00	1.50
100,000	3.16	316	2.00	1.50
125,000	2.83	353	2.00	1.50
150,000	2.58	387	2.25	1.69
200,000	2.24	447	2.50	1.88
250,000	2.00	500	2.75	2.07
300,000	1.83	545	3.00	2.25
400,000	1.58	632	3.50	2.63
500,000	1.41	707	4.00	3.00
600,000	1.29	775	4.25	3.19
750,000	1.15	862	4.50	3.30
1,000,000	1.00	1000	5.00	3.75
1,500,000	.817	1225	7.50	5.63
2,000,000	.707	1414	10.00	7.50
2,500,000	.632	1531	12.50	9.38
3,000,000	.578	1732	15.00	11.25
4,000,000	.500	2000	20.00	15.00
5,000,000	.447	2235	25.00	18.75

Resistance values other than listed above can be furnished on special order within 24 hours.

Type 6-M units, accuracy \pm 1%

Write for Free Bulletin No. 73 showing the resistance measuring by the deflection method.

LAVITE NON-INDUCTIVE RESISTORS



Resist.	Max. Current	Recom. Current
1,000	54.8	38.3
2,000	38.7	27.1
5,000	24.5	17.1
10,000	17.3	12.1
15,000	11.1	9.8
20,000	12.2	8.5
25,000	10.9	7.6
30,000	10.0	7.0
50,000	7.7	5.4
75,000	6.3	4.4
100,000	5.5	3.8
200,000	3.8	2.6
250,000	3.5	2.4
500,000	2.4	1.7

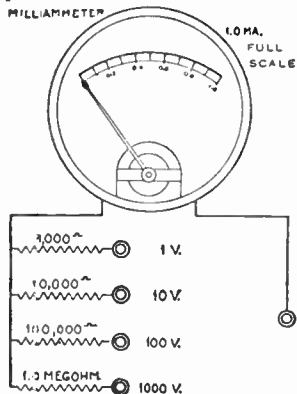
List Price, All Values, \$1.00

Your Cost, 60c

"DURHAM" PRECISION WIRE-WOUND RESISTOR



An entirely new resistor, introduced after considerable experimentation to meet the demand for accurate, high value, non-inductive, low distributed capacity resistors, for uses which require accuracy and low temperature co-efficient of resistance. This is, we believe, the first resistor made which successfully answers all of these requirements.



Typical Schematic Circuit for Converting a Milliammeter to a Multi-Range Voltmeter.

Accuracy 1% unless otherwise requested. Closer tolerance charged for at slightly higher prices. Intermediate ranges may be obtained if required.

Resistance In Ohms	Rated Current In Milliamperes	List Price	YOUR COST
500	44.6	\$1.25	\$0.91
750	36.5	1.25	
1,000	31.6	1.25	
1,500	24.1	1.25	
10,000	10.0	1.50	
12,500	8.7	1.50	
15,000	8.15	1.50	
20,000	7.05	1.50	
25,000	6.32	1.50	
30,000	5.75	1.50	
35,000	5.35	1.50	1.12
40,000	5.00	1.50	
45,000	4.73	1.50	
50,000	4.47	1.50	
60,000	4.08	1.50	
75,000	3.64	1.50	
100,000	3.16	2.00	
125,000	2.82	2.00	
150,000	2.58	2.50	
175,000	2.46	2.50	
200,000	2.23	2.50	1.88
225,000	2.11	2.50	
250,000	2.00	2.75	
300,000	1.83	3.00	
400,000	1.58	3.50	
500,000	1.41	4.00	

Prices of other ranges and types on application

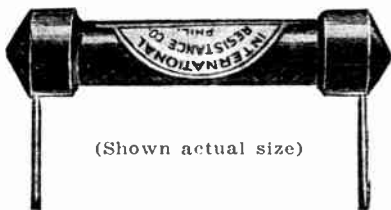
"Durham" Metalized Resistors

Designed to be soldered directly into the 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 250 ohms to 500,000 ohms.

List Price, 75c
Your Cost, 45c

Type MR4 (2 Watts)



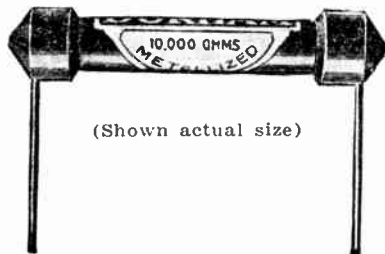
(Shown actual size)

Type MF4 (1 Watt)

(Can be had without pigtail mountings)

This Powerohm has tinned pigtail copper wires simultaneously moulded with the assembly of the unit at each end. A very rugged and substantial resistor used by many manufacturers for soldering into the circuit. Supplied in all practical ranges from 500 ohms to 10 megohms.

List Price, 50c
Your Cost, 30c



(Shown actual size)

AMPERITE

LINE VOLTAGE CONTROL



"AMPERITE"

The Self-Adjusting

Line Voltage Control

The New, Long Life, Perfectly Regulating, Line Voltage Control

FOR ALL ELECTRIC RADIO SETS

Works entirely automatically. Controls both low and high voltage with equal efficiency. Approved by leading engineers and set manufacturers. The "Amperite" can be installed by anyone in five minutes.

"Amperite" is entirely unlike the ordinary type of fixed line resistance or line reducer. It operates on an exclusive, patented principle.

1. Increases life of tubes and prevents premature burnouts.
2. Eliminates power pack troubles.
3. Saves money on tubes and service costs.
4. Keeps the set operating at its best under all conditions of line voltage.
5. Eliminates tone distortion and blasting.

	List Price	YOUR COST
"Amperite" Line Voltage Control.....	\$3.00	\$1.77
"Amperite" Mounting Socket .....	.35	.21

Standard Dealer's Package—Assorted Carton of 12
FULLY GUARANTEED
When ordering mention the name and model of set.

Amperites

Amperite No. 1-A— $\frac{1}{4}$ Ampere Type—For the UV-201-A, C-301-A, UX-201-A, CX-301-A, UX-200-A, CX-300-A, or any $\frac{1}{4}$ ampere 5-volt tube on the 6-volt "A" battery.

Amperite No. 112— $\frac{1}{2}$ Ampere Type—For the UX-112, CX-112, UX-171, CX-371 and similar tubes on the 6-volt battery.

Amperite No. 120—For the UX-120 and the CX-220 on $4\frac{1}{2}$ volts (3 dry cells) or on the 4-volt storage battery.

Amperite No. 4V-199—For the UV-199, C-299, UX-199, CX-299, UV-3 on $4\frac{1}{2}$ volts (3 dry cells) or on 4-volt storage battery.

Amperite No. 6V-199—For the UV-199, C-299, UX-199, CX-299 and similar tubes on the 6-volt "A" battery.

Amperite No. 3-A— $\frac{3}{4}$ Ampere Type—To control $\frac{3}{4}$ ampere and 5 volts on the 6-volt "A" battery.

Amperite No. 4-A—1 Ampere Type—To control 1 ampere and 5 volts on the 6-volt battery.

Amperite No. 622—For all 3.3 volt shield grid tubes from 6-volt battery.

List Price, with Mounting, \$1.10 each **Your Cost, 66c**

NA-ALD ADAPTERS

AN ADAPTER FOR EVERY PURPOSE

No. 948 AC Pickup Adapter



For attaching regular electric phono pickups to AC sets. The adapter is inserted in the five prong detector socket

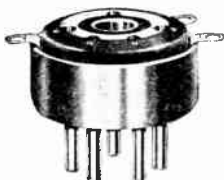
of the AC set and the detector tube is then placed in the top of the adapter. Two wires from the adapter are then connected to the two wires of the pickup through any standard connector plug. This connection places the pickup in series with detector plate.

List Price, \$1.50

Your Cost, 89c

No. 933 Power Amplifier Adapter

Here is an adapter for attaching AC sets to power amplifiers as in combination electric phonos and power speakers, where it is desired to connect in an AC set to complete the combination. Provision is made for connecting in a by-pass condenser.



List Price, \$1.50

Your Cost, 89c

No. 952 Power Amplifier Adapter

Has same internal connections as No. 933. It has three terminals, one coming out from the plate of the tube; one from the plate of the socket and the other from the cathode. No. 952 has the wires attached. Two wires connect to the power amplifier and two provide for attaching the bi-pass condenser. This adapter connects AC sets to power amplifiers. Used by manufacturers such as Samson, Amertran, S-M, etc.

List Price, \$1.75

Your Cost, \$1.03

No. 945 Adapter

Has four holes on top and 5 prongs below. Used for testing grid and plate voltages in five prong sockets with DC testers.

List Price, \$1.00

Your Cost, 60c

No. 954

Just the reverse to the 945 this adapter with five holes on top and four prongs below permits five prong AC tubes to be tested in DC testers, equipped with UX or UV sockets.

List Price, \$1.00

Your Cost, 60c



No. 949 Universal Pick-up Adapter

is a unique adapter for connecting electric phono pick-ups to AC or DC sets. It fits UX or UV sockets and takes four or five prong tubes. The only truly universal adapter in the world for this purpose.

List Price, 60c

Your Cost, 36c



Adapter used for UX Tube
in UV199 Socket.

No. 999

List Price, \$1.00

Your Cost, 60c



Adapter Used for UV199
Tube in UX or UV201A
Socket

No. 429

List Price, 75c

Your Cost, 45c

984H and 985H

No. 984H is a 4-prong bakelite plug with harness.
List Price, \$1.50
YOUR COST, 89c

No. 985H is a 5-prong bakelite plug with harness.
List Price, \$1.50
YOUR COST, 89c

Both of these plugs can be supplied less harness for

List Price, 50c

Your Cost, 30c

These adapters are ideal for servicemen who prefer to build their own testing equipment.



No. 428

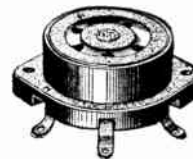
Small space UX Socket

List Price, 25c

Your Cost, 15c



Sockets and Binding Posts UY Socket



EBY UY and UX Sockets are made in only one completely universal model. That means one stock. They can be mounted above or below metal, bakelite

or wood panels. Phosphor bronze contacts.

List Price, 50c

Your Cost, 30c

UX Socket

Grooved tops to guide the prongs to proper holes.

List Price, 40c

Your Cost, 24c



EBY Tip Jacks

Deliver a tight spring contact the full length of the phone tip. They are counter-sunk so that the tip can't move. Nickel-plated brass equipped with red and black washers for insulating from metal panels.

List Price, 25c pair

Your Cost, 15c



EBY Ensign Binding Posts



The tops don't come off. Made in all markings or plain.

List Price, 15c

Your Cost, 9c

We Stock All Types of Soldering Lugs

Neutralizing Wrench Set

Something every service man should have. Fits into the pocket like a fountain pen.

Made of a bakelite 3/8" tubing with a metal inset wrench at each end. Including a bakelite rod with a metal end inset screw driver. Fits all standard sets.

Your Cost, \$2.00

Whatever Your Requirements of Adapters, Plugs, Sockets and Connectorals May Be, We Can Supply Them

CLAROSTAT



STANDARD CLAROSTAT

General variable resistor for "B" eliminators and receivers. Will handle 20 watts. 0-5,000,000 ohms.

List Price, \$2.25
Your Cost, \$1.35

VOLUME CONTROL CLAROSTAT



A compact single hold mount, universal control. 0-500,000 ohms, 7 watts.

List Price, \$1.50
Your Cost, 90c

POWER CLAROSTATS



The Power and Super - Power Clarostats are heavy-duty resistors for radio power units, transmitters, or general electrical applications. The Power Clarostats will handle 80 watts, and the Super-Power Clarostats will carry 250 watts. Both types can be mounted either one-hole or base-board manner.

Power Clarostats

Model	Resistance Range Ohms	List Price	YOUR COST
Fil. Control	1/4 to 10	\$3.50	\$2.06
Low Range	25 to 500	3.50	2.06
Uni. Range	200 to 100,000	3.50	2.06

Super-Power Clarostats

Model	Resistance Range Ohms	List Price	YOUR COST
Fil. Control	1/4 to 10	\$6.00	\$3.53
Low Range	25 to 500	6.00	3.53
Uni. Range	200 to 100,000	6.00	3.53

SPEED CONTROL CLAROSTAT



Especially adapted to control of variable speed motor in television and other precise work. May also be used as heavy-duty variable resistor for laboratory work. Provided with heavy metal casing, protected screw binding posts, and short-circuiting button. Carrying capacity of 80 watts.

Laboratory—1/4—10 ohms—80 watts
Laboratory—200 to 100,000 ohms—80 watts
Speed Control—25 to 500 ohms—80 watts
List Price, \$5.00 Your Cost, \$3.00

Automatic Line Voltage Regulator CLAROSTAT

Automatic Line Voltage Regulator Clarostat



The Automatic Line Voltage Regulator Clarostat is inserted between A.C. radio set and electrical outlet. Automatically increases or decreases its resistance so as to compensate for all increases or decreases in line voltage, thereby maintaining a uniform voltage applied

to set for best results. No adjustments required. Positive in operation. Foolproof. Protects tubes and power pack. Provides hundreds of hours of additional tube life, and thousands of hours of filter condenser life. Saves transformers and chokes. Light or Heavy Duty. Specify set to be used on when ordering.

List Price, \$1.75 Your Cost, \$1.03

DUPLEX CLAROSTAT



Unique variable resistor comprising two Clarostats in one. Independent set-screw adjustment for each section. Used in power units or as C-biasing resistance in socket-power sets. Also used as potentiometer with variable total resistance and adjustable mid-tap. Metal case; nickel plated; two-hole mounting; screw-driver adjustment.

Practically zero to 5,000,000 ohms.
5 watts per sec.

List Price, \$2.25 Your Cost, \$1.33

TABLE TYPE CLAROSTAT



Clarostat in accessory form instead of as a part. May be employed as a volume or tone control, regeneration control or stabilizer. Finished in attractive statuary bronze and nickel, with felt bottom to prevent scratching. Requires neither knowledge or tools, being externally applied. Provided with connecting cords and handy tip-connection block.

Table Type—Zero, 500,000 ohms—7 watts.
List Price, \$2.50 Your Cost, \$1.50

WIRE WOUND CLAROSTAT

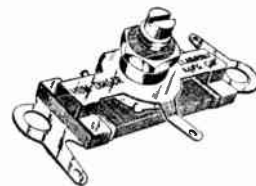


The new Bakelite Wire Wound Volume Control Clarostat is a 100% all wire-wound job. Wire itself supplies the resistance. Bakelite shell and metal end plate — entirely sealed in. No dust, dirt or moisture can reach the working parts. One-hole mounting, handy soldering tabs. Neat and compact.

Resistance range	List Price	YOUR COST
Resistance range of 100, 200, 300, 400, 500, 1,000, 2,000 or 3,000 ohms	\$1.25	\$0.73
Resistance range of 5,000, 10,000 or 15,000 ohms	1.50	.88
Resistance range of 20,000 or 25,000 ohms	1.75	1.03
Resistance range of 40,000 or 50,000 ohms	2.00	1.17

HUMDINGER CLAROSTAT

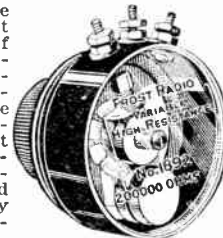
Improved center-tap resistor for hum control in A.C. sets. Also used as variable grid bias in screen grid tube circuits. Screw driver adjustment. Extremely rugged and compact. Supplied in resistance ranges from 6 to 500 ohms.



List Price, 75c. Your Cost, 44c

FROST Variable High Resistance

"Frost" Variable High Resistances set a high standard of excellence both mechanically and electrically. The improved resistance element is the longest wearing and most constant on the market. Absolutely stable in operation and is not affected by humidity or temperature changes. Roller contact produces a perfectly smooth, continuously variable adjustment of resistance. Units are non-inductive. Single hole mounting. All units are equipped with three terminals and can be used as potentiometers or two terminal units. Units with "D" curve are universal units for oscillation or volume control. Units with "LD" curve are for volume control in AC circuits. They have extremely low hop-off and only 2% of total resistance at center position.



1800 Series—1 61/64" Diameter

No.	Resistance	Curve	List Price	YOUR COST
No. 1806	2,000 ohms	"LD"	\$2.25	\$1.33
No. 1807	5,000 ohms	"LD"	2.25	1.33
No. 1808	10,000 ohms	"LD"	2.25	1.33
No. 1809	25,000 ohms	"D"	2.00	1.18
No. 1890	50,000 ohms	"D"	2.00	1.18
No. 1891	100,000 ohms	"D"	2.00	1.18
No. 1892	200,000 ohms	"D"	2.00	1.18
No. 1895	500,000 ohms	"D"	2.00	1.18

"CARTER" RADIO COMPONENTS

"Hi-Pot"—Three Terminals
Safe Dissipation: 1 Watt

Potentiometer type with binding post terminals. One of the most reliable volume controls ever made. A uniform per cent change in resistance for each unit distance traveled by the contact arm, giving exceptionally smooth and fine control.

No.	Resistance, Ohms	No.	Resistance, Ohms
HI-P XX	10,000	HI-P 22	200,000
HI-P LL	50,000	HI-P 33	300,000
HI-P 11	100,000	HI-P 55	500,000

List YOUR
Price COST

Complete with Black Bakelite Arrow-Pointer Knob, each \$2.25 \$1.35
Insulation for Mountings on Metal Panels, 5c extra

Super "Hi-Watt" Rheostat

Dissipates 25 Watts



A perfected heavy duty rheostat of many distinctive features and advantages. Resistance wire is wound on an asbestos covered steel strip. It may be run at high temperatures without danger of destruction and carries safely a load of 25 watts, and is widely used for motor control, radio and experimental work.

Mounts in single $\frac{1}{8}$ hole on panels up to $\frac{1}{2}$ inch.

No.	Resistance, Ohms	No.	Resistance, Ohms
SW-1	1	SW-60	60
SW-2	2	SW-75	75
SW-3	3	SW-100	100
SW-6	6	SW-150	150
SW-10	10	SW-200	200
SW-15	15	SW-250	250
SW-20	20	SW-300	300
SW-30	30	SW-400	400
SW-40	40	SW-500	500
SW-50	50		

Complete with Black Bakelite Arrow-Pointer Knob,

List Price, each, \$1.75 Your Cost, \$1.03
Insulation for Mountings on Metal Panels, 5c extra

New "Carter" Channel Selector Switch

For Centralized Radio Installations
Gives Instant Selection up to 5 Channels



A switch of advanced design for use in centralized radio installations enabling the listener to switch to any one of five programs with constant impedance maintained throughout the line.
Channel Selector Switch

No.	Channels	Impedance Ohms
CS-5-2M	5	2,000
CS-5-3M	5	3,000
CS-5-5M	5	5,000
CS-4-2M	4	2,000
CS-4-3M	4	3,000
CS-4-5M	4	5,000
CS-3-2M	3	2,000
CS-3-3M	3	3,000
CS-3-5M	3	5,000

Channel Selector Switch, any style complete with knob, Escutcheon Plate and Terminal Strip,

List Price, \$5.00 List Price, \$2.94

"CENTRALAB"

Volume Controls and Potentiometers
Giant Power Potentiometer

The wire-wound resistance is built of materials that insure safe operation at high temperature. The wire is wound on a steel core, 1" wide, which is insulated with asbestos. The diameter is 2", which allows mounting the unit in a comparatively small space. This construction provides a resistance unit that will safely carry any current load at a power dissipation of 50 watts through the entire resistance.



Manufactured with two or three terminals, single hole mounting, and furnished with bakelite knob.

Three Terminals

	List Price	YOUR COST
48-025— 25 ohms	\$2.00	\$1.18
48-060— 60 ohms	2.00	1.18
48-151— 150 ohms	2.00	1.18
48-401— 400 ohms	2.00	1.18
48-501— 500 ohms	2.00	1.18
48-811—1,000 ohms	2.50	1.47
48-821—2,000 ohms	2.50	1.47
48-851—5,000 ohms	2.75	1.62
48-881—8,000 ohms	2.75	1.62

C.R.L. Radiohms, Modulators and Potentiometers



Non-inductive resistances, smoothly variable from zero to maximum Radiohms, have two taps, potentiometers and modulators, three. Modulator for use in grid circuit of audio amplifier. Rocking disc makes contact with graphite resistance by means of a pressure shoe. No sliding contacts to wear or become noisy. Entire variation can be made by single turn of the knob.

Potentiometers—Made in total resistance values of 200-400-2,000-10,000-50,000-100,00 and 500,000 ohms.

List Price, \$2.00 Your Cost, \$1.17

Modulators—Made in total resistance values of 250,000 and 500,000 ohms. Special taper.

List Price, \$2.00 Your Cost, \$1.17

Radio service men and dealers everywhere need the new Centralab Volume Control Guide. Illustrates all volume control circuits in common use, lists all makes and models of radio receivers with the volume control circuit used and the proper replacement part.

Price, 25c, postpaid

"Telerad"



Stops your radio when you lift the telephone receiver and starts it again when you "hang up."

It is an automatic remote switch. No need to go and switch your radio off and on.

Telerad is made in two styles, for French type phone or old standing type.



Unconditionally Guaranteed

List Price, Either Style, \$3.00
(State which when ordering)

Your Cost, \$1.77

C.R.L. T-Pad and T-Type Fader

For Use in Theatres, Broadcast Stations and Other Sound Projection Fields



Faders

83-001.TF-	3000.	3,000 ohms
83-002.TF-	1500.	1,500 ohms
83-003.TF-	500.	500 ohms
83-004.TF-	200.	200 ohms
83-005.TF-	050.	50 ohms

List Price, \$20.00 Your Cost, \$11.76

The Fader is sold as a unit, unmounted. If boxes are desired, write for quotation.

T-Pads

93-001.....	TP-1500	1,500 ohms
93-002.....	TP- 500	500 ohms
93-003.....	TP- 200	200 ohms
93-004.....	TP- 100	100 ohms
93-005.....	TP- 050	50 ohms
93-006.....	TP- 015	15 ohms

List Price, \$7.00 Your Cost, \$4.12

"BELDEN" SHIELDED WIRE



Effective in reducing interference caused by high tension wires, motors, and other sources that radiate disturbing impulses. Consists of a stranded conductor with a heavy easy-strip rubber insulation and an over-all braid of fine tinned copper wire, which serves as a shield. In service the shielding is grounded, and consequently picks up the disturbing impulses and carries them to the ground.

	List Price	YOUR COST
No. 8856—50 feet No. 14 Shielded, per carton.	\$2.25	\$1.33
No. 8854—250 feet No. 14 Shielded, per spool.	11.00	6.17
No. 8804—50 feet No. 16 Shielded, per carton.	1.40	.84
No. 8805—250 feet No. 16 Shielded, per spool.	6.75	3.97
No. 8885—100 feet "Belden" Shielded Colorubber Hookup Wire with shielding of tinned copper braid for use with screen grid tubes.	\$2.25	\$1.33

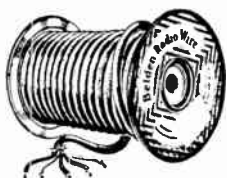
"Belden" Radio Lightning Arresters

Thoroughly sturdy, reliable protector designed for installation either inside or out-of-door. Listed as standard by the National Board of Fire Underwriters. No. 8891 includes \$100 guarantee.



	List Price	YOUR COST
No. 8801—Bakelite Resistor Type, 1 in carton—per arrester	\$0.85	\$0.51
No. 8813—Porcelain Standard Type, 1 in carton—per arrester	.25	.15

"Belden" Battery Cables



No. 8855—100 ft. spool, 5 conductors—per spool—**YOUR COST, \$4.71**
 No. 8857—100 ft. spool, 7 conductors—per spool—**YOUR COST, \$5.88**
 Supplied in any lengths from 5 ft. to 100 ft.

"Beldenamel" Aerial Wire



	List Price	YOUR COST
No. 8821—100 ft. 7x22 Belden-amel	\$1.00	\$0.50
No. 8828—100 ft. 12 Belden-amel Solid	1.30	.77

Aerial wire can be supplied in any lengths up to 1,000 feet.
 Write us for prices on No. 10 and No. 8 solid or stranded enameled or plain copper wire.

"FLERON" PRODUCTS

No. 188 Aerial Spring Tightener



For holding aerial wire tight and straight. Prevents breakage when swaying in wind or if covered with heavy snow and ice or if anchored to trees, etc.

Catalog Number, 188

List Price, each 50c Your Cost, 30c

Porcelain Lead-in Bushing



This device makes a workmanlike finish at a point in aerial installation that has been a source of power loss. Maximum length, 14 inches. Porcelain sections slide off brass rod to any wall thickness up to 9/16". Threaded rod can then be cut at any desired point. Black porcelain. Black glaze. Passed by Underwriters Laboratories. Each bushing in an attractive carton.

Catalog Number, 9

List Price, each \$1.10 Your Cost, 66c

Screw Eye Insulators

Made in four sizes. Porcelain ring made of "Fleron" blue porcelain. Screw eyes of steel, hot tinned finish.

	List Price	YOUR COST
No. 318—Size 3"	\$0.07	\$0.05
No. 618—Size 6 1/4"	.10	.06
No. 1218—Size 12"	.25	.15

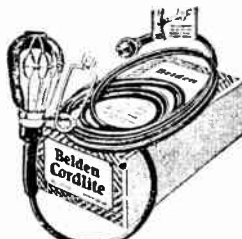
Other "Fleron" Products in Stock

"BUD" AERIAL KIT \$1.00

Contains aerial wire, lead-in arrester, and insulators. A real M & H special.

"BELDEN" CORDLITE

The "Belden" Household Cordlite is an all-rubber portable cord equipped with the well-known "Belden" Soft Rubber Plug and the "Belden" Rubber Handle Socket. It is ideal for use in the home, basement, or private garage.



The "Belden" Rubber Handle Socket is flexible, durable, and safe. Handle of soft rubber prevents shocks.

The "Belden" Soft Rubber Plug. The Plug Unbreakable for Things Electrical, eliminates the nuisance of broken appliance plugs.

The extra flexible All-Rubber Portable Cord is oil and water proof. Resists wear. Easily cleaned when soiled.

The Safety Guard with Shade and Detachable Hook is durable and convenient to use.

List Price, \$3.00 Your Cost, \$1.77

"Acme" Celatsite Wire



Specifications and Prices

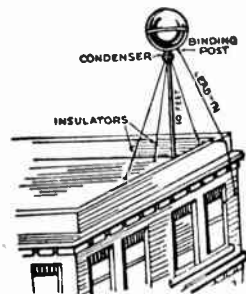
	Per 25-ft. Coil	Price List	COST YOUR
No. 18—Sizes 16/30	\$0.80		\$0.48

Colors — Black, Yellow, Red, Green, Brown.

Lengths — 25-foot coils in individual boxes.

NEW BALL AERIAL

Ideal for apartment houses or congested districts. Increases selectivity, improves summer reception. Functions on all wave bands, and all makes of sets. Made of non-corroding aluminum alloy.



Ball and Condenser, List Price, \$4.75
 Your Cost, \$2.80

"Kellogg" Push Back Wire

\$1.00 per 100 ft. net

Supplied in red, black or green.

"Sampson" Stiktape Aerial

Instantly Installed

Stiktape is a Genuine Aerial and Not an Aerial Substitute

Stiktape is made of a new metallic alloy of great capacity, the back of which is coated with an adhesive rubber that will stick to any surface. It can be easily concealed behind picture moulding, or on baseboard or under rug on floor or behind drapes, etc. It is the most amazing aerial of modern times and will increase the receiving range of any radio receiver.

List Price, \$1.00 Your Cost, 59c

SUNDRIES

"BURGESS" BATTERIES

Fresh New Stock—Always Ready for Prompt Shipment



These nationally known quality batteries have unusually long life and are absolutely dependable. Each battery is individually tested. Our large stock and volume sales insure your getting new fresh stock always. Full voltage; long shelf life; great recuperative power; each cell insulated.

Super "B" Batteries				YOUR COST	Units of 5
Factory No.	Volts	Size, Inches	Style	List Price	YOUR COST
21308	45	7 3/8 x 8 1/4 x 4 1/2	Upright	\$4.25	\$3.14
22308	45	7 1/8 x 8 x 3 1/4	Upright	2.95	2.18
Standard "B" Batteries					
10308	45	8 1/4 x 4 1/4 x 7 1/4	Vertical	\$3.75	\$2.74
2308	45	3 3/8 x 8 1/8 x 7	Vertical	2.50	1.85
2306	45	7 7/8 x 6 5/8 x 7	Horizontal	2.50	1.85
2158	22 1/2	4 1/2 x 3 1/4 x 7	Vertical	1.75	1.29
2156	22 1/2	6 5/8 x 4 x 3	Horizontal	1.75	1.29
4156	22 1/2	3 3/8 x 2 x 2 1/2	Horizontal	1.25	.85
"C" Batteries					
2370	4 1/2	4 x 1 3/8 x 3	Tapd. C	\$0.50	\$0.37
5540	7 1/2	4 x 3/8 x 2 3/8	Tapd. C	.75	.55
5156	22 1/2	4 1/8 x 2 5/8 x 2 3/8	Horizontal	1.50	1.11
"A" Batteries					
6	1 1/2	2 1/2 x 6	Upright	\$0.50	\$0.39
Portable Batteries					
5308	45	2 1/2 x 4 1/2 x 5 7/8	Vertical	\$2.50	\$1.85
5360	4 1/2	2 1/2 x 3 3/4 x 2 3/8	Small C	.40	.30



"Universal" Battery Clips

No.	Description	List Price Each	YOUR COST Per 10
No. 27	Copper, 2 1/4" long	\$0.12 1/2	\$0.88
No. 21A	Lead-coated, 2 1/8" long	.10	.70
No. 48B	Lead-coated, 1 3/4" long. Ten in standard box	.05	.35
No. 45	Pec Wee, 1 1/2" long	.05	.35
No. 21A	Lead-coated, 3 3/4" long. Ten in standard box	.20	1.10

"X-L" Variodensers



Model N
Has variable capacity, adjustable from 1.8 to 20 mmf., which is .000018 to .00002 mf.

List Price, \$1.00

Your Cost, 60c

Model G-1—.00002 to .0001 mf.

Model G-5—.0001 to .0005 mf.

Model G-10—.0003 to .001 mf.

List Price, \$1.50

Your Cost, 90c

Miniature Knife Switches

Hard rubber base and handle. Nickel-plated metal parts. Single throw types 1 1/2" long. Double throw types 2 1/2" long.

	List Price	YOUR COST
Single pole, single throw	\$0.60	\$0.36
Single pole, double throw	.70	.42
Double pole, single throw	.90	.53
Double pole, double throw	1.00	.59
Triple pole, single throw	1.25	.73
Triple pole, double throw	1.50	.88
Four pole, single throw	1.75	1.03
Four pole, double throw	2.00	1.18
Five pole, single throw	2.25	1.32
Five pole, double throw	2.50	1.47

"Acme" Spaghetti

A flexible varnished cambric tubing supplied in black, red, yellow, green and brown. Size is No. 12 with an inside diameter of .087. Length is 30" and comes 40 lengths to package.

List Price, per length, 10c

YOUR COST, 6c



Buss Bar

We carry in stock No. 10, No. 12 and No. 14 round tinned Buss Bar.

New "Elkon" Tapering Trickle Charger

The original "Elkon" Tapering Charger keeps the storage battery in just the right condition all the time. Charging rate varies with the condition of the battery—high when the battery is low—low when the battery is high. Has maximum rate of 1 ampere.

Absolutely dry, no corrosion, no trouble, no attention. Has the exclusive "Elkon" Rectifier Replacement feature. No moving parts; long life. Guarantee and instructions are printed on the container. Dimensions of Type E: 5 7/8" long, 3" wide, 5 1/2" high. Weight: 5 pounds.

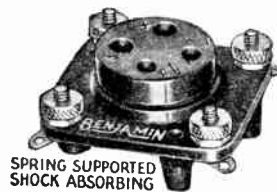


Type E—110 V. A.C. 50-60 Cycles

List Price, \$10.00

Your Cost, \$5.94

"Benjamin" Cushion Sockets



The spring suspension feature of these sockets tends to lengthen tube life by absorbing mechanical jars and shocks.

No.	Description	List Price	YOUR COST
No. 9040	Four-prong UX type	\$0.75	\$0.45
	Sub-panel type	.50	.30
No. 9036	Five-prong "Y" A.C. cushion type is intended for A.C. tubes only; shock absorbing	1.00	.59

"Ex-Stat," the Ignition Filter System

For All Types of Cars That Make "Auto Radio" Possible

Engineers realized that the interference from the ignition system was the same general character as radio waves and that it covered a band of wave lengths greater than the entire broadcast band.

By co-operating with these engineers and by a great deal of experimental work the Tilton Manufacturing Company has been able to develop a complete Ignition Filter System which does the trick simply and cheaply.

With the introduction of "Ex-Stat" Ignition Filter System this particular problem has been solved. Now, by means of specially constructed suppressor units inserted in series with each of the spark plugs and in series with the common lead to the distributor head, the disturbance caused by the spark plugs has been cut to a minimum.

"Ex-Stat" Filter Sets

	List Price	YOUR COST
For 4 cylinder engines	\$7.00	\$4.20
For 6 cylinder engines	9.50	5.70
For 8 cylinder engines	12.00	7.20

SPRAGUE

Electrolytic Condenser

ONE PIECE ANODE



The Sprague Condenser is distinguished by its unusually high capacity in compact space—rating 8 MFD with 430 volts DC in a space only 1 3/8" diameter x 5" high. Absolutely puncture-proof—being of the self-healing type. Needs no attention whatsoever—and its life is measured in years.

The individual screw socket—an exclusive Sprague feature—makes it convenient to install in every type of set. Makes adequate condenser capacity for your requirements a matter of real economy. Especially adapted for amateur use. Comply with Government

regulations—eliminate hum—and insure the utmost efficiency to your transmitter.

List Price, \$2.50

Your Cost, \$1.47

"Sprague" Midget Condensers



Half the usual size. Tested to 1500 volts. Minimum breakdown voltage of 3000 volts AC. Easier to wire. Time-saving, pre-soldered lugs of new type allow surer, quicker, and easier connection. Condensers save more than their cost in the saving of screws, nuts, bolts, drilling and wire, too.

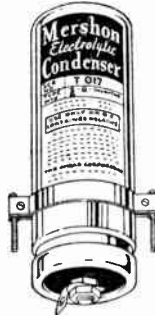
Mfd.	List Price	YOUR COST
.00007	\$.35	\$.21
.0001	.35	.21
.00025	.35	.21
.0005	.35	.21
.001	.40	.24
.002	.40	.24
.0025	.40	.24
.005	.45	.27
.006	.45	.27
.01	.55	.33
.02	.75	.45
.1	1.00	.59
.5	1.10	.65

Other sizes also in stock.

"Sprague" By-Pass Condensers

An ideal condenser which will hold up under double the load of their rated voltage. Made up in tin case with outside lugs.

	List Price	YOUR COST
.5 mfd. 700v.	\$1.00	\$0.59
1. mfd. 200v.	.90	.54
2. mfd. 200v.	1.50	.89
4. mfd. 200v.	3.00	1.77



Mershon

Electrolytic CONDENSER

FOR POWER PACKS

Dealers and Service Men will find in the Mershon Condenser a new source of profitable business. They provide economical replacements in damaged power packs and trouble-free operation in custom-made receivers and transmitters. Save at least half the space and one-quarter the cost of equivalent paper capacity.



They can be kept for an indefinite period without deterioration—and because of their self-healing feature they make instant appeal to amateurs, repair men and service men. Self Heating—not injured by high-voltage surges. High Capacity, in small space. Unlimited Life—actually improves with use. Costs less per mfd. Adds protection to the power converter—by absorbing voltage surges.

Type S-8—Upright, 1 anode; capacity per anode, 8 mfd.; total capacity, 8 mfd.; diameter, 1 3/8"; height (with cover), 4 1/2".
List Price, \$2.50 Your Cost, \$1.47

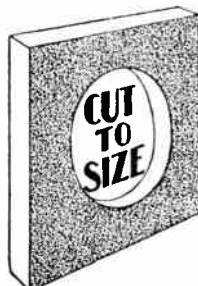
Type S-18—Upright, 1 anode; capacity per anode, 18 mfd.; total capacity, 18 mfd.; diameter, 1 3/8"; height (with cover), 4 1/2".
List Price, \$3.50 Your Cost, \$2.06

Type D-8—Upright, 2 anodes; capacity per anode, 8 mfd.; total capacity, 16 mfd.; diameter, 2 1/2"; height (with cover), 4 1/2".
List Price, \$1.25 Your Cost, \$2.50

Type T-8—Upright, 3 anodes; capacity per anode, 8 mfd.; total capacity, 24 mfd.; diameter, 3"; height (with cover), 4 1/2".
List Price, \$5.50 Your Cost, \$3.24

Type Q-8—Upright, 4 anodes; capacity per anode, 4-8 mfd.; total capacity, 32 mfd.
List Price, \$6.95 Your Cost, \$4.17

"CELOTEX" DYNAMIC Baffle Board



Will Not Vibrate to Any Musical Frequency

"Celotex" is a non-resonant material made from sugar cane fibres and is used by leading broadcasting stations and sound picture studios, chiefly for the purpose of eliminating sound reflection. This non-resonant quality frees the celotex horn or baffle board from unpleasant characteristics such as echoing and chamber resonance, which is present in other types of hard surface horns. In making comparative tests with other well known horns we were amazed at the marked superiority of the "Celotex" horn. "Celotex" baffle boards are 3/8" in thickness and are furnished with size hole desired.

	YOUR COST
12 x 12	\$0.59
18 x 18	1.10
24 x 24	1.75
36 x 36	2.63
48 x 48	4.40
36 x 72	5.30
48 x 72	7.05

"WARD-LEONARD" VITROHM



Line Voltage Reducer

Ward-Leonard offers tube insurance with a Vitrohm unit. Only two connections required—easy to install.

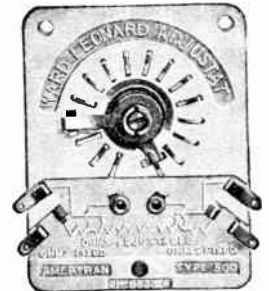
Type 507-100—For sets using not over 65 watts.

Type 507-100A—For sets using between 65 and 130 watts.

List Price, \$2.00

Your Cost, \$1.18

"Ward-Leonard" No. 500 Resistor



is a combination of fixed and adjustable resistance, in one unit, designed to take the place of fixed resistors where adjustable voltages are desirable. It consists of one fixed section of 7,500

ohms, one section of 19,000 ohms, over which two contact arms travel, and another fixed section of 5,000 ohms. Thus three fixed and two adjustable voltages are available.

Your Cost, \$5.00

"Ward-Leonard" 507-6



507-6—A 41,000 ohm resistor used in 210 and 250 Push-Pull Power Amplifiers, tapped to give the intermediate plate voltages.

List Price, \$7.50

Your Cost, \$4.41

UNCASED SURG-PROOF CONDENSERS



Service men, set builders and general repair shops will find these Surg-proof condensers ideal. They will not break down.

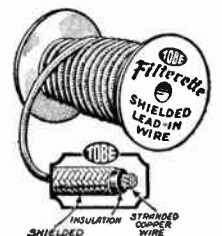
Type No.	Ca-pacity	Voltage DC	Size	List Price	YOUR COST
331	1 mfd.	300v.	4x1 1/2 x 3/8"	\$0.75	\$0.45
332	2 mfd.	300v.	4x2 x 1/2"	1.45	.87
441	1 mfd.	400v.	4x1 3/4 x 1/2"	1.10	.66
442	2 mfd.	400v.	4x2 1/4 x 7/8"	2.15	1.29
661	1 mfd.	600v.	4x2 x 5/8"	1.45	.87
1101	1 mfd.	1000v.	4x2 x 7/8"	1.75	1.05
1331	1 mfd.	1300v.	4x2 x 1 1/8"	2.25	1.35



SHIELDED WIRE

"Tobe" Shield No. 14 lead-in wire and ground cable is supplied in 250-ft. spools. This size is particularly recommended for dealers and service men.

No.	List Price	YOUR COST
No. 14—250 ft.	\$11.00	\$6.47
50 ft.	2.25	1.35
No. 16—250 ft.	6.75	3.97
50 ft.	1.40	.84



"RCA" 106 SPEAKER

Electro-Dynamic

The cone—which incorporates the latest discoveries in the field of electrical acoustics—and the large baffle area which surrounds it enables the "106" to reproduce faithfully the entire musical range from the low tones of an organ to the highest pipings of a piccolo.

The cabinet is rich in its simplicity. Its beautiful walnut finish and panels of Velour de Genes embroidered toile enable it to harmonize with any home furnishings. Careful consideration was given to its form, dimensions and construction, which—in dynamic speakers—are determining factors in tone quality.

Electro-Dynamic; reproduces tones over a range of seven octaves; 30" baffle board; Westinghouse rectifier; walnut finish cabinet; panels of toile embroidered with Velour de Genes.

Height 33 1/2", width 23 3/4", depth 10 3/4". Operates on 110-volt, 60-cycle A.C. only.

List Price, \$49.50 Your Cost, \$14.50



"RCA" Loudspeaker 103

"RCA" Loudspeaker 103 is beautiful in appearance and superb in its ability to reproduce music and speech faithfully. Its frame and pedestal are molded to resemble hand-carved oak, while a beautiful tapestry medallion conceals the mechanism and completes the decorative design of the instrument.



List Price, \$18.00 Your Cost, \$4.95

Genuine "Brandes" Phones

Known the world over as the headphone of finest quality. Equipped with 5-ft. cord.

Your Cost, \$2.25

We stock "Baldwin" and "Western Electric" headphones.

"Naald" Bakelite Sockets

Wafer Type

For sub panel mounting. Phosphor bronze contact springs. For 226-227-224-230-245 tubes.

Your Cost, 15c

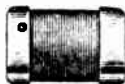
"Marco" Vernier Dials

Ideal for use wherever real close tuning is desired.

List Price, \$2.50 Your Cost, 79c

CORNISH WIRE

Magnet Wire



"Corwico" magnet wire is made from the best grade copper wire and insulated with the finest materials obtainable. Each spool contains a single length of wire neatly wound and suitably labeled.

Prices

Gauge	14	16	18	20	22	24	26	28	30	32
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Double Cotton Covered

.26	.27	.28	.31	.35	.41	.49	.58	.69	.85
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Plain Enameled

.24	.25	.26	.28	.33	.35	.38
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Double Silk Covered

.46	.53	.61	.73	.90	1.13	1.46	1.85
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Also supplied on 1/2- and 1-lb. spools.

"Federal" Anti-Capacity Switches

List YOUR Price COST

1424W—4 pole double throw	\$3.20	\$2.26
1425—2 pole double throw...	2.75	1.85

Toggle Switches

For battery and electric sets—stock up now. Also double pole double throw toggles for testing equipment, etc.

Net 40c Each



Hard Rubber Panels

3/16 in. thick	List Price	YOUR COST
7 x 12 in.	\$1.00	\$0.60
7 x 14 in.	1.10	.66
7 x 18 in.	1.40	.84
7 x 21 in.	1.62	.97
7 x 24 in.	1.85	1.11
7 x 26 in.	2.10	1.26

Made and guaranteed by American Hard Rubber Co.

General Electric Filament Switch

Three amperes at 110 v. One ampere at 250 v. All bakelite housing. Furnished complete with knob and 8" leads. Approved by the Underwriters.

Each, 20c

"Dumont" Bone Dry "A" Eliminator

An absolute dry "A" eliminator which delivers 6 volts at 2 1/2 amps., enough current for any radio set up to ten tubes. Made of the finest parts and is free from hum.

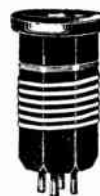
Uses Benwood-Lenz dry rectifier and 5000 mfd. of "A" condensers.

Operates on 110 volts, 50-60 cycles A.C. current. Size, 12x8x8".

Special Value

List Price, \$28.50 Your Cost, \$9.95

"BAIRD" OCTOCOILS



"Octocoils" are unquestionably the most efficient short-wave coils ever designed. Actual size of these coils is 3 3/4" high and 1 1/8" in diameter. "Octocoils" are moulded in genuine bakelite in four distinctive colors—green, brown, blue and red—and are wound with Nos. 12-14-16-25 enameled wire. Will plug into the ordinary tube socket and have a rugged rim to grasp coils so they will not break. Wave length of "Octocoils," 16 to 225 meters.

These coils will also cover the 10 to 80 meter amateur band if used with .00005 mid. Midget condenser.

Wave Length Range 16 to 225 Meters Per Set of 4

List Price, \$5.00 Your Cost, \$2.94

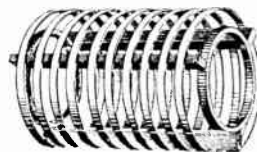
Broadest coil also furnished

List Price, \$1.25 Your Cost, 75c

"Munzig" Transmitting Coils

Features

Designed for .00045 high-C circuits; highly polished and lacquered 1/2" heavy brass ribbon wound on slotted framework of genuine bakelite.



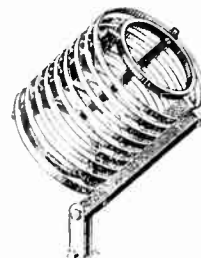
Mounting—Terminals extend from coil sufficient to mount on standoff insulators.

Low Loss—Losses due to distributed capacity are absent, due to the flat winding offering but an extremely small parallel surface! In high-frequency work distributed capacity is the "RF resistance" of an inductance—so the ideal inductance would be a type that has low capacity between adjacent turns!

List YOUR Price COST

Type P-20 (14000 KC)	\$4.50	\$2.70
Type P-40 (7000 KC)	5.00	3.00
Type P-80 (3500 KC)	6.00	3.60

Antenna Coil



The Type A-8 Antenna Coil, as illustrated on the left, is constructed of 1/4" heavy brass ribbon wound on a slotted bakelite framework. It is provided with mounting brackets and a large wing nut to firmly tighten the coupling. There are eight turns which has been found correct for all bands.

Type A-8 Antenna Coil

List Price, \$4.75 Your Cost, \$2.85

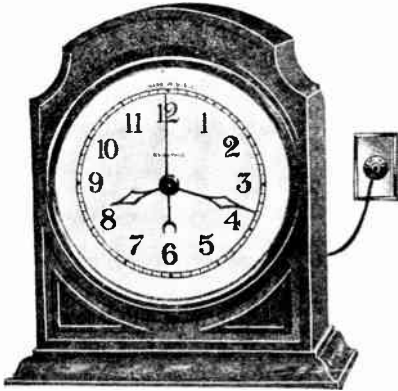
Feeder Spreaders

These spreaders are for use in the feed lines of Zeppelin antennas or where a two-wire feeder is required. Constructed of genuine natural 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 7 1/4" x 1/2" x 1/4".

List Price, 40c Your Cost, 24c

WASHINGTON ELECTRIC THE WORLD'S MASTER CLOCK

For Home, Office, School, Public Building, Institution, Factory, etc. — Scientifically Accurate. Mechanically Perfect—An Electric Clock for Every Purpose—Guaranteed for 25 Years Correct Time as Officially Checked by U. S. Naval Observatory at Washington, D. C.



RONELL—BAKELITE

An attractively designed model; appropriate for any room.

No. 5—Walnut

Height, 5½"; width, 5"; dial, 3½".
Silvertone dial; convex lens; full sweep second hand.

List Price, \$6.75 Your Cost, \$3.96

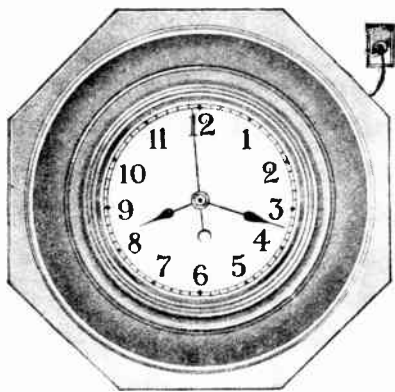


GOTHIC—BAKELITE

The accepted design and a charming model.

Height, 7¼"; base, 5½"; full sweep second hand; 3½" Silvertone dial; convex lens.

	List Price	YOUR COST
No. 20—Walnut	\$7.50	\$4.41
No. 25—Mahogany	7.50	4.41



HARTFORD—COMPOLITE

Octagonal, it lends charm to its surroundings.

- No. 70—Ivory
- No. 75—Duotone Blue
- No. 80—Duotone Green

Case 9 x 9; white 5" dial with black figures. Full sweep second hand; convex lens.

List Price, \$9.25 Your Cost, \$5.44



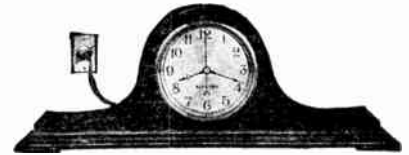
DE LUXE—WOOD

Artistic in its every detail, this modern design always captivates its admirers.

No. 110—Gold Polychrome

Height, 14"; base, 12½"; exquisitely etched two-tone gold dial; full sweep second hand.

List Price, \$20.00 Your Cost \$11.76



BENNINGTON—WOOD

The symmetrical lines of this Tambour Model appeal to the most discriminating.

No. 115—Dark Mahogany

Length, 18"; height, 7½"; Silvertone 5" dial; full sweep second hand; convex lens.

List Price, \$14.50 Your Cost, \$8.52

Every
Washington Electric Clock
has the Full Sweep Second Hand and neatly finished Completely Enclosed Back

GRANDPOP—WOOD

A masterpiece in cabinet making. Finely etched gold finished dial.

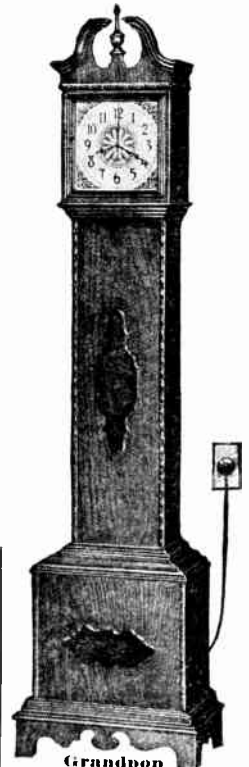
No. 135 CIRCASSIAN WALNUT

Height 72"
Width 12"
Dial 8" square
Full Sweep Second Hand

List Price, \$67.50

YOUR COST, \$39.68

Every Washington Clock has
No Springs
No Batteries
No Winding
No Tick
No Adjusting
Noiseless



Grandpop

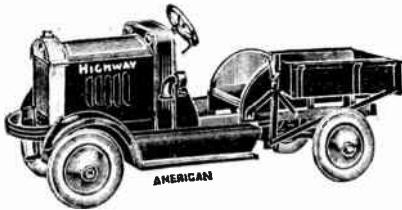
LIONEL ELECTRIC TRAINS

25% Off List Prices on All Lionel Products

WRITE US FOR LIONEL CATALOGUE

Children's Automobiles at Big Savings

SPEED TRUCK

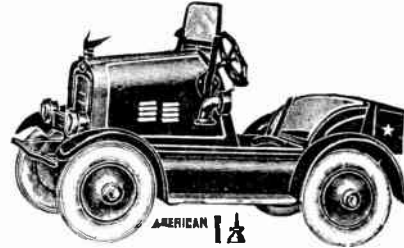


List Price, \$18.00.
YOUR COST.....

No. 9567 — Speed Truck. Length overall, 44". Finish, Larchmont blue. Trimmed in red, black and yellow. Dumping box. Heavy steel. Finished black enamel. Gear, adjustable pedals. Wheels, 10x1" rubber tired. Equipment, as shown. Wt., 64 lbs.

\$13.75

PONTIAC



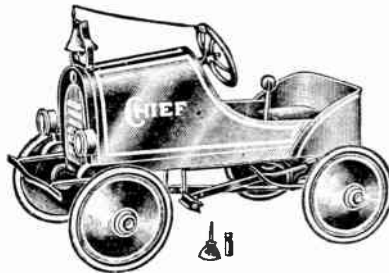
gear shift ball. Upholstered seat. Weight, 83 lbs.
List Price, \$19.00.
YOUR COST.....

No. 524 — Pontiac. Length overall, 43". Finish, Bolera cream. Trimmed in red and black. Two-tone fenders. Wheels, red. Gear, all-steel spring chassis. Adjustable rubber pedals. Steering gear, worm gear type. Adjustable steering post. Wheels, 10-balloon disc. 3/4" auto tread tires. Equipment, as shown, including instrument board. Onyx

\$12.95

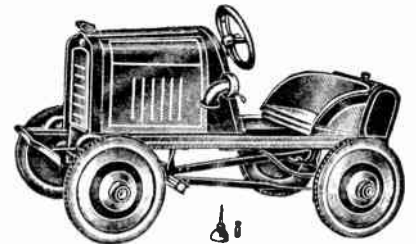
No. 570—Chief. Length overall, 34". Finish, fire red. Trimmed in yellow. Gear, spring chassis. Adjustable pedals. Wheels, 10x1/2" rubber tired. Disc. Equipment, as shown, including fancy gear shift ball. Packed one in carton. Weight, 36 lbs. List Price, \$13.50. **\$9.50**
YOUR COST.....

CHIEF

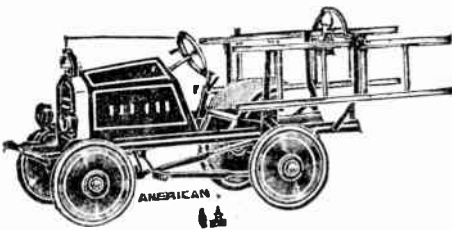


No. 514 — Oakland. Length overall, 40". Finish, Chinese blue. Trimmed in Yale blue, black and yellow. Two-tone wheels to match. Gear, spring chassis. Adjustable rubber pedals. Wheels, 10" disc. 1" auto tread tires. Equipment, as shown. Weight, 40 lbs. List Price, \$14.00. **\$9.95**
YOUR COST.....

OAKLAND



HOOK AND LADDER

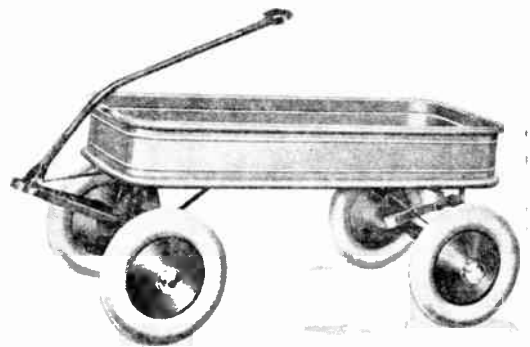


shown, including fancy gear shift ball. Wt., 70 lbs.
List Price, \$18.50.
YOUR COST.....

No. 574—Hook and Ladder. Length overall, 54". (Ladders extending.) Finish, fire red. Trimmed in yellow. Gear, spring chassis. Adjustable pedals. Wheels, 10 x 1" auto tread rubber tires. Disc. Equipment, as

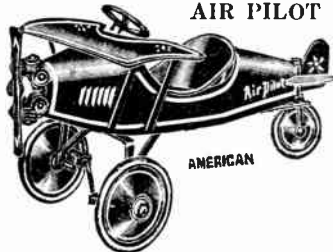
\$13.95

M & H SPECIAL WAGON



No. 594—Air Pilot. Length overall, 51". Wing spread, 30". Finish, tangerine. Trimmed in sea green and yellow. Wheels, front, 10x3/8" rubber tires; rear, 7x1/2" rubber tires. Disc. Equipment, as shown. Weight, 45 lbs. List Price, \$14.00 **\$9.95**
YOUR COST.....

AIR PILOT



No. 8—Good Strong Wheel Barrow for the little fellow.
List Price, \$1.50. YOUR COST.....

\$1.00

No. 52—Wagon. Is exceptionally roomy and is convertible. Top is easily removed. Made of heavy sheet steel, die cut and formed true to size. Large-roll on top and bottom with center reinforced with two large beads. Platform or bottom is one piece of extra heavy gauge steel. List Price, \$7.50. **\$5.75**
YOUR COST.....

No. 31—Wagon. Similar to above but smaller body. 10x22". 6" wheels, etc. List Price, \$4.50. **\$2.95**
YOUR COST.....

KEYSTONE MOVIEGRAPHS

AT LARGE SAVINGS

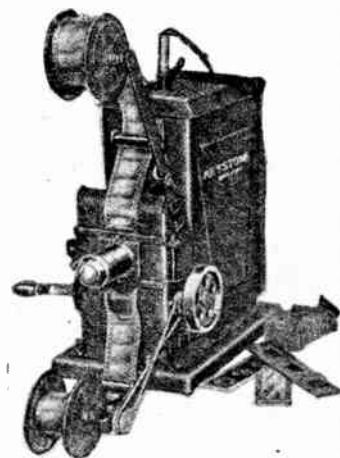
FURNISHED WITH NON-INFLAMMABLE FILM

The Keystone Moviegraph is known throughout the world as the moving picture machine for children to project real films. The Keystone Moviegraph is absolutely guaranteed to show clear and large pictures.

It is simple to operate. All that is required is an ordinary bulb connected to any house current. All models are for standard gauge film.

A generous supply of theatre tickets, bill posters, operators' badge, arm bands, etc., are given with each machine. Additional play outfits free to consumer on request. Each machine is supplied with a Film catalogue and a Guarantee.

If the boy desires, this same machine can also be converted into a Magic Lantern with the slides that are furnished with each machine.



No. 575—An ideal model for younger children. Well built of steel construction and painted black of a high grade finish. Set equipped with 4 ft. of new safety film, 6 ft. of cord with plug and light socket. Machine projects a picture 36" by 48". Size of machine, 5 3/4" by 9 1/4" by 11 1/2".

List Price, \$5.00.
YOUR COST..... \$3.95

No. 591—A popular model of steel construction with leather pattern, baked crystallized enamel finish. Nickel trimmings. 6 ft. of brand new safety film, 6 ft. of cord, plug and socket, included in the set. Throws a picture 38" by 50". Size of machine, 5 3/4" by 9 1/4" by 12 5/8".

List Price, \$7.50. **\$6.39**
YOUR COST.....

No. 198—A wonderful number at a moderate price. 6 ft. of cord, plug, socket and adjuster for electric bulb come with this set. Steel construction, leather pattern, baked enamel finish, nickel trimmings, all make this an attractive set. Machines give a clear, distinct picture, 45" by 60". Size of machine, 6 3/4" by 10 3/4" by 13 5/8".

List Price, \$10.00. **\$8.59**
YOUR COST.....

No. 261—This machine is a beauty—unwinds and rewinds up to 200 feet of film. The following equipment is included: Extra large lens, tube, lens adjusting mechanism, three powerful lenses including condensing lens and highly polished reflector. Sprocket barrel with rollers. Picture measures 60" by 72". Size of machine, 6 3/4" by 10 3/4" by 13 5/8".
List Price, \$15.00. **\$12.95**
YOUR COST.....

KODAKS at SPECIAL PRICES



Picture-making has always been ideal fun for youth as well as grownups. And the various activities of the Girl Scouts and Boy Scouts supply unusual chances for the kind of pictures everybody likes, particularly the fathers and mothers. Hikes, camping trips—Scouts are on the go most of the time, and opportunities for pictures gather where they do. More than this. Not only do Kodaks make possible interesting picture stories of Scout life, but they provide the means of securing one of the most desirable of awards—the Merit Badge of Photography for Boy Scouts, and the Proficiency Badge in Photography for Girl Scouts.

With a Modern Kodak you can now get good snapshots earlier in the morning and later in the afternoon—snapshots of people indoors near sunlight windows, or outside in the shade and, frequently, results even in the rain.

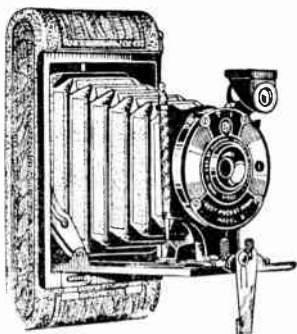


It's easy to get enthusiastic about the Modern Kodaks. They contain many new improvements, of which the most important is the increased speed of the lens on models of moderate price.

BROWNIES

The simplest real camera is about the smartest as well in its gay garb of color. And in black it looks trig and businesslike. Brownies produce excellent results from the start, even for children.

	Takes Picture	List Price	YOUR COST
Brownie No. 0.	1 1/2 x 2 1/2.....	\$2.00	\$1.60
Brownie No. 2.	2 1/4 x 3 1/4.....	2.50	2.00
Brownie No. 2A.	2 1/2 x 4 1/4.....	3.50	2.80
Brownie No. 2C.	2 7/8 x 4 7/8.....	5.00	4.00
Brownie No. 3.	3 1/4 x 4 1/4.....	4.50	3.60



Vest Pocket Model B
List Price, \$5.00
YOUR COST, \$4.00

	Takes Picture	List Price	YOUR COST
No. 1.	2 1/4 x 3 1/4.....	\$11.00	\$8.80
No. 1A.	2 1/2 x 4 1/4.....	12.00	9.60
No. 2C.	2 7/8 x 4 7/8.....	15.00	12.00
No. 3A.	3 1/4 x 5 1/2.....	17.00	14.80

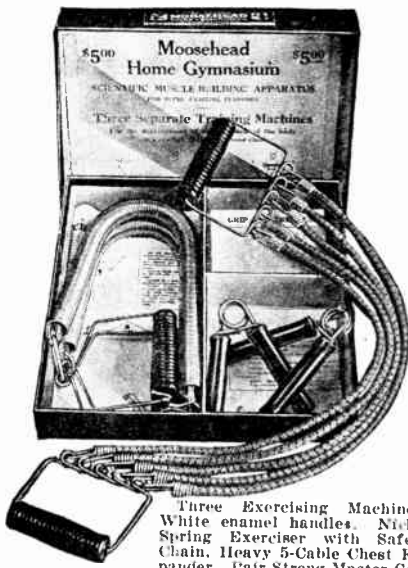
HAWK EYE MODEL C

Picture 2 1/4 x 3 1/4.

List Price, \$1.25

Your Cost, \$1.00

HOME GYM OUTFIT



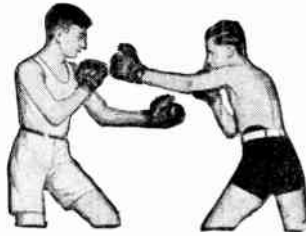
Moosehead Home Gymnasium
SCIENTIFIC MUSCLE-BUILDING APPARATUS
Three Separate Training Machines
Packed in display box with highly illustrated course, the "Anatomical Chart of Physical Exercises."
List Price, \$5.00 **Your Cost, \$3.95**

Chest Expander No. 120
(Muscle Builder—5-Strand)

The machine that builds muscle and creates strength faster than any one apparatus made. Weak men grow strong and strong men grow stronger. Muscles developed by inches—a greater chest expansion—and strength doubled.
Chest Expander cables are made of the strongest grade pure Para rubber with double covered cotton fabric, guaranteed to stand heavy work.
All cables are detachable—safety snap hooks. Strong handles, made of nickel steel with rubberoid enamel grips in colors.
List Price, \$2.50 **Your Cost, \$1.95**

FATHER AND SON BOXING GLOVE SETS

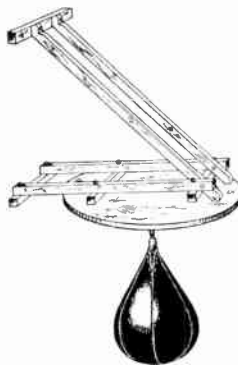
No. F and S.
A set of four boxing gloves made in two sizes. A small pair for son and a large pair for dad. Made entirely of brown tan glove leather. Corbett pattern. Padded wrists. Deep laced palms with leather finger tip grips (Pat. Feb. 11, 1930). Filled with good quality hair.



Set of four, List Price, \$6.50

Your Cost, \$4.95

Striking Bag and Platform



Platform of strong wood frame, with 3-ply laminated striking disc; will stand long hard usage. A fine gymnasium frame.

Ball No. 69P—Regulation shape. Good quality leather. Just the thing for the boy. Complete with pure rubber bladder, lace, and suspension rope.

Your Cost, Complete, \$4.95

BOXING GLOVES

No. 1000—Special training glove conforming with standard pattern for this type glove. Made of fine brown tan glove leather. Double padded cuffs. Deep laced palms. Stuffed with fine hair. Strongly stitched seams. Shaped to fit the hand.
Value \$15.00

M & H Special Price, \$10.00

Striking Bag

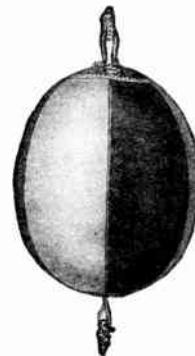
No. 65P—Made of fine quality leather. Weltered seams. Special fabric lining. Regulation pear-shaped model.
List Price, \$10.00 Complete
Your Special Price, \$5.00



Double End Striking Bag

No. 3½D—Made of Napa leather. Alternating sections of red and olive. Regulation size. Complete with pure rubber bladder, lace, elastic cord and suspension rope.
Each, \$5.00

Special Price, \$3.95



No. 3½D

No. 3—Youth's size. Standard pattern. Padded cuffs. Deep laced palms. Made with tan, wine or olive glove leather. A fine youth's glove.
Set of four, List Price, \$6.00

Your Special Price, \$3.95



A Reach \$14.00 Football \$6.95

OFFICIAL IN EVERY WAY

No. A Double Lined Football. Made of scientifically treated Reach pebble-grained leather. Each section in every ball is selected. To eliminate any possibility of stretch, a specially double woven lining is used, which prevents stretching or bulging and insures permanent shape. Its practical shape fits the hand for passing and allows better punting. Official in every way and conforms exactly in accordance with the rules of the game. Fitted with the improved type of valve bladder and double laced at the factory, ready for quick inflation. At any time additional inflation is required, remove valve cap, insert pump connection and inflate. No unlacing or relacing is necessary. Valve tool, pump connection and lacing needle included with each ball.

Value \$14.00, M & H Special Price, \$6.95



Boy's Model Football

List Price, \$1.50

Your Cost, \$1.00

Regulation Football Jersey

No. 6940. Made to order from 100 per cent pure worsted. Any color desired.

Each, \$3.00

Reach Shoulder Guards



No. 157

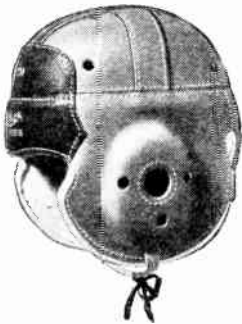
No. 167—Made of sole leather with white felt padding. Molded leather, felt lined shoulder caps. Leather extension over shoulder joints. The front and back are cut deep to thoroughly protect the chest and back. Elastic side straps hold the guard close to the body. Laced front and back. **Value \$5.00.**

M & H Special, \$3.35

No. 157—Made of sole leather with white felt padding. Leather and felt strongly sewed. Molded leather, felt lined shoulder caps. Leather extension over shoulder joints. Elastic shoulder bands. Adjustable lacing front and back. **Value \$4.00.**

M & H Special, \$2.75

Reach Helmet



No. 107H—The feature of this helmet is the double reinforced front or forehead piece (patent applied for), which gives exceptional protection over forehead and temples. Made of tan strap leather with black front piece. The crown and ear pieces are molded to shape and reinforced with fibre. Padded with best quality white felt. The inside of the crown is fitted with suspended web

shock absorber which prevents the head from coming in contact with the top of helmet. Leather sweatband. Deep, close-fitting back with elastic adjustment strap. Adjustable elastic chin strap. **Value \$10.00.**

M & H Special, \$4.95

Reach Pants



No. 8

No. 8—Best quality 8-ounce light tan duck. Gray felt padding around waist, sides and kidneys. Felt extended over hips, and fibre reinforced gray felt spine protector. Fibre reinforcement over kidneys. Fibre thigh guards with felt covered edges. Felt padded knees. Long leather reinforcing patches on outside of knees. Laced front. Tunnel for belt at back. Elastic at knees. **Value \$7.50.**

M & H Special, \$4.95

Doll Coaches

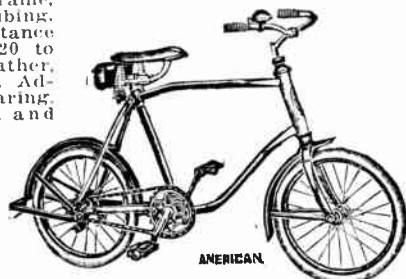
Machine woven round fibre with roll. Reclining back. Upholstered in corduroy. Machine woven hood round fibre with roll. Sliding hood fixtures. Side lights. Lined with grade "B" corduroy. Finish, walnut; gear and wheels, ivory. Gear, all steel. Long handle. Enamelled cross handle. Nickel-plated hub caps. Foot brake. Artillery wheels. Rubber tired. Optional finish: Ivory, plain blue, or caramel. Gear and wheels to harmonize.



	Regular Price	Special Price
No. 3008	\$6.00	\$4.50
No. 3013	8.00	5.95
No. 3029	11.00	7.95
No. 2937	13.00	10.00
No. 3053	18.00	12.95

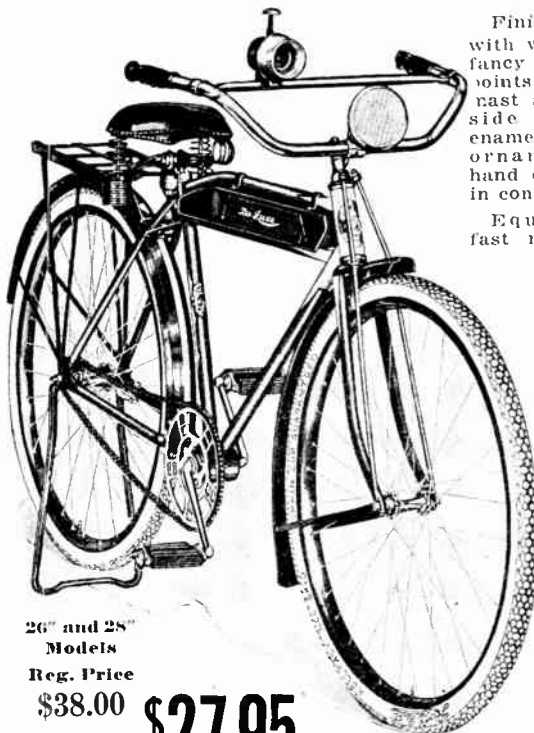
Coaster brake: 14" x 1 1/4" non-skid tires; ball bearing wheels; motor bike frame. Frame, seamless steel bicycle tubing. Height of frame, 15". Distance from saddle to pedals, 20 to 21". Saddle, genuine leather, nickel-plated coil spring. Adjustable. Pedals, ball bearing. Rubber. Fenders, front and rear. Parking stand. No. 922 Sidewalk Bike is regularly equipped with genuine New Departure Bndee Coaster Brake. Bicycle Bell, special deep-toned bicycle bell. Finish, blue with white head, spear points, and striping.

Sidewalk Bike No. 922
Chromium-Plated Metal Parts



	Regular Price	Our Special Price
No. 922—Boys' Sidewalk Bike	\$27.50	\$19.95
No. 912—Girls' Sidewalk Bike	27.50	19.95

BICYCLES — Motobike De Luxe Model



Finish: Oxblood red with white head and fancy white spear points on seat post, mast and fork, drop side mud guards enameled to match; ornamented with hand drawn striping in contrasting colors.

Equipment: Roll-fast non-skid chain cup guaranteed tires, chromium plated armored rims, drop side mud guards, rear red jewel reflector, rust-proof spokes, one-piece drop forged hangers, roller chains 3/8 x 1, rubber grips. Torrington rubber pedals, New Departure or Morrow Coaster Brake; No. 2 Motobike saddle. Roll-fast patented braced bar and patented stand on Motobike model. Fitted with tank, electric lamp, horn, carrier and stand.

26" and 28" Models
Reg. Price \$38.00
M & H Special \$27.95

VELOCIPEDES



Ball Bearing Wheels 1-inch Balloon Tires
Wheels, ball bearing. Bicycle spokes, non-rust. Tires, 1-inch auto tread. Frame, seamless tubing. Fork, bicycle type, arched crown. Pedals, rubber. Handle bars, bicycle type with forward extension. Adjustable. Nickel-plated. Rubber grips. Saddle, red, padded, motorbike type, nickel-plated double coil springs. Finish, Indian red with white striping.

	Reg. Price	Special Price
No. 60—12"	\$10.00	\$6.95
No. 61—16"	11.00	8.25
No. 62—20"	13.50	9.50

DE LUXE VELOCIPEDE
"Jumbo" Hubs and Hub Caps
Chromium-Plated Parts

Wheels, ball bearing. Non-rust bicycle spokes. Hubs, Jumbo type, chromium-plated. Hub Caps, Jumbo type, chromium-plated. Tires, 1 1/4" auto tread. Frame, 1" seamless, bicycle tubing. Crown fenders with nickel-plated braces. Fork, chromium-plated arched crown and spear points. Pedals, ball bearing, rubber, motorbike type. Metal parts chromium-plated. Handle Bars, chromium-plated bicycle type with forward extension. Adjustable. Rubber grips. Special bicycle bell. Saddle, chromium-plated double coil springs. Black, padded motorbike type. Tool bag, wrench, oil can and oil. Finish, maroon with fancy Indian buff head and striping.

	Regular Price	Our Special Price
No. 91—16-inch	\$16.00	\$11.95
No. 92—20-inch	18.00	13.50
No. 93—24-inch	21.00	15.95

THE "AMERICAN"

Last Word in Velocipede Value. Very Finest Made

Ball bearing wheels, non-rust bicycle spokes, Jumbo type hubs and hub caps, chromium plated, 1 1/4" auto tread tires, 1" seamless tubing frame, Crown fenders with nickel-plated braces, motorbike type pedals, chromium-plated bars and pedals and adjustable rubber grips, special deep-toned bicycle bell, rear ruby light reflector, fine saddle, tool bag, wrench, oil can and oil. Royal blue finish, with white fancy head and striping.

	Regular Price	Our Special Price
No. 101—16-inch	\$18.00	\$13.75
No. 102—20-inch	20.00	15.75
No. 103—24-inch	24.00	18.75

No. 10—Junior Velocipede	5.00	2.95
No. 12—Junior Velocipede	6.00	3.75

Park Cycle No. 820



Size—Length, 43"; height, 30"; distance from saddle to pedals, 23" to 27".

Wheels—12" ball bearing, bicycle spokes. 1" Auto Tread tires. Crank Hanger—Ball bearing, nickel-plated sprocket.

Frame—Bicycle tubing, brazed. Parking stand. Nickel-plated fork stem.

Finish—Fork and frame, Yale blue with white striping; wheels to match frame.

Equipment—Adjustable nickel-plated handle bars with forward extension. Bicycle type chain and sprockets. Rubber grips. Rubber pedals. Motorbike saddle, double coil springs.

Regular Price, \$15.00

Our Special Price, \$8.75

No. 822. Similar to No. 820, but heavier and equipped with mud guards, New Departure coaster brake, bell, and tool bag. The last word in Scooter value.

Our Special Price, \$15.75

Tubular Ice Skate and Shoe Combination

A SENSATIONAL M & H VALUE

Special Models
for Men, Women, Boys
and Girls

In Ordering, State
Size of Shoe



Regularly Sold at
\$7.50 per Pair

Your Cost
\$3.95
per Pair

Shoe made from fine quality black cowhide. Felt lined tongue and felt insole. Arch supporting counter. Web reinforcing over ankles. Strongly riveted to fine quality aluminum-finished Tubular Hockey Skates.

Famous Gilbert Erector Toys AT SPECIAL PRICES

No. 1—Builds the Square Girder. Large assortment of parts, many in colors. Size 12 3/8 x 8 5/8 x 5/8". List Price, \$1.00. **79c**
YOUR COST.....

No. 3—With Long Girders. Larger set. Size 18x10x 1 1/8". List Price, \$2.50. **\$1.95**
YOUR COST.....

No. 75—Erector Combination Aircraft and Zeppelin Set. This wonderful set covers practically the whole field of aeronautics, featuring the building of a four-foot Zeppelin with landing mast, and over nineteen different types of airplane models. By far the most complete and elaborate aeronautical set ever made. Contains fusilage, wings, gondolas, Zeppelin bag—in fact, everything necessary for a most complete aeronautical outfit. Airplanes and Zeppelin can be converted to captive flying type by obtaining a motor and additional electrical equipment. Size 20 3/8 x 26 5/8 x 2 3/4". List Price, \$12.50. **YOUR COST \$10.45**



No. 6—The Wonderful No. 6 Erector with the Boiler in big red chest. Contains all feature parts for boiler models. Display and model building tray, assembled gear box, etc. Size 8 1/4 x 3 x 21 1/2". List Price, \$7.50. **\$6.50**
YOUR COST.....

No. 7—The New Big No. 7 Erector. Builds the steam shovel. Packed in red and black high light Chest. Patented display and model building tray. Big red steel disc wheels, motor, assembled gear box, digger scoop, boiler, an assortment of gears, girders, cab tops, base plates, etc. Size 8 1/4 x 4 1/2 x 21 1/2". List Price, \$10.00. **YOUR COST \$8.50**

No. 4—Famous No. 4 Erector with powerful electric motor and gear box. The first set to contain electric motor, also assembled gear box for reversing, transmitting, increasing, and regulating power and speed. Size 18 x 10 x 2 1/8". List Price, \$5.00. **\$4.25**
YOUR COST.....

No. 45—A Complete Airplane Construction Set for building realistic models of airplanes, biplanes, seaplanes, amphibians. Electrical equipment and motor to make these planes fly captive, can be secured extra. Size 13 1/4 x 20 1/2 x 2 7/8". List Price, \$5.00. **\$4.25**
YOUR COST.....

No. 7 1/2 — The Sensational No. 7 1/2 Erector. Motorized set. Builds chassis, complete assortment of parts for automotive models, rubber tired disc wheels, motor, assembled gear box, cab top, boiler, fenders, radiator, hood, etc. Packed in red and black high light wood chest with brass corners. Size 10 3/4 x 5 1/2 x 22 1/8". List Price, \$15.00. **\$12.95**
YOUR COST.....

More Than a Toy — A Real Inspiration for the Child

Burrowes Pool and Billiard Tables

at Attractive Prices

Every table in this line permits expert playing. Perfectly fitted pocket stops convert the combination tables from a pocket billiard to a billiard table almost instantly, no tools or effort being required. These tables are designed for junior or adult use. Anyone who can handle a cue can play some kind of a game.

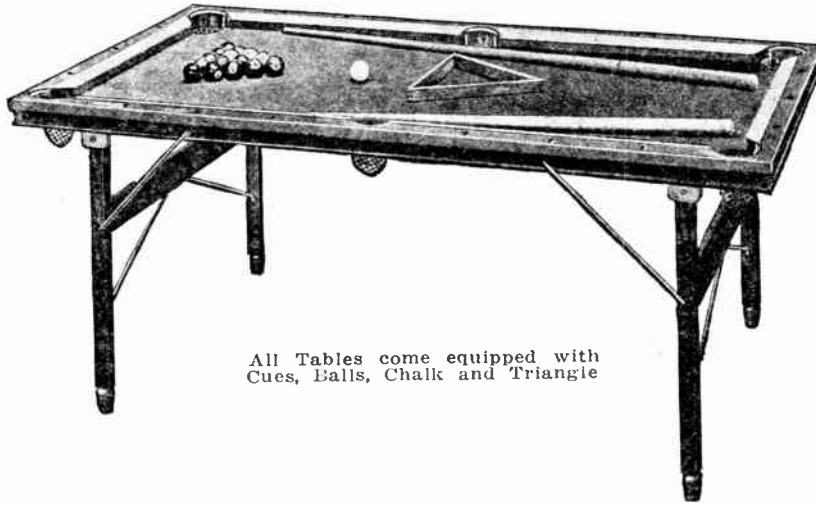
"The King of Indoor Games!" The one game that holds its followers year after year while other amusements have a whirlwind vogue and are soon forgotten. It provides sure and dependable entertainment through the long winter evenings, keeps the young people more contented at home and unites the entire family by creating a brisk rivalry in skill accorded by the constantly increasing proficiency, as well as giving the owner a permanent and valuable addition to his personal property and a wonderful equipment for the entertainment of his guests.

The table and equipment are "high grade" in every way. Whatever the size, the entire outfit and equipment are

accurately proportioned to the requirements of the big game. The beds are of laminated wood, comparatively light in weight, and are equipped with Burrowes patented steel girder construction, which includes mechanism for adjustment if rare

occasion requires it, thus assuring an absolute and permanent level. This construction solved the problem of a practical Home Portable Billiard and Pool Table, eliminating entirely the necessity of a heavy slate bed, and provided a table which can be easily moved to any convenient room in the house, and which can be folded or "knocked down" and requiring very little space when not in use.

The best possible quality of rubber is used in the cushions and pocket stops. The balls, the finest quality, are fancy colored, inlaid numbered and striped. The cloth covering of the bed and cushions is a high grade all-wool American Billiard cloth of fast color. All other equipment is of corresponding quality and is enumerated under the table description.



All Tables come equipped with Cues, Balls, Chalk and Triangle

No. 134X — 23½x43½. Mahogany; Pool only. List Price, \$6.50. **YOUR COST \$4.95**

No. 136 — 26½x50. Mahogany; Pool only. List Price, \$9.50. **YOUR COST \$6.75**

No. 37X — 28x55. Mahogany; Pool only. List Price, \$12.50. **YOUR COST \$9.95**

COMBINATION POOL AND BILLIARD TABLES

No. 37 — 30x59. Mahogany. List Price, \$18. **YOUR COST \$14.95**

No. 38 — 31x60. Mahogany. List Price, \$30. **YOUR COST \$23.75**

No. 85 — 38x70. Mahogany. List Price, \$45. **YOUR COST \$37.95**

No. 71A — 36x72. Mahogany. List Price, \$85. **YOUR COST \$69.75**

Desk and Chair Sets at Bargain Prices

Set No. 1 — Fine Desk with Pigeon Holes. 35" high, 27" wide, 16" deep. Swivel chair, 29" high, 13" seat and 15" from floor.

List Price, \$15. **YOUR COST \$9.95**

Set No. 2 — Beautiful Roll Top Desk with Pigeon Holes. Finished golden oak. Desk is 36" high, 30" wide and 18" deep. Swivel chair to match, 32" high, 12½" square seat and 17" from floor.

List Price, \$13. **YOUR COST \$12.95**



All numbers are large enough for practical use. Not toys. High grade oak lumber, with a good varnish finish and made of golden oak.



Set No. 3 — Roll Top Desk with Pigeon Holes and lock in drawer and in roll. 39" high, 19¼" deep and 33" wide. Swivel chair to match, 35" high, seat 14½" square and 18" from floor. A fine set.

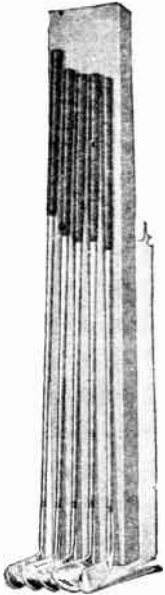
List Price, \$22.50. **YOUR COST \$17.95**

Set No. 4 — Roll Top Desk — Is 40" high, 36" wide and 22" deep. Locks in side drawers and in roll. Swivel chair, 35" high, 14" square seat and 18" from floor. Golden oak.

List Price, \$28.50. **YOUR COST \$21.75**

Desk and Chair Set No. 3

GOLFERS—Here is Everything You Need!



SHURE-FLITE SET (of five) MATCHED IRONS

STEEL-SHAFTED
CHROMIUM-PLATED

Mid-Iron Mashie Mashie Niblic
Niblic Putter

PACKED IN ATTRACTIVE BOX

The Greatest Golf Value
We Have Ever Offered

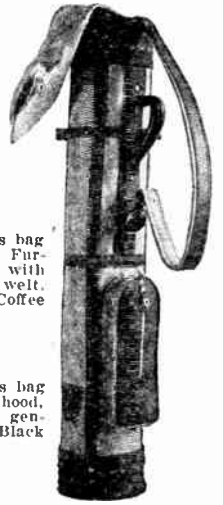
List Price, \$25.00

YOUR COST **\$13.95**

Sets can be had Short, Medium, Long

Finest Leather PAR Golf Bags 50% Off Regular Price

PAR Leather Golf Bags are the finest made. Every golfer feels he will eventually buy one. Here is an opportunity to have the best at just half the usual cost.



Style 3076 — Four stay bag with zipper pocket and hood. Furnished in solid or combination colors. Brown, Black, Pearl.

Price, \$35.00
Now \$17.50

Style 3037 — Stayless bag with double pockets. Furnished in solid colors, with contrasting lacing and welt. Brown, Black, Pearl, Coffee and Light Tan.

Price, \$45.00
Now \$22.50

Style 3007 — Stayless bag with zipper hood and pocket. Furnished in solid colors with contrasting lacing and pocket welt. Brown, Black, Pearl, Coffee and Light Tan. Price \$40.00.

Now \$20.00

Style 4037 — Stayless bag with two pockets and hood. Shark, Pygmalion, and genuine Pigskin. Brown, Black or Tan Calfskin.

Price, \$60.00
Now \$30.00

All Made of the Finest Genuine Leather

3076

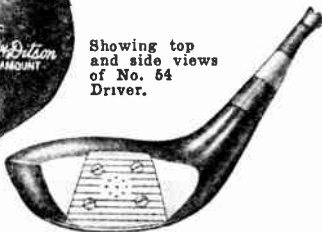
Reach's Paramount Steel-Shafted Wood Clubs

DRIVER BRASSIE SPOON



Heads made of best persimmon with highly polished solid finish. Nickered steel shafts, selected leather grips with metal cap on end of grip. Made on a special model in Drivers, Brassies and Spoons. Supplied in right and left hand men's models. Women's models in right hand only. Aluminum face and slip. Accurately centered lead back. Exceptionally fine clubs at a moderate price.

Showing top and side views of No. 54 Driver.



When ordering women's models specify as No. 54W. List Price, \$5.00 each

Your Cost, each **\$3.75**

Reach "Eagle" Golf Ball

Regular \$9.00 Dozen

M & H Special Price, Per Dozen

\$6.75

\$3.40 Half Dozen

Both New and Old Sizes



"Shure-Flite" Golf Balls

A good ball at a low price. Accurate, tough and true.

Regularly \$6.00 Per Dozen

Your Cost, **\$3.00 Per Dozen**

Basket Ball Goals



Regulation Size. Made of 3/4 x 1/4 in. flat steel with round edge. Complete with nuts and screws for attaching. Packed one pair in heavy corrugated carton. Your Special Price, **\$3.50**



Basket Ball Knee Pads

Elastic with Felt Padding
Your Cost, per pair, **\$1.00**

Moleskin Combination Basketball Uniform

An outstanding value. Three-piece uniform consisting of a fine moleskin jacket (as illustrated col. 3), moleskin pants and worsted shirt. The jacket has a roll collar and buttons down front; elastic knit bottom, cuffs and collar. The pants have button fly front, with belt and buckle, and sewn-in hip pads. The shirt is of fine worsted of regulation basketball cut. A combination every athlete will be proud to wear. Can be supplied in any color and size.

List Price, \$12.00

Your Cost, **\$6.95**

A REACH BASKET BALL

\$21.00 Value **\$8.75**

Official in Every Way

No. OB Double Lined Basketball. Made of scientifically treated Reach pebble-grained leather. Each section in every ball is especially selected. A specially double woven lining is used to prevent stretching or bulging and insure permanent shape. Official in size and weight and conforms exactly to the rules of the game. Fitted with the improved type of valve, heavy rubber bladder and double laced at the factory. Ready for quick inflation. At any time additional inflation is required, remove valve cap, insert pump connection and inflate. No unlacing or relacing is necessary. Valve tool, pump connection and lacing needle included with each ball.



Value, \$21.00

M & H Special Price, **\$8.75**

Moleskin Jacket



Made of suede cloth, zipper or button front, knitted collar and cuffs. Choice of colors with contrasting trim. One letter free.

Regular Price, \$5.00 Your Special Price, **\$3.00**
Training Pants to Match, \$3.00

Gym Suit

(Consisting of white cotton shirt, white jean pants, rubber soled shoes, elastic supporter.

Your Cost, complete, **\$1.69**

The M & H MIDGET MANTEL SET

Single Dial Control — Dynamic Speaker — 3 Screen Grid Tubes — 245 Output

Here is a unique mantel receiver, designed and built to fill the demand that has developed for a compact AC radio, equal in tone to its larger brothers; as a matter of fact, the reproduction obtained from this small receiver is almost uncanny when you consider its size.

CIRCUIT SPECIFICATIONS

Three tuned stages, consisting of two T.R.F., and a tuned Power detector. No first audio stage is used as the output of the screen grid detector tube is sufficiently great to be fed into a single 245 power output tube. Tubes used include three (3) UY 224 screen grid, one (1) UX 245 power amplifier and one (1) UX 280 Rectifier.

A three gang accurately balanced tuning condenser is used, each section of which is adjusted to match the R.F. tuning coils, making it unbelievably sharp. The heavy duty power transformer is built to specifications carrying an adequate overload margin.

Easily portable—weight only 25 lbs. Size 13" wide, 18" high, 7" deep.

OUTSTANDING FEATURES

Burl Walnut Cabinet, Kilocycle Calibration, Built-in Antenna, Completely Shielded, Illuminated Dial, Television Attachment. All steel rust-proof chassis.

Here is a midget receiver that will perform on an equal footing with the standard sized receiver. Nothing has been skimped, nothing has been slighted. This is a real buy and a money-saver.

\$34.95

List Price, \$59.50.

YOUR COST,

M & H Midget Mantel Receiver, complete as pictured with a set of matched Arcturus or Cunningham tubes.

List Price, \$73.30

YOUR COST, \$43.23

The Greatest Value in a Mantel Set on the Market



TELEVISION EXPERIMENTAL APPARATUS

Television being in its experimental stage, we offer it for experimental purposes only. We offer the best available equipment from a responsible manufacturer.

No. 102

I. C. A. Television Equipment

Television is now an accomplished fact. Experimenters everywhere are welcoming I. C. A. Television transmitting and receiving sets and kits. They are available in a number of popular complete kits. Also separate parts. We give here details of Model No. 42, which is a complete Television receiver with 4-stage amplifier and Television Tube.

Aluminum Disc, 48 holes (24 holes if preferred). Universal Motor (AC or DC). Four-Stage Television Amplifier. Television Tube. Speed Control. Motor Chuck. Telescope with two lenses. Bakelite Sub-base for Motor. Receptacle Plug for attachment. Sub-base with socket for Television Lamp. Picture Frame Shield. Bakelite Pillars. Brackets. Screws. Hardware.

List Price, \$65.00 Your Cost, \$38.32

I. C. A. Universal Motor

Synchronization of the receiving scanning disc and the broadcasting scanning disc is the essential factor for satisfactory pictures. Universal Motor (AC or DC)

List Price, \$29.50 Your Cost, \$17.34

I. C. A. Synchronous Motor

The I. C. A. Television Synchronous Motor is especially adaptable for television receivers where the television broadcasting apparatus and the receiving set are operated on power supplied by the same power company.

This synchronous motor eliminates the necessity of using a speed control on a television receiver for synchronization of television pictures.

This motor is for use for 110 AC 50-60 cycles and will operate with a definite speed of 1800 R.P.M.

Catalog No. 54 List Price, \$39.50 Your Cost, \$23.22

I. C. A. Motor Chuck

I. C. A. Television Motor Chuck is made of two special plates and a bushing to fasten the television disc to the motor. The diameter of the chuck is 6" which insures positive alignment of disc to motor. They are supplied to fit 1/2", 3/4" or 5/8" motor shaft. Specify size of shaft.

Catalog No. 55 List Price, \$5.00 Your Cost, \$2.94

I. C. A. and Raytheon Television and Photo-Electric Cells in Stock



I. C. A. New Television Receiver

Catalogue No. 51

The I. C. A. New Television Receiver Model No. 51 is a simplified complete equipment and can be operated outside a cabinet or inserted into most any console.

It provides satisfactory results to both novice and experimenter. It is supplied with a speed control which provides synchronization and framing of the television picture and signals.

All the controls of the receiver are mounted on a front panel which makes it readily accessible for operation of the television receiver.

The Television Receiver will work with most any Short Wave Receiver capable of tuning in television signals.

This Television Receiver is supplied with a special 5" lens and visor through which the pictures are greatly magnified and will also permit a number of people to view the pictures at one time. It is complete with 48 hole scanning disc (24 or 36 hole disc supplied if preferred). The Model No. 51 is supplied in knock-down form ready for assembly, which takes but a few minutes.

List Price, \$75.00 Your Cost, \$44.10

No. 51 Television Receiver complete with No. 115 Television Amplifier and I. C. A. No. 114 Television Lamp (less amplifier tubes).

List Price, \$100.00 Your Cost, \$58.50

I. C. A. Television Amplifier

The I. C. A. Television four-stage amplifier is most advanced in features and construction. It is complete with all resistors and coupling condensers, thereby taking the place of all apparatus after the detector. Inasmuch as the brilliancy of the Neon lamp is contingent upon the current output of the last amplifier tube or tubes, the amplifier is so wired that it is possible to use two power tubes in parallel.

List Price, \$17.50 Your Cost, \$10.29 (Without Tubes)

I. C. A.

Scanning Disc

I. C. A. Aluminum Scanning Discs are made with the utmost precision, special machinery and tools being required to construct them. The holes are laid out mathematically correct to insure perfect reception of television signals and pictures. The discs are supplied as follows:



Cat. No.	Scanning Lines	Size of Discs	List Price	YOUR COST
105N	24	12"	\$10.00	\$5.88
106N	45	12"	10.00	5.88
107N	48	12"	10.00	5.88
108N	60	12"	15.00	8.82

Vision Telescope Lens

Accurately made of special magnifying and ground glass. Encased in telescope with 6-inch magnifiers.

No.	Price	COST
No. 111—2 1/2" diameter lens	\$5.00	\$2.94
No. 53—5" diameter lens	10.00	5.88

I. C. A. Television Lamp

Catalog No. 114

The I. C. A. lamps are designed to operate with an output tube in series. Will give excellent illumination with a current of 20 milliamperes or less. Where extremely bright illumination is required for maximum results, the tube may be loaded up to 80 milliamperes, by means of suitable output tubes singly or in parallel.

FEATURES

Striking Voltage 100. Minimum Current to cover plate 5 Mils. Maximum Current 80 Mils. Internal Resistance 1000 ohms. UX Four Prong Bakelite Base. Plate Area 1 1/2" square.

List Price, \$10.00 Your Cost, \$5.88



Photophone Speaker

12 Inch Dynamic Unit



FRONT VIEW



BACK VIEW

SPECIFICATIONS—Field supply, 110v. DC. Current draw, 100 M.A. Field resist., 1000 ohms. Voice coil, 8 ohms.

List Price, \$110.

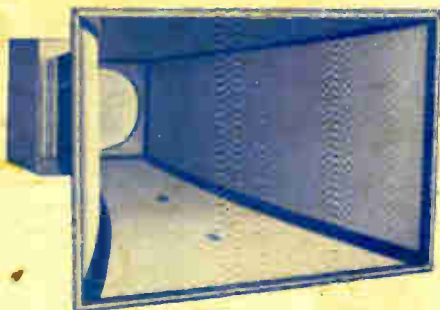
M & H SPECIAL PRICE *All Perfect in Original Containers* **\$15.00**

Never before was such an astounding value offered. Every carnival owner, motion picture house, theatre, fair, American Legion Post, club, sound engineer, radio engineer will want to purchase these speakers.

Recommended for airports, boat landings, public gatherings, political campaigns, theatres, schools, bus terminals, railroad waiting rooms, etc.

In conjunction with the M & H Baffle Horn, pictured below, this combination will give fidelity of tone quality on both voice and music frequencies that will satisfy the most critical of listeners.

M & H BAFFLE HORN for use with R. C. A. Photophone



Outside measurements: Length overall, 50".
Bell at opening, 32" x 23".

door and outdoor installations. Has a flare on both sides and can be used to great advantage in theatres.

If painted occasionally, should last a long time as it is very substantially manufactured.

List Price \$36.00 **M & H Special Price \$18.00**

FIELD SUPPLY

For Photophone Speaker



For adaption to AC operation of the Photophone Speaker, we can supply a rectifying unit which is plugged into 110 AC line and will supply the field current necessary.

List Price, \$12.00

M & H Special Price \$6.50