

SILVER-MARSHALL, Incorporated

APRIL
15
1929



Until May 1, 1929—846 West Jackson Blvd.
After May 1, 1929—6401 to 6451 W. 65th St.
Chicago, U. S. A.

ORDER BY TELEGRAPHIC CODE WORDS IN ITALIC TYPE

All prices subject to change without notice

Note New S-M List Prices, Which Are NET GENERAL PARTS CATALOG

**“You’ll find it all in S-M—
why look further?”**

All radio receivers, power units, and power amplifiers listed in this catalog are licensed under patents owned or controlled by the Radio Corporation of America, General Electric Company, Westinghouse Electric and Manufacturing Company, and the American Telephone & Telegraph Company. The prices shown herein are net, and include all license royalties.

S-M receivers, amplifiers and power supplies are marketed under a policy of complete publicity as to the parts contained in them—all parts being specified, described, and priced net in this catalog. These parts are available as in the past, and Silver-Marshall will continue to give hearty co-operation to the experimenter, custom builder and service station buying S-M parts either for replacement or for the building of sets of their own or other experimental designs. All parts listed herein, being standard, are carried in stock at the factory, and by S-M jobbers everywhere.

As a result of licensing arrangements with the Radio Corporation of America, the test laboratory and engineering facilities of R. C. A. are available to Silver-Marshall, and you are thus doubly assured of the engineering correctness of all S-M products.

THIS catalog illustrates and describes the most complete line of quality radio parts ever offered by any manufacturer. Within the last five years Silver-Marshall, Inc., has built up the largest volume of parts business done today. There is scarcely an item among the essential or major parts required by any builder of radio receiving and amplifying apparatus, which is not to be found under the S-M trade-mark. And the S-M mark—however low the cost of parts bearing it—has been found to constitute such an unfailing certificate of quality and reliability that seasoned experimenters always look for it when selecting parts whose dependability must be absolute.

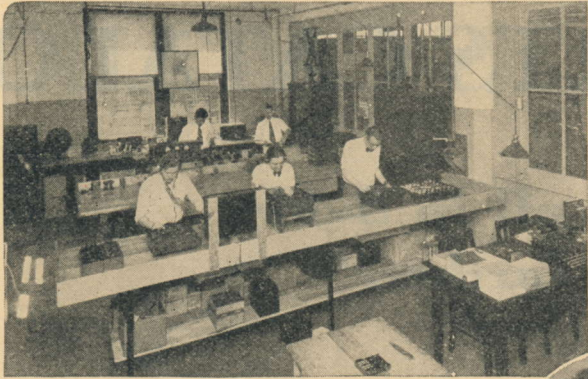
These pages contain much technical data of vital interest to every experimenter, builder, or user of radio parts or custom-built apparatus. All items listed are available through regular S-M jobbers and dealers, with the single exception of Rack-and-Panel “PA” amplifiers, which are sold only by Service Stations or engineers actually servicing such equipment; or by the factory direct at the prices quoted on page 23, which are net.

Every product of Silver-Marshall, Inc., is accompanied by a printed card setting forth in the most explicit terms our positive guarantee that the part, receiver, or other device which it accompanies is exactly as represented, and is warranted free from mechanical and electrical defects. Under this guarantee, any S-M product showing any defect not caused by, or the result of, abuse, will be gladly replaced or repaired free of charge if returned to the factory prepaid.

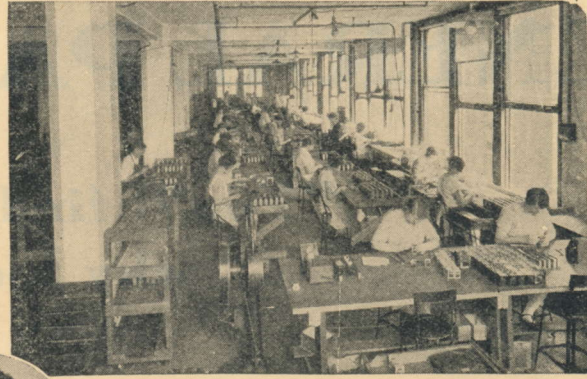
SILVER-MARSHALL, *Incorporated*

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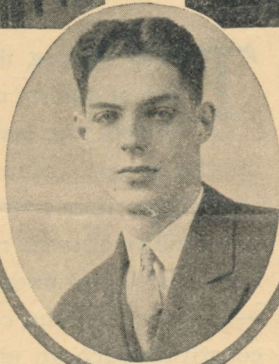
DEMAND FOR S-M PRODUCTS NECESSITATES NEW FACTORY



A corner of the research laboratory in the Jackson Boulevard plant which has housed Silver-Marshall since 1928. The new research laboratories alone are three times as big.



A transformer assembly department. Each transformer is given six tests, three under actual amplifier operating conditions.



McMurdo Silver, founder and President of Silver-Marshall, Inc.

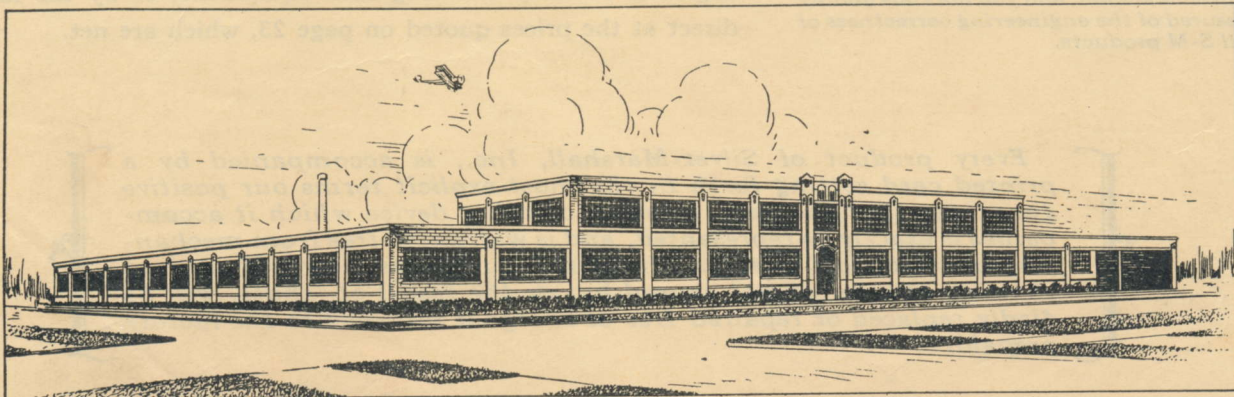
A reflection of the steadily growing demand for genuine quality radio parts is seen in the continually expanding manufacturing facilities of Silver-Marshall.

From its humble beginnings less than five years ago on the second floor of an Evanston, Ill. garage, Silver-Marshall has grown to occupy the entire ultra-modern industrial building pictured below. The history of the company has been one of continuous expansion. From the 1600-square-foot Evanston "factory," S-M grew to larger quarters in 1925. For 1926 a single floor of 12,000 square feet was taken on Jackson Boule-

area! And a second unit, even larger than the first, has been completely planned, ready to be put up and in operation within 90 days when the need arises. This second Clearing unit, to give S-M a total of over a quarter of a million square feet, will be located directly behind the first unit, pictured below.

We cordially invite all of our friends who may be in Chicago to inspect a thoroughly-equipped modern radio plant in operation—to see for themselves the thoroughness of design and manufacture which has been responsible for the unprecedented rise to fame of S-M radio products.

vard in Chicago. In 1927 another floor was added, in 1928 still another. Now, as this catalog goes to press, the new 106,000 square foot Clearing Plant nears completion—the third-largest exclusive radio plant in the Chicago industrial



The new Silver-Marshall plant, in the modern Clearing Industrial District, nine miles from the Chicago "loop," looks out upon the Chicago Municipal Airport. In this building will be found the latest types of high-production machinery, together with numerous inspection and test laboratories whose sole function it is to maintain rigid and continually improving inspections at every step of manufacture.

SILVER-MARSHALL, Incorporated



HELPING SET BUILDERS TO
KEEP ABREAST OF THE
NEWEST IN RADIO

The S-M "Radiobuilder"



"RADIOBUILDER"

Subscribers Get the
S-M Technical News First

"The Radiobuilder" is Silver-Marshall's own little magazine, published monthly to give you advance notice of new radio developments and to acquaint you with technical points pertaining to the S-M line.

It was in "The Radiobuilder" that first information was given regarding the S-M Public Address Amplifiers, the "Round the World" Screen Grid Short Wave Receiver and Adapter, and the new Clough tuned audio-frequency transformer system, which has so revolutionized all audio amplifier performance since June, 1928.

Invariably a month before new S-M offerings are announced to the general public through the radio press, readers of "The Radiobuilder" are fully informed concerning the trends in receiver and accessory design for the fall and winter season. Thus "The Radiobuilder" is an invaluable source of advance information to those interested in new S-M developments.

Every month from now on, through the columns of "The Radiobuilder," you will be given the opportunity to keep abreast of advances in the radio art. New engineering developments will be reported to you, what is going on in the Silver-Marshall research laboratories, and in other radio laboratories of the world, will be commented upon.

As new tubes come upon the market, readers of "The Radiobuilder" will be told how they may adapt their present equipment for use with such tubes. As other inventions and improvements are devised, you—if a regular subscriber to "The Radiobuilder"—will be one of the first to profit by them, or to reap the added enjoyment or efficiency which they make possible.

To Authorized Silver-Marshall Service Stations in all parts of the world, "The Radiobuilder" is mailed free each month. To others the very nominal charge of 50 cents for 12 issues, or one dollar for 25

issues is made, to partially cover postage and handling costs. If you are not already a subscriber, we hope you will wish to have your name added to the already large and fast-growing number of fans, experimenters, amateurs and professional set-builders who enjoy reading "The Radiobuilder"—and who look forward expectantly to receiving each new issue.

All that is necessary is to send 50 cents or a dollar in stamps or money-order with a little note saying, "Please put me down for a subscription to 'The Radiobuilder'."

"SILVER RADIO" Complete Receivers

This catalog does not describe the line of receivers manufactured by Silver-Marshall under the name of SILVER RADIOS. They are built complete and mounted in the finest console cabinets at the factory. They are not composed of standard S-M parts, and parts for them are not available to experimenters generally.

Both SILVER RADIO, and S-M products as listed in this catalog, are fully guaranteed by Silver-Marshall, Inc. (see front cover). They must not however be confused with various products manufactured by this company for other manufacturers on special order, and sold under names and guarantees other than our own.

There Is an Authorized S-M Service Station Near You—Write for Location

The universal respect in which S-M parts are held by both professional and amateur builders, as well as by those who employ such professional service, has led to the growth during the past year of a great system of "Authorized S-M Service Stations." Wherever the insignia of such a station is displayed, it indicates the presence of one or more radio technicians whose competence is proven by professional data submitted to, and approved by, the S-M laboratories. This identification of competent custom-builders in all parts of the United States and Canada has led to greatly increased interest in custom-built receivers and amplifiers.

If you do not wish to build and install your own receiver or power amplifier, yet desire your radio to be custom-made, with all the advantages that this implies, Silver-Marshall will gladly refer you to an Authorized S-M Service Station near you. Oftentimes an S-M specialist can be of valuable assistance in checking up installations, testing tubes and batteries, or making meter readings to provide proper voltages for your set or power amplifier.

On the other hand, if you build or service sets professionally, on either a full-time or part-time basis, and are interested in learning whether there are valuable S-M Service Station franchises still open in your territory, please write us.

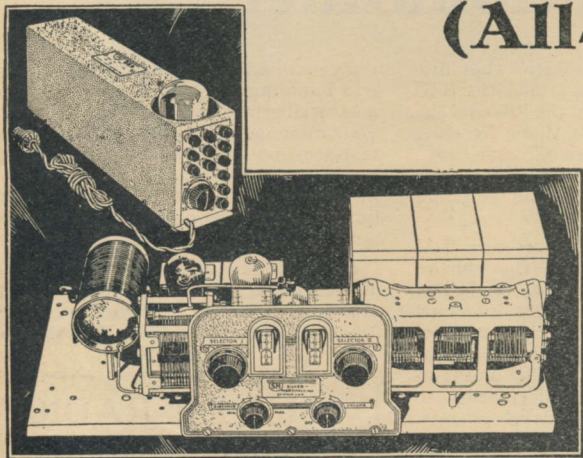


SILVER-MARSHALL, Incorporated



HERE'S REAL 1930 PERFORMANCE,
WITH 1930 TUBES

The New 720AC Screen-Grid Six (All-Electric)



A GAIN S-M is first with the latest—an R. C. A. licensed all-electric receiver using the new R. C. A. (or Cunningham) A.C. screen-grid tubes. And what a "whale of a difference" these new tubes make! Due to the better type of construction, and the use of an indirectly heated cathode, these new A.C. screen-grid tubes will stand a higher plate voltage, thereby helping to produce the tremendous amplification constant of 420 per tube!

The S-M 720AC is a receiver specially designed for obtaining the maximum efficiency from three shielded r.f. stages utilizing these new A.C. screen-grid tubes, plus a power detector, and two stages of Clough system audio amplification; the last stage of audio uses another new R. C. A. (or Cunningham) tube—the UX245 (CX345). This tube has an undistorted power output of 1600 milliwatts—ample for the largest home. Now, for the first time, this new power tube makes possible exceptional volume, without resorting to dangerously high plate voltages. And the tone quality—so pure, so realistic, and so lifelike, that those hearing the 720AC for the first time are held fast in amazement!

Surpasses Many of the Most Costly Sets

For a receiver using only 6 tubes, the S-M 720AC Screen-Grid Six surpasses, in tone realism, distance, and selectivity, many of the best 7, 8, 9, and even 10-tube receivers, costing many times as much. This is not merely an enthusiastic claim, but an actual fact. In operating this truly great receiver under your own local conditions, you are more than likely to find that it actually exceeds these claims. We are quite confident that you will say it is the finest six tube receiver you have ever heard, bar none!

Performance with a Vengeance

In performance, the 720AC Screen Grid Six is an even better receiver than the 720 (D.C.) model, because of the more powerful screen-grid tubes used. Distant stations come through clearly and loudly, for the selectivity is such that powerful "locals" may be cut through easily, even though the separation may be only 10 to 20 kc. The set logs positively, and cannot get out of gang. It will bring in with full volume many stations that cannot even be heard on much more expensive sets.

For Table or Console Installation

The S-M 720AC is adapted to table mounting or console installation use. As a table model, it may be had in a beautiful dark brown crackle-finished metal shielding cabinet, measuring 22½ by 11 by 8 inches. For mounting in console cabinets, a space approximately 21½ inches long, 10 inches deep, and 7½ inches high is necessary. The power unit may be put directly behind the receiver (if a table model), or mounted with the chassis where a console cabinet is used. For console installation S-M 703 panel is recommended. (See page 22.)

The component parts contained in the 720AC Receiver (any of which may be purchased separately, if desired) are listed below:

1—S-M 701 Universal Pierced Chassis.....	\$ 1.80
1—S-M 809 Dual Control Escutcheon.....	1.65
1—S-M 806L (Left) Vernier Drum Dial.....	1.50
1—S-M 806R (Right) Vernier Drum Dial.....	1.50
1—S-M 320R .00035 Mfd. Universal Condenser....	2.40
1—S-M 323 .00035 Mfd. Three-gang Condenser....	8.10
1—S-M 342B .000075 Mfd. Midget Condenser.....	1.05
3—S-M 638 Copper Stage Shields @ 90c.....	2.70
1—S-M 140 Antenna Coil.....	1.80
3—S-M 132B Plug-in R.F. Transformers @ 75c...	2.25
8—S-M 512 5-Prong Tube Sockets @ 36c.....	2.88
1—S-M 511 4-Prong Tube Socket.....	.30
1—S-M 255 First Stage Audio Transformer.....	3.60
1—S-M 256 Second Stage Audio Transformer....	3.60
1—S-M 708 10 Lead Connecting Cable (5 Feet Long)	1.05
1—S-M 818 Hook-up Wire (25 Feet).....	.30
1—Yaxley 53000, 3000 Ohm Midget Potentiometer	.75
1—Yaxley 150 Ohm Fixed Resistor.....	.15
2—Yaxley 420 Insulated Tipjacks @ .07½c.....	.15
1—Yaxley 1500 Ohm Fixed Resistor.....	.15
1—Yaxley 840C Center-tapped Resistor.....	.30
1—Carter AP15, 15 Ohm Sub-base Potentiometer	.45
1—Ohmite 1500 Ohm Resistor.....	.60
2—Potter 104 or Polymet 1 Mfd. Condensers @ 75c	1.50
7—Sprague or Polymet ½ Mfd. Condensers @ .66c.	4.62
1—Polymet .00015 Mfd. Grid Condenser with Clips	.30
1—Polymet .002 Mfd. Bypass Condenser.....	.24
1—Polymet 2 Megohm Grid Leak.....	.30
1—Durham .15 Meg. Resistor with Leads (optional)	.30
3—Binding Posts @ .06c.....	.18
1—Set of Hardware.....	.60

\$47.07

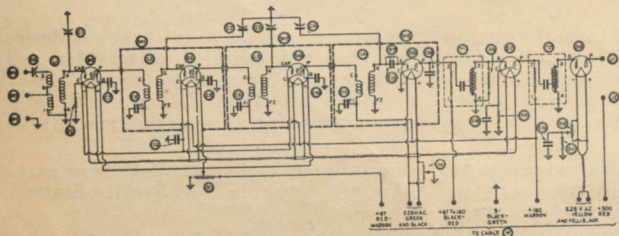
(For cost of parts necessary to convert the 720 Receiver (D. C.) see opposite page.)

Tubes required: three UY224 (C324), two UY227 (C327), and one UX245 (CX345). Power unit uses a UX280 (CX380) full wave rectifier tube.

720AC WIRED SCREEN-GRID SIX (Leadetric)
The 720AC Screen-Grid Six, as described above, factory built and tested, complete with cabinet. Packed in substantial carton (less tubes). Shipping weight 35 pounds..... Price \$70.20

669 WIRED POWER SUPPLY (Powunit)
Recommended power supply for furnishing all A, B and C voltages necessary to the 720AC Screen-Grid Six. See page 14 for full description..... Price \$34.50

700 SHIELDING CABINET (Cover)
One-piece metal shielding cabinet with walnut base, for the 720 Screen Grid Six. See page 21 for full description..... Price \$5.55



SILVER-MARSHALL, Incorporated



THE RECEIVER WHICH ESTABLISHED S-M'S SUPREMACY

The 720 Screen Grid Six (For D. C. Tubes)

Never before has any set received such overwhelming acclaim as has the now R. C. A. licensed S-M 720 Screen Grid Six—worthy successor to the famous 630SG Shielded Grid Six.

From its very beginning, the S-M 720 has proved to be an extraordinary success. One after another of the country's most highly critical authorities have pronounced it unquestionably the finest 6-tube set ever made, regardless of price.

Although simple in its make-up and construction, the S-M 720 performance is almost "magical," so smoothly and quickly do far-away and nearby stations glide in as the dials are turned. Program after program, each with a decisive clearness, and quality of tone that is unsurpassed, are always ready to greet the listener-in, regardless of his location—whether it be in a congested broadcast district or on a battleship in mid-ocean!

Why the 720 Is Better

The 720 consists of three stages of r.f. amplification, using screen-grid tubes, followed by a supersensitive detector and two stages of Clough high-gain audio amplification, with power output tube—112, 171, 210, 245 or 250 type being optional. The r.f. stages are controlled by two vernier drum dials operating one single condenser and a three-gang condenser of unusual accuracy and rigidity. The new S-M 140 Universal coil is used in the antenna stage, providing greater selectivity than in any other similar set. A small condenser in this circuit regulates selectivity from minimum to maximum. The second and third r.f. stages are tuned by the compensated gang condenser and are individually shielded in separate copper stage shields.

Reproduction Beyond Comparison

Nothing has been spared to make the tone quality of the S-M 720 supreme. The secret of the flat line frequency characteristic (ranging from 100 to 8000 cycles, with an actual rise in amplification below 100 cycles) of the audio amplifying system lies in the use of the famous Clough system audio transformers whose quality of reproduction, natural and life-like as the studio music itself, has never been equalled!

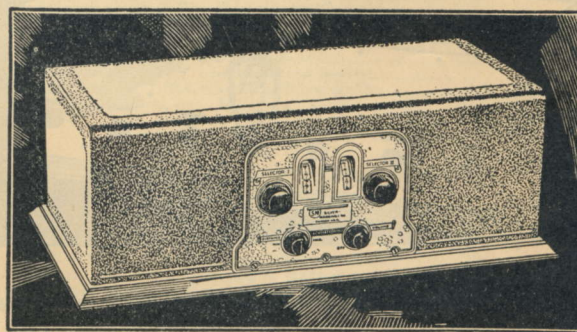
The attention to detail in the layout and design of the 720 has made it a very efficient receiver. All parts are assembled on an accurately pierced metal chassis, and the wiring is simple and direct. Perfect aligning and ganging of condensers is accurately done in the factory so that efficient operation is assured the owner. Wavelength range approximately 200-550 meters.

CONVERSION OF 720 (D. C.) TO 720AC Receiver

The 720 (D. C.) Screen-Grid Six may be converted into the 720AC Model for A. C. Tubes. The following additional parts are necessary:

5 S-M Tube Sockets (5-prong) @ \$0.36	\$ 1.80
3 S-M 132B r.f. Transformers @ \$0.75	2.25
1 Yaxley 1500-Ohm Resistor	.15
1 Yaxley 150 (or 200) Ohm Resistor	.15
1 Yaxley 840C Balancing Resistor	.30
1 Carter AP15, 15-Ohm Sub-base Potentiometer	.45
1 Ohmite 1500-Ohm Resistor	.60
1 Potter 104 or Polymet 1 mfd. Condenser	.75
1 Sprague .25 mfd. Bypass Condenser	.66
Additional Hardware	.15

Total Cost of Parts for Conversion 7.26



The component parts contained in the 720 Receiver (any of which may be purchased separately, if desired) are listed below:

1—S-M 701 Pierced Chassis	\$ 1.80
1—S-M 809 Dual Escutcheon	1.65
1—S-M 806L Drum Dial	1.50
1—S-M 806R Drum Dial	1.50
1—S-M 320R .00035 Mfd. Condenser	2.40
1—S-M 323 .00035 Mfd. 3-gang Condenser	8.10
1—S-M 342B .000075 Mfd. Condenser	1.05
3—S-M 638 Copper Stage Shields @ 90c	2.70
1—S-M 140 Antenna Coil	1.80
3—S-M 132A Plug-in R.F. Transformers @ 75c	2.25
3—S-M 512 5-prong Tube Sockets @ 36c	1.08
5—S-M 511 Tube Sockets @ 30c	1.50
1—S-M 255 A.F. Transformer (first stage)	3.60
1—S-M 256 A.F. Transformer (second stage)	3.60
1—S-M 708 10-lead Connection Cable (5 ft. long)	1.05
1—S-M 818 Hook-up Wire (25 ft. to carton)	.30
1—Yaxley 53000-P 3,000 Ohm Potentiometer	.75
1—Yaxley 500 Switch Attachment	.24
2—Yaxley 420 Insulated Tipjacks @ 07 1/2c	.15
3—Carter RU10, 10-Ohm Resistors @ 15c	.45
1—Carter A6, 6-Ohm Sub-base Rheostat	.30
1—Carter H1 1/2, 1 1/2-Ohm Resistor	.15
1—Potter or Polymet 1-Mfd. Bypass Condenser	.60
6—Sprague or Polymet 1/4-Mfd. Midget Condensers	3.96
1—Polymet .00015 Mfd. Grid Condenser with Clips	.30
1—Polymet .002 Mfd. By-pass Condenser	.24
1—Polymet 2-Megohm Grid Leak	.30
1—Durham .15-Meg. Resistor with Leads (optional)	.30
1—Naald 481XS Cushioned Tube Socket	.39
3—Moulded Binding Posts @ 06c	.18
1—Set Hardware	.60

1—S-M 700 Shielding Cabinet and Walnut Base, (See page 22 for full description) \$44.79
\$ 5.55

The 720 Screen Grid Six requires for operation, three UX222 (CX322) screen grid r.f. amplifiers, one UX201A (CX301A) detector, one UX112A (CX312A) first stage amplifier and one UX112A (CX312A) or UX171A (CX371A) last stage power tube. It may be operated from batteries—or the S-M 670B, 669 or 675ABC Reservoir B Power Supply, in combination with any good A power unit, makes the ideal power plant for this receiver.

The 720 is built upon the 701 Universal chassis to fit the beautiful S-M 700 Metal Shielding Cabinet. It may be altered for console use by replacing the cabinet with S-M 703 Walnut Finish Panel (price \$2.40; see page 22).

S-M Data Sheet No. 5 contains a full description and operating instructions for the 720 Screen Grid Six and will be mailed upon receipt of 2c stamp.

720 WIRED SCREEN GRID SIX (D. C.) (Leadership)

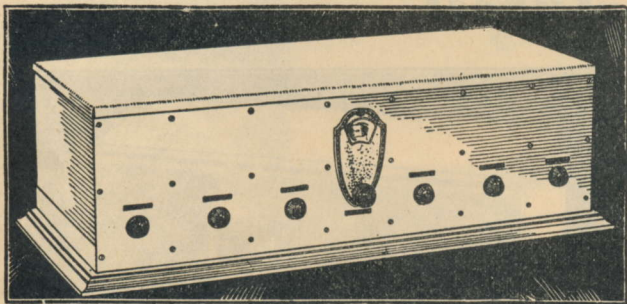
The 720 Screen Grid Six, as described above, wired and tested, complete with cabinet. Packed in substantial carton (less tubes) shipping weight 35 lbs. Price \$66.30

SILVER-MARSHALL, Incorporated



A STATION EVERY TEN KILOCYCLES

710 Sargent-Rayment Seven



A STATION tuned in for every ten kilocycles—an average of one hundred stations heard in one evening! That is the performance record of the Sargent-Rayment Seven, tested in the heart of Chicago interference on a warm summer evening. To the ultra-skeptical veteran listener we heartily recommend this peer of all receivers as a set utterly without equal. In performance, as in unique appearance, it is a precision laboratory type of instrument, intended for the man who desires the very extreme of radio reception in all respects, irrespective of cost or other limitations. The results it gives place the Sargent-Rayment Seven as a leader even among "stunt" sets; but one hearing of its fine tone will remove it entirely from the limitations of any such classification—it is, truly, the set of sets.

The Sargent-Rayment Seven uses four UX222 (CX322) D.C. type screen-grid tubes in four ultra-selective stages of r.f. amplification. It is not available for the new UY224 (C324) A.C. screen-grid tubes, as the Radio Corporation of America and Cunningham advise against the use of as many as four of the new A.C. tubes in r. f. stages. As the 710 set has been designed to provide the absolute maximum of radio results, be it with A.C. or D.C. tubes, the tried and proven 222-type tube is still employed, since no A.C. tube set of selectivity equal to the 710 can today be built. Nevertheless, the 710 can be completely A.C. operated, plus all the dependability of D.C. tubes, by means of standard A, B and C power units.

Designed by Messrs. E. M. Sargent and L. C. Rayment, inventors of a unique receiver system of past popularity, in conjunction with the Silver-Marshall engineering laboratories, the 710 Sargent-Rayment is like a battleship stripped for action, shorn of every piece of surplus gear. The thick aluminum shielding and chassis, finished in satin silver and trimmed by black instrument name plates with white engraving, gives to the appearance a distinction and dignity utterly beyond that of any other radio set. Electrically, the receiver consists of five sharply tuned circuits in a four-stage screen grid R. F. amplifier, all tuned by a single illuminated drum, and each stage provided with individual verniers. One knob turns the set on and off, a second controls volume from zero to maximum. All are symmetrically placed. There are no other controls. Following the R. F. amplifier are the detector and A. F. amplifiers, using the

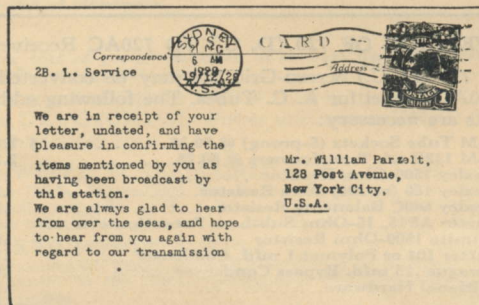
new S-M 255 and 256 audio transformers which provide unequalled tone quality and high volume. A 171 power tube can be used, or with the S-M 675 ABC power supply, a UX 210 or UX 250 is used in the last audio stage, for a 251 output coupler is included. Light socket operation is had with standard A and B power units, or batteries may be used. Each circuit is individually shielded, bypassed, and isolated from all others.

But when the set is put on the air, the biggest surprise yet is in store. No matter what may have been your previous standard of comparison for radio performance—be it the most expensive ready-made set that ever left a factory or the trickiest superheterodyne of ten or fourteen tubes, you may expect from the Sargent-Rayment the thrill of a lifetime. Locals and far-distant stations—usually all at nearly the same volume—come in with full, rounded tone, of a beauty and brilliance that will be the marvel of all to whom you may show it. In the Sargent-Rayment Seven one may indeed realize the full significance of honest "pride of ownership."

Space prevents more than a mere mention of the enthusiastic reports which continually reach us from users of the S-M 710. Among the more distinguished of these listeners, Kenneth G. Ormiston, Technical Editor of "Radio Doings," writes in that publication (Oct. 13, 1928) as follows:

We were so impressed with the very obvious sensitivity of the receiver, due to its ability to reach the noise level with the sensitivity control but half on, that we decided to try something which we had never considered worth while heretofore. We have journeyed all over the Southern end of the state [California] to find choice spots in which the Japs and Aussies may be received, but never deemed it worth while to attempt this in the city [Los Angeles]. The volume of WGN, when he signed off, inspired us to set the alarm clock for 4 a. m., and when we turned the set on at that hour, five of the Japs were received with good volume and 4QG in Brisbane.

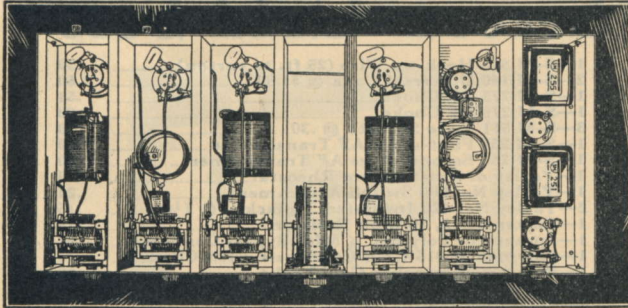
An interesting feat of a 710 Sargent-Rayment Seven Receiver is the authentic reception in New York City of station 2BL, Sidney, New South Wales, Australia. The verifying post-card is reproduced below.



SILVER-MARSHALL, Incorporated



THE PEER OF ALL RADIO RECEIVERS



Interior of the Sargent-Rayment Seven

By the fan who appreciates and values really fine performance in a truly precision receiver of great individuality and distinction, the 710 Sargent-Rayment Seven will be welcomed. It is not a set for the furniture buyer—for every dollar of value in it is radio value, not expensive wood cabinet work contributing not a single particle to actual results. The parts for this receiver is approved by the designers and exclusively manufactured by Silver-Marshall, Inc.

S-M Data Sheet No. 8, completely describing the Sargent-Rayment Seven, will be mailed on receipt of two-cent stamp, or it may be had from any S-M dealer.

The component parts of the 710 receiver (any of which may be purchased separately, if desired) are listed below:

1—S-M 705 Aluminum Shielding Cabinet.....	\$16.20
1—S-M 706 Walnut Finish Base Moulding.....	1.80
1—S-M 141 Antenna Coil.....	1.80
4—S-M 142 R. F. Transformers @ \$1.80.....	7.20
5—S-M 320-R Variable Condensers, .00035 Mfd., @ \$2.40.....	12.00
5—S-M 340 Midget Condensers, .000025 Mfd., @ 90c.....	4.50
9—S-M 275 R. F. Chokes @ 54c.....	4.86
7—S-M 511 Tube Sockets @ 30c.....	2.10
1—S-M 255 First-stage Audio Transformer.....	3.60
1—S-M 256 Second-stage Audio Transformer.....	3.60
1—S-M 251 Output Transformer-Filter.....	3.60
1—S-M 708 Ten-lead Battery Cable.....	1.05
1—National Type "F" Velvet Vernier Dial with Illuminator.....	2.70
8—Sprague or Polymet 1/4-mfd. Condensers @ 66c.....	5.28
1—Polymet .00015 Mfd. Grid Condenser.....	.15
1—Polymet .002 Mfd. Bypass Condenser.....	.30
1—Polymet Grid Leak Mounting.....	.21
1—Polymet 2 Megohm Grid Leak.....	.30
2—Potter 1 Mfd. Bypass Condensers @ 60c.....	1.20

2—Yaxley 420 Insulated Tip-jacks @ .07 1/2c.....	.15
1—Yaxley 53000-P Junior Potentiometer, 3,000 ohms.....	.75
1—Yaxley 740 Junior Switch, double circuit (D. P. S. T.).....	.57
1—Durham .15-megohm Resistor, with leads (optional).....	.30
3—Hammarlund Flexible Shaft Couplings @ 36c.....	1.08
1—Carter H-1 Resistor (1 ohm).....	.15
1—Carter H-3 Resistor (3 ohms).....	.15
2—Insulated Binding Posts @ 10c.....	.12
1—Kurz-Kasch 1 1/2" black arrow knob.....	.12
2—Cartons S-M 818 Hookup Wire @ 50c.....	.60
1—Set Hardware, etc.....	2.40

Total \$78.84

Accessories required for battery operation:

4—UX222 (CX322) R. F. Amplifier Tubes
1—UX201A (CX301A) or preferably, UX112A (CX312A) Detector Tube
1—UX112A (CX312A) First-stage A. F. Amplifier Tube
1—UX171A (CX371A) Power Output Tube
1—6-volt 100 A. H. Storage A Battery
4—45-volt Burgess Heavy-duty Dry B Batteries
1—40 1/2-volt Burgess Dry C Battery
1—4 1/2-volt Burgess Dry C Battery

Accessories required for light-socket operation:

Tubes as specified above
1—6-volt 1 1/2-ampere (Minimum Capacity) A Power Unit (Abox or Equivalent)
1—S-M 670 B Reservoir Power Unit
1—40 1/2-volt Burgess Dry C Battery
1—4 1/2-volt Burgess Dry C Battery

NOTE: If UX250 (CX350) power output tube is to be used in place of UX171A (CX371A) for finest possible tone quality, the S-M 675 ABC Power Supply should be substituted for S-M 670B, in which case only the 4 1/2-volt dry C battery is needed. A 1 Mfd. 600-volt condenser, as shown in the schematic diagram, must be placed between the speaker and terminal No. 2 of the S-M 251 Output Transformer.

710 WIRED SARGENT-RAYMENT SEVEN (Supremacy)

The 710 Sargent-Rayment Seven, as described above, factory wired and guaranteed, complete in satin-finished aluminum cabinet. Packed in substantial carton (less tubes), shipping weight 33 lbs.

Price \$113.40

705 ALUMINUM KNOCK-DOWN SHIELDING CABINET (Shieldcab)

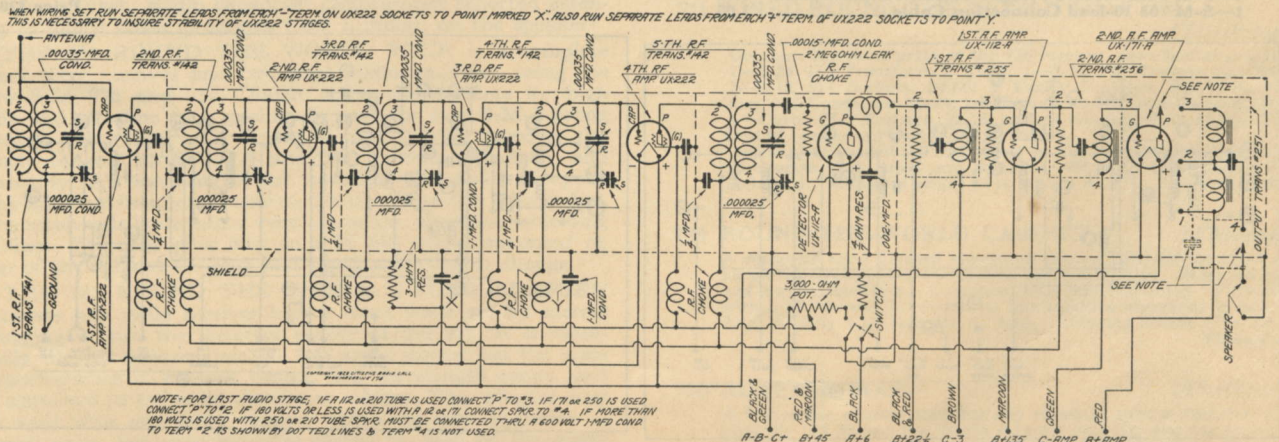
Especially designed for the Sargent-Rayment Seven, size 27 1/2" long, 12 1/2" deep, and 8 1/2" high. Included in the 710 Sargent-Rayment Receiver, but supplied separately if desired. Factory packed in substantial carton, shipping weight 12 lbs.

Price \$16.20

706 WALNUT FINISH BASE MOULDING (Raymould)

A walnut finished base moulding for the S-M 705 Aluminum Shielding Cabinet, greatly improving appearance. Included in the 710 Sargent-Rayment Receiver, but supplied separately if desired. Size 29 3/4" long, 14" wide. Shipping weight, 3 1/2 lbs.

Price \$1.80



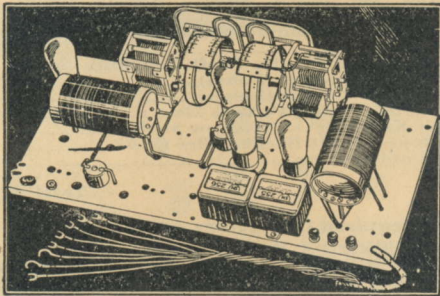
Schematic circuit of S-M 710 Sargent-Rayment Seven. Note thorough bypassing of all circuits, and perfect shielding of all stages.

SILVER-MARSHALL, Incorporated



FOR D. C. OR A. C.
SCREEN GRID TUBES

740 Coast-to-Coast Screen-Grid Sets



TO THE thousands of fans for whom the four-tube, R. F. amplifier, regenerative detector and two-stage audio circuit is the time tested standby and the standard of receiver comparison, the R. C. A. licensed Silver-Marshall Coast to Coast Fours offer the finest performance yet attained with this remarkable circuit. A screen grid r.f. amplifier stage, immeasurably finer coils than ever before, the new Clough high gain audio system, metal chassis, and antique brass control escutcheon, make the "740" the biggest radio value there is at a price under \$100.

Its story is told in its name—the Coast to Coast Four. It cuts through interference to distant programs only 10 to 20 K. C. away from "locals" with decisiveness and ease. Its tone quality is such as only the new S-M 255 and 256 transformers can provide. It will take 112, 171, 245, 210 or 250 power tubes. The "eye-value" of the "740" is on a par with the best of sets when it is housed in the new Silver-Marshall type 700 metal shielding cabinet. Battery or light socket operation is optional. Wavelength range approximately 200-550 meters.

No matter what set you build or buy, the 740 Coast to Coast Four is the best dollar for dollar value you can find. It performs with a vengeance, and for the professional man provides a low-priced set that will outdemonstrate popular six-tube, one-dial sets up to twice its price.

The component parts contained in the 740 (D.C.) Model (any of which may be purchased separately, if desired) are listed below:

1—S-M 701 Universal Chassis.....	\$ 1.80
1—S-M 809 Dual Escutcheon.....	1.65
1—S-M 806L Drum Dial.....	1.50
1—S-M 806R Drum Dial.....	1.50
2—S-M 320R Condensers @ \$2.40.....	4.80
1—S-M 342B .000075 Midget Condenser.....	1.05
1—S-M 708 10-lead Connection Cable.....	1.05

1—S-M 818 Hook-up Wire (25 ft. to carton).....	.30
2—S-M 140 Universal Coils @ \$1.80.....	3.60
1—S-M 275 RF Choke.....	.54
1—S-M 276 RF Choke.....	.60
3—S-M 511 Tube Sockets @ .30.....	.90
1—S-M 255 First-stage AF Transformer.....	3.60
1—S-M 256 Second-stage AF Transformer.....	3.60
1—Yaxley or Frost 6 Ohm Rheostat.....	.45
1—Yaxley No. 500 Switch Attachment.....	.24
2—Yaxley No. 420 Insulated Tipjacks @ 7 1/2c.....	.15
1—Carter RU10, 10-ohm Resistor.....	.15
1—Sprague or Polymet 1/2 Mfd. Bypass Condenser.....	.66
1—Polymet .00015 Grid Condenser with Clips.....	.30
1—Polymet 2-megohm Grid Leak.....	.30
1—Durham .15 Meg. Resistor with Leads (optional).....	.30
1—Potter 104 1-Mfd. Bypass Condenser.....	.75
1—Naald 481XS Cushioned Tube Socket.....	.39
3—Moulded Binding Posts @ .06c.....	.18
1—Set of Hardware.....	.60
	\$30.96

1—S-M 700 Metal Shielding Cabinet and Walnut Base (see page 22 for full description)..... 5.55

Requires 1—UX222 (CX322), 2—UX201A (CX301A), or UX112A (CX312A) detector and first stage amplifier and 1—UX171A (CX371A) power tube. UX210 (CX310) or UX250 (CX350) power tube can be used with S-M 675 ABC.

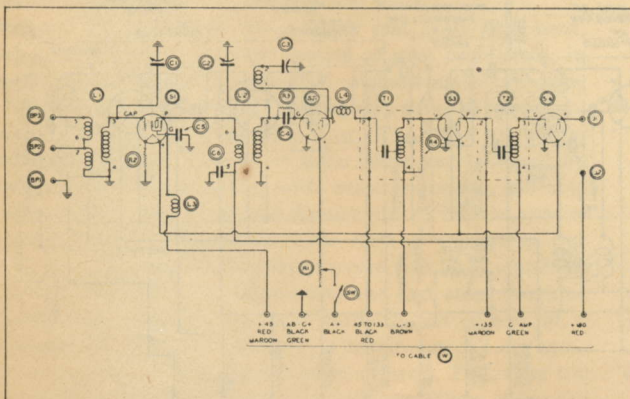
S-M Data Sheet No. 6, describing the Coast to Coast receivers will be mailed for 2c stamp.

740 WIRED COAST TO COAST FOUR (D. C.) (Coastset)
The 740 as described above, assembled and wired in S-M laboratories, ready to operate (less tubes). Cabinet included. Shipping weight 35 lbs.....**Price \$48.60**

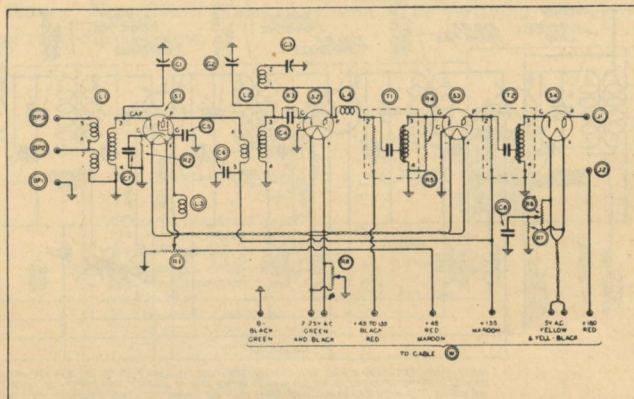
PARTS CONTAINED IN A.C. MODEL
Contains the same parts as 740 (D.C.) Model, described above less:
2—S-M 511 sockets, \$0.60; 1—Yaxley 6-ohm rheostat, \$0.45; 1—Yaxley No. 500 switch attachment, \$0.24; 1—Carter RU-10, 10-ohm resistor, \$0.15; and 1—Naald 481XS cushioned socket, \$0.39.
Parts added: 3—S-M 512 tube sockets, \$1.08; 1—Yaxley 53000-P, 3,000-ohm Potentiometer, \$0.75; 1—Carter AP-15, 15-ohm Potentiometer, \$0.45; 1—Yaxley 840-C balancing resistor, \$0.30; 1—Sprague 1/2-Mf. condenser, \$0.66; and 1—Ohmite 1,500-ohm resistor, \$0.60. Total price of all component parts \$32.97. Requires 1—UY224 (C224) A.C. screen grid tube, 2—UY227 (C327) tubes and 1—UX112A (CX312A) or UX171A (CX371A) power tube. 245, 210 or 250 tubes may be used if desired.

740AC WIRED COAST TO COAST FOUR (Coasterset)
The 740AC assembled and wired in S-M laboratories, ready to operate (less tubes). Cabinet included. Shipping weight 35 lb.
Price \$50.70

670ABC POWER SUPPLY (Converted)
For furnishing all ABC power to the S-M 740AC, this power supply is recommended. See page 14 for full description.
Price \$30.00



Schematic of 740 Coast to Coast Four



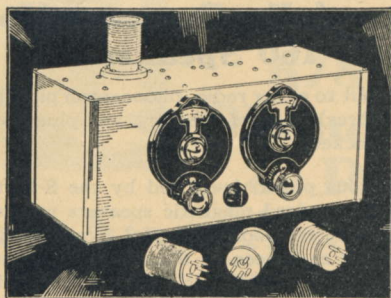
Schematic of 740AC Coast to Coast Four

SILVER-MARSHALL, Incorporated



TUNE OVER THE "THRILL BAND" WITH AN S-M SHORT WAVE SET

730 Round-the-World Four



HAVE you had your taste of the "thrill band"—the wavelength band from 17 to 200 meters? Down on these low waves are the foreign broadcasters—English 5SW with Colonial programs, Dutch, French, Russian, German and other rebroadcast programs. Down there you'll find KDKA, WGY, WLW, with low wave rebroadcasts that you can hear when static blankets out their regular waves. And television—it's on the low waves that you hear the musical sing-song that means the transmission of living pictures! In the "thrill band" you can hear amateurs in every continent, in almost every country, all in an evening—if you have an S-M "Round the World" short wave set.

The high position of Silver-Marshall in the short wave field has been established by the "Round-the-World" short wave receivers, with their many new and unique features. These trim little receivers use one screen-grid tube in a single stage of radio frequency amplification, followed by a non-radiating regenerative detector. The regeneration control is smooth over the entire band—a vital necessity for the satisfactory reception of short wave telephone and broadcast programs. There is but one tuning dial, with variable vernier reduction so that the tuning is not critical. A similar vernier dial controls the regeneration condenser.

Unlimited Range

The range for loud speaker reception is practically unlimited it being regular practice to listen to five continents in an evening on the set. Radio Broadcast Laboratories reported listening to dance music programs from London, on the speaker!

THE 730 ROUND THE WORLD FOUR is a complete short wave receiver and two-stage audio amplifier, using the new S-M 255 and 256 Clough audio transformers for high gain and ultrafine tone quality. It uses the new S-M 5-prong plug-in coils (131-T, 131-U, 131-V, and 131-W) to cover the whole range between 17.4 and 204 meters, efficiently and smoothly. All wavelengths are covered with no dead spots. The amateur bands fall well to the center of the tuning dial. The receiver is built into a very attractive aluminum shielding cabinet. The coils plug into an S-M 512 socket mounted on top of the cabinet for easy and rapid wave-length change.

THE 731 ROUND THE WORLD 2-TUBE ADAPTER converts any radio receiver into a short wave set by merely plugging it into the detector socket of the set. It is essentially the 730 receiver, less the two audio stages; has the same characteristics in control, tuning and wavelength range, and is contained in the same aluminum cabinet. This adapter may be used with any radio receiver operating with batteries or power units, but only batteries should be used on the adapter itself.

The parts contained in the Round-the-World Four (any of which may be purchased separately, if desired) are listed below:

- 1—S-M 321 Condenser .00014 Mf1. \$ 2.40*
- 1—S-M 320R Condenser .00035 Mf1. 2.40*
- 4—S-M Coils (one each: 131-T, 131-U, 131-V, and 131-W) @ 75c. 3.00*
- 1—S-M 512 Tube Socket36*
- 2—S-M 227 R.F. Choke Coils @ 90c. 1.80*
- 1—S-M 275 R. F. Choke Coil.54*
- 1—S-M 734 Aluminum Shielding Cabinet with terminal strip. 4.80
- 1—S-M 255 First Stage AF Transformer. 3.60
- 1—S-M 256 Second Stage AF Transformer. 3.60
- 3—S-M 511 Tube Sockets @ 30c.90
- 1—Yaxley 20-Ohm Midget Rheostat.45
- 1—Yaxley Rheostat Switch Attachment.24
- 2—Yaxley No. 420 Insulated Tipjacks @ .07 1/2c.15
- 1—Naald 481XS Spring Socket for Detector.39
- 1—Polymet .00015 Condenser.24
- 1—Polymet .002 Condenser.24
- 1—Polymet .005 Condenser.45
- 1—Polymet Grid Leak Mount.21
- 1—Polymet 5 Megohm Grid Leak.30
- 1—Durham 60,000 Ohm Resistor.45
- 1—Sprague or Polymet 1/4 Mf. Midget Condenser.66
- 2—Carter H-10, 10 Ohm, Resistors @ 15c.30
- 1—Carter H-2, 2 Ohm Resistor.15
- 8—Insulated Binding Posts @ 6c.48
- 2—National Type B Vernier Dials @ \$1.50. 3.00
- 1—S-M 818 Hookup Wire (25 feet).30
- 1—Set of Hardware.30

Total \$31.71

Many amateurs and experimenters in constructing a screen grid short-wave receiver for their own particular requirements, or in converting an old three-circuit short-wave set into one more sensitive, will find one or more of the essential parts above marked with a star or an asterisk (*) ideal for the purpose.

The tubes required are: 1—UX222 (CX322) screen grid amplifier, 2—UX201A (CX301A) or UX112A (CX312A) detector and amplifier tubes, and 1—UX112A (CX312A) or UX171A (CX371A) power tube

S-M Data Sheet No. 3 on the 730 Round-the-World Four receivers will be mailed for a 2c stamp.

730 WIRED ROUND-THE-WORLD FOUR (Thrillset)

The 730 receiver, as described above, assembled and wired in S-M laboratories, ready to operate (less tubes). Shipping weight, 13 lbs. Price \$42.90

731 WIRED ROUND-THE-WORLD ADAPTER (Thrilldapt)

Contains the same parts as the 730 receiver, described above, less: 1—S-M 255 Transformer, \$3.60; 1—S-M 256 Transformer, \$3.60; 2—S-M 511 Sockets, \$0.60; 2 Yaxley Tipjacks, \$0.15; 1—Polymet .002 Condenser, \$0.24; 1—Durham 60,000 Ohm Resistor, \$0.45; 1—Carter H-2 Resistor, \$0.15; and 1—Binding Post, \$0.06. Total cost of component parts for 731, \$22.86.

Complete assembled and wired in the S-M laboratories, ready to operate (less tubes and batteries, but with 738 Adapter Plug included). Shipping weight 10 1/2 pounds. Price \$30.00

734 ROUND-THE-WORLD CABINET (Thrillcab)

A complete satin finished aluminum cabinet, pierced for mounting all parts of S-M 730 or 731 Round the World Kits. Sides, bottom, and back detachable. Complete with terminals trip. Furnished with S-M 730 and 731 receivers, but supplied separately if desired. Size, 14" long, 6 1/4" high and 6" deep. Shipping weight 3 lbs. 12 oz. Price \$1.80

738 ADAPTER PLUG (Thrillplug)

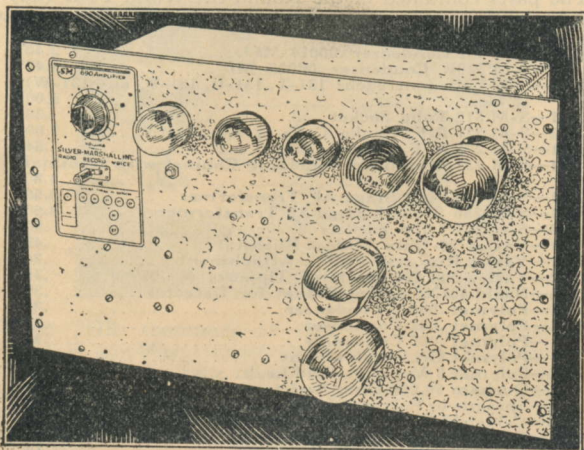
A four-prong adapter that fits any standard tube socket, for plugging the 731 Round the World Adapter into the detector socket of any radio set. Complete with 3-foot connecting wire. Shipping weight 2 oz. Price \$0.90

SILVER-MARSHALL, Incorporated

SM

POWERFUL SOUND AMPLIFICATION FROM THE A. C. LIGHT SOCKET

New 690 Auditorium Amplifier



THE 690 super power amplifier fills a long felt want among experimenters in sound amplification because of its ability to cover large groups of people, both indoors and outdoors. Coverage of many hundred or thousands of people is obtained with unbelievable tone fidelity. This unit is unique among commercially manufactured A.C. amplifiers because of its great low-frequency amplification, coupled with a truly negligible value of A.C. hum (hum is cut out in most competitive amplifiers by suppressing *all* bass notes.) At the same time, all of the high frequencies which are so necessary to perfect speech articulation are preserved.

For Radio Phonograph or Voice

For radio, phonograph, or voice reproduction, the new S-M 690 ranks without equal at anywhere near its price range. It is only necessary to feed this powerful amplifier with the detector output of any standard radio set, standard magnetic phonograph pickup, or single or double button microphone to secure satisfactory operation. Volume may be controlled from a mere whisper to full intensity by the turn of a knob. Regardless of whether full volume is being delivered, or but a small part of it, there is always that same sweet, faithful quality of tone which has made S-M amplifying apparatus dominant leaders over all others.

So complete is the 690 Auditorium Amplifier that switching from radio to phonograph, or voice, or *visa-versa*, requires only a fraction of a second. A three-way selector switch mounted on the control panel, needs only a slight turn to select either of these three classes of entertainment. Where it is necessary to provide continuous record entertainment by the use of two electric phonograph turn-tables, the volume control mounted on the control panel allows an ultra-rapid "fading" of records without undesirable interruption.

A Complete Socket Power Amplifier

The entire power for S-M 690 is supplied by any 105-120 volt, 50 to 60 cycle alternating current light socket. In setting up the amplifier, it is only necessary to insert the proper tubes,

Successfully Operates Up to 160 Speakers

connect the input to either radio, phonograph pickup, or microphone (or all three), connect speakers, and plug the receptacle into the light socket.

The tremendous power developed by the S-M 690 is such that up to 160 standard magnetic speakers may successfully be operated, or if the more powerful dynamic speakers are desired, as many as sixteen or more may be advantageously connected. Three sets of binding posts are provided for matching amplifier and speaker group impedance (the latter varying according to the number of speakers used).

General Description

The S-M 690 Auditorium Amplifier is a complete three-stage unit with self-contained power supply. One straight audio stage followed by two separate push-pull stages are responsible for the tremendous power developed. Such features as Clouth system amplification, over-size power transformer, variable A.C. hum-adjuster, full-wave rectification with adequate filtering, and high undistorted output of 15 to 16 watts, assures complete and lasting satisfaction to the user.

All parts are solidly attached to a heavy aluminum panel, the rear being covered by a metal dust cover. All metal parts are finished in crystalline black, with tube positions and legends plainly engraved on panel. May be mounted in a flat or upright position, or on a standard S-M PA-1A rack, for which panel is pierced. Overall size 21 inches long, 14 inches wide, and 8 inches deep.

A Low Price for Such High Quality

The finest materials together with precision construction, assembly, and wiring make the S-M 690 auditorium amplifier a unit of exceptionally long life—one that assures the owner of care-free service for many years to come. Please bear in mind that the low price is in no way an indication of the value, for, as in every other case, S-M value means just one thing—*better amplifying apparatus for less money!*

Tubes Required

One UY227 (C327) first stage amplifier, two UX226 (CX326) intermediate stage amplifiers, two UX250 (CX350) power output stage amplifiers, and two UX281 (CX381) rectifiers.

690 AUDITORIUM AMPLIFIER

(Auditor)

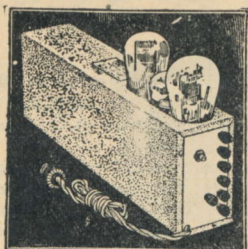
Complete, as described above, factory wired, and tested. Packed in substantial shipping case (less tubes). Shipping weight 72 pounds
Price \$147.00

For Higher Power Amplifying Equipment See Page 23

SILVER-MARSHALL, Incorporated



MEDIUM POWER AUDITORIUM AMPLIFIERS NOW WITHIN THE REACH OF ALL



678PD Phonograph or Radio Two Stage Amplifier

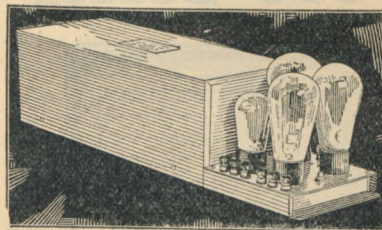
The 678PD Amplifier is a two-stage socket-powered audio amplifier using one '26, one '50, and one '81 tube, and taking all power from any 105 to 120 volt, 50 to 60 cycle, A.C. lamp socket. It may be used to operate a dynamic loud speaker from a radio detector tube, or from a magnetic phonograph record pickup. (The 678PD is the commercial equivalent of special amplifiers made by S-M for numerous manufacturers of theatrical phonographs for coverage of 1,000 to 2,000 seat theatres). The 678PD amplifier will supply field current to any dynamic speaker having a 110 volt D.C. field coil; or it will operate two dynamic speakers, the second to have its own source of field excitation. Magnetic loud speakers may be operated by the 678PD upon the addition of an S-M 331 Unichoke filter coil in place of the 110 volt D.C. dynamic speaker field, and a 227 output transformer. One UX281 (CX381) rectifier tube is used, one UX226 (CX326) first stage amplifier, and one UX250 (CX350) power tube.

The brown crystalline steel case is 17 inches long, 3 $\frac{5}{16}$ inches wide, and 5 $\frac{1}{2}$ inches high (8 $\frac{1}{2}$ inches high over tubes). Parts contained in the 678PD amplifier (any of which may be purchased separately, if desired) are listed below:

1—S-M 327U Power Transformer (mfrs. type).....	\$ 9.00
1—S-M 255 First-stage Audio Transformer.....	3.60
1—S-M 255 SPECIAL, Second Stage Audio Transformer.....	5.40
3—S-M 511 Tube Sockets.....	.90
1—S-M 678PD Case, Chassis, and Panel.....	3.60
1—S-M 818 Hook-up Wire (25 ft. to carton).....	.30
1—Yaxley No. 72000, 2000-Ohm Resistor.....	.21
1—Ohmite 1500-Ohm Resistor.....	.75
1—Carter AP15 Midget Potentiometer.....	.45
1—FT64 Balancing Resistor.....	.30
1—Durham 60,000-Ohm Resistor.....	.30
1—Potter 673 Condenser Bank.....	12.00
7—Moulded Binding Posts (moulded top, screw and nut) @ .06c.....	.42
1—Cord and Plug.....	.45
1—6 $\frac{1}{4}$ x $\frac{1}{2}$ x $\frac{1}{16}$ inch Drilled Steel Socket Strip.....	1.30
1—Set 678PD Hardware.....	1.02
	<hr/>
	\$39.00

678PD WIRED PHONOGRAPH AMPLIFIER (Dynergamp)

The 678PD amplifier, as specified above, factory assembled and wired, packed in substantial carton (less tubes). Shipping weight 23 lbs..... Price \$47.40



679 Auditorium Two-Stage Amplifier

Two-Stage Amplifier

A new Auditorium Amplifier ideally suited for use where medium power amplification is desired. Designed to operate direct from the detector output of any standard radio set, magnetic phonograph pickup, or single or double button microphone, this new amplifier has already gained a widespread popularity, for its low price and high quality have made it a leader in the medium power class.

Operates Many Speakers

Due to the efficient design, the 679 Auditorium Amplifier has an undistorted output of 7 to 8 watts. Considering that successful operation of a dynamic speaker requires only from .5 to 2 watts, and a magnetic type speaker about .125 watt, it is easily seen that from four to eight dynamics, or from thirty to sixty magnetic types of speakers may be used with this amplifier. Indoor coverage may be had with this unit of up to 2,000 people, or up to 5,000 outdoors; the exact amount of coverage depending, of course, upon the surrounding conditions.

A Strictly High Quality Amplifier

Only the finest parts are used in the construction of the 679 amplifier. The power transformer, choke, and filter condensers are of such design that care-free operation is assured the user for many years. In the amplifying circuit, the famous Clough system audio transformers make possible a quality of reproduction not equaled by any other competitive product.

Housed in a sturdy metal container of dark crackle-brown finish; size 21 inches long, 5 $\frac{3}{4}$ inches wide, and 5 $\frac{1}{4}$ inches high.

Operates direct from any 105-120 volt 50 to 60 cycle A.C. light socket.

Tubes required: One UX226 (CX326) first stage amplifier, one UX250 (CX350) second stage amplifier, and two UX281 (CX381) half-wave rectifiers.

679 AUDITORIUM AMPLIFIER (Audiamp)

Two-stage Auditorium Amplifier, complete as described above, factory assembled, wired and tested (less tubes). Packed in substantial carton. Shipping weight 34 pounds..... Price \$81.00

676 Single-Stage Dynamic Speaker Amplifier

The 676 Dynamic Speaker Amplifier is a single stage amplifier for use with any 90 volt D.C. type dynamic speaker to provide a marvelous improvement in tone and volume. It uses 1—UX250 (CX350) amplifier, and 1—UX281 (CX381) rectifier and operates from any 105-120 volt 6 cycle A.C. light socket. Cabinet size same as 678PD except aperture is provided for two tubes.

676 WIRED DYNAMIC SPEAKER AMPLIFIER (Dynamap)

The 676 described above, factory assembled and wired, packed in substantial carton (less tubes). Shipping weight 28 lbs. Price \$35.70

The parts contained in the 676 amplifier (any of which may be purchased separately, if desired) are listed below:

1—S-M 327U Power Transformer (mfrs. type).....	\$ 9.00
1—S-M 240 Audio Transformer.....	3.60
2—S-M 511 Tube Sockets @ 30c.....	.60
1—S-M 676 Case, Chassis and Panel.....	2.40
1—Ohmite 1,500-Ohm Resistor.....	.75
1—FT64 Balancing Resistor.....	.30
1—Durham .15 Megohm Resistor.....	.30
1—Potter 673 Condenser Bank.....	12.00
6—Moulded Binding Posts @ .06c.....	.36
1—Cord and Plug.....	.30
1—Set Hardware, Hook-up Wire, etc.....	.30

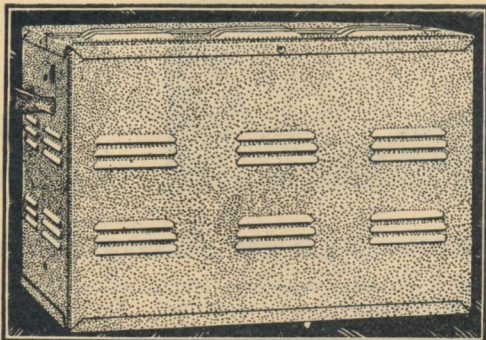
\$29.91

SILVER-MARSHALL, Incorporated



FINE QUALITY AMPLIFICATION FROM THESE 1, 2 AND 3 STAGE AMPLIFIERS

680 Series S-M Unipacs



The 680 Series Unipacs constitute a group of amplifiers to fulfill many needs. They may be used with any radio receiver where power amplification with tone is desired, plus power for receiver operation.

In the descriptions below, S-M type numbers carry the following meaning: those designated 681 are single stage amplifiers; those designated 682 are two stage amplifiers. The figures following the type number, such as 210, show that the amplifier has a push-pull power stage, while the figures 250 mean that the power stage is straight audio. The 685 is a straight three-stage audio power amplifier.

The 682 and 685 types need only to have their input connected to the detector output of a radio set, or to the output of a phone pickup for operation. For speech amplification, a single or double button microphone may be connected directly to the 685 input posts. In the 682 types, a special transformer such as the S-M 242 or 220M is necessary for microphone use.

Being single stage amplifiers, the 681 types must be preceded by one audio stage before satisfactory volume is secured. These types have found widespread use as last stage amplifiers in radio receivers.

In both 681 and 682 types, external B voltages of 45, 90, and 135 are provided for use with radio set. In addition to this, the 682 type furnishes 1½ and 2¼ volts for A.C. tubes in receivers so equipped.

In the entire group of 680 Unipacs, either 210 or 250 type tubes may be used in the power stage; the type depending upon the undistorted output desired. The rated maximum output of a 250 type tube is 4,600 milliwatts; with two such tubes in push-pull, over 13,000 milliwatts may be obtained.

All types of 680 Series Unipacs operate on 105-120 volts 50 to 60 cycle A.C., and are housed in sturdy metal containers of dark crackle-brown finish. Equipped with carrying handles and heat ventilators. Size 17¼ by 10½ by 9¾ inches.

SINGLE-STAGE UNIPACS

681-210 WIRED UNIPAC (United)
The 681-210 Unipac Kit, as specified, factory wired, packed in substantial carton (less tubes), shipping weight 62 lbs. Price \$66.30

681-250 WIRED UNIPAC (Uniformity)
The 681-250 Unipac Kit, as specified, factory wired, packed in substantial carton (less tubes), shipping weight 62 lbs. Price \$82.70

NOTE: In 681-210 and 681-250 Unipacs there is a space for a filament transformer for A.C. tube receiver A power supply. If required, an S-M 247 or 325 filament transformer may be ordered extra, with four plain Eby binding posts for external connections.

TWO-STAGE UNIPACS

682-210 WIRED UNIPAC (Unity)
The 682-210 Unipac Kit, as specified, factory wired (less tubes) shipping weight 69 lbs. Price \$75.90

682-250 WIRED UNIPAC (Unispec)
The 682-250 Kit, as specified, factory wired, packed in substantial carton (less tubes), shipping weight 69 lbs. Price \$72.30

NOTE: In the 682-210 and 682-250 Unipacs, a 247 filament transformer is included for operation of up to five A.C. tubes in a radio set. If greater capacity is required, the S-M 325 transformer should be specified, adding \$7.50 to the respective list prices.

THREE-STAGE UNIPAC

685 WIRED UNIPAC (Unipublic)
Complete three-stage public address Unipac amplifier, as described, factory wired, packed in shipping carton (less tubes). Shipping weight 74 lbs. Price \$103.80

PARTS USED IN 685 (any of which may be purchased separately, if desired) are listed below:

1—S-M 685 Special Bulkhead, Shelf and Case.....	\$ 7.20
1—S-M 651 Resistor Set (2 pieces).....	4.20
1—S-M 328 Power Transformer.....	12.00
1—S-M 247 Filament Transformer.....	3.00
1—S-M 331 Unichoke Filter System.....	4.80
1—S-M 221 Output Transformer.....	4.50
2—S-M 220 Audio Transformers.....	9.60
1—S-M 220-M Input Transformer.....	9.00
4—S-M 511 Tube Sockets @ 30c.....	1.20
1—S-M 512 Tube Socket.....	.36
1—S-M 673 Condenser Bank.....	12.00
3—Carter AP-15, 15-ohm Pot.....	1.35
1—500,000-ohm Volume Pot.....	1.35
7—Eby Binding Posts.....	.63
1—Resistor Clip.....	.30
1—¼-megohm Resistor.....	.30
1—Cord and Plug.....	.30
1—Carton S-M 818 Hook-up Wire.....	.30
1—Yaxley 1,500-ohm Grid Resistor.....	.30
1—Yaxley 1,000-ohm Grid Resistor.....	.30
1—Set Hardware.....	.96
Total	\$73.95

Tubes required in the 685 Unipac: One UY227 (CX327) first stage A.C. amplifier, one UX226 (CX326) second stage amplifier, one UX250 (CX350) third stage power amplifier and two UX281 (CX381) half-wave rectifier tubes.

PARTS USED IN 681-210 AND 681-250 (any of which may be purchased separately, if desired) are listed below:

1—S-M 328 Power Transformer.....	\$12.00
1—S-M 331 Unichoke.....	4.80
1—S-M 230 Push-Pull Input Trans.....	6.00
1—S-M 231 Push-Pull Output Trans.....	6.00
5—S-M 511 Sockets @ 30c.....	1.50
1—S-M 220 Transformer.....	4.20
1—S-M 673 Condenser Bank.....	12.00
1—Sprague .00025 Mfd. Condenser.....	.21
1—680 Cabinet, Bulkhead and Shelf.....	7.20
7—Eby Binding Posts.....	.63
1—Frost FT-64 Resistor.....	.30
1—S-M 818 Coil Hookup Wire.....	.30
1—Cord and Plug.....	.30
1—Instruction Packet.....	.15
1—Set Hardware.....	.30
Total	\$55.89

The parts used in the 681-250 Unipac are the same as for 681-210 except that the S-M 230 and 231 transformers are replaced by S-M 220 and 221, and 1—S-M 511 socket and 1—Sprague .00025 mfd. condenser are omitted.

The tubes required for 681-210 are 2—UX210 (CX310) or UX250 (CX350) amplifiers, 1—UX874 (CX374) regulator and 2—UX281 (CX381) rectifiers. 681-250 requires 1—UX210 (CX310) or UX250 (CX350) amplifier, 1—UX874 (CX374) regulator and 2—UX281 (CX381) rectifiers.

PARTS USED IN 682-210 AND 682-250 (any of which may be purchased separately, if desired) are listed below:

1—S-M 328 Power Transformer.....	\$12.00
1—S-M 331 Unichoke.....	4.80
1—S-M 230 Push-Pull Input Trans.....	6.00
1—S-M 231 Push-Pull Output Trans.....	6.00
1—S-M 220 Transformer.....	4.80
6—S-M 511 Tube Sockets @ 30c.....	1.80
1—S-M 247 Filament Transformer.....	3.00
1—S-M 651 Resistor Set.....	4.20
1—S-M 673 Condenser Bank.....	12.00
1—Sprague .00025 Mfd. Condenser.....	.21
1—680 Cabinet, Bulkhead and Shelf.....	7.20
1—Carter AP-15, 15-ohm Pot.....	.45
1—Frost F-1500 Resistor.....	.30
1—Frost FT64 Resistor.....	.30
11—Eby Binding Posts.....	.99
1—S-M 818 Coil Hook-Up Wire.....	.30
1—Cord and Plug.....	.30
1—Instruction Packet.....	.15
1—Set Hardware.....	.30
Total	\$65.10

Parts used in the 682-250 are the same as for 682-210 except that the S-M 230 and 231 transformers are replaced by S-M 220 and 221. One S-M 511 socket and one Sprague .00025 mfd. condenser are omitted.

Tubes required for 682-210: 1—UX226 (CX326) amplifier, 2—UX210 (CX310) or UX250 (CX350) power amplifiers, 1—UX874 (CX374) regulator and 2—UX281 (CX381) rectifier tubes. 682-250 requires 1—UX226 (CX326) amplifier, 1—UX210 (CX310) or UX250 (CX350) power amplifier, 1—UX874 (CX374) regulator and 2—UX281 (CX381) rectifiers.

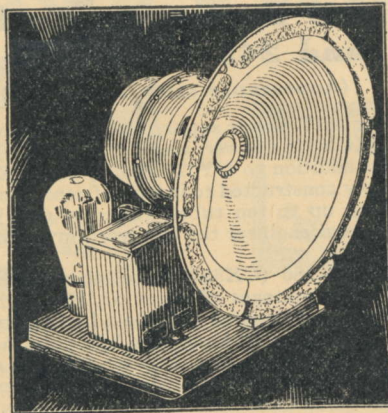
For Higher Power Auditorium Amplifiers, see Page 23

SILVER-MARSHALL, Incorporated



GREAT POWER WITH REALISTIC TONE CHARACTERIZE THIS NEW S-M PRODUCT

S-M A. C. and D. C. Dynamic Speaker Units



The Matched Impedance Dynamic Speaker

REPRODUCTION with rich, vibrant, crystal-clear, tone quality—the kind you have a right to expect—places the new S-M Dynamic Speakers in a distinct class admitting no rivals.

The snappy crispness of the large military band, the alluring rhythm of the dance orchestra, and the full piercing brilliancy of the violin, are all faithfully reproduced through this revolutionary new S-M Dynamic Speaker.

To be an ideal reproducer, a speaker must possess certain qualifications, foremost of which are: to reproduce equally all notes in the entire musical scale; to be free from diaphragm resonance and distortion; to be hum-free in the case of A.C. dynamic speakers; and to reproduce the original, whether it be radio, phonograph, or voice, in a true and life-like manner. The ability to conform to all of these requirements, regardless of whether full or whispering volume is desired, determines speaker quality.

The S-M Speaker, supreme in its conformity to all these requirements, is truly a *better dynamic!*

Elimination of practically all A.C. hum, and clear reproduction of all low-frequency notes, are the outstanding features of the S-M 850 dynamic speaker.

In eliminating the undesirable light-socket hum, a *filtered* high voltage, low current (easily filtered) power supply is used, rather than an unfiltered low voltage, high current (difficult to filter) source. The result is that practically no hum will be found in the S-M 850 unit. A 300-volt center-tapped transformer, with a 280-type tube, converts the A.C. to D.C. of the proper voltage, and this is filtered by a condenser and the speaker field winding. The result is a smooth flow of filtered direct current. This obviates all necessity for a bucking coil as used in some dynamic speakers to eliminate hum—a method prone to eliminate at the same time certain low-frequency notes.

Both the 850 and 851 types are equipped with a universal output transformer which allows them to be fed from push-pull or single audio amplifiers, using 171A, 210, 245 or 250 type power tubes. Taps are provided for this purpose. Because of the fact that this speaker will dissipate two or three watts, it will easily handle the tremendous volumes so necessary in present day practice.

850 (A.C.) DYNAMIC SPEAKER UNIT *(Speaktrio)*

Takes power from any 105-120 volt, 50 to 60 cycle A.C. light socket. Equipped with 229 universal output transformer. Requires one UX280 (CX380) full-wave rectifier tube for its operation. Overall dimensions: 9" high, 6½" deep, 10" wide. Fits 8½" baffle hole. Complete with mounting base; shipping weight 23 pounds. Price \$35.10

851 (D.C.) DYNAMIC SPEAKER UNIT *(Speakchoke)*

Requires field current from a 90 to 120 volt D.C. source, such as a B power unit, or through inclusion as a choke in a power supply rectifier circuit (as in S-M 678PD amplifier). Has universal output transformer and mounting brackets; not equipped with base or power supply. Size about 9" high, 10" wide, and 6½" deep. Fits 8½" baffle hole. Shipping weight 19 pounds. Price \$29.10

Note: Since most dynamic speakers are mounted in console cabinets or large baffle boards, S-M offers no cabinet mountings for the 850 and 851 units. They may be mounted by being placed upon (or screwed down to) a cabinet bottom, or they may be screwed directly to a flat baffle with six wood screws.

Choose the Proper Supply Power or Amplifier From This Table

S-M Type No.	STYLE	VOLTAGES SUPPLIED FOR USE IN RECEIVER			TUBES REQUIRED			PRICE
		B Voltages		A Volts for AC Tubes	Power Tube in Last Stage	Rectifier	Voltage Regulator	
		Fixed	Variable					Wired Complete—Less Tubes
RESERVIOR POWER UNITS								
670B	180 Volts B	22, 90, 135, 180	22 to 90		(In set) 1 or 2—171	1—280	Manual	\$ 28.20
670ABC	180 Volts B; A and C for AC Tubes	22, 90, 135, 180	22 to 90	1½, 2¼	1 or 2—171	1—280		30.00
675ABC	425 Volts B; A and C for AC Tubes	22, 90, 135, 450	22 to 90	1½, 2¼	1—210 or 250	1—281		37.80
669	300 Volts B; A and C for AC Tubes	67, 180, 300		1½, 2¼	1 or 2—245	1—280		34.50
POWER AMPLIFIERS								
681-250	1-Stage Unipac	45, 90, 135			(In Amplifier) 1—210 or 250	2—281	874	62.70
681-210	1-Stage Push-Pull Unipac	45, 90, 135			2—210 or 250	2—281	874	66.30
682-250	2-Stage Unipac	45, 90, 135		1½, 2¼	1—210 or 250*	2—281	874	72.30
682-210	2-Stage Push-Pull Unipac	45, 90, 135		1½, 2¼	2—210 or 250*	2—281	874	75.90
685	3-Stage Public Address Unipac				1—250**	2—281		103.80
690	3-Stage Auditorium Amplifier				2—250***	2—281		147.00
679	2-Stage Auditorium Amplifier				1—250*	2—281		81.00
676	1-Stage Dynamic Speaker Amplifier				1—250	1—281		35.70
678PD	2-Stage Phonograph (or Radio) Amplifier for use with Dynamic Speakers				1—250*	1—281		47.40

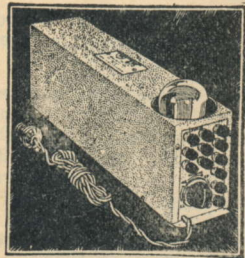
*The two-stage Amplifiers use a 226 type tube in first stage.
 **Type 685 Public Address Amplifier uses a 227 and a 226 tube in the first and second stages.
 ***Type 690 Amplifier uses one 227 in first stage and two 226 tubes in second stage.

SILVER-MARSHALL, Incorporated



SMOOTH AND UNFAILING POWER SUPPLY FOR A. C. AND D. C. RECEIVERS

Reservoir ABC Power Units



675ABC Power Supply for 210 and 250 Type Tubes

New 669 Power Supply for 224 and 245 Type Tubes

(Appearance same as 675ABC)

A complete ABC power supply for radio receivers using the new UX245 (CX345) power, and UY224 (C224) A.C. screen-grid tubes in addition to UY227 (C227) and UX226 (CX326) tubes. Amply constructed to insure a faithful source of power to sets having up to ten tubes, this new unit brings to the experimenter and engineer the last word in engineering refinement.

Using one UX280 (CX380) tube, the 669 Power Supply furnishes fixed B voltages of about 67, 180, and 300 volts at a maximum current drain of 100 m.a. In addition, C voltages and A power at 1.5 volts, 4 amperes, 2.25 volts, 6 amperes, and 2.25 volts at 9 amperes is furnished for 224, 227 and 245 type tubes. This power supply may also be used to excite the field winding of a 90-120 volt D.C. dynamic speaker.

The 669 is especially recommended for supplying power to the S-M 720AC screen-grid receiver. The special design also permits it to be used with practically all types of tuned radio frequency sets using the new tubes, in which case a slight external change of wiring may be necessary. Housed in an attractive crackle-finish case, size 13" by 3 1/2" by 5 5/16". For operation from any 105-120 volt 50 to 60 cycle A.C.

The component parts of the S-M 669 Power Supply (any of which may be purchased separately if desired) are listed below:

The 675ABC provides a super-power stage of amplification for any radio receiver without changing set wiring. An adapter (furnished with the wired unit) is merely inserted in the last tube socket and a 210 or 250 type tube plugged into this adapter. Uses one UX281 (CX381) tube, and furnishes 425, 135, 90, 22, and variable 22-90 B voltages for any receiver. In addition to this, C voltage and a power at 1.5 volts, 4 amperes, 2.25 volts, 4 amperes and 7.5 volts (or 210 or 250 type tube) are furnished for A.C. tube equipped sets. This power supply operates from any 105 to 120 volt, 50 to 60 cycle A.C.

Housed in a crackle finish steel case, 3 5/16" by 5 1/4" by 17", the 675ABC unit will fit in average radio cabinet.

The component parts contained in the 675ABC Power Supply (any of which may be purchased separately, if desired) are listed below:

1—S-M 327U Power Transformer (mfrs. type).....	\$ 9.00
1—S-M 331U (mfrs. type).....	4.20
1—S-M 511 Tube Socket.....	.30
1—S-M 675 ABC Case, Chassis and Panel.....	2.40
2—S-M 672 Resistors @ \$1.35.....	2.70
1—FT64 Balancing Resistor.....	.30
1—Potter 673 Condenser Bank.....	12.00
1—Yaxley 5,000-ohm Potentiometer.....	.90
12—Moulded Binding Posts @ .06c.....	.72
1—Cord and Plug.....	.30
1—Set Hardware, hook-up wire, etc.....	.15

\$32.97

675ABC WIRED POWER SUPPLY (Powramp)

The 675ABC as specified above, factory assembled, with adapter for '50 tube, wired and tested, packed in substantial carton (less tubes). Shipping weight 28 lbs. Price \$37.80

1—S-M 335U Power Transformer.....	\$ 9.00
1—S-M 677C Condenser Block.....	10.20
1—S-M 333 Dual Filter Choke.....	3.60
1—S-M 511 Tube Socket.....	.30
1—S-M 669 ABC Case, Chassis and Panel.....	1.80
2—S-M 672 Resistors @ \$1.35.....	2.70
1—S-M 818 Coil Hookup Wire (25 ft.).....	.30
13—Insulated Binding Posts @ .06c.....	.78
1—Connecting Cord and Plug.....	.30
1—Set of Hardware.....	.30

Total \$29.28

669 WIRED POWER SUPPLY (ABC) (Powunit)

Complete as described above, fully wired and tested. Substantially packed in wooden box (less 1—UX280 (CX380) tube). Shipping weight 14 pounds. Price \$34.50

Reservoir ABC Power Units for 171 Type Tubes

The set-builder will find these units to be an unflinching source of power, for A.C. or D.C. tube receivers. Using a 280 type rectifier, with the Clough combination selective and brute-force filter, they have set a standard of excellence rivaled by few others.

Both models furnish fixed B voltages of 22,90, 135,180, and variable 22-90 at a total of 60 m.a. In addition to this the 670 ABC can supply C voltage, and 1 1/2 volts at 4 amperes 2 1/4 volts at 3 1/2 amperes, and 5 volts at 1 ampere for A.C. tube equipped receivers. Both types operate direct from any 105-120 volt 50 to 60 cycle A.C., and are housed in brown crystalline-finish cases, 17" by 3 5/16" by 5 1/4".

Parts used in 670ABC are the same as in 670B, except that 329BU transformer (mfrs. type) at \$6.00, 670ABC case, chassis and panel, are substituted for 329U transformer, and 670B case, chassis and panel, and 6 binding posts are added at .06c. (Total list price of component parts \$26.07.)

The component parts contained in 670B (any of which may be purchased separately, if desired) are listed below:

1—S-M 329U Power Transformer (mfrs. type).....	\$ 4.80
1—S-M 331U Unichoke (mfrs. type).....	4.20
1—S-M 511 Tube Socket.....	.30
1—S-M 670B Case, Chassis and Panel.....	2.40
1—S-M 672 Resistor.....	1.35
1—Parvult or Potter (Type 671) Condenser Bank.....	9.75

1—Yaxley 5,000 ohm Potentiometer.....	.90
6—Moulded Binding Posts @ .06c.....	.36
1—Cord and Plug.....	.30
1—Set Hardware, Hook-up Wire, etc.....	.15

\$24.51

670B and 670ABC units are fully described, with complete instructions, in S-M Data Sheet No. 1, which will be mailed upon receipt of 2c stamp.

670B WIRED "B" POWER UNIT (Utilize)
Factory assembled and wired, packed in substantial carton (less tubes), shipping weight 14 lbs. Price \$28.20

670ABC WIRED "ABC" POWER UNIT (Converted)
Factory assembled and wired, packed in substantial carton (less tubes), shipping weight 14 lbs. Price \$30.00

670B OR 670ABC CASE, CHASSIS AND PANEL UNIT (Beecase)
Brown crystalline steel case with terminal panel, as used in 670B and 670ABC power units (specify model when ordering) complete with pierced and finished steel chassis. Factory packed. Shipping weight 3 pounds. Price \$2.40

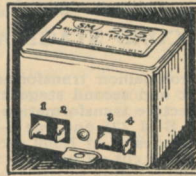
672 RESISTOR (Beetap)
Two-section vitreous enamel. One section of 2500 ohms center tapped; second section insulated from first, 3000 ohms center-tapped; as used in S-M power units. Factory packed. Shipping weight 1 1/4 oz. Price \$1.35

SILVER-MARSHALL, Incorporated



INTRODUCING FIVE NEW REVOLUTIONARY AUDIO TRANSFORMERS

New S-M Audio Transformers



A GAIN in 1928, as in 1926, when the now famous S-M 220 transformers set performance standards only now being equalled in competitive brands, S-M startled the radio world with a new type of audio transformer, that does the seemingly impossible, and overshadows every audio development heretofore introduced.

The new S-M transformers operate upon an entirely new principle developed by Kendall Clough, under whose patent applications they are licensed.

When the bewildering story of the new S-M Clough-System audio transformers burst upon the R.M.A. Trade Show at Chicago, in June, 1928, it caused incredulous wisecracks to crowd around the test bench where these new transformers were being ruthlessly pitted against the highest priced instruments ever placed on the market. One man after another turned away, convinced beyond question that here was the greatest actual advance in quality of reproduction that American inventive genius has brought forth in years. Not a single one of the thousands of observers who witnessed the tests was left in doubt as to the tremendous superiority of these new S-M transformers, which provide tone quality far finer than the best ever heretofore obtainable.

With the popular S-M 220 audio transformers the standard of comparison and the largest selling high-grade transformers since 1926, some inkling of the tremendous advance in tone quality now made possible by the new transformers, can be realized when it is appreciated that S-M guarantees them to give *better* tone, *greater* amplification, and *far less* distortion than any other known types. They provide amplification curves actually rising at the lower frequencies, approximately double average amplification, and practically eliminate hysteretic distortion found in all other audio transformers and which absolutely prevents really fine reproduction on high volume, as with power tubes.

At first glance the actual transformer circuit may appear familiar, and might be unwittingly compared to "tuned-

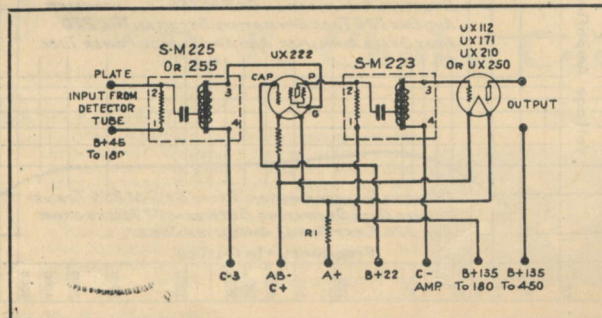


Fig. 4. Two-stage amplifier circuit using UX222 tube in first stage followed by S-M Hi-Mu transformer. This circuit is recommended or B battery rather than B eliminator operation.

impedance," "dual-impedance," "resistance-impedance-leak" or other conventional forms of amplifier coupling. Circuit similarity, however, is of no prime consequence, for no other connection methods will achieve results identical with the Clough system, the secret of improved performance lying in mathematically correctly proportioned constants. The point to be grasped is that *no other systems can produce values of amplification per stage even comparable with ordinary transformer coupling, and that no conventional transformer can be made to equal the performance of the Clough system.*

Comparison of the upper, or two-stage, curve of Fig. 3 with curves A, B and C of Fig. 1 (three pairs of representative standard transformers costing from eight to ten dollars each) shows practically doubled amplification for the new S-M 255 and 256 transformers, and a bass rise at about 100 cycles where it is most needed for speaker compensation. Amplification at 64 cycles is the same as at 1,000 cycles—a feature not attained by the three curves of Fig. 1. The sharp fall-off below 50 cycles applies to a practically unused frequency range (for either voice or music) and a range over which practically no loud-speaker will operate. On paper this sharp cut-off may appear a drawback, as compared with the more gradual fall-off of the curves of Fig. 1. Actually, the reverse is the case in practice, and the 100 cycle rise provides more realistic bass reproduction, to the ear, than does the gradual fall off of the curves of Fig. 1. Above 1,000 cycles, the curve of the new S-M 255 is ideal even for the most rabid high-note fan, and is obviously far superior to the curves of Fig. 1, all of which show high frequency rises indicative of aggravated regenerative hissing and background noise when used with run-down batteries, or average B power units which provide common plate circuit coupling through their voltage dividing resistors. In practice, the S-M 255 and 256 combination tends to cut off more sharply with common coupling, rather than to "sing" or hiss as do ordinary transformers.

It seems almost unbelievable that S-M 255 and 256 transformers should be priced at \$3.60 each, since in the final analysis they are not only better than, but about twice as good as, all more expensive competitive transformers now available! More surprising still, they are but 2 inches high, 2 3/4 inches long, and 2 1/4 inches wide inside two mounting feet. A 255 and a 256, one above the other, are smaller than one S-M 220!

Silver-Marshall engineers believe that a pair of 255 and 256 transformers will provide the finest tone anyone could demand, and that to offer anything better is to "gild the

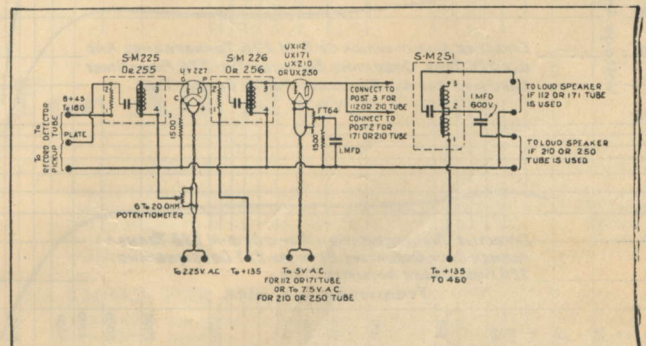


Fig. 5. Typical two-stage audio amplifier circuit for AC tubes using new S-M transformers. It may be used for phonograph pick-up or radio amplification, with UX112A, UX171A, UX210 or UX250 output tubes if suitable power supplies are used.

SILVER-MARSHALL, Incorporated



MUSIC WITH REALISM OBTAINED ONLY WITH S-M AUDIOS

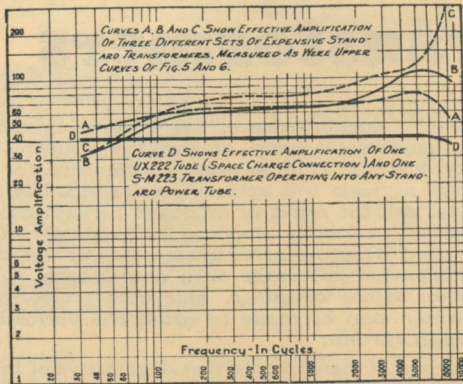


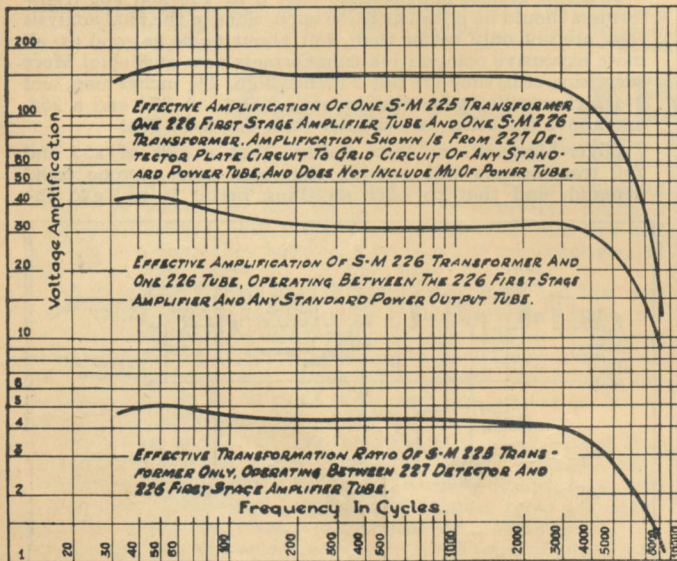
Fig. 1. Comparative performance curves of standard transformers in two-stage circuit. Curves A, B, and C are of three pairs of eight to ten dollar transformers (each). Curve D is of one UX222 and one S-M 223 Hi-Mu transformer only, in the circuit of Fig. 4.

lily." Nevertheless, to show what extremes of perfection audio transformers can attain when employing the new system, the S-M 225 and 226, and the screen grid 223, types are offered. The upper curve of Fig. 2 shows the actual two-stage performance of one 225 and one 226 when operated under conditions equivalent to those of Figs. 1, 2 and 3. This curve almost makes one gasp, for the theoretical ideal of equal amplification at 32 cycles and at 1,000 cycles is actually attained, plus the 100 cycle rise that means a realism of bass reproduction almost unbelievable. The 5,000 cycle cut-off is especially valuable in suppressing background noise.

The lower curve of Fig. 1 is for an S-M 223 transformer and one UX222 first stage amplifier tube. The gain of the stage averages 42, which is high for an audio amplifier. Notice the ideally flat curve never before attained.

223 HI-MU AUDIO TRANSFORMER (Transgrid)

Designed especially for use between a UX222 (CX322) first stage screen grid tube, used with space charge connection, and any stand-



ard power output tube to provide an absolutely flat amplification curve from 32 to 5,000 cycles and an average voltage amplification of 42 per stage. Shipping weight 3 lbs. Price \$5.40

225 FIRST STAGE AUDIO TRANSFORMER (Transfirst)

Designed for use between any standard detector and first audio tube to provide a flat amplification curve up to 5,000 cycles, rising somewhat below 300 cycles, and with actually greater amplification at 32 cycles than at 1,000 cycles. Effective transformation ratio 4.3 to 1. This is unquestionably the finest AF transformer ever manufactured. Shipping weight 3 lbs. Price \$5.40

226 SECOND STAGE AUDIO TRANSFORMER

(Transecond)

A companion transformer to type 225 for use between standard first and second stage amplifier tubes to provide a similar curve. Effective transformation ratio, 3.5 to 1. An audio amplifier using one S-M 225 and one S-M 226 will give the same amplification at 32 cycles as at 1,000 cycles, a rise between 32 and 300 cycles, and a sharp cut-off between 5,000 and 8,000 cycles. No finer amplifier could possibly be constructed. Shipping weight, 3 lbs. 2 oz. Price \$5.40

255 FIRST STAGE AUDIO TRANSFORMER (Transuno)

Designed for use between any standard detector and first stage amplifier tube to provide a rising curve between 65 and 300 cycles, the same amplification at 65 as at 1,000 cycles, and a flat curve up to 5,000 cycles. Effective transformation ratio 4.2 to 1. Unconditionally guaranteed superior to any competitive \$8 to \$12 transformer, but not quite the equal of the S-M 225. An ideal impedance matching transformer for coupling any magnetic record pick-up to an amplifying tube, and when so used will boost volume tremendously. Shipping weight 1 lb. 8 oz. Price \$3.60

256 SECOND STAGE AUDIO TRANSFORMER

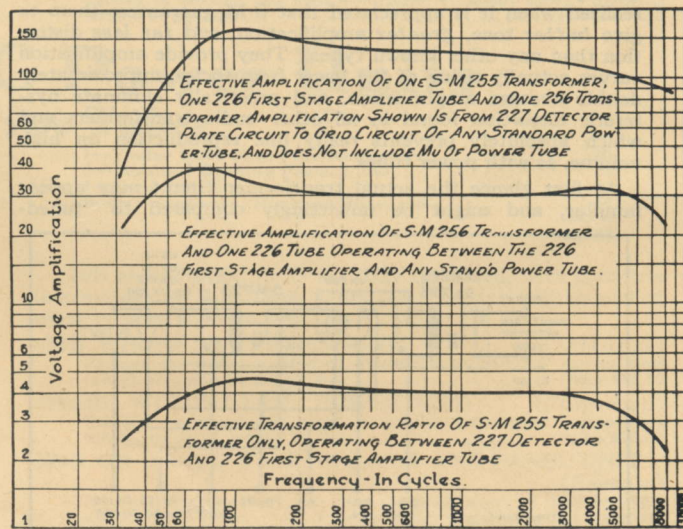
(Transduo)

A companion transformer to type 255 for use between standard first and second stage amplifier to provide a similar curve. Effective transformation ratio 3.5 to 1. An audio amplifier using one 255 and one 256 transformer will give the same amplification at 65 cycles as at 1,000 cycles, a rise between 65 and 3,000 cycles and a flat curve on up to 8,000 cycles or more. While not quite the equal of a pair of S-M 225 and 226's, one 255 and 256 are unconditionally guaranteed superior to competitive transformers. Shipping weight, 1 lb. 8 oz. Price \$3.60

251 TONE FILTER (AND OUTPUT TRANSFORMER)

(Transput)

A combination variable ratio output transformer, choke and condenser tone filter, and tapped impedance. Recommended as a tone filter and is provided with taps exactly matching it to either. 112 and 210 or 171, 245 and 250 type power tubes. Boosts low-note reproduction. May be used with 210, 245 or 250 type tubes when an external 1 mfd. 600 volt condenser is added. Shipping weight, 1 lb. 8 oz. Price \$3.60



Figs. 2 and 3. Characteristic curves of new S-M transformers measured in a standard audio circuit. Upper curves should be compared with curves A, B and C of Fig. 1. Amplification of power tube has been omitted for simplicity. To find overall amplification, multiply upper curves of Figs. 2 and 3, and curves A, B and C of Fig. 1 by Mu of power tube to be used, for practical approximation.

SILVER-MARSHALL, Incorporated



NEW PUSH-PULL CLOUGH-SYSTEM AUDIO AND OUTPUT TRANSFORMERS

Audio and Output Transformers

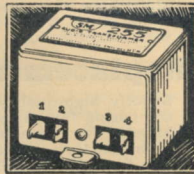
DURING January and February of 1929 several new types of audio and output transformers were added to the S-M line. Among these are Clough system push-pull input and interstage transformers and several output chokes, as well as a special output transformer designed to couple one or more amplifier tubes to the voice coil of standard dynamic speakers. The merits of these transformers have been extensively described in Radio Broadcast and other magazines.

The audio transformers employ the Clough system, and in consequence give almost complete freedom from hysteretic distortion with, of course, the fine quality of reproduction for which the Clough audio system is famous. The output chokes are designed to provide maximum efficiency and transformation when operating between standard power tubes and typical loud speakers, and it is felt that they represent as carefully engineered devices as are at present available on the American market.

The input transformers listed on this page are designed to operate out of 201A, 112, 226 or 227 type tubes and into any standard voltage or power amplifier tubes. The output chokes and dynamic speaker transformer are designed to operate out of 171, 210, 245 and 250 type tubes.

257 PUSH PULL INPUT TRANSFORMER (Transdeal)

A push-pull input transformer designed to operate between one standard amplifier tube and two voltage or power amplifier tubes of any standard type. Especially recommended as a companion transformer for type 225 or 255 for use in second audio stage. 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 255. Shipping weight 2 pounds. Price \$4.20



258 PUSH-PULL OUTPUT CHOKE (Transfleet)

Specifically designed to couple two UX171A (CX371A) or UX245 (CX345) tubes in push-pull (preferably fed by 257 or 227 input transformers) to any standard loud speakers. The core will not saturate at plate currents of the UX171A (CX371A), or of the new UX245 (CX345) power tubes. Constructed to obtain maximum undistorted power output. Fully mounted in 255 case. Shipping weight 2 pounds. Price \$3.00

275 R. F. CHOKE (Drake)

For use anywhere in radio receiver circuits to keep radio frequency currents from going astray and to stabilize receiver operation. May be used in any circuit where any RF choke is specified. Designed to operate on wavelengths up to 600 meters. Impregnated winding encased in black Bakelite housing and equipped with two soldering lugs. One hole mounting. Inductance 2 1/2 millihenries. Size 1x1 1/2 inches. Shipping weight 2 oz. Price \$0.54



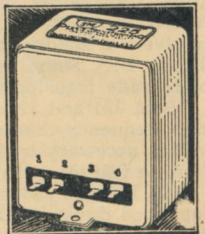
276 R. F. CHOKE (Lake)

Similar in all respects to No. 275 except that it is designed for long wave use from 600 meters up. Inductance 10 millihenries. Shipping weight 2 oz. Price \$.60

227 PUSH-PULL INTERSTAGE TRANSFORMER

(Transfill)

A push-pull interstage transformer designed to couple two standard voltage amplifier tubes to two or more voltage amplifier or power output tubes. Its effective transformation ratio is 1.8 to 1 and its frequency characteristic flat from 20 to 10,000 cycles. This transformer, which is recommended for use in connection with 257 push-pull input transformer as in the S-M 690 amplifier, is also splendidly suited to amplification of television signals. Housed in the new type mounting case of same floor dimensions as 255, 256, etc., cases, but 3 1/4 inches high. Shipping weight 2 1/2 pounds. Price \$4.80



228 UNIVERSAL OUTPUT CHOKE

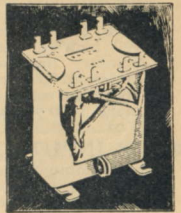
(Transgauge)

A new Universal output choke designed to couple two standard power output tubes in push-pull (such as 171A, 245 or 250 type) to any normal combination of one to eight or more standard loud speakers. For impedance matching purposes each choke is provided with two end leads, in addition to a center tap, and with two extra pairs of taps to accommodate series or series parallel arrangements of varying numbers of magnetic or dynamic speaker units. Having unusually high transformation efficiency and a flat frequency characteristic, this choke will faithfully handle the full undistorted output (or more) of two UX250 (CX350) without core saturation or discernible distortion. Mounted in same type case as type 227 transformer. Shipping weight 2 1/2 pounds. Price \$4.80

248 UNIVERSAL OUTPUT CHOKE

(Transrule)

The electrical characteristics of this choke are identically the same as those of the 228 Universal output choke listed above, but it is mounted in a standard 240 open type of mounting bracket. Shipping weight 2 pounds. Price \$4.20



229 DYNAMIC SPEAKER OUTPUT TRANSFORMER

(Transpant)

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 2 1/2 pounds. Price \$4.80

R. F. Choke Coils For All Receivers

277 R. F. CHOKE (Stake)

A special R. F. choke of very low distributed capacity for short-wave use between 10 and 200 meters. Sectionally wound on impregnated spool, sealed in black bakelite case, similar to type 275. Inductance, 3.4 mh. Average distributed capacity, 1 mmfd. Shipping weight 2 oz. Price \$.90

278 CHOKE FOR NEEDLE SCRATCH FILTERS (Plake)

Housed in the same bakelite case as both 275 and 276 RF chokes, the 278 is intended primarily for use in a "needle scratch" filter circuit. Its inductance of 140 M. H., when connected in series with a .0075 mfd. condenser and shunted across any standard magnetic phonograph record pickup, will cut out all frequencies above 4900 cycles, and hence practically all "needle scratch." Shipping weight 3 oz. Price \$.90

SILVER-MARSHALL, Incorporated

SM

LEADERS IN THEIR FIELD SINCE 1926

Standard S-M Audio Transformers

S-M AUDIO transformers practically revolutionized the popular conception of realistic reproduction by their remarkable performance. They first introduced the 5,000-cycle cut-off, and the rising low-frequency characteristic, since copied by nearly every high-grade transformer manufacturer. They were the first audio transformers offered incorporating sufficient steel and copper to give real low-frequency handling capacity and amplification. Today they stand supreme in their class—the best standard high-grade transformers made, and so acknowledged.

S-M 221 and 222 output transformers introduced the rising bass frequency characteristic, providing the tremendous energy values necessary with all loud-speakers for realistic reproduction—a feature generally followed today.

S-M 220-and 230-series transformers are all encased in black japanned drawn steel cases (height $3\frac{3}{8}$ ", length $3\frac{3}{8}$ ", breadth $2\frac{1}{2}$ ", or $3\frac{1}{2}$ " over mounting feet). They represent the Hallmark of Quality and stand second only to the new S-M 225, and 226, and 255 and 256 audio transformers.

220 AUDIO TRANSFORMER

(Transit)

Sold under a money-back guarantee as the finest ever produced regardless of price. Second only to the new S-M Clough Audio transformers. Provides substantially straight-line amplification from 30 to 5000 cycles (at 30 cycles, approximately 90% of the amplification obtained at 1000 cycles). After 5000 cycles the amplification falls off rapidly to compensate against static, regenerative squeals, and noise level beyond the musical range. Turns ratio 3:1 for both first and second stage operation with any standard tubes. Primary inductance 100 henries, secondary inductance 900 henries, under operating conditions. Primary impedance 19,000 ohms at 30 cycles, 626,000 ohms at 1000 cycles under operating conditions. D. C. resistance: primary 3700 ohms; secondary, 10,000 ohms. 6 oz.



Shipping weight, 4 lbs. Price \$4.80

220-M INPUT TRANSFORMER

(Transamp)

A combination audio and microphone transformer containing two primary and one secondary windings. One primary winding is of high impedance for use with radio or phonograph pick-up. The other is of low impedance, center-tapped for use with a single or double-button microphone or telephone line. Characteristics as an audio transformer same as the S-M 220. Shipping weight 4 lbs. 8 oz.

221 OUTPUT TRANSFORMER

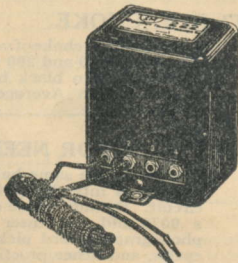
(Transept)

For use between the last power tube and loud speaker, to prevent "blasting" or damage to the speaker from direct current. This transformer possesses the further and unique advantage of bringing out absent low notes from inferior amplifiers or improving the tone quality of the best transformers, by virtue of the primary winding's impedance being suited to the output impedance of the power tubes, and the secondary winding matching the impedance of a standard speaker at 30 cycles. Turns ratio, 1:1.89. Primary inductance, 26.5 henries; secondary inductance 7.9 henries, under operating conditions. Primary impedance at 30 cycles, 5,000 ohms; at 1,000 cycles, 160,000 ohms; secondary impedance at 30 cycles, 1,500 ohms; at 1,000 cycles, 50,000 ohms, under operating conditions. D. C. resistance: primary 330 ohms; secondary, 184 ohms. Shipping weight, 4 lbs. 4 oz.

222 OUTPUT TRANSFORMER

(Transfuse)

Same as S-M 221, described above, except that it is equipped with four phone-tip jacks and 5-foot heavy duty extension cord, instead of four soldering lugs. A handy speaker accessory or "tone filter" that can be instantly attached to any radio receiver, adding many dollars' value in tone quality and boosting low note reproduction. The S-M 222 is also particularly well adapted for use when space limitations within the receiver do not readily permit the wiring in of an output transformer; for the 222 may be used externally, placed upon the floor, on a shelf, or in a console cabinet. Shipping weight, 4 lbs. 5 ozs.



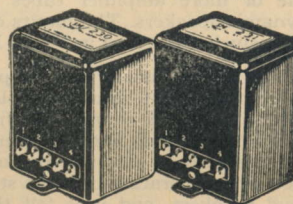
Price \$4.80

230 PUSH-PULL INPUT TRANSFORMER (Translate)

Suitable for use either in the highest quality Push-Pull Power Amplifier that can be built, or as a variable ratio straight audio transformer, 6:1 or 3:1, by virtue of its center-tapped secondary. In 3:1 ratio, same characteristics as S-M 220 audio transformer. In 6:1 ratio, secondary inductance 3,600 henries, under operating conditions; secondary D.C. resistance 22,000 ohms. Shipping weight, 4 lbs. 8 ozs.

231 PUSH-PULL OUTPUT TRANSFORMER (Transplant)

For use either in conjunction with S-M 230, described above, in push-pull circuits, or as a straight output transformer similar to the S-M 221, for by virtue of the center-tapped primary of this 231 transformer the output impedance of 112, 210, 171, 245 or 250 tubes can be accurately matched. May also be used as a push-pull output impedance for any dynamic or other loud speakers. Primary turns ratio, 1:1.89, same characteristics as the S-M 221 output. In 1:3.78 ratio, characteristics as follows: primary inductance 106 henries, primary impedance at 30 cycles 20,000 ohms, at 1,000 cycles 640,000 ohms, under operating conditions. Primary D.C. resistance 660 ohms. Shipping weight, 4 lbs. 6 ozs.



Price \$6.00

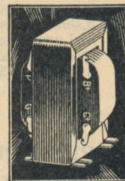
242 MICROPHONE TRANSFORMER

(Transmit)

A microphone transformer designed to meet the need for a good microphone coupling transformer for single or double button microphones or as a line input transformer for coupling a telephone line to an amplifier tube. The amateur and broadcast engineer will find it a necessity for radiophone use. Consists of two separate primary windings and one secondary winding mounted on 240 type core and frame. The characteristics are: inductance of primary (each half) .333 henries, D.C. resistance of primary (each half) 5.4 ohms, inductance of secondary 552 henries, D.C. resistance of secondary 8,500 ohms. Size, $3\frac{3}{8}$ " inches high, by $2\frac{1}{4}$ " by $2\frac{3}{8}$ " inches, fully mounted with soldering lugs. Shipping weight, 2 lbs. 4 ozs.

Replacement Audio Transformers

Strictly high-quality audio-frequency transformers, comparing favorably with many of the high priced brands. The characteristics of these transformers are such that they provide practically uniform amplification from 200 to 5000 cycles, with a gradual fall-off below 200 cycles. Ideal for replacement use because of compact, small size.



260U AUDIO TRANSFORMER (Transrep)

Equipped with upright type mounting bracket. Size $2\frac{1}{2}$ " high, 2" wide, and $1\frac{1}{2}$ " thick. Shipping weight 1 pound.

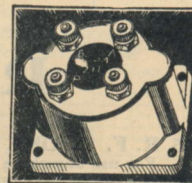
260S AUDIO TRANSFORMER

(Transide)

Same as above, but equipped with side mounting bracket. Size 2" high, $1\frac{1}{2}$ " wide, and $1\frac{1}{2}$ " thick. Ship. wt., 1 pound.

Long Wave Transformers

The S-M 210 and 211 Long Wave Transformers have gained an envious and long-lived reputation the world over for their excellent quality. The S-M 210 iron core transformer is particularly suited for use with the new UX222 (CX322) screen-grid tube, giving tremendous amplification in long wave amplifiers, with unusual selectivity. Both transformers are housed in a neat black genuine Bakelite case (size $2\frac{3}{8}$ " long, $1\frac{1}{8}$ " wide, $1\frac{1}{2}$ " high), provided with knurled terminal nuts.



210 LONG WAVE TRANSFORMER

(Transfer)

An iron core transformer of exceptional amplification, supplied at any desired peak frequency from 50-60 K.C. for 201A type tubes, or from 60 to 70 K.C. for 199 or 222 type tubes. Shipping weight, $4\frac{1}{2}$ oz.

211 LONG WAVE TRANSFORMER

(Transfix)

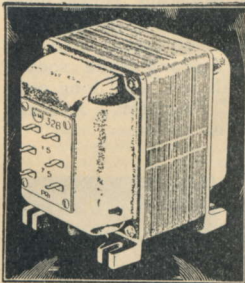
A sharply tuned air core transformer. Supplied tuned with a fixed primary capacity, at any desired peak frequency from 50 to 70 K.C. for any type of tubes. Shipping weight (with fixed condenser), 6 oz.

SILVER-MARSHALL, Incorporated



STEADY RELIABLE POWER FROM THE LIGHT SOCKET

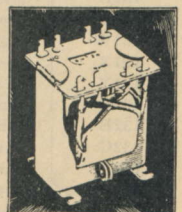
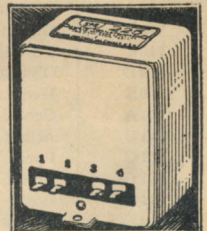
S-M Power Transformers



THE S-M line of power transformers comprises a transformer for every need. They have long been the standard in popular power supply units, because of the generous design, conservative rating and their low cost. They are hum-free and operate without deleterious heating. Types 324, 327 and 328 have heavy cast iron frames. Other types are sealed in the regular S-M drawn steel cases.

- 324 POWER TRANSFORMER** (Transmax)
A large, heavy, full-wave power supply transformer for operation from a 50 to 60 cycle power source of 105 to 120 volts. It weighs approximately 16 pounds, and is 6 1/2 inches high, 4 1/2 inches wide, and 7 inches long over terminal protection panels (these panels surmount each terminal plate so that it is ordinarily impossible to touch high-voltage soldering lugs). S-M 324 is conservatively rated at 150 watts for continuous operation. Equipped with two 750-volt, 150-milliampere secondaries, and two separate 7.5 volts, 2.5 ampere filament windings, for operation of 210, 250 and 281 type tubes. It is mounted similarly to S-M 328. Shipping weight 18 lbs. Price \$15.00
- 326 REDUCING TRANSFORMER** (Transduce)
An auto-transformer, for adapting to operate from 220, 230, 240, or 250-volt, 50 to 60 cycle alternating current, any radio or other electrical device designed to operate on 105 to 120 volt, 50 to 60 cycle alternating current. Its capacity of 150 watts for continuous operation is great enough to adequately handle any S-M power units and Unipacs, or any popular six, seven, or eight tube AC receiver, A and B power units, and all standard power amplifiers. May also be used where power line voltage runs about 125 or 130 volts, to reduce voltage to operate 110 volt devices. Fully mounted; size 5" long over mounting lugs, 3 1/2" wide, and 4 3/8" high. Shipping weight 7 lbs. 8 oz. Price \$9.00
- 327 POWER TRANSFORMER** (Transient)
A heavy duty power transformer, very conservatively rated. Especially recommended for use in power packs supplying A.C. sets containing a 210 or 250 type tube in the last stage, and must be used with one UX281 (CX381) half-wave rectifier for this purpose. For 112 or 171 type power tubes it should be used with UX280 (CX380) or gaseous full-wave rectifier tube. The 327 transformer has the following windings: two 250 volt secondaries; two 7 1/2 volt, 2 ampere secondaries for UX281 (CX381) and 210 or 250 type tubes; one 1 1/2 volt, 4 ampere secondary for three or four UX226 (CX326) tubes; and one 2.25 volt, 3.5 ampere secondary for two UX227 (C327) tubes. Primary winding is for 105 to 120 volts. 50 to 60 cycle A.C. lighting circuit. Provided with electrostatic shield and soldering lugs, cord and plug not included. Size, 5 1/2" long, 3 1/2" wide, 4 1/2" high. Shipping weight, 8 lbs. 8 oz. Price \$9.00
- 327U POWER TRANSFORMER** (Transitory)
Same as 327, above, except unmounted for manufacturers' use. Shipping weight, 7 lbs. Price \$9.00
- 328 SUPER POWER TRANSFORMER** (Transplace)
Heavy duty transformer designed for either full wave or half wave rectification, using UX281 (CX381) rectifier tubes. Will furnish 480 to 500 volts at 110 m.a. of thoroughly filtered direct current using two UX281 (CX381) tubes and a 331 Unichoke. Besides furnishing A, B and C power for 210 or 250 type power tubes, singly or in push-pull, it furnishes ample B power for receiver operation or standard dynamic speaker field excitation. Consists of two 550 volt secondaries and two 7 1/2 volt, 2 1/2 ampere filament windings. Electrostatic shield and 105 to 120 volt, 50 to 60 cycle primary, less cord and plug. Size, 6" long, 4" wide, 5" high, fully mounted with soldering lugs, as illustrated. Shipping weight, 11 lbs. 4 oz. Price \$12.00
- 329 POWER TRANSFORMER** (Transpire)
Designed for gaseous or filament rectifier tubes. Contains two 220 volt secondaries, one 105-120 volt, 50-60 cycle A.C. primary and one 5 volt, 2 ampere filament winding, center tapped. Rated at 85 milliamperes continuous duty without heating, or will furnish double this current for reasonable periods. Provided with electrostatic shield and equipped with S-M terminal lugs and cord and plug. Shipping weight, 4 lbs. 14 oz. Price \$5.40
- 329U POWER TRANSFORMER** (Transpiror)
Same as 329, above, except open-mounted for manufacturers' use. Shipping weight, 4 lbs. 8 oz. Price \$4.80
- 329BU POWER TRANSFORMER** (Transmount)
Similar to 329U, but provided with additional filament windings. Has two 220 volt secondaries, one 5 volt, 2 ampere center-tapped winding, one 5 volt, 1/2 ampere winding, one 2 1/2 volt, 3 1/2 ampere, and one 1 1/2 volt, 5 ampere winding. Shipping weight, 5 lbs. Price \$6.00

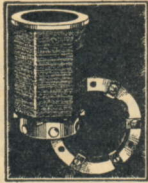
- 330 POWER TRANSFORMER** (Transport)
Identical to type 329 described above, except provided with two 300 volt secondaries and one 7 1/2 volt, 4 ampere filament windings. With a 1 1/2 ohm filament resistance this transformer may be used with a 280 type rectifier tube. Provided with electrostatic shield and soldering lugs. Shipping weight, 4 lbs. 14 oz. Price \$5.40
- 335U POWER TRANSFORMER** (Transwind)
Intended for use with sets employing the new RCA (Cunningham) A.C. screen-grid and intermediate power tubes. Contains one 5-volt 2 ampere rectifier filament winding; one 2 1/2-volt 6 ampere, one 2 1/2-volt 9 ampere, and one 1 1/2-volt, 5 ampere windings, and two high voltage secondaries. With one UX280 (CX380) it will deliver 300 volts D.C. at 100 m.a. Manufacturers type open-mounting (is 327U). Size 5 1/2" by 3 1/2" by 4 1/2" high. For 105-120 volt 50 to 60 cycle A.C. Cord and plug not included. Shipping weight 7 pounds. Price \$9.00
- 334U POWER TRANSFORMER** (Transflow)
Made especially for A.C. operated dynamic speakers. When used with an UX280 (CX380) tube and a 2 Mfd. condenser, 120 volts of D.C. are available for field current in any standard 90-120 volt D.C. type dynamic speaker. Contains a 5 volt 2 ampere rectifier filament winding, one 300 volt center-tapped high voltage winding, and one primary winding for connecting to any 105-120 volt, 50-60 cycle A.C. Housed in 227 type case. Shipping weight 2 pounds. Price \$4.20
- 336U POWER TRANSFORMER** (Transnut)
Similar to 335U, but for use with sets of fewer tubes. Equipped with two 260-volt 65 M.A. secondaries, one 5-volt, 2 ampere center-tapped rectifier filament winding, one 2.25-volt, 3 ampere, one 2.25-volt, 7.5 ampere, and one 1.5 volt, 4 ampere, filament winding. Same size and weight as 329BU. For operation from any 105 to 120 volt, 50 to 60 cycle A.C. Price \$6.00
- 331 UNICHOKE** (Quake)
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. D.C. resistance of primary 4.85 ohms; secondary 395 ohms. With electrostatic shield and soldering lugs as illustrated. Shipping weight 5 pounds. Price \$4.80
- 331U UNICHOKE** (Quaker)
Same as 331, above, except unmounted for manufacturers' use. Shipping weight, 5 lbs. Price \$4.20
- 333 DUAL FILTER CHOKE** (Uniradio)
Consists of two chokes assembled together on one frame. Gives better filtration than with separate mounting. Resistance 400 ohms per choke. Inductance per choke at current of 40 m.a., 10.4 henries. Opening mounting. Size 2 1/2" wide, 3 3/8" high, and 1 1/2" thick. Provided with soldering lugs. Shipping weight 2 1/2 pounds. Price \$3.60
- 325 STEP-DOWN TRANSFORMER** (Transact)
Designed for filament lighting of all A.C. tubes, as well as furnishing 5 or 7 1/2 volts for the filaments of 112, 171, 210 or 250 power tubes. Equipped with one 50 to 60 cycle, 105-120 volt primary, one center-tapped 7 1/2 volt or 5 volt secondary, 3 Amp., one 1 1/2 volt secondary, 12 Amp. and one 2 1/2 volt secondary, 12 Amps. Sealed in regular S-M shield case and equipped with cord and plug. Shipping weight, 4 lbs. 15 oz. Price \$7.50
- 247 FILAMENT TRANSFORMER** (Transform)
A filament transformer designed to supply filament current to standard A.C. tubes. It is especially recommended for use with the various A.C. harnesses now on the market, to convert old battery operated receivers to socket power operation. The 247 transformer contains the following windings: one 105-120 volt 50 to 60 cycle primary; one 1 1/2 volt, 5 ampere secondary; one 2 1/2 volt, 3 1/2 ampere secondary, and one 5 volt, 1 ampere secondary. Will operate four or five 226 type tubes, two 227 type tubes and two or three 112 or 171 type tubes. It is the least expensive and yet one of the best filament transformers on the market. Cord and plug not included. shipping weight, 2 lbs. 8 oz. Price \$3.00



SILVER-MARSHALL, Incorporated

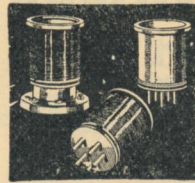
SM

THE MOST EFFICIENT COILS FOR PERFECT RECEPTION



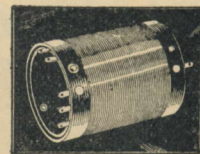
Standard S-M Plug-In Coils

S-M Interchangeable Plug-in Coils are known the world over for their confined magnetic field, extreme uniformity, extremely efficient low-loss design and adaptability to all circuits at all wavelengths up to 3,000 meters. Wound on threaded ribbed Bakelite forms with enameled and double silk-covered wire. All are provided with six contacts and plug into the S-M 515 Universal coil socket. Inner primaries are wound on Bakelite tubes inside the moulded ribbed form. Slotted primaries are wound in a slot at the base (filament end) of the secondary form. All coils from 110A to 119A are of this type. Overall size of 2 1/8" diameter by 3" long over finger flange. Average shipping weight 4 oz.



S-M 140, 141 and 142 Universal Coils

A highly efficient coil having R.F. resistance almost 50% lower than of any other coil. Especially designed to provide extreme selectivity and high amplification with screen grid tubes. Universal in application, they may be used as an antenna coupler, R. F. transformers, or regenerative coils, etc. Enameled wire space wound on threaded bakelite tubing, with inside primary tubes. Size, 2 1/2" diameter by 3 3/4" long. Shipping weight 6 oz.



S-M Midget Plug-In Coils

The new "130 Series" S-M Midget Plug-in Coils are provided to supplement the standard coils where space is at a premium, and for short wave use. They are very compact, economical and highly uniform. Their winding space is 1 1/2" long by 1 1/2"

S-M Catalog No.	Code Word	WINDING DATA (TURNS)					Range (Meters)	Secondary Tuning Condenser (mf.)	Price	
		Secondary		Slot Winding	Rotor	Inner Primary				
		Upper	Lower							
110A	Majestic	44 3/8	44 3/8		32		190-550	.00035	\$1.50	
110B	Gigantic	11 1/2	11 1/2		10		70-200	.00035	1.50	
110C	Titanic	5 3/8	5 3/8		6		30-75	.00035	1.50	
110D	Olympic	140	120		60		500-1500	.00035	3.00	
110E	Hectic	220	176		60		1100-3000	.00035	3.00	
111A	Oceanic	89 3/8		44 3/8	32		190-550	.00035	1.50	
111B	Atlantic	23 3/8		24 3/8	10		70-200	.00035	1.50	
111C	Pacific	11 3/8		24 3/8	6		30-75	.00035	1.50	
111D	Arctic	260		99 3/8	60		500-1500	.00035	3.00	
111E	Basic	396		99 3/8	60		1100-3000	.00035	3.00	
113	Nomadic	Unwound Coil Form with Contacts, Springs and Rotor.								1.05
114A	Arabic	89 3/8		40		8	190-550	.00035	1.50	
114B	Magic	23 3/8	23 3/8				70-200	.00035	1.50	
114C	Mosaic	11 3/8	13 3/8				30-75	.00035	1.50	
114SG	Scenic	89 3/8		44 3/8		50	190-550	.00035	1.50	
115A	Classic	90 1/8		9 1/2		35 3/8	190-550	.00035	1.50	
115D	Archaic	260		1/2		49 3/8	500-1500	.00035	3.00	
115E	Historic	396		1/2		150 1/8	1100-3000	.00035	3.00	
116A	Gothic	89 3/8		2 1/2		15 1/8-19 1/2†	190-550	.00035	1.50	
116D	Ionic	260		1/2		25 1/8-24 1/2†	500-1500	.00035	3.00	
116E	Doric	396		1/2		75 1/8-74 1/2†	1100-3000	.00035	3.00	
117M	Slavic	16 1/8	26 1/8				85-150	.00014	1.50	
117N	Germanic	10 1/8	13 1/8				51-90	.00014	1.50	
117O	Nordic	7 1/8	7 1/8				30-53	.00014	1.50	
117P	Gallic	4 1/8	3 1/8				18-32	.00014	1.50	
118A	Cedric	90 3/8		4 1/2		25 1/8	190-550	.00035	1.50	
119A	Plastic	90 3/8				64*	190-550	.00035	1.50	
130P	Peacoil	Plain Coil Form with Contact Pins								.40
130T	Teacoil	Threaded Coil Form (98 threads) with Contact Pins								.40
131T	Lowcoil	6 1/8		5 1/8			17.4-32.1	.00014	.75	
131U	Youcoil	13 1/8		5 1/8			31-58	.00014	.75	
131V	Veecoil	25 1/8		9 1/8			57-110	.00014	.75	
131W	Highcoil	49 1/8		15 1/8			104-204	.00014	.75	
131X	Excoil	82 1/8		19 3/8			190-358	.00014	.75	
131Y	Wycoil	155		30 3/8			344-647	.00014	.90	
132A	Leadercoil	98 1/8				50	190-550	.00035	.75	
132B	Labcoil	98 1/8				35	190-550	.00035	.75	
132C	Mixcoil	98 1/8		40		35	190-550	.00035	.75	
140	Unicoil	72				20 and 35	190-550	.00035	1.80	
141	Antecoil	72				20	190-550	.00035	1.80	
142	Stagecoil	72				25	190-550	.00035	1.80	

†All 116 coils have a two-section inside primary.

*Inside primary tapped at 38, 51 and 64 turns.

Types 110A to 119A fit S-M 515 Coil Socket.

Types 130P to 132C fit S-M 512 Tube Socket.

SILVER-MARSHALL, Incorporated

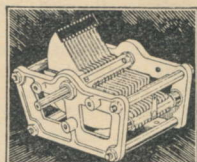


NEW S-M PARTS OF CHARACTER AND DISTINCTION

Variable Condensers - Sockets - Shields - Parts

320R SINGLE UNIVERSAL CONDENSER (Convex)

A single .00035 mfd. variable condenser with full floating rotor, removable shaft, soldered plate assemblies and die-cast end plates, universal mounting for either side, bottom, or either end and as left or right type, on panel or chassis. A truly universal condenser of .000007 to .00035 mfd. capacity. Plates are of modified SLF-SLW shape to provide a substantially straight line tuning curve. Contains a very small amount of insulation, insuring low losses. Used in the new S-M 710, 720, and 740 sets. Size, 2 1/2" wide, 4" long and 4 1/8" high. Shipping weight, 1 lb. Price \$2.40



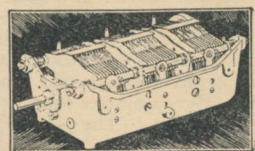
511 TUBE SOCKET (Tubok)

A standard 4-prong socket taking all types of battery or A. C. tubes with UX bases. Made of genuine black Bakelite presenting a very attractive appearance. The springs are made of best quality phosphor bronze to insure permanent contact. Screw contacts for wire ends or lugs are provided. Size 1 1/8" x 1/8". Shipping weight in carton 2 oz. Price \$0.30



323 THREE-GANG VARIABLE CONDENSER (Confine)

A three-unit gang condenser assembled in a rugged die-cast frame. A real gang condenser for any purpose. It is used in the new S-M 720 Screen Grid Six and is specified in the 1929 Laboratory Model Receiver. Universal, for mounting on end, either side or bottom. Each section is electrostatically shielded from all others, and equipped with individual compensator. Plates are of modified SLF-SLW shape. Capacity of each section, .000007 to .00035 mfd., the accuracy of which, between all three sections, is guaranteed to be within less than 1% over upper half of scale and to within 1mmfd. over the lower half. Size, 4 1/8" wide, 8 3/8" long and 3 3/8" high. Shipping weight, 2 lbs. 12 oz. Price \$8.10



512 TUBE SOCKET (Tubac)

Made exactly the same as No. 511 (described before) except that it is for use with the 5-prong base UY227 (C327) A.C. tubes and all S-M "130 Type" coils. Shipping weight 2 oz. Price \$0.36

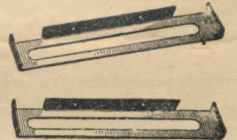


515 COIL SOCKET (Coilok)

A black Bakelite socket ring 2 1/8" in diameter provided with six phosphor-bronze springs properly spaced for the large S-M Interchangeable Plug-In Coils of the "110 Type." Equipped with screw terminals for wire ends or lugs. Ship. wt., 4oz. Price \$0.60

540 SUB-PANEL BRACKETS (Brackex)

A substantial bracket made of non-rusting cadmium plated steel. For supporting sub-panel and fastening sub-panel to panel. Packed one pair to a carton with hardware. Size each, 6" long by 1 1/4" high by 1/4" wide. Shipping weight 4 oz. Price \$0.42 Pair

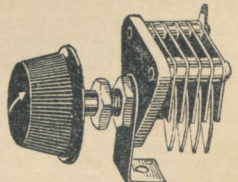


320 VARIABLE CONDENSER (Convoy)

S-M 320 is a light type of condenser built of cadmium-plated steel. Capacity, .00035 mfd. It has somewhat lighter frame construction and is designed for single-hole mounting only. It fills the demand for a really good light condenser at a price that is not exorbitant and yet is in keeping with regular S-M manufacturing quality. The shaft is not removable. Size, 3" square. Takes space 3" deep behind panel. Shipping weight, 19 oz. Price \$1.95

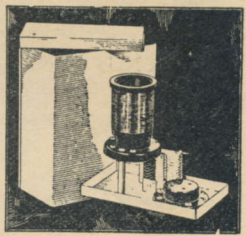
340 MIDGET CONDENSER (Consort)

The most universal midget condenser on the market. Capacity, .000003 to .000025 mf. Designed for compensating, balancing, antenna coupling, regeneration control, etc. Has lacquered brass plates mounted on a Bakelite end plate. For either panel or base mounting. Complete with control knob. Size, 1 1/8" x 1 1/8" x 1". Shipping weight, 6 oz. Price \$0.90



638 STAGE SHIELD (Armed)

The popular new S-M stage shield used in the 720 Screen Grid Six and other circuits. It is a small and compact copper shield, with removable top and bottom, and will accommodate all standard tubes, all types of S-M plug-in coils and coil sockets, plus the necessary by-pass condensers and resistors. A hole is provided in the bottom for an S-M 340 or 342 type midget condenser, the bottom is pierced with all mounting and lead holes, and is provided with four raised mounting feet, allowing wiring and screw heads to fall beneath the bottom holes. Overall size, 4 1/2" long, 5 1/2" high, and 2 3/8" wide. Beautifully finished in lacquered copper. Sides are ribbed to prevent bending. Packed in carton. Shipping weight 10 oz. Price \$0.90



340A MIDGET CONDENSER (Condense)

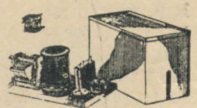
Designed for sub-panel use where the adjustment once made is to be permanent or for use inside of a stage shield for compensating. It is exactly the same as S-M 340 condenser (described above), except that the shaft is slotted for screwdriver adjustment, and it is provided with a smaller mounting lug to fit on a standard S-M 515 coil socket terminal. Price \$0.90

342B MIDGET CONDENSER (Container)

Same construction as the 340 condenser. Capacity .000004 to .000075 mfd. Suitable for all purposes where a larger condenser than the 340 is needed. For panel or sub-base mounting, complete with control knob. Size, 1 3/8" x 1 3/8" x 1 1/8". Shipping weight, 6 oz. Price \$1.05

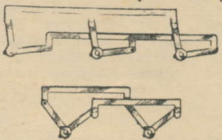
631A STAGE SHIELD (Armored)

A rectangular aluminum box-shield with a removable top and bottom for the shielding of radio frequency amplifier circuits. It can be used in any set whether used with S-M parts or not. The bottom is correctly pierced to accommodate S-M 316 type variable condenser, 515 coil socket, 511 (512) tube socket, 275 (276, 277) choke, standard by-pass condenser, and all leads. The sides are cut to accommodate shielded grid tube leads which must pass from stage to stage. The top is pierced to allow the insertion of screwdriver to adjust a compensating condenser such as S-M 340A. Size overall, 5 3/8" high by 7 3/8" by 3 3/8". Shipping weight 11 oz. Price \$1.20



632 TRIPLE LINK MOTION (Trilink)

A 180 degree mechanical link designed to connect three condenser shafts (4 inches between centers) together for single dial operation. For 1/4-inch shafts only. Overall size 10 7/8" by 2 1/4". Shipping weight 3 oz. Price \$1.20



818 S-M FABRIC COVERED HOOK-UP WIRE (Fabrik)

The popular fabric insulated telephone switchboard hook-up wire for cabled wiring. Consists of a No. 20 solid tinned copper wire covered with one serving of silk, one serving of cotton and an outside covering of one serving of waxed black cotton braid. Packed 25 feet to a carton. Shipping weight 3 oz. Price \$0.30

637 DOUBLE LINK MOTION (Bilink)

A 180 degree mechanical link designed to connect two condenser shafts (4 inches between centers) together for single dial operation. For 1/4-inch shafts. Overall size 6 7/8" x 2 1/4". Shipping weight 3 oz. Price \$1.20

708 TEN-LEAD BATTERY CABLE (Connector)

A ten-lead color coded battery cable with fabric covering and tinned ends. Used in all of the new S-M kits. Length overall, 5 feet. May be used with any receiver to conveniently make battery or power unit connections. Shipping weight 3 oz. Price \$1.05

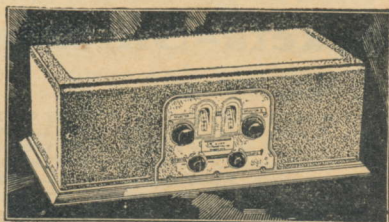
SILVER-MARSHALL, Incorporated



CHARACTER AND DISTINCTION MARK THESE S-M PARTS

S-M Receiver Cabinet

A beautiful, rugged one-piece metal shielding cabinet finished in two-tone moire brown. Of very rich appearance, it is not only beautiful and attractive, but gives complete shielding as well. Accommodates any set that can be mounted on the 701 or 702 chassis and is intended for S-M 808, 809 or 810 control escutcheons, the front being slotted, 5½" high, and 5¾" wide to take either escutcheon. Back is slotted for lead wires and ample ventilating louvers are provided. Complete with walnut finished wood moulding base; equipped with rubber feet. Cabinet lifts off for access to wiring and for servicing of set. Inside dimensions, 21½" long by 10" wide by 7¼" high.



700 SHIELDING CABINET (Cover)

Packed in air cushioned carton with walnut base moulding, but less chassis. Shipping weight, 17 lbs. Price \$5.55

701 UNIVERSAL CHASSIS (Base)

A formed, pierced and enameled steel chassis 21¼" long, 9½" wide and ¾" high. Universally pierced for 720 Screen Grid Six, 740 Coast to Coast Four, and many other popular circuits. Ideal for use with S-M 700 cabinet and 808, 809 or 810 escutcheons. Shipping weight, 3 lbs. 9 oz. Price \$1.80

702 WOOD CHASSIS (Woodbase)

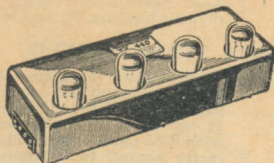
A seasoned stained wood chassis that will not warp. Size 21¼" long, 9¾" wide, and ¾" thick, for use with type 700 cabinet, for circuits to which the 701 chassis may not be adapted. Shipping weight, 2 lbs. 11 oz. Price .90

703 WALNUT FINISH STEEL PANEL (Front)

A walnut finished steel panel, slotted in center for S-M 808 or 809 escutcheon plates to fit any standard 7"x24" cabinet or console when S-M 700 Shielding Cabinet is not used. Shipping weight, 2 lbs. 2 oz. Price \$2.40

S-M Jeweler's Time Signal Amplifiers

The S-M Time Signal Amplifiers are known the world over for their high amplification and positive accuracy of peaking. They are three stage long-wave R.F. amplifiers sharply tuned to 112 K.C., for reception of Arlington (NAA) time signals. Each R.F. stage is individually shielded to prevent coupling and pick-up, and the entire amplifiers are housed in lacquered copper shielding cases. The selectivity is so great that interference from other wavelengths is impossible. Thousands of these amplifiers are in use.



440 JEWELER'S TIME SIGNAL AMPLIFIER (Jewel)

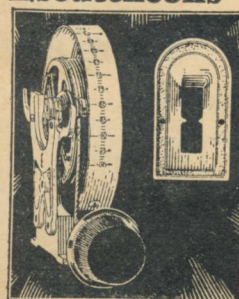
Three-stage long-wave R.F. amplifier, and detector, as described above, for four standard 201A type tubes. Laboratory tuned and calibrated, and sealed in lacquered copper and brass catacomb 15x5x3 inches, with four tube apertures in top. Factory packed in substantial carton (less tubes). Shipping weight 5 lbs. Price \$21.00

440SG JEWELERS' TIME SIGNAL AMPLIFIER (Jewelled)

Three-stage long-wave R.F. amplifier and detector, as described above, for 3-UX222 (CX322) screen grid tubes and 1-UX200A (CX300A) Detector. Laboratory tuned and calibrated and housed in a lacquered copper and brass catacomb with removable cover. Size, 15x5x5½ inches, factory packed in substantial carton. Shipping weight 7 lbs. Price \$24.00

Vernier Dials and Escutcheons

A new illuminated vernier drum dial of striking appearance. It is ideally suited for the finest radio set, for in its expert construction will be found a number of exceptional features, heretofore found only in the most expensive factory-built receivers.



This new dial consists of a die-cast metal drum carrying a translucent 100-division scale (divisions are a full 1/16" apart), and a die-cast bracket, which, in turn, carries the drum, the illuminating lamp socket and the drive shaft. The Bracket is so arranged that it may be fastened down to a chassis, and when so mounted will be rigid enough to carry a single, double, or triple tuning condenser. Holes in bracket are such that it will accommodate practically any standard condenser. Unless desired, the bracket need not be fastened down. In this case it is prevented from turning by the front panel through which the drive shaft projects. Slip-proof drive by special braided linen cord; any looseness which may develop after long use is readily taken up. Vernier reduction is 7:1. The 810 dial is very compact—being 2 inches from front or back to shaft center, and 1½ inches wide overall, excluding lamp bracket and knob. Half circle or 180 degree rotation is arrested at either end by cushion rubber stops. The 807 Window Escutcheon is not included.

Two models are available, 810L (bracket at left of dial), and 810R (bracket at right of dial). Both turn in the same direction, and are essentially similar. (Drums, brackets, stops, and lamp mounting are universal, for right or left mounting). Window escutcheon not included with either type. (See 807 window below.) Equipped with walnut control knob, and lamp bracket, but no lamp.

810R ILLUMINATED DRUM DIAL (Dialeast)
Illuminated drum dial, as described above. Bracket mounted at right of dial. Shipping weight 1½ pounds. Price \$2.25

810L ILLUMINATED DRUM DIAL (Dialwest)
Same as above, but with bracket mounted at left of dial. Shipping weight 1½ pounds. Price \$2.25

806L (LEFT DRIVE) VERNIER DRUM DIAL (Dialeft)
A smooth, positive vernier drum dial for left-hand drive. The drum is 3¼" in diameter, and carries a beautiful gold scale with etched divisions and figures every five degrees. The dial is controlled by a walnut panel knob operating through a smooth and positive semi-gear semi-friction drive system. May be used with any condensers. Vernier ratio, 9 to 1. Template included. No panel window is furnished. Shipping weight 8 oz. Price \$1.50

806R (RIGHT DRIVE) VERNIER DRUM DIAL (Diaright)
Same as S-M 806-L, described above, except right-hand drive type. Shipping weight, 8 oz. Price \$1.50

807 DRUM DIAL WINDOW (Window)
A single drum dial window of antique brass (shown above) for 806L, 806R, 810L or 810R dials. Intended for use with 806L, 806R, 810L and 810R when used with Micarta or other panels where 808 or 809 escutcheons may not be used. It is very attractive and is attached to any panel with two screws and nuts. Size, 2¼" high and 1½" wide. Shipping weight, with screws, 2 oz. Price \$0.30

808 SINGLE CONTROL ESCUTCHEON (Singleplate)
An antique brass control panel escutcheon accommodating one 806L, 806R, 810L, or 810R dial, a volume control and switch combined, and an extra sensitivity control or separate on-off switch. Very attractive. This escutcheon lends beauty and dignity to the home-built receiver ordinarily found only in the finest ready-made sets. Size, 6¼" high, 8" long, to fit type 700 cabinet or 703 panel, and 701 or 702 chassis. Shipping weight, 8 oz. Price \$2.25



809 DUAL CONTROL ESCUTCHEON (Dualplate)
An antique brass control panel escutcheon similar to 808, but accommodating one 806L and one 806R or one 810L and one 810R dials, and two auxiliary controls. Size 6¼" high, 8¾" long, to fit type 700 cabinet or 703 panel and 701 or 702 chassis. Shipping weight, 9 oz. Price \$1.65