



90-Watt De Luxe Sound System, Page 18.  
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SOUND • SERVICE • AMATEUR

# *Electronic Equipment Catalog*

MONTGOMERY WARD • 1948-1949

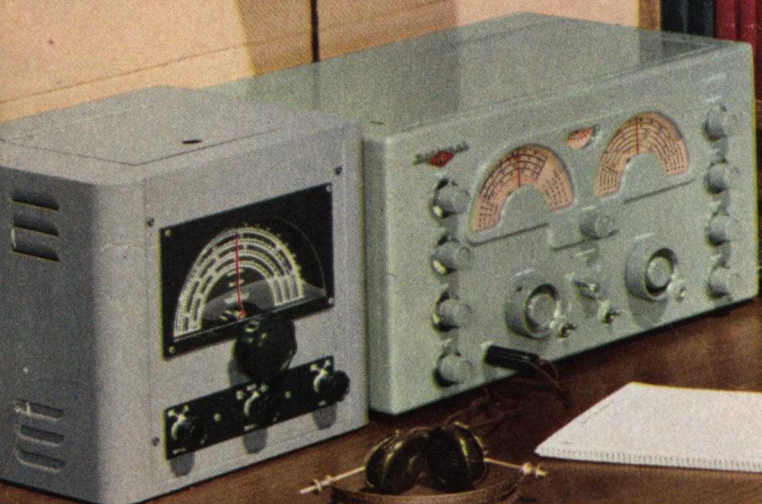
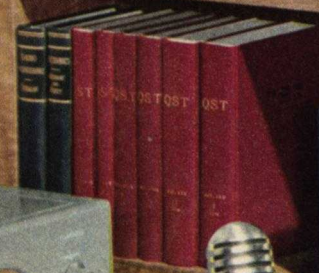


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# Facts About Amateur Equipment

The superior performance of radio equipment designed for communications work is well known to all amateur and commercial operators. Some of the factors which contribute to this superiority are described and explained below. They will be of interest to beginning amateurs, short wave listeners and to the increasing number of discriminating users who appreciate and demand the finer radio reception characteristic of this type of equipment.

On the following pages Wards offer everything needed for a complete, modern Amateur station. Items are grouped by price classifications instead of by manufacturer. Catalog descriptions of similar items have been written so as to simplify comparison. We believe you will find this method helpful. Other items made by manufacturers represented in this book, are available through Wards. Write our Radio and Sound Equipment Dept., Chicago.

## FACTS ABOUT COMMUNICATIONS RECEIVERS

**NUMBER OF TUBES.** The number will vary with the price of the receiver from five to sixteen (plus rectifiers). The minimum five tubes are one Converter, one i.f. Amp., one BFO and Noise Limiter, one 2nd Det., and one a.f. Amp. Additional tubes provide r.f. and/or i.f. stages for extra sensitivity, extra a.f. stages for greater power output and better tone, separate (and more effective) Noise Limiter and Automatic Volume Control Action.

**SENSITIVITY.** Even though weak signals have been heard around the world under certain rare conditions and have come "booming in" on simple receivers, sensitivity is desired to let you hear weak signals more consistently, to separate signals from background noise (give a high signal-to-noise ratio), and to reduce the effect of signal fading. Sensitivity is governed chiefly by the number of r.f. and i.f. stages and their design and construction.

**SELECTIVITY.** Like sensitivity, selectivity increases the effective range of your receiver by increasing the number of stations you can normally hear clearly. Briefly it means the ability to separate stations, and since bands are generally crowded, a considerable degree of selectivity is essential for satisfactory operation. Many a good contact has been lost or interrupted because of inadequate receiver selectivity.

Although moderately good selectivity can be obtained with r.f. and i.f. circuits of customary design, really good selectivity requires a crystal filter. Crystal circuits have controls for adjusting the degree of selectivity and phasing. The Selectivity Control varies the sharpness of tuning while the Phasing Control permits additional flexibility in singling out the desired station.

**FREQUENCY COVERAGE.** Most receivers include all frequencies from the low end of the Broadcast Band to 30 MC or more, completely covering the popular Amateur and Short Wave Bands. Some receivers also cover 6 Meters, 50-54 MC. A few include the FM Broadcast Band 88-108 MC. Also, special very high frequency (VHF) and ultra high frequency (UHF) sets and converters are available for frequencies up to about 228 MC.

**TUNING CONTROLS.** A distinguishing characteristic of all communications receivers is "bandsread" tuning in addition to general coverage. This is provided in various ways. Some receivers use a single knob with a high gear ratio, a general coverage dial, and an auxiliary dial calibrated for the amateur bands. Others use switching arrangements to cover either their complete range or the amateur bands, with a single knob and dial. However the majority employ two knobs with separate dials, one dial calibrated for complete coverage and the other having an arbitrary scale or calibration for the amateur bands.

**PUSH-PULL OR SINGLE TUBE OUTPUT.** Push-pull output offers definitely superior tone for two reasons: (1) it permits more effective use of tone filters, bass boost and tone control; and (2) it provides more power for faithful reproduction of music without distortion. If you (or others in your family) plan to use your receiver for broadcast or recorded music push-pull output is desirable, particularly with a large speaker capable of handling the added power. Single tube output is completely satisfactory for general communications work (through either loudspeaker or headphones), assuming that true high fidelity reproduction is not required.

## FACTS ABOUT TRANSMITTERS

Factory built transmitters offer thoroughly matched performance from beginning to end. They are preferred by many amateurs because of their reliability and ease of operation. In addition they are usually more compact and much more attractively finished than assembled units, making them more suitable for use in rooms where appearance must be considered.

Many an Amateur is finding that the addition of a Variable Frequency Oscillator to his transmitter is a major improvement under today's operating conditions. Features found in VFO's include (1) Bandswitching to any one of the popular Amateur Bands, (2) Calibrated Frequency settings, (3) Narrow Band FM phone

operation and (4) fingertip control of the entire transmitter. By simply plugging the VFO into the crystal socket of your present transmitter, you get improved flexibility, stability and operating convenience without making any other changes.

**NARROW BAND FM.** This new development is rapidly increasing in popularity. It permits phone operation without the use of a costly modulator and high power plate supply; any well-built CW transmitter can be converted to phone simply by using a Narrow Band FM Exciter unit in the oscillator stage. NBFM develops less interference to broadcast reception than AM, since the power output of the transmitter remains constant during modulation.

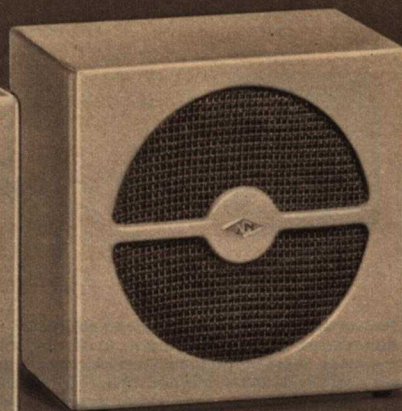
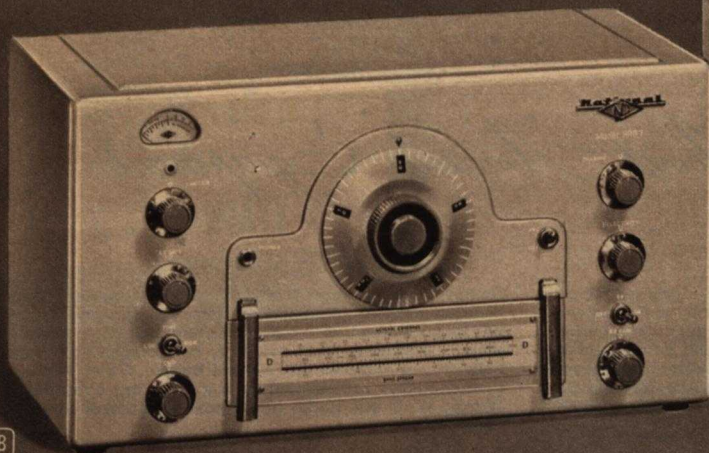
## FACTS ABOUT THE HAM STATION ON THE OPPOSITE PAGE

On the opposite page we present an extremely well designed and practical arrangement for a complete Amateur station. Its clean-cut, almost professional appearance demonstrates just how attractive such an installation can be. The receiver and VHF converter, the transmitter and variable frequency oscillator, the microphone and key are all within convenient reach of the oper-

ator. The desk provides adequate storage space for station records and miscellaneous accessories. Complete descriptions of all radio equipment in the station can be found in the Amateur section of this book. This equipment is representative of the high quality of the merchandise sold by Wards. (The National NC 173 Receiver is described on Page 5, although not shown on that page.)

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## Top Quality Communications Receivers

### HAMMARLUND SUPER-PRO SP-400X

**A** Ruggedly built and expertly engineered, the Super-Pro model has been used in Commercial and Amateur installations for many years. Ranks with the best of high-quality communications receivers. Designed to fill professional requirements, in quality, reliability and performance.

**PERFORMANCE.** Very high selectivity with remarkable ability to separate stations because of finely balanced r.f. and i.f. circuits. Selectivity can be varied from 16 KC to 3 KC with additional selectivity available through Crystal Filter which narrows bandwidth to less than 100 cycles. Two r.f. stages practically eliminate image reception. Noise limiter has negligible effect on the modulated signal. Temperature compensated oscillator.

**OPERATION.** Range from 540 KC to 30 MC in five bands—continuous coverage. Bandsread Dial calibrated from 0 to 100 to give complete coverage of any one Amateur band without re-setting the Main Tuning Dial.

**FEATURES.** Crystal Filter has three positions for code and two for phone. S-Meter. Low impedance antenna input. AVC. Noise Limiter switch. Main On/Off switch. Phone jack on panel. Band width control. A.f. and r.f. Gain Controls. Illuminated dial. Speaker is 10-in. PM Dynamic type. Terminals on rear for 500-ohm output and phono input. Connection for remote control.

16 TUBES plus 2 Rectifiers: two 6K7's r.f. Amp.; 6L7 Mixer; 6J7 h.f. Osc.; 6K7 1st i.f.; 6SK7 2nd i.f.; 6SK7 3rd i.f.; 6H6 2nd Det.; 6N7 Noise Limiter; 6SK7 AVC Driver; 6H6 Diode; 6SJ7 BFO; 6J5 a.f. Amp.; 6F6 a.f. Driver; two 6F6's push-pull Output. 5U4G and 5Y3GT Rect. Separate power supply included with interconnecting cable. Operates on 115 volt 50-60 cycle AC. Size 21 by 12 1/4 by 15 1/8 in. deep. Express only.

62 AE 3702 RT—Hammarlund Super Pro. Ship. wt. 98 lbs. \$444.75  
62 AE 3703 MT—Speaker Cabinet. Ship. wt. 10 lbs. 5.25

### NATIONAL HRO-7 RECEIVER

**B** Long recognized as an ideal Ham receiver, the HRO-7 is one of the finest products of the National Company. Performance proved through years of operation, the new HRO-7 has the added appeal of modern styling.

**PERFORMANCE.** Extremely sensitive circuit uses two r.f. and two i.f. stages. Improved oscillator stability from OA2 miniature type Voltage Regulator. Image rejection increases from 30 d.b. at 30 MC to better than 120 d.b. at 175 KC. Signal-to-noise ratio exceeds 16 d.b. with 5 microvolts input. New double-action Noise Limiter with Threshold Control. Crystal Filter provides maximum selectivity of 200 cycle band width.

**OPERATION.** Provides exceptionally wide Bandsread: Micrometer type Tuning Dial with calibration from 0 to 500. Spring loaded worm wheel assures a positive drive in either direction without slipping or backlash. Four Plug-in coils for general coverage from 1.7 to 30 MC. Same coils provide full bandsread for Amateur Bands (other coils on special order).

**FEATURES.** Crystal Filter with 5-position switch. Has 8-inch speaker in attractive baffle with 7000 ohm matching transformer. Has socket for NBFM adaptor, frequency calibrator, h.f. converter or any other accessory which requires filament and plate voltages from the receiver power supply. S-Meter. Receive/Standby switch. Tone switch. Radio/Phono switch. AVC.

11 TUBES plus OA2 Voltage Regulator: two 6K7'S r.f. Amp.; 6J7 Det., 6CA H.f. Osc.; two 6K7's i.f. Amp.; 6H6 Diode Det. and AVC; 6H6 Noise Limiter; 6SJ7 a.f. Amp.; 6V6GT a.f. Output; 6J7 BFO. Power supplied by Type 697 Power Pack (included) which operates on 115 volts 50-60 cycle AC. Receiver size 19 3/4 by 10 3/4 by 12 1/8 in. deep. Ship. wt. 77 lbs. Express.

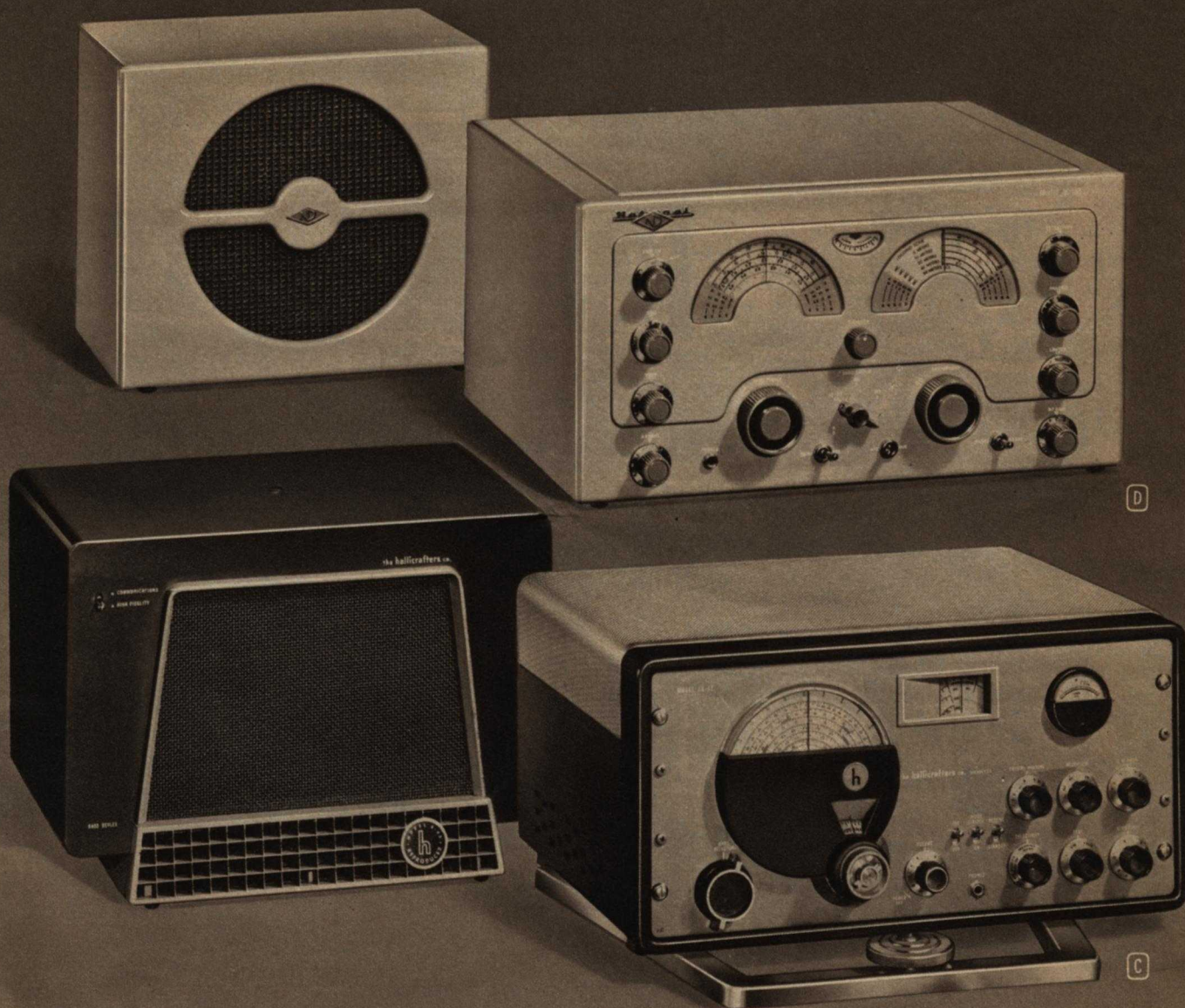
62 AE 3782 RT—HRO-7 Receiver with Coils. \$299.36  
62 AE 3783 MT—Speaker. Shipping weight 10 lbs. 12.00

ALL EQUIPMENT IS ONLY 10% DOWN ON WARDS CONVENIENT MONTHLY PAYMENT PLAN. SEE PAGE 47 FOR COMPLETE DETAILS.

#### 4 WARDS

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## Designed for the Discriminating Amateur

### HALLICRAFTERS SX-42 RECEIVER

**C** A Radio Man's dream come to life in a superbly engineered receiver with outstanding performance and versatility. Extended coverage up to 110 MC for the FM Broadcast Band. Audio stages are high fidelity with response from 60 to 15,000 cycles for life-like reproduction. Precision-built.

**PERFORMANCE.** Tremendous r.f. gain. Dual i.f. transformers for standard and high frequency operation. 2-r.f. stages use new miniature tubes. High frequency oscillator temperature compensated, voltage regulated.

**OPERATION.** Range from 540 KC to 110 MC continuous coverage. Main Tuning dial calibrated in MC—covers six bands. Vernier scale and lock for accurate re-set. Bandsread dial calibrated for Amateur Bands including 6-Meters.

**FEATURES.** Crystal Filter with Phasing Control. S-Meter, FM tuning indicator. Receive-Standby switch. 8-in. Speaker in Bass Reflex Baffle. A.f. and r.f. Gain Controls. 4-position Tone Control. AVC. Highly effective Noise Limiter. Phono input. Phono/FM/AM/CW switch. Socket for external power supply. Dial settings for Broadcast and FM in color for simplified operation.

13 TUBES plus Voltage Regulator and Rectifier. Two 6AG5's r.f. Amps.; one 7F8 converter; one 6SK7 i.f. Amp.; one 6SG7 2nd i.f. Amp.; one 6H6 AM Rect. and Noise Limiter; two 7H7's FM Amps.; one 6H6 discriminator; one 6SL7 Audio Inverter; two 6V6's p.p. Output, one 7A4 BFO and FM tuning meter Amp.; one VR-150 Voltage Reg.; one 5U4G Rect. Operates on 105-125 volts 50-60 cycle AC. Size 20 by 10 $\frac{1}{4}$  by 16 in. deep. Express only.

62 AE 3719 RT—Hallicrafters SX-42. Ship. wt. 65 lbs.....	\$275.00
Denver, Portland and Oakland.....	277.50
62 AE 3722 MT—Speaker R-42. Ship. wt. 35 lbs.....	29.50
Denver, Portland and Oakland.....	30.40
62 AE 3749 T—Tilt Stand for SX-42. Ship. wt. 5 lbs.....	7.50
Denver, Portland and Oakland.....	7.75

### NATIONAL NC-183 RECEIVER

**D** A brand new receiver, beautifully styled. Incorporates modern, highly efficient improvements for better performance.

**PERFORMANCE.** Extra sensitivity and image rejection. Stabilized h.f. Osc. and double diode Noise Limiter. High signal-to-noise ratio. Crystal Filter provides maximum selectivity for phone or code reception.

**OPERATION.** Calibrated Bandsread tuning for Amateur Bands to 6 Meters. Antenna compensator on panel. Range: 540 KC to 31 MC and 48 to 56 MC.

**FEATURES.** Crystal Filter adjustable to 100 cycles. 10-inch PM speaker. Socket for NBFM converter. S-Meter. Phono Jack on rear. 8 watts output.

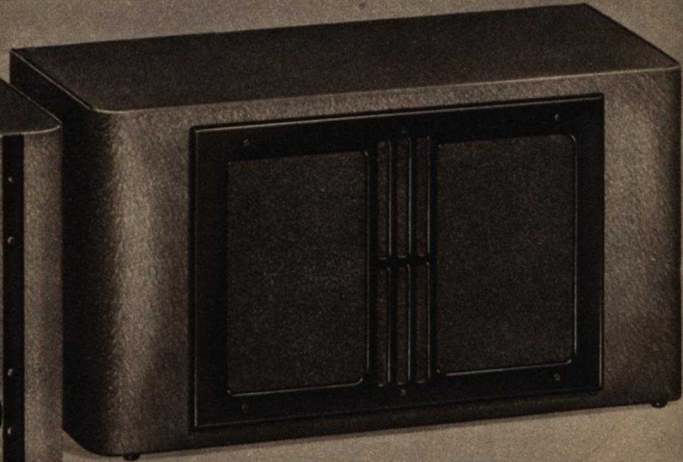
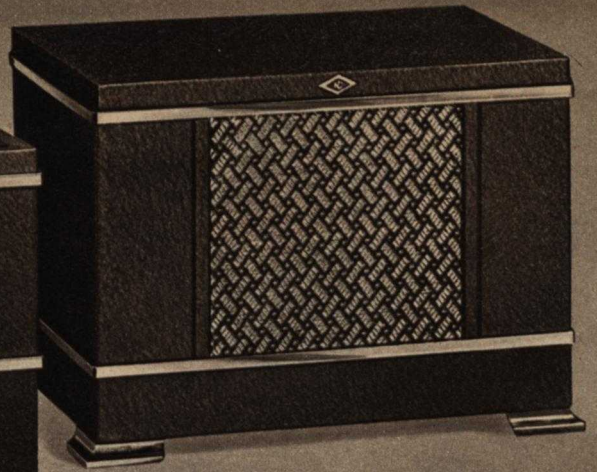
14 TUBES plus voltage Regulator and Rectifier; two 6SG7's r.f. Amps.; 6SA7 Det.; 6J5 h.f. Osc.; two 6SG7's i.f. Amps.; 6H6 2nd Det. and AVC; 6AC7 AVC Amp.; 6SJ7 BFO; 6H6 Noise Limiter; 6SJ7 Audio; 6J5 Phase Inverter; two 6V6GT's p.p. Output. OD3/VR-150 voltage Reg.; 5U4G Rect. For 110-120 volt 50-60 cycle AC. Size 19 $\frac{3}{4}$  by 10 $\frac{1}{2}$  by 14 $\frac{3}{4}$  in. deep. Express only.

62 AE 3796 RT—National NC-183. Ship. wt. 75 lbs.....	\$255.00
62 AE 3797 MT—Speaker to match. Ship. wt. 12 lbs.....	14.00

### NATIONAL NC-173 RECEIVER

A remarkable receiver, the NC-173 is similar to the NC-183 above. (Pictured on inside front cover). Has one r.f. stage. No accessory socket. Same operation and range as NC-183. 11 tubes plus VR and rectifier. Same tube line-up as NC-183 except for one 6V6 GT Output and 5Y3GT Rect. For 110-120 volt 50-60 cycle AC. Size 19 $\frac{3}{4}$  by 10 $\frac{1}{2}$  by 10 $\frac{1}{8}$  in. deep. Express only.

62 AE 3780 RT—National NC-173. Ship. wt. 61 lbs.....	\$179.50
62 AE 3781 MT—Speaker for NC-173. Ship. wt. 9 lbs.....	10.00



## *Moderately Priced Communications Receivers*

**NATIONAL NC-2-40DT RECEIVER**

**A** A National receiver with refinements in design that bring outstanding performance under adverse operating conditions. Ruggedly built, with moisture-resistant components for trouble-free, long-life operation. Although lower in price than receivers on preceding pages, it offers many of the advantages of the more expensive sets.

**PERFORMANCE.** High level of sensitivity—one microvolt input produces 6 d.b. signal-to-noise ratio. Image rejection from 30 to as high as 50 d.b. One r.f. and two i.f. stages for maximum selectivity. Crystal filter narrows bandwidth to 200 cycles for single-signal reception.

**OPERATION.** General coverage from 490 KC to 30 MC. Main Tuning knob pulls out for bandswitching. Calibrated bandspread covering nearly full dial scale for 80, 40, 20 and 10-Meter Bands. Main Tuning knob has ratio of 60 to 1 for fine tuning—used on general coverage and bandspread.

**FEATURES.** Crystal filter with 5-position switch and Phasing Control. S-Meter on panel. Use single wire or doublet antenna. 10-in. PM Speaker. A.f. and r.f. gain controls. 3-position Tone Control. Series valve Noise Limiter. Phone jack and Phono input on front panel. Illuminated Dial. BFO with Pitch Control. AVC keeps signal constant within plus or minus 3 d.b. from 10 to 100,000 microvolts input. Audio response from 50 to 10,000 cycles. Full 8-watt output with negligible distortion. Heavy steel cabinet in gray wrinkle finish.

11 TUBES plus rectifier; 6SK7 r.f. Amp.; 6K8 Det.; 6J5 h.f. Osc.; 6SK7 i.f. Amp.; 6SN7 Inverter; 6SL7 2nd Det.; 6SJ7 CW Osc.; 6SJ7 AVC; two 6V6's Output. 5Y3G rectifier. Operates on 115 or 230 volt 60 cycle AC. Size 19 1/4 by 10 5/8 by 15 1/2 in. deep. Shipping weight 80 lbs. Express only.

62 AE 3777RT—National NC-2-40DT. \$22.50 Down, \$14 Mo. or Cash 225.00  
62 AE 3778MT—Speaker to match. Ship. wt. 12 lbs. . . . . 16.44

6 WARDS

**RME-45 RECEIVER**

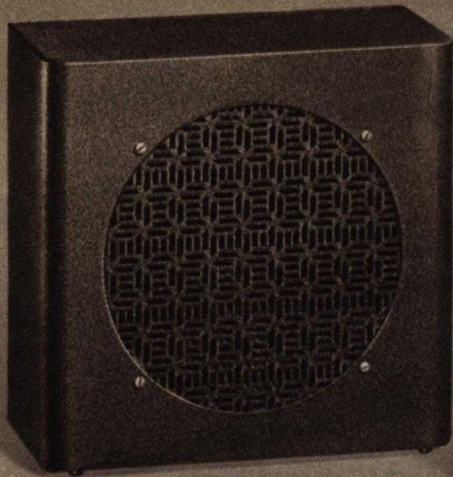
**B** Acclaimed by satisfied users everywhere, the RME-45 is professional in appearance and design. Excellent high frequency characteristics obtained from use of the loctal tubes assures better, overall performance.

**PERFORMANCE.** Excellent sensitivity. One r.f. and two i.f. stages for more pronounced selectivity and higher gain. Remarkable image rejection and high signal-to-noise ratio. Stability of oscillator assured by specially designed condenser and temperature compensator.

**OPERATION.** Full coverage from 550 KC to 33 MC in 6 bands. The new Cal-O-Matic separate bandspread dial is calibrated for all Amateur frequencies, including the new 15-Meter band. An exclusive RME feature, it has a very high ratio for bandspread tuning without the backlash ordinarily found in such highly geared mechanisms. Separate vernier knobs for fine tuning.

**FEATURES.** Crystal Filter with 6-Position switch and Phasing Control. S-Meter on front panel. Terminals on rear for single wire or doublet antenna. Transmit/On/Standby switch for remote control. 8-in. PM Dynamic Speaker in matching cabinet plugs in at rear. Speaker Size 19 1/8 by 10 1/8 by 9 3/8 in. deep. A.f. and r.f. Gain Controls with AVC switch. Tone Control with On/Off switch. Series valve Noise Limiter for reduction of Static and electrical disturbances. Phone jack on panel. Illuminated dials. BFO with Pitch Control. Attractively designed steel cabinet with panel removable and slotted to fit standard relay rack.

8 TUBES plus Rectifier; 7B7 r.f. Amp.; 7J7 Det. and Osc.; two 7B7's i.f. Amps.; 7B6 2nd Det. and BFO; 7A6 AVC and Noise Limiter; 7C7 Audio; 7C5 Beam Power Output; 80 Rect. Operates on 105-125 volt 60 cycle AC. Size 22 1/4 by 11 by 12 in. deep. Wt. 71 lbs. Express only. \$19.90 Down, \$13 Mo. on Terms.  
62 AE 3725 RT—RME-45 with Speaker. . . . . Cash 198.70



C



D

## *with Excellent Performance and Versatility*

### HAMMARLUND HQ-129X RECEIVER

**C** A modern Hammarlund receiver patterned after a dependable, time-tested design. Has the same precision engineering and same general appearance as the well-known Super-Pro model on Page 4. A moderately priced set with performance, features, and rugged construction comparable with many higher priced receivers.

**PERFORMANCE.** Extra sensitivity with three stages of i.f. amplification for more dependable reception under all conditions. One stage of r.f. for better selectivity—reduces noise and aids image rejection. Temperature compensated oscillator is voltage regulated for added stability.

**OPERATION.** Calibrated Main Dial covers from 540 KC to 31 MC in 6 bands. Calibrated Bandspread coverage for 80, 40, 20 and 10 Meters plus arbitrary scale for spreading out any portion of the general coverage bands.

**FEATURES.** Crystal Filter has 6-position Selectivity switch and Phasing Control. S-Meter on front panel. Terminals for single wire or doublet antenna (400 ohm impedance) with compensator on front panel to adjust for various antenna installations. Send/Receive switch with terminals on rear for break-in operation. 10-inch PM Dynamic Speaker. Separate a.f. and r.f. Gain Controls, Automatic series type Noise Limiter. BFO with Pitch Control. AVC circuit. Two-tone gray finish. 3-watt output.

9 TUBES plus Voltage Regulator and Rectifier: 6SS7 r.f. Amp.; 6K8 Conv.; three 6SS7's i.f. Amps.; 6H6 2nd Det., AVC and Noise Limiter; 6SN7GT Audio; 6V6GT Output; 6SJ7 BFO; 5U4G Rect. and OC3/VR105 Regulator. Operates on 115 volt 60 cycle AC. Size 20 $\frac{1}{8}$  by 11 by 13 $\frac{1}{2}$  inches deep. Shipping weight 76 lbs. Express only. \$18.95 Down, \$12 Monthly on Terms.

62 AE 3700 RT—Hammarlund HQ-129X with Speaker. . . . . Cash 189.15

### HALLCRAFTERS SX-43 RECEIVER

**D** The SX-43 offers added features not ordinarily found in communications receivers; two extra bands and FM reception. A moderately priced receiver giving great value in performance and versatility.

**PERFORMANCE.** Extremely good sensitivity. High gain r.f. stage and converter for greater signal-to-noise ratio. Good image rejection. Two i.f. stages for highly selective tuning. Temperature compensated oscillator stage for low drift. Wide Band FM or AM on 44—55 MC; FM only on 88—108 MC.

**OPERATION.** Range from 540 KC to 55 MC and 88 to 108 MC. 7-position Band Selector. Electrical Bandspread calibrated for 80, 40, 20 and 10-Meters—used as Main Tuning for the 44—55 and 88—108 MC bands. Dial markings for Standard Broadcast and FM are color coded for simplified use.

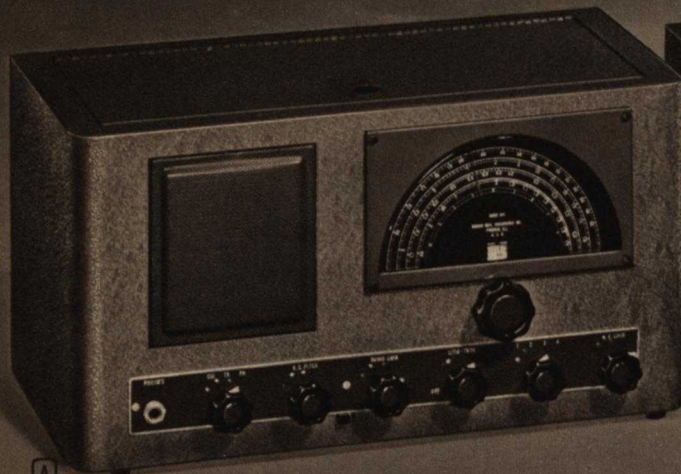
**FEATURES.** Crystal Filter with Phasing Control. S-Meter acts as tuning indicator for FM. Receive/Standby switch. 6 by 9 inch PM oval Speaker. A.f. and r.f. Gain Controls; Tone Control with AVC switch. Series valve Noise Limiter. Phono input. Phone jack. BFO with Pitch Control. Audio response to 8000 cycles. 3-watt output. Socket for external power supply.

10 TUBES plus Rectifier: 6BA6 r.f. Amp.; 7F8 Conv.-Osc.; 6SG7 i.f. Amp.; 6SH7 2nd i.f. Amp.; 6SH7 3rd i.f. Amp. (10.7 MC); 6H6 AM Det. and Noise Limiter; 6AL5 FM Det.; 6SQ7 Audio; 6J5 BFO; 6V6 Output; 5Y3 Rect. Operates on 105-125 volt 50-60 cycle AC. or external power supply. Size 18 $\frac{1}{2}$  by 8 $\frac{7}{8}$  by 13 in. deep. Ship. wt. 45 lbs. Express only.

62 AE 3708 RT—Hallcrafters SX-43 Receiver. \$11 Monthly..or Cash 169.50  
Denver, Portland and Oakland. \$17.15 Down, \$11 Mo....or Cash 171.50

62 AE 3723 MT—Speaker R-44 to match. Ship. wt. 28 lbs. . . . . 19.50  
Denver, Portland and Oakland. . . . . 19.95

WARDS 7



## Dependable Receivers at Popular Prices

**A** RME-84 RECEIVER FOR HOME, PORTABLE, OR MOBILE OPERATION. Sensitivity about 2 micro-volts. One r.f. and two i.f. stages. Range from 540 KC to 44 MC in four bands. Vernier dial (similar to that on RME-45) tunes through 200 divisions. Provision for external S-Meter (order separately). Antenna input for doublet or single wire. CW/Transmit/Phone switch. Built-in Speaker. A.f. and r.f. Gain Controls. On/off switch on Tone Control. Series valve Noise Limiter. Phone jack on front panel. Illuminated dial. BFO and Pitch Control, AVC. Special socket on rear for battery operation. For 6-volt operation use the VP-2 vibrator power supply (order separately).

7 TUBES plus Rectifier: 7B7 r.f. Amp.; 7S7 Det.; two 7B7's i.f. Amps.; 7K7 2nd Det.; 7K7 BFO and Noise Limiter; 6G6G Output. 5Y3GT Rect. Operates on 115 volt 60 cycle AC, batteries, or vibropack. Size 18 by 9 $\frac{3}{8}$  by 9 $\frac{3}{8}$  in. deep. Shipping weight 33 lbs.

62 AE 3727 RT—Model RME-84. \$9.90 Down, \$9 Monthly.....or Cash \$98.70

62 AE 3799 MT—Model CM1 S-Meter. Ship. wt. 2 lbs..... 14.00

62 AE 3760 MT—Vibropack VP-2. Ship. wt. 8 lbs..... 28.20

**C** THE NATIONAL NC-57 RECEIVER is a brand new model in the lower price range incorporating many features of the larger more expensive receivers. Excellent sensitivity and selectivity. One r.f. and two i.f. stages. Voltage regulated oscillator. Range from 540 KC to 55 MC (includes 6-Meter Band). Main Dial with five calibrated scales. Bandsread from 0 to 100 in 360 degree scale. Provision for external S-Meter (order separately). Antenna compensator. Send/Receive switch. Built-in speaker. A.f. and r.f. Gain Controls. On/Off Switch 3-position Tone Control. Noise Limiter. Phone jack on front panel. Illuminated dial. BFO with Pitch Control. AVC. 3 watts output. Accessory socket for adaptor; socket for battery operation.

7 TUBES plus Voltage Regulator and Rectifier: 6SG7 r.f. Amp.; 6SB7-Y Conv.; two 6SG7's i.f. Amps.; 6H6 2nd Det., AVC, ANL; 6SN7GT a.f. Amp., BFO; 6V6GT Output. OD3/VR-150 Volt. Reg.; 5Y3GT Rect. Size 16 $\frac{1}{2}$  by 8 $\frac{3}{4}$  by 11 $\frac{3}{4}$  inches deep. Available. Shipping weight 33 lbs.

62 AE 3779 RT—Model NC-57. \$8.95 Down, \$8 Monthly.....or Cash \$89.50

62 AE 3798 MT—Model SM-57 Meter. Shipping weight 4 lbs..... 14.95

8 WARDS\*

**B** THE NATIONAL NC-46 is a dependable receiver which operates on either AC or DC. A popular set at a moderate price, it is attractive in appearance with wide slide rule dial—easy to read. Good sensitivity: 5 microvolts input produces 50 milliwatt output over entire range. Two i.f. stages for added selectivity. Range from 540 KC to 30 MC in four bands. Separate electrical bandsread with 0 to 100 scale at bottom of main dial. Sliding pointer. 4-Position Band switch. B-plus Standby switch. Separate speaker in matching cabinet 8 $\frac{7}{8}$  by 10 $\frac{7}{16}$  by 7 $\frac{1}{2}$  in. deep. A.f. and r.f. Gain Controls with On/Off Tone switch. Noise Limiter switch. Phone jack and Antenna Terminals on rear. Illuminated dial. BFO with Pitch Control. AVC Switch. 4-watt push-pull Audio Output.

9 TUBES plus Rectifier: 6K8 Conv. Osc.; two 6SG7 i.f. Amps.; 6H6 Det-Lim.; 6SF7 AVC Amp.; 6SJ7 BFO; 6SC7 Inverter; two 25L6GT p.p. Output; 25Z5 Rect. Operates on 120 volts AC or DC. Available. Ship. wt. 50 lbs.

62 AE 3775 RT—Model NC-46. \$9.75 Down, \$8 Monthly.....or Cash \$97.50

62 AE 3776 MT—Speaker NC-46TS. (Not shown) Ship. wt. 10 lbs..... 9.90

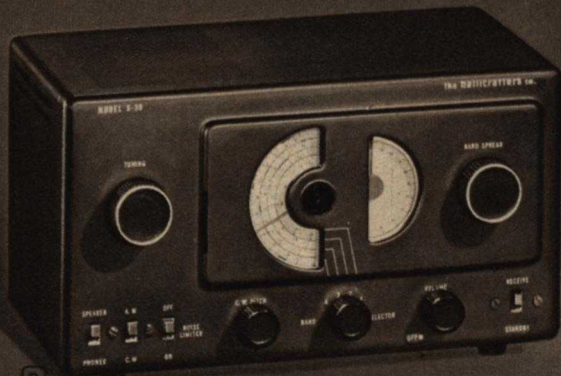
**D** HALLICRAFTERS S-40A RECEIVER is designed for the Amateur and Short Wave listener who wants good performance. One r.f. and two i.f. stages provide selectivity. Temperature compensated oscillator. Range from 540 KC to 43 MC in 4 bands. Provision for external S-Meter (order separately). Receive/Standby switch. Built-in PM Speaker. A.f. and r.f. Gain Controls. 3-position Tone Control with On/Off switch. Series type Noise Limiter with switch. Phone jack on front panel. BFO with Pitch Control. AVC switch. Connections for operation from external power supply or batteries.

8 TUBES plus Rectifier: 6SG7 r.f. Amp.; 6SA7 Converter; two 6SK7's i.f. Amps.; 6SQ7 2nd Det.; and a.f. Amp. 6F6G Output; 6H6 Noise Limiter and AVC; 6J5GT BFO; 80 Rect. For 105-125 volts, 60 cycle AC only. Size 18 $\frac{1}{2}$  by 9 by 11 in. deep. Shipping weight 33 lbs. Express only.

62 AE 3706 R —Model S-40A. \$8.95 Down, \$8 Monthly.....or Cash \$89.50  
Denver, Portland and Oakland. \$9.05 Down or Cash 90.50

62 AE 3724 MT—Model SM-40 S-Meter. Ship. wt. 3 lbs..... 16.00  
Denver, Portland and Oakland..... 16.25

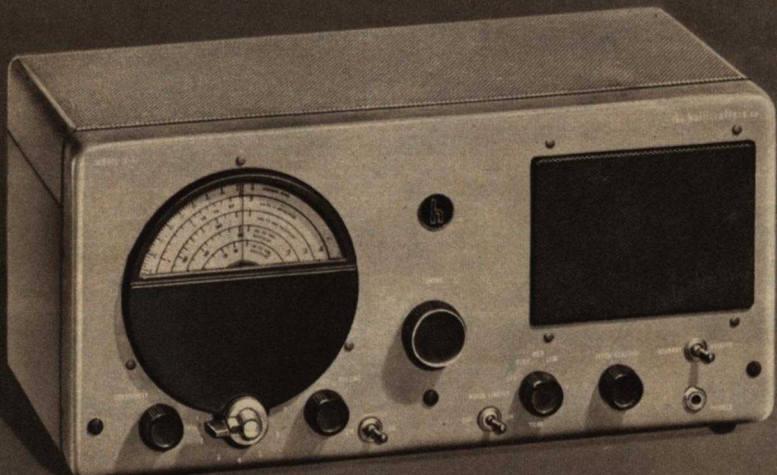




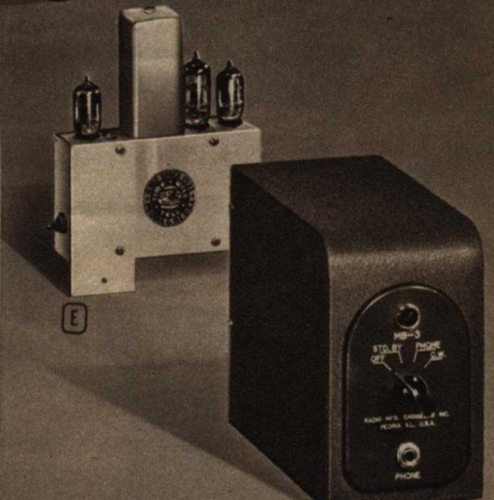
B



C



A



D

## for Amateurs and Short-wave Enthusiasts

**A** THE HALLCRAFTERS S-51 IS NEW AND DIFFERENT. A marine receiver with low frequency bands and moisture-resistant speaker. Sensitivity better than 10 microvolts at all frequencies. One r.f. and two i.f. stages for selectivity. Range 140 KC to 12.5 MC in four bands. Band Selector has 7 positions: 4 bands plus 3 pre-tuned fixed frequencies, one in 200-300 KC range and two in 2000-3000 KC. Receive/Standby switch. Built-in speaker. A.f. and r.f. Gain Controls. Tone Control with power switch. Noise Limiter. Phone jack on panel. Illuminated dial. AM/CW switch with Pitch Control.

9 TUBES plus Rectifier: 6SS7 r.f. Amp.; 7A8 Mixer; two 6SS7's i.f. Amps.; 7C6 Det.; 35L6 Output. (6V6 Output with battery operation). 7A6 Noise Limiter; 6SS7 BFO; 35Z5 Rect. Operates on 117 volts AC or DC or from plug-in vibropack. Size 18½ by 9 by 11 in. deep. Express only.

62 AE 3772 RT—Model S-51. Ship. wt. 31 lbs \$12.95 Down. . . . . Cash \$129.50  
Denver, Portland and Oakland. \$13.05 Down. . . . . Cash 130.50

62 AE 3870 MT—Vibropack for S-51, 6, 12, or 32 volts DC. Wt. 5 lbs. . . . . 22.50  
Denver, Portland and Oakland. . . . . 23.00

**B** HALLCRAFTERS S-38 RECEIVER. An excellent set for new Radio Amateurs and short wave enthusiasts. Low in price, yet similar in design and with many features of the higher priced receivers. Provides good reception and overall performance. Range from 540 KC to 32 MC covers all popular Amateur frequencies. Panel markings in red for Standard Broadcast tuning. Band Selector Switch. Separate bandsread dial on right for fine tuning. Input for doublet or single wire antenna. Receive/Standby switch. Built-in Speaker. A.f. Gain Control with main On/Off switch. Noise Limiter for reducing electrical interference. Tip jacks for headphones on rear. Illuminated dial. BFO with Pitch Control. Speaker/Phones changeover switch.

5 TUBES plus Rectifier: 12SA7 Conv.; 12SK7 i.f. Amp.; 12SQ7 2nd Det., AVC; 12SQ7 BFO and Noise Limiter; 35L6GT Output. 35Z5GT Rect. Size 12¾ by 7¾ by 8¾ in. deep. For 105-125 volts 50-60 cycle AC or 105-125 volts DC. Shipping weight 14 lbs. *Available.*

62 AE 3705 M—Model S-38. . \$4.75 Down, \$5 Monthly. . . . . or Cash \$47.50  
Denver, Portland, Oakland. \$4.80 Down, \$5 Mo. or Cash 47.95

**C** HALLCRAFTERS S-53 RECEIVER. A smart new receiver which includes the 6-Meter band. In size a "small" set, but in performance a really fine unit that serves many uses. At low cost it offers added coverage, compactness and attractive styling. Has two i.f. stages for better selectivity. Designed to give high image rejection. Range from 540 KC to 31 MC and 48 to 54.5 MC. Bandsread dial from 0-100 with separate control knob. Band Selector switch for 5 bands. Standby/Receive switch. Built-in speaker. A.f. and r.f. Gain Controls. 2-position tone control switch. Series valve Noise Limiter. Phono input and phone jack on rear. Speaker/Phones switch. Phone/CW switch with Pitch Control. 2½ watts audio output.

7 TUBES plus Rectifier: 6C4 Osc.; 6BA6 Mixer; two 6BA6's i.f. Amps.; 6H6 Det., AVC and Noise Limiter; 6SC7 BFO and a.f. Amp.; 6K6GT Output. 5Y3 Rect. Operates on 105-125 volts AC only. Size 12¾ by 7 by 7¾ in. deep. Shipping weight 23 lbs. *Available.*

62 AE 3762 RT—Model S-53 Receiver. \$7.95 Down, \$7 Monthly. Cash \$79.50  
Denver, Portland, Oakland \$8.05 Down, \$7 Mo. or Cash 80.50

**D** RME PHONE AND CW MONITOR, MB-3. The new "Boomerang" is excellent for break-in operation. Receiver output silenced and monitor cut in only during transmission. Instantaneous action. Plugs into receiver phone jack. Off/Standby/CW/Phone switch. Operates on 105-125 volts A.C.

62 AE 3774 MT—Ship. wt. 7 lbs. *Available.* Only \$2.25 Down. . . . . Cash \$22.50

**E** RME NARROW BAND FM ADAPTOR, NBF-4. A unit that converts an RME-45 for Narrow Band FM. Plugs into 2nd Det. socket. Uses receiver power. AM/FM Switch mounts on receiver panel. Instructions included.

62 AE 3761 MT—Ship. wt. 2 lbs. *Available.* Only \$1.95 Down. . . . . Cash \$19.50

NATIONAL NARROW BAND FM ADAPTOR, NFM-83 (not shown). A unit similar to (E) above. Plugs into accessory socket on NC-183. Uses receiver power. Radio/Phono switch on front panel cuts adaptor in and out of circuit.

62 AE 3869 MT—Ship. wt. 2 lbs. *Available.* Only \$1.70 Down. . . . . Cash \$16.95



## Transmitter and Receiver Accessory Units

**A** RME DB-22A PRESELECTOR gives greater efficiency and higher gain with your present receiver. Excellent sensitivity and selectivity. Gain about 30 db. Image rejection greater than 50 db. at 28 MC. Range 540 KC to 44 MC in 4 bands. High signal-to-noise ratio. Shielded link connects to antenna terminals on receiver. Two r.f. stages with 3 tuned circuits. R.f. Gain Control with main On/Off switch, Antenna changeover and Band Selector. Illuminated dial.

Uses two 6BA6 miniature tubes for optimum performance plus 6X4 Rectifier. Operates on 105-125 volt 50-60 cycle AC. Ship. wt. 15 lbs. Express. Only \$6.60 Down, \$6 Monthly.

62 AE 3728 RT—Model DB22-A. Size 11 in. high by 12 in. wide by 11 in. deep. . . . . Cash \$66.00

**B** SILVER MODEL 908 MICROMATCH. Measures standing wave ratio, reveals power-wasting mismatch of antenna to transmitter. Also valuable in the adjustment of link couplings, from the final amplifier to antenna tuner, or between transmitter stages. Adjustable control for line impedances from 50 to 300 ohms. Measures r.f. output 10 to 1000 watts. Range from 3 to 30 MC. Size 10 by 5 by 5 1/4 in. Ship. wt. 7 lbs. Mailable. 62 AE 4183 MT—Only \$3 Down. . . . . Cash \$29.90

**C** TRIPLETT FREQUENCY METER covering 5 Amateur bands. Range from 3.5 to 30 MC. Jack for phone monitoring. Check fundamental frequency, harmonics, parasitic oscillations, standing wave ratio, and presence of undesirable r.f. currents. Fully shielded unit. Gray hammered enamel finish. Size 7 1/2 in. high (including coil), 2 1/2 in. wide by 2 1/4 in. deep.

62 AE 4062 MT—Ship. wt. 2 lbs. . . . . \$14.45  
10 WARDS

**D** RME VHF-152A CONVERTER adapts your present receiver for the 2, 6 and 10-Meter bands. Remarkable selectivity with sensitivity of about 2 microvolts. Image rejection approximately 54 db. Range 28 to 29.7, 50 to 54 and 144 to 148 MC. Voltage regulated for added stability. Four separate antenna connections for optimum match on each band. Main Tuning, On/Off main switch, Out/In antenna changeover switch and Band Selector. Illuminated dial.

Uses miniature tubes for more efficient h.f. operation: 6AK5 r.f. Amp.; 6AU6 Det.; 6J6 Osc. Has VR-150 Voltage Regulator and 5Y3GT Rect. Operates on 115 volt 50-60 cycle AC. Models available to match different receiver sizes. Ship. wt. 15 lbs. Express. Only \$8.70 Down.

62 AE 3729 RT—Model VHF-152A. Size 11 in. high by 12 in. wide by 11 in. deep. . . . . Cash \$86.60

62 AE 3773 RT—Model "AS". Size 9 3/8 in. high by 12 in. wide by 11 in. deep. . . . . Cash \$86.60

RME HF-10-20 CONVERTER (not shown). Converts any receiver for the higher frequencies. Similar to (D) above. Covers 10, 11, 15 and 20 Meters.

Uses 6BA6 r.f. Amp.; 6J6 Mixer; VR-150 Voltage Regulator; 5Y3GT Rectifier. Operates on 115 volt 50-60 cycle AC. Ship. wt. 23 lbs. Express. Only \$7.70 Down, \$7 Monthly.

62 AE 3786 RT—Model HF-10-20. Size 11 in. high by 12 in. wide by 11 in. deep. . . . . Cash \$77.00

62 AE 3787 RT—Model HF-10-20S. Size 9 1/8 in. high by 10 1/4 in. wide by 10 1/4 in. deep. . . . . Cash \$77.00

GON-SET 6-15 CONVERTER (not shown). Covers 6, 10/11 and 15 Meters. For 105-125 volt 50-60 cycle AC. 9 by 7 1/2 by 10 in. Wt. 10 lbs. Express.

62 AE 3864 RT—Only \$7.50 Down. . . . . Cash \$75.00

**E** SONAR CFC EXCITER UNIT incorporating variable or crystal controlled oscillator and frequency standard. 1000 KC crystal adjustable to resonate with WWV. Built-in CW Monitor. External control for remote operation. Vernier dial. Oscillator tunes 1620 KC to 2000 KC. Output 4 to 5 watts on 80 and 40 Meters with link coupling. Calibrated in MC for 10, 15, 20, 40 and 80 Meter bands. Crystal control available on 80 and 40.

Uses 6SK7 VFO Osc.; 6SL7GT Crystal Osc.; 6V6 Buffer; 6L6 Wide Band Doubler; VR-150 Voltage Regulator; 5Y3GT Rect. Operates on 110-125 volt 50-60 cycle AC. Size 7 by 9 by 13 in. deep. Ship. wt. 15 lbs. Only \$6 Down, \$6 Monthly on Terms. 62 AE 3769 RT—Express Only. . . . . Cash \$59.75

**F** Silver 903 Wave Meter. 3500KC to 500 MC in 6 bands. Calibrated dial. Resonance indicator lamp. Plug-in coils have built-in lamp winding (except 400/500 MC).

62 AE 4184 T—Ship. wt. 1 lb. . . . . \$3.30

COILS FOR ABOVE. Ship. wt. 4 oz. Each. . . . . 65c  
62 AE 4194 T. . . . . Coil for 3.5/8.0 MC.  
62 AE 4195 T. . . . . Coil for 8.0/15 MC.  
62 AE 4196 T. . . . . Coil for 17/40 MC.  
62 AE 4197 T. . . . . Coil for 40/100 MC.  
62 AE 4198 T. . . . . Coil for 100/300 MC.  
62 AE 4199 T. . . . . Coil for 400/500 MC.

**G** HAMMARLUND FS-135C FREQUENCY STANDARD generates signals every 100 KC as check points for calibration. Exact frequency assured by zero-beating unit with WWV. Uses receiver power. (6.3 volts AC, 150-250 volts DC). Base 2 by 2 in. Height overall 3 3/8 in. Ship. wt. 3 lbs. Only \$1.45 Down on Terms.

62 AE 3768 MT—Mailable. . . . . Cash \$14.25



## Equip Your Car for Mobile Operation

**A** PE-103 Dynamotor. A popular war surplus item. 6 or 12 volt DC input and 500 volts at 160 ma. output. Complete with cable, overload circuits and filter system. Operates units requiring up to rated output. Ship. wt. 63 lbs.

62 AE 3733 RT—Express only.....\$9.95

**B** Abbott TR-4A Transmitter-Receiver is a compact 144/148 MC unit for portable or fixed operation. Receiver has detector and two a.f. stages, built-in Speaker, Antenna Compensator. Transmitter up to 20 watts input. Uses carbon mike (not included). Jacks for meter.

Uses HY75 Osc.; 7C7 Speech Amp./a.f. Amp.; 6L6 Mod./a.f. Amp.; HY615 Det. Requires 300 V. at 100 ma. and 6 V. at 3.5 amp. Size 9½ by 8½ by 6 in. Ship. wt. 18 lbs. *Mailable*.

62 AE 3735 MT—Abbott TR-4A. Less tubes \$29.95  
62 AE 3736 MT—Tubes only. Wt. 2 lbs. .... 8.30

**C** SILVER 700 "ATOM-X" crystal controlled u.h.f. transmitter. Covers 144/148 and 235/240 MC Amateur bands. Capacitors adjustable inside cabinet. Panel lamp indicators for crystal, power amp. and each doubler. Output 5 to 8 watts. Uses carbon mike (not included). Mike input jack (current supplied through unit).

Uses 6AQ5 Osc.; two 6C4 Doublers; 832 Amp.; two 6AQ5's Mod. Tubes not included. Requires 300 V. DC at 220 ma. and 6.3 V. AC or DC at 3.35 amp. Size 10 by 5 by 5½ in. 10% Down.  
62 AE 4185 MT—*Mailable*. Wt. 9 lbs. ....\$36.95

**D** ELECTRO-VOICE 600-D MICROPHONE. Designed for mobile operation. Four-wire cable. Switch shorts mike and operates external relay. See microphone (15) on Page 32.

**E** SONAR MB-611 TRANSMITTER with NBFM, for fixed or mobile operation. Compact unit with mounting plate. 22.5 watts output on 10-11 Meters. Condensers lock for stable operation. Crystal osc. operates on 40 Meters. Indicator for r.f. tuning and deviation. Matches line or antenna. Hi. Pwr./Lo. Pwr. switch. Mult. 1/Mult. 2 switch; P.A. Tuning; Ant. Tuning; P.A. meter plug and indicator on panel.

Uses 6SL7 Crystal Osc.-Mod.; 6SL7 D.C. Amp. and Dev. Amp.; two 6SK7's Freq. Mult.; 2E26 Power Amp.; 6SL7 Speech Amp.; 6AF6G Indicator. Requires 250 to 600 volts at 100 ma. Size 7 by 5 by 10½ in. deep. Ship. wt. 9 lbs. Only \$7.25 Down, \$7 Monthly. Express only.

62 AE 3732 RT—For 10/11 Meters...Cash \$72.45  
62 AE 3771 RT—For 6 Meters.....Cash 72.45

**F** SILVER 800 "ATOM-X" u.h.f. receiver covering the 144/148 and 235/240 MC Amateur Bands. Built-in Speaker. Antenna Compensator. Bandspread Dial. Phone Jack. Uses 6AK5 r.f. amp.; 9002 Det.; 6AU6 Audio; 6AK6 Output. Tubes not furnished. Requires 135 to 180 volts DC at 40 ma. and 613 volts at 1.05 amp. Size 10 by 5 by 5½ in. Ship. wt. 7 lbs. \$4 Down.  
62 AE 4187 MT—*Mailable*.....Cash \$39.75

**G** ANTENNA CONNECTOR CABLE for coupling transmitter to antenna. Rubber covered coaxial cable, 4 ft. long. Ship. wt. 1 lb.  
62 AE 434 T—*Mailable*.....\$1.60

**H** CABLE. For Gon-Set converter to transmitter for sending and receiving with same antenna. Rubber covered coax, 16 ft. long.  
62 AE 433 T—Ship. wt. ½ lb. *Mailable*...\$3.10

**J** GON-SET CONVERTER for mobile or fixed operation. Voltage regulated for better stability. Three models—one for each band: 10/11, 6 and 20 Meters. Works with any receiver. Output impedance 300 ohms. Vernier Control. On/Off switch. Lighted dial. Two 36-inch cables attached to unit, one for B-plus and 6.3 volt filaments; the other for antenna connection on receiver.

Uses miniature type tubes: 6AK5 r.f. Amp.; 6AK5 Mixer; 6C4 Osc.; OB2 Voltage Regulator. Power supplied by receiver through cable. Size 3½ by 5½ by 5½ in. Ship. wt. 5 lbs. *Mailable*. Only \$4 Down, \$5 Monthly.

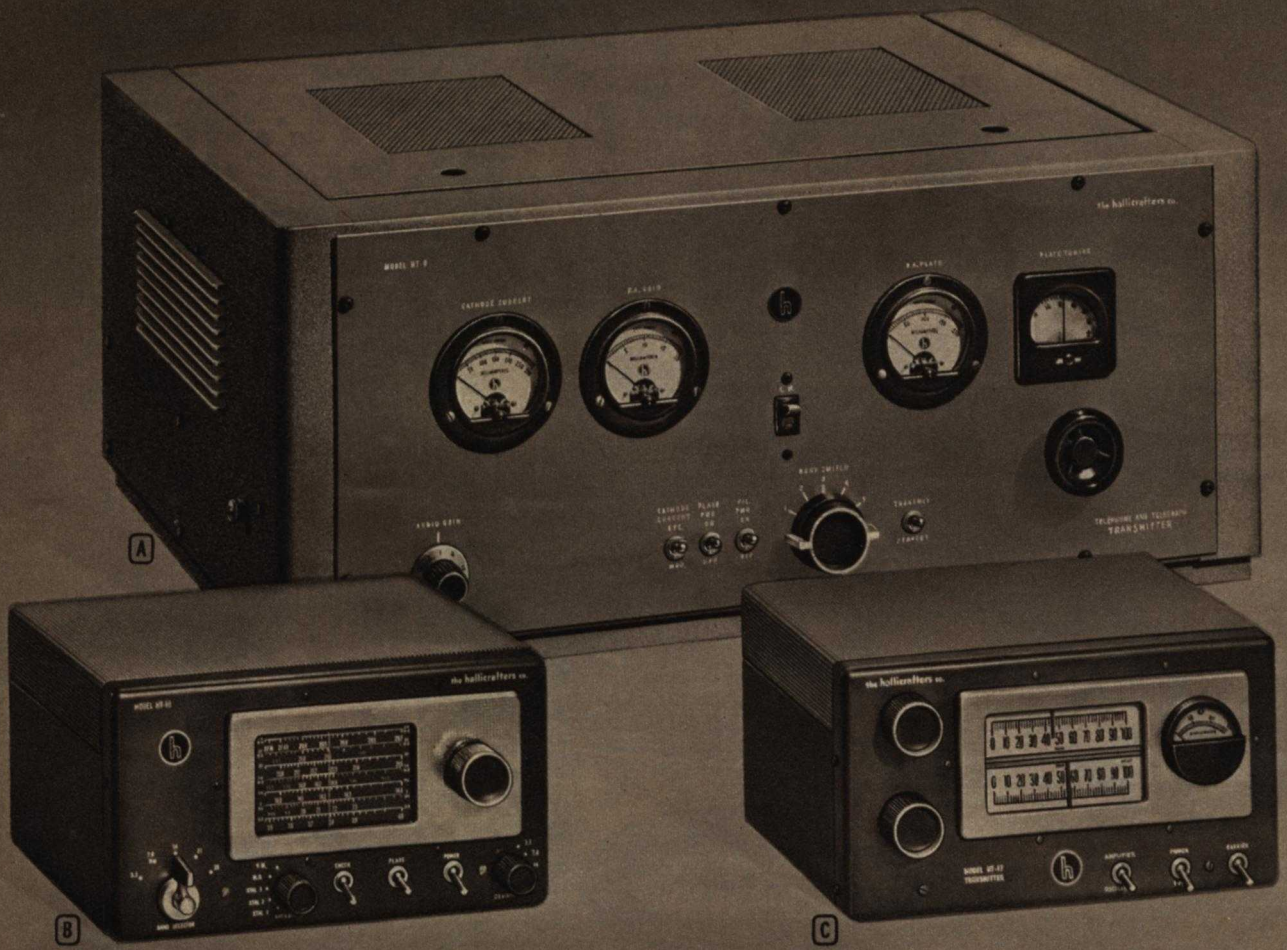
62 AE 3717 MT—For 10/11 Meters. Cash \$39.95  
62 AE 3718 MT—For 6 Meters.....Cash 39.95  
62 AE 3716 MT—For 20 Meters...Cash 39.95

**K** GON-SET CLIPPER. Reduces interference from ignition, power leaks, electrical appliances, etc. Ideal for mobile receivers. Easily installed—full instructions and cables furnished. 2 by 4 by 1½ in. Ship. wt. 2 lbs.  
62 AE 3734 T—*Mailable*.....\$8.25

**L** TRANSMITTING AND RECEIVING ANTENNA, for 10/11 meters. Chrome plated. Rod with extension and locking device, adjustable.  
62 AE 430 MT—Wt. 2 lbs. ....\$6.90

**M** SHOCK MOUNTING SPRING to give fullest protection from impact damage to antenna rod.  
62 AE 431 T—Wt. 2 lbs. 12 oz. . \$4.74

**N** SWIVEL BASE of non-rusting alloy. For mounting antenna (L).  
62 AE 432 T—Wt. 3 lbs. 4 oz. . \$7.95



## Complete Transmitters, Variable Frequency

### HALLICRAFTERS HT-9 TRANSMITTER

**A** A high quality medium-power unit completely self-contained. Illustrated in full color on inside front cover.

**OPERATION.** Frequency range from 1500 KC to 18 MC plus the 28 MC band. Five frequencies may be preset in oscillator and buffer doubler stages and selected by bandswitch. Output of 100 watts CW, 75 watts phone. Matches antenna load from 10 to 600 ohms. 100% modulation with low distortion. Carrier hum more than 40 d.b. below 100% modulation. Built-in harmonic suppressor. Frequency response from 100 to 5000 cycles. Input for medium level high impedance mike.

**CONTROLS.** Audio Gain, (Speech Amplifier Off/On), Cathode Current Exc./Mod, Plate Pwr. On/Off, Fil. Pwr. On/Off, C.W./Phone, Band Switch, Transmit/Standby, Plate Tuning, Meters for cathode current, P.A. Grid, P.A. Plate.

**FEATURES.** Safety interlock switch shuts off transmitter when lid is opened. Maximum ventilation provided by louvers on sides and cutouts at rear. Fuses on rear. Rugged construction. Hinged top.

Uses 6L6 Crystal Osc. (above 8 MC only); 6L6 Crystal Osc. or Doubler; 814 Final RF Amp.; 6SJ7 speech input; 6J5 speech Amp.; four 6L6's push-pull parallel modulator; two 5Z3's, one 80 and two 866 Rectifiers. Operates on 105—125 volts 50—60 cycle AC. Size overall 29½ in. wide by 12½ in. high by 20½ in. deep. Ship. wt. 125 lbs. Express. Less crystal, coils.

62 AE 3721RT—\$35 Down . . . . . or Cash \$350.00  
Denver, Portland and Oakland . . . . . 357.45

62 AE 3737 T—Coils 3.5 MC. Wt. 2 lbs. . . . . 10.85  
62 AE 3738 T—Coils 7 MC. Wt. 2 lbs. . . . . 11.75  
62 AE 3739 T—Coils 14 MC. Wt. 2 lbs. 8 oz. . . . . 15.50  
62 AE 3740 T—Coils 28 MC. Wt. 2 lbs. 8 oz. . . . . 16.50

### HALLICRAFTERS HT-18 VFO

**B** Complete Narrow Band FM phone unit with built-in power supply and bandswitching. Ideal VFO exciter unit for driving a medium power beam tube amplifier stage. Converts any transmitter for variable frequency operation.

Frequency range directly calibrated for 3.5—4.0 MC, 6.8—7.425 MC, 14.0—14.4 MC, and 27.185—29.7 MC. Two additional scales from 13.6—14.8 MC and 20.5—22.0 MC for harmonic operation from 7 MC range. Complete bandswitching with built-in coils. Three built-in crystal sockets for spot frequency operation. Narrow Band FM on all ranges. Five selections of FM deviation calibrated by bands. Keyed oscillator on 3.5—4.0 MC at all times. Power output from 2.5 to 4.5 watts. Temperature compensation and two voltage regulators assure negligible drift. Hum and noise better than 60 d.b. below equivalent 100% AM signal. Audio distortion less than 5% on FM. Response from 100 to 5000 cycles. Built-in pre-amplifier for high impedance microphone. Controls: Tuning, Band Selector, Operation, Deviation, Power On/Off, Plate On/Off, Check.

Features built-in power switch for remote control of amplifier and receiver relays. Amateur frequencies in green. Mike input on rear with RF output and key terminals. Check switch for beating oscillator against incoming signals.

Uses 6BA6 ECO or Crystal Osc.; 6BA6 FM; 6BA6 Audio; 6L6 Output Amp.; VR-150 and VR105 Voltage Regulators; 5Y3GT Rectifier. Operates on 105—125 volt 50—60 cycle AC. Size overall 12¾ in. wide by 7 in. high by 7¾ in. deep. Ship. wt. 25 lbs. Express. Only 10% Down.

62 AE 3715 RT—Less crystals . . . . . \$110.00  
Denver, Portland and Oakland . . . . . 110.75

### HALLICRAFTERS HT-17 TRANSMITTER

**C** Features versatility, compactness and built-in power supply at low cost. Covers the Amateur Bands from 3.5 to 30 MC. Oscillator is a Triton on the three highest bands for better doubling efficiency. From 10 to 20 watts output. Uses Pi-Section antenna coupler for matching wide range of antenna impedances. Oscillator tuned from inside cabinet. Plate Tuning, Transmit/Standby, Mejer Osc./Pwr. Amp., AC On/Off controls all on panel. Terminals for external modulator (not included). Perforated top opens on wide piano hinge for easy access to coils. Provides ample ventilation. Special socket for use of external power supply. Comes with pilot lamp tuning indicator in place of meter shown above, (order meter separately). For single wire or doublet antenna. Key terminals and fuse mounted on rear. Cabinet finished in deep satin gray. Illuminated dial.

Uses 6V6GT Crystal Osc.; 807 Power Amp.; 5Y3GT Rect. Operates on 105—120 volt 50—60 cycle AC. Size 12¾ by 7¾ by 8¾ in. deep. Ship. wt. 25 lbs. Express only. Less coils and crystals.  
62 AE 3709 RT—Only \$4.95 Down . . . . . Cash \$49.50  
Denver, Portland and Oakland . . . . . 51.00  
62 AE 3710 MT—Meter SM-17. Wt. 2 lbs. . . . . 6.50  
62 AE 3711 T—Coils for 3.5 MC. Wt. 1 lb. . . . . 3.50  
62 AE 3712 T—Coils for 7 MC. Wt. 1 lb. . . . . 3.50  
62 AE 3713 T—Coils for 14 MC. Wt. 1 lb. . . . . 7.00  
62 AE 3714 T—Coils for 28 MC. Wt. 1 lb. . . . . 7.00

#### BUY THE EQUIPMENT YOU NEED

Any equipment in this Catalog is available for only 10% Down on Wards convenient Monthly Payment Plan. See Page 47 for complete details.



B



D



A



C

## Oscillators and NBFM Exciters

### SONAR VFX-680 EXCITER

**A** A stable VFO operating on 1.7 MC. For CW or Narrow Band (phase shift) FM phone operation. Output of 4 to 6 watts on 80, 40, 20, 10-11 Meters. Break-in operation. Adjustable FM deviation and RF tuning with cathode ray indicator. Provision for remote operation by using external relay (not included). Jack for high impedance microphone (See microphones on Pages 32 and 33). Separate monitors for phone and CW. Key jack, Rec./Xtr. switch, Mult. 1/Mult. 2 switch and crystal socket on panel. Output link for coupling to following stage. Complete with coils for 40 and 10 Meters (for other bands see coils listed below).

If desired, the exciter may be operated with crystal control. The VFX control on front panel will vary the crystal frequency up to 30 KC on 80 Meters and proportionally greater on the higher frequencies. This remarkable development combines the stability of a crystal with the flexibility of a variable frequency oscillator (crystal is not necessary when operating VFO only).

Uses 6AG7 VFO, VFX Osc.; 6AG7 Multiplier; 6L6 Multiplier; 6SL7 Speech Amplifier; 6SL7 Modulator/Monitor; 6AF6G R.F. and Deviation indicator; VR-150 Voltage Regulator; 5Y3 Rectifier. Operates on 110-125 volts 50-60 cycle AC. Size 5 1/4 by 19 by 8 1/2 inches deep. Ship. wt. 16 lbs.

62 AE 3731RT—Less crystal. Express only. Only \$8.75 Down, \$8 Monthly.....Cash \$87.45

62 AE 3756T—Coils for 3.5 MC. Wt. 8 oz.... 1.50

62 AE 3757T—Coils for 7 MC. Wt. 8 oz.... 1.50

62 AE 3758T—Coils for 14 MC. Wt. 8 oz.... 1.50

62 AE 3754T—Coils for 21 MC. Wt. 8 oz.... 1.50

62 AE 3759T—Coils for 28 MC. Wt. 8 oz.... 1.50

### SONAR SRT-75 TRANSMITTER

**B** A complete phone-CW transmitter incorporating VFX-680 described at left plus 50-Watt amplifier and power supply. Makes ideal starting unit for the Amateur who wants a complete, versatile station for operating all bands. Serves as driver unit for medium or high-power amplifier stages which may be added later if desired.

Amplifier AMP-50 has 2E22 output tube and 6Y6G keying tube which eliminates necessity for fixed bias. Dual scale meter shows plate and control grid current. Switch changes meter from plate to grid circuit. Output coupling link variable for easy load adjustment. Approximately 65 watts output on all bands, including 10-Meters.

Power Supply PS-50 is well-regulated and adequately filtered. Uses 5R4GY Rectifier. Mounted on bottom of SRT-75 cabinet behind VFX-680. Cable connects power supply to amplifier. Cabinet has black wrinkle finish, chrome trim.

Operates on 105-120 volt 50-60 cycle AC. Size 15 1/2 by 19 by 15 in. deep. Ship. wt. 51 lbs. Shipped by Express only.

62 AE 3763RT—Complete SRT-75 in cabinet with VFX-680, AMP-50, PS-50 and 10 Meter Coils. Only \$20.40 Down, \$13 Monthly.....or Cash \$203.67

62 AE 3753RT—Power Supply PS-50. Ship. wt. 20 lbs. \$3.35 Down, \$5 Monthly...or Cash \$33.45

62 AE 3752RT—Amplifier AMP-50, Ship. wt. 10 lbs. \$5.75 Down, \$5 Monthly...or Cash \$57.45

Coils for AMP-50. Ship. wt. 1 lb.

62 AE 3865T—Coils for 3.5 MC.....Set \$3.10

62 AE 3866T—Coils for 7 MC.....Set 3.10

62 AE 3867T—Coils for 14 MC.....Set 3.10

62 AE 3868T—Coils for 28 MC.....Set 3.10

### SILVER 701 TRANSMITTER

**C** A wide coverage unit for operation on 80, 40, 20, 15, 10 and 6 Meters. 75 Watts CW, 30 Watts phone. Uses 3 plug-in coils for each band. Two lamp indicators on panel measure crystal and power amplifier current. Controls include Tritet Cathode, Osc. Plate, Amp. Plate. Modulator furnishes 14 watts of audio.

Uses four tubes (not included): three 6AQ5's and one 807. Requires 300-750 volts, 130-200 ma. DC and 6.3 volts 2.35 amp. AC or DC. Size 10 by 5 by 5 1/4. Ship. wt. 9 lbs. Mailable.

62 AE 3788MT—Less tubes, crystal and power supply. Only \$3.70 Down, \$5 Mo....Cash \$36.95

62 AE 3789T—Cathode Coil 3.5 MC. Wt. 4 oz. .50c

62 AE 3790T—Cathode Coil 7-21 MC. Wt. 4 oz. .50c

62 AE 3791T—Cathode Coil 14-28 MC. Wt. 4 oz. .50c

62 AE 3792T—R.F. Coils 3.5 MC. Wt. 8 oz....\$1.00

62 AE 3793T—R.F. Coils 7 MC. Wt. 8 oz.... 1.00

62 AE 3794T—R.F. Coils 14 MC. Wt. 8 oz.... 1.00

62 AE 3795T—R.F. Coils 21-28 MC. Wt. 8 oz.... 1.00

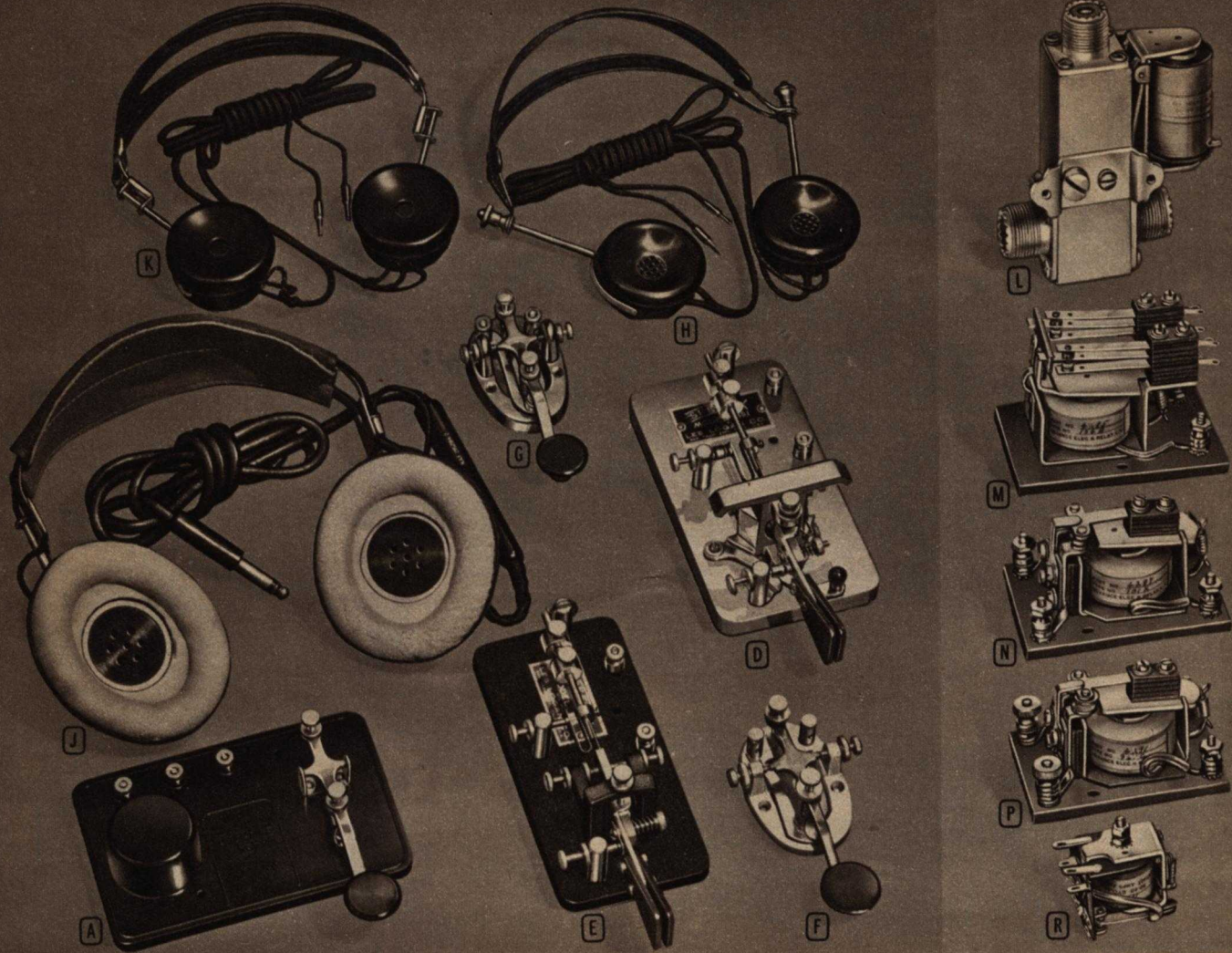
62 AE 3873T—R.F. Coils 50 MC. Wt. 8 oz.... 1.00

### SONAR XE-10 EXCITER

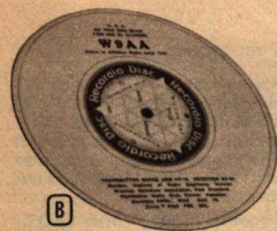
**D** A Narrow Band FM phone unit with built-in power and crystal control. Crystal frequency in 80 Meter band. Output 3 to 4 watts on 40 Meters. Covers 40, 20, 15, 11-10, 6 and 2 Meters. Adjustable FM deviation. Crystal socket on panel. Trans./Rec. switch. Buffer-Mod. and Multiplier Plate Tuning. Mike input jack.

Uses 6SL7 Osc.-Mod.; 6V6 Doubler; 6SL7 Speech; 5Y3 Rect. 110-125 volt 50-60 cycle AC. Size 9 1/2x7x5. Ship. wt. 15 lbs. Express. 10% Down.

62 AE 3730RT—(Less crystal).....\$39.45



## Headphones, Keys, Crystals and Relays



**B**

**A** SPEED-X PRACTICE SET. Includes adjustable high frequency buzzer and standard hand key with 1/8-in. silver contacts. Bakelite base with code chart. 3 terminals on base for connecting units in pairs. Hook-up diagrams on carton. Ship. wt. 1 lb. 62 AE 6828 MT ..... \$2.65

**B** QSL RECORD DISCS — the new thing in Ham Radio. Record your contact and surprise your friend with a QSL that has his voice or CW signal on it. Records on both sides of 6 1/2-in. disc—use ordinary home recorder. State call letters and station data (printed on one side under recording surface). *Mailable.*  
62 AE 6901 KT—100 QSL's. Wt. 6 lbs. . . \$15.00  
62 AE 6902 KT—200 QSL's. Wt. 12 lbs. . . 25.50  
62 AE 6903 KT—500 QSL's. Wt. 30 lbs. . . 53.00

**C** AIRLINE HIGH QUALITY CRYSTALS in specially designed mountings for greatest efficiency. When ordering, state Frequency and Tolerance. Wt. 6 oz. *Mailable.*

Catalog No.	Freq. and Tolerance	Price
62 AE 3850 KT	80-40 Mtrs. ±10 KC	\$1.59
62 AE 3851 KT	80-40 Mtrs. ±5 KC	1.69
62 AE 3852 KT	80-40 Mtrs. Exact	1.79
62 AE 3853 KT	20 Mtrs. ±10 KC	1.98
62 AE 3854 KT	20 Mtrs. ±5 KC	2.25
62 AE 3855 KT	20 Mtrs. Exact	2.39
62 AE 3856 KT	10-11 Mtrs. ±10 KC	2.98
62 AE 3857 KT	10-11 Mtrs. ±5 KC	3.19
62 AE 3858 KT	10-11 Mtrs. Exact	3.25
62 AE 3859 KT	1-10 MC. Exact	3.19
62 AE 3860 KT	10-30 MC. Exact	4.50
62 AE 3861 KT	6-2 Mtrs. ±10 KC	4.50
62 AE 3862 KT	100 KC. Exact	4.50
62 AE 3863 KT	160 Mtrs. (FM) Exact	1.79

**D** SPEED-X SEMI-AUTOMATIC KEY. Heavily chrome plated base with four rubber feet. Two sets 1/4-in. silver contacts. Adjustable weights, screws with lock nuts. Circuit closing switch. *Mailable.*  
62 AE 6826 T—Ship. wt. 5 lbs. .... \$14.70

**E** SPEED-X SEMI-AUTOMATIC KEY. Similar to (D), but with black wrinkle finish, 1/8-in. contacts. *Mailable.*  
62 AE 6825 T—Ship. wt. 4 lbs. .... \$7.35

**F** SPEED-X STANDARD KEY. Chrome base and parts. 1/8-in. silver contacts. Adjustable bearings. *Mailable.*  
62 AE 6827 T—Ship. wt. 1 lb. .... \$2.35

SPEED-X STANDARD KEY (not shown). Same as (F) but with black base. *Mailable.*  
62 AE 6829 T—Ship. wt. 1 lb. .... \$1.91

**G** SIGNAL KEY R-48. Brass base and binding posts, lacquer finish. *Mailable.*  
62 AE 6832 T—Ship. wt. 1 lb. .... \$2.74

**H** BRUSH SENSITIVE CRYSTAL HEADPHONES. Response from 100 to 10,000 cycles. High impedance. 5-ft. cord and adjustable lock-type headband. *Mailable.*  
62 AE 6850 T—Ship. wt. 2 lbs. .... \$7.35

**J** NAVY TYPE DYNAMIC HEADPHONES. Soft ear cushion for comfort during long periods of use. Excellent quality unit. 1200 ohms impedance. *Mailable.*  
62 AE 6864 T—Ship. wt. 2 lbs. .... \$2.50

**K** TRIMM HEADPHONES. Lightweight, easy to wear long hours. *Mailable.*  
62 AE 6865 T—Ship. wt. 1 1/2 lbs. .... \$2.95

### ADVANCE RELAYS

**L** COAXIAL ANTENNA RELAY for RG Cable. SPDT. 1/4-in. silver contacts. 800 watts at 100 M.C. 110-V. AC. 62 AE 4289 T—Ship. wt. 12 oz. .... \$7.35

**M** POWER SUPPLY RELAY. DPDT. 3/16-in. silver contacts. Ship. wt. 10 oz. 62 AE 4285 T—110-V. AC coil. .... \$3.06  
62 AE 4286 T—6-V. DC coil. .... \$3.06

**N** KEYING RELAY. 1/4-in. silver contacts, two sets SPST switches in series. 500-watt rating. 6-V. AC coil. 62 AE 4287 T—Ship. wt. 8 oz. .... \$3.23

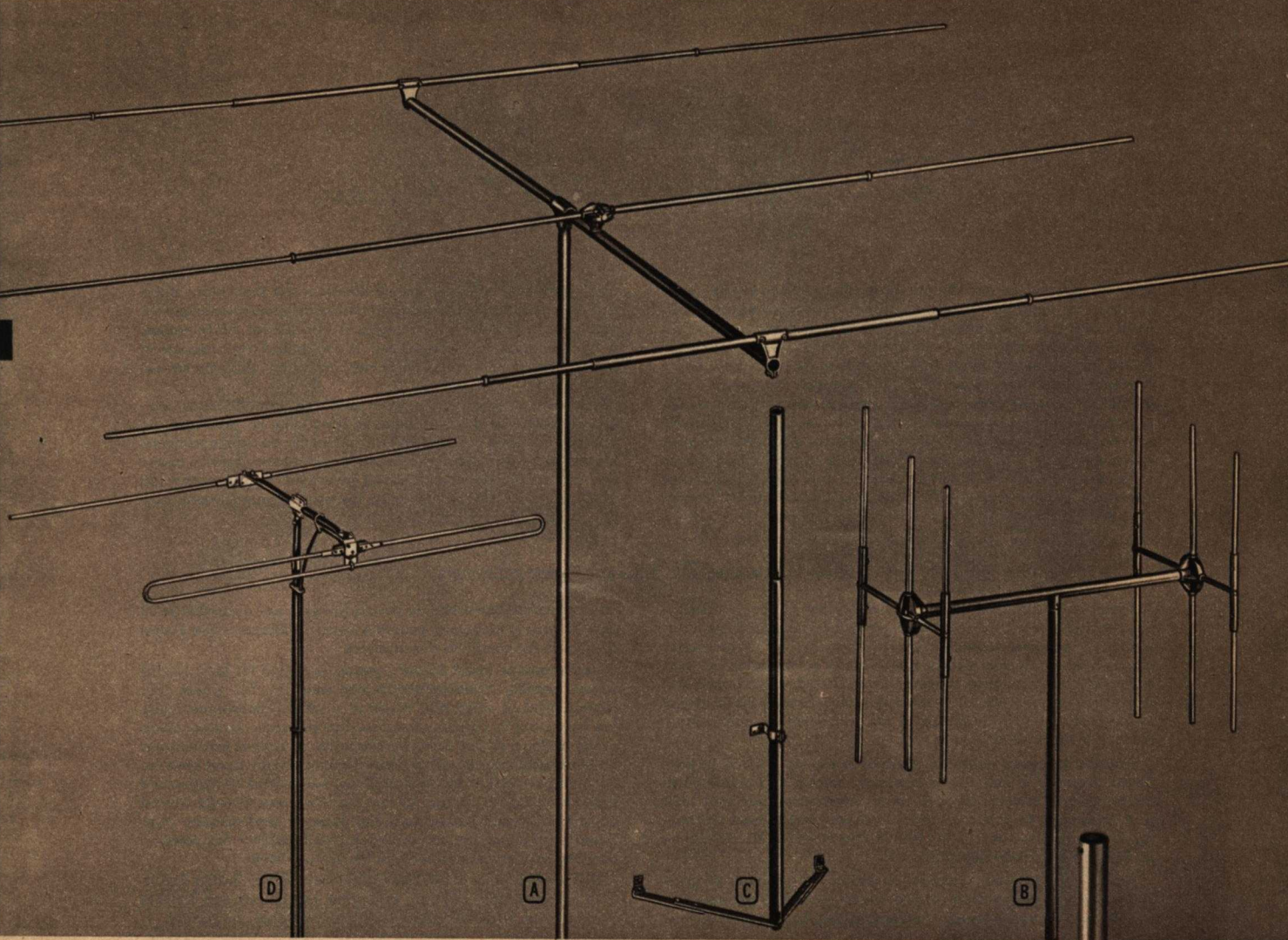
ANTENNA RELAY for high frequencies, (not shown). Ceramic Steatite base. DPDT. 1/4-in. silver contacts for heavy-duty. 110-V. AC coil.  
62 AE 4288 T—Ship. wt. 12 oz. .... \$5.83

30-AMP. POWER RELAY for non-inductive loads (not shown). 2 sets 3/8-in. silver contacts. 110-V. AC coil.  
62 AE 4291 T—Ship. wt. 8 oz. .... \$4.53

**P** 20-AMPERE POWER RELAY with one set of 3/8-in. silver contacts.  
62 AE 4290 T—Ship. wt. 8 oz. .... \$3.88

**R** AC MIDGET RELAY. DPDT. Silver contacts rated at 200 watts on non-inductive AC loads. 110-V. AC.  
62 AE 4292 T—Ship. wt. 4 oz. .... \$2.06

DC MIDGET RELAY (not shown). Similar to (R), but for 6 volts DC.  
62 AE 4293 T—Ship. wt. 4 oz. .... \$2.06



## Antenna Equipment, Beams and Accessories

**A** WORKSHOP 10-METER 3-ELEMENT BEAM. Adjustable aluminum alloy elements. Spacing between elements variable. Ruggedly built. Approximate impedance 68 ohms. Weatherproof head. Express. 62 AE 450 RT—Ship. wt. 14½ lbs. . \$39.50

WORKSHOP 20-METER 3-ELEMENT BEAM (not shown). Similar to (A) above. Has two rugged duraluminum booms 2-in. diameter for supporting structure. Elements taper from 1¼ in. down to ½-in. diameter. Length and spacing adjustable. Shipped by Freight or Express. 62 AE 453 RT—Ship. wt. 107 lbs. . \$120.00

WORKSHOP 6-METER 3-ELEMENT BEAM (not shown). A high gain array for use with 72 or 50-ohm cable. Aluminum alloy elements and heavy-duty plastic head. 62 AE 452 RT—Ship. wt. 7 lbs. . . . . \$9.00

**B** WORKSHOP 2-METER 6-ELEMENT BEAM. Power gain of 7.8 d.b. Two driven elements. Matches with 50 ohm coaxial line. (Use RG8/U cable). Elements are of ½-in. aluminum tubing rigidly supported in two heavy-duty molded plastic heads. Shipped by Express. 62 AE 451 RT—Ship. wt. 8 lbs. . . . . \$21.50

**C** ANTENNA MAST AND MOUNT Model AM. Two 4-ft. sections providing overall length of 7½ ft. No guy wires needed. Adjustable arms for easy mounting. Shipped by Express. 62 AE 454 RT—Ship. wt. 9 lbs. . . . . \$8.25  
Extra 4-ft. Section of mast (not shown) to heighten Model AM above. *Mailable.* 62 AE 455 MT—Ship. wt. 3 lbs. . . . . \$1.30

**D** AIRLINE DIRECTIONAL FM ANTENNA. Adjustable mounting, 60-ft. lead in. 62 AE 436 M—Ship. wt. 6 lbs. . . . . \$6.95

AIRLINE NON-DIRECTIONAL FM ANTENNA (not shown). Similar to (D) above but without reflector. *Mailable.* 62 AE 435 M—Ship. wt. 6 lbs. . . . . \$4.95

**G** 300-OHM TWIN-LEAD LINE. 75-ft. length. 62 AE 415—Ship. wt. 2 lbs. . . . . \$2.39

EXTENSION MAST (not shown). 5 ft. long, for FM Antennas above. *Mailable.* 62 AE 437 M—Ship. wt. 2 lbs. . . . . \$1.39

AIRLINE DIRECTIONAL TELEVISION ANTENNA (not shown). With Reflector. Similar to (D) above. 60-ft. lead-in. *Mailable.* 62 AE 449 MT—Ship. wt. 7 lbs. . . . . \$8.50

AIRLINE NON-DIRECTIONAL TELEVISION ANTENNA (not shown). Same as above but without reflector. 60-ft. lead-in. *Mailable.* 62 AE 448 MT—Ship. wt. 6 lbs. . . . . \$6.50

AMPHENOL FOLDED DIPOLE. 144 MC. Vertical Antenna (not shown). 75-ft. lead-in. 62 AE 414 MT—Ship. wt. 5 lbs. . . . . \$5.95

SIX-INCH STRAIN INSULATOR (Not shown). 62 AE 438 T—Ship. wt. 8 oz. . . . . 39c

ENAMELED No. 12 ANTENNA WIRE (not shown). Solid copper. 100-ft. coils. 62 AE 461 T—Ship. wt. 3 lbs. . . . . \$1.45

AMPHENOL 50-OHM RG-8/U COAXIAL CABLE (not shown). Vinyl jacket. .405-in. diam. Ship. wt. per ft. 6 oz. 62 AE 457 MT—*Mailable.* . . . Per ft. 17½c

**E** WORKSHOP ANTENNA ROTATOR AND INDICATOR. Smoothly operated and easily adjusted to desired direction. Rotation stops at north, so that breaking or twisting of coax lines is impossible. 360-degree rotation, 1 RPM. Reverses instantly from any point. Single switch on indicator controls rotation. Compass shows beam direction. Sturdy base plate handles 500-lb. load. Precision cut gears minimize backlash and wear. Heavy-duty 110-volt AC motor with high gear ratio. Indicator in aluminum case. Rotator (E) in weather-tight case: 9 by 9 by 6 in. Ship. wt. 47 lbs. Express. \$15.70 Down, \$10 Monthly. 62 AE 456 RT. . . . . \$157.50

**H** AIRLINE 300-OHM LINE STAND-OFF. Polystyrene. 62 AE 439 T—Wt. 1 oz. . . . . 10c

**J** AMPHENOL UHF' COAXIAL CHASSIS CONNECTOR PLUG. For RG8U cable. 62 AE 459 T—Wt. 4 oz. . . . . 84c

**K** AMPHENOL UHF CONNECTOR RECEPTACLE. For RG8U 62 AE 460 T—Wt. 4 oz. . . . . \$1.24

**L** AMPHENOL COAXIAL PLUG HOOD for Connector (J). 62 AE 458 T—Wt. 4 oz. . . . . 14c



# Facts About Sound Systems

It is easy to select the right Sound System for your particular needs whether for church, auditorium, lodge, mortuary, school, ball-room or other public place. The Type of sound system you will want—Portable, Mobile or Permanent Installation—will be determined chiefly by the place in which it is to be used. How much Power or Watts Output you need depends upon the size and area of audience to be served. Similar considerations apply to the selection of proper accessories—microphones, speakers, record players, etc. You will find all the equipment you need for your sound system in this catalog. If you are in any doubt or plan a very large installation, write to our Radio and Sound Equipment Department, Montgomery Ward and Co., Chicago for prompt attention. There is no charge for this service. Be sure to submit

with your letter a simple pencil sketch of the floor plan, if the system is to be used indoors, indicating all measurements from wall to wall, and depth and length of any alcoves. Show ceiling height. In addition, state seating capacity and average size of audience. If the room has a balcony, its seating capacity should be included.

For outdoor installations, such as stadiums, athletic fields, etc., give complete details on the size of area to be covered and the number of people to be served. In making recommendations, we will allow ample reserve power for satisfactory service under average conditions. A large sound system will handle both small and large areas advantageously, but a small sound system may not cover a large area adequately.

## PORTABLE, MOBILE AND PERMANENT INSTALLATIONS

A Portable Sound System can be quickly set up for demonstrations and lectures. Our Medium Power Portable Sound System has amplifier, speakers, record player, microphone and all necessary cables and connectors neatly fitted into a combination speaker baffle and carrying case. It operates on 110-125 volts 60 cycle AC. Its volume makes it adequate for club rooms, lodges, Bingo games—wherever small groups are to be addressed or entertained. See Page 28 for other details.

Portable carrying cases are available for our 16 and 25-watt Sound Systems which are suitable for larger audiences as in churches and schools, as well as for orchestras, banquet halls and carnivals. Supplied in record player and record changer amplifier models. Operate on 110-125 volts 60 cycle AC. See Pages 26 and 27 for various selections.

Mobile Sound Systems operate on either 110-125 volts 60 cycle AC or 6-volt storage battery. This flexibility permits a wide variety of uses such as sound trucks, political rallies, fairs, carnivals and

large picnics. Airline Mobile Sound Systems are available in 18 and 30-watt models with record player or changer. See Pages 24 and 25 for complete descriptions.

Permanent or Fixed Sound Systems are used for installations where mobility of equipment is not required, but where fine reproduction of voice and music is of prime importance. They are available in various power outputs to handle small or large areas, indoors or out. Schools, stadiums, churches, auditoriums and industrial plants will be served splendidly by these systems. For small to medium size installations, our 16 and 25-watt sound systems on Pages 26 and 27, or our De Luxe 20-watt Sound System on Page 23, are ideal. For superior performance combined with maximum convenience and flexibility of operation our Custom Built Systems, Page 20, are unexcelled.

Any combination of equipment is available, including amplifiers up to 450 watts output, automatic record players, AM/FM radio tuners, wire recorders, speaker switching panels, etc.

## SOUND SYSTEM POWER (OUTPUT) RATINGS

In the sound system industry, there is no commonly accepted standard for evaluating the performance of an amplifier. While output is always measured in watts, different output measurements can be obtained from any amplifier, depending upon how much distortion is tolerated. Overloading an amplifier will increase its output, but will also add to distortion. An amplifier can be rated as much as 30% higher if distortion is not taken into consideration.

It is generally accepted that a distortion level of 7% is the maximum tolerable in high quality amplifiers, as greater percentages result in sound distortion objectionable to the average listener.

Although rated very conservatively, Wards De Luxe amplifiers have less than 2% distortion at rated outputs; our standard amplifiers have less than 5%.

How much power you will need in your amplifier for indoor installations will be determined by the seating capacity, room volume and normal noise conditions. For outdoor installations, the size and shape of the area are the principal factors. In noisy locations, greater power is needed. In general, it is better to buy a slightly larger amplifier rather than to be overly conservative in estimating your power needs.

## INSTALLATION AND OPERATION

Airline Sound Systems are easy to install. Installation and service manuals are included with each sound system purchase, giving complete instructions for location of speakers for the best distribution of sound in typical lecture halls, school gymnasiums, churches, etc. Suggestions for placement of microphone, correct wiring and use of record playing equipment are a part of the installation guides.

All complete Airline Sound System selections are shipped to you with cables and connectors; where extension cables and wire are desired, they can be shipped together with your Sound

System, if you will indicate on your order the number of feet required. All speakers are equipped with 35 feet of wire. Additional connecting wire as well as extra speaker and microphone accessories for greater flexibility of operation are listed on Pages 30 and 31 of this catalog.

Accessories may be added to your Airline Sound System at any time. Frequently, after a system is installed, you will find an extra speaker, microphone, or remote volume control will be of value. Other items such as church hearing aids can be supplied on special order although not listed in this catalog.

## GUARANTEE OF SATISFACTION

If for any reason you are not entirely satisfied with any purchase made at Wards, you may return the merchandise. We will promptly refund all you paid including any transportation charges paid by you. Or, if you prefer, we will exchange it for something that does satisfy you.

ON THE NEXT PAGE IS INFORMATION ON MICROPHONES, RECORD CHANGERS AND SPEAKER EQUIPMENT WHICH WILL HELP YOU TO MAKE THE RIGHT SELECTION.





## Selecting Sound System Accessories

### SELECTING YOUR MICROPHONE

Factors to be considered in the selection of a microphone are: its principal use (voice or music), its operating characteristics (pickup pattern, sensitivity and fidelity), and the acoustic conditions under which it will operate.

**CRYSTAL MICROPHONES** are excellent general purpose microphones for public address systems, recording or communications work. They should not, however, be used where high temperatures prevail.

**DYNAMIC MICROPHONES** are rugged. Available in various impedances—low and medium impedance types permit use of long cable. Supplied in a variety of models for public address or communications.

**VELOCITY MICROPHONES** are ideal for orchestra pick-up. Voice reproduction is excellent when the speaker or singer is not too close. Excellent bass response. Not recommended for outdoor use because of extreme sensitivity to wind conditions.

**CARBON MICROPHONES** are largely used for mobile communications because of extreme ruggedness and high output. Not recommended for music.

**PICKUP PATTERNS.** The pickup pattern outlines the directional sensitivity of the microphone. Crystal and Dynamic microphones usually have a unidirectional pattern (called Cardioid), picking up sound chiefly at the front, little at the sides or back. This pattern is especially desirable where loud speakers are used in the same room; it reduces acoustic feedback and reverberation.

Velocity Microphones have a Bi-Directional pattern, picking up sound from front and back equally well.

Non-Directional microphones (also called omni-directional) pick up sounds from all sides without substantial difference in response. They tend to become directional at higher frequencies. Some Crystal, Dynamic, Velocity (with closed back) and Carbon microphones are in this category. Differential Microphones have ability to transmit clearly anything spoken directly into them while completely suppressing all background noise.

**SENSITIVITY** (output level rating) of a microphone is expressed in decibels below zero level. The smaller the minus decibel rating, the more sensitive is the microphone. In general, less sensitivity means better fidelity. When properly matched to an adequate amplifier, almost any type will be satisfactory for sensitivity.

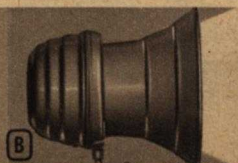
**FIDELITY** refers to uniformity of response to all sounds within the lower and upper limits of audibility. High Fidelity means that the response is essentially constant (flat), that is, there is little variation in microphone output between these limits. When a microphone is to be used for voice only, a narrower frequency response is sometimes desirable. For music, or voice and music, a much wider frequency response is necessary for completely pleasing reproduction.

### RECORD PLAYERS AND CHANGERS

A record player or the more convenient automatic record changer will greatly increase the usefulness of your sound system by making possible the use of recorded material or musical entertainment. The portable record player on Page 19 has been specially designed to operate with our De Luxe amplifiers. Our 16 and 25-watt amplifiers are available with record player or changer permanently mounted on top. Other record changers are shown on Page 34.

### BAFFLES, TRUMPETS AND PROJECTORS

To secure the finest tone and maximum frequency range of which a speaker is capable, it must be mounted in a suitable baffle or projector. Baffles, shown below—(A); are preferred when the widest spread of sound is desired. They are used mainly in indoor installations such as churches, auditoriums and ball rooms. Projectors (B) direct sound in a narrower beam and carry it farther than baffles. They are excellent for athletic fields, and for indoor areas with a high noise level. For the greatest intensity and carrying power, trumpets (C) should be used. They confine sound to a narrow beam. Having a penetrating tone, they are used extensively for stadiums, chime systems, etc.





18 WARDS

If You Didn't Get This From My Site,  
Then It Was Stolen From...  
[www.SteamPoweredRadio.Com](http://www.SteamPoweredRadio.Com)

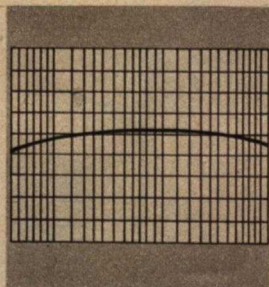
# Airline High Power Sound Systems



Power stages on separate chassis are removable for flexibility and easy servicing.



All connections made on terminal strip. Output impedances for any speaker network.



Amplifiers' frequency response curve essentially constant from 50 to 15,000 cycles.



Input tubes rubber mounted on separate chassis eliminate vibration, for quiet operation.

Wards High Power Airline De Luxe Sound Systems fill the need for outstanding reliable performance at high fidelity in large schools and auditoriums, in churches for pulpit and steeple use, in stadiums and in factories. Wherever large areas, indoors or out, are to be served, they will prove more than adequate.

The superb amplifiers which are basic to these Airline De Luxe Sound Systems afford remarkably natural reproduction of voice and music, even at maximum power. Frequency response is essentially constant from 50 to 15,000 cycles, and distortion at full output is less than 2%.

The 90 and 45-Watt Models are identical in operating features, flexibility of performance and quality of construction. Power amplifier stages are constructed on separate chassis, easily removable. The 45-Watt Model has one amplifier unit, the 90-Watt Model has two. Push-pull parallel output is used throughout.

In addition to the features shown at top of this page, the amplifiers offer many other design and operating conveniences.

The Master Gain Control regulates speaker volume without disturbing balance between microphones and record player used at the same time. Dual Tone Controls for independent adjustment of bass and treble response enable you to adapt various types of program material for most natural reproduction.

Input channels are provided for four microphones and two record players. Four microphone volume controls. A two-way volume control for record players permits smooth fading from one to the other for continuous operation. It is also possible to blend music, speech, etc., from microphones and record players.

Speaker Output socket in connection with protected terminal strip provides output impedances from 1.4 ohms to 600 ohms. This assures a perfect match for any speaker network at any distance. Recently the Radio Manufacturers' Association has proposed use of a 70-volt line instead of the usual 500-ohm line. If adopted, Airline De Luxe Amplifiers will be available with this feature. The Speaker Selector Box, sold separately, permits use of up to six speakers at distances of more than 75 feet from the amplifier. Additional Selector Boxes can be added at any time to accommodate more speakers. Monitor jack on front panel.

Cabinet is made of heavy-gauge steel with black crackle finish. Joints are welded. Ample ventilation on six sides.

The Underwriters' Seal of Acceptance is on every Airline Deluxe amplifier. It means that necessary precautions have been taken for the safety of both personnel and equipment.

## ACCESSORIES USED IN HIGH POWER SOUND SYSTEM SELECTIONS

**(A) (B) (C) MICROPHONES.** High quality and performance. (A) Electro-Voice Cardax Crystal—excellent, all-round microphone for general use. Receives sound from one direction. (B) American Model D9AT Dynamic—somewhat more rugged than crystal type. (C) Electro-Voice V2 Velocity—Receives from two directions. Designed primarily for fixed, indoor use.

**(F) WALL BAFFLES.** For most indoor installations. Walnut finish wood (same as 62 AE 6216MT on Page 29). With 12-in. Speakers installed (same as 62 AE 6002MT on Page 29). 35-ft. cord.

**(J) TRUMPETS WITH DRIVERS.** High-intensity reflex type. Used to aim sound for greater distance. Spun steel alloy. 16-in. bell opening. Same as 62 AE 6285MT on Page 30. Drivers, 25-watt continuous rating type same as 62 AE 6830MT on Page 30.

De Luxe Sound Systems and Amplifiers are shipped from Chicago by Express, only. Order from your nearest Montgomery Ward Mail Order House—pay shipping charges from there.

## 45-WATT AIRLINE DE LUXE SOUND SYSTEM SELECTIONS

Each selection includes the 45-Watt Airline De Luxe Amplifier. 12 Tubes plus two 5Z4 Rectifiers: Six 6V6's, four 6SQ7's, one 6SL7, one 6J5. Size of cabinet: 21½ in. wide by 16 in. deep by 11 in. high. For 105-125 volts 50-60 cycle AC operation only.

62 AE 8400 RT—Amplifier only. Ship. wt. 75 lbs. \$11.90 Down and \$9 Monthly on Terms.....or Cash \$119.00

62 AE 8403 RT—Amplifier; one Microphone, choice of (A), (B) or (C); two Wall Baffles (F) with two Speakers 62 AE 6002MT. Wt. 131 lbs. \$21 Down, \$13 Mo. on Terms.....or Cash \$210.00

62 AE 8406 RT—Amplifier; one Microphone (A), (B) or (C); two Wall Baffles (F) with two Speakers 62 AE 6002MT; Portable Record Changer (E). Ship. wt. 166 lbs. \$25 Down, \$15 Mo. or Cash \$249.95

62 AE 8405 RT—Amplifier; one Microphone, choice of (A), (B) or (C); two Trumpets (J) with Drivers. Ship. wt. 131 lbs. \$22.25 Down, \$14 Monthly on Terms.....or Cash \$222.50

62 AE 8407 RT—Amplifier; one Microphone, choice of (A), (B) or (C); two Trumpets (J) with Drivers; one Portable Record Changer (E). Wt. 158 lbs. \$26.50 Down, \$15 Mo.....or Cash \$265.00

62 AE 6938 T—Output Meter (shown on amplifier, but sold separately). Calibrated in db's and watts. Ship. wt. 4 lbs. ....\$9.95

## 90-WATT AIRLINE DE LUXE SOUND SYSTEM SELECTIONS

Each selection includes the 90-Watt Airline De Luxe Amplifier. 18 Tubes plus four 5Z4 rectifiers: Twelve 6V6's, four 6SQ7's, one 6SL7, one 6J5. Size of cabinet: 21½-in. wide by 16 in. deep by 11 in. high. For 105-125 volts 50-60 cycle AC operation only.

Any combination of accessories may be purchased with this amplifier, even though not listed below. Write our Radio and Sound Equipment Dept., Montgomery Ward and Co., Chicago.

62 AE 8700 RT—Amplifier only. Ship. wt. 105 lbs. \$17.90 Down and \$12 Monthly on Convenient Terms.....or Cash \$179.00

62 AE 8701 RT—Amplifier; one Speaker Selector Box (G) shown on Page 31, No. 62 AE 6100MT. Ship. wt. 115 lbs. \$19 Down, \$12 Monthly on Terms.....or Cash \$189.95

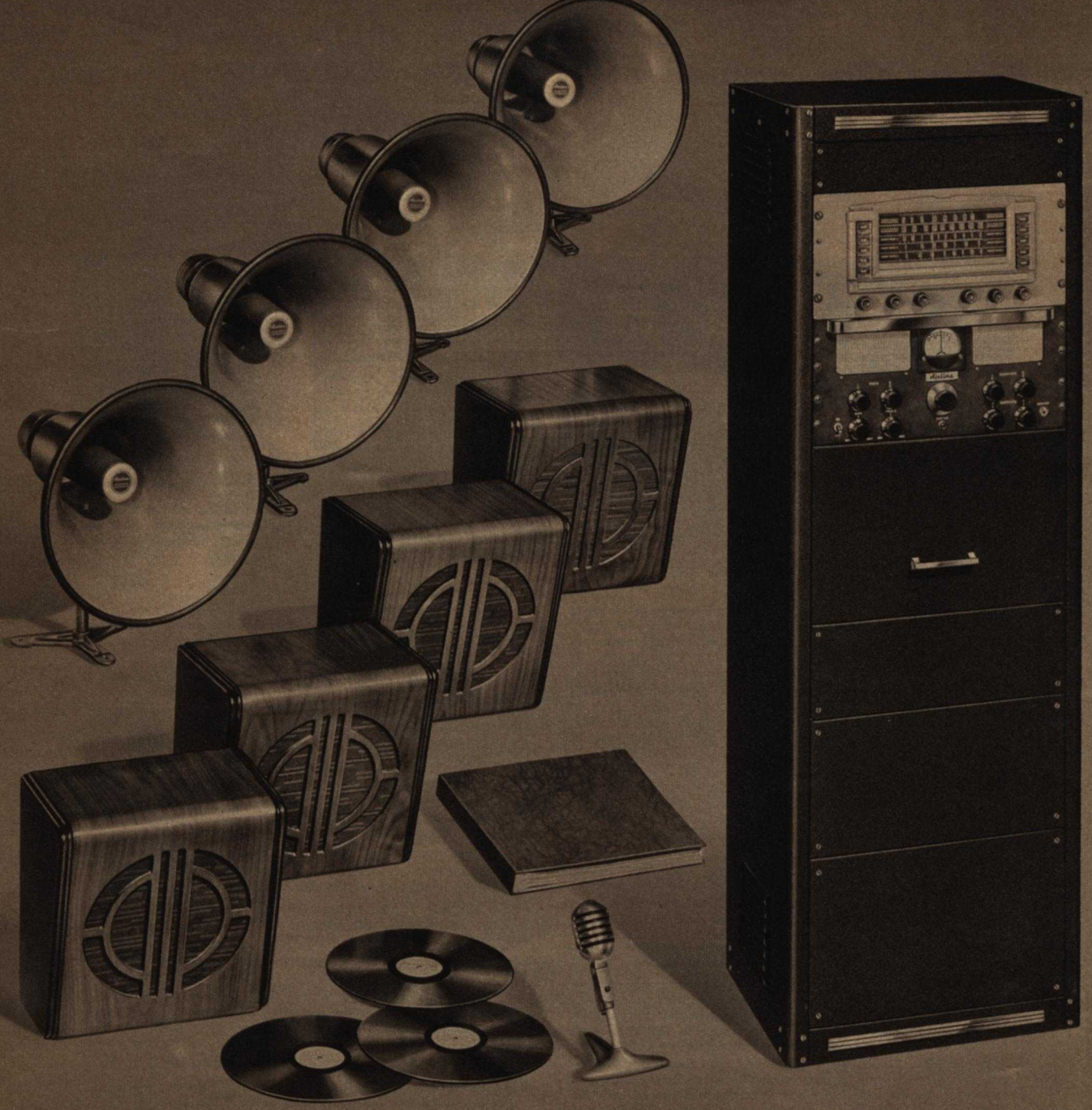
62 AE 8703 RT—Amplifier; one Microphone (A), (B) or (C); one Microphone Floor Stand (D); one Speaker Selector Box (G). Ship. wt. 130 lbs. \$22.90 Down, \$14 Monthly.....or Cash \$229.95

62 AE 8708 RT—Amplifier; one Microphone (A), (B) or (C); one Microphone Stand (D); four Trumpets (J) with Drivers; one Speaker Selector Box (G); one Portable Record Changer (E). Ship. wt. 197 lbs. \$39.80 Down, \$22 Monthly.....or Cash \$398.00

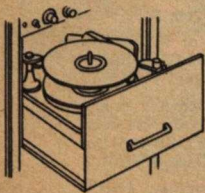
62 AE 6939 RT—Output Meter shown on 100-Watt Amplifier (sold separately). Calibrated in db's, watts. Wt. 4 lbs.....\$9.95

**(E) PORTABLE RECORD CHANGER.** Seeburg Model L Record Changer unit. Plays ten 12-in. or twelve 10-in. records automatically. High quality Crystal Pickup. 5000-play needle. Phono and power cords with plugs are included. Black simulated leather case, 9 in. deep by 17 in. square. Ship. wt. 27 lbs. *Mailable.*

62 AE 880 MT—\$5 Down and \$5 Monthly on Terms..or Cash \$49.95



## *Airline Custom Built Sound Systems*



Airline Custom Built Sound Systems are individually planned installations for churches, schools, factories, auditoriums, hospitals and other large institutions. Our 45 or 90-watt amplifier together with radio tuner and record player can be installed for you in a single compact cabinet. Booster amplifiers for higher power up to 450 watts can be supplied. Write to Radio and Sound Equipment Dept., Montgomery Ward and Company, Chicago 7, for complete information.

State your problem fully, with a sketched floor plan showing the positions speakers, trumpets, microphones and main cabinet are likely to take. Give room or building sizes, and number of people expected to occupy the space. We will send you our recommendations with cost of the equipment. When your approval is received, we will assemble the system. About two weeks is required for delivery. The sound system can easily be installed by anyone handy with tools. Instructions are complete.

Selection of units for your sound system may be made from any of the 45- and 90-watt Amplifiers, Speakers, Baffles, Trumpets, etc., listed in this book. Typical units of a Custom Built Sound System are shown above. Three basic systems are listed here for convenience and guidance in making a selection.

**SELECTION A.** 90-Watt De Luxe Amplifier 62 AE 8700RT, Selector Box 62 AE 6100MT, Four Speakers 62 AE 6002MT, Four Baffles 62 AE 6216MT, Cardax Microphone 62 AE 6509MT, Pulpit Stand 62 AE 6804MT, Record Changer 62 AE 990MT in Pull-out Drawer, Black crackle finish Cabinet—size 66½ by 22 by 16½ in. deep, plus choice of any three recordings listed on next page. 12-pocket Record Album. Ship. wt. 313 lbs.  
62 AE 8704 RT—\$42.50 Down, \$24 Monthly.....or Cash 425.00

**SELECTION B.** Same as above except four trumpets 62 AE 6285MT and drivers instead of four speakers and baffles. Ship. wt. 335 lbs.  
62 AE 8705 RT—\$45 Down and \$25 Monthly.....or Cash 450.00

**SELECTION C.** 90-watt Amplifier 62 AE 8700RT, Relay Rack, Radio Tuner 62 AE 3871, Record Changer 62 AE 990MT in pullout drawer.  
62 AE 8706 RT—Ship. wt. 164 lbs. \$45.50 Down, \$26 Mo...or Cash 455.00

The above prices are estimates and include an average footage of connecting wire and microphone cable. When ordering, state lengths needed for speaker and microphone cable. Custom-built Sound Systems are shipped from Chicago. Pay shipping charges from nearest Mail Order House. Order from Radio and Sound Equipment Dept., Montgomery Ward & Co., Chicago 7.

# Airline Soundmaster Church Recordings



Your Church is an important part of your community. A library of chimes, organ solos or combination voice and organ records can give it the advantages of large cathedral music. Whether used indoors or for steeple playing, for call to worship or in celebration of Easter, Christmas and other Holy Days, Church recordings can add further distinction to your Church. Such a library, too, makes a fine lasting gift memorial.

Wards Airline Soundmaster Church records may be used for many years because they may be played almost 1000 times before

needing replacement. They are specially adapted for reproduction on sound systems and can be greatly amplified without distortion. Only one side is recorded so that the center hole can be accurately placed within 1/100 of an inch, similar to broadcast transcriptions. This means the pick-up arm will not waver, and the pitch will remain true. All records are 12-inch, 78 RPM and can be used on any phonograph. Playing time averages about 4 minutes. Mailed from Chicago. Send order to Wards nearest Mail Order House. Be sure to state Catalog Number, Record Number, Title. Ship. wt. each, 2 lbs.

Use This Catalog Number—62 AE 350 T. . . . . Each 2.45

## SOUNDMASTER CHIME RECORDS

On these special steeple chime records, no two bell-notes are sounded at the same time. The result is a clear, crisp tone reproduced with original bell-like fidelity.

- 2001—Abide With Me  
Blest Be The Tie That Binds
- 2002—Adeste Fideles
- 2003—Alas! and Did My Savior Bleed  
Beautiful Beckoning Hands
- 2004—Almost Persuaded; Call Them In
- 2006—Angels From the Realms of Glory  
While Shepherds Watched Their Flock  
I Heard the Bells on Christmas Day
- 2007—Angels' Voices Ever Singing  
Blessed Assurance
- 2010—As With Gladness Men of Old  
O Come, O Come Emanuel
- 2011—At the Cross Her Station Keeping  
(Stabat Mater Dolorosa)  
Hail Queen of Heaven! The Ocean's  
Star
- 2012—Ave Maria (Bach-Gounod)  
Mother Dear O Pray for Me
- 2013—Ave Maria (Schubert)
- 2014—Away in a Manger  
O Come All Ye Faithful
- 2016—Beautiful Dreamer  
Evening Star (Wagner)
- 2017—Beautiful Isle of Somewhere  
Somewhere a Voice is Calling
- 2019—Beneath the Cross of Jesus  
Come Ye Disconsolate
- 2023—Blessed Hour of Prayer; Doxology
- 2024—Bringing in the Sheaves  
Let the Lower Lights be Burning
- 2025—Come Holy Ghost, Creator Blest  
Soul of My Savior, Sanctify My Breast
- 2027—Christ the Lord Has Risen Today  
Welcome Happy Morning
- 2028—Come Thou Almighty King  
Must Jesus Bear the Cross Alone
- 2030—Come We Who Love the Lord  
Yield Not to Temptation
- 2032—Come Ye Thankful People  
Oh, God Beneath Thy Guiding Hand
- 2033—Crossing the Bar; Jesus Savior Pilot Me
- 2034—Day is Dying in the West  
From All That Dwell
- 2035—Deep River
- 2039—For All the Saints; Glory to His Name
- 2041—From Greenland's Icy Mountains  
Praise Him! Praise Him!
- 2042—God Be With You 'til We Meet Again  
in the Garden
- 2043—Going Home
- 2046—Hark! Hark! My Soul  
Behold a Stranger
- 2047—Hark the Herald Angels Sing  
It Came Upon the Midnight Clear
- 2048—He Leadeth Me; Fairest Lord Jesus
- 2049—Hiding in Thee; I am Thine O Lord
- 2050—Holy, Holy, Holy Lord God Almighty  
The Lord is My Shepherd
- 2051—Home Sweet Home
- 2052—How Firm a Foundation  
Jesus I My Cross Have Taken

## SOUNDMASTER CHIME RECORDS (Con't)

- 2056—I Know That My Redeemer Liveth  
Jesus Christ the Lord
- 2057—I Love to Tell the Story; Jesus Shall Reign
- 2060—In the Sweet By and By; Come Unto Me  
When Shadows Darkly Gather
- 2061—Is My Name Written There?  
How Gently God Commands
- 2066—Jesus Lover of My Soul  
Safe in the Arms of Jesus
- 2067—Jesus Loves Me; There's Not a Friend
- 2068—Jesus the Very Thought of Thee  
Now the Day is Over
- 2069—Jesus My Lord, My God, My All  
Jesus Come to Me
- 2074—Just as I Am  
As Pants the Hart for Cooling Waters
- 2075—Lead Kindly Light; Softly and Tenderly
- 2077—Low in the Grave He Lay  
The Day of Resurrection
- 2078—Berceuse From Jocelyn; Lullaby (Brahms)
- 2081—My Country 'Tis of Thee  
America the Beautiful
- 2082—Nearer My God to Thee; Rock of Ages
- 2084—O Beulah Land
- 2090—O Tannenbaum; Jingle Bells
- 2091—Onward Christian Soldiers  
Stand Up! Stand Up for Jesus
- 2093—Pass Me Not O Gentle Savior  
Are You Washed by the Blood
- 2095—Praise the God of Abraham  
O Mother Dear Jerusalem
- 2096—Ring Out the Old, Ring in the New
- 2099—Silent Night, Holy Night; Joy to the World
- 2104—Sweet Hour of Prayer  
When I Survey the Wondrous Cross
- 2105—Battle Hymn of the Republic  
The Star Spangled Banner
- 2107—The First Noel  
Oh! Little Town of Bethlehem
- 5109—The Old Rugged Cross  
One Sweetly Solemn Thought
- 2113—What a Friend We Have in Jesus  
I Need Thee Every Hour

## SOUNDMASTER ORGAN SELECTIONS

- 1560—God Be With You 'til We Meet Again  
Blest Be The Tie That Binds
- 1562—In the Sweet By and By; Saved by Grace
- 1563—One Sweetly Solemn Thought
- 1564—Largo (From the New World Symphony)
- 1565—The Rosary
- 1567—Andante Religioso
- 1568—God Will Take Care of You  
Nearer My God to Thee
- 1569—Liebestraum
- 1570—Traumerei; Consolation
- 1571—Rock of Ages; Jesus Lover of My Soul
- 1572—Ave Maria (Bach-Gounod)
- 1573—Largo (From Xerxes)
- 1600—Abide With Me
- 1601—Lead Kindly Light
- 1602—Old Rugged Cross
- 1603—In the Garden

## SOUNDMASTER ORGAN SELECTIONS (Con't)

- 1604—Beautiful Isle of Somewhere
- 1605—Spring Song (Mendelssohn)
- 1606—Beautiful Dreamer
- 1607—Intermezzo (Cavalleria Rusticana)
- 1608—Ave Maria (Schubert)
- 1609—Nocturne (Chopin)
- 1610—Deep River
- 1611—Serenade (Schubert)

## VOCAL DUETS, ORGAN ACCOMPANIMENT

These recordings are carefully cut for fine quality, true-tone reproduction.

- 2564—Abide With Me
- 2566—Beautiful Isle of Somewhere
- 2568—Jesus Lover of My Soul
- 2571—Blest Be the Tie That Binds
- 2573—Softly and Tenderly
- 2574—God Will Take Care of You
- 2602—In the Garden

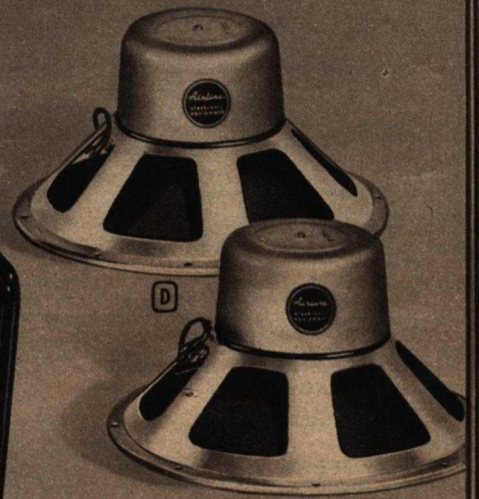
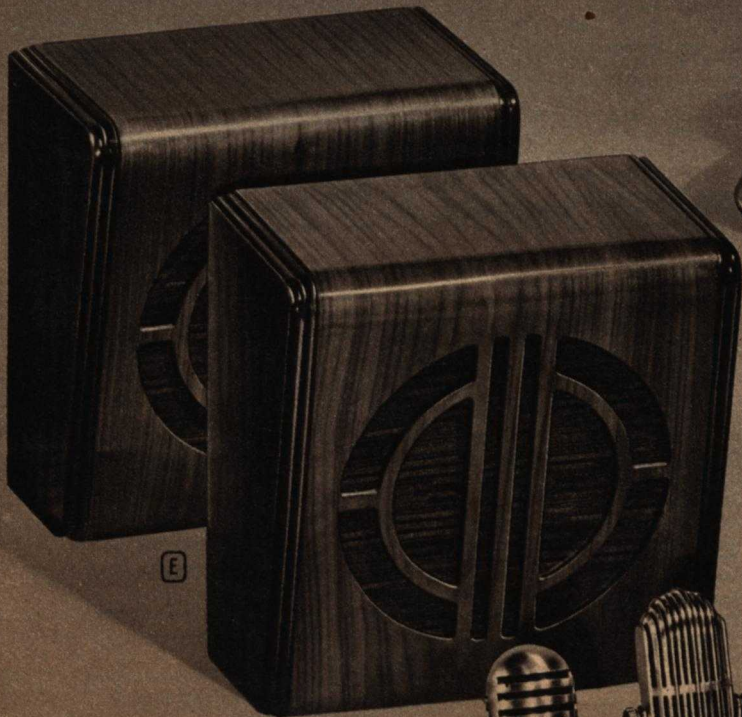
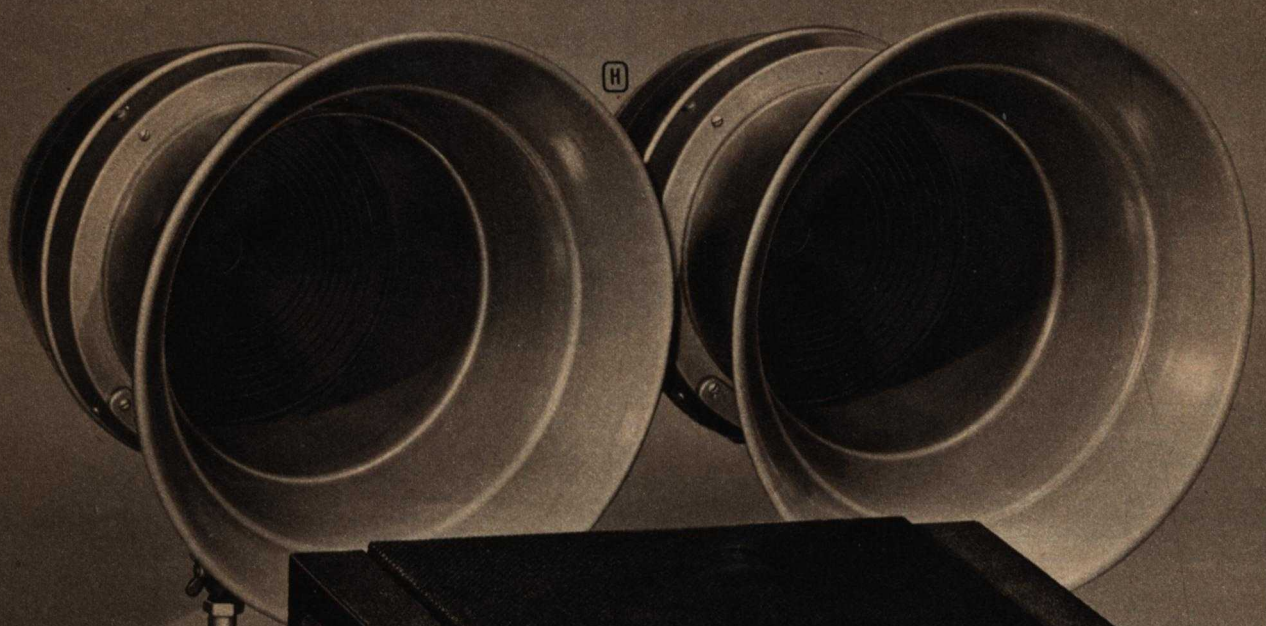
## CHIME, VIBRAHARP TRANSCRIPTIONS

Tone so realistic that it is difficult to distinguish between the recordings and the actual chime and vibraharp instruments.

- 3210—Star Spangled Banner
- 3211—America
- 3212—America the Beautiful
- 3213—Battle Hymn of the Republic
- 3214—Anchors Aweigh
- 3215—Columbia the Gem of the Ocean
- 3218—Onward Christian Soldiers
- 3220—Abide With Me; Blest Be the Tie That Binds
- 3222—Come Thou Almighty King  
Must Jesus Bear the Cross Alone
- 3223—God Be With You 'til We Meet Again  
in the Garden
- 3225—Holy, Holy, Holy, Lord God Almighty  
The Lord is My Shepherd
- 3226—Nearer My God to Thee; Rock of Ages
- 3228—Sweet Hour of Prayer  
When I Survey the Wondrous Cross
- 3229—The Old Rugged Cross  
One Sweetly Solemn Thought
- 3230—What a Friend We Have in Jesus  
I Need Thee Every Hour
- 3144—Church Bell Ringing (2 minutes)  
also Church Bell Tolling

## ORGAN TRANSCRIPTIONS

- 1875—Mother Dear O Pray For Me
- 1853—In the Garden
- 1854—Beautiful Isle of Somewhere
- 1858—Ave Maria (Schubert)
- 1859—Estrellita
- 1861—Somewhere a Voice is Calling
- 1876—To Jesus Heart All Burning
- 1877—Silent Night
- 1701—Rock of Ages



# Airline 20-watt De Luxe Sound Systems

INCORPORATING HIGH FIDELITY AMPLIFIER



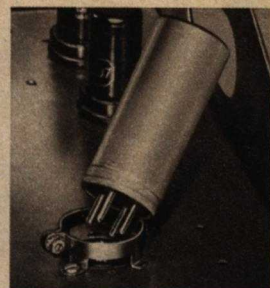
All connections in rear for neatness and convenience. Uses standard connectors.



Screw-in type fuse. No tools are needed—you can check or change the fuse in a second.



Well-designed, full size chassis fits standard relay rack. Reliable heavy-duty parts throughout.



Plug-in condensers changed as easily as a tube. Long-life electrolytic type.

Here is the *right* sound system for permanent installations in small or medium size churches, lodges, auditoriums, mortuaries—wherever outstanding quality and reliability are essential. Like the more powerful 45 and 90-watt Airline De Luxe Amplifiers, this 20-watt model is capable of superb reproduction of both voice and music. Frequency response is essentially constant from 50 to 15,000 cycles, and distortion at full output is below 5%. The music lover will find this fine instrument is exceptionally well adapted to custom built installations where superior record reproduction is demanded. A modified version of this amplifier for use with a wire recorder is listed on Page 49.

## DE LUXE AMPLIFIER FEATURES

Four of the features that contribute to the fine quality and wide usefulness of this Airline De Luxe Amplifier are pictured above. Other features are:

**Dual Tone Controls** for independent adjustment of bass and treble response. These dual controls enable you to adapt various types of program material to the acoustics of room or auditorium for the most natural reproduction.

The **Master Gain Control** permits you to regulate speaker volume without disturbing the balance between microphones and/or record players used at the same time. Input channels are provided for two microphones, each with its own volume control, and for two record players. A two-way volume control for the record players permits smooth fading from one to the other for continuous music. This well designed control system makes it possible to blend speech, music, etc., from microphones and record players in any way desired.

**Four Speaker Sockets**, together with Wards patented Speaker Selector Switch, permit the use of one to four speakers at a time and assure a perfect electrical match.

**500 Ohm Output** can be used to feed speakers installed more than 75 feet from the amplifier. Provision is made for remote volume control to regulate speaker output at a distance. Remote Control Unit is sold separately on Page 31.

**Error-proof Plugs** make connections easy. If plug fits, you know it's in the right socket. Off/On Switch on front panel.

The complete Airline 20-watt De Luxe Sound System Selections listed in the column at right include all necessary cords and plugs for connecting microphones, speakers, etc. Size of Amplifier: 19¼ in. wide by 17¼ in. deep by 9¼ in. high. 6 tubes plus 5Z3 Rectifier: two 12SJ7's, 6SJ7, 6SL7, two 6L6G's.

**Fine Quality Construction.** Cabinet is made of heavy-gauge steel, finished in black crackle. All joints are welded for strength. Ample ventilation is provided on six sides. Amplifier fits a standard relay rack—the most compact flexible system for installing electrical or radio equipment. See Page 20 for illustration of relay rack. Underwriters' Approval of this De Luxe Amplifier assures you that all necessary precautions have been taken in its design and construction for the safety of both personnel and equipment.

## DE LUXE SOUND SYSTEM ACCESSORIES

On the opposite page there is shown the 20-Watt Airline De Luxe Amplifier (G) together with other accessories and equipment which are used in the complete De Luxe Sound System Selections listed in the column at right. Additional accessories on Page 31.

- (A) (B) (C) MICROPHONES** (A) Electro-Voice Cardax Model 950—Crystal. (B) American Model D9AT—Dynamic. (C) Electro-Voice Model V-2—Velocity. Crystal microphones are usually preferred for voice. Dynamic microphones are more rugged and are suitable for both voice and music. Velocity microphones are commonly used where fine reproduction of music is essential (in broadcast studios, for example).
- (D) SPEAKERS.** 12-in. PM Dynamic type. Fit into Wall Baffles (E), Projectors (H), or in Carrying Case (not shown here, but sold separately—62 AE 6842MT on Page 30). 35-foot cord.
- (E) WALL BAFFLES.** Recommended for most indoor installations. Heavy plywood veneer with rich walnut finish. Come with Speaker (D) installed, with 35-ft. cord. Size 14 by 15 by 9 inches. Same as 62 AE 6216MT on Page 29.
- (H) PROJECTORS.** Used to project and concentrate sound for greater distances. Speakers (D) installed, 35-ft. cord. 17-in. bell. Same as 62 AE 6234RT on Page 30.
- (F) MICROPHONE STAND.** Portable floor stand, high quality. Folds for easy carrying. Same as Cat. No. 62 AE 6811MT on Page 31.

**OUTPUT METER**, shown mounted on Amplifier (G), but sold separately. Calibrated in db. and watts.

62 AE 6940 T—Meter. Shipping weight 4 lbs. . . . . 9.95

**PORTABLE RECORD CHANGER** (Illustrated on Page 18.) Seeburg Model "L" Record Changer Unit. Plays ten 12-in. or twelve 10-in. records automatically. Designed for use with Airline De Luxe Sound Systems. High-quality Crystal Pickup. 5000-play needle. Black simulated leather case. 9 in. high by 17 in. wide by 17 in. deep. For 105-125 volts 60 cycle AC. With connecting cords.

62 AE 880 MT—Mailable. Wt. 27 lbs. \$5 Mo. . . . . or Cash 49.95

## DE LUXE SOUND SYSTEM SELECTIONS

For 105-125 volts AC. *Not Mailable.* Shipped by Express only.

62 AE 8200 RT—Amplifier only. Shipping wt. 55 lbs. \$8.45 Down and \$7 Monthly on Terms. . . . . or Cash 84.50

62 AE 8202 RT—Amplifier, one Microphone—choice of (A), (B) or (C), one Floor Stand (F), two Speakers (D). Ship. wt. 101 lbs. \$14.50 Down and \$10.00 Monthly. . . . . or Cash 144.75

62 AE 8203 RT—Amplifier, one Microphone—choice of (A), (B) or (C), one Floor Stand (F), two Speakers (D) in two Baffles (E). Ship. wt. 119 lbs. \$15.65 Down, \$10.00 Mo. . . . . or Cash 156.50

62 AE 8205 RT—Amplifier, one Microphone—choice of (A), (B) or (C), one Floor Stand (F), two Speakers (D) in two Projectors (H). Wt. 133 lbs. \$16.85 Down, \$11 Mo. or Cash 168.50

62 AE 8206 RT—Amplifier, one Microphone—choice of (A), (B) or (C), one Floor Stand (F), two Speakers (D) in Speaker Case (not shown, but like 62 AE 6842MT listed on Page 30). Ship. wt. 113 lbs. \$15.75 Down, \$10. Monthly. . . . . or Cash 157.50

Write our Radio and Sound Equipment Dept., Montgomery Ward and Company, Chicago, for information and recommendations on your sound system. There is no charge for this service.

Any item in this Catalog may be purchased on Wards convenient Monthly Payment Plan. See Page 47 for complete details.



## Mobile Sound Systems that Operate

AIRLINE 30-WATT DE LUXE MOBILE SOUND SYSTEMS incorporate an amplifier that is the finest we know of, for mobile use—and it's an exclusive Wards design. With remarkable fidelity of reproduction, it has the power to reach the crowds at extensive picnic grounds and at other large outdoor or indoor gatherings. Ideal for sound trucks. Operates on 105-125 volt 60 cycle AC, or on 6-volt storage battery. Underwriters' Lab. Listed.

**(D) (E)** Two MODELS: (D) has automatic record changer. (E) has single play phonograph. Both 78 R.P.M. All other specifications are identical.

Use up to 4 Speakers or Trumpets. Remarkable tone—frequency response is essentially constant from 50 to 15,000 cycles, with less than 5% distortion. Provision for two microphones, separate volume controls.

Master Gain Control regulates speaker volume without disturbing the balance between microphones and/or record players used at the same time. Separate Bass, Treble Tone Controls. 500-ohm output; four Speaker Sockets; Speaker Selector Switch. Off-On Switch with Pilot Light. Idler Switch saves battery during standby periods—turns off plate power but leaves filaments

on for instant operation. Line fuse. Two separate power cords (B) for battery or power-line operation. Heavy-duty parts.

Phonograph has Lightweight Crystal pickup, 5000-play needle. Two-way Volume Control. Provision for additional external record player. Removable cover; can be closed while playing.

Long-Life, Low Drain Tubes. Four 6SQ7's; one 6F6, two 8O7's, plus three 6X5 rectifiers. Amplifier size overall: 17½ in. by 17½ in. by 15½ in. high.

### ACCESSORIES USED IN 30-WATT DE LUXE MOBILE SOUND SYSTEMS

(A) Trumpets with Drivers—same as 62 AE 6285 MT and 6830T, Page 30. (C) Speakers in Speaker Case—two heavy-duty 12-in. PM Dynamics (62 AE 6002MT on Page 29), Speaker Case (62 AE 6842MT on Page 30). Microphones: (F) Electro-Voice Dynamic on Microphone Stand (62 AE 6501T and 62 AE 6810 MT on Pages 32 and 31); (G) Electro-Voice 600D Dynamic, hand-held, with 8-ft. cable (62 AE 6513 T on Page 32); (H) American Airline Crystal (62 AE 6500T on Page 32) with Floor Stand (62 AE 6801MT on Page 31). See opposite page for picture of Auto-top Platform for trumpets.

### AMPLIFIER WITH AUTOMATIC RECORD CHANGER

**(D)** Has all features described above. High quality changer. Plays ten 12-in. or twelve 10-in. records. Only 10% Down on convenient Terms—See Page 47. Order from your nearest Mail Order House, pay shipping charges from there. Shipped from Chicago by Express only. *Not Mailable.*

62 AE 8820 RT—Amplifier with Changer. Cables. Ship. wt. 85 lbs. . . \$225.00

62 AE 8825 RT—Amplifier; one Microphone—choice of (F), (G) or (H); two Trumpets with Drivers (A). Cables included. Ship. wt. 144 lbs. . . . \$307.00

62 AE 8826 RT—Amplifier; one Microphone—choice of (F), (G) or (H); two Speakers in Speaker Case (C). With cables. Wt. 116 lbs. . . . . \$300.00

62 AE 8827 RT—Amplifier; one Microphone—choice of (F), (G) or (H); two Trumpets with Drivers (A); plus Auto-top Platform shown on opposite page. Complete with cables. Ship. wt. 155 lbs. . . . . \$313.00

24 WARDS

### AMPLIFIER WITH RECORD PLAYER

**(E)** Has all the features described above. Single Record Player. Only 10% Down on convenient Monthly Terms—See Page 47 for Details. Order from your nearest Mail Order House, pay shipping charges from there. Shipped from Chicago by Express Only. *Not Mailable.*

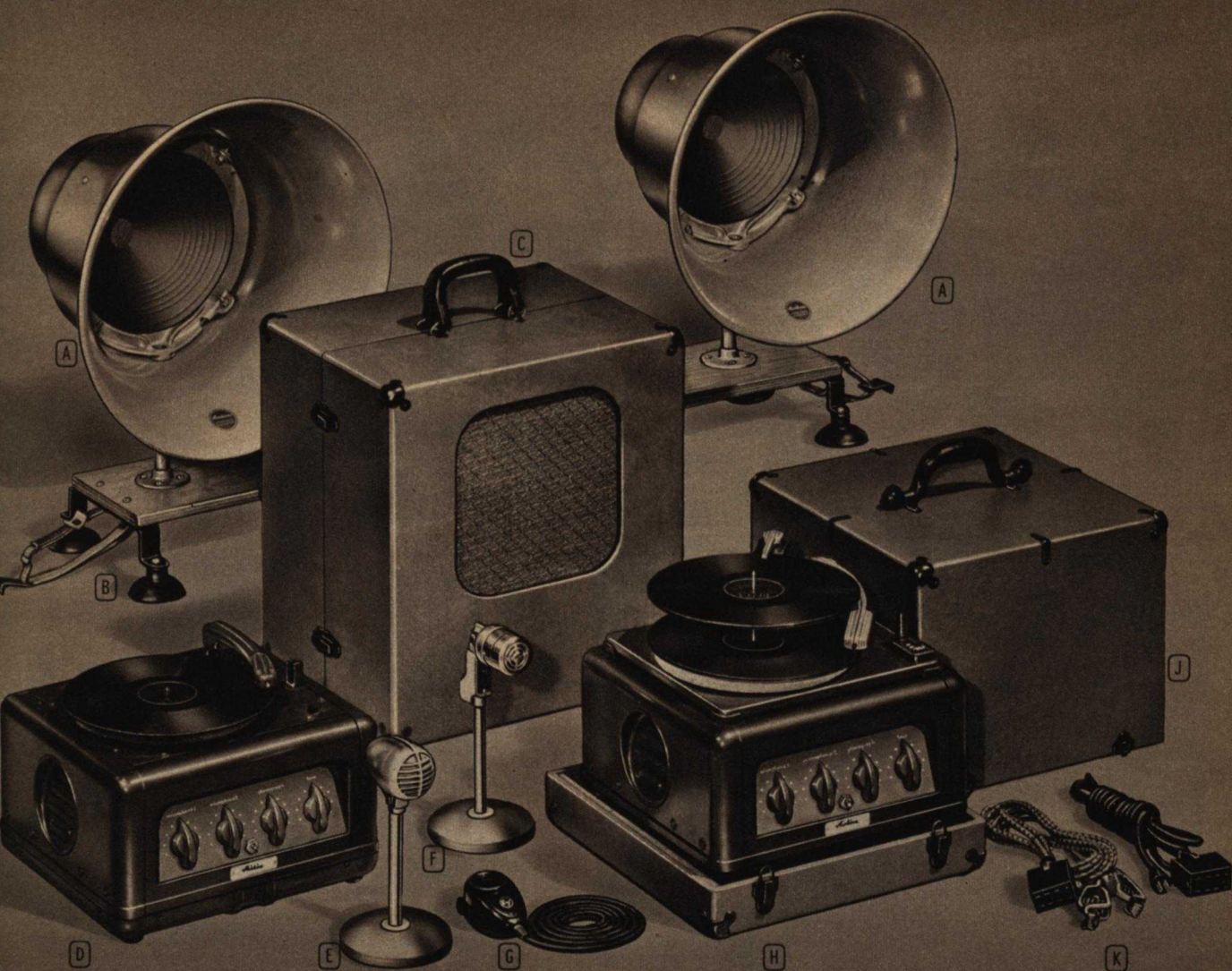
62 AE 8810 RT—Amplifier with Player. Cables. Ship. wt. 80 lbs. . . \$197.50

62 AE 8815 RT—Amplifier; one Microphone—choice of (F), (G) or (H); two Trumpets with Drivers (A). Cables included. Ship. wt. 139 lbs. . . . \$279.50

62 AE 8816 RT—Amplifier; one Microphone—choice of (F), (G) or (H); two Speakers in Speaker Case (C). With Cables. Ship. wt. 111 lbs. . . . \$272.50

62 AE 8817 RT—Amplifier; one Microphone—choice of (F), (G) or (H); two Trumpets with Drivers (A); Auto-top Platform shown on opposite page. With Cables. Ship. wt. 150 lbs. . . . . \$285.50





## Anywhere... Use Battery or Electric Power

**AIRLINE 18-WATT MOBILE SOUND SYSTEMS.** With sturdy, compact Amplifier you can use anywhere. Particularly adapted for sound truck use, small fairs, carnivals or outdoor audiences. Operates on 6-volt storage battery or on 105-125 volt 60 cycle AC. Separate power cords (K)—both plugs fit same connection on the amplifier—all connections are made automatically. Listed by Underwriters' Laboratories.

**(D) (H)** Two MODELS: (D) has single play phonograph. (H) has automatic record changer. 9-in. turntable, 78 R.P.M. High Quality Crystal Pickup with 5000-play needle. Amplifiers are the same in other specifications.

**Design and Operating Features:** Amplifier has many features of Airline 25-Watt Amplifier on Page 26. Illuminated panel, satin chrome finish. Speaker Selector Switch (a Wards patented feature). Rear Terminal Connector Strip for neatness and convenience. Line Fuse. Flexible Operation: Two Microphone Inputs with separate Volume Controls. Double-Action Tone Control permits you to regulate treble or bass response in continuous range. Provision for additional external record player. Two-way volume control

for fading from one record player to the other. Idling switch conserves battery—turns off vibrator but leaves filaments on, keeping tubes ready for instant operation. Shielded terminal panel. Rubber-mounted microphone input tube sockets. Molded Steel cabinet, gray metallic finish.

Long-Life, Low Drain Tubes: Two 6SC7's, one 6SQ7, two 6L6's, OZ4 rectifier. Amplifier sizes: 14 in. square; height (D) 10 in. (H) 13 in.

### ACCESSORIES USED IN 18-WATT MOBILE SOUND SYSTEMS

(A) Projectors with Speakers—same as 62 AE 6232 MT on Page 30 and 62 AE 6003MT on Page 29. (B) Auto-top platform, easily attached, no holes to drill—same as 62 AE 425MT on Page 30. (C) Speaker Case with 2 Speakers—same as 62 AE 6841MT with 62 AE 6003MT speakers on Pages 30 and 29. Microphones (E) and (F) on 4-in. stand; (E) American Airline Crystal—same as 62 AE 6500T on Page 32, (F) Electro-Voice 630 Dynamic—same as 62 AE 6501T on Page 32. (G) Electro-Voice 600D Hand-held Dynamic—same as 62 AE 6513T on Page 32. (J) Amplifier Case covered with tan simulated leather for Amplifiers (D) or (H)—same as 62AE 6840MT, Page 30.

### AMPLIFIER WITH RECORD PLAYER

**(D)** Has all features described above. Single Record Player. 10% Down on convenient Terms—See Page 47. Order from nearest Mail Order House, pay Express charges from there. Shipped from Chicago. *Not Mailable.*

- 62 AE 7810RT—Amplifier only. Shipping weight 37 lbs. ....\$92.50
- 62 AE 7815RT—Amplifier; one Microphone, choice of (E), (F) or (G); two Projectors (A) with 2 Speakers. With cables. Ship. wt. 94 lbs. ....\$157.95
- 62 AE 7816RT—Amplifier; one Microphone, choice of (E), (F) or (G); Speaker Case (C) with two speakers; Amplifier Case (J). Complete with cables. Shipping weight 93 lbs. ....\$153.95
- 62 AE 7817RT—Amplifier; one Microphone, choice of (E), (F) or (G); two Projectors (A) with two Speakers; one Auto-top Platform (B). Complete with cables. Shipping weight 102 lbs. ....\$161.95

### AMPLIFIER WITH AUTOMATIC RECORD CHANGER

**(H)** Has all features described above. High quality changer. Plays ten 12-in. or twelve 10-in. records automatically. Only 10% Down on convenient Terms—See Page 47. Order from nearest Mail Order House, pay Express charges from there. Shipped from Chicago. *Not Mailable.*

- 62 AE 7820RT—Amplifier with Changer, only. Ship. wt. 41 lbs. ....\$110.50
- 62 AE 7825RT—Amplifier; one Microphone, choice of (E), (F) or (G); two Projectors (A) with 2 speakers. With cables. Ship. wt. 98 lbs. ....\$175.95
- 62 AE 7826RT—Amplifier; one Microphone, choice of (E), (F) or (G); Speaker Case (C) with 2 Speakers; Amplifier Case (J). Complete with cables. Shipping weight 97 lbs. ....\$171.95
- 62 AE 7827RT—Amplifier; one Microphone (E), (F) or (G); 2 Projectors (A) with 2 Speakers; Auto-top Platform (B). With cables. Ship. wt. 106 lbs. ....\$179.95

If You Didn't Get This From My Site,  
Then It Was Stolen From...



26 WARDS

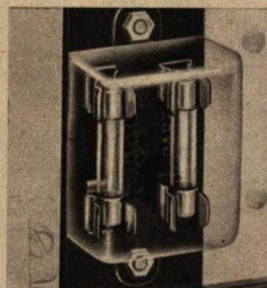
# Airline 16- and 25-Watt Sound Systems



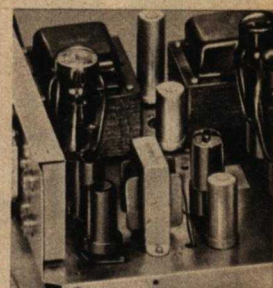
**REAR TERMINALS.** All connections are made on back for neat and easy installation.



**SELECTOR SWITCH.** Patented. Use up to four Speakers—always with a perfect electrical match.



**FUSE BOX.** A spare fuse inside fuse box for use in emergency. An added Airline convenience.



**PRE-AMPLIFIER STAGES** use direct current on the tube heaters. Prevents troublesome hum.

Airline 16 and 25-Watt Sound Systems provide excellent sound facilities for churches, schools, carnivals, orchestras—wherever reliable performance at moderate cost is desired. Their compactness and relatively light weight make them suitable for both fixed and portable applications. Amplifiers have the 4 features shown above, plus: Two mike inputs with separate volume controls. Two phono inputs with two-way volume control for fading from one to the other. Tone control. Illuminated panel. Steel cabinet, gray finish. 25-watt chassis, 6 tubes plus 5U4G rectifier: two 12SQ7's, 6SJ7, 6V6GT, two 6L6GA's; 16-watt chassis, 5 tubes plus 5U4G rectifier: 12SC7, 12SQ7, 6SL7GT, two 6L6GA's. 105—125 volts 60 cycle AC. 14 in. sq. by 8 1/4-in. high.

## ACCESSORIES USED WITH THESE SYSTEMS

**A B C** MICROPHONES. (A) Electro-Voice 630 Dynamic. (B) Electro-Voice 910 Crystal. (C) American Airline Crystal. Crystal types are good all-around microphones; dynamics are more rugged. All have 6-in. desk stand, 25-ft. connectors. See Pg. 32.

**J** 12-IN. PM DYNAMIC SPEAKERS. Heavy-duty. Molded cone; sturdy frame. Dustproof voice coil. Each has 35-ft. cord with plug. Same as No. 62 AE 6003MT (for 25-Watt Amplifier) or No. 62 AE 6004MT (for 16 Watt Amplifier) sold on Page 29.

**K** WALL BAFFLES. Spread sound over nearby area. 1/4-in. plywood covered with brown simulated leather. 14 by 6 3/8 by 9 in. With speakers (J) installed. Same as 62 AE 6212 MT on Page 29.

**L** AMPLIFIER CASE. For portable use. 3/8-in. plywood covered with Tan simulated leather. 15-in. square by 14 in. high. Same as 62 AE 6840MT on Page 30.

**M** PROJECTORS. Concentrate sound for greater distance. One-piece spun steel. Gray finish. 1/2-in. standard pipe thread mount stand. Come with speakers (J) installed. 17-in. diameter.

**SPEAKER CASE** (not shown, but same as 62 AE 6841MT on Page 30). Dual type, opens into two sections providing two speaker baffles. 3/8-in. plywood covered with Tan simulated leather. 14 1/4 by 18 1/4 by 17 in. Comes with two speakers (J) installed.

## AMPLIFIER WITH PLAIN TOP

**D** Has the fine performance and convenience features described above.

### COMBINATIONS WITH 16-WATT CHASSIS

62 AE 7100 RT—Amplifier. Wt. 29 lbs. \$4.95 Down, \$5. Monthly. Cash 49.50  
 62 AE 7102 RT—Amplifier, 1 Microphone, choice of (A), (B) or (C); 2 speakers (J). Wt. 56 lbs. \$8.40 Dn., \$7 Mo. Cash 83.95  
 62 AE 7103 RT—Amplifier, 1 Mike, choice of (A), (B) or (C); 2 Speakers (J) in 2 Wall Baffles (K). Wt. 64 lbs. \$8.90 Down, \$8 Monthly. . . . . Cash 88.95  
 62 AE 7106 RT—Amplifier, 1 Mike, choice of (A), (B) or (C); 2 Speakers (J) in Speaker Case; Amplifier Case (L). Wt. 85 lbs. \$8 Monthly. . . . . Cash 103.95

### COMBINATIONS WITH 25-WATT CHASSIS

62 AE 7300 RT—Amplifier. Ship. wt. 37 lbs. \$6.95 Down, \$6 Mo. . . . . Cash 69.50  
 62 AE 7302 RT—Amplifier; 1 Mike, choice of (A), (B) or (C); 2 Speakers (J). Ship. wt. 64 lbs. \$9 Monthly. Cash 109.95  
 62 AE 7303 RT—Amplifier; 1 Mike, choice of (A), (B) or (C); 2 Speakers (J) in 2 Wall Baffles (K). Ship. wt. 72 lbs. \$11.50 Down, \$9 Monthly. . . . . Cash 114.95  
 62 AE 7305 RT—Amplifier; 1 Mike, choice of (A), (B) or (C); 2 Speakers (J) in 2 Projectors (M). Shipping weight 94 lbs. \$13.20 Down, \$10 Monthly. . . . . Cash 132.95  
 62 AE 7306 RT—Amplifier; 1 Mike, (A), (B) or (C); 2 Spkrs. (J) in Speaker Case; Ampl. Case (L). Ship. wt. 93 lbs. \$10 Monthly. . . . . Cash 129.95

## AMPLIFIER WITH RECORD PLAYER

**E** Same as (D) but with 9-in. turntable; 78 R.P.M. Crystal Pickup with needle. Provision for additional players.

### COMBINATIONS WITH 16-WATT CHASSIS

62 AE 7110 RT—Amplifier. Wt. 33 lbs. \$6.15 Down, \$6 Monthly. Cash 61.50  
 62 AE 7112 RT—Amplifier; 1 Mike (A), (B) or (C); 2 Speakers (J). Ship. wt. 60 lbs. \$9.60 Down, \$8 Monthly. Cash 95.95  
 62 AE 7113 RT—Amplifier; 1 Mike, choice of (A), (B) or (C); 2 Speakers (J) in two Wall Baffles (K). Ship. wt. 68 lbs. \$10.10 Down, \$8 Monthly. . . . . Cash 100.95  
 62 AE 7116 RT—Amplifier, 1 Mike, (A), (B) or (C); 2 Speakers (J) in Speaker Case; Amplifier Case (L). Wt. 89 lbs. \$11.60 Down, \$9 Monthly. . . . . Cash 115.95

### COMBINATIONS WITH 25-WATT CHASSIS

62 AE 7310 RT—Amplifier; Wt. 41 lbs. \$8.15 Down, \$7 Monthly. Cash 81.50  
 62 AE 7312 RT—Amplifier; 1 Mike, (A), (B) or (C); 2 Speakers (J). Wt. 68 lbs. \$10 Monthly. . . . . Cash 121.95  
 62 AE 7313 RT—Amplifier; 1 Mike (A), (B) or (C); 2 Spkrs. (J) in 2 Wall Baffles (K). Wt. 76 lbs. \$10 Mo. Cash 126.95  
 62 AE 7315 RT—Amplifier; 1 Mike, choice of (A), (B) or (C); 2 Speakers (J) in 2 Projectors (M). Ship. wt. 98 lbs. \$14.50 Down, \$11 Mo. . . . . Cash 144.95  
 62 AE 7316 RT—Amplifier, 1 Mike, choice of (A), (B) or (C); 2 Speakers (J) in Speaker Case; Amplifier Case (L). Wt. 98 lbs. \$10 Monthly. . . . . Cash 141.95

## AMPLIFIER WITH RECORD CHANGER

**F** Same as (D), but plays ten 12-in. or twelve 10-in. records automatically. 9-in. turntable; speed 78 R.P.M. Crystal pickup with 5000-play needle. Provision for additional record players.

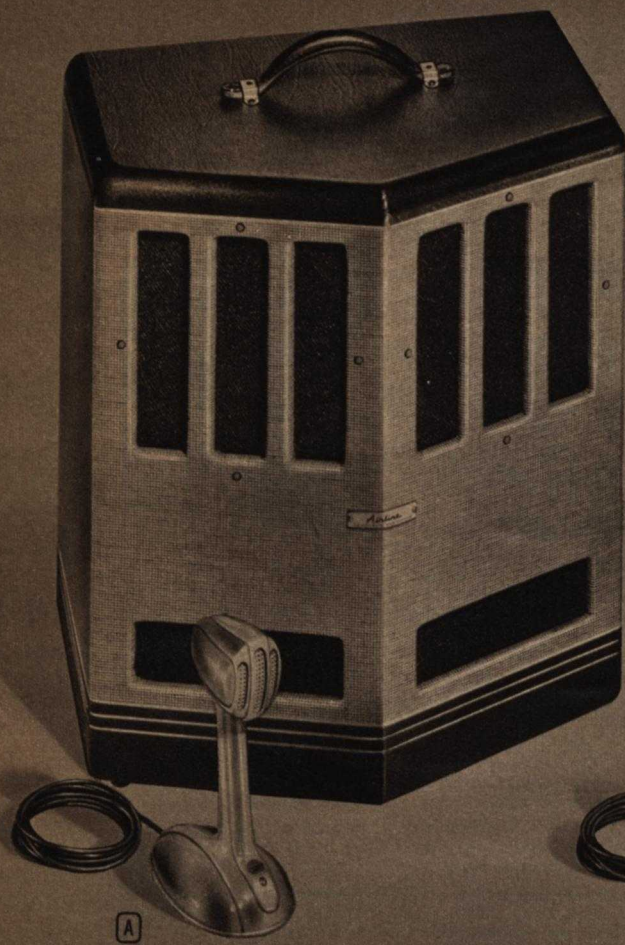
### COMBINATIONS WITH 16-WATT CHASSIS

62 AE 7120 RT—Amplifier. Ship. wt. 36 lbs. \$7.95 Down, \$7 Monthly. Cash 79.50  
 62 AE 7122 RT—Amplifier; 1 Mike (A), (B) or (C); 2 Speakers (J). Ship. wt. 63 lbs. \$11.40 Down, \$10 Mo. . . . . Cash 113.95  
 62 AE 7123 RT—Amplifier; 1 Mike (A), (B) or (C); 2 Speakers (J) in 2 Wall Baffles (K). Wt. 71 lbs. \$9 Mo. Cash 118.95  
 62 AE 7126 RT—Amplifier; 1 Mike (A), (B) or (C); 2 Speakers (J) in Speaker Case; Ampl. Case (L). Wt. 92 lbs. \$13.40 Down, \$10 Monthly. Cash 133.95

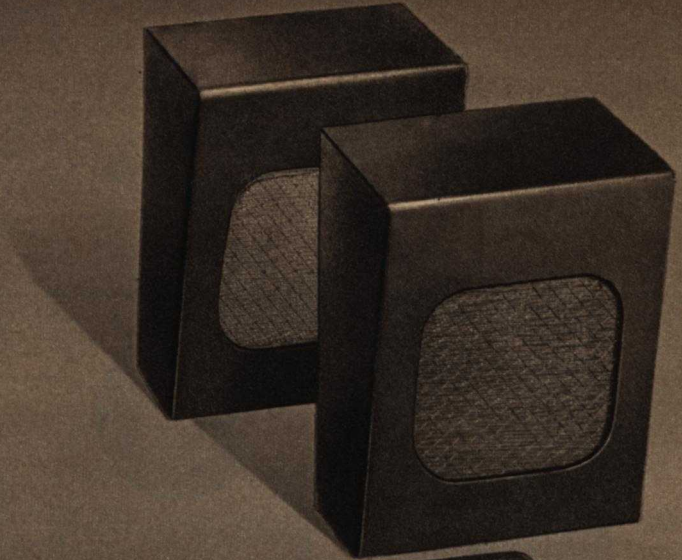
### COMBINATIONS WITH 25-WATT CHASSIS

62 AE 7320 RT—Amplifier. Ship. wt. 45 lbs. \$8 Monthly. . . . . Cash 99.50  
 62 AE 7322 RT—Amplifier; 1 Mike (A), (B) or (C); 2 Speakers (J). Ship. wt. 72 lbs. \$10 Monthly. . . . . Cash 139.95  
 62 AE 7323 RT—Amplifier; 1 Mike (A), (B) or (C); 2 Spkrs. (J) in 2 Wall Baffles (K). Wt. 80 lbs. \$10 Mo. Cash 144.95  
 62 AE 7325 RT—Amplifier; 1 Mike (A), (B) or (C); 2 Spkrs. (J) in 2 Projectors (M). Wt. 102 lbs. \$11 Mo. . . . . Cash 162.95  
 62 AE 7326 RT—Amplifier; 1 Mike (A), (B) or (C); 2 Speakers (J) in Speaker Case; Ampl. Case (L). Ship. wt. 101 lbs. \$16 Down, \$10 Monthly. . . . . Cash 159.95

All Systems shipped by Express only, from Chicago. Order, pay Express from nearest House.



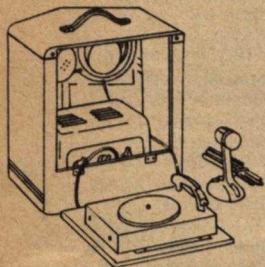
A



B

## Versatile Medium Power Sound Systems

### A COMPACT AIRLINE SOUND SYSTEM MODERATELY PRICED



**A** A new and versatile Sound System. Can be set up in a few minutes—all ready for operation. Excellent for chapels, club meetings, demonstrators, bingo games and other applications where quick, efficient, temporary installation is required. May easily be taken from one place to another in one compact unit—all parts fit neatly inside cabinet; microphone (with 25-ft. cord), amplifier, two speakers and record player.

**PERFORMANCE**—designed for ease of operation. Use with amplifier in or out of case as your needs require. An extra speaker (not included) may be plugged into amplifier.

Projection angle of the 8-inch speakers gives more adequate sound distribution. You can mix the voice in with the music, fade out the music for voice announcements, or operate either singly.

**AMPLIFIER**—has low-distortion, push-pull output stage. Rubber mounted microphone input tube socket to prevent vibration—assures quiet amplifier operation. Full range Tone Control. Separate Volume Controls for microphone and phonograph inputs. Speaker and microphone sockets, phono jack and fuse box with spare fuse mounted on rear panel; panel shielded to prevent any hum from being picked up by terminal leads. Heavy-duty construction with high quality parts used throughout for long, dependable service. 4 tubes plus rectifier: one 6SQ7 pre-amplifier, one 6SL7 driver, two 6V6GT's push-pull power output, one 5Y3GT (rectifier). UL Approved for safety in design.

**MICROPHONE.** New Electro-Voice "Comet" microphone included; popular crystal type. Gray plastic case is lightweight for desk or hand-use. Excellent range to 7000 cycles makes it suitable for both voice and music.

**RECORD PLAYER.** Included is a single-play record player with constant speed motor and crystal pickup. Slightly curved tone arm. Rubber feet to prevent scratching polished surfaces when used outside the cabinet.

For 105—125 volts 60 cycle AC only. Size overall 18 in. wide by 20 in. high by 15 in. deep. Shipped from Chicago. Order from nearest House. Wt. 46 lbs.

Only \$9 Down and \$8 Monthly on Terms

62 AE 7004RT—Portable Sound System. Express Only.....Cash Price 89.95

28 WARDS

### AIRLINE MEDIUM-POWER SOUND SYSTEM FOR MANY USES

**B** Compares with Sound Systems rated from 8 to 12 watts. Compactly designed—ideal for lodges, club rooms, chapels and schools. Dependable, easy to operate. Readily installed by anyone and ready for operation in a few minutes—no previous knowledge of Sound Systems required.

**PERFORMANCE.** Inputs for using microphone and phonograph (not included) at same time. Fade out the music for voice announcements or operate either singly. Tone Control range from treble to bass. Use one or two speakers. Separate Volume Controls for microphone and phonograph.

**AMPLIFIER.** Cabinet is of molded steel, finished in Metallic Gray, Satin Chrome finish instrument panel. Distinctive Red Plastic control knobs. Heavy-duty transformers for adequate power at maximum efficiency. Metal Case Condensers made by Mallory, hermetically sealed, moistureproof. Heavy-Duty small parts for dependable service. 4 tubes plus rectifier—same amplifier as Portable Model described at left. All connections are on rear panel which is shielded to prevent terminal leads from picking up hum. Speaker and microphone sockets, phono jack and fuse box with spare fuse mounted on rear panel (out of sight). Separate chassis readily accessible. Bottom and top panels are removable.

**ACCESSORIES.** New Electro-Voice "Comet" microphone of the crystal type with 25-ft. cable. Two 8-inch Speakers with 35-ft. cables for each, and two Wall Baffles shown above are available to make up a complete system.

For 105—125 volts 50/60 cycle AC only. Size 12¾ by 8¼ by 9 in. deep. Shipped by Express Only.

62 AE 7000RT—Amplifier only. Shipping weight 18 lbs.

Only \$3.50 Down and \$5 Monthly on Terms.....Cash Price 34.95

62 AE 7002RT—Amplifier, Microphone with 25-ft. cable, two 8-inch Speakers with 35-ft. cable for each. Shipping weight 35 lbs.

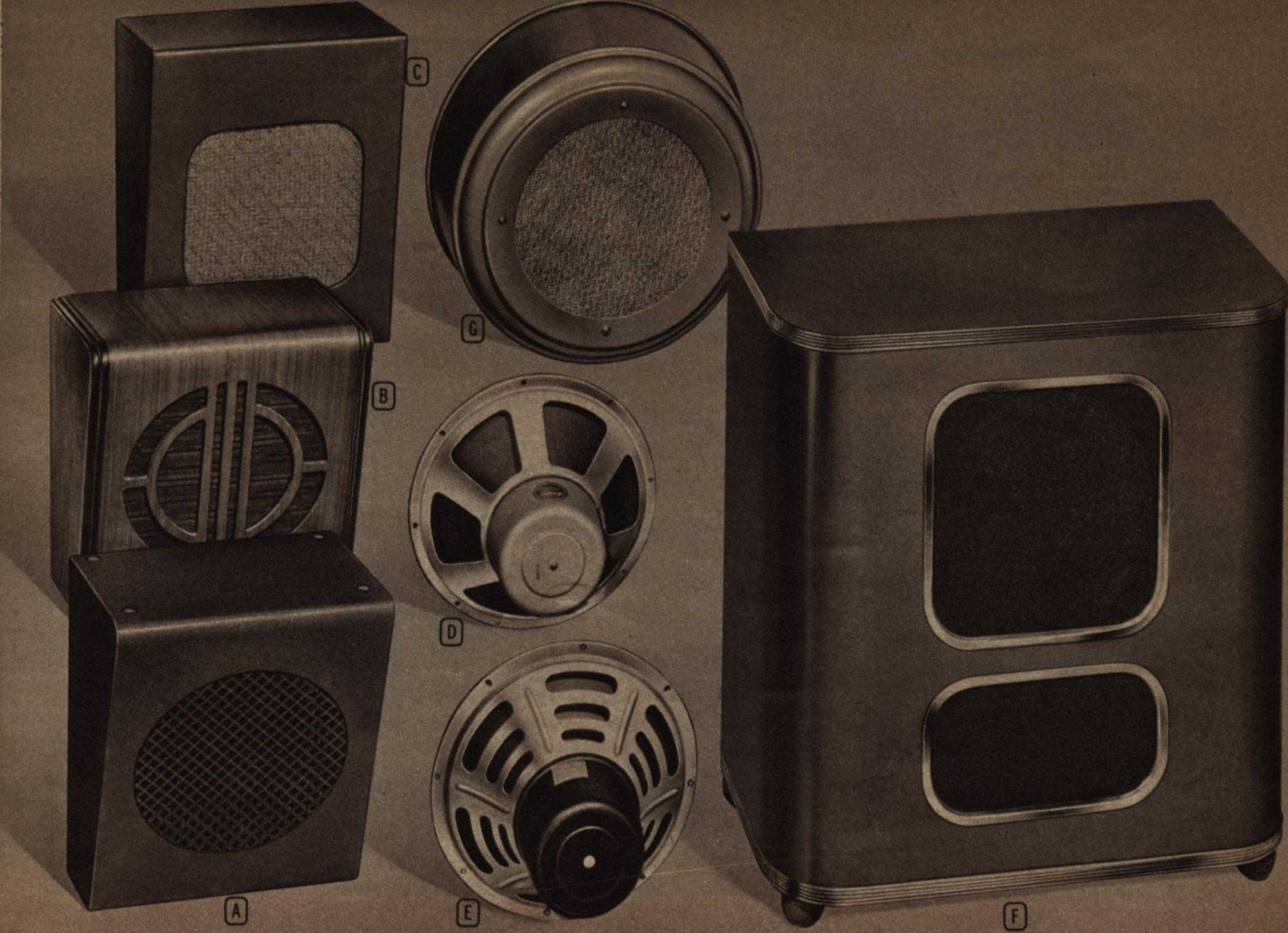
Only \$5.75 Down and \$5 Monthly on Terms.....Cash Price 57.25

62 AE 7003RT—Amplifier, Microphone with 25-ft. cable, two 8-inch Speakers in two Wall Baffles with 35-ft. cables for each. Ship. wt. 43 lbs.

Only \$6.15 Down and \$6 Monthly on Terms.....Cash Price 61.25

BUY NOW . . . PAY LATER . . . USE WARDS MONTHLY PAYMENT PLAN

Any Equipment in this Catalog may be purchased for only 10% Down. See Page 47 for complete details of Wards Convenient Monthly Payment Plan.



## *Airline and Jensen Speakers and Baffles*

### METAL WALL BAFFLE

**A** Provides excellent voice and music response. Black crackle finish matches Wards De Luxe Amplifiers. Easily installed; holes provided for speaker mounting. Inclined front panel—better sound distribution. For 12-inch speaker. See speakers described at right.

Metal grille with matching cloth protects speaker at all times. Lightweight alloy steel construction. Speaker not included.

62 AE 6214 MT—Ship. wt. 8 lbs. . . . . 5.95

### WALNUT FINISH BAFFLE

**B** For installations where appearance is an important factor—churches, schools, and other institutions. Directs sound downward when Baffle is installed on wall. Walnut finished plywood in attractive natural grain. Acoustic type grille cloth protects speaker. Built-in brackets for easy mounting. Uses 12-in. speaker (not included). See Speakers on this page. Size 15 by 14 in.

62 AE 6216 MT—Ship. wt. 9 lbs. . . . . 5.95

### MODERATELY PRICED BAFFLE

**C** Good quality wall baffle. 1/4-inch plywood covered with dark brown simulated leather. Front panel inclined. Durable grille cloth and screen. Less speaker, with brackets for speaker mounting. 3 sizes:

8 in.—Size 9 7/8 by 11 1/4 by 6 in.

62 AE 6210 MT—Ship. wt. 4 lbs. . . . . 2.15

10 in.—Size 12 1/2 by 14 1/2 by 7 1/4 in.

62 AE 6211 MT—Ship. wt. 5 lbs. . . . . 2.45

12 in.—Size 13 7/8 by 16 5/8 by 9 in.

62 AE 6212 MT—Ship. wt. 6 lbs. . . . . 2.65

### AIRLINE PM SPEAKERS

**D** Heavy-Duty high quality speakers designed specifically for use with Airline Sound Systems. Excellent for any Public Address system where reliability and efficiency are required. All have cones treated against moisture absorption, sturdy frames, heavy-duty dustproof coils, and braided copper voice coil leads.

8-in. Speaker. 5 watt continuous rating, 7.25-watt peak. 8-ohm voice coil is 3/4-in. diam. 1.47 oz. Alnico "5" magnet. Wt. 4 lbs.

62 AE 6000 MT. . . . . 5.65

10-in. Speaker. 8-watt continuous rating, 12-watt peak. 8-ohm voice coil is 1-in. diam. 4.64 oz. Alnico "5" magnet. Ship. wt. 7 lbs.

62 AE 6001 MT. . . . . 8.20

12-in. Speaker. 15-watt continuous rating, 22-watt peak. 8-ohm voice coil is 1 1/2-in. diam. 4.61 lb. Alnico "3" magnet. Ship. wt. 15 lbs.

62 AE 6002 MT. . . . . 22.75

12-in. Speaker. 12-watt continuous rating, 17-watt peak. 8-ohm voice coil is 1 1/4 in. diam. 43 oz. Alnico "3" magnet. Ship. wt. 10 lbs.

62 AE 6003 MT. . . . . 14.75

12-in. Speaker. 8-watt continuous rating, 12-watt peak. 8-ohm voice coil is 1 in. diam. 20 oz. Alnico "3" magnet. Ship. wt. 7 lbs.

62 AE 6004 MT. . . . . 10.35

### JENSEN PM SPEAKERS

**E** These nationally known Speakers are an exceptionally fine value. Dustproof. Conservatively rated. Match Airline Amplifiers without need of a transformer when used within 150 ft. Transformers not included but may easily be mounted. See No. 6205 transformer on Page 31.

8-inch P-8-S Speaker. 8-watt continuous rating. 6-8 ohm 1-in. voice coil. Ship. wt. 5 lbs.

62 AE 6031 MT. . . . . 7.20

10-inch P-10-S Speaker. 9-watt continuous rating. 6-8 ohm 1-in. voice coil. Ship. wt. 6 lbs.

62 AE 6032 MT. . . . . 8.97

12-inch P-12-S Speaker. 10-watt continuous rating. 6-8 ohm 1-in. voice coil. Ship. wt. 7 1/2 lbs.

62 AE 6033 MT. . . . . 9.70

12-inch P-12-Q Speaker. 13-watt continuous rating. 8 ohm 1 1/4-in. voice coil. Ship. wt. 11 lbs.

62 AE 6034 MT. . . . . 16.32

12-inch P-12-N Speaker. 15-watt continuous rating. 8-ohm 1 1/2 in. voice coil. Ship. wt. 18 lbs.

62 AE 6035 MT. . . . . 28.81

**BAFFLE BOARDS** adapt smaller speaker to 12-in. baffle. Plywood.

62 AE 6208 T—For 8-in. Speaker. 14 in. sq., 7-in. dia., 70¢

62 AE 6209 T—For 10-in. Speaker. 14 in. sq. 9-in. dia., 70¢

### JENSEN BASS REFLEX BAFFLE

**F** Excellent for high-quality custom installations. Improves musical reproduction of any speaker. Bass Reflex type brings rear radiation out in front with forward sound waves. Gives full sound reproduction. Sturdily built of plywood, finished in Dark brown lacquer. Mounting brackets included. Easy to assemble. Speaker not included.

62 AE 6200 MT—B81. Size 24 by 18 by 9 1/4 in. Fits 8-inch speaker.

Ship. wt. 19 lbs. . . . . 16.34

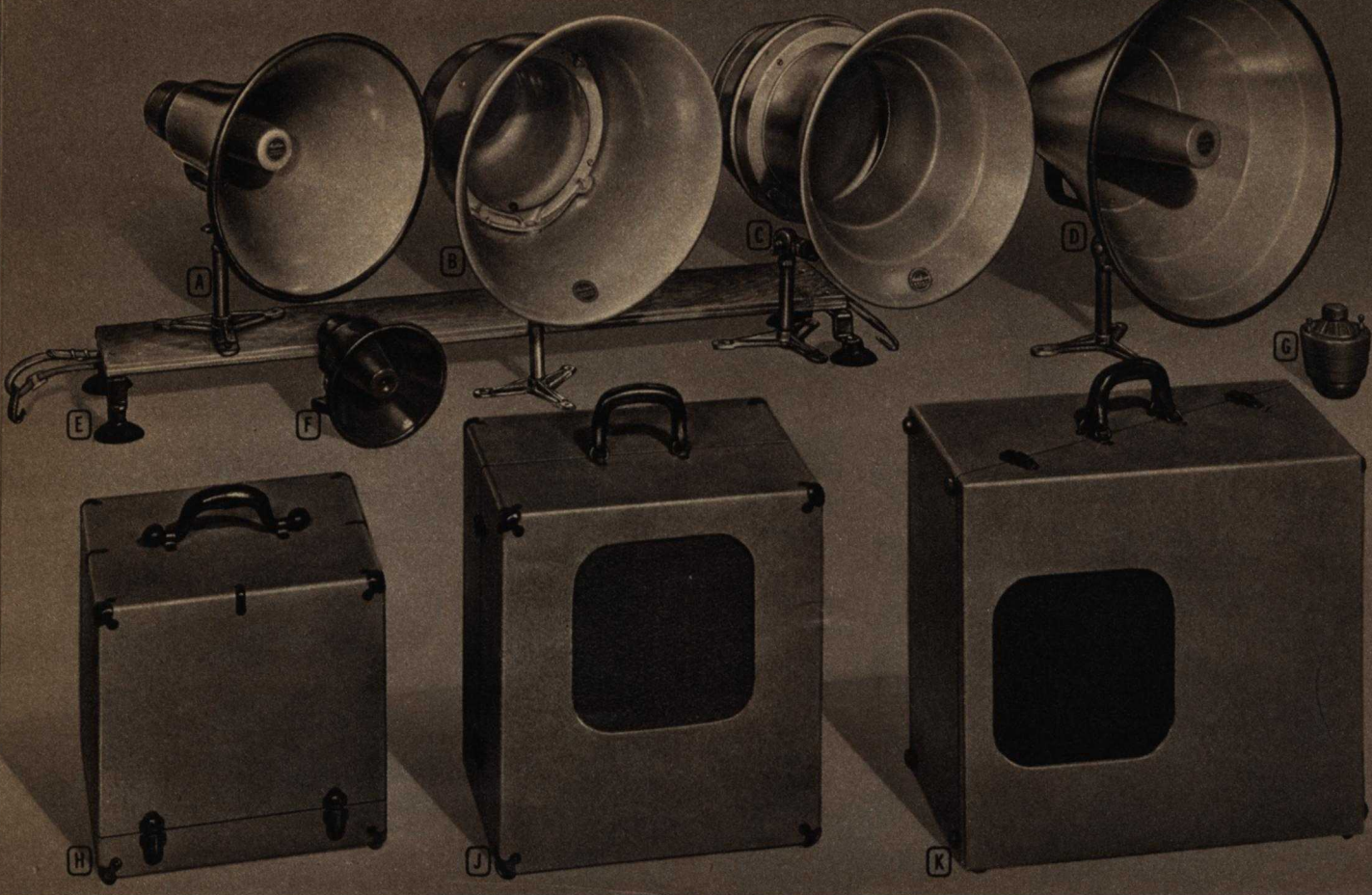
62 AE 6201 MT—B121. Size 27 by 24 3/4 by 13 1/2 in. Fits 12-in. speaker. Ship. wt. 31 lbs. . . . . 25.48

62 AE 6218 MT—B151. Size 32 3/8 by 27 3/8 by 13 1/2 in. Fits 15-in. Speaker (see Page 49). Shipping weight 50 lbs. . . . . 31.68

### CEILING OR WALL BAFFLE

**G** Designed for churches, auditoriums and other places where natural tone as well as attractive appearance is essential. Built-in padding prevents annoying vibrations. Gray hammerloid enamel finish. To be used with 12-inch speakers. Opening covered with grille cloth and protected by 1/4-inch wire mesh screen. Easily installed, complete with mounting fixtures. Speaker not included. Size 17 3/4-in. diam. and 7-inch depth. Ship. wt. 14 lbs.

62 AE 6202 MT. . . . . 7.69



## Projectors, Trumpets and Carrying Cases

### FINE QUALITY, HIGH INTENSITY REFLEX TRUMPETS

Reflex trumpets provide a narrower, more intense sound beam than projectors. Our trumpets were specifically designed to match Wards Airline Sound Systems. Heavy spun steel alloy assures excellent acoustical characteristics as well as ruggedness and durability. Weatherproof, gray Hammerloid enamel finish. Molded rubber rim on edge of bell. Threaded attachment  $1\frac{3}{8}$  in. No. 18 thread. Driver unit threads onto one-piece cast primary tube section. Adjustable, cast malleable iron mounting fixture. (Purchase Driver Unit separately—see below).

**A** Length overall 16 in. Bell diameter 16 in. Acoustic length 3 ft. Projection angle 70 degrees. Wt. 16 lbs. *Mailable*.  
62 AE 6285 MT—\$1.15 Down and \$5 Monthly. .or Cash \$11.50

**D** Length overall 18 in. Bell diam. 21 in. Acoustic length 4 ft. Projection angle 80 degrees. Wt. 18 lbs. Express.  
62 AE 6286 RT—\$1.60 Down, \$5 Monthly. . . . .or Cash \$15.95  
62 AE 6287 RT—Length overall 21 in. Bell diameter 25 in. Acoustic length 4 ft. 10 in. Projection angle 90 degrees. Ship. wt. 21 lbs. Express. \$2.50 Down. . . . .or Cash \$24.95

**G** DRIVER UNIT. All trumpets require a driver unit. Fine quality, 25-watt continuous rating. 16-ohm voice coil. Fits all Airline trumpets shown above as well as all standard type trumpets. Wattage is conservatively rated.  
62 AE 6830 MT—Wt. 8 lbs. \$2.00 Down, \$5 Mo. or Cash \$19.95

**E** AUTO-TOP PLATFORM. Held on car top by 4 vacuum cups, and straps with rubber-covered hooks. Fits all metal top cars. Holds 2 projectors or trumpets. Waterproof plywood platform  $4\frac{5}{8}$  in. long,  $7\frac{3}{4}$  in. wide,  $\frac{3}{4}$  in. thick. *Mailable*.  
62 AE 425 MT—Shipping weight 11 lbs. . . . . \$4.56

**H** AMPLIFIER CASE (open view—top, at left). For carrying and protecting amplifier. Strong snap locks. Leather carrying handle.  $\frac{3}{8}$ -in. plywood covered in British tan simulated rawhide leather. Metal feet, corner shields. Size overall  $14\frac{1}{4}$  by  $14\frac{1}{8}$  by  $13\frac{1}{4}$  in. Fits Airline Amplifiers No. 62 AE 7100, 7110, 7120, 7300, 7310, 7320, 7810 and 7820. *Mailable*.  
62 AE 6840 MT—Ship. wt. 12 lbs. . . . \$9.75

**J** SPEAKER CASE (open view—center, at left). Mounts any two 12-in. speakers. Divides into two baffles. Matches amplifier case at left. Sturdy  $\frac{3}{8}$ -in. plywood construction. Four strong snap locks, two on each side. Covered with British tan simulated rawhide leather. Size overall  $18\frac{1}{4}$  by  $13\frac{3}{4}$  by 17 in. *Mailable*.  
62 AE 6841 MT—Wt. 15 lbs. . . . \$10.35

**K** DE LUXE SPEAKER CASE (open view—bottom, at left). Mounts any two 12-inch speakers. Case is divided diagonally. Speaker openings protected by strong screen and grille cloth. Shark-grained two-tone artificial leather covering. Leather carrying handle. Strong snap spring locks. Size overall  $22\frac{1}{2}$  by  $14\frac{1}{2}$  by  $9\frac{1}{2}$  in. Ship. wt. 12 lbs. *Mailable*.  
62 AE 6842 MT. . . . . \$12.50

### ALL-PURPOSE SOUND PROJECTORS . . . PAGING SPEAKER

Projectors direct sound in a narrower beam and carry it farther than baffles. They produce crisper, more penetrating tones. Projectors (B) and (C) will accommodate any 12-in. speaker, with or without transformer. Standard  $\frac{1}{2}$ -in. threaded mounting. Iron base adaptor is adjustable. Finished in attractive, Gray weatherproof enamel.

**B** GOOD QUALITY AIRLINE SOUND PROJECTOR. One-piece steel alloy construction for strength and minimum vibration.  $16\frac{1}{4}$  in. long.  $19\frac{3}{4}$  in. bell diameter. Wt. 13 lbs. Express.  
62 AE 6232 RT—Only \$1.10 Down, \$5 Monthly. .or Cash \$10.95

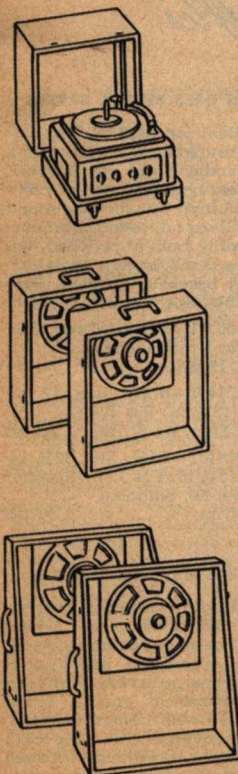
**C** BEST QUALITY AIRLINE SOUND PROJECTOR. Heavy spun steel alloy. Lightweight, yet strong enough to take the abuse of heavy vibration under load, and to withstand rough handling. 20 in. long, 17-in. bell. Wt. 16 lbs. Express.  
62 AE 6234 RT—Only \$1.35 Down and \$5 Mo. . . Cash \$13.50

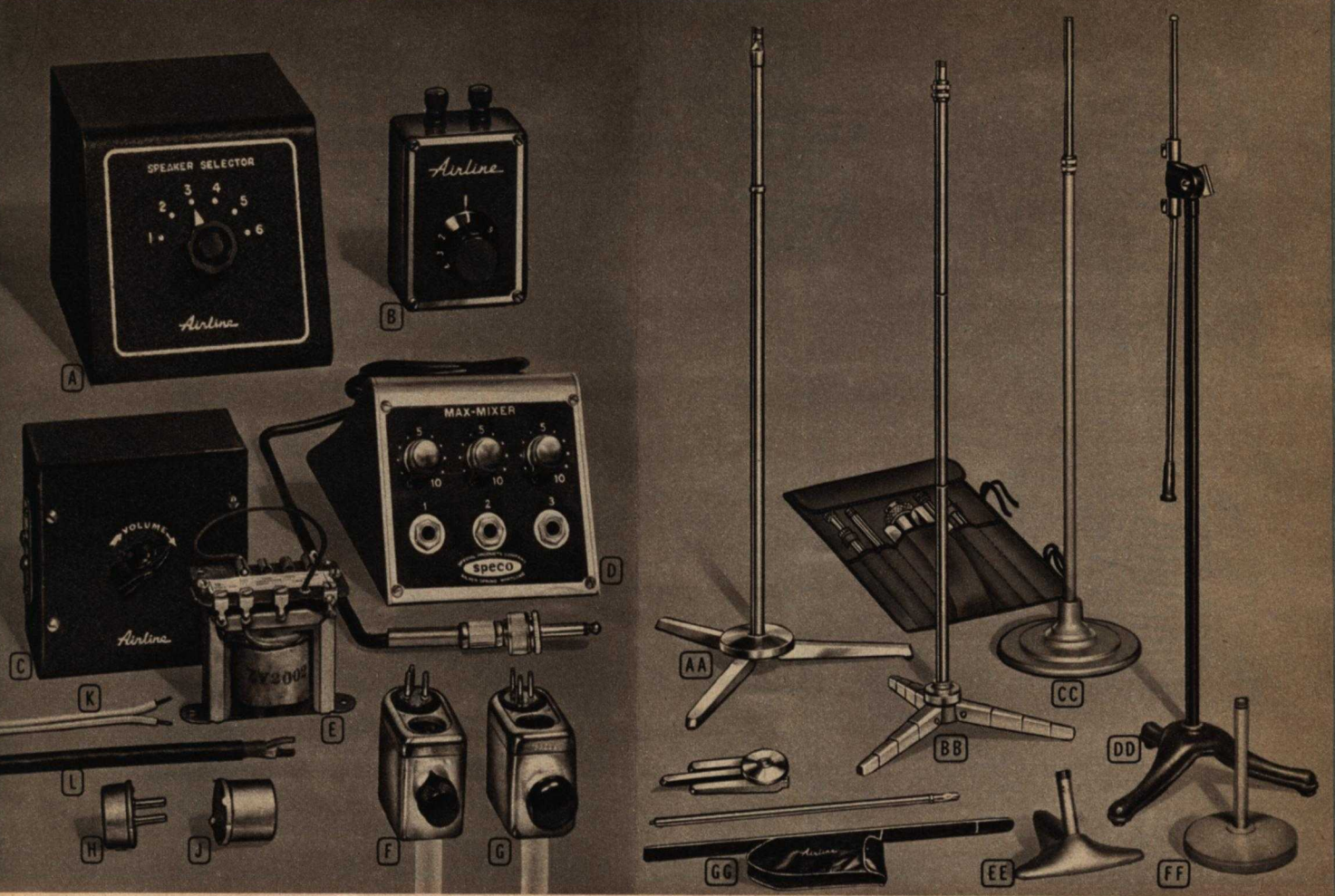
**F** UNIVERSITY MODEL MIL PAGING SPEAKER. An inexpensive intercommunication speaker for paging in small factories and offices. Narrow sound beam over-rides high noise levels. Hermetically sealed, weatherproof, built-in driver unit. 5-watt continuous rating. 8 ohms impedance. 120 degree sound dispersion. 7 in. high, 6-in. diam. Ship. wt. 3 lbs. 8 oz.  
62 AE 6288 MT—\$1.50 Down, \$5 Monthly. . . . .or Cash \$14.70

PROTECTIVE HORN COVER (not shown). Sturdy Vinyl plastic. Tie cord assures snug fit. Ship. wt. 11 lbs.

62 AE 6878 T—For 16 to 18-in. bell. . . . . \$1.15  
62 AE 6879 T—For 20 to 24-in. bell. . . . . 1.60

PROTECTIVE MICROPHONE COVER (not shown). Waterproof Celanese-coated Koroseal. For any microphone. 6 by  $11\frac{1}{4}$  in.  
62 AE 6877 T—Shipping weight 8 oz. . . . . .59c





## Accessories for Speakers and Microphones

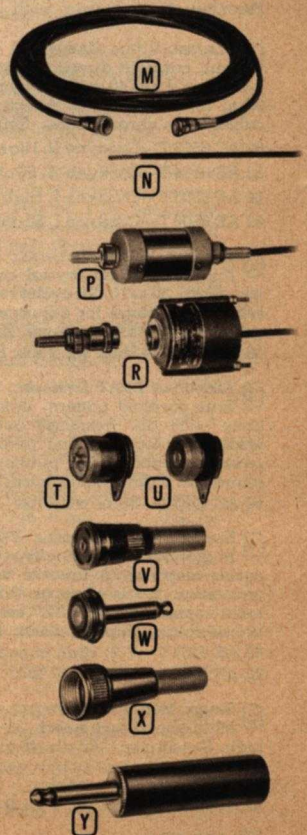
### SPEAKER AND MICROPHONE CONTROLS ... MICROPHONE STANDS

- A** SPEAKER SELECTOR. 100-watt capacity. Feeds as many as six 8-ohm speakers at a time. Additional Selectors may be used. Steel case. 62 AE 6100MT—Ship. wt. 10 lbs. \$16.25
- B** REMOTE VOLUME CONTROL. Use up to 1000 ft. from amplifier. For all Wards De Luxe Amplifiers. 62 AE 6837 T—Ship. wt. 3 lbs. \$5.98
- C** INDIVIDUAL SPEAKER VOLUME CONTROL. 7-watt cont., 8-ohm pad. 62 AE 6835 T—Ship. wt. 1 lb. \$4.95
- D** SPECO "MAX-MIXER". Mike input mixer for one or two more mikes added to amplifier. 3 volume controls. 6-ft. cable connector; phone plug adapter. 62 AE 6869 MT—Ship. wt. 4 lbs. \$11.14
- E** JENSEN SPEAKER MATCHING TRANSFORMERS. Shipping weight 2 lbs. 62 AE 6205 T—Up to 10 watts. \$2.94  
62 AE 6206 T—10 to 15 watts. \$4.23
- F** MICROPHONE STAND SWITCHES. Fit cable connector type Shure microphones. Standard thread. Shipping weight 12 oz.  
(F) 62 AE 6870 T—Snap Type. \$3.53  
(G) 62 AE 6871 T—Push Type. \$4.12
- H** SPEAKER CORD PLUGS. Cadmium plated, insulated shell. Wt. 4 oz.  
(H) 62 AE 6890 T—2-prong male. \$5c  
(J) 62 AE 6891 T—2-prong female. \$5c
- K** 2-CONDUCTOR SOLID RUBBER INSULATED WIRE. 18-gauge multistrand copper. Ship. wt. 25 ft., 1 lb. 6 oz.  
62 AE 6881 HT—Per ft. 2¼¢; 25 ft. 50¢
- L** HEAVY-DUTY 2-CONDUCTOR multi-strand 18-gauge copper wire, rubber covered. Ship. wt. 25 ft., 1 lb. 6 oz.  
62 AE 6882 HT—Per ft. 4¼¢; 25 ft. 95¢

- AA** DE LUXE PORTABLE FLOOR STAND. Electro-Voice 425. Push-button release. Adjustable 37-66 inches. Folds and fits carrying bag (GG) below. Floor stand also shown dismantled above carrying bag. Chrome finish with extra large tripod base. Ship. wt. 11 lbs. Bag not included. 62 AE 6811 MT—Stand only. \$14.41
- BB** BETTER QUALITY TAKE-DOWN FLOOR STAND. 3 sections. Adjustable 46-57 in. Large folding base. Carrying bag included (shown behind stand). Ship. wt. 15 lbs. 62 AE 6812 MT—Stand with bag. \$11.25
- CC** STANDARD QUALITY FLOOR STAND. Adjustable 36-57 in. Silent friction clutch. Chrome plated tubing, gray finished 10-in. base. Wt. 10 lbs. 62 AE 6801 MT—Stand only. \$6.95
- DD** BOOM MIKE FLOOR STAND. Excellent for piano pickup. Has positive position lock and fingertip adjustment. Adjusts to 6 ft. Chrome and black satin finish. Shipping wt. 16 lbs. 62 AE 6813 MT. \$14.41
- EE** PULPIT TYPE STAND. For church use, inconspicuous. 6-in. base. Stand without mike 3¾ in. high. Gray enameled. Standard 5/8-in. 27 thread. 62 AE 6804 T—Ship. wt. 4 lbs. \$1.75
- FF** MODERN DESK STAND. 4-in. shaft. 5½-in. base—Standard thread. 62 AE 6810 T—Ship. wt. 4 lbs. \$1.50
- GG** CARRYING BAG for De Luxe Floor Stand 62 AE 6811 MT. Black simulated leather, with pockets. Size: 34 by 6 in. wide. 14-in. bag. 62 AE 6875 T—Ship. wt. 2 lbs. \$2.89

### CABLES AND CONNECTORS

- M** MIKE CABLE. Single conductor shielded. With connectors. 62 AE 6883 T—8 ft. Wt. 1 lb. 2 oz. \$1.75  
62 AE 6885 T—25 ft. Wt. 3 lbs. 2.98  
62 AE 6884 T—50 ft. Wt. 6 lbs. 4.75
- N** MIKE CABLE. Single conductor. Shielded. Low capacity. 62 AE 6886 T—Ship. wt. per ft. 2 oz. 5c
- P** SHURE A86A CABLE TRANSFORMER. Matches 35-50 and 200-250-ohm mikes to higher impedance amplifier input. Shielded case, 7-ft. single conductor shielded cable and connectors. 62 AE 6872 T—Ship. wt. 2 lbs. \$8.97
- R** ELECTRO-VOICE MODEL 502 CABLE TRANSFORMER. For 50-250-ohm low impedance mikes. Threaded male connector on primary. Secondary has 36-in. shielded cable, female connector. 62 AE 6831 T—Ship. wt. 2 lbs. \$7.94
- MIKE CABLE AND CHASSIS CONNECTORS. Single-contact, shielded. For cables up to ¼-in. diam.; 5/8-in. 27-thread.
- T** 62 AE 6857 T—CL-PCIM CHASSIS UNIT. Closed circuit. Spring Contact. Ship. wt. 3 oz. 26¢
- U** 62 AE 6858 T—PCIM CHASSIS UNIT. Open circuit type. Wt. 3 oz. 19¢
- V** 62 AE 6856 T—MCIM SINGLE CONTACT CABLE CONNECTOR. Male. Ship. wt. 3 oz. 26¢
- W** 62 AE 6859 T—PHONE PLUG ADAPTOR for converting MC1F to fit standard phone jack. Wt. 3 oz. 31¢
- X** 62 AE 6855 T—MC1F SINGLE MIKE CONNECTOR. Wt. 3 oz. 32¢
- Y** 62 AE 6860 T—GENERAL PURPOSE 2-CONDUCTOR PLUG. Fits phone, speaker, mike jacks. Wt. 2 oz. 45¢





## *Choose a Nationally Known Microphone*

Types and uses of microphones are discussed on Page 17 of this Catalog. Essential characteristics such as pickup pattern, directivity, frequency re-

sponse, and sensitivity are fully defined and described. You will find the information helpful in selecting the right microphone for your purpose.

**1** ELECTRO-VOICE CARDYNE I AND II DYNAMICS with cardioid directional pickup. Sensitivity —53 db. C-1 has 40 to 10,000 cycles response; C-II, 30 to 12,000. Both with Alnico V magnets. 20-ft. cable. Satin chrome finish. Ship. wt. each, 4 lbs. 62 AE 6503 T—Cardyne II, High imped. . . . .47.04  
62 AE 6504 T—Cardyne II, 50 ohm. . . . .47.04  
62 AE 6505 T—Cardyne I, High imped. . . . .34.99  
62 AE 6506 T—Cardyne I, 50 ohm. . . . .34.99

**2** ASTATIC WR-40 CRYSTAL. High impedance. Dual-diaphragm crystal cartridge. Sensitivity —56 db. 30 to 10,000 cycles response. Tilt head, self-locking hinge for adjustment. Satin chrome grille, bright chrome frame. 25-ft. cable. 62 AE 6553 T—Ship. wt. 2 lbs. 12 oz. . . . .25.43

**3** AMERICAN D9AT DYNAMIC. High impedance. True cardioid pattern. Unidirectional. Sensitivity —55 db. Response over 10,000 cycles. Modified velocity section permits close talking, reduces feedback. For public address, general sound use. Satin chrome finish. 25-ft. cable. 62 AE 6523 T—Ship. wt. 4 lbs. . . . .26.46

**4** ELECTRO-VOICE MODELS V-2, V-3 VELOCITY. Bi-directional. Sensitivity —58 db. 40 to 10,000 cycles response. A favorite with vocalists and orchestras. V-3 is same as V-2, except V-3 has multi-impedance, Vari-"Z" selector. 20-ft. cable. Bronze finish. Ship. wt. each, 4 lbs. 62 AE 6507 T—V-2, High impedance . . . . .26.46  
62 AE 6508 T—V-3, Vari-"Z". . . . .35.28

**5** SHURE MODEL 55 DYNAMIC. Cardioid pattern. Multi-impedance switch, 35–50, 120–250 ohms, high. Sensitivity —62 db. 40 to 10,000 cycles response. Unidyne principle eliminates feedback. Chrome finish. 25-ft. cable. 62 AE 6531 T—Ship. wt. 4 lbs 8 oz. . . . .36.75

**6** TURNER 211 DYNAMIC. High impedance. Semi-directional. Specially designed diaphragm for low harmonic and phase distortion. Sensitivity —54 db. 30 to 10,000 cycles response. Satin chrome finish. 20-ft. cable. 62 AE 6544 T—Ship. wt. 3 lbs. . . . .27.93

**7** TURNER U9S MULTI-IMPEDANCE DYNAMIC. Semi-directional. 50, 200, 500 ohms imped. or high with turn of mike switch. Sensitivity —52 db. 40 to 9000 cycles response. Extremely rugged. Tilting head. Baked-on gun metal finish. 20 ft. cable. 62 AE 6542 T—Ship. wt. 3 lbs. . . . .23.52  
62 AE 6540 T—TURNER 99 DYNAMIC (not shown). Same sensitivity and response as Turner U9S, but high impedance only. Wt. 3 lbs. 19.99

**8** AMERICAN D5T DYNAMIC. High impedance. Excellent diversified purpose type. Rugged. Sensitivity —52 db. 50 to 8,000 cycles response. Semi-directional. Minimum feedback. Chrome finish. 25-ft. cable. 62 AE 6524 T—Ship. wt. 3 lbs. . . . .22.93

**9** AMERICAN VR2T DYNAMIC. High impedance. Directional. External adjustment for variable frequency response. Changes from communication type response with cutoff below 500 cycles, through a flat response to an augmented bass. Sensitivity —53 db. 60 to 10,000 cycles response. Dull Chrome finish. 12½-ft. cable. 62 AE 6555 T—Ship. wt. 3 lbs. . . . .24.78

**10** ELECTRO-VOICE CARDAX 950 CRYSTAL. High impedance. Cardioid pattern with mechanical phase principle of uni-directivity. Dual frequency response control: —57 db. flat and —48 db. rising characteristics. 40 to 10,000 cycles response. Tilting head. Satin chrome finish. With 25-ft. cable. 62 AE 6509 T—Ship. wt. 4 lbs. . . . .23.23

**11** AIRLINE AMERICAN CRYSTAL. High impedance. Tilt head. Sensitivity —55 db. 50 to 10,000 cycle response. Chrome finish. 25-ft. cable. Made by American Microphone Company. 62 AE 6500 T—Ship. wt. 4 lbs. . . . .16.17

**12** SHURE 737A MONOPLEX CARDIOID CRYSTAL. High impedance. Unidirectional. Sensitivity —53 db. 60 to 10,000 cycles response. Swivel head. Pearl gray finish. 20-ft. cable. 62 AE 6551 T—Ship. wt. 4 lbs. . . . .20.87

**13** ELECTRO-VOICE V-1 RIBBON VELOCITY. High impedance. Bi-directional. Sensitivity —71 db. 40 to 9000 cycles response. Tilt head. Off-on switch. Chromium finish. 20-ft. cable. 62 AE 6502 T—Ship. wt. 3 lbs. . . . .21.46

**14** ELECTRO-VOICE 630 DYNAMIC. Semi-directional. Sensitivity —53 db. 40 to 9000 cycles response. Tilt head, on-off switch. Chromium finish. 20-ft. cable. Use long line type up to 1000 ft. from amplifier without transformer. 62 AE 6501 T—High Imped. Wt. 3 lbs. . . . .21.46  
62 AE 6512 T—Long Line. Wt. 3 lbs. . . . .21.46

**15** ELECTRO-VOICE 600-D. Moving coil, hand-held dynamic. High impedance. Press-to-talk switch. Sensitivity —55 db. 100 to 6000 cycles response. Phenolic case. 6-ft. cable. 62 AE 6513 T—Ship. wt. 2 lbs. . . . .20.58

62 AE 6517 T—E.V. 210-S SINGLE BUTTON CARBON. Sensitivity —27 db. Response, appearance same as E.V. 600D. 5-ft. cable. Wt. 2 lbs. . . . .14.70

62 AE 6550 T—E.V. 602 HAND-HELD DIFFERENTIAL moving coil dynamic. High impedance useful where ambient noise is 100 db. or more. Sensitivity, response and appearance same as E.V. 600-D. 6-ft. cable. Ship. wt. 2 lbs. . . . .23.52





## for Your Sound System or Transmitter

All microphones, as well as all other equipment in this Catalog, may be purchased for only 10% down, balance in monthly payments. See Page 47 for

complete details of Wards convenient Monthly Payment Plan and our equally convenient "Add-on" Plan. Buy your equipment today—use it as you pay for it.

**16** TURNER 9D "HAN-D" DYNAMIC. High impedance. Semi-directional. Hang, hold or mount it on desk or floor stand. Off-on switch. Sensitivity —52 db. 60 to 7000 cycles response. Satin chrome finish, die-cast case. 20-ft. cable.

62 AE 6537 T—Ship. wt. 2 lbs. 8 oz. . . . . 16.76

62 AE 6536 T—TURNER 9X "HAN-D" CRYSTAL. High impedance. Same response, and sensitivity as above. Ship. wt. 2 lbs. . . . . 14.70

**17** TURNER 22D DYNAMIC. High impedance. Semi-directional. Balanced acoustic circuit with shielding to prevent rf pickup. Sensitivity —54 db. 50 to 9000 cycles response. Tilt head. Satin chrome finish. 20-ft. cable.

62 AE 6539 T—Ship. wt. 3 lbs. . . . . 15.88

62 AE 6538 T—TURNER 22X CRYSTAL (not shown). High impedance. Semi-directional. Sensitivity —52 db. 50 to 9000 cycles response. Same appearance as above. 7-ft. cable. Shipping weight. 2 lbs. 8 oz. . . . . 12.64

**18** ASTATIC L-1 LAPEL CRYSTAL. High imped. Very small for difficult pickup situations. Lapel spring clip and 25-ft. over-shoulder cord. Sensitivity —62 db. 30 to 10,000 cycles response.

62 AE 6554 T—Ship. wt. 1 lb. 1 oz. . . . . 16.08

**19** ASTATIC T-3 CRYSTAL. High impedance. Sensitivity —52 db. 30 to 10,000 cycles response. Semi-directional with tilt head. 25-ft. cable.

62 AE 6527 T—Ship. wt. 2 lbs. . . . . 16.08

**20** ELECTRO-VOICE 910 CRYSTAL. High imped. Sensitivity —48 db. 50 to 8000 cycles response.

62 AE 6515 T—20-ft. cable. Wt. 3 lbs. . . . . 14.11

62 AE 6514 T—ELECTRO-VOICE 610 DYNAMIC. High impedance. Sensitivity —54 db. 50 to 8000 cycles response. 8-ft. cable. Wt. 3 lbs. . . . . 17.35

**21** ELECTRO-VOICE 605 DYNAMIC. Non-directional. High imped. Sensitivity —57 db. 50 to 7500 cycles response. Satin Chrome. 20-ft. cable.

62 AE 6546 T—Ship. wt. 2 lbs. 8 oz. . . . . 15.29

62 AE 6516 T—ELECTRO-VOICE 905 CRYSTAL. Non-directional. High impedance. Sensitivity —54 db. 50 to 7500 cycles response. Fixed head. Same appearance as Model 605. 20-ft. cable.

Ship. wt. 2 lbs. 8 oz. . . . . 10.58

62 AE 6547 T—ELECTRO-VOICE 606 DIFFERENTIAL DYNAMIC (not shown). Noise cancelling. High impedance. Sensitivity —57 db. 100 to 6000 cycles response. Same appearance as Model 605. 20-ft. cable. Wt. 2 lbs. 8 oz. . . . . 22.34

**22** TURNER CHALLENGER "BD" DYNAMIC. High impedance. Semi-directional. Sensitivity —52 db. 50 to 6000 cycles response. Fixed head. 20-ft. cable. Brown enamel finish.

62 AE 6534 T—Ship. wt. 2 lbs. 8 oz. . . . . 9.26

62 AE 6533 T—TURNER CHALLENGER "BX" CRYSTAL. High impedance. Sensitivity —52 db. 50 to 6000 cycles response. Same appearance as Model BD. 20-ft. cable. Ship. wt. 2 lbs. . . . . 6.38

**23** SHURE 707A CRYSTAL. High impedance. Semi-directional. Sensitivity —56.5 db. 70 to 5000 cycles response. High output. Pearl gray finish, polished grille. 20-ft. cable.

62 AE 6552 T—Ship. wt. 1 lb. 4 oz. . . . . 8.82

**24** ASTATIC DN-HZ DYNAMIC. High imped. Semi-directional. Sensitivity —55 db. 50 to 7000 cycles response. Tilt head. 25-ft. cable.

62 AE 6528 T—Ship. wt. 3 lbs. . . . . 14.46

**25** SHURE STRATOLINER 708A CRYSTAL. High impedance. Semi-directional. Sensitivity —53 db. 60 to 8000 cycles response. Pearl gray.

62 AE 6522 T—20-ft. cable. Wt. 3 lbs. . . . . 15.58

**26** ELECTRO-VOICE 902 COMET CRYSTAL. High imped. High quality, moderate price unit. Non-directional. Sensitivity —48 db. 70 to 7000 cycles response. Gray finish. 7-ft. cable.

62 AE 6532 T—With Stand. Ship. wt. 3 lbs. . . . . 7.79

**27** ELECTRO-VOICE 915 CRYSTAL. High impedance. For hand, desk, floor stand use. Moderately priced. Size 3 by 2 3/16 by 1 in. Sensitivity —50 db. 60 to 7500 cycles response. Ideal for home recordings. Stand adapter. Gray-brown finish. 7 1/2-ft. cable.

62 AE 6548 T—Ship. wt. 2 lbs. . . . . 5.88

62 AE 6549 T—ELECTRO-VOICE 615 DYNAMIC. High imped. Sensitivity —57 db. 55-7500 cycles response. Same appearance as above.

Ship. wt. 3 lbs. . . . . 9.70

**28** TURNER L40 SPECIAL PURPOSE CRYSTAL. High imped. Small, lightweight. 2 in. in diameter. For lapel or chest use, for demonstrations, etc. Sensitivity —52 db. 50-8000 cycles response. High signal level. Alligator clip. 20-ft. cable.

62 AE 6545 T—Ship. wt. 1 lb. 8 oz. . . . . 14.70

**29** TURNER 20X HAND HELD CRYSTAL. High impedance. Moderate price, excellent for home recorders, paging, etc. Hook ring. Sensitivity —54 db. 50 to 7000 cycles response. Semi-directional. 6 1/4 by 2 1/8 by 1 in. Die-cast alloy, brown enamel finish. 7-ft. cable.

62 AE 6535 T—Ship. wt. 2 lbs. 8 oz. . . . . 7.56

**30** ASTATIC JT-30 CRYSTAL. High impedance. Dual-purpose with wood handle for hand, desk use. Sensitivity —52 db. 30 to 6000 cycles response. Semi-directional. Gray and chrome finish. With handle and base. 15-ft. cable.

62 AE 6529 T—Ship. wt. 5 lbs. . . . . 9.97

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Then It Was Stolen From...



## Record Changers, Motors and Accessories



34 WARDS

**A** INSTRUMENT AMPLIFIER. Very compact. Used with string instrument pickup, it greatly increases instrument carrying power. Excellent tone. Dynamic speaker. Volume control. Amplifier has 4 tubes plus rectifier. Fabric covered case. Ship. wt. 16 lbs. Express only.

62 AE 3995 RT—Only \$3.65 Down. . . . . or Cash \$36.26

62 AE 3996 RT—Instrument Amplifier, like above, but more powerful. 5-tube plus rectifier chassis and larger speaker. Ship. wt. 20 lbs. Express only. \$5.35 Down, \$5 Monthly on Terms . . . . . or Cash \$53.33

**B** SEEBURG MODEL L RECORD CHANGER. Stops after last record. Set front post for record size—rear post sets automatically. Plays ten 12-in. or twelve 10-in. records. High quality crystal cartridge. Base 14 in. sq. Ht. 4½ in. above base. 105-125 volts 60 cycle AC. Ship. wt. 18 lbs.

62 AE 875 MT—\$3.35 Down, \$5 Monthly. . . or Cash \$33.50

SEEBURG MODEL K RECORD CHANGER (not shown). Same as Model L, but without automatic stop and automatic rear post feature. 12½ in. square, height above plate 4¾ in. For 105-125 volts 60 cycle AC only. Ship. wt. 12 lbs.

62 AE 870 MT—\$2.60 Down, \$5 Monthly. . . or Cash \$25.95

**C** WEBSTER 70 INTERMIX CHANGER. Plays twelve 10-in. or ten 12-in. records intermixed, or stack of either. Stops after last record. Retractable rim drive. Removable spindle for easy handling of records. Crystal cartridge. Base 14-in. sq. Ht. above base (with records) 9½ in.; 2½ in. deep. 105-125 volts 60 cycle AC. Ship. wt. 21 lbs.

62 AE 866 MT—\$4.25 Down, \$5 Monthly. . . or Cash \$42.44

**H** G.E. PRE-AMPLIFIER. Designed for use with G.E. Variable Reluctance Cartridge. 3¾-in. sq. by 4½ in. high. With leads, plug and 6SC7 tube.

62 AE 6985 T—Shipping weight 2 lbs. . . . . \$5.82

**J** G.E. RPX-010 VARIABLE RELUCTANCE CARTRIDGE. Extremely wide frequency response. Very low surface noise. Standard mounting. Fits any changer on this page. With needle. 12½ by ¾ by ⅞ in. deep.

62 AE 6984 T—Shipping weight 6 oz. . . . . \$4.68

**K** SHURE MUTED STYLUS P-30 CRYSTAL CARTRIDGE. Very low surface noise. Standard mounting. Output 1.8 v.

62 AE 3804 T—With Needle. Ship. wt. 6 oz. . . . . \$4.41

**L** AIRLINE MUTED STYLUS NEEDLE. Especially designed for the P-30 cartridge. Long-life, osmium point.

62 AE 343 T—Shipping weight 2 oz. . . . . \$1.47

**D** WEBSTER 156 RECORD CHANGER. New single post model. Stops after last record. Simplified, trouble-free mechanism. Plays ten 12-in. or twelve 10-in. records. Needle pressure 1¼ oz. High quality crystal cartridge. Base 14-in. sq. Ht. 6½ in. above base; 2½ in. deep. 105-125 volts 60 cycle AC. Ship. wt. 17 lbs.

62 AE 862 MT—\$2.70 Down, \$5 Monthly. . . or Cash \$26.66

**E** CRESCENT EC250 RECORD CHANGER. Excellent quality at moderate price. Plays ten 12-in. or twelve 10-in. records. Single control for On-Off, Automatic, Manual. Reject button on arm rest. Tone arm may be moved at any time without damage to mechanism. Base 13 by 11 in. Ht. 5¼ in. For 105-125 volts 60 cycle AC. Ship. wt. 17 lbs.

62 AE 867 MT—\$1.90 Down, \$5 Monthly. . . or Cash \$18.79

CRESCENT EC300 RECORD CHANGER WITH AUTOMATIC STOP. Same as Crescent EC250, but stops after last record.

62 AE 868 MT—Wt. 17 lbs. \$5 Monthly. . . . . or Cash \$21.17

**F** GENERAL INDUSTRIES MODEL D PHONO MOTOR. Two speeds, 78 and 33½ RPM. Governor controlled. Induction, gear drive motor maintains uniform speed. Gears sealed in oil. 10-in. turntable. 8¼ by 5¾ in. wide, 3¾ in. deep. For 105-125 volts 60 cycle AC. Ship. wt. 20 lbs.

62 AE 3840 MT—\$1.60 Down, \$5 Monthly. . . or Cash \$15.90

**G** ALLIANCE MODEL 80 PHONO MOTOR. Constant speed, self-starting induction motor. Only 2¼ in. deep below plate. 9-in. turntable. Positive rim drive. Sealed bearings. Fan for cool operation. 105-125 volts 60 cycle AC only.

62 AE 3835 MT—Shipping weight 10 lbs. . . . . \$3.76

### PRE-AMPLIFIER, PICKUP CARTRIDGES AND PHONOGRAPH NEEDLES

**M** AEROPONT 88 PHONO NEEDLE. Precious metal point. Curved spring design, cushioned shank. 5000 plays.

62 AE 341 T—Shipping weight 2 oz. . . . . \$1.47

**N** AEROPONT 250 PHONO NEEDLE. Sapphire tip, curved design. 10,000 plays.

62 AE 340 T—Shipping weight 2 oz. . . . . \$2.45

**P** FIDELITONE MASTER PHONO NEEDLE. Long-life tip.

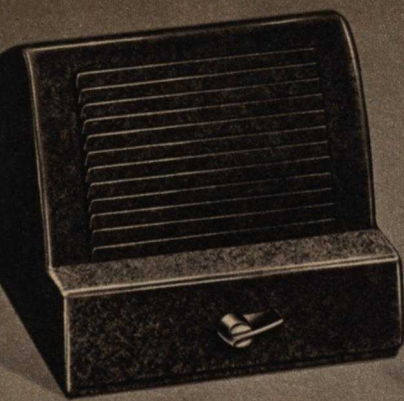
62 AE 338 T—Shipping weight 2 oz. . . . . \$1.39

**R** FIDELITONE DE LUXE PHONO NEEDLE. Floating point in straight shank. Platinum tip. Approx. 5000 plays.

62 AE 337 T—Shipping weight 2 oz. . . . . \$89c

**T** LECTROLAB INSTRUMENT PICKUP. Magnetic type. 3¾ by 1¾ by 7/16 in. deep. With 12-ft. cable, phone plug.

62 AE 3819 T—Shipping weight 1 lb. 2 oz. . . . . \$13.95



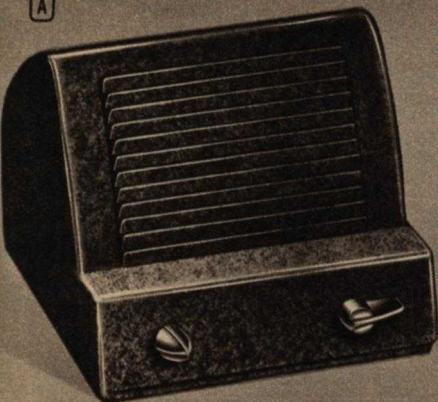
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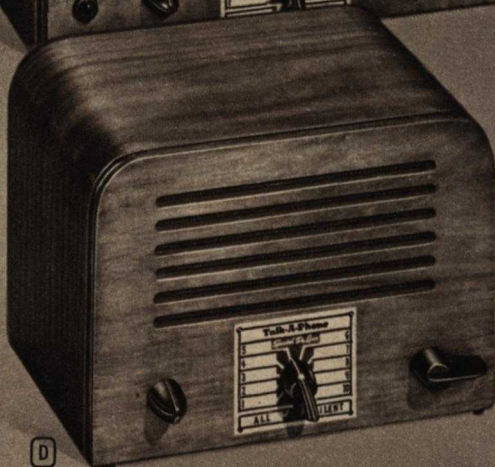
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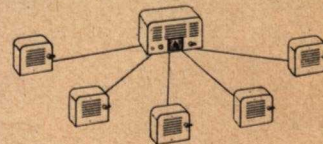
## Talk-a-Phone Intercommunication Systems

Low cost intercommunication systems for offices, factories, etc. Will operate up to 2500 feet. High sensitivity allows person to answer at distances up to 50 ft. from his Sub-Station. All Master Stations have Walnut veneer cabinets, station selector and volume control; operate on 110-115 volts AC or DC. "UL" in Model Numbers indicates Underwriters' approval. Measure distances between stations (see diagrams at right)—order enough cable listed under the type of system you buy.

**B C** DE LUXE MODELS. More powerful, greater coverage than Special De Luxe Models (D) and (E). Master Stations equipped with wall junction box with cable. Size of Master Stations: 12 by 6½ by 5¾ in; Sub-Stations 7½ by 3¾ by 6½ in. Shipped from Factory in Chicago. Mailable.

62 AE 3918 KT—Model KRUL-40 Master Station for 10 Sub-Stations. With tubes. Ship. wt. 10 lbs. . . \$39.50  
 62 AE 3919 KT—Model KRUL-40-C. Same as above, but with Privacy Earphone Attachment. Wt. 11 lbs. \$48.50  
 62 AE 3912 KT—Model RU-43 Sub-Station for connecting to above Stations. Ship. wt. 4 lbs. . . . . \$11.25  
 62 AE 3913 KT—No. 4433 Cable to connect above Stations. 3-conductor. Ship. wt. 1 lb. 9 oz. Per 100 ft. \$5.20

**D E** SPECIAL DE LUXE MODELS. Dependable, sturdy units, but not so powerful as De Luxe Models (B) and (C). Master Stations size: 9¾ by 6 by 6¾ in. Sub-Stations are metal with crackle finish—7½ by 3¾ by 6½ in. Shipped from Stock in Chicago. Mailable.



**MASTER-SUBSTATION SYSTEMS.** Consist of 1 Master and up to 10 Sub-Stations. You may start with one Master and one Sub-Station and add more Sub-Stations later. Master may call any one Sub-Station or call all simultaneously. Sub-Stations may call Master, but not each other.

### MASTER-SUBSTATION SYSTEMS

62 AE 3909 MT—Model KR-505 Master Station for 5 Sub-Stations. With tubes. Ship. wt. 9 lbs. . . . . \$24.95  
 62 AE 3901 MT—Model KR-4010 Master Station for 10 Sub-Stations. With tubes. Ship. wt. 9 lbs. . . . . \$29.95  
 62 AE 3902 MT—Model RU-433S Sub-Station for Master Stations above. Ship. wt. 3 lbs. . . . . \$8.25  
 62 AE 3903 T—No. 4433 Cable for above Stations. 3-conductor. Ship. wt. 1 lb. 8 oz. Per 100 ft. . . . . \$5.20

### MASTER-SUBSTATION SYSTEMS

62 AE 3920 KT—Model KSUL-60 Master Station for up to 10 Master Stations. With tubes. Ship. wt. 10 lbs. \$39.50  
 62 AE 3921 KT—Model KSUL-60-C. Same as above, but with Privacy Earphone Attachment. Wt. 10 lbs. \$48.50  
 62 AE 3917 KT—No. 9911 Cable to connect Master Stations above. 11-conductor. Wt. 2 lbs. Per 10 ft. . . \$2.00

### ALL-MASTER STATION SYSTEMS

62 AE 3926 KT—Model KCUL-80 Master Station for connecting up to 5 Stations. Tubes. Wt. 9 lbs. . . . \$32.35  
 62 AE 3923 MT—Model UC-821S Sub-Station for above. Shipping weight 3 lbs. . . . . \$7.25  
 62 AE 3924 T—No. 3605 Cable for above Master Stations. 5-pair. Ship. wt. 2 lbs. Per 10 ft. . . . . \$1.70  
 62 AE 3925 T—No. 1212 Cable for connecting UC-821S Sub-Stations to KC-8050 Master Stations. 2-conductor. Ship. wt. 1 lb. 8 oz. Per 100 ft. . . . . \$3.50

### ALL-MASTER STATION SYSTEMS

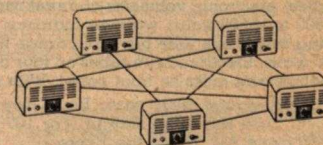
62 AE 3906 MT—Model KS-6010 Master Station for up to 10 Master Stations. With tubes. Ship. wt. 9 lbs. . \$31.50  
 62 AE 3908 T—No. 9911 Cable for above Stations. 11-conductor. Ship. wt. 2 lbs. Per 10 ft. . . . . \$2.00

### COMBINATION SYSTEMS

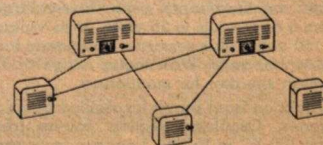
62 AE 3922 MT—Model KC-8050 Master Station for connecting up to 5 Stations. Tubes. Wt. 9 lbs. . . . \$32.35  
 62 AE 3923 MT—Model UC-821S Sub-Station for above. Shipping weight 3 lbs. . . . . \$7.25  
 62 AE 3924 T—No. 3605 Cable for above Master Stations. 5-pair. Ship. wt. 2 lbs. Per 10 ft. . . . . \$1.70  
 62 AE 3925 T—No. 1212 Cable for connecting UC-821S Sub-Stations to KC-8050 Master Stations. 2-conductor. Ship. wt. 1 lb. 8 oz. Per 100 ft. . . . . \$3.50

### COMBINATION SYSTEMS

62 AE 3926 KT—Model KCUL-80 Master Station for connecting up to 5 Stations. Tubes. Wt. 9 lbs. . . . \$32.35  
 62 AE 3923 MT—Model UC-821S Sub-Station for above. Shipping weight 3 lbs. . . . . \$7.25  
 62 AE 3924 T—No. 3605 Cable for above Master Stations. 5-pair. Ship. wt. 2 lbs. Per 10 ft. . . . . \$1.70  
 62 AE 3925 T—No. 1212 Cable for connecting UC-821S Sub-Stations to KC-8050 Master Stations. 2-conductor. Ship. wt. 1 lb. 8 oz. Per 100 ft. . . . . \$3.50



**ALL-MASTER STATION SYSTEMS.** Consist of Master Stations only. As many as five two-way conversations may be carried on simultaneously, if ten Master Stations are used. Any Master may talk with any other in privacy. Sub-Stations may be added for one-way calling or paging.



**COMBINATION SYSTEMS.** Consist of up to 10 Stations, Master and Sub-Stations, in any combination. Any Master may have a Sub-Station of its own which cannot be listened to by other Masters. Sub-Station can answer, but cannot call.

### TALK-A-PHONE TWO-STATION INTERCOMMUNICATION SYSTEM

**A** Consists of Master and Sub-Station. Both stations may call each other. Ideal for baby tending, room to room communication, small offices. Master Station has "Push-to-Talk" switch, volume control. Sub-Station has "Push-to-Talk" switch.

62 AE 3932 KT—No. 1212 Cable for connecting UC-82 Sub-Stations to KCUL-80 Masters. 2-conductor. Ship. wt. 1 lb. 8 oz. Per 100 feet. . . . . \$3.50

62 AE 3933 MT—Both Stations. Ship. wt. 9 lbs. With 50 feet of cable. . . . . \$23.50



## Electronic Analyzers, Set Testers and

**A** RCA RIDER CHANALYST. Gives true dynamic and functional test of all receivers. Tests each circuit, each tube while set is operating. Traces signal from antenna to speaker; localizes noise, distortion and intermittent troubles at any point in between. Five main channels: r.f.-i.f. channel has range from 96 to 1700 KC with approximately 80 microvolt sensitivity; oscillator channel range from 600 to 15,000 KC; A.f. channel 150 to 50,000 cycles; electronic voltmeter channel range from -500 to +500 volts; wattage indicator channel using magic eye tube has input range from 30 to 250 watts. Electronic eye tubes on four channels. Controls and jacks on front panel. With tubes.

Heavy-gauge steel case. Blue-Gray wrinkle finish. Case size 10 $\frac{3}{4}$ x16x9 in. For 105-125 volts 50-60 cycle AC. Wt. 28 lbs. Express.

62 AE 4131RT—\$11 Mo. or Cash. . . . . 162.50

**B** HICKOK INDICATING TRACEOMETER. Modern receivers require periodical alignment of tuned circuits in order to give continued high performance. The Traceometer provides 7 simultaneous measurements with 5 built-in meters. 4 voltage measurements; one low-voltage range from 0 microvolts to 25 volts, high voltage range to 150 volts, plus separate voltmeters for AC and DC to 500 volts. Watt meter range to 150 watts. Built-in speaker for monitoring.

Jacks on front panel for oscilloscope, speaker or phones. Oscillator section covers frequencies from 100 KC to 15 MC. Low range covers 100 KC to 1800 KC bands. High range covers 600 KC to 15 MC bands. Complete with shielded cables. Size overall 13 in. by 16 in. by 10 in. Gray crackle finish. For 105-130 volt 50-60 cycle AC. Shipping weight 22 lbs. Express only.

62 AE 4016RT—\$16.05 Down, \$10 on Monthly Terms. . . . . or Cash 160.20

36 WARDS

**C** HICKOK MODEL 534. Modern dynamic mutual conductance Tube and Set Tester. Tests all present-day tubes, including new miniatures. Set analyzer unit measures volts, ohms, milliamperes, capacity, inductance, leakage and decibels. AC and DC volts in four ranges to 1000 with a sensitivity of 1000 ohms per volt. Ohms in three overlapping ranges to 20 megohms. Checks inductance of choke coils and leakage of electrolytic or paper condensers. Capacity to 50 microfarads. Output measurement in decibels. Removable cover. Built-in roll tube chart. Size 17 by 18 by 8 $\frac{1}{2}$  inches. For 110-120 volt, 50-60 cycle AC. Shipping weight 35 lbs. Shipped by Express only.

62 AE 4001RT—\$10 Mo. . . . . or Cash 138.30

62 AE 4002 RT—HICKOK MODEL 532P. Tube tester only. Same construction, features and size as (C) above. \$12.15 Down, or Cash 121.20

**D** PRECISION SERIES 10-54P ELECTRONAMIC Tube and Set Tester. Tests all tubes up to 117 volts. Tests tubes six ways: Emission, Mutual Conductance, Amplification Factor, Plate-Resistance, Plate Current and Power Output. Line Adjuster. Roll Chart. AC-DC Set Testing Circuit has 6 ranges DC volts: 0-6, 12, 60, 300, 1200, 6000 at 20,000 ohms/volt. 6 ranges AC volts: 0-6, 12, 60, 300, 1200, 6000 at 1000 ohms/volt. 0-60, 120 microamps; 0-1.2, 12, 120 ma and 0-12 amperes. 4 Resistance ranges: 0-6000, 600,000 ohms; 0-6, 60 meg. 6 d.b. ranges: -20 to +70. 6 Output Ranges: same as AC volts. Interlocking push-button range selection. 4 $\frac{1}{2}$  in. Meter. Hardwood Portable case 13 $\frac{3}{4}$  by 17 $\frac{1}{4}$  by 6 $\frac{3}{4}$  inches. Ship. wt. 23 lbs. Express.

62 AE 4038 RT—\$9 Monthly or . . . . . Cash 120.93

62 AE 4043 RT—Same as (D) above but in steel counter cabinet. 17x17 $\frac{1}{2}$ x7 $\frac{1}{2}$  in. Ship. wt. 29 lbs. \$12.30 Down, \$9 Mo. or . . . . . Cash 122.89

**E** PRECISION SERIES 10-20P ELECTRONAMIC Tube and Set Tester. A service laboratory in itself. Tube Tester has same features as (D) at left. Set testing features include: 6 AC and DC voltage ranges: 0-6, 12, 60, 300, 1200, 3000 volts. 6 DC Current ranges: 0-600 microamperes; 0-6, 60, 300, 1200 ma and 0-12 amperes. 4 Resistance ranges: 0-1000, 10,000 ohms; 0-1, 10 megohms. 6 db. ranges from -20 to +64.6. Output ranges: same as AC volts. 4 $\frac{1}{2}$ -inch wide vision Meter. 1% wirewound and matched metallized resistors. 2 polarized tip jacks. Automatic interlocking push-button Range Selector. Circuits insulated from power line. Hardwood, Portable case 13 $\frac{3}{4}$  by 17 $\frac{1}{4}$  by 6 $\frac{3}{4}$  inches. Ship. wt. 23 lbs. Express.

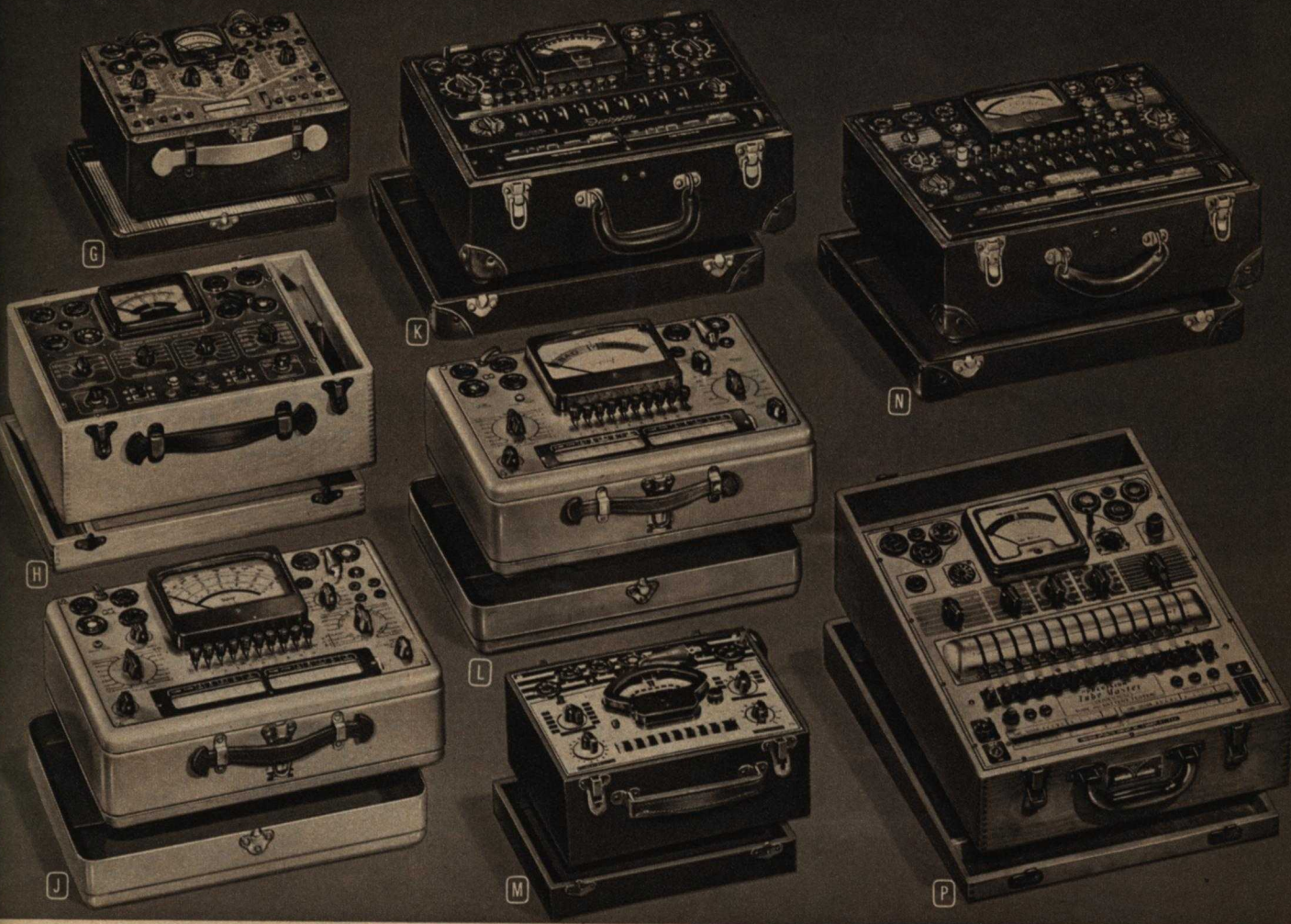
62 AE 4037 RT—\$10.70 Down, \$8 Mo. or Cash 106.92

62 AE 4039 RT—Same as (E) above but in steel counter cabinet. 17 by 17 $\frac{1}{2}$  by 7 $\frac{1}{2}$  in. Shipping wt. 29 lbs. \$10.90 Down, \$8 Monthly or. Cash 108.88

**F** SUPREME MODEL 504B. Fine quality combination Tube, Battery, Condenser and Set Tester. Correctly test locals, Octals, Single ended, Bantam, Miniature tubes and Pilot lights. Filament voltages from 0.75 to 130 volts. Push-button system and filament selector controls for greatest simplicity and operating speed. New rotary tube chart and arrowway testing system. Dual sensitivity neon lamp check for shorts, leaks and opens.

31 range multimeter including: 7 DC ranges to 2500 volts; five each AC and output ranges to 1000 volts; seven DC ranges to 10 amperes; five ranges of resistance measurement to 20 megohms and provision for electrolytic condenser leakage measurements. Wood case with compartment for tools, leads, etc. Case has removable cover. Size 14 $\frac{1}{2}$  inches by 12 $\frac{1}{2}$  inches by 5 $\frac{1}{2}$  inches deep. For 100 to 133 volt, 60-cycle AC only. Ship. wt. 20 lbs.

\$8.80 Down, \$8 Monthly  
62 AE 4083 RT—Express only. . . . . Cash 87.71



## Tube Testers for the Radio Serviceman

**G** SUPREME MODEL 599A Tube, Battery, Set Tester. Rotary filament selector. Checks leakage, shorts, opens, filament continuity, etc. 5 DC ranges to 1,500 V., 1,000 ohms per volt. 4 AC ranges to 600 V. 3 milliammeter ranges to 600 MA. Output to 600 V. 4 resistance scales to 20 megohms. Roll chart. 11½x8¾x5½ in. For 100-133 V. 60 cycle AC. Ship. wt. 12 lbs. Express. 62 AE 4080RT—\$6.15 Down, \$6 Mo. or Cash 61.25 62 AE 4081RT—Battery, Tube Tester only. Same size, construction and testing features as (G). Ship. wt. 10 lbs. Exp. \$4.80 Down or Cash 47.97

**H** SUPERIOR MODEL 600. TUBE AND SET TESTER. Rotary Selector. Emission tests for all tubes up to 117 V, shorts and leakages up to 3 megohms in all tubes. Line Adjuster. Set Tester: 6 ranges DC volts—0 to 1,500 V; 6 ranges AC—0 to 3,000 V. DC—0 to 150 ma. and 0 to 1.5 amps. Resistance 0 to 200,000 ohms, 0 to 20 megohms. Db. —10 to +58. For 90-120 volt 60 cycle AC. 13x12½x6 in. Ship. wt. 14 lbs. Express only. 62 AE 4166RT—\$5.15 Down, \$5 Month or Cash 51.55 62 AE 4163RT—Tube Tester only. Same tube testing features as (H). Ship. wt. 10 lbs. .... 38.71

**J** TRIPLETT MODEL 3480 TUBE AND SET TESTER. Same tube testing features as (L) listed at right. DC volts: 0-3-12-60-300-1200 at 10,000 ohms/volt. AC volts: 0-3-12-60-300-1200 at 2000 ohms/volt. DC amps: 0-12 at 250 M.V. DC ma: 0-1.2-12-120 at 250 M.V. Ohms: 0-1000-10,000 (10-1000 ohms at center scale). Megohms: 0-1-50 (10,000-50,000 ohms at center scale). Output: condenser in series with AC ranges. Counter-Portable case 15x10¾x6¼ in. Shipping weight 22 lbs. Express only. 62 AE 4058 RT—\$8.80 Dn., \$8 Mo. . . . or Cash 87.95

**K** SIMPSON MODEL 330RC Electronic Mutual Conductance Tube Tester. 10 Multi-purpose tube sockets. Switch Selector. Automatic Reset—press button and all switches return to normal position. Roll Tube Chart. Spare socket provision. Neon Test for opens and shorts. Line Adjustment from 100 to 130 volts. Variable filament volts from 0.5 to 120. 4½-in. Meter. Black Bakelite panel, Sturdy portable case. 15½ x 9½ x 6¼ in. "No backlash" roll chart. For 115 V. 60 cycle A.C. Shipping wt. 18 lbs. Shipped by Express only. 62 AE 4064 RT—\$11.05 Down. . . . . or Cash 110.25

**L** TRIPLETT MODEL 3413 TUBE TESTER. Tests all receiving type tubes including gaseous rectifiers, resistor and ballast tube continuity. Shows shorts or leakages while cathodes are hot. 3-Position Lever Switches give individual control for each element. Line Voltage Indicator. Filament Voltages from 0.75 to 110 volts in 19 steps. 6-in. Meter with "Bad"—"?"—"Good" scale. Roll Tube Chart. Metal Counter-Portable case 15 by 10¾ by 6¼ in., tan enamel. Leather handle. For 115 volt 50-60 cycle AC. Shipping weight 22 lbs. Express only. 62 AE 4052 RT—\$5.95 Down, \$6 Monthly or Cash 59.53

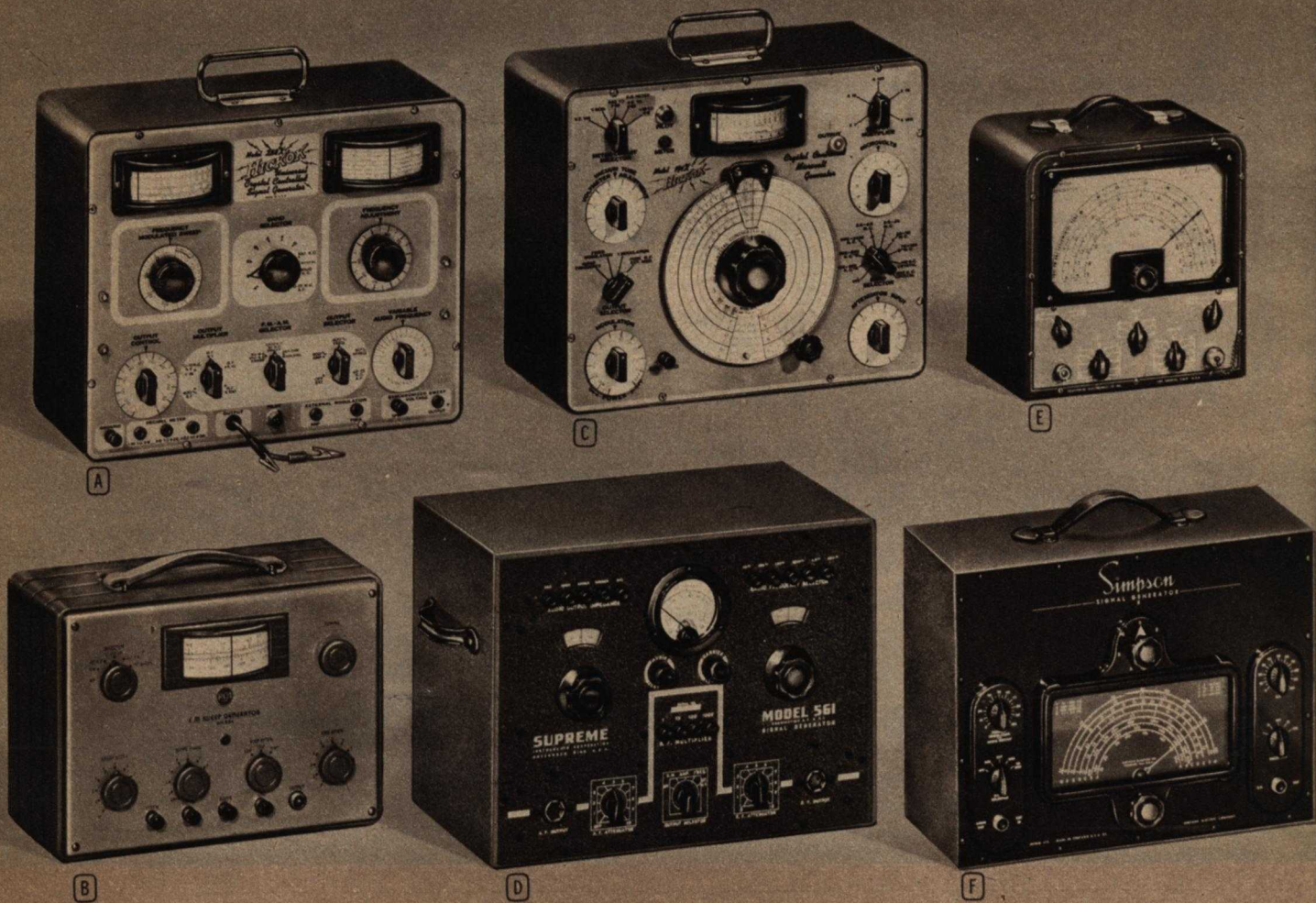
**M** SIMPSON MODEL 305. TUBE TESTER. Has 3-Way Switching for testing any tube, regardless of base connection. Spare socket to provide for future tube developments. Checks for opens and shorts. Line adjustment from 100 to 130 volts. Variable filament voltages from 0.5 to 120 volts. Metal panel in red and black. Case 8 by 10¾ by 5½ inches. Tube charts in cover. For 115 volt 60 cycle AC. Shipping weight 12 lbs. Shipped by Express only. 62 AE 4060 RT—\$5 Mo. . . . . or Cash 48.51 62 AE 4063 RT—Similar to (M) above but with "No backlash" roll chart. Ship. wt. 15 lbs. . . . 58.31

**N** SIMPSON MODEL 445RC PLATE Conductance Tube and Set Tester. Indicates percentage of rated plate conductance. Includes all standard sockets—provision for new sockets. Roll Tube Chart. DC volts: 20,000 ohms/volt. AC volts: 1000 ohms/volt. DC ma: 0/10, 100, 500. Db.: —10 to +52. Output: AC/DC v.: 2.5, 10, 50, 250, 1000, 5000. Ohms: 0-2000, 0-20,000. Megohms: 0-20. Case 15½ x 9½ x 6¼ in. Ship. wt. 16 lbs. Express. 62 AE 4070RT—\$10.80 Dn., \$8 Mo. or Cash 107.80 62 AE 4069 RT—Tube Tester only. Same tube testing features as (N). Wt. 16 lbs. .... 83.30

**P** PRECISION MODEL 10-12-P Portable Electronic Tube Tester. Tests 6 ways: Emission, Amplification, Plate-Resistance, Mutual Conductance, Plate Current and Power Output. Tests all tubes up to 117 volts. Element Selection. Inter-element short-check system. Dual short-check. Leakage test sensitivity. Roll Tube Chart. Line Adjustment. Hardwood case 13¾ by 17¼ by 6¾ in. Shipping weight 21 lbs. Express only. 62 AE 4036 RT—\$8.45 Down, \$7 Mo. or Cash 84.43 62 AE 4019 RT—Same as above but with steel counter case 17x17¾x7½ in. Wt. 22 lbs. 86.39

### BUY ON WARDS MONTHLY PAYMENT PLAN

The up to-date, accurate Test Instruments listed on these pages make it easy to check circuits and locate trouble sources in every type of radio. They are invaluable to the modern serviceman. Increase your business by the addition of new test equipment—it will enable you to serve more customers—faster and better. Choose the instruments you need, then purchase them for only 10% Down and the balance in small Monthly Payments. See Page 47 for information on this and also the popular Wards "Add-On" Plan.



## Nationally Known FM and AM

**A** HICKOK MODEL 288X. For use with FM and AM modulated receivers and television equipment. Fundamental frequency selections: 100 KC to 133 MC. FM output with 750 KC. sweep and 60 cycle modulation; 1000 KC to 133 MC. FM output with 150 KC sweep and 400 cycle modulation; 100 KC to 110 MC frequency modulated output with 30 KC sweep. Seven modulated and unmodulated fundamental r.f. ranges from 100 KC to 100 MC with output over 1 volt below 3 MC. Crystal controlled check points every 100 KC to 15,000 KC and every 1000 KC to 100 MC. Modulated (400 cycle) or unmodulated. Attenuator for audio frequencies, 400 cycle fixed frequency and 100 to 1000 cycle variable, output up to 1 volt. Metal case. Baked-on blue lacquer. With cables. For 110 volt, 50-60 cycle A.C. 16½x14x8 in. Wt. 32 lbs. Express.

62 AE 4015RT-\$15.95 Dn., \$11 Mo. or Cash 159.06

**B** RCA SWEEP GENERATOR, TYPE WR-53A. Illustrated in full color on back cover. Designed to furnish all signals needed for the complete alignment of FM receivers. Large dial with center frequency accuracy of 1%. Wide range of attenuation assures accurate adjustment of receiver sensitivity. Signal is tunable over the 88 to 110 MC FM band. CW and AM signals for local oscillator alignment. For intermediate frequency alignment the instrument provides an FM center frequency signal from 8.3 to 10.7 MC, sweep width variable. I.F. Oscillator, range: 8.3 to 10.7 MC. R.F. Oscillator, range: 85 to 110 MC. Power supply 105-125 volts, 50-60 cycles, 30 watts. Steel case, blue-gray Hammerloid finish. Panel is brushed aluminum. Size 13½x9¾x7½ inches. Shipping weight 24 pounds. Shipped by Express only.

62 AE 4134RT-\$16.25 Dn., \$12 Mo. or Cash 162.50

**C** HICKOK MODEL 191X. Crystal Controlled Micro-volt Signal Generator. Accurate, dependable source of calibrated radio frequency test voltages ranging from 125 KC to 120 MC on fundamentals. 8-in. diameter dial. Signal leakage kept at minimum by use of newly developed cast aluminum attenuator. Vacuum tube voltmeter for accurate and direct calibration of RF output from ½ microvolt to 100,000 microvolts. Modulation 30% at 400 cycles fixed, and 0-70% at 400 cycles, variable. Provision made for external modulation from 5 to 10,000 cycles. Decibel meter for power determination. Provision for measuring both input and output of unit under test. For operation on 105-125 volts, 50-70 cycles. Steel case with blue baked lacquer finish. Dimensions 14x16½x8 in. Ship. wt. 31 lbs. Shipped by Express only.

62 AE 4008RT-\$14.60 Dn., \$10 Mo. or Cash 145.92

**D** SUPREME MODEL 561 SIGNAL GENERATOR. Incorporates separate instruments which can be operated individually to provide an A.F. or R.F. signal, or both simultaneously. F.M. oscillator for visual alignment of amplifiers. 3-in. meter. Amplitude modulation variable from 0 to 80% R.F. Oscillator has 4 position attenuator plus vernier. A.F. output continuously variable.

A.F. OSCILLATOR: Range is 15 to 15,000 cycles. Output impedances—50-500-5,000 ohms. High impedance resistor of 50,000 ohms. Attenuator. Power output—approximately 150 milliwatts.

R.F. OSCILLATOR: Range—5 bands—65 KC to 20.5 MC in Fundamentals. Harmonics above 60 MC. Steel cabinet, gray wrinkle finish. Size 15½x11½x8¾ in. 110-125 volts, 50-60 cycles AC. Special voltages on request. Ship. wt. 33 lbs. Express.

62 AE 4096RT-\$13.40 Dn., \$10 Mo. or Cash 133.67

**E** FERRET MODEL 701 SIGNAL GENERATOR. A wide range, unusually versatile instrument at a most attractive price. For servicing any type of FM, AM or facsimile equipment. Large 9-in. three color scale. Frequency range 170 KC to 220 MC, fundamental frequency to 110 MC. Unit completely shielded for minimum radiation. Crystal calibrated. Low loss, permeability tuned RF coils. 0 to 100% internal 400 cycle sine wave modulation. Provision for external modulation. Electron coupled combination Hartley and Colpitts oscillator for high LC ratio. Low drift, excellent stability. Low loss, low impedance, coaxial cable output. Ladder attenuator. Vernier drive with 3 to 1 ratio. Housed in an attractive, blue-gray Hammeritone finished Aluminum case. For 110 volts 60 cycle A.C. 10½x10¼x5½ in. Ship. wt. 9½ lbs. Shipped by Express only.

62 AE 4078RT-\$7.50 Dn., \$7 Mo. or Cash 74.95

**F** SIMPSON MODEL 415 SIGNAL GENERATOR. Its very wide range, stability and output uniformity assures fine adjustment and correct alignment of receiver equipment. Seven bands offer wide coverage from 70 KC. to 130 MC, modulated (internally at 400 cycles) and unmodulated. External modulation possible up to 20,000 cycles. Signal leakage is minimized... entire case is copper plated. Variable ladder type attenuator produces a 0 to 100 per cent output in 5 steps. R.F. output about 0.4 volt, a.f. output to 5 volts. 4 by 8-inch dial with distinct, easy-to-read black markings on white background. Steel case—Black baked-on enamel wrinkle finish is 1½ by 1½ by 5½ inches. Leather carrying handle. Complete with shielded r.f. and a.f. cables, operating manual. For 100 to 125 volt, 50 to 60 cycle AC. Ship. wt. 22 lbs. Express only.

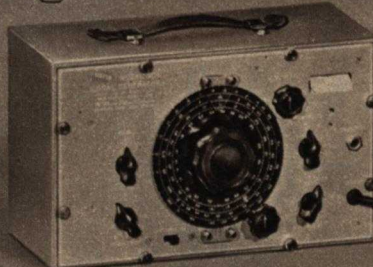
62 AE 4076RT-\$11.30 Dn., \$9 Mo. or Cash 112.70



G



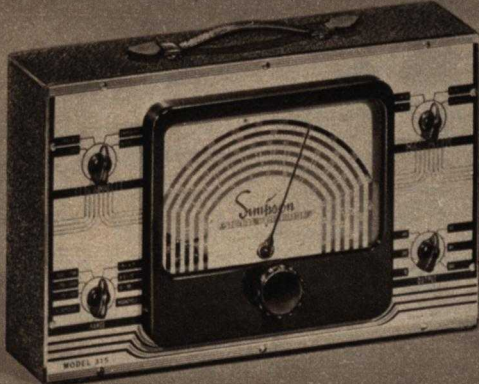
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K



M



H



L



N

## Signal Generators for Perfect Alignment

**G** TRIPLETT SIGNAL GENERATOR. Model 3432. New illuminated "No-glare" dial model. Five fundamental ranges, 165 KC to 40 MC. Two harmonic ranges, 36 to 120 MC. 10-1 ratio dial. RF selector provides high and low output. Internal modulation, 0-100% at 400 cycles. 110 VAC operation. 15 $\frac{1}{32}$ x11 $\frac{1}{32}$ x3 $\frac{1}{4}$  in. Metal case. Tan enamel finish. Ship. wt. 18 lbs. Express.

62 AE 4053 RT—\$6.20 Down or Cash 61.98

TRIPLETT. Model 3433 (not shown). The latest advancement in AM-FM signal generators. Covers all fundamental ranges from 100 KC to 120 MC in 10 bands. 170 MC output also available. RF output meter on panel. Ladder attenuator output control. Built-in crystal oscillator for calibration reference. Voltage regulated power supply. Coaxial leads for output. 110 VAC operation. 15 $\frac{1}{32}$ x11 $\frac{1}{32}$ x8 $\frac{1}{4}$  in. Metal case. Black enamel, red and white markings. Ship. wt. 21 lbs. Express only.

62 AE 4073RT—\$15.45 Down or Cash 154.35

**H** SIMPSON MODEL 315. Fundamental frequency range from 75 KC, to 30 MC. in six bands. Smooth non-inductive ladder type attenuator in output circuit controls r.f. output from  $\frac{1}{2}$  microvolt to 0.1 volt and 400 cycle standard 30% modulation a.f. output from 0 to 5 volts.

Large 9-inch meter type dial with knife-edge pointer and vernier control for easy-to-set accurate readings. Gray crackle finish metal case. 16x10x6 in. Leather handle. Complete with operating manual. For 115 volt, 60 cycle A.C. Ship. wt. 20 lbs. Express.

62 AE 4075 RT—\$6.60 Down or Cash 66.00

**J** E.D.L. MODEL 59 AUDIO FREQUENCY GENERATOR. Wave shape—Sine or Square. Frequency range 20-20,000 cycles in 3 ranges. Accuracy 2%. Output 5 volts across 500 ohms. Less than 5% distortion from 30-20,000 cycles. Power supply 115 Volts, 50-60 cycles AC. Panel is black with white markings. Case is made of welded steel with baked wrinkle finish. Size 8 $\frac{3}{4}$ x15x8 in. deep. Ship. wt. 25 lbs. Express.

62 AE 4112 RT—\$8.60 Down, \$7.00 Monthly...or Cash 85.75

**K** MCMURDO SILVER FM-AM SIGNAL GENERATOR. Model 906. 90 KC to 170 MC on FM. Has 8 fundamental ranges, direct frequency calibrated to 1% accuracy. 400 cycle AM modulation variable from 0 to nearly 100%. Built-in electronic FM sweep from 0 to 500 KC. Continuously variable output from less than one microvolt, to over one volt (through 20 MC). Large 5-in. dial, vernier driven, 6 output voltage ranges. 0 to 100,000 microvolts and 0-1 volt. For 105-125 volt, 50-60 cycles AC. 15 ohm output cable and terminal box included. Steel Cabinet, leather handle. Gray enamel finish. Size 12 $\frac{3}{8}$ x5 $\frac{3}{8}$ x7 $\frac{3}{8}$  in. Shipping weight 18 lbs. Shipped by Express only.

62 AE 4182 RT—\$11.65 Down, \$9 Monthly...or Cash 116.50

**L** SUPREME MODEL SIGNAL GENERATOR 576. Here's the answer to a combination variable a.f. and r.f. no drift oscillator with a metered output. Covers 5 ranges from 65 KC. to 20.5 MC. on fundamentals and to over 60 MC on harmonics. Produces 5 different signals; 400 cycle standard audio modulated r.f.; 400 cycle high level audio modulated r.f.; external audio modulated r.f.; unmodulated r.f. and 400 cycle fixed audio note. Stability and accuracy to within  $\frac{1}{2}$  of one percent. 0.1 volt r.f. output on all bands. Oscillator circuit is electron coupled with air dielectric condensers and iron core coils. Steel case has gray wrinkle finish, Black panel. Size 9 $\frac{1}{2}$ x8 $\frac{3}{4}$ x7 $\frac{3}{8}$  in. For 110 volt, 60 cycle AC. Complete with low loss output cables. Instructions included. Ship. wt. 19 lbs. Shipped by Express only.

62 AE 4095 RT—\$6.75 Down, \$6.00 Monthly...or Cash 67.57

**M** SUPERIOR SIGNAL GENERATOR MODEL 650A. RF frequencies from 100 KC to 35 MC. All fundamentals in 7 bands. 2 additional bands provide harmonics from 25 to 105 MC. All etched directly on front panel. R.f. output is available unmodulated or modulated by the 400 cycle audio frequency oscillator. Audio distortion is less than 2%. Am frequency, 400 cycles pure sine wave. New design 3-step ladder type attenuator, does not affect frequency. Complete with coaxial cable, test leads and instructions. 110V AC operation. Metal cabinet, gray crystalline finish. Size 10x6x9 $\frac{1}{2}$  in. Ship. wt. 11 lbs. Shipped by Express only.

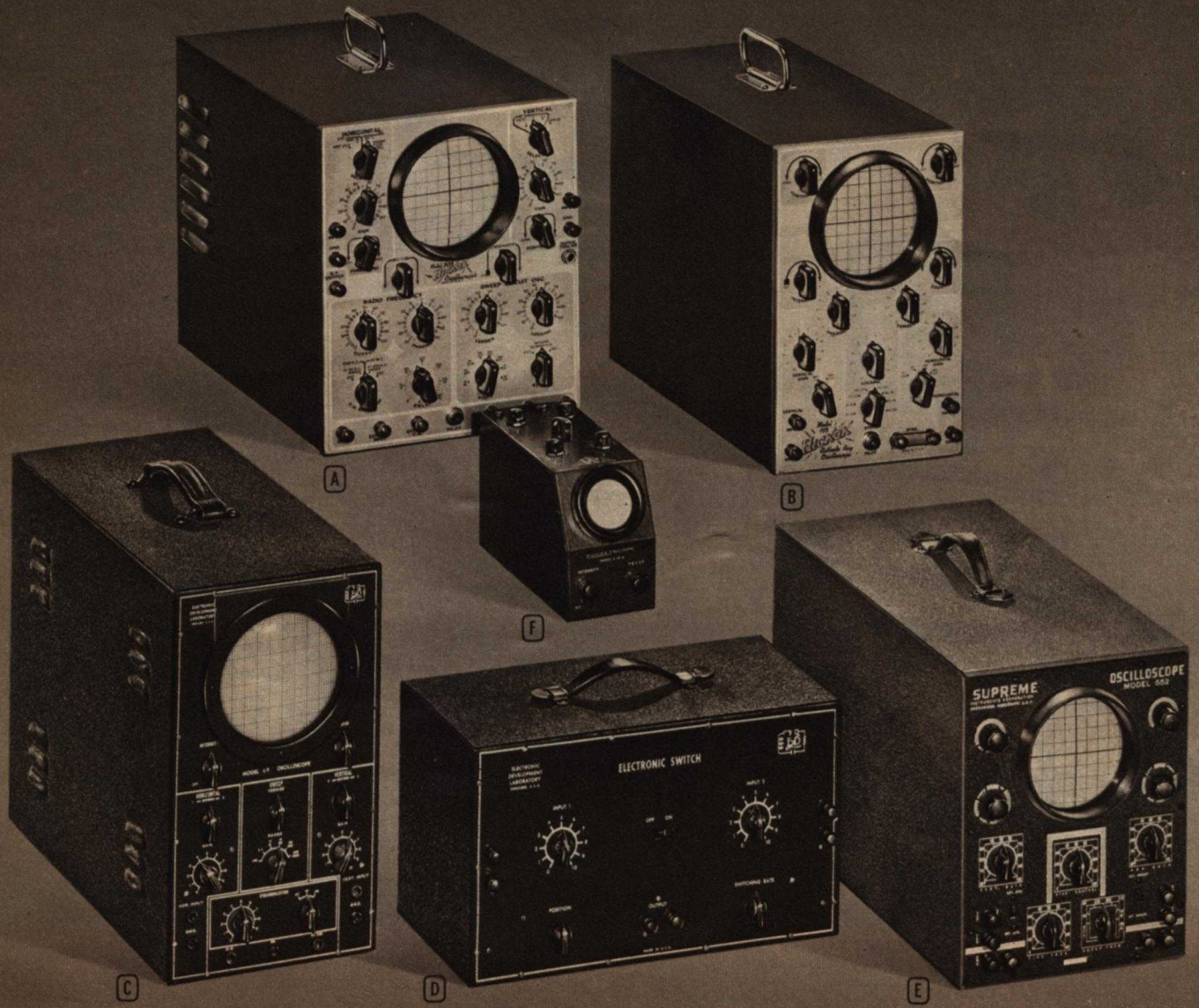
62 AE 4167RT—\$3.95 Dn., \$5 Mo. Cash 39.15

**N** PRECISION SERIES E-200-C Signal Generator provides complete signal testing of all receiver circuits. Four types of signals... unmodulated, 400 cycle modulated, externally modulated (frequency or amplitude), and 400 cycle 0 to 50 volt external audio output. Six bands cover a range from 90 KC. to 88 MC. with a maximum deviation of 1 per cent on all bands. 0 to 100 per cent variable modulation control. Separately shielded dual calibrated r.f. attenuators for direct gain measurement and smooth control of r.f. signal. Full vision 6 $\frac{1}{2}$ -inch dial with etched 0 to 1000 point vernier scales. Supplies its own AVC voltage, controllable up to 50 volts. Black ripple finished heavy-gauge steel case. Size 10 $\frac{1}{2}$  by 12 by 6 in. Leather handle. Complete with tubes, coaxial output cable and servicing manual. For 110 volt, 60 cycle AC. Ship. wt. 20 lbs. Shipped by Express only.

62 AE 4035RT—\$6.30 Dn., \$6 Mo. Cash 62.87

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Then It Was Stolen From...

www.SteamPoweredRadio.Com



## Oscilloscopes for Shops and Laboratories

**A** HICKOK MODEL 505. 5-inch Oscilloscope for analysis of FM, AM and television equipment. Wide and narrow band FM oscillators, demodulator, signal tracer jack, return trace eliminator, calibrated screen. Deflection sensitivity: vertical, 0.1 volts (rms)/inch; horizontal, 0.2 volts (rms)/inch. Horizontal direct 15 volts (rms)/inch. Wide band FM oscillator has basic frequency of 50 MC and 0 to 450 KC sweep for FM and television. Narrow band FM oscillator has basic frequency of 1000 KC and 0 to 30 KC sweep for AM alignment. Gray metal case 11 by 13 by 15 $\frac{1}{4}$  in. For 105-125 volt, 50-60 cycle AC. Instructions. Ship. wt. 39 lbs. Express only.  
62 AE 4018RT—\$16.60 Dn., \$11 Mo. Cash 165.60

**B** HICKOK MODEL 195. General purpose 5-inch Oscilloscope. Quickly locates trouble causes in receivers. Wide range sweep circuit oscillator. Deflection sensitivity: Vertical, 0.5 volts (rms)/in. Horizontal, .15 volts (rms)/in., direct 20 volts (rms)/in. Vertical amplifier 30 cycles to 50 KC—Horizontal amplifier 10 cycles to 50 KC. Input impedance: vertical, 1 meg., 25 mmf., direct, 2.2 meg. Sinusoidal sweep with phasing control. Calibrated screen and light shield for accurate work in bright light. Power supply required 105-125 volts, 50-70 cycle AC. Steel case has blue baked-on crackle finish. Size 18 $\frac{1}{2}$  inches by 13 inches by 8 $\frac{5}{16}$  inches. Shipping weight 30 lbs. Shipped by Express only.  
62 AE 4000RT—\$13.85 Dn., \$10 Mo. Cash 138.40

40 WARDS

**C** ELECTRONIC DEVELOPMENT LABORATORY MODEL 49. 5-inch Oscilloscope. Amplifiers compensated for high frequency sine and square wave response. Wide range linear sweep. Power supply free from hum. Horizontal and vertical sensitivity .5 rms volts/in. through amplifier; 14.5 rms volts/in. direct. Horizontal and vertical amplifier input impedance .5 meg. in parallel with 20 mmfd. Terminals at rear for direct connection. For 105-120 volt, 50-60 cycle AC. Size 8 $\frac{1}{2}$  by 14 $\frac{1}{2}$  by 18 $\frac{1}{2}$  in. Ship. wt. 40 lbs. Express only.  
62 AE 4111RT—\$11.10 Dn., \$9 Mo. Cash 110.74  
62 AE 4110RT—Similar to (C) above but with 3-inch scope. Size 14 by 8 $\frac{1}{2}$  by 12 $\frac{1}{2}$  in. Ship. wt. 28 lbs. \$9 Dn., \$8 Mo. . . . or Cash 89.67

**D** ELECTRONIC DEVELOPMENT LABORATORY MODEL 69 Electronic Switch. Permits the simultaneous observation of two independent signals on the screen of a single cathode ray oscilloscope. Frequency range: Amplifiers, DC to 20,000 cps  $\pm 2$  d.b.; down 6 d.b. at 40 KC. Square wave response to 2500 cps. Voltage gain 14 times. Switching rate 500 to 3000 times per second. Input: resistance 100,000 ohms, connection from input direct to attenuator. Max. input—no attenuation 2 volt rms. Max. input voltage to attenuator 200 volt rms. Output: resistance 22,000 ohms (output connected directly to plates of amplifier tubes). For 115 V., 50-60 cycles AC. Size 8 $\frac{3}{4}$  by 15 by 8 in. Ship. wt. 18 lbs.  
62 AE4113RT—Express. \$7.30 Dn., \$7 Mo. Cash 73.01

**E** SUPREME MODEL 552. 5-inch Oscilloscope. Sweep oscillator with frequency range from 20 to 30,000 cycles. Linear control for fine adjustment. Sync control locks pattern on screen. Vertical and horizontal amplifiers will pass 60 cycle square wave. Sensitivity rated at .3 volts rms/inch deflection. Vertical amplifier 20 cycles to 100 KC. Horizontal amplifier 20 cycles to 75 KC. Switches arranged for external sync and horizontal sweep. Steel case 12 by 18 by 9 $\frac{1}{2}$  inches, finished in Gray wrinkle enamel. Ship. wt. 32 lbs. Express.  
62 AE 4094RT—\$9.75 Down, \$8 Monthly. Cash 97.51  
62 AE 4097RT—Same as (E) but with 3-in. scope, Volt sensitivity .5 V. rms. Size 13 $\frac{1}{16}$  by 11 $\frac{9}{16}$  by 7 $\frac{9}{16}$  in. Wt. 23 lbs. \$8.80 Dn. \$8 Mo. . . . Cash 87.95

**F** WATERMAN MODEL S-10-A "POCKETSCOPE" Oscilloscope. Complete with synchronization means and self-contained power supply. For study of wave shapes, modulation, frequency, phase shift, voltages, power, of audio amplifiers, radios, etc. Magnetically shielded tube. Response of vertical and horizontal amplifiers within 0 to 2 db from 20 cycles to 100 KC and within -6 db to 200 KC. Vertical and horizontal sensitivity 1 volt rms/in.; input resistance 5 meg.; input shunt cap. 36 mmfd.; input series capacitance .1 mfd. 600 volt. Linear time base oscillator 10 cycles to 50 KC with sweep from left to right. Uses miniature glass tubes, 2A1 Cathode Ray Tube. Size 6 $\frac{3}{8}$  by 4 by 10 in. Shipping weight 8 $\frac{1}{2}$  lbs. Shipped by Express only.  
62 AE 4150 RT—\$6.50 Down, \$6 Monthly. Cash 64.68





## Vacuum Tube Meters for Every Purpose

**G** FERRET MODEL 730. Combined Signal Tracer and Vacuum Tube Volt-Ohm Meter. Large, illuminated 8-inch Meter. AC and DC volt ranges: 0-1/3/30/100/300/1000/3000. Ohms: 10/100/1000/10,000/100,000 (1 meg. and 10 meg. at center scale). 100 Meg. input, AC or DC. Three stages push-pull amplification for tracing signal to antenna without using receiver as amplifier. Germanium Crystal Probe provides accurate measurements up to 110 MC for use with FM receivers. Same probe may be used as rectifier for signal tracing. Aluminum case 10¼ wide by 10¼ high by 5½ inches deep. Shipping weight 10 lbs. Shipped by Express only.

62 AE 4077 RT—\$9 Down, \$8 Mo. or Cash 89.95

**J** TRIPLETT MODEL 2450 Electronic Volt-Ohm-Milliammeter. Particularly useful for FM and television work or for any circuit where high impedance measurement is needed. Exceptionally high input impedance. Full line voltage compensation, two voltage regulator tubes assure accurate, uniform measurement. Detachable rf. probe. Provision for low frequency AC and AF voltages.

Ranges: AC and DC volts: 0-2.5/10/50/250/500/1000; DC milliamps: 0-1/1/10/50/250/1000. Ohms: 0-1000 (midscale 10)—10,000/100,000. Meg: 0-1/10/100/1000. Capacity, mfd: 0-.05/5/5/50. Large scale 6-in. meter. 3 color markings. Brown enameled metal case. 10 by 10 by 5¼ in. Ship. wt. 13 lbs. Shipped by Express only.

62 AE 4050 RT—\$9.75 Down, \$8 Mo. or Cash 97.51

**H** HICKOK MODEL 209. Volt-Ohm-Capacity Milliammeter. For aligning i.f. stages, for measuring discriminator and limiter circuit voltage in FM receivers, for measuring resistance, capacitance, inductance. 9-in. meter. 6 DC and 6 AC ranges to 1200 volts. 6 DC ranges to 1200 mils. Capacity, ranges: 0-10,000 mmf in 2 ranges, 0-1000 mf in 5 ranges. Ind. range: 50 mh-100 henries. Ohms: .1 ohm-10,000 meg. in 8 ranges. Low capacity high frequency probe—a.f., i.f. and r.f. voltages from 30 cycles to 300 mc. Measures DC as low as 5 microamps. 110-125 volts, 50-70 cycles AC. Steel case 14 by 16½ by 8 in. Shipping weight 25 lbs. Shipped by Express only.

62 AE 4004 RT—\$10 Down, \$8 Mo. or Cash 99.60

**K** PRECISION MODEL EV10-P Vacuum Tube Multitester. Provides facilities of 8 test instruments. Standard sensitivity 1000 ohms/volt AC-DC voltmeter. 8 DC ranges to 6000 volts. 6 circuit probing zero center DC ranges to 600 volts. 6 wide range ohm-megohm ranges. 7 DC current ranges: 0-600 microamps, 0-1200 ma., 0-12 amps. 8 AC output ranges to 6000 volts. 8 db. ranges, -26 to +70. Seven inch meter. With test prods. Hardwood case 10½ by 12 by 6 in. Ship. wt. 20 lbs. Shipped by Express only.

62 AE 4032 RT—\$8.15 Dn., \$7 mo. or Cash 81.46

62 AE 4014 RT—Same as above, but in metal Counter Case. \$7 Mo. or Cash 79.50

62 AE 4013 MT—Probe for EV10-P. Measures r.f., u.h.f. voltages. Ship. wt. 1 lb. . . . . 13.04

**L** RCA MODEL 195-A Voltomyst. 6 AC-DC ranges: 0/1000 volts. Resistance ranges: 0/100,000 ohms, 0/1000 meg. Voltmeter response 30 cycles to 100 KC. Input impedance 200,000 ohms plus 170 mmfd. -20 to +62 db. FM alignment indicator. 9½ by 6¾ by 6¾ in. Ship. wt. 18 lbs. Shipped by Express only.

62 AE 4130 RT—\$7.95 Dn., \$7 Monthly, or Cash 79.50

62 AE 4132 MT—Crystal Probe. For use with any RCA Voltomyst. Ship. wt. 2 lbs. . . . . 8.95

**M** RCA MODEL WV-65A. Battery Voltomyst. Self-contained power supply. 6 ranges DC volts: 0/1000; Input resistance 11 meg. for all DC ranges. 5 ranges AC volts: 0/1000; 6 ohmmeter ranges to 1000 Meg.; 6 DC ranges to 10 amps. Polarity reversing switch. Shielded probe. Batteries included. Wrinkle gray finish. Size 9½ by 6¼ by 5½ in. Shipping weight 11 lbs. Express only.

62 AE 4129 RT—\$8.75 Down, \$8 Mo. or Cash 87.50

**N** SIMPSON MODEL 266. Vacuum Tube Voltmeter. Has excellent accuracy for measurements up to 100 MC. Suitable for servicing new FM receivers. 9 AC and DC ranges to 5000 volts; 7 DC ranges to 500 ma. and 1 range to 10 amps; low range 0-1 ma.; 7 resistance ranges to 1000 meg. Probe for r.f. voltages has input capacitance of 4 mmfd. Zero adjustment for all ranges. Size 8½ by 9½ by 8 in. Ship. wt. 15 lbs. Shipped by Express only.

62 AE 4072 RT—\$7.80 Down, \$7 Mo. or Cash 77.91



## Select Your Volt-Ohm-Milliammeter

**A** HICKOK MODEL 214. Portable Electronic Volt-Ohmmeter. Operates from self-contained batteries. No warm-up needed. Time Switch automatically shuts off battery at end of four minutes (battery may also be shut off manually at any time under four minutes). AC and DC voltage measurements from 0 to 1200 in six ranges. 15 megohms constant impedance (10 mmf. on AC). Resistance from 0 to 1000 megohms in six ranges. Also measures AF, RF, and AVC voltages. Radio frequency measurements up to 5 MC. Meter is electronically protected against burnout. "Hammetex" Blue lacquer finished case. Size 8¼ by 5½ by 3½ inches. Batteries included. Shipping weight 7 lbs. Express.

62 AE 4006RT—\$5.95 Down, \$6 Mo., or Cash 59.40  
 62 AE 4098T—High Voltage Test Leads. Pr. 1.22  
 62 AE 4099T—Clip Test Leads. . . . . Pair 1.32

**D** SUPREME MODEL 574. Electronic Set Tester. Provides extremely accurate measurements in high impedance circuits. 4-inch Meter with D'Arsonval movement. Meter Reversing Switch. Measures AC and r.f. voltages up to 100 MC. Ranges: DC volts: 0/1/2.5/50/250/500/2500. AC volts: 0/1/2.5/10/50/250 (by use of high frequency diode). Low frequency 0/1/2.5/10/50/250/500/2500 (using standard test leads for low frequency measurements). Input impedance DC 40 megohms maximum to 20 megohms minimum. AC 60 cycles, 9 mmf.—10 meg. AC 1000 MC, 20,000 ohms. DC ma.: 0/1/10/50/250; DC amps.: 0/1/10; Decibels: -20 to +45. Ohms: 1/1000/10,000/100,000; Megohms: 0/1/10/100/1000. Includes high frequency probe. Steel case with gray wrinkle finish. Size 5 by 9½ by 12 in. Ship. wt. 16 lbs. Express only.

62 AE 4091RT—\$6.65 Down, \$6 Mo., Cash 66.10

42 WARDS

**B** TRIPLETT MODEL 2405. Volt-Ohm-Mil-Ammeter. Sensitive, extra large meter suitable for either counter or portable use. 30 ranges: DC volts 0-10/50/250/500/1000 at 25,000 ohms per volt. AC volts: 0-10/50/250/500/1000 at 1000 ohms per volt. DC amperes: 0-10; DC milliamperes: 0-1/10/50/250; DC microamps: 0-50; AC amperes: 0-0.5/1/5/10. Ohms: 0-4000/40,000; Megohms: 0/4/40 Output: condenser in series with AC volt ranges. Decibels: -10 to +15, +29, +43, +49, +55.

Condenser test: capacity check of paper or mica condensers. 6-in. Meter. 5¾ in. long scale. Ruggedly constructed Selector Switch. Connections made through low-resistance banana jacks. Self-contained batteries included. Tan enamel case 10 by 10 by 5¾ inches. Shipping weight 12½ lbs. Shipped by Express only.

62 AE 4049RT—\$5.60 Dn., \$5 Mo., or Cash 55.61

**E** SILVER "VOMAX". True Vacuum Tube Volt-meter. Used for complete measurements and visual signal tracing on all a.f., AFC, AVC, i.f. and r.f. circuits. Four dual tubes. Frequency range of 20 cycles through over 100 MC by use of detachable r.f. Probe and test leads. Ranges: with zero adjustment 0-3/12/30/120/300/1200 volts DC at 51 megohms; 0-7.5/30/75/300/750/3000 volts DC at 126 megohms; 0-3/12/30/120/300 volts AC at 6.6 megohms and 3 mmfd.; 0.2-2K/20K/200K ohms; 2/20/2000 megohms. DC ma.: 0-1.2/30/120/300; 0-1.2/12 DC amps. D.b. ranges: -10/+10/+30/+50. Polarity reverse switch on front panel, separate ohms zero adjustment. 5 scales on 4½-inch Meter. Complete with r.f. probe, test leads and prods. For 115 volt 50-60 cycle AC operation. Steel case 12¾ by 7¾ by 5¾ in. Ship. wt. 14 lbs. Express.

62 AE 4180RT—\$6 Down, \$5 Monthly, Cash 59.85

**C** PRECISION MODEL 858-P. Push-Button High-Speed AC and DC Multi-range Test Set. 8 DC voltage ranges: 0/3/6/12/60/300/600/1200/6000 at 20,000 ohms per volt; 8 AC and DC voltage ranges from 0 to 6000 at 1000 ohms per volt. DC microamperes: 0/60/120; DC milliamperes: 0-1.2/12/120/600; DC amperes: 0-1.2/12. Ohms: 0/6000/60,000/600,000; Megohms: 0/6/60 (600 megohms range needs external supply). 8 decibel ranges from -26 to +70. 8 Output ranges (same as AC volts). 4½-inch Meter with jeweled D'Arsonval movement 50 microamperes full scale sensitivity.

All instruments calibrated against laboratory standards and sealed for permanent accuracy. Complete with leads and battery. Hardwood case with tool compartment. Case size 9 by 10 by 4½ inches. Shipping weight 9 lbs. Express only.

62 AE 4034RT—\$4.90 Down, \$5 Monthly, Cash 48.94

**F** SUPERIOR MODEL 400. Electronic Multi-Meter. Combination Vacuum Tube Voltmeter and Volt-Ohm-Milliammeter plus Capacity, Inductance, Reactance and Decibel measurements. Ranges: DC volts: 0-3/15/30/75/150/300/750/1500/3000 at 1000 ohms/volt. DC V.T.V.M. volts: 0-3/15/30/75/150/300/750/1500/3000 at 11 megohms input resistance. AC volts: 0-3/15/30/75/150/300/750/1500/3000 at 1000 ohms/volt. DC ma.: 0-3/15/30/75/150/300/750; DC amps.: 0-3/15. Resistance: 0/1000/10,000/100,000 ohms; 0-1/10/1000 megohms. Capacity (in mfd): .0005-.2, .05-20, .5-200; Reactance: 10 to 5M (ohms), 100-50M (ohms), .01-5 (megohms). Inductance (in henries): .035-14, .35-140, 35-14,000. Decibel ranges: -10 to +18, +10 to +38, +30 to +58. Housed in rugged crackle-finished steel cabinet 5½ by 9½ by 10 in. Complete with leads, batteries, probes. Shipping weight 12 lbs. Express.

62 AE 4164RT—\$5.15 Down, \$5 Monthly, Cash 51.45



## for Radio Servicing or Experimental Use

**G** SUPREME MODEL 548. Multi-Meter. Seven-inch Meter with total of 38 ranges. AC and DC volt ranges: 0/5/25/100/250/500/1000/5000 at 1000 ohms/volt. Output volt ranges: same as AC and DC volt ranges. Decibels: -10/+9, 0/+35, 0/+43, 0/+49. DC ma.: 0/5/25/100/250/500/1000; Amps.: 0/10/25. Capacitance: .1/4, 1/40 and 10/400 mfd. Resistance: 0/2000/20,000/200,000 ohms; Megohms: 2/20. Steel case 11 $\frac{3}{4}$  by 8 $\frac{1}{2}$  by 4 $\frac{3}{4}$  in. Shipping weight 16 lbs. Express only.  
62 AE 4092 RT—\$3.70 Dn., \$5 Mo. or Cash 37.09

**H** SUPREME MODEL 584. Multi-Meter. All Ohmmeter ranges operated by self-contained batteries. AC and DC volt ranges: 0/5/25/100/500/1000/5000 at 1000 ohms per volt. Same ranges also at 20,000 ohms per volt, DC only. Decibels: -10/+9, 0/+23, 0/+35, 0/+49. Micro-amps: 0/100; DC ma.: 0/10/100/500; Ohms: 0/2000/200M/20 meg. Output ranges: 0/5/25/100/500/1000/5000. 5 by 7 $\frac{1}{2}$  by 3 in. Wt. 4 lbs. Express.  
62 AE 4093 RT—\$3.40 Dn., \$5 Mo. or Cash 33.76

**J** EHMANN MODEL 102. "UKO" Battery Tester. Tests batteries up to 90 volts under load. One meter switch covers nine most popular voltages. 6 by 4 by 2 in. Ship. wt. 2 $\frac{1}{2}$  lbs. Express.  
62 AE 4153 RT—\$1.50 Down on Terms. Cash 14.70

**K** TRIPLETT MODEL 625-NA. Volt-Ohm-Mil-Ammeter. 5 $\frac{1}{2}$ -in. Mirror Scale. DC volts: 0-1.25/5/25/125/500/2500 (20,000 ohms/volt). AC volts: 0-2.5/10/50/250/1000/5000 (10,000 ohms/volt). DC ma.: 0/1/10/100/1000; DC microamps: 0/50; DC amps.: 0/10; Ohms: 0/2000/200,000; Meg.: 0/40. Decibels -30, +3, +15, +29, +43, +55, +69. Case size 2 $\frac{1}{2}$  in. by 5 $\frac{1}{2}$  in. by 6 in. Complete with leads. Ship. wt. 3 $\frac{1}{2}$  lbs. Express.  
62 AE 4057 RT—\$4.45 Dn., \$5 Mo. or Cash 44.10

**M** PRECISION MODEL 40. Miniature, Wide-Range AC-DC Test Set. 1000 ohms/volt sensitivity AC and DC. 31 ranges. 7 ranges DC, AC and Output to 6000 V.; 4 DC ranges to 600 ma.; 4 resistance ranges to 5 meg. 4 db. ranges -26 to +70. Three in. 400 microampere meter. Recessed 6000 volt safety jack. Bakelite case 3 $\frac{3}{4}$  by 6 $\frac{1}{4}$  by 2 $\frac{1}{2}$  in. Batteries and leads included. Wt. 4 lbs.  
62 AE 4010 RT—Express. \$5 Monthly, or Cash 24.25

**N** SUPREME MODEL 543. Volt-Ohmmeter. 5 AC and DC ranges to 3000 volts at 1000 ohms per volt. 4 DC ranges to 600 milliamperes. 3 Resistance ranges to 200,000 ohms. Test leads and batteries included. Steel case. Size 5 $\frac{7}{8}$  inches by 3 $\frac{1}{16}$  inches by 2 $\frac{1}{8}$  inches. Shipping weight 2 lbs. Shipped by Express only.  
62 AE 4088 RT—\$2.10 Dn., \$5 Mo. or Cash 21.02  
62 AE 4087 RT—Same as above, except Bakelite case. Ship. wt. 3 lbs. \$5 Mo. or Cash 18.57

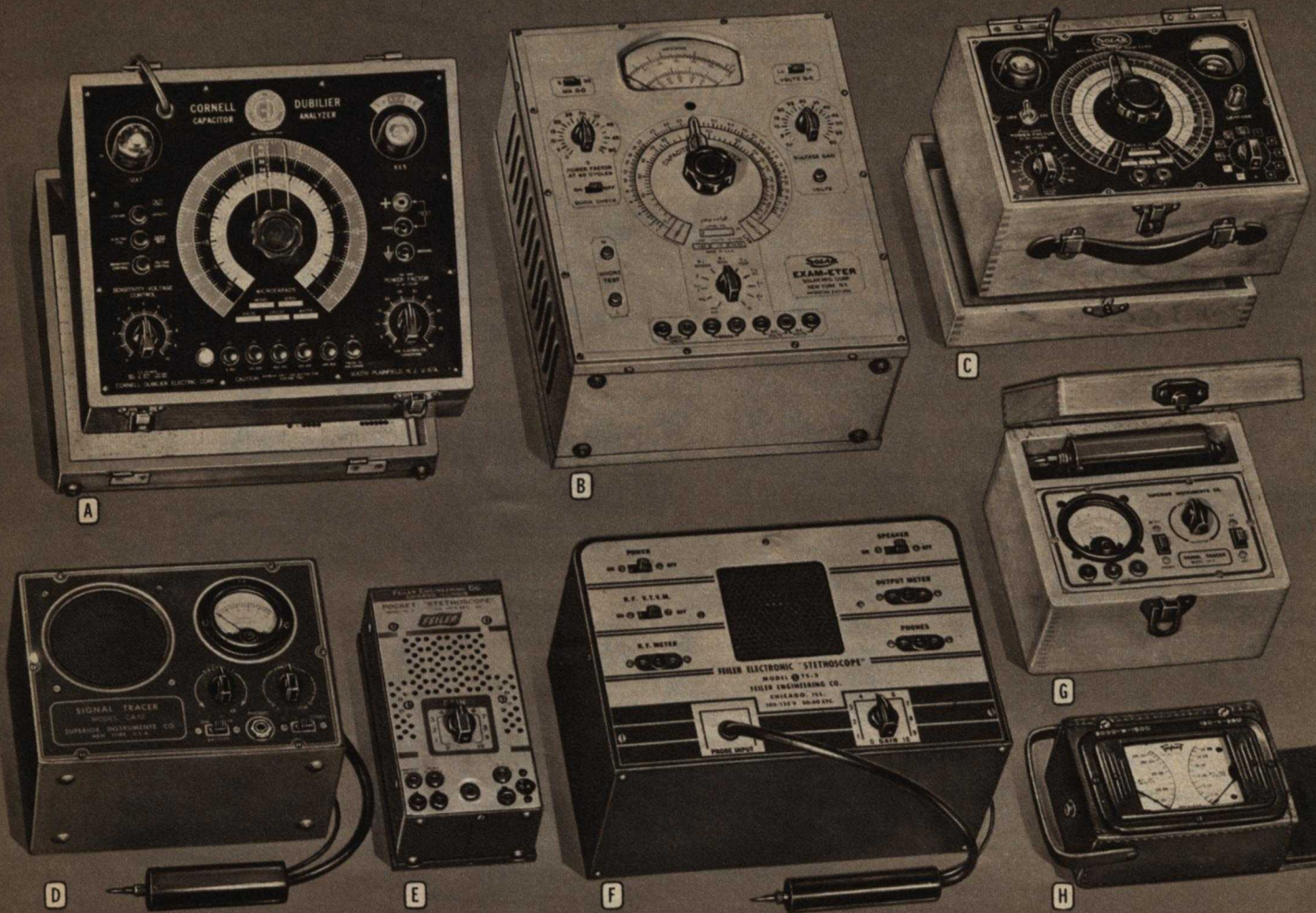
**L** SUPERIOR MODEL 670. Combination Volt-Ohm-Milliammeter. DC volt ranges: 0-7.5/15/75/150/750/1500/7500. AC volt ranges: 0-15/30/150/300/1500/3000. DC milliamperes: 0-1.5/15/150; Amperes: 0/1.5. Output volts: 0-15/30/150/300/1500/3000. Ohms: 0/500/100,000; Megohms: 0/10. Capacity: .001 to .2 mfd., .1 to 4 mfd. (quality test for electrolytics). Reactance: 700/27,000 ohms; 13,000 ohms/3 megohms. Inductance: 1.75 to 70 henries; 35 to 8,000 henries. Decibels: -10 to +18, +10 to +38, +30 to +58. Strong steel cabinet. Size 5 $\frac{1}{2}$  by 7 $\frac{1}{2}$  by 3 inches. Shipping weight 6 lbs. Shipped by Express only.  
62AE4161RT—\$2.80 Down, \$5 Monthly. Cash 27.83  
62 AE 4162 RT—Same as (L) listed above, except in Portable Oak cabinet. Size 8 $\frac{1}{2}$  by 8 $\frac{1}{4}$  by 4 inches. Shipping weight 6 $\frac{1}{2}$  lbs. Shipped by Express only. \$3.50 Down. . . . . Cash 35.03

**P** SIMPSON MODEL 260. Set Tester. Ranges: Volts AC and DC: 0-2.5/10/50/250/1000/5000 at 20,000 ohms per volt DC, 1000 ohms/volt AC. Output range same as AC. DC microamps: 0/100; DC ma.: 0-10/100/500. Decibels: five ranges from -10 to +52. Ohms: 0-2000/200,000 and 0-20 megohms. Test leads included. Case size 5 $\frac{1}{2}$  in. by 7 in. by 3 in. Shipping weight 4 $\frac{1}{2}$  lbs. Express only.  
62 AE 4065 RT—\$3.85 Dn., \$5 Mo. . . . or Cash 38.17

**R** PRECISION SERIES 85. Super Sensitive Test Set. 20,000 ohms per volt DC; 1000 ohms per volt AC. 34 ranges, reads to 6000 volts; 12 amperes; +70 decibels; 60 megohms. Completely self-contained. Ohmmeter batteries, test leads included. Bakelite case 5 $\frac{1}{2}$  by 7 $\frac{1}{8}$  by 3 inches. Shipping weight 8 lbs. Shipped by Express only.  
62 AE 4011 RT—\$3.80 Dn., \$5 Monthly, or Cash 37.97

**T** WESTON MODEL 697. Volt-Ohm-Milliammeter. Ranges meet a wide variety of servicing and test requirements. Precision resistors used throughout. Ranges AC and DC volts: 0-7.5/15/150/750 at 1000 ohms/volt; DC milliamperes: 0-7.5/75; Ohms: 0-5,000/50,000 (center scale 35/3500 ohms). 4 $\frac{1}{2}$  volt batteries and test leads included. Bakelite case. Size 5 $\frac{9}{16}$  by 3 $\frac{3}{4}$  by 3 $\frac{9}{16}$  inches. Shipping weight 3 lbs. Shipped by Express only.  
62 AE 4102 RT—\$3.40 Down, \$5 Monthly. Cash 33.96

**U** TRIPLETT MODEL 666-HH. Pocket Volt-Ohm-Milliammeter. Ranges AC and DC volts: 0/10/50/250/1000/5000 at 1000 ohms/volt. DC ma.: 0/10/100/500. Ohms: 0/2000/400,000 (12/2400 at center scale). 3-inch Meter. Complete with self-contained battery and 50-inch test leads. Black Bakelite case 3 $\frac{1}{16}$  by 5 $\frac{7}{8}$  by 2 $\frac{9}{16}$  inches. Shipping weight 2 lbs. Shipped by Express only.  
62 AE 4054 RT—\$2.15 Down, \$5 Month. Cash 21.56



## Signal Tracers and Capacitor Analyzers

### CORNELL-DUBILIER CAPACITOR ANALYZER

**A** Model BF-50. Measures all characteristics of all types of capacitors — paper, mica and electrolytic. Wien bridge with stage of amplification. DC voltage supply and visual eye leakage indicator. Measures capacity from .0001 to 240 mfd., power factor from 0 to 50 percent on electrolytics. Direct reading linear scale calibration. Pushbutton switching. Six color coded scales. Wood case with handle, 6½ by 12 by 9¾ in. 110 volts 50-60 cycles AC. Tubes included. Ship. wt. 11 lbs.  
62 AE 4119RT—\$4.20 Down, \$5 Mo. or Cash \$41.80

### SOLAR CAPACITOR ANALYZER

**B** Model CF160 Exam-eter. Measures capacitance, power factor, leakage, resistance, AC and DC voltages. Checks capacitance from 10mmfd. to 2000 mfd; power factor 0 to 55 percent; insulation resistance from 3 to 10,000 megohms; resistors from 100 ohms to 7.5 meg. Test leads included. Uses one 6L6, two 6J5G tubes, not included. 110 volts 50-60 cycles AC. Case 12¾ by 10 by 5½ in. deep. Shipping weight 15 lbs.  
62 AE 4145 RT—\$5.85 Down, \$5 Mo. or Cash \$58.51

### SOLAR CAPACITOR ANALYZER

**C** Model CBB160. Measures capacitances of electrolytic, paper, mica or air condensers between .0001 and 800 mfd. Detects defective condensers. Measures electrolytics' power factor in percent. Checks resistances 50 ohms to 2 meg; insulation resistances up to 450 volts DC. Color-coded scale. Built-in power supply. Includes 2 tubes, 6X5GT and 6E5, 9½ by 7½ by 6¼ in. Test leads, 110 volts 50-60 cycles AC. Wt. 9 lbs.  
62 AE 4146RT—\$3.90 Down, \$5 Mo. or Cash \$39.00

### SUPERIOR SIGNAL TRACER

**D** Model CA12. See and hear the signal. Reduces time required to locate radio trouble. Signal intensity is read on meter—signal quality is heard on speaker by turn of switch. Only one connecting cable, no tuning controls. Highly sensitive. Frequency response flat to 10 MC. Sensitivity 1.8 volts from 250 to 10,000 cps. Tube and resistor capacity network are built into detector probe. Built-in high gain amplifier. With detector probe, test leads, self-contained batteries. Only 8 lbs. Steel cabinet, crackle finish. 6½ by 9 by 5½ in. deep. Ship. wt. 10 lbs. Express.  
62 AE 4165RT—\$2.95 Down, \$5 Mo., or Cash \$29.35

### FEILER POCKET STETHOSCOPE

**E** Model TS5. The only pocket stethoscope made for testing radios and electronic devices. 3 in. PM dynamic speaker for audible signal. Makes rf, if, audio signals audible. Range 30 cps to 120 mc. Uses miniature tubes, operates from 110 volts 50-60 cycle AC. Jacks provided for external VOM. Detector probe, connectors, etc., included. Steel case, removable cover. Brown finish, black and red trim. 4½ by 8½ by 2¾ in. deep. Ship. wt. 6 lbs. Shipped by Express only.  
62 AE 4190RT—\$2.90 Down, \$5 Mo., or Cash \$28.95

### WARDS CONVENIENT MONTHLY PAYMENT PLAN

Whether you are a serviceman, an amateur, or sound equipment user, you will find it convenient to purchase your equipment from this Catalog by paying only 10% Down and the balance in small monthly payments. Be sure to read the complete details of Convenient Monthly Payment Plan on Page 47 of this catalog.

### FEILER TS3 STETHOSCOPE

**F** Professional model. Receives and makes audible all signals 30 cps to 120 MC, rf, if, and audio, without special controls or tuning. Very sensitive. Picks up signals at first grid of most radios. Uses biased diode detector probe. 5 in. PM dynamic speaker. Provision for output meter for silent tracing, also for external visual indicator (rf vacuum tube voltmeter). Headphone jacks. Probe, cable included. Operates on 110 volts 50-60 cycles AC. Steel case 8 by 11½ by 6 in. deep. Brown iridescent finish—beige panel (pictured on back cover). Ship. wt. 12 lbs. Express.  
62 AE 4191RT—\$3.50 Down, \$5 Mo. or Cash \$34.95

### SUPERIOR SIGNAL TRACER

**G** Model CA 11. Highly sensitive, portable tracer with signal intensity read on meter — phone jacks for audible signal and checking. Operation meter scale same as on Superior CA 12. Complete with probe, test leads, self-contained 45-volt battery. Case 5 by 6 by 7 in. Ship. wt. 6 lbs. Express.  
62 AE 4160RT—\$1.85 Down, \$5 Mo., or Cash \$18.37

### TRIPLETT APPLIANCE TESTER

**H** Model 2002. Tests power consumption of radios, household appliances and industrial equipment under operating conditions, either AC or DC. 25 to 133 cycles. Checks watts and volts. AC-DC watts: 0-1500-1300 at 10 amps. rated, 16 amps. maximum. AC-DC volts: 0-130-260 at 125 ohms per volt.  
Heavy leather case, snap button cover; space for cords. Cords included. 6½ by 4½ by 3¼ inches. Wt. 2 lbs. 8 oz. Express.  
62 AE 4059RT—\$3.20 Down, \$5 Mo., or Cash \$31.85



## Radio Servicing Tools... Publications

### FINE QUALITY TOOLS DESIGNED FOR RADIO SERVICEMEN

- A** 62 AE 6956 T—Set of 7 Xcelite DeLuxe Nut Drivers, with metal holder. Popular sizes  $\frac{3}{16}$  to  $\frac{3}{8}$  in. hex nut. Wt. 2 lbs.....\$3.90
- B** BEST QUALITY XCELITE NUT DRIVERS. Deep enough to hold 2 nuts at once.
- 62 AE 6970 T—No. 6 ( $\frac{3}{16}$ -in. nut). Wt. 2 oz... 45c  
 62 AE 6971 T—No. 7 ( $\frac{7}{32}$ -in. nut). Wt. 2 oz... 45c  
 62 AE 6972 T—No. 8 ( $\frac{1}{4}$ -in. nut). Wt. 2 oz... 45c  
 62 AE 6973 T—No. 9 ( $\frac{9}{32}$ -in. nut). Wt. 2 oz... 45c  
 62 AE 6974 T—No. 10 ( $\frac{5}{16}$ -in. nut). Wt. 2 oz... 45c  
 62 AE 6975 T—No. 11 ( $\frac{11}{32}$ -in. nut). Wt. 2 oz... 45c  
 62 AE 6976 T—No. 12 ( $\frac{3}{8}$ -in. nut). Wt. 2 oz... 45c  
 62 AE 6977 T—No. 14 ( $\frac{7}{16}$ -in. nut). Wt. 5 oz... 57c  
 62 AE 6978 T—No. 16 ( $\frac{1}{2}$ -in. nut). Wt. 5 oz... 57c
- C** SCREWDRIVERS. Forged chrome vanadium steel. Xcelite handles.
- 62 AE 6957 T—3 in. by  $\frac{3}{32}$ -in. blade. Wt. 1 oz. 18c  
 62 AE 6958 T—2 in. by  $\frac{1}{8}$ -in. blade. Wt. 1 oz. 18c  
 62 AE 6959 T—6 in. by  $\frac{1}{8}$ -in. blade. Wt. 1 oz. 33c  
 62 AE 6960 T—5 in. by  $\frac{5}{32}$ -in. blade. Wt. 2 oz. 36c  
 62 AE 6961 T—6 in. by  $\frac{3}{16}$ -in. blade. Wt. 3 oz. 51c  
 62 AE 6962 T—4 in. by  $\frac{1}{4}$ -in. blade. Wt. 3 oz. 54c  
 62 AE 6963 T—8 in. by  $\frac{1}{4}$ -in. blade. Wt. 4 oz. 63c  
 62 AE 6964 T—8 in. by  $\frac{1}{16}$ -in. blade. Wt. 8 oz. 75c
- D** 62 AE 6955 T—XCELITE STUBBY SCREWDRIVER. 1 by  $\frac{1}{16}$ -in. blade. Wt. 2 oz..... 39c
- 62 AE 6965 T—SCREW HOLDING TYPE SCREWDRIVER. (Not shown). 5 by  $\frac{1}{8}$ -in. blade. Wt. 1 oz..... 36c
- E** PHILLIPS SCREWDRIVERS. Plastic Handles.
- 62 AE 6966 T—No. 1 size. Wt. 2 oz..... 57c  
 62 AE 6967 T—No. 2 size. Wt. 3 oz..... 81c  
 62 AE 6968 T—No. 3 size. Wt. 5 oz..... \$1.11  
 62 AE 6969 T—No. 4 size. Wt. 8 oz..... 1.23

- F** G.E. CALROD SOLDERING IRON.  $\frac{3}{8}$ -in. diameter chisel tip. Heavy-duty. Plastic handle. 110-120 volts AC or DC.
- 62 AE 6983 T—Ship. wt. 1 lb. 10 oz..... \$7.00
- G** KELNOR ANGLE SOLDERING IRON. Solders in hard-to-reach places—weighs only 9 oz. Extendable tip. 6-ft. cord. 110-120 volts AC or DC.
- 62 AE 6951 T—125-watt Iron. Wt. 1 lb. .... \$3.92  
 62 AE 6952 T—Extra Pencil Tip. Wt. 4 oz. .... 29c  
 62 AE 6954 T—Extra Element. Wt. 4 oz. .... \$1.76
- H** BAKER-PHILLIPS SOLDERING FLASH GUN. Operates on 6-8-v. storage battery. Instant heating.
- 62 AE 6980 T—Shipping weight 1 lb. .... \$4.75
- 62 AE 6981 T—BAKER-PHILLIPS SOLDERING FLASH GUN (not shown). Same as 62 AE 6980 T, but for 110 volts AC or DC. Includes 3 interchangeable tips. Shipping weight 1 lb. .... \$4.95
- J** UNGAR SOLDERING PENCIL HANDLE AND CORD SET. Handles as easily as a pencil. 110 volts, AC or DC. Order tips separately.
- 62 AE 6986 T—Ship. wt. 8 oz..... 78c
- K L M N** SOLDERING TIPS for Ungar Soldering Pencil, above. Select from four sizes.
- (K) 62 AE 6988 T—Pencil Tip..... 78c  
 (L) 62 AE 6989 T—Chisel Tip..... 78c  
 (M) 62 AE 6987 T—Pyramid Tip..... 78c  
 (N) 62 AE 6990 T—Heavy-duty Tip..... 78c
- P** TRI-CORE SOLDER WIRE. Self-fluxing. Non-corrosive resin.
- 62 AE 6979 T—1-lb. Spool. Ship. wt. 1 lb. .... 87c

### SERVICE AND AMATEUR BOOKS

- R** RIDER SERVICE MANUALS. Authoritative information on latest sets. Circuits, classified schematics. Vol. 1-5 is abridged, takes place of original 5 vols. Ship. wt. each 8 lbs.
- 62 AE 6754 T—Volume 1-5, abridged ..... \$17.15  
 62 AE 6755 T—Vol. VI (1936)..... 10.78  
 62 AE 6756 T—Vol. VII (1937)..... 14.70  
 62 AE 6757 T—Vol. VIII (1938)..... 14.70  
 62 AE 6758 T—Vol. IX (1939)..... 14.70  
 62 AE 6759 T—Vol. X (Early 1940)..... 14.70  
 62 AE 6760 T—Vol. XI (Late 1940)..... 14.70  
 62 AE 6761 T—Vol. XII (Early 1941)..... 14.70  
 62 AE 6762 T—Vol. XIII (Late 1941)..... 14.70  
 62 AE 6763 T—Vol. XIV (1942)..... 14.70  
 62 AE 6764 T—Vol. XV (1946-47)..... 17.64
- T** RADIO AMATEUR CALL BOOK. World Directory of amateur stations. With prefix map of world, time charts, etc. New editions in March, June, September, December. Ship. wt. 8 oz.
- 62 AE 6900 T—Each Latest Edition..... \$1.50
- U** HINTS AND KINKS. Practical ideas for construction, operation of amateur equipment.
- 62 AE 6752 T—Ship. wt. 8 oz..... 50c
- V** A.R.R.L. ANTENNA BOOK. Design, construction.
- 62 AE 6751 T—Ship. wt. 8 oz..... 50c
- W** A.R.R.L. RADIO AMATEUR'S HANDBOOK. Recognized outstanding textbook on practical radio communications. Issued yearly. Wt. 1 lb.
- 62 AE 6750 T—Latest Edition..... \$2.00
- X** HOW TO BECOME A RADIO AMATEUR... LEARNING THE RADIO CODE... THE RADIO AMATEUR'S LICENSE MANUAL. Set of 3 books—all necessary information to secure your amateur license.
- 62 AE 6753 T—Set of three. Wt. 12 oz..... 75c

# It's Easy to Order by Mail at Wards

ORDERING INFORMATION...PARCEL POST, EXPRESS AND FREIGHT RATES

SEND ALL ORDERS FROM THIS CATALOG to your nearest Wards Mail Order House or order from nearest Wards Retail Store or Catalog Office. Most merchandise is shipped from Chicago, but you pay shipping charges only from your nearest Mail Order House. Houses are located at Chicago, Baltimore, Albany, Kansas City, St. Paul, Denver, Portland (Ore), Oakland, Ft. Worth.

IMPORTANT: Because of its nature, precision equipment such as Amplifiers, Sound Systems, Radio Receivers, Recorders, Test Equipment, Transmitters, etc. will be shipped by Express only. Other merchandise will be shipped by Parcel Post or Freight, if so specified on your order.

MERCHANDISE NOT LISTED IN THIS CATALOG. If you wish to purchase electronic equipment not shown in this catalog, write our Radio and Sound Equipment Department, Chicago, Ill. for information, prices. They will help you plan for the correct electronic equipment you need. Wards can supply any other electronic items and equipment made by manufacturers whose products appear in this Catalog.

PRICES: We reserve the right at any time to increase any catalog price if merchandise costs make an increase expedient. Prices are subject to an additional charge to cover any applicable sales tax, use tax, occupation tax or other tax affecting our purchases or sale of merchandise.

TO SEND MONEY: The safest and best way to send money by mail is a Postal Money Order, Personal Check, American Express Money Order, Bank Draft or Cashier's Check. Postal notes are also available at larger post offices. If you live on a rural postal route, the mail carrier will, upon request, buy a Postal Money Order for you and enclose with your order.

If there is a Ward Store or Catalog Office near you, the salesman in the Radio Department or the clerk in the Catalog Sales Department of the store or any clerk in the Catalog Office will gladly handle your order and save you all money order fees. Otherwise, send all orders to Wards nearest Mail Order House.

PARCEL POST RATES					
Add up the shipping weights of items ordered and see below for amount to allow for Postage. Do not be afraid of sending too much; we will return every cent not used.					
Total Shipping Weight of Order	Local Rate	ZONES			
		1-2 Not 150 Miles	3 151 To 300 Miles	4 301 To 600 Miles	5 601 To 1000 Miles
2 oz. or less	1½c	1½c	1½c	1½c	1½c
3 or 4 oz.	3c	3c	3c	3c	3c
5 or 6 oz.	4½c	4½c	4½c	4½c	4½c
7 or 8 oz.	6c	6c	6c	6c	6c
9 oz. to 1 lb...	8c	9c	10c	11c	12c
1 lb. 1 oz. to 2 lbs...	9c	11c	12c	15c	18c
2 lbs. 1 oz. to 3 lbs...	9c	12c	14c	18c	23c
3 lbs. 1 oz. to 4 lbs...	10c	13c	16c	22c	28c
4 lbs. 1 oz. to 5 lbs...	10c	14c	18c	25c	34c
5 lbs. 1 oz. to 6 lbs...	11c	15c	20c	29c	39c
6 lbs. 1 oz. to 7 lbs...	11c	16c	22c	32c	44c
7 lbs. 1 oz. to 8 lbs...	12c	17c	24c	36c	50c
8 lbs. 1 oz. to 9 lbs...	12c	18c	26c	39c	56c
9 lbs. 1 oz. to 10 lbs...	13c	19c	28c	43c	61c
10 lbs. 1 oz. to 11 lbs...	13c	20c	30c	46c	66c
11 lbs. 1 oz. to 12 lbs...	14c	22c	32c	50c	72c
12 lbs. 1 oz. to 13 lbs...	14c	23c	34c	54c	77c
13 lbs. 1 oz. to 14 lbs...	15c	24c	36c	58c	82c
14 lbs. 1 oz. to 15 lbs...	15c	25c	38c	61c	89c
15 lbs. 1 oz. to 16 lbs...	16c	26c	40c	65c	94c
16 lbs. 1 oz. to 17 lbs...	16c	27c	42c	68c	99c
17 lbs. 1 oz. to 18 lbs...	17c	28c	44c	72c	\$1.05
18 lbs. 1 oz. to 19 lbs...	17c	29c	46c	75c	1.10
19 lbs. 1 oz. to 20 lbs...	18c	30c	48c	79c	1.15
20 lbs. 1 oz. to 21 lbs...	18c	31c	50c	82c	1.21
21 lbs. 1 oz. to 22 lbs...	19c	33c	53c	87c	1.27
22 lbs. 1 oz. to 23 lbs...	19c	34c	55c	90c	1.32
23 lbs. 1 oz. to 24 lbs...	20c	35c	57c	94c	1.37
24 lbs. 1 oz. to 25 lbs...	20c	36c	59c	97c	1.43
25 lbs. 1 oz. to 26 lbs...	21c	37c	61c	\$1.01	1.48
26 lbs. 1 oz. to 27 lbs...	21c	38c	63c	1.04	1.53
27 lbs. 1 oz. to 28 lbs...	22c	39c	65c	1.08	1.60
28 lbs. 1 oz. to 29 lbs...	22c	40c	67c	1.11	1.65
30 lbs.....	23c	41c	69c	1.15	1.70
35 lbs.....	25c	47c	79c	1.33	1.98
40 lbs.....	28c	53c	90c	1.51	2.25
50 lbs.....	33c	64c	\$1.10	1.87	2.79
60 lbs.....	38c	75c	1.31	2.24	3.34
70 lbs.....	43c	87c	1.51	2.60	3.88

All rates subject to change if revised by Postoffice Dept.

PARCEL POST RATES: If your merchandise is such that it can be shipped by Parcel Post, and you wish this method of shipment, include enough money with your remittance to cover the postage.

FIND POSTAGE RATE IN TABLE AT LEFT. Add up the shipping weights of items ordered and find that weight in first column of table. To the right of it, is postage to your zone. Use the zone showing your distance from Wards nearest Mail Order House. On packages over 8 ounces, the Post Office figures any part of a pound as the next full pound. For example, 9 ounces is counted as 1 lb.; 3 lbs. 2 oz. is counted as 4 lbs.

Packages weighing not more than 70 lbs. and measuring not more than 100 inches in length plus girth (distance around) at widest point, may be mailed to all zones.

EXPRESS RATES. Express is the fastest way to ship unmailable merchandise. If your town has express delivery, goods are delivered to your home at no extra charge. Do not send money for express charges with your order if there is an agent at your railway station; pay him when the goods arrive. If there is no agent, send money to prepay the charges. Figure the distance from Wards nearest Mail Order House and use the table below to estimate express charges. Add 3% Federal Transportation Tax to total Express charges.

Shipping Weight	100 Miles	200 Miles	300 Miles	400 Miles	500 Miles	750 Miles	1000 Miles
5 Pounds....	\$0.84	\$0.87	\$0.90	\$0.93	\$0.95	\$1.01	\$1.04
10 Pounds....	.92	.98	1.05	1.10	1.14	1.26	1.33
15 Pounds....	1.01	1.10	1.20	1.28	1.34	1.52	1.62
20 Pounds....	1.09	1.21	1.35	1.45	1.53	1.77	1.91
25 Pounds....	1.18	1.33	1.50	1.63	1.73	2.03	2.20
35 Pounds....	1.35	1.56	1.80	1.98	2.12	2.54	2.78
55 Pounds....	1.69	2.02	2.40	2.68	2.90	3.56	3.94
75 Pounds....	2.03	2.48	3.00	3.38	3.68	4.58	5.10
Ea. 100 lbs....	2.45	3.05	3.75	4.25	4.65	5.85	6.55

AIR EXPRESS—Gives faster service to some points over 300 miles from our Mail Order House. See local agent for rates.

FREIGHT RATES: If merchandise can be shipped by Freight, and you wish it shipped this way, so specify on your order, and give name of the railroad. Send no money for freight charges if there is an agent at your station; he will collect the charges. If there is no agent, include enough extra with your remittance to prepay freight from the nearest Wards Mail Order House and specify name of station to which shipment should be sent. Rates are based on 100 lb. shipments (freight charges for less than 100 lbs. are usually the same as for 100 lbs.) Add 3% Federal Transportation Tax to following approximate freight rates.

	100 Miles	200 Miles	300 Miles	500 Miles	750 Miles	1000 Miles
Cost per 100 lbs. ....	95c	\$1.29	\$1.60	\$2.14	\$2.84	\$3.74

IN MOUNTAIN TERRITORY, freight rates are usually about one-fourth higher than the rates shown above.

ALL TRANSPORTATION RATES ABOVE ON PARCEL POST, FREIGHT AND EXPRESS SHIPMENTS ARE SUBJECT TO CHANGE WITHOUT NOTICE

# Only 10% Down When You Buy on Terms

USE IT NOW...PAY ON WARDS CONVENIENT MONTHLY PAYMENT PLAN

Use It Now. Order today. Don't put off your purchases because you don't have the available cash—you can include any item in this catalog in a Monthly Payment order and pay only a small amount down and the balance monthly. You can buy better equipment than that which you may have planned on—use it now.

If you are a radio amateur you can own and use the latest Transmitter, Receiver, etc. for better results; if you are a member of an organization, School, Church, Lodge, etc. you can recommend installing Wards efficient and complete Sound System; if you are a Radio Serviceman you can earn extra dollars using the latest Testing equipment now.

**PAY ONLY 10% DOWN ON EVERYTHING.** The amount to pay down, unless you already have an account here, is 10% (one-tenth) regardless of the amount of the order or the kind of merchandise. Items in this catalog formerly requiring a down payment of 20% or 33 1/3% under government regulations, now require only 10% Down Payment. On many items you now have as much as 18 months, instead of 15 months, in which to pay. NO down payment is required on Add-on purchases. Plan is explained below.

**NOTE:** Include as part of the purchase price of the merchandise, the Tax (if any) and any transportation charges to be paid by Wards.

**AVAILABLE TO ALL.** Any responsible person with a steady income can have credit at Wards. No security is asked—no co-signers required. We depend on your integrity and ability to pay. You can buy anything Wards sell. There are no hidden charges—prices are the same as for cash with a reasonable carrying charge added to the unpaid balance. As little as a \$10 order will start a Monthly Payment Account and thereafter you can make additional purchases of \$5 or more as needed on the same account.

**NOTE:** If buying for Church, Lodge or other Organization, one or more persons should sign as individuals (not as officers of the organization to which they belong).

TABLE OF MONTHLY PAYMENT TERMS

If Unpaid Balance is*	We Will Add for Carrying Ch'ge	Monthly Payment
Up To 15.00	1.00	5.00
15.01 To 18.00	1.25	5.00
18.01 " 20.00	1.50	5.00
20.01 " 22.00	1.75	5.00
22.01 " 24.00	2.00	5.00
24.01 " 26.00	2.25	5.00
26.01 " 28.00	2.50	5.00
28.01 " 30.00	2.75	5.00
30.01 " 32.00	3.00	5.00
32.01 " 34.00	3.20	5.00
34.01 " 36.00	3.40	5.00
36.01 " 38.00	3.60	5.00
38.01 " 40.00	3.80	5.00
40.01 " 45.00	4.00	5.00
45.01 " 50.00	4.50	5.00
50.01 " 55.00	5.00	5.00
55.01 " 60.00	5.50	6.00
60.01 " 65.00	6.00	6.00
65.01 " 70.00	6.50	7.00
70.01 " 75.00	7.00	7.00
75.01 " 80.00	7.50	8.00
80.01 " 85.00	8.00	8.00
85.01 " 90.00	8.50	8.00
90.01 " 95.00	9.00	9.00
95.01 " 100.00	9.50	9.00
100.01 " 110.00	10.00	10.00
110.01 " 120.00	11.00	10.00
120.01 " 130.00	12.00	10.00
130.01 " 140.00	12.75	11.00
140.01 " 150.00	13.50	11.00
150.01 " 160.00	14.25	11.00
160.01 " 170.00	14.50	12.00
170.01 " 180.00	15.50	12.00
180.01 " 190.00	16.50	13.00
190.01 " 200.00	17.50	13.00
200.01 " 210.00	18.00	14.00
210.01 " 220.00	19.00	14.00
220.01 " 230.00	20.00	14.00
230.01 " 240.00	21.00	15.00
240.01 " 250.00	22.00	15.00
250.01 " 260.00	22.50	16.00
260.01 " 270.00	23.50	17.00
270.01 " 280.00	24.50	17.00
280.01 " 290.00	25.50	18.00
290.01 " 300.00	26.50	18.00

\*Unpaid Balance is the amount remaining after deducting the Down Payment. Terms are subject to change if amended by Federal Regulations. For larger orders write to us.

## IT'S EASY TO OPEN AN ACCOUNT AT WARDS

Any responsible person with a steady income can have credit at Wards. No security is asked—no co-signers required. We depend on your integrity and ability to pay. Under this convenient form of credit you can buy anything Wards sell. There are no hidden charges—prices are the same as for cash with a reasonable carrying charge added to the unpaid balance.

To apply for credit by mail send us an order totaling \$10 or more on one of the regular Order Blanks. Be sure to fill in and sign the application form on the opposite side. Enclose the required Down Payment (10%—one tenth), and mail it to the Ward Mail Order House nearest you. (If under legal age, parent or guardian must sign.) If you live near a Ward Store or Catalog Office, the credit manager there will be glad to handle all details for you. You can also make all payments there.

## ADD-ON PLAN—NO DOWN PAYMENT IS REQUIRED IF YOU ALREADY HAVE AN ACCOUNT WITH WARDS

When you have established your credit at Wards by opening an account we send you an invitation to use and enjoy the convenience of our Add-on Plan. This permits you to make additional purchases to be charged to the same account without down payment or delay for credit investigation, and usually with little or no increase in the monthly payments.

As you will see by the Table of Terms (at left), you can have a standing balance of as much as \$60 (including carrying charge) on a monthly payment of only \$5. All you need do when placing Add-on orders is to write your orders in the usual way, then turn the order blank over and fill in and sign the upper portion. This will enable us to fill and ship your order without delay. Add-on orders must be for amounts of \$5 or more—and remember—no down payment is required.

**TAKE ADVANTAGE OF WARDS SERVICE:** If there is a Ward Catalog Office or Ward Retail Store near you, come in and get personal attention. Trained clerks will write and mail orders for you, save you letter postage and money order fees. Goods will be shipped from our Mail Order House directly to your home or you can call for them, if preferred, and save part of the shipping costs.

## SATISFACTION GUARANTEED

*If for any reason you are not entirely satisfied with any purchase made at Wards, you may return the merchandise. We will promptly refund all you paid including any transportation charges paid by you. Or, if you prefer, we will exchange it for something that does satisfy you.*

—Montgomery Ward & Co.

FOUR CONVENIENT WAYS TO SHOP AT WARDS AND SAVE—  
BY MAIL—BY PHONE—CATALOG OFFICE—RETAIL STORE



## Portable Disc Recorders, Record Blanks

**A** PRESTO MODEL K—portable sound recorder, record player and voice amplifier. Meets professional standards. Control panel jacks connect to phono pickup, microphone, most home radios. Records 15-min. radio programs at 33 $\frac{1}{3}$  RPM on one side of 13 $\frac{1}{4}$ -in. discs. Cuts, plays back 6, 8, 10 or 12-in. discs at 33 $\frac{1}{3}$  or 78 RPM. 12-in. turntable.

HEAVY-DUTY CONSTANT SPEED MOTOR. Magnetic cutting head; pickup. Cuts inside out or outside in. Dark gray case, 19 $\frac{1}{2}$ x15 $\frac{1}{2}$ x14 in.

EIGHT-INCH PM SPEAKER. Volume indicator. Dual tone control—high frequency equalizer. Volume control, selector switch. Order microphone of high impedance type, Pages 32, 33. Use Acetate or Nitrate-coated discs below. Act. wt. 46 lbs. For 105–125 volts, 60 cycle AC only.

62 AE 395GRT—Express Prepaid. \$34.80 Dn., \$20 Mo. . . . . or Cash \$348.00

**B** WILCOX-GAY RECORDING DISCS. Plastic-coated aluminum or Fiberlastic coated fiber. For home recorder use. Shipped Postpaid.

62 AE 307—10-in. Aluminum base discs . . . . .	6 for \$2.50
62 AE 306—8-in. Aluminum base discs . . . . .	6 for 1.75
62 AE 305—6 $\frac{1}{2}$ -in. Aluminum base discs . . . . .	6 for 1.25
62 AE 301—8-in. Fiber base discs . . . . .	6 for 1.00
62 AE 300—6 $\frac{1}{2}$ -in. Fiber base discs . . . . .	6 for 60c

**C** NATIONAL HOLLYWOOD RECORDING DISCS. Strong Aluminum base, professional quality, acetate coating. Handle shavings with care.

	Better Blue Label	Best Red Label
6 $\frac{1}{2}$ -in. disc. Ship. wt. 2 oz.	62 AE 360 T. . Ea. 21c	62 AE 364 T. . Ea. 27c
8-in. disc. Ship. wt. 3 oz.	62 AE 361 T. . Ea. 27c	62 AE 365 T. . Ea. 39c
10-in. disc. Ship. wt. 6 oz.	62 AE 362 T. . Ea. 39c	62 AE 366 T. . Ea. 57c
12-in. disc. Ship. wt. 8 oz.	62 AE 363 T. . Ea. 57c	62 AE 367 T. . Ea. 84c

RECORDISC RED LABEL DISCS. For professional use. Best quality Aluminum, Cellulose Nitrate coated. Handle shavings with extreme care.

62 AE 310T—6 $\frac{1}{2}$ -in. disc. Ship. wt. 8 oz. . . . .	Ea. 20c
62 AE 311T—8-in. disc. Ship. wt. 8 oz. . . . .	Ea. 27c
62 AE 312T—10-in. disc. Ship. wt. 8 oz. . . . .	Ea. 40c

48 WARDS

**D** RECORDIO PORTACORDER in compact carrying case. A combination Home Recorder, Radio-Phonograph and Home Sound System. Makes disc recordings of radio programs or voices of family and friends. Phonograph plays back. Radio receives standard broadcasts, 540–1600 KC. Push-button controls switch on: 1. Recorder; 2. Radio (records "Off-the-air"); 3. Phonograph; 4. Sound Amplifier. Has Tuning Knob, Tone Control, Volume Control. Large slide-rule dial. Tuning Eye for recording volume control. 78 RPM.

GEARED RECORDING HEAD. Crystal Microphone. Crystal Phono Pickup. Radio has 6 tubes plus rectifier. Large 9-in. oval speaker. Package of playback needles, two cutting needles included. For 105–125 volts 60 cycle AC only. 18 $\frac{1}{2}$  by 11 $\frac{1}{4}$  by 15 $\frac{3}{4}$  in. deep. Act. wt. 48 lbs. U.L. Listed. Express.

62 AE 3956RT—Only 10% Down. . . . . \$149.50  
Denver, Portland and Oakland. Only 10% Down. . . . . 159.50

**E** ULTRATONE RECORDER, RADIO-PHONOGRAPH AND PUBLIC ADDRESS SYSTEM. Records at 33 $\frac{1}{3}$  or 78 RPM, from radio or from microphone pickup. Crystal cutting head. Neon tube volume indicators. Dual-Speed Phonograph plays all standard and 33 $\frac{1}{3}$  RPM recordings. Crystal phonograph pickup. Radio Chassis—four tubes plus rectifier, microphone amplifier tube. Use with Crystal microphone (included) as home sound system. Receives standard broadcasts, 540–1600 KC. PM speaker. Built-in loop antenna. Volume and Tone Controls. Switch for Radio, Phonograph, Record Radio, Record Microphone or Public Address. Jacks for microphone, extension speaker. Case 10 in. high. 17 $\frac{3}{4}$  in. wide, 18 $\frac{1}{2}$  in. deep, covered in maroon artificial leather. For 105–125 volts 60 cycle AC. Act. wt. 43 lbs.

62 AE 3965 RT—Express Prepaid. \$13 Down, \$10 Monthly . . . or Cash \$129.95

EXTENSION SPEAKER FOR ULTRATONE. (Not shown.) Has Maroon artificial leather case, 18 $\frac{1}{2}$  in. high, 17 $\frac{3}{4}$  in. wide, 10 in. deep. Act. wt. 16 lbs.

62 AE 3966 RT—Express Prepaid. \$4 Down, \$5 Monthly. . . . . or Cash \$39.95

RECOTON STELLITE CUTTING NEEDLE (not shown). High Fidelity type.

62 AE 345T—Shipping weight 1 oz. . . . . \$2.00

WILCOX-GAY CUTTING NEEDLE (not shown). For use with home recorders.

62 AE 325—Shipping weight 2 oz. . . . . Two for 50c





## Wire Recorders, Tuners, and Amplifiers

**A** WARDS 20-WATT DE LUXE AMPLIFIER (see Page 23), modified for use with wire recorder mechanism (E) below. Records and plays back with professional quality when used with a fine microphone and a high-fidelity speaker, such as the Stephens on this page, or the Jensen on Page 50. Records from your radio, microphone or phono turntable on recorder. Cables and connectors furnished. Ship. wt. 56 lbs. *Express*.  
62 AE 8298 RT—\$9.85 Dn., \$8 Mo. or Cash \$98.50

**B** AM/FM TUNER receives standard broadcasts (550-1600 KC) and FM (88-108 MC). Connections provided for record player. Lighted dial. AM/FM Switch, Phono Switch, Off-on, Volume Control, and separate Bass and Treble Controls. Nine tubes plus rectifier. Built-in antennas for AM and FM. Size overall: 9 by 14 by 10 in. deep. Ship. wt. 15½ lbs. *Express only*.  
62 AE 4201 RT—\$11 Dn., \$9 Mo. or Cash \$110.00

**C** HIGH-FIDELITY AMPLIFIER—Distortion overall less than 3% at 10 watts output. Maximum output 20 watts. Uniform response ±1 db. from 20 to 20,000 cycles. Use with AM/FM tuner above. Recorder output tap, and 4, 6, 8, 15 and 500-ohm taps for speakers. Four tubes; 6J5, 6SN7GT, two 6V6's, plus 5Y3 rectifier. Chromium plated chassis, 7 by 10 by 6 in. deep. Ship. wt. 12 lbs. *Shipped by Express only*.  
62 AE 4202 RT—\$3.90 Dn., \$5 Mo. or Cash \$39.00

COMBINATION of 62 AE 4201 Tuner, 62 AE 4202 Amplifier and 62 AE 4203 Speaker. Ship. wt. 33½ lbs. *Shipped by Express Only*.  
62 AE 4200 RT—\$16.15 Dn., \$10 Mo. Cash \$161.20

**D** MATCHING 12-IN. SPEAKER for No. 4201 Tuner, No. 4202 Amplifier. Ship. wt. 6 lbs. *Express*.  
62 AE 4203 RT.....\$12.20

STEPHENS CO-SPIRAL HIGH FIDELITY SPEAKER (not shown). Use with best high-fidelity amplifiers. Range 40-14,000 cycles. Cone brings out low bass notes; differential diffuser reproduces overtones, high notes. 15 watts input. 2½-lb. Alnico magnet. 10% Down on Terms. *Express*.  
62 AE 6010 RT—12-in. Wt. 21 lbs. . . .Cash \$41.16  
62 AE 6012 RT—15-in. Wt. 27 lbs. . . .Cash 47.04

**E** CRESCENT WIRE RECORDER MECHANISM. Use with amplifier, (62 AE 8298RT on this page), speaker and microphone to record from standard records, radio programs or mike. Auxiliary turntable plays 10 or 12-in. records at 78 RPM, can be used while recording on wire. Plays back, erases, rewinds quickly. Constant speed induction motor. Lock switch—won't record accidentally. Size: 7 x 13 x 9 in. deep. Allow 1½-in. space above turntable for installation. Base not included—order 62 AE 4211RT below. Shipping weight 15½ lbs. *Express Only*.  
62 AE 4210 RT—\$5 Dn., \$5 Mo. . . . .or Cash \$49.98

**F** BASE FOR WIRE RECORDER. Molded steel, enamel finish. 9 x 13 x 5 in. high. Ship. wt. 3 lbs.  
62 AE 4211 RT. . . . .Cash \$4.95

STAINLESS STEEL RECORDING WIRE (not shown). For Crescent mechanism. *Mailable*.  
62 AE 3663 T— 1-hr. Spool. Ship. wt. 10 oz. \$4.10  
62 AE 3664 T—½-hr. Spool. Ship. wt. 7 oz. . . 2.50  
62 AE 3665 T—¼-hr. Spool. Ship. wt. 5 oz. . . 1.75

**G** PILOTUNER connects to your present radio to bring you entire FM band (88-108 MC). 3-gang copper condenser ensures precision tuning and minimum drift. Tuned RF stage. 5 tubes plus selenium rectifier. U. L. Listed. Walnut Veneered cabinet; 6¾ in. high, 8¾ in. wide, 5¾ in. deep. Ship. wt. 6 lbs. *Mailable*.  
62 AE 490 MT—\$3 Dn., \$5 Mo. . . . .or Cash \$29.95

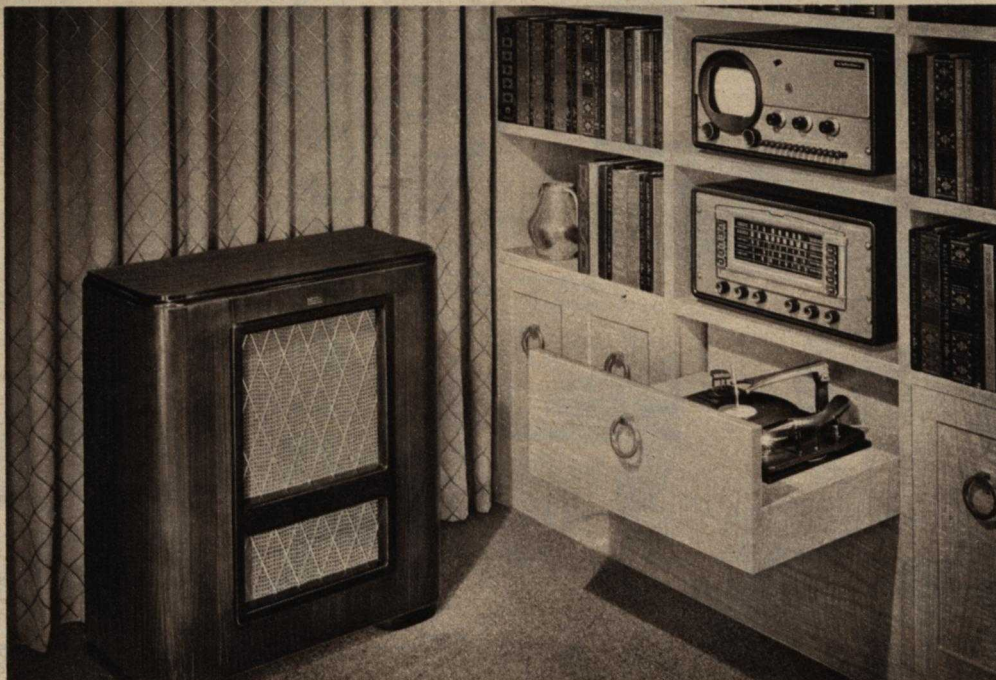
**H** WEBSTER MODEL 80 PORTABLE WIRE RECORDER—makes up to full hour continuous recordings on wire, plays back at once a clear recording of your voice, radio programs, phonograph records, conferences. Recordings last indefinitely—yet can be quickly erased and re-used. One half-hour, two 15-min. spools of wire included. Extra spools listed below. Red Morocco-Grained artificial leather case.

High impedance crystal microphone, 5¼ in. electro-dynamic speaker. Amplifier has 3 tubes plus rectifier. Induction motor drives mechanism smoothly, rewinds quickly. Size overall: 7¾ x 11¾ x 17¾ in. deep. For 105-120 volts, 50-60 cycle AC. Actual wt. 27 lbs. *Prepaid*.

62 AE 3650 R—\$14.95 Dn., \$10 Mo. or Cash \$149.50  
62 AE 3660—15-min. record. spool. *Pstpd.* . . 2.00  
62 AE 3661—½-hr. recording spool. *Pstpd.* . . 3.00  
62 AE 3662—1-hr. recording spool. *Pstpd.* . . 5.00

10-Ft. INPUT CORD (not shown). For direct wire recording from radio or phonograph. Wt. 2 lbs.  
62 AE 6846 T—*Mailable*. . . . . \$1.75

10-Ft. OUTPUT CORD (not shown). For recorder connection to external speaker. Ship. wt. 2 lbs.  
62 AE 6845 T—*Mailable*. . . . . \$1.75



HALLICRAFTERS, GARRARD AND JENSEN

## *For Superb Music and Clear Television*

Here's new beauty of tone, new brilliance of performance awaiting your musical ear. Symphonic and popular music alike sound better, are better, when reproduced through the superb radio and record equipment presented on these pages.

Clear, bright television (for those of you within range of a television station) is now available at a very moderate cost with the simply tuned Hallcrafters television receiver.

The most critical listener will be satisfied with the musical fidelity achieved by this radio, and record player. The Hallcrafters receiver is designed to reproduce faithfully the entire audible spectrum. Its ample power output (12 watts) is more than sufficient for full crescendos as well as whispering diminuendos—in their true proportions. It offers enjoyment of regular AM broadcasts, foreign and domestic short wave reception and FM with its thrilling life-like tone. Five tuning buttons each, for broadcast and FM stations, make tuning easy. Manual tuning for all bands. There are separate bass and treble controls for adapting tone response to the acoustics of your room.

The Jensen speaker with Jensen bass reflex cabinet recreates the full tonal range, and is free from objectionable resonance.

The Garrard record changer plays 10 or 12 inch records automatically, intermixed if desired. Records drop silently, gently onto the turntable. Automatic stop on last record. Constant speed

motor, governor controlled, can be regulated from 60 to 90 RPM to assure playing records at the speed at which they were recorded. Mounted on sturdy, mahogany finished wood base for use on bookshelf, in drawer or wherever most convenient.

A suggested room arrangement for a permanent music and television corner in your home is pictured above. Or this fine equipment may be built into your home in a variety of ways, as your individual taste may decide.

The Hallcrafters television receiver carries on the tradition of this manufacturer for superb workmanship and excellence in engineering. Though moderate in price, it offers many features of the most expensive television receivers: Push-button Tuning for all 13 television channels—sight and sound are tuned simultaneously; Automatic Compensator assures steady picture in a few seconds—no waiting for the set\* to warm up; three non-critical controls for contrast, brilliance, holding (framing picture). Volume control. Installation is simple for the man handy with tools; just erect the television antenna sold separately on Page 15 and connect the lead-in to the receiver. Complete instructions are included. Before you order your television receiver, make sure that there is a television station within 40 to 60 miles of your home (the approximate limit for satisfactory reception). Check with your local newspaper or radio station for information on television stations operating or to be built in your vicinity.

### THE HALLICRAFTERS S-47 RADIO

**A** Splendid fidelity: AM response 30 to 7500 cycles, FM—30 to 15,000 cycles. 12 watts output. Automatic frequency control on FM for stability, easy tuning.

Five pushbuttons each for Broadcast and FM bands. Manual tuning control on all bands. Separate treble, bass controls.

Covers Broadcast Band 535 to 1720 KC; Short wave bands 5.9—18.2 MC with two spread bands. FM band 88 to 108 MC.

14 tubes plus rectifier. Steel cabinet. 20 in. wide, 10¼ in. high, 18 in. deep. 105-125 volts, 50-60 cycles AC. Ship. wt. 65 lbs. Express only. 10% Down on Terms.

62 AE 3748 RT.....\$200.00  
Denver, Portland and Oakland....202.50  
62 AE 3871 RT—Same as above, but without cabinet. Wt. 48 lbs.....\$189.50  
Denver, Portland and Oakland....192.00

### THE JENSEN SPEAKER AND CABINET

**B** Jensen Model RD151 15-inch co-axial speaker. Mounted in satin finish walnut veneer bass reflex cabinet. High fidelity with minimum distortion. Size: 31¾ in. wide, 27¾ in. high, 13¾ in. deep. Express only. Ship. wt. 75 lbs.

62 AE 6217 RT—\$13.85 Dn. or Cash \$138.50

### THE GARRARD RECORD CHANGER

**C** Plays 10 and 12 in. records intermixed. Low pressure pickup (1 oz.). Sapphire point needle. True tangent, ball-bearing jewel-mounted tone arm for better reproduction, less record wear. Quiet, gentle record changing. 60 to 90 RPM. 13 in. long, 15 in. wide; 5½ in. above plate, 5½ in. below plate. 110-130 volts 60 cycle AC. Wt. 25 lbs. Express.

62 AE 865 RT—\$7 monthly or Cash \$79.50

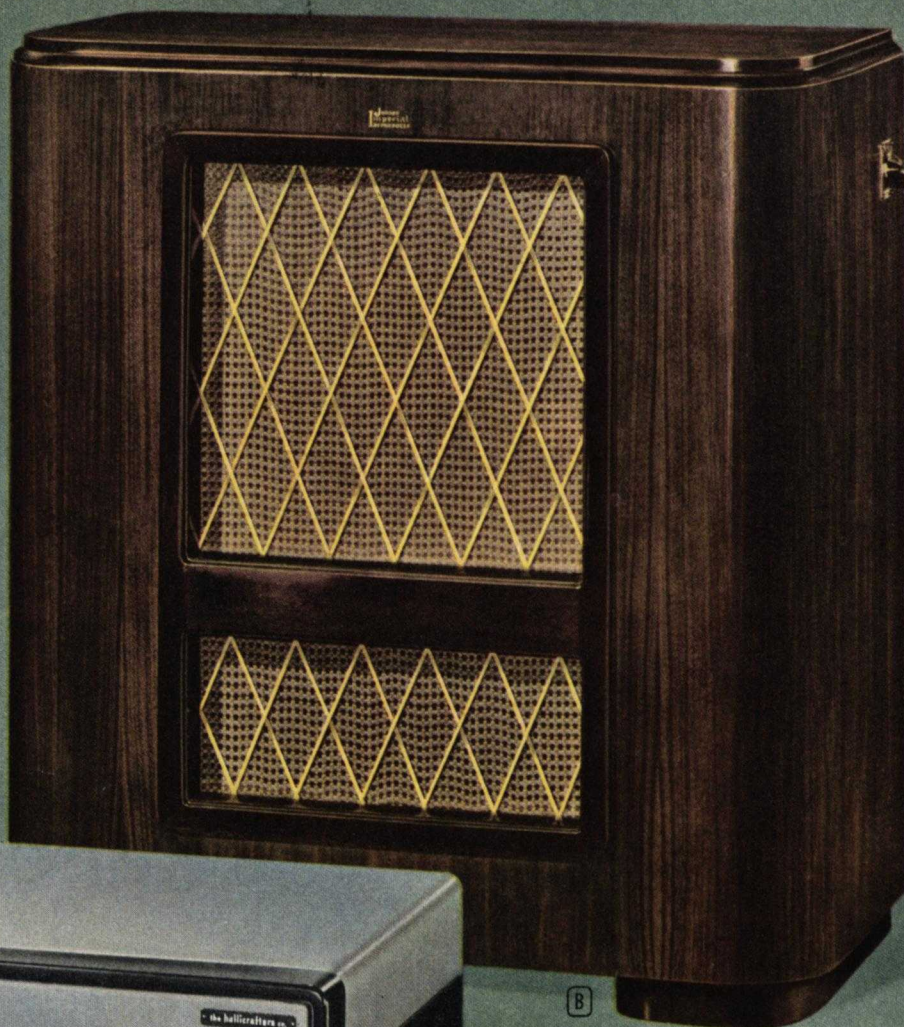
### THE HALLICRAFTERS TELEVISION SET

**D** Bright 26 square inch picture. 7-in. tube. Pushbuttons for the 13 television channels—tune sight and sound simultaneously. Vernier control. Contrast, brilliance, hold and volume controls. Automatic frequency control compensates for normal warm-up drift—no waiting for the picture to "settle down." Focus control on rear. Shatterproof glass protects television tube. Automatic cutoff of high voltages when lid is raised for inspection. Alnico speaker. Steel cabinet.

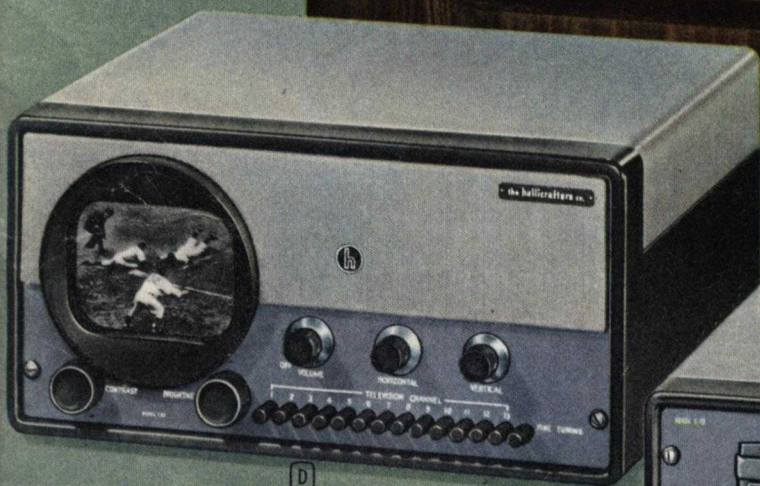
For 110-125 volts 50-60 cycle AC operation only. Order antenna and lead-in separately from Page 15.

Size: 20 in. wide, 10¼ in. high, 18 in. deep. Ship. wt. 45 lbs. Express only.

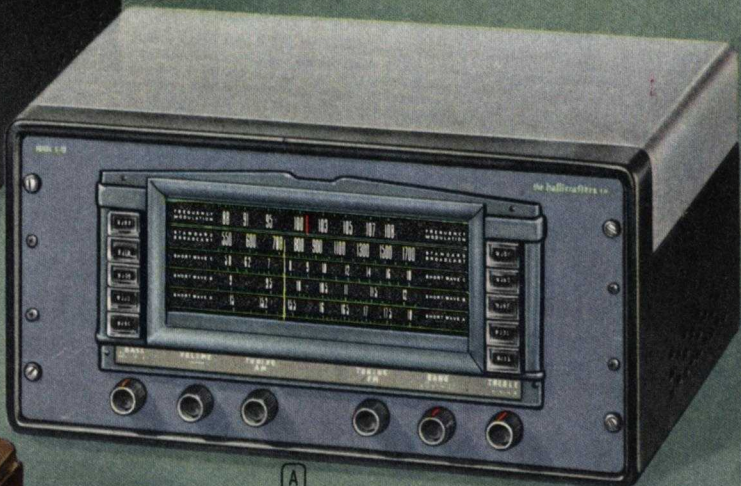
62 AE 3000 RT—\$11 monthly or Cash \$169.50  
Denver, Portland and Oakland....172.50



B



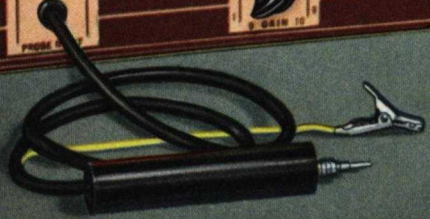
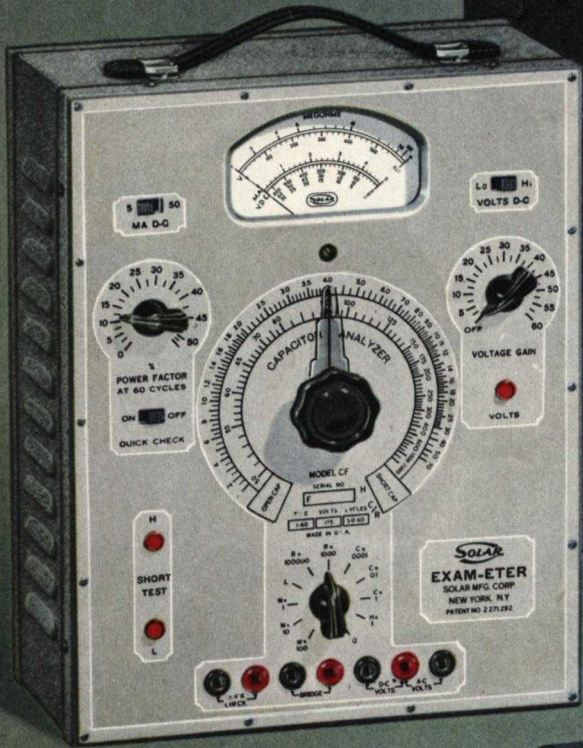
D



A



C



Nationally known Test Equipment, pictured, is listed on pages 36 to 44. See Solar Capacitor Analyzer, E. D. L. Oscilloscope, Feiler Stethoscope, RCA FM/AM Signal Generator, Hickok Electronic Volt-Ohmmeter.

**MONTGOMERY WARD**

Chicago · Baltimore · Albany · St. Paul · Denver  
 Kansas City · Portland · Oakland · Ft. Worth

If You Didn't Get This From My Site,  
 Then It Was Stolen From...