

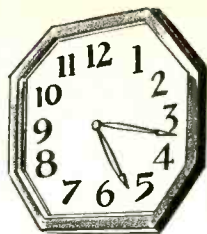
radio service dealer



In
This
Issue:

Phonograph-Changer Repairs
★
Record Sales — Rental Radios
★
Wire Recording

August, 1944
25c



There's Little Enough Time
To Do a Service Job the First Time

And No Time
To Do It Over!

SPENDING valuable man hours to do a job over because a replacement part has failed wastes your time and money, uses critical material and helps to hinder America's war effort.

Your service work can be only as good as the replacement parts you use. By using Mallory parts, you avoid the danger of failure and the necessity of re-doing a job. Whenever the repair calls for volume

controls, vibrators, capacitors, switches or resistors, use Mallory replacements and be safe.

Years of outstanding service and a reputation for long life and dependability in the replacement field make Mallory parts the right parts to do the job right the first time.

They're available through Mallory distributors from coast to coast.

P. R. MALLORY & CO., Inc., INDIANAPOLIS 6, INDIANA



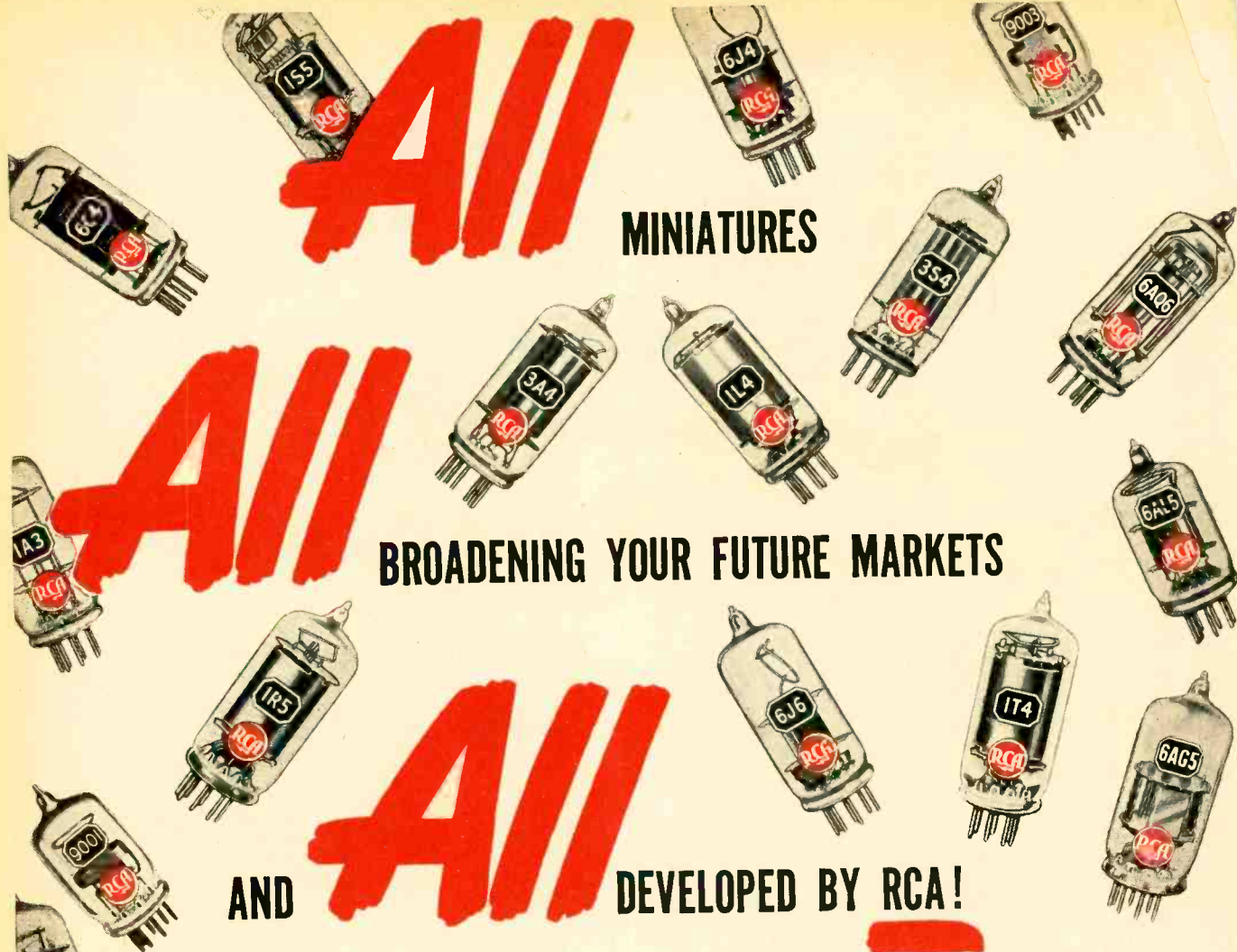
MYE TECHNICAL MANUAL
—408 pages of complete data on capacitors, noise suppression, receiving tubes, loud speakers, vibrators, phono-radios, automatic tuning and other valuable information. Available from your Mallory distributor...Price, \$2.00.

4TH EDITION RADIO SERVICE ENCYCLOPEDIA... Complete information on repairing any make or model of receiver. Circuit references, original part numbers and recommended replacements. Available from your Mallory distributor... Price, 95 cents.



Your Wisest Investment—
Government War Bonds





The 17 RCA Miniatures shown on this page—all of them destined to build a bigger business for you in the future—are:

- | | |
|------------------------------------------|------------------------------------------|
| 1A3 —H-F diode | 6AG5 —R-F amplifier pentode |
| 1L4 —R-F amplifier pentode | 6AL5 —twin diode |
| 1R5 —pentagrid converter | 6AQ6 —Duplex-diode High-Mu triode |
| 1S5 —diode-pentode | 6C4 —H-F power triode |
| 1T4 —R-F amplifier pentode | 6J4 —U-H-F amplifier triode |
| 3A4 —power amplifier pentode | 6J6 —twin triode |
| 3A5 —H-F twin triode | 9001 —Sharp cut-off U-H-F pentode |
| 3S4 —power amplifier pentode | 9002 —U-H-F triode |
| 9003 —Super-control U-H-F pentode | |

TINY tubes like these... every single one of them developed by RCA... were first picked up by the spotlight when the "Personal Radio" was announced in June, 1940. That history-making "super-portable" was designed around RCA's staunch little quartet, Miniatures 1R5, 1S4, 1S5 and 1T4.

Thus, before Pearl Harbor, these Miniatures were already building an entirely new market for you. For they made possible the new type of radio which John Public wanted... not as a replacement for his conventional radio, but as an additional set. And Miniature sets meant profitable battery replacements, too.

War found RCA Miniatures instantly available for overseas

service in equipment such as the paratrooper's air-borne "Handie-Talkie."

Once Victory is won, radios using Miniature tubes will return to your line... better than ever, and more popular than ever. For wartime advances in RCA tube engineering have already led to the development of many new Miniature types and even better Miniature performance.

We look forward to that day, and to the continued broadening of your markets through RCA tube pioneering.

Don't forget, the Magic Brain of all electronic equipment is a Tube... and the fountain-head of modern Tube development is RCA!

BUY
WAR
BONDS



RADIO CORPORATION OF AMERICA

RCA VICTOR DIVISION • CAMDEN, N. J.

LEADS THE WAY... In Radio... Television... Tubes...
Phonographs... Records... Electronics



I'm sorry, Mrs. Ooglewoop, but on account of shortage of help and materials, it will take me about four weeks to repair your radio



Well, I guess that is not too much of a wartime sock for me to stand

Your customers can "take" it

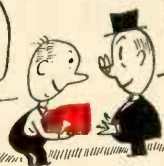
by Don Herold

Americans are not sissies. When they know the truth, they can take it—especially when it relates to the war.

It's only when somebody tries to fool them, that they rear up on their hind legs and yowl.

So, you can afford to be frank and honest with your customers about probable slowness of delivery, inferiority in details of repairs and your other possible wartime shortcomings.

THIS IS JUST A TEMPORARY REPAIR—NOT THE WAY I'D LIKE TO DO IT. THE WAR, YOU KNOW



THANKS FOR BEING SO FRANK

You don't have to be ashamed of them or to fib about them. Everybody knows there's a war and that Hitler started it—not you.

The only mistake you can make is to give promises you can't keep, or do an inferior job that you don't explain to the customer.

Your customers will even like you better for putting all your

cards on the table, and remember, customers will count again, buy and buy. Keep them friendly for those selling days to come.



AFTER ALL, EACH OF US IS SOMEBODY'S CUSTOMER.

Even your distributor may have to turn you down occasionally on International Resistance Units. But he's pretty sure to do it pleasantly, with the result that you'll understand his position based on the continued need for I R C resistors in vital war equipment.

No. 7 in a series of special messages prepared by America's famous business writer, humorist and cartoonist, Don Herold. . . In sponsoring these Don Herold "broadcasts," IRC pays tribute to the thousands of Radio Service Men who, whenever possible, specify and use IRC resistance units in their work.



INTERNATIONAL RESISTANCE CO.

401 N. Broad St. • Philadelphia 8, Pa.

IRC makes more types of resistance units, in more shapes, for more applications than any other manufacturer in the world.



"KNOW-HOW"
IN A PACKAGE

SYLVANIA SERVICEMAN SERVICE

by
FRANK FAX



JUST 70¢ BUYS:

No. 1 → Technical Manual **35¢**

No. 2 → Tube Complement Book **35¢**

No. 3 → Characteristics Sheet **FREE**

No. 4 → Correlation of Tube Types for Substitution Chart **FREE**

No. 5 → Sylvania Base Chart **FREE**

• If your jobber cannot supply you, mail your order to Frank Fax, Dept. RC-7 Sylvania Electric Products Inc., Emporium, Pa.

SYLVANIA
ELECTRIC PRODUCTS INC.
RADIO DIVISION

August, 1944

radio service dealer

Covering all phases of radio, phonograph, sound and electrical appliance merchandising and servicing.

VOLUME 5, NUMBER 8

AUGUST - 1944

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ELECTRICAL APPLIANCE RETAILING SECTION

News 21

SANFORD R. COWAN....Editor & Publisher LEWIS C. STONE.....Managing Editor
CHARLES H. FARRELL .Advertising Manager SYLVIA BORNKOFF.....Circulation

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Yesterday and TODAY



Yesterday, WARD antennas were found on most of the peacetime automobiles, radios and portable radios.

All of the manufacture of antennas and radar equipment of THE WARD PRODUCTS CORPORATION is, today, going entirely to the war effort and being used on all fighting fronts.

The knowledge that is being gained from this wartime effort will mean new and improved products in peacetime. If your postwar planning includes the use or specifying of antennas, look to WARD.



WARD

Antennas

THE WARD PRODUCTS CORPORATION



1523 E. 45TH STREET, CLEVELAND, OHIO

Victory Prediction

WHEN THE RADIO MANUFACTURERS Association Convention was held at Chicago in early June all of the industry's leading lights attended. Without doubt, the most talked about subject was reconversion to non-military production.

At the Radio Industry Banquet Major General William H. Harrison, Chief, Procurement & Distribution Service, U. S. Signal Corps, opined that if Germany can be forced out of the war during 1944 it is probable that a portion of the radio industry's manufacturing facilities will be made

available for civilian production during early 1945.

The General did not indicate how a resumption of civilian radios might be accomplished . . . whether certain manufacturers would be assigned the job of making "Victory Models", or whether all producers would be given quotas. As long as the war continues radio production must be of a military nature exclusively, but, plans are being considered by Washington for resumed civilian radio and appliance making . . . and it looks as though Germany will be out of the war very soon.

Would-be Servicicers Can't Get Started

BECAUSE OF WPB's Limitation Order L-265 it is practically impossible for anyone to establish and start a new radio service business at this time. Any local office of WPB will advise a would-be servicicer that he *may* apply for and create an inventory of component parts—but the catch is this: jobbers haven't sufficient parts on hand to meet their old customers' needs, so it is rather unlikely that they will be able to take care of a new-comer's re-

quirements, especially for tubes, resistors, test equipment, etc.

In a nutshell, while the parts shortage exists, new-comers will have to take jobs with established firms for the chances of their getting an inventory with which to start a new business is practically nil. And in this vein, it is interesting to note that several thousand World War II veterans have already been mustered out of service with honorable discharges and excellent radio training.

Radio & Appliance Distributorships

MANY BIG manufacturers are now sending field men out to contact potential post-war distributors. Dealers have a galaxy of lines to choose from but surveys indicate that only a few dealers will desert the retail field for that of wholesaling.

On the other hand we learn that many parts jobbers are looking ahead and seek lines for which they can become distributors. (The difference between a Jobber and Distributor has always been clear-cut in the minds of most radio-appliancemen, for Jobbers are considered to be wholesalers

of parts while Distributors have been considered those who wholesaled radio receivers and major or minor appliances).

Without doubt many Jobbers will continue to function as they have, handling small parts and accessories, and in addition they will henceforth also wholesale minor appliances. So, now the word "Jobber" becomes obsolete and in its place the more distinctive title of Distributor will be commonplace.



In & Around the Trade

Being a condensed digest of some of the happenings in and around the radio trade as compiled by the Editors



Show window displays animated models in war-front positions with Hallicrafters SCR-299, mobile radio receiver and marine radiotelephone unit, during recent Radar-Radio show at Lyon & Healy's store, Chicago. Other exhibitors: Galvin Mfg. Corp.; Capehart Div., Farnsworth Television & Radio Corp.; Magnavox Corp.; RCA-Victor; Sentinel Radio Mfg. Company, and a number of miscellaneous firms.

FM Spreading

Recently FM's inventor, Major E. H. Armstrong, General Electric's Dr. W. R. G. Baker, and Walter J. Damm, president of FM Broadcasters, Inc., discussed FM and television before the American Newspaper Publishers Association's convention. Up to now close to 200 applications for post-war FM stations are on file with FCC, many of them from big-time newspapers.

According to a survey completed by FM Broadcasters, the potential market is so great that manufacturers expect to produce around 20,000,000 receivers in the four years following the end of the war.

Standard broadcast networks are increasing their FM facilities. Twenty-one stations on NBC's network also operate FM and twenty more have filed for permits with the FCC. WOR-Mutual has twenty-three FM-casting and expects to add more. There are now two FM stations on WJZ-Blue, with twenty-seven on application; and CBS now FMs on eleven stations with thirty-five more to come.

The rush of applications for constructing radio stations is at a peak,

though more and more are expected as war's end approaches and materials are released. FM applications now top the list three to one. In all, around \$10,000,000 may be spent post-war for additional and new FM transmitters and facilities.

P-A for 130,000 Factories

Radio Corporation of America's Industrial Music Service announces through Philip J. Jacoby that many industrial P-A installations will be used to broadcast music to workers. After the war, according to Mr. Jacoby, as many as 130,000 plants and factories may require these systems, which radio dealers and servicemen in various localities should be called upon to install and service.

Crosley Appoints

Lee Stratton, formerly district manager for Nash-Kelvinator, is appointed Manager of refrigeration of the manufacturing division of the Crosley Corporation, announces J. H. Rasmussen, Commercial Manager.

B. T. Roe, Manager of Distribution,

announces appointment of three new distributors of the Crosley Corporation in the Dakotas: Western Auto Parts Company, Cave Supply Company and Aberdeen Supply Company.

Ben T. Roe, manager of distribution of The Crosley Corporation announces the appointment of Eads Bros. Furniture Company, Ft. Smith, Arkansas as distributor in the western Arkansas and the eastern Oklahoma territory. This firm has been handling major household appliances since 1929.

O'Donnel-Dunigan Company, Inc., distributes for Crosley in the Rochester territory. Service and parts department will be handled by Harold Hoepfl and James Stevenson.

Crosley's southeastern South Carolina distribution will be handled by Carolina Electric Appliance Company, located in Georgetown and Charleston.

Maine distributor for Crosley is Graybar Electric Co., Inc., which will handle the full line of radios and refrigerators and a complete line of parts for service and repairs. The distributor operates over 80 main and branch offices, warehouses and display rooms throughout the country.

"E" to Universal Mike

Universal Microphone Company, Inglewood, Cal., was recently awarded the Army and Navy "E," together with production pins to individuals in the plant.



Harold Ranier

Sylvania Promotes Rainier

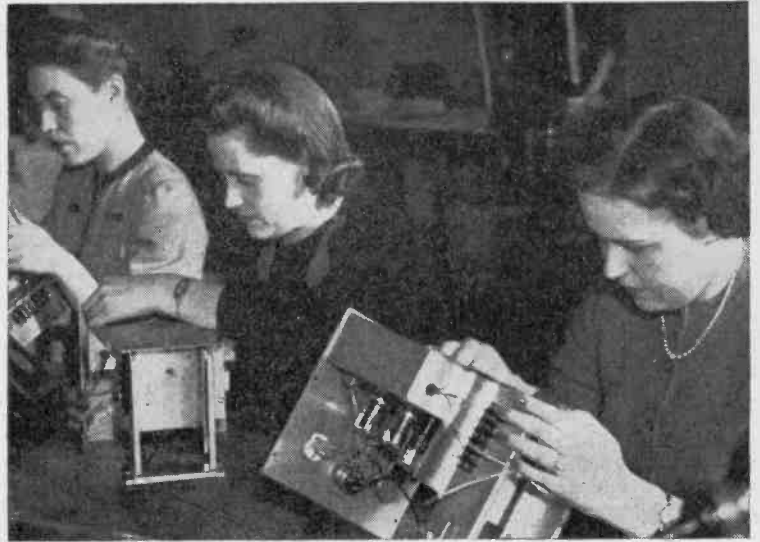
C. W. Shaw, General Sales Manager of the Radio Tube Division of Sylvania Electric Products, Inc., has just announced the appointment of H. H. Rainier as Assistant Manager, Distributor Sales, Radio Division.

In his new post, Mr. Rainier will be responsible for merchandising activity through Division Managers in all territories and will report directly to R. P. Almy, Manager of Distributor Sales, Radio Division.

ALL EYES ON MT. CARMEL!



On Guard! Symbol of watchfulness at the Meissner plant is this alert, keen-eyed sentinel. All prying eyes are kept at a safe distance, but there's no hiding the fact that great things are in the making here.



What New Marvels these girls have seen! They're on the inspecting line at the Meissner plant in Mt. Carmel, Illinois, source of numerous major war departments in the electronics field.



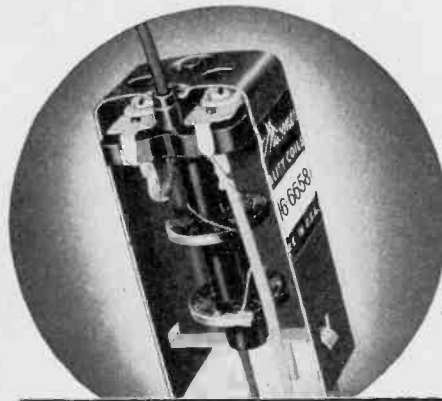
Testing: These two men pack a world of electronics knowledge behind youthful faces. They literally "grew up" in the business — thanks to the fact that there are more electronics technicians per thousand population in Mt. Carmel than in any other city.



Meissner's "Precision-EI": Long experience, plus "home town" enthusiasm for the job, have so astonished visitors that they refer to Meissner's personnel as "precision-el." And Meissner's "precision-built" products prove the case!

ILLINOIS ELECTRONICS CENTER HUMS WITH FUTURE PROMISE

Nearly everywhere you look these days — in America's newspapers or magazines — you're apt to find a glowing reference to Mt. Carmel, or to the Meissner Manufacturing Company. That's because the little Illinois city and its largest industry are both in the forefront of important postwar thinking. Hub of much of this activity is the Meissner laboratory, which occupies an entire floor of the main office building. There are so many closely guarded secrets here, in fact, that no photographer dares set tripod inside!



Wide Range, High Gain

Here are the famous "big four" benefits of Meissner "Plastic" I. F. Transformers: (1) wide range; (2) high gain; (3) remarkable stability; (4) double tuning. They're particularly suitable for use in small receivers, where space is at a premium, yet superior performance is required. Only $1\frac{1}{4}$ " square x $2\frac{1}{2}$ ", yet are not affected by temperature, humidity or vibration. Complete with specially served Litz wire and one-piece molded plastic coil-form and trimmer base. Now ready for delivery, but order promptly.



MEISSNER

MANUFACTURING COMPANY • MT. CARMEL, ILL.

ADVANCED ELECTRONIC RESEARCH AND MANUFACTURE



Radio enters play-by-play sports reporting with this Handie-Talkie made by Motorola. Other possible "entries" for this equipment: police departments, newspapers, fire departments.

Notes

H. C. Huebner, former Frigidaire distributor, joins Harry Alter Company, Chicago, as Sales Manager of the appliance division, with the addition of Crosley Appliances and Coleman Heating products.

Admiral Appoints Rogovin

Sidney H. Rogovin, formerly Assistant to the Vice-President in charge of the Electrical Division of Stewart-Warner Corporation, is now associated with Admiral Corporation as Eastern Regional Manager.

In making this announcement, J. H. Clippinger, Vice President in charge of sales, said Rogovin brings to Admiral a complete knowledge of Stewart-Warner merchandising and distribution which is now being incorporated into the company.



Sidney H. Rogovin

Mr. Rogovin has a wide acquaintance in the radio and appliance field and knows the Eastern territory thoroughly, having lived and worked there for many years.

RCA Accepts 17,000 Ideas

Post-war radio, radar and electronic products and equipment will be all the better for the tens of thousands of ideas to save time and material submitted by workers since Pearl Harbor. Radio Corporation of America announces it adopted as many as 17,000 such ideas from workers in its plants.

Sylvania Honored by U. S. Navy

Without interrupting the production of its electronic devices, Sylvania Electric Products, Inc., raised a new production award flag with a third star over the Radio Division plant in Emporium, Pa., in an informal ceremony.

B. G. Erskine, chairman of the board of Sylvania, received the new honors. The original "E" award was accepted in a formal ceremony in 1942, and the first and second stars were awarded in 1943. Five Sylvania plants now fly the "E" Burgee.

Carter Motor's Postwar Plans

Robert W. Carter, Managing Director, Carter Motor Company, Chicago, announces definite plans for post-war production. "Contrary to popular belief," stated Mr. Carter, "the post-war uses of portable hand generators will more than equal those of the present military requirements. The development of this electric power source has been greatly advanced by the war, and the public will benefit."

To present the story in detail to the radio and allied trades, Magazines, Inc., of Chicago has been appointed public relations counsel. An extensive advertising schedule is being planned.



Robert W. Carter



Richard C. Carr

Westinghouse Names Carr

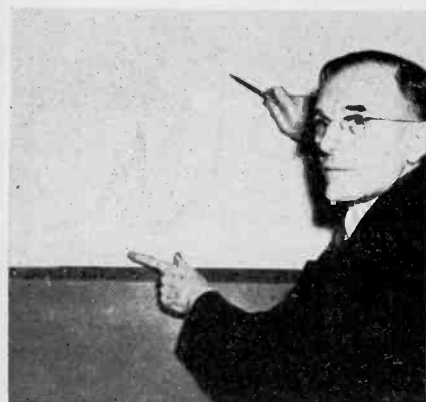
G. Edward Pendray, assistant to President of the Westinghouse Electric and Manufacturing Company, announces the appointment of Richard C. Carr as manager of institutional advertising. He will handle institutional copy, radio commercials and public relations production.

"E" to Stewart-Warner

The Green River Ordnance Plant, Dixon, Ill., operated by the Stewart-Warner Corporation, has been awarded the Army-Navy "E."

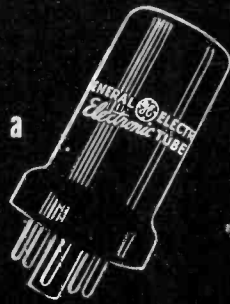
Bailey to Operadio

F. D. Wilson, Sales Manager of Commercial Sound Division, announces that Frank A. Bailey joins sales engineering staff of the Operadio Manufacturing Co., St. Charles, Ill. In line with WPB's recent approval of sound equipment for war plants, Mr. Bailey will assist in field engineering.

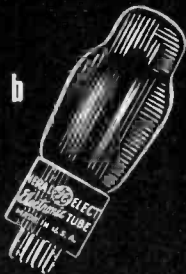


Ray H. Manson

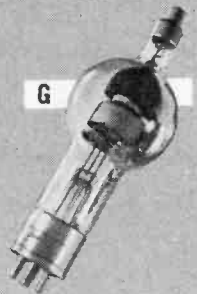
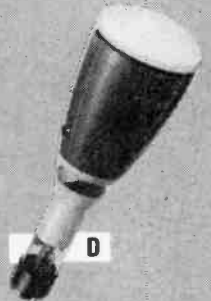
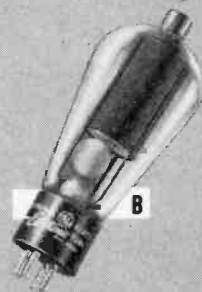
Up from "down under": Dr. Ray H. Manson, vice president and general manager, shows Stromberg-Carlson's sharp rise in wartime radio, radar and communications volume which reached \$27 million for first half of 1944. Actual rise is more impressive than total shows because prices were lowered



**BEFORE THE WAR
YOU SOLD THESE
ELECTRONIC TUBES**



a — Metal Radio Receiver Tube
b — Glass Radio Receiver Tube



**AFTER THE WAR
YOU WILL SELL ALL THESE**

A — Ignitron (for resistance-welding control, and converting a-c to d-c). **B** — Thyatron (for industrial equipment control). **C** — Phototube (for counting — sorting — grading). **D** — Cathode-Ray Tube (for television receivers and measuring instruments). **E** — Metal Radio Receiver Tube. **F** — Glass Radio Receiver Tube. **G** — Phanotron (for electronic heating).

TODAY more and more war production problems are being solved by the increasing use of the electronic tube.

Resistance welding, electronic motor control, electronic brazing and soldering, hardening and annealing — these are but a few of the new ways in which the electronic tube now is serving war industry . . . paving the way for a tremendous post-war market . . . when *better* products of peace will be produced in greater volume than ever before . . . by electronic means.

General Electric is manufacturing nearly one million dollars' worth of electronic equipment *every day* for the armed forces

and war industry. General Electric is informing industry about electronic methods. Thus, General Electric is helping to build your post-war electronic tube market—NOW!

The radio service man of today—who will be the electronics maintenance man of tomorrow—can count on General Electric for the peacetime production of the world's most dependable electronic tubes. . . . *Electronics Dept., General Electric, Schenectady, N. Y.*

• Tune in General Electric's "The World Today" and hear the news from the men who see it happen, every evening except Sunday at 6:45 E.W.T. over CBS. On Sunday evening listen to the G-E "All Girl Orchestra" at 10 E.W.T. over NBC.

THERE'S A G-E ELECTRONIC TUBE FOR EVERY PURPOSE

GENERAL  ELECTRIC

SPRAGUE TRADING POST



A FREE Buy-Exchange-Sell Service for Radio Men



ASK FOR THEM BY NAME

If you appreciate the Trading Post Advertising Service — and hundreds of servicemen have told us that they do—we know we can count on you to ask for Sprague Atom midget dry electrolytic capacitors by name, and to insist on getting them whenever they are available. Atoms are smaller, less costly, and are fully as reliable as the big, old-fashioned condensers they replace. Use them universally on all of your jobs. They're more dependable—they speed up your work!

WILL TRADE—Hard-to-get tubes, parts, and cash, for urgently needed giant voltmeter (6" to 8" meter) with voltage ranges up to 750 v. ohms up to 5 meg. Or will pay all cash, if desired. Byron Radio Shop, Byron, Ill.

URGENTLY NEEDED—Small V-O-M, in good working condition. Joe Troutman, 1528 Mass. ave., S.E., Washington, D. C.

FOR SALE—Precision 900 portable multimeter in perfect condition; Superior 1250 sig. generator, mfg. manuals; G.E., RCA, Zenith, Crosley, Majestic and many others. Robert Newman, 131 Lincoln Rd., Brooklyn, New York.

FOR SALE—R.C.P. multimeter R-55—checks voltage, A.C. and D.C. current, capacity, resistance, inductance, reactance, decibels. \$37. C.O.D. J. Elliott, 1429 Corbin Ave., New Britain, Conn.

FOR SALE—The following microphones: 1-38 Turner Crystal, hi-imp., used, good condition \$10; 1-RBH Amperite velocity, new, hi-imp. on-off switch, Acoustic compensator, good condition \$35; 1-RAH Amperite velocity, hi-imp., A-1 condition, \$13; 2—electro-dynamic 10" speakers, 4.8 ohm v.c., 2500 ohm f.c., \$7 each. Hackmann Sound Service, 1208 Lee St., Jefferson City, Mo.

WANTED—FOR CASH—Vac. tube voltmeter. J. Allen DeWald, Route #3, Danville, Pa.

FOR SALE—Guaranteed tubes, 1 each, 1E5G, 1E7G, 1G6G, 1L4A, 1L8A, 1LH4, 1LN5, 1N6G, 2A3, 3A1, 5V4G, 6A3, 6A6, 6B4G, 6B7S, 6C8G, 6D7M, 6F7, 6J8G, 6K8G, 6L6G, 6N7GT, 6SN7GT, 12A5, 12SL7GT, 12SN7GT, 25C8G, 35Z3, 50Y6GT, 82, 117L7GT, 117Z6GT. Goodwin Radio Shop, Rankin, Ill.

WILL TRADE—Automatic record changer and recorder, with pre-amplifier (Seeburg,) for spray gun, compressor and motor for light spray paint work. Want several used or burned out Delco 34 h.p. motors. Billy Lee Azbell, 1921 South 7th., Waco, Texas.

WANTED—Triplett tester 1620 or equivalent tube checker; Radio City 703 sig. generator or equivalent; tubes such as 12A5, 12SA7, 12SK7, 12SQ7, 35Z5, 35L6, 50L8, 1H5, 1A7. Robert W. Steger, 2202 State street, Abilene, Texas.

FOR SALE—Readrite tube checker #30, window display motor (four spring), magnetic cutting head, radio parts, etc. Want heavy duty output transformer for 6L6, prefer 6,600 ohms prim. or 20-30 watt amplifier. Pleasant Valley Radio Service, Armstrong, B. C.

EQUIPMENT NEEDED IN SOUTH-WEST PACIFIC—Communication receiver; 20- to 30-watt amplifier, speaker, mike, phono pickup and motor and dual speed unit. Cash waiting. Describe fully via air or V-mail. R. L. Hawks, CM 3/c, 60th Seabees, c/o Fleet Post Office, San Francisco, Calif.

FOR SALE—Auda microdyne phonograph pickup #1-18, for records up to 16". High fidelity magnetic, light weight, brand new, \$39.50. Carl Hoyland, 3502 Gunston Rd., Alexandria, Va.

FOR SALE—#E-3800 Hickok tube tester with adapters and charts, \$20. Eugene Ray, Box 813, Glenns Ferry, Idaho.

WANTED FOR CASH—Hickok 510X or 530 C dynamic M. conductance tube tester, and 913 1" cathode ray tube. Roland Chang, 1217 Calhoun, Fort Wayne 2, Ind.

FOR SALE—New Instructograph, complete with 10 rolls American Morse tape and instructions. \$16. D. H. Hazell, Bronson, Mo.

WANTED—Hallcrafters #29 Sky Traveler or any other good short-wave communication set. L. D. Pritchard, P.O. Box 320, Pittsfield, Mass.

FOR SALE—0-24 Philco ocs.; #550 Readrite osc.; Philco condenser tester; Philco DayRad tube checker; several Majestic elec. dynamic speakers; Zenith radio nurse (new); new and used tubes; Rider manuals 1 & 2. Gouma Electric Shop, P.O. Box 38, Dorchester, N. J.

FOR SALE—Rimco dynamizer, like new. Home Radio Service, Box 45, Plymouth, Wis.

FOR SALE—25% off list. 3-024, 3-1E7, 3-1E5, 1-6A4, 1-6A6, 1-6L6, 2-627, 4-7E6, 5-7H7, 3-7N7, 3-12J5, 2-12SL7, 4-31, 1-46, 1-50, 1-81, 1-X99, 1-85, 1-112A; also Coyne Reference Set, \$5. George's Radio Shop, Box 695, Crystal City, Texas.

FOR SALE—Transmitter tubes, 75T, gamma rays, rectifiers, etc. Large power supplies, modulation transformers, meters, chokes, steel cabinets, unused variable transmitting condensers, etc. Service Mgr., Richmond Appliance Co., 207 Clement St., San Francisco, Calif.

FOR SALE—Readrite tube tester #430, in A-1 condition, \$20 f.o.b. S. B. Richards, 519 E. 7th St., Duluth, Minn.

FOR SALE—G. I. recorder and playback unit with 10" record changer, but no mike, amplifier, or cabinet. Excellent condition, needing only adjustment. \$60. C.O.D. Kenneth Halpin, 314 Humphrey St., New Haven, Conn.

IMPORTANT NOTICE!

We discourage offers to buy or sell anything beyond the O.P.A. ceiling prices, and will not knowingly accept such ads for the Sprague Trading Post.

WANTED—9" meter. Advise sensitivity and scales. Leo E. Baer, 40 Broadway, Meyersdale, Pa.

FOR SALE—Triplett #1503 multi-purpose tester including 18-range AC/DC V-O-M, condenser checker and tube tester. Oak case, \$45. Alfred Smeland, 36 Midway Oval, Poquonock Bridge, Conn.

SWAP OR SELL—Radios and parts. Want 3/4" electric hand drill, typewriter and tube tester. A. Zises, 92 Graham avenue, Brooklyn, N. Y.

SWAP OR SELL—Garrard 1-oz. crystal and magnetic phono pickup. Want 6S87 tube; Auda microdyne pickup; 12" 15" or 18" Cinnacograph speaker; microphones; 8 mm movie projector. N. P. Forcier, 293 Jefferson Ave., Salem, Mass.

WANTED—Late model tube checker. Terry Radio & Sound Service, 79 McArthur Dr., S. Norfolk, Va.

WANTED—Supreme 504-A; Hickok 188X S.G.; and Rider channelyst. Harry W. Francis, 3602 Patio Pl., Los Angeles 32, Calif.

FOR SALE—1941 Philco auto radio, almost new, \$35; 1937 Delco auto radio, \$20. Want Oct. and Nov. 1937 and Nov. 1938 Radio News. Paul Capito, 637 N. 21st St., Erie, Pa.

FOR SALE OR TRADE—Will swap Keystone "C" 16 mm. hand cranked movie camera in A-1 condition for 25Z6-GT and 25A6-GT or 25L6-GT tubes. James S. Messler, 835 Berkeley Ave., Trenton 8, N. J.

FOR SALE—#162-C RCA Rider channelyst, #600 Precision electrometer and tube tester; and #682-R Weston tube tester. Marietta Radio Supply Co., Marietta, Ohio.

FOR SALE—Operadio 15-watt amplifier with tubes, less speaker, \$30; 15-watt amplifier with tubes and 12" dynamic speaker (needs new cone) on separate chassis, \$15; 3—5" dynamic speakers, less output trans., 3 new code practice oscillators with speakers, \$10, each. Don Linder, 207 Walnut ave., St. Charles, Ill.

URGENTLY NEEDED—2 Wunderlich tubes for overseas use in Scott radio. Edward Heilmann, EM 1/c, 51 N.C.B. Co. C-2, A.B.R. Barracks, Port Hue-nene, Calif.

WANTED—Philco 030 dynamic tester, in good condition. Sunnyside Radio Shack, 341 E. Pearl St., Burlington, N. J.

FOR SALE—3-885, and 1-2051 tubes. Slightly used, test perfect. \$5 for all. Mac Green, 504 Washington Blvd., Chicago 4, Ill.

WANTED—Test equipment, meters, and Rider manuals. Carlo D'Angelo, 273 Pulaski St., Mariner's Harbor, Staten Island, N. Y.

WANTED—Voltohm meter or tube and set tester with 3" or larger meter, also direct reading sig. generator. Wayne Grant, Rt. 2, Box 1412, Turlock, Calif.

FOR SALE OR TRADE—Pickup arm, \$4; Crosley record changer, \$20; Std. Trans. Co. A supply—7 v @ 6.5 amps. \$15; B. eliminator, \$5; A. eliminator, \$6; Mallory dry disc rectifier, \$2; new bakelite panels, 1/4" x 3 1/2" x 2 3/4", \$10 ea.; Gen. motor, \$5; 8" Utah speakers, \$3 and up; 15 v. miniature bulbs, 10c ea.; prs. headsets, Utah & W. E. \$2 pr. Want tubes or sig. generator. Tod Solarski, 3033 S. Pulaski Rd., Chicago 23, Ill.

FOR SALE—4 RCA #156 tube checkers (new), \$30 each. Want sig. generator B&H Radio Co., 77 Waverly St., Providence 7, R. I.

URGENTLY NEEDED—New 50, 35, and 12S series, 1A7, 1N5 tubes; also modern tube and set tester. C. W. Stephens, 407 Third Ave., Columbus, Ga.

FOR SALE—Supreme 529 frequency modulator and Clough Brenkle CRB 3" scope. Fine condition. \$55 for both. John E. Thompson, 1440 W. 47th St., Chicago 9, Ill.

WANTED—2 1G6G tubes. H. L. Baker, Natchez, Miss.

FOR SALE—6-6" Fox aluminum trumpets, 5-4 1/2" trumpets, 4 Fox 6v units, 4 Racon 6v units, 12 Western Electric 6v driver units. Want Rider manual vol. 1. Poague Radio & Sound Service, 1603 Grand Central Ave., Tampa 6, Fla.

WILL TRADE—12SQ7, 12SK7, 12SA7, 50L6 tubes, used for crystal pickup or electric phonograph motor and turntable. Cpl. F. G. Espinoza, ASN 39691672, 23rd AACCS, Army Air Field, Kearney, Nebr.

WILL TRADE—New S. G. 43 sig. generator for late model tube tester. Also 76-6B7, 39/44, 84/624, 33 2A7 tubes for 1A7, 1N5, 1H5. Johnnie McLeridon, 228 E. 4th St., Lumberton, N. C.

YOUR OWN AD RUN FREE!

This is Sprague's special wartime advertising service to help radio men get needed parts and equipment, or dispose of radio materials they do not need. Send your ad today. Write PLAINLY—hold it to 40 words or less. Due to the large number received, ads may be delayed a month or two, but will be published as rapidly as possible.

Different Trading Post ads appear monthly in Radio Retailing-Today, Radio Service-Dealer, Service, Radio News, and Radio-Craft. Sprague reserves the right to reject ads which do not fit in with the spirit of this service.

HARRY KALKER, Sales Manager.

SPRAGUE PRODUCTS CO., DEPT. RSD-84, North Adams, Mass.
(Jobbing distributing organization of products manufactured by SPRAGUE ELECTRIC COMPANY)

SPRAGUE CONDENSERS KOOLOHM RESISTORS

Obviously, Sprague cannot assume any responsibility, or guarantee goods, services, etc., which might be exchanged through the above advertisements

BETTER Trade Standards Mean BETTER PROFITS

EVERYBODY is making resolutions for post-war fair-trade standards . . . But what about some of that fair-trading now? Some essential operating standards for wholesalers and dealers.

IT doesn't take a very long memory for dealers to recall that the merchandising evils that crept into the radio and appliance business before the war were wiped out only with the virtual disappearance of new products. So what about after the war, with merchandise again available?

Recognizing that dealers' problems are bound up with the way wholesalers operate (and vice versa), a group known as the Wisconsin Radio, Refrigeration and Appliance Association has issued a report in which essential trade standards are suggested in simple language.

Here's what they propose the wholesaler might profitably keep in mind when dealing with dealers:

1. Making the dealer's best interests his first consideration.
2. Giving preference, when appliances are again available, to dealers who survive the war period.
3. Using care in selection of any new post-war dealers.
4. Recommending to his manufacturers the importance of shorter lines and fewer overlapping models.
5. Working towards elimination of all retail selling at wholesale and special discounts to individuals.
6. Welcoming suggestions from dealers that will bring about better cooperation.
7. Keeping dealers informed of new developments in products and merchandising methods, and providing special training for their salesmen and servicemen.

And the dealer might subscribe more fully to the following operating standards:

1. Having the courage to refuse to support any distributor who does not play fair and square.
2. Adherence to fair competitive practices.
3. Not asking for special protection from his wholesaler if he himself is not fulfilling his obligations with respect to fair dealing.
4. Dealers and their salesmen and servicemen should attend factory and jobber-sponsored educational and merchandising meetings.



"I'd like to buy your radio, lady, but I can't get any tubes either!"

5. Contact of customers immediately after the installation of radio or appliance, to instruct the customer in its use.

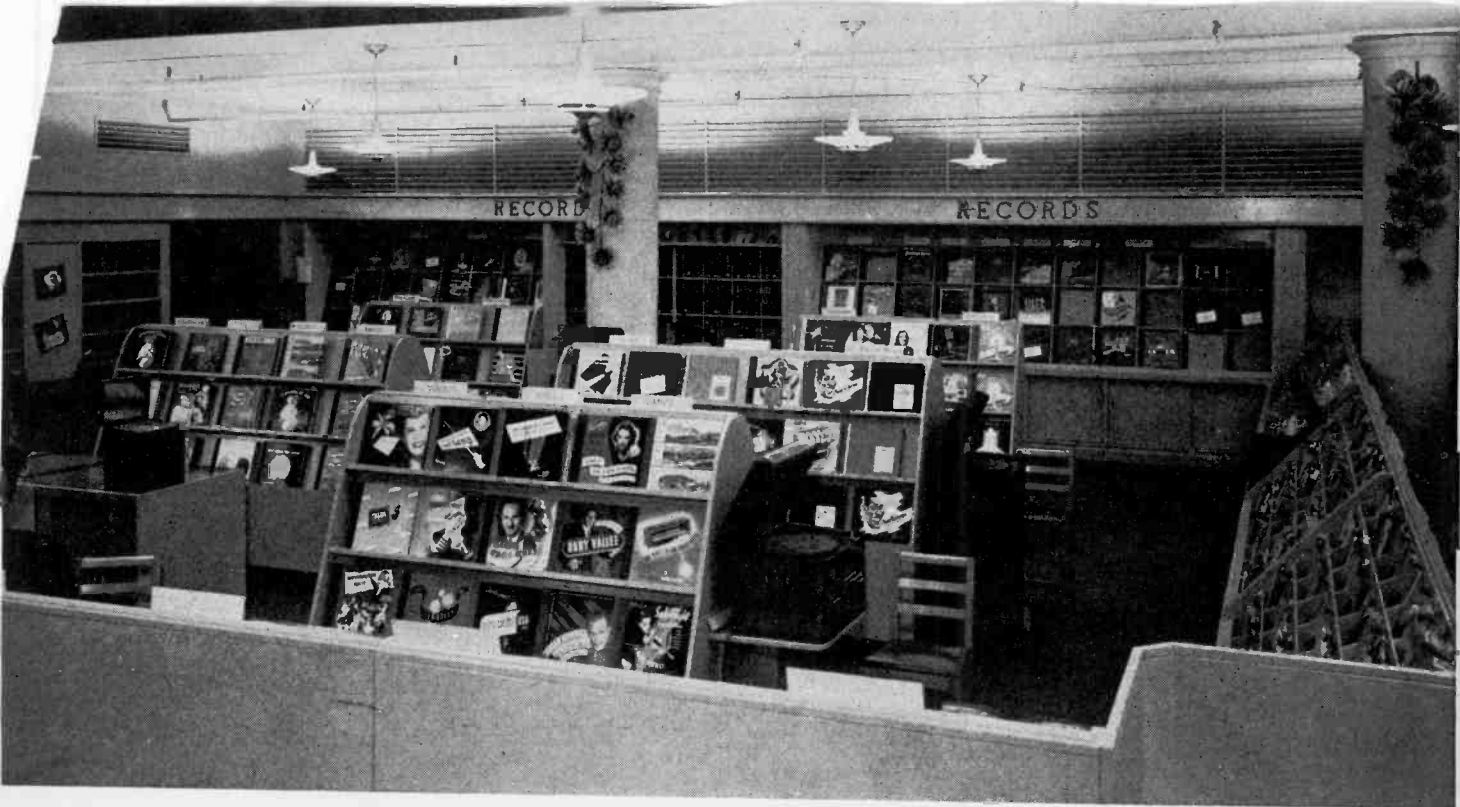
The foregoing points to trade evils which no code of ethics can in itself control or eliminate in a way that counts. The association is therefore forming a joint committee consisting of both wholesalers and retailers which will meet at regular intervals. At the first appearance of an undesirable trade practice—on the part of either a wholesaler or a dealer—which threatens the general welfare of radio and appliance merchandising and servicing, the committee is empowered to take drastic steps if necessary, to stamp out the threat at the very start.

In the same vein, the specific trade practices to which dealers and wholesalers are tending to subscribe in anticipation of post-war competition are given in a booklet issued recently for its dealers by A. A. Schneiderhahn Co. of Iowa. At least seven trade "don'ts" are listed:

1. Wholesalers selling direct to users.
2. Retailers selling at less than established list prices.
3. Granting excessive trade-in allowances.
4. Guarantees made by retailers which extend servicing beyond the regular warranty period.
5. Special prices to groups of employees, by wholesalers or retailers.
6. Maintenance of a "free" repair service.
7. Extending credit to poor risks.

All of this is all right, and promises well for "tomorrow" as far as it goes. But how about *now*? Dealer groups have gone on record to resent, for example, the fact that numbers of wholesalers have set up their own service departments (many, since Pearl Harbor) to serve consumers direct. Out of this inroad of the wholesalers upon the province of radio servicemen and dealers comes another evil: the diversion of radio tubes intended for allocation among dealers, to the wholesalers' own servicing departments. And where tubes *are* made available to dealers, some wholesalers will not release the most frequently needed replacement tubes unless the dealer also agrees to take a supply of rarely needed tubes. Little wonder that many dealers complain they are literally being starved out of a prime source of income—radio servicing, repair and reconditioning. Without the right types of tubes, how much of that business can they handle? Less and less, as the practice continues.

Why not spread today—*now*—some of that trade sunshine promised or put off for "tomorrow"?



A LAND OFFICE BUSINESS

by Eugene A. Conklin

SIBLEY of Rochester is a department store whose radio department has seen increased record sales go to 40 per cent above the pre-war level. The record department is doing a landoffice business and some of the promotions used in the process are discussed below.

To begin with, the department is subdivided, each division displaying a particular type of recorded music, with large, easily read signs to guide customers. In addition, signs on the store walls invite customers to use the services of the firm's "record counsellor." The counsellor has an office all her own. She is there to be asked to suggest records for children or for those who desire to learn to appreciate the classics, and records suitable for parties, jam sessions and the like. She will also try to locate old tunes and track down novelty numbers, or any other type and shade of platter needed for special occasions.

War-time Promotions

The counsellor also has lists showing the current record favorites of men and women on the fighting fronts. This makes it easy for the folks back home to send the right music to those of their fighting kin who may own a portable phonograph or have the use of one.

THIS radio department upped record sales 40 per cent. Music appreciation courses and "clubs" increase high unit-priced "package" sales for adults and children. Self-service display feature improves record turnover.

Another promotion to fit the times takes the shape of catering to defense workers with records for morale-building. There's a special department for loaning recordings for dances sponsored by defense workers, and there are also collections of records with music of a restful nature for those who are exhausted after a hard day or night shift. Every so often the store runs an ad in the local papers to salute the men and women who work in defense plants, taking the opportunity to remind them of the not generally-known fact that music will often prevent an attack of the "heeby-jeebies" and recommending certain record purchases.

In addition, any fraternal organization holding a dance or social may borrow suitable recordings from Sibley without charge. This has done a great deal to cement goodwill in the community.

Standby Promotions

There are numerous other ingredients that make this record operation

successful. For example, Sibley's holds classes in music appreciation. Local music instructors discuss the lives of great classical composers, past and present. Recordings are played and the music is explained by the instructor.

Twice a year the store goes in for a get-acquainted record show which is held in the record department and lasts about two hours. One session is held at night and another during the day to give defense workers a chance to attend. Local radio stars are glad to appear on these shows. A member of a local music club or the music critic of a newspaper discusses classical discs and the latest news about record makers and productions. A local dance band maestro gives out on the latest "hot" recordings, and for good measure motion pictures of recording celebrities are shown. The show—of course—is free to all comers.

Reminders are given over the radio, spots being used most effectively. The program uses a time signal repeated three times between six and half-past

eight every morning. The signal-commercial consists of a suggestion that the worker pick up a few new records when coming home from the plant at night. The housewife also is reminded that she might well bring home a record along with the groceries to give her family a treat. This, according to Sibley, is the kind of radio advertising that works best for the store in that community.

Children have their innings when Sibley holds a half-hour musical story time every Saturday, at which time the youngsters gather in the record department to listen to folk tales which have been recorded and to famous musical works intended for children. The store hires a school music instructor to act as mistress of ceremonies, explaining to the youngsters the secrets of music appreciation.

The window displays come in for some unusual treatment. The store invites customers to drop in and leave the names of their favorite record artists. Each week photographs and "who's who" stuff on at least three record makers are included in the windowing. A local cartoonist's caricatures of various record stars are also shown. All of which gives the windows "something" in the way of interest every

week, encouraging more store traffic.

A tie-in for the time when radios will again be available is the bulletin board listing the various times and the radio stations over which well known record artists may be heard. The board is changed weekly so it is up to date, and many a customer will drop in to check on the air schedules of a favorite performer.

And a tie-in with community growth—which means more new customers—is worked out on another radio program which introduces newcomers. Housewives, defense workers, children and others who have not been in the city for more than a few weeks are introduced over the air. In addition to describing themselves and their hobbies, they are asked for the names of their favorite musical artists, some of whose recordings are played right then and there. To give the program this "personal" touch, those invited are given a preliminary interview at the store a day or so before they go on the air.

The Result is More Sales

The various promotional activities naturally make it possible for Sibley's to do some smart selling. The store specializes in creating musical record "libraries"—groups of records suitable

for the varied tastes of an entire family. Such a collection might include a few marches, some classical selections, waltzes, hillbilly novelty numbers and the popular record hits of the day.

The "libraries" are made up after the family members have each made their own list of record favorites. The lists are then pooled together and the store makes up the record library to fit the family's tastes.

The resulting "package" sales often run from \$10 to \$75 per family—and the larger libraries of records are often paid out on the budget system, about one-half down and the balance weekly.

Those who attend the store's music appreciation classes are constituted a "club." The members agree to buy three or six records every month, of their own selection or from store lists issued every two weeks. And every six months the store declares a record dividend, when members in "good standing" receive two or four records free.

Portable phonographs beside each group display rack make it easy for customers to serve themselves from the bins or by going through card catalogue lists and asking for the records, which they play themselves. Going through the card files, customers often are reminded of other records which they would not otherwise have bought at the time.

This self-service—from bin selection to self-playing the wanted records—has worked out well for both the customers and the store. Sibley's finds that it must be real self-service and not any halfway formula.

The Children's Corner

IN RECORDS



MANY requests for service and adjustment data on the late model Silvertone automatic record changers have been received. As the data was not included in the latest Rider Manuals, we accordingly furnish it.

SERVICE AND ADJUSTMENT

of automatic

RECORD CHANGERS

DESCRIPTION OF CYCLE

(Record Changers Used With 100.384-1 Chassis)

To start the cycle on models with a switch on the base plate or on the radio control panel, turn on the switch and press down on the Tone Arm. This depresses the REJECT BUTTON No. 18, Figure 1, on top of the rest post, which in turn through Trip Link (30) engages the Follower (13), starting the cycle.

When Follower (13) engages in Worm (12), Follower Arm (10) is pivoted at the pivot, lifting Crank (32) which raises Tone Arm. Crank (32) is fastened to the lift pin. As this rises and strikes the incline at the angular upper end of the Index Plate (34), it causes a rotation of the Crank (32) which in turn contacts the Crank Pin (27) fastened to the Tone Arm shaft and swings the Tone Arm inward until the Crank (32) strikes Index Plate (34). Then as the Follower (13) returns to its starting position, the Crank (32) drops, setting the Tone Arm on the record.

The set down position for 10" or 12" records is automatically controlled when the ejector is positioned so that the edge of the 10" or 12" record rest in the support bracket. The Record Ejector (24) can be set in the 10" or 12" position by merely slightly lifting it and pulling or pushing it in or out until the 10" or 12" numbers show at the edge of the opening in the housing.

ADJUSTMENTS

All adjustments can be made with record changer disconnected from the power outlet.

TONE ARM SET-DOWN POSITION ADJUSTMENT: To adjust the set-down position of the tone arm, trip the reject button and turn the turntable by hand clockwise until the Index Plate and the Tone Arm starts downward toward the record. Loosen the screw on #27 and, holding the Crank in contact with the lower portion of the Index Plate, move the Tone Arm until it is directly above a point $\frac{1}{8}$ " in from the outside of a record of the size indicated on the Ejector Slide (24). Retighten the screw and carry the mechanism through the remainder of the cycle.

EJECTOR ARM SETTING (A): The adjustment of screw "A" determines the point in the cycle in

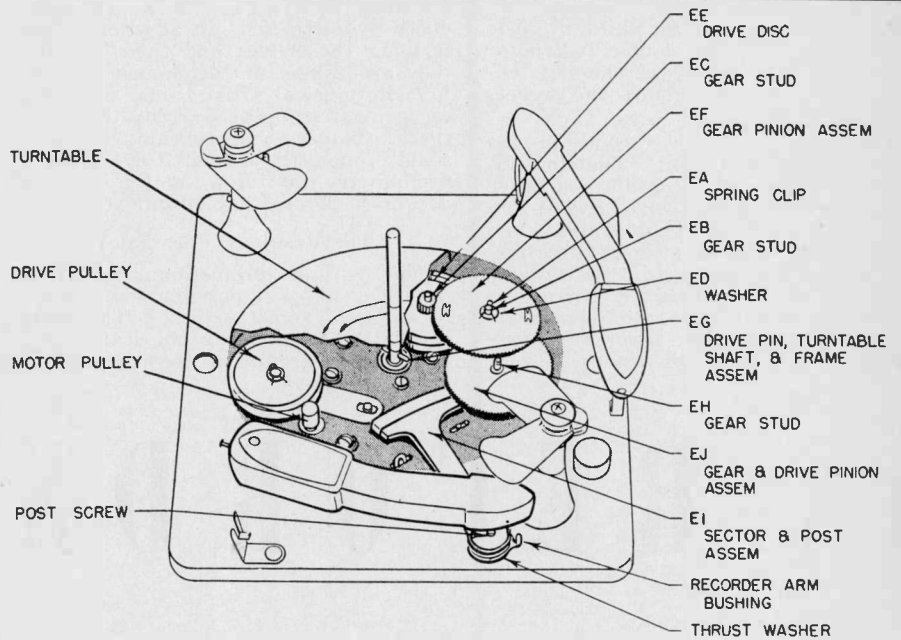


Figure 2

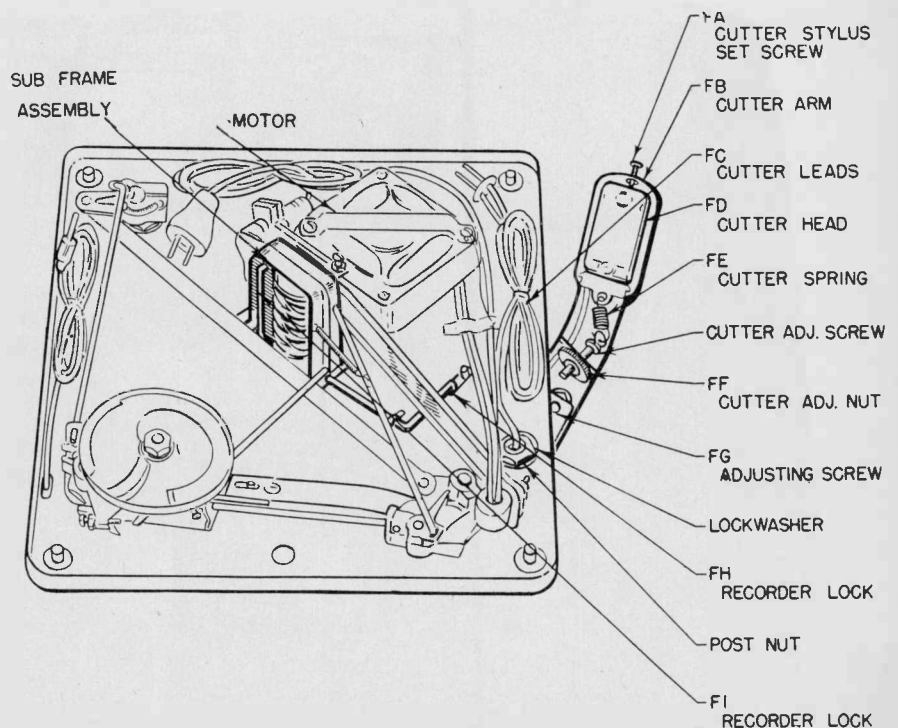


Figure 3

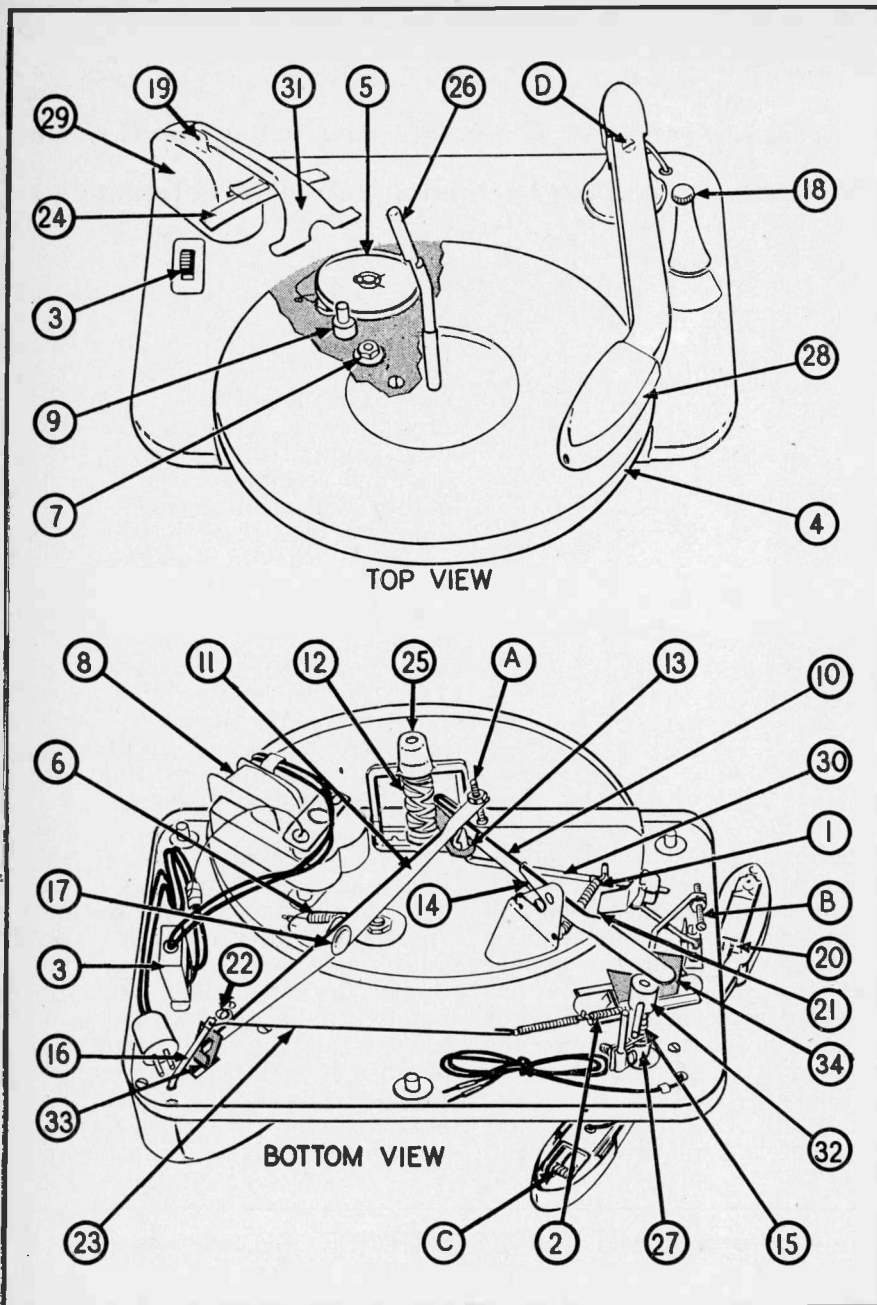


Figure 1

which the next record falls. Turning the screw clockwise causes record falling to be delayed, while turning the screw counter-clockwise causes the records to fall earlier in the cycle. This screw should be adjusted using a 12 inch record in the 12 inch position. Adjust the screw so that the record falls when the tone arm has moved to its extreme outside position in the change cycle. Tighten the locking nut after the adjustment has been made.

TONE ARM TRIP POSITION ADJUSTMENT (B): The trip position is adjusted by screw "B". For proper operation the screw should be adjusted to trip the mechanism at the eccentric finishing groove on a

record. This will assure satisfactory operation for the majority of records in use. Turning the screw clockwise will cause earlier tripping of the mechanism; turning counter-clockwise will delay the tripping. Tighten the locking nut on the screw when the correct adjustment has been obtained.

NEEDLE PRESSURE ADJUSTMENT (C): To increase the weight on the needle, should it jump grooves or slide across the grooves too easily, lift the tone arm, and relieve the spring tension by releasing the small sprocket wheel a quarter turn at a time. On the other hand, should the records and needle wear too fast, increase the spring tension with the

sprocket to decrease the needle pressure.

TONE ARM HEIGHT ADJUSTMENT (D): The height to which the tone arm rises during the change cycle is governed by the adjustment of the screw under the tone arm on the top of the tone arm post. Turning this screw clockwise will lower the height to which the tone arm rises and *vice versa*. The proper adjustment may be made by placing 12 ten inch records on the turntable and adjusting the screw to the point where the tone arm clears the top record during the change cycle.

EJECTOR SETTING: The small screw, (22) in Figure 1, makes two adjustments: It varies the tension of the spring used on the Ejector mechanism (24); and it also moves the stationary position of the Ejector with respect to the rest of the mechanism. To lower the spring tension on the Ejector, loosen the lock nut on the screw and turn the screw counter-clockwise. Turning the screw counter-clockwise also moves the Ejector farther away from the Spindle. Turning the screw clockwise increases the tension of the Ejector spring and also moves the Ejector closer to the Spindle.

The correct adjustment of the screw may be obtained as follows:

Set the Ejector for 12" records and place ten 12" records on the spindle. Turn the turntable by hand and observe record dropping. The screw should be adjusted so that the bottom record just falls. The screw is correctly set when almost entirely in the "out" position. The spring tension on the Ejector is then relatively small and stalling of the motor is less likely to occur.

NOTE: After adjusting this screw, check the adjustment of "A". Remember to tighten the locking nut after adjusting a screw.

TROUBLES & REMEDIES

1. **NOISE WHILE CYCLING**

This trouble is caused by the FOLLOWER ARM (10) being bent out of position. Straighten the arm.

2. **TURNTABLE RUBS**

Loosen set screw on WORM (12) with an Allen wrench and raise the spindle about 1/16".

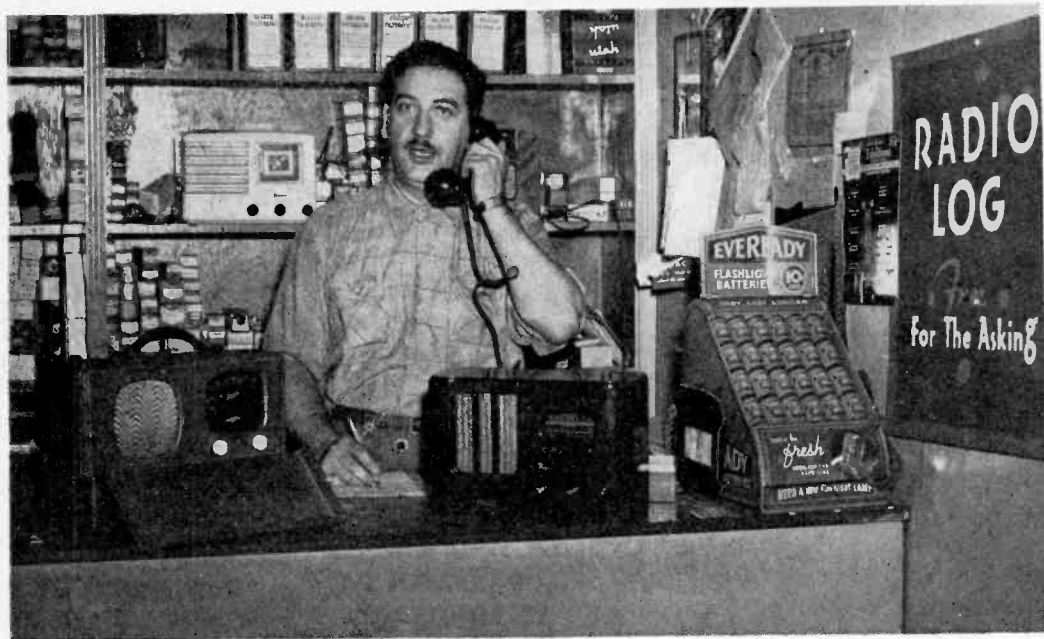
3. **DOES NOT CYCLE WITH REJECT BUTTON**

Check to see if TRIP LINK (30) is releasing FOLLOWER (13). If TRIP LINK releases FOLLOWER but will not center on threads of WORM, bend the FOLLOWER ARM (10).

4. **MOTOR SLOWS DOWN DURING CYCLING**

Bend paddle end of FOLLOWER

. (Continued on page 34)



Active set rental business followed up aggressively balances the budget for Acme Radio Service. When he telephones to check on sets which are due back this dealer usually gets more orders.

How It Pays

Generally speaking, the way to make money in rentals is to get into a position of having at least a dozen radios for the purpose. Say you net about \$6 a month (after repairs, replacements and servicing and "trade" costs) per set. That would mean around \$70 to \$75 a month additional income. And with more sets, more income. Some dealers have as many as thirty or forty sets "working" for them around the clock. The income is, of course, all gravy after the first two or three months, as the turnover of rentals brings in many times the original cost of the sets.

Keeping the set turnover from turning the shop topsy-turvy is most important. Without a systematic record, the dealer will soon lose himself in a maze of mix-ups and complications and may even lose some sets. Simple records, kept consistently by Acme Radio Service, avoid a lot of difficult situations. The form Acme uses is similar to the one illustrated, and the system can be summed up in four steps:

Step 1: Every rental radio has a special dealer number affixed to the bottom of the set.

Step 2: This number appears on the customer's slip (which is the standard form, needs no special printing). The customer's name and address (or room num-

ber), the fee paid in advance and receipted, and the date of delivery should be carefully entered.

Step 3: The information on the customer's slip is then posted in an ordinary blank book, on a page headed with the number of the radio set (see fig. 1).

Step 4: And finally, the date the set is due back is noted on a "memo" type calendar pad or tickler, posted three days ahead. That is, a radio set due back on the 10th appears on the calendar on the 7th.

With this system the dealer can keep his sets out on income-producing rental most of the time, as he knows in advance just where he stands and can do some follow-up with other clients and prospects ahead of time.

Other dealers have different schedules, depending on the kind of neighborhood. In the moderate-priced hotels, one dealer finds that a graduated scale beginning with \$1 minimum (for a day or less) and going up to \$3.50 a week and \$7 for a month has helped develop a good source of additional income for him. Because of the low rate, the same set will be rented and re-rented by the hotel without even being returned to the dealer, except for servicing. The bell hops collect their bit in the way of tips from the guests served, making it a

point to make a special trip to deliver the radio and plugging it in. In return the dealer gives the hotel employees a break by fixing their radios and other appliances free of charge on occasion.

Rentals Everywhere

While these examples were found in New York and are therefore more typical of large cities, small towns also offer good possibilities for extra income through rentals. With hotels full everywhere, regardless of the size of the communities, it is very likely that guests often sit around the one radio in the town's hotel lobby listening unwillingly to programs they probably don't like. A live dealer could work out a deal through the hotel or with the guests direct to rent them radios for, say, \$1 a day which they can have to themselves in their own rooms and get the programs they really like. And when people are away from home especially, such a service helps to relieve the monotony.

It doesn't take too much arithmetic to figure out that if a set is in active rental use one out of three days (or 100 days in the year) that means \$100 additional income per-set per-year. This is many, many times over the original cost of the average midget or table model radio that would be used for rental. A hundred active rental days per year, means the set is turned over a hundred times—and that's where lies the profit for the dealer—in turnover

KNOW YOUR OSCILLOGRAPH!

Prepared by the

**ENGINEERING DEPT.
ALLEN B. DUMONT
LABORATORIES, INC.**

The oscillograph is the most useful unit on the test bench. It is also the least understood. This series explains it fully

PART 3.

Time-Bases or Sweep Generators

Since practically every pattern on the screen of the cathode-ray tube is a plot of some variable quantity with respect to time, the motion of the luminescent spot with respect to time is of utmost importance. The most common deflection system consists of two sets of parallel deflection plates arranged at right angles to each other. By making the potential of one set of plates in some manner proportional to time, and that of the other set proportional to the phenomenon to be studied, a plot can be obtained in the usual Cartesian coordinate form. The deflection of the spot by a potential proportional to time would trace out a linear time-base. Many other types of time-bases are used in which the deflecting potential is proportional to some function of time. Examples of these are the sinusoidal and circular time-bases. *Figure 17*, after *Puckle*, shows an entire family tree of time-bases. All of the types shown will not be discussed here, but each type has particular advantages for some specialized investigation.

Linear Time-Bases

The linear-time-base is adaptable

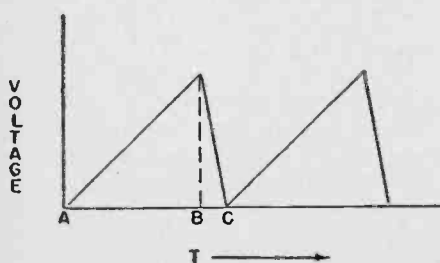


Figure 18

to wide varieties of uses. A plot of a voltage wave which would produce a linear time-base is shown in *Figure 18*. The interval from A to C constitutes one period. The linear portion AB is variously called the "go" time or the "sweep" time. The interval BC is the return or "flyback" time during which the fluorescent spot returns to its position occupied at the beginning of the period. An ideal linear time-base would have a sweep portion perfectly linear, and a return time of relatively very short duration. Practical circuits for generating linear time-base are usually the result of compromises among the desirable features. Some of the factors which must be considered in determining the most suitable design are listed below:

1. Linearity of sweep voltage.
2. Ratio of sweep to return time.
3. Frequency range.
4. Ease of synchronization.
5. Return trace pulse (polarity and impedance).
6. Single sweep possibilities.
7. Supply voltage required.
8. Output level and impedance.
9. Number and type of tubes required.
10. Number of variable circuit components necessary to give usable results over required range of frequencies.

The order of the listing does not necessarily indicate the relative importance of the factor involved. The use to which the time-base is put will determine the weight each factor must be given.

Synchronization

In order that a stationary pat-

tern will appear on the cathode-ray tube screen, the time-base must have the same period as the variable quantity to be plotted or some sub-multiple of that period. The adjustment of the time-base to this condition is called synchronization. Synchronization can be accomplished by injecting a voltage of the proper frequency into the time-base generator in such a manner that it controls the frequency of oscillation. The amount of voltage necessary to give good synchronization depends upon the circuit employed.

Return Trace Blanking

The rapid motion of the spot during the return period will cause a relatively faint trace of its path to appear on the face of the cathode-ray tube. If the return time is an appreciable part of the linear time-base period, this trace may cause confusion in interpreting the pattern. To prevent such confusion, the beam may be extinguished during the return time by applying a negative voltage to the grid of the cathode-ray tube sufficient to extinguish or "cut off" the electron beam.

A method of obtaining a suitable blanking voltage is to apply the sawtooth voltage to a differentiating circuit which will generate a pulse corresponding to the rapid change in

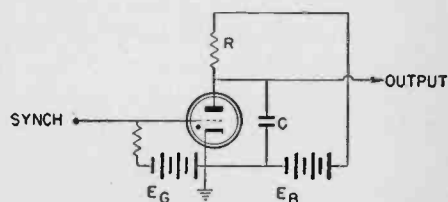


Figure 19



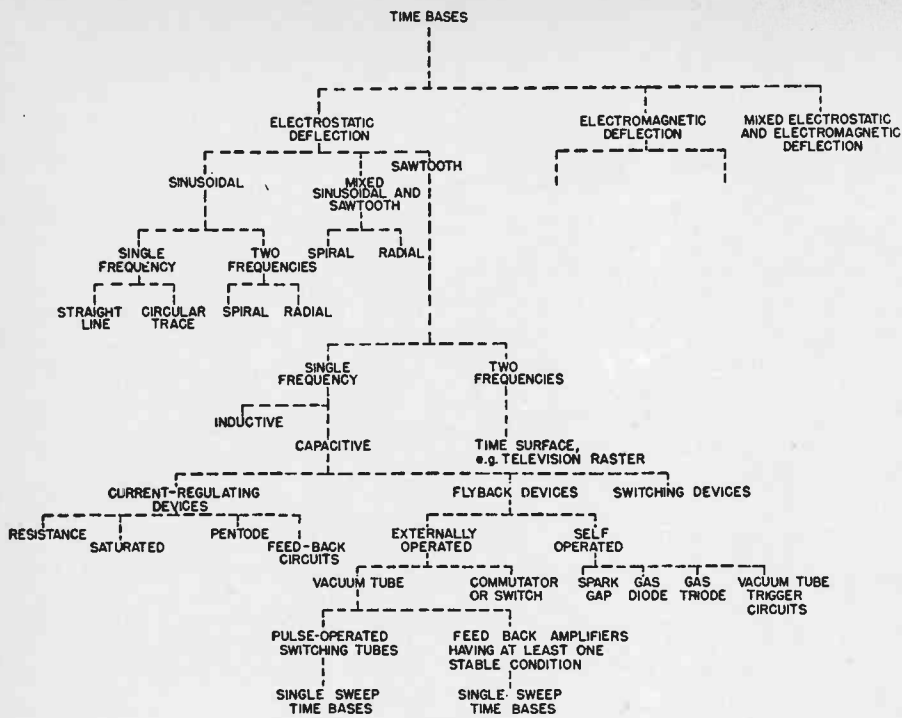


Figure 17

voltage and current during the return time. This pulse of voltage is often present in some part of the generator circuit during the return time, and it is only necessary to adjust its amplitude and polarity and apply it to the cathode-ray tube grid to get satisfactory return trace blanking.

Single Sweep

When transient phenomena are to be observed, it is desirable to have occur only a single linear sweep which lasts for the duration of the transient, and which is initiated by the beginning of the transient or some related disturbance occurring just before the start of the transient. If it is wished to observe the very beginning of the transient, the latter method is recommended since a finite time is required to start the sweep after the initiating pulse occurs.

The description of a method of obtaining single sweeps from gas-triode linear time-base generators appears below under the section on gas-triode generators.

Gas Triodes

The most common method of obtaining a saw-tooth wave is to allow a capacitance to charge from a high voltage source through a resistance. Only a relatively small portion of the charging curve of the R-C network is used.

With the capacitance connected from plate to cathode of a gas diode or triode, that capacitance is allowed to charge only to a relatively low potential determined by the breakdown

potential of the discharge tube. *Figure 19* shows the basic circuit of the oscillator just described. The discharge tube could be a gas diode, but the advantages of the three-element tube lie in the ease with which the triode oscillator may be synchronized to a signal applied to the grid.

Figure 20 gives a picture of the oscillation and the action of a synchronizing voltage applied to the grid. If no synchronizing voltage is applied, the discharge tube will start to conduct when its plate voltage reaches the value E_f . The conduction of the tube will quickly lower the plate voltage by discharging the capacitance. When the plate voltage falls to the extinction potential E_x , conduction ceases and cycle starts again. The rapidity with which the plate voltage will rise is, of course, dependent on the charging constants R and C , and the supply voltage E_b . The exact relation is:

$$E = E_b \left(1 - e^{-\frac{t}{RC}} \right)$$

where E is the capacitance voltage at any time t and e is the base of natu-

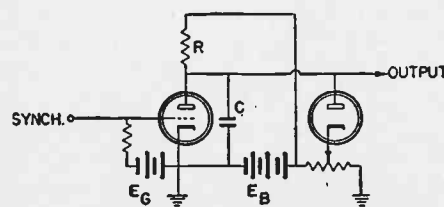


Figure 21

ral logarithms. The frequency of oscillation will be approximately:

$$f = E_b/RC \left(\frac{1}{E_t - E_x} \right)$$

If a synchronizing voltage is applied to the grid, the firing potential will vary in accordance with it in the manner shown. When the firing potential is reduced by the synchronizing signal, the tube will conduct before it ordinarily would under no signal conditions. Thus, if the "free running" or synchronized period of the oscillator is slightly greater than the period of the synchronizing signal, the discharge through the tube will occur sooner when the synchronizing voltage is applied than under "free running" conditions. Thus, the oscillator will be synchronized to the grid signal.

In practice, it is usual to make R continuously variable over a range of six or eight to one, and C variable in steps of about five to one by switching capacitors. This scheme assures both coarse and fine adjustment of the sweep frequency and provides for the overlapping of the adjacent ranges.

The source of the signal to which the linear time-base is to be synchronized may usually be selected by a synchronizing selector switch. Either an external, power line frequency, or Y-axis signal is usually used.

The Y-axis signal used for synchronizing should be picked off at some point in the Y-amplifier system where it will be of sufficient amplitude to provide good synchronizing. A continuous variable control for the adjustment of the amount of synchronizing voltage which reaches the gas-triode grid is desirable. Only the minimum amount of synchronizing voltage necessary to give good synchronization should ever be used, since excess synchronizing voltage at the gas-triode grid will introduce non-linearity.

The charging curve of the capacitance is, of course, exponential in nature, but by using only a small portion of the complete cycle the departure from linearity can be made small. Good design of the oscillator circuit calls for not more than 10% or 15% of the supply voltage appearing in the region between the firing and extinction potentials.

The oscillator just described has a useful range of from two to fifty thousand cycles per second. At the higher frequencies, the time required to discharge the capacitance becomes an appreciable part of the total cycle because of the de-ionization time of the gas triode. This de-ionization time is the limiting factor in high frequency operation.

At low frequencies, the leakage of the charging capacitance will become a factor in determining the linearity of the time-base. The effect of leak-

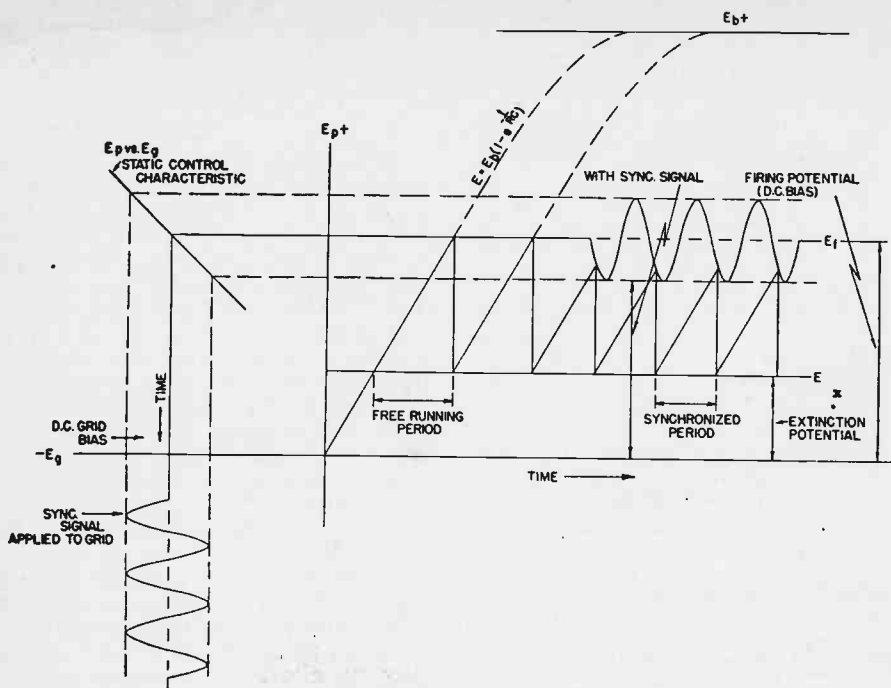


Figure 20

age will be to prevent the voltage from rising as rapidly as it should, and the time-base will slow down during the last portion of the sweep period.

The gas-triode time-base lends itself to single sweep application without radical circuit revisions. Figure 21 shows a time-base circuit to which has been added a diode with its plate connected to a gas-triode plate, and its cathode to a source of variable potential. If the cathode of the diode is set to a voltage below that at which the gas triode will fire, conduction through the diode will take place when the plate voltage tends to rise above this value of cathode potential. Thus, the "clipping" action of the diode will allow the plate voltage of the gas triode to be adjusted to a value just below that at which the tube fires. If a positive signal is then introduced on the grid of the gas triode, the firing potential may be lowered below that value set by the diode, and the tube will conduct. When the extinction potential is reached, the tube ceases conducting and the capacitance starts to charge again through the series resistance. If the signal has been removed from the grid during this next charging interval, the voltage to which the capacitance will charge is again limited by the diode, and the tube will not fire a second time.

A complete single cycle has thus occurred, consisting of a return trace and then a single linear sweep. By initiating the sweep with a signal occurring just before the beginning of the transient to be studied and adjusting the value of the charging capacitance and resistance, the single sweep period may be made to occur during the same interval as the

transient. In order to have the entire single sweep on the screen, the spot should be positioned to the edge of the screen while in the rest position. The return trace will then rapidly displace the spot across the screen, and the linear trace will occur as the spot returns to its rest position during the charging of the capacitance.

For fullest utilization of the single sweep, a photographic recording of the trace should be made. To prevent fogging of the camera film by the luminescent spot before and after the transient, a shutter can be used which opens only during the sweep period. This method is not practical for fast sweep rates. By positioning the spot just off the screen for its rest position, the fogging may be reduced. The most effective method is to have the beam in the "on" condition only during the sweep time, and off at all other times. By providing a positive pulse at the grid of the cathode-ray tube during the sweep period, this switching arrangement may be accomplished. Methods of obtaining such a pulse will not be discussed, as they would depend upon the particular application of the single sweep.

High Vacuum Sweep Circuits

The limitations of the gas-triode linear-time-base generator are not encountered with circuits using vacuum tubes. Several types of circuits have been developed which utilize the "trigger" characteristics of triodes or pentodes. This "triggering action" is a result of a sudden change in plate or screen current caused by only a slight change in some other circuit constant. The sudden change in current or voltage

is used to charge or discharge a capacitance. The subsequent charge or discharge takes place through a resistance and the sweep voltage appears across the capacitance.

Circuits of this type will give linear time-bases as high as 1,000,000 cycles per second, (1 Megacycle) and as low as 2 cycles per second. These high vacuum sweep types have disadvantages in what they are generally more complex and require more tubes and more power than gas-triode types.

Other Time-Bases

While the linear type is the most useful of all time-bases, special applications often call for other types of time-bases. A linear time-base generator of some type is generally an integral part of a general purpose cathode-ray oscillograph. However, provision should be made for the use of externally generated time-bases. Connections should be available either directly or through the amplifiers to deflection plates.

Sinusoidal

By applying a sinusoidal voltage to the timing axis, deflection proportional to the sine function of an angular variable may be obtained. Near the center of the trace, i.e., when the voltage wave is near zero, the velocity of the spot is nearly linear. By making the total deflection large, this center portion may be used as a linear time-base. If the phase of the sinusoidal voltage is shifted through 180°, a phenomenon occurring during any part of the wave period may be centered on the screen for observation.

Another time-base involving sinusoidal waves is produced by applying one of two sinusoidal potentials which are 90° out of phase to each set of deflection plates. If the amplitudes are equal and no harmonics are present, a circular trace will result. The quantity under investigation may then be applied either to the deflection plates to produce rectilinear deflection, or to the accelerating electrode to produce radial deflection, or to the modulating electrode to produce blanking.

Spiral and Radial

Combinations of linear and sinusoidal voltages may be used to generate spiral or radial time-bases by applying a circular time-base to the deflection plates and a linear voltage to the second anode.

An advantage of the circular and spiral time-base is that for a given size tube, the length and duration of the time-base of the graph plotted is greatly increased over that obtainable with the more generally used linear time-base. The circular time-base is also suited for applications involving a phenomenon which is a function of an angular quantity such as in rotary motion studies.

ELECTRICAL APPLIANCE

Retailing

Registered U. S.
Patent Office

Philco May Unveil Plans Soon

Meantime, Philco Distributors, Inc., are contacting the trade direct with elaborate folio presentations in which they highlight merchandising fundamentals long held basic. Some fundamentals that have helped dealers conduct profitable operations:

That with radio set sales came radio accessories—tubes, parts, batteries, portable amplifiers, Philcophones, phonograph accessories—items which were sold by dealers to the tune of \$7,000,000 in 1940. These items were offered to create traffic and render service to customers. With just intelligent merchandising and no unusual promotion, the radio accessories created enough volume and profit to pay a good part of the overhead of many a (Philco) dealer. And (at the time) for the thousands of members of Radio Manufacturers Service, the nationwide organization of servicemen created and trained by Philco, they became a valuable source of income.

For post-war, the policy of keeping dealers in a position to earn all the year around, at all seasons, will be sustained with lines of radio, television and auto sets, portable air conditioners, refrigerators with dry, moist and freeze compartments and other appliances.

No hard and fast rules have been laid down as to dealer franchises. The small-town service dealer may be the key man in his community, and the big department store may garner the full-line franchise in a nearby community.

Point is, there's no quick, easy way to consumer acceptance. It can't be bought overnight. It has to be built up over the years, by sales and satisfied

customers. Established dealers—big and small—will be surveyed first for the allocation of franchises.

Postwar Television Receivers

(From a talk by A. A. Brandt
of General Electric Co.)

In the final analysis, public acceptance of television will be the result of owning satisfactory television receivers sold at prices they are willing to pay. Therefore, I'll undertake to outline to you as briefly and as definitely as possible our thinking on the subject of television receivers postwar.

First of all, we fully realize the necessity of providing the public with high quality television receivers at popular prices. And, when we say "popular prices," we do not mean four—five—or six hundred dollar merchandise. From present indications, it appears possible to produce television receivers postwar with excellent performance at prices around the \$200.00 bracket, based on pre-war levels. Price increases postwar, as talked about currently in many newspapers, range from 25% to 40%.

Recent surveys, however, indicate an average price rise of 18% to 20% for the first several years and a drop to 15% or slightly less for the long pull. This is a healthy indication that the industry will try to keep price levels at a minimum, although labor and material costs have risen more than that percentage since 1941 . . . and there are no indications that these increases will drop off abruptly after the war.

Furthermore, we believe much can be achieved costwise by new methods, simplified designs and efficient distribution.

The lowest priced television receivers will undoubtedly incorporate fewer services. The higher priced models will incorporate such additional services as the standard and FM broadcast bands, International short wave, and the phonograph with automatic record changer.

Our television receiver line will consist of both direct view models and projection models. The direct view models employing, for example, a 12-inch tube, will be in the relatively inexpensive price range. We anticipate such a design because experience indicates it will insure the viewer excellent picture contrast and definition. If a larger picture were provided in the lower priced merchandise, we would have to sacrifice picture quality to some extent over that obtainable with a direct view tube.

The higher priced television sets for the home will undoubtedly be designed with a projection tube that will provide an excellent picture up to 18 by 24 inches. Satisfactory projection type television sets are inherently more expensive to produce.

We plan to make new type television receivers available to the markets, where television broadcast services now exist, as soon as government authorization allows us to do so. This is a large market and will provide an adequate "jumping-off" point for a good start in the full and orderly development of the industry.

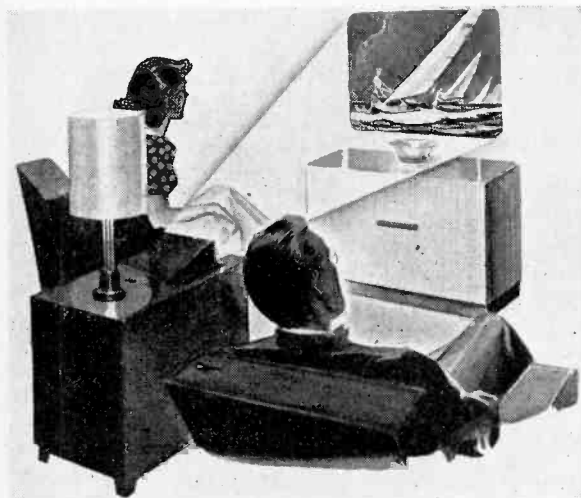
As you have just seen, there are 9 stations operating today in 5 cities. In the areas they cover there are roughly 27,000,000 people in about 7,000,000 wired homes. This represents a little more than a quarter of the buying potential.

In three to five years after the war there will be many additional television stations in operation throughout the country . . . and this means a television receiver market of huge proportions.

Savings Clubs For Appliances

Dealers can bank on tremendous sales of appliances of all kinds after the war—the money is waiting—say bankers who have made surveys among depositors in their special savings clubs, according to Radio Corporation of America.

Latest findings, announced by A. T. Roth, executive vice president of Franklin Square National Bank in Long Island (said to be a typical home town), show that 22% are earmarking their savings for radio and television home receivers, priced by the bank at \$400; 12% are saving for home laundry equipment and another 12% for refrigerators. Appliances top the list of planned consumer purchases, and are well ahead of automobiles, with 13% of deposits earmarked for them.



Improved picture contrast and definition in direct view and projection models will help dealers cash in on huge television receiver market. This is an artist's conception of a postwar home projection receiver. (Illustration courtesy of General Electric Company).

DISCussion...

Records & Record Makers, by L.C.S.

Duke's duke was doctored . . . so he could go on pianochoring with his band at Roxy's (N. Y.) . . . Ellington suffered a slight injury while riding in an elevator which slid out of control for a few feet. These are hectic days for Perry Como . . . bobby-sock swooners got romantic heaves over his softing on the mike at the Paramount . . . and heaved out loud . . . so Perry said, looking at a young thing above her socks level: "Quiet, mother. Try to restrain yourself." To Blue's mostly classical "Music America Loves Best" air spot . . . Adele Girard, the swing-time harpist . . . and Mel Henke, Chicago's whirlwindy piano jazzola . . . to give swing its innings on the program. Shep Fields winds up at Copacabana to play theatre and ballroom spots . . . until he resumes at the New York nightery next March. Sammy Kaye . . . buttons up with his batons . . . bids at war bond rallies ran as high as \$5,000 for single sticks . . . Sam and his band are New Yorking it this summer . . . at the Astor in August.

Spike Jones is being "busted" . . . by sculptor Lanyi who also did Greer Garson and Kate Hepburn . . . there are "busts" and busts, eh Spike? Ties tie-in with bonds . . . Perry Como gave his personal campaign a shot in the arm . . . "How much am I offered for my tie?" . . . and it was promptly bid in. "How much for my shirt?" . . . and that went on its patriotic way . . .



Don't look now, but here are Lionel Hampton, Duke Ellington and Louis Armstrong—somewhere in "Tunesia."

but he just wouldn't sell his pants to another eager bidder. FBI employees got some choice programmatic recently . . . Vaughn Monroe . . . sh-sh-sh . . . gave out for them on a "Spotlight Bands" spot. Hal McIntyre travels light . . . had all his musical arrangements microfilmed . . . a-la "V"-mail . . . now entire band's music fits his pocket . . . but can be readied in a few hours by any handy photo studio . . . good for the paper shortage, too, Hal.

Dinah Shore is voicing up for Walt Disney's cartuneful "Swing Street" . . . leading jazzuits are recording also for this popular music follow-up of "Fantasia's" classics. Spike Jones "Command Performs" overseas service request numbers . . . show, abetted by City Slickers, is sent to the boys via canned music . . . sessions of "Canned



"Crosbyana"—the Legendary

Corn?" Sammy Kaye bought a farm near Cleveland . . . but his regular "swing" program called for more "yo-hoing" than hoeing—simply didn't stay around long enough to farm and there's no help . . . so Sammy sold his 100 acre foodery-fodderly to a resident family . . . the farm will go into production soon and so Sammy helped the food program by getting out of farming. Lena Horne will command-sing her "Good For Nothin' Joe" in a radio-odeo for boys overseas. Shep Fields is first name band to spot in Copacabana, New York night highplace . . .



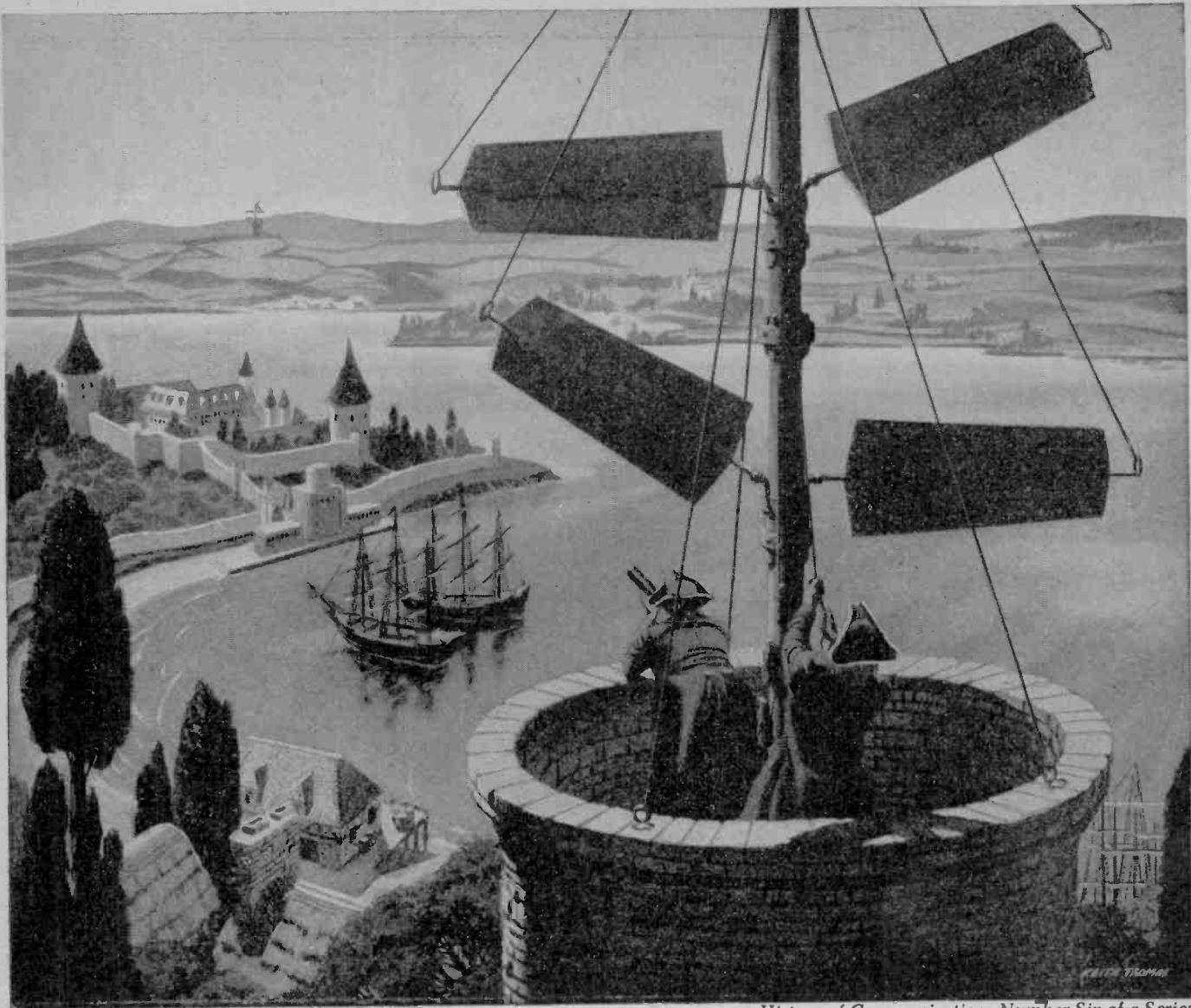
. . . and Hildegard

Alec Templeton is summer-concerting on the West Coast . . . lucky, lucky, West. . . It's pf-fff-t for real this time for Dick Powell and La Blondell. . . . Deanna Durbin will go on a good-neighboring tour in S. America soon. . . . Di Vorce is also visiting with Rudy Vallee and his protem Bettejane. . . . A full Washington day for Eddie Cantor . . . entertaining wounded vets at Walter Reed hospital . . . then nighting a war bond rally on Monument lane. . . . Al Jolson pitches on a war bonding tour . . . two-houring in Atlanta to get solid coin from Georgia audiences. . . . Andre Kostelanets-Lily Pons are DXing from Teheran, in the Persian Gulf Command area . . . Songs by the Lily and a 47-GIpiece outfit led by the Maestro . . . the seventh week, and going strong. And Kate Smith trip-hammers her bond-selling airwave with . . . "Once you know the nature of the enemy you will hate and hate enough to exterminate" . . . Kate's pitch on Democracy hangs a Purple Heart on radio as a vital win-the-war force. . . .

Records to Sell

Decca:

Among some interesting August releases we find Hildegard (23348) offering "Lili Marlene" which the sultry-voiced Garbo of song endows with all
(Continued on page 26)



History of Communications Number Six of a Series

COMMUNICATION BY SEMAPHORE

The Semaphore, as a means of communication, met first commercial acceptance in France under the authority of Napoleon in 1792. Restricted by "line of sight" and low power eye pieces, excessive numbers of relay stations, as pictured above, were required for "directional broadcasting" over rough terrain. Weather conditions, too, were a handicap. Because of the code used and its necessary translation, delays and errors were continually encountered.

Today, in the era of applied electronics, Universal microphones are being used to expedite messages on every battle front in the service of the Allies. Universal is proud of its contribution in the electronic voice communications and its every effort to our ultimate Victory.

Model T-45, illustrated at left, is the new Lip Microphone being manufactured by Universal for the U. S. Army Signal Corps. Shortly, these microphones will be available to priority users through local Radio Jobbers.

UNIVERSAL MICROPHONE COMPANY
INGLEWOOD, CALIFORNIA

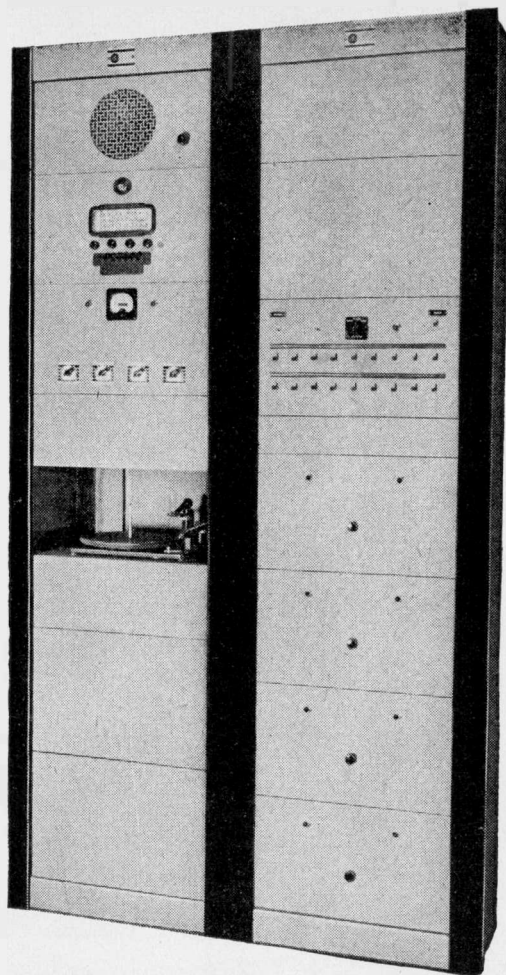


MODEL T-45
LIP MICROPHONE



FOREIGN DIVISION: 301 CLAY STREET, SAN FRANCISCO 11, CALIFORNIA • CANADIAN DIVISION: 560 KING STREET WEST, TORONTO 1, ONTARIO, CANADA

A CUSTOM DIVISION FOR SPECIAL "SOUND" JOBS



The Custom Division of the David Bogen Company is devoted exclusively to the design and manufacture of special sound systems. Whatever the assignment—an industrial plant, air field, hospital or shipyard—each differs in conditions of noise level, areas to be covered, functions and features required. The Bogen custom sound system is individually designed and built to fulfill the requirements of the individual job.

To do the job in the right way, the David Bogen Company maintains an engineering staff and separate construction Department. The services of a field engineer are available to Bogen distributors for making the sound survey and "laying out" the system.

The War Production Board has relaxed the restrictions on granting priorities for industrial sound systems. The David Bogen Company is one of the limited number of manufacturers permitted to expand the production of this vital equipment.

Help Crack the Axis More Quickly . . . Buy More War Bonds

David Bogen Co. Inc.

663 BROADWAY NEW YORK 12, N. Y.



THE STANDARD OF PERFORMANCE

Bogen Sound Systems • Communo-Phones • Amplifiers • Electronic Equipment

Letters to the Editor

MORE "RUN-AROUND", MORE EARNINGS

Editor:

With this letter I am enclosing a "little thought" that you might pass on to boys in RSD, as I believe a lot of them can be helped by my suggestion. At least you might try it and see what happens. The truth is that there are a lot of radio servicemen that won't work on intercoms, and amplifiers, and much prefer to lie on their backs in somebody's automobile working on some car set than go out of their shop and get some of this work.

The WPB does not believe in giving larger gas quotas to the civilian radio service shop, figuring that most customers will bring their sets in and will call for them. No thought is given to the people who have big sets and no automobile, and no thought is given the dealer in regard to running around trying to get parts, etc.

The boys might get something worthwhile out of the following suggestions:

Here's a thought that may help you fellows who have trouble in getting enough gas to make your calls and deliveries. You, who don't like industrial intercoms or paging jobs, get this: you can easily rate "C" cards if you will take on some of this work. And while there is little new stuff to sell the plants even though they are engaged in war work, you can revamp their old equipment. By getting a few jobs and letters from these people you can go to your ration board and with these letters showing what you are doing, you can get the necessary gas ration.

The writer has over a period of years sold intercoms and paging systems in industrial plants and now these same plants are for the most part engaged 90% in war work. Of course they need these systems serviced right along, and while you are not allowed to make extensions and additions, without WPB approval you can get all the material and equipment to revamp these outfits and bring them up-to-date, on AA1 or AA2 MRO. All that is necessary is to get a purchase order for your customer with the necessary preference rating and extend this to your jobber.

In this way you are not only helping win the war but at the same time are getting enough gas to take care of your regular radio service business. Then there is another bright spot in the picture. These plants are all making money and do not haggle over your bill. Some of the tubes that you will need from time to time are hard to get, but with a priority rating you can have your jobber order them and most of them will come through in a month or so. In the meantime it is always possible to substitute some other apparatus or tubes to keep the outfits operating. Even if it is necessary to purchase tubes at retail prices from some other

(Continued on page 28)

At WESTON . . . RELAY SENSITIVITY has been advancing with seven-league boots!



1935 . . . Sensitivity 1 milliamperere

1938 . . . Sensitivity 10 microamperes

1940 . . . Sensitivity 5 microamperes

1944 . . . Sensitivity * *



** Sensitivity many times greater than in 1940; with amplification factor 2,000,000,000 to 1, or better!

With today's emphasis on electronics, WESTON developments in the field of Sensitive Relays assume utmost interest to design engineers. Even prior to the war, these relays provided positive control at input values low as 2 microamperes or 1 millivolt. Employing WESTON'S exclusive *magnetic contact* principle, they handled 5 watts at 110 volts, with complete freedom from contact troubles.

But relay development at WESTON has kept pace with the more exacting *control* needs of this war. Relays with sensitivity *for exceeding* that of pre-war days already have proved their reliability on critical equipment, and under the most rigorous conditions!

More than likely, these relays provide the answer for many of tomorrow's products; for they provide the simplest, most compact means of controlling at minute energy levels.

Have the full story on "what's ahead" in sensitive relays and instruments at your fingertips. Check WESTON, too, on all *war instrument* needs!



Laboratory Standards . . . Precision DC and AC Portables . . . Instrument Transformers . . . Sensitive Relays . . . DC, AC, and Thermo Switchboard and Panel Instruments.

WESTON

Special rec Test Equipment . . . Light Measurement and Control Devices . . . Exposure Meters . . . Aircraft Instruments . . . Electric Tachometers . . . Dial Thermometers.

Weston Electrical Instrument Corporation, 689 Frelinghuysen Ave., Newark 5, N. J.

Records

(from page 22)

the plaintive, nostalgic quality this story of a soldier and his sweetheart deserves. The English adaptation of a French love song, "My Heart Sings," is a tender ballad full of lyric beauty.

In the first song, the singer is supported by a male chorus and the orchestra. In the ballad, Hildegard sings, plays the piano and is assisted by the same orchestra, directed by Harry Sosnik.

Snow White and the Seven Dwarfs (Album A-368) is featured with Lyn Murray and His Orchestra and chorus, and also Evelyn Knight, Harrison Knox, Elizabeth Mulliner, Audrey Marsh and

Andy Love Four. This new release contains special recordings on four 10-inch discs of "Snow White Overture," "I'm Wishing," "One Song," "Whistle While You Work," "Some Day My Prince Will Come," "High-Ho," "With A Smile and A Song," and "Bluddle-Uddle-Um-Dum." Delightful quadrupling, as anyone who has seen the pix, alone or with the kids, will agree. A descriptive booklet comes with the album, and adds to the fun. A good traffic-making item, with good turnover possibilities.

Conrad Thibault, baritone, (Black Label 23346) in two songs. "I Spoke to Jefferson at Guadalcanal," in which a vision of the President comes to a soldier in despair over his buddy's death but is inspired to regain his will-to-live. The flipover: "The House I Live In,"—



Patsy Montana

eloquent in praise of the American way of life. Both are fine patriotic, topical vocals, keyed in high inspiration. Orchestra by Harry Sosnik.

Jimmy Dorsey and His Orchestra, with vocalist Gladys Tell, (Black Label 18611): "I'm In Love With Someone," and "It's A Crying Shame." Bright, dancy tunes. The first side is getting a big hand. Smooth offerings, in Dorsey's fluid, popular style.

Phil Hanna sings both tenor and baritone, (Blue Label 4445): "A Fellow On a Furlough," and "You May Not Remember." Both are movie-pix featured. "A" side is from Columbia Pictures "Miss Bobby Socks," the other, from R.K.O.'s "Show Business." Orchestra by Leonard Joy.

Patsy Montana and Her Partners, (Blue Label 6101), in "Good Night Soldier," and "Smile and Drive Your Blues Away." Patsy is one of the most popular western style singers.

Bing Crosby, Volume Two (Album B-1015), Brunswick Collectors' Series. An offering of eight "Crosbyana" numbers on four discs. "Where the blue of the Night Meets the Gold of the Day," "A Faded Summer Love," "Star Dust," "Dancing in the Dark," "Sweet and Lovely," "I Apologize," "Many Happy Returns of the Day," and "At Your Command." This selection is a perfect companion-piece for Volume I, and good for "ensemble selling." Bing has that effortless, romantic singing quality which makes him one of the great singers of our day. The numbers are perennial favorites, in demand all the year around.

Fred Waring and His Pennsylvanians, (Black Label 18612): Side "A" is "Battle Hymn of the Republic," with solo by Gordon Berger supported by the Glee Club. Fred's own composition, "The Time Is Now," is on the reverse. Its lyrics are timely and fit into almost any present-day situation. Waring is wearing well and his public knows what to expect.

Lionel Hampton, (Black Label 18613) features hot solos. Topside, Lionel and orchestra play "Hamp's Boogie Woogie,"—a fan item with Hamp's 2-finger piano beating against the stomp

(Continued on page 30)

Electro-Voice
MICROPHONES

The extent of our line is but partially illustrated in this advertisement. Our current production is now being utilized in essential services. Soon, however, there will be Electro-Voice Microphones available for civilian use... and these will be described fully in subsequent advertisements.

In our South Bend laboratory, we have complete facilities for accurate frequency checking, harmonic wave analysis, measurement of ambient noise, etc. Electro-Voice Microphones reflect painstaking care in design and construction by superior performance in the field. They serve you better... for longer periods of time.

If your present limited quantity needs can be filled by any of our Standard Model Microphones, with or without minor modifications, we suggest that you contact your nearest radio parts distributor.

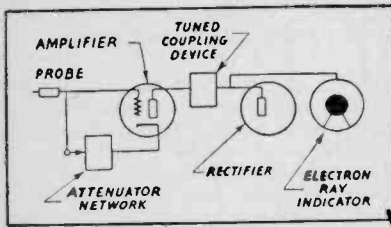
Paper Packs a War Punch . . . Save Every Scrap

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Export Division: 13 East 40th Street, New York 16, N. Y. — U. S. A. Coblas: ARLAB

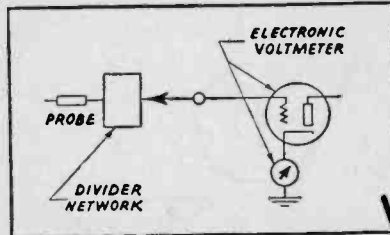
It's the Time it Saves!

THAT MAKES THE RCA CHANALYST SO IMPORTANT IN MANPOWER CONSERVATION

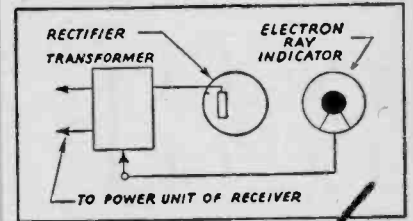
Are you using yours to best advantage?



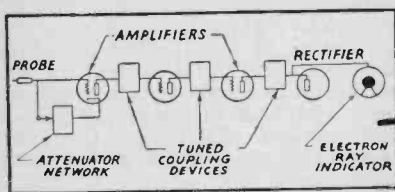
THE OSCILLATOR CHANNEL is invaluable in checking the performance of the oscillator in a receiver under test; it can be used to check oscillator output, frequency, or drift without disturbing operation of the receiver.



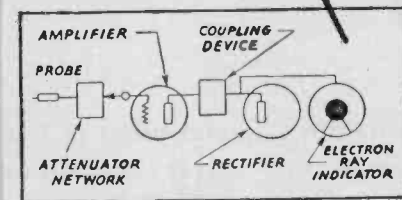
THE ELECTRONIC VOLTMETER can be used to measure AVC bias voltage directly at the control grid; to measure leakage in coupling condensers; to check overloading in audio circuits; to measure d-c operating potentials without interfering with receiver performance; as an output meter for alignment purposes.



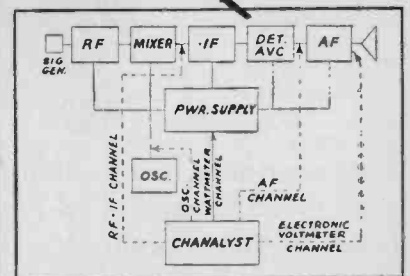
THE WATTAGE INDICATOR is useful in determining the amount of power consumed by the receiver. It reads directly in watts—Indicates any trouble, such as transformer breakdown, which places an abnormal load on the line.



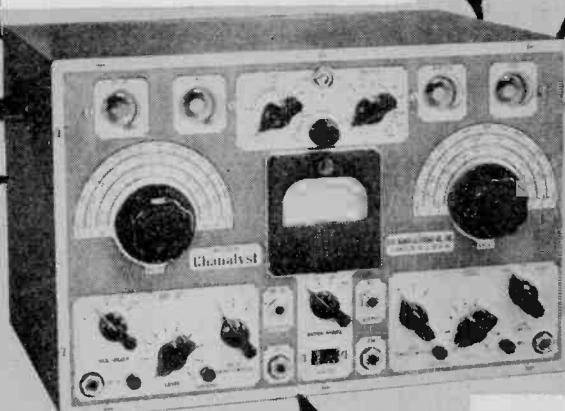
THE RF-IF CHANNEL can be used to identify quickly an oscillating r-f, mixer, or i-f stage; to check noise, distortion, and gain in r-f and i-f stages; to check r-f and i-f by-pass condensers without removal from chassis; to determine intermediate frequency; and in general check any part of the rf-if circuits of a receiver.



THE AUDIO CHANNEL can be used to check a-f voltage at any point in the receiver; to locate the origin of hum or distortion—by picking the signal off at any point and listening to it on headphones or looking at it on an oscilloscope; to check signal level, gain, or loss in tubes and coupling units.



INTERMITTENT RECEPTION can be analyzed by using all channels of the Chanalyst simultaneously. In solving the toughest service problems, use of the Chanalyst is the best, the most convenient and the quickest way.



Please Note: Deliveries of the Chanalyst are subject to the regulations of WPB Limitation Order No. 265.

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RCA VICTOR DIVISION • CAMDEN, N. J.

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Letters

(from page 24)

dealer, it is good business, as you can get good prices for your work. And rating your "C" card is important.

If any readers want more detailed information on what can be done with some of these old intercoms and amplifiers, the writer will be glad to answer through these columns.

L. H. Harlow,
Maywood Radio and Electric Shop.

There are strong indications that the maintenance, servicing and repair of in-

dustrial radio and communication equipment are becoming large factors in widening the scope of radio servicemen's earnings. The "C" rating for which this work makes servicemen eligible is, of course, an added and very important convenience, nowadays. Post-war this work will be needed in even more plants and factories, and it can well pay its own way for many a serviceman.

PRICE REGULATION IS NOT ENOUGH

Editor:

We appreciate your efforts in our behalf as indicated in your editorials, and are sending you the following letter which we last addressed to Office

of Price Administration. If and when we ever get some tubes to sell, we would be glad to sell them at their prices; although, we don't approve of their "storm-trooper" methods. The letter to the OPA follows:

Office of Price Administration,
Washington, D. C.

Gentlemen:

We have received and duly posted your Radio Trade Bulletin of May 20th, as ordered. But, gentlemen, where are the radio tubes? The time has arrived when you should issue orders dissolving the phony combination *wholesale-retailers* who are getting all the scarce tubes from the manufacturers, and either selling them at retail themselves, or using them in their own radio shops. Your office is informed on this matter and you know this to be the case. Why not put a stop to it?

During the entire year past, we have written various government offices, begging them to make a fairer distribution of scarce radio tubes, such as 1A7, LH5, 12SA7, 12SK7, 50L6, etc., but nothing is ever done to force the so-called distributor to distribute equitably. We ask you again, please dissolve these phony distributor-retailers and force them to sell the manufactured products to professional, civilian radio maintenance shops. We have been vainly trying to purchase radio material from local so-called distributors, but all we can ever get is a statement, such as, "Our present month's allotment has not yet arrived;" or, "We do not get enough goods to distribute;" or, "You did not buy from us in 1941."

In the meantime we see our customers forced to pass us by, and purchase their radio tubes from these phony distributors at retail prices, of course. May we have your statement on what you intend to do about this lousy situation? Isn't there some way you can effect equitable distribution from manufacturer to professional radio maintenance shops?

The writer is fully licensed by the Federal Communications Commission—Radiotelephone 1st Class and Radiotelegraph 1st Class, and we are doing our best to maintain civilian morale during this emergency. We believe we have a right to more efficient regulation by your office. *Price regulation is not enough.* We must have equitable distribution of radio parts, tubes, and batteries. We must have equitable distribution of these vital supplies to professional radiomen, and not to drug stores, auto parts stores, hardware stores, furniture stores, filling stations, mail order houses, etc. Distribute these radio supplies to the men best qualified to use them.

F. E. Flaharty, Service Manager,
Broadway Radio Service, Missouri

Mr. Flaharty is expressing the attitude of thousands of radio service dealers all through the country. It is one thing to set up prices on commodities, another to make them available in legitimate ways to legitimate channels. No grievance is greater, none more just, than this maldistribution of materials essential to the maintenance of civilian morale. It is a situation that borders on conspiracy in restraint of trade. Readers are referred to the article, "Better Trade Standards Mean Better Profits" on page 11 of this issue.

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The superiority of Ken-Rad "self-shielding" metal tubes is best exemplified by 10 years' successful manufacture of over sixty million. Today millions more are demanded by the military. This experience and capacity becomes available for civilian requirements postwar.

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NEW LETTER CONTEST for SERVICEMEN!

**ELEVEN 1st PRIZE WINNERS
IN 5 MONTHS IN CONTEST #1!**

Yes sir, guys, the hundreds of letters received were so swell that *double* first prize winners had to be awarded each of the first four months and there were *triple* first prize winners the fifth and last month . . .

SO — HERE WE GO AGAIN!

Get in on this NEW letter contest — write and tell us your *first hand* experiences with *all* types of Radio Communications equipment built by Hallicrafters including the famous SCR-299!

RULES FOR THE CONTEST

Hallicrafters will give \$100.00 for the best letter received during each of the five months of April, May, June, July and August. (Deadline: Received by midnight, the last day of each month.) . . . For every serious letter received Hallicrafters will send \$1.00 so even if you do not win a big prize your time will not be in vain. . . . Your letter will become the property of Hallicrafters and they will have the right to reproduce it in a Hallicrafters advertisement. Write as many letters as you wish. V-mail letters will do. . . . Military regulations prohibit the publication of winners' names and photos at present . . . monthly winners will be notified immediately upon judging.



hallicrafters RADIO



BUY A WAR BOND TODAY!

THE HALLICRAFTERS CO., MANUFACTURERS OF RADIO AND ELECTRONIC EQUIPMENT, CHICAGO 16, U. S. A.

Records

(from page 26)

of Milton Buckner's boogie bass. Other side is "Chop Chop,"—a riff tune, heard at the beginning and repeating effectively throughout.

Perline Ellison, (Blue Label 7910) blues-sings two numbers: "New That Ain't Right," is featured, with "Razor Totin' Mama," backing it up. Perline's voice is husky and fits the tunes right in their grooves.

Kitty Carlisle, (Black Label 23347) sweet-sings "Good Night Sweetheart," and "These Foolish Things." Kitty is

one of our finest sopranos, who has starred in movie pix, with a gift for "delivering." Orchestra by Harry Sosnik.

RCA-Victor:

Good for repeat and ensemble selling is this series of serious piano albums, which dealers can offer as basic items for any record library, as they begin with Mozart and end with the modern Villa-Lobos.

Jose Iturbi plays Mozart's "Concerto for Piano and Orchestra No. 20 in D Minor" (Album DM-794). Jose also directs the orchestra from his seat at the keyboard.



Jo Stafford

Claudio Arrau gives us Beethoven's "Theme and Variations in F Major and in E Flat Major," (Album DM-892) which the artist renders with impressive fervor.

Artur Schnabel gives us another Beethoven item, "Concerto for Piano and Orchestra No. 5 in E Flat Major," (Album DM-939) with the Chicago Symphony Orchestra directed by the late Frederick Stock.

Alexander Brailowsky plays the Chopin "Waltzes," in Albums M-863 and M-864.

Vladimir Horowitz reveals the majesty and emotional depth of Brahms in the "Concerto for Piano and Orchestra No. 2 in B Flat Major, Op. 83," (Album DM-740). Arturo Toscanini and the NBC Symphony Orchestra assist the pianist.

The late Sergei Rachmaninoff himself plays his own "Concerto for Piano and Orchestra No. 2 in C Minor, Op. 18," (Album DM-58) in an interpretation that cannot be improved upon.

Artur Rubinstein plays "The Child's Family," (Album M-970) by Heitor Villa-Lobos, who combined Portuguese and African folk tunes for this composition.

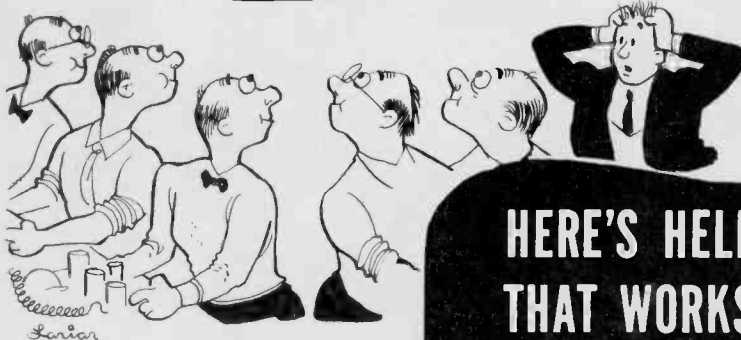
This "set" of albums can be sold one at a time, or in batches. The point is, no great merchandising effort is needed to get classical enthusiasts to "subscribe" to a series like the above, with consequent increase per unit of sale for the dealer.

Sammy Kaye and the Swing and Sway Band, (20-1590) in "If I Knew Then," a ballad from yesterday, also featuring Tommy Ryan as vocalist. "Hawaiian Sunset" is Sammy's own composition, in another current revival. Lyrics are vocalized by Marty McKenna.

Tommy Dorsey, Starmaker (Album P-150), celebrates Tommy's gift for picking star performers, on four discs. "None But The Lonely Heart" features the maestro throughout to start the album off. "Will You Still Be Mine" is a show-piece for Connie Haines, the radio singer. "Everything Happens To Me" is by none other than Frank Sinatra; and "Swing High" is a song written especially for Ziggy Elman, who sings it. "Oh! Look At Me Now"

(Continued on page 32)

"THE HELP SITUATION" by Larlar



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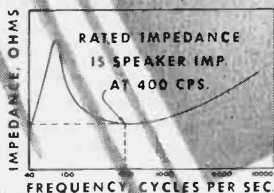
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Records

(from page 30)

offers Sinatra again, with Connie Haines and the Pied Pipers. "Little Man With A Candy Cigar" gives Jo Stafford a chance to sing the tune which helped skyrocket her to fame as a soloist. "Swingin' On Nothin'" is Sy Oliver's composition and he sings it with Jo Stafford. Final side on the fourth disc is "Not So Quiet, Please," which is enriched by the drumming of Buddy Rich. In all—a nice package

of yesteryear's hit records.

Frank Sinatra (20-1589) recaptures the time when he was given star record billing some three years ago with "Night And Day" and "Lamplighter's Serenade," accompanied by Axel Stordahl. Both are satisfying ballads; the first is "sincere and emotional," the flipover goes in for "straight" sentiment. A coupling of good examples of Sinatra-Stordahl interpretations.

Capitol:

Stan Kenton and His Orchestra (159) offer two novelties, both composed by the maestro: "Artistry in Rhythm"

features Stan in a passage of piano that beats a classico-boogie which alternately dominates and accompanies the orchestration. The flip is "Eager Beaver," an orchestra number with a pronounced accent, good for listening and dancing.

Freddie Slack and His Orchestra (160) with vocalist Margaret Whiting are in "Ain't That Just Like a Man," which is a sort of blues advice to the shelvevelorns. The other side is "Swinging on a Star," a novelty given a sweet tooth by the blended voicing of the Brian Sisters.

Bobby Sherwood and His Orchestra (161) perform the ballad "Arkansas" with Bobby vocalizing. And in "Swingin' at the Semloh" Bobby gives out with his guitar, to some virtuoso passages by the orchestra.

Foy Willing and His Riders of the Purple Sage (162) bring "Texas Blues" with vocals by the Riders. Foy and Clark composed this hill-billy item. And the Riders are heard again in "Hang Your Head in Shame." This coupling is sho' 'nuff hill-billy twang.

Classic:

Clyde Lucas and His Orchestra cater to their following with four populars on two discs. 7099. "First Class Private Mary Brown" and "An Hour Never Passes," with vocal refrains. 7100: "It's A Crying Shame" and "A Tree Grows In Brooklyn," both with vocals. All four tunes are in great demand. Lucas keeps 'em going at the Roseland, New York's dancery.

Jack Smith sings four selections on two discs. 7101 offers "Let's Sing A Song About Susie" backed with "Up, Up, Up," a novelty number. 7102 gives "Janie" from the Warner film, and "Sing A Tropical Song." Jack manages to register an infectious grin in his songs, and his spot on the Prudential Insurance hour has made him a favorite with the young girls. The numbers are money getters and go over big with coin operators.

Bob Strong and His Orchestra (7097) give two Sinatra tunes: "And Then You Kissed Me," with "Come Out, Come Out Wherever You Are" on the flipover. The songs are from the Sinatra RKO film, "Step Lively." And Bob's disc 7098 holds "Caprice," and "You Belong To My Heart." The first is by the composer of "Intermezzo;" the coupling, from the new Disney film and is another one of those Spanish numbers with English lyrics that are sure to catch on.

Louis Prima and His Orchestra (7096) in "A Fellow On A Furlough" and "Kentucky," with vocal refrains. "A" side is a coast hit sweeping east; the coupling is a "bounce" tune. "There's A Lot Of Moonlight Being Wasted" and "Louise" (7095) is another Prima. His recording of "I'll Be Seeing You" was chosen by Down Beat as the best record of the year. "Louise" is an even better job; the coupling is a brand new ballad and the first recording on the market.



OUT OF THE BLACK EARTH

NATURE has so planned it that out of black earth come beautiful flowers and the foods essential to our very sustenance. And so it is that from the darkness of the present hour . . . from the suffering and sacrifice of world war . . . will emerge a greater degree of understanding among men . . . more freedom for untold millions . . . and advanced ideas to make man's burdens lighter and life more enjoyable. Astatic, like so many other manufacturing concerns, has been broadened by the experience of war production, has employed its engineering skill and manufacturing facilities to create new products, the principles of which will be reflected in Astatic's commercial and civilian products of a new day.

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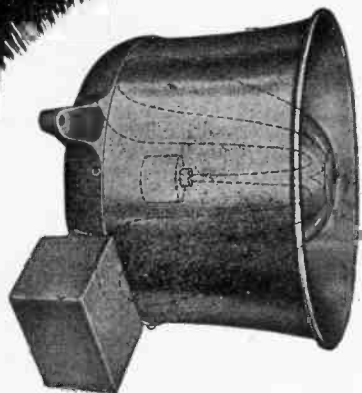
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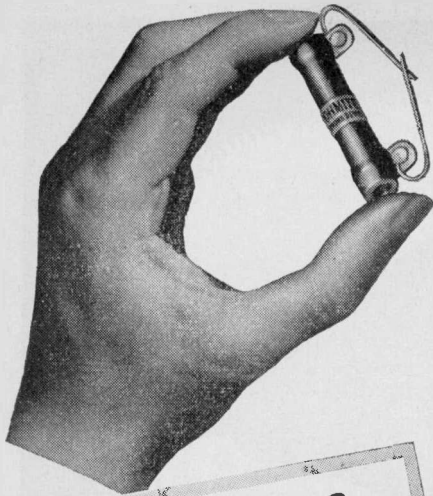
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| 6 | 7 | 8 | 9 | 10 | 11 | 12 |
| 13 | 14 | 15 | 16 | 17 | 18 | 19 |
| 20 | 21 | 22 | 23 | 24 | 25 | 26 |
| 27 | 28 | 29 | | | | |

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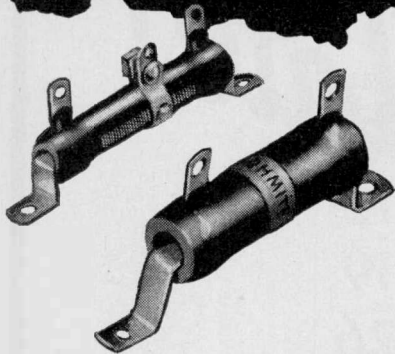
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RHEOSTATS • RESISTORS • TAP SWITCHES

Record Changers

(Continued from page 15)

ARM (10) down slightly or loosen the EJECTOR SCREW (22) slightly.

5. RECORDS DO NOT DROP

Tighten EJECTOR SCREW (22) slightly. Always check on full stack of 10-12" records. Set screw so that bottom record just falls.

6. RECORD DROPS ON TONE ARM

Bend back end of FOLLOWER ARM (10) up slightly. Make sure EJECTOR SCREW (22) is adjusted properly.

7. MECHANISM KEEPS REPEATING ON TOP OF WORM

Bend TRIP LINK (30) back slightly so as to loosen the TRIP SPRING (Diagram No. 1) tension on FOLLOWER (13). It may be necessary to first loosen the set screw on the TRIP. If this does not correct the trouble, check the FOLLOWER ARM (10) to make sure it is straight and bend slightly if necessary.

8. MECHANISM KEEPS REPEATING ON BOTTOM OF WORM

This indicates a bent FOLLOWER ARM (10). Straighten arm.

9. FOLLOWER FLUTTERS WHILE PLAYING

Check to see if FOLLOWER ARM (10) is all the way up to top of WORM (12), if not, bend arm slightly in toward WORM to stop binding.

10. FOLLOWER ARM BINDS

Bend FOLLOWER ARM away from fulcrum at both sides of rivet.

11. FOLLOWER JAMS

Bend FOLLOWER ARM to straighten.

12. TONE ARM DOES NOT LAND AT BEGINNING OF RECORD OR MISSES RECORD ENTIRELY

Check EJECTOR to see if it is set for correct size of record. If EJECTOR is set for correct record size, the SET DOWN POSITION ADJUSTMENT should be loosened and the position of the TONE ARM adjusted as described under "TONE ARM SET-DOWN POSITION ADJUSTMENT."

13. TONE ARM DOES NOT GO INTO CYCLE AT END OF RECORD

Check to see if record has spiral finishing groove. If it has not, reject record by means of REJECT BUTTON. If trouble lies with mechanism, adjust screw "B" as described under "TONE ARM TRIP POSITION ADJUSTMENT."

14. RECORDS WEAR EXCESSIVELY

Check needle to see if worn out

or defective. If needle is not the cause of wear, lift the tone arm and increase the tension of the spring at the base of the tone arm as described under "NEEDLE ADJUSTMENT PRESSURE."

15. TONE ARM SLIPS OUT OF RECORD GROOVES OR SLIDES ACROSS RECORD

This is usually due to insufficient needle pressure. The needle pressure may be increased by loosening the spring tension at the base of the tone-arm as described under "NEEDLE ADJUSTMENT PRESSURE."

16. TONE ARM SLIDES ACROSS TOP RECORD OF STACK

This is due to the tone arm having insufficient height to clear

(Continued on page 36)

FADA'S S.M. 81 SERVICE MANUAL

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Contains all available Service Data on all FADA Receivers \$1.00 Plus Postage

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FOR YOUR
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Official U. S. Coast Guard Photo

FIGHTING MEN

all over the world have been heartened by the spectacular success of the 5th War Loan. They've watched with grim satisfaction as the U.S. Home Front lined up solidly behind the ever-widening, ever-advancing Fighting Fronts.

But what you've done is, after all, exactly what our fighting men expected you would do—what any patriotic American would have done. With our men in the armed forces going through blood and fire from the beaches of France to the wooded strongholds of the Marianas, it's been our job on the home-front to *back 'em up*—to make them the

best trained, best equipped, best cared for fighters in the world.

This we must continue to do—for war is a continuing job. Equipment is needed—endlessly. Money raised in continuing War Bond sales is needed to supply this equipment.

War Bond selling is your job. And, like the fighting men's job, it ends only with Victory. So revitalize your everyday efforts. Set your goal at a new all-time high. Hold to it—consistently.



**Back the Attack!
SELL MORE THAN BEFORE!**

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RADIO SERVICE DEALER

This is an official U. S. Treasury advertisement prepared under the auspices of Treasury Department and War Advertising Council

**Electronic Industry Conference
in October**

H. W. Clough, vice president of the Belden Manufacturing Co., announces the Electronic Parts and Equipment Industry Conference will be held late in October at the Stevens Hotel, Chicago.

Four sponsoring organizations are: Association of Electronic Parts and Equipment Manufacturers, National Electronic Distributors Association, the parts division of the Radio Manufacturers Association and the Sales Managers Club, eastern division.



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Still your best bet for replacements

Centralab
VOLUME CONTROLS



Centralab

Division of GLOBE-UNION INC., Milwaukee

Record Changers

(Continued from page 34)

the top record on the turntable. This can be remedied by raising the tone arm height by means of the "TONE ARM HEIGHT ADJUSTMENT 'D'."

17. WOW IN RECORD REPRODUCTION

This is usually due to worn rubber rim on the idler wheel. If this is the case, replace the idler wheel.

ADDITIONAL SERVICE DATA

(Automatic Record Changer & Home Recorder Unit Used With Chassis 101.605 and 101.606)

All of the recorder mechanism is above the base plate so that in most cases it is not necessary to remove the unit from the cabinet to make any operating adjustments required. However, 101.605 differs from 101.606 in the pickup cartridge used.

Alphabetically arranged index letters are used in the illustrations, Figures 2 and 3. Parts with prefixed letter "E" will be found in the illustration of the top of the unit. Parts with the prefix letter "F" will be found in the illustrations of the bottom of the unit. Adjustments that may be required are described in the following paragraphs.

First remove the turntable and inspect gears and drive discs for imperfect mesh or worn gear teeth. It will be found desirable to use a gauge which just fits the turntable shaft and has a diameter of 1.000 to 0.995. This gauge should be placed in position, or the distance from the center of the shaft to the drive disc, *EE*, should be accurately measured to be .500 to .498.

Once this distance has been correctly determined, a light tap of a hammer on a block of wood placed at the base of the drive disc stud, *EC*, may be sufficient to relocate the stud. All the gear studs, *EC*, *EB*, *EH*, may be relocated this way if great care is observed.

If the distance is greater than a few thousandths of an inch, it may be advisable to loosen the lock nuts which hold the studs. These are below the base plate and may necessitate the removal of the unit from the cabinet.

When it is certain that the drive disc, *EE*, will contact the turntable hub with just enough force to assure positive drive, the gear and collar, *EJ*, should be inverted on its stud, *EH*, so that the contact between the sector, *EI*, and the collar may be observed. The adjustment of the stud, *EH*, is made in the same way as described previously. Again caution is required in striking the blow with a block of wood or similar cushioning

(Continued on page 38)

"173"

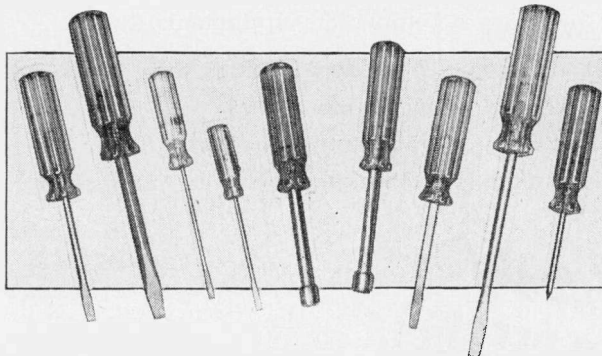
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Photos from U. S. Army Signal Corps

Our Cover

The magnetic wire recorder, a new electronics machine made by General Electric Co. for varied use by the armed forces, found a new application when Lieut. General Jacob Devers, Deputy Supreme Commander Allied Forces and Commander American Forces in the Mediterranean Theater, used it to deliver a special message to the American Newspaper Association convention held recently in New York. The hair-thin wire on which Lieut. General Devers' voice was recorded was then flown from Italy to this country. Lieut. George M. Schimmel is the operator in the cover picture. A smaller type, at left—similar to those which may be available soon for general use.

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Record Changers

(Continued from page 36)

material at the large base of the stud. Never strike the shank of the stud.

When the proper adjustment has been reached, the sector, *EI*, should drive the gear and collar assembly, *EJ*, positively, yet should be readily returned to rest position when the gear, *EJ*, is held solidly.

The intermediate gear assembly, *EF*, is moved in the manner described previously until a complete mesh is obtained with the other gears, without tight spots.

The gears are then reassembled in their original order, the locking pin, *EA*, and washer, *ED*, are replaced and the turntable is lightly set on the shaft. A slight spinning motion imparted to the table will aid in proper seating of the rim and the rim and the hub against the respective drive discs.

After the turntable is firmly seated on the shaft, with the drive pin, *EG*, in the slot of the hub, a few trials should be made to see if there is too much or too little traction against the sector, *EI*.

When lubricating the studs and gear hubs, use only fine light grease, using great care that *none* touches any of the rubber driving surfaces.

The arm, post and sector assembly may be removed by removing the fillister head lock screw in the post just below the arm. Be sure to rotate the assembly to clear the turntable or remove the table before lifting this assembly. Disconnect the cutter leads, *FC*, before removing this assembly. Use only fine light grease for post and bushing lubricant.

The lock, *FH*, which prevents the automatic operation of the changer should be adjusted so that the foot of the lock rod, *FI*, clears the follower when the cutter arm is in the rest position and just moves so as to be beneath the follower when the arm is removed from the rest.

Adjustment of the cutter arm, *FB*, is accomplished by turning the screw, *FG*, which is exposed when the arm is raised, until the head of the arm is just $\frac{1}{4}$ " above the surface of a record to be cut. Tighten the lock nut after adjusting.

Cutting stylus pressure is adjusted by means of the knurled, round nut, *FF*, in the body of the arm.

The cutting pressure should be $1\frac{1}{2}$ ounces or the width of the groove should be just as wide as the uncut surface, depending upon the method of observation.

If it is found necessary to replace the cutting head, *FD*, the stylus set screw, *FA*, is removed, then by applying a slight force with the thumb to the suspension spring, *FE*, the head may be easily grasped and dislodged from its seat. Unhook from the suspension spring and replace.

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MEN IN THE NEWS



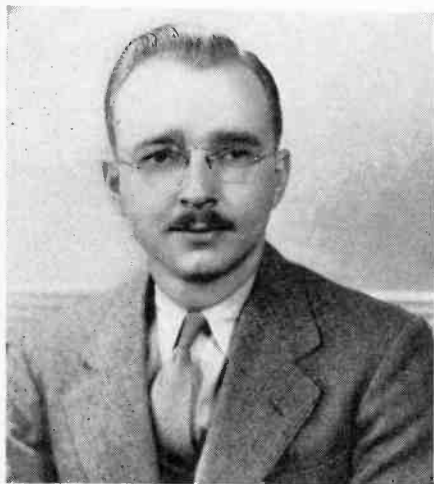
John Meck
President

Meck Expands

John Meck, president of John Meck Industries, Plymouth, Ind., appoints Harry T. Byrne as advertising and sales promotion manager. Mr. Byrne is a veteran in radio and for the past eight years has handled various executive positions in sales, merchandising, sales promotion and advertising for the Majestic Radio and Television Corporation.

Several months ago the company acquired RCA and Hazeltine licenses and manufacture of home radios and phono-combinations will start as soon as permission is received from WPB to convert to civilian production. In addition to radios, Meck will resume making commercial sound equipment, amplifiers and phonographs.

Accordingly, Mr. Meck names Charles R. Wexler chief engineer and Homer R. Denius plant manager of the Electronics Division. Mr. Wexler, with 20 years experience in radio and who pioneered the design of midget radio receivers, comes from Emerson Radio, where he was assistant chief engineer. Mr. Denius was with the radio division of the Crosley Corporation for ten years, most recently as chief production engineer.



Harry T. Byrne
Advertising & Sales Promotion Mgr.

August, 1944

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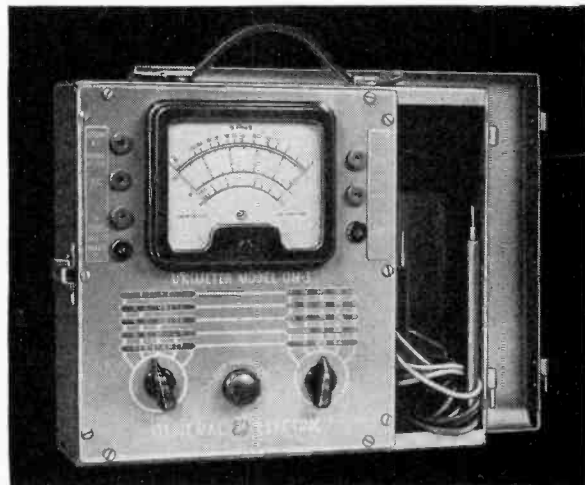
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GENERAL ELECTRIC
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MEN IN THE NEWS



William ("Bill") H. Kelley

"Bill" Kelley to Motorola Radio

Paul Galvin, president of Galvin Mfg. Corp., appoints William H. Kelley General Sales Manager. Mr. Kelley comes from 20 years with RCA, recently their San Francisco regional manager. During his 22 years in radio, two of which were spent with Garod, Mr. Kelley has contacted distributors and dealers across the entire country and comes to Motorola equipped with intensive knowledge and practical sales experience of nationwide scope.

Robinson to Sell Latin America for Sylvania

Walter A. Coogan, director of the International Division which Sylvania Electric Products, Inc., formed some months ago, announces the promotion of Frederick J. Robinson to the position of sales manager for Latin America. He held a similar post with the Gillette Safety Razor Co., until 1942, when he joined Sylvania.

The company expects Latin America to become a large market for its lines of radio tubes, incandescent and fluorescent lamps and other electronic products.



Frederick J. Robinson

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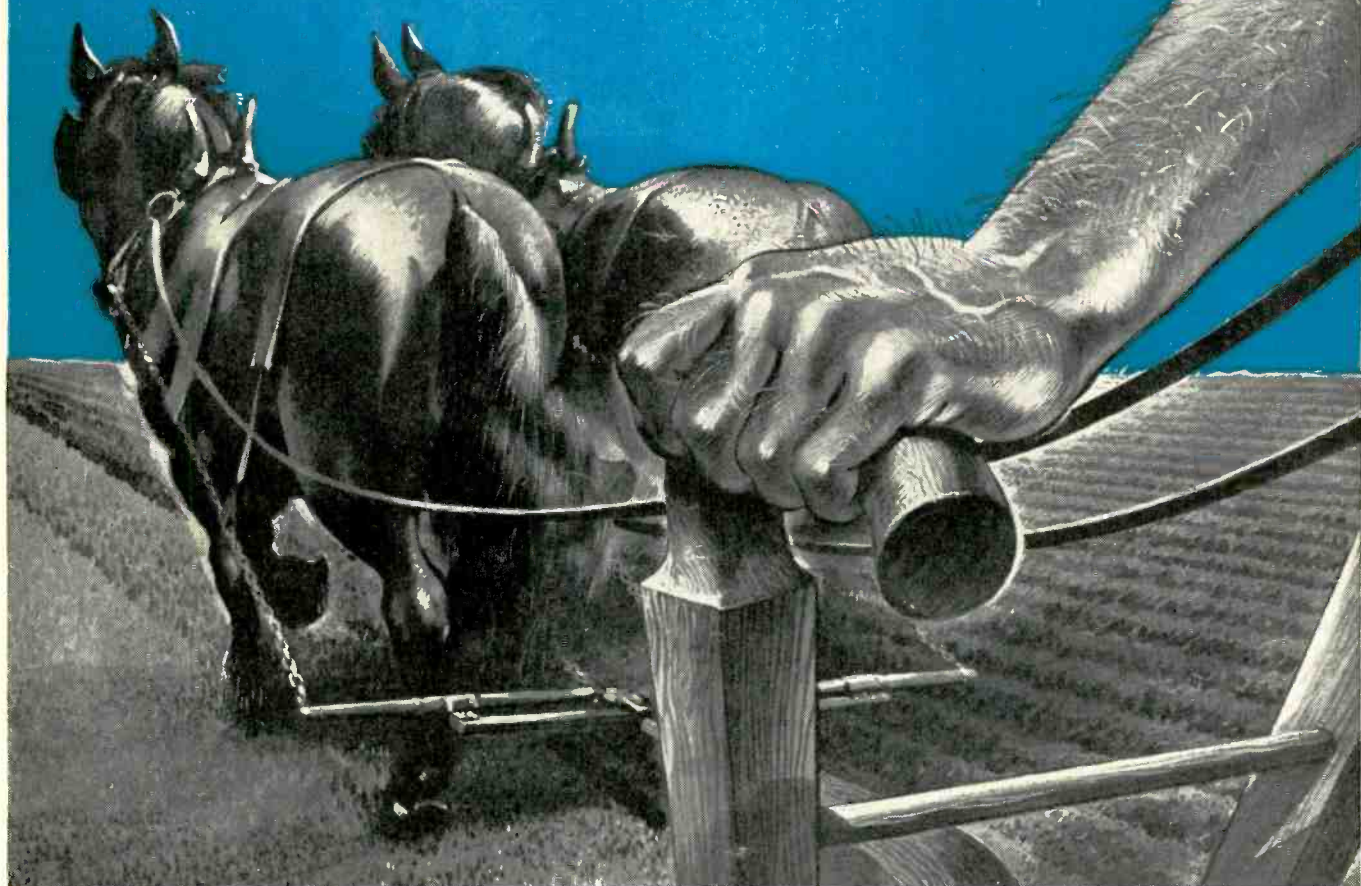
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