

THE

IRC

REC. U.S. PAT. OFF.

VOL. 1

The International Resistance Company's Monthly Bulletin Published in Furtherance of its Program of Helping Radio Service Men Do Better Work—and Make More Money Doing it

SERVICER

APRIL-MAY, 1934

NO. IX

It pays to stick to your knitting.
... Old Adage



"Sure," says Service Sam, "but only after you've made sure you aren't missing any stitches."

THIS PLAN BROUGHT RESULTS

A Chicago Serviceman Describes a Simple but Effective System of Advertising That Keeps Jobs Flowing in—at an Average Profit of \$2.50 a Call

AFTER experimenting with a variety of advertising mediums including newspapers, direct mail, phone book space and even personal solicitation via telephone, Gilbert Wm. Cramer of Chicago has hit upon a satisfactory solution to the problem of advertising his radio service—a plan which, considering its lost cost has brought "really remarkable returns."

The idea is merely to distribute cards similar to the one illustrated here.

"They are printed on inexpensive light cardboard similar to that used for the regulation government post cards," explains Mr. Cramer in describing his plan for benefit of IRC Servicer readers. The cards are distributed from door-to-door in the residential districts by boys to whom I pay \$1 per 1,000. Within the first two weeks after distribution in a territory service calls come in at an average rate of 15 per thousand cards. These jobs range from \$1 up but average about \$2.50 profit per call."

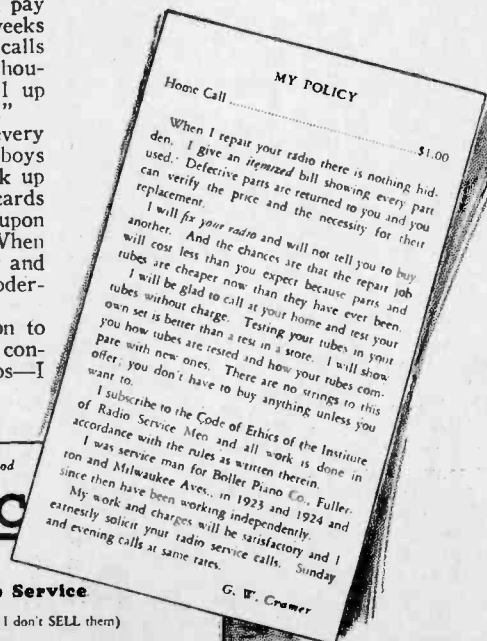
"I usually make a distribution every week, having the work done by school boys who are glad of the opportunity to pick up a little change. From 500 to 1,000 cards are used for a distribution, depending upon how fast the calls are coming in. When calls are slow, I distribute cards faster and vice versa. Thus I am able to keep moderately busy all of the time."

Mr. Cramer calls particular attention to the line featured on the cards: "Not connected with any store—I FIX radios—I don't SELL them."

"That line," he says, "is the best single business-getting feature of the plan. Apparently, people are fed up on calls by salesmen where the obvious purpose is not to repair the old set but to sell a new one."

"I have distributed about 40,000 of these cards during the past three years and have built up a steady and faithful clientele as a result."

Mr. Cramer closes with the suggestion: "I'm glad to see that the IRC Servicer is devoting space to the subject of service advertising. To my way of thinking, business-getting plans are all-important—just as important in fact as knowing how to do the work well."



SERVICE DOPE

Mention here of trouble on any particular make of equipment should not be construed as a reflection on the quality of those products. The best of radios will require attention from time to time. Thus, makes are mentioned only as a means of expediting prompt, efficient service on the wide variety of jobs confronting the average radio man. Readers are cordially invited to contribute their own service kinks to this department.

Another Defective Light Bulb

Speaking of outside interference, Archie Emch of Perrysburg, Ohio, recounts an experience wherein two sets on his service bench emitted the same buzzing noise. Removing the ground and antenna leads reduced the hum so it was quickly taken for granted that the trouble was outside the sets.

A call on a next door neighbor showed that he had the same trouble. About that time, Archie noticed that the 100 watt lamp used to light his shop was producing only about two thirds its usual intensity. When he tapped this lamp the filament went completely open and the buzzing disappeared from the radios. Further tapping caused the filament to join sufficiently to burn, and the interference immediately returned.

Evidently, says Archie, the filament was open just enough to permit arcing and this, of course, was as good as a small arc transmitter.

Majestic Model 363

When this set starts to operate intermittently after a period of good operation, Marion T. Paskell of Moorefield, W. Va., suggests looking to the socket of the '80 tube. He writes that he has found this trouble to be caused by a current dissipated across the connections of the tube. The remedy, he adds, is to replace the socket.

Brunswick S-14

Serviceman William Husarik of Chicago Heights, Ill., sends in this note: "When a Brunswick S-14 sounds as though it had a shorted bias resistor or condenser, the trouble may be due to a defective 224 detector tube. Unbalanced or gassy power tubes may cause a hum or perhaps a high-pitched whistle, either while the set is warming up or continuously."

Announcing a neighborhood

RADIO DOCTOR

offering a

Personal, Honest Radio Service

(Not connected with any store—I FIX radios, I don't SELL them)

G. W. CRAMER

Member Institute of Radio Service Men

2611 N. Albany Ave.

Phone Belmont 3187

Keep my telephone number handy—Put this card in your radio so you will have it when you need it.

Here is the little card that has proved a consistent business-builder for "Radio Doctor" G. W. Cramer

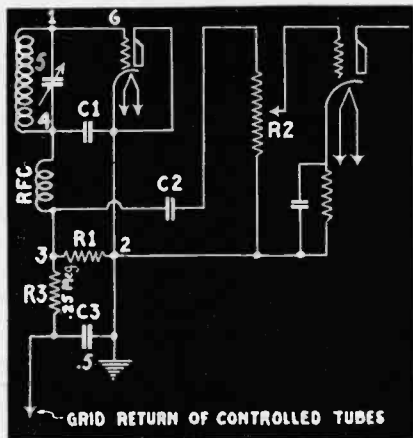


FIGURE 1

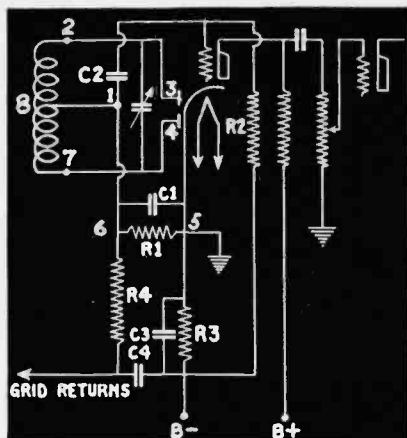


FIGURE 2

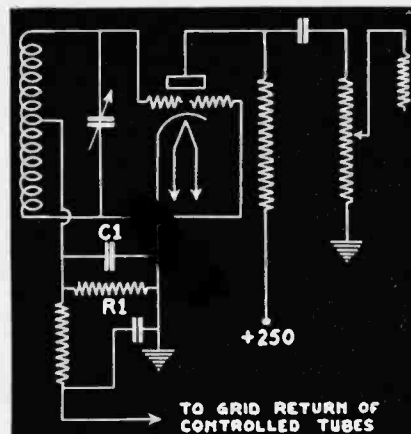


FIGURE 3

AUTOMATIC VOLUME CONTROL

The Second of a Series of Articles Designed to Help Servicemen Handle This Important Feature of Modern Radio Receivers

Written Especially for the IRC Servicer

By F. L. SPRAYBERRY

A. V. C. WITH DIODE DETECTORS

NOW that sensitive and highly selective R. F. systems are available, radio set designers are beginning to incorporate diode detectors in commercial broadcast receivers. A diode (two element) vacuum tube will function as a linear detector if the load resistance is made high in relation to the internal resistance of the diode. Then, in addition to the desired A. F. and R. F. components, the load will have a strong D. C. component which will increase with signal strength applied to the diode detector. Consequently the tube may also be used to supply the desired A. V. C. potential.

As a diode, it is customary to use a triode (27 or 56) with the plate connected to the grid or the cathode. The cathode connection is most frequently used.

A conventional diode detector A. V. C. system is shown in Fig. 1. The modulated R. F. voltage is applied across terminals 1 and 4 of the coil in the grid circuit. During the positive cycle when point 1 is positive, current will flow over the path G, 2, 3, 4, 5 to 1. During the negative cycle, no current flows through resistor R1. We assume that current flows from the positive to the negative terminals of a resistor. Therefore, point 3 will be negative with respect to point 2.

The pulsating voltage across R1 will contain an R. F. and A. F. and a D. C. component, assuming that C1 and R. F. C. (radio frequency choke) do not exist. By inserting C1 (about .0001 Mfd.) the R. F. current is by-passed and prevented from passing through R1 by the R. F. choke.

This leaves only the audio and D. C. components across R1.

The audio signal is applied through the coupling capacitor C2 to the potentiometer R2 which feeds the first audio tube, and serves as the manual volume control. If it were not for the blocking capacitor C2 (.1 Mfd.) the D. C. component would also flow through R2.

The D. C. voltage across R1 is used to control the amplification of the R. F. and I. F. amplifier tubes (A. V. C. action). Point 3 is more negative than point 2, and point 3 connects to the grid returns of the controlled tubes through the resistive filter R3-C3. It is this negative voltage which causes the A. V. C. action.

The cathodes of the controlled tubes through their normal bias resistors connect to point 2 or ground. Therefore, you can see that the A. V. C. voltage exists between the control grids and the cathodes. R3-C3 acts as a time delay circuit and as a filter to remove the A. F. component. Each controlled tube will also have its own isolating resistive filter.

A diode detector is merely a rectifier and unlike the grid leak condenser or C bias triode detector does not contribute amplification. If insufficient R. F. amplification precedes the diode, it should be followed by an additional A. F. stage. This is also indicated in Fig. 1. The duo-diode makes this combination of detection and amplification possible within one tube envelope. The 55 and 85 are good examples of one tube which can perform the functions of 2nd detector, A. V. C. and 1st A. F. tube.

Consider the modulated R. F. voltage applied across points 2 and 7 of Fig. 2. We

may consider point 1 at ground. R. F. potential as condenser C1 is an R. F. by-pass condenser. At any instant of time, the voltage across 2 and 7 will be equally divided between 1 to 2 and 1 to 7. When 2 is positive with respect to 1, then 7 will be negative with respect to 1.

Note that point 2 connects to the diode (3) while 7 connects to the diode (4). Point 1 connects through the load resistor R1 to the cathode (ground) point 5. When point 2 is positive with respect to 1 (the same as point 5 from an R. F. point of view) current will flow over the path 2, 3, 5, 6, 1, 8, back to 2. Point 6 will be more negative than point 5. No current will flow over the 7 to 4, 5, 6, etc., path. Consider this the positive cycle of the modulated voltage across 2 to 1.

When point 7 is positive (that is, when it is on the negative cycle of the input R. F. voltage) current can only flow over the 7, 4, 5, 6, 1, 8 route, back to 7 path. Similarly under this condition, point 6 is more negative than point 5. The current through R1 is a full wave rectified current and, therefore, the R. F. by-pass condenser C1 may be small. This is an advantage, for the larger C1 is, the more likely it is to by-pass the higher frequencies of the A. F. signal in R1. This means better tonal quality.

The R. F. component having been bypassed by C, the A. F. voltage across R1 may be impressed across the triode section of the duo-diode triode tube. Note that point 6 connects to the triode grid through the blocking condenser C2. By inserting a fixed bias R3-C3, connected to a negative point of the power unit and connecting to the grid through grid leak R2, the triode is fed with a negative bias. The plate of the triode may be fed into any of the usual A. F. coupling means, as for instance, a resistance as shown in Fig. 2.

The D. C. potential across R1 also acts as the A. V. C. potential, while the time delay and A. F. filter functions are performed by the resistive filter R4-C4. Although the circuit shown is only about half as sensitive as a half wave rectifier, it will deliver a higher quality A. F. output.

The Wunderlich tube (a trade name) is used in a number of receivers. This is much like the 56 tube except that it has two identical grids, both around the cathode and almost coincident. The usual detector—A. V. C. circuit connections—are shown (Concluded on Page Four)

MORE AUTO RADIO DOPE

Helpful Service Kinks Submitted by Readers

FROM Serviceman Milton W. Crawford (*) of the Western Radio Service, Delta, Colorado, come the following three items:

A Chevrolet Installation

This set cut off and on whether or not the car was in motion. When removed to the bench, it became distorted and continued with its intermittent reception. A check of the condensers revealed nothing. Voltages seemed normal even when the set was off.

The trouble, states Mr. Crawford, was finally found in the voltage divider which is fastened to one side of the chassis. The resistor on the last section of the divider was defective, alternately opening and closing.

This was replaced by an IRC 1-watt, 400 ohm unit and the set was OKay.

Condenser Trouble

In an auto radio made for Ford by the Grigsby-Grunow Company, the complaint was that the motor generator could be heard in the loud speaker. A careful check of the filter system disclosed a dry electrolytic condenser, supposedly of 8 mfd. capacity that was really only about 1 mfd. and which would open when jarred. A replacement was necessary.

Zenith Auto Radio

"In this instance," writes Mr. Crawford, "the set was dead as far as any signal was concerned although it did pick up some interference. An oscillator signal fed into the first I.F. showed everything from there on out to be in good condition. Inspection showed that the small winding placed inside the oscillator coil and held there by wax had worked loose and fallen down. Thus there was very little inductive coupling and the oscillator was not feeding the right frequency into the first detector. It was only necessary to put the coil back into place and fasten it there."

Worn Distributor Rotor Shaft

Lester C. Lerch (*) of Nazareth, Pa., vouches for the fact that this one was a real headache. It has to do with an auto radio installation in a Nash 26 Special Six Coach:

After being installed, a high tension spark interference was noticeable, evidently coming from the distributor points. A new distributor cap and rotor were installed. Everything worked fine until a couple of weeks later after the owner had taken the car to the garage for a tune-up which included cleaning and resetting the points. And then the noise came back worse than ever.

Mr. Lerch worked on the job at various times over a period of two weeks. At last he donned his overalls "got out and got under" and gave the entire installation a complete overhauling. Then when the noise still persisted, he came to the conclusion

that there was sufficient wear in the distributor rotor shaft to allow a variation in the spark gap setting, this changing according to the position of the shaft. Sure enough, a checkup at the garage proved this to be the case. A new distributor case and shaft cleared up the interference "as fine as silk."

In another instance, after spending an hour checking tubes and connections on a Philco Transitone which emitted continual cracking and frying noises, Mr. Lerch happened to pull the dial light off the set. At once the noise disappeared. A new dial light was the answer.

"All of which," he sagely comments, "proves that trouble which might casually seem to require a major operation very often turns out to be something so simple that it is not even looked for save as a last resort."

In closing, Mr. Lerch adds: "IRC Resistors certainly have IT. The same with the IRC Servicer. It's a mighty fine little paper. Keep it up and increase the size of it!"

Noise Elimination Hint

Everett Curtis of Higgins, Texas, sends the following hint as applying to all model Motorolas and especially when installed in the Ford V-8:

"I was finally successful in eliminating a persistent motor noise by placing a piece of shielding over the battery lead from the ammeter. I ran the contact screw through the shielding, thus making ground-ing unnecessary."

More Trouble with Brakes

Frictional static from brakes seems to be rather a frequent offender—and one not infrequently mistaken for something else.

On an Oakland in which Serviceman Horatio J. Nelson (*) of East Boston,

Mass. had installed a Motorola, serious interference would develop as soon as the car was run faster than 25 miles an hour.

Set, speaker, suppressors, condensers—even the aerial—were changed, but no results. At length, in testing the car, Mr. Nelson happened to drive it through a puddle of water and the noise stopped only to return about half a mile farther on. This gave him the clue that the brakes were causing static. A cure was obtained by putting a flexible bond on the brake rods and as close to the wheels as possible.

"However," says Mr. Nelson in adding a word of warning, "this is not a positive cure on all cars. Relining of the brakes is sometimes necessary. But it will cure most of 'em as well as prove helpful on all cars that give this trouble."

A somewhat similar hint is given by Norman E. Nelson of Clifford, N. D., who writes.

"Quite frequently on cars that are two or three years old, I have found radio installations which develop an annoying noise when the cars are in operation. This is due to worn brake rods which rattle and cause an electrical disturbance."

Mr. Nelson suggests that a quick way to fix them is to install anti-rattle springs on all brake rod clevises. He adds, however, that a better job can be done by using a small, flexible bond between clevis and brake rod lever or arm.

Motorola Model 44

"Even if I wanted to use an 'off' brand of resistors, I couldn't," comments Wm. A. Pewitt, Jr. of Kansas City, "My jobber handles only IRC's!"

And from the way he says it, we know Mr. Pewitt is heartily in favor of this sort of specialization on quality parts.

Now for some notes on Motorola 44 which he submits:

(Concluded on Page Five)



Serviceman: "You lucky man! It's the last day of our special rate for auto radio overhaul jobs—and you're just in time to take advantage of it!"



SUPPRESSORS



MOTOR RADIO CONDENSER

In IRC Metallized Suppressors you have highly efficient, durable radio noise suppression equipment—backed with a trademark that has represented the quality standard for resistance units since the beginning of radio.

Scientifically designed to eliminate noise without affecting motor power and economy, these units are sturdily constructed without springs, rivets or other intermediate parts to loosen or corrode.

Note their design—their simplified construction. The choice of leading car and radio manufacturers, you'll find that they are fit companions to the well known line of IRC Resistors.

NOTE THE POPULAR MCA

This popular unit is especially adapted for Fords and practically all cars where a small, light weight suppressor designed for quick and convenient cable type installation is desired. One end fits on spark plug. Cable is fastened to recessed screw in other end.

24c

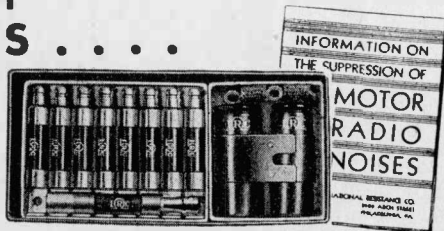
each
Not to service-
men
(List 40c)

BUILT FOR
LASTING SERVICE
ON THE TOUGHEST
NOISE SUPPRESSION
JOB

BUY 'EM IN THE HANDY CERTIFIED KITS

Made in the five designs illustrated, there is an IRC Metallized Suppressor for every type of motor radio installation. Although they are sold singly, the handiest way to buy them is in the Handy Certified (factory sealed) Kits containing both condensers and suppressors for 4-, 6- and 8-cylinder cars—also the IRC free booklet "Suppression of Motor Radio Noises."

Prepare for a busy Summer. Stock up on Kits today!



INTERNATIONAL RESISTANCE CO.

2100 Arch St., Philadelphia, Pa.

(Continued from Page Two)

in Fig. 3. Current is made to flow in the grid circuit, and the two grids, with respect to the single cathode, may be considered as a double diode. A full wave rectified current passes through the load resistor R1. The R. F. component is filtered by C1 and the A. F. component is applied to the grid circuit. The grids now act in parallel and serve as the control grid for the triode amplifier. The D. C. potential across R1 is the A. V. C. potential for the controlled tubes.

In this article and the one which preceded it, we have considered the important A. V. C. systems most commonly found in modern radio receivers. There are others, different in detail, but essentially similar to the ones described. Once you have spotted the A. V. C. tube, you should not have any difficulty in studying the circuit.

To determine whether or not a receiver has A. V. C., study its circuit diagram. First, identify the possible controlled stages. Then see if the grounded end of the grid coil is isolated from the cathode of the tube by a condenser. Next trace this coil end through the isolating resistor to the A. V. C. control tube.

RESONANCE INDICATORS

Most receivers with A. V. C. have a tuning indicator. If there is none, such an addition should be welcomed by the set owner as a convenience in correct tuning and by the serviceman as a potential source of income. Four types of indicators are commonly used—the meter, "shadowgraph," neon lamp and reactance indicator. They will be considered in this order.

METER INDICATOR

In the ordinary receiver employing a biased detector a D. C. milliammeter, placed in the detector plate, would show a higher reading as the R. F. signal input to the detector is increased. In fact, the serviceman may easily install such a device in the ordinary receiver. A milliammeter which will read about 3 ma. would be satisfactory for a biased detector. Of course, in an A. V. C. receiver, the detector plate current will be substantially constant. Thus, this connection is out of the question.

As the signal to receivers with A. V. C. increases in strength, the negative bias applied to the controlled tubes increases. Thus the plate current of the controlled tubes decreases. If the plates of all the controlled tubes trace to a common supply point, then a milliammeter may be placed in series with this common supply lead.

Of course, a milliammeter may be inserted in any single plate supply lead, but a more sensitive meter will be required. The meter used should have a maximum reading equal to the sum of the normal plate currents of the respective controlled tubes. The customary tuning procedure is to tune the selector dial until the meter reaches a minimum value. For the convenience of the layman, the meter is mounted with the needle pointing downward and the set is tuned until the needle swings to a maximum position toward the right.

* * *

(Editors Note: This is the second of a series of three articles on A. V. C. written by Mr. Sprayberry for the IRC SERVICER. The first appeared in March and the concluding article will be printed in a forthcoming issue.)

AUTO RADIO DOPE

(Continued from Page Three)

"If this set goes dead when mounted on the side, try it in a vertical position. If it starts operating then, check the load delay relay.

"If a repeated clicking comes from the set (caused by the load delay relay) it is a sure indication that the battery voltage is too low.

"If 'B' voltage from the eliminator is practically zero even though the vibrator sounds OKay, check the small condenser located in the same case as the RF choke near the B plus outlet."

Transitone Model 7

If this receiver becomes noisy with a continual sound like "water boiling" and with low volume on all stations, Richard Grepke of Fort Wayne suggests replacing the .001 M.F. plate by-pass condenser.

"In one troublesome case, this condenser tested good," he explains. "However, when replaced with a new one (I used a .002 M.F.) the noise cleared up."

Mr. Grepke closes his letter with: "Since becoming acquainted with IRC Resistors, I have never used any other make. What's more, I never have had occasion to replace any IRC's that I have put in as replacements for originals."

Thank you, Mr. Grepke! While such performance is the rule with IRC's and not the exception, we appreciate the bouquet none the less.

Increasing Auto Radio Volume

E. H. Crawford of Hibbing, Minnesota cites a case where an auto radio belonging to the police chief was brought in because of lack of volume and oscillation. He reports:

"We knew the trouble lay in the fact that there was not sufficient aerial as this was not a high gain set. Consequently, we tacked a piece of screen directly under the original aerial in the roof, taking care not to have any contact between the two. Then, connecting a small tuning condenser between them, we mounted it on the steering column.

"We have found this method valuable in this vicinity as we are quite a distance from broadcasting stations and need all the volume we can possibly get. The owner can tune his antenna to any setting of the dial by using the condenser."

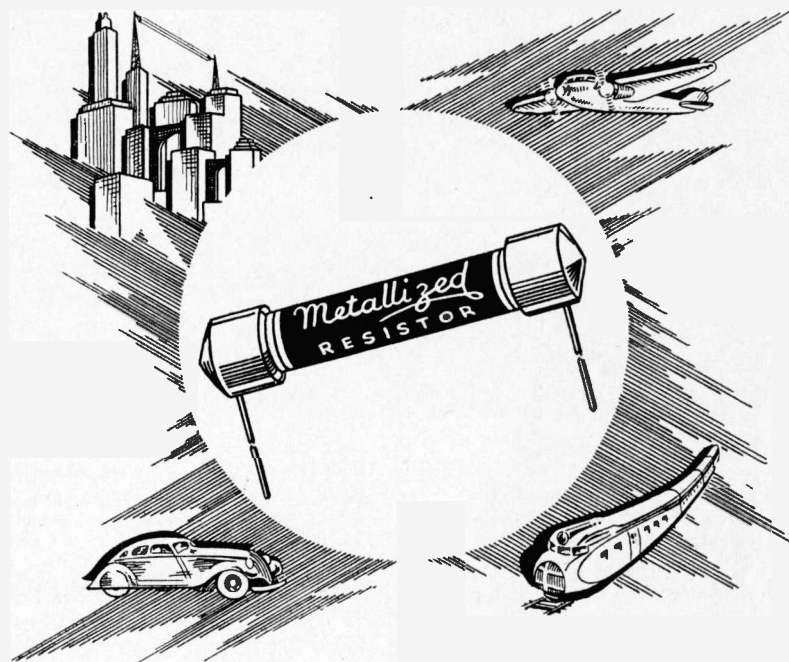
Unique Dial Cables

J. Percy Lee of Quincy, Mass. states that he sometimes uses a good grade of fish line for dial cable replacements. Some of these jobs have been in use for as much as three years.

(* Contributors whose names carry this mark receive free kits of IRC Resistors. These are given regularly, the awards going to those whose experiences are judged most helpful and interesting.

Send your own Service Dope items along! Whether they win a kit or not you'll have the satisfaction of knowing that you've helped other servicemen who may be faced with the problem that you've solved.

STAKE YOUR REPUTATION



. ON **IRC**

Since the early days of radio, leading set manufacturers have depended upon IRC to provide them with the better and still better resistors called for by new circuits and more exacting resistance requirements.

Fully abreast of changing times, IRC Resistors are designed and tested Today for the radio improvements of Tomorrow. Their dependability is unquestioned—their design constantly up-to-the-minute—their price as low as is consistent with the highest quality.

Insist on having *modern* resistors for *modern* service requirements. Always specify IRC.

IRC Metallized
RESISTORS

THE INDUSTRY'S STANDARD SINCE THE BEGINNING OF RADIO

INTERNATIONAL RESISTANCE CO.

2100 Arch St., Philadelphia, Penna.

(In Canada, 74 Wellington St. N. W., Toronto, Ont.)

A POPULAR BOOTH AT THE I. R. S. M. SHOW



In addition to an extremely gratifying attendance at the I. R. S. M. Show held recently in Chicago, an interesting trend toward better parts and equipment was noted by many of the exhibitors including Allied Radio Corporation, well-known Chicago distributors whose attractive display is shown here.

"We received many comments on the lines of nationally advertised merchandise that we carry," states Robert Fogelson of Allied. "It is clear that the radio public as well as servicemen are demanding quality replacement parts and equipment. Thus, in offering the IRC line of resistors and service instruments we feel we are supplying products that are as good as can be made for the purpose intended. This is plainly evidenced by our continually increasing sales of IRC products."

Will Broadcast Audiences Be Counted Electrically?

FOR a long time, radio stations as well as advertisers who pay broadcasting bills have sought ways of determining, even with only a fair degree of accuracy, how many people were listening to a given program at a given time. Naturally enough, any figures used in this connection in the past have been little more than intelligent guess work.

Now, however, interest has been evidenced in a plan which proposes to count the listeners electrically. This would be done by means of a push button attachment for home radio receivers. At an opportune point in the program, the announcer would request listeners-in to press the button. A fair idea of the size of the unseen audience might then be obtained at central stations by a device which would check the increase in power load resulting from hundreds of buttons being pressed.

Although full details of this plan still seem to be lacking, someone has suggested that, instead of pressing the button, a listener with an inclination toward practical jokes, might turn on the electric iron instead. In this way, he would register a load increase which might mistakenly be regarded as an indication of several thousand additional listeners.

Regardless of the practical difficulties of such a plan, the fact remains that any reasonably accurate development of this sort should prove beneficial to radio in general. For one thing, it would tend to improve broadcasts by enabling sponsors to determine just which programs were

most appreciated. Also, to a large measure, it would supply the immediate "applause," lack of which has proved a definite handicap to many performers.

It has been suggested that, rather than a single push button, it would be better to equip each set with two or even three. One could be used to indicate whether listeners were tuned on a program, another to show that they liked it and a third to supply a means of turning thumbs down on a broadcast effort—something, as one wag suggests, which might be the electrical approximation of a Bronx cheer.

* * *

CAN YOU USE A GOOD MICROSCOPE?

IN settling the affairs of an importing company in which one of our members was interested, International Resistance Company has come into possession of a limited number of fine microscopes. Scientific instruments of this sort being rather out of our line, we are now offering them to readers of the IRC Servicer at the close-out price with no profit added.

Quality instruments throughout, they afford a world of opportunity for fun and profitable research. Certainly they cannot be duplicated at these prices. Terms cash with order—no discounts.

We guarantee them fully. They may be returned for full credit (less only the carrying charges) if, within 5 days of receipt, you are not more than pleased. They are also guaranteed against defects

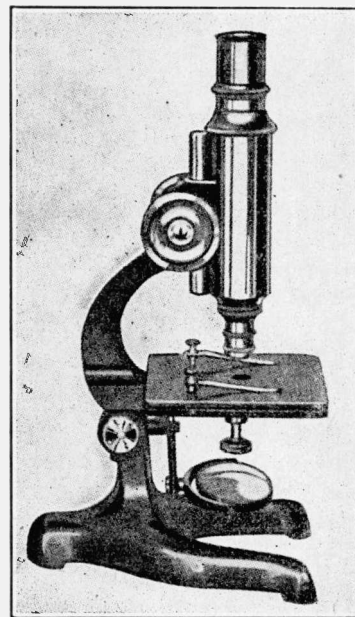
in material and workmanship and to be exactly as described.

If you can use one, we'd suggest sending your order in at once as the supply is small. If not—well, perhaps you can call this item to the attention of a friend who may be interested. We'd appreciate it—and so would he.

TYPE E COMPOUND MICROSCOPE (as illustrated)

The most complete instrument and by far the best value. Previously sold for several times the price now asked. Useful in radio work. Ideal for students, experimenters, amateurs or for general biological or technological work.

Magnifies 20 to 220 diameters. Draw tube permits use of additional low and high power objectives corrected for different tube lengths. Tube is of standard size permitting use of more powerful oculars and objectives. 4"x4" stage may be raised or lowered by means of coarse adjustment first, then a very fine adjustment. Instrument is in-



The Type E Microscope

clinable. Has plane and concave mirrors, two oculars and a triple-divisible objective. May be equipped with multiple nose piece or vertical illuminator. Iris diaphragm underneath stage permits adjustment of light reflected by mirror.

Complete in polished wood cabinet.....\$14.50

TYPE F MICROSCOPE

A fine 250 power instrument at an exceptionally low price. Standard focusing arrangement. Stand is of regular laboratory type; special arrangement prevents breaking of slides and eliminates objectionable features of the older focusing devices.

Extra large stage with holding clips. Adjustable iris diaphragm permits adjustment of light from mirror by touch of finger. A well-made, quality microscope for all practical uses including microscopic photography.

Complete in special wood case.....\$9.00

TYPE S, 100 POWER MICROSCOPE (with triple objective)

Magnifies 100 diameters. Has double lens ocular at top giving exceptionally large and uniform field; three objectives at bottom of tube making possible magnifications of 32, 65 and 100 diameters. Standard slides may be used. Has adjustable plane mirror for illuminating objects on the stage. Metal parts are of finished brass.

Complete in attractive wood case.....\$2.75

The above microscopes are obtainable as long as they last only through International Resistance Company, 2100 Arch St., Philadelphia, Penna.

THE **IRC** SERVICER

Published by
INTERNATIONAL RESISTANCE CO.
2100 Arch Street, Philadelphia, Pa.,
Toronto, Ont., Canada

Ernest Searing, *President* Dan Fairbanks, *Sales Manager*
R. N. Shires, *Secretary* Harry A. Ehle, *Asst. to Sales Manager*
Harry Bridge, Jr., *Editor*—F. L. Sprayberry, *Contributing Editor*

Copyright, 1934

No. IX

APRIL-MAY, 1934

Vol. 1

Should Radio Broadcast Advertising Be Eliminated?

THERE has been a lot printed lately about various attempts to perfect a radio set attachment that will automatically eliminate advertising announcements from broadcast programs. Naturally this is more or less sensational news—at least from the standpoint of some publications which regard radio advertising as serious competition to their own advertising pages. Consequently, they seldom lose an opportunity to play it up.

Regardless of the mechanical perfection which may be obtained in such a device, all we can say is that the dealer who would ever sell a set equipped with a gadget of this sort or the serviceman who would consider installing one for a customer is taking the surest possible means of kissing his business good-bye.

Whether we realize it or not, money spent for radio broadcast advertising is the backbone of the radio industry. Lacking the fine programs afforded by radio advertisers there would be no radio broadcasts. Or, at best, we would have government controlled broadcasting for which a tax would necessarily be levied on set owners.

Without delving into details of government-controlled broadcasting, it is a matter of record that, here in the United States where advertisers are footing the bill, broadcasting has reached proportions and has attained quality and variety far beyond that of any nation where the other system prevails.

Thus to eliminate advertising from radio reception would be to cut off the life blood of our industry. Certainly no advertiser would spend the thousands of dollars necessary for a program knowing that he didn't have the proverbial chance of a snowball in the hot places to get any return on his investment—that every time the announcer mentioned his product, no matter how inoffensively, the receiving sets of the listeners would automatically eliminate it.

Shades of hari kari!

As we pointed out last month, the serviceman owes a definite debt to his industry to emphasize to set owners whenever possible the outstanding quality of American radio programs. While it is no doubt true that there are countless poor or mediocre programs it is also true that no one has to listen to them at all unless he prefers. Plenty of the finest entertainment in the world is available and can be turned to at almost any time. The published programs for any day in the week give ample evidence of this. Moreover, it certainly cannot be said that the advertising on the average quality radio program is any more offensive or out of place than that appearing in print in magazines and newspapers.

Radio advertisers themselves are rapidly learning that the advertising messages used in their programs must be subtle and pleasing to be effective. And that is enough.

Developments of the past few years are sufficient to show that, with characteristic American ingenuity, the problem of radio advertising will be worked out to the satisfaction of all concerned. But to attempt to work it out by the elimination of advertising announcements at the receiving end sounds surprisingly like suicide to us.

Service Sam's Buddy Says:



Dealer: "See here, young man. How is it you're always the last one to get here in the morning and the first to leave at night?"

Serviceman: "Gosh, you wouldn't want me to be late twice in the same day, would you?"

* * *

Sam says a marriage license only costs \$2.00 down—plus your salary every week for the rest of your life.

* * *

Question: Why can't a nudist be an aviator?

Answer: Because he can't take off any more.

* * *

A California serviceman claims he had bad luck with both of his wives. The first one ran away with another man and the second one didn't.

* * *

1st Serviceman: "Do you think radio will ever replace the newspapers?"

2nd Serviceman: "Certainly not. You can't swat flies with a radio."

* * *

The other day at the Zoo, Obtuse Oscar, the office boy, saw a male peacock strutting its stuff. He came back with the startling information that he'd seen a rooster in bloom.

* * *

"When I went to call on Susie last night I was hardly inside the door when her mother asked me what my intentions were."

"Gosh! That must have been embarrassing."

"I'll say it was—and just then Susie called down the stairs 'That isn't the right one, Mother!'"

* * *

M'Lord: "Jenkins, the cook tells me you were not only intoxicated last night but that you were rolling a barrel around the cellar."

Butler: "Yes, m'lord."

M'Lord: "And where was I at the time?"

Butler: "You were in the barrel, sir!"

* * *

Sam says they're saving real money at his house since he and the wife started conducting the family finances according to a budget. By the time they get the darn thing balanced every night, it's too late to go anywhere.

* * *

George: "Why don't you get a car for your wife?"

Henry: "Gosh, I'd like to. Do you know anyone who'd exchange a car for her?"

* * *

Obtuse Oscar is wondering why they put so many holes in Swiss cheese when it's limburger that needs the ventilation.

WAS BILL JONES' FACE RED?

Or Why They Danced to Phonograph Music at Mrs. Smither's Party



IT'S a hurry call.

Mrs. Smithers is throwing a big party and has discovered

—at the last minute, of course—that the radio has developed a fit of temperament.

Serviceman Bill Jones—the old radio doc himself—comes a rushin', fast as his flivver will bring him. He turns on the set, cocks his head mysteriously and then inspects its innards in his best professional manner.

"Aha," says he to Mrs. Smithers who is standing anxiously by. "Resistor trouble! I'll locate it in a jiffy."

Out comes his brand new resistance measuring device. In almost less time than is required in the telling, he connects this in place of the suspected resistor. Then, with the set turned on, he starts to determine the proper resistance value.

Zingo!

The set goes deader than the proverbial doornail. Bill looks at the device in his hand. Then he looks at Mrs. Smithers. Is his face red?

"Gosh!" he groans. "Must'a been a short somewhere. I've burned out my new outfit."

And he has likewise burned out the prof on a couple of jobs.

All of which is our way of leading up to the fact that, among the many other features which make it outstanding among service instruments, the new model IRC Dual Resistance Indicator is fuse protected against accidental overloads—the ONLY indicator

that is. This doesn't mean that it has been made 101% fool proof. No precision electrical instrument of which we have ever heard is. It does mean, however, that one of the most common causes of failure of resistance indicating devices has been eliminated.

The fuse, as you can see from the accompanying illustration, is mounted conveniently on one end. It is a 1/2 ampere Littlefuse and can quickly be replaced should the occasion require. Thanks to this protection, burn-outs cannot occur.

Still another feature—one we almost forgot to mention in our efforts to point out the Indicator's many points of technical superiority—is found in the new style clips used on the leads. Besides being strong and durable they are of a conveniently tapered design which enables you to clip 'em in anywhere—even in the maze of wiring found in some of the most compact of modern radio receivers.

* * *

(P.S.—You'll find the new IRC Dual Resistance Indicator (fuse equipped) featured by leading jobbers throughout the country. The line forms on the right!)



Note the fuse at the right. The IRC is the only resistance indicator having this essential protective feature.

SWAP OR SELL—Ohmnigraph for learning code. Spring driven—in good condition. Will give this and reasonable amount of cash for good oscillator or tube tester. Boles Krol, c/o IRC Servicer.

RECTIFIER WANTED—Will trade Weston Model 528 Portable 4-8-150 a.c. Voltmeter for 1 mil. d.c. and rectifier or what have you? Bert Hunsicker, c/o IRC Servicer.

FOR SALE—General Electric Laboratory D.C. Milliammeter, Double scale 0 to 7 1/2 M.A., 0 to 15 M.A., set in solid oak. Case with handle and 3 binding posts. \$15. Also one Western Portable a.c. Meter Model 330, 3 scale 0 to 1 V. 0 to 5 V. 0 to 10 V. a.c. set in Bakelite case. Price \$6. Readrite 245A set and tube analyzer, \$6. Joseph A. Capp, c/o IRC Servicer.

FOR SALE—Jewell late model (199) Analyzer with adapters for 6-prong tubes. Dayrad tube checker with all adapters. Write for details. H. E. Massie, c/o IRC Servicer.

FOR SALE—Complete color codes for A-K receivers. Will also sell or trade file of Radio News, 1919 to 1933, Vol. 1 Rider's Manual, stamp collection or what do you need? I want crystal with holder. State band and frequency. Charles M. Conley, c/o IRC Servicer.

FOR SALE—Weston 566 analyzer, Weston 662 oscillator, both in perfect condition. Cost \$126.25 new—will sell for \$90 cash. Roark Radio Service, c/o IRC Servicer.

SWAP OR SELL—RCA 75 watt tube, Xmitter parts, Teleplex with rolls, etc. Want 845 tubes or projector or what have you? Homer Duhaime, c/o IRC Servicer.

FOR SALE—Readrite Set Analyzer (No. 600) and a Readrite Oscillator (No. 550) with output meter. Practically new and in A-1 condition. Cost over \$50—will sell for \$20 cash. Will also sell very cheap two Silver-Marshall Uni-Packs (210 or 250 P.P. Amp. & Powerpack combined), a battery type Silver-Marshall Laboratory Superhet using screen grid tubes (tubes included) and a Jensen A.C. Dynamic Speaker. Will sell everything for \$30 and shipping charges. H. A. Singer, c/o IRC Servicer.

FOR SALE—One Dayrad Oscillator, brand new, Model 31 series. Will sell at reasonable price. Write for literature. L. H. Williams, c/o IRC Servicer.

ANALYZER WANTED—Want Supreme 333 Analyzer in good condition. Price must be right. A. R. Dayes, c/o IRC Servicer.

SWAP OR SELL—Supreme Model 400-B Diagonometer together with laboratory test panel for same. Cost \$200. Sell for \$49.50. Also Philco 3-tube Short Wave Converter, cost \$39.50, sell for \$10. All in good condition. H. A. Zeitler, c/o IRC Servicer.

SWAP OR SELL—Weston Model 456 analyzer (modernized). \$40 cash or what have you? E. Joyner, c/o IRC Servicer.

WILL SELL—Hickok 5-meter analyzer SG-4600 in good condition; Franklin portable tube tester, nearly new—will test all tubes to date; Acrocycle RF-IF oscillator used ten hours; Rider's Manuals Nos. 1 and 2; Official Service Manual for 1933 and Rider's "Servicing Superheterodynes" book. Cheap for cash. Byron B. Wittfoht, c/o IRC Servicer.

SWAP OR SELL—One T.P.T.G. P.P. self-excited transmitter. 40 & 20-meter coils. Bread-board type. Will trade for 210's or smaller tubes. Robert L. Spivey, Jr., c/o IRC Servicer.

BUSINESS FOR SALE—Well-equipped radio shop in town of 4,000. Only exclusive radio shop in town and in good location in state of Missouri. Very low overhead. Present owner obliged to change business. Box 0-1. c/o IRC Servicer.

SELL OR TRADE—National 3-tube AC-SW receiver complete with power supply. Used only three months. Want old analyzer or oscillator or what have you? Herbert Varney, c/o IRC Servicer.

SWAP OR SELL—Victor-RCA Auto Radio. Late model. Single unit; perfect condition. Want good volt-ohmmeter or oscillator with output meter. Russell V. Hodge, c/o IRC Servicer.

SAXOPHONE FOR SALE—Bb soprano sax in good condition. Can use an analyzer or oscillator and tube tester. Also an amplifier or anything in the radio line. King sax cost \$135 new. Send details. Edgar Pelletier, c/o IRC Servicer.

SWAP or SELL SECTION

These classified advertisements are run free for IRC Servicer readers. The right is reserved to edit advertisements or eliminate any considered unsuitable. Inquiries are forwarded promptly by IRC. As a matter of courtesy, advertisers are requested to answer all mail, even though the item advertised may have been disposed of or the inquirer's offer proves unacceptable.

Due to space limitations, advertisements will be run as promptly as possible in the order of their receipt.

JOB WANTED—Experienced serviceman with own testing equipment and tools would like a job. Anything considered. Now located in Oklahoma. Young—single—references supplied. V. E. Willey, c/o IRC Servicer.

TRUMPET WANTED—Will trade Model 600 Readrite Analyzer or 1931, '32 and '33 official servicemen's Manuals and 1933 Rider's Manual for Vega or other make of Bb trumpet. F. W. Ekwall, c/o IRC Servicer.

WANTED—Weston Meters or Service Oscillator. Will trade a.c. or d.c. eliminators or radio parts of all kinds as well as radio magazines dating back to 1920. Joseph B. Mathias, c/o IRC Servicer.

TRANSMITTING EQUIPMENT—Will sell my amateur transmitter and equipment at bargain prices. What do you want? Len Hoops (W9BNU), c/o IRC Servicer.

FOR SALE—Model 560 Jewell Modulated Oscillator, \$32.00; also one built up Jewell Ohmmeter, three scales (0-3,000, 0,30,000 and 0-500,000) \$15. D. V. Fuller, c/o IRC Servicer.

FOR SALE—Service equipment and stock of replacement parts. Write for particulars. Mark S. Evander, c/o IRC Servicer.

JOB WANTED—with manufacturer, distributor, or dealer. Want something steady holding fair prospects for future. Have done clerical work. Graduate of RCA Institutes. Conducted my own service business for past two years. 27 years of age—high school graduate with 1 1/2 years in University of Wisconsin. Ample reference furnished. Now located in Wisconsin. Robert E. Steele, c/o IRC Servicer.

WANTED—used SW3 Receiver. Will pay cash or swap parts that you need. Send details and I'll do same. John Wasiewicz, c/o IRC Servicer.

VIOLIN TO SWAP—also a 22 cal. long barreled rifle. Violin has case and two bows. Cost \$48. Want to trade these for service equipment such as R.F.-I.F. Oscillator, manuals or other equipment. Chas. K. Jeandell, c/o IRC Servicer.