

*The*  
**CORNELL-DUBILIER**  
**Capacitor**



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CORNELL-DUBILIER ELECTRIC CORP.  
 HAMILTON BOULEVARD  
 SOUTH PLAINFIELD, N. J.

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# RADIO SERVICE HINTS

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## Practical Suggestions on Solution of Radio Servicing Problems Encountered in Actual Experience by Servicemen Everywhere

This section, conducted by our servicemen readers, will be a regular feature of the C-D Capacitor, and is intended to provide other servicemen with helpful notes on testing, locating troubles in specific models of sets, repairing them, or any other suggestions to simplify service work.

Cornell-Dubilier will pay \$2.00 for each hint published in this section. Notes must be limited to 75 words, or less. Any number of hints may be submitted at one time. Unpublished items will not be returned. Be sure to give your name and mailing address. Send hints to: Editor, C-D Capacitor, Cornell-Dubilier Electric Corp., So. Plainfield, N. J.

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### **Repair for I. F. Coil Trimmer**

When the mica insulation in i.f. transformer trimmer condenser becomes worn or broken a short usually occurs and trouble is at hand.

A simple repair for this is to use the top piece of mica from an old tube which holds the elements in place to repair the defective piece in the trimmer condenser of the i.f. coil. This procedure can also be used on other alignment condensers.—*Albert Walter, Jr., St. Louis, Mo.*

### **RCA Model 6T5**

When distortion develops in this model and set seems to overload on strong signals check the 220,000 ohm a.v.c. resistor in the metal can of the 2nd i.f. transformer for an open circuit in this resistor. This may be the cause of the trouble which is rather difficult to locate.

The remedy is to replace this resistor with a new one, being sure, of course, that the value is exactly the same or of close tolerance. — *Floyd Smith, Prairie du Rocher, Ill.*

### **Temporary Repair for Defective Antenna Coil**

Severe electrical storms during the summer frequently cause burn-outs of antenna coils in various types of sets. The cause of such trouble is often believed to be a burned-out tube, since a signal can be heard if the top of the grid cap of the first r.f. tube is touched with a finger. This however usually indicates that the antenna coil is open or burned-out as the result of an electrical surge.

A temporary repair of this condition can be made until a new coil can be obtained for replacement by tying in a small fixed capacitor from the top grid cap of the first r.f. tube to the antenna. This of course sacrifices selectivity and efficient performance of the set but many customers desire a temporary repair until the original coil part can be secured in these times when deliveries are delayed for several weeks. — *E. Kanoy, Winston-Salem, N. C.*

## **Checking Coils for Intermittent Opens**

An r.f. or i.f. coil winding suspected of being intermittently open may give favorable reading with an ohmmeter or may show a slight fluctuation under such a test. However, a more conclusive test is to apply enough voltage to cause heating of the wire turns of the coil. This may be accomplished by inserting the test leads in the socket of a tube tester and applying sufficient voltage from the filament circuit of the tester to cause softening of the wax on the coil. The voltage should be applied intermittently so as not to cause too much heat to damage the wax impregnation of the windings. If the coil withstands this, a soldering iron can be applied to the ends of the windings to insure properly soldered terminals. — *Paul Wilson, Sioux Falls, S. D.*

## **Watch for Insulation in Metal Cased Sets**

In metal cased auto sets care should be taken against shorts to casing. Various types of sets such as the Philco model AR-75 which have terminal lugs close to the inside of the back cover can be insulated with thin fiber-board to prevent shorts where the hot "A" battery lead is connected.

When sets are mounted in such a manner that the bolts are tightened the chassis is sometimes forced into the casing and thus causing a short against the metal casing. — *Donald Lucy, Holden, Mass.*

## **Replacing Dial Lights in Awkward Places**

One of the most irksome of apparently simple service jobs is that of replacing a dial bulb in some of the modern midget sets. This can be made very simple with the aid of a home-made device such as used to screw larger lighting bulbs in high out-of-reach places.

The device consists of a coil of spring wire soldered to the end of a pencil size handle. The size of the coil of spring wire should be such as to hold the bulb tightly enough to screw into the socket, yet not too tight as not to be slipped off after being screwed into the socket fully. A final tightening of the bulb in order to make firm contact can thus be made with two fingers. — *Sherman Wolf, Boston, Mass.*

## **Auxiliary Guide for Dial Cable**

In many types of sets employing cable-pulley tuning drive arrangements trouble may develop as the result of a crooked pulley which causes the cable to slip off.

The writer had a Sonora Model KL-185 set come into his shop for this repair and after an attempt to straighten the pulley finally decided to provide an auxiliary guide for the cable soldered to the chassis. The guide was made of a  $\frac{1}{4}$  inch strip of metal the end of which was bent in a "V" shape to guide the cable on the bent pulley and prevent it from slipping off.—*Joseph Horvath, Jr., Parma, Ohio.*

# U. S. SIGNAL CORPS NEEDS ENGINEERS

**T**HE War Department, Aircraft Radio Laboratory at Wright Field, Dayton, Ohio, has a shortage of qualified civilian engineering and inspection personnel. Wright Field is the home of the Materiel Division of the Army Air Corps and there are concentrated all the experimental laboratories which are making such tremendous advances in the development of aircraft and aircraft accessories. The Aircraft Radio Laboratory is responsible for research, development, engineering, and inspection required in the radio field, incident to design, supply, and installation of radio equipment on aircraft.

The basic duties of a radio engineer are to perform or supervise the performance of professional engineering work in design, construction, research, and investigation. Responsibilities and duties are commensurate with the grade.

The Civil Service standards for Junior Radio Engineer, which pays \$2,000 per year, are a degree in electrical engineering from an accredited college. The next higher rating, Assistant Radio Engineer, \$2,600, has requirements of two years of progressive professional experience, plus substituted experiences year for year for college education that is lacking. A college degree, while very desirable, is not essential. A well qualified engineer without a degree is eligible for consideration.

Inspectors of Signal Corps Equipment are required to make inspections and tests of aircraft radio equipment to determine compliance with specifications, etc. This duty is usually performed at the plants of the contracting manufacturers. The salary range is from \$1,620 to \$2,000 per year.

The above salary rates are of course initial rates and promotions for higher rates of pay are made commensurate with responsibility and experience.

Engineers and service men who are interested in these positions are invited to submit a letter outlining their education and experience directly to:

**DIRECTOR, AIRCRAFT RADIO LABORATORY**  
**Wright Field** **Dayton, Ohio**



## A Free Market-Place for Buyers, Sellers, and Swappers.

These advertisements are listed FREE of charge to C-D readers so if there is anything you would like to buy or sell; if you wish to obtain a position or if you have a position to offer to C-D readers, just send in your ad.

These columns are open only to those who have a legitimate, WANTED, SELL or SWAP proposition to offer. The Cornell-Dubilier Electric Corp. reserves the right to edit advertisements submitted, and to refuse to run any which may be considered unsuitable. We shall endeavor to restrict the ads to legitimate offers but cannot assume any responsibility for the transactions involved.

Please limit your ad to a maximum of 40 words, including name and address. Advertisements will be run as promptly as space limitations permit.

**SALE OR TRADE**—QSTs from 1935 on; transmitting tubes; code oscillator; recording equipment, etc. Want good 3 in. oscilloscope, Rider's Manuals; and other test equipment. Write to: Mack's Radio Service, 37 Circuit Road, Chestnut Hill, Mass.

**WANTED**—Will pay a fair price for a 24 tube model 5420 Garod Radio in good condition. Edw. J. Danaher, 134 Merrimac St., Buffalo, N. Y.

**WANTED** a model 5420 Garod Radio—(24) tubes in good condition, will pay a fair price. Edw. J. Danaher, 134 Merrimac St., Buffalo, N. Y.

**WANTED**—One Vacuum Tube Voltmeter and one Cathode Ray Oscillograph in good condition. Will pay cash. Castle Radio Shop, 1035 Chalkstone Ave., Providence, R. I.

**FOR SALE**—New Reading Chain Hoists, 5—2 ton, 9 in. lift \$140.00 each less 20 per cent. R. Bertolette, 505 Astor St., Norristown, Pa.

**WANTED** — A cheap signal generator. Later model similar to Superior model 1230 O.K. Don't want to pay over \$5. Oscars Radio Service, Merrill, Iowa.

**FOR SALE**—Complete file of Radio News, June 1931 to July 1936. Geo. J. Martin, 938 Summer St., Hammond, Ind.

**WANTED**—Television receiver in good order. State cost and make. Can be a home made or Meissner unit. Also in need of a recording unit, for use with pre-grooved records, if not one with a cutter unit. All letters received are answered. Also need Rider's Manuals, 1-5. Henry Bollmann, 10 Adrian Ave., Bronx, New York.

**WANTED** — Instructograph, either A.C. or spring wound, without oscillator, with at least 3 or 4 tapes. Must be in good condition. Martin Radio Service, 806 S. Cedar St., Marshfield, Wis.

**WANTED**—Chime clock either electric or key wind quarter hour chimes in good condition it must be in mantel type. Please give description of same and also length, height and width, and the make. I will trade my Roto Ranger Tube Tester, Model 200, which has 12 different tests. This tester is in perfect condition and has been used very little. T. D. Clark, 1817 No. 22 Street, Milwaukee, Wis.

**WANTED**—Diagram, instructions, and full data on the Superior AMR Allmeter. I will pay all necessary postage required. Verlin Karli, Oscar's Radio Service, Merrill, Ia.

**WANTED**—One filament transformer to be used in a modern tube tester. Primary tapped for variations in line voltage and secondary with voltages from .75 volt to full line voltage for all present receiving tubes, line voltage 110 volts, 60 cycles. Geo. C. Anderson, 2236 Indiana Ave., St. Louis, Mo.

**WANTED**—Supreme tube and tester model 504 Triplett model 1200-C volt-ohm-M. A. Rider's Manuals volumes No. 4 to 12. State condition. Charles I. Amplo, 2228 Newbold Avenue, Bronx, New York.

**WANTED**—A repairman (radio appliances salesman) a good paying steady job. Preferred a married, middle aged man. For interview call Atwater 9-8344 or between 7 and 9 P.M. at 1692 Third Avenue, New York City. Acme Hardware and Radio Stores.

**FOR SALE**—Rider's Manuals, Vol. 1 to 11 inclusive. All volumes practically brand new with exception of Vol. 1. Because of new condition will not sell under \$60.00. S. Gershberg, 1 Hawaii Ave. N.E., Washington, D. C.

**WANT** Precision E-200 signal generator, Royal portable typewriter, "BF-50"; C. D. or Solar "QCA" capacitor analyzer, or good make. Have brand new Radio City 309-P Dynoptimum tube checker, electrical engineering course, amplifier, also some cash. Madlinger's Radio, 680 Seneca Ave., Brooklyn, New York.

**WANTED** — Solar condenser checker, Model CE. Will pay reasonable price if checker is in good condition. G. D. Cantrell, 404 W. 41st St., Austin, Texas.

**SWAP**—Twin Maytag Gas 110 AC, 300 watt light plant with 2 air wheels. A-1 shape. Want set Rider's Manuals, A-1, or good signal tracer. Harvey Radio Service, Knoxville, Iowa.

**WANTED**—Good short wave receiver. Describe fully as to make, model, condition, tubes used, etc. Will trade following as full or part payment. Sell or Swap Remington Model 24, ten shot .22 rifle, double barrel shotgun in A-1 condition, large lot of new resistors, parts, service manuals, etc. Oliver F. Klein, c/o OK Radio Service, 2235 N. 39th St., Milwaukee, Wis.

**SWAP**—Emergency phone CW set as in 1939 handbook page 371. All good parts. Par metal cabinet. Biley 1883 LD 2 osc. uses 6C5, 6F6, 6V6. P.A. uses 6F6, 6V6, 6L6, 807. T-19M13 mod. transf. uses 6F6, 6V6, 6L6, 6N7. Sp. amp. 6J7, 6C5. Nat'l coils. Have 70 M.A. 160 v. genemotor for low power or Pioneer 100 M.A.-275 v. Genemotor for high power with 807. Set parts \$45 net. Genemotors \$7.50 or Pioneer \$27. Want B.F.O. test equipment. Bob Eubank, 1227 Windsor Ave., Richmond, Va.

**WANTED**—Beat-frequency audio oscillator such as RCA 154, Clough-Brengle, Philco, etc. Give condition and best cash price or will trade Rider 2, 3, 4 and separate index to first 8; \$75 emergency phone CW rig; I.C.S. Electrical Engineering; radio books; I.R.E. Proceedings 1929-1941; 4 tube lamb noise silencer 445-475 I.F. (not a kit); transmitting parts. All mail answered. Bob Eubank, 1227 Windsor Ave., Richmond, Va.

**FOR SALE**—Have 208 issues of Society of Motion Picture Engineer Transactions, dating back to 1921. Some issues are no longer available, those dating back to 1929 are listed by Society at \$3.00 a copy. All other older editions sell at premium. Issues from 1930 to date sell at \$1.00 a copy. A complete technical history of the motion picture business. Make offer for part or entire lot. Norton, P. O. Box 7011, Coral Gables, Fla.

**WANTED**—Good short wave communication receiver, describe fully and state best cash price. Sell or Swap Remington Model 24, ten shot .22 repeating rifle; and double barrel shotgun, both in A-1 condition, only few months old. Large lot of new resistors, parts, etc. Oliver F. Klein, 2235 N. 39 St., Milwaukee, Wis.

**WANT** N. R. 1. Course, good condition, for cash. Radio Jack, 1560 W. Adams Blvd., Los Angeles, Calif.

**WANTED**—Precision Model 920-P tube and set tester and Model E-200 signal generator. Would also consider any other reliable make. Also want Rider's Manuals, vol. 2 to 12. State price and condition. Will pay cash or trade. George Pidherny, 54 E. 100 St., New York City.

**SELL OR SWAP**—Perfex 35 mm. camera and eveready case. Enlarger with 2" f. 4.5 Wirgin anastigmat, condenser diffusion. Over 5,000 different stamps in Scott album, over 200 countries. Want home recording equipment, cash or what? Joe Malsky, 1781 Riverside Drive, New York, N. Y.

**SELL OR TRADE**—One brand new Dayco vibrator tester, never used, has 3 spare sockets, perfect. Want Precision No. 920-P and Precision No. 200, or equivalent. Cash difference arranged. Wm. Anderson, 1098 South Boulevard, New York City.

**FOR SALE** — Like new, Supreme freq. Model 529 \$12.50; Beitman's 1926-1938 diagrams \$1.50; servicing course \$1.75; Gharardi's Trouble-shooters Handbook \$2.50; Precision rack for 954 and E-200 \$15.00; new Emerson and RCA tubes; servicing part. T. Wojciechowski, 2837 Fulton St., Brooklyn, N. Y.

**WANTED** — Weston model 280-DC voltmeter for cash. H. Elliott, 4604 Tennessee Ave., Chattanooga, Tenn.

**FOR TRADE OR SALE**—Electric welding outfit, 110 volts, complete with ground clamp, electrode holder and rods. Brand new, capable of welding all metals from sheet metal to auto blocks. Want television set or photographic equipment or cash. All letters answered. David Siegel, 1616 42nd St., Brooklyn, New York.

**RIDER'S Trouble Shooter's Manuals** for sale. Vols. 1 to 6 inclusive. Good as new and like new, but priced to sell quickly, \$31.00 F.O.B. You pay \$5.00 down and balance C. O. D. C. N. Cheadle, Box 377, Salem, S. D.

**WANTED**—Gernsbacks official radio service Manuals Nos. 1, 3, 5, state price and condition. Charles Willis, 21 Market St., Inkerman, Pa.

*(Continued on page 12)*

# MODERNIZING OLD SETS\*

## How to add new circuit features to old models while repairing them for the "duration"

SERVICEMEN can do a great deal toward improving the usefulness of many old sets which will have to be kept operating for some time to come. Set modernization can be of real advantage to both servicemen and customer.

The modernizing features which can be added to old sets are almost without number. Improved tone quality and tone control are two services which will do much to better performance. Elimination of obsolete parts by new circuits will make it possible to handle these jobs.

Most people have a "tin ear." They have become so accustomed to the limited range of the telephone, their old radio, poor phonographs and old records, that it is hard to convince them that there is anything better to be had. While these improved tone jobs require some selling, you can do it. These jobs need not be in contradiction with the national policy to conserve materials, since many of the repair jobs you will have in your shop call for a new speaker, new volume control, etc. Here you have the basis of a tone improvement job. By using the correct speaker, a tapped volume control, a by-pass condenser and a couple of resistors the quality of the majority of the old sets will be noticeably improved.

### Tone Compensation

On those sets that do not have a diode type second detector circuit, the tapped volume control adapted for bass compensation will usually be placed in the grid circuit of the AF amplifier. That is, unless the set is

also changed to incorporate a diode detector and AVC. Most of these old sets have a plate or grid-leak type of second detector and the volume control is a gain control changing the bias on the RF or IF tubes. This gain control can be replaced with a fixed resistor of the value usually found as a minimum bias control. In order to prevent the tubes from overloading at the maximum volume end of the gain control, a 300 to 500-ohm resistor allows a minimum bias to be maintained on the tubes. In most cases, the gain control used to change the bias can be removed and replaced by a 300 to 500-ohm resistor unless one is already in the circuit, in which case the circuit is completed to ground or to whatever point the variable control was connected. If the set is being used in a locality close to several powerful stations, and therefore maximum sensitivity is not required, the bias resistor can be increased slightly. The value should be one that causes the set to play somewhat louder than would ever be used. Since it is proposed to control the volume at the audio end there is no need of having the RF end of the set run at full blast if it is not required due to powerful local stations.

### Circuit Constants

The mounting hole left by the RF gain control will take the tapped audio volume control. The standard tapped controls for bass compensation circuits run from  $\frac{1}{4}$  to 2 megs and are usually tapped at  $\frac{1}{4}$  to  $\frac{1}{2}$  the total resistance. The tapped point determines the volume level at which the compensation is greatest. The amount of compensation can be adjusted by

\* By courtesy of "Radio Retailing" combined with "Radio Today."

changing the value of the resistor  $R_c$  (see Fig. 1) between 20,000 and 100 M ohms. The shunt capacity between the resistor and ground can also be varied from .005 to .02 mfd. for different degrees of bass compensation. The larger values of capacity and lower values of resistance will give more apparent boost to the bass.

with a few inexpensive parts to the majority of early supers. Some TRF sets may have sufficient gain in the RF and audio end to permit a diode detector to be used thus giving AVC voltage.

Most of the sets without AVC systems use 2.5 volt tubes. The three most common 2.5-volt tubes for use as

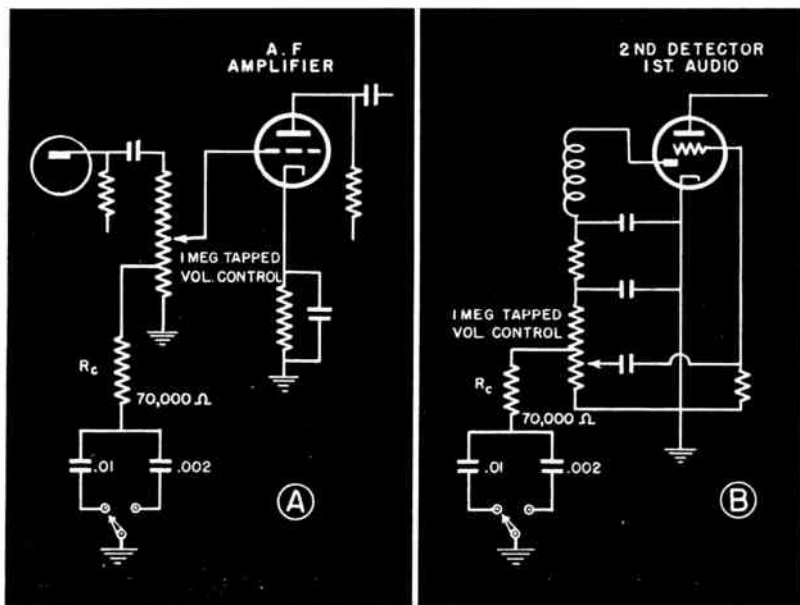


Fig. 1 A & B. Two tapped volume control tone compensation circuits for use in old sets. Circuit A is designed for use in sets with the volume control in the grid circuit; B for conventional second detector circuits.

If it is desired to vary the tone compensation, a tapped switch can be put in to change the value of capacity to ground, or the resistor  $R_c$  can be made variable. If a variable resistor is incorporated, it should be about 50,000 ohms with an additional 20,000 ohm fixed resistor in series to act as a limiting value.

#### AVC Circuits

Automatic volume control is an important feature that many of the old receivers are lacking. It can be added

a diode second detector and an audio amplifier are the 55, 2A6 and 2A7. The 55 has a low- $\mu$  triode section, the 2A6 a high- $\mu$  section, while the 2A7 has a pentode in the same envelope with the two diode plates. In most cases, the old second detector tube was a low- $\mu$  triode such as a 27, or 56. If this tube was transformer coupled to the following audio stages, the tube to be used as the new second detector should match the transformer as nearly as possible. In the case of the 27, or 56, this means that the 55



should be used. If the audio transformer is old and noisy, it can be replaced with a resistance coupled circuit if the following stage is not push-pull. If resistance coupling is used, put in a 2A6 or 2A7 to make up for the gain lost in removing the transformer.

The socket will probably have to be changed in most sets since the 55 and 2A6 have 6 prong bases and the 2A7 has 7 prongs.

The series combination of the volume control and the 50,000 ohm fixed resistor forms the DC load resistance for the diode rectifier detector. Shunted across the volume control, which is the larger portion of the DC load, is the series combination of the AVC filter resistor and filter condenser. The series combination of the audio coupling condenser and audio grid-leak is also in parallel with the section of the

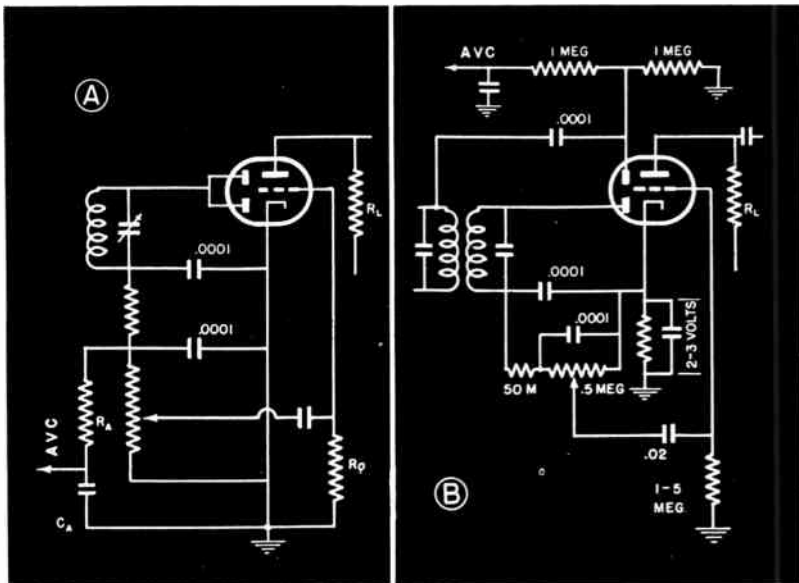


Fig. 2 A & B. AVC systems in connection with diode second detectors can be simply added to most sets. Circuit A filters the audio from the output of the detector. Circuit B develops AVC voltage in separate diode circuit.

### Installing Diode Detectors

There are many diode detector, AVC, first audio circuits which can be used for modernizing old sets. All of the detector circuits are quite similar and the main differences exist in the AVC system. Two common types of second detector circuits are shown in Fig. 2. The circuit in Fig. 2A does not have the delayed AVC characteristics of Fig. 2B.

volume control from the sliding tap to ground. The effect of these two circuits across the volume control is to reduce the effective impedance or load when audio modulation is present on the carrier. Since the reactance of the capacitors in the circuit changes with frequency, the load impedance to the audio signal is not constant and therefore causes distortion.

## Component Values

In order to reduce the effect of this loading and distortion of the audio signal, make the resistance in the AVC filter as large as possible and the filter condenser  $C_a$  as small as possible, but still do a good job in their circuit. Likewise, make the audio coupling condenser small and the grid-leak large. These values will reduce to a minimum value the load which shunts the volume control whenever an AC signal is present. The value of the AVC filter resistor and condenser are determined by the time constant desired for the action of the AVC and by the minimum value of resistance allowed in the grid return circuit of the various controlled tubes.

The time constant for the AVC circuit should be such that for high fidelity work the lowest frequency audio signal does not allow the system to operate and reduce the percentage of modulation. If time constant of the AVC circuit is too short, 0.1 second or less, audio tones in the vicinity of 100 cycles per second will of course change the carrier strength at a rate which the AVC system will try to compensate. Thus the AVC system with a short time constant will have the effect of reducing the strength of the low frequency tones.

## Time Constants

The time constant for ordinary broadcast receivers should be 0.1 to 0.3 seconds; good fidelity broadcast receivers should have a constant of 0.25 to 0.5 seconds; dual or triple band receivers require a shorter time constant to take care of the rapid fading prevalent on those bands; about 0.1 to 0.2 seconds. This time constant is conveniently calculated by multiplying the value of the AVC load resistance in megohms by the capacity of the AVC filter in microfarads. This is the time constant for charging the capacitor and is approximately the time required for the system to act on an increase in signal strength. The discharge time for the system is greater, the amount depend-

ing upon the type of circuit used. In Fig. 2A, the discharge current from the AVC filter capacitor must flow through the AVC filter resistor and the volume control to ground. Since the total resistance in the discharge circuit is greater the time constant is also greater.

Where several stages are controlled by the AVC system, the total AVC filter capacity is the sum of all the capacities from the AVC bus to ground. Usually each stage has a 100,000 ohm resistor for decoupling purposes. Since these resistors are usually small compared to the AVC filter resistor their effect on the time constant is not of great importance.

## Controlled Stages

As mentioned previously, it is good designing to make the AVC load resistor large and the capacitor small to give the desired time constant and limit the AC loading of the diode circuit. The resistor in the AVC circuit should be such to keep the total resistance from any controlled tube to ground about 3 megs for one controlled stage, 2.5 megs for two controlled stages, and 2 megs for three stages. Add all the resistances in the return path to ground and make the

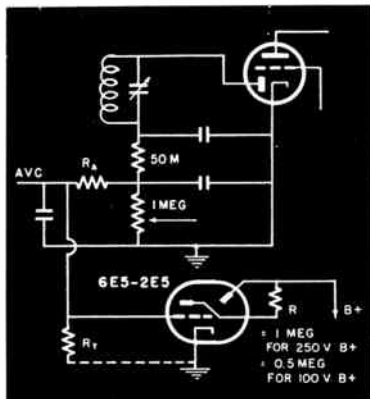


Fig. 3. Tuning eye tubes can be easily added to sets with AVC.  $R_t$  should be value which allows the eye to just close on strong signals.

AVC load resistor the difference between values above the sum of the other resistors.

After the value of the AVC filter resistor is determined, the correct value of capacity for the filtering can be determined by dividing the desired time constant in seconds by the resistor value in megohms.

For the AVC system to be most effective, the controlled tubes must have a variable mu characteristic. In old sets, having sharp cut-off tubes such as 24's, 57's, etc., it is necessary to replace them with 35's, 58's, and similar super-control tubes. AVC is usually applied to the RF stage, converter, and first IF stage. If two stages of IF are used in the set it is preferable to operate the second stage

with fixed bias to prevent modulation rise and accompanying distortion.

#### **Tuning Eye Circuits**

Tuning eyes are popular additions which can be easily put into AVC sets. Fig. 3 shows the typical connections for the most common type of cathode ray tube. The 2E5 tube with a 2.5 volt filament is no longer made but may be found in some tube stocks. The 6E5 is a popular type. The tuning eye can be adjusted to just close on the strongest signals by supplying its grid from a high resistance voltage divider from the AVC network. The 6E5 closes with about -7 volts. To prevent over-lapping on strong carriers, the grid of the 6E5 should be tapped on a divider to receive from  $\frac{1}{2}$  to  $\frac{3}{4}$  of the total AVC voltage.

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## **Important Notice to C-D Capacitor Users**

When ordering urgently needed replacements, either A.C. Electrolytics for motor-starting purposes, or A.C. Dykanol Units for split-phase motor use or D.C. Dry Electrolytics for Radio Set Repairs, please bear in mind that your exact requirements may not be available, in your jobber's stock, at this time, so be sure to state whether or not you will accept a similarly rated unit electrically, but slightly different in size physically. This situation will exist until after the National Emergency, as you may not be able to furnish proper priority rating to obtain items not in stock and which have to be fabricated.

**Cornell-Dubilier Electric Corp.**

South Plainfield, New Jersey

# THE RADIO TRADING POST

(Continued from p. 6)

**SELL OR SWAP**—2 2mid. 2,000 volt conds., 1 2½ volt, 10 amp. transformer, 1 Par metal rack and panel with two Jewell switches. This entire lot for cash, make offers on pieces or lot. 8mm camera \$7.50 3.5 lens, 32DC to 110 AC Converter \$8.00, Tork time switch clock \$6.00, K21 Electro voice microphone \$6.50, 1 mid. 1000 volt conds. 35c each, tubes from 25c up, 15 50 watt tubes, cash and trades considered, send for list. Nelson K. Stover, 751 Tioga St., York, Pennsylvania.

**WANT**—Short-wave receiver, model condition cabinet not important so is complete. Prefer Hammarlund, National, Scott, similar. Also interested in all kinds of test apparatus. Pay cash or trade. Advise what you have and what is wanted. Glenn Watt, Chanute, Kans.

**TRADE, SELL**—\$97 Rembler broadcast station condenser microphone with 2-stage 864 preamp. Built into standard floorstand. Complete with 25 feet heavy shielded cable. Use on batteries or power supply of amplifier. A precision job. Sell \$15, or trade. What do you offer. Bob Eubank, 1227 Windsor Ave., Richmond, Va.

**FOR SALE**—50 assorted speakers, 5 to 15 inch, P-M and electro dynamics. Mostly brand new. Send stamp and types wanted and prices will be forwarded. Ideal Radio Shop, 1713 Larrabee St., Chicago, Ill.

**WILL PAY CASH** for used Hickok Model 188-X signal generator, or Radio City Model 702 signal generator, and a Radio City Model 414-P multimeter, must be in good condition. Please give complete information when writing, I will answer all letters. Robert Smartt, 2233 W. Cumberland St., Philadelphia, Pa. SAG. 1164.

**FOR SALE OR TRADE** — Triplett signal generator, model 1151, less carrying case and bats in shield case, \$3.50; Majestic Model 90 power pack, \$3.75 used; complete set Majestic 90 tuning coils in shields, \$1.25; Majestic Model 460-A power trans., \$1.50, used; Majestic Model 460-A tuning cond. used, 75c; 1 3 gang .000365 mid. tuning condenser new, \$1.00; 1 2 gang .000365 mid. tuning cond. new, 65c; 1 Triplett Model 1166-A free point tester with cables and plugs, less case, \$2.25. Prices F.O.B. or will trade for Superior 1280 tube and set tester or Weston 663 V.O.M. in working order. H. R. Lauffer, R. D. 3, Box 261-B, Greensburg, Pa.

**WANT**—Meters and test equipment of all types and condition for radios, radio parts, radio magazines, books, firearms, motors, transformers, tools, tableware, golf clubs, typewriters, mimeographs, movie projectors, boots, cash, etc. Describe yours fully in first letter. Roby's Swapmart, 3569 Cottage Grove, Chicago, Ill.

**FOR SALE**—Weston 682-R Portable tube tester. Excellent condition. Will send COD subject to inspection for \$7.50. W. A. Hæussinger, 1102 Marian St., Winona, Minn.

**WANTED**—Supreme Model 547 Multimeter, or Precision EV-10 tester. Will pay highest cash price. Would also like Rider's Manuals 7 to 12. Clyde Halligus, Rural Radio Service, Clark Lake, Mich.

**TRADE**—10 amp. synchronous and 3 amp. Tungar chargers, stoker relay with timer, Superior 1230 a.c. oscillator, combination 110 volt a.c.-6 volt Vibrapack, delivers 450 volts, 3—6 volt Vibrapacks. **NEED**—Rider Manuals, tube checker, drill, or? Stanley, 2748 Meade Street, Detroit, Mich.

**HAVE 5-8 WATT Amplifier and speaker.** Will sell or swap for 2¼x2¼ camera. Amplifier only used once. Harry Gursh, 66 Herzl Street, Brooklyn, New York.

**WANTED**—Rider's Manuals Nos. 10, 11 and 12, best cash price paid for same. For sale, 1 Unameter tube checker, modernized for octal base tubes, 1 Supreme Model 333 set analyzer, adapters for octal tubes, best offer takes them. Radio Repair Service, 173 Main St., Mexico, Maine.

**TRADE, SELL** — Craftsman 9 in. floor model, tilting blade, ball bearing power saw and 6 in. ball bearing jointer-planer complete, motors, blades, belts, etc., new, run 10 hours. For a SX-28, SX-25, 490, RME-99, NC-100A-XA, NC-200-TG or HRO. Carl Galle, Marissa, Ill.

**WANTED** — Hallicrafter Marine type receiver or similar instrument. Please advise condition and best cash price. V. A. Kamin, 912 Hardesty Boulevard, Akron, Ohio.

**SWAP OR BUY**—Books on radio or allied fields, also a commercial ham receiver in practically any condition but must be complete and cheap if for cash. Advise what you want in trade or cash value. Finances limited. Pvt. Joseph J. Jancer, Co. D, 14th S. S. Reg., 1st S. S. Brigade, Fort Monmouth, New Jersey.

**FOR SALE**—Rider's Manuals with index No. 1 (old edition) No. 3, 4, 5, 6, 7, 8 like new. One I-H 745 Supreme signal generator, 189. One 385 Automatic tube tester and diagnometer. What offered. Arthur R. Weaver, 907 E. Main St., Morristown, Tennessee.

**WANTED**—A late model free point to point radio set tester. One that plugs into the tube sockets for reading filament, plate, grid voltage, etc. A Triplet, Model 1166-C or 1220-C, or similar make. Address G. E. E., Lock Box 18, Geneva, Minnesota.

**FOR SALE OR SWAP**—18 watt P.A. system, including mike, mike stand, 2 12" speakers in baffle boxes (own power supply) and phono unit. \$45 or what have you? Acme Radio Service, 207 S. Winnebago St., Rockford, Ill.

**SELL OR SWAP**—Thordarson high quality S.W. receiver as illustrated in "The Beginner's Handbook," 10, 20, 40, 80, 160 meter coils. Bob's Radio Service, 132 Partition St., Saugerties, New York.

**FOR SALE**—Neon sign, reads "Zenith Radio." In metal case 21"x9"x6" deep. Suitable for window or counter use. Complete with transformer \$7.00. Also two used uncased transformers 5,000 volts at 18 mils., \$1.50 each. Plueger Radio Service, 102 N. Main St., Crystal Lake, Ill.

**FOR SALE**—Ten radio technical books, instruction and repairing. Modern Radio Servicing, Radio Trouble - Shooter's Handbook, Radio Servicing Course, Radio Servicing by Comparison, Servicing by Signal Tracing, etc. Write for list and prices. Also, Clough-Brengle Signal Generator, Model OC. A-1 condition, \$5.00 cash. Clyde W. Wimer, R. D. No. 2, Ellwood City, Pa.

**WANTED**—Will pay cash for Supreme Vedolyzer No. 560, Supreme signal generator No. 561, Supreme audolyzer No. 562, Supreme No. 385 combination tube checker and diagnometer, Aerovox No. 75 capacity and resistance bridge. Also any good condenser decade box. Kennedy's Radio, 3407 14th St., N. W., Washington, D. C.

**FOR SALE OR TRADE**—Franceformer gaseous tube transformer, 9,000 v. at 20 mils. output, 1 pair W. E. 242-C's. Also have many other parts all in good condition. Want lab., receiving, xmitting, P.A. equipment, cash or what have you. H. D. Prue, 535 Geneva Ave., Toledo, Ohio.

**WANTED**—Will pay cash: 12 in. band saw, 4 1/2 or 6 in. jointer planer, half inch drill press, bench style. Most any wood working tools in good condition. C. W. Hull, Radio Repairs, Mineral Springs, Pennsylvania.

**WANTED**—Good communication receiver. Must be in good working order. State make, model, condition, and lowest cash price. Don L. Hardin, Route 2, Box 2, Sulphur Springs, Texas.

**WANTED**—Will pay cash for late model Hickok tube checker, Hickok oscillograph, or Hickok traceometer. Must be in good condition. George Hodges, 1607 E. 118 Street, Cleveland, Ohio.

**FOR SALE** — One 2-horsepower Century electric motor, single phase for AC, 110-120 volts. Like new \$35. Two complete Universal sound heads for standard Simplex Projectors, complete with all attachments, including motors, brackets and accessories to attach, and one dual channel Opera-radio 15 watt amplifier, for sound-on-film. Complete as above mentioned \$75. Louis Henderson, Allen Theater, New and Allen Sts., Allentown, Pa.

**WANTED**—Rider's Manuals Nos. 8, 9, 10, 11, 12 one or all must have blue covers in good condition. Will swap 35 mm. Acme motion projector, turntable, crystal hand mike, crystal pickup, amplifier parts, tubes, parts of all kinds, or state lowest cash price. Watson Radio Service, 116 Mulford Ave., Millville, N. J.

**WANTED**—Skyrider Marine Hallicrafter, model S22-R. R. C. Barnum, Mt. Pleasant, Iowa.

**WANTED**—Weston Model 772 Analyzer in A-1 condition; also Underwood typewriter with Elite type, or high power field glasses in good condition. Have cash or numerous items of value and sporting goods to trade. All letters acknowledged. Raymond H. Ives, 822 Windsor Ave., Norfolk, Va.

**FOR SALE**—2 P.M. Trumpet units, 1 Fox unit, 1 University unit, 18-25 watts. Like brand new, perfect condition. \$12.50 each, both for \$24.00. Ideal Radio Shop, 1713 Larrabee St., Chicago, Ill.

**FOR SALE OR TRADE**—Hundreds of used radio parts, tubes, speakers, magazines, electrical books, tube checkers, meters, tools, old Bibles, hymn books, etc. Describe your goods fully, list for stamp. Roby's Swapmart, 3569 Cottage Grove, Chicago, Ill.

**WILL PAY CASH** for 1 hr. fast battery charger and vacuum tube voltmeter. Please give price and description in first letter. Lincoln Radio Service, Star City, Arkansas.

**WANTED**—Super 38 Colt automatic pistol and Bausch & Lomb binocular, power 6x30, 7x35, 8x30, 8x40, prefer the 8x40 power binocular. Will pay cash. Harold Buckley, 1429 East Market, Indianapolis, Ind.

**WANTED**—25 or 30 watt mobile P.A. Complete system or amplifier only. Also a 20 or 25 watt AC amplifier only. Please state make, model, condition, and best cash price. Roy's Radio Shop, 315 Lyons Ave., Turlock, Calif.

**WANTED**—2 Taylor T20 tubes. Have many parts to trade, ham parts also. Oky Gill, Cinco, W. Va.

**WANTED** — An Aerovox Model 95 LC checker. Will trade for it in parts, manuals or cash. Ed. Christner, 313 Crawford St., Middletown, Ohio.

**IF YOU** do not have a copy of the 3rd edition of M. Y. Encyclopedia I still have a few left at 35c each postpaid. Many servicemen use it more than Rider's Manuals. Max Shively, 3115 Ingham, Lansing, Mich.

**FOR SALE**—Shure Model 76-A crystal lapel mike. New two tube Acoustian, Model A-45 hearing aid. Three CK 501-X, 1 CK 503, 1 CK 504-X, one CK 502-X Raytheon hearing aid tubes. One complete Micro-Tube Laboratories hearing aid kit with case and tubes, one universal ear mold. Edwin Larason, 1002 W. Michigan Ave., Jackson, Mich.

**WANTED**—5 or 6 amp. Tungar bulbs, Adels Electric Library (red books), pay cash. Have 50 radio tubes for sets prior 1938, \$8.00. H. Ursilto, 85 State St., E. Providence, R. I.

**FOR SALE OR SWAP**—A 35 watt modulator, P.P. 6L6s, on modern shielded amplifier chassis. Easily converted to P.A. system. Will trade for a good signal generator. Milton Horstman, 10 W. Henry Clay Ave., Ft. Wright, Covington, Ky.

**FOR SWAP**—Snare drum with stand, case, sticks and brushes, cost \$25.00; U. S. School of Music lessons, cost \$18.00; also Gene Krupa Music Book, cost \$1.50. Will trade for radio test equipment. What have you? Sanders Radio Service, South Carthage, Tenn.

**FOR SALE** — Complete radio and television course, First National Television, Inc. What am I offered or what have you to trade? Cost \$189.50 two years ago. Also converter 110 volts d.c. to 110 volts a.c. for sale \$25.00. Write Carl Stello, Beltsville, Maryland.

**FOR SALE** — United Motors radio test panel Model 650 built by Hickok Electric. Cost \$500, would sell for \$100. A-1 condition. Frank Gabriel Automotive Service, 1020-1022 S. Clinton St., Syracuse, N. Y.

**FOR SALE**—Rider's Vol. 3, 5, 6. Philco signal generator, Model 016, \$15; Al Hickok tube tester a.c. 51, tests all tubes, \$47. Economy Radio Service, 950 Michigan Blvd., Hammond, Ind.

**WANTED** — Aerovox L.C. checker Model 95, any type inductance bridge, Radiant or other make Vibrator tester. State make, model, condition and price. All letters answered. Couch's Radio Shop, P. O. Box 536, Gainesville, Fla.

**FOR SALE**—Make me an offer. 2 University high fidelity, dual range loud speakers. In fine condition, used very little. Model WCC. List each \$122.00. S. W. Christie, 36 Miller St., Pontiac, Mich.

**SELL** receiving and transmitting tubes; variable fixed and electrolytic condensers; standoff, strain and lead-in insulators; telegraph sounders, etc. WANT copies of Phillips Technical Review 1930-1940; Edison storage cells, meters, DC to AC converter. Grote Reber, 212 W. Seminary Ave., Wheaton, Illinois.

**FOR SALE**—One ICS Radio Engineering course and one L. L. Cooke Electrical Engineering course. H. W. Schendel, 518 W. Main St., Sparta, Wis.

**WANTED** — Radio Engineering Handbook (3rd Ed.) by Keith Henny. Standard Handbook for Elec. Eng. (6th Ed.). Also want some John F. Rider books. State which you have. H. W. Schendel, 518 W. Main St., Sparta, Wis.

**WANTED** — 3 inch oscilloscope and also good grade audio signal generator. Must be a good buy. James L. Smith, 2230 E. Street, Sacramento, Calif.

**FOR SALE**—Almost complete list of parts, partly assembled and wired, for Carron Model CCI microvolted signal generator. P. J. Rumbol, 298 Main St., Greenville, Pa.

**FOR SALE OR SWAP**—Complete latest C.R.I. Course including both introductory and basic course for Kodak Bantam Special, or Rolleicord II f3.5 cameras, or cash equivalent. Thomas W. York, W1JB, 204 Raymond Road, West Hartford, Conn.

**WANTED** — A Superior channel-analyzer and a Superior tube tester Model 1280. These must have instructions and be fairly new. Will pay cash for both or either one. Tom Selles, 4 411 34th So., Seattle, Washington.

**F. L. SPRAYBERRY** Radio Course, complete and in A-1 condition, also Sprayberry Master Mechanic Servicing Course. Take \$25.00 or exchange for out-board motor. Irvin Moody, Smith's Grove, Ky. R. No 22.

**FOR SALE** — Readrite Model 430 tube tester, Radio and Television Institute, also various types receiving tubes. Pvt. William Sullivan, 1st Platoon, Co. B, 107 M.T.B., Camp J. F. Robinson, Arkansas.

**WANTED**—Rider's Manuals from 7 up, all or any of these, in A-1 condition, complete with index and supplements. State very best cash price. Also, will swap new Superior Channel Analyzer, purchased in 1941, used two or three times, for Rider's Channalist and pay reasonable cash difference. All letters acknowledged. McKinley's Radio Service, Zebulon, Ga.

**WANTED**—Rider's Manuals, Vols. 1, 2 and 3. Will pay cash. State condition and price wanted. Williams Radio Service, Iron Mountain, Michigan.

**WANTED**—Compound microscope and accessories, oscilloscope and other radio laboratory equipment—facsimile receiver, recorder, etc., plus every kind of physical and chemical laboratory equipment. Must be in good or repairable condition. State and give complete description in first letter. Will pay cash. P. E. Brassard, 16 Cumberland Street, Brunswick, Me.

**SELL OR SWAP** — Hickok 188-X crystal controlled FM-AM oscillator, brand new never used. Hallicrafters S-31 FM-AM tuner, P.A. equipment.

WANT Hammarlund Super-Pro, 18 inch PM speaker. Beam rotating mechanism. V. R. Parker, R.F.D., Lunenburg, Mass.

**WANTED**—One or two each 954 and 955 Acorn tubes or any H.F. tubes in operating condition. State best cash price or give idea of needed trade items such as meters, tubes, condensers fixed, condensers variable. All inquiries answered. Bob Eubank, W3WS, 1227 Windsor Ave., Richmond, Va.

**TRADE OR SELL**—Portable C.W. phone 6 volt transmitter, parmetal case, photo description page 371, 1939 Handbook. No junk, Hammarlund, National 160 coil, Thordarson T 19M13, Biley LD-2, Triplet, low power, osc. 6F6, P.A. 6F6, Spamp 6J7, 6C5, 6F6, small genemotor, high power 6F6, 807. Mod 6L6 or 6N7 large 250v. 100ma. genemotor. Both genemotors fully filtered. Other tubes may be used. Want test equipment, audio, osc., vtm, etc. Bob Eubank, 1227 Windsor Ave., Richmond, Va.

**SALE OR SWAP**—1 500 watt autoper transformer G.R. type, 2 T55 tubes, National 50 watt coil forms, 100 watt of same make, RFC 250mils, Hammarlund var. condensers, large Johnson 12,000 volt variable cond. UTC transformer 1000-1250-1500 DC 500 mils, 2 60 amp. line chokes, Thor swinging choke 400 mils, 1 380 smoothing choke, 2 866 tubes and sockets. Nelson K. Stover, 751 Tioga St., York, Pa.

**FOR SALE** — Supreme Model 89 deluxe tube tester and 1-4 Rider's Manuals. All in good condition. Spencer B. Walton, Apt. 2E, Salem Apts., Salem, N. J.

**SWAP**—A power supply for a voltohmmeter and test prods. Lawrence Roes-hat, 77 Church St., Wilkes-Barre, Pa.

**SALE OR SWAP**—1 2½ volt at 10 amp. transformer, 2 2½" Triplet 0-250 mils, 2 3" Jewell 0-500 mils, D.C., 1 3" Triplet 0-250 mils, Thordarson input and output class B No. 6698-6699 transformers, 2 T20 tubes, 1 Thordarson 1000 volt D.C. 400 ml. transformer, 1 swinging choke and 1 smoothing choke, 2 866 tubes. Nelson K. Stover, 751 Tioga St., York, Pa.

**SWAP** — GTC Porta Power Battery Pack for two volt sets for one that works on 1.4 sets. Philco set tester for sound equipment. Want 6 volt sound system. Less speakers. Shines Radio Shack, 69 West 23rd St., Chattanooga, Tenn.

**FOR SALE OR TRADE** — One army communication receiver, one instructograph with oscillator, phone, live tapes and instructions, AC oscillator with speaker in case, misc. radio parts. Want camera, photographic equipment, etc. F. L. Emerson, 7½ N. Second St., Yakima, Wash.

**CASH** — For Rider's, Hickok, Supreme, Superior, etc., Signal Chasers, V.T. voltmeters or meters. State price, condition and model. The Simplex Shop, Salina, Kan.

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