A new HIGH FIDELITY A. C. OPERATED 2A3 POWER AMPLIFIER
Ideal for broadcasting, recording, and public address applications.
Used by the leaders in sound and film recording.

NEW AMPLIFIER LAYOUTS FOR 42 A PRIME AND 2B6 18 WATT
PUBLIC ADDRESS POWER AMPLIFIERS

- Outstanding in performance—
- Smartly professional in appearance—
- Use new type heater tubes—
- Employ new circuit features—

For greater details ask for UTC Lab sheets 6 and 7.
Also U-1000C Bulletin.

OUR DISTRIBUTORS
RADIO SUPPLY COMPANY
PACIFIC RADIO EXCHANGE
UNITED TRANSFORMER CORP.

THE 53 TUBE AS A PHASE INVERTER
See Page 8

Standard Parts
AND
Radio Accessories
Exclusively for Dealers and Service Dealers

Radio-Television Supply Company
1000 South Broadway
TRinity 8716
It's fascinating to tune in World stations with a Grunow all-wave with the amazing "Signal Beacon." Come in and let us show you.

Watson & Wilson, Inc.
DISTRIBUTORS
711-717 Mitchell Place
Prospect 7281
Los Angeles

Radio Supply Co.
912 So. Broadway
Phones VAndike 3178 - 3179 3170
Los Angeles, Calif.

We Carry At All Times
Most Complete and Biggest Assortment of
RADIO PARTS
— In The West —
All The Nationally Known Makes of
REPLACEMENT PARTS
TEST EQUIPMENT
PUBLIC ADDRESS SYSTEMS
RECEIVERS AND TRANSMITTERS
WHOLESALE TO DEALERS AND SERVICEMEN ONLY

Mention The "Technician" when answering advertisements—It identifies you.
The "TECHNICIAN"

July, 1934

The Official Publication of the Certified Radio Technicians’ Association
An Organization of Competent, Qualified and Trustworthy Radio Technicians for the
Purpose of Advancing the Radio Art and for the Protection of the Public.

A. PAUL, Jr., President
JOHN L. VINCENT, Vice-President

JOHN A. ORME
Secretary-Treasurer

1569 Munson Avenue
Los Angeles, California

$1.50 Per Year
15 Cents Per Copy

VOL. 1
JULY, 1934
No. 11

EDITORIAL

By The Editor

"LOYALTY"

Loyalty is a quality, a possession of mind and character, which is denied none of us whether we be rich or poor, white or black, highly educated or uneducated. It is a paramount quality which not only gains our respect and commendation from our fellows in all walks of life and strata of society but is a tonic to our self respect and inner selves.

Regardless of our political creed, our religious belief, or our everyday association, let us be loyal to our beliefs, our fellows, and most important, to ourselves. If you are employed by any concern, regardless of its merits, either be loyal to its interests or resign. Support your religion or change to one which you can support.

By the same token support your radio association, the Certified Radio Technician’s Association! Minor differences of opinion are not important in comparison to the aims and objectives of this group as a whole. State your personal views in open meetings by all means, but if they are not incorporated into the policies of the association don’t cease to be loyal. Only by one hundred per cent loyalty of all our members may we expect to reach our goal!

Support your officers—you are indeed fortunate in having a dynamic, competent president, who has the intestinal fortitude and ability to promote publicity, cooperation and support of our aims from other branches of the industry. Our president leads a board of directors composed of men who have signified and proved their willingness and ability to shape the destinies of a new organization in the face of depression and adverse business conditions.

To these men you owe your undying loyalty and support. Your association is guided by these men who are working and sacrificing their personal interests for your interests — your business — your status in the radio industry. They demand and need your whole-hearted cooperation and support. If you cannot be loyal to them and the Certified Radio Technicians Association there is only one thing to do. That is to resign! Loyalty to yourself comes first! Therefore if, for any reason, you cannot support and work for the mutual benefit of hundreds of men and relinquish petty personal ideas and differences of opinion you owe it not only to The Certified Radio Technicians Association, but to yourself, to sever your connections with these men.

These may seem harsh words but loyalty has ever been considered an esteemed and fundamental virtue. Only by loyalty of its members to its ideals and aims may the Certified Radio Technicians Association hope to accomplish the tremendous task before it.

RADIO TUBES
— ARE A —
PROFITABLE PART OF
the Radio Dealers sales
WHEN THOSE TUBES ARE
KEN-RADS
See Us For Our Proposition
OUTRIGHT SALE OR CONSIGNMENT
SATISFACTORY DISCOUNTS

Ken-Rad
Radio Tubes
DEPENDABLE LONG LIFE

A. E. Ravenscroft, Inc.
Distributors
1818 So. Grand Ave. PRospect 1317
Los Angeles

The "TECHNICIAN"
**SIMPLE INDUCTANCE MEASUREMENTS**

By C. E. MILLER, Consulting Radio Engineer

Occasions frequently arise where it is desirable to know, with a fair degree of accuracy, the inductance of a choke or transformer primary. While few of us are so fortunate as to have inductance bridges available, nearly everyone has an AC milliammeter of the iron-vane type at hand. This meter may have a built-in series resistor and have the scale marked AC volts but never less it is fundamentally an AC milliammeter and is therefore suitable for our purpose. (The rectifier type AC voltmeter is not suitable for this purpose unless it has a scale-calibrated for 0-25 milliamperes AC).

The setup is very simple as it consists merely of connecting the meter and coil in series across the AC line. Since we are interested in the current through the circuit, the meter reading must be converted to milliamperes. Since the sensitivity of an AC voltmeter is generally unknown it will have to be computed by measuring the DC resistance with an ohmmeter and applying Ohm's law.

Thus if the measured resistance of the meter on the 15 volt scale is 780 ohms each volt on the scale represents 1/780 ampere or 1.283 ma.

For approximate results we may neglect the resistance of the coil and meter when measuring inductances of 30 henries or more at 50 cycles. The impedance is then considered as being all due to the reactance of the coil. By Ohm's law the impedance is found as the quotient obtained by dividing the applied voltage by the current indicated by the meter. Then if the frequency is 50 cycles the reactance may be found from the following table:

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<thead>
<tr>
<th>Inductance in Henries</th>
<th>Reactance in Ohms</th>
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</thead>
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<tr>
<td>1</td>
<td>314</td>
</tr>
<tr>
<td>2</td>
<td>628</td>
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<td>3</td>
<td>942</td>
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<td>9</td>
<td>2827</td>
</tr>
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<td>10</td>
<td>3142</td>
</tr>
</tbody>
</table>

If a high degree of accuracy is desired or the resistance of the circuit is high with respect to the reactance of the coil the following corrections may be made. Measure the DC resistance of the meter and coil in series. Then the true reactance will be the square root of the difference between the impedance squared and the resistance squared.

As an example, let us assume we have a 15 volt AC meter with a resistance of 780 ohms and the 50 cycle line voltage is 115 volts. The DC resistance of the coil to be measured is 500 ohms. When the coil and meter are connected across the line the meter reads 10.9 volts.

Converting the meter reading to amperes we have 10.9/780 = .014 amperes.

Since the applied voltage is 115 the impedance is 115+.014 = 8200 ohms.

Referring to the above table we find that the inductance is about 26 henries.

If a higher degree of accuracy is desired we may subtract the square of the resistance from the total resistance, 1280 = 1,630,000 from the square of the impedance, 8200^2 = 67,300,000, which gives 65,670,000, the square of the reactance. Taking the square root we have the reactance equal to 8100 ohms, which when divided by 314.16 gives the inductance of the coil as 25.8 henries. This illustrates that our error in neglecting the resistance in the approximate solution was less than one per cent.

As there was no DC component flowing through the coil when the above measurements were made, the actual inductance under operating conditions may be considerably less if the coil is forced to carry a DC component above its rated capacity.

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**SERVICE FROM CARBON TYPE MICROPHONES**

By JAMES L. FOUCH, Test Technician Universal Microphone Co.

The carbon type microphone is in general use because of its overall practicability. Other types such as condenser, ribbon, etc, require more space and more amplification. The main factor by Radio Address apparatus has always been amplification and the greater output obtained from the carbon grated type microphone usually displaces the one or two stages of amplification required by other types. True, the condenser and other types of microphones are coming into demand, but their initial cost has placed them beyond the reach of the majority.

Periodical repairs are necessary upon carbon microphones in proportion to the services obtained from them if they are not abused. The greatest objection to the service given is the loss of sensitivity after a long period of time. This loss of expediency may be caused by a great number of things. The first logical cause is the ageing of the granules due to the current passing through them. Second, there is a natural deterioration of granules which continues even while the microphone is out of use. The former may be reduced considerably by using a lower voltage upon the button, that is, three volts or less. This low voltage not only lengthens the life of the granules but also protects the delicate gold contact surfaces.

Carbon granules are especially adept in the absorption of moisture. The front button of a double button microphone, being exposed to the air, has a tendency to absorb moisture; making this button higher resistant. The back button is usually enclosed and is not affected readily by the moisture of the air, a condition which naturally throws the button currents out of balance. The presence of a potential balance of button currents in a double button microphone is not always essential. A microphone should not be removed from service just because it does not have a balance of button currents. Defective quality or a lowered sensitivity should be the only reason for taking a microphone out of service.

An exaggerated case of moisture absorption is seen in the microphone that "packs" or "blocks" in a humid atmosphere. A gentle warming of the microphone under an electric light or in the sunshine will often alleviate this condition if brought about by moisture.

"Packaging" caused by the cohesion of granules may sometimes be alleviated by gently tapping the microphone upon the side while in position with the current off. If this does not rectify the condition, repairing of the unit is necessary, "packaging" caused either by moisture or natural cohesion, results in a lower sensitivity.

After a length of time there may be a noticeable increase in hiss level of a carbon microphone. Usually a lowered sensitivity, caused by age, brings the output level of the microphone close to the hiss level, thus making the hiss appear louder. Corroded gold contact surfaces, which were originally deposited, cause innumerable microphones to be sent in for repairs because of the high hiss level developed. Moisture, when in contact with the granules, causes additional hiss and noise. High voltage applied to the microphone often damages the contact surfaces to such a point that there is more hiss, and the life of the granules is likewise shortened.

A cracked or corroded diaphragm is often the cause of excessive noise and a lowered sensitivity. If someone who doubts that the diaphragm is movable jabs it with a toothpick or pencil, or a screw driver slips when connecting the microphone, the result will be a dented diaphragm. With the general use of the thin, stretched diaphragm it has been found necessary to protect it with a grating or grid.

A change in the pitch of a microphone is often due to the effects of moisture upon the granules, or the loosening of the damping with age. Loosening of the damping results in a greater response to the higher frequencies. Other times, there might be distortion, resonance and a tendency for the microphone to "feed-back" when the diaphragm has to push dead granules. Finally, there are conditions duplicating these in locations where the acoustics are bad, do not blame the microphone.

All Broadcast and the best Public Address type microphones now have stretched diaphragms. Some operators have been caused some consternation on finding a stretched diaphragm broken without any apparent reason. As these diaphragms are very thin and stretched to quite a tension, a fall or jar, or the pass-
A PHASE-INVERSION AUDIO SYSTEM

By DON WALKER
Service Manager Troy Radio Mfg. Co.

The Phase-inverted amplifier offers high fidelity at low cost. Its principal advantages are: absolute minimum of hum and distortionless push-pull amplification. This is not a new trick circuit, but a sound and proven principal that has been neglected because of lack of step-up ratio. Now with the advent of the type 53 tube it has been recovered from the files, dusted off, and given new life. Referring to a tube chart you will find the 53 tube to be a high-mu triode in a single envelope, cathode type, gain 35 per section—nothing left to be desired for a phase-inversion circuit.

The technician will readily see the commercial possibilities of this amplification. There are thousands of old style radios in use today that were equipped with the good old 45's in push-pull but their input transformers, in most cases, are not capable of handling present day broadcasting.

A glance at the circuit (on front cover) shows input to G1 standard, input to G2 is obtained from a signal voltage divider in circuit of P1. The ratio of R4 to R5 is such that the signal impressed on G2 is equal to that on G1. Coupling from P1 and P2 to grids of power tubes is conventional. Biassing of power tubes may be any standard method. Power tubes may be either triodes or pentodes in Class A.

In the case of pentodes in a super using a 55 tube as detector and AVC, the triode section of the 55 is not needed, as ample volume will be obtained by connecting G1 of the 53 tube to the high side of the diode return resistor in the 55 circuit. If, in a set of this type, there is not socket space available for the 53, then replace the preceeding IF tube with a type 287 tube, using the pentode section for IF and the diodes for detector and AVC. The 55 tube can now be removed and its socket space used for the 53 tube.

In most sets using 45 type tubes in push-pull they are preceded by a 27 type first audio and, as this is replaced by the 53 tube, you will have the necessary socket space. In the case of a 24 or 57 type power detector it may be advisable to incorporate a volume control in the circuit of G1 of the 53 tube.

Many owners of old style radios are not in the market for new sets, but would like to have their old ones modernized with new type tubes.

The technician should find such changes as this very profitable business.

RADIO-TELEVISION SUPPLY TO MOVE

In keeping with its policy of offering trade discounts to dealers and service technicans exclusively, the Radio-Television Supply Co., is moving out of the downtown retail district.

The first week in August will see this firm installed in its new and larger quarters at 1701 South Grand Avenue. This new location, in the opinion of the Company, will offer many advantages to its host of customers in the way of ample parking facilities and freedom from heavy downtown traffic. Coincident with the occupation of new quarters a new and improved system of accommodating customers will be inaugurated which will offer quicker and more efficient service to technicians and dealers.

Service From Carbon Type Microphones

(Continued from page 7)

ing from a cold atmosphere to hot atmosphere, will often cause them to crack. This treatment given to a microphone with a corroded diaphragm is usually fatal. Moisture of the breath is an enemy to both the granules and diaphragm. Speaking across a "close talker" or damped microphone helps prevent corrosion caused by the moisture in the breath. The best hand microphones of the double button types are packed so that it is difficult for the moisture to reach the front button, allowing one to speak directly into them.

It may be concluded from the above statements that to greatly add to the service obtained from a carbon type microphone it must be kept away from moisture; operated on a low voltage, three volts or less; and treated with as much care as a delicate radio transmitting tube, not dropping or jarring it.

The writer is sure that following these precautions will repay the effort and trouble in added service.

POLICIES—

WE are not conceited enough to contend that we are responsible for the recent trend of Radio Parts Jobbers toward "Wholesale Exclusive" policies. Neither are we so modest as to deny that we may have been a factor in this move—

For two years we have maintained our policy of fairness by refusing to compete with our customers. Perhaps that is why we are the fastest growing Parts Jobber in this locality!

RADIO SPECIALTIES COMPANY
1816 West 8th Street
Los Angeles • • • FEderal 6633
BEWARE OF RUBBER CHECK ARTIST

Mr. Ullberg reports a very unfortunate experience with a rubber check artist. This man ordered a set to be delivered to his apartment. The set was delivered, connected and tested. The man then wrote a check in full for the radio. Mr. Ullberg immediately went across the street and vacated, leaving no clues as to his identity, whereabouts or the radio. The set was a five tube dual wave superheterodyne, serial No. 4206. Any information concerning this man or the radio will be sincerely appreciated by Mr. Ullberg.

TUBE CHECKERS — and — SET ANALYZERS
Repaired or Rebuilt —
All types of instruments
Repaired or Calibrated
Shunts or Multipliers made up
for any instrument
PROMPT — ACCURATE RELIABLE SERVICE
Authorized Service Laboratory for Weston Electrical
Instrument Corp.
Quality Electric Co. Incorporated
812 S. San Pedro Los Angeles

RMA OF SO. CALIF.

The activities of the Radio Manufacturers Association of So. Calif. are worthy of cognizance and support by the members of the CRTA and readers of The "TECHNICIAN." The members of this association are composed of the leading and progressive manufacturers of radio receivers located in Southern California who are making an honest effort to clean up our local radio business and keep it so. They employ only local men and their money is returned to local circulation.

TROY SETS USE TRIODE CLASS A AUDIO

The high quality audio system described in the article by Don Walker, service manager for the Troy, Radio Manufacturing Co., is the same as that used in the Troy models 72 and 84, described at a recent meeting of the CRTA by Ralph Lamm, chief engineer for Troy. It certainly looks good to see some of our local manufacturers (you'll notice the golden poppy on every Troy chassis) using our good old friend the '45 for real audio quality.

STOLEN SET

Motorola auto set model 75, serial No. 19844. A $5.00 reward is offered for information leading to the recovery of this set. Anyone having such information is urged to get in touch with Arthur F. Guion, 29 N. Marengo Ave., Pasadena. Phone Terrace 7257.

YOUR PART IN OUR ASSOCIATION

By A. PAUL, JR., President CRTA

If we are to continue the splendid work which we as an Association have begun it is imperative that each and every one of us do our part. The officers and members of the Board of Directors can be depended upon to do more than their share of the work of building up the Association.

The question which now arises is, "Will you, Mr. Certified Radio Technician, do your share?"

The most important job you have is to attend each and every meeting for the following reasons:

1. The sponsored course in radio engineering theory which has been presented weekly for many months will only continue as long as enough men attend to make provision worth while for the sponsor to go to the necessary expense.

2. In order to obtain speakers of note as features on our program we must be able to assure them of a sizable audience.

3. If we are to have legislation passed which is favorable to our cause we must convince the law makers that we are representative of the industry.

4. Your magazine, The "TECHNICIAN," is unique in the annals of radio service organizations. If it is to continue to function, its circulation must grow.

Your second job as a Certified Radio Technician is to see to it that every eligible qualified man in the radio service industry is acquainted with our organization, its aims and purposes, and is urged to affiliate himself with us. Because not until every worth-while man in the industry is associated with us will we really be able to function as we should.

And last but not least, it is your duty as a member to report and help prosecute any and all unfair trade practices which may come to your attention.

ENGINEER ENTERS NEW FIELD

Mr. Richard G. Leitner, outstanding radio design engineer, formerly with the Radio-Kit Co. and consulting radio engineer, has recently entered the field of development of sound-on-film recording.

Condensers! — CONDENSERS! — Condensers!
Follow the crowd to Radio Products Sales Co.
Try ADVANCE CONDENSERS
once and be convinced of their superior quality
All Electrolytics 600v to 1000v.
By-Pass Condensers, 400 to 800v

Radio Products Sales Co.
PR. 0490 1314 South Hill Street Los Angeles
We Welcome You With Prices That Are Right.

RCA Victor's New World-Wide Antenna Kit
Stock No. 9500
Now—$6.00

Scientifically designed by the RCA Victor Engineers who designed the RCA trans-oceanic telephone antennae.

Leo J. Meyberg Company, Inc.
335 West Washington
PRospect 9255 Los Angeles

Mention The "Technician" when answering advertisements — It identifies you.
PERSONALS

Mr. B. M. Furhman has just returned from a three weeks visit to the middle west including a few days in Chicago spent inspecting the second edition of the World Fair.

Bob Reed, formerly with Watson and Wilson, has recently become connected with the firm of A. E. Ravenscroft, Inc. Don't forget his ability to make things disappear—keep an eye on him when he calls on you.

John A. Orme, secretary of the CRTA is now in charge of service for the ABCO Radio Service Co., located on Western Avenue near Ninth street.

Karl Hatfield has been walking the floor nights lately with a new addition to the family. It’s not what you think it is though, it’s a new wire haired terrier that seems to have entirely upset the routine of the Hatfield household.

Mr. Charles E. Miller has been taking care of the extensive service business of Mr. B. M. Furhman during the latter’s trip to the World Fair and thereabouts.

Even those in the radio industry take vacations now and then. Among those absent from their duties at various times this month were Larry Lange, of Leo J. Meyberg Co., Bill Wilson of Watson and Wilson, W. L. Sexton of Radio “Doc,” Mr. W. F. Grimes, chief engineer of the Radio Trades Interference Engineering Bureau and Henry James, CRTA member.

SERVICE KINKS AND PET EQUIPMENT

The following service notes are reprinted from the Bulletin of the Radio Service Men’s Association of Maryland by special permission of the Editor, Mr. Albert O. Rabassa, who is also President of the Association.

Silver Marshall A-18
When set squeals with volume wide open on distant stations, try changing oscillator tube. Also check for too high screen grid voltage.
—Lanterman Radio Service.

Victor R32
Distortion and poor tone quality—look for speaker cone broken close to the voice coil.
—Chas. B. Hast.

General Motors
When hum is encountered in this receiver and everything apparently checks O. K. it will pay to short out the fuse in the chassis. If the hum stops, replace the fuse. —J. B. Montero.

Grebe SK-4
If these sets fade on locals and are brought back by turning up the volume control or vice versa (if station comes in very loud and the volume control has to be turned down) during the first few minutes the set is turned on the trouble is gassy 24 tubes. Such tubes will often check O. K. in a tube tester, but new tubes will remedy the trouble.
—George Mason.

SKAGGS TRANSFORMER COMPANY

5894 S. Broadway, L. A. FREE DELIVERY ADams 7652
REWOUND ORIGINAL TRANSFORMERS FOR IMMEDIATE EXCHANGE
“YOU CANNOT BEAT A GOOD REWOUND TRANSFORMER”
Good rewound transformers have had the manufacturers’ mistakes corrected in the use of poor insulation and corrosive soldering fluxes. They have been put together the best way, not the way that takes the least amount of time.
Just Give Us A Ring And Have It Delivered.
FILTER BLOCKS REBUILT NEW SPEAKER FIELDS

Radio Manufacturers’ Association of Southern California Extends Congratulations
May your splendid work of the past continue.

CHANTICLEER RADIO CO.
EL REY RADIO MFG. CO.
GILFILLAN BROS., INC.
GOLDEN BEAR MFG. CO.
HORN RADIO MFG. CO.
MELBURN RADIO MFG. CO.
MISSION BELL RADIO MFG. CO.
PETER PAN RADIO CO.
REMINGTON RADIO & TELEVISION
PACKARD BELL RADIO CO.
TROY RADIO CO.
WESTONE RADIO CORP.

 Mention The “Technician” when answering advertisements—It identifies you.
that the use of the hot water system also aggravated the noise. The final analysis of the difficulty revealed the fact that the hot water system was of the instantaneous gas type and was provided with a vent. This vent was of the conventional tin chimney type and projected some four or five feet above the roof of the house. It was held in position by means of four (4) small guy wires, one of which was anchored to the conduit through which the electrical disturbance which had blown the vent. The ground on the conduit had become loosened thereby permitting the conduit to take up an electrical charge which resulted in a sparking discharge when the wind was blowing the vent or any vibration of the house caused a motion of the vent.

ANNOUNCEMENT!

The September issue of The "TECHNICIAN" will be the first issue of volume number two. It will begin the second year of its sale with a frontispiece which was originally intended to be a two or three page micrographed bulletin but which has grown and become a permanent fixture in the radio industry of Southern California. Many were those who said it could not be done. On the other hand there were many who were enthusiastically in favor of such a publication and optimistic as to its success. These men not only had an optimistic outlook and wish for a magazine but the willingness and ability to contribute to its eventual success.

For weeks past your editor has been preparing the setup for a special issue to celebrate the beginning of the second year of The "TECHNICIAN" and you can be assured that the September issue will surpass your expectations. Leading engineers and technicians are even now preparing feature articles especially for this big issue. Advertisers have signified their desire to cooperate in making this an extra large issue by increased advertising space.

All readers are urged to send in service kinks, descriptions of pet equipment, reports of personal activity, and any bit of interesting news or information relative to the radio industry. But whether you do or do not contribute be sure not to miss this anniversary issue of your own magazine!

PHILCO SERVICE DATA

Listenwarter & Gough, Philco distributors, announce a new service to technicians. All men who call in person at the Philco service department, this company after August 15 will be presented, free of charge, a set of valuable service data consisting of circuit diagrams and pertinent data pertaining to late model Philco receivers.

Mr. Glenn Barr, in charge of the radio service department for Listenwarter & Gough, extends an invitation for all technicians to avail themselves of the facilities of his department in the way of advice and service hints on difficult jobs.

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NOTICE TO ADVERTISERS

Advertisers are asked to cooperate in an effort to advance the date of publication of The "TECHNICIAN" by one week.

It will be greatly appreciated if all advertisers will have copy ready for pick-up by August 1st, without fail.

NOISE SUPPRESSION ON FORDS

There have been many requests for a universal suppressor that will fit all cars equally well, including the Ford. For best results, the same suppressor must not be used on all cars even though mechanically interchangeable.

The Ford ignition coil delivers unusually high voltage and since no distributor suppressor is used, the resistance of the plug suppressors should be at least twice that commonly used for other cars.

Centralab part number 304 is mechanically interchangeable on the Ford and other cars. We particularly recommend it for Fords in a resistance of 30,000 ohms. This resistance will not affect Ford motor efficiency, but is not recommended where a distributor suppressor is also used.

After installing Suppressors on any car, adjust the ignition cables as close to the motor block as possible. The capacity between the cable and the block helps prevent radiation. That is why many installers have observed that suppressors are most effective when mounted at right angles to the plugs.

—Courtesy Radio Specialties Co.
TO FORGIVE IS DIVINE

The Pacific Radio Exchange's policy of arranging its stock on open tables for easy inspection and selection was the cause of an amusing incident a few days ago. A clerk reported to Mr. LeBell that he was almost certain his customer had just slipped a filter condenser in his pocket but didn't actually see him do it. Mr. LeBell, in an effort to verify this suspicion kept a close watch over the suspect and under guise of accidentally flipping a cigarette on him brushed him off very thoroughly and noted several bulky objects in his pockets.

The culprit, becoming uneasy by this time, was caught in the act of returning a condenser to the table. Search revealed several condensers and other items concealed on the victim's person. The amusing part of the incident, however, is that it was so laughable to Mr. LeBell that he couldn't become angry and reports that the man in question apparently bears no ill feeling and is still a good customer. The moral of the story is—don't try to "snitch" merchandise on the store, but if you do don't try to return it.—But if you should be caught laugh it off.

Mention The "Technician" when answering advertisements—It identifies you.

PRIZE CONTEST

The winners in the prize contest will be announced in the August issue of The "TECHNICIAN." Some very excellent articles were submitted in this contest and the prize winning articles will be published in subsequent issues of The "TECHNICIAN," beginning with the August issue.

TREATISE ON RECORDING

"Simplified Disc Recording," with one diagram and other useful information on the subject, has just been published by the Universal Microphone Co., Inglewood, Calif., as a 12-page leaflet.

The making of high quality recordings by stations, amateurs and others for air checks, audition records and other uses, has opened up an entirely new field in the sales and installation of recording apparatus.

In addition, many short wave enthusiasts have started to record, in permanent form, some of the foreign programs they tune in.

The Universal booklet subdivides its publication by discussing the amplifier, hum and volume levels, turntable, recording heads, types of record material, playback, mounting the lead screws, the pickup, weight on the recorder, playing time of records and a general discussion. It was compiled by E. E. Griffin, chief engineer of the company. A small service charge of ten cents has been placed on the booklet to take care of the mailing and clerical expense.

NIKIRK ADDRESSES CRTA

At the June 25th meeting of the CRTA Thomas E. Nikirk, of the Pacific Radio Exchange, presented a very interesting paper on s. f. amplifiers and their troubles. In the course of the talk curves of typical amplifiers were shown and analyzed, showing the effects of certain circuit changes as regards frequency response.

New Kind of Sylvania Service Book
Auto Radio Installation and Service
FREE TO YOU—CLIP THE COUPON

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<td>Running Board and Under-Car</td>
<td>Tubes</td>
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Now Sylvania engineers have prepared a reference book on auto-radio. This handy pocket manual contains tested information on suppression of ignition interference, 6 types of antennas and their installation, the R. M. A. Resistor Color Code, Chart of tube types and other important data you will need in auto-radio servicing. Send for your free copy. It will help to put you in on the ground floor of the fast-growing auto-radio industry . . . a business that Sylvania engineers themselves promoted with their development of the 6.3 volt tube.

SYLVANIA
THE SET TESTED RADIO TUBE
HYGRADE SYLVANIA CORPORATION
MAKERS OF
SYLVANIA TUBES HYGRADE LAMPS ELECTRONIC DEVICES

FACTORIES:

HYGRADE SYLVANIA CORPORATION
Emporium, Pa.

Please send, without obligation, your new service book, "Auto-Radio Installation and Servicing."

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STATE
AIRCRAFT RADIO ENGINEER ADDRESSES THE CRTA

Mr. Paul O'Connor, chief engineer for the Westport Co., delivered a very interesting paper on the subject of shielding ignition systems in installations at the CRTA meeting July 2. Mr. O'Connor held the interest of the members and guests present for over an hour at the end of which time a number of questions were asked. The ensuing discussion was very interesting and enlightening. The problems of the aeronautics radio engineer were told and the procedure for completely shielding the ignition system of a modern airplane engine was described.

NOTED ATTORNEY MEETS WITH CRTA

Mr. Joseph Duchowny, leading Los Angeles attorney specializing in radio law, addressed the members and guests at the June 18th meeting of the CRTA. His talk, lasting nearly an hour, was packed with valuable information dealing with the legal aspects of conditional sales contracts and printed forms relating thereto. The essential points of credit sales were discussed at some length and in detail. Mr. Duchowny is indeed due a great vote of thanks from all who were privileged to hear his very interesting and valuable talk.

NOTICE!

At the regular meeting of the Certified Radio Technicians Association July 9, 1934, the Board of Directors, after due consideration, unanimously passed a resolution not to enter into any action for the organization or participation in any co-operative buying group. This in view of the good will, advertising and loyal efforts of the radio jobbers and wholesalers of Southern California. It is the opinion of the Board that these jobbers and distributors are conscientiously endeavoring to elevate the radio business in this state to an honorable basis and keep it there.

CRTA MEMBERS FAVORED

Mr. Eddi Freitas, of A. E. Ravencroft, Inc., presented the members and guests present at the July 9th meeting of the CRTA with a very handy six-inch metal rule given through the courtesy of W. Bert Knight, Ken-Rad tube distributor.

MORE PRIZES

As a special incentive to bring new members into the association the Radio Supply Co., located at 912 South Broadway, has offered a Triplett universal meter to the man bringing in the greatest number of new members in the next ninety days. The meter is described in the catalog as follows: The meter has 75 divisions marked 0-15 in red. The D. C. scale is similar but printed in black. The ohms scale reads 0-1500 in black and 1-12.5 megohms in red. With multipliers, scale readings are 0-15-150-750 volts A. C. or D. C., at 1000 ohms per volt resistance. D. C. milliamperereadings are 15-150.

Mr. Leitner, a Los Angeles attorney specializing in radio law, addressed the members and guests at the CRTA meeting July 2. His address was very interesting and entertaining.

Mr. Duchowmy, Westport Co., delivered a very interesting talk, lasting nearly an hour, was packed with valuable information dealing with the legal aspects of conditional sales contracts and printed forms relating thereto. The essential points of credit sales were discussed at some length and in detail. Mr. Duchowmy is indeed due a great vote of thanks from all who were privileged to hear his very interesting and valuable talk.

INTERNATIONAL KADETTE SERVICE ANNOUNCED

The service department of A. E. Ravencroft, Inc., which is in charge of Eddie Freitas, announces expert and prompt service on all International Kadette receivers. Undoubtedly technicians will be glad to learn where to obtain competent service and information as well as replacement parts on this line of equipment. Eddie services and carries parts for Amrad sets also.

CLASSIFIED ADVERTISEMENTS

For Sale—

444 Jewel Analyzer, perfect condition. $37.50 Logan, ORsegon 2681. 5276 West Adams St.

250 watt crystal controlled C. W. transmitter in perfect condition. Rack and cabinet Complete $75.00. Phone Prospect 3515.


For Sale or Trade—

3 acre chicken ranch or small farm with 6-room house (clear) inside city limits small town 15 miles north of Visalia. Will trade for Beach Cottage, laboratory and A equipment, sell for cash. N. B. Neely, Albany 1628.

RCA 104 speaker and amplifier complete with all tubes (new '10) in cabinet. Magnavox 12 inch dynamic with 6 volt field, 8 inch Lansing dynamic (47 output trans.) 2500 ohm field, new Utah auto dynamic in case (P. P. '36 output trans.) Violet ray machine and American Model EL 2 button mike, never used. Norman B. Neely, AL 1628.

Will swap Jensen Auditorium A. C. dynamic, perfect, also an R. C. A. phototube (20 watt dynamic, good for truck). Radio Art, 2924 N. Broadway, Capitol 5542.

WANTED—

Deep sea fishing tackle in good condition, in exchange for Radio parts, etc. Radio Art, Capitol 5542.

Dynamic horn units, 4 and 6 feet trumpet, 110 volt phone motor and turntable, line to voice coil transformer and tube tester to check up to 59's. Norman B. Neely, Albany 1628.

Good auto radio in exchange for printing. Ralph J. Hawks, 222 So. Avenue 57, Los Angeles.
To facilitate ready contact with any member of the officers and directors of the Association, the following directory is published for your convenience:

<table>
<thead>
<tr>
<th>Name</th>
<th>Office</th>
<th>Phone</th>
<th>In Charge of:</th>
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<tr>
<td>A. Paul, Jr.</td>
<td>President</td>
<td>OR. 2233</td>
<td>Public Relations</td>
</tr>
<tr>
<td>John L. Vincent</td>
<td>Vice-President</td>
<td>KE. 1640</td>
<td>Arbitration</td>
</tr>
<tr>
<td>John A. Orme</td>
<td>Secretary-Treasurer</td>
<td>AT. 9501-1348 West 20th Street.</td>
<td></td>
</tr>
<tr>
<td>Norman B. Neely</td>
<td>Director</td>
<td>AL. 1628</td>
<td>Meetings, Papers, Publications</td>
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<tr>
<td>E. H. Darrow</td>
<td>Director</td>
<td>AN. 4509</td>
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<tr>
<td>Geo. W. Ekelberry</td>
<td>Director</td>
<td>HI. 2788</td>
<td>Employment and Membership</td>
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<td>Art Ooddys</td>
<td>Director</td>
<td>CA. 5542</td>
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<td>Charles E. Miller</td>
<td>Director</td>
<td>HE. 2697</td>
<td>Technical and Examining Boards</td>
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<td>V. K. Hatfield</td>
<td>Director</td>
<td>OL. 5220</td>
<td>Dealer Contact</td>
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<tr>
<td>Richard G. Leitner</td>
<td>Director</td>
<td></td>
<td>Consultant</td>
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TECHNICAL QUESTION AND ANSWER DEPARTMENT

Conducted by C. E. MILLER

Q. I have had several of the new 5 tube Internationals that are troubled with interference from the airplane beacons. They are located in Beverly Hills. Can the trouble be corrected?
A. That set has an IF of 262 kc while the beacon is on 264 kc. Your sets are probably on the beam. Realign the IF's to 256 and then rebalance the gang.

Q. I am having trouble with an AC-DC super playing KMTR all over the dial. What is the cause?
A. Your IF's are probably peaked about 100 kc too high.

Q. A Victor 9-54 has no B+ on the IF tubes although all resistors and condensers are O.K. The primaries of the IF's are not open nor grounded.
A. The trouble may be in the second detector grid circuit as that grid operates at the potential of the IF plates.

NEW KEN-RAD CARTONS
The Ken-Rad corporation, of Owensboro, Kentucky, manufacturers of Ken-Rad Radio tubes and Ken-Rad incandescent lamps, have recently adopted a new tube carton of very attractive appearance. It is of the new sealed-in type attractively colored in black, red and blue.

DR. HUND LOCATES HERE
Dr. August Hund, noted for his many contributions to the radio art in the past two decades and particularly for his book and subsequent revisions concerning high-frequencies, has recently located in Hollywood.
Dr. Hund proposes to maintain a consulting service and establish an extensive experimental laboratory for the development of all types of electronic devices.

PETER PAN POPULAR
According to Johnson & Mackey, distributors of the new line of Peter Pan receivers, the sets are becoming popular sellers with a large number of dealers. Note that Peter Pan sets have a golden poppy on the chassis signifying that the manufacturer is a member of the Radio Manufacturers Association of Southern California.

REPRESENTATIVE FOR JACKSON SERVICE
Mr. B. M. Fuhrman has recently announced his appointment as service representative for the Jackson Electrical Instrument Co., of Dayton, Ohio. Mr. Bill Hitt is the sales representative and the products of this company may be purchased through the A. E. Ravenscroft Co.

SINCERE THANKS
We wish to extend our sincerest thanks to the advertisers in The "TECHNICIAN" not only for their support but for their very prompt payment of advertising charges. Inasmuch as The "TECHNICIAN" is a non-profit publication maintained for the mutual benefit of the radio industry of Southern California paying no dividends, no salaries and having no surplus funds, prompt payment is essential for the continued success of the magazine.
With very few exceptions all our advertisers appear to have realized this and have cooperated to the fullest extent.