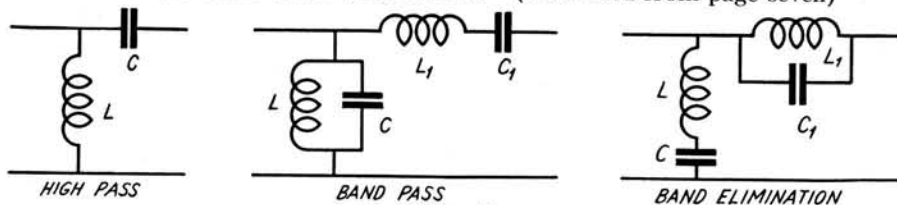


THE HOW AND WHY OF FILTERS—(Continued from page seven)



the unwanted frequency, other frequencies flow through easily, the coil L and condenser C in series being selected that the combination is resonant at the frequency to be excluded from the main circuit.

Band-pass arrangements are sometimes placed between vacuum tubes or several stages or it may be placed ahead of an amplifier and thus used to filter out the desired band before any amplification takes place.

By changing the setting of the dial the capacitors varies, thus the band is moved up and down. The spectra of broadcast station frequencies and a station is received when the selector or filter is adjusted to pass the particular frequency of that station. So when just glancing at a wiring diagram of a receiver, you see a number of choke coils and condensers that apparently seem unnecessary. Remember that they are valuable components of the scheme as a whole to make for better Radio reception and should not be slighted.

RADIO WITH THE COLORS—(Continued from page nine)

fitted by the Coast Guard's Ice Patrol which makes known to commerce the location of icebergs, those menaces to sea traffic which have taken a toll of so many lives. Let a ship in need of assistance send an SOS or NCU and the first Coast Guard ship that picks it up is immediately off to the rescue. A Coast Guard shore station picking up one of these calls would immediately relay it to other Coast Guard boats and there may be at one time eight or ten ships of the Coast Guard racing to assist in the emergency.

The general Radio equipment of the Coast Guard is very similar to that of the Navy except that the Coast Guard uses phone to a greater extent. The value of Radio to this organization may be more apparent when we consider that the boats are transmitting 85% of the time.

These various government departments, through their recruiting stations in all large cities, are constantly on the lookout for trained Radio men.

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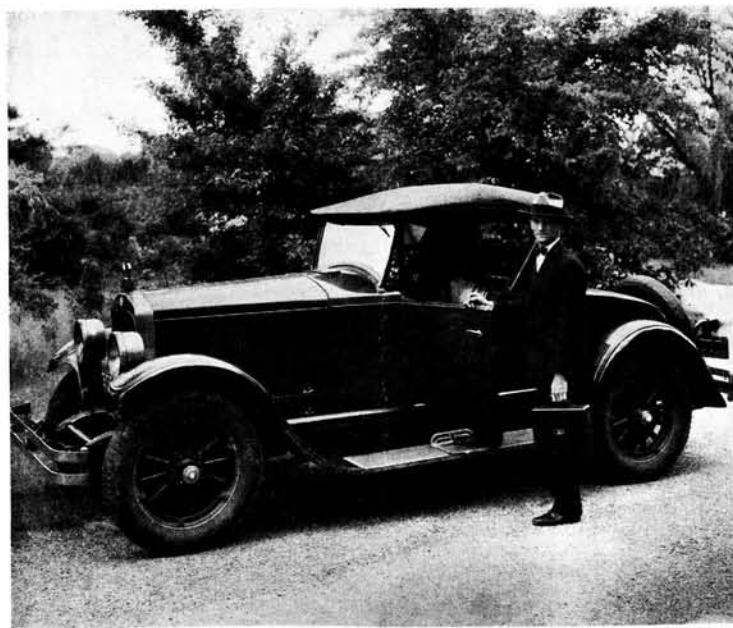
line (none of the leads on the transformer should touch each other). Put your A.C. and series bulb across each pair of wires which show continuity. On filament windings you have bright light, on the high voltage, no light, on primary, a faint glow. Test each winding with an A.C. meter to determine the various voltage outputs.



VOL. 4—NO. 3

WASHINGTON, D. C.

OCTOBER, 1931



(See Page 14)

Radio

OPPORTUNITY

Number

My Own page



This Young Man—Radio



Make Up Your Mind

NO doubt things have been a bit slack. Business was "off color" and Radio felt the effect just like other industries.

But I think Radio was in a different position, call it depression if you will—but one from which it is easier to emerge.

Radio is an infant. Commercially it is only twelve years old. Like a long-legged boy, it has grown rapidly and attained an enormous height. It must have a period of adjustment to spread—to become broader.

Almost daily new jobs are found for this young man Radio. As he emerges from this adjustment, he gets into Television, Aircraft, deeper in Short Wave and Sound and many new developments.

In 1920, the year of Radio's commercial birth, only one-half million dollars was spent on him. Today, he is near the **billionaire** class.

Radio is popular with the public which is demanding better receiving sets—better service—better broadcasting facilities. Its industrial applications are time and labor saving devices that shortly will be indispensable.

From nothing to a **Billion dollars** in twelve years is indicative of Radio's earning power for his followers. Who can predict just where Radio will be five—ten years from now?

N. R. I. has introduced you to this young fellow who has been mighty kind in a financial way to those who've known him. The better you know him, the more profitable will be your acquaintance.

RADIO is expanding with such rapidity—has developed so many branches, that it is no longer just "The Radio Industry." These branches are becoming individual industries—each requiring skilled, specialized man-power. So much publicity has been given these off-springs of the parent Industry that to list them here is unnecessary.

Numerous factors must be given consideration in making a decision as to the branch in which to specialize. Careful preparation of any plan will save retracing steps and doing the job over again.

First lay a definite plan of what you wish to accomplish—establish your goal. Then decide what steps are necessary to advance to it. Read everything you can find pertaining to the particular branch of Radio which you have decided upon. What does it offer—what are the general requirements to be successful in it? If you do not have all of the qualifications—don't lament the short-coming—**get the qualification.**

You are the one best judge as to the field for which you are best qualified. You best succeed in work you like, provided you have trained yourself for it. You must practice self reliance. Learn to make decisions for yourself and abide by them. If you are ever to attain prominence in any business or profession—this is a characteristic you must possess. Your ideas are as good as those of the next man.

Plan ahead. Have confidence in your opinions and let nothing stop you short of your goal.

J. E. SMITH, President.

THE HOW and WHY of FILTERS

By J. A. DOWIE, Chief Instructor

BECAUSE of the general misunderstanding which seems to exist among some Radio students in regard to the subject of filters, the writer will endeavor to explain in a simple way the purpose and action of filters in Radio circuits.



It seems that when referring to the word "filter" to a Radio service man probably four times out of five he will draw a mental picture of the power pack of a Radio set in his mind. In other words, the word "filter" is invariably associated with the power pack. The Radio service man is not altogether to blame for this as a good many of us have been "brought up" to think of the power pack filter as being the only filter of any importance employed in the modern Radio set.

But in reality filters are found in several more places than just in the power system of a receiver of today, and while the design and construction of some filters covers quite an extensive field in itself, and its mathematical aspects would be of very little value to the average service man, unless he by chance desired to pursue the study of this very interesting branch of electrical design, yet a brief discussion of filters in general should be of interest and some value to him.

ACTION OF FILTERS

In **chemistry** a filter is a sheet of paper or a piece of absorbent cotton in a glass funnel, for the purpose of letting through a liquid and stopping solids. In **ventilating engineering**, a filter is a device that will pass air and stop solid matter.

The purpose of a filter in a **Radio and electrical engineering** is not very different from that of any other filter; it is simply a combination of coils of wire and condensers used for separating several things which are

mixed together. In this case they deal with electric currents of different characteristics; that is, direct and alternating currents, or alternating currents of different frequencies. Their action depends on several well-known facts; first, that an inductance permits the passage of direct currents and low-frequency currents with much less opposition than it offers to high-frequency currents; second, that a condenser will pass high-frequency currents more readily than one of lower frequency, while it stops or "blocks" the flow of direct current; and third, that tuned circuits will permit the passage of alternating currents in a narrow band of frequencies and will oppose the flow of currents at other frequencies, or vice versa. By a proper arrangement of coils, having air and iron cores, and condensers of different capacities, any desired filtering action can be obtained.

TYPES OF FILTERS

Filters may be divided in four principal types as follows: Low-pass filters, high-pass filters, band-pass filters and band elimination filters. The purpose of each will be explained by the aid of Fig. 1.

Low-pass filters prevent currents of a frequency higher than a certain predetermined value from passing. This type of filter will pass direct current and all alternating currents of a frequency lower than the critical value mentioned above.

The high-pass filter will pass all currents of a frequency higher than a certain value. In most cases a filter of this type will stop the flow of direct current as well as that of low-frequency alternating current.

(Page 7, please)

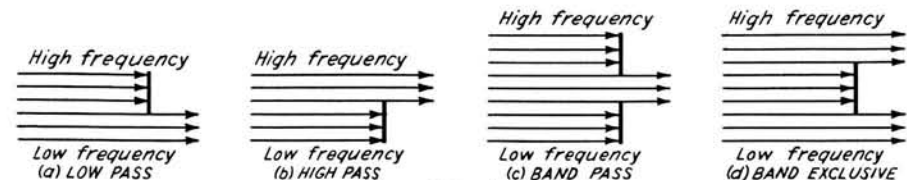


Figure 1



A Chat With the N. R. I. Director

REGARDLESS of how other industries may have suffered during the recent business depression, Radio broadcasting as a business, seems to be going forward at a rapid rate.

The gross income from the sale of time by the two major broadcasting networks amounted to \$17,399,720 during the first half of 1931 while for the same period in 1930 the gross revenue was nearly \$5,000,000 less, to be exact, \$12,689,650.

I'M going to get away from arguments in the abstract about Radio opportunities and talk about actual cases. Every N. R. I. man is interested in knowing where other fellows found opportunity.

If we'd travel half way round the globe, to the Royal Observatory at Kowloon, Hong Kong, China, in the Radio Receiving Station we would find N. R. I. graduate Han Pen Juan—doing a good job the N. R. I. way.

And up in Iceland, at the Government Radio Station, another graduate is at the controls.

Information has been received that Graduate Kermit Hanson is with the Paramount Sound News Company, on duty in Europe,

Asia and Northern Africa, and in the same mail comes news that Selnor Tollefson is located with Rogers Majestic, Toronto, Canada.

Chester K. Sperry and Loyal Podhaski both thank N. R. I. Employment Service for their jobs with Radio Sales and Service Co., Davenport, Iowa, and Station WHBU, Anderson, Indiana, respectively.

The young inventor Philo T. Farnsworth, who shows promise of revolutionizing the Television Industry with his new scanning method is a graduate who saw his opportunity and will go far in his profession.

Most of us are familiar with the fact that our old friend and graduate H. R. Barrett has been appointed by the Civil Service Commission as relief operator on the Nantucket Shoals Lightship. And an interesting life is that of A. G. Kuhns, who has been Radio operator on the ship Satco in the oil trade along the Atlantic Coast for the last 1½ years.

All of which just goes to prove that Radio is branching out to a point where a fellow may find work to his particular liking in nearly all cases. Of course a lot depends on the man—the way he studies—the way he qualifies himself. But those fellows I just mentioned and hundreds of others who are in good Radio jobs were born with the same amount of brains as any one else. Any other fellow with their training—their ability and their initiative should equal their marks.

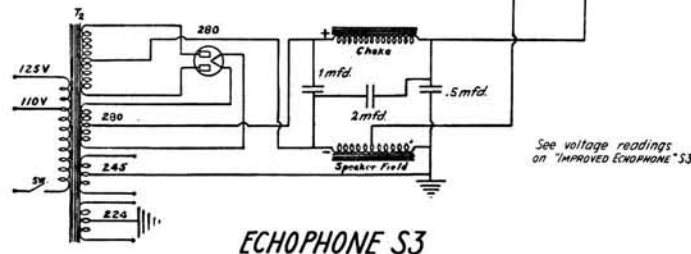
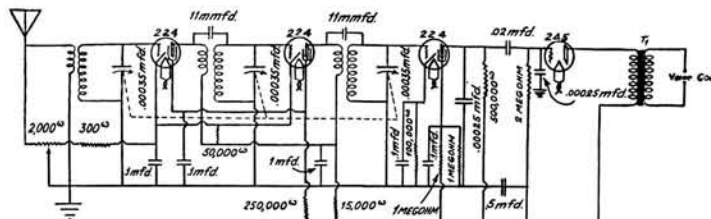
Most apartment house roofs look like a fence struck by a cyclone. Aerials and braces; and poles warped and bent in all directions form a conglomeration not only unsightly, but very inefficient.

The management of these apartments would, in many cases, pay a Radio-Trician to put up a good installation. A rack of galvanized iron pipe on each end of the roof, makes a neat job. Aerial wires, about twelve inches apart should be attached to the cross-bars—the insulator being at least a foot from the rack. Think it over and try it out.

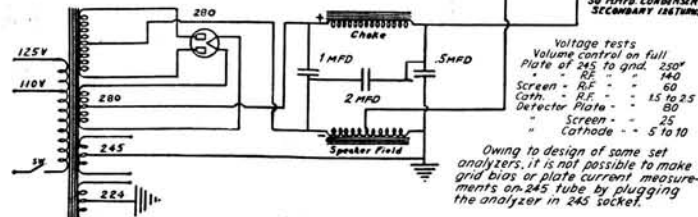
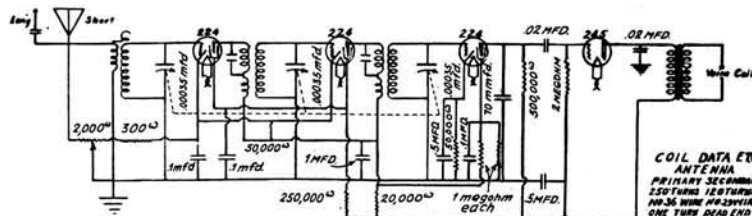
E. R. HAAS,
Vice President and Director.

RADIO-TRICIAN SERVICE SHEET

REG. U. S. PAT. OFF. COMPILLED SOLELY FOR STUDENTS & GRADUATES



ECHOPHONE S3



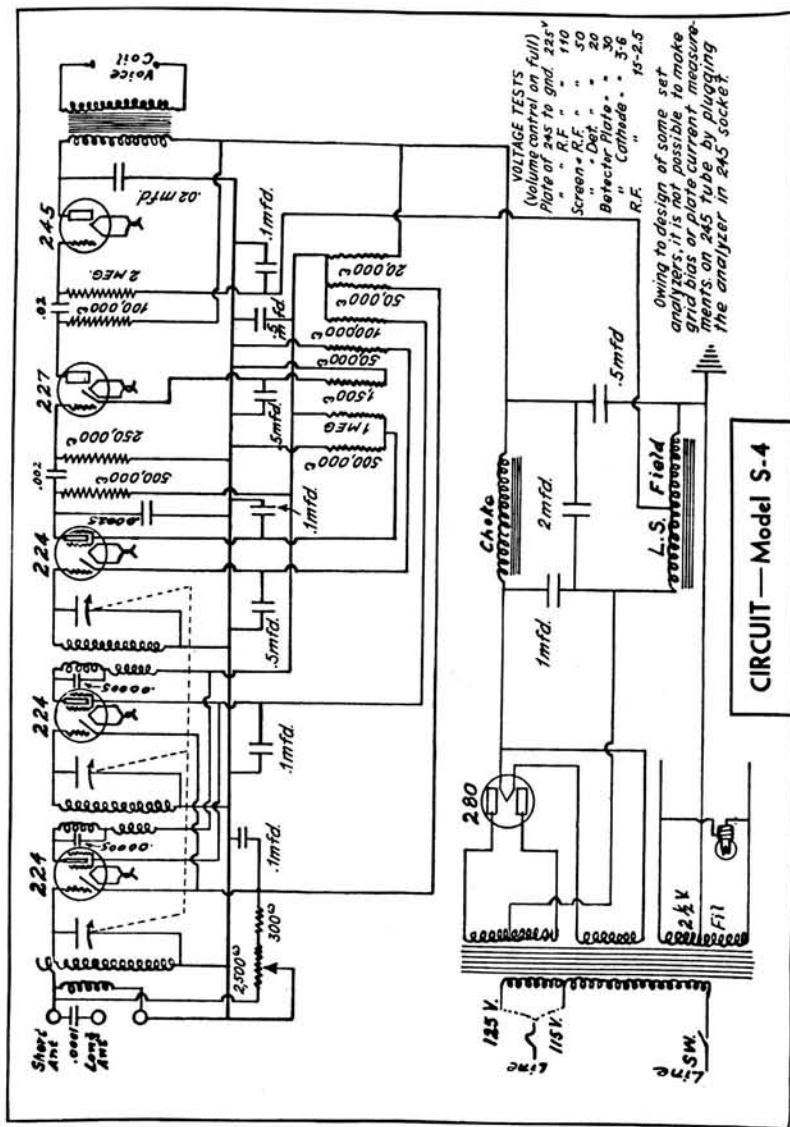
IMPROVED ECHOPHONE S3

COIL DATA ETC
ANTENNA
PRIMARY-SECONDARY
150 TURNS 180 TURNS
100-36 WIRE #18-20VINE
ONE TURN DEAD END
R.F. COILS
40 TURNS OF CLOSE-
COUPLED PRIMARY
500 TURN SECONDARY
SHUNTED WITH C.F.
50 PICO CONDENSER
SECONDARY INSTURNS

Volume tests
Plate of 245 to grid 250V
- RE - 140
Screen - R.F. - 140
Cath - R.F. - 15 to 25
Detector Plate - 80
- Screen - 25
- Cathode - 5 to 10

Owing to design of some set analyzers, it is not possible to make grid bias or plate current measurements on 245 tube by plugging the analyzer in 245 socket.

Readers who file Service Data in separate binders remove page carefully; trim on dotted line for same size as Data published heretofore



NATIONAL RADIO NEWS



Volume 4
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October,
1931

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NATIONAL RADIO INSTITUTE
 Washington, D. C.

J. E. SMITH, President. E. R. HAAS, Director.

THE HOW AND WHY OF FILTERS

(Continued from page three)

A band-pass filter is designed to let through any current which has a frequency between the upper and lower limits of the band, covered by the filter. In this case, currents of either higher or lower frequencies are stopped.

The "band-elimination" or "band-exclusion" filter is designed to suppress certain frequencies but allows passage through the circuit of all frequencies which are either higher or lower than the band of frequencies which the filter is designed to exclude. In other words, its action is just opposite to the band-pass type. These four types of filters can be formed in a variety of networks and used for various purposes, some are very simple and others more complicated in their structure.

The action of such filter is represented in Fig. 1 with (a) representing a low-pass filter and (b) representing a high-pass filter, (c) representing band-pass filter and (d) representing band-exclusion filter. The horizontal light lines represent currents of certain frequencies while the heavy vertical lines represent the filter action.

Figure 2 shows a typical low-pass filter. This as you can see is simply a combination of choke coils and by-pass condensers arranged and so designed that the higher frequencies present in the raw rectified alternating current from the rectifier tube are filtered out before being used as plate current on the various vacuum tubes in the receiver.

This is called a two unit filter combined in one, where C_2 is common to both units. The first unit eliminates a certain percentage of the ripple, depending upon the values of C_1 and L_1 and the second unit eliminates a similar percentage of the residual hum. The chief function of C_1 is to regulate the voltage of C_2 to suppress the ripple and C_3 to store energy to take care of fluctuations in voltage demand from the receiver.

This is the "filter" so commonly known to Radio service men.

A high-pass filter unit is shown in Fig. 3(a). The inductance coil allows comparatively free flow of low frequencies through it while offering great opposition to high frequencies the condenser on the other hand passes currents of high frequencies much easier than currents of low frequency. It will be noticed that the only difference between the low-pass and the high-pass filters is in the arrangement of apparatus in the circuit.

In Fig. 3(b) we have a band-pass filter circuit; the coil L_1 and condenser C_1 are in series; the inductance and capacity of these are selected so that they will resonate at the frequency to be passed through the circuit; the reactance of these will be high at all other frequencies. The coil L and condenser C in parallel with each other is the by-pass unit. It is selected so that it will offer the greatest possible opposition to the flow of current at the resonant frequency.

Consequently this resonance frequency is rejected by this parallel circuit and is forced on through the circuit. All other frequencies going back to the source through this by-pass arrangement which offers opposition to frequencies other than the desired resonant frequency which is to be passed.

In Fig. 3(c) the band-exclusion type of filter is shown. The coil L_1 and the condenser C_1 is used to prevent the passage of

(Page 16, please)

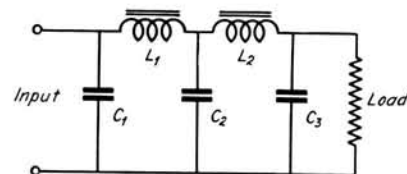
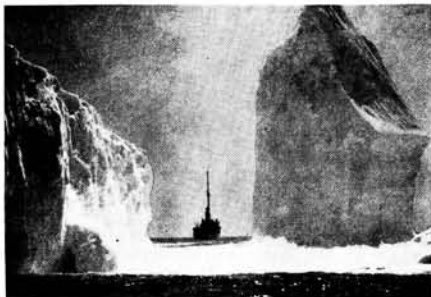


Figure 2



A Coast Guard Ship on Iceberg Patrol. By Radio the shipping industry is notified of the location and drift of these hazards.

GENERAL ANDREW JACKSON fought and won the battle of New Orleans, January 8, 1815, two weeks after the Treaty of Ghent had been signed, because he did not know at the time of the battle that the Treaty had been made.

Rapid communications would have saved the lives of the 2,608 men who fell in that battle.

Radio, still in its struggling infancy, had an opportunity to face the dramatic moment when it was called to the attention of the entire world in 1909.

The Steamship Republic was in collision with the Italian ship Florida off Nantucket. From the darkness of the ocean at midnight flashed the first Radio call of distress, the famous CQD message that thrilled the world. 1,500 human beings were saved from a sinking ship. That event more than any other established Radio communication permanently on the seas.

Our Government, among the pioneers of Radio, has long seen the advantages of this form of communication for military purposes and as a safety factor.

It would be a physical impossibility to more than touch the surface of the work being done by our

Radio With the Colors

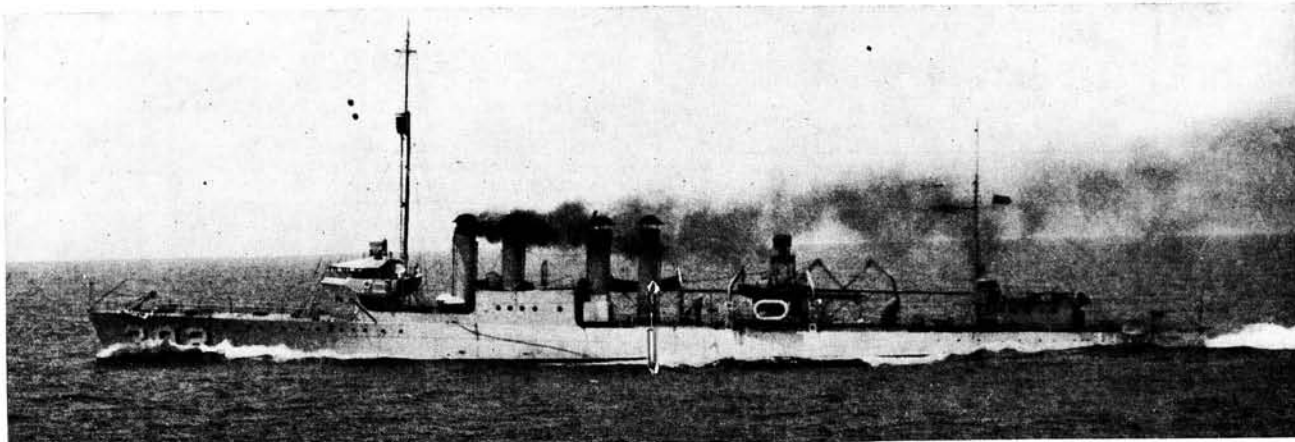
National Radio News wishes to thank Major C. W. Lewis and Captain Frank E. Stoner, U. S. Army, and Lieutenant-Commander E. M. Webster, U. S. Coast Guard, for their assistance in the preparation of this article.—Editor.

Government in connection with Radio. Visiting the Message Center of the War Department Radio offices in Washington, one is surprised at the ease and dispatch with which messages are received and transmitted to the Army's outposts in the four corners of the globe. Here sits an operator in contact with Hawaii—there is one conversing with the Panama Canal.

Official figures show that in the various branches of U. S. Army communication work there are between 7,000 and 8,000 men. The Army maintains a Radio school for training men, specifically in the Army procedure at Fort Monmouth, New Jersey.

While by the very nature of their work, the U. S. Marines are very closely allied with the Navy, they maintain their own communication operations and have about 500 men engaged in this work. They maintain a Radio school at the Marine Barracks, Quantico, Virginia.

Below:—Abandoned by her crew in the Pacific, the USS Stoddert at full speed, being maneuvered by Radio from the USS Perry. The Stoddert will later be bombarded by airplanes from the Navy Fighting Squadron Six.—(World-wide photo.)



Unless one is present to see the activities, it is difficult to imagine the tremendous part Radio plays in the Navy. Headquarters in Washington can be in touch on a moment's notice with any of its far-flung stations, fleet commanders or individual ships. Ships are in constant touch with the weather and the news of the world by means of Radio communication.

Probably the most interesting of all Radio communication is the intra-fleet work by which the Admiral of that fleet, acting upon orders from the Bureau of Navigation, directs the maneuvers of any number of great ships day or night, regardless of weather conditions.

Fleets generally operate with a completely equipped hospital ship in attendance but where small Navy units operate independently, they may be out of touch with these floating hospitals. Illness or injury may have overtaken one of the crew. A Radio



Army Operator George McVicker working Hawaii, had the honor of handling one message consisting of 3,809 words. McVicker is in line for promotion to Staff-Sergeant.

message is sent to the nearest point of medical relief and arrangements made for speedy transportation to that point by plane, or by the fast Navy destroyers. Cases are on record where merchant sailors, on ships having no hospital facilities, have by Radio, located the position of Navy ships equipped for medical work and through the cooperation of the commanding officers, lives have been saved.

The U. S. Navy operates two schools for Radio men, one at San Diego, California, and the other at Hampton Roads, Virginia.

A branch of our Government which does not enjoy near the publicity it deserves is the U. S. Coast Guard.

Its work is not primarily military, although its chief duties rest in the protection of rights and property along our coast.

The very nature of their operations is such that their efficiency would be greatly reduced were it not for Radio as a means of rapid and efficient communication. Approximately 500 men comprise the Radio staff of the Coast Guard.

They operate from key stations at Boston, New York, Mobile, Seattle and San Francisco. The shipping of the world is bene-

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THE STORY OF GRADUATE HARRY EICHLER

IN our time we've seen a lot of men become successful. We've seen any number of them climb from an earning capacity of practically nothing up to financial independence.

Many overcame difficulties—walked roughshod over what appeared to be insurmountable obstacles to reach their goal.

Such is the case of Harry Eichler, the German boy who came to America in 1928.

Although equipped with a fine education Eichler found it difficult to get a job other than as a gardener at \$24 a week.

In June, 1928, he started on his rise to success—he enrolled with N. R. I.

Regular working hours were long. His determination to succeed frequently caused him to study and work on Radio experiments until far into the morning. But what does this matter to a man who has visions of success—a man who will not admit failure?

From the very first Eichler has never stepped backwards in his earnings. As he started making money as a result of his Radio training his income increased from \$24 a week step by step to \$30—\$35—\$40—\$50, not including spare time work.

Just as things seemed to be breaking nicely, with friend Harry on the highroad to success, came the crash. He was unfortunate enough to have his car struck by an express train. The result, \$1,500 doctor and hospital expenses.

But did this put him down?—did he fall by the wayside?—admit defeat? Not on your life!

His Radio work had equipped him to pay that \$1,500 and in addition to spend \$560 to bring his family from Europe. By the time they arrived, Harry had paid off every cent—he was absolutely without a debt.

From March, 1930, to April, 1931, slightly over a year, Eichler made \$2,500 as straight salary plus \$2,000 from spare time work and sales, and he can prove it.

To quote a part of his letter to President J. E. Smith, "Nobody can tell where I'd be today if I had been forced to plug along as a gardener. If I were out of a job next week I would not lose my head and admit defeat. Other men have succeeded and so can I. It tears the stars from the sky, these little words 'I will'—was the last thing my dying father said to me. It was the secret of his success in life—the secret which carried him to a high post in Germany. Why can I not do the same?"

"Fate has knocked me down several times and every time my Radio training has come to the rescue. I credit every bit of my success to my N. R. I. training."

And we hope that every reader of National Radio News is as proud as we are that this fighter is a graduate of N. R. I.

The Student Service Department wishes to call attention to the fact that in numerous cases lessons are received without the name, address or number of the student. It is impossible to trace the owners. Watch this, fellows. Help Student Service to give you Good Service.

Dear Editor:

In regard to the complaint from "Our friend from Washington."

Where there's one who takes the trouble to write his complaint there are thousands who do not write in to express their approval.

The disgruntled air their views while the contented maintain silence.

By all means preserve the "human interest" element.

There's something of interest for everyone while everyone contributes to the News.

CHAS. W. DUBOSE, Detroit, Mich.

RADIO-TRICIAN SERVICE SHEET

REG. U. S. PAT. OFF.

COMPILED SOLELY FOR STUDENTS & GRADUATES

MAJESTIC SERIES 60—MODELS 61, 62 AND 163

COLOR CODE

Power Transformer

Primary	Start of Winding—Red	Heater—Red—(2nd Det. A.V.C. and Osc.)
	05 volts —Red and White	Center Tap—45 Red
	115 volts —Yellow	Anode—Green
	125 volts —Green	C. T. Anode—Bare
Filament	45 Blue	Anode—Green
Filament		Filament } 80 Brown
Heater		Filament }
Heater	White—(135 v. above ground)	
Heater		

FILTER UNIT

2 microfarad condenser—Green	1 microfarad condenser—Yellow
2 microfarad condenser—Red	.07 microfarad condenser—White
2 microfarad condenser—Blue	Condenser common—Black

CHOKE

Filter Output—Red	Junction of Chokes—Blue
Detector Choke Low Side—Green	

Voltage Table of Majestic Series 60

Position	Tube	Fil. Volts	Plate Volts	Grid Volts	Screen Grid Volts	Cathode Volts	Normal Plate M. A.
1st R. F.	G-51	2.35	285	—	215	3	4.5
Oscillator	G-27	2.35	135	—	—	—	4.0
1st Det.	G-51	2.35	285	—	215	8	4.5
I. F.	G-51	2.35	285	—	215	3	4.5
2nd Det.	G-24	2.35	275	—	135	12	.25
1st A. F.	G-45	2.4	300	50	—	—	32.5
2nd A. F.	G-45	2.4	300	50	—	—	32.5
Automatic Volume Control Tube	G-24	2.35	*	—	45	11	.0
Rect.	G-80	4.88	490	—	—	—	.90
							Per Plate

Note: All plate, screen grid, control, and cathode voltages are measured from Ground (Chassis) with a standard 1,000 ohm per volt voltmeter.

Voltages shown in above table with volume control at maximum position.

*Voltmeter: Readings of the automatic volume control tube plate terminal will be erratic because of the 700,000 ohm resistor which is in series with the plate supply lead.

TECHNICAL DATA FOR MODEL 160 MAJESTIC RADIO PHONOGRAPH CHASSIS

The radio circuit and performance of the Model 163 Radio-Phonograph Combination is identical with that of the Model 60 chassis.

The front panel controls of the Model 163 combination are radio controls only, and are the same as that of the Model 61 and 62 radio receivers.

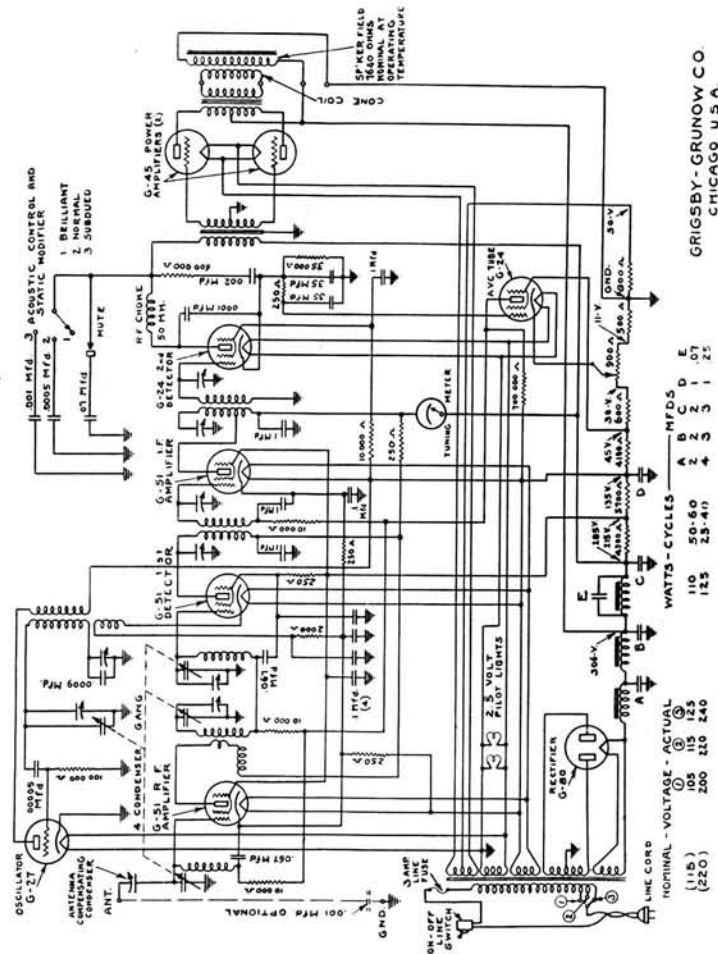
The phonograph side of the Model 163 combination consists of a pick-up, pick-up transformer, phonograph volume control, phono-radio switch and motor board assembly.

The second detector tube grid comprises the audio frequency input circuit when the phono-radio switch is in the phonograph position. The second detector tube becomes an audio frequency amplifier when the receiver is switched to the phonograph position, the grid bias and input circuit of this tube being changed accordingly.

The phonograph volume control is separate from the radio volume control and is located alongside the turntable on the motor board as is the phono-radio switch.



SCHEMATIC DIAGRAM OF MAJESTIC SCREEN GRID SUPERHETERODYNE AUTOMATIC VOLUME CONTROL RECEIVER - MODEL 60 CHA3515 115 AND 220 VOLTS, 25-40 AND 50-60 CYCLES



GRIGSBY - GRUNOW CO.
CHICAGO U.S.A.

Alumni Association Election Returns

THE confidence of the Alumni Association members in its officers is gratifying to say the least. This confidence was proven by the results of the election just held to appoint a president, four vice presidents, a secretary, and a corresponding secretary.

In each case the same officer has been elected for another year to hold the same office as heretofore, with hardly a dissenting vote. In addition, as you already know, Mr. P. J. Murray of the N. R. I. Staff has been elected to the office of Corresponding Secretary.

The following are the officers for the coming year:

- JOHN E. FETZER, President, WKZO, Berrien Springs, Mich.
- HARRY BARSCHDORF, Vice-President, Adams, Mass.
- ALPHY BLAIS, Vice-President, Thetford Mines, Quebec, Canada.
- HOYT MOORE, Vice-President, 3301 So. Lyndhurst Drive, Indianapolis, Indiana.
- DONNELL O'CONNOR, Vice-President, WBT, Charlotte, N. C.
- EARL MERRYMAN, Secretary, 1536 You St., N. W., Washington, D. C.
- P. J. MURRAY, Corresponding Secretary, 1536 You St., N. W., Washington, D. C.

As National Radio News is now the official organ of the N. R. I. Alumni Association, your editor will work in close cooperation with the officers of the Association for the best interests of all members. And it is up to every member to assist the officers in the fine work they are doing in every way they possibly can. Your ideas and suggestions are always welcome and we are depending upon each and every individual member to assist in the membership increase of the Association.

(Page 14, please)

How I Sold Myself Into A Good Job

By K. W. GRIFFITH
(Member N. R. I. Alumni Association)



WHEN it became known that we were to have a new Radio station in our city I planned to secure the work of station construction.

Several other fellows, naturally, were also interested in getting the job and this brought into the picture quite an array of competition.

The various other men submitted to the station manager their claims and accomplishments, many of which were worthy and entitled to serious consideration. Some of the fellows even had "family" or "inside" connections which gave them a personal advantage that I as a comparative stranger did not possess.

However, I don't believe in letting a little thing like that lick me, and I had a reserve that I was holding back as a "trump card" to be used at the proper time—when the deciding day came. In other words I was holding back my best move until the last.

I bundled up a copy of "Rich Rewards in Radio," my lessons that Mr. Dowie had graded and returned, and several letters from Mr. Smith, Mr. Haas, and other members of the N. R. I. Staff. (I was not a graduate at this time.) When I secured an audience I

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I SOLD MYSELF INTO A JOB

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first showed by prospective employer "Rich Rewards in Radio," going into some detail as to what my school was—what it meant to me and what it meant to Radio. I then produced my lessons which had been returned graded and I'm thankful that they were all in the "nineties," and then my letters which showed the Institute's interest in the progress of its students and its desire to see them succeed.

I certainly did hit the nail on the head. Mr. Sharp (the manager) turned and said, "I've heard a lot of this school before but I had no idea that it was such a large and thorough training organization. While I don't know how much you know about Radio, your school is good and your lessons show that you are applying yourself. This should constitute a working combination that can put the job over. We start work here next Monday morning and I will be looking for you on the job then."

The rest of my story is short. The transmitter was built (by the help of my N. R. I. knowledge and repeated reference to N. R. I. text books) and put on the air in due time. The manager later left and through promotion I became Announcer and later I became station manager myself. Working on this job, still not a graduate, I made \$150 a month before the promotion. When I was promoted to Manager I was paid a salary and a commission which I am not at liberty to make public but sufficient to say the price was worth any man's efforts.

My "trump card" was my N. R. I. connection and I have had reason many times since to be proud and thankful of this possession.

Since then the station has changed hands, going into the hands of owners who had their own complete staff of Radio men—so I am at the present time conducting my own Radio service business and I'm getting along fine.

THIS MONTH'S COVER

shows graduate C. E. Weigel of Louisville, Kentucky, starting out on a call to put a set in top notch condition.

Graduate Weigel has found his opportunity in Radio Service. He bought his car with Service profits and does a yearly business of \$1500 in spare time. This boy Weigel is a plugger and don't let anyone tell you otherwise.

Trade Notices

Trade Notices in this column are not accepted as advertising and National Radio News assumes no responsibility. Please handle any correspondence with the firms direct. In writing them please mention National Radio News.—Editor.

REPLACEMENT RESISTORS AND VOLUME CONTROLS

Electrad, Inc., 175 Varick Street, New York, has issued a new reference card covering the Electrad line of replacement volume controls and resistors. The resistor requirements of 343 different Radio receivers are shown. Copies of this valuable folder may be procured upon request to Electrad.

NEW ALDEN BINDING POST

A simple, effective, inexpensive binding post has been developed by the Alden Manufacturing Company, 715 Center Street, Brockton, Mass. Tops cannot become lost, the wire guide takes any size wire easily and holds it firmly in place and away from the chassis.

DE FOREST QUICK-HEATER TUBES

The De Forest Radio Company of Passaic, N. J., announces that their "Quick-Heater" tubes have been on the market one year now and have lived up to the expectations. Aside from quick-heating they state, their tubes maintain an unusually low-hum level throughout their entire service life.

ALUMNI ASSOCIATION ELECTION RETURNS

(Continued from page thirteen)

Do not be satisfied that you yourself are a member, if you have a friend who is also an N. R. I. graduate and who has neglected to keep up his membership—that's your responsibility to get him in line. Remember, the bigger we are the more powerful we will be—there's strength in numbers.

The "Get-together" Corner



Where
Radio-Tricians
Meet

□□□□ When "our friend from Washington" wrote his complaint about the "News" he really started something. We're going to let you read some of the replies. We're not partial—but we can't publish all of them so we're picking a handful at random.—Ed.

NORTON SAYS IT'S O. K.

□□□□ I don't quite agree with our "friend from Washington" concerning the News. I like the human interest stories, particularly "What N. R. I. Graduates Are Doing." It is a means of getting in touch with the various graduates, especially some that you are acquainted with. I think the information contained in the "Mailbag" corner is quite interesting.

Our idea in forming the Alumni association was to exchange and the "Mailbag" is the proper place to exchange these ideas until further plans are made.

I have been a reader of "The News" since 1926 and I think it has improved very much since I received my first issue. While I was a student the "Mailbag" proved very interesting. By that I mean the success stories of other students and graduates spurred me on to greater study. No, I think it would be a sad mistake to do away with the "Mailbag" section.

I don't think you would care to have The News "just another magazine." It is best to have it something different than can be bought on the news stands.—T. S. Norton, Hamilton, Ohio.

... AND SO DOES STADLER

□□□□ I just read the complaint offered by a Washington student. If the "Mailbag" was done away with fellow students would not be able to give tips to each other. Then again when I read success stories of other students my ambition is stimulated. I think he is unjust to the "News" and I hope also, that the "Mailbag" carries on.—Robert J. Stadler.

PALMER HUNTS BIG GAME

The telephone rang. A voice gave a name and said, "My Radio has a terrible odor. Can you come right over and see what is the matter?"

I removed the set from the console and then removed the base of the set before the source of the odor was found. It was the body of a dead mouse across the terminals of the B filter condenser.

It was touching each terminal of the condenser and caused only slight decrease in signal strength.—Wheatley Palmer, Greenville, Tenn.

Old Lady (to street-car motorman): "Please, Mr. Motorman, will I get a shock if I step on the track?"

Motorman: "No, lady. Not unless you put your other foot on the trolley wire."

Answering the suggestion made by the "Washington Boy," concerning the "Mailbag," I agree with him. Omit the letters on the success of students and graduates but keep the "Mailbag" open so that students and graduates may exchange ideas on where and what to buy, also for exchanging service hints.—Wm. G. Taylor, Olyphant, Pa.

SPARTON 931 TIP

I serviced a Sparton Model 931 a few days ago—found both power tubes dark, tested tubes, found them O. K. Tested for filament voltage—no reading, plate voltage O. K.; found that a small variable resistor in filament circuit had been turned entirely off—had me guessing for a while. Watch for this, it may save you some time.—John J. Reider, St. Paul, Minnesota.

BUILDING GRADUALLY

I am still servicing, although my time is limited to a few hours in the evenings.

It is indeed surprising how much work can be handled by a private Radio-trician even in a city as large as New York where every Radio Shop carries its own staff of service men.

I average \$75 a month easily without much effort, and very little advertising, as I know I would be unable to handle all calls if I advertise largely.

Nevertheless I am laying the foundation to a small store of my own, by accumulating the capital and gaining the experience, all due to the N. R. I.—Claude E. Joseph, New York City.

AN IDEA ABOUT A BRANDES

In the Brandes 8 tube set the local distance switch cuts the plate voltage on and off the second R. F. tube. When using a tester on these sockets be sure to have the local distance switch right, or you may wonder why there is a dead socket.—C. W. Grazier, Parkers Landing, Pa.

WANTS MAIL BAG

I read the item in the National Radio News about discontinuing the "Mailbag." Do not do this. I for one am very much interested in what the other students and graduates are doing and I am thankful for their service suggestions that they submit.—C. W. Tews, Milwaukee, Wis.

Construction does not consist of everything being done at once, but in one stone being placed upon another.—J. H. Brunning.

Never, throughout our history, has a man who lived a life of ease left a name worth remembering.—Theodore Roosevelt.