

TALKING THINGS OVER

(Continued from page fourteen)

equipment is used it will cause you trouble and reflect upon your work.

When you get out into the field and meet competition it does not take long to see the difference in the trained and the untrained service man. There is only one solution. If the untrained man is to survive he must become trained.

While there may be arguments to the contrary, I believe the best field for the Radio Service Man is as an independent. He gains vastly more experience on various types of receivers—the work is more interesting and he takes all the profits—rather than a set salary.



LIGHT CONTROL

(Continued from page fourteen)

relay controls an electromagnetic counter, which keeps tally with automatic precision.

Still another application is a burglar alarm, whereby an invisible beam of light, made possible by the use of a color filter in the light source, protects a doorway or room. Any interruption of the invisible beam of light actuates the light relay which in turn rings an alarm or otherwise makes known the presence of an intruder. Sorting is accomplished by causing any alteration to shadow or light intensity to upset a given balance in the light relay, actuating the desired apparatus.

The light relay may be arranged to operate an automatic door opener when truck or person interrupts the light beam. Placed in a funnel, the light relay and companion light source give notice of the presence of smoke. A similar arrangement is employed as a smoke detector for fire alarm purposes.

The remarkable simplicity, ruggedness and reliability of these latest light control units bring light control possibilities into the realm of everyday life. What may be accomplished with the light control art now becomes purely a question of the ingenuity in applying this art to the many jobs of the workaday world.

MORE PRIZE WINNING LETTERS

Letters Which Won Prizes in the N. R. I. Results Contest.

"N. R. I. Training has put me in a better social standing in my community. I am welcome in some of the best homes, spoken to and respected by people who would not have known me as a laborer.

"I meet and converse with people easily and with confidence, which I consider important in any business. My customers have confidence in me as a Radio Expert which makes me feel well rewarded for my work and study.

"I am working full time for the Philco dealer here in Merrill. I get one-half the profit on all sales and the service work is all mine."—John J. Haskin, Merrill, Oregon.

"After I worked for The Jones Radio Stores four months, as head service man, they gave me the job as General Manager of a store in Stoughton. They are starting a chain of stores now under the name of The Jones Radio Stores. They have three stores now operating and are opening six more stores shortly. I will take the position as buyer for the stores at \$75.00 a week. I won this advance by knowing Radio. I owe all this to the National Radio Institute."—O. H. Hansen, Stoughton, Massachusetts.

"When I had been working on my N. R. I. Course only three months, a hardware man asked me to connect up his Radio. I took the job.

"I had no diagram on the particular set which was just a mess of wires but from the knowledge gained from the Course I had it working in less than an hour.

"He gave me three more Radios to fix. The whole job took about four hours; I made \$12.50, for the time. — Douglas F. La Porte.

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VOL. 4—NO. 5

WASHINGTON, D. C.

DECEMBER, 1931

The Faculty and Staff

of the

National Radio Institute

and the Officers of the

N. R. I. Alumni Association

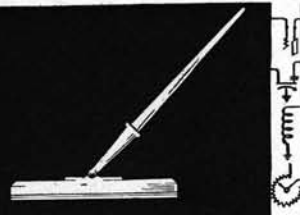
Wish You

A Very Merry Christmas

Christmas Number

Merry Christmas

My Own page



May Ban Outside Aerials

ACCORDING to recent reports, the Fire Commissioner of the City of New York plans to have action taken for the removal of antennas from roofs in the Metropolitan area. He calls them a menace to fire fighting.

Mr. George Lewis, Vice President of the Arcturus Radio Tube Co. points to this action as very interesting and as a real opportunity for the Radio Man. He states that a good many of the Radio sets are now three or four years old, and because of their inadequate sensitivity require large outside aerials.

Present day receivers, however, using variable-mu and pentode tubes are so sensitive that a roof antenna is no longer required.

What an excellent opportunity for Radio-Tricians to immediately approach their customers with the details of modern sets and demonstrate to them that even without an aerial, Radio reception is greatly improved over the old time receivers.

Some aggressive Radio-Tricians in each locality in the country, will see a wonderful opportunity of instituting similar action on the part of the local fire departments.

Such action would certainly be a big boon to the Radio trade and should materially increase the sale of sets.

Radio-Tricians over the width and breadth of the land are going to find a healthy increase in their bank accounts if this move becomes general. In addition to the fire chiefs of the cities and towns, there are civic improvement societies which will be interested in the removal of aerials from roofs to beautify the communities.



This Christmas Business

AGAIN this year, as in the past, Radio Dealers are making big preparations for the sale and installation of a large number of receiving sets during the holidays.

This is because of the ever increasing trend toward giving Radios for Christmas and New Year presents.

This sudden increase in business taxes the service and installation departments of most dealers to such an extent that additional help is needed, if all the sets are to be installed and in operation at the proper time.

And during the holidays, especially, customers want their sets in top notch condition and they do not want to wait. They want the serviceman on the job at once.

So with this proposition up to the dealer—he is usually glad to know where he can get hold of competent Service and Installation men on an instant's notice.

If you have gone far enough with your Course to do a good job on this kind of work—go to several of your nearby dealers—make known that you are capable of helping them out at the rush moments. Leave your name and phone number and ask to be called on work the regular force can't handle. Permanent connections are often the result of such spare-time work.

J. E. Smith

President.

Merry Christmas

Visual Tuning With a Neon Tube

By J. A. DOWIE, Chief Instructor

One of the newest improvements in radio receiving sets is the employment of a neon tube which has special characteristics that make it suitable for a visual tuning device.

This neon tube, known as the Automatic Flashograph, has been introduced in the FADA Sets 48 and 49. It has a definite advantage of providing accurate visual tuning instead of tuning by ear as in the past.

The operation of this device is as follows: As you turn the tuning knob of the receiver, at the approach of a station, the neon tube resonator sends a rising glow of light upwards—when the light has reached its highest point for that station then the receiver is sharply and accurately tuned to the station frequency. In a lower indicator, a window space is provided for logging favorite stations by call letter on the dial itself.

The general appearance is somewhat similar to a thermometer—instead of a rising column of fluid there is almost instantly a rising column of red neon light.

As this device is operated by the incoming carrier signal accurate station tuning is assured automatically entirely independent from any volume of the set as the volume control can be turned off and the Automatic Flashograph works just the same.

A Brief Technical Description of the Operation of the Automatic Flashograph

As the Automatic Volume Control on these receivers adjust themselves to the proper amount of sensitivity demanded to receive a station wave, the plate current supplied to the radio tubes changes in value depending upon whether the station is powerful or weak. If the station to which the receiver is tuned is a powerful local, the plate current of the radio

tubes is of low value. Conversely if the station heard is distant this current reaches a higher value.

As these changes in the current supplied to the radio tubes take place the voltage applied to the plates of these tubes also changes but in the opposite direction. That is to say, a powerful station results in more voltage being applied to the plates of the radio frequency tubes whereas a distant station or the absence of a station will cause this voltage to drop in value.



The Automatic Flashograph neon resonator tube takes advantage of this situation so that a powerful and worth-while station when received energizes a neon glow tube of an entirely new and novel form. The tube itself is fitted to an automobile lamp base and is one-half an inch in diameter and three and one-half inches long. The two electrodes, one a half inch long and the other three and three-sixteenths inches long are sealed inside a neon filled glass bulb. When the tube is subjected to a voltage of approximately 170 volts an orange glow surrounds the longer electrode to the half inch height of the shorter electrode. As the voltage applied to the tubes increases the flow column which surrounds the longer electrode moves toward the end of this electrode. Usually when the voltage reaches 240 volts in value the glow column entirely envelops the longer electrode.

In the actual receiver the neon lamp is mounted vertically behind a celluloid tuning scale and a vertical window through which the rise and fall of the glow column can be observed. Station signals entering the receiver as the tuning knob is rotated cause the glow column to rise to maximum height and fall again as the exact tuning point is passed. In this way the highest rise of the neon column indicates the exact tuning point for each particular station tuned in.

Chief Dowie, big booster for the N. R. I. Alumni Association, says: "You fellows who are working on the course—remember—you're eligible for Alumni Association membership immediately upon graduation. Plug, fellows—finish up and join."



A Chat With the N. R. I. Director

THERE has always been a large market for Radio receivers in rural communities. This market was overlooked, more or less, when power operated receivers came into existence.

Most of the improvements went into the A. C. receivers and the design of battery operated sets was more or less neglected.

However, manufacturers were quick to realize the big field for up to date battery operated sets for the farmer and for uses where there was no power available, and as a result they are bringing out sets, with late improvements, to meet the demand in the battery operated field.

Because a number of Radio-Tricians are already in this field and many others, seeing the opportunities in the rural market, will be entering it, National Radio News is publishing in this issue diagrams of six popular battery type receivers which have many of the modern improvements in their make-up.

I suggest that this rural business be given a lot of thought. It's a gold mine and the surface of the field has scarcely been scratched.

The International Resistance Company of 2006 Chestnut Street, Philadelphia, reports that August, 1931, was the peak month in their history, in which month they shipped more than 1,000,000 resistance units.

The United States Department of Commerce has announced, for the first eight months of the year 1932, nearly \$3,000,000 more in Radio exports than during the same period in 1930.

This year the Radio exports trade so far has reached the figure of \$13,606,000 as compared with \$10,905,000 for the same period of 1930. It appears that Radio continues to furnish a bright spot in American foreign trade conditions.

My position of Business Director here at N. R. I. does not throw me in contact with you fellows as much as I'd like but it can't be helped. So I've come to look forward to these little friendly chats each month in the "News." In closing my chat this time let me wish every last one of you readers a Very Merry Christmas.

CHRISTMAS SEALS SAVE LIVES

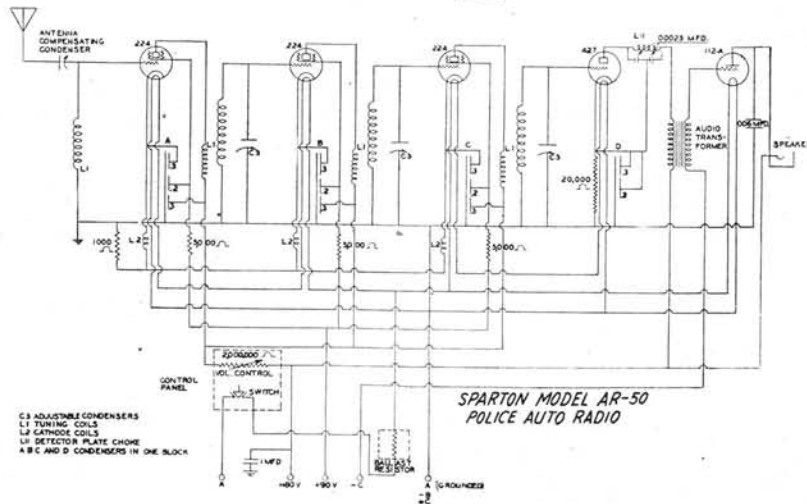
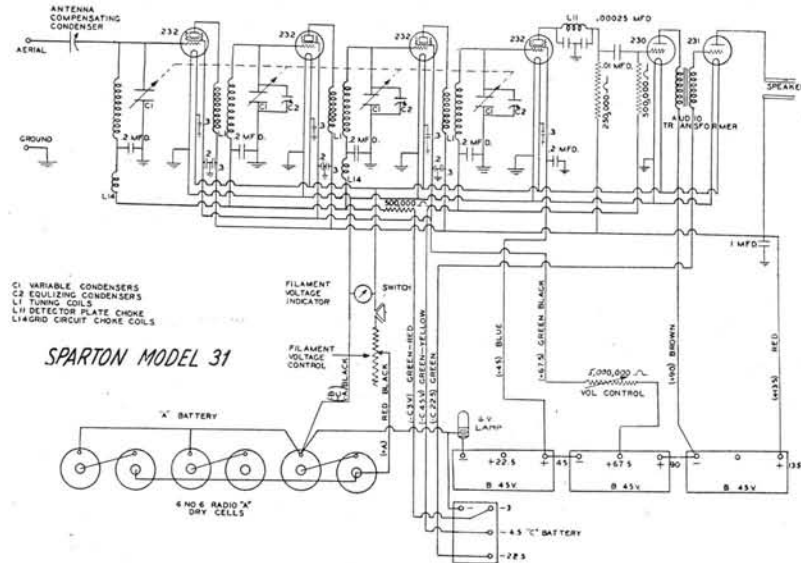


The annual campaign of the National Tuberculosis Association, 450 Seventh Ave., New York City, is now on, continuing their good work in the fight against Tuberculosis.

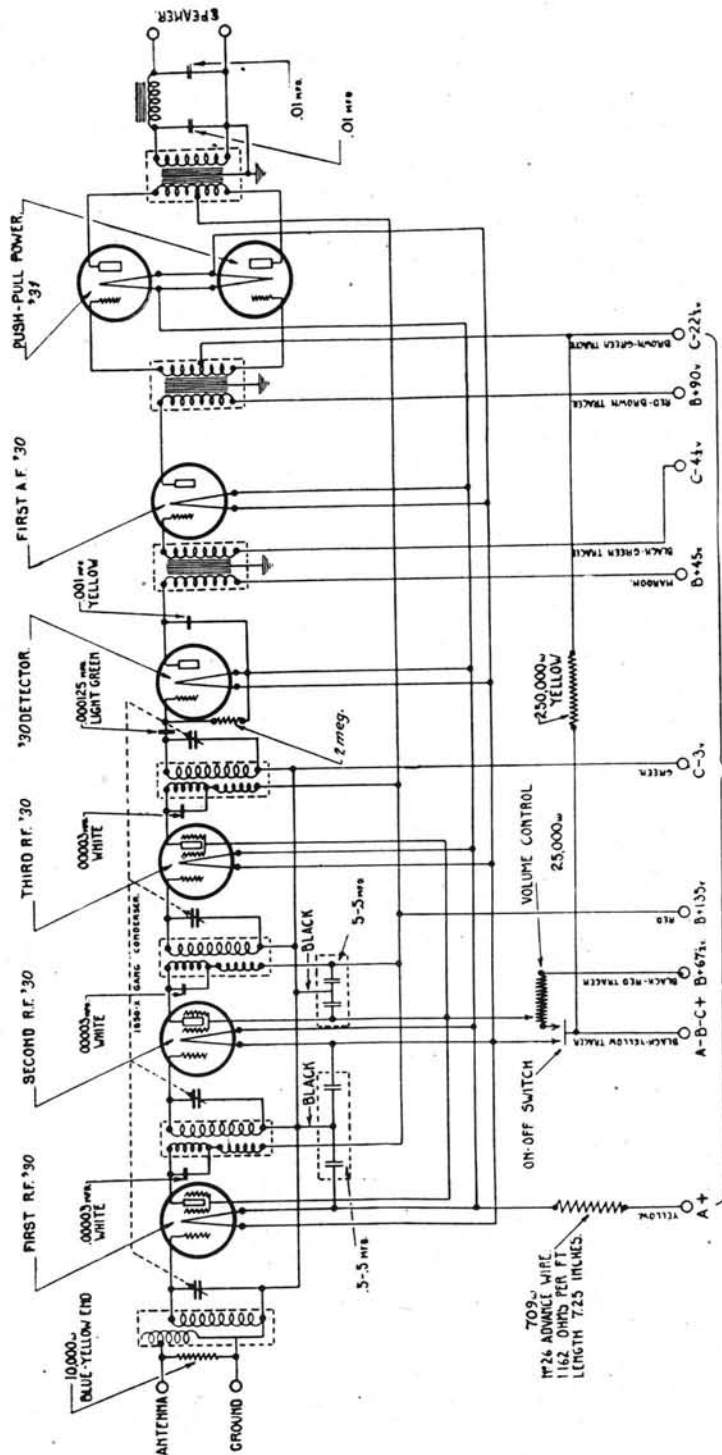
Robert E. Wilson of Birmingham, Alabama, reports that through the cooperation of the N. R. I. Employment Department he has landed a job as Radio service man for the E. E. Forbes Piano Company of Birmingham.

RADIO-TRICIAN SERVICE SHEET

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



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



NOTE: GANG CONDENSER (1850-X) HAS 2 TRIMMER CONDENSERS ON 1st, 2nd, and 3rd RADIO FREQUENCY STAGES, AND ONE TRIMMER ON DETECTOR TUNING CONDENSER.

NATIONAL RADIO NEWS



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 J. E. SMITH, President. E. R. HAAS, Director.
 The Official Organ of the N. R. I. Alumni Association

Trade Notices

TROUBLE SHOOTERS MANUAL

The Radio Treatise Company, Inc., 1440 Broadway, New York City, offers John Rider's Radio Trouble Shooters' Manual—a helpful book to the Radio Service Man. It includes a great number of Diagrams of receivers the Service Man may run across in the field. They also have a monthly supplement service for keeping "The Trouble Shooters' Manual" up-to-date. Full details will be supplied by the Radio Treatise Company upon request.



ORPHEUS TREASURE CHEST

The Roth-Downs Manufacturing Company, 2360 University Avenue, Saint Paul, Minnesota, is offering an unusual receiver, in their Orpheus Treasure Chest, a small receiver with built-in speaker and modern improvements. It is unique in its resemblance to a treasure chest; done in various colors. Roth-Downs will supply full details upon request.

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.

New Uses for the Set Analyzer

By F. L. Sprayberry
 N. R. I. Consultant on Radio Servicing

SINCE describing the modern set analyzer in the May and June issues of N. R. News, we have had numerous requests on instructions as to how the new tubes could be tested on the tester.

No circuit changes are necessary in order to test the new tubes, most of which are tested the same as standard tubes with the exception of the pentode.

To test a pentode tube, proceed as follows: Set switch S₂ to the "A" position and leave it in that position while measurements are being made on the pentode tube. Set switch S₂ to the 500 volt position. After the tube has been placed in tester socket, and tester plug in receiver socket, turn on receiver and press the cathode push button.



F. L. Sprayberry

Screen grid voltage will now be indicated on the D. C. voltmeter.

To measure control grid voltage, reset switch S₂ to the 25 volt position and press the control grid push button. Plate and filament voltages are measured the same as any other tube.

However, always remember to keep switch S₂ to the "A" position or the B+ lead to the screen grid will be short circuited and something is likely to burn out.

The above instructions apply to the two volt pentode, the automobile pentode and the regular A. C. pentode.

All other five prong tubes are tested exactly as described for '27 tubes. Likewise, all other new four prong tubes are tested as any other four prong standard tube.

When describing the 8,000 ohm resistance for the 800 volt range of the A. C. voltmeter, we did not give the watt rating of the resistor.
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LIGHT CONTROL

Simple and Compact Light Relay and Light Source Units Now Available for No End of Practical Uses

The "News" wishes to thank the Engineering Department of the Burgess Battery Company, 202 East 44th Street, New York City, for this article. It may open untold possibilities for the Radio-Trician in an almost untouched field.

The light control art is seeking endless jobs in the every-day world. Light control units are now available in simple form, ready for use by simply inserting the attachment plug into the nearest A.C. or D.C. outlet.

This ready-to-use equipment, is made possible by an entirely new conception of light-sensitive cell at once rugged, non-critical and altogether stable for use outside the laboratory and away from the fond nursing of technicians. Combined with equally dependable components to form a complete light relay unit, the equipment is at last available for use in factory, store, home, and outdoors.

The application of the light-sensitive cell or so-called "electric eye" to every-day life has long been delayed by the intricacy and delicate nature of the usual forms of photoelectric cells and their circuits. It remained for British technicians to develop an entirely new conception of light-sensitive cell, which has been applied to many practical uses in both Great Britain and Germany.

Recently, the cell has been introduced in this country, and American engineers have evolved complete A.C. and D.C. light relay units based on marked simplicity and practicability.

The Burgess A.C. Light Relay is designed to operate on the usual 110-volt A.C. supply. It consists of a Burgess Radiovisor Bridge feeding a 427 type vacuum tube as the amplifier, which in turn actuates a power relay. The circuit contains in addition a power transformer, filter condenser, necessary resistors and by-pass condensers. A second 427 tube serves as the rectifier.

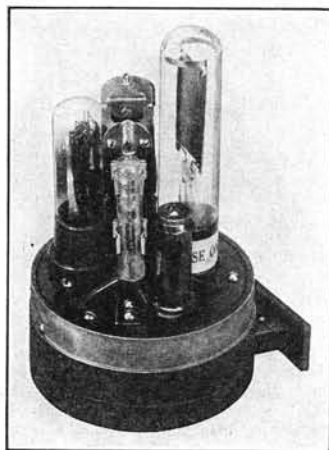
In the case of the D.C. unit, intended for operation on the usual 110-volt D.C. supply, a bridge is employed, together with the newly perfected 430 type 2-volt tube, voltage reducing resistor, circuit resistors, by-pass condensers, and power relay.

Both A.C. and D.C. light relay circuits may be arranged with open power relay contacts when the cell is in either light or dark condition, depending on the requirements of the desired application. The components are mounted on a circular platform enclosed in an aluminum housing which is supported by means of a ring bracket, the arrangement permitting of turning the unit to bring the bridge window in line with the actuating source of light. The circuit to be controlled is connected with the relay contacts. If the Burgess Vacuum Contact is employed with the relay, the unit will control equipment drawing up to 1320 watts, or 6 amperes at 220 volts.

For use in those situations where the light source must be artificially supplied, the Burgess Light Source units in both A.C. and D.C. models are available. Each light source unit employs a 12-volt, 21 c.p. incandescent bulb, focused by means of an adjustable optical system upon the bridge of the companion light relay unit.

The light relay unit functions by the modification of the light that passes through its window and falls on the light-sensitive plate of the bridge. The variation in light causes a corresponding resistance variation in the bridge itself, thereby controlling the flow

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Interior View of Burgess A. C. Light Relay.



Being Specific

By

S. M. ARMSTRONG and P. J. MURRAY

Student Service
Manager

Graduate Service
Manager



YOU fellows all know us—know that our jobs here at N. R. I., are to see that Students and Graduates get the best service N. R. I. can give.

Everything that goes on here, regarding Service, be it technical, non-technical, employment, etc., interests us, and you can bet your bottom dollar we have our very inquisitive noses in it—and deep too. And when the smoke clears away from every conference, suggested plan or what-not, we're in there rooting for you fellows 'til the last.

A few days ago we decided to do some digging to find out new ways and means to speed up Service and make it better all around, if possible. We visited every department and division of N. R. I. We can improve our Service to you if we can count on your hearty cooperation.

Up in the Instruction Department we dug up a letter from a student in Montana. He asked for a diagram of a set on which he was working. In his enthusiasm in telling of his Radio work he forgot to mention the name of the set. It is too bad that we had to delay him while writing for more information.

"Please give me all the dope on Service Work," is an awful hard request to handle, fellows. Try it sometime. Set down and write all you know about service work and see if you can do the job in a week. But if the question were put like this, "What information can you give me on Servicing an R. C. A. 17, which has lost its volume?" that's being specific.

Occasionally a letter gets lost in the mail

and the student or graduate must write us again. If you'll tell us in the second letter what information you wanted, you'll save yourself the time it takes us to write you for the information.

We came across a real funny one in one department. A letter had been received worded as follows: "Send me all the dope on R. C. A., Western Electric, Pacent theater amplifiers." The fact that the young man was asking for about 700 pages of material wasn't quite as humorous as the fact that he didn't put his name, address or student number on the letter.

"How do I start in business?" is another hard one to answer. Time and correspondence can be saved by being specific. The kind of business, the location, the amount of capital available would help a lot in making our service good service.

When a student writes "Please help me on lesson No. 30" our service would be much more efficient if he raised definite questions as to the problem which bothered him. You can readily see the impossibility of trying to explain an entire lesson book in one letter.

Bear in mind, our primary object in making this survey was "Service to You." In comparison to the number of students and graduates, the percentage of such letters is small—but they delay the individual in every case, and keep us from giving you the Service we want to render. Think it over, and the next time you write ask yourself the question, "Have I given enough information to enable N. R. I. to give me the best service? Have I Been Specific?"

Graduates—Make a New Year's resolution to back your N. R. I.

Alumni Association to the limit.



I Can't Hire "HALF a MAN"

By Milt Parsons

FOR YEARS on end, man power has been judged by hand power. Employers hired men for brawn rather than for their brains and the thinking was done only by executives. But times and conditions have changed and men are paid for what they know.

No longer does the workman with the strongest back draw the highest wages. No longer is the husky promoted to foreman, or higher. In fact, unless this muscular fellow has trained himself his pay envelope is probably the smallest in the organization, if he has a job at all.

For this is the day of trained men, specialized men; brawn without brain develops only "half a man." And who wants to hire a "half a man," when there are whole men available; men who know, men who can be depended upon to do the job right?

There are plenty "half men" today, strange as it may seem. Fellows who have had the opportunity of specialized training fairly thrust upon them. They pass up the chance with a wise grin or a "what's the use" expression and head for run down shoes and a park bench.

We've just been through months—years of a bad depression. Sure, there were trained men among the unemployed, but not to the extent of the untrained. In nearly every case where layoffs are found necessary doesn't the untrained group feel the axe first? This should have been a stern lesson to these fellows. To a large number of them it was, and they have followed the proper method to remedy their lack of training. But there is still a large number who will come back for more. Bears for punishment, these boys.

Conditions are becoming more serious for them all the time. This depression has done a world of good for the trained man. It has made employers seriously consider methods of economy—and hiring "half men" doesn't come under the category of efficient business, which goes to make it harder for the fellow to get a job who won't study.

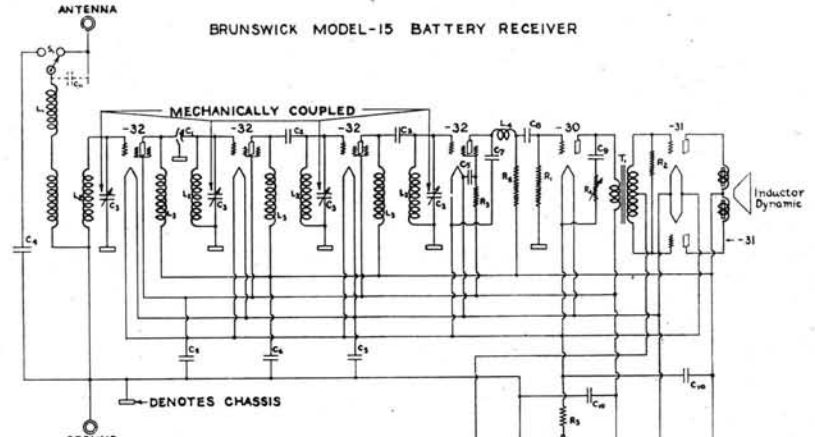
I have no sympathy for the fellow who won't take advantage of every opportunity to become successful. The world at large, the business world, I mean, has little sympathy for him. Even if they sympathize, that doesn't buy food and clothing, so it all boils itself down to a hard boiled proposition that you only get what you are worth to the employer and you will be of very little value to him unless you can give him what he needs—a specialized knowledge of the product he is handling. You'll have to sell yourself to him as more than "half a man."

Indications are that this depression has about run itself out. The end will not come all in a jump—it will be gradual. The trained man is going to profit at its conclusion but it is going to be a long wait for the fellow who can't produce.

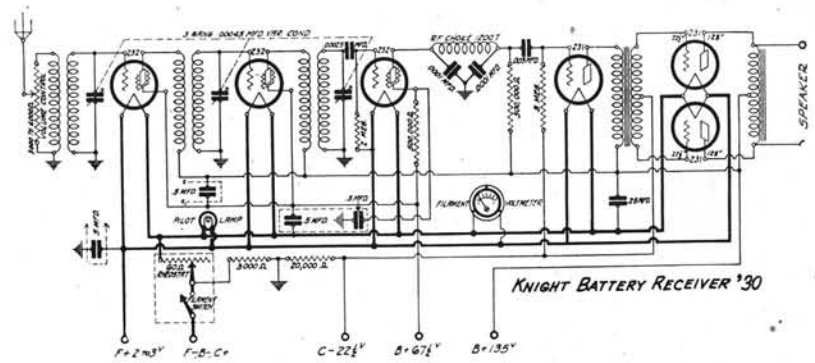
Employers are simply going to hire the trained men first—and it will be just too bad for the rest. They'll find the general attitude of the employment managers: "I CAN'T HIRE HALF A MAN."

RADIO-TRICIAN SERVICE SHEET

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



- | | | |
|---------------------------|--------------------------------|-------------------------------------|
| L ₁ 1.0 m. h. | C ₁ .25 | R ₁ 2 Meg (GREEN) |
| L ₂ 205 m. h. | C ₂ .14 | R ₂ 750,000 (PURPLE) |
| L ₃ 4.5 m. h. | C ₃ .0002 | R ₃ 0-50,000 |
| L ₄ 65 m. h. | C ₄ .02 | R ₄ 0.6 |
| | C ₅ .03 | R ₅ 250,000 (BLUE) |
| C ₆ 0-10 | C ₇ 10 | S ₁ H.&H. 3 Point Switch |
| C ₈ 10 | C ₉ 10 | S ₂ H.&H. 2 Point Switch |
| C ₁₀ 4-25 Max. | R ₆ 500,000 (BLACK) | T. 2:1 P.P. Transformer. |
| C ₁₁ .0002 | | |



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



FOR INVENTORS AND WRITERS

"Modern Mechanics and Inventions Magazine" will pay students and graduates of the National Radio Institute for articles accepted for publication in their columns.

Simple devices for the home, home-work benches, new Radio hook-ups—labor-saving devices for the tool shop, experimental electrical toys are what they need. A brief article describing the subject is sufficient. A snapshot of the finished product should accompany it. Pencil sketches are also acceptable when accompanied by the article. Address manuscript to Modern Mechanics & Inventions, 529 S. 7th Street, Minneapolis, Minnesota, care of the editorial offices.



Particular attention is called to the article which will appear in the January 1932 issue of National Radio News by Mr. T. E. Rose, N. R. I. Vocational Director. His subject, "Radio's Answer to the Depression," is of interest to every Radio-Trician.

A CORRECTION

Our printer slipped up on his typesetting in the November issue of the News. On the rear page (page 16) the first column should be headed "Carry Your Association Card" and the title of the second column should be "New Graduate Plan Now in Operation."

Book Agent to Farmer: "You ought to buy an encyclopedia, now your boy is going to school."
Farmer: "Not on your life! Let him walk, the same as I did."

WHERE CHRISTMAS CUSTOMS ORIGINATED

With the Christmas spirit in the air your Alumni Editor thinks possibly you're interested in where the now widespread Christmas Customs started. Why do folks decorate evergreen trees, trim up the house in holly and mistletoe, send greeting cards and eat mince pie?

The Germans are generally credited with the first use of evergreen trees but in reality it is an ancient Roman custom. In the Rome of the Caesars the pagan citizens adorned their homes with evergreen at the time of the New Year festival.

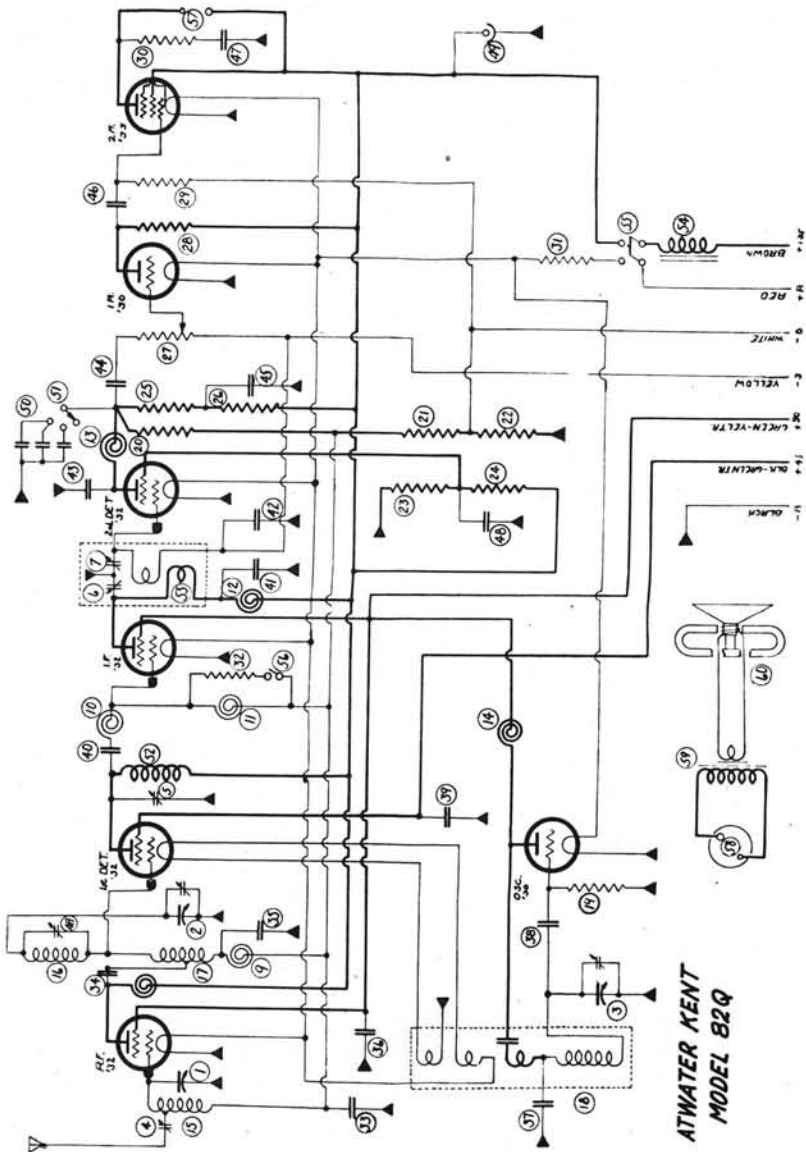
However, in Germany and Holland began the custom of decorating evergreen trees during summer festivals, and in ancient Alsace the celebration of New Year was marked by placing evergreen trees in public places. The trees were decorated and left in place the entire year. Gradually the custom was adopted for Christmas and the evergreen became the "Christmas Tree."

Scandinavian and German countries were the first to make much of the Christmas tree and first to light it with candles.

In winter, most plants are leafless, brown and dead. But mistletoe and holly are not only green and alive—but they bear fruit also at the winter season. Hence it was only natural that they should be selected as symbols of life and happiness.

In old England, mince pie, when eaten on each of the Twelve Days, was supposed to bring happiness, one month for each day.

(Page fourteen, please)



ATWATER KENT
MODEL 82Q

Talking Things Over

By ALPHY BLAIS,
Alumni Association
Canadian Vice President



I THINK this National Radio News is a great little book. It always has a store of fine material and I await each issue anxiously to see what it has for me.

When the "News" arrives I read all—every word of it. Then it is filed, not away, but right on my work bench where it is in constant use as reference. The service notes are the best I've ever been able to obtain. I have any number of different set models to service and National Radio News has supplied data on practically all of them.

Sets are rolling in for repair at the rate of three or four a day. There is no shortage of work for the trained Radio man, so far as I can see.

One thing I run up against frequently, is repairing sets after some of our so-called "Radio men" have worked on them. Believe me, when a "jack-leg-mechanic" finishes with a Radio—it needs a thorough testing and repair.

I've run into a lot of customers who hate to admit they've been stung by an inefficient service man. They'll even go so far as to deny anyone has worked on the set. I can usually tell, however, by looking inside the set. If a poor workman has been on the job it will show up in his bad solder connections, if nowhere else.

I consider a good soldering iron as one of the most important pieces of the Radio-Trician's equipment. If improper soldering

(Page sixteen, please)

CHRISTMAS CUSTOMS

(Continued from page thirteen)

From this old custom dates the popularity of mince pie at Christmas.

Christmas greeting cards became popular much later, the first known being printed in London in 1846. Up to this time, ordinary visiting cards with "Merry Christmas" written on them had been used. The new cards bore colored Christmas scenes and pictures of robins.

NEW USES FOR THE SET ANALYZER

(Continued from page seven)

ance. The watt rating must be rather high to prevent burning out of the resistor as the meter draws .1 ampere. Therefore, at 800 volts, the resistor should have a value of 80 watts.

An error occurs in the original diagram of the grid switch. Contact No. 2 counting from left to right of the grid switch should not make contact to the wire leading from the fourth contact of the grid switch. Instead, the second contact of the grid switch should connect directly to the third contact of the plate switch while the fourth contact of the grid switch should continue to switch S.

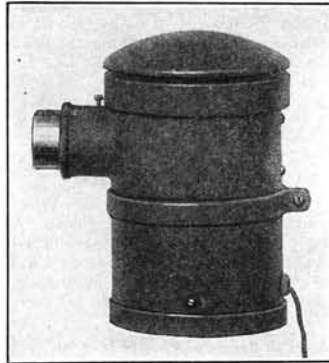
LIGHT CONTROL

(Continued from page eight)

of current to the amplifying tube in the same circuit. The amplified difference in current flow causes the desired operation of the relay, which in turn closes or opens the circuit of the equipment to be controlled by light.

The simplest application is the control of electric lighting systems, whereby the lights are turned on at nightfall, and turned off at daybreak, by purely automatic means. Another application is the counting of vehicles, packages, parts or other units which pass between light source and light relay, interrupting a beam of light. In this case the

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Burgess Light Source Unit.

The meeting place for Radio-Tricians



"Tell it in The Mailbag"

Graduate Frank Reese of Philadelphia reports that the N. R. I. Employment Department helped him to a good Radio position with Strawbridge and Clothier, Philadelphia, Pa.

Would like to suggest something that perhaps has not been tried by other fellows. Advertising costs are steep. Get as much free advertising as possible each day through a local paper by operating a Radio questions and answers column. This will create confidence of the public more quickly than any one other thing. It's working fine here. See your local editor. W. H. Carter, Martin, Tennessee.

Chas. R. Jesse reports that through the efforts of the N. R. I. Employment Service he has obtained a position with the National Radio Repair Service, Cleveland, Ohio.

As I am a student and have been reading "The Mail Bag" every time it comes would like to say that it should be continued as it has lots of encouraging data for students and surely would miss it if your friend in Washington would do away with it.

So let's have it for the good work it is doing among our students.—CARL F. BUCHHOZ, Detroit, Michigan.

Wm. E. Swanson of Iron Mountain, Michigan, says: "When servicing Radios be sure that your antenna system (that includes ground as well as antenna) is in good shape before blaming the Radio. I know of a particular case here in Iron Mountain, Michigan, where the best Radio man in town (or was at the time) failed to make this machine function properly. I went over and looked around, but was a little skeptical because this expert couldn't make it work right. I tested the machine the best I could with what little equipment I had and found two weak tubes, but that's just what the other fellow had been doing—changing tubes all the time. If your antenna system is poor, you can put in new tubes every day without satisfactory results. All I did was to put in a whole new aerial and ground. When the owner saw me the next day, he wanted to know what I had done to his set. He said it never played that good even when new."

Henry J. Couch, Los Angeles, California, tells us that he has built and sold several short wave sets at a good profit. There seems to be a growing demand for them and he finds them easier to sell than Broadcast receivers.

Another success: Graduate Cecil L. Corney of London, Ontario, Canada, reports that he is now with the Spartan Radio Company of that city as assembly inspector.

"Having been invited to a government lighthouse which was equipped with real old Atwater Kent 'bread board' style Radio. I tried my hand on its repair, it having low volume and losing its sensitivity; for a period or more than a year setting worse all the time. It had me guessing for two days, but finally I hit upon the idea of baking it dry in a warm oven. This did the trick, to the delight of the owner," says Eugene S. Riley of Philadelphia, Pennsylvania.

I have landed a position with Dafyns-Taylor Hardware Company. Came here on trial, and landed the position. They have had three Radio men before, who came with good recommendations, but they didn't know their business. Mr. Taylor told me Saturday that he was going to put me in charge of the Radio department. W. C. Hillman, Kingsport, Tennessee.

I want to pass on to other N. R. I. students my experience in eliminating ignition interference in the installation of car radios.

1. Make sure that all suppressors test O. K.
2. Ground all fuses with 2 mfd. condensers.
3. Change dome light switch to dash of car.
4. If the distributor contacts are pitted replace with new ones. As an economy, the hollow spots may be filled with solder and then filed off even.

C. A. FOX,
Pontiac, Michigan.

Here's an experience I had with a Majestic and Victor Radiola: The quality of music was very poor and distorted. Upon checking power tubes found there was no C bias. B circuit was complete but voltage a little high. This would immediately indicate a shorted C bias condenser. But the trouble was really found to be in the pilot light socket: one of the wires fastened to it was touching the chassis, thereby shorting out the C bias resistor.—ANTHONY J. ZUGEL, Washington, D. C.

Here is a testimonial letter, sent in by Student Bernard C. Holency of Columbus, written by one of his satisfied customers. Testimonials are good for advertising purposes, in addition to the kick you get out of receiving them:

"I want to thank you for the good work you did on my radio. After having two men work on it, and one of them claimed to be an expert electrician, and fail, I was about to throw the radio out and get a phonograph in place of it. I sure was disgusted, but it is as good as new now and I set all stations in fine shape.

"You surely have me for a booster all the time.

"Wishing you success in your business. I am, yours truly, "T. M. SULLIVAN,
"Columbus, Ohio."



Christmas Seals
Save Lives