THE SEPTEMBER 1929

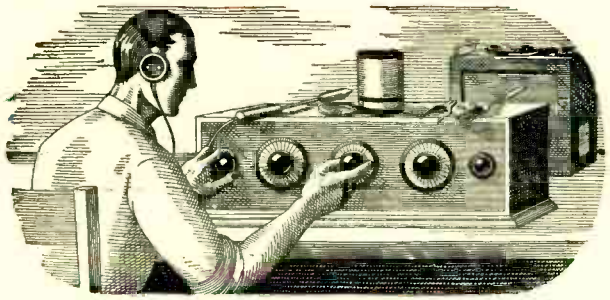
RADIO INDEX

The Non-Technical Radio Magazine

A Treat for Television

RADEX shows you where to set your dials for any station in America, and identifies programs the instant you receive them. For any dial and any set.

No. 31 WITH 91 CHANGES IN STATION DATA NSE



If all the Radio sets I've "fooled" with in my time were piled on top of each other they'd reach about halfway to Mars. The trouble with me was that I thought I knew so much about Radio that I really didn't know the first thing. I thought Radio was a plaything — that was all I could see in it for me.

I Thought Radio Was a Plaything

But Now My Eyes Are Opened, and I'm Making Over $100 a Week!

$50 a week! Man alive, just one year ago a salary that big would have been the height of my ambition.

Twelve months ago I was skimping along on starvation wages, just barely making both ends meet. It was the same old story — a little job, a salary just as small as the job.

If you'd told me a year ago that in twelve months time I would be making $100 and more every week in the Radio business — whew! I know I'd have thought you were crazy. But that's the sort of money I'm pulling down right now — and in the future I expect even more. Why, only today —

But I am getting ahead of my story. I was hard up a year ago because I was kidding myself, that's all — not because I had to be.

When broadcasting first became the rage, I first began dabbling with Radio. There's a fascination — something that grabs hold of a fellow — about twirling a little knob and suddenly listening to a voice speaking a thousand miles away!

Up to a year ago, I was just a dabbler — I thought Radio was a plaything. I never realized what an enormous, fast-growing industry Radio had come to be — employing thousands and thousands of trained men. I usually stayed home in the evenings after work, because I didn't make enough money to go out very much.

And as for the idea that a splendid Radio job might be mine, if I made a little effort to prepare for it — such an idea never entered my mind. When a friend suggested it to me one year ago I laughed at him.

"You're kidding me," I said.

"I'm not," he replied. "Take a look at this ad."

He pointed to a page ad in a magazine I'd seen many times but just passed up. This time I read the ad carefully. It told of many big opportunities for trained men to succeed in the great new Radio field. With the advertisement was a coupon. I sent the coupon in, and in a few days received a handsome 64-page book, telling about the opportunities in the Radio field and how a man can prepare quickly and easily at home to take advantage of these opportunities. Well, it was a revelation to me. I read the book carefully, and when I finished it I made my decision.

What's happened in the twelve months since that day, seems almost like a dream to me now. For ten of those twelve months, I've had a Radio business of my own. At first, of course, I started it as a little proposition on the side, under the guidance of the National Radio Institute. It wasn't long before I was getting so much to do that I quit my measly little clerical job, and devoted my full time to my Radio business.

Since that time I've gone right on up. They would have given me just as much help, too, if I had wanted to follow some other line of Radio besides building my own retail business — such as broadcasting, manufacturing, experimenting, sea operating, or any one of the score of lines they prepare you for. And to think that until that day I sent for their eye-opening book, I'd been wailing, "I never had a chance."

Now I'm making, as I told you before, over $100 a week. And I know the future holds even more, for Radio is one of the most progressive, fastest-growing businesses in the world today. And it's work that I like — work a man can get interested in.

You may not be as bad off as I was. But think it over — are you satisfied? Are you making enough money, at work that you like? Would you sign a contract to stay where you are now for the next ten years — making the same money? If not, you'd better be doing something about it.

This new Radio game is a live-wire field of golden rewards. The work is fascinating, absorbing, well paid. The National Radio Institute — oldest and largest Radio home-study school in the world — will train your inexpensively in your own home to know Radio from A to Z.

Take another tip — No matter what your plans are, no matter how much or how little you know about Radio — clip the coupon below and look their free book over. It is filled with interesting facts, figures, and photos, and the information it will give you is worth a few minutes of anybody's time. You will place yourself under no obligation — the book is free, and is gladly sent to anyone who wants to know about Radio. Just address J. E. Smith, President, National Radio Institute, Dept. 9W91, Washington, D. C.

J. E. SMITH, President,
National Radio Institute, Dept. 9W91,
Washington, D. C.

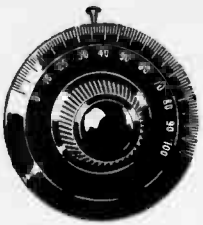
Dear Mr. Smith: — Please send me your 64-page free book, giving all information about the opportunities in Radio and how I can learn quickly and easily at home to take advantage of them. I understand this request places me under no obligation, and that no salesman will call on me.

Name .....

Address .....

Town .....

State .....



RADIO INDEX

REG. U. S. PATENT OFFICE

FRED CLAYTON BUTLER
Editor and Publisher

SIXTH YEAR

Contents

NUMBER 31

Subscription Price, $1.75 per year (Ten Issues)
Published Monthly excepting July and August.

THE RADEX PRESS
1367 East 6th Street . . . . Cleveland, Ohio

The ABC of Radio Tubes

How They Work and How to Use Them

By E. R. HAAN

IN the June RADEX, we described the operation of a radio tube and the proper methods of controlling and operating it. Following will be found simple descriptions of the various tubes and their particular purposes.

The Screen-Grid

Screen-Grid R.F. Tube (UX222 or CX 322) — A tube, especially designed for radio-frequency amplification, and known as the UX222 or CX322, is also available. Its amplification factor is many times greater than that of the ordinary r. f. tubes, and internal shielding by means of a screen-grid makes neutralization of plate-to-grid capacity unnecessary. This tube has a standard base with four tips, and a fifth connection is provided at the top through a metal cap. There are two grids besides the usual tube elements, the additional grid being used as a shield to make the tube more stable. The usual grid lead is connected to the additional cap on the tube, and the screen-grid connection is made to the G-terminal on the tube socket. It is, however, impossible to substitute this tube for the ordinary tube, as its circuit requirements are different and the wiring must be altered to some extent. Besides, it is absolutely necessary to shield this tube effectively and also the grid leads connected to it. A filament voltage of 3.3 volts is used, and the recommended plate voltage is 135 volts. The use of the screen-grid tube eliminates howling caused by uncontrollable oscillation in the r. f. stages. Most old receivers can be rewired to use the new tubes, which will increase the range and pick-up quality of the receiver considerably.

All-Electric Tubes

A.C. Tubes — In A.C. receivers the B-battery is dispensed with entirely. These receivers make use of special tubes designed to operate on 110-volt alternating current, stepped down to a suitable voltage by means of a small transformer. There are two general classes of A.C. tubes now in use, namely: the type using a filament emitter or one which takes the raw a.c. directly on its filament, and the filament-heater type in which the filament is used merely to heat a plate, which serves the purpose of the usual filament for emission of electrons. To the former

Ethel Hawes of the "Ethel and Harry" daily program of W H K, Cleveland. They dramatize the home life of a typical home and incidentally advertise 160 accounts. Miss Hawes has been in radio for six years, writes fiction and children's stories and has had a number of books published.

FREE PROOF YOU CAN MAKE BIG MONEY *in* RADIO!

A glorious future awaits you in this huge industry. Millions of sets need servicing, thousands of ships require radio operators . . . manufacturers and broadcasting stations throughout the land are eagerly seeking trained men . . . and now, nation-wide radio telegraph service, telephony, television, photoradiograms open up thousands of new and amazing opportunities.

Learn At Home

By means of this marvelous, simplified home training course, sponsored by the Radio Corporation of America . . . you can now prepare for success in every phase of Radio. The remarkable outlay of apparatus given to you with this course . . . enables you to learn by actual practice how to solve every problem in radio work. That's why you, too, upon graduation can have the confidence and ability to command big money.

Backed by RCA

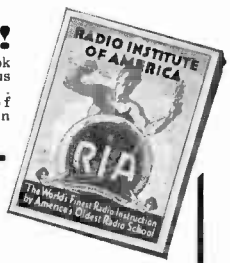
Graduates of this school are always posted in newest developments in Radio. That's why they are always in big demand. The progress of Radio is measured by the accomplishments of the Radio Corporation of America. This gigantic organization . . . sponsors every lesson in the course.

Money Back If Not Satisfied

As a student, you will receive an agreement signed by the president of this school assuring you of complete satisfaction upon completion of your training—or your money instantly refunded.

FREE!

This fascinating book on Radio's glorious opportunities . . . written by one of America's well-known radio experts.



SPONSORED BY RCA

RADIO INSTITUTE OF AMERICA,
Dept. RI-9, 326 Broadway, New York, N. Y.

Gentlemen: Please send me your FREE 50-page book which illustrates the brilliant opportunities in Radio and describes your laboratory-method of instruction at home.

Name.....

Address.....

Please mention RADEX

class belong the power tubes such as the UX210, UX171 and 171A, UX112 and 112A, UX250, and the amplifier tube UX226. The filament-heated type of A.C. tube has grid and plate elements like those of a standard tube, but no similar filament. Electron emission is obtained from a plate or cathode. which replaces the usual filament, it being heated to throw off electrons. It is heated indirectly by means of a special filament which is lighted by the alternating current supplied by the transformer. The filament is, however, separated from the cathode by a porcelain tube. This arrangement permits the filament to heat up the cathode without coming in actual contact with it, and the heated cathode can then pass a plate current. The tube base fits any standard socket, except in case of the UY227 detector tube which requires a special 5-prong socket. Arcturus tubes also belong to the filament-heated class. This class, however, comprises two distinct kinds: tubes designed to operate on a relatively high voltage and a low current, and those designed to operate on a low voltage and a high current. The majority of tubes are of the latter design. The former were developed with the purpose of reducing the electrostatic field about the filament, this being proportional to the voltage drop across it. In the case of low-voltage, high-current tubes the reverse seems to be true, that is the electrostatic field about the filament is increased, but undesired effects of this are overcome by shielding the grid and plate by means of the cathode placed around the heater.

The Arcturus tubes belong to the high-voltage, low-current type, the filament being designed to operate on 15 volts with a current draw of .35 amperes. The use of these tubes is of particular convenience in the conversion of battery-operated sets to a.c. operation in that an ordinary transformer of the kind used for operating toy trains can be used to step down the house-lighting voltage to that required for the tubes. Normal variations in line voltages do not affect the operation of Arcturus tubes to an appreciable extent, the amplification factor being practically constant over a range of 13 to 18 volts. The use of a heavy carbon filament in these tubes enables them to withstand quite a heavy overload.

The 26 and 27 Types

The UX226 or CX326 tubes, or those of similar design, are general-purpose amplifiers, similar in electrical characteristics to the UX201A or CX301A type, commonly used in battery-operated sets, except that the mutual conductance of the 26-type is higher. The filament is designed to operate on 1.5 volts and passes a current of 1.05 amperes, the raw a.c. being applied directly to the filament. A very close balance between the electromagnetic and electrostatic fields, set up by the alternating current, is obtained at a point where the tube operates most satisfactorily as an amplifier. Besides being used on alternating current, the filament is well suited for series operation on direct-current lighting systems. In this case no filtering is necessary and the tube can be used as a detector as well as an amplifier. Of course, sufficient resistance must be used in series to limit the filament current of 1.05 amperes.

Type UY227 or C327, or tubes of similar design, are detectors and amplifiers, having an indirectly-heated cathode consisting of an oxide-coated metal cylinder. This extra element necessitates the use of a separate terminal in the form of a fifth prong on the tube base, and a special socket with five corresponding terminals is used. This tube is similar to the 26 type in electrical characteristics, except that the inter-electrode capacity is lower. The filament used to heat the electrode is carefully insulated from the latter, and is made of tungsten. It is designed for a maximum voltage of 2½ volts, but will last longer if used on 2¼ volts, as higher line voltages, even as high as 10 per cent above normal will not overload the tube, provided the transformed potential is kept down to 2¼ volts. Besides, the use of 2¼ volts does not involve a sacrifice of tube efficiency, as it will show normal performance on filament voltages as low as 1.5 volts. The current consumption of this tube is 1.75 amperes. The variations of surface temperature of the cathode are very slight and do not cause a "ripple" voltage resulting in a hum. The filament and cathode are separated by an in-

(*Continued on page 16*)

The Master Salesman

He Nearly Sold a Radio Set

By HENRY FELLINGE

Dear Mac:

Well, Mac, I promised that I'd try and let you know how I came out on my present situation wherein I am trying to sell radios and musical instruments and I now stand ready to unload to you all the facts in respect to same.

When the poet said "Then truly, this life is full of tribulations," he was no doubt referring to the life of a radio salesman.

Only yesterday I was driving along in my quest of casual customers when my searching eye alighted on the form of a prosperous-looking individual who was watering the lawn in front of a well-kept bungalow.

The man was dressed in a clean shirt, sans collar, a pair of well worn house-slippers and a pair of new khaki trousers which gave a delightful air of negligee to the whole ensemble.

Guy Lombardo, of Royal Canadian fame, who broadcasts regularly over WBBM, Chicago. Lombardo and his orchestra are favorites with radio fans everywhere.

Piled neatly on the concrete walk was a collection of tools necessary to the maintenance of a well-kept lawn.

My unusually active mind absorbed these propitious details and, with the unerring instinct of the super-salesman, I scented my game.

"Here," I said to myself, "is the personification of thrift. This gentleman has, by frugal habits, such as doing his own house-painting, lawn mowing, etc., accumulated a bank account, possibly with the idea in mind of buying a radio for CASH."

By means of that peculiar and somewhat uncanny psychology which we salesmen possess to a certain degree, depends ing on our expertness, and which in me is developed to its highest point, I deduced that he would spend about one hundred and fifty dollars.

This, figuring my commission at ten per cent, would yield me the handsome sum of fifteen dollars.

I, at first, decided that I would spend this fifteen dollars on a trip to Catalina Isand but further reflection gave birth to the thought that I needed a new pair of shoes, those I possessed being in a sad state of repair. I finally compromised by promising myself to pay the grocery bill, which was quite overdue.

Well, Mac, as you well know, I am nothing if not direct and to the point and have always considered it beneath me to quibble around or otherwise cloud the issue when approaching a prospective customer, so I advanced in my most business-like manner.

"Sir," I said, extending my hand and smiling my most ingratiating smile, "I have come to sell you a radio!"

Now, Mac, you notice how I made use of that great factor in selling, i.e., the power of suggestion.

With unusual perversity, however, he did not respond to my masterful advances, neither taking the hand which I

proffered in good fellowship nor returning my verbal greeting.

Instead, he continued to water the lawn, meanwhile slowly turning on me an eye that was slightly disconcerting, it being what you might say, cold—and fishy.

"Here," I reflected, "is a very astute individual, who will not respond to the usual blandishments of the ordinary sycophantic sales method, neither can he be given what in colloquial parlance is called the 'Rush Act.' This man must be treated as an individual case, sold on the idea of radio itself, its entertainment possibilities and its educational features."

I judged instantly that he would not react favorably to any knocking of other guy's sets, so I immediately dismissed any thoughts of such methods as being unworthy of my standing as a salesman De Luxe, as you might say. I launched my sales argument which was calculated to overwhelm any resistance which he might put up.

"No doubt, Sir," I began, "you have wondered if the time would ever come when you could sit by the fire side in your own cozy inglenook and at the mere turn of a button listen to the wisdom of sages, direct from the lips, hear the golden throated opera singers warble their enchanting note, rejoice in the crooning prothallamium of the lyric tenor, vibrate to the sonorous chant of the basso, thrill to the lilting soprano, or relax to the soporific strain of the contralto.

"Your ears have yearned for the clarifying of the tariff question, for the unambiguous definition of the Boulder Dam proposition, for the perspicuous details of the National Debt, for lucid enlightenment on the intricacies of the fourth dimension, and for intelligible information on the inside of politics.

"And, now, Sir, your fondest dreams are realized. Your millennium of fondest hopes has arrived. You have but to reach your hand forth and all these things are yours. For the price of a year's cigars, or gas for your car, or the upkeep of your bootlegger, you can open up these magic gates."

I paused for breath. During my discourse, we had been reinforced by the arrival of a woman from the house whom I took to be the wife of my excellent prospect. She was a tall angular lady and her face wore a look of anxious inquiry. At a sign from the gentleman she produced from her garments a black object shaped like a horn, the small end of which she inserted in one ear.

The gentleman applied his mouth to the large end and shouted, "He's got something to sell."

The lady, with a deft movement, inverted the instrument and, poking the small end into the unresisting ear of my prospect, shouted, "What's he got?"

With a dexterous flip which could be achieved only from long practice, the horn was reversed.

"Vacuum cleaners, I guess," yelled the gentleman.

Flip! Again the Scotch telephone did its stuff.

"Tell him we don't want any," shrieked the lady.

Somewhat disheartened, I wended my way to my car and stepped on the starter.

Amos and Andy in Person

Take the Air Every Night for a Year

AMOS 'N' ANDY, blackface comedians known to radio listeners from coast to coast, have signed an exclusive long term contract with the NBC to appear nightly over an extensive network, it was announced today.

On August 19, the pair inaugurated a brand new network program based on a conception of a daily comic strip for the air. The series will bring two of America's most famous radio artists before the microphone for a fifteen minute period beginning at 11:00 p.m. (Eastern Daylight Time) every night.

The programs, scheduled for fifty-two weeks, are sponsored by the Pepsodent Company, dentrifice manufacturers.

While no actual figure was announced, it was intimated that the contract provides for a salary that exceeds all records for radio comedians.

The nightly programs of Amos 'n' Andy will be put on the network from various parts of the country. Theatrical tours, arranged for the team by the National Broadcasting and Concert Bureau, will carry them into all parts of the United States which will necessitate the microphone being carried to them wherever they happen to be when the time comes for them to go on the air.

Freeman Gosden and Charles J. Correll are the full names of Amos 'n' Andy, whose droll Afro-American witticisms

And here we have our old friends Amos and Andy with a little local color. They are heard regularly over a large number of stations, including WBBM, Chicago. Andy (Charles J. Carrell) is on your left, and Amos (Freeman F. Gosden) on the right.

have captivated the nation. Their tremendous popularity is pointed to by broadcasting officials as complete evidence of the hold of radio on the American public. They are wholly the products of the microphone and had never appeared on the stage as blackface comedians until the radio made their names familiar in all parts of the country. A recent tour of personal appearances not only resulted in packed houses everywhere, but made them the central figures at civic receptions that rivaled in enthusiasm and numbers, those tendered to heroes of war and peace.

Gosden is the Amos of the pair, and Correll is the Andy. They have been identified with radio broadcasting since 1925, always as blackface comedians. Their popularity dates back to their first broadcast. Unlike many performers, there has been no let-up. Their favor with the listeners has increased steadily with each broadcast.

Correll was born in Peoria, Ill. All his life he has had a hankering to be an actor. But first he tried the construction business. Finally he gave it up to try the stage. In Durham, N. C., he found a young Virginian, Gosden, rehearsing for a small time show. Correll joined the troupe and in the succeeding months they were thrown together a great deal.

Later the show went to Chicago and Correll and Gosden shared an apartment. They discovered that their voices blended together, and many of their off hours were spent in harmonizing for their own amusement. In the spring of 1925, "just for the fun of it," they went to Station WEBH and asked to broadcast.

"Sure thing," said the manager. "But there'll be no pay."

That was quite all right with Correll and Gosden. They had no serious radio ambitions then. But the first broadcast was so successful that the Chicago Tribune Station, WGN, offered them places on its staff. January 12, 1926, they went on the air for the first time as Sam 'n' Henry.

Two years later, at the close of their 568th broadcast as Sam 'n' Henry their contract with the Tribune expired. They signed a new one with WMAQ, of the Chicago Daily News. Since the characters of Sam 'n' Henry were the property of the Tribune, Amos 'n' Andy came into being.

While Sam 'n' Henry were popular, Amos 'n' Andy have outdistanced their popularity by far. After their first year with WMAQ the curiosity of the public concerning them reached such a pitch that they were forced to write a book telling all about themselves. Various tours of the country almost proved their end. Everywhere they were mobbed by enthusiastic radio listeners who wanted to get a look at them.

Amos 'n' Andy are inclined to give credit for their popularity to the fact that they try to live their characters. They go among negroes, learn their ways and foibles. Their picturization of southern negroes transplanted to the north has been said by students to be the most realistic ever accomplished.

Radio Unites Family

By Harold Green

WHEN Mary Allen was nine years old her father and mother were divorced. The divorce took place in New York in 1910. Mary was given to her mother and the father disappeared. A few years later Mrs. Allen died and Mary entered an orphan asylum. She never gave up hope of finding her father again.

Fourteen long, weary years passed, but Mary, now a young woman, did not cease her search. One night she sat listening to the radio. The reception was good that night and she brought in a California station. She was just in time to hear the announcement of the next feature, which was to be several songs by Walter Allen.

The minute he began to sing Mary was sure it was her father, for she could remember his fine voice. Her father's name had been Walter too.

She got into touch with the radio station and then began to correspond with Walter Allen. He wrote her that he was looking for his daughter and gave dates

(*Continued on page 18*)

Call Letters and Cross Words

A Test of Your Knowledge of Stations

THE crossword puzzle in the June RADEX brought a large number of replies, indicating a keen interest in this feature of the magazine. Several state they would not have been able to solve this puzzle if they had not saved their back numbers of RADEX. Others wrote that as soon as they found that the magazine contained a crossword puzzle they could not rest until they had solved it. One correspondent stated that it took three days of study to reach the answer.

In accordance with our offer, leatherette covers were mailed to the following:

Wendell C. Hill, Washington, D. C.; Bruce P. Lundy, Jersey Shore, Pa.; F. F. Rupert, South Hills Station, Pittsburgh, Pa.; George W. Boofer, Montclair, N. J.; and Mrs. George L. Vawter, Mansfield, Ohio.

All others who solved this puzzle will receive as a premium a copy of the September RADEX.

The correct solution of the June puzzle is as follows:

```
          K N X
        K O A
      W F A A
    K G R C
  W R E C
W C L S
W F D F
L L I W
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The puzzle this month is contributed by Alan Barnes Walker, New Canaan, Conn. For the first five correct solutions to this puzzle, we will send blue leatherette covers for RADEX. This cover, which sells for 50c, not only adds to the attractiveness of the set, but protects each copy of RADEX from wear and forms a convenient backing for making entries. All who solve the puzzle correctly in addition to the first five will receive copies of the October RADEX as a premium.

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            1
        2 3 ? ?
      4 ? ? ?
    5 ? ? ?
  6 ? ? ?
7 ? ? ?
8 ? ? ?
9 ? ?
?
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(Continued on page 17)

The "Hoot Owl Girls," well known to listeners through KGW, The Portland Oregonian. From left to right: Kathleen Duffy, Helen Lewis and Beulah Blackwell with Ruth Meade at the piano.

Electric CHELSEA RADIO

A low-priced, console-type receiver, incorporating the latest developments in science of radio, and possessing features to be found only in the more expensive receivers. Also available as a table model.

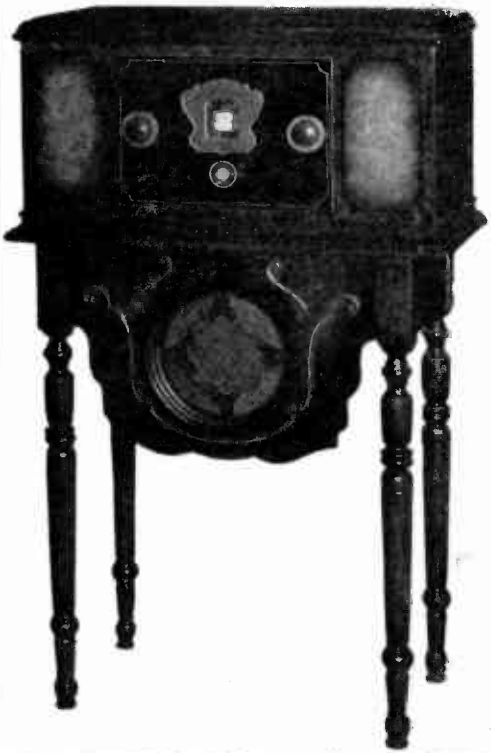
USES NEW 245 POWER TUBE
AUTOMATIC PICK-UP JACK
INDUCTIVE DYNAMIC
BUILT-IN SOCKET ANTENNA
ILLUMINATED DRUM DIAL
PRESSED STEEL CHASSIS

CABINET Made of selected woods with genuine Maple Burl panels, overlaid on four-way matched veneer, Hand-rubbed in dark brown Mahogany with glass-like lacquer finish. Massive and extremely beautiful, a true product of the cabinet maker's art.

FULL DESCRIPTIVE CIRCULAR ON REQUEST

Agents Wanted
WRITE FOR
FULL PARTICULARS

DEALERS!
Extra large discount compensates for lower list price



Console Model

$89.50 less tubes

Table Model - $65.00

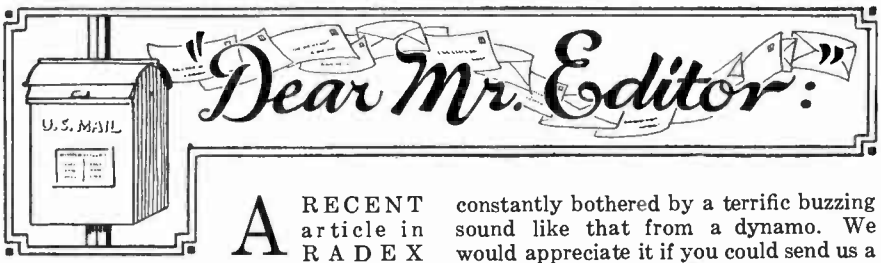
Buy Direct and Make Jobber's Profit

BARTY RADIO CO.

11-42 31st Avenue
L. I. C., N. Y., U. S. A.

Cable Address: "Bartyrad"

Established 1920



A RECENT article in RADEX has brought a number of inquiries for further information. A typical letter is that of Dr. W. J. C. Lamb, of Homestead, Pa. "In your last edition of RADEX, under the heading 'Unscrambling the Eggs' you mention a wavetrap for tuning out interfering stations. We are troubled in this district with KDKA. Kindly inform me by return mail the best wavetrap to buy and by whom manufactured or sold."

There has been so much interest shown in tuning out interfering stations that we have asked Mr. E. R. Haan to prepare an article especially for the readers of RADEX on wavetraps and how to build and use them. This article will be found elsewhere in this issue and we are sure it will prove of great interest to many readers.

Charming, little, Jessica Dragonette of the NBC Studios

Interference

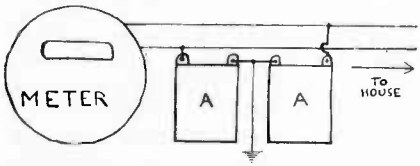
Interference from household devices and neighborhood noises still bother a large number of readers. H. W. Lasting, of the Suburban Pharmacy in Norfolk, Va., writes: "We have a new Steinite radio in our store and we are constantly bothered by a terrific buzzing sound like that from a dynamo. We would appreciate it if you could send us a possible solution to this difficulty."

While this matter was covered quite fully in the article entitled "Neighborhood Noises" in the March RADEX, it will bear repeating here that in such cases as that cited by Mr. Lasting, the first step is to ascertain whether the sound comes from the set itself or from outside. This, of course, is easily demonstrated by disconnecting the aerial. If the noise stops, it has been coming from outside the set. If it continues, it is coming from the set itself. In the latter case, this is a job for the radio service man. In the former case, it is a subject for a detective, preferably one equipped with a portable loop set, as it will be necessary, by a series of elimination tests, to trace down the cause of the noise to its source.

One Way To Do It

From J. C. Weller, of Elyria, Ohio, comes the following letter and sketch of a method which has proved satisfactory in his case in eliminating interference: "I am sending you below a suggestion from my experience with my new Kellogg 515 set," writes Mr. Weller. "It does away with the need of a ground wire on the set. In fact, the ground wire *must* be removed. This arrangement not only strengthened and smoothed the tone of my set, but has eliminated interference from vacuum

cleaner, etc., which radiated from the house wiring like a broadcast aerial. As shown in the sketch, it is attached just inside the meter to the house line." The two condensers shown in the sketch, marked "A," are filter condensers with a



capacity of 2 mfd. and a wiring voltage of D.C. 300, A.C. 200. This is an interesting suggestion and would be well worth trying out. In making connections to the house line, first turn off the current to prevent shock and be sure to insulate the leads well as these wires are live up to the condensers. The condensers, of course, do not pass the current but only the high frequency waves.

Are We All Sour

When doctors disagree what shall the patients do? From Brownfield Maine, comes the following letter from Earle Chamberlain: "In your May number of RADEX, E. R. Haan writes concerning electrolyte, stating that if some is spilt on a carpet it should be neutralized at once with either ammonia, baking soda or vinegar. Evidently Mr. Haan is not aware that vinegar is an acid and that he is recommending the neutralizing of one acid with another. Baking soda and ammonia are, of course, alkaline in nature and so are suitable for neutralizing sulphuric acid solution. Either of them would neutralize vinegar also, but vinegar to counteract sulphuric acid — never!"

DX Again

From our friend, C. M. Falconer, of Baltimore, Md., comes another interesting letter: "I want to add a few more words relative to the great usefulness of your RADEX. It has been the means of my getting at least fifty stations in a fraction of the time that it would have required without this help. Having now arrived at a total of 196 stations, I have to employ a more direct method than merely listening at random. I now select in advance two or three stations, with due regard to their power and distance, that I want to bring in for the first time. By referring to my RADEX I can see instantly where these stations should come in on my dials. It is surprising how quickly I can bring them in, sometimes in a minute or less. It may interest you to know that within the last few days I have obtained verification from stations in spite of the fact that I *have never heard them announce their call letters*, which fact I stated in my letter to them. The reception was identified by the program and the tuning."

From far off Bermuda comes an inquiry from Sgt. J. J. Harrison, of the Permanent Staff of the Militia Artillery, who writes that he has recently been assigned to service on that Island and is anxious to listen to U.S.A. programs. He states that he had been told of the helpfulness of RADEX and desires to secure copies regularly.

Radio in Holland

From Nic A. Smit, Wireless Operator of the S.S. Minerva at Amsterdam, Holland, comes an interesting letter regarding radio in the Netherlands: "Reading your publication RADEX, I was very glad to meet our Hilversum in your list of foreign stations. Of course, our country is of little importance to yours, but it has some old rights, as it was the first in Europe that broadcast to the public. In the meanwhile I think you want to keep your RADEX up to date, thus follows some information. At present there are four radio stations in Holland. Hilversum, Huizen (long wave), Eindhover and Huizen (short wave). Hilversum is a station of 1-5 Kw., transmitting on 1071 m. It belongs to a manufactory, the "Nederlandsche seintoestellen fabriek," a sister company of our ship's telegraph company, Radio Holland. Renter is the HDO, later ANRO, now named AVRO (Algemeene Vereeniging Radio Omroep). This is a public institution. Anybody who finds himself responsible is subscriber. Huizen (LW) is controlled by a combination of Roman Catholics and Protestants. It is now transmitting on

(*Continued on page 17*)

Making and Using A Wave Trap

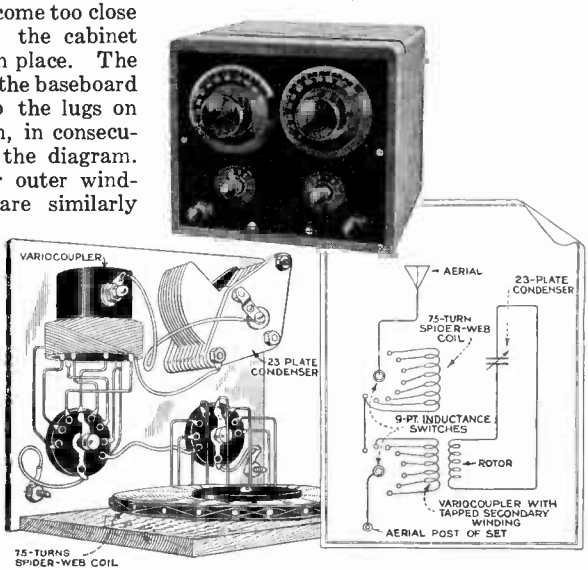
The Elimination of Interfering Stations

By E. R. HAAN

WHEN the receiver is located in the vicinity of broadcasting stations, interference is often experienced from two stations operating on wavelengths only a few meters apart. A receiver located two or three blocks from a station picks up the signal from this station over a wide range on the tuning dials, and it can be heard in the background even when other more distant stations are tuned in. In such cases the receiver should be entirely shielded, a short aerial should be used, and if the trouble still persists, a wave trap should be provided. A wave trap is a device placed ahead of the receiver, and is usually connected in the aerial line. The trap consists of variable inductance and capacity devices, which can be tuned to any point on the wave band. The function of a wave trap is to absorb the signal of an undesired station, so that stations operating on different wave lengths can be brought in without interference. It is possible, however, to absorb one signal or several signals on the same wave length, at one time, but if there are two interfering stations on different wave lengths, which prevent the satisfactory reception of a third station, only one of the interfering stations can be tuned out with a wave trap. For instance, if the wave trap is adjusted to absorb a signal having a 425-meter wave length, all stations at this wave length will be unheard, but stations at 410 meters may still cause interference. Some wave traps are more efficient than others, as they enable the operator to tune them more closely. There are two common faults with a number of wave traps; they do not eliminate the interfering signal effectively or they decrease the volume of other signals to an appreciable extent.

One type of wave trap, which has been found to be highly efficient, is shown in Fig. 1. This type may be slightly more difficult to make than the average type of wave trap, but results will reward the time and work of building it, and its construction is within the reach of every radio fan who is able to use a few tools.

The instrument needed to construct this wave trap are a .0005-mfd. variable condenser, a 75-turn tapped spider-web coil, a vario-coupler with a tapped stator winding, two nine-point inductance switches, and two binding posts. A neat little cabinet having a 6 x 7-in. panel can be picked up at almost any radio shop, as well as two large dials, similar in size and design, for the condenser and the vario-coupler. The smaller dials and knobs are furnished with the inductance switches. When selecting a condenser, get one that can be readily mounted in the upper corner of the cabinet. Before marking off and drilling the panel, carefully lay out the instruments on the back side, so that they will not be crowded or come too close to the sides and top of the cabinet after the panel is screwed in place. The spiderweb coil is screwed to the baseboard and its taps are soldered to the lugs on the first inductance switch, in consecutive order, as shown in the diagram. The taps on the stator, or outer winding of the vario-coupler, are similarly soldered to the lugs of the second inductance switch. The levers of both switches are connected to the binding posts nearest them, and the last tap on the first switch is connected to the first tap on the second switch. The rotor of the vario-coupler is wired to the condenser, and the wave trap is then ready for use.



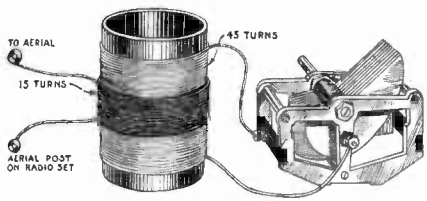
Courtesy of Popular Mechanics Magazine.

If the radio owner wishes to make a less elaborate wave trap, one can readily be made by winding two coils of No. 26 enameled or double silk covered copper wire, on a cardboard tube about 3½ inches in diameter, as shown in Fig. 2. About 45 turns of wire are first wound on the tube, the ends being fastened securely so that they will not unravel. Then apply a winding of tape in the center over which a small coil of 15 turns of wire is wound. This coil should also be securely held in place with a layer of tape wrapped over it. A .0005-mfg. variable condenser is shunted across the 45-turn coil as indicated, and the ends of the small coil are connected to binding posts. It is a good idea to build the wave trap in a small box or receiver cabinet, mounting the instruments and binding posts on a bakelite or hard-rubber panel to minimize losses, and to provide a convenient holder for the device. No. 14 copper bus-wire should be used for wiring, and all connections must be soldered carefully.

Usually a wave trap is cut in the aerial line. The lead-in wire is connected to the input terminal of the wave trap, and a separate wire connects the output terminal of the wave trap to the aerial binding post on the receiver. In some cases it is, however, necessary to connect the wave trap in a different manner. On radio-frequency receivers, on neutrodyne receivers, and on receivers having reflex circuits, a wave-trap should be connected to the grid of the last radio-frequency transformer and the grid of the detector tube, just before the grid leak. If a receiver has a regenerative circuit, such as the ultra-audion, the trap can be cut in either the aerial or the ground circuit, or it may be found that better results are obtained if it is connected in shunt across the aerial and ground.

In some cases it may also be found ef-

fective to connect an extra .0005-mfd. variable condenser in series with the aerial and the wave trap, if the latter is connected in the aerial line, or between the ground and the wave trap, if the latter is cut in the ground line. It may be necessary to experiment, to find out just what method is most effective on any particular receiver.



After a wave trap is hooked up to the receiver, tune in the signal of a nearby broadcasting station. Carefully adjust the dials on both the receiver and on the wave trap so that this signal will be brought in at its maximum volume. Then turn down the volume control so that the signal can just be heard. Tune again on the dials to bring up the volume of the signal as much as possible without adjusting the volume control. After this has been done, the latter is advanced a little for comfortable volume, and then the control of the wave trap is manipulated until the signal is completely absorbed, or nearly so. When the signal is inaudible, the receiver can be tuned in to any other station except those which have the same wave-length as the trapped signal. It will be found that the use of a wave trap may alter the dial readings to some extent. It should be remembered, when using a wave trap, that, although an undesired signal can be completely trapped, its harmonic may be brought in at another point on the tuning dials, but such trouble is rarely experienced. Wave traps should be used only in connection with vacuum-tube receivers as they are not at all satisfactory for use on crystal sets.

A blue and gold leatherette cover for your RADEX for 50 cents.

ABC of Radio Tubes

(*Continued from page 4*)

sulating wall, and intermittent contact with this wall may cause the filament to flicker slightly, but this will not affect operation in any way. The filament construction of the 27 type of tube necessitates the use of a cylindrical grid similar to that used in 199 type of tubes. It is extremely important that the tube prongs make good electrical contact with the socket terminals, especially in case of low voltage tubes such as the 26 and 27 types, as appreciable contact resistance may reduce the operating efficiency of the tube to a considerable extent. It has been found generally impractical to use rheostats with A.C. tubes. Potentiometers and other volume controls, which function by varying the grid bias to the r.f. tubes, are not used as they tend to introduce a hum on certain adjustments. Volume control can be obtained by connecting a 0 to 200,000-ohm variable resistor across the secondary winding of one of the r.f. coils or by connecting a resistor in series with the aerial and ground.

Power Tubes

Many radio owners have the mistaken idea that the purpose of power tubes is primarily to increase the volume of a receiver. They are really designed to provide a greater amplification range than ordinary tubes, and this enables them to reproduce reception with very little distortion. The object, then, of these tubes is more uniform reproduction instead of greater volume. It should also be remembered that the addition of a power tube to a receiver does not compensate for losses due to various causes. Usually higher B-battery voltages are required for these tubes and corresponding high grid voltages.

The UX120 or CX220 tubes are power tubes used on 3-volt circuits in conjunction with UX199 or CX299 tubes in the other stages. The UX210 or CX310 tube is a power tube used in 6-volt or 7½-volt circuits. No resistance is used to control their filament current and it is connected directly in the 6-volt lines on battery-operated receivers, or a 7½-volt tap of a transformer is used on raw a.c., which is entirely satisfactory. With the latter tube plate voltages can be used and the grid voltages must, of course, be proportional, as follows: plate 250 and grid 18; plate 350 and grid 27; plate 425 and grid 35. The UX112 or CX112 is a power tube operating on 5 volts and it passes ½ ampere. Plate and grid voltages are as follows: plate 90 and grid 6; plate 135 and grid 9; plate 157 and grid 10.5. The UX 171 has slightly different characteristics. It is designed for a 5-volt filament current and passes ½ ampere, while its plate and grid voltages are as follows: plate 90 and grid 16; plate 135 and grid 27; plate 180 and grid 40.5.

The UX112A or C112A, and the UX 171A or CX371A are exactly similar to the older 112 and 171 power tubes in respect to electrical characteristics except that the A-type consumes a current of only .25 ampere instead of .5 ampere. Both operate at 5 volts, either on d.c or a.c. if used as the power tube in the last stage of a receiver. Besides being efficient as a power tube the type 112A can be used as a detector or a general-purpose amplifier, but in such cases only direct current should be supplied to the filament. When used as a detector the plate voltage should be 45 volts. The 171A tube is designed for use as a power tube only. It requires a plate voltage of 180 volts and delivers quite a current, which makes it advisable to use an output device instead of delivering the output directly to the speaker, unless the speaker is of the dynamic type, in which case an output choke or transformer is incorporated in it. The 112A and 171A tubes can be substituted for the 112 and 171. tubes, provided the filament-control resistors are replaced by those designed for use with the new tubes. The latest development in power tubes is the UX250. It is capable of supplying an enormous amount of undistorted power for the operation of loud-speakers, especially those of the dynamic type. Due to its large output the possibility of overloading it is eliminated. A rugged, coated ribbon filament, similar to that used in the 280-type rectifier, is used and it is designed to operate on 7.5 volts and 1.25 amperes, either d.c. or a.c. The low-operating temperature of the filament, and its large

size, reduces the possibility of a "ripple" voltage or hum. As in case of other power tubes an output choke or transformer must be used, except in case of a dynamic speaker. A special power pack delivering 400 volts and 55 milliamperes of B-supply must be used to operate this tube, in preference to batteries. Its plate and grid voltages are as follows: plate 250 and grid 45; plate 300 and grid 54; plate 350 and grid 63; plate 400 and grid 70; plate 450 and grid 84.

Call Letters and Cross Words

(*Continued from page 9*)

Horizontal

2 In a state capital.
4 Call changed this month.
5 Recently refused renewal of license.
6 A religious station.
7 On the country's edge.
8 A school of music
9 A municipal station.

Vertical

1 On 570 before November 11, 1928.
2 On 1210 kcys.
3 On a low wave length.
4 A key station.
5 In the steel district.
6 Uses a sister station.
7 "One of America's great stores."
8 Moved from 850 to 820 in the great shake-up.

"Dear Mr. Editor"

(*Continued from page 12*)

341.3 meters during the day and 1875 meters in the evening. Power, 1 Kw. Eindhover is a private station of the Philips radio manufactory. Call letters (after Jan. 1, 1929) PCJ. Power 15 Kw. at 31.4 meters. The Philips works recently erected the station Huizen (short wave), especially for transmission to our colonies in the Dutch East Indies. Power 130 Kw. primair. Wave length, 16.88 meters. I think you received the station already. If you want to know more about the radio world in Holland or the Dutch Colonies, I'll be always glad to inform you."

Victrola Pickup

From M. B. Freman, West Chester, Pa., comes the following comment and inquiry: "Have been reading your RADEX for months and *it is great.* I have just purchased a new Sparton Console set with dynamic speaker and would like to know if a Victrola pick-up can be used on this set. If so, where can I purchase this outfit?" Victrola pick-ups are meeting an increased sale. They are proving very valuable to those who have a modern radio set and speaker, but whose phonograph is of the pre-orthophonic age. With the use of the pick-up the vibrations from the record are transmitted electrically to the amplifier of the radio set, so that one can have his own broadcasting program even when all stations are silent. This pick-up can be used with any set and it can be purchased through any dealer, most of whom carry this device in stock or can secure it quickly.

Unusual Reception

Weather conditions have so much to do with radio transmission and reception that we frequently hear of stations with very small power being heard at unusually long distances. One of our readers in Ohio recently heard KFEL of Denver and had some difficulty in proving his reception to his friends. From J. Granderson Turner, Announcer, KFYO, Abilene, Texas, comes the following interesting corroboration: "I have just been reading the 'Question Mill' and saw a question which interested me very much. One of your readers asked for help in settling an argument about getting KFEL, Denver. I also happened to be listening in at the same time the reader mentioned and also heard this station. I believe weather conditions were not normal, for I picked up KGFJ in Los Angeles, Cal. This is a 100-watt station on 1420 k.c., the same power and frequency of my station. At normal conditions, I believe I would have been unable to receive this station at the volume I did. However, I picked up KFEL just as they were coming on the air at 4:00 a.m. They were broadcasting electrically reproduced phonograph records and came in here with a volume that was surprising for a 250-watt trans-

mitter. (Anyone connected with broadcasting knows that many stations use power in excess of that which is assigned them by the Federal Radio Commission. However, I am not accusing KFEL of this violation.) At any rate, I do not doubt the statement of your reader in hearing KFEL at any distance."

Goldman's Band

"I have looked all through RADEX but cannot find anything about Edwin Franko Goldman and his band. I am quite sure his concerts are being broadcast every night. Can you tell me the hour, the chain, etc?" Thus writes Dale B. Stinson, Director of the Municipal Band at Emporia, Kansas. The Goldman Band was formerly a regular feature on the chain programs, but for some reason or other they are now broadcasting only through WJZ, New York. They may be heard from this station every Saturday evening at 8:45.

We close the mail box this month by quoting two amusing comments found in recent letters. "Radio without RADEX," writes Helen E. Capper, of Indianapolis, "is like a blind date in a flivver — you have no idea where you're going or what you'll get after you get there."

And from A. D. Rice, of Detroit: "I have become an addict to RADEX. I used to accumulate radio logs like a traveling salesman picks up spoons and towels but I can frankly state that RADEX is the best. It is difficult to see where any improvement could be made."

Radio Unites Family

(*Continued from page 8*)

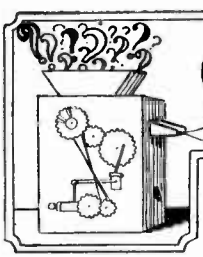
and facts that proved beyond a doubt that they were father and daughter.

A few weeks later a trans-continental flyer was carrying Walter Allen and his daughter Mary toward California and happiness. Radio had brought about their reunion after 19 years of separation.

Short Waves Again

From John Hunter, of Monessen, Pa., comes this inquiry: "I would like to have you give me some advice concerning a short wave length adapter. I have an R.C.A. Radiola 62 Superheterodyne and I want to buy an adapter for the set. Could you tell me one that would be best suited for my set and give me an estimate of the distance I could get if I can get KFI in the broadcast band?" There are a number of short wave adapters on the market. We regret that we cannot advise our readers as to which is best. Just as in buying a radio set, or anything else, one usually gets what he pays for. In other words, as a general rule, the more expensive sets will give the greater satisfaction. Any radio dealer can secure a short wave set or furnish the parts from which one may be built.

It is quite impossible to give any estimate of the distance that can be received as not even the maker can promise honestly what his set will do. There are too many other factors beside the set itself. The location, the aerial, the ground and the operator are all vital factors. Do not buy a short wave adapter and expect to whirl your dials and receive programs as you do in the broadcasting band. Tuning in the short wave is a very delicate operation, as the fraction of one division on the dial may mean the difference between excellent reproduction and missing the station entirely. Do not expect the volume you are used to in the higher waves, for it is not there. Short waves are a field for the experimenter and are full of interest, particularly to one who can read code. Very much of the material on the short waves is in code, ship to ship and ship to shore, and between amateurs, although there are a number of short wave stations repeating the regular long wave programs. Then there is the thrill of receiving foreign countries. If all the factors we have mentioned are favorable, you may hear completely around the world, but this will take the skill in tuning that comes from long practice.



The QUESTION MILL

Conducted by
ENNO R. HAAN, *Technical Editor*

We live a short distance from a local broadcasting station, and although we can tune it out, the reception of this station, when tuned in, is excessively loud and very distorted. Turning down the volume control doesn't help and detuning on the dial is not satisfactory as it does not clarify the signal when it weakens it. Will you suggest a method of getting this station at a moderate volume and without distortion, as the programs offered are well worth listening to?

Your receiver is picking up too much energy. You will undoubtedly find that you can still receive the station when the aerial is entirely disconnected from the receiver. Disconnecting it is therefore the remedy. To make it convenient to do so get a single-pole, single-throw knife switch. Mount it in a handy position outside of the receiver cabinet, preferably on the back of the cabinet, where it will be out of sight. Connect the aerial lead-in wire to one terminal of the switch and a lead to the aerial binding post of the receiver to the other terminal of the switch. Closing and opening the switch connects and disconnects the aerial.

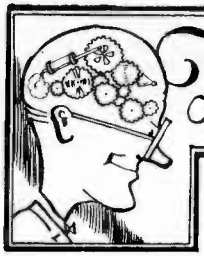
I have an all-electric Fada Neutrodyne receiver No. 31. After replacing a tube in one of the r.f. stages, the set does not function as well as it did formerly. Will you advise what to do?

Have all of the tubes tested and replace the poor ones. It may then be necessary to neutralize the set. In the Fada No. 31 receiver, the tube positions are all indicated on a card attached to the cabinet lid or on the back drop door in the console model. Tune in a strong low-wave station, or a 250 to 300 meter signal supplied by a local oscilator. Remove the third r.f. tube and insert a tube with one heater prong carefully insulated with a coating of collodion, this being allowed to dry thoroughly before it is inserted into the socket. Turn the third neutrodon, which is the one located directly between the third r.f. tube and the detector tube. Repeat the same operation for the first and second r.f. stages. The first neutrodon is located to the right of the first r.f. tube, and the second neutrodon is in front and slightly to the right of the second r.f. tube. This method of neutralizing an a.c. operated neutrodyne receiver applies to other types of sets also.

Where am I to look for trouble in my all-electric Amrad No. 70 receiver? It has ceased functioning entirely.

The data you give me to figure out your trouble is rather brief, but I'll do my best by mentioning a number of causes which might account for your trouble. If the aerial were grounded, or the aerial or ground disconnected, the tubes would light and you would hear the tube noises in the speaker when the set is turned on. If one tube fails to light it may be defective and in this case should be replaced. Blown fuses would cut off the filament current to the tubes and then they would not light. There may be a short circuit or an open circuit in the power pack. A short-circuited condenser in the power pack may be detected by testing it with a C-battery and voltmeter hooked up in series. If current passes through the condenser it is defective. The condenser should, of course, be disconnected from the circuit while making this test. A broken-down audio transformer or a break in the audio circuit may cause the trouble. Also look over leads to the speaker and make sure that the tube tips make good electrical contact with the socket prongs. Examine the 110-volt lead which connects the power pack to the lighting socket, as there may be a break here. If the above suggestions are

(*Continued on page 63*)



The Editor Thinks~

that the direct advertising nuisance is growing worse. Every fair-minded person must concede to the broadcasting stations some form of revenue if they are to continue the public service they render. But of what avail will it be to the broadcaster, the advertiser or the radio industry if listeners rebel and snap off their switches in disgust? Every time a listener turns off his set resentfully, radio suffers a set-back, slight it is true, but regrettable none-theless. A publisher knows that he cannot publish too much advertising, or the wrong sort, or he will lose his reading public. Broadcasting stations must be even more alert to such a situation for their patrons leave them silently and without obvious effect upon the month's balance sheet. Perhaps some of these stations which are giving talks on tooth-pastes and corn-cures are sending out vibrations to an audience that is busily listening to more interesting programs. How effective it would be if these stations could actually see their listeners tune them out when these harangues begin.

* * *

that the alphabetical index to chain programs in this month's RADEX ought to be most welcome to our readers. We all have our favorite features on the air which we do not like to miss but it is quite impossible to carry their hour of appearance in our minds. Beginning this month we will list all the principal chain features both alphabetically and by hour and day. This issue also contains for the first time the features of the American Broadcasting Company, the west-coast chain.

* * *

that radiovision is making rapid strides toward an acceptable form of instruction and entertainment. According to C. Francis Jenkins who has contributed to this branch of the science, perhaps more than any other one man, 25,000 radio amateurs are today regularly receiving a one-hour radio-movie program which is broadcast from W3XK in Washington, D. C. Prof. Jenkins has an interesting article on "Radio Finds its Eyes" in the July 27th issue of the Saturday Evening Post.

* * *

that the remote control of radio sets upon which so many manufacturers seem now to be working, will never amount to a great deal until a way is found to take the tuning condensers out of the set itself and mount them in a portable case. Then only will it be possible to have really remote control. But then one might as well have one of the surprisingly compact portable sets now on the market and carry it from room to room as it is wanted.

* * *

that the tendency to put the call letters of some stations on the dials is to be regretted. It is obvious that only a few of the 700 stations can be thus designated. Changes are still so frequent that the dial may be come obsolete within a few months. Then too, a dial that would be suitable for Salt Lake City would not be at all adapted to Atlanta. The listener in the north-west would want KGA on the 1470 marking while the one in the south-east would want WRUF, in the north-east WKBW and in the south-west KFJF.

Those who are having trouble with interference from motors and generators, ice machines, oil burning furnaces, and other electrical devices, should secure a copy of a manual which has just been published by the Radio Manufacturers Association, 32 West Randolph Street, Chicago. It gives many suggestions and sketches for eliminating these difficulties. The price of the manual is 25c.

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THE RADIO MANUAL

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Prepared by Official Examining Officer

The author, *G. E. Sterling*, is Radio Inspector and Examining Officer, Radio Division, U. S. Dept. of Commerce. The book has been edited in detail by *Robert S. Kruse*, for five years Technical Editor of QST, the Magazine of the American Radio Relay League. Many other experts assisted them.

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The Revised Edition of "The Radio Manual" has just been published. Nearly 900 pages, 369 illustrations. Bound in Flexible Fabrikoid. The coupon brings the volume for free examination. If you do not agree that it is the best Radio book you have seen, return it and owe nothing. If you keep it, send the price of $6.00 within ten days.

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What's Coming In Radio?

Coming Events Forecast by R. M. A. Trade Show

AS a result of the third annual Radio Trade Show of the Radio Manufacturers' Association, held last month in Chicago, one fact has been brought out clearly and that is, the screen-grid set has been universally adopted by the trade and is here to stay. While it is true that the 224 tube has not yet reached a state of perfection and some set manufacturers still hesitate to use it, it was inevitable that this set should be announced to the public for the fall market.

Of the 227 manufacturers represented at the show 23 per cent were set manufacturers. Practically all were in agreement that the popular circuit for this coming season will consist of two or more 224 "screen-grid" tubes, one or two 227 tubes, and 245's in push-pull in the last audio stage. Of course the set will be equipped with a dynamic speaker.

Receivers are found to have been further refined and made more rugged so as to take care of the increased power which characterizes all the new sets.

Manufacturers are one in saying that outstanding features of this year's sets are greater selectivity, increased sensitivity, better design of both cabinets and chassis, better reproduction, and simplification of installation and operation.

There is an apparent trend to console models, and the cabinet manufacturers have made notable contributions to the "dress" of receiving sets. Authentic period designs of most pleasing detail are now, for the first time, usual practice. Both highboys and lowboys, as well as open-faced jobs, are offered in a choice of walnut, mahogany, oak, oriental walnut and other fancy woods. Doors are of the sliding variety or the French type. All in all, design, construction and finish are far superior to that of years previous — undoubtedly the result of feminine appreciation for fine furniture in radio sets.

Chassis design was found to have reached a point where it has a direct bearing in aiding the manufacturer to reach still lower prices and at the same time maintain uniform quality and performance. A trend was also seen to make the set chassis and speaker chassis all part of a box-like metal frame so that its installation in a cabinet is greatly simplified.

Complete shielding with solid mechanical construction of metal chassis was everywhere in evidence. Aluminum and steel were the most popular metals used. Tuning condenser plates are also being made somewhat heavier to eliminate undesirable microphonics set up at this point.

The panel fronts and controls are not much different than they have been during the past season. Escutcheons are constantly changing style and better metals, such as silver, are being used here. Only three or four manufacturers could be found who were still using the 226 type of tube. Those manufacturers who are not sold on the 224 tube yet, are for the most part using 227's throughout except for the last audio stage where either 245's or 250's are to be found. The 280 is the popular rectifier tube.

Many manufacturers are experimenting with both automatic and remote control, but at the present time this feature is to be found only on the more expensive models. Selective systems of tuning, mechanical in operation, are being tried out on the more moderate priced models. Automatic volume control seems to be gaining favor and no doubt there will be further developments along this line. Dials marked in kilocycles are being used much more than before.

Furniture manufacturers constituted about 14 per cent of the exhibitors. Walnut is without a doubt the most popular wood for this next season, although other woods are being used. Both consoles and high-boys were very much displayed although the swing is toward small consoles. This of course is directly resultant from the trend for cheaper sets. Furniture is much better looking than heretofore and two-toned paneling is being used to great advantage. Very few radical

modernistic designs were in evidence. Style with price seems to be the keynote this season.

Sliding doors, although still prominent, are, according to some of the largest furniture manufacturers, too expensive to make for medium-priced consoles and therefore they will give way to small panel or French doors. When these are thrown open the effect is that of no doors at all. Along this line there is also a trend to eliminate the grille of the speaker opening and to place the speaker in a position so that the sound emanates through the bottom of the console. Solid wood backs are also being left off cabinets for acoustical reasons.

There is no doubt that improved types of dynamic speakers dominate the reproducer field. The tendency is to enlarge the diameter of the cone diaphragm which gives better tone response. Very few magnetic speakers and still fewer horns were to be found. The inductor type speaker, a new development said to have superior qualities over the magnetic type and at the same time costing less to make, was shown by several manufacturers.

The electrostatic speaker, a development of the past year, is still in the background. Those that were heard sounded very good but evidently there is yet further work to be done on it. Only one manufacturer is pushing it at present.

Eighteen individual set manufacturers showed radio-phonographs in their lines. Looking these over, improved construction is noted. And the price trend is downward. Phonograph pick-ups have been highly developed during the past year and it is interesting to note that 5 per cent of the exhibitors had pick-ups on display. A few manufacturers had complete electric phonograph units consisting of pick-up and electric turntable. One type was mounted in a metal box making it portable while another was in the form of a mahogany end table.

Several parts booths showed patented antennas and various types of antenna kits. There were also about the usual number of displays of fundamental parts.

From "*Radio Retailing*"

WHAT'S ON THE AIR TONIGHT?

A WEEKLY CALENDAR

Leading Features of the Network Programs

Time is given by Eastern Daylight Saving. For Eastern Time, subtract one hour, for Central Time, two hours, for Mountain Time, three hours and for Pacific Time, four hours.

Station lists beginning with WEAF and WJZ are the National Broadcasting Co., Inc., while those beginning with WABC and WOR are the Columbia Broadcasting System.

Daily (Except Saturday and Sunday)

6:45-8:00 Tower Health Exercises
WEAF WEEI WFI WRC WGY
WGR WCAE

8:15-8:30 Morning Devotions
WEAF WRC WGY WCAE WGR

8:30-8:50 Cheerio
WEAF WRC WGR WGY WCAE
WHO WEEI

8:50-9:00 Petit Trio
WEAF WEEI WRC WCAE

11:00-11:30 Ida Bailey Allen
WABC WCAU WNAC WEAN WFBL
WMAK WCAO WJAS WADC WGHP
WBBM WOWO KOIL WSPD WHK
WLBW WMAL WISN KMOX KMBC
WKRC WCCO

11:15-1:30 Radio Household Institute
WEAF WEEI WTIC WJAR WTAG
WCSH WLIT WRC WGY WGR
WCAE WTAM WWJ WSAI KSD
KFKX WDAF KSTP WTMJ

12:03-12:45 Twelve o'Clock Trio
WEAF WWJ WAPI WTAG

12:45-1:45 Luncheon Music
WEAF WWJ WAPI WTAG

2:00-2:30 Montgomery-Ward Program
KFKX KSTP WHO WOW KOA
KWK WDAF WHAS WSM WMC
WSB KVOO WFAA

2:30-3:15 National Farm and Home Hour
WJZ WBZ WBZA WBT WJR
WHAM WLW KWK WREN WRC
WHO WTMJ KSTP WEBC KDKA
WBAL WRVA WDAF WJAX WSM
KOA WFAA KPRC KVOO WHAS
KYW WMC WOAI WIOD WPTF
WKY WOW

2:45-3:00 Theronoid Health Talk
WABC WCAU WFBL WKBW WCAO
WJAS WADC WOWO KOIL WSPD
WHK WLBW WMAL KMOX WKRC

6:00-6:45 Black and Gold Room Orchestra
WEAF WRC WCAE WLS WWJ

Sunday

1:30-2:00 Marimba Band
WEAF WCAE WWJ KSL

2:00-2:30 Troika Bells
WEAF WGY WTAM WWJ WHO
KSL WLS

2:30-3:00 Milady's Musicians
WEAF WGY WTAM WWJ WHO
WOW KSL

2:00-3:00 Roxy Symphony Concert
WJZ WBZ WBZA WBAL KDKA
WLW WTMJ KSTP KYW WJR
WRC WFAA WEBC

3:00-3:30 Symphonic Hour
WABC WCAU WNAC WEAN WFBL
WKBW WCAO WJAS WADC WKRC
WGHP WMAQ WOWO KMOX KMBC
KOIL WSPD WHK WLBW WMAL
WCCO WISN WFBM

3:00-3:30 The Balladeers
WEAF WRC WGR WTAM WGY

3:00-4:00 Friendly Hour
WJZ WLW KWK WREN KSTP
WSB WBT KVOO WJAX KSL
WBAL KDKA WHAS WBZ WBZA
WAPI

3:30-4:00 Songs and Bows
WEAF WRC WGR WTAM WGY
WOW WHO

3:30-4:00 Hadnut DuBarry Program
WABC WCAU WFBL WKBW WCAO
WJAS WADC WKRC WGHP WMAQ
WOWO KMBC KOIL WSPD WHK
WLBW WMAL WLAC WDOD WBRC
WREC KLRA KFJF KRLD KTSA
WDSU KFH

4:00-5:00 National Sunday Forum
WEAF WTIC WTAG WCSH WGY
WGR WCAE WSAI WOW WRVA
WBT WJAX WHAS WMC WSB
KVOO WKY KOA KHQ KPO
KGO KOMO WAPI WOAI WFAA
KPRC WJAR WOC WWJ

4:00-5:00 Cathedral Hour
WABC WCAU WNAC WEAN WFBL
WKBW WCAO WJAS WADC WKRC
WGHP WOWO KMOX KMBC KOIL
WSPD WHK WLBW WMAL WCCO
WFBM WISN (WLAC WDOD WBRC
WREC WDSU KFH KTSA KLRA
KFJF KRLD

4:30-5:30 The Maestro's Hour
WBZ WBAL WHAM KDKA WJR
KWK WREN WBZ WBZA KSTP

5:30-6:00 Twilight Reveries
WJZ WBAL WHAM WLW WREN
WBZ WBZA KDKA

6:00-6:15 Echoes of the Orient
WEAF WTIC WRC WGR WWJ
KSD WCAE WHO KOA WGY

6:00-6:30 Fox Fur Trappers
WABC WFAN WNAC WHK

6:15-7:00 Face to Face With Our Presidents
WEAF WTIC WCAE WRC KSD
WGR WWJ WEEI KSTP WOC
WGY

6:30-7:00 Whittall Anglo-Persians
WJZ WBZ WBZA WBAL WHAM
KDKA WLW WJR KYW KWK
WTMJ KSTP WEBC KOA KSL
KPO KGO KOMO KHQ KGW
KFI WREN

7:00-7:30 In the Time of Roses
WEAF WTIC WRC WGR KSD
WTAG WGY WCAE

7:05-7:30 The American Singers
WJZ WBAL KDKA KWK WREN
KOA

7:30-8:00 Retold Tales
WJZ WBZ WBZA KDKA KWK
WREN WKY KOA WJR WLW

7:35-9:00 Major Bowes' Family
WEAF WTIC WJAR WRC WGY
WCAE WLS WWJ WSAI KSD
WOW WFJC WIOD WHAS WMC
WSB WKY WPTF WSM WOC
WRVA WAPI WTMJ

8:00-8:15 Enna Jettick Melodies
WJZ WBZ WBZA WBAL WHAM
WKY WJR KWK WLW WREN
WFAA KPRC WOAI WHAS WSM
WSB WTMJ KSTP WMC KOA
KDKA KYW KTHS WEBC WIOD
WBT WRVA WAPI KVOO

8:00-8:30 La Palina Program
WABC WNAC WCAU WEAN WFBL
WCAO WJAS WADC WKRC WFBM
KMOX KMBC KOIL WLBW WMAL
WISN WMAK WGHP WOWO WSPD
WMAQ WCCO

8:15-9:15 Radio Guild
WJZ KWK KOA WREN WBZ
WBZA WHAM KDKA KSL KOMO

8:30-9:00 Sonatron Program
WABC WCAU WEAN WFBL WCAO
WJAS WADC WKRC WOWO KMOX
KMBC KOIL WHK WLBW WMAL
KLZ KDYL KMTR KYA KEX
KJR KGA WBBM WNAC WGHP
WMAK WSPD WCCO WFBM

9:00-9:15 "Our Government," David Lawrence
WEAF WTIC WJAR WTAG WCSH
WRC WGY WCAE KSD WHAS
WKY WSAI WFJC WGR WSB
WMC WSM WFAA WOW WOAI
WHO KVOO

9:00-10:00 Majestic Theatre of the Air
WABC WCAU WNAC WEAN WFBL
WMAK WCAO WJAS WADC WKRC
WGHP WBBM WOWO KMOX KMBC
KOIL WSPD WHK WLBW WLAC
WMAL WDBJ WTAR WWNC WDOD
WBRC WREC KLRA KFJF KRLD
KTSU WDSU WCCO WISN KLZ
KDYL KMTR WFBM KYA KEX
KJR KGA KFH CFRB CKAC

9:15-9:45 Tone Pictures
WJZ KDKA WREN WBAL WHAM
WJR KWK

9:15-9-45 Atwater-Kent Concert
WEAF WEEI WFI WRC WGY
WGR WCAE WTAM WWJ WSAI
WGN KSD WOW KSTP KOA
KSL KPO KGO KFI KGW
KOMO KHQ WSM WMC WSB
WFAA KPRC WOAI WKY WDAF

9:45-10:15 Biblical Drama
WEAF WJAR WTAG KSL KPO
KGO WRC WGY WCAE WWJ
WSAI KSD WKY KPRC WMC
KOA WOW WFI WGR WHO

9:45-10:15 At the Baldwin
WJZ WBZ WBZA WHAM KDKA
WLW KYW KWK WREN WJR
WBAL WEBC KSTP WTMJ

10:00-10:30 Arabesque
WABC WCAU WNAC WEAN WFBL
WCAO WJAS WADC WKBW WKRC
WGHP WBBM WOWO KMOX KMBC
KOIL WSPD WHK WLBW WMAL
WCCO

10:15-10:45 Studebaker Champions
WEAF WTAG WJAR WTIC WCSH
WFI WRC WGY WGR WCAE
WTAM WWJ WGN KSTP WTMJ
WEBC KOA KPO KGO KGW
KOMO KFI KHQ WOW KSL

10:15-11:45 National Light Opera
WJZ KDKA KWK WHAM

10:30-11:00 Around the Samovar
WABC WCAU WNAC WEAN WFBL
WKBW WCAO WJAS WKRC WGHP
WOWO KMOX KMBC KOIL WSPD
WLBW WMAL WISN WCCO WMAQ
WHK

10:45-11:15 Sunday at Seth Parker's
WEAF WOW WHAS WJAX WKY
WCAE WWJ KOA WFJC WIOD
WRC WOC

11:15-11:30 Sam Herman, Xylophonist
WEAF WRC WOW WIOD WKY
KOA WWJ WOC

11:30-12:00 Russian Cathedral Choir
WEAF WRC WJAX WIOD WKY
KOA WWJ WOW WBAP WOC

11:45-12:00 Vibrant Melodies
WJZ KDKA KWK

Monday

6:00-6:30 Mormon Tabernacle Choir
WJZ KPO KGO KOMO KDKA
WSM KOA WLW KWK KSL

7:00-7:30 At the Country Club
WEAF WTAG WRC WCAE KSD
WPTF WAPI

7:05:7:30 South Sea Islanders
WJZ KWK KDKA

7:30-8:00 May We Present
WEAF KSD WKY WGR WFJC

7:30-8:00 Roxy and His Gang
WJZ WBZ WBZA WBAL WHAM
KDKA WJR KWK WRC WSM
WSB WIOD WCFL WSMB WAPI
WPTF WREN

8:00-8:30 Grand Opera Concert
WOR WCAU WNAC WEAN WFBL
WMAK WCAO WJAS WADC WGHP
WMAQ KMOX KMBC KOIL WLBW
WMAL WHEC WGL WISN WHK

8:00-8:30 Voice of Firestone
WEAF WEEI WTIC WJAR WTAG
WCSH WLIT WRC WGY WGR
WCAE WWJ KYW KSD WOC
WOW WDAF WIOD KTHS WSMB
KSTP WTMJ WEBC WJAX WHAS
WSM WMC WSB WBT WRVA
KVOO KPRC WOAI WKY WFJC
WSAI WTAM WFAA WAPI

8:30-9:00 Ceco Couriers
WOR WCAU WNAC WEAN WFBL
WMAK WCAO WJAS WADC WKRC
WGHP WMAQ KMOX KMBC KOIL
WHK WLBW WMAL WCCO WHEC
WSPD

8:30-9:00 White House Concert
WJZ WBZ WBZA WBAL WJR
WLW KWK WREN WHAM KDKA
KYW WBT WIOD WRVA WJAX

8:30-9:30 A. & P. Gypsies
WEAF WEEI WTIC WJAR WTAG
WCSH WLIT WRC WGY WGR
WCAE WWJ WSAI WGN KSD
WOC WDAF WTAM

9:00-9:30 Edison Program
WJZ WBZ WBZA WBAL KDKA
WJR KYW WREN WEBC KSL
KPO KGO KOMO KFI KGW
KHQ KOA KWK WHAM KSTP

9:00-9:30 Physical Culture Magazine Hour
WOR WCAU WNAC WEAN WFBL
WMAK WCAO WJAS WADC WKRC
WGHP WMAQ WGL KMOX KMBC
KOIL WSPD WHK WLBW WMAL

9:30-10:00 Little Drama Movement
WJZ WHAM KDKA WJR KWK
WREN

9:30-10:00 U. S. Naval Band
WOR WCAU WNAC WEAN WFBL
WMAK WCAO WJAS WADC WKRC
WGHP WGL KMOX KMBC KOIL
WSPD WHK WLBW WMAL WMAQ

9:30-10:00 General Motors Family
WEAF WEEI WTIC WJAR WTAG
WCSH WLIT WRC WGY WGR
WCAE WTAM WWJ WSAI WGN
KSD WOC WOW WDAF KSTP
WTMJ WHAS WSM WMC WSB
WBT WJAX WFAA KPRC WOAI
WKY KOA KSL KPO KGO
KFI KGW KOMO KHQ

10:00-10:30 Let Us Join the Ladies
WEAF WTAG WRC WGY WGR
WCAE WWJ KSD WOW WMC
WKY KPO KGO KGW KOMO
WSAI KOA

10:00-10:30 Moment Musicale
WJZ KDKA WREN KWK

10:00-10:30 Black Flag Program
WABC WCAU WNAC WEAN WFBL
WMAK WCAO WJAS WADC WKRC
WGHP WMAQ WOWO KMBC KMOX
KOIL WSPD WHK WLBW WMAL
WAIU WTAR WWNC WLAC WDOD
WBRC WREC KLRA KFJF KRLD
KTSA WDSU KLZ WIBW

10:30-11:00 Fio-Rito's Orchestra
WJZ WREN KYW KWK

10:30-11:00 Floyd Gibbons—Headline Hunter
WEAF WRC WGY WCAE KSD
WOC WOW WWJ WGN WHAS
WFAA KPRC KOA KSL WBT
WTIC KSTP WMC WKY KPO
KGO KOMO

10:30-11:00 Night Club Romance
WOR WCAU WNAC WEAN WFBL
WMAK WCAO WJAS WADC WKRC
WGHP WMAQ KMOX KMBC KOIL
WSPD WHK WLBW WMAL WCCO
WISN WFBM WTAR WWNC WLAC
WDOD WBRC WREC KLRA KFJF
KRLD KTSA WDSU WIBW

11:00-12:00 Rudy Vallee and His Orchestra
WEAF WGR KSD WOW WRVA
WSM WMC WKY WTAM WWJ
WOC WFJC WEBC WAPI WJAX
WSB

11:00-12:00 Slumber Music
WJZ WHAM KDKA WBAL WREN
WRC

12:00-1:00 Jack Albin and His Orchestra
WEAF WRC WGR WOW WSM

Tuesday

7:00-7:30 Roads of the Sky
WEAF WTIC WRC WGR WIOD
WSM KOA WHO WCSH WFI
WGY KSTP WTMJ WTAG WCAE
WTAM KSD WPTF KVOO WOAI
KSL WAPI WRC WHAS

7:30-8:00 Seconyland Sketches
WEAF WEEI WTIC WJAR WTAG
WCSH WGY WGR

7:30-8:00 Lew White Organ Recital
WJZ KWK WKY KOA WIOD
WPTF WREN

8:00-8:30 Sergei Kotlarsky and Mathilde Harding
WABC WFAN WNAC WEAN WFBL
WKBW WJAS WADC WOWO KMOX
KOIL WHK WLBW WMAL WCCO
WBBM KMBC WCAO WISN

8:00-8:30 A Rendezvous at 711
WEAF WEEI WFI WCAE WTAG
WRC KSD WKY KOA

8:00-830 Pure Oil Band
WJZ KDKA WHAM WJR WLW
KYW KWK WREN KSTP WTMJ
WEBC WHAS WSM WMC WSB
WBT WJAX WRVA WBAL

8:30-9:00 Prophylactic Program
WEAF WTIC WJAR WTAG WCSH
WFI WRC WGY WGR WCAE
WSAI KSD WLS WEEI WHO
WOW WDAF WWJ

8:30-9:00 Flying Stories
WABC WCAU WNAC WEAN WFBL
WKBW WADC WOWO KMOX KOIL
WHK WLBW WMAL WBBM KMBC
WCAO WGHP WSPD WAIU WJAS

8:30-9:00 Michelin Men
WJZ WBZ WBZA WBAL WHAM
KDKA WJR KYW KWK WREN
WLW

9:00-9:30 The College Drug Store
WJZ WBZ WBZA WHAM KDKA
WJR KYW KWK WREN WBAL

9:00-10:00 Eveready Hour
WEAF WEEI WJAR WFI WRC
WGY WGR WCAE WTAM WWJ
WGN KSD WHO WDAF KSTP
WEBC WHAS WSM WMC WSB
KVOO WOAI

9:00-10:00 Old Gold—Paul Whiteman Hour
WABC WCAU WJAS WADC WGHP
WBBM WHK WLBW WMAL WCCO
KEX KJR KGA WDBJ WREC
KFJF KTSA WISN WNAC WEAN
WFBL WKBW WCAO WOWO KMOX
KMBC KOIL WSPD KLZ KDYL
KLRA KMTR KYA WTAR WWNC
WLAC WDOD WBRC WDSU WFBM
KFH KRLD WKRC

9:30-10:00 Dutch Masters Minstrels
WJZ WBZA WBAL WBZ WHAM
KDKA WLW KYW KWK WREN
WJR WTMJ

10:00-10:30 Williams' Syncomatics
WJZ WBZ WBZA WHAM KDKA
WLW KWK WREN WGN

10:00-10:30 Fada Salon Hour
WABC WCAU WNAC WEAN WFBL
WKBW WCAO WJAS WADC WKRC
WGHP WBBM WOWO KMOX KMBC
KOIL WSPD WHK WLBW WMAL
WFBM KLRA KFJF KRLD KTSA
WCCO WISN KFH

10:00-10:30 Clicquot Club Eskimos
WEAF WEEI WJAR WFI WRC
WGY WGR WCAE WWJ WSAI
WOW KYW KSD WHO WDAF
KSTP WHAS WSM WMC WSB
WOAI KOA KSL WTMJ KPRC
WRVA WBT WJAX WKY KPO
KGO KFI KGW KOMO WTIC
KHQ WEBC WCSH WBAP WTAG

10:30-11:00 Harbor Lights
WEAF WTIC WFI WCAE WWJ

10:30-11:00 Story in a Song
WABC WFAN WNAC WEAN WFBL
WKBW WCAO WJAS WADC WKRC
WGHP KOIL WSPD WLBW WMAL
WCCO WISN WFBM WHK KLRA
KFJF KRLD KFH KTSA

10:30-11:00 C. A. Earl Orchestra
WJZ WBZ WBZA WBAL WHAM
KDKA WJR KYW KWK WREN
KSTP KOA KSL KPO KGO
KOMO KHO KGW KFI WBT
WBAP

11:00-11:30 Neopolitan Nights
WEAF WFI WGR WWJ KSD
WHO WMC WKY WGY WCAE
WOW WFJC WRVA WSM WFAA
KPO KGO KOMO KHO

11:00-11:30 Jesse Crawford's Bag of Tricks
WABC WNAC WEAN WFBL WKBW
WCAO WJAS WADC WKRC WGHP
WBBM WOWO KMOX KMBC WSPD
WLBW WMAL WISN WCCO WFBM
WCAU

11:00-12:00 Slumber Music
WJZ KDKA KWK

11:30-12:00 Hello, Mars
WEAF WGY WGR WFJC KSD
WHO WOW WKY WFAA KPO
KGO KOMO KHQ

12:00-1:00 Bill Scotti's Orchestra
WEAF KSD WOW WSM

Wednesday

11:30-12:00 Interior Decorating
WABC WCAU WNAC WEAN WMAK
WCAO WJAS WADC WGHP WOWO
KMOX KOIL WSPD WHK WLBW
WMAL WFBM WBBM WISN WFBL

4:00-5:00 Pacific Vagabonds
WEAF WRC WWJ WOW KOA
KGO KOMO WHO WTAM

5:00-5:30 Band of a Thousand Melodies
WEAF WRC WTAM WJ

8:00-8:30 Mobiloil Concert
WEAF WEEI WTIC WJAR WTAG
WCSH WLIT WRC WGR WCAE
WWJ WSAI KSD WOC WOW
WDAF WFJC WTAM WCFL KOA

8:00-8:30 The Yeast Foamers
WJZ WBZ WBZA WBAL WHAM
KDKA WJR KYW KWK WLW
WREN WTMJ KSTP WEBC

8:00-9:00 Hank Simmons' Showboat
WOR WNAC WEAN WFBL WKBW
WJAS WADC WMAQ KMBC KMOX
KOIL WHK WLBW WCCO WISN
WFBM

8:30-9:00 Sylvania Foresters
WJZ WBZ WHAM KDKA KWK
WREN WBAL WBZA WLW WBT
WRVA KYW WJR

8:30-9:00 Happy Wonder Bakers
WEAF WEEI WTIC WJAR WTAG
WCSH WLIT WRC WGY WGR
WCAE WWJ WSAI KSD WOC
WOW WDAF WFJC KSTP WTMJ
WMC KVOO WOAI KPRC WKY
WLS WFAA

9:00-9:30 United Symphony Orchestra
WOR WCAU WNAC WEAN WFBL
WCAO WJAS WADC WGHP WMAQ
KMOX KMBC KOIL WSPD WHK
WLBW WMAL WKBW WGL WCCO

9:00-9:30 Flit Soldiers
WJZ WBZ WBZA WHAM WBAL
KDKA WJR KYW WREN WLW
WHAS WSM WMC WSB WBT
WJAX WRVA KVOO WOAI WKY
WSMB KPRC KWK WFAA

9:00-9:30 Ingram Shavers
WEAF WTIC WEEI WJAR WTAG
WCSH WRC WGY WGR WCAE
WWJ WGN KSD WOC WOW
WSAI

9:30-10:00 Forty Fathom Trawlers
WJZ WBZ WBZA WBAL WHAM
KDKA WLW WREN WJR WCFL
KWK

9:30-10:00 La Palina Smoker
WOR WCAU WNAC WEAN WFBL
WMAK WCAO WJAS WADC WGHP
WMAQ WOWO KMOX KMBC KOIL
WSPD WCCO WHK WLBW WMAL
WISN WKRC

9:30-10:30 Palmolive Hour
WEAF WEEI WTIC WJAR WTAG
WCSH WLIT WRC WGY WGR
WCAE WTAM WWJ WSAI WGN
KSD WOC WOW WDAF WSMB
KSTP WTMJ WHAS WSM WMC
WSB WBT WJAX KVOO KPRC
WOAI KOA KSL KPO KGO
KFI KGW KOMO KHQ WFAA

10:00-10:30 ABA Voyagers
WJZ KWK WJR WBZ WBZA
WBAL WHAM KYW WREN KDKA

10:00-10:30 Kolster Radio Hour
WOR WCAU WNAC WEAN WFBL
WMAK WCAO WJAS WADC WKRC
WGHP WMAQ WOWO KMOX KMBC
KOIL WSPD WHK WLBW WMAL
WCCO KLZ KDYL KMTR KYA
KEX KJR KGA

10:30-11:00 Stromberg-Carlson Program
WJZ WBZ WBZA WBAL KDKA
KYW KWK WREN WRVA KSTP
WTMJ WEBC WIOD WHAS WSM
WMC WSB WBT WJAX KVOO
WBAP KPRC WOAI WKY KOA
KSL KPO KGO KFI KGW
KOMO KHO WJR WHAM WSMB

10:30-11:00 Dixie Echoes
WABC WCAU W NAC WEAN WFBL
WMAK WCAO WJAS WADC WKRC
WGHP WMAQ WOWO KMOX WSPD
WHK WLBW WMAL WISN KOIL
KMBC

10:30-12:00 National Light Opera
WEAF WRC WCAE WWJ KSD
WOW WSAI WIOD WKY WOAI
WSB

11:00-12:00 Slumber Music
WJZ WRC KDKA WREN

12:00-1:00 Dave Harmon and His Orchestra
WEAF WRC KSD WAPI

Thursday

10:00-10:30 Morning Merrymakers
WABC WMAK WCAO WJAS WOWO
WSPD WLBW WDBJ WTAR WWNC
WLAC WDOD WBRC WREC KRLD
KTSA WDSU WFBL WKRC WISN

10:30-11:00 In Many Lands
WABC WCAU WNAC WEAN WFBL
WKBW WCAO WJAS WADC WGHP
WBBM WOWO KOIL WSPD WKRC
WHK WLBW WMAL WDBJ WTAR
WWNC WLAC WDOD WBRC WREC
KLRA KFJF KRLD KFH KTSA
WISN WDSU

11:30-11:45 DuBarry Beauty Talk
WABC WCAU WNAC WEAN WFBL
WCAO WJAS WADC WGHP WBBM
WOWO KOIL WHK WLBW WMAL
WRHM WISN WSPD WAIU WKBW

7:00-7:30 Midweek Hymn Sing
WEAF WCSH WRC KOA WMC
WJAR WHAS

7:30-8:30 Coward Comfort Music
WEAF WEEI WTIC WJAR WTAG
WCSH

7:30-8:00 Vincent Lopez
WJZ WBZ WBZA WBAL WHAM
KDKA WJR KYW KWK WREN
WTMJ KSTP WEBC KPRC WOAI
WKY WLW WFAA

8:00-8:30 Lenn and Fink Serenade
WJZ WBZ WBZA WHAM KDKA
WJR KYW KWK WREN WBAP
KPRC WOAI WKY WBAL WLW

8:00-8:30 Daguerreotypes
WABC WEAN WKBW WCAO WJAS
KMOX KOIL WLBW WISN WFAN
WBBM KMBC WFBM

8:00-8:30 The Eternal Question
WEAF WEEI WTAG WFI WRC
WGR WCAE WWJ WOW KSD
WOC KOA KSL

8:30-9:00 U. S. Marine Band
WABC WNAC WEAN WFBL WKBW
WCAO WJAS KMOX KOIL WLBW
WMAL WBBM KMBC WISN

8:30-9:00 The Ghost Hour
WJZ WJR WREN KWK

8:30-9:00 Victor Program
WEAF WEEI WTIC WJAR WTAG
WFI WRC WGY WCSH WGR
WCAE WTAM WWJ WSAI KYW
WHO WOW WDAF WSMB WAPI
WPTF WFJC KSTP WTMJ WEBC
WJAX WHAS WSM WMC WSB
WBT WIOD WBAP KPRC WOAI
WKY KOA KSL KGO KGW
KOMO KHQ WRVA KSD KVOO

9:00-9:30 True Detective Mysteries
WABC WCAU WNAC WEAN WFBL
WKBW WCAO WJAS KMOX KOIL
WLBW WMAL WSPD WHK WADC
WGHP WBBM WOWO WFBM WKRC

9:00-9:30 Veedol Program
WJZ WBZ WBZA WHAM WBAL
KDKA WJR WLW WCFL KWK
WREN WAPI KSTP WTMJ WEBC
WJAX WHAS WSM WMC WSB
WBT WRVA WBAP KPRC WOAI
WKY WPTF KTHS WSMB

9:00-9:30 Seiberling Singers
WEAF WEEI WTIC WJAR WTAG
WCSH WFI WRC WGY WGR
WCAE WTAM WWJ WSAI KYW
KSD WHO WOW WDAF WFJC

9:30-10:00 Maxwell House Concert
WJZ WBZ WBZA WBAL WHAM
KDKA WJR WLW KSD WDAF
KSTP WTMJ WEBC WHAS WBAP
WSM WMC WBT KPRC KOA
WHO WOW WJAX WRVA WSB

9:30-10:00 Historic Trials
WEAF WJAR WTAG WRC WGY
WFI WCAE WWJ WSAI WTAM

9:30-10:30 Buffalo Civic Symphony Orchestra
WABC WNAC WEAN WFBL WCAO
WJAS WADC WGHP WBBM KMOX
KMBC KOIL WSPD WHK WLBW
WMAL WCCO WFAN WKRC WISN
WKBW CKGW

10:00-10:30 Atwater-Kent Program
WJZ WBZ WBZA WHAM WJR
KWK WBAL WREN KDKA WGN

10:00-10:30 Halsey-Stuart Program
WEAF WTIC WJAR WTAG WCSH
WFI WRC WGY WGR WCAE
WWJ WSAI KYW KSD WHO
WOW WSMB WAPI KSTP WTMJ
WJAX WHAS WSM WMC WSB
WBT WRVA WBAP KPRC WOAI
KOA KSL KPO KGO KFI
KGW KOMO KHQ WKY WEEI

10:30-11:00 Around the World with Libby
WJZ WBZ WBZA WREN WHAM
KDKA WJR KWK KOA KSL
KPO KGO KFI KGW KOMO
KHQ WHAS WSM WMC WSB
WAPI WSMB KYW

10:30-11:30 The Voice of Columbia
WABC WNAC WEAN WFBL WADC
WCAO WKRC WHK WGHP WOWO
KMBC WLBW KOIL WFAN WJAS
KMOX WSPD WMAL WISN WBBM
WCCO WKBW

10:30-11:30 Concert Bureau Hour
WEAF WFI WRC WGY WGR
WRVA WIOD WMC KPRC WFJC
WTAG WCAE WWJ KSD WHO
WKY KGO KGW KOMO WSAI

11:00-12:00 Slumber Music
WJZ WRC KDKA WBAL WHAM
WREN

11:30-12:00 Jack Albin's Orchestra
WEAF WWJ WHO WKY KPRC
WGY KOA

12:00-1:00 Phil Spitalny's Music
WEAF WRC KSD WDAF WSM
WOW WGY

Friday

11:30-12:00 Evening Star
WEAF WTAG WRC WWJ KSD
WHO WOW WJAX KSTP WTMJ
SM WRVA WKY KOA KSL
WCSH WGY WCAE WDAF KPRC
WAPI WLIT WTAM WBT WBAP

11:45-12:15 Radio Beauty School
WABC WCAU WNAC WEAN WFBL
WMAK WCAO WJAS WADC WKRC
WGHP WBBM WOWO KOIL WHK
WLBW WMAL WSPD KMBC KMOX

6:30-7:00 Raybestos Twins
WEAF WTAG WCSH WRC WGY
WCAE WTAM WWJ WTIC WJAR

7:00-7:30 In the Good Old Summertime
WJZ KDKA KWK WBAL

7:00-7:30 Rapid Transit
WEAF WRC KSD WSM WJAR
WTAG

7:30-8:00 Howard Fashion Plates
WABC WCAU WNAC WEAN WFBL
WJAS

7:30-8:00 Darktown Wanderers
WEAF WKY WCAE WJAR KSD
WOW

7:30-8:00 Dixie Circus
WJZ WBZ WBZA WBAL KDKA
WLW WJR KYW WHAS WSM
WSB WBT WMC

8:00-8:30 Triadors
WJZ KDKA WREN WBZ WBZA
WBAL WHAM WJR WLW WCFL

8:00-8:30 Hawaiian Shadows
WOR WNAC WEAN WFBL WKBW
WCAO WJAS KMOX KOIL WLBW
WMAL WCCO WFBM WADC WISN

8:00-9:00 Cities Service Orchestra
WEAF WEEI WTIC WLIT WRC
WGR WCAE WTAM WWJ KYW
KSD WOC WKY WOW WDAF
KSTP KOA WTMJ WFAA

8:30-9:00 The Rollickers
WOR WCAU WNAC WEAN WFBL
WKBW WCAO WADC WGHP WMAQ
WOWO KMOX KMBC KOIL WLBW
WMAL WFBM

9:00-9:30 Whispering Tables
WEAF WGY KSD WOW WJAR
WEEI WTAG WRC WCAE WWJ
WGR WSAI WOC

9:00-9:30 Interwoven Program
WJZ WBZ WBZA WHAM KDKA
WMC KYW WREN KPRC WOAI
KOA WHAS WSM WSB WBT
WJAX KWK WRVA KSL KPO
KGO KOMO KHQ KGW KFI
WKY WAPI WSMB KTHS WIOD
WLW WBAL WFAA

9:00-10:00 True Story Hour
WOR WCAU WNAC WEAN WKRC
WFBL WMAK WCAO WJAS WADC
WGHP WMAQ WOWO KMOX KMBC
KOIL WSPD WHK WLBW WMAL
WHEC WCCO

9:30-10:00 Schradertown Band
WEAF WTIC WJAR WTAG WCSH
WLIT WGY WGR WCAE WWJ
WLS KSD WOC WOW WDAF
WEEI WRC WSAI WFJC

9:30-10:00 Philco's Theatre Memories
WJZ WBZ WBZA WBAL WHAM
KDKA WLW WJR KYW KWK
WREN WTMJ KSTP

10:00-10:30 Light Opera Gems
WOR WCAU WNAC WEAN WFBL
WMAK WCAO WJAS WADC WKRC
WGHP WMAQ KMOX KOIL WSPD
WHK WLBW WMAL WCCO WISN

10:00-10:30 Armstrong Quakers
WJZ WBZ WBZA WBAL KDKA
WLW KYW KWK WREN WHAM

10:00-10:30 Summer Melodies
WEAF WTIC WTAG WRC WCAE
WWJ WSAI KSD WEEI WJAR
WGY WGR WOW WOC WSM
WMC WKY KHQ KGW KOMO
KPO KGO KFI

10:30-11:00 In a Russian Village
WOR WCAU WNAC WEAN WFBL
WCAO WJAS WGHP WOWO KOIL
WSPD WHK WMAL WKRC WLBW
KMOX WMAK KMBC WMAQ

10:30-11:00 The Family Goes Abroad
WEAF WEEI WTAG WRC WGY
WCAE WWJ KSD WOW KPO
KGO KOMO WTIC WCFL
10:30-11:00 Armour Program
WJZ WBZ WBZA WBAL WHAM
KDKA WJR WLW KYW KWK
WREN WBT WJAX WHAS WSM
WMC WSB WAPI WSMB WRVA
WFAA KPRC WOAI WKY WTMJ
KSL KSTP WEBC KPO KGO
KFI KGW KOMO KHQ KVOO
KTHS KOA
11:00-11:30 The Skellodians
WOC WOW KOA KSD WDAF
KVOO WLS KSTP
11:00-12:00 Hotel St. Regis Orchestra
WEAF WSAI WDAF WFJC
11:00-12:00 Slumber Music
WJZ KDKA KWK WREN WIOD
WKY WRC WSM WMC WSMB
12:00-1:00 Ben Pollack's Orchestra
WEAF WRC KSD

Saturday

3:15-3:30 Band of a Thousand Melodies
WJZ WLW WREN WSM WBAL
WHAM KDKA KWK
3:30-4:30 RCA Demonstration Hour
WJZ WBZ WBZA WHAM KDKA
WMC WLW WJR KYW KWK
WRC WOC WDAF KVOO WBAP
KPRC WOAI WHAS WOW WSB
WBT WTMJ KSTP KOA WFAA
WBAL WSM
6:30-7:00 Gold Spot Orchestra
WJZ WBZ WBZA KDKA WLW
7:05-7:15 Piano Twins
WEAF WRC WGY WWJ KSL
WFI WPTF
7:15-8:00 Phil Spitalny's Music
WEAF WTIC WGR WPTF KSD
WEEI WFI WRC WWJ WHO
WGN
7:20-7:45 Hotel St. Regis Orchestra
WJZ KWK KOA WRC
7:45-8:00 A Week in the World's Business
WJZ WBAL KDKA WRC WLS
WREN WOAI WKY WPTF KWK
WFAA WHAS
8:00-8:30 Chicago Celebrities
WJZ WBAL KDKA WJR WCFL
KWK WREN WSM WJAX
8:00-8:30 Sorrento Serenade
WABC WNAC WCAU WHK WEAN
WBBM WLBW WJAS WMAL WGHP
WFBL WADC KMOX WCCO WKBW
WCAO WKRC KMBC KOIL WFBM
8:00-9:00 The Calvacade
WEAF WTIC WRC WCAE WWJ
KSD KSL KGO KGW KOMO
KOA WJAR WEEI WTAG WGY
WTAM
8:30-8:45 The Pickard Family
WJZ KDKA WREN WRVA WJR
KWK WLS WSM
8:30-9:00 Babson's Finance Period
WABC WCAU WNAC WEAN WFBL
WCAO WJAS WADC WKRC WGHP
WBBM WOWO KMBC KOIL WSPD
WLBW WMAL WCCO WKBW WHK
9-00:9:30 Nit Wit Hour
WABC WCAU WNAC WEAN WKBW
WCAO KMBC KOIL WLBW WCCO
WFBM WJAS WKRC WBBM WHK
WISN WGHP
9:00-10:00 General Electric Hour
WEAF WEEI WTIC WJAR WTAG
WCSH WFI WRC WGY WGR
WCAE WTAM WWJ WLS KSD
WHO WOW WDAF WJAX WSMB
WEBC WHAS WMC WSB WBT
KOA KSL KPO KGO KFI
KGW KOMO KHQ WBAP KPRC
WOAI WKY WRVA WSAI KSTP
WAPI WTMJ WSM
9:00-10:00 Detroit Symphony Orchestra
WBAL KWK WREN WLW WBZ
WHAM KDKA WJR WBZA
9:30-10:00 Temple Hour
WABC WCAU WFBL WKBW WCAO
WJAS WADC KMOX KMBC WSPD
WHK WLBW WMAL WCCO KOIL
WMAQ WOWO WNAC WEAN WKRC
WGHP WAIU
10:00-10:30 National Forum from Washington
WABC WFAN WNAC WEAN WFBL
WKBW WCAO WJAS WLBW WADC
WKRC WGHP WMAQ WBBM WOWO
KMOX KMBC KOIL WSPD WHK
WMAL WCCO WISN WFBM WLBW
10:00-10:30 When Good Fellows Get Together
KDKA WREN WHAM
10:00-11:00 Lucky Strike Orchestra
WEAF WEEI WTC WJAR WTAG
WCSH WFI WRC WGY WGR
WCAE WWJ WGN KSD WHO
WOW WDAF WIOD KSTP WTMJ
WSMB WHAS WMC WSB WBT
WJAX WBAP KPRC WOAI WKY
KOA KSL KPO KGO KFI
KGW KOMO KHQ KTHS WPTF
WAPI WSAI WFJC
10:30-11:00 Jesse Crawford's Melody Hour
WABC WCAU WNAC WEAN WFBL
WKBW WCAO WLBW WJAS WADC
WKRC WGHP WMAQ WOWO KMOX
KMBC KOIL WSPD WMAL WCCO
WISN WFBM WLBW
11:30-12:00 Ben Pollack's Orchestra.
WEAF WCAE WHO WPTF WKY
WIOD
12:00-1:00 Rudy Vallee and His Orchestra
WEAF WCAE KSD WDAF

Alphabetical Index

Daguerreotypes	Thurs.	8:00 p.m.
Dark-Town Wanderers	Fri.	7:30 p.m.
Detroit Symphony Orchestra	Sat.	9:00 p.m.
Dixie Circus	Fri.	7:30 p.m.
Dixie Echoes	Wed.	10:30 p.m.
DuBarry Beauty Talks	Thurs.	11:30 a.m.
Dutch Masters Minstrels	Tues.	9:30 p.m.
Earl Orchestra, C. A.	Tues.	10:30 p.m.
Echoes of the Orient	Sun.	6:00 p.m.
Edison Program	Mon.	9:00 p.m.
Enna Jettick Melodies	Sun.	8:00 p.m.
Eternal Question	Thurs.	8:00 p.m.
Evening Stars	Fri.	11:30 a.m.
Eveready Hour	Tues.	9:00 p.m.
Face to Face with Our Presid'ts	Sun.	6:15 p.m.
Fada Salon Hour	Tues.	10:00 p.m.
Family Goes Abroad	Fri.	10:30 p.m.
Fio-Rito	Mon.	10:30 p.m.
Flit Soldiers	Wed.	9:00 p.m.
Flying Stories	Tues.	8:30 p.m.
Forty Fathom Trawlers	Wed.	9:30 p.m.
Fox Fur Trappers	Sun.	6:00 p.m.
Freed Orchestradians	Tues.	10:30 p.m.
Friendly Hour	Sun.	3:00 p.m.
General Electric Hour	Sat.	9:00 p.m.
General Motors Family	Mon.	9:30 p.m.
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Gold Spot Orchestra	Sat.	6:30 p.m.
Grand Opera Concert	Mon.	8:30 p.m.
Halsey, Stuart Program	Thurs.	10:00 p.m.
Happy Wonder Bakers	Wed.	8:30 p.m.
Harbor Lights	Tues.	10:30 p.m.
Harmon, Dave, and His Orch.	Wed.	12:00 m.
Hawaiian Shadows	Fri.	8:00 p.m.
Hello, Mars	Tues.	11:30 p.m.
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Hotel St. Regis Orchestra	Fri.	11:00 p.m.
Howard Fashion Plates	Fri.	7:30 p.m.
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In Many Lands	Thurs.	10:30 a.m.
Interior Decorating	Wed.	11:30 a.m.
Interwoven Program	Fri.	9:00 p.m.
Kofster Radio Hour	Wed.	10:00 p.m.
LaPalina Smoker	Wed.	9:30 p.m.
LaPalina Program	Sun.	8:00 p.m.
Lehn and Fink Serenade	Thurs.	8:00 p.m.
Let Us Join the Ladies	Mon.	10:00 p.m.
Light Opera Gems	Fri.	10:00 p.m.
Little Drama Movement	Mon.	9:30 p.m.
Lucky Strike Orchestra	Sat.	10:00 p.m.
Luncheon Music	Daily	12:45 p.m.
Maestro's Hour	Sun.	4:30 p.m.
Majestic Theatre of the Air	Sun.	9:00 p.m.
Major Bowes' Family	Sun.	7:35 p.m.
Marimba Band	Sun.	1:30 p.m.
Maxwell House Concert	Thurs.	9:30 p.m.
May We Present	Mon.	7:30 p.m.
Michelin Men	Tues.	8:30 p.m.
Mid-Week Hymn Sing	Thurs.	7:00 p.m.
Milady's Musicians	Sun.	2:30 p.m.
Mobiloil Concert	Wed.	8:00 p.m.
Moment Musicale	Mon.	10:00 p.m.
Montgomery Ward Program	Daily	2:00 p.m.
Mormon Tabernacle Choir	Mon.	6:00 p.m.
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Morning Merrymakers	Thurs.	10:00 a.m.
National Farm and Home Hour	Daily	2:30 p.m.
National Forum from Wash'g'n	Sat.	10:00 p.m.
National Light Opera	Sun.	10:15 p.m.
National Light Opera	Wed.	10:30 p.m.
National Sunday Forum	Sun.	4:00 p.m.
Neopolitan Nights	Tues.	11:00 p.m.
Night Club Romance	Mon.	10:30 p.m.
Nit Wit Hour	Sat.	9:00 p.m.
Our Government	Sun.	9:00 p.m.
Pacific Vagabonds	Wed.	4:00 p.m.
Palmolive Hour	Wed.	9:30 p.m.
Petit Trio	Daily	8:50 p.m.
Philco's Theatre Memories	Fri.	9:30 p.m.
Physical Culture Mag. Hour	Mon.	9:00 p.m.
Piano Twins	Sat.	7:05 p.m.
Pickard Family	Sat.	8:30 p.m.
Pollock's, Ben, Orchestra	Sat.	11:30 p.m.
Pollock's, Ben, Orchestra	Fri.	12:00 m.
Prophylactic Program	Tues.	8:30 p.m.
Pure Oil Band	Tues.	8:00 p.m.
Radio Beauty School	Fri.	11:45 p.m.
Radio Guild	Sun.	8:15 p.m.
Radio Household Institute	Daily	11:15 a.m.
Rapid Transit	Fri.	7:00 p.m.
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RCA Demonstration Hour	Sat.	3:30 p.m.
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Roxy and His Gang	Mon.	7:30 p.m.
Roxy Symphony Concert	Sun.	2:00 p.m.
Russian Cathedral Choir	Sun.	11:30 p.m.
Russian Village, In a	Fri.	10:30 p.m.
Sam Herman, Xylophonist	Sun.	11:15 p.m.
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Scotti's Orchestra, Bill	Tues.	12.00 m.
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Simmon's Show Boat, Hank	Wed.	8:00 p.m.
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Soconyland Sketches	Tues.	7:30 p.m.
Sonatron Program	Sun.	8:30 p.m.
Songs and Bows	Sun.	3:30 p.m.
Sorrento Serenade	Sat.	8:00 p.m.
South Sea Islanders	Mon.	7:05 p.m.
Spitalny's Music, Phil	Sat.	7:15 p.m.
Spitalny's Music, Phil	Thurs.	12:00 m.
Story In a Song	Tues.	10:30 p.m.
Stromberg. Carlson Program	Wed.	10:30 p.m.
Studebaker Champions	Sun.	10:15 p.m.
Summertime, In the Good Old	Fri.	7:00 p.m.
Summer Melodies	Fri.	10:00 p.m.
Sunday at Seth Parker's	Sun.	10:45 p.m.
Sylvania Foresters	Wed.	8:30 p.m.
Symphonic Hour	Sun.	3:00 p.m.
Temple Hour	Sat.	9:30 p.m.
Theronoid Health Talk	Tues.	2:45 p.m.
Theronoid Health Talk	Thurs.	2:45 p.m.
Three Kings and a Queen	Thurs.	7:15 p.m.
Time of Roses, In the	Sun.	7:00 p.m.
Troika Bells	Sun.	2:00 p.m.
True Detective Mysteries	Thurs.	9:00 p.m.
Tone Pictures	Sun.	9:45 p.m.
Tower Health Exercises	Daily	8:00 a.m.
Triadors	Fri.	8:00 p.m.
True Story Hour	Fri.	9:00 p.m.
Twelve O'Clock Trio	Daily	12:03 p.m.
Twilight Reveries	Sun.	5:30 p.m.
Two Troupers	Sat.	10:30 p.m.
United Symphony Orchestra	Wed.	9:00 p.m.
U. S. Marine Band	Thurs.	8:30 p.m.
U. S. Navy Band	Mon.	9:30 p.m.
Valee and His Orchestra, Rudy	Sat.	12:00 m.
Valee and His Orchestra, Rudy	Tues.	11:00 p.m.
Veedol Program	Thurs.	9:00 p.m.
Vibrant Melocies	Sun.	11:45 p.m.
Victor Program	Thurs.	8:30 p.m.
Vincent Lopez	Thurs.	7:30 p.m.

Voice of Columbia	Thurs.	10:30 p.m.
Voice of Firestone	Mon.	8:00 p.m.
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White Organ Recital, Lew	Tues.	7:30 p.m.
White Organ Recital, Lew	Sat.	11:00 p.m.
Whittall Anglo-Persians	Sun.	6:30 p.m.
Williams Syncomatics	Tues.	10:00 p.m.
Yeast Foamers	Wed.	8:00 p.m

Pacific Programs

The hour-by-hour features of the American Broadcasting Company were unavoidably crowded out of this issue of RADEX. This chain of stations whose programs as a rule originate in Seattle, uses the following stations: KJR, KGA, KEX, KDYL, KLZ, KYA, KFAB, WOQ, WIBO, WRHM, WIL, WMT, KMTR, KFBK.

They are on the air as follows: Sundays, 10:00 a.m. to 11:00 p.m. Weekdays, 8:00 a.m. to midnight, Pacific Standard Time.

Studio Gossip

Gregory Williamson, a production director for the NBC, played the parts of a dozen diners in a recent dramatic production. Williamson walked about the studio rattling a fork in a glass, thus producing the sound of crashing silver commonly heard in dining rooms.

Welcome Lewis, NBC crooner and blues singer, is one radio performer who always has her own special microphone. Miss Lewis is very small and consequently a small microphone which she is able to reach is necessary. She usually sings with arms outstretched, keeping time with limp but expressive hands.

Where do radio performers get their gags? Al Bernard and Percy Hemus, the wise-cracking "end-men" of the Dutch Masters Minstrels, have methods of their own. Hemus swings in a hammock and the gags just come to him. Bernard rides for hours in the subway keeping his ears open for good "cracks."

Leslie Frick, contralto soloist of the NBC, is a former society belle of Baltimore. She was recently given a great ovation in concert before a brilliant gathering in the Palace Hotel, Biarritz.

Vaughn de Leath told this one in the NBC studios recently, following a tour of New England.

"In one New England town I met an old lady who was the most courteous person I've come in contact with in a long time. She was telling about her experiences in listening to radio programs.

" 'When I don't care for a particular program, I tune it out,' she exclaimed. 'But of course I always say: Excuse me' "

Atlanta, Ga.	Baltimore, Md.	Boise, Idaho	Boston, Mass.	Brownsville, Tex.	Buffalo, N. Y.	Chicago, Ill.	Cincinnati, Ohio	Cleveland, Ohio	Denver, Colo.	Des Moines, Iowa	Detroit, Mich.	El Paso, Tex.	Fargo, N. Dak.	Fort Worth, Tex.	Galveston, Tex.	Hastings, Nebr.	Hot Springs, Ark.	Houghton, Mich.	Jacksonville, Fla.	Kansas City, Mo.	Los Angeles, Calif.	Louisville, Ky.	Memphis, Tenn.	Miami, Fla.	Minneapolis, Minn.	Missoula, Mont.
1273	1670	774	1967	838	1577	1126	1248	1417	332	833	1360	228	968	561	803	588	773	1252	1492	717	663	1174	938	1710	980	895
-	575	1830	933	960	695	583	368	550	1208	738	595	1293	1112	750	688	901	498	947	286	675	1935	317	335	610	905	1790
	-	2055	358	1525	273	603	423	305	1505	913	398	1750	1143	1239	1245	1154	964	808	682	962	2313	498	792	958	948	1947
		-	2266	1610	1872	1453	1663	1754	637	1155	1671	969	975	1263	1538	934	1384	1367	2098	1158	663	1623	1506	2368	1140	252
			-	1881	398	849	737	550	1766	1159	613	2067	1304	1574	1598	1415	1302	922	1015	1250	2590	823	1133	1258	1125	2124
				-	1575	1234	1184	1402	1047	1102	1398	688	1445	471	287	1013	650	1543	1025	923	1370	1093	777	1100	1335	1706
					-	454	392	175	1368	762	218	1690	923	1221	1289	1019	956	560	880	862	2195	483	802	1184	733	1740
						-	249	307	918	310	236	1249	571	820	954	566	585	367	861	413	1741	268	481	1190	356	1348
							-	218	1090	509	234	1333	818	839	897	742	569	589	628	541	1892	92	410	957	603	1578
								-	1223	617	94	1521	838	1046	1116	871	787	518	768	700	2044	309	627	1088	632	1640
									-	607	1153	554	642	643	925	353	749	970	1468	555	828	1035	878	1732	699	[illegible]
										-	545	980	397	640	851	256	488	458	1024	180	1433	477	485	1338	235	1074
											-	1475	745	1018	1111	800	761	427	832	643	1976	315	621	1156	542	1552
												-	1161	543	723	757	802	1422	1481	836	702	1253	978	1662	1156	1115
													-	973	1218	440	875	393	1400	548	1426	818	882	1721	219	[illegible]
														-	283	544	273	1093	943	460	1212	751	448	1150	870	[illegible]
															-	808	375	1277	799	677	1423	807	492	941	1087	1595
																-	513	666	1178	226	1177	693	591	1468	399	891
																	-	901	728	326	1437	480	176	983	722	1385
																		-	1216	633	1787	636	830	1545	272	1208
																			-	952	2153	595	591	328	1192	2070
																				-	1352	480	370	1247	413	1117
																					-	1825	1602	2355	1522	910
																						-	319	923	605	1550
																							-	878	700	1483
																								-	1516	2359
																									-	1010
																										-

How To Use Your RADEX

ALL stations in America are listed in RADEX in three tables:

1st by Frequencies.
2nd by Call Letters.
3rd by States and Cities.

The Index by Frequencies is the one to be used, the other two are merely supplementary.

Let us assume you have just bought your first RADEX. Proceed as follows:

Tune in some station—any station that comes in. Tune it sharply, turning down your rheostats (volume control) until we find the marks on your dials at which it comes in most clearly and with greatest volume.

INDEX BY FREQUENCIES AND DIAL NUMBERS

590 kilocycles 508.2 meters — 76 | 74 |

KHQ	1000	Spokane, Wash.	Louis Wasmer, Inc.
WCAJ	500	Lincoln, Nebr.	Nebraska Wesleyan University
WEEI	500	Boston, Mass.	Edison Elec. Illuminating Co.
WOW	1000	Omaha, Nebr.	Woodmen of the World
WEMC	1000	Berrien Springs, Mich.	Emmanuel Missionary College

600 kilocycles 499.7 meters — 75 | 73 |

CFCH	250	Iroquois Falls, Ont.	Abitibi Power & Paper Co.
KFBU	500	Laramie, Wyo.	Bishop N. S. Thomas
KFSD	500	San Diego, Calif.	Airfan Radio Corp.
WCAO	250	Baltimore, Md.	Monumental Radio Co., Inc.
WEBW	250	Beloit, Wis.	Beloit College
WOAN	500	Lawrenceburg, Tenn.	Vaughan School of Music
WREC	500	Memphis, Tenn.	WREC, Inc.
WTIC	250	Hartford, Conn.	Travelers Insurance Co.

610 kilocycles 491.5 meters — 74 | 72 |

KFRC	1000	San Francisco, Calif.	Don Lee, Inc.
WDAF	1000	Kansas City, Mo.	Kansas City Star Co.
WFAN	500	Philadelphia, Pa.	Keystone Broadcasting Co., Inc.
WIP	500	Philadelphia, Pa.	Gimbel Bros., Inc.
WOQ	1000	Kansas City, Mo.	Unity School of Christianity

620 kilocycles 483.6 meters — 73 | 71 |

KFAD	500	Phoenix, Ariz.	Electrical Equipment Co.
KGW	1000	Portland, Ore.	Oregonian Publishing Co.
WDAE	1000	Tampa, Fla.	Tampa Publishing Co.
WDBO	1000	Orlando, Fla.	Rollins College, Inc.
WLBZ	500	Dover-Foxcroft, Me.	Thompson L. Guernsey
WTMJ	1000	Milwaukee, Wis.	Milwaukee Journal

630 kilocycles 475.9 meters — 72 | 70 |

CFCT	500	Victoria, B. C.	Victoria Broadcasting Ass'n.
CJGX	500	Yorkton, Sask.	Winnipeg Grain Exchange
CNRA	500	Moncton, N. B.	Canadian National Railways
CYR	250	Mazatlan, Mex.	Castulo Llamas
KFRU	500	Columbia, Mo.	Stephens College
WGBF	500	Evansville, Ind.	Evansville on the Air, Inc.
WMAL	250	Washington, D. C.	M. A. Leese Co.
WOS	500	Jefferson City, Mo.	State Marketing Bureau

640 kilocycles 468.5 meters — | |

KFI	5000	Los Angeles, Calif.	Earle C. Anthony, Inc.
WAIU	5000	Columbus, Ohio	American Insurance Union

650 kilocycles 461.3 meters — 70 | 68 |

WSM	5000	Nashville, Tenn.	National Life & Accident Ins. Co.

660 kilocycles 454.3 meters — 69 | 67 |

WAAW	500	Omaha, Nebr.	Omaha Grain Exchange
WEAF	50000	New York City	National Broadcasting Co., Inc.

670 kilocycles 447.5 meters — 68 | 66 |

WMAQ	5000	Chicago, Ill.	Chicago Daily News, Inc.

680 kilocycles 440.9 meters — 67 | 65 |

KPO	5000	San Francisco, Cal.	Hale Bros. & The Chronicle
WPTF	5000	Raleigh, N. C.	Durham Life Insurance Co.

Let us assume that the station we are hearing is WEAF in New York. First we must ascertain the frequency for this station. Look it up under WEAF in the Index by Call Letters or under New York in the Index by States and Cities. In either of these indexes we find that the frequency of WEAF is 660. Now we turn to 660 kilocycles in the Index by Frequencies and Dial Numbers. Here we find that WEAF is one of the two stations which have been assigned the 660 kcys. frequency by the Federal Radio Commission. We also find that it has a power of 50,000 watts, that it is located in New York City and is owned by the National Broadcasting Co., Inc.

In the blanks for dial numbers opposite 660 kilocycles (which is the wave length of 454.3 meters) enter the dial readings of your set. It is immaterial whether your set has one, two or three dials. Use as many of three spaces provided as you need. The set used in the illustration had two dials. In this case we entered the dial readings for 660 kilocycles as 69-67.

Let us now tune in some other station. We repeat the same procedure in tuning and find that we are hearing, let us say, WOS at Jefferson City. Proceed as before in ascertaining the frequency of WOS. This we find to be 630 kcys. We turn to 630 in the Index by Frequencies and enter our dial readings for this band which on the set we are using was 72-70.

We now have found that the dial numbers for 630 kcys. are 72-70 and the dial numbers for 660 kcys. are 69-67. If we now will set our dials for 70-68 it is obvious we will have our set tuned for 650 kcys. We listen carefully and if they are on the air and within range of our set we will tune in WSM of Nashville at this point. We then enter the dial readings for WSM opposite 650 kcys. Now it is clear that if we reset our dials at 71-69 our set will be tuned to 640 kcys. and at that point KFI of Los Angeles will be heard, always assuming of course that it is on the air and within range of our particular set.

Now we tune in some other station, proceeding

IN STATUTE MILES

Memphis, Tenn.	New Orleans, La.	New York, N. Y.	Norfolk, Va.	Oklahoma, Okla.	Omaha, Nebr.	Philadelphia, Pa.	Phoenix, Ariz.	Pittsburgh, Pa.	Portland, Me.	Portland, Oreg.	Richmond, Va.	St. Louis, Mo.	Salt Lake City, Utah	San Francisco, Calif.	Schenectady, N. Y.	Seattle, Wash.	Shreveport, La.	Spokane, Wash.	Springfield, Mass.	Vermillion, S. Dak.	Washington, D.C.	
1117	1030	1810	1696	518	718	1748	330	1498	2015	1107	1628	938	483	893	1823	1178	764	1028	1889	742	1648	Albuquerque, N. Mex.
218	427	747	507	753	815	663	1592	520	1022	2172	470	467	1580	2133	840	2180	548	1960	863	917	542	Atlanta, Ga.
597	1001	170	167	1173	1026	90	2002	194	446	2367	128	731	1858	2451	278	2341	1064	2110	282	1083	33	Baltimore, Md.
1631	1713	2153	2137	1138	1044	2113	733	1863	2282	349	2060	1389	292	516	2120	405	1433	290	2198	973	2045	Boise, Idaho
941	1359	188	467	1490	1280	268	2295	478	100	2553	471	1036	2099	2696	150	2508	1410	2279	79	1314	392	Boston, Mass.
952	536	1695	1465	859	1061	1614	1023	1424	1961	1944	1428	975	1317	1675	1770	2015	510	1852	1805	1161	1493	Brownsville, Tex.
626	1087	291	435	1117	883	278	1904	178	438	2167	375	662	1701	2298	249	2130	1080	1900	325	916	290	Buffalo, N. Y.
394	831	711	696	689	432	664	1451	411	892	1765	618	259	1260	1855	702	1743	725	1514	774	479	594	Chicago, Ill.
239	708	588	474	755	620	501	1578	258	802	1987	399	308	1450	2037	605	1974	688	1746	659	694	403	Cincinnati, Ohio
456	922	404	429	946	738	343	1745	115	603	2063	353	490	1567	2163	408	2035	904	1804	473	785	303	Cleveland, Ohio
1018	1079	1628	1562	503	485	1575	585	1320	1803	985	1488	793	372	946	1618	1020	799	827	1692	468	1490	Denver, Colo.
523	825	1023	983	469	122	972	1154	718	1197	1479	905	270	952	1547	1012	1470	624	1243	1085	187	895	Des Moines, Iowa
468	938	483	522	905	666	444	1685	208	657	1975	445	452	1490	2087	467	1945	891	1715	540	705	397	Detroit, Mich.
1169	986	1902	1755	578	875	1834	347	1592	2126	1286	1695	1033	689	993	1930	1373	752	1238	1990	920	1728	El Paso, Tex.
900	1221	1213	1258	786	390	1186	1225	952	1313	1248	1180	658	865	1447	1157	1206	1002	976	1240	284	1141	Fargo, N. Dak.
643	470	1398	1226	188	590	1324	858	1097	1642	1612	1170	568	977	1454	1445	1658	209	1470	1495	689	1210	Fort Worth, Tex.
666	288	1415	1195	456	828	1335	1065	1140	1678	1885	1154	697	1249	1693	1487	1938	233	1753	1514	938	1214	Galveston, Tex.
697	870	1275	1216	357	135	1222	901	967	1454	1271	1142	455	708	1297	1367	1288	615	1061	1340	167	1139	Hastings, Nebr.
370	358	1125	955	260	490	1051	1094	825	1371	1733	897	325	1116	1648	1175	1759	142	1552	1824	605	936	Hot Springs, Ark.
760	1187	849	946	926	547	827	1550	630	924	1638	870	591	1242	1833	776	1588	1043	1360	860	510	813	Houghton, Mich.
502	511	838	548	988	1098	758	1800	703	1113	2442	953	755	1840	2375	960	2450	733	2239	957	1203	647	Jacksonville, Fla.
472	678	1097	1009	293	165	1037	1045	784	1300	1397	937	238	922	1500	1107	1505	326	1286	1173	280	943	Kansas City, Mo.
1777	1675	2446	2352	1182	1312	2388	357	2135	2631	825	2283	1585	577	345	2445	956	1420	939	2515	1291	2295	Los Angeles, Calif.
153	623	650	528	675	579	580	1518	345	892	1953	457	342	1400	1983	695	1945	598	1720	745	663	473	Louisville, Ky.
195	358	953	778	482	529	878	1264	660	1205	1652	722	242	1250	1800	1010	1867	279	1652	1055	642	763	Memphis, Tenn.
821	681	1095	802	1233	1402	1023	1998	1014	1357	2716	831	1067	2098	2603	1229	2740	950	2528	1210	1510	927	Miami, Fla.
695	1050	1019	1047	692	291	985	1279	745	1145	1435	968	464	988	1585	975	1403	859	1173	1056	238	936	Minneapolis, Minn.
1582	1738	2030	2045	1162	978	1997	932	1754	2133	430	1967	1331	435	762	1978	395	1457	170	2060	887	1940	Missoula, Mont.
	470	758	586	602	604	683	1445	472	1015	1970	526	253	1390	1958	820	1973	470	1752	863	704	567	Nashville, Tenn.
		1173	932	575	845	1090	1316	923	1445	2063	899	599	1433	1923	1259	2098	280	1898	1287	960	968	New Orleans, La.
			293	1324	1144	83	2142	313	277	2455	287	873	1972	2568	142	2419	1230	2190	120	1189	204	New York, N. Y.
				1186	1095	220	2027	316	565	2458	79	771	1925	2510	426	2440	1037	2211	411	1166	145	Norfolk, Va.
					405	1256	843	1013	1550	1488	1122	456	862	1386	1354	1523	297	1324	1412	502	1150	Oklahoma, Okla.
						1094	1032	837	1318	1373	1020	352	833	1425	1133	1372	617	1149	1205	115	1012	Omaha, Nebr.
							2079	254	360	2419	205	808	1923	2518	805	2388	1153	2159	801	1143	122	Philadelphia, Pa.
								1829	2345	1007	1960	1270	504	652	2152	1112	1067	1020	2220	1043	1980	Phoenix, Ariz.
									545	2174	242	561	1670	2264	350	2145	939	1918	400	891	188	Pittsburgh, Pa.
										2563	585	1094	2127	2725	197	2513	1484	2285	159	1345	480	Portland, Me.
										2381		1723	636	536	2405	143	1783	295	2488	1293	2360	Portland, Oreg.
												699	1850	2436	406	2362	985	2133	407	1099	96	Richmond, Va.
												1158	1738	898	1722		466	1500	958	450	710	St. Louis, Mo.
													592	1950	697		1155	548	2027	785	1845	Salt Lake City, Utah
														2548	680		1655	730	2625	1383	2437	San Francisco, Calif.
															2363		1290	2139	86	1165	313	Schenectady, N. Y.
																	1820	229	2445	1282	2335	Seattle, Wash.
																		1621	1333	726	1035	Shreveport, La.
																			2216	1055	2105	Spokane, Wash.
																				1242	321	Springfield, Mass.
																					1073	Vermillion, S. Dak.

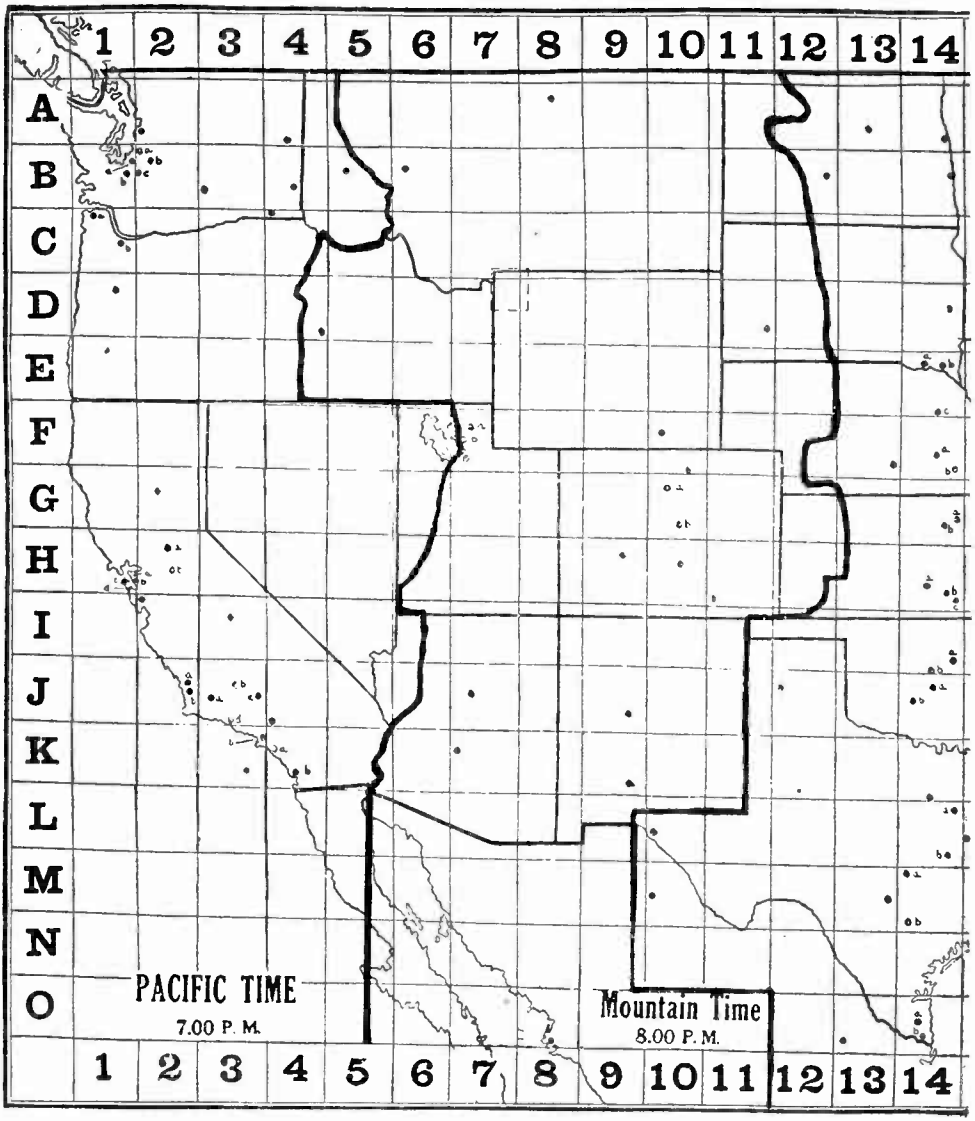
before un-
after an eve-
ng or two, we have
inks filled on every
ge. We are now able to
our dials for any frequency
desire and consequently any
ition we may want whether we have
er received it before or not.

Our index now becomes of great value to us identifying programs. Let us say that we hear usic at 67-65 on our dials. We refer to our dex by Frequencies and Dial Numbers and we d that we are in tune to 680 kilocycles. On this ve there are two stations: KPO at San Fran-co and WPTF at Raleigh, N. C. Both of these ations have 5000 watts in power. But knowing hich is the closer to our set, we can tell almost ariably which station we are hearing. The dio Commission has had to give the same fre-ency in most cases to several station but they ve distributed them geographically so they ould not interfere. When two stations in the me locality have the same frequency, they are quired to divide time. In this case of course it not possible to tell which one of the two sta-ns is broadcasting at the particular moment hear it but we do know it is one or the other of em.

The second column in the index by Frequencies, we have seen, gives the power of the station as easured in watts. This power also aids us in identifying stations as we will not ordinarily hear those stations with 500 watts or less unless they are close to our home city.

The Index by Call Letters also has spaces providing for logging dial numbers but these are provided merely for the convenience of those who want to be able to turn instantly to some favorite station. They may or may not be used as you desire. Remember that it is the Index by Frequencies that we must use to get the most value and pleasure out of our radios.

The Index by Frequencies is now printed with marginal tabs. If you will fill in under the word "dial" your reading for this particular frequency, you can then turn instantly to any frequency desired. Take a pair of shears and cut along the dotted line, as shown.



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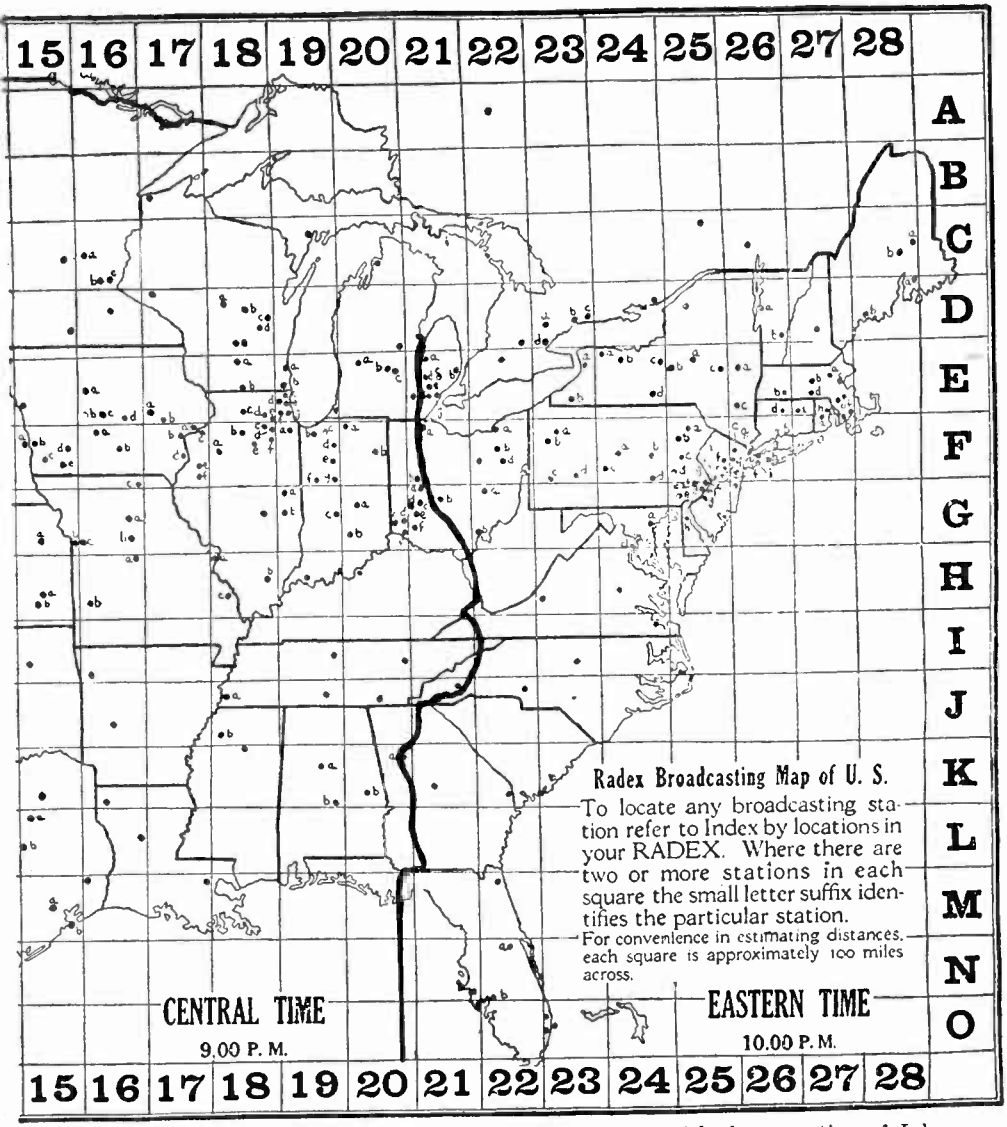

RADEX is published monthly throughout the year with the exception of July and August. The price is 25c per copy or $1.75 for the year of ten issues. If you desire to be up-to-date in radio and to be kept informed of the frequent changes in stations, please fill in the coupon on this page and mail it at once.

In answer to many requests we have had prepared a beautiful leatherette cover stamped in gold. This cover is not only an ornament to even the finest set but it protects your RADEX from wear and gives a solid backing for making entries. The price of this cover is 50c or we will send one free for two yearly subscriptions. Send your own and a friend's subscription and we will send you one of these beautiful covers free.

540 kilocycles 555.6 meters

CKX	500	Brandon, Manitoba
XFA	50	Mexico City

Manitoba Telephone System
Sria. de Agricultura y Fomento

550 kilocycles 545.1 meters

KFDY	1000	Brookings, S. D.
KFUO	500	St. Louis, Mo.
KFYR	500	Bismarck, N. D.
KSD	500	St. Louis, Mo.
KTAB	500	Oakland, Cal.
WEAN	250	Providence, R. I.
WGR	1000	Buffalo, N. Y.
WKRC	500	Cincinnati, Ohio
XEY	105	Merida, Yucatan

S. D. State College
Concordia Theological Seminary
Hoskins-Meyer
Pulitzer Publishing Co.
Associated Broadcasters
The Shepard Co.
Radio Station WGR Inc.
Kodel Electric & Mfg. Co.
Partido Socialista del Sureste

560 kilocycles 535.4 meters

KFDM	500	Beaumont, Texas
KFEQ	2500	St. Joseph, Mo.
KLZ	1000	Dupont, Colo.
KOAC	1000	Corvallis, Ore.
WFI	500	Philadelphia, Pa.
WIOD	500	Miami Beach, Fla.
WLIT	500	Philadelphia, Pa.
WNOX	1000	Knoxville, Tenn.
WOI	5000	Ames, Iowa

Magnolia Petroleum Co.
Scroggin & Co. Bank
Reynolds Radio Co., Inc.
State Agricultural College
Strawbridge & Clothier
Isle of Dreams Brdcstg. Co.
Lit Brothers
Sterchi Bros.
Iowa State College

570 kilocycles 526.0 meters

KGKO	250	Wichita Falls, Tex.
KMTR	500	Hollywood, Cal.
KUOM	500	Missoula, Mont.
KXA	500	Seattle, Wash.
WEAO	750	Columbus, Ohio
WIBO	1000	Chicago, Ill.
WKBN	500	Youngstown, Ohio
WMAC	250	Cazenovia, N. Y.
WMCA	500	New York City
WNAX	1000	Yankton, S. D.
WNYC	500	New York City
WPCC	500	Chicago, Ill.
WSYR	250	Syracuse, N. Y.
WWNC	1000	Asheville, N. C.

Wichita Falls Brdcstg. Co.
KMTR Radio Corp.
University of Montana
American Radio Tel. Co.
Ohio State University
Nelson Bros. Bond & Mtg. Co.
W. P. Williamson, Jr.
Clive B. Meredith
Knickerbocker Broadcasting Co., Inc.
Gurney Seed & Nursery Co.
Dept. of Plants and Structures
North Shore Congregational Church
Clive B. Meredith
Citizens Brdcstg. Co., Inc.

580 kilocycles 516.9 meters

CFCL	500	Toronto, Ont.
CHMA	250	Edmonton, Alta
CJBC	500	Toronto, Ont.
CJCA	500	Edmonton, Alta
CJSC	500	Toronto, Ont.
CKCL	500	Toronto, Ont.
CKNC	500	Toronto, Ont.
CKUA	500	Edmonton, Alta.
CNRE	500	Edmonton, Alta
KGFX	200	Pierre, S. D.
KSAC	500	Manhattan, Kans
WOBU	250	Charleston, W. Va.
WSAZ	250	Huntington, W. Va.
WSUI	500	Iowa City, Iowa
WTAG	250	Worcester, Mass.

Dominion Battery Co.
Christian and Missionary Alliance
Jarvis Street Baptist Church
The Edmonton Journal, Ltd.
The Evening Telegram
The Dominion Battery Co.
Canadian National Carbon Co., Ltd.
University of Alberta
Canadian National Railways
Dana McNeil
State Agricultural College
Charleston Radio Brdcstg. Co.
WSAZ Inc.
University of Iowa
Telegram Publishing Co.

590 kilocycles 508.2 meters

KHQ	1000	Spokane, Wash.	Louis Wasmer, Inc.
WCAJ	500	Lincoln, Nebr.	Nebraska Wesleyan University
WEEI	1000	Boston, Mass.	Edison Elec. Illuminating Co.
WEMC	1000	Berrien Springs, Mich.	Emmanuel Missionary College
WOW	1000	Omaha, Nebr.	Woodmen of the World
XFI	1000	Mexico City	Sria. de Industria, Commercio y Trabajo

600 kilocycles 499.7 meters

CFCH	250	Iroquois Falls, Ont.	Abitibi Power & Paper Co.
CJRM	500	Moose Jaw, Sask.	Jas. Richardson & Sons, Ltd.
CJRW	500	Fleming, Sask.	Jas. Richardson & Sons, Ltd.
KFSD	500	San Diego, Cal.	Airfan Radio Corp.
KWYO	500	Laramie, Wyo.	Bishop N. S. Thomas
WCAC	250	Storrs, Conn.	Conn. Agricultural College
WCAO	250	Baltimore, Md.	Monumental Radio, Inc.
WEBW	350	Beloit, Wis.	Beloit College
WOAN	500	Lawrenceburg, Tenn.	James D. Vaughan
WREC	500	Memphis, Tenn.	WREC, Inc.
WTIC	250	Hartford, Conn.	Travelers Brdcstg. Service Corp.

610 kilocycles 491.5 meters

KFRC	1000	San Francisco, Cal.	Don Lee, Inc.
WDAF	1000	Kansas City, Mo.	Kansas City Star Co.
WFAN	500	Philadelphia, Pa.	Keystone Broadcasting Co., Inc.
WIP	500	Philadelphia, Pa.	Gimbel Bros., Inc.
WOQ	1000	Kansas City, Mo.	Unity School of Christianity

620 kilocycles 483.6 meters

KFAD	500	Phoenix, Ariz.	Electrical Equipment Co.
KGW	1000	Portland, Ore.	Oregonian Publishing Co.
WDAE	1000	Tampa, Fla.	Tampa Publishing Co.
WDBO	1000	Orlando, Fla.	Rollins College, Inc.
WJAY	500	Cleveland, Ohio	Cleveland Radio Brdcstg. Corp.
WLBZ	250	Bangor, Me.	Maine Brdcstg. Co., Inc.
WTMJ	1000	Milwaukee, Wis.	Milwaukee Journal

630 kilocycles 475.9 meters

CFCT	500	Victoria, B. C.	Victoria Broadcasting Association
CJGX	500	Yorkton, Sask.	Winnipeg Grain Exchange
CNRA	500	Moncton, N. B.	Canadian National Railways
KFRU	500	Columbia, Mo.	Stephens College
WGBF	500	Evansville, Ind.	Evansville on the Air, Inc.
WMAL	250	Washington, D. C.	M. A. Leese
WOS	500	Jefferson City, Mo.	State Marketing Bureau
XFC	350	Jalapa, Ver.	Goberno Estado de Veracruz

640 kilocycles 468.5 meters

KFI	5000	Los Angeles, Cal.	Earle C. Anthony, Inc.
WAIU	500	Columbus, Ohio	American Insurance Union
XFG	2000	Mexico City	Sria. de Guerra y Marina

650 kilocycles 461.3 meters

WSM	5000	Nashville, Tenn.	National Life & Accident Ins. Co.

660 kilocycles 454.3 meters

WAAW	500	Omaha, Nebr.	Omaha Grain Exchange
WEAF	50000	New York City	National Broadcasting Co., Inc.

670 kilocycles 447.5 meters

WMAQ	5000	Chicago, Ill.	Chicago Daily News, Inc.
XEB	1000	Mexico City	El Buen Tono, S. A.

KCYS. 670
MTRS. 447.5
DIAL

CUT OUT ON DOTTED LINES

680 kilocycles 440.9 meters

KPO	5000	San Francisco, Cal.
WPTF	1000	Raleigh, N. C.

Hale Bros. & The Chronicle
Durham Life Insurance Co.

690 kilocycles 434.5 meters

CFAC	500	Calgary, Alta.
CFCN	500	Calgary, Alta.
CHCA	500	Calgary, Alta.
CJCJ	500	Calgary, Alta.
CKCO	100	Ottawa, Ont.
CNRC	500	Calgary, Alta.
CNRO	500	Ottawa, Ont.
NAA	1000	Arlington, Va.

The Calgary Herald
Western Broadcasting Co.
The Western Farmer
Albertan Publishing Co., Ltd.
Dr. G. M. Geldert
Canadian National Railways
Canadian National Railways
U. S. Navy

700 kilocycles 428.3 meters

WLW	50000	Cincinnati, Ohio

Crosley Radio Corp.

710 kilocycles 422.3 meters

KFVD	250	Culver City, Cal.
WOR	5000	Newark, N. J.

Los Angeles Brdcstg. Co.
L. Bamberger & Co.

720 kilocycles 416.4 meters

WGN	25000	Chicago, Ill.

Chicago Tribune

730 kilocycles 410.7 meters

CHLS	50	Vancouver, B. C.
CHYC	500	Montreal, Que.
CKAC	5000	Montreal, Que.
CKCD	50	Vancouver, B. C.
CKFC	50	Vancouver, B. C.
CKMO	50	Vancouver, B. C.
CKWX	100	Vancouver, B. C.
CNRM	1650	Montreal, Que.
XEN	1000	Mexico City

W. G. Hassell
Northern Electric Co., Ltd.
La Presse Publishing Co., Ltd.
Vancouver Daily Province
United Church of Canada
Sprott-Shaw Radio Co.
A. Holstead & Wm. Hanlon
Canadian National Railways
General Electric, S. A.

740 kilocycles 405.2 meters

KMMJ	1000	Clay Center, Neb.
WSB	1000	Atlanta, Ga.

The M. M. Johnson Co.
Atlanta Journal Co.

750 kilocycles 399.8 meters

WJR	5000	Detroit, Mich.

WJR, The Goodwill Station, Inc.

760 kilocycles 394.5 meters

KVI	1000	Tacoma, Wash.
WEW	1000	St. Louis, Mo.
WJZ	30000	New York City

Puget Sound Brdcstg. Co.
St. Louis University
Radio Corp. of America, Inc.

770 kilocycles 389.4 meters

KFAB	5000	Lincoln, Nebr.
WBBM	25000	Chicago, Ill.
WJBT	10000	Chicago, Ill

Nebraska Buick Automobile Co.
The Atlass Co., Inc.
The Atlass Co., Inc.

780 kilocycles 384.4 meters

CKY	5000	Winnipeg, Manitoba
CNRW	5000	Winnipeg, Manitoba
KELW	500	Burbank, Cal.
KTM	500	Los Angeles, Cal.
WBSO	250	Wellesley Hills, Mass.
WMC	500	Memphis, Tenn.
WPOR	500	Norfolk, Va.
WTAR	500	Norfolk, Va.

Manitoba Telephone System
Canadian National Railways
Earl L. White
Pickwick Brdcstg. Corp.
Babson Statistical Organization
Memphis Commercial-Appeal
WTAR Radio Corp.
WTAR Radio Corp.

790 kilocycles 379.5 meters

KGO	7500	Oakland, Cal.
WGY	50000	Schenectady, N. Y.
6KW	1500	Tuinucu, Cuba

800 kilocycles 374.8 meters

WBAP	50000	Fort Worth, Tex.
WFAA	500	Dallas, Texas

810 kilocycles 370.2 meters

WCCO	7500	Minneapolis, Minn.
WPCH	500	New York City

820 kilocycles 365.6 meters

WHAS	5000	Louisville, Ky.

830 kilocycles 361.2 meters

HHK	1000	Port au Prince, Haiti
KOA	12500	Denver, Colo.
WHDH	1000	Gloucester, Mass.

840 kilocycles 356.9 meters

CFCA	500	Toronto, Ont.
CHCT	1000	Red Deer, Alta.
CJBC	1000	Toronto, Ont.
CKLC	1000	Red Deer, Alta.
CKOW	500	Toronto, Ont.
CMC	500	Havana, Cuba
CNRT	500	Toronto, Ont.
XFX	500	Mexico City

850 kilocycles 352.7 meters

KWKH	10000	Shreveport, La.
WWL	5000	New Orleans, La.

860 kilocycles 348.6 meters

KFOZ	250	Hollywood, Cal.
WABC	5000	New York City
WBOQ	5000	New York City
2OK	100	Havana, Cuba
7SR	500	Elia, Cuba

870 kilocycles 344.6 meters

WENR	50000	Chicago, Ill.
WLS	5000	Chicago, Ill.

880 kilocycles 340.7 meters

CHCS	10	Hamilton, Ont.
CHML	50	Hamilton, Ont.
CHRC	25	Quebec, Que.
CJCB	50	Sydney, N. S.
CKCI	22.5	Quebec, Que.
CKCV	50	Quebec, Que.
CKOC	50	Hamilton, Ont.
CNRQ	50	Quebec, Que.
KFKA	500	Greeley, Colo.
KLX	500	Oakland, Cal.
KPOF	500	Denver, Colo.
WCOC	500	Columbus, Miss.
WGBI	250	Scranton, Pa.
WQAN	250	Scranton, Pa.

49

General Electric Co.
General Electric Co.
Frank H. Jones

48

Carter Publications, Inc.
News & Journal

46

Washburn-Crosby Co., Inc.
Eastern Broadcasters, Inc.

44

Courier-Journal & Times

42

Republic of Haiti
General Electric Co.
Matheson Radio Co., Inc.

41

Star Publishing & Ptg. Co.
G. F. Tull & Ardern, Ltd.
Jarvis Street Baptist Church
Alberta Pacific Grain Co., Ltd.
Nestle's Food Co.
Cuban Telephone Co.
Canadian National Railways
Sria. de Educacion Publica

40

W. K. Henderson
Loyola University

38

Taft Radio & Brdcstg. Co.
Atlantic Broadcasting Corp.
Atlantic Broadcasting Corp.
Merio G. Velez
Salvador Rionda

37

Great Lakes Brdcstg. Co.
Agricultural Brdcstg. Co.

36

The Hamilton Spectator
Maple Leaf Radio Co.
E. Fontaine
N. Nathanson
Le "Soleil," Ltd.
G. A. Vandry
Wentworth Radio Supply Co.
Canadian National Railways
State Teachers College
Tribune Publishing Co.
Pillar of Fire, Inc.
Crystal Oil Co.
Scranton Broadcasters, Inc.
Scranton Times

KCYS
880
MTRS.
340.7
DIAL

CUT OUT ON DOTTED LINES

890 kilocycles 336.9 meters

CFBO	50	St. John, N. B.	C. A. Munro, Ltd.
KFNF	500	Shenandoah, Iowa	Henry Field Seed Co.
KGJF	250	Little Rock, Ark.	Church of the Nazarene
KUSD	500	Vermillion, S. D.	University of South Dakota
WGST	250	Atlanta, Ga.	Georgia School of Technology
WILL	250	Urbana, Ill.	University of Illinois
WJAR	250	Providence, R. I.	The Outlet Co.
WKAQ	500	San Juan, P. R.	Radio Corp. of Porto Rico
WMAZ	250	Macon, Ga.	Junior Chamber of Commerce
WMMN	250	Fairmont, W. Va.	Holt-Rowe Novelty Co.

900 kilocycles 333.1 meters

KGBU	500	Ketchikan, Alaska	Alaska Radio & Service Co.
KHJ	1000	Los Angeles, Cal.	Don Lee, Inc.
KSEI	250	Pocatello, Idaho	KSEI Broadcasting Association
WFBL	750	Syracuse, N. Y.	The Onondaga Co., Inc.
WFLA	1000	Clearwater, Fla.	Chamber of Commerce
WKY	1000	Oklahoma City	WKY Radiophone Co.
WLBL	2000	Stevens Pt., Wis.	Wisconsin Dept. of Markets
WMAK	750	Buffalo, N. Y.	WMAK Brdcstg. System, Inc.
WSUN	1000	St. Petersburg, Fla.	Chamber of Commerce

910 kilocycles 329.6 meters

CFQC	500	Saskatoon, Sask.	The Electric Shop, Ltd.
CJGC	500	London, Ont.	Free Press Printing Co., Ltd.
CJHS	250	Saskatoon, Sask.	Radio Service, Ltd.
CNRL	500	London, Ont.	Canadian National Railways
CNRS	500	Saskatoon, Sask.	Canadian National Railways

920 kilocycles 325.9 meters

KOMO	1000	Seattle, Wash.	Fisher's Blend Station, Inc.
KPRC	1000	Houston, Tex.	Houston Printing Co.
WAAF	500	Chicago, Ill.	Drovers Journal Publishing Co.
WWJ	1000	Detroit, Mich.	The Detroit News
XEX	500	Mexico City	Excelsior, Cia. Editorial, S. A.
XFF	250	Chihuahua, Chih.	Gobierno Estado de Chihuahua

930 kilocycles 322.4 meters

CHNS	500	Halifax, N. S.	Halifax Herald, Ltd.
CKIC	50	Wolfville, N. S.	Acadia University
KFWI	500	San Francisco, Cal.	Radio Entertainments, Inc.
KFWM	500	Oakland, Cal.	Oakland Educational Society
KGBZ	500	York, Nebr.	Dr. George R. Miller
KMA	500	Shenandoah, Iowa	May Seed & Nursery Co.
WBRC	500	Birmingham, Ala.	Birmingham Broadcasting Co.
WDBJ	250	Roanoke, Va.	Richardson-Wayland Elec. Corp.
WIBG	50	Elkins Park, Pa.	St. Pauls P. E. Church

940 kilocycles 319.0 meters

KFEL	250	Denver, Colo.	Eugene P. O'Fallon, Inc.
KFXF	250	Denver, Colo.	Pikes Peak Broadcasting Co., Inc.
KGU	500	Honolulu, Hawaii	Marion A. Mulrony
KOIN	1000	Portland, Ore.	KOIN, Inc.
WCSH	500	Portland, Maine	Congress Square Hotel Co.
WFIW	1000	Hopkinsville, Ky.	The Acme Mills, Inc.
WHA	750	Madison, Wis.	University of Wisconsin

950 kilocycles 315.6 meters

KFWB	1000	Hollywood, Cal.	Warner Bros. Broadcasting Corp.
KGHL	500	Billings, Mont.	Northwestern Auto Supply Co.
KMBC	1000	Independence, Mo.	Midland Broadcasting Co., Inc.
KPSN	1000	Pasadena, Cal.	Pasadena Star-News
WHB	500	Kansas City, Mo.	Sweeney Automobile School Co.
WRC	500	Washington, D. C.	Radio Corp. of America
2RK	20	Havana, Cuba	Raoul Karman

960 kilocycles 312.3 meters

CFCY	250	Charlottetown, P. E. I.	The Island Radio Co.
CFRB	4000	Twp. of King, Ont.	Standard Radio Mfg. Corp., Ltd.
CHCK	30	Charlottetown, P. E. I.	W. E. Burke
CHWC	500	Pilot Butte, Sask.	R. H. Williams & Sons
CJBC	5000	Toronto, Ont.	Jarvis St. Baptist Church
CJBR	500	Regina, Sask.	Cooperative Wheat Producers
CKCK	500	Regina, Sask.	Leader Pub. Co., Ltd.
CKGW	5000	Bowmanville, Ont.	Gooderham & Worts, Ltd.
CNRR	500	Regina, Sask.	Canadian Nat'l. Railways
XEE	101	Pueblo, Pue.	Ramon Huerta G.

970 kilocycles 309.1 meters

KJR	5000	Seattle, Wash.	Northwest Radio Service Co.
WCFL	1500	Chicago, Ill.	Chicago Federation of Labor
XEH	101	Monterey, N. L.	Ing. Constantino de Tarnava

980 kilocycles 305.9 meters

KDKA	50000	Pittsburgh, Pa.	Westinghouse Elec. & Mfg. Co.

990 kilocycles 302.8 meters

WBZ	15000	Springfield, Mass.	Westinghouse Elec. & Mfg. Co.
WBZA	500	Boston, Mass.	Westinghouse Elec. & Mfg. Co.

1000 kilocycles 299.8 meters

KPLA	1000	Los Angeles, Cal.	Pacific Development Radio Co., Inc.
WHO	5000	Des Moines, Iowa	Bankers Life Co.
WOC	5000	Davenport, Iowa	Palmer School of Chiropractic
XEI	101	Morelia, Mich.	Carlos Gutierrez M.

1010 kilocycles 296.8 meters

CFLC	50	Prescott, Ont.	Radio Association
CKCR	50	Brantford, Ont.	John Patterson
CKSH	50	St. Hyacinthe, Que.	City of St. Hyacinthe
KGGF	500	Picher, Okla	D. L. Connell, M. D.
KQW	500	San Jose, Cal.	First Baptist Church
WHN	250	New York City	Marcus Loew Booking Agency
WNAD	500	Norman, Okla.	University of Oklahoma
WPAP	250	New York City	Calvary Baptist Church
WQAO	250	New York City	Calvary Baptist Church
WRNY	250	New York City	Aviation Radio Station, Inc.
WSIS	250	Sarasota, Fla.	Chamber of Commerce

1020 kilocycles 293.9 meters

KFKX	5000	Chicago, Ill.	Westinghouse Elec. & Mfg. Co.
KYW	5000	Chicago, Ill.	Westinghouse Elec. & Mfg. Co.
WRAX	250	Philadelphia, Pa.	Berachah Church, Inc.

1030 kilocycles 291.1 meters

CFCF	1650	Montreal, Que.	Canadian Marconi Co.
CJOR	50	Sea Island, B. C.	G. C. Chandler
CNRV	500	Vancouver, B. C.	Canadian National Railways

1040 kilocycles 288.3 meters

KRLD	10000	Dallas, Texas	KRLD, Radio Corp.
KTHS	10000	Hot Springs, Ark.	Chamber of Commerce
WKAR	1000	East Lansing, Mich.	Michigan Agricultural College
WKEN	1000	Buffalo, N. Y.	Radio Station WKEN, Inc.

1050 kilocycles 285.5 meters

KFKB	5000	Milford, Kansas	John R. Brinkley, M. D.
KNX	5000	Hollywood, Cal.	Western Broadcast Co.
2MG	20	Havana, Cuba	M. y G. Salas

KCYS. 1050 MTRS. 285.5 DIAL

CUT OUT ON DOTTED LINES

1060 kilocycles 282.8 meters

KWJJ	500	Portland, Ore.	Wilbur Jerman
WBAL	10000	Baltimore, Md.	Consolidated Gas, Elec. & Pwr. Co.
WJAG	1000	Norfolk, Nebr.	Norfolk Daily News
WTIC	50000	Hartford, Conn.	Travelers Brdcstg. Service Corp.

1070 kilocycles 280.2 meters

KJBS	100	San Francisco, Cal.	Julius Brunton & Sons Co.
WAAT	300	Jersey City, N. J.	Bremer Broadcasting Corp.
WCAZ	50	Carthage, Ill.	Carthage College
WDZ	100	Tuscola, Ill.	James L. Bush
WEAR	1000	Cleveland, Ohio	WTAM and WEAR, Inc.
WTAM	3500	Cleveland, Ohio	WTAM and WEAR, Inc.

1080 kilocycles 277.6 meters

WBT	5000	Charlotte, N. C.	Station WBT, Inc.
WCBD	5000	Zion, Ill.	Wilbur Glenn Voliva
WMBI	5000	Chicago, Ill.	Moody Bible Institute

1090 kilocycles 275.1 meters

KFQA	5000	St. Louis, Mo.	Voice of St. Louis, Inc.
KMOX	5000	St. Louis, Mo.	Voice of St. Louis, Inc.
2UF	10	Havana, Cuba	Benito V. Ferro

1100 kilocycles 272.6 meters

KGDM	50	Stockton, Cal.	E. F. Peffer
WLWL	5000	New York City	Missionary Society of St. Paul
WPG	5000	Atlantic City, N. J.	Municipality of Atlantic City

1110 kilocycles 270.1 meters

KSOO	2000	Sioux Falls, S. D.	Sioux Falls Broadcast Assn.
WRVA	1000	Richmond, Va.	Larus & Bros. Co., Inc.
2TW	20	Havana, Cuba	Roberto E. Ramirez

1120 kilocycles 267.7 meters

CFJC	15	Kamloops, B. C.	N. S. Dalgleish & Sons
CFRC	500	Kingston, Ont.	Queen's University
CHGS	25	Summerside, P. E. I.	R. T. Holman, Ltd.
CJOC	50	Lethbridge, Alta.	Harold R. Carson
CKPR	50	Midland, Ont.	Midland Brdcstg. Corp.
KFSG	500	Los Angeles, Cal.	Echo Park Evang. Assn.
KMIC	500	Inglewood, Cal.	Dalton's, Inc.
KRSC	50	Seattle, Wash.	Radio Sales Corp.
KUT	500	Austin, Texas	KUT Broadcasting Co.
WCOA	500	Pensacola, Fla.	City of Pensacola
WDEL	250	Wilmington, Del.	WDEL, Inc.
WHAD	250	Milwaukee, Wis.	Marquette University
WISN	250	Milwaukee, Wis.	Evening Wisconsin Co.
WTAW	500	College Station, Texas	Agricultural & Mec. College

1130 kilocycles 265.3 meters

KSL	5000	Salt Lake City	Radio Service Corp. of Utah
WJJD	20000	Mooseheart, Ill.	Loyal Order of Moose
WOV	1000	New York City	International Brdcstg. Corp.
XEF	105	Oaxaca, Oax.	Federico Zorrila

1140 kilocycles 263.0 meters

KVOO	5000	Tulsa, Okla.	Southwestern Sales Corp.
WAPI	5000	Birmingham, Ala.	Alabama Polytechnic Institute

1150 kilocycles 260.7 meters

WHAM	5000	Rochester, N. Y.	Stromberg-Carlson Tel. Mfg. Co.
6BY	200	Cienfuegos, Cuba	Jose Ganduxe

1160 kilocycles 258.5 meters

WOWO	10000	Ft. Wayne, Ind.
WWVA	250	Wheeling, W. Va.

Main Auto Supply Co.
West Virginia Brdcstg. Corp.

1170 kilocycles 256.3 meters

KEJK	500	Los Angeles, Cal.
KTNT	5000	Muscatine, Iowa
WCAU	10000	Philadelphia, Pa.
2OL	100	Havana, Cuba

R. S. MacMillan
Norman Baker
Universal Broadcasting Co.
Oscar C. Orta

1180 kilocycles 254.1 meters

KEX	5000	Portland, Ore.
KOB	10000	State College, N. M.
WDGY	1000	Minneapolis, Minn.
WGBS	500	New York City
WHDI	500	Minneapolis, Minn.

Western Broadcasting Co.
College of Agriculture
Dr. George W. Young
General Broadcasting System, Inc.
Wm. Hood Dunwoody Indus. Inst.

1190 kilocycles 252.0 meters

WICC	500	Bridgeport, Conn.
WOAI	5000	San Antonio, Texas

Bridgeport Broadcasting Station, Inc.
Southern Equipment Co.

1200 kilocycles 249.9 meters

KFHA	100	Gunnison, Colo.
KFJB	100	Marshalltown, Iowa
KFKZ	15	Kirksville, Mo.
KFWC	100	Pomona, Cal.
KFWF	100	St. Louis, Mo.
KGCU	100	Mandan, N. D.
KGDE	50	Fergus Falls, Minn.
KGDY	15	Oldham, S. D.
KGEK	50	Yuma, Colo.
KGEW	100	Fort Morgan, Colo.
KGFK	50	Hallock, Minn.
KGY	10	Lacey, Wash.
KMJ	100	Fresno, Cal.
KPPC	50	Pasadena, Cal.
KSMR	100	Santa Maria, Cal.
KVOS	100	Bellingham, Wash.
KWG	100	Stockton, Cal.
KXO	100	El Centro, Cal.
WABI	100	Bangor, Maine
WABZ	100	New Orleans, La.
WBBY	75	Charleston, S. C.
WBBZ	100	Ponca City, Okla.
WCAT	100	Rapid City, S. D.
WCLO	100	Kenosha, Wis.
WCOD	100	Harrisburg, Pa.
WEPS	100	Gloucester, Mass.
WFBC	50	Knoxville, Tenn.
WHBC	10	Canton, Ohio
WHBY	100	West De Pere, Wis.
WIBX	100	Utica, N. Y.
WIL	100	St. Louis, Mo.
WJBC	100	La Salle, Ill.
WJBL	100	Decatur, Ill.
WJBW	30	New Orleans, La.
WKJC	100	Lancaster, Pa.
WLAP	30	Louisville, Ky.
WLBG	100	Ettrick, Va.
WMAY	100	St. Louis, Mo.
WMT	100	Waterloo, Iowa
WNBO	100	Washington, Pa.
WNBW	5	Carbondale, Pa.
WNBX	10	Springfield, Vt.
WORC	100	Webster, Mass.
WRAF	100	La Porte, Ind.
WRBL	50	Columbus, Ga.
WWAE	100	Hammond, Ind.
XEA	101	Guadalajara, Jal.
XES	250	C. Lerdo, Dgo.
2BB	15	Havana, Cuba

Western College of Colorado
Marshall Electric Co., Inc.
State Teachers College
James R. Fouch
St. Louis Truth Center, Inc.
Mandan Radio Association
Jaren Drug Co.
J. Albert Loesch
Beehler Elec. Equipment Co.
City of Fort Morgan
Lautzenheiser & Mitchell
St. Martin's College
The Fresno Bee
Pasadena Presbyterian Church
Santa Maria Valley R. R. Co.
KVOS, Inc.
Portable Wireless Tel. Co.
E. R. Irey and F. M. Bowles
First Universalist Church
Coliseum Place Baptist Church
Washington Light Infantry
C. L. Carrell
State School of Mines
C. E. Whitmore
Norman R. Hoffman
Matheson Radio Co., Inc.
First Baptist Church
St. John's Catholic Church
St. Norbert's College
WIBX, Inc.
Missouri Broadcasting Corp.
Hummer Furniture Co.
Wm. Gushard Dry Goods Co.
Charles C. Carlson, Jr.
Kirk Johnson & Co.
American Brdcstg. Corp. of Ky.
Robert Allen Gamble
Kingshighway Pres. Church
Waterloo Broadcasting Co.
John Brownlee Spriggs
Home Cut Glass & China Co.
First Congregational Church
K. & B. Electric Co.
The Radio Club, Inc.
R. E. Martin
Hammond-Calumet Brdcstg. Co.
Alberto Palos Sauza
Cerveceria de Durango, S. A.
Bernardo Barrie

KCYS.
1200
MTRS.
249.9
DIAL

CUT OUT ON DOTTED LINES

1210 kilocycles 247.8 meters

CFCO	50	Chatham, Ont.	Western Ontario "Better Radio" Club
CFNB	50	Fredericton, N. B.	James S. Neill & Sons, Ltd.
CHWK	5	Chilliwack, B. C.	Chilliwack Brdcstg. Co., Ltd.
CKMC	15	Cobalt, Ont.	R. L. MacAdam
CKPC	50	Preston, Ont.	Wallace Russ
KDLR	100	Devils Lake, N. D.	Radio Electric Co.
KFOR	100	Lincoln, Nebr.	Howard A. Shuman
KFVS	100	Cape Girardeau, Mo.	Hirsch Battery & Radio Co.
KGCR	100	Watertown, S. D.	Cutler's Radio Brdcstg. Service
KPCB	50	Seattle, Wash.	Pacific Coast Biscuit Co.
KPQ	100	Seattle, Wash.	Taft & Wasmer, Inc.
KWEA	100	Shreveport, La.	William E. Antony
WBAX	100	Wilkes-Barre, Pa.	John H. Stenger, Jr.
WCBS	100	Springfield, Ill.	H. L. Dewing & Chas. Messter
WCOH	100	Yonkers, N. Y.	Westchester Brdcstg. Corp.
WCRW	100	Chicago, Ill.	Clinton R. White
WDWF	100	Cranston, R. I.	Dutee W. Flint
WEBE	100	Cambridge, Ohio	Roy W. Waller
WEBQ	100	Harrisburg, Ill.	First Trust & Savings Bank
WEDC	100	Chicago, Ill.	Emil Denemark, Inc.
WGBB	100	Freeport, N. Y.	Harry H. Carman
WGCM	100	Gulfport, Miss	Gulf Coast Music Co., Inc.
WHBF	100	Rock Island, Ill.	Beardsley Specialty Co.
WHBU	100	Anderson, Ind.	Citizens Bank
WIBA	100	Madison, Wis.	Capital Times-Strand Theatre
WINR	100	Bay Shore, N. Y.	Radiotel Mfg. Co., Inc.
WJBI	100	Red Bank, N. J.	Robert S. Johnson
WJBU	100	Lewisburg, Pa.	Bucknell University
WJBY	50	Gadsden, Ala.	Charles J. Black
WJW	100	Mansfield, Ohio	Mansfield Broadcasting Assn.
WLCI	50	Ithaca, N. Y.	Lutheran Assn. of Ithaca
WLSI	100	Cranston, R. I.	The Lincoln Studios, Inc.
WMAN	50	Columbus, Ohio	W. E. Heskett
WMBG	100	Richmond, Va.	Havens & Martin, Inc.
WMBR	100	Tampa, Fla.	F. J. Reynolds
WOCL	25	Jamestown, N. Y.	A. E. Newton
WOMT	100	Manitowoc, Wis.	Francis M. Kadow
WPAW	100	Pawtucket, R. I.	Shartenburg & Robinson Co.
WRBQ	100	Greenville, Miss.	J. Pat Scully
WRBU	100	Gastonia, N. C.	A. J. Kirby Music Co.
WSBC	100	Chicago, Ill.	World Battery Co., Inc.
WSIX	100	Springfield, Tenn.	638 Tire & Vulcanizing Co.
WTAX	50	Streator, Ill.	Williams Hardware Co.

1220 kilocycles 245.8 meters

KFKU	1000	Lawrence, Kans.	University of Kansas
WCAD	500	Canton, N. Y.	St. Lawrence University
WCAE	500	Pittsburgh, Pa.	Kaufman & Baer Co., Inc.
WREN	1000	Lawrence, Kans.	Jenny Wren Co.

1230 kilocycles 243.8 meters

KFIO	100	Spokane, Wash.	Spokane Broadcasting Corp.
KFQD	100	Anchorage, Alaska	Anchorage Radio Club
KGGM	500	Albuquerque, N. Mex.	New Mexico Broadcasting Co.
KYA	1000	San Francisco, Cal.	Pacific Broadcasting Corp.
WBIS	1000	Boston, Mass.	Shepard-Norwell Co.
WFBM	1000	Indianapolis, Ind.	Indianapolis Power & Light Co.
WNAC	1000	Boston, Mass.	Shepard-Norwell Co.
WPSC	500	State College, Pa.	Pennsylvania State College
WSBT	500	South Bend, Ind.	South Bend Tribune

1240 kilocycles 241.8 meters

KTAT	1000	Ft. Worth, Texas	Texas Air Transport Brdcst. Co.
WGHP	750	Detroit, Mich.	American Brdcstg. Corp.
WJAD	1000	Waco, Texas	Frank P. Jackson
WQAM	1000	Miami, Fla.	Miami Brdcstg. Co.
WRBC	500	Valparaiso, Ind.	Immanuel Lutheran Church

1250 kilocycles 239.9 meters

KFMX	1000	Northfield, Minn.	Carleton College
KFOX	1000	Long Beach, Cal.	Nichols & Warinner, Inc.
KIDO	1000	Boise, Idaho	Boise Brdcstg. Station
KXL	500	Portland, Ore.	KXL Broadcasters, Inc.
WAAM	1000	Newark, N. J.	WAAM, Inc.
WCAL	1000	Northfield, Minn.	St. Olaf College
WDSU	1000	New Orleans, La.	Jos. H. Uhalt
WGCP	250	Newark, N. J.	May Radio Broadcast Corp.
WGMS	500	Minneapolis, Minn.	University of Minnesota
WLB	500	Minneapolis, Minn.	Washburn-Crosby Co.
WODA	1000	Paterson, N. J.	Richard E. O'Dea
WRHM	1000	Minneapolis, Minn.	Rosedale Hospital Co., Inc.

1260 kilocycles 238.0 meters

KOIL	1000	Council Bluffs, Iowa	Mona Motor Oil Co.
KRGV	500	Harlingen, Texas	Valley Radio-Electric Corp.
KVOA	500	Tucson, Ariz.	Robert M. Riculfi
KWWG	500	Brownsville, Texas	Chamber of Commerce
WJAX	1000	Jacksonville, Fla.	City of Jacksonville
WLBW	500	Oil City, Pa.	Petroleum Telephone Co.

1270 kilocycles 236.1 meters

KFUM	1000	Colorado Spgs., Colo.	W. D. Corley
KGCA	50	Decorah, Iowa	Charles W. Greenley
KOL	1000	Seattle, Wash.	Seattle Brdcstg. Co., Inc.
KTW	1000	Seattle, Wash.	First Presbyterian Church
KWLC	100	Decorah, Iowa	Luther College
WASH	500	Grand Rapids, Mich.	WASH Broadcasting Corp.
WEAI	500	Ithaca, N. Y.	Cornell University
WFBR	250	Baltimore, Md.	Baltimore Radio Show, Inc.
WJDX	500	Jackson, Miss.	Lamar Life Insurance Co.
WOOD	500	Grand Rapids, Mich.	Walter B. Stiles, Inc.

1280 kilocycles 234.2 meters

WCAM	500	Camden, N. J.	City of Camden
WCAP	500	Asbury Park, N. J.	Radio Industries Broadcast Co.
WDAY	1000	Fargo, N. D.	WDAY, Inc.
WDOD	1000	Chattanooga, Tenn.	Chattanooga Radio Co., Inc.
WEBC	1000	Duluth, Minn.	Head of Lake Brdcstg. Co.
WOAX	500	Trenton, N. J.	Franklyn J. Wolff
WRR	500	Dallas, Texas	City of Dallas
2LR	50	Havana, Cuba	Jose Lara

1290 kilocycles 232.4 meters

KDYL	1000	Salt Lake City	Intermountain Brdcstg. Corp.
KFUL	1000	Galveston, Texas	Will H. Ford
KLCN	50	Blytheville, Ark.	C. L. Lintzenich
KTSA	1000	San Antonio, Texas	Lone Star Broadcast Co.
WJAS	1000	Pittsburgh, Pa.	Pittsburgh Radio Supply House
WNBZ	50	Saranac Lake, N. Y.	Smith & Mace

1300 kilocycles 230.6 meters

KFH	500	Wichita, Kansas	Radio Station KFH Co.
KFJR	500	Portland, Ore.	Ashley C. Dixon & Son
KGEF	1000	Los Angeles, Cal.	Trinity Methodist Church
KTBI	750	Los Angeles, Cal.	Bible Institute of Los Angeles
KTBR	500	Portland, Ore.	M. E. Brown
WBBR	1000	Rossville, N. Y.	Peoples Pulpit Association
WEVD	500	New York City	Debs Memorial Radio Fund, Inc.
WHAP	1000	New York City	Defenders of Truth Society, Inc.
WHAZ	500	Troy, N. Y.	Rensselaer Polytechnic Institute
WIBW	1000	Topeka, Kansas	Topeka Brdcstg. Assn. Inc.

1310 kilocycles 228.9 meters

KFBK	100	Sacramento, Cal.	Jas. McClatchy Co.
KFGQ	100	Boone, Iowa	Boone Biblical College
KFJY	100	Ft. Dodge, Iowa	C. S. Tunwall

KCYS.
1310
MTRS.
228.9
DIAL

CUT OUT ON DOTTED LINES

KFPL	15	Dublin, Texas	C. C. Baxter
KFPM	15	Greenville, Texas	The New Furniture Co.
KFUP	100	Denver, Colo.	Fitzsimmons General Hospital
KFXJ	50	Edgewater, Colo.	R. G. Howell
KFXR	100	Oklahoma City	Exchange Ave. Baptist Church
KGEZ	100	Kalispell, Mont.	Chamber of Commerce
KGFW	50	Ravenna, Nebr.	Otto F. Sothman
KGHG	50	McGeehee, Ark.	Chas. W. McCollum
KMED	50	Medford, Ore.	Mrs. W. J. Virgin
KRMD	50	Shreveport, La.	Robert M. Dean
KTSL	100	Shreveport, La.	Houseman Sheet Metal Works, Inc.
KTSM	100	El Paso, Texas	W. S. Bledsoe & W. T. Blackwell
KWCR	100	Cedar Rapids, Iowa.	Harry F. Paar
WAGM	50	Royal Oak, Mich.	Robert L. Miller
WBOW	100	Terre Haute, Ind.	Banks of Wabash, Inc.
WBRE	100	Wilkes-Barre, Pa.	Louis G. Baltimore
WCLS	100	Joliet, Ill.	WCLS, Inc.
WDAH	100	El Paso, Texas	Trinity Methodist Church
WEBR	100	Buffalo, N. Y.	Howell Broadcasting Co., Inc.
WEHS	100	Evanston, Ill.	Victor C. Carlson
WFBG	100	Altoona, Pa.	Wm. F. Gable Co.
WFDF	100	Flint, Mich.	Frank D. Fallain
WFKD	50	Philadelphia, Pa.	Foulkrod Radio Engineering Co.
WGAL	15	Lancaster, Pa.	Lancaster Electric Supply Co.
WGH	100	Newport News, Va.	Virginia Brdcstg. Co., Inc.
WHFC	100	Cicero, Ill.	Triangle Broadcasters
WIBU	100	Poynette, Wis.	William C. Forrest
WJAC	100	Johnstown, Pa.	Johnstown Automobile Co.
WJAK	50	Marion, Ind.	Marion Brdcstg. Co.
WJDZ	100	Winston-Salem, N. C.	Winston-Salem Journal Co.
WKAV	100	Laconia, N. H.	Laconia Radio Club
WKBB	100	Joliet, Ill.	Sanders Bros.
WKBC	100	Birmingham, Ala.	R. B. Broyles Furn. Co.
WKBI	50	Chicago, Ill.	Fred L. Schoenwolf
WKBS	100	Galesburg, Ill.	Permil N. Nelson
WLBC	50	Muncie, Ind.	Donald A. Burton
WMBL	100	Lakeland, Fla.	Benford's Radio Studios
WNAT	100	Philadelphia, Pa.	Lennig Bros. Co.
WNBH	100	New Bedford, Mass.	New Bedford Broadcasting Co.
WNBJ	50	Knoxville, Tenn.	Lonsdale Baptist Church
WOBT	15	Union City, Tenn.	Tittsworth's Radio & Music Shop
WOL	100	Washington, D. C.	American Broadcasting Co.
WRAW	100	Reading, Pa.	Avenue Radio & Electric Shop
WRBI	20	Tifton, Ga.	Kent's Furniture and Music Store
WRK	100	Hamilton, Ohio	S. W. Doron & J. C. Slade
WSAJ	100	Grove City, Pa.	Grove City College
WSMD	100	Salisbury, Md.	Tom F. Little

1320 kilocycles 227.1 meters

KGHF	250	Pueblo, Colo.	C. P. Ritchie & J. E. Finch
KGIQ	250	Twin Falls, Idaho	Radio Broadcasting Corp.
KID	250	Idaho Falls, Idaho	Jack W. Duckworth, Jr.
WADC	1000	Akron, Ohio	Allen T. Simmons
WSMB	500	New Orleans, La.	Saenger Theatre & Maison Blanche

1330 kilocycles 225.4 meters

KSCJ	1000	Sioux City, Iowa	Perkins Bros. Co.
WDRC	500	New Haven, Conn.	Doolittle Radio Corp.
WSAI	500	Cincinnati, Ohio	Crosley Radio Corp., Lessee
WTAQ	1000	Eau Claire, Wis.	Gillette Rubber Co.

1340 kilocycles 223.7 meters

KFPW	50	Carterville, Mo.	Rev. Lannie W. Stewart
KMO	500	Tacoma, Wash.	KMO, Inc.
WSPD	500	Toledo, Ohio	Toledo Broadcasting Co.

1350 kilocycles 222.1 meters

KWK	1000	St. Louis, Mo.	Greater St. Louis Brdcstg. Corp.
WBNY	250	New York City	Baruchrome Corp.
WCDA	250	New York City	Italian Educ. Brdcstg. Co., Inc.
WKBQ	250	New York City	Standard Cahill Co., Inc.
WMSG	250	New York City	Madison Square Garden

1360 kilocycles 220.4 meters

KFBB	500	Havre, Mont.	Buttery Broadcast, Inc.
KGB	250	San Diego, Cal.	Pickwick Brdcstg. Corp.
KGIR	250	Butte, Mont.	Symons Broadcasting Co.
WGES	500	Chicago, Ill.	Oak Leaves Brdcstg. Station, Inc.
WJKS	500	Gary, Ind.	Johnson-Kennedy Radio Corp.
WLEX	500	Lexington, Mass.	Lexington Air Stations
WMAF	500	S. Dartmouth, Mass.	Round Hills Radio Corp.
WQBC	300	Utica, Miss.	Chamber of Commerce

1370 kilocycles 218.7 meters

KCRC	100	Enid, Okla.	Champlin Refining Co.
KFBL	50	Everett, Wash.	Leese Bros.
KFJI	100	Astoria, Ore.	George Kincaid
KFJM	500	Grand Forks, N. D.	University of North Dakota
KFJZ	100	Ft. Worth, Texas	H. C. Meacham
KFLX	100	Galveston, Texas	George Roy Clough
KGAR	100	Tucson, Ariz.	Tucson Motor Service Co.
KGBX	100	St. Joseph, Mo.	Foster-Hall Tire Co.
KGCI	100	San Antonio, Texas	Liberto Radio Sales Co.
KGDA	50	Dell Rapids, S. D.	Home Auto Co.
KGER	100	Long Beach, Cal.	C. Merwin Dobyns
KGFG	100	Oklahoma City	Faith Tabernacle Assn.
KGFL	50	Raton, N. M.	Hubbard & Murphy
KGKL	100	San Angelo, Texas	KGKL Inc., Opr. by Ragsdale Auto Co.
KGRC	100	San Antonio, Texas	Eugene J. Roth
KIT	50	Yakima, Wash.	Carl E. Haymond
KLO	100	Ogden, Utah	Peery Building Co.
KOH	100	Reno, Nevada	Jay Peters
KOOS	50	Marshfield, Ore.	H. H. Hanseth
KRE	100	Berkeley, Cal.	First Congregational Church
KVL	100	Seattle, Wash.	Arthur C. Dailey
KWKC	100	Kansas City, Mo.	Wilson Duncan Brdcstg. Co.
KZM	100	Hayward, Cal.	Leon P. Tenney
WBBL	100	Richmond, Va.	Grace Covenant Presbyterian Church
WCBM	100	Baltimore, Md.	Baltimore Brdcstg. Corp.
WELK	100	Philadelphia, Pa.	Howard R. Miller
WFBJ	100	Collegeville, Minn.	St. John's University
WGL	100	Fort Wayne, Ind.	Fred C. Zieg
WHBD	100	Bellefontaine, Ohio	F. P. Moler
WHBQ	100	Memphis, Tenn.	Broadcasting Station WHBQ, Inc.
WHDF	100	Calumet, Mich.	Upper Michigan Brdcstg. Co.
WIBM	100	Jackson, Mich.	C. L. Carrell
WJBK	50	Ypsilanti, Mich.	James F. Hopkins
WJBO	100	New Orleans, La.	Valdemar Jensen
WJDW	100	Emory, Va.	Emory & Henry College
WMBO	100	Auburn, N. Y.	Radio Service Laboratories
WRAK	50	Erie, Pa.	C. R. Cummins
WRBT	100	Wilmington, N. C.	Wilmington Radio Association
WRJN	100	Racine, Wis.	Racine Broadcasting Corp.
WSVS	50	Buffalo, N. Y.	Seneca Vocational School

KCYS.
1390
MTRS.
215.7
DIAL

1380 kilocycles 217.3 meters

KQV	500	Pittsburgh, Pa.	Doubleday-Hill Electric Co.
KSO	500	Clarinda, Iowa	Berry Seed Co.
WKBH	1000	La Crosse, Wis.	Joseph Callaway
WSMK	200	Dayton, Ohio	Stanley M. Krohn, Jr.

1390 kilocycles 215.7 meters

KFPY	500	Spokane, Wash.	Symons Broadcasting Co.
KLRA	1000	Little Rock, Ark.	Arkansas Broadcasting Co.
KOY	500	Phoenix, Ariz.	Nielson Radio Supply Co.
KUOA	1000	Fayetteville, Ark.	University of Arkansas
KWSC	500	Pullman, Wash.	State College of Washington
WHK	1000	Cleveland, Ohio	Radio Air Service Corp.

CUT OUT ON DOTTED LINES

1400 kilocycles 214.2 meters

KOCW	250	Chickasha, Okla.	College for Women
WBBC	500	Brooklyn, N. Y.	Brooklyn Broadcasting Corp.
WCGU	500	Coney Island, N. Y.	U. S. Broadcasting Corp.
WCMA	500	Culver, Ind.	Culver Military Academy
WKBF	500	Indianapolis, Ind.	Indianapolis Broadcasting, Inc.
WLTH	500	Brooklyn, N. Y.	The Voice of Brooklyn, Inc.
WSDA	500	Brooklyn, N. Y.	Amateur Radio Specialty Co.
WSGH	500	Brooklyn, N. Y.	Amateur Radio Specialty Co.

1410 kilocycles 212.6 meters

KFLV	500	Rockford, Ill.	A. T. Frykman
KGRS	1000	Amarillo, Texas	Gish Radio Service
WBCM	500	Bay City, Mich.	James E. Davidson
WDAG	250	Amarillo, Texas	National Radio & Brdcstg. Corp.
WHBL	500	Sheboygan, Wis.	Press Pub. Co. & C. L. Carrell
WSGP	500	Savannah, Ga.	Chamber of Commerce

1420 kilocycles 211.1 meters

KFIF	100	Portland, Ore.	Benson Polytechnic Institute
KFIZ	100	Fond du Lac, Wis.	Reporter Printing Co.
KFQU	100	Holy City, Cal.	W. E. Riker
KFQW	100	Seattle, Wash.	KFQW, Inc.
KFXD	50	Jerome, Idaho	Service Radio Co.
KFXY	100	Flagstaff, Ariz.	Mary M. Costigan
KFYO	100	Abilene, Texas	T. E. Kirksey
KGCX	10	Vida, Mont.	First State Bank
KGFF	100	Alva, Okla.	KGFF Broadcasting Co.
KGFJ	100	Los Angeles, Cal.	Ben S. McGlashan
KGGC	50	San Francisco, Cal.	Golden Gate Brdcstg. Co.
KGIW	100	Trinidad, Colo.	Trinidad Creamery Co., Inc.
KGIX	100	Las Vegas, Nevada	J. M. Heaton
KGKX	15	Sand Point, Idaho	C. E. Twiss
KICK	100	Red Oak, Iowa	Red Oak Radio Corp.
KORE	100	Eugene, Ore.	Eugene Broadcasting Station
KTAP	100	San Antonio, Texas	Alamo Brdcstg. Co.
KTUE	5	Houston, Texas	Uhalt Electric
KXRO	75	Aberdeen, Wash.	KXRO, Inc.
WEDH	30	Erie, Pa.	Erie Dispatch-Herald
WHDL	10	Tupper Lake, N. Y.	George Franklin Bissell
WHIS	100	Bluefield, W. Va.	Daily Telegraph
WIAS	100	Ottumwa, Iowa	Poling Electric Co.
WIBR	50	Steubenville, Ohio	George W. Robinson
WILM	100	Wilmington, Del.	Delaware Broadcasting Co., Inc.
WKBP	50	Battle Creek, Mich.	Enquirer-News Co.
WLBF	100	Kansas City, Mo.	Everett L. Dillard
WLEY	100	Lexington, Mass.	Lexington Air Stations
WMBC	100	Detroit, Mich.	Michigan Broadcasting Co., Inc.
WMBH	100	Joplin, Mo.	Edwin Dudley Aber
WMRJ	10	Jamaica, N. Y.	Peter J. Prinz
WPOE	30	Patchogue, N. Y.	Nassau Broadcasting Corp.
WQBZ	60	Weirton, W. Va.	J. H. Thompson
WSSH	100	Boston, Mass.	Tremont Temple Baptist Church
WTBO	50	Cumberland, Md.	Cumberland Broadcasting Co.

1430 kilocycles 209.7 meters

WBAK	500	Harrisburg, Pa.	Penna. State Police
WBRL	500	Manchester, N. H.	Booth Radio Laboratories
WCAH	500	Columbus, Ohio	Commercial Radio Service Co.
WGBC	500	Memphis, Tenn.	First Baptist Church
WHP	500	Harrisburg, Pa.	Pennsylvania Brdcstg. Co.
WNBR	500	Memphis, Tenn.	John Ulrich

1440 kilocycles 208.2 meters

KLS	250	Oakland, Cal.	Warner Bros.
WABO	500	Rochester, N. Y.	Hickson Electric Co.
WCBA	250	Allentown, Pa.	B. B. Musselman
WHEC	500	Rochester, N. Y.	Hickson Electric Co.

WMBD	500	Peoria Heights, Ill.	Peoria Heights Radio Laboratory
WNRC	250	Greensboro, N. C.	Wayne M. Nelson
WOKO	500	Poughkeepsie, N. Y.	Harold E. Smith
WSAN	250	Allentown, Pa.	Allentown Call Publishing Co.
WTAD	500	Quincy, Ill.	Ills. Stock Medicine Brdcstg. Corp.

1450 kilocycles 206.8 meters

KTBS	1000	Shreveport, La.	Elliott & Steere
WBMS	250	Fort Lee, N. J.	WBMS Broadcasting Corp.
WCSO	500	Springfield, Ohio	Wittenberg College
WFJC	500	Akron, Ohio	W. F. Jones Broadcast, Inc.
WIBS	250	Elizabeth, N. J.	New Jersey Broadcasting Corp.
WKBO	250	Jersey City, N. J.	Camith Corp.
WNJ	250	Newark, N. J.	Radio Investment Co.
WSAR	250	Fall River, Mass.	Doughty & Welch Electric Co.
WTFI	250	Toccoa, Ga.	Toccoa Falls Institute

1460 kilocycles 205.4 meters

KSTP	10000	St. Paul, Minn.	National Battery Brdcstg. Co.
WJSV	10000	Mt. Vernon Hills, Va.	Independent Publishing Co.

1470 kilocycles 204.0 meters

KFJF	5000	Oklahoma City	National Radio Mfg. Co.
KGA	5000	Spokane, Wash.	Northwest Radio Service Co.
WKBW	5000	Buffalo, N. Y.	Churchill Evangelistic Assn.
WRUF	5000	Gainesville, Fla.	University of Florida

1480 kilocycles 202.6 meters

WCKY	5000	Covington, Ky.	L. B. Wilson, Inc.
WJAZ	5000	Chicago, Ill.	Zenith Radio Corp.
WORD	5000	Chicago, Ill.	People's Pulpit Association
WSOA	5000	Forest Park, Ill.	Radiophone Brdcstg. Corp.

1490 kilocycles 201.2 meters

KPWF	5000	Westminster, Cal.	Pacific Western Brdcstg. Fed.
WFBL	750	Syracuse, N. Y.	The Onondaga Co.
WLAC	5000	Nashville, Tenn.	Life & Casualty Insurance Co.
WTNT	5000	Nashville, Tenn.	Tennessee Publishing Co.

1500 kilocycles 199.9 meters

KDB	100	Santa Barbara, Cal.	Santa Barbara Brdcstg. Co.
KGDR	100	San Antonio, Texas	KGDR Brdcstg. Co.
KGFI	100	Corpus Christi, Texas	Eagle Brdcstg. Co., Inc.
KGHI	100	Little Rock, Ark.	Berean Bible Class
KGHX	50	Richmond, Texas	Ft. Bend County School Board
KGKB	100	Brownwood, Texas	Eagle Publishing Co.
KPJM	100	Prescott, Ariz.	Miller & Klahn
KUJ	10	Longview, Wash.	Columbia Brdcstg. Co., Inc.
KWBS	15	Portland, Ore.	Schaeffer Radio Co.
KWTC	100	Santa Ana, Cal.	Pacific Western Brdcstg. Foundation
WCLB	100	Brooklyn, N. Y.	Arthur Faske
WKBV	100	Brookville, Ind.	Knox Battery & Electric Co.
WKBZ	50	Ludington, Mich.	K. L. Ashbacker
WLBX	100	Long Island City, N. Y.	John N. Brahy
WLOE	100	Boston, Mass.	Boston Brdcstg. Co.
WMBA	100	Newport, R. I.	LeRoy Joseph Beebe
WMBJ	100	Pittsburgh, Pa.	Rev. John W. Sproul
WMBQ	100	Brooklyn, N. Y.	Paul J. Gollhofer
WMES	50	Boston, Mass.	Mass. Educational Society
WMPC	100	Lapeer, Mich.	First M. E. Church
WNBF	50	Binghamton, N. Y.	Hewitt-Wood Radio Co.
WOPI	100	Bristol, Tenn.	Radiophone Service Co.
WPEN	100	Philadelphia, Pa.	Wm. Penn Broadcasting Co.
WRBJ	10	Hattiesburg, Miss.	Woodruff Furniture Co., Inc.
WWRL	100	Woodside, N. Y.	Long Island Brdcstg. Corp.

KCYS.
1500
MTRS.
199.9
DIAL

INDEX BY LOCATIONS WITH MAP KEY

ALABAMA			
Birmingham K-19-a	5000	WAPI	1140
	100	WBRC	930
	10	WKBC	1310
Gadsden K-20-a	50	WJBY	1210
ALASKA			
Anchorage	100	KFQD	1230
Ketchikan	500	KGBU	900
ARIZONA			
Flagstaff J-7	100	KFXY	1420
Phoenix K-7	500	KFAD	620
	500	KOY	1390
Prescott J-6	100	KPJM	1500
Tucson L-7	100	KGAR	1370
	500	KVOA	1260
ARKANSAS			
Blytheville I-18	50	KLCN	1290
Fayettesville I-16	1000	KUOA	1390
Hot Springs J-16	10000	KTHS	1040
Little Rock J-17	100	KGHI	1500
	250	KGJF	890
	1000	KLRA	1390
McGehee K-17	50	KGHG	1310
CALIFORNIA			
Berkeley H-1-a	100	KRE	1370
Burbank J-4	500	KELW	780
Culver City K-3	250	KFVD	710
El Centro K-5	100	KXO	1200
Fresno I-3	100	KMJ	1200
Hayward H-2	100	KZM	1370
Hollywood K-3	250	KFQZ	850
	1000	KFWB	950
	500	KMTR	570
Holy City I-2	100	KFQU	1420
Inglewood K-4	500	KMIC	1120
Long Beach K-4-a	1000	KFOX	1250
	100	KGER	1370
Los Angeles K-3-b	500	KEJK	1170
	5000	KFI	640
	500	KFSG	1120
	1000	KGEF	1300
	100	KGFJ	1420
	1000	KHJ	900
	5000	KNX	1050
	1000	KPLA	1000
	500	KTM	780
Oakland H-1-b	750	KTBI	1300
	500	KFWM	930
	7500	KGO	790
	250	KLS	1440
	500	KLX	880
	500	KTAB	550
Pasadena J-4	50	KPPC	1200
	1000	KPSN	950
Pomono	100	KFWC	1200
Sacramento H-2-a	100	KFBK	1310
San Diego K-4-b	500	KFSB	600
	250	KGB	1360
San Francisco H-1-c	1000	KFRC	610
	500	KFWI	930
	50	KGGC	1420
	100	KJBS	1070
	5000	KPO	680
	1000	KYA	1230
San Jose I-2	500	KQW	1010
Santa Ana K-4	100	KWTC	1500
Santa Barbara J-3	100	KDB	1500
Santa Maria J-2-b	100	KSMR	1200
Stockton H-2-b	50	KGDM	1100
	100	KWG	1200
Westminster	5000	KPWF	1490
COLORADO			
Colo. Springs H-10	1000	KFUM	1270
Denver G-10-b	250	KFEL	940
	100	KFUP	1310
	250	KFXF	940
	12500	KOA	830
	500	KPOF	880
Dupont	1000	KLZ	560
Edgewater G-10	50	KFXJ	1310
Fort Morgan G-11	100	KGEW	1200
Greeley F-10	500	KFKA	880
Gunnison H-9	100	KFHA	1200
Pueblo H-11	250	KGHF	1320
Trinidad H-10	100	KGIW	1420
Yuma G-11	50	KGEK	1200
CONNECTICUT			
Bridgeport F-26	500	WICC	1190
Hartford E-26-d	50000	WTIC	1060
Mansfield E-27-I	250	WCAC	600
New Haven F-26-b	500	WDRC	1330
DELAWARE			
Wilmington G-25	250	WDEL	1120
	100	WILM	1420
DISTRICT OF COLUMBIA			
Washington G-24-c	250	WMAL	630
	500	WRC	950
	100	WOL	1310
FLORIDA			
Clearwater N-21	1000	WFLA	900
Gainesville M-21	5000	WRUF	1470
Jacksonville M-22	1000	WJAX	1260
Lakeland N-22	100	WMBL	1310
Miami O-23	1000	WQAM	1240
Miami Beach O-23	1000	WIOD	560
Orlando N-22	1000	WDBO	620
Pensacola L-19	500	WCOA	1120
Sarasota N-22	250	WSIS	1010
St. Petersburg N-21	1000	WSUN	900
Tampa N-22-b	1000	WDAE	620
	100	WMBR	1210
GEORGIA			
Atlanta K-20-a	250	WGST	890
	1000	WSB	740
Columbus K-20	50	WRBL	1200
Macon K-21	250	WMAZ	890
Savannah	500	WSGP	1410
Tifton	20	WRBI	1310
Toccoa J-21	250	WTFI	1450
HAWAII			
Honolulu	500	KGU	940
IDAHO			
Boise D-4	1000	KIDO	1250
Idaho Falls, D-7	250	KID	1320
Jerome E-5	50	KFXD	1420
Pocatello E-7	250	KSEI	900
Sand Point	15	KGKX	1420
Twin Falls E-5	250	KGIQ	1320

INDEX BY LOCATIONS WITH MAP KEY

ILLINOIS

Carthage F-17-e	50	WCAZ	1070
Chicago E-19-g	5000	KFKX	1020
	5000	KYW	1020
	500	WAAF	920
	25000	WBBM	770
	1500	WCFL	970
	100	WCRW	1210
	100	WEDC	1210
	50000	WENR	870
	500	WGES	1360
	25000	WGN	720
	1000	WIBO	570
	5000	WJAZ	1480
	10000	WJBT	780
	50	WKBI	1310
	5000	WLS	870
	5000	WMAQ	670
	5000	WMBI	1080
	5000	WORD	1480
	500	WPCC	570
	100	WSBC	1210
Cicero	100	WHFC	1310
Decatur G-18	100	WJBL	1200
Evanston E-19	100	WEHS	1310
Forest Park	5000	WSOA	1480
Galesburg F-18-a	100	WKBS	1310
Harrisburg H-18-b	100	WEBQ	1210
Joliet E-19-f	100	WCLS	1310
	100	WKBB	1310
La Salle F-18-d	100	WJBC	1200
Mooseheart E-18-e	20000	WJJD	1130
Peoria Heights G-18	500	WMBD	1440
Quincy G-17	500	WTAD	1440
Rockford E-18-c	500	KFLV	1410
Rock Island F-17-c	100	WHBF	1210
Springfield G-18	100	WCBS	1210
Streator F-18-e	50	WTAX	1210
Tuscola G-19-b	100	WDZ	1070
Urbana G-19-a	250	WILL	890
Zion E-19-c	5000	WCBD	1080

INDIANA

Anderson G-20-a	100	WHBU	1210
Brookville G-20	100	WKBV	1500
Culver F-19-d	500	WCMA	1400
Evansville H-19	500	WGBF	630
Fort Wayne F-20-b	100	WGL	1370
	10000	WOWO	1160
Gary F-19	500	WJKS	1360
Hammond F-19	100	WWAE	1200
Indianapolis G-19-c	1000	WFBM	1230
	500	WKBF	1400
La Porte F-19-c	100	WRAF	1200
Marion	50	WJAK	1310
Muncie G-20	50	WLBC	1310
South Bend F-20-a	500	WSBT	1230
Terre Haute G-19	100	WBOW	1310
Valparaiso F-19-b	500	WRBC	1240

IOWA

Ames E-16-c	5000	WOI	560
Boone E-16	100	KFGQ	1310
Cedar Rapids E-17-a	100	KWCR	1310
Clarinda E-15-c	500	KSO	1380
Council Bluffs F-15-b	1000	KOIL	1260
Davenport F-17-a	5000	WOC	1000
Decorah D-17	50	KGCA	1270
	100	KWLC	1270
Des Moines F-16-a	5000	WHO	1000
Fort Dodge E-16-a	100	KFJY	1310
Iowa City E-17-b	500	WSUI	580
Marshalltown E-16-d	100	KFJB	1200
Muscatine F-17-b	5000	KTNT	1170
Ottumwa F-17	100	WIAS	1420
Red Oak F-15	100	KICK	1420
Shenandoah F-15-c	500	KFNF	890
	500	KMA	930
Sioux City E-15	1000	KSCJ	1330
Waterloo F-17	100	WMT	1200

KANSAS

Lawrence G-15-a	1000	KFKU	1220
	1000	WREN	1220
Manhattan G-14-a	500	KSAC	580
Milford G-14	5000	KFKB	1050
Topeka G-14	1000	WIBW	1300
Wichita H-14-a	500	KFH	1300

KENTUCKY

Covington	5000	WCKY	1480
Hopkinsville I-19	1000	WFIW	940
Louisville H-20	5000	WHAS	820
	30	WLAP	1200

LOUISIANA

New Orleans M-17	100	WABZ	1200
	1000	WDSU	1250
	100	WJBO	1370
	30	WJBW	1200
	500	WSMB	1320
	5000	WWL	850
Shreveport K-16	50	KRMD	1310
	1000	KTBS	1450
	100	KTSL	1310
	100	KWEA	1210
	10000	KWKH	850

MAINE

Bangor C-28-b	100	WABI	1200
	250	WLBZ	620
Portland D-28-b	500	WCSH	940

MARYLAND

Baltimore G-24-a	10000	WBAL	1060
	250	WCAO	600
	100	WCBM	1370
	250	WFBR	1270
Cumberland G-23	50	WTBO	1420
Salisbury G-25	100	WSMD	1310

MASSACHUSETTS

Boston E-27-c	1000	WBIS	1230
	500	WBZA	990
	1000	WEEI	590
	100	WLOE	1500
	50	WMES	1500
	1000	WNAC	1230
	100	WSSH	1420
Fall River E-27	250	WSAR	1450
Gloucester E-27	100	WEPS	1200
	1000	WHDH	830
Lexington E-27	500	WLEX	1360
	100	WLEY	1420
New Bedford E-27-g	100	WNBH	1310
S. Dartmouth E-27	500	WMAF	1360
Springfield E-26-b	15000	WBZ	990
Webster E-27-d	100	WORC	1200
Wellesley Hills E-27	250	WBSO	780
Worcester E-27-b	250	WTAG	580

MICHIGAN

Battle Creek E-20	50	WKBP	1420
Bay City D-21	500	WBCM	1410
Berrien Spgs. E-19	1000	WEMC	590
Calumet B-18	100	WHDF	1370

INDEX BY LOCATIONS WITH MAP KEY

Detroit E-21-g	750	WGHP	1240
	5000	WJR	750
	100	WMBC	1420
	1000	WWJ	920
East Lansing E-20-b	1000	WKAR	1040
Flint E-21-a	100	WFDF	1310
Grand Rapids E-20-a	500	WASH	1270
	500	WOOD	1270
Jackson E-20	100	WIBM	1370
Lapeer E-21	100	WMPC	1500
Ludington D-19	50	WKBZ	1500
Royal Oak E-21-e	50	WAGM	1310
Ypsilanti E-21-f	50	WJBK	1370

MINNESOTA

Collegeville C-15	100	WFBJ	1370
Duluth B-17	1000	WEBC	1280
Fergus Falls B-15	50	KGDE	1200
Hallock A-14	50	KGFK	1200
Minneapolis C-16-b	7500	WCCO	810
	1000	WDGY	1180
	500	WGMS	1250
	500	WHDI	1180
	500	WLB	1250
	1000	WRHM	1250
Northfield D-16	1000	KFMX	1250
	1000	WCAL	1250
St. Paul C-16-c	10000	KSTP	1460

MISSISSIPPI

Columbus K-18	500	WCOC	880
Greenville K-17	100	WRBQ	1210
Gulfport M-18	100	WGCM	1210
Hattiesburg L-18	10	WRBJ	1500
Jackson	500	WJDX	1270
Utica L-17	300	WQBC	1360

MISSOURI

Carterville	50	KFPW	1340
Cp. Girardeau H-18-c	100	KFVS	1210
Columbia G-16-b	500	KFRU	630
Independence G-16-c	1000	KMBC	950
Jefferson City H-16-a	500	WOS	630
Joplin H-16	100	WMBH	1420
Kansas City G-15-b	100	KWKC	1370
	1000	WDAF	610
	500	WHB	950
	100	WLBF	1420
	1000	WOQ	610
Kirksville F-16-c	15	KFKZ	1200
St. Joseph G-15	2500	KFEQ	560
	100	KGBX	1370
St. Louis H-18-a	5000	KFQA	1090
	500	KFUO	550
	100	KFWF	1200
	5000	KMOX	1090
	500	KSD	550
	1000	KWK	1350
	1000	WEW	760
	100	WIL	1200
	100	WMAY	1200

MONTANA

Billings C-8	500	KGHL	950
Butte C-7	250	KGIR	1360
Havre A-8	500	KFBB	1360
Kalispell A-5	100	KGEZ	1310
Missoula B-6	500	KUOM	570
Vida B-10	10	KGCX	1420

NEBRASKA

Clay Center G-14	1000	KMMJ	740
Lincoln F-14-b	5000	KFAB	770
	100	KFOR	1210
	500	WCAJ	590
Norfolk E-14-c	1000	WJAG	1060
Omaha F-15-a	500	WAAW	660
	1000	WOW	590
Ravenna F-13	50	KGFW	1310
York F-13	500	KGBZ	930

NEVADA

Las Vegas	100	KGIX	1420
Reno G-3	100	KOH	1370

NEW HAMPSHIRE

Laconia D-27	100	WKAV	1310
Manchester E-27	500	WBRL	1430

NEW JERSEY

Asbury Park G-26	500	WCAP	1280
Atlantic City G-25	5000	WPG	1100
Camden F-25-f	500	WCAM	1280
Elizabeth F-26-h	250	WIBS	1450
Fort Lee F-26	250	WBMS	1450
Jersey City F-26-d	300	WAAT	1070
	250	WKBO	1450
Newark F-25-h	1000	WAAM	1250
	250	WGCP	1250
	250	WNJ	1450
	5000	WOR	710
Paterson F-26-c	1000	WODA	1250
Red Bank G-26	100	WJBI	1210
Trenton F-25	500	WOAX	1280

NEW MEXICO

Albuquerque	500	KGGM	1230
Raton I-11	50	KGFL	1370
State College K-9	10000	KOB	1180

NEW YORK

Auburn E-24	100	WMBO	1370
Bay Shore F-26-h	100	WINR	1210
Binghamton E-25	50	WNBF	1500
Brooklyn F-26-f	500	WBBC	1400
	250	WCDA	1350
	100	WCLB	1500
	500	WLTH	1400
	100	WMBQ	1500
	500	WSGH	1400
Buffalo E-23-a	100	WEBR	1310
	1000	WGR	550
	5000	WKBW	1470
	1000	WKEN	1040
	750	WMAK	900
	50	WSVS	1370
Canton D-25	500	WCAD	1220
Cazenovia E-25-b	250	WMAC	570
Coney Island F-26	500	WCGU	1400
Freeport F-26-1	100	WGBB	1210
Ithaca E-24-d	500	WEAI	1270
	50	WLCI	1210
Jamaica F-26-f	10	WMRJ	1420
Jamestown E-23-b	25	WOCL	1210
Long Island City F-26	100	WLBX	1500

New York City F-26	5000	WABC	850
	250	WBNY	1350
	5000	WBOQ	860
	50000	WEAF	660
	500	WEVD	1300
	500	WGBS	1180
	1000	WHAP	1300
	250	WHN	1010
	30000	WJZ	760
	250	WKBQ	1350
	5000	WLWL	1100
	500	WMCA	570
	250	WMSG	1350
	500	WNYC	570
	1000	WOV	1130
	250	WPAP	1010
	500	WPCH	810
	250	WQAO	1010
	250	WRNY	1010
Patchogue	30	WPOE	1420
Poughkeepsie F-26-a	500	WOKO	1440
Rochester E-24-b	500	WABO	1440
	5000	WHAM	1150
	500	WHEC	1440
Rossville F-26	1000	WBBR	1300
Saranac Lake D-26	50	WNBZ	1290
Schenectady E-25-c	50000	WGY	790
Syracuse E-24-c	750	WFBL	900
	250	WSYR	570
Troy E-21-a	500	WHAZ	1300
Tupper Lake D-25	10	WHDL	1420
Utica E-25-a	100	WIBX	1200
Woodside F-26	100	WWRL	1500
Yonkers E-26	100	WCOH	1210

NORTH CAROLINA

Asheville J-21	1000	WWNC	570
Charlotte J-22	5000	WBT	1080
Gastonia J-22	100	WRBU	1210
Greensboro I-22	250	WNRC	1440
Raleigh I-23	1000	WPTF	680
Wilmington J-24	50	WRBT	1370
Winston-Salem	100	WJDZ	1310

NORTH DAKOTA

Bismarck B-12	500	KFYR	550
Devils Lake A-13	100	KDLR	1210
Fargo B-14	1000	WDAY	1280
Grand Forks A-14	500	KFJM	1370
Mandan B-12	100	KGCU	1200

OHIO

Akron F-22-b	1000	WADC	1320
	500	WFJC	1450
Bellefontaine G-21-a	100	WHBD	1370
Cambridge F-22	100	WEBE	1210
Canton F-22-d	10	WHBC	1200
Cincinnati G-20-e	500	WKRC	550
	5000	WLW	700
	500	WSAI	1330
Cleveland F-22-a	1000	WEAR	1070
	1000	WHK	1390
	500	WJAY	620
	3500	WTAM	1070
Columbus G-21-b	500	WAIU	640
	500	WCAH	1430
	750	WEAO	570
	50	WMAN	1210
Dayton G-21-e	200	WSMK	1380
Hamilton G-20-d	100	WRK	1310
Mansfield F-21	100	WJW	1210
Springfield G-21-c	500	WCSO	1450
Steubenville F-22	50	WIBR	1420
Toledo F-21-a	500	WSPD	1340
Youngstown F-22	500	WKBN	570

OKLAHOMA

Alva I-13	100	KGFF	1420
Chickasha J-14-b	250	KOCW	1400
Enid I-14	100	KCRC	1370
Norman J-14-a	500	WNAD	1010
Oklahoma I-14-b	5000	KFJF	1470
	100	KFXR	1310
	100	KGFG	1370
	1000	WKY	900
Picher I-15	500	KGGF	1010
Ponca City I-14	100	WBBZ	1200
Tulsa I-15	5000	KVOO	1140

OREGON

Astoria C-1-a	100	KFJI	1370
Corvallis D-1	1000	KOAC	560
Eugene D-1	100	KORE	1420
Marshfield E-1	50	KOOS	1370
Medford E-1	50	KMED	1310
Portland C-1-b	5000	KEX	1180
	100	KFIF	1420
	500	KFJR	1300
	1000	KGW	620
	1000	KOIN	940
	500	KTBR	1300
	15	KWBS	1500
	500	KWJJ	1060
	500	KXL	1250

PENNSYLVANIA

Allentown F-25-c	250	WCBA	1440
	250	WSAN	1440
Altoona F-24-c	100	WFBG	1310
Carbondale F-25	5	WNBW	1200
Elkins Park G-25-c	50	WIBG	930
Erie E-23	30	WEDH	1420
	50	WRAK	1370
Grove City F-23-b	100	WSAJ	1310
Harrisburg F-24-d	500	WBAK	1430
	100	WCOD	1200
	500	WHP	1430
Johnstown F-23-d	100	WJAC	1310
Lancaster G-25-a	15	WGAL	1310
	100	WKJC	1200
Lewisburg F-24-b	100	WJBU	1210
Oil City F-23-a	500	WLBW	1260
Philadelphia G-25-d	10000	WCAU	1170
	100	WELK	1370
	500	WFAN	610
	500	WFI	560
	50	WFKD	1310
	500	WIP	610
	500	WLIT	560
	100	WNAT	1310
	100	WPEN	1500
	250	WRAX	1020
Pittsburgh F-23-c	50000	KDKA	980
	500	KQV	1380
	500	WCAE	1220
	1000	WJAS	1290
	100	WMBJ	1500
Reading F-25-d	100	WRAW	1310
Scranton F-25-a	250	WGBI	880
	250	WQAN	880
State College F-24-a	500	WPSC	1230
Washington F-23	100	WNBO	1200
Wilkes-Barre F-25-b	100	WBAX	1210
	100	WBRE	1310

PORTO RICO

San Juan	500	WKAQ	890

RHODE ISLAND

Cranston F-27-a	100	WDWF	1210
	100	WLSI	1210
Newport F-27	100	WMBA	1500
Pawtucket E-27	100	WPAW	1210
Providence E-27-h	250	WEAN	550
	250	WJAR	890

SOUTH CAROLINA

Charleston K-23	75	WBBY	1200

SOUTH DAKOTA

Brookings D-14	1000	KFDY	550
Dell Rapids D-14	50	KGDA	1370
Oldham D-14	15	KGDY	1200
Pierre D-12	200	KGFX	580
Rapid City D-11	100	WCAT	1200
Sioux Falls D-14	2000	KSOO	1150
Vermillion E-14-b	500	KUSD	890
Watertown	100	KGCR	1210
Yankton E-14-a	1000	WNAX	570

TENNESSEE

Bristol	100	WOPI	1500
Chattanooga J-20	1000	WDOD	1280
Knoxville I-20	50	WFBC	1200
	50	WNBJ	1310
	1000	WNOX	560
Lawrenceburg J-19	500	WOAN	600
Memphis J-18-a	500	WGBC	1430
	100	WHBQ	1370
	500	WMC	780
	500	WNBR	1430
	500	WREC	600
Nashville I-19	5000	WLAC	1490
	5000	WSM	650
	5000	WTNT	1490
Springfield I-19	100	WSIX	1210
Union City I-18	15	WOBT	1310

TEXAS

Amarillo J-12	1000	KGRS	1410
	250	WDAG	1410
Austin L-14-b	500	KUT	1120
Beaumont M-16	500	KFDM	560
Breckenridge K-13	100	KFYO	1420
Brownsville O-14-b	500	KWWG	1260
Brownwood L-13	100	KGKB	1500
College Sta. M-13	500	WTAW	1120
Corpus Christi	100	KGFI	1500
Dallas L-15-a	10000	KRLD	1040
	500	WFAA	800
	500	WRR	1280
Dublin K-14	15	KFPL	1310
El Paso L-10	100	KTSM	1310
	100	WDAH	1310
Fort Worth L-14-a	100	KFJZ	1370
	1000	KTAT	1240
	50000	WBAP	800
Galveston M-15-b	100	KFLX	1370
	1000	KFUL	1290
Greenville K-15	15	KFPM	1310
Harlingen O-14	500	KRGV	1260
Houston M-15-a	1000	KPRC	920
	5	KTUE	1420
Richmond M-15	50	KGHX	1500
San Angelo M-12	100	KGKL	1370
San Antonio M-14-a	100	KGCI	1370
	100	KGDR	1500
	100	KGRC	1370
	100	KTAP	1420
	1000	KTSA	1290
	5000	WOAI	1190
Waco L-15-b	1000	WJAD	1240
Wichita Falls K-14	250	KGKO	570

UTAH

Ogden F-7-b	100	KLO	1370
Salt Lake City F-7-c	1000	KDYL	1290
	5000	KSL	1130

VERMONT

Springfield D-26-b	10	WNBX	1200

VIRGINIA

Arlington G-24-d	1000	NAA	690
Emory	100	WJDW	1370
Ettrick	100	WLBG	1200
Mt. Vernon Hills	1000	WJSV	1460
Newport News	100	WGH	1310
Norfolk I-24	500	WPOR	780
	500	WTAR	780
Richmond H-24	100	WBBL	1370
	100	WMBG	1210
	1000	WRVA	1110
Roanoke H-23	250	WDBJ	930

WASHINGTON

Aberdeen B-1	75	KXRO	1420
Bellingham A-1	100	KVOS	1200
Everett A-2	50	KFBL	1370
Lacey B-2-b	10	KGY	1200
Longview B-1	10	KUJ	1500
Pullman B-4	500	KWSC	1390
Seattle B-2-a	100	KFQW	1420
	5000	KJR	970
	1000	KOL	1270
	1000	KOMO	920
	50	KPCB	1210
	100	KPQ	1210
	50	KRSC	1120
	1000	KTW	1270
	100	KVL	1370
	500	KXA	570
Spokane A-4	100	KFIO	1230
	500	KFPY	1390
	5000	KGA	1470
	1000	KHQ	590
Tacoma B-1-a	500	KMO	1340
	1000	KVI	760
Yakima	50	KIT	1370

WEST VIRGINIA

Bluefield	100	WHIS	1420
Charleston H-22	250	WOBU	580
Fairmount G-23	250	WMMN	890
Huntington G-22	250	WSAZ	580
Weirton G-22	60	WQBZ	1420
Wheeling G-22	250	WWVA	1160

WISCONSIN

Beloit E-18-b	350	WEBW	600
Eau Claire D-17	1000	WTAQ	1330
Fond du Lac D-18-d	100	KFIZ	1420
Kenosha E-19	100	WCLO	1200
La Crosse E-17	1000	WKBH	1380
Madison E-18-2	750	WHA	940
	100	WIBA	1210
Manitowoc D-19	100	WOMT	1210

INDEX BY LOCATIONS WITH MAP KEY

Milwaukee E-19-a	250	WHAD	1120
	250	WISN	1120
	1000	WTMJ	620
Poynette D-18-e	100	WIBU	1310
Racine E-19	100	WRJN	1370
Sheboygan C-18	500	WHBL	1410
Stevens Pt. D-18-b	2000	WLBL	900
West De Pere D-19	100	WHBY	1200

WYOMING

Laramie F-10	500	KWYO	600

CANADA

ALBERTA

Calgary	500	CFAC	690
	500	CFCN	690
	500	CHCA	690
	500	CJCJ	690
	500	CNRC	690
Edmonton	250	CHMA	580
	500	CJCA	580
	500	CKUA	580
	500	CNRE	580
Lethbridge	50	CJOC	1120
Red Deer	1000	CHCT	840
	1000	CKLC	840

BRITISH COLUMBIA

Chilliwack	5	CHWK	1210
Kamloops	15	CFJC	1120
Sea Island	50	CJOR	1030
Vancouver	50	CHLS	730
	50	CKCD	730
	50	CKFC	730
	50	CKMO	730
	100	CKWX	730
	500	CNRV	1030
Victoria	500	CFCT	630

MANITOBA

Brandon	500	CKX	540
Winnipeg	5000	CKY	780
	5000	CNRW	780

NEW BRUNSWICK

Fredericton	50	CFNB	1210
Moncton	500	CNRA	630
St. John	50	CFBO	890

NOVA SCOTIA

Halifax	500	CHNS	930
Sydney	50	CJCB	880
Wolfville	50	CKIC	930

ONTARIO

Bowmanville	5000	CKGW	960
Brantford	50	CKCR	1010
Chatham	50	CFCO	1210
Cobalt	15	CKMC	1210
Hamilton	10	CHCS	880
	50	CHML	880
	50	CKOC	880
Iroquois Falls	250	CFCH	600
King Twp.	4000	CFRB	960
Kingston	500	CFRC	1120
London	500	CJGC	910
	500	CNRL	910
Midland	50	CKPR	1120
Ottawa	100	CKCO	690
	500	CNRO	690
Prescott	50	CFLC	1010
Preston	50	CKPC	1210
Toronto	500	CFCA	840
	500	CFCL	580
	500	CJBC	580
	1000	CJBC	840
	5000	CJBC	960
	500	CJSC	580
	500	CKCL	580
	500	CKNC	580
	500	CKOW	840
	500	CNRT	840

PRINCE EDWARD ISLAND

Charlottetown	250	CFCY	960
	30	CHCK	960
Summerside	25	CHGS	1120

QUEBEC

Montreal	1650	CFCF	1030
	500	CHYC	730
	5000	CKAC	730
	1650	CNRM	730
Quebec	25	CHRC	880
	22	CKCI	880
	50	CKCV	880
	50	CNRQ	880
St. Hyacinthe	50	CKSH	1010

SASKATCHEWAN

Fleming	500	CJRW	600
Moose Jaw	500	CJRM	600
Pilot Butte	500	CHWC	960
Regina	500	CJBR	960
	500	CKCK	960
	500	CNRR	960
Saskatoon	500	CFQC	910
	250	CJHS	910
	500	CNRS	910
Yorkton	500	CJGX	630

HAITI

Port au Prince	1000	HHK	830

MEXICO

Chihuahua	250	XFF	920
C. Lerdo, Dgo	250	XES	1200
Guadalajara, Jal.	101	XEA	1200
Jalapa, Ver.	350	XFC	630
Merida, Yucatan	105	XEY	550
Mexico City	1000	XEB	670
	1000	XEN	730
	500	XEX	920
	50	XFA	540
	2000	XFG	640
	1000	XFI	590
	500	XFX	840
Monterrey, N. L.	101	XEH	970
Morelia, Mich.	101	XEI	1000
Oaxaca, Oax.	105	XEF	1130
Puebla, Pue.	101	XEE	960

CUBA

Cienfuegos	200	6BY	1150
Elia	500	7SR	860
Havana	500	CMC	840
	15	2BB	1200
	50	2LR	1280
	20	2MG	1050
	100	2OK	860
	100	2OL	1170
	20	2RK	950
	20	2TW	1110
	10	2UF	1090
Tuinucu	1500	6KW	790

CFAC 690
Calgary, Alta.
CFBO 890
St. John, N. B.
CFCA 840
Toronto, Ont.
CFCF 1030
Montreal, Que.
CFCH 600
Iroq's Falls, Ont.
CFCL 580
Toronto, Ont.
CFCN 690
Calgary, Alta.
CFCO 1210
Chatham, Ont.
CFCT 630
Victoria, B. C.
CFCY 960
Ch'lottet'n,P.E.I.
CFJC 1120
Kamloops, B.C.
CFLC 1010
Prescott, Ont.
CFNB 1210
Fredericton, N.B.
CFQC 910
Saskatoon, Sask.
CFRB 960
Twp.of King, Ont.
CFRC 1120
Kingston, Ont.
CHCA 690
Calgary, Alta.
CHCK 960
Ch'lottet'n,P.E.I.
CHCS 880
Hamilton, Ont.
CHCT 840
Red Deer, Alta.
CHGS 1120
Sum'rside, P.E.I.
CHLS 730
Vancouver, B.C.
CHMA 580
Edmonton, Alta.
CHML 880
Hamilton, Ont.
CHNS 930
Halifax, N.S.
CHRC 880
Quebec, Que.
CHWC 960
Pilot Butte, Sask.
CHWK 1210
Chilliwack, B.C.
CHYC 730
Montreal, Que.
CJBC580-840-960
Toronto, Ont.
CJBR 960
Regina, Sask.
CJCA 580
Edmonton, Alta.
CJCB 880
Sydney, N.S.
CJCJ 690
Calgary, Alta.
CJGC 910
London, Ont.
CJGX 630
Yorkton, Sask.
CJHS 910
Saskatoon, Sask.
CJOC 1120
Lethbridge, Alta.

CJOR 1030
Sea Island, B.C.
CJRM 600
Moose Jaw, Sask.
CJRW 600
Fleming, Sask.
CJSC 580
Toronto, Ont.
CKAC 730
Montreal, Que.
CKCD 730
Vancouver, B.C.
CKCI 880
Quebec, Que.
CKCK 960
Regina, Sask.
CKCL 580
Toronto, Ont.
CKCO 690
Ottawa, Ont.
CKCR 1010
Brantford, Ont.
CKCV 880
Quebec, Que.
CKFC 730
Vancouver, B.C.
CKGW 960
Bowm'nville, Ont.
CKIC 930
Wolfville, N.S.
CKLC 840
Red Deer, Alta.
CKMC 1210
Cobalt, Ont.
CKMO 730
Vancouver, B.C.
CKNC 580
Toronto, Ont.
CKOC 880
Hamilton, Ont.
CKOW 840
Toronto, Ont.
CKPC 1210
Preston, Ont.
CKPR 1120
Midland, Ont.
CKSH 1010
St. H'cinthe, Que.
CKUA 580
Edmonton, Alta.
CKWX 730
Vancouver, B.C.
CKX 540
Brandon, Man.
CKY 780
Winnipeg, Man.
CMC 840
Havana, Cuba
CNRA 630
Moncton, N.B.
CNRC 690
Calgary, Alta.
CNRE 580
Edmonton, Alta.
CNRL 910
London, Ont.
CNRM 730
Montreal, Que.
CNRO 690
Ottawa, Ont.
CNRQ 880
Quebec, Que.
CNRR 960
Regina, Sask.
CNRS 910
Saskatoon, Sask.

CNRT 840
Toronto, Ont.
CNRV 1030
Vancouver, B.C.
CNRW 780
Winnipeg, Man.
HHK 830
Port au Prince, H.
KCRC 1370
Oklahoma City
KDB 1500
S. Barbara, Cal.
KDKA 980
Pittsburgh, Pa.
KDLR 1210
Devils Lake,N.D.
KDYL 1290
Salt Lake City
KEJK 1170
Los Angeles, Cal.
KELW 780
Burbank, Cal.
KEX 1180
Portland, Ore.
KFAB 770
Lincoln, Nebr.
KFAD 620
Phoenix, Ariz.
KFBB 1360
Havre, Mont.
KFBK 1310
Sacramento, Cal.
KFBL 1370
Everett, Wash.
KFDM 560
Beaumont, Tex.
KFDY 550
Brookings, S.D.
KFEL 940
Denver, Colo.
KFEQ 560
St. Joseph, Mo.
KFGQ 1310
Boone, Iowa
KFH 1300
Wichita, Kansas
KFHA 1200
Gunnison, Colo.
KFI 640
Los Angeles, Cal.
KFIF 1420
Portland, Ore.
KFIO 1230
Spokane, Wash.
KFIZ 1420
Fond du Lac,Wis.
KFJB 1200
Marshalltown, Ia.
KFJF 1470
Oklahoma City
KFJI 1370
Astoria, Ore.
KFJM 1370
Grd. Forks, N.D.
KFJR 1300
Portland, Ore.
KFJY 1310
Fort Dodge, Ia.
KFJZ 1370
Ft. Worth, Tex.
KFKA 880
Greeley, Colo.
KFKB 1050
Milford, Kansas
KFKU 1220
Lawrence, Kans.

KFKX 1020
Chicago, Ill.
KFKZ 1200
Kirksville, Mo.
KFLV 1410
Rockford, Ill.
KFLX 1370
Galveston, Tex.
KFMX 1250
N'thfield, Minn.
KFNF 890
Shenandoah, Ia.
KFOR 1210
Lincoln, Nebr.
KFOX 1250
Long Beach, Cal.
KFPL 1310
Dublin, Texas
KFPM 1310
Greenville, Tex.
KFPW 1340
Carterville, Mo.
KFPY 1390
Spokane, Wash.
KFQA 1090
St. Louis, Mo.
KFQD 1230
Anch'rage, Alaska
KFQU 1420
Holy City, Cal.
KFQW 1420
Seattle, Wash.
KFQZ 860
Hollywood, Cal.
KFRC 610
San F'ncisco, Cal.
KFRU 630
Columbia, Mo.
KFSD 600
San Diego, Cal.
KFSG 1120
Los Angeles, Cal.
KFUL 1290
Galveston, Tex.
KFUM 1270
Col. Spgs., Colo.
KFUO 550
St. Louis, Mo.
KFUP 1310
Denver, Colo.
KFVD 710
Culver City, Cal.
KFVS 1210
Cape Gir'rd'u,Mo
KFWB 950
Hollywood, Cal.
KFWC 1200
Pomono, Cal.
KFWF 1200
St. Louis, Mo.
KFWI 930
San F'ncisco,Cal.
KFWM 930
Oakland, Cal.
KFXD 1420
Jerome, Idaho
KFXF 940
Denver, Colo.
KFXJ 1310
Edgewater, Colo.
KFXR 1310
Oklahoma City
KFXY 1420
Flagstaff, Ariz.
KFYO 1420
Abilene, Texas

KFYR 550
Bismarck, N.D.
KGA 1470
Spokane, Wash.
KGAR 1370
Tucson, Ariz.
KGB 1360
San Diego, Cal.
KGBU 900
Ketchikan, Al'ka
KGBX 1370
St. Joseph, Mo.
KGBZ 930
York, Nebr.
KGCA 1270
Decorah, Iowa
KGCI 1370
San Ant'nio, Tex.
KGCR 1210
Watertown, S.D.
KGCU 1200
Mandan, N.D.
KGCX 1420
Vida, Mont.
KGDA 1370
Dell Rapids, S.D.
KGDE 1200
Ferg's F'lls, Minn
KGDM 1100
Stockton, Cal.
KGDR 1500
San Antonio, Tex.
KGDY 1200
Oldham, S.D.
KGEF 1300
Los Angeles, Cal.
KGEK 1200
Yuma, Colo.
KGER 1370
Long Beach, Cal.
KGEW 1200
Ft. Morgan, Colo.
KGEZ 1310
Kalispell, Mont.
KGFF 1420
Alva, Okla.
KGFG 1370
Oklahoma City
KGFI 1500
C'pus Ch'sti,Tex.
KGFJ 1420
Los Angeles, Cal.
KGFK 1200
Hallock, Minn.
KGFL 1370
Raton, N. M.
KGFW 1310
Ravenna, Nebr.
KGFX 580
Pierre, S.D.
KGGC 1420
SanF'ncisco, Cal.
KGGF 1010
Picher, Okla.
KGGM 1230
Alb'q'rque, N.M.
KGHF 1320
Pueblo, Colo.
KGHG 1310
McGehee, Ark.
KGHI 1500
Little Rock, Ark.
KGHL 950
Billings, Mont.
KGHX 1500
Richmond, Tex.

KGIQ 1320
Twin Falls, Ida.
KGIR 1360
Butte, Mont.
KGIW 1420
Trinidad, Colo
KGIX 1420
Las Vegas, Nev.
KGJF 890
Little Rock, Ark.
KGKB 1500
Brownwood, Tex.
KGKL 1370
San Angelo, Tex.
KGKO 570
Wichita Flls, Tex.
KGKX 1420
Sand Point, Ida.
KGO 790
Oakland, Cal.
KGRC 1370
San Antonio, Tex.
KGRS 1410
Amarillo, Texas
KGU 940
Honolulu, Hawaii
KGW 620
Portland, Ore.
KGY 1200
Lacey, Wash.
KHJ 900
Los Angeles, Cal.
KHQ 590
Spokane, Wash.
KICK 1420
Red Oak, Iowa
KIB 1320
Idaho Falls, Ida.
KIDO 1250
Boise, Idaho
KIT 1370
Yakima, Wash.
KJBS 1070
San F'ncisco, Cal.
KJR 970
Seattle, Wash.
KLCN 1290
Blytheville, Ark.
KLO 1370
Ogden, Utah
KLRA 1390
Little Rock, Ark.
KLS 1440
Oakland, Cal.
KLX 880
Oakland, Cal.
KLZ 560
Dupont, Colo.
KMA 930
Shenandoah, Ia.
KMBC 950
Indep'd'nce, Mo.
KMED 1310
Medford, Ore.
KMIC 1120
Inglewood, Cal.
KMJ 1200
Fresno, Cal.
KMMJ 740
Clay Ctr., Nebr.
KMO 1340
Tacoma, Wash.
KMOX 1090
St. Louis, Mo.
KMTR 570
Hollywood, Cal.

KNX 1050
Los Angeles, Cal.
KOA 830
Denver, Colo.
KOAC 560
Corvallis, Ore.
KOB 1180
State Coll., N.M.
KOCW 1400
Chickasha, Okla.
KOH 1370
Reno, Nevada
KOIL 1260
Council Bluffs, Ia.
KOIN 940
Portland, Ore.
KOL 1270
Seattle, Wash.
KOMO 920
Seattle, Wash.
KOOS 1370
Marshfield, Ore.
KORE 1420
Eugene, Ore.
KOY 1390
Phoenix, Ariz.
KPCB 1210
Seattle, Wash.
KPJM 1500
Prescott, Ariz.
KPLA 1000
Los Angeles, Cal.
KPO 680
San F'ncisco, Cal.
KPOF 880
Denver, Colo.
KPPC 1200
Pasadena, Cal.
KPQ 1210
Seattle, Wash.
KPRC 920
Houston, Texas
KPSN 950
Pasadena, Cal.
KQV 1380
Pittsburgh, Pa.
KQW 1010
San Jose, Cal.
KPWF 1490
Westminster, Cal.
KRE 1370
Berkeley, Cal.
KRGV 1260
Harlingen, Texas
KRLD 1040
Dallas, Texas
KRMD 1310
Shreveport, La.
KRSC 1120
Seattle, Wash.
KSAC 580
Manh'tt'n, Kans.
KSCJ 1330
Sioux City, Ia.
KSD 550
St. Louis, Mo.
KSEI 900
Pocatello, Idaho
KSL 1130
Salt Lake City
KSMR 1200
Santa Maria, Cal.
KSO 1380
Clarinda, Iowa
KSOO 1110
Sioux Falls, S.D.

KSTP 1460
St. Paul, Minn.
KTAB 550
Oakland, Cal.
KTAP 1420
San Antonio, Tex.
KTAT 1240
Ft. Worth, Tex.
KTBI 1300
Los Angeles, Cal.
KTBR 1300
Portland, Ore.
KTBS 1450
Shreveport, La.
KTHS 1040
Hot Spgs., Ark.
KTM 780
Los Angeles, Cal.
KTNT 1170
Muscatine, Iowa
KTSA 1290
San Antonio, Tex.
KTSL 1310
Shreveport, La.
KTSM 1310
El Paso, Texas
KTUE 1420
Houston, Texas
KTW 1270
Seattle, Wash.
KUJ 1500
Longview, Wash.
KUOA 1390
Fayetteville, Ark.
KUOM 570
Missoula, Mont.
KUSD 890
Vermillion, S. D.
KUT 1120
Austin, Texas
KVI 760
Tacoma, Wash.
KVL 1370
Seattle, Wash.
KVOA 1260
Tucson, Arizona
KVOO 1140
Tulsa, Okla.
KVOS 1200
Bellingh'm, Wash.
KWBS 1500
Portland, Ore.
KWCR 1310
Cedar Rapids, Ia.
KWEA 1210
Shreveport, La.
KWG 1200
Stockton, Cal.
KWJJ 1060
Portland, Ore.
KWK 1350
St. Louis, Mo.
KWKC 1370
Kansas City, Mo.
KWKH 850
Shreveport, La.
KWLC 1270
Decorah, Iowa
KWSC 1390
Pullman, Wash.
KWTC 1500
Santa Ana, Cal.
KWWG 1260
Brownsville, Tex.
KWYO 600
Laramie, Wyo.

KXA 570
Seattle, Wash.
KXL 1250
Portland, Ore.
KXO 1200
El Centro, Cal.
KXRO 1420
Aberdeen, Wash.
KYA 1230
San F'ncisco, Cal.
KYW 1020
Chicago, Ill.
KZM 1370
Hayward, Cal.
NAA 690
Arlington, Va.
WAAF 920
Chicago, Ill.
WAAM 1250
Newark, N. J.
WAAT 1070
Jersey City, N.J.
WAAW 660
Omaha, Nebr.
WABC 860
New York City
WABI 1200
Bangor, Maine
WABO 1440
Rochester, N.Y.
WABZ 1200
New Orleans, La.
WADC 1320
Akron, Ohio
WAGM 1310
Royal Oak, Mich.
WAIU 640
Columbus, Ohio
WAPI 1140
Birmingham, Ala.
WASH 1270
Gr. Rapids, Mich.
WBAK 1430
Harrisburg, Pa.
WBAL 1060
Baltimore, Md.
WBAP 800
Fort Worth, Tex.
WBAX 1210
Wilkes-Barre, Pa.
WBBC 1400
Brooklyn, N.Y.
WBBL 1370
Richmond, Va.
WBBM 770
Chicago, Ill.
WBBR 1300
Rossville, N. Y.
WBBY 1200
Charleston, S.C.
WBBZ 1200
Ponca City, Okla.
WBCM 1410
Bay City, Mich.
WBIS 1230
Boston, Mass.
WBMS 1450
Fort Lee, N.J.
WBNY 1350
New York City
WBOQ 860
New York City
WBOW 1310
Terre Haute, Ind.
WBRC 930
Birmingham, Ala.

WBRE 1310
Wilkes-Barre, Pa.
WBRL 1430
Manchester, N.H.
WBSO 780
Well'l'yH'ls, Mass
WBT 1080
Charlotte, N.C.
WBZ 990
Springfield, Mass.
WBZA 990
Boston, Mass.
WCAC 600
Storrs, Conn.
WCAD 1220
Canton, N.Y.
WCAE 1220
Pittsburgh, Pa.
WCAH 1430
Columbus, Ohio
WCAJ 590
Lincoln, Nebr.
WCAL 1250
Northfield, Minn.
WCAM 1280
Camden, N.J.
WCAO 600
Baltimore, Md.
WCAP 1280
Asbury Pk., N.J.
WCAT 1200
Rapid City, S.D.
WCAU 1170
Philadelphia, Pa.
WCAZ 1070
Carthage, Ill.
WCBA 1440
Allentown, Pa.
WCBD 1080
Zion, Ill.
WCBM 1370
Baltimore, Md.
WCBS 1210
Springfield, Ill.
WCCO 810
Minneap., Minn.
WCDA 1350
New York City
WCFL 970
Chicago, Ill.
WCGU 1400
Coney Is., N.Y.
WCKY 1480
Covington, Ky.
WCLB 1500
Brooklyn, N.Y.
WCLO 1200
Kenosha, Wis.
WCLS 1310
Joliet, Ill.
WCMA 1400
Culver, Ind.
WCOA 1120
Pensacola, Fla.
WCOC 880
Columbus, Miss.
WCOD 1200
Harrisburg, Pa.
WCOH 1210
Yonkers, N.Y.
WCRW 1210
Chicago, Ill.
WCSH 940
Portland, Maine
WCSO 1450
Springfield, Ohio

WDAE 620
Tampa, Fla.
WDAF 610
Kansas City, Mo.
WDAG 1410
Amarillo, Texas
WDAH 1310
El Paso, Texas
WDAY 1280
Fargo, N. D.
WDBJ 930
Roanoke, Va.
WDBO 620
Orlando, Fla.
WDEL 1120
Wilmington, Del.
WDGY 1180
Minneap., Minn.
WDOD 1280
Chattan'ga, Tenn
WDRC 1330
N. Haven, Conn.
WDSU 1250
New Orleans, La.
WDWF 1210
Cranston, R.I.
WDZ 1070
Tuscola, Ill.
WEAF 660
New York City
WEAI 1270
Ithaca, N.Y.
WEAN 550
Providence, R.I.
WEAO 570
Columbus, Ohio
WEAR 1070
Cleveland, Ohio
WEBC 1280
Duluth, Minn.
WEBE 1210
Cambridge, Ohio
WEBQ 1210
Harrisburg, Ill.
WEBR 1310
Buffalo, N.Y.
WEBW 600
Beloit, Wis.
WEDC 1210
Chicago, Ill.
WEDH 1420
Erie, Pa.
WEEI 590
Boston, Mass.
WEHS 1310
Evanston, Ill.
WELK 1370
Philadelphia, Pa.
WEMC 590
Ber'n Spgs., Mich
WENR 870
Chicago, Ill.
WEPS 1200
Gloucester, Mass.
WEVD 1300
New York City
WEW 760
St. Louis, Mo.
WFAA 800
Dallas, Texas
WFAN 610
Philadelphia, Pa.
WFBC 1200
Knoxville, Tenn.
WFBG 1310
Altoona, Pa.

WFBJ 1370
Coll'geville, Minn.
WFBL 900–1490
Syracuse, N.Y.
WFBM 1230
Indianapolis, Ind.
WFBR 1270
Baltimore, Md.
WFDF 1310
Flint, Mich.
WFI 560
Philadelphia, Pa.
WFIW 940
Hopkinsville, Ky.
WFJC 1450
Akron, Ohio
WFKD 1310
Philadelphia, Pa.
WFLA 900
Clearwater, Fla.
WGAL 1310
Lancaster, Pa.
WGBB 1210
Freeport, N.Y.
WGBC 1430
Memphis, Tenn.
WGBF 630
Evansville, Ind.
WGBI 880
Scranton, Pa.
WGBS 1180
New York City
WGCM 1210
Gulfport, Miss.
WGCP 1250
Newark, N.J.
WGES 1360
Chicago, Ill.
WGH 1310
Newp't News, Va.
WGHP 1240
Detroit, Mich.
WGL 1370
Ft. Wayne, Ind.
WGMS 1250
Minneap., Minn.
WGN 720
Chicago, Ill.
WGR 550
Buffalo, N.Y.
WGST 890
Atlanta, Ga.
WGY 790
Schnec'd'y, N.Y.
WHA 940
Madison, Wis.
WHAD 1120
Milwaukee, Wis.
WHAM 1150
Rochester, N.Y.
WHAP 1300
New York City
WHAS 820
Louisville, Ky.
WHAZ 1300
Troy, N.Y.
WHB 950
Kansas City, Mo.
WHBC 1200
Canton, Ohio
WHBD 1370
Bellefontaine, O.
WHBF 1210
Rock Island, Ill.
WHBL 1410
Sheboygan, Wis.

WHBQ 1370
Memphis, Tenn.
WHBU 1210
Anderson, Ind.
WHBY 1200
W. De Pere, Wis.
WHDF 1370
Calumet, Mich.
WHDH 830
Gloucester, Mass.
WHDI 1180
Minneap., Minn.
WHDL 1420
TupperLake,N.Y.
WHEC 1440
Rochester, N.Y.
WHFC 1310
Cicero, Ill.
WHIS 1420
Bluefield, W.Va.
WHK 1390
Cleveland, Ohio
WHN 1010
New York City
WHO 1000
Des Moines, Ia.
WHP 1430
Harrisburg, Pa.
WIAS 1420
Ottumwa, Iowa
WIBA 1210
Madison, Wis.
WIBG 930
Elkins Park, Pa.
WIBM 1370
Jackson, Mich.
WIBO 570
Chicago, Ill.
WIBR 1420
Steubenville, O.
WIBS 1450
Elizabeth, N.J.
WIBU 1310
Poynette, Wis.
WIBW 1300
Topeka, Kansas
WIBX 1200
Utica, N.Y.
WICC 1190
Bridgeport, Conn.
WIL 1200
St. Louis, Mo.
WILL 890
Urbana, Ill.
WILM 1420
Wilmington, Del.
WINR 1210
Bay Shore, N.Y.
WIOD 560
Miami Bch., Fla.
WIP 610
Philadelphia, Pa.
WISN 1120
Milwaukee, Wis.
WJAC 1310
Johnstown, Pa.
WJAD 1240
Waco, Texas
WJAG 1060
Norfolk, Nebr.
WJAK 1310
Marion, Ind.
WJAR 890
Providence, R.I.
WJAS 1290
Pittsburgh, Pa.

WJAX 1260
Jacksonville, Fla.
WJAY 620
Cleveland, Ohio
WJAZ 1480
Chicago, Ill.
WJBC 1200
La Salle, Ill.
WJBI 1210
Red Bank, N.J.
WJBK 1370
Ypsilanti, Mich.
WJBL 1200
Decatur, Ill.
WJBO 1370
New Orleans, La.
WJBT 770
Chicago, Ill.
WJBU 1210
Lewisburg, Pa.
WJBW 1200
New Orleans, La.
WJBY 1210
Gadsden, Ala.
WJDW 1370
Emory, Va.
WJDX 1270
Jackson, Miss.
WJDZ 1310
Winst.-Sal., N.C.
WJJD 1130
Mooseheart, Ill.
WJKS 1360
Gary, Ind.
WJR 750
Detroit, Mich.
WJSV 1460
Mt.Vern.H'ls,Va.
WJW 1210
Mansfield, Ohio
WJZ 760
New York City
WKAQ 890
San Juan, P.R.
WKAR 1040
E. Lansing, Mich.
WKAV 1310
Laconia, N.H.
WKBB 1310
Joliet, Ill.
WKBC 1310
Birmingham, Ala.
WKBF 1400
Indianapolis, Ind.
WKBH 1380
La Crosse, Wis.
WKBI 1310
Chicago, Ill.
WKBN 570
Youngstown, O.
WKBO 1450
Jersey City, N.J.
WKBP 1420
Battle Crk., Mich
WKBQ 1350
New York City
WKBS 1310
Galesburg, Ill.
WKBV 1500
Brookville, Ind.
WKBW 1470
Buffalo, N.Y.
WKBZ 1500
Ludington, Mich.
WKEN 1040
Grand Isl'd, N.Y.

WKJC 1200
Lancaster, Pa.
WKRC 550
Cincinnati, O.
WKY 900
Oklahoma City
WLAC 1490
Nashville, Tenn.
WLAP 1200
Louisville, Ky.
WLB 1250
Minneap., Minn.
WLBC 1310
Muncie, Ind.
WLBF 1420
Kansas City, Mo.
WLBG 1200
Ettrick, Va.
WLBL 900
Stevens Pt., Wis.
WLBW 1260
Oil City, Pa.
WLBX 1500
L.I.City, N.Y.
WLBZ 620
Bangor, Me.
WLCI 1210
Ithaca, N.Y.
WLEX 1360
Lexington, Mass.
WLEY 1420
Lexington, Mass.
WLIT 560
Philadelphia, Pa.
WLOE 1500
Boston, Mass.
WLS 870
Chicago, Ill.
WLSI 1210
Cranston, R.I.
WLTH 1400
Brooklyn, N.Y.
WLW 700
Cincinnati, Ohio
WLWL 1100
New York City
WMAC 570
Cazenovia, N.Y.
WMAF 1360
S. D'rtm'th, Mass.
WMAK 900
Buffalo, N.Y.
WMAL 630
Washington, D.C.
WMAN 1210
Columbus, Ohio
WMAQ 670
Chicago, Ill.
WMAY 1200
St. Louis, Mo.
WMAZ 890
Macon, Ga.
WMBA 1500
Newport, R.I.
WMBC 1420
Detroit, Mich.
WMBD 1440
Peoria Hghts., Ill.
WMBG 1210
Richmond, Va.
WMBH 1420
Joplin, Mo.
WMBI 1080
Chicago, Ill.
WMBJ 1500
Pittsburgh, Pa.

WMBL 1310
Lakeland, Fla.
WMBO 1370
Auburn, N.Y.
WMBQ 1500
Brooklyn, N.Y.
WMBR 1210
Tampa, Fla.
WMC 780
Memphis, Tenn.
WMCA 570
New York City
WMES 1500
Boston, Mass.
WMMN 890
Fairmont, W.Va.
WMPC 1500
Lapeer, Mich.
WMRJ 1420
Jamaica, N.Y.
WMSG 1350
New York City
WMT 1200
Waterloo, Iowa
WNAC 1230
Boston, Mass.
WNAD 1010
Norman, Okla.
WNAT 1310
Philadelphia, Pa.
WNAX 570
Yankton, S.D.
WNBF 1500
Bingh'mt'n, N.Y.
WNBH 1310
New B'df'd, Mass.
WNBJ 1310
Knoxville, Tenn.
WNBO 1200
Washington, Pa.
WNBR 1430
Memphis, Tenn.
WNBW 1200
Carbondale, Pa.
WNBX 1200
Springfield, Vt.
WNBZ 1290
SaranacL'ke,N.Y.
WNJ 1450
Newark, N.J.
WNOX 560
Knoxville, Tenn.
WNRC 1440
Greensboro, N.C.
WNYC 570
New York City
WOAI 1190
San Antonio, Tex.
WOAN 600
Law'nceb'g, Tenn
WOAX 1280
Trenton, N.J.
WOBT 1310
Union City,Tenn.
WOBU 580
Charlest'n, W.Va.
WOC 1000
Davenport, Iowa
WOCL 1210
Jamestown, N.Y.
WODA 1250
Paterson, N.J.
WOI 560
Ames, Iowa
WOKO 1440
P'ghkeepsie, N.Y.

WOL 1310
Washington, D.C.
WOMT 1210
Manitowoc, Wis.
WOOD 1270
Gr. Rapids, Mich.
WOPI 1500
Bristol, Tenn.
WOQ 610
Kansas City, Mo.
WOR 710
Newark, N. J.
WORC 1200
Webster, Mass.
WORD 1480
Chicago, Ill.
WOS 630
Jeff's'n City, Mo.
WOV 1130
New York City
WOW 590
Omaha, Nebr.
WOWO 1160
Ft. Wayne, Ind.
WPAP 1010
New York City
WPAW 1210
Pawtucket, R.I.
WPCC 570
Chicago, Ill.
WPCH 810
New York City
WPEN 1500
Philadelphia, Pa.
WPG 1100
Atl'ntic City,N.J.
WPOE 1420
Patchogue, N.Y.
WPOR 780
Norfolk, Va.
WPSC 1230
State College, Pa.
WPTF 680
Raleigh, N.C.
WQAM 1240
Miami, Fla.
WQAN 880
Scranton, Pa.
WQAO 1010
New York City
WQBC 1360
Utica, Miss.
WQBZ 1420
Weirton, W. Va.
WRAF 1200
La Porte, Ind.
WRAK 1370
Erie, Pa.
WRAW 1310
Reading, Pa.
WRAX 1010
Philadelphia, Pa.
WRBC 1240
Valparaiso, Ind.
WRBI 1310
Tifton, Ga.
WRBJ 1500
Hattiesburg,Miss.
WRBL 1200
Columbus, Ga.
WRBQ 1210
Greenville, Miss.
WRBT 1370
Wilmington,N.C.
WRBU 1210
Gastonia, N.C.

WRC 950
Washington, D.C.
WREC 600
Memphis, Tenn.
WREN 1220
Lawrence, Kans.
WRHM 1250
Minneap., Minn.
WRJN 1370
Racine, Wis.
WRK 1310
Hamilton, Ohio
WRNY 1010
New York City
WRR 1280
Dallas, Texas
WRUF 1470
Gainesville, Fla.
WRVA 1110
Richmond, Va.
WSAI 1330
Cincinnati, Ohio
WSAJ 1310
Grove City, Pa.
WSAN 1440
Allentown, Pa.
WSAR 1450
Fall River, Mass.
WSAZ 580
Hunt'gton, W.Va.
WSB 740
Atlanta, Ga.
WSBC 1210
Chicago, Ill.
WSBT 1230
South Bend, Ind.
WSDA 1400
Brooklyn, N.Y.
WSGH 1400
Brooklyn, N.Y.
WSGP 1410
Savannah, Ga.
WSIS 1010
Sarasota, Fla.
WSIX 1210
Springfield, Tenn.
WSM 650
Nashville, Tenn.
WSMB 1320
New Orleans, La.
WSMD 1310
Salisbury, Md.
WSMK 1380
Dayton, Ohio
WSOA 1480
Forest Park, Ill.
WSPD 1340
Toledo, Ohio
WSSH 1420
Boston, Mass.
WSUI 580
Iowa City, Ia.
WSUN 900
St. Petersb'g, Fla.
WSVS 1370
Buffalo, N.Y.
WSYR 570
Syracuse, N.Y.
WTAD 1440
Quincy, Ill.
WTAG 580
Worcester, Mass.
WTAM 1070
Cleveland, Ohio
WTAQ 1330
Eau Claire, Wis.

WTAR 780 Norfolk, Va.
WTAW 1120 College Sta., Tex.
WTAX 1210 Streator, Ill.
WTBO 1420 Cumberland, Md.
WTFI 1450 Toccoa, Ga.
WTIC 1060 Hartford, Conn.
WTMJ 620 Milwaukee, Wis.
WTNT 1490 Nashville, Tenn.
WWAE 1370 Hammond, Ind.
WWJ 920 Detroit, Mich.
WWL 850 New Orleans, La.
WWNC 570 Asheville, N. C.
WWRL 1500 Woodside, N.Y.
WWVA 1160 Wheeling, W.Va.
XEA 1200 Guadalajara, Jal.
XEB 670 Mexico City
XEE 960 Pueblo, Pue.
XEF 1130 Oaxaca, Oax.
XEH 970 Monterey, N.L.
XEI 1000 Morelia, Mich.
XEN 730 Mexico City
XES 1200 C. Lerdo, Dgo.
XEX 920 Mexico City
XEY 550 Merida, Yucatan
XFA 540 Mexico City
XFC 630 Jalapa, Ver.
XFF 920 Chihuahua, Chih.
XFG 640 Mexico City
XFI 590 Mexico City
XFX 840 Mexico City

The Short Wave Stations

Call	Station	Owner	City and State	Meters	Watts
1 XAA	WRAH	Stanley N. Read	Providence, R. I.		7.5
1 XAE	WBZ	Westinghouse Elec. & Mfg. Co.	Springfield, Mass.	70.0	
1 XAF	WEEI	Edison Elec. Illuminating Co.	Boston, Mass.		
1 XAG		Edison Elec. Illuminating Co.	Boston, Mass.		
1 XY	WBRL	Booth Radio Laboratories	Tilton, N. H.	105-109	250
2 XA	WRMU	Yacht, "MU-1" Grebe Co.	New York		
2 XAC	WGY	General Electric Co.	Schenectady, N. Y.		
2 XAD	WGY	General Electric Co.	Schenectady, N. Y.		
2 XAE	WGY	General Electric Co.	Schenectady, N. Y.		
2 XAF	WGY	General Electric Co.	Schenectady, N. Y.	32.7	
2 XAG	WGY	General Electric Co.	Schenectady, N. Y.		
2 XAH	WGY	General Electric Co.	Schenectady, N. Y.		
2 XAK	WGY	General Electric Co.	Schenectady, N. Y.		
2 XAL	WRNY	Aviation Radio Station, Inc.	New York	30.91	500
2 XAO		Atlantic Broadcasting Co.	New York	105.9	100
2 XAO	WOR	L. Bamberger Co.	Newark, N. J.	65.4	50
2 XAW	WGY	General Electric Co.	Schenectady, N. Y.		
2 XBA	WAAM	WAAM, Inc.	Newark, N. J.	65.18	50
2 XBH		Chas. G. Ungar	Coney Island, N. Y.	54.02	150
2 XE	WABC	Atlantic Broadcasting Co.	Richmond Hill, N. Y.	21.1	50
2 XZ		National Broadcasting Co.	Bellmore, L. I.	49.15	50000
3 XK		C. Francis Jenkins Labs	Washington, D. C.		
3 XL		Radio Corp. of America	Bound Brook, N. J.	59.96	30000
3 XN		Bell Telephone Laboratory	Whippany, N. J.		
4 XE		William Justice Lee	Winter Park, Fla.	200.	250
6 XA	KNX	Los Angeles Express	Los Angeles, Cal.	107.1	100
6 XAF	KNRC	Clarence B. Juneau	Santa Monica, Cal.	108.2	100
6 XAI	KGGM	Los Angeles Radio Club	Los Angeles, Cal.	66.04	50
6 XAK	KFWH	F. W. Morse	Chico, Cal.	108.2	50
6 XAL	KFOZ	L. E. Taft	Hollywood, Cal.	66.04	50
6 XAN	KRLO	Freeman Lang	Los Angeles, Cal.	105.9	250
6 XAR	KJBS	J. Brunton & Sons	San Francisco, Cal.	32.	50
6 XAU	KHJ	Times-Mirror Co.	Los Angeles, Cal.	104.1	50
6 XAZ		Nelson Radio Co.	San Diego, Cal.	106.	50
6 XBA	KFSG	Air-Fan Radio Corp.	Los Angeles, Cal.	108.2	250
6 XBE	KFBC	W. K. Azbill	San Diego, Cal.		
6 XBH	KFQV	W. E. Riker	Holy City, Cal.	31-106	50
6 XBR	KFWB	Warner Bros. Picture Studio	Los Angeles, Cal.	40-105	50
6 XBX	KFVD	McWhinnie Elec. Co.	Venice, Cal.	105.	50
7 XAB	KFPY	Symons Investment Co.	Spokane, Wash.	105.9	
7 XAO	KWJJ	Wilbur Jerman, Inc.	Portland, Ore.	53-54	100
7 XC	KJR	Northwest Radio Service	Seattle, Wash.		
7 XO		Northwest Radio Service	Seattle, Wash.		
8 XAC	WHAM	Stromberg-Carlson Tel. Mfg. Co.	Rochester, N. Y.		
8 XAL	WLW	Crosley Radio Corp.	Cincinnati, Ohio	52.05	500
8 XOA	WJR	WJR, Inc.	Detroit, Mich.	32.	75
8 XF	WHK	Radio Air Service Corp.	Cleveland, Ohio	66.04	500
8 XJ	WEAO	Ohio State University	Columbus, Ohio	54.02	250
8 XK	KDKA	Westinghouse Elec. & Mfg. Co.	Pittsburgh, Pa.	62.5	40000
8 XP	KDKA	Westinghouse Elec. & Mfg. Co.	Pittsburgh, Pa.	10-150	500
9 XAB	WNAL	R. J. Rockwell	Omaha, Nebr.	105.	50
9 XU	KOIL	Mona Motor Oil Co.	Council Bluffs, Iowa	61.06	500

followed carefully you will be busy for a few hours and if the trouble still persists, write again.

Will a vacuum-tube detector such as the UX 200A give better results in my reflex receiver than a crystal detector now used?

Reflex circuits have been found to operate best on a crystal detector as it serves as a stabilizer, preventing oscillations, which are especially troublesome in reflex circuits.

I have a farm-lighting plant, and when the plant is running it is impossible to use the radio. What can I do to prevent this interference?

The high-tension lead from the magneto to the spark plug should be shielded by slipping a length of flexible metal tubing over it. The ends of the tubing should not be allowed to touch the lugs on the wire, and therefore it is a good idea to wind tape around both the tubing and the leads. An insulated wire is soldered to the tubing and connected to a water pipe or to a metal rod driven into the ground. Use a ground clamp to get a good connection, if the metal is such that it cannot be soldered. Similarly, shield the magneto by means of a metal can or box if it is accessible, taking care, however, to mount the shield in such a way that it will not touch any part of the magneto. Then connect this shield to the high-tension lead, soldering the wire to both. Use insulated wire, which will eliminate all danger of short circuits.

What is the best kind of wire to use for an aerial? Are two or more wires better than a single wire?

Hard-drawn copper or phosphor-bronze wire has been found best for aerials. Although a single conductor, insulated or uninsulated, will work, it is better to use stranded wire, especially made for the purpose, as it is stronger and provides greater surface area. The additional pick-up quality of a large-surface wire is, however, slight, and ribbon aerials have little advantage over ordinary stranded aerial wire, according to the U. S. Bureau of Standards. The use of two or more wires connected together at both ends merely has the effect of increasing the surface area, which as just stated, does not correspondingly increase the pick-up value of the aerial.

Can I use ordinary city water for my storage battery, to replace that lost by evaporation?

Water conducted through metal pipes and water held in metal containers absorbs particles of metal, and when this gets into the battery, a slight coating of metal is deposited on the plates, which will eventually cause trouble. Use only distilled water, which can be obtained at any drug store, or rain water caught in the open, in non-metallic containers. Pour it into the battery by means of a glass tumbler or cup, or by means of a syringe. Do not use a hydrometer as a syringe for transfering water to the battery, as the float may break from jarring which it receives under such usage.

The rheostat on my receiver gives a grating noise when turned. What causes this and how can it be cured?

The surface of the wire winding of the rheostat, taking it for granted that your rheostat is of this type, is covered with corrosion. This corrosion is formed by the gradual oxidation of the wire, which is accelerated by heat. Undoubtedly too much current is passing through the rheostat when the receiver is in use. However, the trouble is not serious; merely take a clean rag and carefully wipe off the surface of the resistance wire where the slider makes contact with it. Also examine the slider to see whether it is bent and makes poor contact.

How long can a B-battery be used with good results?

When the voltage of the B-battery drops to two-thirds of its original value it is time to replace it with a new one. A weak battery offers increased resistance, reduces the strength of signals and causes noisy reception.

I live in the country and have a large tree in the yard about 100 ft. from the house. Can I use the tree as an aerial mast?

Yes, provided a few precautions are taken. The swaying of the tree may cause the aerial to break if tightly stretched between it and the house, and for this reason it is a good idea to connect a coil spring at each end to compensate for the movement of the tree. Also see that the aerial does not come in contact with leaves and branches.

How can I test the polarity of the wires leading from my charger to the battery? The charger is of the home-made variety and the leads are not marked.

Dissolve a heaping tablespoonful of salt in a tumbler full of water and while the charger is operating immerse both wires into the salt solution, keeping them at least one-half inch apart. The wire from which most of the bubbles arise is the negative lead.

I have a 350-volt power pack which also supplies 7.5 volts filament current for a power tube. After moving the furniture, this spring, I proceeded to hook it up again, and when turning on the current, heard a snap, after which the glow tube ceased functioning and the rectifier tube heated considerably so that the plate became red hot. No voltage could be obtained across any of the output terminals except the 7.5-volt terminals. What is wrong with the power pack and how can I repair it?

You will find either one of two causes for this condition, or possibly both. One or more of the high-voltage condensers is punctured, or a resistor used to reduce the voltage at the output, is burned out. Test the condensers by first removing them from the circuit and then connecting a C-battery with a voltmeter in series to the two terminals. A good condenser will not give a reading on the meter but a punctured condenser will. The same test can be applied to the resistors but in this case a good resistor gives a reading while a defective one does not.

During the summer months we have been annoyed with static. Is there any method of eliminating it?

Static is an electrical disturbance in the atmosphere and cannot be eliminated at the receiving end, but its effect can, however, be greatly reduced by connecting a variable resistance, such as a Clarostat, across the aerial and ground. Static is worst during the summer time.

I have purchased a glow tube to stabilize the output voltage of my eliminator. How must it be connected properly?

A glow tube is connected across the B-negative and the B-90 terminals. Be sure to connect a resistor in series with the tube to limit the current flow to 60 milliamperes.

Is a long or a short aerial preferable for use with a tuned-radio-frequency receiver?

It all depends on a few factors which may differ in each case. When broadcasting stations are located in the vicinity it is advisable to use a short aerial for selectivity. If you are located out in the country a few hundred miles from the nearest station, a long aerial is best as it will pick up more energy than a short one.

I have a trickle charger equipped with a dry rectifier. A few days ago the battery lost its charge and after checking the output of the charger, I discovered that it was not delivering any current. Where is trouble likely to develop in such a charger?

After having been used for a period of time, say, about a year, a dry rectifier must usually be replaced. This is undoubtedly your trouble, but it would be a good idea to test the transformer also as it might be open-circuited.

How often should the tubes in a receiver be replaced? I have used my set for about two years without changing any of the tubes, but it does not seem to have the volume it did at first.

Have the tubes tested at a reputable radio dealer. Undoubtedly you will find that some, if not all, have lost over fifty per cent of their emission rate. Usually tubes begin to lose their life after having been in use for a period of a year or more, and when the signals gradually begin to diminish in volume, it is time to replace the tubes.

I have a single-dial r.f. receiver and cannot tune in the stations of higher wavelengths. What changes must I make in the receiver to be able to get these stations?

If you have a loop receiver use a .0005-mfd. variable condenser for tuning, as the present condenser may not have enough capacity. If this does not help, increase the length of the wire on your loop by adding one or two turns. In case you have an outdoor aerial, increase its length. Adding a few turns to the primary winding of the tuning inductance will also help.

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