

THE MARCH 1934

# RADIO INDEX

THE ALL-WAVE RADIO MAGAZINE



25<sup>c</sup>

30 cents  
in Canada  
Including  
Tax

Helping Yourself to Better Reception  
Neutralizing T. R. F. Receivers  
Revised List of Frequency Checks  
What is the Matter with Radio?  
Radio Tubes and How They Work

No. 77

# MARCH DX CALENDAR

## SUNDAY MORNINGS

- Mar. 4**  
1:00-2:00—WWAE, Hammond, 1200 (.1)  
2:30-4:30—CKBI, Prince Albert, 1210 (.1)
- Mar. 4-18**  
5:00-6:00—XFB, Jalapa, 1290 (.1)
- Mar. 4-25**  
3:00-5:00—CMCU, Havana, 1100 (.5)
- Mar. 11**  
1:00-1:30—WKY, Oklahoma City, 900 (.1)  
3:00-4:00—WNRA, Muscle Shoals, 1420 (.1)  
WOS, Jefferson City, 630 (.5)  
4:00-5:00—KFJB, Marshalltown, 1200 (.1)
- Mar. 18**  
3:00-5:00—KGNQ, Dodge City, 1340 (.25)  
3:00-5:00—KMJ, Fresno, 580 (.5)  
3:00-7:00—KGR, Butte, 1360 (.5)
- Mar. 25**  
4:00-5:00—WIBG, Glenside, 970 (.1)
- Mar. 11-18-25**  
1:00-3:30—WIRM, Jackson, 1370 (.1)
- Mar. 4-11-18-25**  
12:00-1:00—CMBW, Havana, 1140 (.6)  
CMX, Havana, 875 (.1)  
XETW, Mexico City, 830 (.5)
- 12:00-3:00—CMCD, Havana, 915 (.5)  
WGES, Chicago, 1360 (.5)
- 1:00-4:00—CMBD, Havana, 965 (.25)  
2:00-3:00—WMMN, Fairmont, 890 (.25)  
KPKM, Prescott, 1500 (.1)  
3:00-4:00—KGEK, Long Beach, 1360 (.1)  
3:00-5:00—CKOV, Kelowna, 1200 (.05)  
4:00-5:00—CFJC, Kamloops, 1120 (.1)

## MONDAY MORNINGS

- Mar. 5**  
3:00-5:00—KPCB, Seattle, 650 (.1)  
3:45-4:00—KUJ, Walla Walla, 1370 (.1)
- Mar. 19**  
12:30-1:00—WGNV, Chester, 1210 (.1)

## Mar. 5-12-19-26

- 12:00-3:00—WGES, Chicago, 1360 (.5)  
12:30-1:00—KSOO, Sioux Falls, 1110 (.25)

## TUESDAY MORNINGS

- Mar. 6**  
5:00-5:30—WKFI, Greenwood, 1210 (.1)
- Mar. 6-13-20-27**  
1:00-4:00—WSUI, Iowa City, 880 (.5)  
4:00-5:00—WBNS, Columbus, 1430 (.5)  
5:00-6:00—WAWZ, Zarephath, 1350 (.25)

## WEDNESDAY MORNINGS

- Mar. 7**  
1:00-2:30—KFYR, Bismarck, 550 (.1)
- Mar. 14**  
1:00-2:00—WIBG, Glenside, 970 (.1)
- Mar. 21**  
2:00-2:30—KWCR, Cedar Rapids, 1430 (.1)  
3:00-3:30—KSO, Des Moines, 1370 (.1)  
3:00-7:00—WOPI, Bristol, 1500 (.1)
- Mar. 7-14-21-28**  
6:00-6:30—WOOD, Grand Rapids, 1270 (.5)
- THURSDAY MORNINGS**
- Mar. 1-29**  
5:00-6:00—WRAW, Reading, 1310 (.1)
- Mar. 8**  
2:00-2:30—KWCR, Cedar Rapids, 1430 (.1)  
3:00-3:30—KSO, Des Moines, 1370 (.1)
- Mar. 15**  
3:00-4:00—WHBQ, Memphis, 1370 (.1)
- Mar. 22**  
4:00-5:00—WSPA, Spartanburg, 1420 (.25)
- Mar. 1-8-15-22-29**  
2:00-4:00—CMK, Havana, 730 (.5)  
WEDC, Chicago, 1210 (.1)

## FRIDAY MORNINGS

- Mar. 2**  
2:30-4:00—CHWK, Chilliwack, 780 (.1)  
4:00-5:00—CMJP, Carnageuey, 1360 (.075)
- Mar. 16**  
4:00-5:00—KPOF, Denver, 880 (.5)
- Mar. 2-9-16-23-30**  
12:00-1:00—KOPL, Council Bluffs, 1260 (.1)  
1:00-1:30—WRAM, Wilmington, 1370 (.1)  
1:00-2:00—WBBX, New Orleans, 1200 (.1)

## SATURDAY MORNINGS

- Mar. 3-17**  
2:00-3:00—XES, Tampico, 1020 (.5)
- Mar. 10**  
2:00-3:00—WGBF, Evansville, 630 (.5)  
2:30-4:00—10-BQ, Brantford, 1200 (.015)  
3:00-4:00—KPPM, Greenville, 1310 (.015)  
4:30-6:00—10-BP, Wingham, 1200 (.015)  
5:00-6:00—KVL, Seattle, 1370 (.1)
- Mar. 24**  
2:00-5:00—XED, Guadalajara, 1155 (.5)
- Mar. 3-10-17-24-31**  
4:00-5:00—XEAO, Mexicali, 560 (.1)

# THE MONTH'S CHANGES

## FREQUENCIES

- 598 HLX Santo Domingo, D. R., from 580  
645 CMQ Havana, Cuba, from 630  
700 VOWR St. John's, Nfld., from 900  
915 CMDE Havana, Cuba, from 925  
1095 XEWW Veracruz, Mex., from 1100  
1230 KFQD Anchorage, Alaska, from 600  
1340 WFEA Manchester, N. H., from 1430  
1420 WLAP Louisville, Ky., from 1200  
1430 KWCR Cedar Rapids, Iowa, from 1420
- POWER**
- 600 WCAC Storrs, Conn., 250 to 500  
600 WCAO Baltimore, Md., 250 to 500  
600 WICC Bridgeport, Conn., 250 to 500  
1010 WHN New York, N. Y., 250 to 1000  
1115 XENT Nuevo Laredo, Mex., 150000 to 18500  
1430 KWCR Cedar Rapids, Iowa, 100 to 250

## NEW

- 820 XEBC Agua Caliente, B. C., Mexico  
1140 CMCG Havana, Cuba  
1290 WNEL San Juan, P. R.

- 1310 Laconia, N. H.  
1370 WOC Davenport, Iowa  
1500 KOTN Pine Bluff, Ark.  
1500 WMEX Chelsea, Mass.

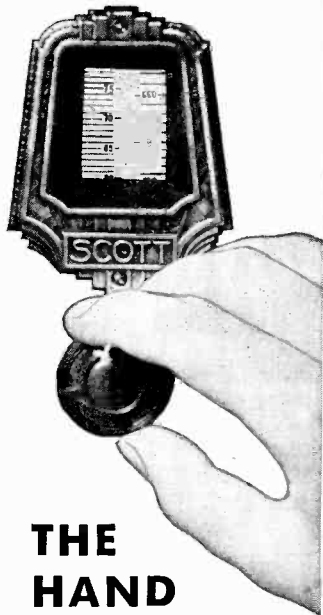
## OWNERS

- 780 KELW Burbank, Calif., to Evening Herald Pub. Co.  
780 KTM Los Angeles, Calif., to Evening Herald Pub. Co.  
930 WBRC Birmingham, Ala., to Birmingham Bldg. Co., Inc.  
1110 KSOO Sioux Falls, S. D., to Sioux Falls Broadcasting Assn.  
1120 WHAD Milwaukee, Wis., to WHAD, Inc.  
1230 CMCA Havana, Cuba, to J. M. Gonzales

## DELETE

- 540 GJRW Fleming, Sask.  
1010 WPAP New York, N. Y.  
1010 WQAO New York, N. Y.

(Continued on page 5)



**THE  
HAND  
THAT  
RULES THE  
D-X  
WORLD**

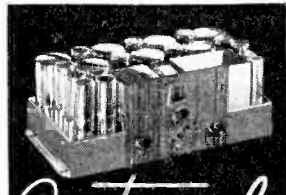
**DX** fans take no chances when they buy SCOTT All-Wave DeLuxe. This receiver is positively guaranteed for daily 10,000-mile reception . . . and it is sold on a 30-day trial basis that permits its thorough test in your own home, under your own reception conditions. In addition its every part (except tubes) is warranted for five years of trouble-free service.

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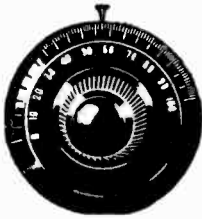
Send me, at once and without obligation, complete information and performance proofs.

NAME.....

Address.....

Town.....State.....

MARCH 1, 1934



# RADIO INDEX

Reg. U. S. Patent Office

FRED CLAYTON BUTLER

Editor and Publisher



B. FRANCIS DASHIELL  
*Technical Editor*

PAGE TAYLOR  
*Short Wave Editor*

TENTH YEAR

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Published Monthly Excepting July and August  
See Subscription Blank on Page 96

\$1.75 per Year

25c Per Copy

### THE RADEX PRESS, INC.

Publication Office, 404 No. Wesley Ave., Mount Morris, Illinois.

Editorial and Executive Office, Hanna Building, Cleveland, Ohio

Entered as second-class matter November 7, 1932, at the post office at Mount Morris, Ill., under the Act of March 3, 1879. Printed in U. S. A.

**ADDRESS ALL CORRESPONDENCE TO CLEVELAND OFFICE**

# HELP YOURSELF to

## Better Reception

• • • By R. L. HASKINS, Research Engineer

**B**ELIEVE it or not—the reason you can use your high-powered modern radio with a short indoor aerial, or even with no aerial at all, is just the reason you *should* use your radio only with a carefully erected out-door aerial. Seems paradoxical, doesn't it, but if you will follow closely you will see why this is true.

In the first place, your modern radio is made sensitive enough to amplify and reproduce with tremendous volume the infinitesimal electrical impulses that reach the set from broadcasting stations hundreds or even thousands of miles away. Such extremes of sensitivity and amplification were, a few short years ago, anticipated as a sort of millennium for radio listeners but, now that they have been reached, it seems that there are still a few difficulties to be overcome.

### When Sensitivity is Valueless

While radio listeners have been begging for sets capable of greater DX-ing ability, one important fact has been overlooked—namely, that other electrical impulses than those sent out from the broadcasting stations may be picked up by the radio. Many receivers, which are found, in the laboratory, to be capable of delivering room-filling volume with about one fly-power signal input, prove so susceptible to the extraneous electrical impulses that, when installed under average conditions, they may be used only as "local" receivers. In other words, the extreme sensitivity of the radio is of no value because there are so many other electrical impulses competing with and tending to overcome the desired broadcast signal that any attempt to use the full sensitivity of the receiver results in the amplification and reproduction of local radio

noise which blots out the radio program.

### A Thousand Outlaw Stations

Lest the above seem too technical, suppose we consider radio reception from a different angle. Of course you can listen only to one program at a time; consequently your radio is so constructed that you may select the station to which you wish to listen, or rather you may select the frequency at which you will attempt to listen to a radio program. As you know from your own radio experience, satisfactory program reception is obtained only when the frequency to which the receiver is tuned is occupied by only one radio program. As far



*This young maestro of the CBS, Mark Warnow, is now engaged in his most important commercial program series, "Forty-five Minutes in Hollywood." He will present "previews" of the musical scores in the latest movie productions. Saturdays at 8:00 p. m. EST.*

as legitimate broadcasting stations are concerned, this situation is controlled by the Federal Radio Commission—But—there are multitudinous illegitimate broadcasting stations which are not controlled by the F. R. C. and which may send out their disturbing signals at the frequency of your favorite radio station.

Where are these pirates and why doesn't someone do something about them, is your first thought. The answer is that many of them are in your own home or in your immediate neighborhood and that the suppression of these noise broadcasters is often a community affair. You can help yourself, however, by taking suitable steps in the erection of the correct type of aerial for use with your radio, as indicated in the opening sentence of this article.

#### Picking up the Noise

Now let us see how these noise broadcasters operate. Whenever an electrical circuit is made or broken, an electrical impulse that may affect radio reception is produced. This impulse, or radio noise, travels along the electric wires which act as broadcasting antennae radiating the noise to the aerial of your radio. If the circuit change is made only once, as when an electric light is turned on or off, only a single click will be heard in the radio. If the circuit change is repeated many times in rapid succession, the sounds heard in the radio will follow each other so closely as to seem a steady roar or a sustained interference to radio reception. From these statements it is clear that switches, relay contacts, buzzers, commutator motors, spark gaps, and all other contact-making devices used in electrical apparatus are likely to cause radio noise which will be carried along all the wires in the building containing the radio.

#### When Inside Aerial is "Out"

Obviously, the closer the radio aerial is associated with the wires from which the noise is radiated, the greater will be the intensity of noise heard

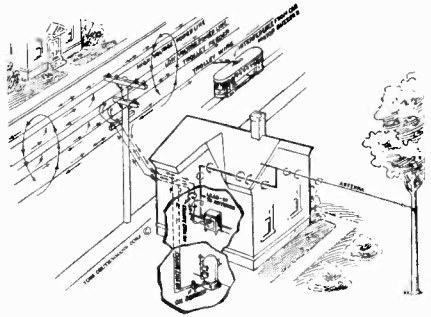


Figure 1. Drawing showing how radio noise is induced in the lead-in and aerial of a radio because of proximity to building wiring. Note that radio noise travels on all electrical circuits and is transferred from one to the other.

in the radio. Thus, for noise-free radio, an inside aerial is "out." This is clearly indicated by the schematic drawing, Figure 1, which shows that the influence of radio noise not only surrounds all of the building wiring, but also extends a considerable distance outside the building. From this drawing it is seen that an indoor aerial would be likely to pick up so much noise that distance reception would be out of the question, and that even the out-door aerial pictured would be subject to much radio noise.

To keep this noise out of the radio, two things are necessary: first, an aerial far enough from all wires to be free from the noise radiated from them; second, a lead-in system that will not pick up noise when it passes near wires that are radiating noise. Figure 2 shows an aerial and lead-in installation that may be depended upon to provide maximum freedom from local noise.

#### Use Insulators Generously

It will be noted that, in this installation, the aerial is kept well away from all other wires and the wire that supports the aerial is divided into short sections by use of insulators every five or six feet. The reason for this is that the supporting wire may

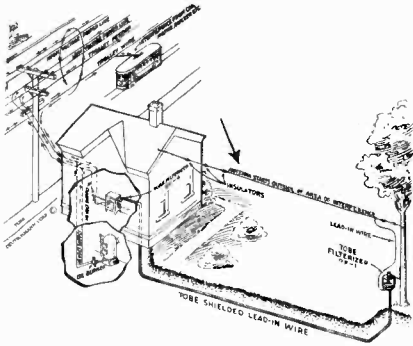


Figure 2. Wiring diagram showing installation of a filtered aerial system for keeping local man-made static out of the radio. If it is not convenient to carry the shielded lead-in underground, it may be connected to the aerial at the point indicated by the arrow.

pick up radio noise that would be carried out to the aerial if a series of insulators were not used to prevent it.

An aerial erected in this way should pick up radio programs without local noise. The next thing is to carry these programs to the radio without allowing any noise to be mixed with them. This is accomplished by use of a properly balanced shielded lead-in system. As the diagram shows, the down lead from the aerial is taken from the end farthest from the building, and the connection to the radio is made by means of specially constructed shielded wire. This wire consists of an insulated inner conductor along which the signals are carried, and an outer layer of metal braid which keeps noises from reaching the inner wire. When this system is properly installed, the various noise broadcasters depicted in Figure 2 cannot interfere with a radio operated from the "FILTERIZED" aerial. If it is not convenient to carry the lead-in underground the connection to the aerial may be made at the building end of the aerial without seriously affecting the results obtained.

**Aerial and Lead-in Important**  
In choosing materials for erecting

a noise free aerial, it is essential that consideration be given the engineering principles involved. To be successful, the system must include properly constructed shielded wire and suitable impedance matching transformers for coupling the lead-in to the aerial and to the radio. The construction of the lead-in wire is the heart of the system. To be satisfactory the wire must have an extremely low capacitance and must maintain its capacitance and insulation resistance regardless of atmospheric conditions. The Aerial Filterizer Kit (Model 33), manufactured by the Tobe Deutschmann Corporation, is the result of years of experience in radio noise elimination and incorporates all of the features necessary for keeping noise out of the radio. This kit comes complete ready for installation and consists of 75 feet of proper type of shielded wire and two impedance matching transformers.

No matter how good or how expensive your radio receiver may be, it will not perform well if you force it to work under unfavorable conditions. Consequently, if you are to obtain the hours of radio enjoyment anticipated when you purchased your radio you must help yourself by providing the right kind of aerial and lead-in system.

## The Month's Changes

(Continued from second cover)

1010	WRNY	New York, N. Y.
1340	WJEC	Portland, Maine
1420	KICK	Carter Lake, Iowa

### CALLS

1370	CHSJ	St. John, N. B., from CHJR
1410	WHOK	Rockford, Ill., from KFLV
1430	KWCR	Cedar Rapids, Iowa, from WIAS
1430	WBNS	Columbus, Ohio, from WCAH

### LOCATION

1370	WMBR	Jacksonville, Fla., from Tampa, Fla.
1420	WENC	Albany, Ga., from Americus, Ga.
1430	WIAS	Cedar Rapids, Iowa, from Ottumwa, Iowa

### PERMIT TO CHANGE LOCATION

1370	WRAM	Wilmington, N. C., to Durham, N. C.
1500	KGFK	Moorehead, Minn., to Duluth, Minn.

### PERMIT TO CHANGE FREQUENCY

1370	WRAM	Wilmington, N. C., to 1500
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# WHAT *is the* MATTER

## *with* RADIO?

### Is It Slipping?

**A**NYONE who visits much of an evening, must be struck with the number of homes in which he finds the radio silent. Is something wrong or is this a natural reaction from a too-intensive use in the past? Is the radio going the way of the phonograph in its day and become an instrument for merely occasional use?

Recently the telephone company in Cleveland had its operator call 210 homes on 18 of its residential exchanges. This was done on a Monday night during the hour when Bing Crosby was on one local station and Lawrence Tibbett on another. Here were two top-notch programs of two entirely different sorts. As people answered, the operator asked them to which of these programs they were listening at the moment. The results ought to provide some pretty solid food for reflection on the part of the powers that have invested fortunes in the business of broadcasting.

Of the 210 homes called, 81 did not answer. Here were almost 40% of this cross-section of the population who found other things of more interest than the radio.

Of the 129 who responded, 64 did not have their radio sets turned on! In the best radio hour of the evening, with the top artists of their class on the air, *almost fifty per cent of the people weren't even listening.*

Of the sixty-five, one didn't have a radio set, one didn't know what he was listening to, 36 were tuned to Tibbett, 19 to Crosby and seven to a third network. Aside from the main point of this article, here is an indication of the taste of listeners. Of the 62 who were listening, 58 per cent preferred Tibbett, 30 per cent Crosby and 11 per cent a third attraction.

#### Half the Sets Silent

The serious thing about this check is that of 210 homes, only 30 per cent were listening to the radio! Fifty per cent of the radio receivers were shut off! Oddly enough these figures are also indicated in the consumption curves of the electric light companies. This situation challenges the best thought of the broadcasting stations and of the whole radio industry.

Soon after radio achieved its first popularity, it was reported that a convention of the salesmen of the biggest phonograph company went on record as being of the opinion that it would not affect the sales of phonographs! Yet within two years sales for that instrument had practically ceased. Will the radio industry be equally blind to the situation that now confronts it?

What is wrong? Pick any ten persons and ask them that question and these are the replies you will get. 1. Too much advertising. 2. Too much mediocrity. 3. Too much sameness.

Let us consider these objections. Under the broadcasting scheme as it has developed in the United States, advertising is a necessary evil. The broadcasters point out that the magazines and newspapers would not long exist if it were not for their advertising and its revenue. True, but advertising in the magazines does not obtrude itself. Like the braggart and his "likker," you can take it or you can leave it alone. But in radio, you have got to take it! What would readers think of a magazine which mixed its stories and its advertising something like this:

Mary crept to the door and listened. The only sound she heard was her own heart as it pounded



violently. Softly she crept to the window and, easing it gently upward, stepped out on the ladder—By the way, have you tried our face powder between your teeth? Why, you can even eat it, etc., etc., for five minutes.

### Disfiguring with an Ad

What would you think if your bank presented you with a beautiful calendar on which they had imprinted their advertisement—not unostentatiously in one corner—but blatantly across the face of the beautiful lady? Would you give it space on your wall? Or would it create good-will toward the advertiser?

Silly, of course, and yet that is the way many radio advertisers are imprinting their advertising upon their programs. Little wonder fifty per cent of the radio receivers are silent! And this percentage is going to increase unless sponsors can find a less obnoxious and more subtle method of getting their advertising across.

And now we are beginning to get double doses of advertising. Not only does the sponsor interrupt his program to give tiresome, repetitive and long-winded discourses on what some European doctor says about yeast, but the stations themselves are cutting off the tail-end of the program in order to insert a local "blurb" for the dentist who will fix your false teeth while you wait or the jewelry store that is staging an auction.

Objection No. 2: In choosing a radio performer, sponsors and stations ought to ask themselves: "Would people pay their money to see this act?" How many, many so-called artists are mere mediocrities and how many programs are utter trash! The inane and asinine comics with their drivel and the members of the orchestra are paid to laugh and clap. The programs that are staged entirely for the studio audience in their ring-side seats and the radio audience seated out in the hall where the laughs only provoke them and cause resentment. The dramatic skits that turn out to be only a boost for



*The latest portrait (and a new coif) of Harriet Hilliard whose charming voice has so long been associated with Ozzie Nelson and his orchestra. Miss Hilliard (she's just 22) has been in the movies, played in stock and sang and danced in Broadway night clubs. Nelson saw her in a night club and she has been with him ever since. On the NBC Blue net every Sunday evening at 7:30 EST. They also appear on the Columbia.*

someone's breakfast food. The self-styled thrillers with their murders and their 1888 melodramatic villains. The self-boosting of the "stars" and their infuriating self-complacency.

### More Silence Needed

Obviously many stations are on the air too many hours of the week. One can picture their program-directors rushing about feverishly, grabbing this and grabbing that, to fill a gap. That microphone must be kept vibrating. Don't let it stop. If you haven't anything good, get something else but get something. And another ten per cent turn off the radio.

The third objection: Radio programs are beginning to remind one of the old song: "Monday, corned  
(Continued on page 48)

# The BEGINNERS'

## STORY of RADIO

PART SIX

Radio Tubes and How They Work

● ● ● By B. FRANCIS DASHIELL

**D**URING our study of electrons, those tiny unit particles of negative electricity, we found that they may be released from their parent atoms by means of friction, and through the effects of mechanical, magnetic and chemical actions. But there is still another agency by which means electrons may be set free. This, as we shall now see, is *heat*. When electrons are agitated by heat they shoot off into space. They may be made to carry a current of electricity through the air, a gas, or a vacuum; and this action has made possible the *electron tube* or *radio tube*.

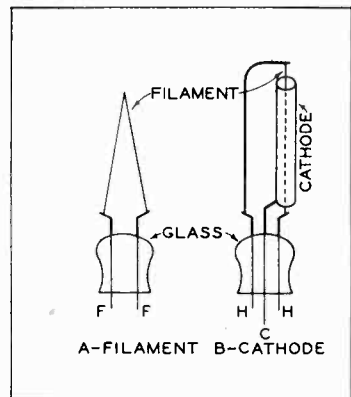
Matter, which is merely a substantial mass of adhering atoms and molecules, appears as solids and fluids. They are easily affected by heat, for the atoms quickly become agitated. Metals melt and liquids boil; water passes off in vapor as steam. The negative electrons, normally bound to parent atoms by the attracting force of the positive protons, begin to vibrate faster than their normal speed when heat is applied to a metal. The electrons soon break away and fly off into the immediately adjacent space. In fact, the electrons literally boil away. If the metal is highly *radioactive*, the clouds of emitted electrons are very dense.

### Basic Tube Principles

This action, then, makes it possible to provide a *source* of electrons. In the radio tube, x-ray tube and others, we obtain electrons from a *cathode*—the electrode or terminal from which negative electricity flows. This cathode may be heated, so that it will

emit electrons, by either of two methods—the *directly-heated filament* type, or the *indirectly-heated cathode* type. The former is a filament of high-resistance wire which can be heated to incandescence by connecting across a source of current. The latter type is a separate metal sleeve heated by an insulated, internal filament. The first type is usually referred to as a filament tube, and the latter as a cathode tube.

Filaments are used with direct current sources, such as batteries or rectified and filtered alternating current. If an ordinary filament is used with a. c., there will be a hum, for the thin filament will tend to cool a bit between cycles and give off pulsations of electrons corresponding to the frequency of the a.c heating source. The cathode heater is heavier and retains its heat longer and is not affected by the alternations in the separated heater filament. Cathode tubes are used



with a.c. The few filament tubes for use with a.c. have heavy filaments that are slow to change their heat retaining properties, and are not affected by temperature changes between the rapid alternations of potential. This is the reason why tubes heat slowly and cool slowly when a radio set is turned on or off. The thicker and heavier the filament or cathode sleeve the slower the tube heats up, but the less likely it is to give off the annoying a.c. hum.

### The "A" Circuit

A filament type of cathode is shown at "A." The indirect or cathode-heater type is shown at "B." The filament of the first, or the heater of the second, should be connected across a voltage sufficient to heat the wires to the correct operating temperature. The filament or cathode heating supply is called the "A" source, and its generating device is the "A" battery or current.

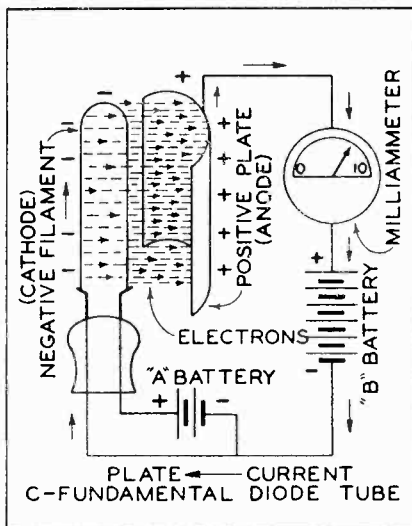
The cathode, as we have seen, is the electrode from which electrons flow. A positive electrode, to which the electrons will be attracted (unlike charges attract each other), is called an *anode*. Let us, then, place a positive electrode—an anode—close to the cathode. It will attract the electrons shooting off in all directions from the hot cathode. In a radio tube this anode is called the *plate*.

### The "B" Circuit

The plate is made positive by connecting to a source of current called the "B" supply. The source that supplies this powerful potential is called the "B" battery or current. Plates are shaped so as to encircle the cathode like a sleeve or tube. At "C" is shown a filament connected to its "A" supply, and a plate attached to its "B" battery. The filament, as a whole, is connected to the negative terminal of the "B" battery so the cathode will be made negative with respect to the positive state of the plate.

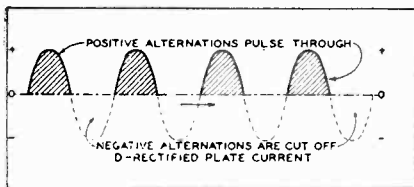
At this point the two electrodes must be enclosed in a glass tube from which all air has been exhausted.

Otherwise the fine wire of the filament would be consumed in the oxygen of the air. When the "A" current is turned off the filament is cold and no electrons can be emitted. But as soon as the filament becomes red-hot a dense cloud of electrons bursts forth and surrounds the cathode. Under the attracting power of the positive plate, the emitted electrons are pulled in an endless stream toward the plate. Thus a flow of electricity is maintained, and the "B" current flowing across the gap between the cathode and plate, and through the external circuit, as indicated by the arrows in illustrations "C", is called the *plate current*.



### The Two-Element Tubes

Now, if the "B" battery connections should be reversed, electrons can not flow from the cathode to the plate. A tube, therefore, permits electrons to flow *only* when the plate is positive. Let us connect an alternating current to the plate. We discover that the plate becomes alternately positive and negative, and that the tube can be utilized as a *half-wave rectifier* of alternating currents, for it permits



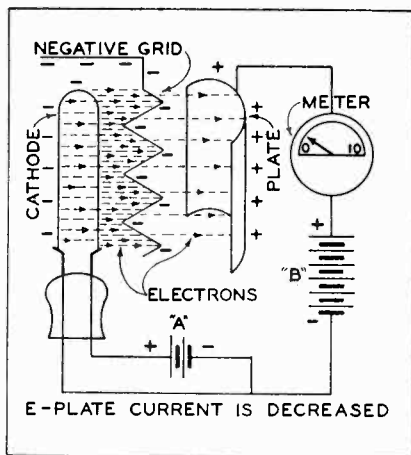
only the positive half of each cycle to flow when the plate is also positive. If the current has a frequency of 60 cycles (120 alternations) only the positive alternations (60) will flow to the plate. The negative alternations (also 60) will be cut off, and the resulting plate current will consist of a series of 60 impulses of direct current per second, as shown at "D". The pulses or vibrations can be filtered and smoothed out with condensers and filters (choke coils) as will be explained in a subsequent chapter. (For other examples of alternating currents see Part Two of this series.) A tube using only a cathode or filament heater and a plate is called a *diode* or *two-element* type. Such tubes are types 2Z3, 12Z3, and —81. Elaborations which provide *full-wave* rectification of alternating current are found in types 5Z3, 25Z3, 25Z5, —80, —82, —83 and —84.

### The Three-Element Tube

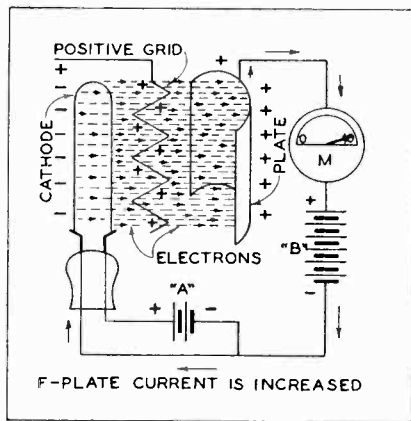
Suppose we add a *third* element or electrode to the diode tube. Thomas Edison discovered the current carrying properties of the two-element tube. But it was Dr. Lee DeForest who, many years afterward, found out how to control this *Edison effect* and make the radio tube possible. DeForest called the third electrode a *grid* or *control-grid*. It is placed between the cathode and plate. The tube now becomes a *triode*, or *three-element* type. For many years the triode was the only type of radio tube in use. The grid is a screen or grating closely enclosing the cathode. It becomes the *valve* or *trigger* by which we can regulate the flow of electrons from the cathode to the plate. In Europe radio tubes are called *valves*.

### Effect of the Grid

At "E" and "F" we see how a triode tube appears when its grid is in place. A tube, in which the grid has been made negative by a negative *bias* from a small "C" battery or source, or by the negative-alternation half of one cycle of alternating current, is

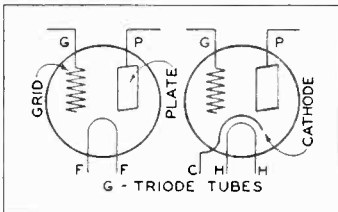


shown at "E". The negative grid tends to repel the emitted electrons back to the cathode from which they come. Therefore, practically no plate current flows in the circuit, as indicated by a sensitive *milliammeter* placed in the external part of the



complete circuit. But, when the grid is neutral, the usual plate current flows. However, when the grid is made positive, it works to augment the pull of the positive plate, and the plate current actually increases, as will be indicated by the milliammeter. Some few electrons will be attracted to the positive grid, but they can be sent back into the cathode circuit by means of grid leaks and resistors.

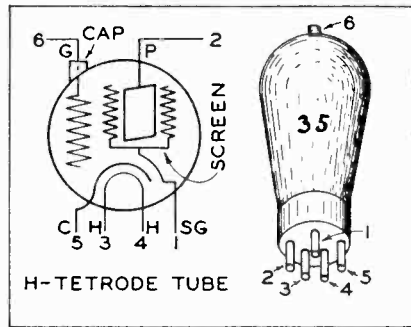
The grid requires very little energy for its operation. Its trigger-like effect controls the very much greater potential of the plate current. The grid regulates the flow of plate current much like a small but easily operated valve in a pipe that carries a great stream of water under excessively high pressure. Therefore, the grid energy is capable of being reflected in the plate current as a form of amplification of original potential. A tiny voltage impressed on the grid will control the conductivity of the path across the vacuous space between the cathode and the plate. This grid potential is called the *input* or *signal voltage*. The slightest changes or variations in the signal voltage will be noted as much greater changes in the plate current by the milliammeter. Tubes that show considerable *self-amplification* are called *high- $\mu$*  types; their *amplification factor* is high. For instance, if the plate potential changes 50 volts when the grid potential is changed 5 volts, the amplification factor will be 50 divided by 5, or 10. This factor may also be called the *gain* of the tube. Triode tube types are: 2A3, -01A, -10, -12A, -20, -26, -27, -30, -31, -37, -45, -71A, and -99. The radio circuit symbols used in sche-



matic diagrams are shown at "G."

### The Four-Electrode Type

The triode tube stood as the acme of tube perfection for many years. Then came a decided improvement which made the tube more useful for certain purposes. Between the plate and grid a small degree of capacity or condenser effect is present. In sensitive receivers its presence causes untold trouble and regeneration noises. But we can obviate this nuisance by placing still another—the fourth—electrode in the tube. It is a grid-like screen surrounding the control-grid, but between that grid and the plate. This *screen*, as it is called, will not obstruct the flow of electrons from the cathode to the plate, but it interposes an effective capacity shield between the two elements. We now have a *tetrode*, or *four-electrode* tube. Typical types are: -22, -24A, -32, -35, and -36. The usual circuit symbol is shown at "H".

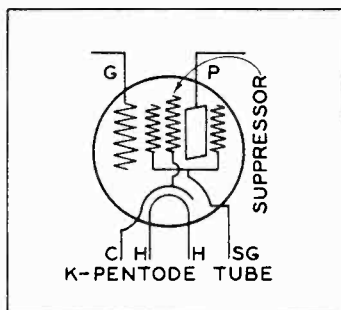


When the high-speed electrons shoot from the cathode they strike the plate with great velocity. They knock additional electrons free from the atoms of the plate material. These electrons, in addition to those activated atoms of gas in the tube which have been struck by the flying electrons and turned into ions because of the loss of two or more electrons, and which constitute the so-called *space charge*, provide a blockading blanket of ionized gas (negative and positive ions).

Much of this blanket is the *secondary emission* caused by impact with the plate; it must be eliminated so that the full flow of plate current will take place.

### Adding a Suppressor

So a new electrode—the fifth—is added. It is placed between the plate and screen of a tetrode tube, and connected to the cathode. This new element is called the *suppressor-grid*, or simply the *suppressor*. Its action is to repel the secondary emission by forcing those space-filling electrons back to where they belong, and thus prevent their interference with working electrons. Such a tube is a *pentode*, or *five-element* type. Examples are: 2A5, 6A4, -33, -34, -38, -41, -42, -43, -46, -47 and -77. Slight elaborations are found in types 57 and 58. The circuit symbol is shown at "K".



Some tubes—the screen-grid tetrodes—have their control-grid connections at the top of the tube in the form of a *cap* instead of the pin in the base. Tube *bases* have from 4 to 7 *prongs* or *pins* which make contact with their respective *sockets*. The heater or filament and cathode of a tube is considered as one electrode although there are three prongs on the base—two for the heater and one for the cathode. There are separate prongs for the control-grid (when it is not connected to a top cap terminal), the plate, the screen, and, in the 57 and 58, for the suppressor. Al-

though a tube may have five prongs on the base and a grid cap on the top—six terminals in all—it will be merely a four-element or tetrode tube, such as a -24A or -35. See "H".

There are more than 70 types of receiving tubes offered the radio public today, and the end does not seem at hand. Then, too, there are many transmitting and general-purpose tubes. Additional grids, plates and heaters are used in some of the newer special-purpose tubes. A single tube is made to function as two or three separate types. We find the *duplex-diode triodes* (2A6, -55, -75 and -85); the *triple-grids* (-59, -77, -78, -79 and -89); the *duplex-diode pentodes* (2E7 and 6B7); and the *pentagrid-converters* (1A6, 2A7 and 6A7), coming into general use, particularly in the tiny universal and midget sets.

(Next month we shall study further how tubes are used as detectors, oscillators, for the automatic control of volume, and for audio-amplification before passing the signals into the loud speaker.)

### Queries

1. By what means may electrons be set free?
2. What is the tendency of electrons when freed?
3. For what purpose may they be harnessed?
4. How are they attracted and collected?
5. When a radio tube is heated from what source do the electrons come? To what do they go?
6. By what electrode may their action be controlled? How?
7. What is the purpose of the "A" current? Of the "B"? Of the "C"?
8. What is the purpose of the plate? Of the control-grid? Of the screen-grid? Of the suppressor-grid?
9. What type tube is the -71A? The -35? The -47? The -80?
10. Draw from memory the circuit symbols representing each of the above tubes.

The new station in Agua Caliente, Lower California, has been identified for us by several readers. It was evidently called XEAC at first but when they discovered that there was already one XEAC in Mexico, the call was changed to XEBC.

# INTRODUCING Some Radio Friends

• • • By "BETTY"

**W**HILE a dance band was playing in a Dallas, Texas, hotel some years ago a dark eyed little girl of nine years sought out the leader and informed him that her parents had given her permission to join his troupe. Off she went with the band through the Texas Panhandle—a nine year old soloist at \$35 a week. A month later Irene Taylor's worried grandparents caught up with their wandering child and put her back in school.

That's the way Irene has always done things. When she was three years old she stopped an amateur show in St. Louis with her rendition of "Oh You Beautiful Doll." Irene had to be coaxed to sing, but after she got going she couldn't stop. She's been singing ever since she first piped a note at church socials, concerts, and school functions.

After graduating from high school, life was just one band after another for Irene. She sang for a year with Coon-Sander's Kansas City Night-hawks, and later spent six months with Lou Forbe's Orchestra at the Baltimore Hotel in Kansas City. Then back to Dallas for a year with Jack Gardner's Orchestra and later appearances at the Hollywood Dinner Club in Galveston.

## On the Way Up

It was while visiting friends in Chicago that Fate gave Irene her biggest break. She was asked to broadcast from the hotel's radio studio. Hundreds of letters came from her listeners. She was introduced to Paul Ash who signed her up with his orchestra for a year and a half at the Oriental. Then came appearances with Vincent Lopez at the Casa Lopez and a request from Paul Whiteman to make records with him.

Irene toured the country with famous bands—Abe Lyman, Charlie Agnew, Eddie Peabody, Jan Garber, and others—and steadily rose in artistry and popularity. One of her famous records was "Mississippi Mud" with Paul Whiteman and the Rhythm Boys. In December, 1933, when Camel returned to the CBS air waves, she was selected to sing with Glen Gray's Casa Loma Orchestra on their regular Tuesday and Thursday evening programs over Columbia's nationwide network.

## Likes to Cook

Irene is charming, petite and exotic . . . of Scotch, Irish and French descent . . . has black hair and dark brown eyes . . . weighs 110 pounds . . .



*Irene Taylor*

never took a music lesson in her life . . . hobby is cooking . . . fond of swimming, riding, golf, and people with new songs to sing . . . grew up with Ginger Rogers of Fort Worth, Texas . . . made her radio debut at the age of 13 in Muskogee, Oklahoma, in early days of radio, singing into a big tin horn . . . was called "Rene" in school and is "Tiffany" now . . . received 39 proposals last Leap Year . . . has two favorite fans, a rancher in New Zealand, and a country doctor who corresponds regularly on the subject of Irene's health.

### A Born Entertainer

Edith Murray was born in Chicago, August 28, 1909. Attended primary and high schools there. Ever since she can remember, Edith was continually called upon to entertain. Even in the first grades, teachers would stand her on a chair and have her sing for her class.

When the family moved to New Orleans, Edith enrolled at St. Marys College. Left college to hunt for a job in a musical show, and while wait-



*Edith Murray*

ing for her big chance, worked in a music shop. Made her professional bow in a show playing in Montreal and was overcome by stage fright. Words to her song evaporated into thin air, and to cover up, she broke into a dance, instead of tears, and went over big.

Later formed her own act which headlined all the theatres on the RKO circuit for a year. Drew the attention of producers who engaged her to play the lead in the London production of "Good News." Also starred in the Australian and Chicago companies of that play. Edith then made shorts for Warner Brothers on the West Coast.

Her favorite sports are golf and horseback riding . . . would rather send wires than write letters . . . prefers the relaxation the country affords to the hustle and bustle of the city . . . is crazy about tango rhythm . . . would like to raise pedigreed dogs . . . weighs 117 pounds, is 5 feet 4 inches tall, has brown hair and eyes . . . and says as long as she has an audience she will never stop singing. Although a comparative newcomer to radio, Edith may be heard at various times over the Columbia network.

### Out of the Mines

From Colorado coal miner to featured radio soloist runs the story of Edward Davies, baritone heard on the Hoover Sentinels over an NBC (Red) network each Sunday at 4:30 p.m. EST.

And Edward is one radio artist who has a personal as well as a professional interest in his sponsor's product. For two years he sold Hoovers, long before he dreamed of a radio career, paying his way through music school with his commissions.

Born in Wales, Edward came to America as a child, his family settling in Colorado. Though he gave evidence of vocal ability at an early age, he was working in a coal mine at seventeen.

Davies left the coal mine the next year, however, to pursue vocal studies





*Edward Davies*

in Denver. There he manifested such promise that on the advice of his teacher he went to Chicago, where he won a scholarship sponsored by Rosa Raisa of the Chicago Civic Opera.

His musical career since then has included operetta, in which he took the role of Rudolph in "The Student Prince"; the role of soloist with the St. Louis Symphony Orchestra, and finally radio.

#### **From the Russian Revolution**

Tamara, who learned to chant her sad songs amid the desolation of revolution torn Russia, is back among the glittering lights of Broadway that first brought her fame.

The Russian songstress, who performs for radio listeners to the Manhattan Merry-Go-Round over an NBC (Red) network each Sunday night at 9:00 p.m. EST, is being starred in "Roberta," new musical success, and Broadway audiences are recalling her first triumph in "The New Yorkers," an earlier stage hit.

Just arrived from Russia, a small dark-eyed child, seeking peace and a means of supporting herself, Tamara was fired from the chorus because she

couldn't dance. In desperation she asked the producer to let her sing for him, and the next night she found herself a soloist in a Broadway hit.

Since then theatre goers have seen her in "Americana" and "They All Come to Moscow," while her appearances before the microphone have added millions to her audience.

#### **Fame Over Night**

Shirley Howard, who sprang into radio fame over night by registering a hit at her first professional engagement before the microphone, has made her first stage appearance and scored another triumph.

The dark haired torch singer, who only a few months ago was a young newspaper woman with no thought of a musical career, is the star of the Mollie Show, heard over an NBC (Red) network each Monday, Wednesday and Thursday, at 7:30 p.m. EST.

So new is Shirley to the entertainment world that up until a few weeks ago she had never faced a theatre audience. Then she appeared at the Roxy Theatre in New York and literally stopped the show.



*Tamara*



*Shirley Howard*

Shirley naturally is thrilled by her new success, and delighted to discover that a sea of faces holds no more terror for her than a microphone. And she says she doesn't in the least mind losing her distinction as a well known radio star who had never appeared in public.

\* \* \*

The most terrifying experience in the life of Rosa Ponselle, the great Metropolitan Opera soprano, was the first time she sang into a microphone. But now she says she visualizes instead of the millions of people who frightened her at first, a small group of four or five persons in a living room. She says the radio audience is made up of many thousands of just such groups and that radio is really one of the most intimate forms of public entertainment.

\* \* \*

Sir James Barrie, author of "The Little Minister," in which Maude Adams, famous American actress, made her radio debut over NBC, cabled his wish "for greatest success" from his home in England. Miss

Adams was given the cablegram a few moments before she entered the studio. It was the first of a deluge of cables and telegrams from her admirers in all parts of the world, which came in after the program.

\* \* \*

Here's how radio sound effects are made: Horse's hoofs, beating the fists on one's chest . . . kissing, osculating the back of your hand . . . thunder, rattling a big sheet of tin . . . ocean waves, peas in a squirrel cage . . . a golf drive, swishing a whip followed by hitting two mallets together . . . forest fire, cracking cellophane . . . running water, a paddle wheel in a barrel of water . . . crash of wooden doors, crushing peach baskets . . . wind, a blower like the one of the blacksmith shop . . . gunshot, whacking a stick on a cardboard box.

\* \* \*

Frank Black, NBC general musical director, will probably go down in radio history as the man who turned down the biggest offer that was ever made. A Pennsylvania society, holding a huge ball, offered him \$10,000 to direct his orchestra for dancing one night and Black refused. He spurned \$10,000 solely because he refuses to lead a dance band in public.

\* \* \*

Edwin C. Hill spends three to four hours writing his radio scripts in addition to the time he takes gathering material. And whenever he speaks on the policies and activities of the Roosevelt administration, a copy of his talk is forwarded to the White House at the suggestion of a member of the President's staff.

\* \* \*

B. A. Rolfe, the famous Saturday night dance maestro of the air, has almost definitely turned away from the idea of leading a cabaret band for the present. He believes that despite the great increase in night life activity, the city is slightly over-cabareted and wants to wait until time has eliminated the weaker clubs and established the leaders firmly.

# BROTHERS *in that* Great Fraternity —*The Mystic Nights*

ACCORDING to reports from Europe, the stations on that continent handled themselves very nicely on their new wave lengths. In all, the great reallocation was successfully carried into effect and observers were surprised that so much order prevailed. The new plan provides for greatly increased power and many stations are reported to be preparing to take advantage of their new allotments. All of which should open new fields for our North American listeners.

Under the Lucerne plan, those stations assigned to frequencies below 300 kc. may use up to 150,000 watts; those between 550 and 1100, 100,000 watts; those between 1100 and 1250, 60,000 watts; those between 1250 and 1500, 30,000 watts. Exceptions to this rule are Moscow 1 which will continue to use 500 k.w. and Budapest, Leipzig, Paris PTT, Prague 1, Rennes PTT, Toulouse PTT and Vienna, the maximum is 120 k.w.

The first to report a European on its new frequency which went into effect on Jan. 15, was Robert Hough, 26 Ellenton Ave., New Rochelle, N. Y. He picked up Poste Parisien on Jan. 16 on about 952. Their actual frequency is 959. Robert has a Crosley S-40 which is now four years old. He thinks any old kind of an aerial will do as he has picked up Europe on all kinds, even a short one without insulators and running close to the house its entire length. In spite of his experience, however, we do not recommend it to other readers.

"The Europeans have been wonderful," comments P. H. Robinson, Shelburne, N. S. "HAL-2, Budapest, and OKP, Prague, are received with R7-8 volume and clear as a local. Other stations heard since Jan. 15 are: Brussels No. 2, Bordeaux, Bratislava,

Paris PTT (695), Sottens, Hamburg, France (895), Scottis Regional and nearly all the BEC stations. Since Jan. 15, the following stations have not been heard due to the new frequencies: Poste-Parisien, Athlone, Beromunster, Breslau, Leipzig, Langenburg, Radio-Normandy, IMI, Hilversum and West Regional. Some are audible but are interfered with by other stations."

"I get European stations regularly such as Poste Parisien, Heilsberg, Frankfurt, Radio Normandie, SBH and ITO. Have received veries from PP, 10-BQ, HHK, WKAQ, 10-AK, 10-AB, VE9EK and a few 100-watters on the West Coast. I received the above on a Philco 90, 9-tubes, but have just purchased a 12-tube 1934 Zenith." This report is from Henry Wilkinson, Jr., Fort Howard, Md.

## Gets His First T-A

Another skeptic of trans-oceanic reception has been converted. Sam Kiamie, 2857 Sampson Ave., New York City, writes: "I have read many times in RADEX about people reporting reception of European stations but was very skeptical about them. However, on Saturday and Sunday, Dec. 23 and 24, I brought in, not one, but nine from across the ocean. These came in best: Poste-Parisien, Normandie, Bordeaux, Breslau, Heilsberg, Horby and Buenos Aires. Poste-Parisien came on at 2 a. m. broadcasting at first a morning 'get-up' program. The announcer says in French 'Hallo, hallo, ici Poste Parisien.' Normandie announces its call as 'Hallo, hallo, icie Radio Normandie dans Fecamp, Republique Franciase.' Breslau is easily identified if one is familiar with the famous chimes of the German s. w. stations. SBH in Horby broadcast gym class

exercises at 2:20 a. m. It has a woman announcer. LR4 can be heard right after WBZ signs off at 1 a. m."

"Some readers may be interested to know that, although reception from the T-Ps is bad right now, they can try successfully for the T-As," points out S. R. Lewis, Rt. 3, Box 688-A, Toledo, Ohio. "The ones I found possible are Poste-Parisien; Radio Normandy, Fecamp, France; Stuttgart, Heilsberg, Frankfurt-au-Main of Germany; Turin, Italy; Horby, Sweden; the station in Spain that was on 860; and, last and best, Cardiff, Wales, Regional, heard on 968 about 7 p. m. EST. I have noticed that many Cuban and Mexican stations are heard quite well on the split frequencies. LS5 on 1110 is being heard behind WRVA and LRD under WBZ-A's signal." The recent reallocation in Europe will upset this information and new favorites may come to the front. We are awaiting with interest the reports from our readers as to the reception of the Europeans on their new frequencies.

"This seemed to be France's morning on the air" observes Kenneth Page, Silver Creek, N. Y. "I tuned in both Poste Parisien and Radio Normandie between the hours of 2:45 and 3:40 EST" (Jan. 9).

"I've pulled in two Europeans within the last ten days on the b. c. band. The first one was Christmas morn about 3 or 4 a. m. I'm not sure but I think it was Lodz, Poland, on 1283 kcs. with 2,000 watts power. The other one I got this morning (Jan. 2), was positively SBB at Goteborg, Sweden on 932 kcs. and using about 10,000 watts. I got him about 3:14 a. m. EST. As soon as KFI and those other powerful westerners sign off, I'm able to tune in something. But not until they're off the air. So far my log of T-Ps and T-As is as follows: 2YA, XGOA, KGBU, 2BL, 2CO, 5CK, 2FC, 3LO, 2GB, 1YA, SBB, Lodz (Poland) and London Regional."

W. T. R. Morris, Jr.,  
3219 Garland Ave., Richmond, Va.

## Makes Great Record

"I have just bought a new 9-tube Midwest radio and thought I would write to you about it," announces Thomas Quaid, University Station, Enid, Okla. "Both regular and short waves come in well on the set, although I have a very poor aerial for short waves. On the broadcast band the set is so sensitive that any kind of an aerial would give satisfaction. The set has 5-kc. selectivity as is demonstrated by its separation of WIBW on 580, XEPN on 585 and WOW on 590, and also separating WSB on 740, and XER on 735.

"On the short waves I have received about all the important broadcast stations: PHI, Pontoise, LSN, LSL, LSX, VK3ME, VK2ME, HJ1ABB, HKI, HK4ABB, HJ4ABE, T14NRH, H11A, HIX, HCJB, Prado, FTA, DJB, DJD, GSA, GSB, GSC, GSD, GSE, I2RO, I3RO, J1AA, XAM, XDA, XFD, XETE, Rabat, CT1AA, EAQ, EHY, HBL, RV59, YV1BC, YV3BC, KJTY, and quite a few phones, police, amateurs, and airplane broadcasts.

"Pontoise, GSD, GSB, EAQ, and a good many other foreign shortwave stations come in as clearly as the stations in this country.

"A few nights I tried for Japan and Oceania and got them each time. I have received the following foreigners on the broadcast band: 2CO, JOAK-2, 3AR, 5CK, 4YA, 2FC, JFAK, LP4, JODK, 6WF, LS1, 2YA, JOSK, 5CL, JOBK-1, JQAK, 4QG, JOGK, JOCK-1, 1YA, JOIK, LR5, JOFK, 2BL, JOAK-1, JODK-2, LR2, PP, 4RK, LR3, YV1BC, 3YA, LR4, LR9, CX26, 2KY, JOBK-2, LS5, 4BC, JOCK-2.

"The long waves offer new and novel entertainment. On these all of the Department of Commerce weather bureau stations can be received."

## Gets Japan at Last

"You may recall that in the past I have often complained that, while I could hear Australia and New Zealand and Hawaii practically any morning

when the static was at fairly low ebb, still I was never able to hear even so much as a suggestion of any of the Japanese transmitters," prefaces Paul L. King, 1523 Madison St., Madison, Wis. "That was especially puzzling since I am one of the three people in inland U. S. to report verifiable reception of 3GL, a 50-watter in Geelong, Australia, according to the station's personal letter to me.

"Well, on the morning of Jan. 10, I turned to 1420 and was pleasantly surprised to find KICK coming through for the first time. I then thought I would try for across the Pacific; I turned back up the dial only to run into Japs—here, there and all over. I logged JOAK-1, JOAK-2, JOBK, JOCK-1, JOCK-2, JOHK, JOIK, and JOJK, and there were three or four more which I might have added if I had spent another half-hour with them. Now if you're good at puzzles, you might tell me why the Aussies have suddenly failed me and the Japs apparently taken their places, after four years of DXing."

#### Radio in Gulf of Mexico

Theron H. Colegrove, Radio Operator of the Tug "H. C. Cadmus" in the Gulf of Mexico remembers that he is just starting on his fourth year of DX with a log of 732 on the b.c.b. "My more or less remodeled National SW3 is now over two years old but still goes out after the distant stations and pulls them in with the help of an extra t.r.f. stage and an extra a.f. stage. On this last trip at Key West, I heard 2FC with fine speaker volume in spite of the fact that this is the time of year when the VKs are not supposed to come in well and also that Key West is less than 25 degrees from the equator, consequently there is plenty of static. Shortly after I left Key West, I burned out the tube in my extra r.f. stage but the old National continued to carry on with only four tubes, logging KGU, KGMB (on frequency checks), 2UE, Berlin on 832, and Fecamp, all with more than comfortable speaker volume.



"*Roses and Drums.*" one of the best of the air-dramas, has charming Elizabeth Love to play the part of Betty Graham, the heroine of so many exciting adventures in this series of historical incidents. Miss Love is shown here in the living-room of her New York apartment.

XEWW puts a fine signal into the Gulf between Tampa and New Orleans in the daytime although KMOX gives him some stiff competition in some sections."

#### Hates the All-Nighters

"Isn't there something that can be done about our Pacific Coast all-night nuisances?" complains R. W. Schofield, Care The Wilma Plunge, Missoula, Mont. "I mean CFCT, KXL, KGFJ, KJBS, KWJJ, XEAE, KPCB. These stations clutter up their channels all night and never allow another station to come through. They are so spaced on the b.c. band as to spoil reception from many foreign transmitters beside that of other North Americans. Something must be done. If these stations are allowed continuous broadcasting, other stations will take up the idea until at length there will be no channel free for distant reception.

"Another thing bothering our Western reception is for eastern DX clubs to obtain special DX broadcast from stations on the West Coast. Why can't these clubs hear these stations during their regular broadcasts? Most of them are on the air on clear channels between 10 p. m. and 1 a. m. PST which is 1 to 4 a. m. EST. This gives ample opportunity for reception in the East without special DX programs."

### A Week's Record

"I have a new Midwest and will say it has anything beaten I have ever heard," boasts C. E. Hansen, 502 West 1st, Julesburg, Colo. "Have had it only a week and have logged 103 U. S. stations, four in Mexico, five in Canada and European stations such as EAQ, DJA, GSB. Can get EAQ at 2 p. m. MST and South American stations come in best about 8 p. m. This morning at 9 a. m. GSB came in fine. Among my distance catches on the b.c. band, I consider KGFK, 100 watts, Moorhead, Minn., and KFVD, 250 watts, Los Angeles, the best. However I can get New York direct any time I want it. I am using a home-made cage-type antenna consisting of 100 feet of 7-strand copper wire run through glass insulators five times, making five strands 20 feet long with five ring spreaders. For a ground I use 50 feet of solid copper wire buried three feet deep and well moistened. Would like to hear from other DXers in Colorado. I am of the opinion that Colorado is a poor state for reception."

### Manila and Nanking

"Reception this winter has been marvelous," exults William Ellis, P. O. Box 13, Hughson, Calif. "Some nights as many as 25 Japs have come rolling in. Every morning KZRM and XGOA are like locals. We have heard those two stations till after dawn here. At times, the volume of XGOA is almost unbelievable being as loud as any local station. KZRM may be heard with fine volume but accom-

panied with static part of the time. While I hear most of the Japs each morning, I fail to hear very many VK or ZL stations—one of the mysteries of radio. I was fortunate enough to log LR5 on their DX for our club (the IDA) and sent a complete log of their hour program to them. This was one of the finest foreign programs I have ever heard. This reception was on a Silver-Marshall 724. My grand total is near the 600 mark." Mr. Ellis sends us two pages of interesting chat about the stars of the Pacific Coast programs. We are sorry we have not the space to publish it.

### Wants Texas Competition

"Beginning at 4:00 p. m. Sept. 1, 1933, I began a DX exploration of the air," states C. L. Powell, 6837 Ave., S., Houston, Tex. "With a total of 260 stations logged to date, 230 are in the U. S. (42 states and the D. of C.), nine are in Mexico, five in Cuba, five in Canada, seven (JOAK1, JOFK, JOIK, JOGK, JOHK, JOBK1, JOCK1) are in Japan, two (YV1BC and LT1) are in South America, and two (TGW and TIRCA) are in Central America. Every Sunday morning from about 3:00 until daylight the Japanese stations are on with volume enough to awaken the whole neighborhood. Tell the Texas DXers to wake up and send in more letters; I would like to stir up a little competition here." Mr. Powell says he received TGW on a new frequency of 1125; has anyone else had this experience?

### Fine Record for Nevada

"Some issues ago, in commenting on the reception of 50-watt Americans in the Antipodes, you inquired if any U. S. DXers had verified 50-watters of New Zealand and Australia," recalls Don H. Townsend, 602 Churchill St., Fallon, Nev. "I have verified three 50-watters in Oceania—1ZH, 2WL and 2XN. Besides these I have the following low-powered stations in Australia: 5AD, 300 watts; 4BH,

600 watts; 3KZ, 200 watts; 3UZ, 500 and 2KO, 200. I also have 1YA and 3YA in N. Z., JOPK and JOLK in Japan; Belfast, Ireland, and Berne, Switzerland; 2BL, 2CH, 2CO, 2FC, 2GB, 2UW, 2UE, 3AR, 3LO, 4QG, 4RK, 5CK, 5CL, 2YA, JOAK, JOBK, JOCK, JOFK, JOGK, JOHK, JOIK, KZRM, XGOA, and YV1BC." This is certainly a fine record. Too bad, Mr. Townsend doesn't say what set he uses.

### Keeps Byrd Log

"I stay right on the tail of the Byrd Expedition from the time I get home until the wee small hours of the night," relates William Oakes, 380 Arlington Ave., Sarasota, Fla. "I have had some pages printed especially for this log and have kept it from the time I first heard them which was the night of Dec. 24 while the 'Jacob Ruppert' was enroute to New Zealand. The log now stands at 15 pages consisting of 21 receptions. I have never received them direct but through LSX, KEE, WEM, WEF, or KEQ. I get the two-way conversation. At this time (Jan. 24) KJTY is broadcasting to LSX and I pick it up from that station. I have a Model 140 RCA but a very poor antenna system." Mr. Oakes sends in a fine list of stations he has logged on the short waves.

### Likes His Postal

"In response to the reader who inquired about the International Postal receiver, I have had one for several months and find it very satisfactory," reports Elfriede Tittel, 29 East 38th St., New York, N. Y. "Reception of all European, South American and other distant stations is excellent. The set seems capable of getting anything on the air. It has many excellent features such as draw type coils which facilitates the changing of three coils in one operation, band spread on congested bands, etc. Living in the heart of New York City I have many electrical disturbances to contend with. If any readers wish to hear further about my reception, I will be glad to hear from them."



*Replacing Fred Waring and his Pennsylvanians on the Old Gold hour. Ted Fiorito and his orchestra are heard over the nationwide network of the CBS from San Francisco. Fiorito, long an outstanding California leader, is shown above. Wednesdays at 10:00 p. m. EST.*

### The New 3YA

"The new 3YA station has been testing and it has excellent tone. I believe this station will be heard by many DXers in your country at better volume than 2YA. The new station is on 720." This advice is from S. Robson, President of the NZDXC, 100 Islington St., Invercargill, N. Z., who adds: "Conditions of late have been very poor here and I have found great difficulty in logging new stations of your country. I was, however, fortunate in hearing WRDW at very good volume one evening although I held them only ten minutes before they faded away. For the frequency tests of your stations, it has been full moon over here and as a result conditions have not been favorable."

### Another Woman Champion

An interesting item is taken from the tip sheet of the National Radio Club. It is signed by C. G. Huber and reads as follows: "A recent article in a Pittsburgh newspaper relative to the number of verifications held by a woman DXer of that city caused me to pry into the record of our Allentown (Pa.) member, Miss Ida C. Henninger. I discovered that Miss Henninger has a log that many of us male DXers would be proud to call our own. She has a log of 832

stations heard on the regular b. c. b. with a total of 702 verified. Included in the verifications are 85 2000-milers, CMBR, 15 watts, in Havana and several 10 and 15 watt stations in America and two Trans-Pacifcics."

#### Too Many JO's

"The station Stanley C. Schultz heard on his auto radio was XGOA in Nanking," believes James R. Tierman, 1470 Waller St., San Francisco, Cal. "I heard the program as described by Mr. Schultz on loudspeaker with practically no fade. They have changed their frequency to 660. As to the Japs, I wish I could deliver them all tied up in a parcel to some of your eastern readers who want them. They should be out here these winter mornings trying to DX with a Jap pounding in at every 30 kcs. with loudspeaker volume. They are almost as much of a nuisance as KGfJ on 1200. That is a closed channel. KGfJ must have bought it outright. They never get off it. Can't something be done?"

"Help," cries Fred Burleigh, 142 Converse Ave., Meriden, Conn., "What is the Spanish-speaking station between 640 and 650? Have heard it for the past few nights now. I don't believe it is XFG on 638.3. WSM is too strong for me to hold it for any length of time."

#### Radio in the Class-Room

"I value your magazine very highly," writes William A. Cainc, Professor in the Department of Romance Languages, College of St. Thomas, St. Paul, Minn. "It has been very helpful to me in tuning for the French and Spanish speaking countries on my new Atwater Kent all-wave, table model No. 708. I should be interested in corresponding with anyone who has a similar radio in order to exchange notes. I have been receiving foreign broadcasts rather well. I plan to install the set in my classroom in order to acquaint my students with the spoken idiom of the countries whose languages they are studying."

"Some of my outstanding catches, logged on a Radiola 44 and verified, are 4RK, 2BL, 4QG, 2YA, 5CK, Poste Parisien, Radio Normandie, LR4, YV1BC, HJN, HHK, FQN, KGY, KUJ, KIEV and KDB. I have reports out to 3LO, 3AR, 6WF, 10-AT, KFQD, KGBU, CMJO and LR3." This good report comes from George Nahas, 147 Seeley St., Brooklyn, N. Y. "This coming February will mark my fourth year in the field of DX. I believe I hold a DX record for most stations verified on this type of receiver."

"Did any of the stations hold frequency checks on Jan. 1?" queries Joel H. Armantrout, 602 E. Magnolia St., Fitzgerald, Ga. "I couldn't get any of them; however I logged 176 out of the rest. Out of 246 100-watt U. S. stations I have now logged 172 or 463 stations in the b. c. band in all. I have also logged 56 police stations. This is not bad considering the locality in which I live. I have a 6-tube Philco, Model 89 midget."

"I would like to hear from anyone who heard a foreign station on 1170 on Jan. 10," requests D. Robinson, 1114 Washington Ave., Rensselaer, N. Y. "They signed off at 2 a. m. EST, without giving the call. The program sounded like someone preaching and ending with a choir. And did anyone hear a foreigner around 1330 on the morning of Jan. 9? The language sounded like French."

C. E. Gates, 514 Ivy St., Pittsburgh, Pa., a member of Lee River's Orchestra which broadcasts daily over KQV, writes: "Arriving home during the wee hours, as musicians do, has enabled me to add some very good catches to my b. c. log. Two of these, received on two consecutive nights, were CX6 of Montivideo, Uruguay, operating on 650 with 5000 watts, and HJN, Bogota, Colombia, on 68 with 500 watts. Other good ones were VAS, XEN, KFSG, CKIC, KFVD, KTM, KMJ, KMTR and CHGS. The receiver used is a six-tube Freshman Equaphase."

F. Wiseman, 13 Kyle St., Scots-





*Angelo Patri, noted educator, has been a prominent personality on the air for three years in the presentations of his programs for parents. His current series, heard over the WABC-Columbia network every Sunday from 10:00 to 10:30 p. m. EST., is given in dramatic form with a cast of well-known actors portraying the various roles in the dramatized lessons dealing with child training.*

wood, Newcastle-on-Tyne, England, sends us a complete list of the American stations he has heard on the b. c. band and of whose reception he has made phonograph records which have been sent to the stations for verification. The list of 74 is too long to publish but it includes stations from Canada on the north to Argentine on the south and as far west as California. A remarkable record.

"Can any eastern readers identify a station I heard at 3:55 a. m. Jan. 7, on about 832," wonders William E. Johnson, Vinalhaven, Me. "I heard a chorus concluding a hymn followed by some talk in German. From 3:56 until 4:00 a. m. church bells rang and this part came in very clear and with good volume." As Stuttgart is, or rather was, an 832 with 60 k. w., this is undoubtedly the station heard.

"Can anyone tell me what station

on 1370 signs off at 10 p. m. PST with the tune, 'It's Time to Say Aloha Hoi to You,' and 'Goodbye, My Sweetheart, Until We Meet Again.' I have heard it several nights—phonograph program—but the announcer talks very softly and the station fades badly." The inquirer is Roy Covert, 3940 24th St., San Francisco.

"At last," exults Bert Tamblin, 20 Jean St., Port Arthur, Ont., "I have pushed through to the outside world. On Dec. 3, I was lucky enough to pick up LR5, thanks to the DX Calendar. Do they verify? The frequency checks have boosted my log up to 400. WKAQ was my best catch, I think."

"In the December issue, R. D. Causse asked what station on 1280 was broadcasting the play-by-play description of a football game on Nov. 10. The station heard was WRR in Dallas," states Cecil Hicks, 601 Melba St., Dallas, Tex., who adds that he has a Graybar, Model 700 and would like to hear from other owners of this set or from boys of eighteen.

"Received 10-BP, Wingham, Ont., 1195, on Jan. 10, as listed in DX Calendar," reports G. E. Ford, 802 South 9th St., Salina, Kan. "This completed the 10s in Ontario for me. The only 10 that I have not heard is 10-BU in Canora, Sask. Does this station ever give a DX program?"

James B. Crusan, 424 Smithfield St., Mount Pleasant, Pa., wants to correspond with DXers in California; and Roy Covert, 3940 24th St., San Francisco, wants to hear from someone living in the East. Consider yourselves introduced to each other, boys.

"Just a word to inform you that I received a verification from HIX on program mentioned on page 16, January issue. I enjoyed their program very much." This is from Guy R. Bigbee, Fort Benning, Ga.

*Next month Mr. Dashiell will continue his article on Neutralizing and Aligning.*

## DX in Tennessee

IN our February issue a reader in Tennessee asked for more DX reports from that state, particularly those from across the oceans. Evidently he had never seen reports we have published from J. A. Shanks, Russellville, Tenn. On both the s. w. and b. c. b. Mr. Shanks has made some remarkable records. In response to the above request, Mr. Shanks recapitulates: "Since April 8, 1932, I have verified on the b. c. band: 2CO, 2UE, 2BL, 2GB, 2SM, 2HD, 3AR, 3HA, 4BC, 4BK, 4QG, 4RK, 5AD and 5CK, all in Australia; 2YA, 3YA and 4ZW in New Zealand; KGU in Hawaii; HJN in Columbia; HIX in Dominican Republic; and WKAQ in Porto Rico. On the s. w. I have verified 41 stations in 19 different countries outside the U. S. I consider my best ones RNE and OCM. In addition to those verified a few stations like TGX, RV15, XETE, Rabat, PRADO, PSK, LSY, HBL, HBP, CP5 and others failed to verify my reports and the BBC sends out only courtesy cards. I am expecting veries from RV59 and COC.

I am another Midwest booster and, like the other fellows, can say that the 16-tube Midwest is a *real* DX receiver. I get the Aussies and Zedders as easily as the West Coast stations and sometimes better. I heard Poste Parisien and Radio Normandie on Jan. 8, 9 and 11 very fine. On Jan. 11, 12, 13 and 14, the Japanese stations JOAK-1, JOGK, JOHK, JOIK were coming in QSA4, R6 to R8, with JOAK-1 and JOHK coming in best. They were speaking English from 3:55 to 4:00 a. m. CST. These are the first and last times I have heard the French and Japanese stations but I hope to hear them again when conditions are just right."

As proof of the irresponsible character of many Cubans (and this also applies to many of the Mexicans) Mr. Shanks says: "I hear the Cuban stations almost anywhere on the b. c. band. For example, CMCQ is heard anywhere from 760 to 780 but most

of the time on about 765; CMK is now on about 723; CMC on 835; CMQ anywhere from 635 to 648." Mr. Shanks picked up XENT on 1115 on Jan. 26 and also reports that new station in Agua Caliente, Lower California.

Dear RADEX:

I enclose my check for one year's subscription .....

In the January issue (page 19), Mr. Anderson says HVJ is not received on 50.26 m. in p. m. here. Quite wrong. I have heard them many times and recently with great volume. Reception here on 50 m. has been very erratic of late. The Soviet station and HVJ both came very well one day and almost inaudible the next.

You are right in speaking of more and more interest in tuning DX on b. c. frequencies. I've so far gotten VK4BC, YV1BC, Poste Parisien, HIX, FQN, Fecamp, Toulouse, Hielsberg, Breslau, Leipsig, Hamburg, Frankfurt and Horby, Sweden.

Another phase of DXing that has never been featured is trying for *daylight* reception. I think this is a pretty interesting stunt. I have never been able to get more than 1000 miles at mid-day; have two Chicago stations verified at noon. Suggest this in RADEX, won't you?

I forget how many years I've subscribed but very nearly from the beginning and I'm just as eager for each new copy as at first.

Success to you.

Yours sincerely,  
Theodore Vail Bullard,  
South Orleans, Mass.

Editor's note: Through Mr. Bullard's mother and Albert E. Snow of Orleans, Mass., this letter came to RADEX after Mr. Bullard's sudden death on January 5.

# Neutralization *and* Alignment of RECEIVERS

## 1. Neutralizing T. R. F. Sets

● ● ● By B. FRANCIS DASHIELL

**M**ANY of our readers ask from time to time how to neutralize and realign their receivers. These are important matters to all owners of receivers who wish the best reception possible. And neutralization is of particular interest to operators of the older types of sets, usually those employing tuned-radio-frequency circuits. A few simple suggestions for making these adjustments at home will be given in two short articles. This month we will discuss neutralization.

The radio circuit necessary to amplify radio-frequency signals has a tendency to oscillate when three-electrode or triode tubes are used. Some means must be employed, therefore to prevent these oscillations. Otherwise the circuit will never be entirely satisfactory as a r.f. amplifier. A diagram of an elementary tuned radio-frequency circuit was shown in Part Five of the *Beginners' Story of Radio* appearing in the February, 1934, issue of *RADEX*. This circuit will oscillate, for it has not yet been neutralized. Such circuits are not found in modern radio sets. But many thousands of t.r.f. receivers are still in use, particularly in the rural sections, and the question of making adjustments is all-important when changing tubes or when the set begins to howl and whistle.

### Changing Tubes

Certain tubes, when used as radio-frequency or intermediate-frequency amplifiers, have no internal means of suppression of self-oscillation, and therefore require some form of neutralization. Such tubes are types: -01A, -12A, -26, -27, -30, -37, -40, 56, -99, and WD11 and WX12. When a

t.r.f. circuit utilizes screen-grid tubes, such as -22, -32, -24 or -35 types, neutralization is not needed. The feedback through the capacity between the electrodes of a screen-grid tube is very slight and regeneration is absent. When replacing old tubes with new ones in a t.r.f. circuit a receiver may require re-neutralization. Sometimes neutralization can be effected simply by switching tubes about. This may balance the capacity characteristics of the tubes with those of the coils and circuit.

When neutralizing a receiver all tubes and shields must be in place, and the voltages on the tubes must be exactly normal. The degree of neutralization can be determined with a meter, such as a milliammeter placed in the detector tube plate circuit. Or the loud speaker can be used, reliance being placed upon the ear to detect the intensity of the weak signal. Adjustments, when properly made, will provide perfect neutralization *only when a minimum signal or no signal at all can be heard*. Do not expect to adjust the set to obtain loud signals; just the opposite is the case.

### The Neutralizing Condensers

Neutralization is obtained by balancing two capacities in a tuned-radio-frequency circuit by connecting small neutralizing condensers, of about 10-20 mmfds., capacity, between (1) a center tap on the winding of the secondary (grid) coil of the radio-frequency transformer and the grid terminal of the *preceding* tube; (2) the lower terminal of the secondary coil and the grid of the preceding tube; or (3) the grid of the *first* tube and the small, additional neutralizing coil

wound close to the secondary coil. There will be no difficulty in locating the small condensers used for neutralization.

These tiny condensers, mostly of the "spring-leaf" type, are adjusted with long, insulated tools made of bakelite or wood. Either the screw-driver or wrench type will be needed, depending upon the type of condenser used in the set. Then a "dummy" tube will be required. This can be a weak, discarded tube, and one of the heater or filament prongs on the base should be cut off. Or the good tube from the socket being adjusted can be used if a short piece of soda drinking-straw is slipped over the heater prong to prevent the tube from lighting when it is inserted in its socket.

### Method of Neutralization

Now turn on the receiver and tune to some station that comes in clear from a distance without fading or interference. The setting of the dial should be above 1,000 kcs.—preferably about 1,400, kcs. Then adjust the volume so the signal will not be entirely eliminated when the *first* radio-frequency tube is removed from its socket. At this point insert the dummy tube in place of the regular tube. The dummy must be of the same type as the one removed and regularly used. Of course, the filament will not light because one prong was cut off, or insulated with the drinking straw.

We are now ready to adjust the neutralizing condenser. Use the insulated tool, and keep the hand away from the parts so that body capacity will not interfere. Turn the adjustment of the tiny condenser slowly one way, then the other, increasing the capacity and then decreasing it, and carefully note the signal volume in the speaker or the degree of deflection of the needle of the meter. There will be *one* point where the signal will entirely *disappear*, and, if there is no unshielded external pickup through the wiring and coils, this will be the correct neutralizing setting for the first r.f. stage or transformer. Then turn the screw or nut until the

signal again can just be heard to one side of the dead point; then reverse and do the same thing to the *opposite* side, and finally set the condenser to a point mid-way between the two audible points.

Replace the dummy tube with the good tube. Now remove the second r.f. tube and replace with the dummy. Adjust the second neutralizing condenser in the same manner as the first and replace with the good tube. Repeat the neutralization with the third r.f. tube, if one is in the circuit. When a radio set uses neutralized intermediate-frequency amplification (as in some superheterodynes) a similar method of neutralization can be followed.

### Testing in Operation

Place the receiver in operation. It should tune to any broadcast frequency without undue regeneration or noise. However, it may be that a set will continue to oscillate on the lower frequencies and, if so, the adjustments must be made again with the receiver tuned to some station around 600 kcs., instead of 1,400 kcs. Be very careful, for the adjustments must be made slowly, as a "hair-line" setting will be required to give good neutralization over the entire broadcast-band limits. Sometimes, after a receiver has been thoroughly neutralized, it can be made more sensitive by de-neutralizing or very slightly turning the tiny condensers past the dead-spot adjustments while in operation. These adjustments may take a long time to make, for balancing and rebalancing may be required at even three frequency readings on the dial—600, 900 and 1,400 kilocycles. But at last a point of perfect resonance and neutralization with freedom from regenerative howls and noises will be found.

Old receivers should first be carefully cleaned, for dust will accumulate between the plates of the neutralizing condensers and change their capacity and unbalance the adjustments. See the November, 1933, issue of RAEAD

(Continued on page 48)

# DEBATING Pros *and* Cons of RADIO

• • • With *the* EDITOR

EVERY question has two sides, so they say, and one mail brings us both sides of this one: "I would like to see those powerful foreigners listed in the regular RADEX," states Arthur E. Foerster, 1213 Bosart Ave., Indianapolis. "I have your DX Log of the World—and I certainly appreciate what a fine log it is—but I think RADEX is a much nicer log book for keeping an accurate record of stations heard, verified, etc." Now, on the other hand, we have a letter from J. W. Brauner, 17 East Spring St., Williamsville, N. Y., who writes: "I believe it is best not to include stations from outside the North American countries in your regular RADEX lists. Many of us use a checking system in our RADEX to show which stations are heard, which verified and those not heard and not verified. Inclusion of a large group of stations which only a few listeners can ever hope to hear, tends to complicate such checking systems and takes the prominence off the unheard-station markings in the list. I am gradually trying to eliminate my unheard and unverified symbols entirely and of course, the more stations which cannot be heard generally that are included, the more studying it takes to find the frequencies holding stations one wants to work on. Inclusion of these foreign stations also complicates tuning for the less experienced fans. Such a world list is by far better as a separate issue which can be referred to as the occasion arises." So far the debate seems to be a deadlock.

## Aerials Unnecessary?

A. M. Mitchell, Box 713, Portsmouth, Ohio, evidently does not agree with R. L. Haskins, the author of the

article, "Help Yourself to Better Reception," in this issue. Writes Mr. Mitchell: "In number after number of my good friend RADEX, I read letters from listeners having trouble because conditions are not satisfactory to erect an aerial. I cannot understand why you (who are so helpful in nearly all instances) do not relieve their minds by advising them that an aerial is not necessary to enjoy splendid reception. In order that you may not say that it is due to location or to certain receiving sets, I will give you my experience in the hope that it may aid your many readers who seem to have aerial problems.

"I have a General Motors 7-tube four years old on which I use an F&H grounded aerial, that is, one wire to the ground and two wires to aerial and ground posts on set. We enjoy daylight reception from Louisville, Chicago and frequently from St. Paul and New York. No difficulty at all in picking up KFI or KPO after 9:30 or 10 o'clock. Upstairs I have a Pilot 7-tube mantel type about one year old connected to bed-springs with no ground, using a similar type eliminator on which Pacific Coast reception is splendid. On the s. w. coil I have had VK2ME several times and can receive program value reception any good morning on Daventry's 25.2 station and evenings on both Daventry's 49.6 and Berlin's 49.8 meter stations.

"At our office located in a large warehouse entirely covered with metal sheet-siding and metal roof, an excellent aerial was erected out of doors and although we tried all kinds of insulation, the results were nil with several sets. I secured a small, round-type aerial eliminator to be connected only to the ground and with

a cheap, 4-tube Van Dyke midget connected thereto, I enjoy daylight reception from 178-meter police stations and broadcast stations within 200-mile radius. At night KFI can be brought in."

### And Grounds Too

And here is one who doesn't believe in grounds. "In my opinion a ground is unnecessary," says Wm. M. Eastwood, 124 N. Streeper St., Baltimore, Md. "Some folks might say I am all wrong in not using a ground but I have tried grounds with no better reception so I just leave them alone. I think location means more than a ground. My house is so shaped that it was a problem to erect the proper type aerial so I purchased a DX Aerial, which is a cage aerial about 30 feet long consisting of five wires which gives me about 150 feet of wire. I also use a shielded leadin and I grounded the cable that carries the lighting system through the house. Without using a ground, I have picked up 22 stations in California, Oregon and Washington, one in Argentina, one in Venezuela, one in Porto Rico, one in Prince Edward, one in Nova Scotia, nine in Mexico and sixteen in Canada, including one five-watter. I now have 70 Ks and 232 Ws and about 30 police and experimental stations. Do you think I need a ground? If Mr. Odenwalder has an apartment with a window on the wall side of the house, I am sure he will be surprised with the results he will get if he purchases a small DX Aerial similar to what I use but only about 30 inches long. He can only use this with a super."

### That New Mexican

After the February issue had gone to the printer, a new station in Agua Caliente, Lower California, took to the air. We began to get reports on it from all over the continent. It was reported variously as XEAC, XEAD, XEAP, XEAT, XEAV and XEAZ and on 810, 815 and 820. We immediately tried to get into touch with the station but our letters were unanswered. We have now called upon subscribers

in Lower California and San Diego, Calif., to assist us in tracing this new station to its lair. It must use at least 10,000 watts to be heard all over North America as it has been. As this is written we still have nothing definite about it. Some publications have reported it as XEAC but, as there has been an XEAC in San Luis Potosi for years, we do not believe that is the call but we may be wrong. Anything may happen in Mexico. Agua Caliente is a resort town near San Diego and should not be confused with the state and city in central Mexico, Aguascalientes. The people back of the new station are said to be Californians, some of whom were formerly connected with KFVD and KFAC. The antenna is said to be directional, aimed northward to serve the Pacific coast region.

### Buying a New Set

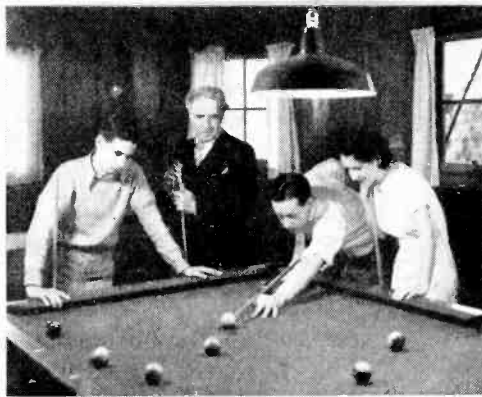
"I will consider it a great favor if you will suggest to me what kind of a radio to buy." This sentence occurs over and over in letters from our readers. Now it is quite impossible for us to test every make and every model of radio set. Even if we could do so, location plays too important a part together with aerial and ground for a test in one place to indicate the results in another. Our particular opinion is of little value. It is exactly as though you were to ask us to recommend which automobile you should purchase. If you are thinking of buying a new radio set, watch the letters from our readers telling of the results they have with the sets they own. Write them; they will be glad to give you their opinion. The general rule holds good in radio—you get what you pay for. If possible try out the set in your own home before you buy. We would much rather forfeit the down payment than keep a set that did not satisfy. Test the set for accuracy of calibration both on the b. c. b. and the s. w. Make sure of its sensitivity, its fidelity to tone and its ability to bring in a distant station without interference from stations on the adjacent frequencies.

## Chiseling In

"I quite agree with the article 'Down with the Radio Mob' in the January RADEX," says Edward C. Houlgate, 351 Adelaide St., London, Ont. "It sure burns me up even though the Texaco program which is my favorite is the worst offender. Another pain in the neck to me are the 'chiselers.' No doubt you have heard them. Just before 'Amos 'n' Andy' or some other wellknown program begins, some announcers run off several plugs for local firms. They usually run into half a minute or more of the Pepsodent time. While this does not always seriously interfere with the program, it seems dishonest. If a station is being paid for a program to begin at 7 p. m., it is hardly right to advertise another firm (usually one that never gives a nickel for entertainment) on the time that Pepsodent or any other sponsor pays plenty of money for. WJR used to be the worst of the lot. They ran several announcements just before the Pepsodent program and were always late. That was about a year ago. I have not listened to them since."

## Buildings Absorb Signals

"You cannot overestimate the need for placing an aerial in such a position that the lead-in can be kept free from the building, that it does not pass over roofs, or through the partitions or walls of buildings or run for long distances under floors," points out J. Roswell Flower, 14 W. Lincoln Ave., Lititz, Pa. "Buildings will absorb an immense amount of radio energy and DX reception cannot be hoped for under such conditions. Recently I took a trip in an auto equipped with radio. As long as we were out in the country, we had excellent reception. When we arrived in town, the presence of buildings on each side of us cut down the signal strength considerably. How much more signal strength would be lost with a lead-in trailing close to roofs or metal eaves or floors or ceilings, can easily be seen." On this same point, Kenneth Buxton, 282 Elgin St., Sarnia,



"One Man's Family" is considered by some critics to be one of the best programs. This serial is heard over a nation-wide hookup Saturday nights at 11:00 p. m. EST. on the NBC Red. This is a scene from the Barbours' game room where so much of the action of the story takes place. Left to right: Jack Barbour (Billy Page), Henry Barbour (J. Anthony Smythe), Clifford (Barton Yarborough) and Claudia (Kathleen Wilson).

Ont., writes: "Since writing to you last month concerning the vertical leadin, I moved my set right under the lead so it is no longer necessary to bring it around the house. In a month I logged almost a hundred new stations!"

## Reports on WLW

The first attempt at super-power in broadcasting is now being undertaken by WLW. It is now testing after midnight, using the call W8XO. We would be glad to compile data in regard to the effect of this high power and ask that our readers submit to us their experiences with this station. This data we will submit to the engineers of WLW so that they may see what effect their new power is having upon receiving sets throughout North America. Give us the date and hour received, the circuit of your set whether t. r. f. or superheterodyne, and the number of channels which the signal covers, together with any other data you may deem pertinent.

Readers frequently ask us to include the daytime programs in "What's on the Air Tonight." Aside from the lack of space available to

double this feature, we have the obstacle that many if not most of the daytime programs are sustaining, that is, at the expense of the broadcasting systems. As might be expected the moment the systems have a chance to sell this space to a sponsor for a commercial program, the sustaining feature has to give way. As a result there is almost a daily turnover in these daytime features. In fact, if readers will notice, their daily newspapers cannot keep up with the changes in the programs between noon and 6 p. m. It is therefore useless for a monthly publication to attempt it.

In this issue we are publishing our letter reporting reception in the Hungarian language. A. C. Lyell, 88a High Level Road, Green Pond, Cape Town, Union of South Africa, asks that we publish the same letter in Italian and Russian. If any of our readers write either of these languages fluently, we will appreciate it if they will send us copy for the printer. Profiting by our misadventure with the French language, we want to make sure that our letters in other foreign languages are quite correct.

Through the courtesy of Robert H. Weaver, 603 West Market Street, York, Pa., President of the National Radio Club, we are able to give our readers in this issue the revised data on frequency checks. Although no one knows but the Radio Commission just how long these checks will continue, there is every evidence that they will be on during March and possibly in April. Mr. Weaver says: "The National Radio Club will be among the first to support any plan that may be advanced to prevent the constant clashing of DX activities."

M. Mickelson, 3229 Bloomington Ave., Minneapolis, Minn., is forming an organization to be known as The Wireless Pioneers Society to be composed of dyed-in-the-wool radio pioneers. The organization is to be composed of men and women who have spent the greater portion of their lives in wireless and radio. In order

to qualify as a member, definite proof of one's pioneering in the art must be provided. Commercial OPs, Hams of both varieties, technicians, s. w. DX hounds, etc., are eligible.

Another friend of Canadian Commission broadcasting arises to remark: "The CRC is putting on very excellent programs. In one hour over CRCM, I heard fine programs from Charlottetown, St. John's, Calgary and Ottawa. I listen to many CRC programs and in my humble opinion, the good old CBS and NBC have a very formidable rival." This is Robert R. Rawstron, 296 Main St., Claremont, N. H.

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## STATION Notes *and* DX TIPS

SOME short notes from Francis Eugene Andrew, Box 152, West Liberty, W. Va.: "I use two-cent government reply postcards for verifications and get very good results from them. . . . KDKA has a DX Club which broadcasts tips for all clubs every Monday morning at 12:30 . . . . CFBO, St. John's, is on the air every morning at 5:00 EST with a weather report. . . . For the DXers who need Delaware, I suggest that they try for WILM, the first and third Mondays of each month between 1:45 and 2:00 a. m. EST. . . . KTUL has been testing frequently. They verify promptly for return postage."

Mr. Andrew believes that it is the duty of every DXer to support at least one club as it is the clubs which are bringing him most of his pleasure by providing DX programs. What if there were no DX clubs? he asks. There are few DX programs without a club sponsor, he thinks.

\* \* \*

We have heard a rumor to the effect that WTMJ, Milwaukee, will pioneer in a new art, facsimile reproduction of pictures and even printed matter.



According to report this station will broadcast pictures and news matter on a frequency between 1600 and 1700 kcs. after their regular programs have ceased at midnight. Listeners can leave their radio sets on and in the morning when they get up, there will be pictures and descriptions of leading news events of the day ready for them. The device for reproducing will cost about \$50 and may be attached to any set. It is said that two or three set manufacturers are planning to build "radio pens" into their new models. It is probable that station W9XAG of Milwaukee will be used for the transmission.

\* \* \*

"The call of the Providence, R. I., police station on 1712 is WPGF. WTEL, Philadelphia, has not been on the air at the time scheduled for its frequency checks. WBAL, Baltimore, is on the air every day from 7:30 a. m. to midnight, EST, although part of this time it is on 1060 and part on 760 synchronized with WJZ." These notes come from R. S. Rothschild, 36 Morris, University of Pennsylvania, Philadelphia, who then asks: "Is KOB ever on the air when WCAU is silent? Has XEOK been on the air at the time listed in DX Calendar within the last two months? What stations in addition to WBT are members of the Dixie Network?"

\* \* \*

On Jan. 23, the Radio Commission granted the application of the Palmer School of Chiropractic of Davenport, Iowa, for a construction permit to move their station, KICK, from Carter Lake, Iowa, to Davenport. Permission was also granted to change the frequency from 1420 to 1370 and to change the call letters to WOC. The call of the station in Des Moines will revert to WHO. Our older readers will recall the days when the old WOC at Davenport was one of the favorite standbys.

\* \* \*

"KFLV, Rockford, which has changed its call to WROK, is owned

and operated by the Rockford Broadcasters, Inc., and affiliated with the Rockford Newspapers, Inc., and broadcasts daily from the Rockford News Tower," says Anthony Misunas, 319 Grand Ave., Rockford, Ill. "Their usual daily and Saturday hours on the air are 9 a. m. to 12:30, 4 to 6, and 8:30 to 11 p. m. CST." Anthony says his log has now reached 517 and he needs only Delaware to complete his roster of the states.

\* \* \*

"The Federal Radio Commission recently authorized us to consolidate WIAS and KWCR, to increase power and install a new transmitter at Cedar Rapids," reports L. H. Greer, Technical Supervisor of the Des Moines Register & Tribune Radio Stations. "WIAS, Ottumwa, will sign off within the next two weeks. The new KWCR will use 500 watts day and 250 watts night on 1430 kcs. and will probably be in operation some time in April. The present KWCR assignment will continue operations until the new station is completed."

\* \* \*

On Jan. 24, in early evening, Maurice Clark, Medford, Ore., on about 980, heard this: "This is Ship San ——— off the coast of Mexico." A recording of "You're Gonna Lose Your Gal," played by Guy Lombardo and his orchestra and a recording of "Watching for My Caroline," also a Lombardo, were played at 5:32 p. m. PST. At 5:36 the station faded out. Is the RXKR at it again or is this another high-seas broadcaster with perhaps a license from the Mexican Government? Who can enlighten us?

\* \* \*

That station which we have listed for some time but which so many of our readers have been unable to find on the air, seems to be finally testing. We refer to XENT at Nuevo Laredo. Several readers report picking it up and, strangely enough, it seems to be on its assigned frequency of 1115. W. H. Lewis, 1328 Delaware St., Leavenworth, Kans., reports it about R7.

On Jan. 26, the FRC granted authority to station WTIC, Hartford, to change frequency from 1060 to 1040 and operate simultaneously with KRLD for the purpose of securing evidence for the hearing on Feb. 14 on the applications of WBAL, KTHS, WTIC and KRLD to make certain changes in frequency and operate simultaneously. The authority is evidently temporary.

\* \* \*

"The Mexico City stations, XEFO, XEB and XEW, are operating until 2 and 3 a. m. now," states Luther E. Grim, 505 S. Main St., Red Lion, Pa. "These stations were once hard to hear here after midnight because they operated no later than that. XEN can be heard after WOR signs off almost any night."

\* \* \*

"What power are XER, XEPN and XENT actually using?" asks Raymond M. Bell, 616 S. Allen St., State College, Pa. It's hard enough for us to keep track of the power allotted to the Mexicans and quite impossible for us to say what they are actually using. Many stations in Mexico seem to have been given the sky as the limit although few of them are using the maximum.

\* \* \*

"KXL on 1420 in Portland, can be heard most every night between 2:00 and 3:00 a. m. CST," postcards Ray E. Everly, Newton, Ill. "They advertise 'general auto service' quite often. KGFJ on 1210 seldom gives call letters but advertises Ford dealers and mentions the 'Rose Ballroom' in Los Angeles."

\* \* \*

"For the benefit of those DXers in the East who need Saskatchewan for their roster of provinces," tips R. G. Ludwig, 1463 Fernwood Ave., Toledo, Ohio, "CJRM, Moose Jaw, on 540, is on every night from 10:30 to 12:30 a. m. EST. Their address is 311 Main St. N., Moose Jaw, Sask."

## The Newark NEWS CLUB

BESIDES being the largest radio club of its kind in the world with 2000 members, the Newark News Radio Club arranges from 400 to 600 special programs every season and broadcasts this information over a chain of 35 radio stations," writes Alfred W. Oppel, Executive Secretary of the NNRC. The club has a most complete file of the history of every radio station ever on the air from the inception of radio broadcasting on the b. c. band. The Federal Radio Commission believes this to be more complete than their records!

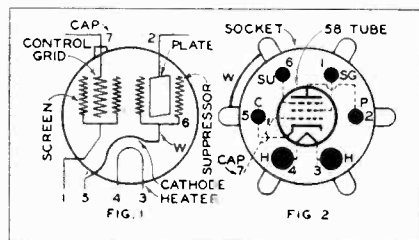
"Men in all walks of life are members of this organization. It is served by fifty officers and committeemen who receive no monetary recompense for their unceasing work. The club celebrated its seventh birthday on Jan. 6. Even super-powered stations like WLW, WTIC, WSM, WBAP, KSL, WSB and KVOO have dedicated DX programs to this club running from one to four hours in length. Members and radio enthusiasts from Massachusetts to far-off Colorado have attended the monthly meetings of the club. Kate Smith, Ward Wilson, The Jesters, John S. Young, Stoopnagle and Budd, Vincent Lopez, Neapolitan Nights Orchestra, Pickens Sisters and the Wandering Minstrels and other stars of like magnitude have been presented at these meetings without charge to our members. Very often this entertainment also includes refreshments and dancing. All of this is included in the \$2.00 necessary for the first year's membership not to mention the fine DX list given out weekly to members out of town. The dues after the first year are one dollar."

Mr. Oppel's address is 215 Market Street, Newark, N. J.

We will be glad to publish short and interesting outlines of the other clubs that may be submitted to us.

# SIMPLE SOLUTIONS for Technical Troubles

• • • By the TECHNICAL EDITOR



## Hum in Philco 70

*There is a very bad hum in my Philco model 70 set. It is there regardless of whether the control is turned up or down. I believe that a larger filter condenser in the set will remedy the trouble. What do you suggest about it?*

The replacing of the filter condensers will not get at the cause of the trouble unless one or both of the condensers are defective, or not of the proper capacity. The latter fault, of course, is out of the question in this receiver. The slightest variation of voltage in the second detector circuit, or audio system, can cause severe hum. Carefully check the bias resistors and their bypass condensers connected to the cathodes of all tubes. Be sure that no tubes are soft or gassy.

Since there are so many possible sources of hum we recommend a thorough test of the audio system. Yet such trouble is not always associated with the audio system for a defect in any tube or middle-tap resistor across the filament secondary coil of the power transformer may cause it.

## All-Wave Sets

*How low can the so-called "all-wave" receivers go down into the short-wave band? Will a set having a sloping sounding or baffle-board and speaker enable me to get greater distance and sensitivity with an all-wave set?*

The latest combination all-wave sets cover all the important short waves, from about 15 meters up to 200 meters, and the broadcast band from 200 to 550 meters. Below 15 meters the waves are very difficult to pick up and most of them are confined to experimental work. There are some

**P**LEASE advise me in more detail how to connect the 58 detector tube socket in your short-wave converter, described in the June, 1933, issue of *RADEX*. I find that the 58 tube has seven connections (6 pins and top cap), but your drawing shows only six connections to the tube.

The base of the 58 tube has six pins, and the control-grid is on the top. The 58 fits into the standard 6-contact socket. This socket is shown in Figure 2, with a symbolic tube layout in the center showing how the elements are connected to the socket terminals and contacts. In the circuit diagram, shown in the June issue, and reproduced in more detail here-with in Figure 1, the part marked "cap" attaches to the top of the tube. This is part 7 in Figure 2, and there is no socket contact for it. The two heater leads are connected to socket terminals 3 and 4, as indicated. The cathode terminal (5) of the socket must be connected to the suppressor-grid terminal (6) of the socket with a piece of wire (W). See Figs. 1 and 2. This connects the suppressor to the cathode within the 58 tube, and is the additional contact you have missed in our original diagram. Fig. 2 shows the socket looking down on the top with the 58 tube in place.

sets advertised as also being short wave receivers, but in fact they only go part of the way down into the low waves, picking up police, aviation and some amateur stations in this country. Care must be exercised when purchasing a receiver to see how far down into the short-wave band it will tune.

The inclined sounding board means no more to short waves than it does to broadcast waves; it simply tends to improve the quality of sound and volume from the speaker.

### A Noisy Eliminator

*Why is it that my Majestic A and B eliminators crackle badly when they are in use and spoil my radio reception?*

These devices have a number of resistors and filtering condensers within them. When one or more of the resistors or condensers become defective the trouble you mention will be noticeable. A loose or broken connection can also cause much annoyance. A loose or dirty potentiometer or voltage control will prove noisy. There is nothing to do but examine and test each of the internal parts, including the rectifying tubes, and replace the troublesome part.

### Phones on Philco 90

*I have attached headphones to my Philco 90 receiver, but cannot tell which are the voice coil wires in order to place the voice control or silencing switch.*

Close to the speaker unit you will see an output transformer bolted to the speaker field magnet. From one side of the transformer there are two small, soft wires; one black and the other white. They run down into the innerside of the cone of the speaker. These are the voice coil wires. Make a cut or break into either one of these two wires and insert the silencing switch at any convenient place even if longer leads have to be extended.

### Improving Power Output

*I wish to substitute a type -71A tube in place of the -01A now in my*

*power output stage. Will many changes in wiring be necessary?*

The -01A tube takes the same voltage and amperage as the -71A. They use the same socket. Therefore, a -71A can be inserted in a socket previously filled by a -01A, and will operate at the proper heater potential and current consumption. But the -71A uses a much higher B battery voltage than the -01A—up to 180 volts. The following C bias must be used: 90 volts of B battery requires -16.5 volts; 135 volts uses -27 C volts; and 180 volts of B needs 140.5 volts C. It all depends, as you will see, upon what B battery will be used.

You will have to separate the two audio stages. The first, which will be a -01A tube, must have from 3 to 4½ volts C battery on its grid, as at present. The second, or -71A power tube, will require from -16.5 to -27 volts C battery for a 90 or 135 volts B battery, respectively. Two wires to the -A or -F terminals of the first and second audio-frequency transformers will become necessary, each connecting to the proper C battery terminal.

### Phones on Crosley

*I wish to use headphones with my DeForest-Crosley model 603 receiver that has two -12A power tubes in push-pull amplification so as to get the full benefit of all the power on weak signals.*

The telephones may be connected across the plates of the two -12A power tubes with wafer adapters placed beneath the tubes to make connections to the plate pins, for the tubes must not be removed from the set when it is being used. For your purpose you will need two four-hole wafer adapters for the 4-pin -12A tubes. We refer you to the February, 1933, issue of RADEX, for a complete description for attaching phones to a radio set. Figure 2A, page 2, shows this adapter. Figure 4, page 3, shows how to connect the phones with blocking condensers and low ohmage resistor in series with the plates of the power tubes.

### Pickup on Majestic Set

*I would like to connect a phonograph pickup to my Majestic model 301A receiver. Will you explain it so I will have no trouble making the connection?*

We believe you have made a mistake about this set being model 301A, and that it is 310A instead, or perhaps a 300A. Because of this uncertainty we give instructions for both sets.

Apply the volume control output of the pickup device to the control grid cap of the second audio tube, a Q-58-S, and to the chassis of the set or ground. To prevent broadcast signals from entering the audio system turn the radio volume control to zero or detune the set. This is for set 300-A.

For set 310A, apply volume control as above but connect the terminals to the grid of G-55-S tube and the ground or chassis.

### Oscillator Tube?

*Please tell me how to find the oscillator tube in my Scott all-wave receiver.*

The oscillator is a -27 type tube. It can be identified easily because of its connection to the shielded oscillator coils. The first audio amplifier, which is a -27, also is closely associated with the power tubes, and the others all have control-grid caps on them. The oscillator is placed in position in the radio-frequency signal line between the first radio-frequency tube and the first detector. The first radio-frequency tube is the first of the signal series (r.f.) and is near the antenna and ground terminals.

### Additional Speaker

*I have a Majestic set, model 151, to which I wish to connect a magnetic speaker to operate in an adjoining room. If I cut one of the voice wires and connect a magnetic speaker in series with the dynamic speaker and shunt this connection with an "on-off" switch, will that work? Then, if I cut one of the power wires and insert another switch, will that, when open, cut*



*Erno Rapee demonstrates the latest addition to the family of musical instruments, the jawbone of a South American jackass. The gentleman playing the novel instrument is William T. Paulson, drummer of Rapee's Seven Star Revue. Sundays at nine p. m. EST on the Columbia.*

*out the dynamic speaker of the Majestic and operate the magnetic speaker instead?*

Your proposal for connecting the magnetic speaker would not do as the magnetic speaker has far too high an impedance (resistance to an alternating voice current) and cannot carry the heavy voice currents required properly to operate the regular dynamic speaker at the same time.

The best method is to run a separate circuit from the plates of both the push-pull power tubes. Connect the magnetic speaker across the plates with two 0.5 mfd. fixed condensers between the plates and each lead of the speaker. Do this as you would a pair of headphones, as described in Figure 4, page 3, the February, 1933, issue of RADEX. Or, the primary of a high ratio step-up transformer (about 15 ohm primary and 4,000 ohm secondary—ratio about 1:15) can be connected across the two wires leading to the voice coil of the speaker. The magnetic speaker is connected to the secondary outlets of the transformer. A switch in the primary leads of the transformer is used to turn the magnetic speaker on and off.

### Weak Reception

*My set is a Crosley model 148.*

*After five or ten minutes reception becomes distorted. The stations also become weaker. A checkup shows that the voltage on the 42 pentode is lower than the normal of 250 volts. I wondered whether the bias resistor on the pentode became too low and caused the current to go up and the plate voltage to fall, but a check of the resistor proved that the resistance was the rate 475 ohms.*

You have made a careful analysis. It seems to indicate, however, that your 42 pentode is a "gassy" tube and should be replaced. On the other hand, it is possible that the cathode filter condenser of the output tube intermittently shorts itself and thus prevents the bias resistor from being effective. Also, we suggest that you inspect the coupling condenser from the detector plate to the 42 tube grid. If defective or shorted, it will cause this trouble.

#### **Poor Selectivity**

*On a 1932 Philco, using types 42, -80, 58 and 57 tubes, I cannot receive any station below 710 kcs., unless I remove one of the 42 tubes. What is wrong? Is there any alteration that will enable me to receive short wave stations above 20,000 kilocycles on a Philco, 470, superheterodyne?*

Since the 42 tubes are audio power amplifiers they will have no direct connection with the ability of your set to receive certain stations, that action being controlled entirely by the signal (r.f.) stages preceding the audio circuit. Probably, since the sensitivity of the set is least at the low frequency and of the dial, and since the high voltages on the tubes throughout the receiver are increased by removing the load of the 42 from the power supply, reception of some of these stations is possible. This, then, may lead you to expect too much of your set. By removing the 42 tube you overload the heaters of the remaining tubes, cause greater electronic activity, and force those tubes to do more work than is intended of

them. This does not indicate that anything is wrong with the receiver. But you should have the voltage that is impressed on the heaters of the tubes carefully checked as it may be possible that it is low, and the removal of the 42 tube causes it to flare up to normal on the balance of the tubes. The trouble also may be due to poor alignment of the tuned stages, reduced or incorrect plate and screen voltages, improper bias values, or defective material. A thorough check of the circuits may indicate such a defect.

The Philco 470, uses eight tubes—two -27s, four -24s one -47, and one -80. There is no practicable alteration of this circuit that will permit reception of signals above 20,000 kilocycles, as this is its high frequency range or upper limit. To tune the set to higher limits would require the addition of more coils, switches and perhaps different variable tuning condensers. Such changes are far from being practicable.

#### **Converting Radiola 46**

*Can I change or convert my Radiola 46 so as to receive short waves? What work will be necessary? I cannot undertake alterations that are too difficult.*

It will be possible to alter this receiver so that some of the shorter waves can be received. In effect, your set will cut down the range of its broadcast reception and bring in some of the upper limits of the short-wave band, such as police calls, aviation and some amateur signals. Efficiency, however, will not be perfect, and no great distances can be expected for the short-wave broadcasts.

Remove the antenna loading coil and replace with a midget variable antenna condenser of about 50 mmfds. capacity. This is to be switched into the circuit when the short waves are being received. Then at least one-third of the total number of turns of wire must be taken from the tops of the secondaries of each of the three radio frequency coils or transformers.

This changes the reactance of the coils and lowers the wave lengths to which they will tune. But after removing the wire you will be able only to get from about 200 to 375 meters of the broadcast band and from 100 to 200 meters of the short-wave band.

### Resistance of Phones

*How can I tell which resistance to select when purchasing a set of headphones?*

Almost any pair of phones with resistances ranging from 2,000 to 3,000 ohms per set of two phones will be sufficient for use with modern radio sets. Expensive, high resistance phones were quite necessary years ago when sets were small and every bit of energy was called upon to operate sensitive phones. Both of the telephones in the set are connected in series, and their individual resistances are *added* together. The rated resistance of the headset should, therefore, be the same as the sum of the resistances of the two phones.

You cannot expect to hear stations on the phones that cannot be heard by the loud speaker. However, weak stations, with phones, will be easier to hear. The only advantage of the phone set is that it brings all of the signal energy close to the ear and also excludes all outside noises that would interfere with hearing.

### No Ground on Set

*I have a Zenith set, model 705. It has an inside aerial, but I cannot find any place to attach a ground wire.*

Many of the smaller sets, particularly the universal types for a.c.-d.c. operation, use built-in aerials and need no ground wires. In fact, the chassis of the set sometimes is at a positive potential with relation to the ground, and the attaching of a ground wire may bring about a short circuit. Usually when a ground is connected it is attached through a fixed condenser in series. But we see no reason why a ground cannot be used with your 705 Zenith, which, while a midset is also a straight a.c. receiver. The



*This vocal and comedy duo, Scruppy Lambert (left) and Billy Hillpot, are back in their familiar roles as "Trade and Mark," the well-known beakiskered Smith Brothers. Saturday evenings from 8:45 to 9:00 EST on a coast-to-coast hook-up.*

inside aerial, used without a ground, is merely for convenience, since the set is portable and to be used simply by plugging into any a.c. outlet.

An outside aerial, of course, will bring you much more signal energy, but there may be some additional trouble in the form of station interference. A ground wire can be attached to any place on the metal chassis of the set or bottom of the antenna coil.

## Kilocycles and Meters

AFTER reading the bouquets handed you by your readers, I feel inclined to tell you of one fault I have always found with your frequency listings," warns N. B. Hoover of the U. S. S. Salinas, Coco Solo, Canal Zone. "For instance, you list W2XE at 6,116 kcs. instead of 6,120. A little investigation with pencil and paper reveals that by dividing 300,000,000 by 49.02 meters gives 6,120." That is quite true but 300,000,000 is a rough approximation in round figures only. The correct figure is 299,820,000. Radio waves travel with the speed of light namely, 299,820 kilometers per second. Although some radio publications are content to use

the simpler figure, radio engineers do not do so. The conversion table of the Bureau of Standards of the U. S. Government uses 299,820. RADEX does likewise because it is correct. In the case mentioned, that of W2XE the difference is but four kilocycles but with a 15 meter station the difference between the correct and incorrect methods would be 12 kilocycles. At certain points the incorrect method would indicate the wrong coil entirely. Broadcast stations are allotted frequencies in kilocycles with a ten key separation. This is not true with short wave stations which are allotted wave lengths in meters. Where a set is calibrated in kilocycles or megacycles, as all the later ones are, it is necessary to convert these meters into kilocycles. It is useless to convert them wrongly. If a station has a wave 49.02 meters in length, the frequency is 6,116 and not 6,120.

In this connection, we still receive frequent inquiries from readers regarding the method of converting meters into kilocycles and vice versa. As is indicated above, the correct method is to divide 299,820 by either frequency or wave length to ascertain the other. Thus a station on ten meters would have a frequency of 29,982 kcs. A station with a frequency of 1000 kcys. would have a wave length of 299.8 meters.

#### For Novices

An inquiry comes to us from K. F. Birchall, 208 Flora St., Ottawa, Ont., which we presume is typical of the problems other beginners face. "I am a novice in the operation of a radio set and am experiencing difficulties in tuning in on any of the European broadcasts. My radio is a Stewart-Warner Convertible Short Wave Superheterodyne, Model 303. The short-wave dial is calibrated from 0 to 100 and the broadcast dial from 55 to 160. Will you enlighten me on the following points? How are these dials calibrated? Explain relationship between the dials and the frequencies. The frequencies of some European stations are given in four,

five or six figures; are these kilocycles? If the frequency of a station is given as 10.520 where would this be located on the s. w. dial? How does wave length affect tuning, that is stations of the same frequency but different wave lengths?"

In the first place this broadcast band dial is marked in kilocycles with the last cipher left off to permit more space. On this dial 55 means 550 and 160 means 1600. The s. w. dial is not calibrated but is merely marked for convenience from 0 to 100. To find where the various frequencies will come in on this dial it will be necessary to make a graph. This was fully explained in the article "Breaking Into the Short Waves" by Page Taylor in our May issue, No. 69. This article, by the way, should be read by every beginner in short wave tuning.

As already explained in the first part of this article, all stations with the same wave length must have the same frequency. It is exactly like an automobile which makes sixty miles an hour or a mile per minute. The two are synonymous. Wave lengths are converted into frequencies or vice versa as already explained. Most modern short wave sets are calibrated in megacycles, a megacycle being a thousand kilocycles. Thus 10.520 megacycles would be 10,520 kilocycles; to convert into kilocycles merely change the decimal point into a comma.

For a still more detailed and a-b-c description of this problem, see the story "Radio DX as a Hobby" in the October, 1932, issue of this magazine, No. 62.

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In the April issue, the post-office addresses for all stations will appear in the Index by Frequencies. The time on the air for the seven days of the week, has now been completed. Be sure to save the April issue as these addresses will not appear again for another year.



# DELVING *into the* Short Waves

• • • *With* PAGE TAYLOR

**W**HILE short wave reception has been considerably below par for the past month or so, listeners who have searched their dials carefully have been rewarded by picking up transmissions from several new stations. A new station that has created considerable interest among our readers is COC at Havana, Cuba, on approximately 50 meters or 6 megacycles.

One of these reports comes from Ansel E. Gridley, P. O. Box 1294, Sarasota, Fla., who writes, "This afternoon at about 4:45 p. m., EST, I heard a new Cuban station which has not yet been reported. The call letters are COC and the Wavelength 50 meters. My past experience with Cuban and South American s. w. stations has been that if the station had any volume the quality was usually poor, but such is not the case with this one, as it comes in QSA5, R9 with perfect quality. Announcements are made in both Spanish and English. Their address was given as P. O. Box 98, Havana."

Sam J. Keiffer, Hotel Missouri, St. Louis, reports COC working at 7 a.m., CST, on a Sunday morning. He says that they announced their frequency as 6010 kcs. but they were heard between 5970-80 kcs.

## More Cubans

Other new Cubans are reported by J. A. Shanks, Russelville, Tenn. and Geo. W. Burns, 2466 Wahl Terrace, Cincinnati. Mr. Shanks has heard a station on 25.95 meters working on voice and CW, giving the call sign CMB. Mr. Burns' postcards, "Heard Havana testing with New York for hours last night for Pres. Mendieta's address. The Cuban announced his wavelength as 51 m. and the call, first, as CMA1, then as CMB2. Earlier in the evening I heard a CMB2 on

CW on about 8400 kcs., so I wonder if CMA1 was not the correct call for this new one on 51 meters. He was QSA5, R8 until 9 p.m., when he went way down."

## Other New Ones

Other new stations are mentioned in a letter from R. M. Carter, 820 McKinley Ave., Ann Arbor, Mich. One of these is ZSV, Walvis Bay, South Africa, which has been heard on 35 and 36.5 meters working with Nassau ZFS between 8 and 11 p.m., EST. GYD, 68.5 meters, Rugby, England, also was heard working with Nassau. This letter continues, "I heard VE9DN on 6005 kcs. mentioned again over the Canadian Network but have not yet picked him up. WCN on 5080 works with Bermuda and England after dark. The frequencies below 5 megs. have been most active lately as I have heard several brand news calls, such as CGA5 and CJA2. These stations, with GDB, England, have been heard almost every day from 3:30 p.m. until well after dark. They all come in excellently. I know the calls are correct as I heard them at least two dozen times. GDB is on 4320, CGA5 on 4905 and CJA2 on 9332 kcs. The new Barranquilla station, HJA3, has been working often with an HJA2, which is located in Bogota. The frequency of HJA2 was given as 5825 kcs."

A letter was received from Mr. George C. Kenworthy, Program Manager of VQ7LO, a station for which many veteran tuners have been dialing for years. Mr. Kenworthy gives the schedule of 7LO in GMT as follows: Monday, Wednesday and Friday, 1045-1115; Tuesday, 0800-0900; Thursday, 1300-1400; Saturday, 1600-2030 and Sunday, 1600-1900. Evening programs are transmitted daily ex-

cept Saturday and Sunday from 1600 to 1900 GMT.

"With regard to the suggestion that we transmit a special program for RADEX readers," he writes, "we will be pleased to give an hour's concert on Monday, March 12, at 1030 to 1130 GMT. We hope this date and time will be convenient for your readers." The time given is 5:30 to 6:30 a.m. in EST. Letters should be addressed to Imperial & International Communications, Ltd., Box 777, Nairobi, Kenya Colony.

Mr. R. H. Tomlinson has arranged a special with station HIZ to be dedicated to the IDA on March 17, commencing at 11:30 p.m., EST. HIZ works on 47.5 meters with 20 watts power. This program should be very well received. Send reports to Mr. George Abbes, Calle Duarte 68, Santo Domingo, D. R.

### The New KFZ

Station KJTY has now become KFZ. The 1000 watt Collins transmitter was moved from the Jacob Ruppert by dog sled and airplane to its permanent location at Little America, where it will have the advantage of directional antennae, one directed towards Buenos Aires and another towards New York. These aerials should increase the intelligibility of the Saturday night broadcasts, and if enough improvement results the Antarctic portion of these broadcasts will be increased. At the present moment we have received no reports of reception of KFZ.

A letter from F. W. Sellens of Wellington, N. Z. describes in detail the welcome given to Admiral Byrd on his arrival there and the radio programs transmitted for the occasion. "I listened to a program from KJTY which was rebroadcast over 2YA," he writes. "It is not often we can get R9, no fading or distortion, reception from an American s. w. station, but then, of course, we don't often have a USA station as a neighbor."

Mr. Sellens advises us that ZLW is no longer used for telephony, station

ZLT now being used for that purpose. He adds, "ZLT have changed their wave to about 27 meters, which is a seasonal change to suit altered conditions across the Tasman. It is not on at all regular, not much business offering, but it works around 1 a.m., EST. I talked to an officer of this station a few days ago and he said they have had reports from all over the world, some being OK, but many of which are not. They appreciate genuine reports, but have got tired of receiving what obviously are fakes, sent in the hopes of getting a QSL card." This last statement applies equally to all stations. Possibly the refusal of many of them to verify reports is a direct result of this practice, as they cannot take time to sort the good letters from the bad.

The German stations have changed their schedule but none of the letters we have are in agreement about the new schedule. Everyone is agreed that DJC now works from 8 to 11 p.m., EST, and that DJA is no longer used at all, but everyone differs on the other two. As DJB and DJD are not coming through it is not possible to check their schedules from reception. For years it has been a habit with the German Stations to announce conflicting schedules.

### Changes in Calls

The call sign prefixes allocated to several countries have been altered while other countries have had additional prefixes assigned. Commencing the first of this year, all radio stations commencing with U or R will be located in the Soviet Union. Austria now uses OE- instead of UO-, so that UOR3 will now be OER3. The Netherland East Indies had to drop their U- prefix but now have YBA-YHZ as well as PKA-POZ. Canada has been assigned CYA-CZZ and VXA-VYZ in addition to their former assignment CFA-CKZ. France now has TKA to TZZ, as well as all the F's, while call signs of Argentine stations run from LOA to LWZ. Venezuela now has YWA-YWZ in addition to YVA-YVZ.

We have just seen the new Bulletin which is compiled and issued fortnightly by the Chicago Short Wave Radio Club, P. O. Box 240, Chicago, Ill. This bulletin includes a summary of s. w. reception in the Chicago area and shows listeners at a glance just what is being heard, how, and when it is being heard. The arrangement of the material is entirely original and the congratulations of this department are extended to the officers of the CSWRC. The following item is "lifted" from this Bulletin: Radio Station EAR58 informs the CSWRC that they are just completing a new 200 watt transmitter which should be in operation very soon. Their daily schedule is 5 to 6:30 p.m., and the wave length, 41.6 meters. EAR58 can be addressed at the Radio Club de Tenerife, Alvarez de Lugo 1, Santa Cruz de Tenerife, Canary Islands.

#### New One in Argentina

"While tuning the other night for OA4B, I ran into a new station," contributes Robert L. Weber, West McHenry, Ill. "It was on 42.2 m. and the call was LU5CZ, Buenos Aires, Argentina. They announced L, London, U, United States, C, Cairo, Z, Zero." This announcement varies often and is many times omitted. Phonograph records are heard and the operator calls "CQ DX." This is an amateur station owned by Jorge Delcasse, Cuba 1919, Buenos Aires.

Santiago M. Vegas of Station YV2AM writes Mr. Weber that he is going into the broadcasting business and will make many tests on 6070 and 9600 kcs. between 5 and 10 p.m., EST, changing the time and frequency each day. Mr. Vegas did not know at the time he wrote what his new call letters would be, but said that in any case he would mention "YV2AM Experimental, Maracaibo, Venezuela."

"W4XB, Miami, is back on the air on their old wavelength of 49.67 meters from 3 to 11 p.m. This station never verifies so please warn the boys to save their money," advises Chas. A. Perdicaro, 7225 New Utrecht

Ave., Brooklyn, N. Y. "W3XL operates on two wavelengths now, 46.69 and 17.32 meters. 49.69 meters is heard Fridays from 5:30 p.m. to 1 a.m. and from my records it seems that 17.32 meters is on from 11 a.m. to 5 p.m., also on Fridays W8XAL is also back on the air on 49.5 with 12 kw."

#### Some Army Stations

"I am hearing several stations on about 6660, very close to HC2RL's frequency, in the afternoons," contributes Geo. W. Burns, 2466 Wahl Terrace, Cincinnati, Ohio. "Only two are identified: PT2 at Langly Field, Va. and PX1 at Selfridge Field, Mount Clemens, Mich. PT2 has been heard calling several planes, designated by numbers, one of which I remember being JA2, another 187, etc., and a WMEP or WMEV in Florida. These are undoubtedly Army stations. On 200 kcs. PT2 is known as WYE and PX1 is WYC on 200 kcs." (WMEP is the Goodyear Zeppelin Works station at Akron, O. An MM7 in Montgomery, Ala., was reported by Richard M. Carter on 6660 kcs. We are curious to know why the Army stations have such strange call signs.—Ed.)

C. R. Anderson, 1026 1st St., Mason City, Iowa has just had his Lincoln receiver brought up to date by the builders. Concerning reception on his "new" set, he writes, "I have been tuning the set all day and in spite of very bad weather, reception has been remarkable. The 31 meter British station is good all day. VE9HX pounds in nightly R7 to R9. I heard a station leave the air at 6 p.m., CST, on about 31.2 meters giving a call that sounded like YV2BC, Caracas. I am not positive of this, however. By the way, I put up an antenna using 7-strand pure copper wire about a quarter of an inch thick, 80 feet long and 40 feet high and it sure pulls in the stations."

Mr. Anderson says he heard PSK nightly, and that on one of their programs they announced that listeners should not write to them but

should address letters to the Radio Club of Brazil. Mr. Perdicaro of Brooklyn, N. Y., was informed that PSK is a telephone station rented by the Radio Club of Brazil to broadcast their programs. PRBA was a phantom call used by this club for several world-wide broadcasts they featured at about the time of the Brazilian revolution, which were transmitted over stations PSA, PSH or PSK. Musical programs heard over these stations are still sponsored by the club and requests for confirmation of reception should be addressed to them at Rio de Janeiro.

### Summaries from Sargent

Clarence Sargent, 18 Clinton St., Dansville, N. Y., continues to enjoy good reception, judging by this letter from him. "HJ3ABB, Bogota, 40.05 meters, is heard here R7-8, but fades a lot. He is on the air daily except Sunday. Address, Apartado 509, Bogota. EDM, Madrid, may be heard broadcasting music on 15.36 meters near 9:30 p.m., EST, on Sundays. A card from XETE states they broadcast on 31.25 and 48.94 meters, but I haven't heard them on the long wave yet. The Radio Club of Brazil has no station but use PSK and PSH. They have a fine QSL card with the letters PRA3 on it. There is an amateur station LU5CZ on 40 meters who works KJTY and can be heard good after 10 p.m. He plays a cornet sometimes. On 20 meters I hear ON4AU, Belgium, playing music at times. An interesting 20 meter station is OA4B, Lima, Peru, who has a trained rooster who crows into the mike."

"Now for some information," from E. C. Houlgate, 351 Adelaide St., London, Ont. "I am hearing a station which I presume is HJ3ABD although it seems to be on about 40.6 rather than 40.5 meters at present. It is being heard at good volume between 5 and 5:40 p.m., nearly every day. While volume is good the readability is just about zero owing to distortion. Music is heard well but the speech is

all cut up. VE9HX on 49.1 have apparently got their new transmitter going as they are heard around 5:30 p.m., easily R9. Yesterday (Sunday) I had the very good fortune to tune in LCL, Norway, on 42.92 meters. It cannot be heard at all on the week days owing to CW, QRM and local interference. Reception yesterday was about QSA3, R6 on the loudspeaker."

Stephen V. P. Quackenbush, Jr., Clarks Summit, Pa., reports reception of KJTY on his Doerle 3-tube "Signal Gripper." He would like to hear from other DX'ers, particularly those interested in amateur activities.

"I have a few things to say about short waves. Reception has been anything but satisfactory the past month," complains Roy E. Robinson, 133 Mitchell St., Providence, R. I. "Early in the morning seems to be the best time. Sometimes during the evening Germany and Daventry come in fine, then disappear just at the time when they should be, ordinarily, at their very best. Speaking of Germany, I can't find them any more until around 7 p.m. I used to get them at 8 a.m. and all day long, but not any more. EAQ has not been audible lately. Sometimes they are on but I can only hear the faintest note now and then from them. RV59 came in fine last night at 5-6 p.m. Music and talking; they usually have only talking. What do other listeners say about I2RO? They used to be perfect but now their modulation is terrible. Pontoise became a complete fizzle when they started this directional aerial business. I heard that new station in Lima (pronounced Lee-ma), Peru, one night, but it wasn't very loud and faded deeply. They seemed to repeat certain notes, which I presume compose some sort of an identification signal." This letter from Mr. Robinson seems somewhat pessimistic but it is given here for the benefit of newcomers who have written complaining of hearing no foreign stations. Mr. Robinson is an experienced

tuner with many months of successful s. w. tuning behind him, so beginners can be assured that their poor results now are mostly the fault of present conditions. This bad spell seems to be more or less world-wide.

From Irving Goodeve, 1619 Kron Ave., Kalamazoo, Mich., comes an interesting report on RNE. "Wednesday morning, 9 a.m., I heard RNE, Moscow, testing with Rocky Point, in very good English and a strong R8-9 signal, no fading, no hum, and I used very little volume to bring them in. I use a 10-tube, Model 712 U. S. Apex receiver with s. w. converter, and would like to hear from others who use this set."

#### From the West Coast

"I would like to write of my s. w. reception here as it seems, unfortunately, that one seldom sees reports from the Pacific Coast and I am sure there must be many listeners like myself who would welcome timely news from this coast," comments Harold S. Allen, Apt. 104, 1929 N. W. Irving St., Portland Ore. "I am certain that to s. w. DX'ers on the Pacific, it must seem a 'Short Wave Paradise' to live in the East. Here we are an additional 3000 miles west of Europe, and the three hours difference in time makes a great handicap; stations heard there well at night time must, as a rule, be heard here in daylight, which is sometimes difficult to do. First, and by far the most consistent station here is EAQ, truly a remarkable station. I think the next best station is GSB, especially on their Transmissions Nos. 3 and 4. Pontoise is good here on their African broadcast. I have never heard a slightest peep from the German stations and would like to know if anyone in the west gets decent reception from them. I did hear DGU once, however, working SUV, Cairo, at 11 a. m., PST. The South Americans are coming through much better now, YV1BC, 3BC, HJ1ABB and YNA. El Prado is regularly received although with varying strength, but the star South American is PSK. HC2RL is very regular. The



*That glamorous stage and night-club star, Helen Morgan, is gathering new laurels on the radio, being featured on the Sunday afternoon CBS program, "Broadway Melodies," with Jerry Freeman and his orchestra. Star of "Showboat" and "Sweet Adeline."*

best time here for these stations seems to be from 5:15 to 6:45 p.m., PST. T14NRH has not been heard for about a year, due, perhaps, to his changing schedule. RV15 is very consistent, sometimes coming on the air as early as 11:30 p.m., and always an R7-9 signal. It is reported to me that a Singapore phone transmitter has been on the air on 15.100 megs. from 2-3 p.m. PST testing with London, using records."

Ernest Black, 54 Tyson Ave., Glenside, Pa., writes, "Yesterday I received a verification from PRA-3, reading, 'We wish to thank you very much for your cooperation and valuable information with reference to our programs transmitted simultaneously on 860 and 8185 kcs. Hoping you will continue to enjoy our Brazilian popular music . . . we are, Saudacoes Cordiais, PRA-3, Radio Club do Brasil, The Voice of Brazil.' This verification is a card attractively printed in blue with red letters surprinted thereon. It is a scene of a lake surrounded by mountains and palm trees."

There follow two interesting items, received just as we are to go to press.

J. A. Shanks of Russelville, Tenn., has a letter from Mr. L. N. Anderson, who is the Manager of station OCM. The address of OCM is All America Cables, Inc., 677 Calle de San Antonio, Lima, Peru.

Sr. Elias Pellet B. sends a photograph of his new 300-watt Collins transmitter, which works on precisely 6447.2 kcs. from 12 noon to 1 p.m. and 7:30 to 10 p.m. daily, EST. HJ1ABB is known as "La Voz de Baranquilla."

The special programs dedicated to RADEX from HJ1ABB, HC2RL and CP5 were very well received and we thank these stations for the courtesies shown to readers of this magazine. Mr. Pellet announced that he would continue testing his new transmitter every Sunday morning from 5-6 a.m. EST.

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## WORLD Call Signs

By RAYMOND M. BELL

**M**OST broadcast stations have call signs for identification purposes. All those on short waves, except Radio-Colonials, use call letters; these calls are assigned in accordance with international agreement. Europe is the only continent which broadcasts on long waves. Long and medium wave stations generally have call signs. English, French, and German stations are outstanding exceptions. Those stations which have call signs can be grouped into three classes, of which WGY, LR4, and 1RC are examples.

The first group, a combination of three or four letters is used most widely. Stations in Czecho-Slovakia (OK—), India (VU—), Union of South Africa (ZT—), Norway (LK—), Finland (OF—), and Sweden (SB—, SC—), use three letters. Of the above countries the first four generally assign the third letter in accordance with the name of the city, e.g. OKP Praha, VUC Calcutta, ZTJ Johannesburg, LKO Oslo. Bra-

zilian calls are based on PRA—, and Japan uses JO-K. Tokio is JOAK, Osaka JOBK, etc.\* North American stations use three or four letters. The United States uses K for western and W for eastern stations. Mexican calls are based on XE— (commercial) and XF— (government). Cuban calls begin with CM—. Most Canadian calls contain two C's, C—C— or C—C—. All combinations begin with CF, CH, CJ, or CK, except the new C. R. C. stations, CRCA, CRCO, CRCS, CRCT, and CRCV.

The second group of stations use call signs made up of letters followed by a number. Spanish stations, such as EAJ1, illustrate this. The U.S.S.R. call signs are similar, e.g. RV70. This type of call signs is popular in South America. Argentina uses LR—, Chile CE—, Uruguay CX—. DX listeners are familiar with LR4 in Buenos Aires. It may be of interest to point out here that the only stations in the world using over 15 kw. outside of Europe and North America are in Buenos Aires.

The third type of call signs is illustrated by 2LO. This type is used in Italy, Australia, and New Zealand at present. 3LO Melbourne and 2YA Wellington are examples. Many short-wave stations use this kind of call with an international prefix, e.g. W8XX, VK2ME, VE9GW.

A study of world call signs reveals a number of unusual ones, mostly in the United States. Brazil, however, offers PRAY at Mogy das Cruzes. The United States has KMBC and WMBC. Cuba has CMBC. Waco, Texas uses WACO. Other odd American calls are KICK, KNOW, WARD, WASH, WEED, WELL, WILL, WIND, WOOD, WORK, and now WAVE.

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\*Editor's Note: The new Japanese Stations are using JO-G.

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For changes in call of UYR and other Canadian short-wave stations, see the article on page 40.

# The British STATIONS and PROGRAMS

• • • By PERCY DODSON\*

**B** RITISH stations are of three types: National, Regional and local relays. There are four medium-wave National stations, i.e. London, West, Scottish and North. All these broadcast, what is termed, the National program. The London and West National are on a common wave. On the long-wave band is another National transmitter at Daventry. The latter serves the majority of the British Isles, with the exception of some districts in Northern Scotland. There are five medium-wave Regional transmitters, London, West, Scottish, Midland and North. Usually, they each broadcast an entirely different type of program. The relay stations located at Newcastle, Aberdeen, and Plymouth transmit the National program. These stations are purely local and employ only small power. National stations use 50 kw. of power, with the exception of the long-wave, which is 30 kw. Shortly, when the new station is completed, the long-waver will use 100 kw. or more. Midland Regional uses 25 kw. and is on the same site as Daventry National. The other Regional stations have a power of 50 kw. This arrangement of one National and one Regional station per district is called the Regional Scheme. When completed, every listener will have available at least two distinct programs, when using only a simple type of receiver.

## The S. W. Stations

In addition to the stations mentioned, the B. B. C. operate short-wave stations on seven different channels, as follows: GSG, 1686m.; GSF, 19.82m.; GSE, 25.28m.; GSD, 25.53 m.; GSC, 31.3m.; GSB, 31.55m.; GSA, 49.59m. All these stations use 20 kw. aerial power, except GSG, and GSF,

which use 15 kw. These transmitters relay part of the B.B.C. programs throughout the day and night for the benefit of listeners overseas. Doubtless, many RADEX readers will have logged some or all of the above s.w. stations.

There are some striking differences between the programs heard from British stations and those heard in the United States. American broadcasting has developed into an advertising-publicity medium. The American listener pays for the programs indirectly, the advertiser relying solely on the good-will of the prospective buyer. In Britain it is different. Sponsored programs are barred. English listeners pay the Post Office an annual fee of 10/-, and hear no advertising propaganda. The British listener definitely gets good value for his money. Broadcasting is started daily at 10:15 a.m. and continues until midnight (Sundays until 10:30 approx.) with only slight breaks. Unlike the American, the B. B. C. programs are not split into hours or half-hours, regularly. Programs are varied and entertaining for the most part. In conclusion, here are the programs radiated from the National and Regional stations between 6 p.m. and midnight on Nov. 15, 1933, which will, no doubt, be interesting for comparison purposes.

## Regional

6 p.m.	"The First News."
6:30	Western Studio Orchestra. (W. & L.)
6:30	Studio Chorus. (M.)
6:30	Studio Orchestra. (N.)
6:30	Studio Orchestra. (S.)
6:30	Jan Beronka and Orchestra. (M.)
7:15	Relay from Shakespeare Theatre, Liverpool. (N.)
7:30	New Georgian Trio. (L. S. W.)
8:00	Student Songs. (Except M.)
8:00	Dorian Trio. (M.)
*8:30	Old Time Dance Music. (S.)
8:30	"Frae a' the Airts." (S.)
9:20	Leoncavallo's Opera "Pagliacci" from The Old Vic, London.

9:20 Gramo Records. (S).  
 9:45 Talk. (S).  
 10:00 Scottish Road Songs. (S).  
 10:35 "The Second News."  
 10:50-12 Dance Music. Roy Fox and Band.  
 (L)—London, (M)—Midland, (W)—West, (S)—Scottish,  
 (N)—North.  
 \*8:30—B. C. Theatre Orchestra. (L. N. W.)

#### National

6 p.m. "The First News."  
 6:25 Interlude.  
 6:30 Schumann's Violin and Piano Sonatas.  
 6:50 Talk. "Let's go to the Theatre."  
 7:05 For Farmers only.  
 7:30 Talk. "Some British Institutions."  
 8:00 Introductory talk to the Symphony Concert.  
 8:15 B. B. C. Symphony Concert from Queen's Hall.  
 9:10 "The Second News."  
 9:25 Symphony Concert—contd.  
 10:40 Poetry Reading.  
 10:45-12 Dance Music. Roy Fox and Band.

\*12, Old Bridge Terrace, Deansgate, Grimsby, Lincs., England.

## LIFE Among *the* OUTLAWS

**I**N spite of the example of the unlicensed station in Bridgeport, Conn., which was fined and ordered from the air as detailed in these columns last month, we continue to receive stories of new outlaws from here and there. Pennsylvania and Texas have been the particular breeding grounds for these gentry but now one has appeared on the West Coast.

From Herbert R. Lehman and John Biller, 3504 Geary Street, San Francisco, comes this report: "Frequency 1510, Station KIFS, Location, Port Klamath, Oregon; Time heard 6:40-7:00 p. m. PST. Volume good, quality good, fading none. Probably using 100 watts—not more than 250. Played Victrola records, announcing twice after each record. This being our first station above 1500 which it was by a good ten kilocycles, being free and clear of the 1500 stations, we immediately reported reception and requested pertinent station data. It is possible that this station is connected with KFJI at Klamath Falls as they directed all phone reports to

that station." Can any of our other western readers give us any further information about KIFS?

From Texas comes another report via H. S. Trumble, Route 1, Box 99-A, Port Arthur. "I have located what I believe is another outlaw station here in Texas. I picked him up on 660 at 12:39 p. m. Thursday, Oct. 12, and listened to him until 1:03 when he signed off. He gave his call as YOKM, the Voice of Yoakum. He gave station identification at 12:45 and again at 1:00 p. m. YOKM appeared to be conducting a contest as the announcer advised listeners the names of the winners would be announced at one o'clock. The winners got free passes to the Grand Theatre, Yoakum. He gave his phone number as 33. The station did not give the usual information regarding his frequency as required by the Federal Radio Commission but said: 'This is YOKM, The Voice of Yoakum, signing off. We will be back on the air again at 10 a. m. tomorrow.'"

And back in Pennsylvania we have three reports: "Concerning Pennsylvania's outlaw stations," writes Guy B. Welch, 114 Brown Street, Reynoldsville, Pa., "I have heard two new ones to add to my list of six already heard this summer. They are WPGA, Greensburg, on 800 from 9 a. m. to 5 p. m. daily and WTRO, Sykesville, on 935 from 4:00 to 5:45 p. m. daily and other irregular periods."

Says Donald C. Hamilton, Jr., 5814 Murrayhill Place, Pittsburgh, "I have received three new stations which are not listed in RADEX. They are WWSB in Pittsburgh on 840, WNK in New Kensington on 810 and WKEN, also in New Kensington, on 850." Joe Stokes, 7318 Woodlawn Ave., Swissvale, Pa., reports WWSB as WWSP on 840 and still another, WBTC, on 800. He also reports a third in McKeesport on about 900 or 910. WWSP announces its power as two and one-half watts "The Voice of South Hills."



# A Letter in HUNGARIAN

IN THE March, 1933, issue of this magazine, (No. 67) there appeared a letter in the Spanish language to be used in reporting reception of Spanish-speaking stations. Accompanying it was the English translation. In the November issue (No. 73) the same letter was presented in the German language and in the January issue (No. 75) it appeared in French.

This month, through the courtesy of George Fabian, 1463 Virginia Park, Detroit, Mich., IDA correspondent to Hungary, we give the Hungarian translation.

Főmérnök  
Rádióállomás (Call)  
(City and Country)  
Igen Tisztelet Uram:

Eppen az imént igaz élvezettel hallottam állomásukat (Call) t.....kc. on és szives engedelmével az alábbi jegyzékekben a hallott számok közül néhányat fel fogok sorolni. Lesz szives ezt a jegyzéket átvizsgálni, állomásuk műsor-jegyzékével összehasonlítani és leadójuk vételét igazolni?

1. Zenekari szám
2. Zongora szám
3. Hegedű szám
4. Orgona szám
5. Marimba szám
6. Akordion szám
7. Enek szóló (férfi hang)
8. Enek szóló (női hang)
9. Enekkar
10. Klasszikus zene
11. Népszerű zene
12. Népzene
13. Táncczene
14. Fox trot
15. Induló
16. Keringő
17. Beszéd
18. Az állomás bejelentése
19. A vétel ereje—gyenge
20. A vétel ereje—erős
21. A vétel ereje—nagyon nagy
22. Hang színezet—szegényes
23. Hang színezet—gazdag
24. Légköri viszonyok jók
25. Légköri viszonyok rosszak
26. Amerikai zene
27. Magyar zene
28. Gitár
29. Duó Trió
30. Pontos időjelzés

Szives igazolásukat előre is köszönve és remélve, hogy a közel jövőben állomásuk ismételt vételét fogom jelenthetni, maradok

Kiváló Tisztelettel

(Name[and Address])

# Revised List of the Frequency Checks

Time in EST

## FIRST SUNDAY MORNING OF THE MONTH

- 3:00-3:20—KLCN, 1290, Blytheville, Ark.
- 3:30-3:50—KXYZ, 1440 Houston, Texas.
- 3:50-4:10—KTUL, 1400, Tulsa, Okla.
- 4:00-4:20—KWWG, 1260, Brownsville, Texas.
- 4:10-4:30—KGDY, 1340, Huron, S. D.
- 4:20-4:40—KRGV, 1260, Haringen, Texas.
- 4:50-5:10—KARK, 890, Little Rock, Ark.
- 5:00-5:20—KGKO, 570, Wichita Falls, Texas.
- 5:20-5:40—WNAD, 1010, Norman, Okla.
- 5:40-6:00—KCUA, 1260, Fayetteville, Ark.

## FIRST MONDAY MORNING OF THE MONTH

- 2:00-2:20—WCNW, 1500, Brooklyn, N. Y.
- WJAC, 1310, Johnstown, Pa.
- 2:10-2:30—WFAS, 1210, White Plains, N. Y.
- WRAK, 1370, Williamsport, Pa.
- 2:20-2:40—WBNF, 1500, Binghamton, N. Y.
- WGAL, 1310, Lancaster, Pa.
- 2:30-2:50—WAGM, 1420, Presque Isle, Me.
- WBTM, 1370, Danville, Va.
- 2:40-3:00—WABI, 1200, Bangor, Me.
- 2:50-3:10—WHDL, 1420, Tupper Lake, N. Y.
- WHAT, 1310, Philadelphia, Pa.
- 3:00-3:20—WCAX, 1200, Burlington, Vt.
- WLVA, 1370, Lynchburg, Va.
- 3:10-3:30—WSBY, 1500, Rutland, Vt.
- WTBL, 1310, Philadelphia, Pa.
- 3:20-3:40—WIBX, 1200, Utica, N. Y.
- 3:30-3:50—WQDM, 1370, St. Albans, Vt.
- 3:40-4:00—WMBO, 1310, Auburn, N. Y.
- 3:50-4:10—WGLC, 1370, Hudson Falls, N. Y.
- WBAX, 1210, Wilkes-Barre, Pa.
- 4:00-4:20—WCAD, 1220, Canton, N. Y.
- KPQ, 1500, Wenatchee, Wash.
- 4:10-4:30—WNBX, 1260, Springfield, Vt.
- WMBG, 1210, Richmond, Va.
- KGBU, 900, Ketchikan, Alaska.
- 4:20-4:40—WMBZ, 1290, Saranac Lake, N. Y.
- WBRE, 1310, Wilkes-Barre, Pa.
- KGVO, 1200, Missoula, Mont.
- 4:30-4:50—WESG, 1040, Elmira, N. Y.
- WNBO, 1200, Silverhaven, Pa.
- KOOS, 1370, Marshfield, Ore.
- 4:40-5:00—WRAW, 1310, Reading, Pa.
- KGY, 1210, Olympia, Wash.
- 4:50-5:10—WAAT, 940, Jersey City, N. J.
- WKOK, 1210, Sunbury, Pa.
- KFBL, 1370, Everett, Wash.
- 5:00-5:20—WSYR-WSYU, 570, Syracuse, N. Y.
- KFXD, 1200, Nampa, Idaho.
- 5:10-5:30—KVL, 1370, Seattle, Wash.
- 5:20-5:40—KGEZ, 1310, Kalispell, Mont.
- 5:30-5:50—KUJ, 1370, Walla Walla, Wash.
- 5:40-6:00—KGCX, 1310, Wolf Point, Mont.
- 5:50-6:10—KFQD, 1230, Anchorage, Alaska.
- 6:10-6:30—KVOS, 1200, Bellingham, Wash.
- 6:20-6:40—KIT, 1310, Yakima, Wash.
- 6:30-6:50—KRSC, 1120, Seattle, Wash.
- 6:40-7:00—KKRO, 1310, Aberdeen, Wash.
- 6:50-7:10—KFIO, 1120, Spokane, Wash.
- 7:00-7:20—KFJI, 1210, Klamath Falls, Ore.
- 7:10-7:30—KMED, 1310, Medford, Ore.
- 7:20-7:40—KORE, 1420, Eugene, Ore.

**FIRST TUESDAY MORNING OF T MONTH**

- 2:00-2:20—WQDX, 1210, Thomasville, Ga.  
 2:10-2:30—WBHS, 1200, Huntsville, Ala.  
 2:20-2:40—WHBQ, 1370, Memphis, Tenn.  
 2:30-2:50—WEED, 1420, Greenville, N. C.  
 2:40-3:00—WOPH, 1500, Bristol, Tenn.  
 2:50-3:10—WSMB, 1320, New Orleans, La.  
 3:00-3:20—WMBR, 1370, Jacksonville, Fla.  
 3:10-3:30—WHET, 1210, Troy, Ala.  
 3:20-3:40—WSJS, 1310, Winston-Salem, N. C.  
 3:30-3:50—WHEF, 1500, Kosciusko, Miss.  
 3:40-4:00—KMLB, 1200, Monroe, La.  
 3:50-4:10—WAMC, 1420, Anniston, Ala.  
 4:00-4:20—WKFI, 1210, Greenwood, Miss.  
 KWG, 1200, Stockton, Calif.  
 4:10-4:30—WTJS, 1310, Jackson, Tenn.  
 KPJM, 1500, Prescott, Ariz.  
 4:20-4:40—WFFB, 1370, Hattiesburg, Miss.  
 KERN, 1200, Bakersfield, Calif.  
 4:30-4:50—WENC, 1420, Americus, Ga.  
 KXO, 1500, El Centro, Calif.  
 4:40-5:00—WBBX, 1200, New Orleans, La.  
 KIEM, 1210, Eureka, Calif.  
 4:50-5:10—WROL, 1310, Knoxville, Tenn.  
 KLS, 1440, Oakland, Calif.  
 5:00-5:20—WRAM, 1370, Wilmington, N. C.  
 KGIX, 1420, Las Vegas, Nev.  
 5:10-5:30—WJBW, 1200, New Orleans, La.  
 KGMB, 1320, Honolulu, Hawaii.  
 5:20-5:40—WAML, 1310, Laurel, Miss.  
 KRE, 1370, Berkeley, Calif.  
 5:30-5:50—WSIX, 1210, Springfield, Tenn.  
 KGU, 750, Honolulu, Hawaii.  
 5:40-6:00—KGAR, 1370, Tucson, Ariz.  
 5:50-6:10—KCRJ, 1310, Jerome, Ariz.  
 6:00-6:20—KGDJ, 1100, Stockton, Calif.  
 6:10-6:30—KSUN, 1200, Lowell, Ariz.

**FIRST WEDNESDAY MORNING OF THE MONTH**

- 2:00-2:20—WEBR, 1310, Buffalo, N. Y.  
 2:20-2:40—WSAJ, 1310, Grove City, Pa.  
 2:30-2:50—WHIS, 1410, Bluefield, W. Va.  
 2:40-3:00—WFBG, 1310, Altoona, Pa.  
 2:50-3:10—WPHR, 1200, Petersburg, Va.  
 3:00-3:20—WKBB, 1310, E. Dubuque, Ill.  
 WDAS, 1370, Philadelphia, Pa.  
 3:10-3:30—WRBX, 1410, Roanoke, Va.  
 WHBC, 1200, Canton, Ohio.  
 KGIW, 1420, Trinidad, Ariz.  
 3:20-3:40—WBBL, 1210, Richmond, Va.  
 WTRC, 1310, Elkhart, Ind.  
 KICA, 1370, Clovis, N. M.  
 3:30-3:50—WBCM, 1410, Bay City, Mich.  
 KGHJ, 1200, Little Rock, Ark.  
 3:40-4:00—KIDW, 1420, Lamar, Colo.  
 WGBF, 630, Evansville, Ind.  
 WGH, 1310, Newport News, Va.

*(Continued on page 97)*

## What's Wrong with Radio?

*(Continued from page 7)*

beef; Tuesday, soup; Wednesday, hash, etc." Ed Wynn can bring a

snicker and a moment of relaxation but if he came to your town every Tuesday night, how many times a month would you go to see him? Or how many times a winter? Yet we are supposed to listen to him every Tuesday night of the year. The same applies to all the others of course and not to Wynn alone. Some of the artists, notably Rudy Vallee, have sensed this tiresome sameness and filled their programs with variety but most of the sponsors still insist upon giving us the same dose of entertainment weekly, semi-weekly or even daily *ad nauseum*.

Last night the writer tuned in three different programs in rapid succession and "*Did You Ever See a Dream Walking*" was being sung on each of them. He bade them goodnight and retired and another set was silent. It is probably true that stations themselves are watching their programs to prevent the same song being sung oftener than once in an evening but there should be some general control so that a beautiful song like "The Last Roundup," as an instance, would not be driven into an early grave by constant and continuous repetition.

If we have written strongly in discussing this problem, it is because we feel strongly. The Editor has his hand on the pulse of thousands of radio listeners and he knows that they are developing a fever that warrants the best efforts of the doctors that want to keep them radio listeners.

**NEUTRALIZING***(Continued from page 26)*

for instructions on cleaning up old sets. The receiver, at this point, may no longer tune to the previous figures on the dial, and re-alignment will become necessary. New adjustments for alignment, usually in the more modern superheterodynes, frequently become necessary, and next month we shall take up the question of Realigning The Receiver.

# The World Short Wave Stations

According to Frequencies in Megacycles (thousands of kilocycles) and Wave Lengths in Meters.

Megs.	Meters	Megs.	Meters	Megs.	Meters
3.750	79.95	6.069	49.40	6.900	43.45
13RO, Rome, Italy		OX Y, Skamlebaek, Denmark		GDS, Rugby, England	
4.107	73.00	6.070	49.39	1MA, Rome, Italy	
HCBJ, Quito, Ecuador		VE9CS, Vancouver, B. C.		6.966	43.04
4.273	70.05	6.072	49.37	EDQ, Madrid, Spain	
RV15, Khabarovsk, USSR.		OER2, Vienna, Austria		EDQ, Madrid, Spain	
4.283	70.00	6.080	49.31	6.990	42.89
HC2JSB, Guayaquil, Ecuador		W9XAA, Chicago, Ill.		LCL, Jeløy, Norway	
4.467	67.11	6.081	49.30	7.139	42.00
Y1D, Bagdad, Iraq		CP5, La Paz, Bolivia		HJ4AB, Manizales, Colombia	
4.513	66.43	6.090	49.23	HKN, Medellin, Colombia	
ZFS, Nassau, Bahamas		VE9BJ, St. John, N. B.		YV2AM, Maracaibo, Venez.	
4.713	63.62	6.094	49.20	7.207	41.60
ELDP, Palma de Mallorca, Balaeric Island		YV14BC, Caracas, Venez.		EAR58, Santa Cruz de Tenerife	
4.835	62.00	6.095	49.19	7.261	41.30
GDW, Rugby, England		VE9GW, Toronto, Ont.		HKE, Bogota, Colombia	
4.942	62.70	6.100	49.15	7.384	40.60
CZA, Drummondville, P. Q.		W3XAL, Boundbrook, N. J.		ZLT, Wellington, N. Z.	
4.972	60.30	W9XF, Chicago, Ill.		7.402	40.50
G6RX, Rugby, England		W9XQ, Chicago, Ill.		HJ3AB, Bogota, Colombia	
4.975	60.27	6.110	49.07	HJ3ABD, Bogota, Colombia	
GBC, Rugby, England		VE9HX, Halifax, N. S.		HKI, Bogota, Colombia	
5.045	59.42	6.112	49.10	7.465	40.16
ZFA, Hamilton, Bermuda		YV1BC, Caracas, Venez.		HJP, Bogota, Colombia	
5.143	58.30	6.116	49.02	7.501	39.97
PMY, Bandoeng, Java		HJ1ABD, Cartagena, Colombia		RKI, Moscow, USSR.	
5.678	52.80	PK1WK, Bandoeng, Java		7.621	39.34
VK3LR, Melbourne, Australia		6.120	48.99	RIM, Irkutsk, USSR.	
5.694	52.65	W2XE, Wayne, N. J.		7.685	39.01
HCK, Quito, Ecuador		6.140	48.83	TIR, Cartago, Costa Rica	
5.766	52.00	W8XK, Pittsburgh, Pa.		7.797	38.45
XAM, Merida, Yuc.		6.150	48.75	HBP, Geneva, Switzerland	
5.879	51.00	VE9CL, Winnipeg, Man.		7.830	38.29
HJ2ABA, Tunja, Colombia		YV3BC, Caracas, Venez.		PDV, Kootwijk, Holland	
HJ2ABD, Cúcuta, Colombia		6.182	48.50	7.940	37.76
XDA, Mexico City, D. F.		HJ3ABF, Bogota, Colombia		VK2ME, Sydney, Australia	
5.900	50.82	6.233	48.10	8.017	37.40
HJ4ABE, Medellin, Colombia		OCM, Lima, Peru		EDQ, Madrid, Spain	
5.948	50.40	6.272	47.80	8.030	37.35
HIX, Santo Domingo, D. R.		H11A, Sgo. de los Caballeros, D. R.		JAQ, Japan	
5.968	50.26	6.335	47.35	8.180	36.65
HVJ, Vatican City		VE9AP, Drummondville, P. Q.		PSK, Rio de Janeiro, Brazil	
5.996	50.00	6.378	47.00	8.218	36.36
RV59, Moscow, USSR.		HJ5ABB, Cali, Colombia		Rabat, Morocco	
Tananarive, Madagascar		6.379	47.50	8.271	36.25
ZGE, Kuala Lumpur, F. M. S.		HIZ, Santo Domingo, D. R.		HJ5ABF, Popayan, Colombia	
6.000	49.97	6.425	46.66	8.464	35.42
YV2BC, Caracas, Venezuela		W3XL, Boundbrook, N. J.		DAF, Norden, Germany	
6.005	49.93	6.430	46.63	8.506	35.00
VE9DN, Drummondville, P. Q.		W9XF, Chicago, Ill.		Italian Ships	
VE9DR, Montreal, P. Q.		6.430	46.63	8.646	34.56
6.008	49.90	PCM, The Hague, Holland		GBC, Rugby, England	
ZHI, Singapore, F. M. S.		6.433	46.60	9.014	33.26
6.015	49.85	REN, Moscow, USSR.		GCS, Rugby, England	
VE9CX, Wolfville, N. S.		6.447	46.50	9.091	32.97
6.017	49.83	HJ1ABB, Barranquilla, Colombia		XFD, Mexico City, D. F.	
DJC, Zeesen, Germany		6.475	46.30	9.104	32.93
6.018	49.80	EDP, Palma de Mallorca, Balaeric Island		1ST, Olivos, Argentina	
CQN, Macao, Macao		6.618	45.31	9.168	32.70
6.030	49.72	PRADO, Riobamba, Ecuador		YVR, Maracay, Venez.	
VE9CA, Calgary, Alta.		6.648	45.10	9.273	32.33
6.036	49.67	IAC, Coltano, Italy		GCB, Rugby, England	
W4XB, Miami, Fla.		6.659	45.02	9.340	32.10
6.045	49.60	HC2RL, Guayaquil, Ecuador		CGA, Drummondville, P. Q.	
HJ3ABI, Bogota, Colombia		6.672	44.94	9.375	31.97
6.050	49.56	YVQ, Maracay, Venez.		XDA, Mexico City, D. F.	
GSA, Daventry, Eng.		6.675	44.91	9.410	31.86
6.057	49.50	DGK, Nauen, Germany		PLV, Bandoeng, Java	
PK1WK, Bandoeng, Java		6.791	44.15	9.480	31.63
6.060	49.48	GDB, Rugby, England		PLW, Bandoeng, Java	
VQ7LO, Nairobi, Kenya.		6.830	43.86	9.488	31.60
W3XAU, Philadelphia, Pa.		HAT, Budapest, Hungary		SRI, Poznan, Poland	
W8XAL, Cincinnati, Ohio		6.840	43.82		
		CFA, Drummondville, P. Q.			

(Continued on page 94)

# WHAT'S ON THE AIR TONIGHT?

Fill in calls and dial numbers for those stations through which you best receive the three chains. You can then turn quickly to the one that has the feature you want.

COLUMBIA . . . . (C)	
Call	Dial

NATIONAL, Red (R)	
Call	Dial

NATIONAL, Blue. (B)	
Call	Dial

TIME: E Eastern; C Central; M Mountain; P Pacific.

**RADEX** is the only publication listing stations in alphabetical order for your convenience.

Write these programs are correct at the time of going to press changes are made from time to time.

## MONDAY

**E-8:00 p.m., C-5:00, M-4:00, P-8:00**

**C — Buck Rogers in 25th Century**

CKLW WAAB WABC WADC WBT  
WCAO WCAU WDRS WEAN WHK  
WJSV WKBW WOKO

**R — Waldorf Astoria Orchestra**

KDYL KFYR KOA KPO KPRC KSD  
KSTP KTBS KTHS KVOO WAPI  
WBEN WCAE WCSH WDAF WDAY  
WEAF WEEB WFAA WFLA WHO  
WIBA WIOD WIS WJAR WJAX  
WJDX WKY WMAQ WMC WQAI  
WOC WRC WRVA WSAI WSB WSM  
WSMB WSOB WTAG WWJ WWCN

**B — U. S. Army Band**

KOIL KSO KWCH KWK KYW WBAL  
WBZ WBZA WCKY WENR WHAM  
WJZ WMAL WREN WSYR

**E-8:15 p.m., C-5:15, M-4:15, P-8:15**

**C — Bobby Benson; Sunny Jim**

WAAB WABC WCAU WDRS WEAN  
WFBL WGR WHCZ WHK WLBZ  
WMA5 WOKO WORC

**E-8:30 p.m., C-5:30, M-4:30, P-8:30**

**C — Enoch Light and Orchestra**

CKLW KLRA WAAB WADC WBIG  
WBRC WCAO WCAU WDAE WDBO  
WDDO WDRS WDSU WFLB WFEA  
WGLC WGST WHEC WHP WICC  
WKBN WKBW WLBZ WMAS WMBG  
WOKO WORC WQAM WJSV WSPD  
WTAR WTOC

**R — Irene Beasley, Songs**

KGO KOA WAPI WBEN WCKY  
WEAF WFBR WGY WHO WJDX  
WMC WOC WSAI WBS WSM WSMB  
WSOC WTAG WWJ

**E-8:45 p.m., C-5:45, M-4:45, P-8:45**

**R — Horsense Philosophy; Andrew Kelly**

KOA WAPI WBEN WCAE WCKY  
WEAF WFAA WFBR WGY WHO  
WJDX WMAQ WMC WOC WSAI  
WSB WSM WSMB WTAG WWJ

**B — Lowell Thomas**

CRCT KDKA WBAL WBZ WRZA  
WFLA WGAR WHAM WIOD WJAX  
WJR WJZ WLW WSYR

**E-7:00 p.m., C-6:00, M-5:00, P-4:00**

**C — Myrt and Marge**

CKLW KRLD WABC WADC WBT  
WCAO WCAU WDAE WDBO WDRS  
WEAN WFBL WGR WHK WJAS  
WJSV WKRC WNAC WOKO WQAM  
WSPD WTOC WWVA

**B — Amos 'n' Andy**

CRCT KDKA WBAL WBZ WBZA  
WCKY WFLA WGAR WHAM WIOD  
WJR WJZ WLW WMAL WPTP  
WRVA

**R — Trio Romantique**

KSD WBEN WCAE WCSH WDAF  
WEAF WEEI WFBR WGY WHO  
WJAR WLIT WMAQ WOC WOW  
WRC WTAG WTAM WTIC WWJ

**E-7:15 p.m., C-6:15, M-5:15, P-4:15**

**C — Just Plain Bill**

CFRB CKLW WABC WCAO WCAU  
WGR WHK WJSV WKRC WNAC

**R — Billy Bachelor; Ray Knight**

WEAF WGY WJAR WRE WTAG  
WTAM WWJ

**B — Baby Rose Marie, Songs**

KDKA WBAL WBZ WBZA WHAM  
WJZ WMAL WSYR

**E-7:30 p.m., C-6:30, M-5:30, P-4:30**

**C — Music in the Air**

WABC WCAO WCAU WDRS WEAN  
WFBL WFEA WGR WHEC WICC  
WJAS WJSV WLBZ WNAC WOKO  
WORC

**R — Mollie Show**

KSD WBEN WCAE WCSH WDAF  
WEAF WFBR WGY WHO WJAR  
WMAQ WOC WOW WRC WTAG  
WTAM

**B — George Gershwin; Katzman's Orch.**

KDKA KOIL KSO KWCR KWK  
WBAL WBZ WBZA WENR WHAM  
WJR WJZ WMAL WREN WSYR

**E-7:45 p.m., C-6:45, M-5:45, P-4:45**

**C — Boake Carter; Philco**

CKLW KMBC KMOX WABC WBBM  
WBT WCAO WCAU WCCO WGR  
WHAS WHK WJAS WJSV WNAC

**E-8:00 p.m., C-7:00, M-6:00, P-5:00**

**C — Happy Bakers**

CKLW WABC WADC WCAH WDRS  
WFBM WGN WGR WHEC WHK  
WICC WJSV WMAS WMBG WMT  
WNAC WORC WSPD WWVA

**B — Sealed Power Side Show**

KDKA KFYR KOIL KPRC KSO  
KSTP KTBS KTHS KVOO KWCR  
KWK WBAL WBZ WBZA WDAY  
WEBC WFAA WGAR WHAM WIBA  
WJDX WJR WJZ WKY WLS WMAL  
WMC WQAI WSB WSM WSMB  
WSYR WTMJ

**R — Soconyland Sketches**

WBEN WCAE WCSH WEAF WEEI  
WGY WJAR WSAI WTAG WTAM  
WTIC

**E-8:15 p.m., C-7:15, M-6:15, P-6:15**

**C — Edwin C. Hill**

CKLW KMBC KMOX WABC WADC  
WCAO WCAU WCCO WDRS WEAN  
WFBL WFBM WGN WGR WHK  
WJAS WJSV WKRC WNAC WOKO  
WSPD

**E-8:30 p.m., C-7:30, M-6:30, P-6:30**

**C — Bing Crosby; Mills Brothers**

CKLW KDB KERN KFBK KFPY  
KFRG KGB KHJ KLZ KMBC KMJ  
KMOX KOIN KOL KSL KVI KWG  
WABC WADC WCAO WCAU WDRS  
WEAN WFBL WFBM WGN WGR  
WHAS WHK WJAS WJSV WKRC  
WNAC WOKO WOWO WSPD

**R — Voice of Firestone**

CFRC CRCT KFYR KPRC KSD  
KTBS KTHS KVOO WBEN WCSH  
WDAF WDAY WEAF WEEB WEEI  
WFAA WFBR WFLA WGY WHO  
WIOD WIS WJAR WJAX WJDX  
WKY WLIT WLW WMAQ WMC  
WQAI WOC WOW WRC WRVA WSB  
WSM WSMB WSOB WTAG WTAM  
WTIC WTMJ WWJ WWCN

**B — Djer Kiss Recital**

KDKA KOIL KSO KWCR KWK  
WBAL WBZ WBZA WCKY WGAR  
WJZ WLS WMAL WREN WSYR

**E-8:45 p.m., C-7:45, M-6:45, P-6:45**

**B — Red Davis — Dramatic Sketch**

KDKA WBAL WBZ WBZA WHAM  
WJR WJZ WLS WSYR

**E-9:00 p.m., C-8:00, M-7:00, P-6:00**

**C — Philadelphia Symphony Orchestra**

CKLW KDB KERN KFBK KFH  
KFPY KFRG KGB KHJ KLRA KLZ  
KMBC KMJ KMOX KOH KOIN  
KOL KOMA KSL KTRH K TSA  
KVI KWG WABC WADC WBBM  
WBCO WBT WCAH WCAO WCAU  
WDRS WDAE WDBJ WDBO WDRS  
WDSU WEAN WFBL WFBM WGR  
WGST WHAS WHEC WHK WICC  
WISN WJAS WJSV WKRC WLAC  
WLBZ WMBG WMT WNAC WOKO  
WOWO WPG WQAM WRC WRB  
WSPD WTAR WTOC

**R — A. & P. Gypsies**

KSD WBEN WCAE WCSH WDAF  
WEAF WEEI WGY WHO WJAR  
WLIT WMAQ WOC WOW WRC  
WSAI WTAG WTAM WTIC WWJ

**MONDAY—(Continued)**

**B — Sinclair Minstrels**  
KDKA KFYR KOA KOIL KPRC  
KSO KSTP KTBS KTHS KVOO  
KWCR KWK WBAL WBZ WBZA  
WDAY WIBC WFAA WFLA WGAR  
WHAM WIBA WIOD WIS WJAX  
WJDX WJR WJZ WKY WLS WLW  
WMC WOAI WPTT WREN WRVA  
WSB WSM WSMB WTMJ WWNC

**E-9:15 p.m., C-8:15, M-7:15, P-8:15**  
**C — Buick; Andre Kostelanetz**  
CKLW KDB KERN KFBK KFH  
KFPY KFRC KGB KHJ KLRA KLZ  
KMBC KMJ KMOX KOIN KOL  
KOMA KSCJ KSL KTAT KTSA  
KVI KWG WABC WADC WBBM  
WBRC WBT WCAH WCAO WCAU  
WCCO WDAE WDRC WDSU WEAN  
WFBL WFBM WGST WHAS WHBC  
WHK WIBW WICC WISN WJAS  
WJSV WKBW WKRC WLAC WMBD  
WMT WNAC WOKO WOW WQAM  
WRC WRR WSPD WTAR WTOC

**E-9:30 p.m., C-8:30, M-7:30, P-8:30**  
**C — Isham Jones; Gertrude Niesen**  
CFRB CKLW KDB KERN KFBK  
KFPY KFRC KGB KHJ KLZ KMBC  
KMJ KMOX KOIN KOL KRLL  
KSL KVI KWG WABC WADC  
WBBM WBT WCAH WCAO WCAU  
WCCO WDRC WDSU WEAN WFBL  
WFBM WHAS WHK WICG WJAS  
WJSV WKBW WKRC WLAC WNAC  
WOKO WOWO WREC WSPD WTAR  
**R — Del Monte Ship of Joy**  
KDYL KOA KPRC KSD KSTP  
KFBK KVOO WBEN WCAE WCHS  
WFBL WIBC WEEL WFAA WFBR  
WFLA WGY WHO WIOD WIS  
WJAR WJAX WKFB WKY WLIT  
WMAQ WOAL WOC WOV WRC  
WRVA WSAI WTAG WTAM WTMJ  
WVJ WWNC

**B — Jack Frost's Melody Moments**  
KDKA WBAL WENR WGAR WHAM  
WJR WJZ WLW

**E-10:00 p.m., C-9:00, M-8:00, P-7:00**  
**C — Wayne King and Orchestra**  
CKLW KALE KDB KERN KFRC  
KGB KHJ KLZ KMBC KMOX  
KOIN KOL KSL KWG WAAB WABC  
WADC WBBM WCAO WCAU WCCO  
WDRC WEAN WFBL WFBM WGR  
WHAS WHK WJAS WJSV WKR  
WOKO WOWO WSPD  
**R — Contented Program**  
CFCF CRCT KDYL KFI KFYR  
KGO KGW KHQ KOA KOMO KPRC  
KRTP WCHS WFAE WIBC WEEL  
WFBR WJAR WLIT WMC WOAI  
WRC WSR WSM WTAG

**E-10:30 p.m., C-9:30, M-8:30, P-7:30**  
**C — Columbia News Service**  
CKAC CKLW KLRA KRLL KTRH  
KTSA KFOR WAAB WABC WACO  
WBIG WBT WCAH WCAO WCAU  
WDAE WDBJ WDBO WDOE WDRC  
WEAN WFBL WFEA WGR WGST  
WHAS WHBC WHP WISN WJAS  
WJSV WKBN WLAC WLWB WLWB  
WMAS WMT WODX WOKO WORC  
WQAM WREC WSJS WSPD WTOC  
**B — Henri Deering, Concert Pianist**  
KFYR KOIL KPRC KSO KSTP  
KTBS KVOO KWCR WBAL WBZ  
WBZA WKY WIBC WFAA WHAM  
WIBA WJDX WJZ WKY WMAL  
WOAI WREN WSB WSM WSMB  
WSYR

**R — National Radio Forum**  
CRCT KSD WAPI WREN WCAE  
WCHS WDAF WFAE WEEL WFBR  
WGY WHO WJAR WJDX WLIT  
WLW WMAQ WMC WOC WOV  
WRC WSB WSMB WTAG WTAM  
WVIC WWJ

**E-10:45 p.m., C-9:45, M-8:45, P-7:45**  
**C — Mark Warnow; Connie Gates**  
CFRB CKLW WAAB WABC WADC  
WDRC WEAN WFBL WFEA WIBC  
WICC WIP WJAS WJSV WKBN  
WKBW WLWB WLWB WMAS WOKO  
WORC WSPD

**C — Myrt and Marge**  
KDB KERN KFBK KFPY KFRC  
KGB KHJ KLRA KLZ KMBC KMJ  
KMOX KOIN KOL KOMA KSL  
KVI KWG WBBM WBRC WCCO  
WDSU WFBM WGST WHAS WLAC  
WODX WREC

**E-11:00 p.m., C-10:00, M-9:00, P-8:00**  
**B — Amos 'n' Andy**  
KDYL KFI KGO KGW KHQ KOA  
KOL KOMO KPRC KSTP KTHS  
KWK WBAP WDAF WENR WKY  
WMAQ WMC WOAI WREN WSB  
WSM WSMB WTMJ

**E-11:15 p.m., C-10:15, M-9:15, P-8:15**  
**C — Freddie Rich and Orchestra**  
CKAC CKLW KFAB KFH KLRA  
KLZ KMBC KSCJ KTRH KTSA  
KFOR WAAB WABC WACO WADC  
WBRC WBT WCAH WCAO WCCO  
WDAE WDBJ WDBO WDOE WDRC  
WDSU WEAN WFBM WFEA WGST  
WHBC WIBW WICC WIP WISN  
WJAS WJSV WKBN WKBW WLAC  
WLWB WLWB WMAS WMBD WMBG  
WMT WOKO WORC WQAM WREC  
WSBT WSJS WSPD WTAR

**E-11:30 p.m., C-10:30, M-9:30, P-8:30**  
**C — Abe Lyman and Orchestra**  
CFRB CKLW KFH KLRA KLZ  
KMBC KOMA KTRH KTSA KFOR  
WABC WADC WBRC WCAO WCAU  
WDBJ WDRC WDSU WEAN WFBL  
WFBM WGST WHAS WHK WHP  
WIBW WICC WISN WJSV WKBW  
WLAC WLWB WMBD WMBG WMT  
WNAC WOKO WORC WPG WQAM  
WREC WSBT WSJS WTAR WTOC

**R — Voice of Firestone**  
KDYL KFI KFSD KGHL KGIR KGO  
KGO KGW KHQ KOA KOMO KTRH

**E-12:00 p.m., C-11:00, M-10:00, P-9:00**  
**B — Sealed Power Side Show**  
KDYL KFI KGHL KGIR KGO KGW  
KHQ KOA KOMO KTRH

**TUESDAY**

**E-8:00 p.m., C-5:00, M-4:00, P-3:00**  
**C — Buck Rogers, See Monday**  
**R — Waldorf Astoria, See Monday**

**E-8:15 p.m., C-5:15, M-4:15, P-3:15**  
**C — Bobby Benson, See Monday**

**E-8:30 p.m., C-5:30, M-4:30, P-3:30**  
**R — Mid-Week Hymn Sing**  
KDYL KFYR KGIR KPO KPRC  
KTBS KTHS KVOO WDAY WFAE  
WFAA WPI WGY WHO WIBA WIS  
WJAX WJDX WMAQ WOAI WOC  
WRC WSAI WTAG WWNC

**C — Mary Eastman; Evan Evans**  
CKLW KLRA WAAB WABC WADC  
WBT WCAO WCAU WDAE WDBJ  
WDBO WDRC WDSU WFEA WGST  
WHBC WICC WJAS WJSV WKBN  
WLWB WLWB WMAS WMBG WOKO  
WORC WQAM WREC WSJS WSPD  
WTAR

**E-8:45 p.m., C-5:45, M-4:45, P-3:45**  
**C — Little Italy**  
WAAB WABC WCAO WCAU WDRC  
WEAN WHEC WHP WKBW WOKO  
**R — Cheerio Musical Mosaics**  
KDYL KOA KPO KSD WKCY  
WEAF WEEL WFBR WFLA WGY  
WHO WIOD WIS WJAR WJAX  
WJDX WMAQ WOC WOV WRVA  
WSAI WSM WSOC WTAG WWJ  
WWNC

**B — Lowell Thomas, See Monday**

**E-7:00 p.m., C-6:00, M-5:00, P-4:00**  
**C — Myrt and Marge, See Monday**  
**B — Amos 'n' Andy, See Monday**

**E-7:15 p.m., C-6:15, M-5:15, P-4:15**  
**C — Just Plain Bill, See Monday**  
**R — Billy Bachelor, See Monday**  
**B — You and Your Government**  
KDKA KECA KEX KFSD KFYR  
KGA KGHL KGIR KJR KOA KOIL  
KPRC KTRH KTBS KTHS KVOO  
KWCR KWK KYA WAPI WBZ WBZA  
WKY WFLA WHAM WIBA WIS  
WJDX WJZ WMAL WOAI WPTT  
WREN WSBM WWNC

**E-7:30 p.m., C-6:30, M-5:30, P-4:30**  
**C — Silver Dust Serenaders**  
WABC WCAU WREC WFBL WGR  
WHBC WJAS WMAS WOKO WOV  
WVVA

**E-7:45 p.m., C-6:45, M-5:45, P-4:45**  
**C — Boake Carter, See Monday**  
**R — Goldbergs, See Monday**  
**B — Gus Van; Ariene Jackson**  
KDKA KFYR KOIL KPRC KSTP  
KTBS KWCR KWK WBAP WBZ  
WBZA WENR WFLA WGAR WHAM  
WIBA WIS WJZ WKY WMAL WRVA  
WSYR WWNC

**E — 8:00 p.m., C-7:00, M-6:00, P-5:00**  
**C — Little Jack Little**  
CKLW KFH KLRA KMBC KMOX  
KOMA KTAT KTUL WABC WADC  
WBBM WCAH WCCO WDRC WFBM  
WGR WHBC WHK WICC WISN  
WJSV WMAS WMBG WMT WNAC  
WREC WRR WSPD WVVA

**R — Leo Reisman's Orchestra**  
KDYL KFI KGO KGW KHQ KOA  
KOMO KSD WBEN WCAE WCHS  
WFAE WEEL WFBR WFI WGY WHO  
WJAR WKFB WLS WMAQ WOC  
WOW WRC WSAI WSB WSM WSMB  
WTAG WTAM WTMJ WWJ  
**B — Eno Crime Clues**  
KDKA KWK WBAL WBZ WBZA  
WGAR WHAM WJR WJZ WLW  
WMAL WMAQ WREN

**E-8:15 p.m., C-7:15, M-6:15, P-5:15**  
**C — Edwin C. Hill, See Monday**

**E-8:30 p.m., C-7:30, M-6:30, P-5:30**  
**C — Voice of Experience**  
CKLW KMBC KMOX WABC WBBM  
WBZ WCAO WCAU WDCR WEAN  
WGR WHAS WHK WJAS WJSV  
WKRC WNAC

## TUESDAY—(Continued)

**R—Wayne King and Orchestra**  
KPRC KSD KSTP WBEN WCAE  
WCSH WDAF WFAE WEEI WFAA  
WFI WGY WHO WJAR WKFB  
WKY WMAQ WMC WOAI WOC  
WOW WRC WSAI WSB WSM WSBM  
WTAG WTAM WTMJ WWJ

**B—Horlick's Adventures in Health**  
CRCT KDKA KOIL KSO KWK  
WBAL WBZ WBZA WGAR WHAM  
WJR WJZ WLS WLW WREN

**E-8:45 p.m., C-7:45, M-8:45, P-5:45**  
**C—Fray and Braggiotti**  
CKLW KFH KLRA KOMA WABC  
WADC WBIG WBRC WCAH WCAO  
WCAU WCCO WDAE WDBJ WDDO  
WDSU WECO WFBL WFEA WGLC  
WGR WGST WHFC WHK WIBW  
WISN WJAS WKBN WLBZ WMAS  
WMBG WMT WOKO WQAM WSJS  
WSPD

**B—Bavarian Peasant Band**  
KDKA KOIL KSO KWCR KWK  
WBAL WBZ WBZA WGAR WHAM  
WJR WJZ WLS WLW WREN  
WSYR

**E-9:00 p.m., C-8:00, M-7:00, P-8:00**  
**R—Ben Bernie and Orchestra**  
KFYR KOA KPRC KSD KSTP  
WBAP WBEN WCAE WCHS WDAY  
WEAF WEEI WFBR WFI WGY  
WHO WJAR WKY WLW WMAQ  
WMC WSB WSM WOV WRC  
WRVA WSAI WSM WSBM WTAG  
WTAM WTMJ WWJ

**B—Household Musical Memories**  
KDKA KSO KWK WBAL WBZ WBZA  
WHAM WJR WJZ WKFB WLS  
WREN WSYR

**C—Phila. Symphony, See Monday**

**E-9:15 p.m., C-8:15, M-7:15, P-6:15**

**C—Ruth Etting, Johnny Green**  
CKLW KDB KERN KFBK KFH  
KFYR KPRC KGB KHJ KLRA KLZ  
KMBC KMJ KMOX KOIN KOL  
KOMA KSCJ KSL KTRH KTSa KVI  
KWG WABC WADC WBBM WBRC  
WBT WCAH WCAO WCAU WCCO  
WDAE WDRC WDSU WEAN WFBL  
WFEA WGLC WGST WHAS WHFC  
WHP WIBW WICC WJAS WJSV  
WKBN WKBW WLBZ WMAS WMBD  
WMT WNAE WODX WOKO WORC  
WPG WQAM WSJS WSPD WTAR  
WTRC WYR

**E-9:30 p.m., C-8:30, M-7:30, P-8:30**  
**C—George Jessel**

CFRB CKLW KFH KLRA KLZ  
KMBC KOMA KRLD KSCJ WABC  
WADC WBIG WBRC WCAH WCAO  
WCAU WCCO WDAE WDBJ WDDO  
WDDO WDRS WDSU WEAN WFBL  
WFEA WGLC WGST WHAS WHFC  
WHP WIBW WICC WJAS WJSV  
WKBN WKBW WLBZ WMAS WMBD  
WMT WNAE WODX WOKO WORC  
WPG WQAM WSJS WSPD WTAR

**R—Texaco Fire Chief Program**  
KGIL KFI KFSF KFYR KGHL  
KGR KGO KGW KHQ KOA KOMO  
KPRC KSD KSTP KTRC KTSB  
KVOO WBAP WBEN WCAE WCHS  
WDAF WDAY WFAE WFGC WEEI  
WFBR WFI WFLA WGY WHO WIBA  
WIOD WIS WJAR WJAX WJDX  
WKY WLW WMAQ WMC WOAI  
WOC WOW WPTF WRC WRVA  
WSB WSM WSBM WTAG WTAM  
WTMJ WWJ WNNC

**B—Eddie Duchin and Orchestra**  
KDKA KOIL KSO KWCR KWK  
WBAL WBZ WBZA WCKY WENR  
WGAR WHAM WJR WJZ WMAL  
WREN WSYR

**E-10:00 p.m., C-9:00, M-8:00, P-7:00**

**C—Camel; Glen Gray's Orchestra**  
CKLW KDB KERN KFBK KFH  
KFYR KPRC KGB KHJ KLRA KLZ  
KMBC KMJ KMOX KOIN KOL  
KOMA KRLD KSCJ KSL KTRH  
KTSa KVI KWG WAAB WABC  
WACO WADC WBBM WBIG WBRC  
WBT WCAH WCAO WCAU WCCO  
WDAE WDBJ WDBO WDDO WDRC  
WDSU WFBL WFBM WFEA WGST  
WHAS WHEC WHK WHP WIBW  
WIP WISN WJAS WJSV WKBN WKBW  
WMBD WMBG WMT WNAE WODX  
WOKO WORC WOW WPG WQAM  
WREC WSJS WSPD WTAR WTOG

**R—Cruise of Seth Parker**

KDYL KFI KFSF KFYR KGHL  
KGR KGO KGW KHQ KOA KOMO  
KPRC KSD KSTP KTRC KTSB  
WAPI WBAF WBEN WCSH WDAF  
WDAY WFAE WFGC WEEI WFBR  
WFI WFLA WGY WHO WIBA WIOD  
WIS WJAR WJAX WJDX WKY  
WLW WMAQ WMC WOAI WOC  
WOW WRC WRVA WSB WSM  
WSMB WTAG WTAM WWJ WNNC

**E-10:30 p.m., C-9:30, M-8:30, P-7:30**

**R—Madame Sylvia—Beauty Talk**  
KDYL KFI KGO KGW KHQ KOA  
KOMO KSD KSTP WBEN WEAF  
WFGC WEEI WGY WHO WIBA  
WMAQ WOC WRC WTAG WWJ  
**C—News Service, See Monday**

**E-10:45 p.m., C-9:45, M-8:45, P-7:45**

**C—Myrt and Marge, See Monday**

**E-11:00 p.m., C-10:00, M-9:00, P-8:00**

**B—Ames 'n' Andy, See Monday**

**C—Harlem Serenade**

CKLW KFH KLRA KLZ KMBC  
KSCJ KTRH WABC WADC WADC  
WBOC WCAH WCAO WDAE WDBJ  
WDDO WDDO WDRS WDSU WEAN  
WFBM WFEA WGLC WGST WHAS  
WHEC WHP WIBW WIP WISN  
WJAS WKBN WKBW WLBZ WMAS  
WMBD WMBG WMT WODX WOKO  
WORC WQAM WSBT WSJS WSPD  
WTAR WWVA

**E-11:15 p.m., C-10:15, M-9:15, P-8:15**

**C—Charles Carile, Tenor**  
CFRB CRAC CKLW KFAC KFH  
KLRA KLZ KMBC KMOX KSCJ  
KTRH KTSa KFOR WAAB WABC  
WACO WADC WBT WCAH WCAO  
WCCO WDAE WDBJ WDBO WDRC  
WDSU WEAN WFBL WFBM WGST  
WHAS WHEC WHK WIBW WIP  
WISN WJAS WJSV WKBN WKBW  
WLAC WLBW WLBZ WMAS WMBD  
WMBG WMT WOKO WORC WPG  
WQAM WREC WSBT WSJS WSPD  
WTAR WWVA

**E-11:30 p.m., C-10:30, M-9:30, P-8:30**

**C—Ozzie Nelson and Orchestra**  
CFRB CKLW KFH KLRA KLZ  
KMBC KOMA KSL KTRH KTSa  
WABC WADC WBRC WCAO WDBJ  
WDRS WDSU WEAN WFBL WFBM  
WGST WHK WHP WIBW WISN  
WJSV WKBW WLAC WLBW WMBD

WMBG WMT WNAC WOKO WORC  
WQAM WREC WSBT WSJS WTAR  
WTOG WWVA

**B—Richard Himber and Orchestra**  
CFCF KDYL KFYR KOIL KPO KSO  
KSTP KWCR KWK WAPI WBAL  
WBZ WBZA WCKY WDAY WEBC  
WENR WFLA WHAM WIBA WIOD  
WIS WJDX WJZ WMAL WMC  
WREN WRVA WSB WSM WSBM  
WSYR WNNC

**E-11:45 p.m., C-10:45, M-9:45, P-8:45**

**C—Voice of Experience**  
KDB KERN KFBK KFYR KPRC  
KGB KHJ KLZ KMJ KOIN KOL  
KSL KVI KWG

## WEDNESDAY

**E-8:00 p.m., C-6:00, M-4:00, P-3:00**

**C—Buck Rogers, See Monday**

**R—Waldorf Astoria, See Monday**

**B—Westminster Choir**  
KOIL KSO KWCR KWK WBAL  
WCKY WGAR WHAM WJZ WMAL  
WREN WSYR

**E-8:15 p.m., C-6:15, M-4:15, P-3:15**

**C—Bobby Benson, See Monday**

**E-8:30 p.m., C-6:30, M-4:30, P-3:30**

**R—International News Service**  
KFSB KGA KHIL KGR KJR KOA  
KPO KPRC KSD KTSB WAPI WBEN  
WDAF WDAY WFAE WFBR WGY  
WIBA WIS WJAX WJDX WOA  
WRC WWNC

**B—Irene Bessey, Contralto**  
KGO KOA KPRC KSO KTSB KVOO  
KWCR WBAL WBAP WCKY WENR  
WGAR WJZ WOA WREN

**C—Enech Light, See Monday**

**E-8:45 p.m., C-6:45, M-4:45, P-3:45**

**B—Lowell Thomas, See Monday**

**E-7:00 p.m., C-6:00, M-5:00, P-4:00**

**C—Myrt and Marge, See Monday**

**B—Ames 'n' Andy, See Monday**

**E-7:15 p.m., C-6:15, M-6:15, P-4:15**

**C—Just Plain Bill, See Monday**

**R—Billy Bachelor, See Monday**

**B—John Herrick, Baritone**

KDKA KOIL KSO KWCR KWK  
WBAL WBZ WBZA WCKY WENR  
WHAM WJZ WMAL WSYR

**E-7:30 p.m., C-6:30, M-5:30, P-4:30**

**C—Music in Air, See Monday**

**R—Mollie Show, See Monday**

**E-7:45 p.m., C-6:45, M-5:45, P-4:45**

**C—Boake Carter, See Monday**

**R—Goldbergs, See Monday**

**B—Irene Rich in Hollywood**

KDKA WBAL WBZ WBZA WCKY  
WENR WJZ WMAL WMC WSB WSM  
WSMB WSYR

**E-8:00 p.m., C-7:00, M-6:00, P-5:00**

**C—Happy Bakers, See Monday**

**R—Jack Pearl**

CFCF CRCT KSD WBEN WCAE  
WCKY WCSH WDAF WFAE WEEI  
WFBR WGY WHO WJAR WLIT  
WLS WOC WOW WRC WSAI WTAG  
WTAM WVIC WWJ

—Eno Crime. See Tuesday

# WEDNESDAY—(Cont'd)

**E-8:15 p.m., C-7:15, M-6:15, P-6:15**  
**C—Edwin C. Hill.** See Monday

**E-8:30 p.m., C-7:30, M-6:30, P-5:30**  
**C—Albert Spalding; Conrad Thibault**  
CFRB CKAC CKLW KDB KERN  
KFBK KFPY KFRC KGB KHJ  
KLRA KLZ KMBC KMJ KMOX  
KOLN KOL KOMA KSL KTAT  
KTRH KTSa KVI KWG WABC  
WBRC WCAO WCAU WCCO WDDO  
WDRS WDSU WEAN WFBL WFBM  
WGN WGR WGST WHAS WHK  
WJAX WJSV WKRC WLAC WMT  
WVAC WOKO WORC WOWO WREC  
WRR

**B—Dangerous Paradise, Drama**  
CFCF KDKA KOIL KSO KWCR  
KWK WBAL WBZ WBZA WGAR  
WHAM WJR WJZ WLS WMAL  
WREN WSYR

**A—Wayne King and Orchestra**  
KSD WBEN WCAE WCSH WFAF  
WFBR WGY WJAR WKBF WLIT  
WMAQ WOW WRC WSAI WTAG  
WTAM WWJ

**E-8:45 p.m., C-7:45, M-6:45, P-5:45**  
**B—Red Davis.** See Monday

**E-9:00 p.m., C-8:00, M-7:00, P-6:00**  
**R—Ipana Troubadours**  
KDYL KFI KGO KGW KHQ KOA  
KOMO KPRC KDS KSTP KTBS  
KTHS KVoo WAPI WBAP WBNA  
WCAE WCSH WDAF WFAF WFAA  
WFBR WGY WHO WIOD WIS  
WJAR WJAX WKY WLIT WMAQ  
WMC WOAI WOC WOV WRC  
WRVA WSAI WSB WSM WSMB  
WTAG WTAM WTMJ WWJ

**B—Warden Lawes; Sing Sing Drama**  
KDKA KOIL KSO KWCR KWK  
WBAL WBZ WBZA WCKY WGAR  
WHAM WJR WJZ WLS WMAL  
WREN WSYR

**C—Philadelphia Symphony.** See Mon.

**E-9:15 p.m., C-8:15, M-7:15, P-6:15**  
**C—Alexander Woolcott**  
CKLW KFH KLRA KLZ KMBC  
KMOX KOMA KSCJ KSL KTRH  
KTSa KVOR WABC WACO WADC  
WBRC WBT WCAH WCAU WCCO  
WDAE WDBJ WDBO WDRS WDSU  
WEAN WFBM WFEA WGST WHAS  
WHEC WHIS WJAX WJSV WKRB  
WLAC WLWB WLZ WMAS WMBD  
WMBG WMT WOKO WORC WQAM  
WREC WSBT WSJS WSPD WTAR

**E-9:30 p.m., C-8:30, M-7:30, P-6:30**  
**C—Guy Lombardo—Burns and Allen**  
CKLW KDB KERN KFBK KFPY  
KFRC KGB KHJ KLZ KMBC KMJ  
KMOX KOIL KOL KOMA KRLD  
KSL KTRH KTSa KVI KWG WABC  
WADC WBT WCAO WCAU WCCO  
WDRS WEA WFBL WFBM WGN  
WHK WJAX WJSV WKRB WKRC  
WVAC WOKO WORC WOWO WSPD

**R—Fred Allen's Revue**  
KSD KSTP WBEN WCAE WCSH  
WDAF WFAF WFBR WGY WJAR  
WLIT WMAQ WOV WRC WSAI  
WTAG WTAM WTMJ WWJ

**B—John McCormack, Tenor**  
KDKA KDYL KFI KGO KGW KHQ  
KOA KOIL KOMO KSO KWCR  
KWK WBAL WBZ WBZA WCKY  
WENR WGAR WHAM WJR WJZ  
WMAL WREN WSYR

**E-10:00 p.m., C-9:00, M-8:00, P-7:00**  
**C—Old Gold—Ted Fiorito and Orch.**  
CKLW KDB KERN KFBK KFOR  
KFYR KFRC KGB KHJ KLRA KLZ  
KMBC KMJ KMOX KOH KOIN  
KOL KOMA KRLD KSCJ KSL  
KTRH KTSa KVI KVOR KWG  
WABC WACO WADC WBIG WBRC  
WBT WCAH WCAO WCAU WCCO  
WDAE WDBJ WDBO WDDO WDRS  
WDSU WEAN WFBL WFBM WFEA  
WGN WGST WHAS WHEC WHK  
WHP WIBW WICC WISN WJAX  
WJSV WKRB WKWB WKRC WLAC  
WLWB WLZ WMAS WMBD WMBG  
WMT WNAC WNAX WOKO WORC  
WOWO WPG WQAM WREC WSPD  
WTAR WTOC

**R—Corn Cob Pipe Club**  
KDYL KFI KFJR GHGL KGIR  
KGO KGW KHQ KOA KOMO KSD  
KSTP WBEN WCAE WCSH WDAF  
WDAY WFAF WFBK WEEL WENR  
WFBR WGY WHO WIBA WJAR  
WLIT WLW WOC WOV WRC  
WRVA WTAG WTAM WTMJ WTMJ  
WWJ

**B—Vincent Lopez and Orchestra**  
KDKA KOIL KPRC KSO KTBS  
KWCR KWK WAPI WAVE WBAL  
WBZ WBZA WCKY WFAA WFLA  
WGAR WHAM WIOD WIS WJAX  
WJDX WJZ WKBF WKY WMAL  
WMAQ WMC WOAI WPTF WREN  
WSB WSM WSMB WSOO WSYR  
WVNC

**E-10:30 p.m., C-9:30, M-8:30, P-7:30**  
**B—Conoco Tourist Adventures**  
KDKA KDYL KFJR KOA KOIL  
KPRC KSO KWCR KWK WBAL  
WCKY WDAY WFBK WENR WFAA  
WGAR WHAM WIBA WJR WJZ  
WKY WMAL WREN WRVA WSYR  
WTMJ

**C—News Service.** See Monday

**E-10:45 p.m., C-9:45, M-8:45, P-7:45**  
**C—Myrt and Marge.** See Monday

**E-11:00 p.m., C-10:00, M-9:00, P-8:00**  
**B—Amos 'n' Andy.** See Monday  
**C—Andre Kostelanetz**  
CKLW KFH KLRA KLZ KMBC  
KSCJ KTRH KTSa WAAB WABC  
WACO WADC WBRC WCAH WCAO  
WDAE WDBJ WDBO WDDO WDRS  
WDSU WEAN WFBM WFEA WGLC  
WGST WHAS WHEC WHK WHP  
WIBW WICC WISN WJAX WKRB  
WLAC WLWB WLZ WMAS WMBD  
WMBG WMT WNAX WODX WOKO  
WORC WPG WQAM WREC WSBT  
WSJS WSPD WTAR WTOC

**E-11:15 p.m., C-10:15, M-9:15, P-8:15**  
**C—Five Spirits of Rhythm**  
CFRB CKAC CKLW KFAB KFH  
KLRA KLZ KMBC KMOX KSCJ  
KTRH KTSa KVOR WAAB WABC  
WACO WADC WBRC WBT WCAO  
WCCO WDAE WDBJ WDBO WDRS  
WDSU WEAN WFBL WGST WHAS  
WHEC WIP WISN WJAX WJSV  
WKWB WLAC WLWB WLZ WMAS  
WMBD WMBG WMT WOKO WORC  
WPG WQAM WRFC WSBT WSJS  
WSPD WTAR

**B—Warden Lawes; Sing Sing Drama**  
KDYL KFI KGO KGW KHQ KOA  
KOMO KPRC KTBS KTHS KVoo  
WAPI WBAP WJDX WKY WMC  
WOAI WSB WSM WSMB

**E-11:30 p.m., C-10:30, M-9:30, P-8:30**  
**C—Little Jack Little**  
KLRA WABC WBRC WBT WCAO  
WDAE WDBJ WDBO WDRS WDSU  
WEAN WGST WICC WIP WJSV  
WLAC WLZ WMAS WMBG WNAC  
WORC WPG WQAM WREC WSJS  
WTR

**C—Edwin C. Hill**  
KDB KERN KFBK KFPY KFRC  
KGB KHJ KLZ KMJ KOIL KSL  
KVI KWG

**E-12:30 a.m., C-11:30, M-10:30, P-9:30**  
**R—Fred Allen's Revue**  
KDYL KFI KGO KGW KHQ KOA  
KOMO

# THURSDAY

**E—6:00 p.m., C-5:00, M-4:00, P-3:00**  
**C—Buck Rogers.** See Monday

**R—Waldori Astoria.** See Monday

**B—Richard Himber and Orchestra**  
KOIL KSO KWCR WBAL WBZ WBZA  
WCKY WENR WHAM WJR WJZ  
WMAL WREN WSYR

**E-6:15 p.m., C-5:15, M-4:15, P-3:15**  
**C—Bobby Benson.** See Monday

**E-6:30 p.m., C-5:30, M-4:30, P-3:30**  
**R—John B. Kennedy**

KDYL KFJR KOA KPO KPRC KSD  
KTBS KTHS KVoo WAPI WDAY  
WFAF WFBR WFI WGY WHO WIBA  
WIS WJAX WJDX WMAQ WMC  
WORC WRC WSAI WSB WSMB WTAG  
WWJ WVNC

**C—Tito Guizar, Tenor**  
CKAC CKLW KLRA WAAB WABC  
WADC WBRC WBT WCAO WCAU  
WDAE WDBO WDDO WDSU WFEA  
WGR WGST WHEC WICC WJAX  
WJSV WKRB WLAC WLWB WLZ  
WMAS WMBG WOKO WORC WQAM  
WREC WSJS WSPD WTR

**E-6:45 p.m., C-5:45, M-4:45, P-3:45**  
**R—Grandmother's Trunk**

KDYL KOA KPO KSD WFAF WFBR  
WFI WGY WHO WIS WJAX WMAQ  
WOC WRC WSAI WTAG WWJ  
WVNC

**B—Lowell Thomas.** See Monday  
**C—Little Italy.** See Tuesday

**E-7:00 p.m., C-6:00, M-5:00, P-4:00**  
**C—Myrt and Marge.** See Monday  
**B—Amos 'n' Andy.** See Monday

**E-7:15 p.m., C-6:15, M-5:15, P-4:15**  
**C—Just Plain Bill.** See Monday  
**R—Billy Bachelor.** See Monday

**B—Dramatic Sketch**  
CRCT WBAL WBZ WBZA WHAM  
WJZ WMAL WSYR

**E-7:30 p.m., C-6:30, M-5:30, P-4:30**  
**R—Molle Show.** See Monday  
**C—Silver Dust.** See Tuesday

**E-7:45 p.m., C-6:45, M-5:45, P-4:45**  
**C—Boake Carter.** See Monday  
**R—Goldbergs.** See Monday

**E-8:00 p.m., C-7:00, M-6:00, P-5:00**  
**R—Rudy Vallee and Orchestra**  
CFCF CRCT KDYL KFI KFJR KGO  
KGW KHQ KOA KOMO KPRC KSD  
KSTP KTAR KTHS WAPI WBAP

**THURSDAY—(Cont'd)**

WBEN WCAE WCSH WDAF WDAY  
WEAF WEBC WEEI WFBR WFI  
WFLA WGY WHO WIOD WJAR  
WJAX WJDX WKY WLW WMAQ  
WMC WQAI WOC WOW WPTF WRIC  
WRVA WSB WSM WSMB WTAG  
WTAM WTMJ WTVJ  
**C — Five Spirits of Rhythm**  
CFRB CKLW KFH KLRA KMBC  
KMOX KSCJ KSL KTRH K TSA  
KVOR WABC WACO WADC WBRB  
WBT WCAH WCAO WCCO WDAE  
WDBJ WDBO WDOD WDRC WDSU  
WEAN WFEA WGR WGST WHAS  
WHFC WIBW WICC WIP WISN  
WJAS WJSV WKBN WLAC WLBW  
WLBZ WMAS WMBG WMT WNAC  
WOKO WORC WPG WQAM WREC  
WSBT WSJS WSPD WTVR WSVA

**E-8:15 p.m., C-7:15, M-6:15, P-5:15**  
**C — Edwin C. Hill, See Monday**

**E-8:30 p.m., C-7:30, M-6:30, P-5:30**  
**C — Voice of America**  
CKLW KMBC KMOX WABC WADC  
WBBM WCAO WCAU WDRC WEAN  
WPBL WGR WHAS WHK WJAS  
WJSV WKRC WNAC WOKO WOW  
WSPD  
**B — Horlick's, See Tuesday**

**E-8:45 p.m., C-7:45, M-6:45, P-5:45**  
**B — Sizzlers; Harmony Trio**  
KDKA KOIL KWCR WBAL WBZ  
WBZA WCKY WGAR WHAM WJZ  
WLS WMAL WREN WSYR

**E-9:00 p.m., C-8:00, M-7:00, P-8:00**  
**R — Maxwell House Showboat**  
KDYL KFI KFSD KGO KGW KHQ  
KOA KOMO KPRC KSD KSTP KTRH  
KTBS WAPI WBAF WBEN WCAE  
WCKY WCSH WDAF WEAF WEEI  
WFBR WFI WFLA WGY WHO WIOD  
WIS WJAR WJAX WJDX WKY  
WMAQ WMC WOI WOC WOW  
WRC WRVA WSAI WSB WSM WSMB  
WTAG WTAM WTMJ WTVJ WNNC  
**B — Death Valley Days — Drama**  
KDBA KKLW KSO KWCR KWK  
KWBAL WBZ WCAE WGAR WHAM  
WJR WJZ WLS WLW WMAL WREN  
WBYR  
**B — Philadelphia Symphony, See Mon.**

**E-9:15 p.m., C-8:15, M-7:15, P-8:15**  
**C — Buick Program, See Monday**

**E-9:30 p.m., C-8:30, M-7:30, P-6:30**  
**C — Ford; Fred Waring's Orchestra**  
CKLW KDB KFBC KFH KFRC  
KGB KHJ KLRA KLZ KMBC KMOX  
KOH KOIN KOMA KRLD KSCJ  
KSL KSTL KVI KVOR WABC WACO  
WADC WBBM WBIG WBRB WBT  
WCAH WCAO WCAU WCCO WDAE  
WDBJ WDBO WDOD WDRC WDSU  
WEAN WFBL WFBM WFEA WGLC  
WGST WHAS WHFC WHK WHP  
WIBW WICC WLAC WJSV WKBN  
WKBW WQIC WLAC WLBW WLBZ  
WMAS WMBD WMBG WMBR WMT  
WNAC WNXD WOXK WOKO WORC  
WOWO WPG WQAM WREC WSJS  
WSPD WTVR WTOG  
**B — Eddie Duchin, See Monday**

**E-10:00 p.m., C-9:00, M-8:00, P-7:00**  
**R — Paul Whiteman and Orchestra**  
KDYL KFI KFJR KGO KGW KHQ  
KOA KOMO KPRC KSD KSTP KTBS

KTHS KVOO WBAF WBEN WCAE  
WCSH WDAF WDAY WEAF WEBC  
WEEI WFBR WFLA WGY WHO  
WIBA WIOD WIS WJAR WJAX  
WJDX WKY WLW WMAQ WMC  
WQAI WOC WOW WRC WRVA WSB  
WSM WSMB WTAG WTAM WTMJ  
WTVJ WNNC  
**B — Hands Across the Border**  
CFAC CFBO CFCF CFCB CFCN  
CFCO CFCY CFCJ CFIN CFFL  
CFQC CHAB CHGS CHNS CHRC  
CHWC CHWK CJCA CJCB CJCJ  
CJGX CJOC CJRM CJRW CKCH  
CKEK CKNC CKOC CKOV CKPC  
CKPR CKUA CKX CKY CRCO CRCS  
CICR CRCV CFCF KDKA KOIL KSO  
KWAR WBAL WBZ WBZA WCKY  
WGAR WHAM WJR WJZ WMAQ  
WREN WSYR  
**C — Camel Program, See Tuesday**

**E-10:30 p.m., C-9:30, M-8:30, P-7:30**  
**B — Archer Gibson, Organist**  
KDKA KSO KWCR KYW WBAL WBZ  
WBZA WCKY WGAR WHAM WJZ  
WMAL WREN  
**C — News Service, See Monday**

**E-10:45 p.m., C-9:45, M-8:45, P-7:45**  
**C — Myrt and Marge, See Monday**  
**C — Evan Evans, Baritone**  
CFRB CKLW WAAE WABC WADC  
WCAO WCAU WDOD WDRC WEAN  
WFBL WFEA WHFC WHK WICC  
WJAS WJSV WKBN WKBW WLBW  
WLBZ WMAS WOKO WORC

**E-11:00 p.m., C-10:00, M-9:00, P-8:00**  
**C — California Melodies**  
CFRB CKAC CKLW KFAB KFH  
KLRA KLZ KMBC KMOX KSCJ  
KTRH K TSA KVOR WAAB WABC  
WACO WADC WBRB WBT WCAH  
WCAO WCAU WCCO WDAE WDBJ  
WDBO WDOD WDRC WDSU WEAN  
WFBL WFEA WGST WHAS WHFC  
WIBW WICC WISN WJAS WJSV  
WKBN WKBW WLAC WLBW WLBZ  
WMAS WMBD WMBG WMT WOKO  
WORC WQAM WREC WSJS WSPD  
WTVR WVA  
**B — Amos 'n' Andy, See Monday**  
**R — Viola Philo, Soprano**  
WCAE WGSB WEAF WFI WFLA  
WGY WIOD WIS WOW WRVA  
WTAM WNNC

**E-11:30 p.m., C-10:30, M-9:30, P-8:30**  
**R — Enric Madriguera and Orchestra**  
KSD WBEN WCAE WCSH WDAF  
WEAF WEEI WFBR WFI WGY  
WHO WJAR WOC WOW WSAI  
WTAG WTAM  
**C — Edwin C. Hill, See Wednesday**  
**C — Isham Jones and Orchestra**  
CKLW KLRA WABC WBRB WCAO  
WDAE WDBJ WDBO WDOD WDRC  
WDSU WEAN WGST WICC WIP  
WLAC WLBZ WMAS WMBG WNAC  
WORC WQAM WREC WSJS WSPD  
WTVR WTOG

**FRIDAY**

**E-8:00 p.m., C-5:00, M-4:00, P-3:00**  
**C — H. V. Kaltenborn**  
CFRB CKLW KLRA WAAE WABC  
WADC WBIG WBT WCAO WCAU  
WDAE WDBJ WDBO WDOD WDRC  
WDSU WGST WHFC WHK WICC  
WJSV WLAC WLBW WLBZ WMBG  
WOKO WORC WQAM WREC WSPA  
WSJS WSPD WTOG

**R — Waldorf Astoria, See Monday**  
**E-8:15 p.m., C-5:15, M-4:15, P-3:15**  
**C — Bobby Benson, See Monday**

**E-8:30 p.m., C-5:30, M-4:30, P-3:30**  
**B — Three X Sisters**  
KDKA KOIL KWCR KWK WBAL  
WBZ WBZA WCKY WENR WHAM  
WJZ WMAL WREN WSYR  
**R — Irene Beasley, See Monday**  
**C — Edith Murray, Song**  
CKAC CKLW KLRA WAAE WABC  
WADC WBRB WBT WCAO WCAU  
WDBJ WDBO WDOD WDRC WDSU  
WFEA WGST WHFC WICC WJAS  
WKBH WLAC WLBW WLBZ WMAS  
WMBG WOKO WORC WQAM WREC  
WSJS WSPD WTVR

**E-8:45 p.m., C-5:45, M-4:45, P-3:45**  
**C — Zoel Parenteau's Orchestra**  
CKLW WAAB WABC WBT WCAU  
WDRC WEAN WFBL WFEA WHFC  
WJSV WKBW WLBZ WOKO  
**B — Lowell Thomas, See Monday**

**E-7:00 p.m., C-6:00, M-5:00, P-4:00**  
**C — Myrt and Marge, See Monday**  
**B — A mos 'n' Andy, See Monday**  
**R — Morton Bove, Tenor**  
KSD WBEN WCAE WCSH WDAF  
WEAF WEEI WFBR WGY WHO  
WJAR WLIT WMAQ WOC WOW  
WRC WTAG WTMJ WTOG WJZ

**E-7:15 p.m., C-6:15, M-5:15, P-4:15**  
**C — Just Plain Bill, See Monday**  
**R — Billy Bachler, See Monday**  
**B — Dramatic Sketch, See Thursday**

**E-7:30 p.m., C-6:30, M-5:30, P-4:30**  
**C — Music in Air, See Monday**  
**B — George Gershwin, See Monday**

**E-7:45 p.m., C-6:45, M-5:45, P-4:45**  
**B — Eddie and Grace Albert**  
KDKA WBAL WBZ WBZA WCKY  
WENR WJZ WMAL WMC WSB WSM  
WSMB WSYR

**C — Blake Carter, See Monday**

**R — Goldbergs, See Monday**

**E-8:00 p.m., C-7:00, M-6:00, P-5:00**  
**C — Happy Bakers, See Monday**  
**R — Cities Service Concert**  
CRCT KDYL KOA KPRC KSD KTBS  
KTHS KYW WBEN WCAE WCSH  
WDAF WEAF WEBC WEEI WFAA  
WFBR WGY WHO WJAR WKY WLIT  
WQAI WOC WOW WRC WRVA WSAI  
WTAG WTAM WTOG WTMJ WTVJ  
**B — Nestle's with Ethel Shutta**  
KDKA KWK WBAL WBZ WBZA  
WCKY WGAR WJR WJZ WLS WMAL  
WSYR

**E-8:15 p.m., C-7:15, M-6:15, P-5:15**  
**C — Edwin C. Hill, See Monday**

**E-8:30 p.m., C-7:30, M-6:30, P-5:30**  
**C — March of Time**  
CKLW KDB KERN KFBC KFPY  
KFRC KGB KHJ KLZ KMBC KMJ  
KMOX KOIN KOI KSL KTRH KVI  
KWG WABC WACAO WCAU WCCO  
WDRC WDSU WEAN WFBL WFBM  
WGN WGR WGST WHAS WHK WJAS  
WJSV WKRC WNAC WOKO WSPD  
**B — Dangerous Paradise, See Wednesday**

**E-8:45 p.m., C-7:45, M-6:45, P-5:45**  
**B — Red Davis, See Monday**



**FRIDAY—(Continued)**

**E-9:00 p. m., C-8:00, M-7:00, P-6:00**  
**B — Phil Harris and Orchestra**  
CFCE KDKA KDYL KFI KGHL  
KGIR KGO KGW KHQ KOA KOIL  
KOMO KSO KPCR KWK WAPI  
WBAL WBZ WBZA WCKY WFAA  
WGAR WJZ WKY WLS WMAL  
WOAI WREN WSB WSM WSBM  
WSYR  
**C — Philadelphia Symphony, See Mon.**  
**R — Frank Munn; Abe Lyman**  
KSD WBN WCHS WFAE WEEI  
WFBF WGY WJAR WLIT WMAQ  
WOW WRC WSAI WTAG WTAM  
WWJ

**E-9:15 p. m., C-8:15, M-7:15, P-6:15**  
**C — Ruth Etting, See Tuesday**

**E-9:30 p. m., C-8:30, M-7:30, P-6:30**  
**C — Jack Denny; Jack Whiting**  
CFRB CKAC CKLW KDB KERN  
KFBK KFII KFFY KFRG KGB KHJ  
KLRA KIL KMBC KMJ KMOX  
KQIN KOL KOMA KRLD KSCJ KSL  
KTRH KTSa KVI KWG WABC  
WADC WBBM WBRC WBT WCAO  
WCAU WCCO WDDO WDRC WDSU  
WEAN WFBL WFBM WGST WHAS  
WHK WIBW WICC WJAS WJSV  
WKBW WKRC WLAC WMBG WMT  
WNAC WOKO WOWO WREC WSPD  
WTAR WTOC  
**R — Pond's; Maude Adams**  
KSD WBN WCAE WCHS WDAF  
WEAF WFBF WGY WHO WJAR  
WLIT WMAQ WOC WOW WRC WSAI  
WTAG WTAM WTIC WWJ

**B — Armour Program; Phil Baker**  
KDKA KDYL KFI KGO KGW KHQ  
KOA KOIL KOMO KPCR KSO KSTP  
KTAR KWK WAPI WBAL WBZ  
WBZA WEBC WENR WFAA WGAR  
WHAM WIOD WJAX WJR WJZ  
WKY WMC WOAI WREN WRVA  
WSB WSM WSBM WTMJ WWNC

**E-10:00 p. m., C-9:00, M-8:00, P-7:00**  
**G — Swift Revue—Olson and Johnson**  
CKLW KDB KERN KFBK KFFY  
KFRG KGB KHJ KIL KMBC KMJ  
KMOX KQIN KOL KOMA KRLD  
KSCJ KSL KTRH KVI KWG WABC  
WADC WBBM WBRC WBT WCAO  
WCAU WCCO WDRC WEAN WFBL  
WGST WHAS WHK WJAS WJSV  
WKBW WKRC WNAC WOKO WOWO  
WREC

**R — First Nigher—Drama**  
CROT KDYL KFI KGO KGW KHQ  
KOA KOMO KPCR KSD KSTP  
WAPI WBN WCAE WCHS WDAF  
WEAF WEBC WEEI WFBF WGY  
WHO WJAR WKY WLIT WMAQ  
WOAI WOC WOW WRC WSAI WSB  
WSM WSBM WTAG WTAM WTIC  
WTMJ WWJ

**E-10:30 p. m., C-9:30, M-8:30, P-7:30**  
**B — Mario Cuzzi, Baritone**  
KDKA KFYR KOIL KSO WAPI  
WBAL WBZ WBZA WCKY WDAY  
WEBC WFLA WHAM WIBA WIOD  
WIS WJAX WJR WJZ WREN WSE  
WSM WSYR WWNC  
**C — News Service, See Monday**

**E-10:45 p. m., C-9:45, M-8:45, P-7:45**  
**C — Myrt and Marge, See Monday**

**E-11:00 p. m., C-10:00, M-9:00, P-8:00**  
**B — Ames 'n' Andy, See Monday**

**C — Mary Eastman, Soprano**  
CKLW KFH KLZ KMBC KSCJ KTRH  
KTSa KVOR WAAB WABC WADC  
WBRC WBT WCAH WCAO WDAE  
WDBJ WDRC WDSU WEAN WFEA  
WGST WHAS WHEC WHK WHP  
WIBW WICC WISN WJAS WJSV  
WKBW WLWB WLZB WMAS WMBD  
WMBG WMT WODX WOKO WORC  
WOWO WPG WQAM WREC WSJS  
WSPD WTOC

**E-11:30 p. m., C-10:30, M-9:30, P-8:30**  
**C — Isham Jones, See Thursday**  
**C — Edwin C. Hill, See Wednesday**

**SATURDAY**

**E-1:45 p. m., C-12:45, M-11:45, P-10:45**  
**R-B Metropolitan Opera**  
CFCE CRCT KDKA KDYL KFI KFSO  
KFYR KGHl KGIR KGO KGU KGW  
KHQ KOA KOIL KOMO KPCR KSD  
KSO KSTP KTAR KTBS KTHS  
KVOO KWCR KWK KYW WAPI  
WAVE WBAL WBAP WBNB WBT  
WBZA WCAE WCKY WCHS WDAF  
WDAY WEAF WEBC WEEI WFAA  
WFBF WFI WFLA WGAR WGY  
WHAM WHO WIBA WIOD WIS  
WJAR WJAX WJDX WJR WJZ  
WKBF WKY WLIT WLW WMAL  
WMAQ WMC WOAI WOC WOW  
WPTF WRC WREN WRVA WSB  
WSMB WSOC WSYR WTAG WTAM  
WSM WTC WTMJ WWJ WWNC

**E-8:00 p. m., C-5:00, M-4:00, P-3:00**  
**C — Meet the Artist;**  
CFRB CKLW KFH KLRA KMBC  
KOMA KSL KTRH KTSa KVOR  
WAAB WABC WACO WADC WBBM  
WBIG WBRC WCAO WCCO WDBJ  
WDSU WFBL WFEA WGR WGST  
WHAS WHEC WHK WHP WIBW  
WICC WIP WISN WJAS WJSV WLAC  
WLWB WLZB WMBG WMT WOKO  
WQAM WREC WSBT WSA WWSB  
WTAQ WTAR WTOC WWVA

**R — Waldorf Astoria, See Monday**  
**B — Al Pearce and His Gang**  
KDYL KFI KFYR KGO KGW KHQ  
KOA KOIL KOMO KPCR KSO  
KSTP KTBS KTHS KVOO KWCR  
KYW WBAL WBZ WBZA WCKY  
WDAY WEBC WFLA WHAM WIBA  
WIOD WIS WJAX WJDX WJR WJZ  
WKY WML WMC WOAI WREN  
WSB WSM WSYR WWNC

**E-8:15 p. m., C-5:15, M-4:15, P-3:15**  
**C — Voice of Romance; Tommy McLaughlin**  
OKLW WAAB WBT WCAO WCAU  
WCCO WDRC WDSU WGR WGST  
WHAS WHK WJSV WKRC

**E-8:30 p. m., C-5:30, M-4:30, P-3:30**  
**C — Frederic William Wile**  
CKLW KLRA WAAB WABC WBIG  
WBRC WCAO WCAU WDAE WDBJ  
WDBO WDDO WDRC WDSU WFBL  
WFEA WGLC WGST WHEC WHP  
WJSV WKBW WLAC WLWB WLZB  
WMAS WMBG WOKO WORC WQAM  
WREC WSJS WSPD WTAR WTOC

**R — Richard Humber and Orchestra**  
KDYL KFI KFYR KGO KGW KHQ  
KOA KOMO KPCR KSD KSTP KTBS  
KTHS KVOO WCAE WDAF WDAY  
WEAF WEBC WFLA WHO WIBA  
WIOD WIS WJAR WJAX WJDX

WKY WMAQ WMC WOAI WOC  
WRC WSB WSM WTAG WTAM  
WWJ WWNC

**E-8:45 p. m., C-5:45, M-4:45, P-3:45**  
**B — Flying with Capt. Al Williams**  
WBAL WBZ WBZA WCKY WGAR  
WHAM WJR WJZ WSYR  
**R — Saturday Night Smoker**  
WCHS WFAE WEEI WGY WJAR  
WTAG

**E-7:00 p. m., C-6:00, M-5:00, P-4:00**  
**B — John Herrick, Baritone**  
KDKA KOIL KSO KWCR KWK  
WBAL WKCY WGAR WJZ WKFB  
WMAL WMAQ

**C — Elder Michaux Congregation**  
CFRB CKLW KFH KLRA KIZ  
KSCJ KSL KTHS KTSa KVOR  
WABC WACO WADC WBBG WBRG  
WCAO WCAU WDAE WDBJ WDBO  
WDDO WDRC WDSU WFBL WFEA  
WGLC WGR WGST WHEC WHP  
WIBW WICC WJAS WJSV WLWB  
WLZB WMAS WMBG WMT WOKO  
WORC WQAM WREC WSJS WSPD  
WTAR WTOC WWVA

**E-7:15 p. m., C-6:15, M-5:15, P-4:15**  
**B — Dramatic Sketch, See Thursday**  
**R — Religion in the News**  
KFI KFYR KGO KGW KHQ KOA  
KOMO KSD KTBS WAPI WBNB  
WCAE WDAF WEAF WEEI WFAA  
WFBF WFI WFLA WGY WHO WIBA  
WIOD WIS WJAR WJAX WLW  
WMC WOAI WOC WRC WSM WSBM  
WTAG WTAM

**E-7:30 p. m., C-6:30, M-5:30, P-4:30**  
**C — Silver Oust, See Tuesday**  
**B — F. O. B. Detroit**  
KDKA KGIL KWCR KWK KYW  
WBAL WBZ WBZA WCKY WGAR  
WHAM WJAR WJR WJZ WMAL  
WREN WSYR

**E-7:45 p. m., C-6:45, M-5:45, P-4:45**  
**C — Isham Jones and Orchestra**  
CFRB CKLW KFH KLRA KOMA  
KRLD KSCJ KTRH KTSa KVOR  
WABC WACO WADC WBRC WBT  
WCAH WCAO WCAU WCCO WDAE  
WDBJ WDBO WDDO WDRC WDSU  
WEAN WFBL WFEA WGR WGST  
WIBW WICC WJAS WJSV WLAC  
WLWB WLZB WMAS WNAC WOKO  
WORC WQAM WREC WSJS WJZ  
WTAR WWVA

**E-8:00 p. m., C-7:00, M-6:00, P-5:00**  
**C — 45 Minutes in Hollywood**  
CKLW KLZ KMBC KMOX KSL  
KTAT KTRH KTSa WABC WACO  
WBBM WCAH WCAO WCAU WCCO  
WDRC WEAN WFBL WGR WHEC  
WHK WJAS WJSV WKRC WNAC  
WOKO WRR WSPD

**R — George Olson and Orchestra**  
KDYL KFI KFYR KGO KGW KHQ  
KOA KOMO KPCR KSD KSTP KTBS  
KVOO KYW WBNB WCHS WDAF  
WGY WIBA WIOD WIS WJAR WJAX  
WJDX WOAI WOC WRC WSB WSM  
WSMB WTAG WTAM WWJ WWNC  
**B — Art in America**  
KDKA KDYL KFI KFYR KGO KGW  
KHQ KOA KOMO KPCR KSO KSTP  
KTBS KVOO KWK WBZ WBZA  
WEBC WFLA WIBA WIOD WIS  
WJAX WJDX WJZ WMAL WMAQ  
WOAI WREN WSB WSM WSBM

## SATURDAY—(Cont'd)

**E-8:15 p.m., C-7:15, M-8:15, P-5:15**  
**R — Boston Symphony Orchestra**  
KSD KYW WBN WCSH WDAF  
WEAF WEEI WFBR WGY WJAR  
WOW WRC WTAG WTAM WWJ

**E-8:30 p.m., C-7:30, M-6:30, P-5:30**  
**B — Sous Les Ponts de Paris**  
KDYL KFI KFJR KGO KGW KHQ  
KOA KOMO KPRC KSO KSTP KTBS  
KWK WAPI WBAL WDAY WEBC  
WFLA WGR WHAM WIDA WIOD  
WIS WJAX WJDX WJR WJZ WKY  
WMAI WMC WREN WRVA WSB  
WSM WSMB WSYR WWNC

**E-8:45 p.m., C-7:45, M-6:45, P-5:45**  
**C — Trade and Mark**  
CKLW KDB KERN KFBK KFPY  
KFRG KGB KHJ KLZ KMBC KMJ  
KMOX KOIN KOL KSL KVI KWG  
WAAB WABC WADC WBBM WCAO  
WCAU WCCO WDRG WBBN WHAS  
WHK WJAS WJSV WKBW WKRC

**E-9:00 p.m., C-8:00, M-7:00, P-6:00**  
**C — Philadelphia Symphony, See Mon.**

**E-9:15 p.m., C-8:15, M-7:15, P-6:15**  
**C — Alex Woolcott, See Wednesday**

**E-9:30 p.m., C-8:30, M-7:30, P-6:30**  
**C — Pontiac; Raymond Paige Orchestra**  
CKLW KDB KERN KFBK KFH  
KFPY KFRC KGB KHJ KLRA KLZ  
KMBC KMJ KMOX KOIN KOL  
KOMA KSL KTAT KTRH KTSa KVI  
KWG WABC WADC WBBM WBRG  
WBT WCAH WCAU WCAU WCCO  
WDAE WDRG WDSU WEAN WFBL  
WFBM WGST WHAS WHEC WHK  
WIBW WICC WISN WJAS WJSV  
WKBW WKRC WLAC WMBD WMT  
WNAC WOKO WOVQ WQAM WREC  
WRR WSPD WTAR WTAC  
**B — Eddie Duchin, See Tuesday**

**E-10:00 p.m., C-9:00, M-8:00, P-7:00**  
**R — B. A. Rolfe and Orchestra**  
CRCT KDYL KFI KGO KGW KOA  
KOMO KSD KSTP WBAP WBN  
WCAE WCSH WDAF WEAF WEEI  
WFBR WFI WGY WHO WJAR WJAX  
WLW WMAQ WOA1 WOC WOW  
WRC WRVA WSB WSMB WTAG  
WTAM WTMJ WWJ

**C — Byrd Expedition**  
CKLW KDB KERN KFBK KFH  
KFPY KFRC KGB KHJ KLRA  
KMBC KMJ KMOX KOIN KOL  
KOMA KRLD KTRH KTSa KVI  
KWG WAAB WABC WADC WADC  
WBBM WBRG WBT WCAU WCAU  
WCCO WDAE WEAN WGST WHAS  
WHEC WHK WHP WIBW WJSV  
WKBW WKRC WLAC WLZ WMBG  
WMT WOKO WORC WQAM WREC

**E-10:30 p.m., C-9:30, M-8:30, P-7:30**  
**B — National Barn Dance**  
KDKA KDYL KFI KGO KGW KHQ  
KOA KOIL KOMO KSO KWCR KWK  
WBAL WBZ WBZA WGAR WHAM  
WJR WJZ WLS WLW WMAL WREN  
WSYR  
**C — News Service, See Monday**

**E-10:45 p.m., C-9:45, M-8:45, P-7:45**  
**C — H. V. Kallenborn**  
CFRB CKLW KLZ KMBC KOMA  
KRLD KSCJ KSL KTRH KTSa  
KVOR WAAB WABC WADC WBIG

WBRC WBT WCAH WCAO WDBJ  
WDRG WDSU WEAN WFBM WFEA  
WGST WHEC WHP WIBW WIP  
WISN WJAS WJSV WKBW WLWB  
WLZ WMAS WMBD WMBG WMT  
WODX WORC WPG WQAM WREC  
WSBT WSJS WSPD WTAQ WTOG  
WWVA

**E-11:00 p.m., C-10:00, M-9:00, P-8:00**  
**C — Guy Lombardo and Orchestra**  
CFRB CKLW KLRA KLZ KMBC  
KMOX KOMA KTRH KTSa KVOR  
WAAB WABC WADC WBIG WBRG  
WCAO WCAU WCCO WDBJ WDSU  
WEAN WFBL WFBM WGST WHAS  
WHP WIBW WICC WISN WJAS  
WJSV WKBW WLAC WLWB WLZ  
WMBD WMBG WMT WOKO WPG  
WQAM WREC WSBT WSJS WTAR  
WTOG

**E-11:30 p.m., C-10:30, M-9:30, P-8:30**  
**C — Ted Fiorito and Orchestra**  
CFRB CKLW KLRA KLZ KMBC  
KOMA KSL KTRH KTSa KVOR  
WABC WADC WBRG WCAO WDBJ  
WDSU WEAN WFBL WFBM WGST  
WHEC WHP WIBW WIP WISN  
WJSV WKBW WLAC WLWB WLZ  
WMBD WMBG WMT WNAC WOKO  
WPG WQAM WREC WSBT WSJS  
WTOG

**R — One Man's Family**  
CFRC KDYL KFJR KOA KPO KPRC  
KSD KSTP KTBS KTHS KVOO  
WBN WCAE WDAF WDAY WEAF  
WFBR WFI WFLA WGY WHO WIBA  
WIOD WIS WJAR WJAX WJDX WKY  
WMAQ WMC WOA1 WOC WOW  
WRC WRVA WSAI WSB WSMB  
WTAG WTAM WWJ WWNC

**B — Paul Whitman and Orchestra**  
KOIL KSO KWCR KWK KYW WBAL  
WBZ WBZA WCKY WGAR WHAM  
WJZ WLW WMAL WREN WSYR

**E-12:00 p.m., C-11:00, M-10:00, P-9:00**  
**C — Glen Gray and Orchestra**  
CKLW KFHL KLZ KMBC KMOX  
KOMA KRLD KSCJ KTRH LTSA  
WABC WCAU WEAN WFBL WHAS  
WHP WIBW WICC WISN WJSV  
WKBW WLWB WMAS WMBD  
WNAC WOKO WSBT WSPD

**R — Hollywood on the Air**  
CFRC KDYL KFJR KOA KPO KPRC  
KSD KSTP KTBS KTHS KVOO  
WBN WCAE WDAF WDAY WEAF  
WFBR WFI WFLA WGY WHO WIBA  
WIOD WIS WJAR WJAX WJDX WKY  
WMAQ WMC WOA1 WOC WOW WRC  
WRVA WSAI WSB WSMB WTAG  
WTAMWWJ WWNC

**E-12:30 a.m., C-11:30, M-10:30, P-9:30**  
**B — Harold Stern and Orchestra**

KOIL KSO KWCR KWK KYW WBAL  
WBZ WBZA WCKY WGAR WHAM  
WJR WJZ WLW WMAL WREN  
WSYR

## SUNDAY

**E-11:15 a.m., C-10:15, M-9:15, P-8:15**  
**R — Major Bowes' Capitol Family**  
KDYL KFJR KOA KPRC KSTP

KTBS KVOO WAPI WCAE WDAF  
WDAY WEAF WEBC WFAA WFBM  
WFLA WGY WHO WIOD WJAR  
WJAX WKY WMAQ WMC WOA1  
WOC WRC WRVA WSAI WSMB  
WTAG WTAM WWNC

**E-11:30 a.m., C-10:30, M-9:30, P-8:30**  
**C — Salt Lake Tabernacle Choir**

CKLW KLRA KLZ KMBC KOMA  
KSL KTRH KTSa KVOR WABC  
WACO WADC WBIG WBRG WCAO  
WCCO WDBJ WDRG WDSU WEAN  
WFBL WFEA WGN WGR WGST  
WHAS WHEC WHP WIBW WICC  
WISN WJAS WJSV WLAC WLWB  
WMBD WMT WNAC WOKO WORC  
WPG WQAM WSBT WSPA WSJS  
WTAQ WTAR WWVA

**E-12:15 p.m., C-11:15, M-10:15, P-9:15**  
**R — Gordon String Quartet**  
WCSH WEAF WEEI WFBR WFI  
WJAR WRC WTAG

**E-12:30 p.m., C-11:30, M-10:30, P-9:30**  
**B — Radio City Concert**

CFPC CRCT KDKA KDYL KFI  
KFJR KGO KGW KHQ KOA KOIL  
KOMO KPRC KSO KVOO WAPI  
WBAL WBZ WBZA WCKY WDAY  
WEBC WGAR WHAM WIS WJDX  
WJR WJZ WKY WMAL WOA1 WREN  
WSMB WSYR WWNC

**R — Chicago Round Table**  
WBN WCSH WDAF WEAF WEEI  
WFBR WFI WGY WHO WJAR  
WOC WOW WRC WSAI WTAG  
WTAM WWJ

**C — Tito Guizar, Tenor**  
CKLW WABC WCAU WDRG WEAN  
WFEA WGR WHK WICC WKRC  
WLZ WMAS WNAC WORC WSPD

**E-12:45 p.m., C-11:45, M-10:45, P-9:45**  
**C — Madison Ensemble**

CFRB CHAK CKLW KLRA KLZ  
KMBC KOMA KSCJ KSL KTRH  
KTSa KVOR WABC WACO WADC  
WBRG WBT WCAH WCAU WCAU  
WDAE WDBJ WDOD WDSU WFBL  
WGR WGST WHAS WHEC WIBW  
WISN WJAS WJSV WKBW WLAC  
WMBD WMT WNAC WOKO WORC  
WPG WQAM WREC WSJS WSPD  
WTAR WTVVA

**E-1:00 p.m., C-12:00, M-11:00, P-10:00**  
**R — Miss Bab-o's Surprise Party**

WBN WCAE WEAF WFBR WFI  
WGY WJAR WMAQ WSAI WTAG  
WTAM

**C — Church of the Air**  
CFRB CKLW KLRA KLZ KOMA  
KTRH KTSa KVOR WAAB WABC  
WACO WADC WCCO WDBJ WDRG  
WDSU WFBL WGR WGST WHAS  
WHEC WHP WIBW WJAS WJSV  
WLAC WLWB WMT WOKO WPG  
WQAM WREC WSBT WSJS WTAQ  
WTAR WTOG WWVA

**E-1:30 p.m., C-12:30, M-11:30, P-10:30**  
**R — Little Known Facts**

WBN WCSH WEAF WEEI WFI  
WGY WJAR WTAG WTAM WWJ  
**B — National Youth Concert**  
KDKA KFI KFSB KFJR KGHM  
KGRG KGO KGW KHQ KOA KOIL





# CLASSIFIED INDEX TO CHAIN PROGRAMS

*Time in Eastern Standard*

## CONCERTS

Boston Symphony, 8:15 p.m., Saturday, R.  
Cadillac Concert, 6:00 p.m., Sunday, B.  
Hoover Sentinels, 4:30 p.m., Sunday, R.  
Metropolitan Opera, 1:45 p.m., Saturday, R-B.  
N. Y. Philharmonic, 3:00 p.m., Sunday, C.  
Philadelphia Symphony, 9:00 p.m., daily, except Sunday, C.  
Radio City Concert, 12:30 p.m., Sunday, B.  
Albert Spalding, 8:30 p.m., Wednesday, C.  
Waldorf-Astoria Orchestra, 6:00 p.m., daily, except Sun., R.

## DANCE BANDS

Ben Bernie, 9:00 p.m., Tuesday, R.  
Don Bestor, 8:00 p.m., Friday, B.  
Jack Denny, 7:00 p.m., Sunday, 9:30 p.m., Friday, C; 12:00 mid., Saturday, B.  
Eddie Duchin, 9:30 p.m., Tues., Thurs., Sat., B.  
Ted Fiorito, 10:00 p.m., Wednesday; 11:30 p.m., Sat., C.  
Jan Garber, 3:30 p.m., Sunday, B.  
Glen Gray, 10:00 p.m., Tues. and Thurs.; 12:00 mid. Sat., C.

Johnny Green, 9:15 p.m., Tuesday and Friday, C.  
Phil Harris, 9:00 p.m., Friday, B.  
Lennie Hayton, 9:00 p.m., Wednesday, R.  
Richard Himber, 11:30 p.m., Tuesday; 6:00 p.m., Thursday, B; 6:30 p.m., Saturday, R.  
Isham Jones, 9:30 p.m., Monday; 11:30 p.m., Thursday and Friday; 7:45 p.m., Saturday, C.  
Wayne King, 3:00 p.m., Sunday; 8:30 p.m., Tuesday and Wednesday, R; 10:00 p.m., Monday, C.  
Andre Kostelanetz, 9:15 p.m., Monday and Thursday; 11:00 p.m., Wednesday, C.

Guy Lombardo, 9:30 p.m., Wed.; 11:00 p.m., Sat., C.  
Vincent Lopez, 10:00 p.m., Wednesday, B.  
Abe Lyman, 2:30 p.m., Sunday; 11:30 p.m., Monday; 12:30 a.m., Saturday, C; 9:00 p.m., Friday, R.  
Ozzie Nelson, 7:30 p.m., Sunday, B; 11:30 p.m., Tues., C.  
George Olsen, 8:00 p.m., Saturday, R.  
Raymond Paige, 9:30 p.m., Saturday, C.  
Freddie Rich, 11:15 p.m., Monday, C.  
Buddy Rogers, 11:30 p.m., Sunday, B.  
B. A. Rolfe, 10:00 p.m., Saturday, R.  
Nat Shilkret, 9:45 p.m., Sunday, B.  
Rudy Vallee, 8:00 p.m., Thursday, R.  
Fred Waring, 8:30 p.m., Sunday; 9:30 p.m., Thursday, C.  
Mark Wornow, 10:45 p.m., Monday, C.  
Ted Weems, 7:00 p.m., Sunday, B.  
Paul Whiteman, 10:00 p.m., Thursday, R; 11:30 p.m., Saturday, B.

## DIALOG

Fred Allen, 9:30 p.m., Wednesday, R.  
Amos 'n' Andy, 7:00 and 11:00 p.m., daily except Saturday and Sunday, B.  
Phil Baker, 9:30 p.m., Friday, B.  
Jack Benny, 10:00 p.m., Sunday, R.  
Burns and Allen, 9:30 p.m., Wednesday, C.  
Eddie Cantor, 8:00 p.m., Sunday, R.  
George Jessel, 9:30 p.m., Tuesday, C.  
Olsen and Johnson, 10:00 p.m., Friday, C.  
Jack Pearl, 8:00 p.m., Wednesday, R.  
Joe Penner, 7:30 p.m., Sunday, B.  
Stoopnagle and Budd, 10:00 p.m., Tues. and Thurs., C.  
Ed Wynn, 9:30 p.m., Tuesday, R.

## DRAMA

Maude Adams, 9:30 p.m., Friday, R.  
Bar X Days, 2:00 p.m., Sunday, B.  
Billy Batchelor, 7:15 p.m., daily except Sat. and Sun., R.  
Bobby Benson, 6:15 p.m., daily except Sat. and Sun., C.  
Big Ben, 5:00 p.m., Sunday, R.  
Conoco Tourist Adventures, 10:30 p.m., Wednesday, B.  
Crause of Seth Parker, 10:00 p.m., Tuesday, R.  
Dangerous Paradise, 8:30 p.m., Wednesday and Friday, B.  
Red Davis, 8:45 p.m., Monday, Wednesday, Friday, B.  
Death Valley Days, 9:00 p.m., Thursday, B.  
Eno Crime, 8:00 p.m., Tuesday and Wednesday, B.  
First Nighter, 10:00 p.m., Friday, R.  
Goldbergs, 7:45 p.m., daily, except Saturday and Sunday, R.  
Grand Hotel, 5:30 p.m., Sunday, B.  
Just Plain Bill, 7:15 p.m., daily except Sat. and Sun., C.  
Warden Lawes, 9:00 and 11:15 p.m., Wednesday, B.

Little Italy, 6:45 p.m., Tuesday, Thursday, C.  
March of Time, 8:30 p.m., Friday, C.  
Myrt and Marge, 7:00 and 10:45 p.m., daily except Saturday and Sunday, C.

One Man's Family, 11:30 p.m., Saturday, R.  
Princess Pat, 4:30 p.m., Sunday, B.  
Irene Rich, 3:15 p.m., Sunday; 7:45 p.m., Wednesday, B.  
Rin Tin Tin, 7:45 p.m., Sunday, C.  
Buck Rogers, 6:00 p.m., Monday to Thursday, inc., C.  
Roses and Drums, 5:00 p.m., Sunday, C.  
Soconyland Sketches, 8:00 p.m., Monday, R.  
Talkie Picture Time, 5:30 p.m., Sunday, R.  
Terhune Dog Drama, 4:00 p.m., Sunday, B.  
True Story Court, 7:00 p.m., Sunday, R.  
Ward's Family Theatre, 6:45 and 7:30 p.m., Sunday, C.

## PIANO AND ORGAN

Fray and Braggiotti, 8:45 p.m., Tuesday, C.  
George Gershwin, 7:30 p.m., Monday and Friday, B.  
Archer Gibson, 10:30 p.m., Thursday, B.  
Dion Kennedy, 4:15 p.m., Sunday, B.  
Ohman and Arden, 9:30 p.m., Sunday, R; 2:30 p.m., Sun., B.

## POPULAR PROGRAMS

A. & P. Gypsies, 9:00 p.m., Monday, R.  
Album Familiar Music, 9:30 p.m., Sunday, R.  
Armour Program, 9:30 p.m., Friday, B.  
Bavarian Peasant Band, 8:45 p.m., Tuesday, B.  
Major Bowes, 11:15 a.m., Sunday, R.  
Buick Program, 9:15 p.m., Monday and Thursday, C.  
Byrd Expedition, 10:00 p.m., Saturday, C.  
California Melodies, 11:00 p.m., Thursday, C.  
Chuse and Sanborn, 8:00 p.m., Sunday, R.  
Cheerio Musical Mosaics, 6:45 p.m., Tuesday, R.  
Chevrolet Program, 10:00 p.m., Sunday, R.  
Cities Service, 8:00 p.m., Friday, R.  
Contented Hour, 10:00 p.m., Monday, R.  
Corn Cob Pipe Club, 10:00 p.m., Wednesday, R.  
Del Monte Ship of Joy, 9:30 p.m., Monday, R.  
Djer Kiss Recital, 8:30 p.m., Monday, B.  
Evening in Paris, 8:00 p.m., Sunday, C.  
F. O. B. Detroit, 7:30 p.m., Saturday, B.  
Fleischmann Hour, 8:00 p.m., Thursday, R.  
Ford Program, 8:30 p.m., Sunday; 9:30 p.m., Thurs., C.  
Forty-Five Minutes in Hollywood, 8:00 p.m., Saturday, G.  
Jack Frost's Melody, 9:30 p.m., Monday, B.  
Gulf Headliners, 9:00 p.m., Sunday, B.  
Hall of Fame, 10:30 p.m., Sunday, R.  
Hands Across the Border, 10:00 p.m., Thursday, B.  
Hollywood on the Air, 12:00 mid., Saturday, R.  
Household Musical, 9:00 p.m., Tuesday, B.  
International Tid-Bits, 3:00 p.m., Sunday, B.  
Ipana Troubadours, 9:00 p.m., Wednesday, R.  
Manhattan Merry-Go-Round, 9:00 p.m., Sunday, R.  
Maxwell House Show Boat, 9:00 p.m., Thursday, R.  
Molle Show, 7:30 p.m., Monday, Wednesday, Thursday, R.  
Music on the Air, 7:30 p.m., Mon., Wed., Fri., C.  
National Barn Dance, 10:30 p.m., Saturday, B.  
Nestle's Chocolateaters, 8:00 p.m., Friday, B.  
Old Gold, 10:00 p.m., Wednesday, C.  
Oldsmobile Program, 9:15 p.m., Tuesday and Friday, C.  
Eddie Peabody Variety Show, 11:00 p.m., Sunday, B.  
Al Pearce and Gang, 6:00 p.m., Saturday, B.  
Pond's Program, 9:30 p.m., Friday, R.  
Pontiac, 9:30 p.m., Saturday, C.  
Realsilk Show, 7:00 p.m., Sunday, B.  
Royal Gelatine, 8:00 p.m., Wednesday, R.  
Saturday Night Smoker, 6:45 p.m., Saturday, R.  
Sealed Power Side Show, 8:00 and 12:00 p.m., Monday, B.  
Seven Star Revue, 9:00 p.m., Sunday, C.  
Sinclair Minstrels, 9:00 p.m., Monday, B.  
Swift Garden, 3:30 p.m., Sunday, R.  
Swift Revue, 10:00 p.m., Friday, C.  
Texaco, 9:30 p.m., Tuesday, R.  
U. S. Army Band, 6:00 p.m., Monday, B.  
Voice of America, 8:30 p.m., Thursday, C.  
Voice of Firestone, 8:30 and 11:30 p.m., Monday, R.  
Wildroot Institute, 4:15 p.m., Sunday, R.  
Yeast Foamers, 3:30 p.m., Sunday, B.

## RELIGIOUS

Catholic Hour, 6:00 p.m., Sunday, R.

Church of the Air, 1:00 p.m., Sunday, C.  
 Elder Michaux' Congregation, 7:00 p.m., Saturday, C.  
 Mid-Week Hymn Sing, 6:30 p.m., Tuesday, R.  
 National Vespers, 5:00 p.m., Sunday, B.  
 National Youth Conference, 1:30 p.m., Sunday, B.  
 Religion in News, 7:15 p.m., Saturday, R.  
 Salt Lake Choir, 11:30 a.m., Sunday, C.

**SINGERS**

Frances Alda, 6:00 p.m., Tuesday, R.  
 Baby Rose Marie, 7:15 p.m., Monday, B.  
 Mildred Bailey, 9:30 p.m., Tuesday, C.  
 Irene Basley, 6:30 p.m., Monday and Friday, R; 6:30 p.m., Wednesday, B.  
 Connie Boswell, 10:00 p.m., Tuesday and Thursday, C.  
 Morton Bowe, 7:00 p.m., Friday, R.  
 Charles Carlile, 11:15 p.m., Tuesday, C.  
 Richard Crooks, 8:30 and 11:30 p.m., every other Monday, R.  
 Bing Crosby, 8:30 p.m., Monday, C.  
 Edward Davies, 4:30 p.m., Sunday, R.  
 Jessica Dragonette, 8:00 p.m., Friday, R.  
 Mary Eastman, 9:15 p.m., Monday and Thursday; 6:30 p.m., Tuesday; 11:00 p.m., Friday, C.  
 Ruth Etting, 9:15 p.m., Tuesday and Friday, C.  
 Evan Evans, 10:45 p.m., Thursday, C.  
 Five Spirits of Rhythm, 11:15 p.m., Wednesday; 8:00 p.m., Thursday, C.  
 Jane Froman, 9:00 p.m., Sunday, C.  
 Connie Gates, 10:45 p.m., Monday, C.  
 Alex Gray, 8:30 p.m., Thursday, C.  
 Tito Guizar, 12:30 p.m., Sunday; 6:30 p.m., Thursday, C.  
 Wendell Hall, 7:45 p.m., Sunday, R.  
 Annette Hanshaw, 9:00 p.m., Thursday, R.  
 Happy Bakers, 8:00 p.m., Mon., Wed., and Fri., C.  
 Harlem Sorenaders, 11:00 p.m., Tuesday, C.  
 John Herrick, 7:15 p.m., Wednesday; 7:00 p.m., Saturday, B.  
 Harriet Hilliard, 7:30 p.m., Sunday, B.  
 Shirley Howard, 7:30 p.m., Mon., Wed., Thurs., R.  
 Arlene Jackson, 2:30 p.m., Sunday; 7:45 p.m., Tues., B.  
 Al Jolson, 10:00 p.m., Thursday, R.  
 Jeannie Lang, 9:30 p.m., Friday, C.  
 Lazy Dun, 1:30 p.m., Sunday, C.  
 Little Jack Little, 8:00 p.m., Tues.; 11:30 p.m., Wed., C.  
 Howard March, 9:15 p.m., Monday and Thursday, C.  
 Nino Martini, 9:00 p.m., Sunday, C.  
 John McCormack, 9:30 p.m., Wednesday, B.  
 Tommy McLaughlin, 6:15 p.m., Saturday, C.  
 James Melton, 6:45 p.m., Sunday, C.  
 Mills Brothers, 8:30 p.m., Monday, C.  
 Helen Morgan, 2:00 p.m., Sunday, C.  
 Frank Munn, 9:30 p.m., Sunday; 9:00 p.m., Friday, R.  
 Edith Murray, 6:30 p.m., Friday, C.

Gertrude Niesen, 9:30 p.m., Monday, C.  
 Frank Parker, 10:00 p.m., Sunday; 9:00 p.m., Monday, R.  
 Virginia Rea, 9:30 p.m., Sunday, R.  
 Revelers Quartet, 9:00 p.m., Sunday, B.  
 Lanny Ross, 9:00 p.m., Thursday, R.  
 Vivien Ruth, 8:00 p.m., Mon., Wed. and Fri., C.  
 Sanderson-Crumit, 5:30 p.m., Sunday, C.  
 Ethel Shutta, 8:00 p.m., Friday, B.  
 Silver Dust Sorenaders, 7:30 p.m., Tues., Thurs. and Sat., C.  
 Sizzlers Trio, 8:45 p.m., Thursday, B.  
 Mary Small, 1:00 p.m., Sunday, R.  
 Smiling Ed McConnell, 6:30 p.m., Sunday, C.  
 Songs Mother Used to Sing, 6:00 p.m., Sunday, C.  
 Tamara, 9:00 p.m., Sunday, R.  
 Irene Taylor, 10:00 p.m., Tuesday and Thursday, C.  
 Conrad Thibault, 8:30 p.m., Wednesday, C.  
 Three X Sisters, 6:30 p.m., Friday, B.  
 Lawrence Tibbett, 8:30 and 11:30 p.m., every other Mon., R.  
 Trade and Mark, 8:45 p.m., Saturday, C.  
 Gus Van, 7:45 p.m., Tuesday, B.  
 Cyrene Van Gordon, 8:30 p.m., Monday, B.  
 Vee and Johnny, 4:15 p.m., Sunday, R.  
 Ethel Waters, 7:00 p.m., Sunday, C.  
 Jack Whiting, 9:30 p.m., Friday, C.  
 Muriel Wilson, 2:45 p.m., Sunday; 9:00 p.m., Friday, R.

**TALKS**

Dale Carnegie, 1:30 p.m., Sunday, R.  
 Bouke Carter, 7:45 p.m., daily, except Sat. and Sun., C.  
 Chicago Round Table, 12:30 p.m., Sunday, R.  
 Columbia News Service, 10:30 p.m., daily, except Sun., C.  
 Cook Travelogues, 2:30 p.m., Sunday, R.  
 Father Coughlin, 4:00 p.m., Sunday.  
 Flying Capt. Williams, 6:45 p.m., Saturday, B.  
 Edwin C. Hill, 8:15 p.m., daily except Sat. and Sun.; 11:15 p.m., Wed. Thurs., Fri., C.  
 Horlick's Health, 8:30 p.m., Tuesday and Thursday, B.  
 International News, 6:30 p.m., Wednesday, R.  
 H. V. Kaltenborn, 11:00 p.m., Sunday; 6:00 p.m., Friday; 10:45 p.m., Saturday, C.  
 Andrew Kelly, 6:45 p.m., Monday, R.  
 John B. Kennedy, 4:00 p.m., Sunday, R.  
 National Radio Forum, 10:30 p.m., Monday, R.  
 Our American Schools, 6:30 p.m., Sunday, R.  
 Angelo Patri, 10:00 p.m., Sunday, C.  
 Robert L. Ripley, 10:00 p.m., Saturday, R.  
 Madame Sylvia, 10:30 p.m., Tuesday, R.  
 Lowell Thomas, 6:45 p.m., daily, except Sat. and Sun., B.  
 Voice of Experience, 8:30 and 11:45 p.m., Tuesday, C.  
 Frederic William Wile, 6:30 p.m., Saturday, C.  
 Walter Winchell, 9:30 and 11:15 p.m., Sunday, B.  
 Alexander Woolcott, 9:15 p.m., Wed. and Sat., C.

**KEY TO SYMBOLS**

As Shown in the Index by Frequencies and Dial Numbers

Frequency is given in kilocycles; wavelength in meters. Night power is shown in watts in third column. Daytime power is shown in parenthesis in fourth column in kilowatts, thus (25) indicating 250 watts. Some stations outside the United States use a "split frequency." Their exact frequency is shown in fourth column. Time Zones: A—Atlantic, E—Eastern, C—Central, M—Mountain, P—Pacific, L—Local. A. M. time is shown in light face type.

**Second Column Symbols**

- a Verifies reception for return postage.
- b Verifies only occasionally.
- c Does not verify.
- d Verification 10c; letter 25c.
- e Sends Ekko stamp for 10c.
- f Sends Ekko stamp for 5c.
- g Sends Ekko stamp for postage.
- h Sends own station stamp for 10c.
- i Sends own station stamp for 5c.
- j Sends own station stamp for postage.
- k Has no stamps.
- z No information available.

**Fourth Column Symbols**

- B National "Blue" network.
- C Columbia network.
- D Daytime only.
- Dn Daytime with occasional evening hours.
- E Trans-Canada network.
- F Canadian Radio Broadcast Commission.
- G All Canadian networks.

- H Yankee network.
- J Orange network.
- K Michigan network.
- L Canadian Pacific Ry. network.
- M Central Canada network.
- N National "Red" and "Blue" networks.
- P Has construction permit only.
- R National "Red" network.
- S Sunday only.
- Sy Synchronized.
- T Don Lee System.
- U Dixie network.
- V Maritime Broadcasting network.
- W All-Florida network.
- W Curtis-Indiana network.
- X Has permit to increase power.
- Y Has permit to change location.
- Z Has permit to change frequency.

a-b-c. Small letters show stations using same transmitter 1-2-3. Figures denote stations sharing time.  
 ..... No information.

# INDEX BY FREQUENCIES AND DIAL NUMBERS

With Monday's Time on the Air

**KCYS**  
**600**  
**DIAL**

## 540 kilocycles 555.2 meters

CJRM	z	1000	F	Moose Jaw, Sask.	M
KEY	z	105	546.8	Merida, Yuc.	

## 550 kilocycles 545.1 meters

KFDY	ae	500	1 (1)	Brookings, S. D.	C-12:30-2:00
KFUO	ae	500	2 (1)	St. Louis, Mo.	C-7-8; 9:25-9:45; 12:15-12:45; 3-3:45; 10-11
KFYR	ah	1000	1N (2.5)	Bismarck, N. D.	C-7:00-12:30; 2:00-11:30
KOAC	ak	1000	.....	Corvallis, Ore.	P-6:30-4:00; 6:30-9:00
KSD	ak	500	2R	St. Louis, Mo.	C-8-9:25; 9:45-12:15; 12:45-3; 3:45-10; 11-mid.
TISO	ak	250	.....	San Jose, C. R.	C-10:00-1:00; 4:00-11:00
WDEV	ae	500	D	Waterbury, Vt.	E-7:30-10:00; 11:30-2:00; 3:00-7:00
WGR	ae	1000	C	Buffalo, N. Y.	E-7:30-mid.
WKRC	ak	1000	C	Cincinnati, Ohio.	E-7:00-1:00

## 560 kilocycles 535.4 meters

KFDM	ak	500	(1)	Beaumont, Texas.	C-7:00-10:00
KLZ	ak	1000	C	Denver, Colo.	M-6:45-11:30
KTAB	ak	1000	.....	San Francisco, Calif.	P-7:00-1:00
KWTO	ak	500	D	Springfield, Mo.	C-7:00-7:00
WFI	ae	500	1R (1)	Philadelphia, Pa.	E-6:45-9; 9:45-11; 1-2; 3-4:30; 6-7:00
WIND	ak	1000	C	Gary, Ind.	C-5:30-3:30
WLIT	ak	500	1R (1)	Philadelphia, Pa.	E-9-9:45; 11-1; 2-3; 4:30-6; 7:00-1:00
WNOX	ak	1000	C (2)	Knoxville, Tenn.	C
WQAM	ae	1000	CW	Miami, Fla.	E-7:15-mid.
XEAO	ak	100	(.15)	Mexicali, B. C.	P-8:00-10:00

## 570 kilocycles 526.0 meters

FON	z	250	572	St. Pierre, Miquelon, Isl.	A
KGKO	ak	250	(.5)	Wichita Falls, Texas.	C-7:00-10:00
KMTR	ak	500	.....	Hollywood, Calif.	P-6:00-12:15
KVI	ak	500	.....	Tacoma, Wash.	P-6:00-mid.
WKBN	ae	500	1C	Youngstown, Ohio	E-7:30-9:00; 11:00-1:00; 3:00-8:00; 10:00-mid.
WMCA	ak	500	.....	New York, N. Y.	E-8:00-1:00
WNAX	ak	1000	C (2.5)	Yankton, S. D.	C-6:00-mid.
WOSU	ae	750	1 (1)	Columbus, Ohio.	E-9-11; 1-3; 8:00-10:00
WSYR	ak	250	B	Syracuse, N. Y.	E-7:30-1. (WSYU)
WWNC	ae	1000	N	Asheville, N. C.	E-8:00-1:00

## 580 kilocycles 516.9 meters

CKCL	aj	100	M	Toronto, Ont.	B-8:00-11:30 (CFCL) (VE9AO)
CKUA	ak	500	.....	Edmonton, Alta.	M
CMDD	z	150	588	Havana, Cuba.	E
KMJ	ak	500	CT	Fresno, Calif.	P-7:00-mid.
KSAC	ak	500	2 (1)	Manhattan, Kans.	C-8:00-9:00; 10:00-10:30; 12:30-1:30; 4:30-5:30
WBBO	ae	250	CW	Orlando, Fla.	E-7:00-mid.
WBW	ae	1000	C2	Topeka, Kans.	C-6:00-mid.
WOBU	ak	750	.....	Charleston, W. Va.	E-8-mid.
WTAG	ae	750	R	Worcester, Mass.	E-8-mid.
XEPN	ak	75000	585	Piedras Negras, Coah.	C-6:00-8:00; 11:00-1:00; 7:00-11:00

## 590 kilocycles 508.2 meters

CMW	ae	1400	595	Havana, Cuba.	E-11:00-10:00
HIX	ak	1500	598	Santo Domingo, D. R.	E. Silent
KHQ	ak	1000	N (2.5)	Spokane, Wash.	P-7-mid.
WBEI	ak	1000	R	Boston, Mass.	E-6:45-1. (W1XAL)
WKZO	ae	1000	DK	Kalamazoo, Mich.	E-7:00-7:00
WOW	ae	1000	R	Omaha, Neb.	C-7:00-10:00; 10:45-3:15; 4:00-mid.

## 600 kilocycles 499.7 meters

CFCF	ae	500	F	Montreal, Que.	E-7:30-mid. (VE9DR)
CFCO	ak	50	FL	Chatham, Ont.	E-7:15-10
CJOR	ak	500	.....	Vancouver, B. C.	P-7:30-10:30
KFSO	ah	1000	N	San Diego, Calif.	P-7:30-mid.
WCAC	ae	500	2	Storrs, Conn.	E-12:30-1; 7-8
WCAO	ae	500	C	Baltimore, Md.	E-7:00-mid.
WICC	ae	500	2 CH	Bridgeport, Conn.	E-7:45-1:00
WMT	af	500	C (1)	Waterloo, Iowa.	C-6:00-mid.
WREC	ak	500	C (1)	Memphis, Tenn.	C-6:30-mid.

CUT OUT ON DOTTED LINES

# INDEX BY FREQUENCIES AND DIAL NUMBERS

With Monday's Time on the Air

## 610 kilocycles 491.5 meters

KFRC	ae	1000	CT	San Francisco, Calif.	P-7-mid.
KZEG	ak	1000	618.5	Manila, P. I.	L-7:30-12:15; 1:15-5:00
KZRM	ak	50000	618.5	Manila, P. I.	L-6:30-7:30; 12:15-1:15; 5:10-10:30
TIXA	z	7.5	614	San Jose, C. R.	
WDAF	ak	1000	R	Kansas City, Mo.	C-7:56-12:30
WIP	ae	500	C (1)	Philadelphia, Pa.	E-8:30-12:30
WJAY	ak	500	D	Cleveland, Ohio.	E-6-sunset

## 620 kilocycles 483.6 meters

KGW	ae	1000	NJ	Portland, Ore.	P-7:00-mid.
KTAR	ae	500	NJ (1)	Phoenix, Ariz.	M-7:00-11:15
WFLA	ae	1000	Na (2.5)	Clearwater, Fla.	E-7:30-1:00
WLBZ	ak	500	C	Bangor, Maine.	E
WSUN	ae	1000	Na (2.5)	St. Petersburg, Fla.	E-7:30-1:00
WTMJ	ae	1000	N (2.5)	Milwaukee, Wis.	C-6:45-1:00

## 630 kilocycles 475.9 meters

CFCY	ae	500	FVE	Charlottestown, P. E. I.	A-12:00-1:30; 6:00-11:30 (VE9EH)
CJGX	ck	500	F	Yorkton, Sask.	C-8:30-9:15; 10:30-11:45; 12:40-1:15; 7:30-8:15
KFRU	ak	500	1	Columbia, Mo.	C-6-9; 4-sunset; 7-9
KGFX	z	200	D	Pierre, S. D.	C-9:30-sunset
WGBF	ae	500	1	Evansville, Ind.	C
WMAL	ak	250	B (5)	Washington, D. C.	E-6:45-mid.
WOS	ak	500	1D	Jefferson City, Mo.	C-9:00-4:00
XEX	z	50	.....	Monterrey, N. L.	
XEZ	ak	500	.....	Merida, Yuc.	C-1-5
XFG	z	2000	638.3	Mexico City, F.	C

## 640 kilocycles 468.5 meters

CMQ	z	500	645	Havana, Cuba.	E
KFI	ak	50000	1N	Los Angeles, Calif.	P-6:30-mid.
WAIU	ae	500	1	Columbus, Ohio.	E-6:15-6:00
WOI	ae	5000	D	Ames, Iowa.	C-6:30-2:00; 3:30-5:00

## 650 kilocycles 461.3 meters

KPCB	ae	100	.....	Seattle, Wash.	P-5:30-sunset; 10-4
WSM	aej	50000	N	Nashville, Tenn.	C-6:30-mid.

## 660 kilocycles 454.3 meters

RUS	z	500	664	San Salvador, E. S.	
WAAW	af	500	D	Omaha, Neb.	C-6:00-sunset
WEAF	ak	50000	R	New York, N. Y.	E-8:00-1:00

## 670 kilocycles 447.5 meters

WMAQ	ck	5000	N	Chicago, Ill.	C-7:30-1:00
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## 680 kilocycles 440.9 meters

CMAF	ak	1000	.....	Havana, Cuba.	E-5:30-11:30
HJN	ak	500	681	Bogota, Colombia.	L-Noon-1:30; 8-10
KFEQ	ae	2500	D	St. Joseph, Mo.	C-9:30-4:50
KPO	ak	50000	N	San Francisco, Calif.	P-7:30-mid.
VAS	z	2000	685	Glace Bay, N. S.	A-1:00-1:15; 1:00-1:15
WPTF	ae	1000	DnN	Raleigh, N. C.	E-7:30-sunset

## 690 kilocycles 434.5 meters

CFRB	ak	10000	C	Toronto, Ont.	E-8:00-mid.
CJ CJ	ak	100	.....	Calgary, Alta.	M
NAA	ak	1000	.....	Arlington, Va.	E-11:55-noon; 9:55-10:00
XET	ck	500	.....	Monterrey, N. L.	C-Noon-2:00; 4:00-10:00

## 700 kilocycles 428.3 meters

VOWR	ak	500	S	St. John's, Nfld.	L. Silent
WLW	ak	50000	NX	Cincinnati, Ohio.	E-6:30-2. (W8XO; W8XAL)

## 710 kilocycles 422.3 meters

KMPC	ae	500	Dn	Beverly Hills, Calif.	P-6:45-12:30
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# INDEX BY FREQUENCIES AND DIAL NUMBERS

With Monday's Time on the Air

TIFB	z	30	714	San Jose, C. R.	C—6:00-10:00
WOR	ak	5000	.....	Newark, N. J.	E—6:45-12:30
XEN	ak	1000	711	Mexico City, D. F.	C—9:00-noon; 1:00-4:00; 5:00-mid.

**720 kilocycles 416.4 meters**

WGN	ck	50000	.....	Chicago, Ill.	C—7:00-1:30
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**730 kilocycles 410.7 meters**

CFPL	z	100	F	London, Ont.	E
CJCA	ah	1000	F	Edmonton, Alta.	M
CKAC	ak	5000	C	Montreal, Que.	E—7:30-11:30
CMK	ae	3150	.....	Havana, Cuba.	E—11:00-1:00; 7:00-mid.
XEF-					
XER	ak	150000	735	Villa Acuna, Coah.	C—7:15-5:00

**KCYS  
820  
DIAL**

**740 kilocycles 405.2 meters**

KMMJ	ae	1000	D	Clay Center, Neb.	C—5:00-sunset
WHEB	ak	250	D	Portsmouth, N. H.	E—8:30-1:30; 3:30-7:45
WSB	ah	50000	NSX	Atlanta, Ga.	C—6:55-mid.

**750 kilocycles 399.8 meters**

KGU	aj	2500	N	Honolulu, T. H.	L—6:30-10:30
WJR	ak	10000	B	Detroit, Mich.	E—7:00-1:00
XEOK	ak	5000	757	Tijuana, B. C.	P—7:00-mid.

**760 kilocycles 394.5 meters**

CMBS	ak	200	765	Havana, Cuba.	E—10:00; 7:00-11:00
KXA	ae	250	(5)	Seattle, Wash.	P—5:30-mid.
WBAL	ae	10000	BSy	Baltimore, Md.	(See 1060 Kcys.) 7:30-8:00; 6:30-mid.
WEW	ae	1000	D	St. Louis, Mo.	C—8-sunset
WJZ	ck	50000	BSy	New York, N. Y.	E—8-1. (W3XL; W3XAL)
XEYZ	z	10000	.....	Mexico City, D. F.	C

**770 kilocycles 389.4 meters**

CMCQ	z	1000	775	Havana, Cuba.	E
KFAB	ae	5000	CSy	Lincoln, Neb.	C—5:00-6:45; 9:00-mid.
WBBM	ae	25000	CSy	Chicago, Ill.	C

**780 kilocycles 384.4 meters**

CHWK	ak	100	F	Chilliwack, B. C.	P—9:00-10:00; 12:00-1:00; 5:30-8:30
CJCS	ae	500	(1) P	Sudbury, Ont.	E—8:00-mid.
CKPR	ak	50	FE	Fort William, Ont.	E—10-2; 5-11
KELW	ak	500	2	Burbank, Calif.	P—10:00-1:00; 5:00-8:00; 4:00-6:00
KTM	ae	500	2 (1)	Los Angeles, Calif.	P—6:00-10:00; 1:00-5:00; 8:00-4:00
WEAN	ae	500	CH	Providence, R. I.	E—7:30-1:00
WMC	ak	500	N (1)	Memphis, Tenn.	C—7:00-mid.
WTAR	ae	500	C	Norfolk, Va.	E—7:00-mid.
XEP	z	1000	.....	Mexico City, D. F.	C

**790 kilocycles 379.5 meters**

CMJK	ak	500	.....	Camaguey, Cuba.	E—11:30-12:30; 5:00-11:00
KGO	ak	7500	N	San Francisco, Calif.	P—7:00-mid.
WGY	ak	50000	R	Schenectady, N. Y.	E—6:45-1. (W2XAD; W2XAF)

**800 kilocycles 374.8 meters**

TIGP	z	75	.....	San Jose, C. R.	E
VOAC	ak	40	.....	St. John's, Newfoundland.	L
WBAP	ak	50000	Na	Fort Worth, Tex.	C—6:30-7; 8:30-10:30; 12:30-3; 5:30-6:30; 10-mid.
WFAA	ak	50000	Na	Dallas, Tex.	C—7-8:30; 10:30-12:30; 3-5:30; 6:30-10:00
XFC	z	350	805	Agua Calientes, Ags.	

**810 kilocycles 370.2 meters**

VOAS	ak	100	.....	St. John's, Nfld.	L—11:00-12:30; 4:00-5:30
WCCO	ak	50000	C	Minneapolis, Minn.	C—7:00-mid.
WNYC	ak	500	N	New York, N. Y.	E—10:00-7:30

**820 kilocycles 365.6 meters**

CMGC	z	30	.....	Matanzas, Cuba.	E
WHAS	aj	50000	C	Louisville, Ky.	C—7:00-mid.
XEBC	z	7500	.....	Agua Caliente, B. C.	P. Almost Continuously.

CUT OUT ON DOTTED LINES

# INDEX BY FREQUENCIES AND DIAL NUMBERS

With Monday's Time on the Air

## 830 kilocycles 361.2 meters

CMC	ae	500	835	Havana, Cuba.	E	—10:30-11:30; 7:00-11:00			
CMGA	z	100	834	Colon, Cuba.	E				
KOA	ak	12500	N	Denver, Colo.	M	—7:00-mid.			
LR5	z	20000	.....	Buenos Aires, Arg.	L				
TIEA	z	7.5	833	San Jose, C. R.	L				
WEEU	ak	1000	D	Reading, Pa.	E	—8:00-6:15			
WHDH	ae	1000	Dn	Boston, Mass.	E	—7:00-sunset in Denver			
WRUF	ae	5000	Dn	Gainesville, Fla.	E	—8:00-8:00			
XETW	dk	500	.....	Mexico City, D. F.	C	—Noon-11:00			

## 840 kilocycles 356.9 meters

CJOC	ak	100	F	Lethbridge, Alta.	M	—7:30-8:00			
CKLW	ae	5000	C	Windsor, Ont.	E	—7:00-1:00			
XFX	ak	500	.....	Mexico City, D. F.	C	—7:00-noon; 4:30-10:30			

## 850 kilocycles 352.7 meters

KIEV	ak	100	D	Glendale, Calif.	P	—6:00-sunset			
KWKH	ae	10000	1	Shreveport, La.	C				
WWL	ae	10000	1Dn	New Orleans, La.	C	—8:00-8:30			

## 860 kilocycles 348.6 meters

TIVL	z	30	869	San Jose, C. R.	C	—11:00-1:00; 7:00-10:00			
WABC	ae	50000	C	New York, N. Y.	E	—7:30-2:00 (WBOQ) (W2XE)			
WHB	ae	500	D	Kansas City, Mo.	C	—6:00-6:00			
XETH	ak	100	.....	Puebla, Pue.	C	—8:30-11:00; 1:00-3:00; 6:30-11:00			

## 870 kilocycles 344.6 meters

CMCF	ak	250	873	Havana, Cuba.	E	—5:00-8:00			
CMX	ae	1000	875	Havana, Cuba.	E	—Noon-2:00; 8:00-11:00			
WENR	ak	50000	Na	Chicago, Ill.	C	—(W9XF)			
WLS	ae	50000	Na	Chicago, Ill.	C	—5:30-9:15; 10:45-2:30; 6:00-7:30			

## 880 kilocycles 340.7 meters

CJCB	ak	50	F	Sydney, N. S.	A	—10:00-11:00; noon-2:00; 5:00-10:00			
CRCO	ak	1000	F	Ottawa, Ont.	E	—Noon-1:30; 5:30-11:30			
KFKA	ak	500	2 (1)	Greeley, Colo.	M	—6:00-7:30; 9:00-2:30; 4:30-7:30; 9:00-mid.			
KLX	ae	1000	.....	Oakland, Calif.	P	—8:00-11:00			
KPOF	ae	500	2	Denver, Colo.	M	—7:30-9:00; 2:30-4:00; 7:30-9:00			
WCOC	ae	500	(1)	Meridian, Miss.	C	—7:30-2:00; 5:00-10:30			
WGBI	ae	250	1	Scranton, Pa.	E	—9:30-12:30; 1:30-4:30; 5:30-10:30			
WQAN	ae	250	1	Scranton, Pa.	E	—9:00-9:30; 12:30-1:30; 4:30-5:30			
WSUI	ae	500	.....	Iowa City, Iowa.	C	—9:00-10:00; 11:00-12:30; 2:00-4:00; 6:00-10:00			
YV2BC	z	100	882	Caracas, Venez.	L				

## 890 kilocycles 336.9 meters

KARK	ak	250	.....	Little Rock, Ark.	C	—7:00-2:30; 4:30-9:00			
KKNF	ak	500	2 (1)	Shenandoah, Iowa.	C	—5:00-10:00; 11:00-5:00; 6:00-10:00			
KSEI	ck	250	(.5)	Pocatello, Idaho.	M	—7:30-11:00			
KUSD	ae	500	2	Vermillion, S. D.	C	—8:00-9:00			
WGST	ae	250	C (1)	Atlanta, Ga.	C	—7:00-mid.			
WILL	ak	250	2 (1)	Urbana, Ill.	C	—10:00-12:15; 5:00-6:00			
WJAR	ae	500	R	Providence, R. I.	E	—8:00-mid.			
WMMN	ae	250	(.5)	Fairmont, W. Va.	E	—7:00-9:30			
XETU	z	100	.....	Pachuca, Hdo.					

## 900 kilocycles 333.1 meters

KGBU	ak	500	.....	Ketchikan, Alaska.	L				
KHJ	ae	1000	CT	Los Angeles, Calif.	P	—7:00-1:00			
WBEN	ae	1000	R	Buffalo, N. Y.	E	—6:45-Mid.			
WJAX	ae	1000	N	Jacksonville, Fla.	E	—7:00-12:30			
WKY	ak	1000	N	Oklahoma City, Okla.	C	—6:45-mid.			
WLBL	ae	2500	D	Stevens Point, Wis.	C	—8:00-sunset			

## 910 kilocycles 329.6 meters

CKY	ak	5000	F	Winnipeg, Man.	C	—8:30-1:30; 4:00-11:00			

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CMCD	ah	500	915	Havana, Cuba.	E—Noon-11:30
CMDE	z	150	915	Havana, Cuba.	E
CMJF	z	200	.....	Camaguey, Cuba	E
CRGM	ck	5000	F	Montreal, Que.	E
TICR	z	75	911	San Jose, C. R.	C—6:30-10:00
XEW	ak	5000	.....	Mexico City, D. F.	C

## 920 kilocycles 325.9 meters

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HHK	ae	1000	.....	Port-au-Prince, Haiti.	E—Silent
KFEL	ak	500	1	Denver, Colo.	M—6:30-8:30; 10:00-12:30; 3:00-4:30; 6-7:30
KFXF	ak	500	1	Denver, Colo.	M—8:30-10; 12:30-3; 4:30-6; 7:30-1:00
KOMO	ak	1000	N	Seattle, Wash.	P—6:55-mid.
KPRC	ae	1000	N (2.5)	Houston, Texas.	C—6:30-mid.
WAAF	ak	500	D	Chicago, Ill.	C—6:00-sunset
WBSO	ae	500	D	Babson Park, Mass.	E—8:30-5:15
WWJ	ae	1000	R	Detroit, Mich.	E—7:30-mid.

## 930 kilocycles 322.4 meters

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CFAC	ak	100	.....	Calgary, Alta.	M
CFCH	ak	100	F	North Bay, Ont.	E—Noon-1:30; 5:30-mid.
CFLC	ae	100	.....	Prescott, Ont.	E—8:00-10:00; noon-2:00; 5:00-7:30
CHRC	ak	100	F	Quebec, Que.	E—9:00-12:30
CKPC	ae	100	FG	Brantford, Ont.	E—6:45-mid.
KFWI	ak	500	1	San Francisco, Calif.	P—Silent till further notice
KGBZ	ak	500	2 (1)	York, Neb.	C—5-6; 7:30-9:30; 11-12:30; 2-3:30; 5-6:30
KMA	ak	500	2 (1)	Sherandoah, Iowa.	C—6-7:30; 9:30-11; 12:30-2; 3:30-5; 6:30-mid.
KROW	ak	500	1 (1)	Oakland, Calif.	P—8:00-9:00; 1-6; 7:30-8:30
WBRC	ak	500	C (1)	Birmingham, Ala.	C—7:00-11:00
WDBJ	ae	250	C (.5)	Roanoke, Va.	E—8:00-mid.

**KCYB.  
990  
DIAL**

## 940 kilocycles 319.0 meters

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CMHD	dk	500	945.5	Caibarien, Cuba.	E—8:00-9:00
KOIN	ak	1000	CT	Portland, Ore.	P—6:30-mid.
WAAT	ae	300	D	Jersey City, N. J.	E—6:00-6:00
WAVE	ak	1000	.....	Louisville, Ky.	C—Silent
WCSD	ae	1000	R (2.5)	Portland, Maine.	E—8:00-mid.
WDAY	ae	1000	N	Fargo, N. D.	C—7:00-mid.
WHA	ak	1000	D	Madison, Wis.	C—8:00-sunset
XEFO	ak	5000	.....	Mexico City, D. F.	C—1:00-3:00; 6:25-mid. (XEO)

## 950 kilocycles 315.6 meters

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KFWB	ak	1000	.....	Hollywood, Calif.	P—7:30-12:30
KGHL	ak	1000	NJ (2.5)	Billings, Mont.	M—8:00-11:00
KMBC	ak	1000	C	Kansas City, Mo.	C—6:00-mid.
VOGY	ak	75	.....	St. John's, Nfld.	L—10:30-11:30; 1:00-2:00; 6:15-8:00
WRC	ae	500	R	Washington, D. C.	E—6:30-1:00

## 960 kilocycles 312.3 meters

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CMBD	z	250	965	Havana, Cuba.	E—noon-6:00
CMCW	ak	150	965	Havana, Cuba.	E—6:00-mid.
CMJL	z	50	.....	Camaguey, Cuba.	E
CRCT	ak	5000	NF	Toronto, Ont.	E—6:45-mid. (VE9GW)
XEAW	ak	10000	965	Reynosa, Tams.	C—5:00-1:00
YVIBC	ak	5000	.....	Caracas, Venez.	L—11:00-1:30; 5:30-10:15

## 970 kilocycles 309.1 meters

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CMGF	ak	100	971.5	Mantanzas, Cuba.	E—3:00-5:00; 8:00-10:30
KJR	z	5000	N	Seattle, Wash.	P—7:30-mid.
WCFL	ae	1500	BX	Chicago, Ill.	C—7:00-mid. (W9XAA)
WIBG	ae	100	D	Glenside, Pa.	E—9:00-sunset

## 980 kilocycles 303.9 meters

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KDKA	ak	50000	B	Pittsburgh, Pa.	E—7:00-1:00. (W8XK)
XEAB	ak	800	.....	Tijuana, B. C.	P—9:00-mid.
XEFE	z	100	985	Nuevo Laredo, Tams.	C

## 990 kilocycles 302.8 meters

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LR-4	z	12000	.....	Buenos Aires, Arg.	L.
TITV	z	7.5	999	San Jose, C. R.	C—3:00-5:00; 7:00-11:00
WBZ	ak	50000	BSy	Boston, Mass.	E—7:00-1:00. (W1XAZ)
WBZA	ak	1000	BSy	Springfield, Mass.	E—7:00-1:00
WJEM	z	500	D	Tupelo, Miss.	C

CUT OUT ON DOTTED LINES

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With Monday's Time on the Air

<b>XEAF</b>	z	750	.....	Nogales, Son.	
<b>ak</b>		100	.....	Mexico City, D. F.	C—11:00-4:00; 6:00-2:00

## 1000 kilocycles 299.8 meters

<b>CHMZ</b>	ak	150	1005	Havana, Cuba.	E—11-1; 4-6; 8:30-11
<b>KFVD</b>	ae	250	Dn	Los Angeles, Calif.	P—6:30-sunset; 10:00-mid.
<b>WHO</b>	ak	50000	R	Des Moines, Iowa.	C—7:00-mid.
<b>WORK</b>	ak	1000	D	York, Pa.	E—8:00-6:45
<b>XEA</b>	ak	250	.....	Guadalajara, Jal.	C—8:30-9:00; 6:00-11:00
<b>XEC</b>	z	50	.....	Toluca, D. F.	C
<b>XEFJ</b>	ak	100	.....	Monterrey, N. L.	C—11:00-2:00; 7:00-10:00
<b>XEFS</b>	ak	40	.....	Queretaro, Qro.	C—8:00-10:00
<b>XEL</b>	ak	40	.....	Saltillo, Coah.	C—10:30-1:00; 6:00-9:00

## 1010 kilocycles 296.9 meters

<b>CHML</b>	aei	50	M	Hamilton, Ont.	E—8:00-11:00
<b>CHWC</b>	ae	500	3F	Regina, Sask.	M—7-9; 10-11; noon-1; 3:30-11:00
<b>CKCD</b>	ak	100	.....	Vancouver, B. C.	P—7:30-11:30
<b>CKCK</b>	ak	500	3F	Regina, Sask.	M—9-10; 11-noon; 1-3:30
<b>CKCO</b>	z	100	.....	Ottawa, Ont.	E
<b>CKIC</b>	ak	50	.....	Wolfville, N. S.	A—Noon-1:00; 6:00-8:00 (VE9CX)
<b>CKWX</b>	aei	100	L	Vancouver, B. C.	P—7-7:30
<b>CMJO</b>	ak	50	.....	Ciego de Avila, Cuba.	E—9:00-1:00; 6:00-10:00
<b>KGGF</b>	ak	500	2 (1)	Coffeyville, Kans.	C—7:30-2; 5:00-10:30
<b>KQW</b>	ae	500	.....	San Jose, Calif.	P—7:00-8:00; 9:00-3:00; 4:30-10:00
<b>TIGA</b>	z	30	1014	Cartago, C. R.	
<b>WHN</b>	ae	1000	.....	New York, N. Y.	E—9:30-1:00
<b>WIS</b>	ae	500	N (1)	Columbia, S. C.	E—8:00-mid.
<b>WNAD</b>	ae	500	2	Norman, Okla.	C—7:15-9:15
<b>XEJ</b>	ak	500	1015	Juarez, Chih.	C
<b>XEU</b>	ak	100	.....	Veracruz, Ver.	C—7:00-9:00; 10:00-2:00; 5:00-11:00

## 1020 kilocycles 293.9 meters

<b>KYW</b>	ak	10000	NY	Chicago, Ill.	C—8:00-1:00
<b>WRAX</b>	ak	250	DZ	Philadelphia, Pa.	E—7:00-7:00
<b>XES</b>	dk	250	.....	Tampico, Tama.	E—10:00-2:30; 5:00-10:00

## 1030 kilocycles 291.1 meters

<b>CFCN</b>	ak	10000	F	Calgary, Alta.	M—7:30-1:30; 5:00-11:00 (VE9CA)
<b>CFNB</b>	ae	500	FE	Fredericton, N. B.	A—8:30-9:30; 12:30-2:00; 7:30-10:00
<b>CKNC</b>	ak	100	F	Toronto, Ont.	E—8-11. (VE9CB)
<b>CMHI</b>	ak	250	1037	Santa Clara, Cuba.	E—11:00-noon; 8:00-9:00
<b>CMKC</b>	z	150	1034	Santiago, Cuba.	E
<b>XEB</b>	ak	10000	.....	Mexico City, D. F.	C—9:30-10:00

## 1040 kilocycles 288.3 meters

<b>CMGH</b>	ak	15	.....	Matanzas, Cuba.	E—2:00-3:00; 5:00-6:00; 7:30-8:30
<b>KRLD</b>	ae	10000	1C	Dallas, Texas.	C
<b>KTHS</b>	ae	10000	DN	Hot Springs, Ark.	C
<b>WESG</b>	ak	1000	D	Elmira, N. Y.	E—8:00-6:00
<b>WKAR</b>	ak	1000	D	East Lansing, Mich.	E

## 1050 kilocycles 285.5 meters

<b>CHNS</b>	ae	500	FL	Halifax, N. S.	A—8:00-1:30; 6:00-mid. (VE9HX)
<b>CMBG</b>	z	225	1052a	Havana, Cuba.	E
<b>CMCB</b>	ak	150	1052a	Havana, Cuba.	E
<b>CMJG</b>	z	50	.....	Camaguey, Cuba.	E
<b>KFB1</b>	ak	5000	Dn	Abilene, Kans.	C—6:00-sunset
<b>KNX</b>	ak	25000	.....	Hollywood, Calif.	P—6:45-11:00
<b>XEFC</b>	ak	100	.....	Merida, Yuc.	C—11:00-noon

## 1060 kilocycles 282.8 meters

<b>KWJJ</b>	ak	500	.....	Portland, Ore.	P—6:00-8:00; 9:00-2:00
<b>WBAL</b>	ae	10000	1B	Baltimore, Md.	E—8:00-6:30
<b>WJAG</b>	ak	1000	D	Norfolk, Neb.	C—6:45-sunset
<b>WTIC</b>	ak	50000	1R	Hartford, Conn.	E—7:30-8:00; 6:30-mid.

## 1070 kilocycles 280.2 meters

<b>KJBS</b>	ae	100	D	San Francisco, Calif.	P—12:01-sunset
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With Monday's Time on the Air

WCAZ **ae** 50 D  
 WDZ **ak** 100 D  
 WTAM **ck** 50000 R

Carthage, Ill. C  
 Tuscola, Ill. C—8:00-4:00  
 Cleveland, Ohio. E—6:30-1:00

## 1080 kilocycles 277.6 meters

VOKW **s** 30 1085  
 WBT **ae** 50000 CU  
 WCBW **ae** 5000 1Dn  
 WMBI **ae** 5000 1Dn  
 XEFG **ak** 500 1085

St. John's, Nfld. L—Noon-2:00  
 Charlotte, N. C. E—7:00-mid.  
 Zion, Ill. C—7:30-10:30; 1:30-sunset  
 Chicago, Ill. C—7:00-7:30; 10:30-1:30; 3:00-4:00  
 Mexico City, D. F. C—10:30-4:00; 7:00-mid.

## 1090 kilocycles 275.1 meters

KMOX **ak** 50000 C  
 XEAI **z** 100  
 XEWW **z** 250 1095

St. Louis, Mo. C—6:30-12:30  
 Mexico City, D. F. (All mail returned)  
 Veracruz, Ver. C.

## 1100 kilocycles 272.6 meters

CMCU **ak** 500  
 CRCV **ak** 1000 F  
 KGDM **ak** 250 D  
 TIRCA **ak** 500  
 WLWL **ae** 5000 1  
 WPG **ak** 5000 1C

Havana, Cuba. E—6:00-mid.  
 Vancouver, B. C. P—Noon-1; 5:30-11  
 Stockton, Calif. P—6-sunset  
 San Jose, C. R. C—11:00-1:00 5:00-10:30  
 New York, N. Y. E—6:00-8:00  
 Atlantic City, N. J. E—9:00-6:00; 8:00-1:00

## 1110 kilocycles 270.1 meters

KSOO **ak** 1000 Dn (2.5)  
 WRVA **ae** 5000 N  
 XENT **ak** 18500 1115

Sioux Falls, S. D. C—6:00-6:30  
 Richmond, Va. E—7:00-mid.  
 Nuevo Laredo, Tama. C—6:00-8:00; 10:00-2:00; 5:00-10:00

## 1120 kilocycles 267.7 meters

CFTP **z** 100  
 CHGS **ae** 50 F  
 CHLP **z** 100  
 CKOC **ae** 500 F (1)  
 CMHJ **ae** 60 1125  
 KFIO **ae** 100 D  
 KFSG **ae** 500 a  
 KRKD **ae** 500 a  
 KRSC **ak** 100 D  
 KTRH **z** 1000 2C  
 WDEL **z** 250 (.5)  
 WHAD **ak** 250 1C  
 WISN **ak** 250 1  
 WTAW **ae** 500 2

Edmonton, Alta. M  
 Summerside, P. E. I. A—7:30-8:30; 10:30-2; 4:30-11  
 Montreal, Que. E—9:00-mid.  
 Hamilton, Ont. E—7:45-11:30  
 Cienfuegos, Cuba. E—11:00-2:00; 6:00-9:00  
 Spokane, Wash. P—7:00-sunset  
 Los Angeles, Calif. P—6:30-7:15  
 Los Angeles, Calif. P—7:45-mid.  
 Seattle, Wash. P—6:45-6:30  
 Houston, Texas. C—6:30-11:30  
 Wilmington, Del. E—9:00-10:00  
 Milwaukee, Wis. C—9:30-10:15; 3:00-4:00; 8:30-9:30  
 Milwaukee, Wis. C  
 College Station, Tex. C—12:30-1:30; 8-9

## 1130 kilocycles 265.3 meters

KSL **ae** 50000 C  
 WJJD **ae** 20000 Dn  
 WOV **ag** 1000 D  
 XEH **ak** 250 1132

Salt Lake City, Utah. M—6:45-mid.  
 Chicago, Ill. C—6:30-10:00  
 New York, N. Y. E—8:00-6:00  
 Monterrey, N. L. C—9:00-8:00

## 1140 kilocycles 263.0 meters

CMBJ **z** 500  
 CMBW **ak** 600  
 CMCG **z** 500  
 KVOO **ae** 25000 1N  
 WAPI **ae** 5000 1N

Havana, Cuba. E—8-11; 1-7  
 Havana, Cuba. E—silent  
 Havana, Cuba. E.  
 Tulsa, Okla. C—6:30-9  
 Birmingham, Ala. C—6:00-sunset; 9:00-mid.

## 1150 kilocycles 260.7 meters

CMJH **ak** 50  
 WHAM **ae** 50000 B  
 XED **ak** 500 1155

Ciego de Avila, Cuba. E—8:00-8:30; 10:00-3:00; 5:30-10:30  
 Rochester, N. Y. E—8:00-mid.  
 Guadalajara, Jal. C—Noon-3:30; 7:00-mid.

## 1160 kilocycles 258.5 meters

WOWO **ae** 10000 1C  
 WWA **ae** 5000 1C

Fort Wayne, Ind. C—8:30-5:15; 7:30-10  
 Wheeling, W. Va. E—6:30-8:30

**KCY.S.**  
**1160**  
**DIAL**

CUT OUT ON DOTTED LINES

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With Monday's Time on the Air

## 1170 kilocycles 256.3 meters

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CMJE	z	50	.....	Camaguey, Cuba.	E	
WCAU	ae	50000	C	Philadelphia, Pa.	E-8:00-1:00	(W3XAU)

## 1180 kilocycles 254.1 meters

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CMBN	ak	150	1185	Havana, Cuba.	E	
CMCJ	ak	500	.....	Havana, Cuba.	E-Noon-2; 4-6; 7-10	
KEX	ak	5000	2N	Portland, Ore.	P-7-5:30; 8-mid.	
KOE	ae	10000	2	Albuquerque, N. M.	M-Noon-1:00; 5:00-9:00	
WDGY	ak	1000	Dn	Minneapolis, Minn.	C-6:30-8:15	
WINS	ak	500	.....	New York, N. Y.	E-6:00-7:00	
WMAZ	ak	500	.....	Macon, Ga.	E-7:30-3:00; 5:00-8:15	

## 1190 kilocycles 252.0 meters

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HIJ	z	15	1195	Santo Domingo, D. R.	E	-12:30-2:30; 6:30-8:30
VE9EK	ak	10	1195	Montmagny, Que.	E	
VONF	ak	400	1195	St. John's, Nfld.	L-Noon-2:00; 6:00-9:00	
WOAI	ae	50000	N	San Antonio, Texas.	C-6:30-11:30	
WSAZ	ak	1000	.....	Huntington, W. Va.	E-8:00-8:00	

## 1200 kilocycles 249.9 meters

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CHAB	ak	100	F	Moose Jaw, Sask.	M	-5:30-7
CJAT	ak	50	.....	Trail, B. C.	P-9:30-9	
CKTB	ae	100	G	St. Catharines, Ont.	E	
CMGB	z	30	1205	Matanzas, Cuba.	E	
CMHW	z	100	.....	Cienfuegas, Cuba	E	
KBTM	ak	100	DY	Jonesboro, Ark.	C-7:30-1:30; 2:30-5:30	
KERN	ak	100	CT	Bakersfield, Calif.	P-7:00-mid.	
KFJB	ak	100	(.25)	Marshalltown, Iowa.	C-6:00-9:00; noon-3:00; 6:00-9:00	
KFXD	ae	100	.....	Nampa, Idaho.	M-7:00-9:00	
KFXJ	ak	100	.....	Grand Junction, Colo.	M	
KGDE	ak	100	(.25)	Fergus Falls, Minn.	C-7:00-9:00	
KGEK	ak	100	.....	Yuma, Colo.	M-11:30-1:30	
KGFJ	ae	100	.....	Los Angeles, Calif.	P-24 hours	
KGHI	ak	100	(.25)	Little Rock, Ark.	C-7:00-1:00; 4:00-10:00	
KGVO	ak	100	.....	Missoula, Mont.	M-8:00-8:30	
KMLB	ak	100	.....	Monroe, La.	C	
KSUN	ae	100	D	Lowell, Ariz.	M-Sunrise-sunset	
KVOS	ak	100	.....	Bellingham, Wash.	P-7:00-10:00	
KWG	ae	100	CT	Stockton, Calif.	P-7:00-mid.	
WABI	ak	100	.....	Bangor, Maine.	E-9:00-2:00; 6:00-10:00	
WBBX	ak	100	1	New Orleans, La.	C-Noon-5:00; 8:00-11:00	
WBBZ	ak	100	.....	Ponca City, Okla.	C-6:30-11:45	
WBHS	z	100	4	Huntsville, Ala.	C	
WCAT	ak	100	D	Rapid City, S. D.	C-12:30-1:30	
WCAX	ak	100	.....	Burlington, Vt.	E-Noon-1; 6-8	
WCLO	ak	100	.....	Janesville, Wis.	C-7:30-2:00; 5:00-8:30	
WFAM	ak	100	8C	South Bend, Ind.	C-6:30-mid.	
WFBC	ak	100	4 (.25)	Greenville, S. C.	E-7:30-2:30; 5:30-10:30	
WFBE	ak	100	(.25)	Cincinnati, Ohio.	E-7:00-11:30	
WHBC	ak	100	2	Canton, Ohio.	E-7:00-9:00; noon-3:00; 6:00-9:00	
WHBY	ak	100	.....	Green Bay, Wis.	C-7:30-9:45	
WIBX	ae	100	(.3)	Utica, N. Y.	E-8:00-11:00	
WIL	ak	100	5 (.25)	St. Louis, Mo.	C-7:00-mid.	
WJBC	ae	100	6	LaSalle, Ill.	C-8-9; 10-12:30; 6:30-10:30	
WJBL	ae	100	6	Decatur, Ill.	C-6:30-8; 9-10; 12:30-3; 4:30-6:30	
WJBW	ak	100	1	New Orleans, La.	C-8:00-noon; 5:00-8:00	
WKBO	ak	100	3	Harrisburg, Pa.	E-7:00-10:00; 2:00-5:00; 7:00-11:00	
WKJC	ae	100	3	Lancaster, Pa.	E-11:00-3:00; 6:00-9:00	
WNBO	ae	100	2	Silverhaven, Pa.	E-9:00-noon; 3:00-6:00; 9:00-mid.	
WNBW	z	10	(.1)	Carbondale, Pa.	E	
WPHR	ak	100	(.25)	Petersburg, Va.	E-8:00-5:00; 6:00-9:00	
WRBL	z	100	.....	Columbus, Ga.	C-7:00-11:00	
WWAE	ae	100	8	Hammond, Ind.	C-7-8:30; 11-1; 4-7; 8-mid.	
YV3BC	ak	1000	.....	Caracas, Venez.	L-11:00-2:00; 5:00-10:30	
10-AK	ak	15	.....	Stratford, Ont.	E-Noon-1:00; 5:30-7:00	
10-BP	ak	15	.....	Wingham, Ont.	E-7:15-9:00	
10-BQ	ak	15	.....	Brantford, Ont.	E-11-8	
10-BU	z	15	.....	Canora, Sask.	C	

## 1210 kilocycles 247.8 meters

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CFBO	z	100	F	St. John, N. B.	A (VE9BJ)	
CHNC	ak	100	PF	New Carlisle, Que.	A-1:00-mid.	
CKBI	ak	100	.....	Prince Albert, Sask.	M	

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With Monday's Time on the Air

CKCH	z	100	.....	Hull, Que.	E
CKMC	ak	50	.....	Cobalt, Ont.	E
CKOV	ak	50	F	Kelowna, B. C.	P
KASA	ak	100	.....	Elk City, Okla.	C-6:30-1:30; 5:00-7:00
KDLR	ak	100	.....	Devils Lake, N. D.	C-8:00-2:15; 6:00-8:00
KFJI	ak	100	.....	Klamath Falls, Ore.	P-8:30-9:00
KFOR	ak	100	(.25)	Lincoln, Neb.	C-7:00-11:00
KFPW	ak	100	.....	Fort Smith, Ark.	C-7:00-2:00; 5:00-10:10
KFVS	ae	100	6	Sape Girardeau, Mo.	C-9-noon; 4:00-8:30
KFXM	ak	100	9	San Bernardino, Calif.	P-6-mid.
KGCR	ak	100	.....	Watertown, S. D.	C-7:00-3:00; 5:00-9:00
KGY	ak	100	.....	Olympia, Wash.	P-6:00-mid.
KIEM	ak	100	.....	Eureka, Calif.	P-7:45-sunset
KPPC	ak	50	9	Pasadena, Calif.	P-Silent
KWEA	z	100	.....	Shreveport, La.	C
KWV	z	100	.....	Hilo, Hawaii.	L
WALR	ae	100	.....	Zanesville, Ohio.	E
WBAX	ae	100	1	Wilkes Barre, Pa.	E
WBBL	ak	100	7S	Richmond, Va.	E-Silent
WCBS	ak	100	2	Springfield, Ill.	C-11:15-3:00; 6:45-9:00
WCRW	ae	100	4	Chicago, Ill.	C-11:00-2:00; 5:00-7:00
WEBQ	ae	100	6	Harrisburg, Ill.	C-6-9; noon-4; 8:30-mid.
WEDC	ae	100	4	Chicago, Ill.	C-8:30-10:00; 3:30-5; 7:-8; 10:-11: mid.-2:00
WFAS	ak	100	3	White Plains, N. Y.	E-1:00-7:00
WGBB	ae	100	3	Freeport, N. Y.	E-9:00-mid.
WGCM	ae	100	(.25)	Mississippi City, Miss.	C-9:00-1:00; 7:00-9:00
WGNV	ak	100	3	Chester, N. Y.	E
WHBF	ak	100	.....	Rock Island, Ill.	C-7:30-10:00
WHBU	ah	100	.....	Anderson, Ind.	C-silent account of fire
WIBU	a	100	.....	Poynette, Wis.	C
WJBI	ak	100	3	Red Bank, N. J.	E-9-11; 7-9
WJBY	ak	100	.....	Gadsden, Ala.	C-9:00-9:00
WJFJ	ah	100	D	Hagerstown, Md.	E-7:00-1:00; 4:00-7:45
WJW	ak	100	.....	Akron, Ohio.	E-9:00-11:30
WKFI	ak	100	Y	Greenwood, Miss.	C-7:00-7:00
WKOK	ak	100	1P	Sunbury, Pa.	B
WMBG	ak	100	7C	Richmond, Va.	E-7:00-mid.
WOCL	ak	50	.....	Jamestown, N. Y.	E-Noon-mid.
WOMT	ae	100	.....	Manitowoc, Wis.	C
WPRO	ak	100	X	Providence, R. I.	E-7:00-2:30
WQDX	ae	100	.....	Thomasville, Ga.	E-8:00-9:00
WSBC	ae	100	4	Chicago, Ill.	C-6:00-8:30; 10:00-11:00; 2:00-3:30; 8:00-10:00; 11:00-mid.
WSEN	ak	100	.....	Columbus, Ohio.	E-8:00-mid.
WSIX	ak	100	.....	Springfield, Tenn.	C-6:00-4:00; 6:00-9:00
WSOC	ae	100	N	Charlotte, N. C.	E
WTAX	ae	100	2	Springfield, Ill.	C
XETZ	z	500	.....	Mexico City, D. F.	C

KCYS.  
**1240**  
**DIAL**

## 1220 kilocycles 245.8 meters

CMHK	ak	50	1225	Cruces, Cuba.	E-10:00-11:30
KFKU	ae	500	a	Lawrence, Kans.	C-2:30-3:00; 6:00-6:15
KTW	ak	1000	S2	Seattle, Wash.	P-Silent
KWSC	ae	1000	2 (2)	Pullman, Wash.	P-6:45-8; 10:30-9:30
WCAD	ak	500	D	Canton, N. Y.	E-12:30-1:30
WCAE	ak	1000	R	Pittsburgh, Pa.	E-6:45-1:00
WDAE	ae	1000	CW	Tampa, Fla.	E-8:00-mid.
WREN	ak	1000	Ba	Lawrence, Kas.	C-7:00-mid.

## 1230 kilocycles 243.8 meters

CFQC	z	500	F	Saskatoon, Sask.	C
CMBY	z	250	2	Havana, Cuba.	E
CMCA	z	150	2	Havana, Cuba.	E
KFOD	ck	250	.....	Anchorage, Alaska.	L. 6:00-mid.
KGCM	ak	250	(.5)	Albuquerque, N. M.	M-6:00-noon; 4:00-8:00
KYA	ae	1000	N	San Francisco, Calif.	P-7:30-mid.
WFBM	ae	1000	1C	Indianapolis, Ind.	C-7:30-10:15; noon-3:00; 5:30-11:30
WNAC	ak	1000	CH	Boston, Mass.	E-6:30-1:00
WSBT	ak	500	1C	South Bend, Ind.	C-6:30-mid.

## 1240 kilocycles 241.8 meters

CMAB	z	20	1249	Pinar del Rio, Cuba.	E
CMJN	z	50	.....	Camaguey, Cuba.	E
KGCU	ak	250	1	Mandan, N. D.	M-Noon-5:00; 6:45-9:00
KLPM	ak	250	1	Minot, N. D.	C-7:00-1:00; 6:00-7:45
KTAT	ak	1000	C	Fort Worth, Texas.	C-7:00-mid.

CUT OUT ON DOTTED LINES

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With Monday's Time on the Air

KTFI	ae	1000	.....	Twin Falls, Idaho.	M—6:00-mid.
WKAQ	ae	1000	.....	San Juan, P. R.	A—12:15-3:15; 6:30-10:00
WXYZ	ak	1000	K	Detroit, Mich.	E—7:30-mid.

## 1250 kilocycles 239.9 meters

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KFOX	ae	1000	.....	Long Beach, Calif.	P—6:00-mid.
WCAL	ah	1000	2	Northfield, Minn.	C—9:45-10:15; 8:00-10:00
WDSU	ak	1000	C	New Orleans, La.	C—7:00-11:45
WGCP	ak	1000	1 (2.5)	Newark, N. J.	E—2:00-5:00; 8:00-10:00
WLB	ak	1000	2	Minneapolis, Minn.	C—12:30-1:00; 7:00-8:00
WNBW	ae	1000	(2.5)	Newark, N. J.	E—7:00-mid.
WRHM	ak	1000	2	Minneapolis, Minn.	C—6:15-9:45; 10:35-12:30; 1-7; 10-mid.
XEFA	z	500	.....	Mexico City, D. F.	C

## 1260 kilocycles 238.0 meters

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KOIL	ak	1000	B	Council Bluffs, Iowa.	C—6:00-mid.
KRGV	ae	500	1	Harlingen, Texas.	C—7:00-9:30; 12:30-3:30; 6:30-9:30
KUOA	ak	1000	D	Fayetteville, Ark.	C—7:00-6:30
KVOA	ak	500	.....	Tucson, Ariz.	M—6:00-9:00; noon-3:00; 6:00-9:00
KWGW	z	500	1	Brownsville, Tex.	C—Silent till April 1st
WLBW	ae	500	C(1)	Erie, Pa.	E—8:00-1:00
WNBX	ak	250	D	Springfield, Vt.	E—7:30-sunset
WTOC	ae	500	C	Savannah, Ga.	E—7:00-12:34
XEFI	ak	250	.....	Chihuahua, Chih.	C—1:00-3:00; 8:00-10:30

## 1270 kilocycles 236.1 meters

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CMBC	ae	150	1	Havana, Cuba.	E
CMCP	z	150	1	Havana, Cuba.	E
KGCA	ak	100	2D	Decorah, Iowa.	C—8:30-9:45; 10:45-11:30; 12:30-2:30
KOL	ae	1000	CT	Seattle, Wash.	P—6:45-mid.
KVOR	ae	1000	C	Colorado Springs, Colo.	M—7:00-11:00
KWLC	ak	100	2D	Decorah, Iowa.	C—7:30-8:30; 9:45-10:45; 11:30-12:30; 2:30-3:30
WASH	ak	500	Ka	Grand Rapids, Mich.	E—7:00-mid.
WFRB	ae	500	R	Baltimore, Md.	E—7:10-1:00
WJDX	ae	1000	N	Jackson, Miss.	C—7:00-11:00
WOOD	ak	500	Ka	Grand Rapids, Mich.	E—7:00-mid.

## 1280 kilocycles 234.2 meters

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KFBB	ae	1000	(2.5)	Great Falls, Mont.	M—8:00-3:00; 5:00-10:00
WCAM	ae	500	1	Camden, N. Y.	E—11:00am; 2-5; 8-mid.
WCAP	ae	500	1	Asbury Park, N. J.	E—9-11; noon-1:00
WDOD	ae	1000	C(2.5)	Chattanooga, Tenn.	C—7:00-11:00
WIBA	ae	500	N(1)	Madison, Wis.	C—7:30-mid.
WORC	ak	500	CH	Worcester, Mass.	E—8:00-mid.
WRR	ak	500	C	Dallas, Texas.	C—7:00-11:00
WTNJ	ak	500	1	Trenton, N. J.	E—1:00-2:00; 5:00-8:00
XEFW	ak	70	.....	Tampico, Tams.	E—8:00-10:00; noon-2:00; 5:00-6:00; 7:00-10

## 1290 kilocycles 232.4 meters

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CMHL	ak	20	.....	Cienfuegos, Cuba.	E—10:00-noon; 6:00-9:00
KDYL	ae	1000	NJ	Salt Lake City, Utah.	M—6:30-1:00
KLCN	z	100	D	Blytheville, Ark.	C
KTSA	ak	1000	C	San Antonio, Texas.	C—7:00-mid.
WEBC	ae	1000	N(2.5)	Superior, Wis.	C—7:00-mid.
WJAS	ak	1000	C(2.5)	Pittsburgh, Pa.	E—7:30-12:30
WNBZ	z	50	D	Saranac Lake, N. Y.	E
WNEL	z	500	P	San Juan, P. R.	A
XEAC	z	100	1295	San Luis Potosi, S. L. P.	
XFB	ak	1000	.....	Jalapa, Ver.	C—8:00-9:00; 1:00-2:30; 8:00-11:30

## 1300 kilocycles 230.6 meters

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CMKJ	z	20	.....	Guantanamo, Cuba.	E
HIZ	z	10	.....	Santo Domingo, D. R.	L
KALE	ak	500	3CT	Portland, Ore.	P—7:00-10:30; 2:30-5:00; 6:00-7:00; 8-11
KFAC	ae	1000	.....	Los Angeles, Calif.	P—7:00-mid.
KFFH	ak	1000	C2	Wichita, Kans.	C—7-8:30; 9-11; 11:30-2; 3-9; 10-11
KFJR	ag	500	3	Portland, Ore.	P—10:30-2:30; 5-6; 7-8
WBRR	aej	1000	1	Brooklyn, N. Y.	E—6:00-7:00; 10:00-noon
WEVD	ak	500	1	New York, N. Y.	E—Silent
WEAB	ae	1000	1	New York, N. Y.	E—9:00-10:00; noon-3:00
WHAZ	ae	500	1	Troy, N. Y.	E—6-mid.
WIOD	ae	1000	N	Miami, Fla.	E—7-15-mid. (W4XB)
WOQ	ae	1000	2	Kansas City, Mo.	C—6-7; 8:35-9:05; 11-11:30; 2-3; 9-10; 11-mid.



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With Monday's Time on the Air

## 1310 kilocycles 228.9 meters

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CFJC	ak	100	FLE	Kamloops, B. C. P—7:30-10:30; noon-2:00; 6:00-7:30
CHCK	ak	50	.....	Charlottetown, P. E. I. A—Noon-1:30
CJKL	z	100	.....	Kirkland Lake, Ont. E
CJLS	z	100	.....	Yarmouth, N. S. A
CKCV	ak	50	.....	Quebec, Que. E—Noon-2:00; 6:30-10:00
KCRJ	ak	100	D	Jerome, Ariz. M—7:30-9:30; noon-1:00; 4:30-6:00
KFBK	ak	100	C	Sacramento, Calif. P—7:00-11:00
KFGQ	ak	100	.....	Boone, Iowa. C
KFPL	ak	100	.....	Dublin, Texas. C—6:30-8:30; 9:00-3:15; 7:00-10:45
KFPM	ae	15	.....	Greenville, Texas. C—7:45-9:00; 1:00-2:45; 6:00-9:00
KFXR	ak	100	(.25)	Oklahoma City, Okla. C—7:30-2:00; 4:30-11:00
KFYO	ak	100	(.25)	Lubbock, Texas. C—7:00-2:00; 4:00-10:00
KGBX	ae	100	.....	Springfield, Mo. C
KGCX	ak	100	(.25)	Wolf Point, Mont. M—7:30-9:00; 11:30-3:00; 6:00-7:00
KGEZ	aj	100	.....	Kalispell, Mont. M—8:00-9:00
KGFW	ak	100	.....	Kearney, Neb. C—7:00-9:00
KIFH	z	100	.....	Juneau, Alaska. L
KIT	ak	100	.....	Yakima, Wash. P—7:00-11:00
KMED	ck	100	.....	Medford, Ore. P—8:00-8:00
KRMD	ak	100	.....	Shreveport, La. C—7:00-1:00; 5:00-8:00
KTSM	ak	100	a	El Paso, Texas. M—7:00-1:30; 3:00-10:00
KXRO	ak	100	.....	Aberdeen, Wash. P—7:30-10:00
WAML	ak	100	.....	Laurel, Miss. C—7:00-10:00; 11:00-2:00; 4:00-7:00
WBEO	ae	100	.....	Marquette, Mich. C—9:30-1:15; 5:00-7:00
WBOW	ak	100	.....	Terre Haute, Ind. C—7:00-10:00
WBRE	ak	100	.....	Wilkes Barre, Pa. E—8:00-11:30
WCLS	ae	100	b	Joliet, Ill. C—9:30-1:00; 5:00-8:00
WDAH	ck	100	Sa	El Paso, Texas. M—Silent
WEBR	aej	100	(.25)	Buffalo, N. Y. E—7:00-1:00
WEXL	ak	50	.....	Royal Oak, Mich. E—7:30-5:00
WFBG	ae	100	3	Altoona, Pa. E—silent
WDFD	ak	100	K	Flint, Mich. E—7:00-mid
WGAL	ae	100	5	Lancaster, Pa. E—9:30-2:30; 4:30-6:00; 8-10:30
WGH	ae	100	.....	Newport News, Va. E—7:00-1:00; 5:00-11:00
WHAT	ak	100	4	Philadelphia, Pa. E—9:00-11:00; 1:00-2:00; 5-6:30
WJAC	ae	100	3	Johnstown, Pa. E—9:00-10:30; 4:30-10:00
WKBC	ak	100	(.25)	Birmingham, Ala. C—7:00-10:00
WLBC	ak	100	6	Muncie, Ind. C—7:00-10:00
WMBO	ak	10	.....	Auburn, N. Y. E—9:00-9:00
WNBH	ae	100	(.25)	New Bedford, Mass. E—8:00-2:00; 4:00-10:00
WOL	ae	100	.....	Washington, D. C. E—7:00-mid.
WRAW	ak	100	5	Reading, Pa. E—7:00-9:30; 6:00-8:00
WROL	ak	100	.....	Knoxville, Tenn. C—7:00-1:00; 4:00-11:00
WSAJ	ae	100	.....	Grove City, Pa. E—silent
WSJS	ak	100	C	Winston-Salem, N. C. E—7:45-mid.
WTSL	ah	100	4	Philadelphia, Pa. E—7:00-9:00; noon-1:00; 6:30-8:00
WTJS	ak	100	(.25)	Jackson, Tenn. C—7:00-2:00; 4:00-10:00
WTRC	ak	50	6 (1)	Elkhart, Ind. C—6:00-7:30
XEFB	ak	100	1315	Monterrey, N. L. C—11:00-2:00; 6:00-11:00
XEI	ak	250	.....	Morelia, Mich. C—2:00-3:30; 9:00-10:00
.....	z	100	DP	Laconia, N. H. E.

## 1320 kilocycles 227.1 meters

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CMCY	ak	500	1325	Havana, Cuba. E
KGHF	ak	250	(.5)	Pueblo, Colo. M—6:30-9:30
KGMB	ak	250	C	Honolulu, T. H. L—6:00-11:00
KID	ae	250	(.5)	Idaho Falls, Idaho. M—6:00-11:00
WADC	ae	1000	C	Akron, Ohio. E—9:00-mid.
WSMB	ak	500	N	New Orleans, La. C—7:00-mid.

**KCYs.**  
**1340**  
**DIAL**

## 1330 kilocycles 225.4 meters

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CMJI	ak	45	1335	Ciego de Avila, Cuba. E
KGB	agj	1000	CT	San Diego, Calif. P—7:00-1:00
KMO	ak	250	.....	Tacoma, Wash. P—6:45-11:00
KSCJ	aj	1000	1C(.25)	Sioux City, Iowa. C—7:30-11:00
WDRG	ae	1000	CH	Hartford, Conn. E—8:00-mid.
WSAI	ak	1000	R(2.5)	Cincinnati, Ohio. E—8:00-mid.
WTAQ	ae	1000	1C	Eau Claire, Wis. C—7:00-8:00

## 1340 kilocycles 223.7 meters

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KFPY	ak	1000	C	Spokane, Wash. P—6:45-mid.
KGDY	ak	250	.....	Huron, S. D. C
KGNO	ak	250	.....	Dodge City, Kans. C—6:30-9:00
WCOA	ae	500	.....	Pensacola, Fla. E—9:00-10:00
WFEA	ae	500	C	Manchester, N. H. E.
WSPD	ae	1000	C	Toledo, Ohio. E—7:00-1:00

CUT OUT  
ON DOTTED LINES

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With Monday's Time on the Air

1350 kilocycles 222.1 meters 

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KIDO	ak	1000	.....	Boise, Idaho.	M—8:00-9:30
KWK	ak	1000	B	St. Louis, Mo.	C—7:00-mid.
TGW	ak	500	.....	Guatemala City, Gua.	L—Noon-1:00; 6:00-7:00; 9:00-11:00
WAWZ	ae	250	1	Zarephath, N. J.	E—6-9: 5:00-6:30
WBXN	ae	250	1	New York, N. Y.	E—9:00-1:00
WEHC	ae	500	D	Charlottesville, Va.	E

1360 kilocycles 220.4 meters 

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CMJP	ak	75	.....	Moron, Cuba.	E—10:00-noon; 8:00-10:00
KGER	ak	1000	.....	Long Beach, Calif.	P—6:00-mid.
KGIR	ak	500	N (1)	Butte, Mont.	M—7:00-mid.
WCSC	ae	500	.....	Charleston, S. C.	E—8:00-10:30; noon-2:00; 7:00-10:00
WFBL	ak	1000	C (2.5)	Syracuse, N. Y.	E—8:00-1:00
WGES	ae	500	.....	Chicago, Ill.	C—5:45-11:00; 5:00-8:00
WQBC	ak	500	.....	Vicksburg, Miss.	C

1370 kilocycles 218.8 meters 

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CHSJ	z	100	.....	St. John, N. B.	A
CMCN	z	250	1375	Havana, Cuba.	E
CMCR	ak	150	1375	Havana, Cuba.	E—Noon-1:00; 4:00-5:00; 9:00-11:00
CMGE	z	30	1375	Cardenas, Cuba.	E
KCRC	ak	100	2(.25)	Enid, Okla.	C—6:00-9:00; 11:00-2:00; 5:00-7:45; 10:00-mid.
KFBL	ae	50	3	Everett, Wash.	P—9:00-noon; 3:00-6:00; 9:00-mid.
KFJM	ak	100	.....	Grand Forks, N. D.	C—7:00-9:00
KFJZ	ae	100	.....	Fort Worth, Texas.	C—7:00-2:00; 4:00-11:00
KGAR	ae	100	(.25)	Tucson, Ariz.	M—7:00-9:00
KGFG	bk	100	2	Oklahoma City, Okla.	C
KGFL	ak	100	4	Roswell, N. M.	M—6:00-9:30; 2:00-7:30
KGLL	ak	100	.....	San Angelo, Texas.	C—8:00-4:30; 6:00-10:00
KICA	ak	100	4	Clovis, N. M.	M—9:30-2:00; 7:30-9:30
KLUF	z	100	.....	Galveston, Texas.	C
KMAC	ak	100	5	San Antonio, Texas.	C—7:00-8:30; 10:00-11:00; noon-1:30; 4:00-6:00; 7:00-8:00; 10:00-12:30
KONO	ak	100	5	San Antonio, Texas.	C—6:00-7:00; 8:00-10:00; 11:00-noon; 1:30-4:00; 6:00-7:00; 8:00-10:00
KOOS	ae	100	.....	Marshfield, Ore.	P—7:00-9:00
KRE	ak	100	.....	Berkeley, Calif.	P—7:00-1:00; 6:30-9:30
KSO	ak	100	B(.25)	Des Moines, Iowa.	C—6:30-1:00
KUJ	ak	100	.....	Walla Walla, Wash.	P—6:45-9:00
KVL	ak	100	3	Seattle, Wash.	P—6:00-9:00; noon-3:00; 6:00-9:00; mid.-1:30
KWKC	z	100	.....	Kansas City, Mo.	C
WBTM	ak	100	7	Danville, Va.	E—8:00-1:00; 4:00-6:30
WCBM	ae	100	(.25)	Baltimore, Md.	E—7:00-mid.
WDAS	ae	100	(.25)	Philadelphia, Pa.	E—9:00-11:00
WGL	ae	100	C	Fort Wayne, Ind.	C—6:30-mid.
WGLC	ak	100	C	Hudson Falls, N. Y.	E—7:30-mid.
WHBD	ak	100	.....	Mount Orab, Ohio.	E—8:00-11:30; noon-9:00
WHBQ	ak	100	.....	Memphis, Tenn.	C—7:55-2:00; 4:00-10:30
WHDF	ak	100	(.25)	Calumet, Mich.	E—7:00-9:00; 11:30-1:30; 5:30-8:30
WHET	ak	100	D	Dothan, Ala.	C—9:00-sunset
WIBM	ae	100	1K	Jackson, Mich.	E—7:30-9:00
WJBK	ae	50	1	Detroit, Mich.	E—7:00-sunset; 9:00-mid.
WJTL	ae	100	.....	Atlanta, Ga.	E
WLEY	ak	100	(.25)	Lexington, Miss.	E—Noon-3:00; 6:00-9:00
WLVA	ck	100	7	Lynchburg, Va.	E—1:00-3:00; 6:30-11:00
WMBR	ak	100	.....	Jacksonville, Fla.	E—7:00-9:30
WOC	z	100	P	Davenport, Iowa.	C
WPFB	ak	100	.....	Hattiesburg, Miss.	C
WQDM	ae	100	D	St. Albans, Vt.	E
WRAM	ak	100	.....	Williamsport, Pa.	E—8:30-3:00; 5:00-10:30
WRAM	ae	100	YZ	Wilmington, N. C.	E—7:30-mid.
WRDO	ae	100	.....	Augusta, Maine.	E—9:00-1:00; 4:30-8:30
WRJN	ae	100	.....	Racine, Wis.	C—9:00-2:30; 4:00-10:30
WSVS	ak	50	D	Buffalo, N. Y.	E—8:30-10:00; 2:00-3:00
XEFZ	ae	100	.....	Mexico City, D. F.	C

1380 kilocycles 217.3 meters 

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CMJC	z	150	1382	Camaguey, Cuba.	E
KOH	ak	500	C	Reno, Nev.	P—8:00-10:00
KQV	ak	500	2C	Pittsburgh, Pa.	E—7:00-10:00
TGX	z	75	.....	Guatemala City, Guat.	
WKBH	ae	1000	C	LaCrosse, Wis.	C—7:30-10:00
WSMK	ak	200	2	Dayton, Ohio.	E—7:00-8:00; 10:00-mid.
XETB	z	125	.....	Torreón, Coah.	

1390 kilocycles 215.7 meters 

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CJRC	z	100	.....	Middlechurch, Man.	C (VE9CL) (VE9JR)
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# INDEX BY FREQUENCIES AND DIAL NUMBERS

With Monday's Time on the Air

HIH ak 15 1395  
 KLRA ae 1000 C  
 KOY ae 500 (1)  
 WHK ae 1000 C(2.5)

San Pedro de Macoris, D. R. L—12:15-2:00  
 Little Rock, Ark. C—7:00-mid.  
 Phoenix, Ariz. M  
 Cleveland, Ohio. E—7:00-mid.

## 1400 kilocycles 214.2 meters

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KLO ah 500 C  
 KTUL z 250 (.5)  
 WARD ak 500 7  
 WBAA z 500 1  
 WBBC ae 500 2  
 WKBF ak 500 1N  
 WLTH ak 500 2  
 WVFW ak 500 2  
 XEFV ae 100 .....

Ogden, Utah. M—8:30-10:30  
 Tulsa, Okla. C  
 Brooklyn, N. Y. E  
 Lafayette, Ind. C—7:00-8:00  
 Brooklyn, N. Y. E—4:00-6:00; 10:30-1:00  
 Indianapolis, Ind. C—6:00-7:00; 8:00-mid.  
 Brooklyn, N. Y. E—1:30-4:00; 9:00-10:30  
 Brooklyn, N. Y. E  
 Jaurex, Chih. C—9:00-3:00; 5:00-11:00

## 1410 kilocycles 212.6 meters

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CKFC ak 50 5  
 CKMO aj 100 5  
 CMCH ak 50 .....  
 CMCM z 15 .....  
 KGRS ae 1000 1  
 WAAB ae 500 CH  
 WBCM ae 500 K  
 WDAG ae 1000 1  
 WHBL ae 500 4  
 WHIS ak 250 2  
 WODX ae 500 3C  
 WRBX ae 250 2  
 WROK ak 500 4  
 WSFA ck 500 3C

Vancouver, B. C. P—3-4:30 (VE9CS)  
 Vancouver, B. C. P—7:30-3; 4:30-11  
 Havana, Cuba. E  
 Havana, Cuba. E  
 Amarillo, Texas. C—6-8; 10-12:30; 3-4:30; 6-7; 9-10  
 Boston, Mass. E—8:30-mid.  
 Bay City, Mich. E—8:00-mid.  
 Amarillo, Texas. C—8-10; 12:30-3; 4:30-6; 7:30-9; 10-mid.  
 Sheboygan, Wis. C—7-10; 12:30-3; 6-8; 10-mid.  
 Bluefield, W. Va. E—7:00-9:00; noon-3:00; 6:00-8:00  
 Mobile, Ala. E—7:00-6:15; 7:45-10:30  
 Roanoke, Va. E  
 Rockford, Ill. C—9-12:30; 4-6; 8:30-mid.  
 Montgomery, Ala. C—6:00-7:45

## 1420 kilocycles 211.1 meters

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CKGB z 100 .....  
 KABC ak 100 .....  
 KBPS aj 100 4  
 KCMC ak 100 .....  
 KFIZ ak 100 .....  
 KGFF ak 100 .....  
 KGGC ak 100 .....  
 KGIW ak 100 1  
 KGIX ak 100 .....  
 KIDW z 100 1  
 KORE ae 100 .....  
 KUMA ak 100 .....  
 KXL ae 100 4  
 WACO ak 100 C  
 WAGM ae 100 .....  
 WAMC ae 100 .....  
 WAZL ak 100 2  
 WEED ak 100 D  
 WEHS ak 100 a  
 WELL ak 50 .....  
 WENC ak 100 D  
 WHDL ak 100 D  
 WHFC ae 100 a  
 WILM aj 100 2  
 WJBO z 100 D  
 WJMS ak 100 .....  
 WKBI ak 100 a  
 WLBK ak 100 .....  
 WMAS ak 100 CH(.25)  
 WMBC ag 100 (.25)  
 WMBH ak 100 (.25)  
 WNRA ak 100 D  
 WPAD ak 100 .....  
 WSPA ae 100 (.25)  
 WTBO ae 100 (.25)

Timmons, Ont. E  
 San Antonio, Texas. C—6:00-mid.  
 Portland, Ore. P—11:00-12:30; 3:00-5:00  
 Texarkana, Ark. C—7:00-2:00; 4:00-9:00  
 Fond du Lac, Wis. C—10:00-1:00; 4:00-10:00  
 Shawnee, Okla. C—7:30-3:00; 5:00-9:00  
 San Francisco, Calif. P—9:00-1:00; 4:00-9:00  
 Alamosa, Colo. M  
 Las Vegas, Nev. M  
 Lamar, Colo. M—8:00-10:00; 7:00-10:00  
 Eugene, Ore. P—7:45-9:00  
 Yuma, Ariz. M—7:00-9:00; 11:00-2:00; 6:00-10:00  
 Portland, Ore. P—7:00-1:00  
 Waco, Texas. C—8:00-2:00; 5:00-10:30  
 Presque Isle, Maine. E—11:00-1:00; 4:00-7:00  
 Anniston, Ala. C—7:00-9:00  
 Hazelton, Pa. E—11:00-9:00  
 Greenville, N. C. E—9:00-6:00  
 Cicero, Ill. C—4:00-6:00  
 Battle Creek, Mich. E—9:00-9:30  
 Albany, Ga. C—Silent  
 Tupper Lake, N. Y. E  
 Cicero, Ill. C—7:00-1:30; 6:00-9:00; 11:00-1:00  
 Wilmington, Del. E—7:00-11:00; 2:00-5:00; 9:00-mid.  
 Baton Rouge, La. C  
 Ironwood, Mich. C—7:30-1:30; 4:30-7:00  
 Cicero, Ill. C—1:30-4:00  
 Kansas City, Kans. C—7:00-11:00  
 Springfield, Mass. E—8:00-mid.  
 Detroit, Mich. E—7:30-mid.  
 Joplin, Mo. C—7:30-2:00; 6:00-9:30  
 Muscle Shoals, Ala. C—7:00-10:00  
 Paducah, Ky. C  
 Spartanburg, S. C. E—7:30-2:00; 4:00-9:30  
 Cumberland, Md. E—9:00-7:00

## 1430 kilocycles 209.7 meters

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KECA ak 1000 N  
 KGNF ak 500 D  
 KWCR ak 250 B(.5)  
 WBAK ak 500 (1)  
 WBNS ae 500 C  
 WHEC ae 500 C

Los Angeles, Calif. P—7:00-11:00  
 North Platte, Neb. C—7:00-sunset  
 Cedar Rapids, Iowa. C—7:00-mid.  
 Harrisburg, Pa. E  
 Columbus, Ohio. E—8:00-mid.  
 Rochester, N. Y. E

**KCTV.  
 1430  
 DIAL**

INDEX BY FREQUENCIES AND DIAL NUMBERS

With Monday's Time on the Air

WHP	ak	500	C (1)	Harrisburg, Pa.	E—8:30-10:30; 11:30-1:30; 2:30-4:00; 4:30-1:00
WNBR	ae	500	.....	Memphis, Tenn.	C—8:00-1:00; 3:00-10:00
WOKO	ae	500	C	Albany, N. Y.	E—7:30-1:00

1440 kilocycles 208.2 meters

CMBL	ak	200	1445	Havana, Cuba.	E—noon-1:00; 6:00-8:00
KDFN	ak	500	.....	Casper, Wyo.	M—7:30-2:00; 3:30-9:00
KLS	ae	250	D	Oakland, Calif.	P—8:00-sunset
KXYZ	ak	250	.....	Houston, Texas.	C—6:30-1:00; 2:30-11:00
TIFS	z	7.5	1441	Cartago, C. R.	L
WBIG	ae	500	C (1)	Greensboro, N. C.	E—8:00-11:00
WCBA	aj	250	a	Allentown, Pa.	E—7:30-mid.
WMBD	ae	500	3C (1)	Peoria, Ill.	C—6:00-11:00; 8:00-mid.
WSAN	aj	250	a	Allentown, Pa.	E—7:30-mid.
WTAD	ak	500	3	Quincy, Ill.	C—11:00-8:00

1450 kilocycles 206.8 meters

CFCT	ae	50	.....	Victoria, B. C.	P—8:00-12:30; 6-8; mid.-2:00
CKX	ak	500	F	Brandon, Man.	C—7:00-10:30
KTBS	ck	1000	N	Shreveport, La.	C—7:00-mid.
TIEP	z	7.5	.....	San Jose, C. R.	L
WGAR	ak	500	B (1)	Cleveland, Ohio.	E—6:30-1:00
WHOM	ae	250	.....	Jersey City, N. J.	E—8:00-mid.
WSAR	ae	250	.....	Fall River, Mass.	E—8:00-3:30; 5:00-10:00
WTFI	ak	500	.....	Athens, Ga.	E—8:00-9:00
XEAB	ak	7.5	.....	Neuvo Laredo, Tams.	C—10:00-3:00; 4:00-7:00

1460 kilocycles 205.4 meters

IKSTP	ae	10000	N (25)	St. Paul, Minn.	C—6:45-12:30
WJVS	ak	10000	C	Washington, D. C.	E—6:30-mid.

1470 kilocycles 204.0 meters

KGA	ak	5000	N	Spokane, Wash.	P—6:00-mid.
WLAC	ae	5000	C	Nashville, Tenn.	C—7:00-mid.

1480 kilocycles 202.6 meters

CMBK	z	15	1485	Havana, Cuba.	E
KOMA	ak	5000	C	Oklahoma City, Okla.	C—6:30-mid.
WKBW	ae	5000	C	Buffalo, N. Y.	E—10:00-1:00

1490 kilocycles 201.2 meters

WCKY	ae	5000	BY	Covington, Ky.	E—7:00-mid.
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1500 kilocycles 199.9 meters

CRCS	z	100	F	Chicoutimi, Que.	E—6:30-11:30
KDB	ak	100	CT	Santa Barbara, Calif.	P—7:30-mid.
KGFI	ak	100	(25)	Corpus Christi, Tex.	C—7:00-3:00; 6:00-10:00
KGFK	ak	100	Y	Moorhead, Minn.	C—8:00-9:00
KGKB	ak	100	.....	Tyler, Texas.	C—8:00-10:00; noon-2:00; 5:00-6:00; 7:30-9:00
KGKY	ck	100	.....	Scottsbluff, Neb.	M—9:00-1:30; 5:30-9:00
KNOW	ak	100	.....	Austin, Texas.	C—7:30-2:00; 4:00-10:00
KOTN	z	100	DP	Pine Bluff, Ark.	C
KPJM	ak	100	.....	Prescott, Ariz.	M—7:00-8:00
KPO	aj	100	.....	Wenatchee, Wash.	P—7:00-10:00
KREG	ak	100	.....	Santa Ana, Calif.	P—9:00-11:00
KXO	al	100	.....	El Centro, Calif.	P—7:00-2:00; 4:00-9:00
WCNW	ak	100	I	Brooklyn, N. Y.	E—2:00-6:00; 8:00-10:00
WFDV	ak	100	.....	Rome, Ga.	C—7:00-10:00; noon-3:00; 6:00-9:00
WHEF	ak	100	P (25)	Kosciusko, Miss.	C
WKBW	ae	100	.....	East Dubuque, Ill.	C—7:00-10-15; 11:45-1:30; 5:30-9:00
WKBZ	z	100	.....	Richmond, Ind.	C
WKBU	ak	100	.....	Ludington, Mich.	E—9:00-9:00
WKUJ	ak	100	.....	LaGrange, Ga.	C—10:00-noon; 3:00-6:00
WMBO	ae	100	I	Brooklyn, N. Y.	E—9:00-11:00; noon-2; 6-8
WMEX	z	100	P (25)	Chelsea, Mass.	E
WMPC	ak	100	.....	Lapeer, Mich.	E—10:00-2:00; 3:30-6:00; 7:00-10:30
WNBF	ae	100	.....	Binghamton, N. Y.	E—7:30-10:00
WOPI	ae	100	.....	Bristol, Tenn.	E—7:00-2:00; 3:00-8:00
WPEJ	ak	100	(25)AZ	Philadelphia, Pa.	E—7:30-10:00
WRDW	ae	100	.....	Augusta, Ga.	E
WSYB	ae	100	.....	Rutland, Vt.	E—10:00-1:00; 5:00-9:00
WVRL	ak	100	I	Woodside, N. Y.	E—8-9; 11:00-noon; 10-12:30
WWSW	ae	100	(25)	Pittsburgh, Pa.	E—8:00-11:45

1510 kilocycles 198.6 meters

CFRC	ak	100	.....	Kingston, Ont.	E
CKCR	ak	100	.....	Kitchener, Ont.	E—10-1:30; 4-11

## INDEX BY LOCATIONS

*Frequency in kilocycles in second column. Night power in watts in third column. Network affiliations in fourth column: C Columbia, R National Red, B National Blue, N National Red and Blue. F Canadian.*

<b>ALABAMA</b>			<b>Fresno</b>			<b>CONNECTICUT</b>			<b>Twin Falls</b>		
Anniston			KMJ	580	500 C	Bridgeport			KTFI	1240	1000
WAMC	1420	100	Glendale			WICC	600	500 C	<b>ILLINOIS</b>		
Birmingham			KIEV	850	100	Hartford			Carthage		
WAPI	1140	5000 N	Hollywood			WDRS	1330	1000 C	WCAZ	1070	50
WBRC	9300	500 C	KFWB	950	1000	WTIC	1060	5000 R	Chicago		
WKBC	1310	100	KMTR	570	500	Storrs			KYW	1020	10000 N
Dothan			KNX	1050	25000	WCAC	600	500	WAAF	920	500
WHET	1370	100	Long Beach			<b>DELAWARE</b>			WBBM	770	25000 C
Gadsden			KFOX	1250	1000	WDEL	1120	250	WCFL	970	1500 B
WJBY	1210	100	KGER	1360	1000	WILM	1420	100	WCRW	1210	100
Huntsville			<b>Los Angeles</b>			<b>DISTRICT OF COLUMBIA</b>			WEDC	1210	100
WBHS	1200	100	KECA	1430	1000 N	Washington			WENR	870	50000 N
Mobile			KFAC	1300	1000	WJSV	1460	10000 C	WGES	1360	500
WODX	1410	500 C	KFI	640	50000 N	WMAL	630	250 B	WGN	720	50000
Montgomery			KFSG	1120	500	WOL	1310	100	WJJD	1130	20000
WSFA	1410	500 C	KFVD	1000	250	WRC	950	500 R	WLS	870	50000 N
Muscle Shoals			KGJF	1200	100	<b>FLORIDA</b>			WMAQ	670	5000 N
WNRA	1420	100	KHJ	900	1000 C	Clearwater			WMBI	1080	5000
<b>ALASKA</b>			KRKK	1120	500	WFLA	620	1000 N	WSCB	1210	100
Anchorage			KTM	780	500	Gainesville			Cleora		
KFQD	1230	250	Oakland			WRUF	830	5000	WEHS	1420	100
Juneau			KLS	1440	250	Jacksonville			WHFC	1420	100
KIFH	1310	100	KLX	880	1000	WJAX	900	1000 N	WKBI	1420	100
Ketchikan			KROW	930	500	WMBR	1370	100 C	Decatur		
KGBU	900	500	Pasadena			Miami			WJBL	1200	100
<b>ARIZONA</b>			KPPC	1210	50	WIOD	1300	1000 N	East Dubuque		
Jerome			Sacramento			WQAM	560	1000 C	WKBB	1500	100
KCRJ	1310	100	KFBK	1310	100 C	Orlando			Harrisburg		
Lowell			San Bernardino			WDBO	580	250 C	WEBQ	1210	100
KSUN	1200	100	KEXM	1210	100	Pensacola			Joliet		
Phoenix			San Diego			WCOA	1340	500	WCLS	1310	100
KOY	1390	500	KFSD	600	1000 N	St. Petersburg			LaSalle		
KTAR	620	500 N	KGB	1330	1000 C	WSUN	620	1000 N	WJBC	1200	100
Prescott			San Francisco			Tampa			Peoria		
KPJM	1500	100	KERC	610	1000 C	WDAE	1220	1000 C	WMBD	1440	500 C
Tucson			KFWI	930	500	<b>GEORGIA</b>			Quincy		
KGAR	1370	100	KGGC	1420	100	Albany			WTAD	1440	500
KVOA	1260	500	KGO	790	7500 N	WENC	1420	100	Rockford		
Yuma			KJBS	1070	100	WTFI	1450	500	Rock Island		
KUMA	1420	100	KPO	680	50000 N	Atlanta			WHBF	1210	100
<b>ARKANSAS</b>			KTAB	560	1000	WGST	890	250 C	Springfield		
Blytheville			KYA	1230	1000 N	WJTL	1370	100	WCBS	1210	100
KLCN	1290	100	San Jose			WSB	740	50000 N	WTAX	1210	100
Fayetteville			KQW	1010	500	Augusta			Tuscola		
KUOA	1260	1000	Santa Ana			WRDW	1500	100	WDZ	1070	100
Fort Smith			KREG	1500	100	Columbus			WILL	1890	250
KFPW	1210	100	Santa Barbara			WRBL	1200	100	Zion		
Hot Springs			KDB	1500	100 C	LaGrange			WCBD	1080	5000
KTHS	1040	10000 N	Stockton			WKEU	1500	100	<b>INDIANA</b>		
Jonesboro			KGDM	1100	250	Macon			Anderson		
KBTM	1200	100	KWG	1200	100 C	WMAZ	1180	500	WHBU	1210	100
Little Rock			<b>COLORADO</b>			Rome			Elkhart		
KARK	890	250	Alamosa			WFDV	1500	100	WTRC	1310	50
KGHI	1200	100	KGIW	1420	100	Savannah			Evansville		
KLRA	1390	1000 C	Colorado Springs			WTOC	1260	500 C	WGBF	630	500
Pine Bluff			KVOR	1270	1000 C	Thomasville			Fort Wayne		
KOTN	1500	100	Denver			WQDX	1210	100	WGL	1370	100 C
Texarkana			KFEL	920	500	<b>HAWAII</b>			WOWO	1160	10000 C
KCMC	1420	100	KFXF	920	500	Hilo			Gary		
<b>CALIFORNIA</b>			KLZ	560	1000 C	KWVF	1210	100	WIND	560	1000 C
Bakersfield			KOA	830	12500 N	Honolulu			Hammond		
KERN	1200	100 C	KPOF	880	500	KGMB	1320	250 C	WWAE	1200	100
Berkeley			Grand Junction			KGU	750	2500 N	Indianapolis		
KRE	1370	100	KFXJ	1200	100	Boise			WFBM	1230	1000 C
Beverly Hills			Greeley			KIDO	1350	1000	WKBF	1400	500 N
KMPC	710	500	Lamar			Idaho Falls			Muncie		
Burbank			KIDW	1420	100	KID	1320	250	WLBC	1310	100
KELW	780	500	Pueblo			Nampa			Richmond		
El Centro			KGHF	1320	250	KFXD	1200	100	WKBV	1500	100
KXO	1500	100	Yuma			Pocatello			South Bend		
Eureka			KGEK	1200	100	KSEI	890	250	WFAM	1200	100 C
KIEM	1210	100									

# INDEX BY LOCATIONS

**WSBT** 1230 500 C  
**Terre Haute**  
**WBOW** 1310 100  
**West Lafayette**  
**WBAA** 1400 500  
**IOWA**  
**Ames**  
**WOI** 640 5000  
**Boone**  
**KFGQ** 1310 100  
**Cedar Rapids**  
**KWCR** 1430 250 B  
**Council Bluffs**  
**KOIL** 1260 1000 B  
**Davenport**  
**WOC** 1370 100  
**Decorah**  
**KGCA** 1270 100  
**KWLC** 1270 100  
**Des Moines**  
**KSO** 1370 100 B  
**WHO** 1000 5000 R  
**Iowa City**  
**WSUI** 880 500  
**Marshalltown**  
**KFJB** 1200 100  
**Shenandoah**  
**KFNF** 890 500  
**KMA** 930 500  
**Sioux City**  
**KSCJ** 1330 1000 C  
**Waterloo**  
**WMT** 600 500 C  
**KANSAS**  
**Abilene**  
**KFBI** 1050 5000  
**Coffeyville**  
**KGGF** 1010 500  
**Dodge City**  
**KGNO** 1340 250  
**Kansas City**  
**WLBF** 1420 100  
**Lawrence**  
**KFKU** 1220 500  
**WREN** 1220 1000 B  
**Manhattan**  
**KSAC** 580 500  
**Topeka**  
**WIBW** 580 1000 C  
**Wichita**  
**KFH** 1300 1000 C  
**KENTUCKY**  
**Covington**  
**WCKY** 1490 5000 B  
**Louisville**  
**WAVE** 940 1000  
**WHAS** 820 5000 C  
**WLAP** 1420 100  
**Paducah**  
**WPAD** 1420 100  
**LOUISIANA**  
**Baton Rouge**  
**WJBO** 1420 100  
**Monroe**  
**KMLB** 1200 100  
**New Orleans**  
**WBBX** 1200 100  
**WDSU** 1250 1000 C  
**WJBW** 1200 100  
**WSMB** 1320 500 N  
**WWL** 850 10000  
**Shreveport**  
**KRMD** 1310 100  
**KTBS** 1450 1000 N  
**KWEA** 1210 100  
**KWKH** 850 10000

**MAINE**  
**Augusta**  
**WRDO** 1370 100  
**Bangor**  
**WABI** 1200 100  
**WLBZ** 620 500 C  
**Portland**  
**WCSH** 940 1000 R  
**Presque Isle**  
**WAGM** 1420 100  
**MARYLAND**  
**Baltimore**  
**WBAL** 1060 10000 B  
**WCAO** 600 500 C  
**WCBM** 1370 100  
**WFBR** 1270 500 R  
**Cumberland**  
**WTBO** 1420 100  
**Hagerstown**  
**WJEJ** 1210 100  
**MASSACHUSETTS**  
**Babson Park**  
**WBSO** 920 500  
**Boston**  
**WAAB** 1410 500 C  
**WBZ** 990 50000 B  
**WEEI** 590 1000 R  
**WHDH** 830 1000  
**WNAZ** 1230 1000 C  
**Chelsea**  
**WMEX** 1500 100  
**Fall River**  
**WSAR** 1450 250  
**Lexington**  
**WLEY** 1370 100  
**New Bedford**  
**WNBH** 1310 100  
**Springfield**  
**WBZA** 990 1000 B  
**WMAS** 1420 100 C  
**Worcester**  
**WORC** 1280 500 C  
**WTAG** 580 750 R  
**MICHIGAN**  
**Battle Creek**  
**WELL** 1420 50  
**Bay City**  
**WBCM** 1410 500  
**Calumet**  
**WHDF** 1370 100  
**Detroit**  
**WJBK** 1370 50  
**WJR** 750 10000 B  
**WMBC** 1420 100  
**WWJ** 920 1000 R  
**WXYZ** 1240 1000  
**East Lansing**  
**WKAR** 1040 1000  
**Flint**  
**WFDF** 1310 100  
**Grand Rapids**  
**WASH** 1270 500  
**WOOD** 1270 500  
**Ironwood**  
**WJMS** 1420 100  
**Jackson**  
**WIBM** 1370 100  
**Kalamazoo**  
**WKZO** 590 1000  
**Lapeer**  
**WMPC** 1500 100  
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**WRHM** 1250 1000  
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**WJDX** 1270 1000 N  
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**WQBC** 1360 500  
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**KWKC** 1370 100  
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**KGIR** 1360 500 N  
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**KGKY** 1500 100  
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**KG BZ** 930 500  
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**KGIX** 1420 100  
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**Laconia**  
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**Manchester**  
**WFEA** 1340 500 C  
**Portsmouth**  
**WHEB** 740 250  
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**Asbury Park**  
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**Newark**  
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**WOR** 710 5000  
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**WBBC** 1400 500  
**WBBR** 1300 1000  
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**WMBQ** 1500 100  
**WVFW** 1400 500  
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**WBEN** 900 1000 R  
**WEER** 1310 100  
**WGR** 550 1000 C  
**WKBW** 1480 5000 C  
**WSVS** 1370 50  
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**Kamloops**  
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**Kelowna**  
 CKOV 1210 50 F

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**Middlechurch**  
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**Cobalt**  
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**Hamilton**  
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**Kingston**  
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**Kirkland Lake**  
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**Kitchener**  
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**London**  
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**North Bay**  
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**Ottawa**  
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 CRCO 880 1000 F

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 CRCT 960 5000 N  
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**Wingham**  
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**Summerside**  
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**QUEBEC**

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**Hull**  
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**Montreal**

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**CHLP** 1120 100  
**CKAC** 730 5000 C  
**CRCM** 910 5000 F

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**CHNC** 1210 100 F

**Quebec**  
**CHRC** 930 100 F  
**CKCV** 1310 50

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**Moose Jaw**  
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 CJRM 540 1000 F

**Prince Albert**  
 CKBI 1210 100

**Regina**  
 CHWC 1010 500 F  
 CKKC 1010 500 F

**Saskatoon**

**CFQC** 1230 500 F

**Yorkton**  
 CJGX 630 500 F

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**VOAS** 810 100  
**VOGY** 950 75  
**VOKW** 1085 30  
**VONF** 1195 400  
**VOWR** 700 500

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**St. Pierre**  
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**TIEA** 833 7.5  
**TIEP** 1450 7.5  
**TIFB** 714 30  
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**TITV** 999 7.5  
**TIVL** 869 30  
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## Tuning Converters

By MRS. L. R. LEDBETTER\*

**A**FTER about two years of short wave reception, using a Stewart-Warner converter with a Fada super-heterodyne, I have discovered a few facts regarding the tuning of converters in order to get the best possible results, and I would like to pass this information on to those who are just beginning to work the high frequencies.

One interesting fact is that with converters one may tell whether or not the station heard is a harmonic. For instance, I set my Fada dial at

1000 kcs. and turn the converter to 56 where I hear an American station. To determine the fundamental frequency, I move the broadcast receiver to about 970 kcs. and, if the station is *not* a harmonic, the converter dial will have to be turned to a *lower* frequency. Harmonics always require turning in the opposite direction. So the station heard, in this instance, would be the harmonic of W8XK on 25 meters. Now, if the broadcast receiver is set at a frequency too high, this harmonic will shift down a few kilocycles and interfere with EAQ whose natural frequency is nearby and probably couldn't be heard at all.

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<b>CFAC</b> 930 100 Calgary, Alta. Calgary Herald.	<b>CJOR</b> 600 500 Vancouver, B. C. G. C. Chandler.
<b>CFBO</b> 1210 100 St. John, N. B. C. A. Munro, Ltd.	<b>CJRC</b> 1390 100 Middlechurch, Man. James Richardson & Sons.
<b>CFCF</b> 800 500 Montreal, Que. Canadian Marconi Co.	<b>CJRM</b> 540 1000 Moose Jaw, Sask. James Richardson & Sons, Ltd.
<b>CFCH</b> 930 100 North Bay, Ont. Northern Broadcasting Co., Ltd.	<b>CKAC</b> 730 5000 Montreal, Que. LaPresse Publishing Co., Ltd.
<b>CFCN</b> 1030 10000 Calgary, Alta. Voice of the Prairies, Ltd.	<b>CKBI</b> 1210 100 Prince Albert, Sask. Prince Albert Radio Club.
<b>CFCO</b> 600 50 Chatham, Ont. John Beardall.	<b>CKCD</b> 1010 100 Vancouver, B. C. Vancouver Dally Province.
<b>CFCT</b> 1450 50 Victoria, B. C. Victoria Broadcasting Assn.	<b>CKCH</b> 1210 100 Hull, Que. Dr. J. L. Chabot.
<b>CFCY</b> 830 500 Charlottetown, P. E. I. Island Radio Broadcasting Co., Ltd.	<b>CKCK</b> 1010 500 Regina, Sask. Leader-Post, Ltd.
<b>CFJC</b> 1310 100 Kamloops, B. C. Review Publishing Co., Ltd.	<b>CKCL</b> 580 100 Toronto, Ont. Dominion Battery Co., Ltd.
<b>CFLC</b> 930 100 Prescott, Ont. Radio Assn. of Prescott.	<b>CKCO</b> 1010 100 Ottawa, Ont. Dr. G. M. Geldert.
<b>CFNB</b> 1030 500 Fredericton, N. B. James S. Neill & Sons, Ltd.	<b>CKCR</b> 1510 100 Kitchener, Ont. William C. Mitchell and G. Liddle.
<b>CFPL</b> 730 100 London, Ont. Free Press & Printing Co., Ltd.	<b>CKCY</b> 1310 50 Quebec, Que. Vandry, Inc.
<b>CFQC</b> 1230 500 Saskatoon, Sask. Electric Shop, Ltd.	<b>CKFC</b> 1410 50 Vancouver, B. C. Radio Service Engineers Ltd.
<b>CFRB</b> 690 10000 Toronto, Ont. Canadian Radio Corp., Ltd.	<b>CKGB</b> 1420 100 Timmins, Ont. R. H. Thompson
<b>CFRC</b> 1510 100 Kingston, Ont. Queens University.	<b>CKIC</b> 1010 50 Wolfville, N. S. Acadia University.
<b>CFTP</b> 1120 100 Edmonton, Alta. Taylor & Pearson, Ltd.	<b>CKLW</b> 840 5000 Windsor, Ont. Western Ontario Broadcasting Co., Ltd.
<b>CHAB</b> 1200 100 Moose Jaw, Sask. Moose Jaw Radio Assn.	<b>CKMC</b> 1210 50 Cobalt, Ont. R. L. MacAdam.
<b>CHCK</b> 1310 50 Charlottetown, P. E. I. J. A. Gesner.	<b>CKMO</b> 1410 100 Vancouver, B. C. Sprott-Shaw Radio Co.
<b>CHGS</b> 1120 50 Summerside, P. E. I. R. T. Holman, Ltd.	<b>CKNC</b> 1030 100 Toronto, Ont. Canadian National Carbon Co., Ltd.
<b>CHLP</b> 1120 100 Montreal, Que. La Patrie Publishing Co., Ltd.	<b>CKOC</b> 1120 500 Hamilton, Ont. Wentworth Radio Broadcasting Co., Ltd.
<b>CHML</b> 1010 50 Hamilton, Ont. Maple Leaf Radio Co., Ltd.	<b>CKOV</b> 1210 50 Kellowna, B. C. Okanagan Broadcasters, Ltd., Box 243.
<b>CHNC</b> 1210 100 New Carlisle, Que. Dr. Charles Houde.	<b>CKPC</b> 930 100 Brantford, Ont. Cyrus Dolph.
<b>CHNS</b> 1050 500 Halifax, N. S. Maritime Broadcasting Co., Ltd.	<b>CKPR</b> 780 50 Fort William, Ont. Dougall Motor Co., Ltd.
<b>CHRC</b> 930 100 Quebec, Que. CHRC, Ltd.	<b>CKTB</b> 1200 100 St. Catharines, Ont. E. T. Sandell.
<b>CHSJ</b> 1370 100 St. John, N. B. H. P. Robinson.	<b>CKUA</b> 580 500 Edmonton, Alta. University of Alberta.
<b>CHWC</b> 1010 500 Regina, Sask. R. H. Williams & Sons, Ltd.	<b>CKWX</b> 1010 100 Vancouver, B. C. Western Broadcasting Co., Ltd.
<b>CHWK</b> 780 100 Chilliwack, B. C. Chilliwack Broadcasting Co., Ltd.	<b>CKX</b> 1450 500 Brandon, Man. Manitoba Telephone System
<b>CJAT</b> 1200 50 Trail, B. C. Trail Amateur Radio Assn.	<b>CKY</b> 910 5000 Winnipeg, Man. Manitoba Telephone System.
<b>CJCA</b> 730 1000 Edmonton, Alta. Edmonton Journal, Ltd.	<b>CMAB</b> 1249 20 Pinar del Rio, Cuba. Jose Silvera, Marti No. 101.
<b>CJCB</b> 880 50 Sydney, N. S. Nathanson's Radio Headquarters.	<b>CMAF</b> 680 1000 Havana, Cuba. International Broadcasting Co., Miramar.
<b>CJCJ</b> 690 100 Calgary, Alta. Albertan Publishing Co., Ltd.	<b>CMBC</b> 1270 150 Havana, Cuba. Domingo Fernandez, Maximo Gomez No. 136
<b>CJCS</b> 780 500 Sudbury, Ont. George McLeod Cootes	<b>CMBD</b> 955 250 Havana, Cuba. Luis Perez Garcia, Enamorados y Flores.
<b>CJGX</b> 630 500 Yorkton, Sask. Winnipeg Grain Exchange	<b>CMBG</b> 1052 225 Havana, Cuba. John L. Stowers, Hospital No. 100
<b>CJKL</b> 1310 100 Kirkland Lake, Ont. O. J. Thorpe & Branchaud.	<b>CMBJ</b> 1140 500 Havana, Cuba. Emilio Perera, Consulado y Virtudes.
<b>CJLS</b> 1310 100 Yarmouth, N. S. Laurie L. Smith.	<b>CMBK</b> 1485 15 Havana, Cuba. Alberto Alvarez, Paula y Oficios.
<b>CJDC</b> 840 100 Lethbridge, Alta. H. R. Carson, Ltd.	<b>CMBL</b> 1445 200 Havana, Cuba. Julio C. Hidalgo, Zapata 150, 6 y 8, Vedado

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**CMBN** 1185 150 Havana, Cuba.  
G. de Sequiera, Agrimonte No. 32

**CMBS** 765 200 Havana, Cuba.  
Enrique Artalejo, Calzada y H. St.

**CMBW** 1140 600 Havana, Cuba.  
Alvarez, Moris y Cia, Obrapia No. 13.

**CMBY** 1230 250 Havana, Cuba.  
Callejas-Betefanal, Principe No. 33.

**CMBZ** 1005 150 Havana, Cuba.  
Manuel y G. Salas, San Rafael No. 14.

**CMC** 835 600 Havana, Cuba.  
Radio Corp. of Cuba.

**CMCA** 1230 150 Havana, Cuba.  
J. M. Gonzales Ave. de Italla No. 102.

**CMCB** 1052 150 Havana, Cuba.  
Metropolitano-Radio de Cuba.

**CMCD** 915 500 Havana, Cuba.  
Angel Bertematy.

**CMCF** 873 250 Havana, Cuba.  
Raoul Karman.

**CMCG** 1140 500 Havana, Cuba

**CMCH** 1410 50 Havana, Cuba.  
Wifredo y Humberto Fontansis Sanchez.

**CMCJ** 1180 500 Havana, Cuba.  
Rafael Rodriguez, Estevez No. 4.

**CMCM** 1410 15 Havana, Cuba.  
Aurelio Balino, Belas Coahn No. 639.

**CMCN** 1375 250 Havana, Cuba.  
Antonio Ginard, Reina y Ave. Buen Retiro

**CMCP** 1270 150 Havana, Cuba.  
Jose A. Yanis

**CMCQ** 775 1000 Havana, Cuba.  
Andres Martinez, Vista Alegre No. 80.

**CMCR** 1375 150 Havana, Cuba.  
Aurelio Hernandez.

**CMCU** 1100 600 Havana, Cuba.  
Jorge Garcia Serra.

**CMCW** 965 150 Havana, Cuba.  
Villarino y Cervantes

**CMCY** 1325 600 Havana, Cuba.  
Manuel D. Aufran, Ave. de La Pdt a. 215.

**CMDD** 588 150 Havana, Cuba.  
G. de Sequira

**CMDE** 915 150 Havana, Cuba.  
Radio Aerial Ad.

**CMGA** 834 100 Colon, Cuba.  
L. Valdes Figueroa, Marti No. 19.

**CMGB** 1205 30 Matanzas, Cuba.  
Jose Anorga, Magdalena No. 1.

**CMGC** 915 30 Matanzas, Cuba.  
Oscar S. Mechoeo, Independencia No. 56.

**CMGE** 1375 30 Cardenas, Cuba.  
Genaro Sebater, Céspedes No. 180.

**CMGF** 971.5 100 Matanzas, Cuba.  
Bernabe R. de la Torre.

**CMGH** 1040 15 Matanzas, Cuba.  
Octavio y Julio Alvarez.

**CMHD** 945.5 600 Caibarien, Cuba.  
Manuel Alvarez, M. Escobar 17.

**CMHI** 1037 250 Santa Clara, Cuba.  
Lavis y Paz

**CMHJ** 1125 80 Cienfuegos, Cuba.  
Victorino Lopez Hontanon.

**CMHK** 1225 60 Cruces, Cuba.  
Virgilio Villanueva Fernandez.

**CMHL** 1290 20 Cienfuegos, Cuba.  
Oscar Zayas, San Carlos 143.

**CMHW** 1200 100 Cienfuegos, Cuba.  
San Carlos No. 106

**CMJC** 1382 150 Camaguey, Cuba.  
Feliciano Isaac, Cisneros y G. Gomez.

**CMJE** 1170 60 Camaguey, Cuba.  
Manuel Fernandez, Plaza de Maceo.

**CMJF** 910 200 Camaguey, Cuba.  
John L. Stowers, Hotel Plaza.

**CMJG** 1050 60 Camaguey, Cuba.  
Jose Antonio Lefran, Martires 133.

**CMJH** 1150 50 Ciego de Avila, Cuba.  
Luis Marsauri Mendosa.

**CMJI** 1335 45 Ciego de Avila, Cuba.  
Gilberto Gessa Lopez, Independencia 95.

**CMJK** 790 600 Camaguey, Cuba.  
Compania Cubana Nacional de Radio S. A.

**CMJL** 980 60 Camaguey, Cuba.  
Enrique Artime, Cuba No. 27.

**CMJN** 1240 60 Camaguey, Cuba.  
Ernesto de Ugarriza, Martires 11.

**CMJO** 1010 60 Ciego de Avila, Cuba.  
Jose M. Rey, C. Central & Maceo.

**CMJP** 1360 75 Moron, Cuba.  
Cesar Canall, Callejas No. 28.

**CMK** 730 6000 Havana, Cuba.  
National Broadcasting Co. of Cuba.

**CMKC** 1034 150 Santiago, Cuba.  
Pinol Batlle y Co.

**CMKJ** 1300 20 Guantanamo, Cuba.  
Luis Morlote, East Glo 11

**CMPN** 1395 500 Havana, Cuba  
Police Headquarters

**CMQ** 645 500 Havana, Cuba.  
Jose Fernandez, 25 Numero 445.

**CMW** 695 1400 Havana, Cuba.  
Troncoso y Gil, Paseo de Marti 103.

**CMX** 875 1000 Havana, Cuba.  
Casa "Lavin," Ave. de la Republica 99A.

**CRCM** 910 6000 Montreal, Que.  
Canadian Radio Broadcasting Commission

**CRCO** 880 1000 Ottawa, Ont.  
Canadian Radio Broadcasting Commission

**CRCS** 1500 100 Chicoutimi, Que.  
Canadian Marconi Co., Ltd.

**CRCT** 960 5000 Toronto, Ont.  
Canadian Radio Broadcasting Commission.

**CRCV** 1100 1000 Vancouver, B. C.  
Canadian Radio Broadcasting Commission.

**FQN** 672 250 St. Pierre, Miq.

**HHK** 920 1000 Port-au-Prince, Haiti.  
Haitian Government.

**HIH** 1395 15 San Pedro de M., D. R.  
Domingo Dominguez

**HIJ** 1195 15 Santo Domingo, D. R.  
Tuto Baez, Hostos 34

**HIX** 598 1500 Santo Domingo, D. R.  
J. R. Saladin, Director General

**HIZ** 1300 10 Santo Domingo, D. R.  
Abbes and Garcia

**HJN** 881 500 Bogota, Colombia  
Government of Colombia, National Library.

**KABC** 1420 100 San Antonio, Texas.  
Alamo Broadcasting Co., Inc.

**KALE** 1300 500 Portland, Ore.  
Kale, Inc., New Heathman Hotel

**KARK** 890 250 Little Rock, Ark.  
Arkansas Radio & Equipment Co.

**KASA** 1210 100 Elk City, Okla.  
E. M. Woody, Casa Grande Hotel.

**KBPS** 1420 100 Portland, Ore.  
Benson Polytechnic School

**KBTM** 1200 100 Jonesboro, Ark.  
Jay P. Beard.

**KGMC** 1420 100 Texarkana, Ark.  
M. P. Mims, Box 865.

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<b>KCRC</b> 1370 100 Enid, Okla. Enid Radiophone Co.	<b>KFPL</b> 1310 100 Dublin, Texas. C. C. Baxter, Box 176
<b>KCRJ</b> 1310 100 Jerome, Ariz. Chas. C. Robinson, Drawer D.	<b>KFFM</b> 1310 15 Greenville, Texas. New Furniture Co.
<b>KDB</b> 1500 100 Santa Barbara, Calif. Santa Barbara Broadcasters, Ltd.	<b>KFPW</b> 1210 100 Fort Smith, Ark. Southwestern Hotel Co.
<b>KDFN</b> 1440 500 Casper, Wyo. Donald Lewis Hathaway.	<b>KFPY</b> 1340 1000 Spokane, Wash. Symons Broadcasting Co.
<b>KDKA</b> 980 50000 Pittsburgh, Pa. Westinghouse Electric & Mfg. Co.	<b>KFQD</b> 1230 250 Anchorage, Alaska Anchorage Radio Club, Inc.
<b>KDLR</b> 1210 100 Devils Lake, N. D. KDLR, Inc., 1025 3rd Street.	<b>KFRG</b> 510 1000 San Francisco, Calif. Don Lee, Inc.
<b>KDYL</b> 1290 1000 Salt Lake City, Utah. Intermountain Broadcasting Corp.	<b>KFRU</b> 630 500 Columbia, Mo. KFRU, Inc., 9th and Elm Sts.
<b>KECA</b> 1430 1000 Los Angeles, Calif. Earle C. Anthony, Inc.	<b>KFSB</b> 600 1000 San Diego, Calif. Alfran Radio Corp., Ltd.
<b>KELW</b> 780 500 Burbank, Calif. Evening Herald Pub. Co.	<b>KFSG</b> 1120 500 Los Angeles, Calif. Echo Park Evangelistic Assn.
<b>KERN</b> 1200 100 Bakersfield, Calif. Bee Bakersfield Broadcasting Co.	<b>KFUO</b> 550 500 St. Louis, Mo. Evangelical Lutheran Church.
<b>KEX</b> 1180 5000 Portland, Ore. National Broadcasting Co.	<b>KFVD</b> 1000 250 Los Angeles, Calif. E. L. Cord, 645 S. Mariposa.
<b>KFAB</b> 770 5000 Lincoln, Neb. KFAB Broadcasting Co.	<b>KFVS</b> 1210 100 Cape Girardeau, Mo. Oscar C. Hirsch, Box 275.
<b>KFAC</b> 1300 1000 Los Angeles, Calif. E. L. Cord, 645 So. Mariposa.	<b>KFWB</b> 950 1000 Hollywood, Calif. Warner Bros. Motion Pictures, Inc.
<b>KFBB</b> 1280 1000 Great Falls, Mont. Buttrey Broadcast, Inc.	<b>KFWI</b> 930 500 San Francisco, Calif. Radio Entertainments, Ltd.
<b>KFBI</b> 1050 5000 Abilene, Kans. Farmers & Bankers Life Ins. Co.	<b>KFXD</b> 1200 100 Nampa, Idaho. Frank E. Hurt, 1024 12th Ave., S.
<b>KFBK</b> 1310 100 Sacramento, Calif. James McClatchy Publishing Co.	<b>KFXF</b> 920 500 Denver, Colo. Colorado Radio Corp.
<b>KFBL</b> 1370 50 Everett, Wash. Leese Bros., 2814 Rucker Ave.	<b>KFXJ</b> 1200 100 Grand Jct., Colo. Western Slope Broadcasting Co.
<b>KFDM</b> 580 500 Beaumont, Texas. Sabine Broadcasting Co.	<b>KFXM</b> 1210 100 San Bernardino, Calif. Lee Bros. Broadcasting Co.
<b>KFDY</b> 550 500 Brookings, S. D. South Dakota State College.	<b>KFXR</b> 1310 100 Oklahoma City, Okla. Exchange Avenue Baptist Church.
<b>KFEL</b> 920 500 Denver, Colo. Eugene P. O'Fallon, Inc.	<b>KFYO</b> 1310 100 Lubbock, Texas. Kirksey Bros., Hotel Lubbock.
<b>KFEQ</b> 580 2500 St. Joseph, Mo. Scroggin & Co. Bank	<b>KFYR</b> 550 1000 Bismarck, N. D. Mayer Broadcasting Co.
<b>KFQQ</b> 1310 100 Boone, Iowa. Boone Biblical College.	<b>KGA</b> 1470 5000 Spokane, Wash. Northwest Broadcasting Co., Inc.
<b>KFH</b> 1300 1000 Wichita, Kans. Radio Station KFH Co.	<b>KGAR</b> 1370 100 Tucson, Ariz. Tucson Motor Service Co.
<b>KFI</b> 840 50000 Los Angeles, Calif. Earle C. Anthony, Inc.	<b>KGB</b> 1330 1000 San Diego, Calif. Don Lee Broadcasting System
<b>KFIO</b> 1120 100 Spokane, Wash. Spokane Broadcasting Corp.	<b>KGBU</b> 900 500 Ketchikan, Alaska. Alaska Radio & Service Co., Inc.
<b>KFIZ</b> 1420 100 Fond du Lac, Wis. Reporter Printing Co.	<b>KGBX</b> 1310 100 Springfield, Mo. KGBX, Inc.
<b>KFJB</b> 1290 100 Marshalltown, Iowa. Marshall Electric Co.	<b>KGBZ</b> 930 500 Yerk, Neb. KGBZ Broadcasting Co., 715 Grant Ave.
<b>KFJI</b> 1210 100 Klamath Falls, Ore. KFJI Broadcasters, Inc., Willard Hotel.	<b>KGCA</b> 1270 100 Decorah, Iowa Charles W. Greenley
<b>KFJM</b> 1370 100 Fort Forks, N. D. University of North Dakota.	<b>KGCR</b> 1210 100 Watertown, S. D. Greater Kampeska Radio Corp.
<b>KFJR</b> 1300 500 Portland, Ore. Ashley C. Dixon-KFJR, Inc.	<b>KGCU</b> 1240 250 Mandan, N. D. Mandan Radio Assn.
<b>KFJZ</b> 1370 100 Fort Worth, Texas. Fort Worth Broadcasters, Inc.	<b>KGCX</b> 1310 100 WaH Paint, Mont. E. E. Krebsbach.
<b>KFKA</b> 890 500 Greeley, Colo. Mid-Western Radio Corp.	<b>KGDE</b> 1290 100 Fergus Falls, Minn. C. L. Jaren.
<b>KFKU</b> 1220 500 Lawrence, Kans. University of Kansas.	<b>KGOM</b> 1100 250 Stockton, Calif. E. F. Peffer, 42 S. Calif. St.
<b>KFNF</b> 890 500 Shenandoah, Iowa. Henry Field Co.	<b>KGDY</b> 1340 250 Huron, S. D. Voice of S. D., Inc., 347 Dakota Ave.
<b>KFOR</b> 1210 100 Lincoln, Neb. Howard Shuman	<b>KGEK</b> 1200 100 Yuma, Colo. Elmer G. Beeher, 109 W. 2nd St.
<b>KFOX</b> 1250 1000 Long Beach, Calif. Nicholas & Warinner, Inc.	<b>KGER</b> 1380 1000 Long Beach, Calif. Consolidated Broadcasting Co.

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**KGEZ 1310 100 Kalispell, Mont.**  
 Donald C. Treloar, Box 1.  
**KGFF 1420 100 Shawnee, Okla.**  
 KGFF Broadcasting Co., Inc.  
**KGFG 1370 100 Oklahoma City, Okla.**  
 Oklahoma Broadcasting Co., 1113 N. Broadway  
**KGFI 1500 100 Corpus Christi, Texas.**  
 Eagle Broadcasting Co., Inc.  
**KGfJ 1200 100 Los Angeles, Calif.**  
 Ben S. McGlaahan, 1417 S. Figueroa.  
**KGFK 1500 100 Moorhead, Minn.**  
 Red River Broadcasting Co., Inc.  
**KGFL 1370 100 Roswell, N. M.**  
 KGFL, Inc., 507 N. Main St.  
**KGFW 1310 100 Kearney, Neb.**  
 Central Nebraska Broadcasting Corp.  
**KGFX 830 200 Pierre, S. D.**  
 Dana McNeil, 510 Summit Ave.  
**KGGC 1420 100 San Francisco, Calif.**  
 Golden Gate Broadcasting Co.  
**KGGF 1010 500 Coffeyville, Kans.**  
 Hugh J. Powell and Stanley Platz.  
**KGGM 1230 250 Albuquerque, N. M.**  
 New Mexico Broadcasting Co.  
**KGHF 1320 250 Pueblo, Colo.**  
 C. P. Ritchele  
**KGHI 1200 100 Little Rock, Ark.**  
 Lloyd Judd Co., Marlon Hotel.  
**KGHL 950 1000 Billings, Mont.**  
 Northwestern Auto Supply Co.  
**KGIR 1360 500 Butte, Mont.**  
 KGIR, Inc., 121 W. Broadway.  
**KGIW 1420 100 Alamosa, Colo.**  
 Leonard E. Wilson, 326 N. Commercial  
**KGIX 1420 100 Las Vegas, Nev.**  
 J. M. Heaton. Box 656.  
**KGKB 1500 100 Tyler, Texas.**  
 East Texas Broadcasting Co.  
**KGKL 1370 100 San Angelo, Texas.**  
 KGKL, Inc., St. Angelus Hotel.  
**KGKO 570 250 Wichita Falls, Texas.**  
 Wichita Falls Broadcasting Co.  
**KGKY 1500 100 Scottsbluff, Neb.**  
 Hilliard Co., Inc., 1517½ Broadway.  
**KGMB 1220 250 Honolulu, T. H.**  
 Honolulu Broadcasting Co., 119 Merchant St.  
**KGNF 1430 500 North Platte, Neb.**  
 Great Plains Broadcasting Co.  
**KGNO 1340 250 Dodge City, Kans.**  
 KGNO Broadcasting Station  
**KGQ 790 7500 San Francisco, Calif.**  
 National Broadcasting Co., Inc.  
**KGRS 1410 1000 Amarillo, Texas.**  
 E. B. Glah, Bellaire Park.  
**KGU 750 2500 Honolulu, T. H.**  
 Advertiser Publishing Co., Ltd.  
**KGVO 1200 100 Missoula, Mont.**  
 Mosbys, Inc., 240 N. Higgins.  
**KGW 820 1000 Portland, Ore.**  
 Oregonian Publishing Co.  
**KGy 1210 100 Olympia, Wash.**  
 KGy, Inc., 11th and Capitol Way.  
**KHJ 900 1000 Los Angeles, Calif.**  
 Don Lee Broadcasting System.  
**KHQ 590 1000 Spokane, Wash.**  
 Louis Waamer, Inc.  
**KICA 1370 100 Clevel., N. M.**  
 Southwest Broadcasting Co.  
**KID 1320 250 Idaho Falls, Idaho.**  
 KID Broadcasting Co., Inc.  
**KIDO 1350 1000 Boise, Idaho.**  
 C. G. Phillips & Frank L. Hill.

**KIDW 1420 100 Lamar, Colo.**  
 Lamar Broadcasting Co., Box 688  
**KIEM 1210 100 Eureka, Calif.**  
 Harold H. Hanseth, Vance Hotel.  
**KIEV 850 100 Glendale, Calif.**  
 Cannon System, Ltd., Glendale Hotel.  
**KIFH 1310 100 Juneau, Alaska**  
 Juneau Broadcasting Co.  
**KIT 1310 100 Yakima, Wash.**  
 Valley Broadcasters, Inc.  
**KJBS 1070 100 San Francisco, Calif.**  
 Julius Brunton & Sons Co.  
**KJR 970 5000 Seattle, Wash.**  
 Fishers Blend Station, Inc.  
**KLCN 1290 100 Blytheville, Ark.**  
 C. L. Lintzenloh, Main and Division St.  
**KLO 1400 500 Ogden, Utah.**  
 Interstate Broadcasting Co.  
**KLPM 1240 250 Minot, N. D.**  
 John B. Cooley.  
**KLRA 1390 1000 Little Rock, Ark.**  
 Arkansas Broadcasting Co.  
**KLS 1440 250 Oakland, Calif.**  
 Warner Bros., 2201 Telegraph Ave.  
**KLUF 1370 100 Galveston, Texas.**  
 Geo. R. Clough, 3327 Ave. P.  
**KLX 880 1000 Oakland, Calif.**  
 Tribune Building Co.  
**KLZ 580 1000 Denver, Colo.**  
 Reynolds Radio Co., Inc.  
**KMA 930 500 Shenandoah, Iowa.**  
 Earl E. May Seed & Nursery Co.  
**KMAC 1370 100 San Antonio, Texas.**  
 W. W. McAllister, Blue Bonnet Hotel.  
**KMBC 950 1000 Kansas City, Mo.**  
 Midland Broadcasting Co.  
**KMED 1310 100 Medford, Ore.**  
 Mrs. W. J. Virgin, Sparta Bldg.  
**KMJ 590 500 Fresno, Calif.**  
 James McClatchy Co.  
**KMLB 1200 100 Monroe, La.**  
 Liners Broadcasting Station, Inc.  
**KMMJ 740 1000 Clay Center, Neb.**  
 The M. M. Johnson Co.  
**KMO 1330 250 Tacoma, Wash.**  
 KMO, Inc., Hotel Winthrop.  
**KMOX 1090 5000 St. Louis, Mo.**  
 The Voice of St. Louis, Inc.  
**KMPC 710 500 Beverly Hills, Calif.**  
 Beverly Hills Broadcasting Corp.  
**KMYR 570 500 Hollywood, Calif.**  
 KMTR Radio Corp., 915 N. Formosa Ave.  
**KNOW 1500 100 Austin, Texas.**  
 Southwest Broadcasting Co.  
**KNX 1050 25000 Hollywood, Calif.**  
 Western Broadcast Co., Inc.  
**KOA 830 12,500 Denver, Colo.**  
 General Electric Co., 1370 Krameria St.  
**KOAC 550 1000 Corvallis, Ore.**  
 Oregon State Agricultural College.  
**KOB 1180 10000 Albuquerque, N. M.**  
 Albuquerque Journal, Box 687.  
**KOH 1380 500 Reno, Nev.**  
 The Bee, Inc.  
**KOIL 1280 1000 Council Bluffs, Iowa.**  
 Mona Motor Oil Co.  
**KOIN 940 1000 Portland, Ore.**  
 KOIN, Inc., New Heathman Hotel.  
**KOL 1270 1000 Seattle, Wash.**  
 Seattle Broadcasting Co.  
**KOMA 1480 5000 Oklahoma City, Okla.**  
 National Radio Manufacturing Co.

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**KOMO 920 1000** Seattle, Wash.  
 Fishers Blend Station, Inc.  
**KONO 1370 100** San Antonio, Texas.  
 Mission Broadcasting Co., St. Anthony Hotel.  
**KOOS 1370 100** Marshfield, Ore.  
 H. H. Hanseth, Hall Bldg.  
**KORE 1420 100** Eugene, Ore.  
 Frank L. Hill and Curtis G. Phillippe.  
**KOTN 1500 100** Pine Bluff Ark.  
  
**KOY 1390 500** Phoenix, Ariz.  
 Nielsen Radio & Sporting Goods Co.  
**KPCB 650 100** Seattle, Wash.  
 Queen City Broadcasting Co.  
**KPJM 1500 100** Prescott, Ariz.  
 Frank Mauthe, Box 852  
**KPO 680 50000** San Francisco, Calif.  
 National Broadcasting Co., Inc.  
**KPOF 880 500** Denver, Colo.  
 Pillar of Fire, 1845 Champa St.  
**KPPC 1210 50** Pasadena, Calif.  
 Pasadena Presbyterian Church.  
**KPQ 1500 100** Wenatchee, Wash.  
 Westcoast Broadcasting Co.  
**KPRC 920 1000** Houston, Texas.  
 Houston Printing Co.  
**KQV 1390 500** Pittsburgh, Pa.  
 KQV Broadcasting Co., Investment Bldg.  
**KQW 1010 500** San Jose, Calif.  
 Pacific Agricultural Foundation, Ltd.  
**KRE 1370 100** Berkeley, Calif.  
 First Congregational Church.  
**KREG 1500 100** Santa Ana, Calif.  
 The Voice of the Orange Empire, Inc.  
**KRGV 1260 500** Harlingen, Texas.  
 KRGV, Inc.  
**KRKD 1120 500** Los Angeles, Calif.  
 Fireside Broadcasting Corp.  
**KRLD 1040 10000** Dallas, Texas.  
 KRLD Radio Corp., Adolphus Hotel.  
**KRMD 1310 100** Shreveport, La.  
 Radio Station KRMD, Inc.  
**KROW 930 500** Oakland, Calif.  
 Educational Broadcasting Corp.  
**KRSC 1120 100** Seattle, Wash.  
 Radio Sales Corp., Washington Athletic Club.  
**KSAC 580 500** Manhattan, Kans.  
 State College of Agriculture.  
**KSCJ 1330 1000** Sioux City, Iowa.  
 Perkins Bros. Co., 415 Douglas St.  
**KSD 550 500** St. Louis, Mo.  
 Pultzer Publishing Co.  
**KSEI 890 250** Pocatello, Idaho.  
 Radio Service Corp., 141 S. 6th Ave.  
**KSL 1130 50000** Salt Lake City, Utah.  
 Radio Service Corp. of Utah.  
**KSO 1370 100** Des Moines, Iowa.  
 Des Moines Register & Tribune.  
**KSOO 1110 1000** Sioux Falls, S. D.  
 Sioux Falls Brdest Assn, Carpenter Hotel  
**KSTP 1460 10000** St. Paul, Minn.  
 National Battery Broadcasting Co.  
**KSUN 1200 100** Lowell, Ariz.  
 Copper Electrical Co.  
**KTAB 560 1000** San Francisco, Calif.  
 Associated Broadcasters, Inc.  
**KTAR 820 500** Phoenix, Ariz.  
 KTAR Broadcasting Co.  
**KTAT 1240 1000** Fort Worth, Texas.  
 Southwest Broadcasting Co.  
**KTBS 1450 1000** Shreveport, La.  
 Tri-State Broadcasting System.

**KTFI 1240 1000** Twin Falls, Idaho.  
 Radio Broadcasting Corp.  
**KTHS 1040 10000** Hot Springs, Ark.  
 Chamber of Commerce.  
**KTM 780 500** Los Angeles, Calif.  
 Evening Herald Pub. Co.  
**KTRH 1120 1000** Houston, Texas.  
 KTRH Broadcasting Co., Rice Hotel.  
**KTSA 1290 1000** San Antonio, Texas.  
 Southwest Broadcasting Co.  
**KTSM 1310 100** El Paso, Texas.  
 Tri-State Broadcasting Co., Inc.  
**KTUL 1400 250** Tulsa, Okla.  
 J. T. Griffin  
**KTW 1220 1000** Seattle, Wash.  
 First Presbyterian Church.  
**KUJ 1370 100** Walla Walla, Wash.  
 KUJ, Inc., Marcus Whitman Hotel.  
**KUMA 1420 100** Yuma, Ariz.  
 Dr. A. H. Schermann, Box 267.  
**KUOA 1280 1000** Fayetteville, Ark.  
 KUOA, Inc., Washington Hotel.  
**KUSD 890 500** Vermillion, S. D.  
 University of South Dakota.  
**KVI 570 500** Tacoma, Wash.  
 Puget Sound Broadcasting Co., Tacoma Hotel  
**KVL 1370 100** Seattle, Wash.  
 KVL, Inc., 5th and Virginia St.  
**KVOA 1280 500** Tucson, Ariz.  
 Arizona Broadcasting Co., Inc.  
**KVOO 1140 25000** Tulsa, Okla.  
 Southwestern Sales Corp.  
**KVOR 1270 1000** Colorado Springs, Colo.  
 S. H. Patterson  
**KVOS 1200 100** Bellingham, Wash.  
 KVOS, Inc., Bellingham Hotel.  
**KWCR 1430 250** Cedar Rapids, Iowa.  
 Cedar Rapids Broadcast Co.  
**KWEA 1210 100** Shreveport, La.  
 International Broadcasting Corp.  
**KWFF 1210 100** Hilo, Hawaii  
 Hilo Broadcasting Co., Ltd.  
**KWG 1200 100** Stockton, Calif.  
 McClatchy Newspapers, Inc.  
**KWJJ 1080 500** Portland, Ore.  
 KWJJ Broadcast Co., Inc., 328 Salmon St  
**KWK 1350 1000** St. Louis, Mo.  
 Thomas Patrick, Inc., Hotel Chase.  
**KWKC 1370 100** Kansas City, Mo  
 Wilson Duncan Broadcasting Co.  
**KWKH 850 10000** Shreveport, La.  
 International Broadcasting Corp.  
**KWLC 1270 100** Decorah, Iowa.  
 Luther College.  
**KWSC 1220 1000** Pullman, Wash.  
 State College of Washington.  
**KWTO 560 500** Springfield, Mo.  
 KGBX Inc.  
**KWWG 1280 500** Brownsville, Texas.  
 Frank P. Jackson.  
**KXA 760 250** Seattle, Wash.  
 American Radio Tel. Co., 218 Bigelow Bldg.  
**KXL 1420 100** Portland, Ore.  
 KXL Broadcasters, 269 Pine St.  
**KXO 1500 100** El Centro, Calif.  
 E. R. Irey and F. M. Bowles.  
**KXRO 1310 100** Aberdeen, Wash.  
 KXRO, Inc., Hotel Morck.  
**KXYZ 1440 250** Houston, Texas.  
 Harris County Broadcast Co.  
**KYA 1230 1000** San Francisco, Calif.  
 Pacific Broadcasting Corp.

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<b>KYW</b> 1020 10000 Chicago, Ill. Westinghouse Elec. & Mfg. Co.	<b>WAGM</b> 1420 100 Presque Isle, Me. Aroostook Broadcasting Corp.
<b>KZRM</b> 618.5 60000 Manila, P. I. Erlanger and Galinger, Inc. (KZEG)	<b>WAIU</b> 840 500 Columbus, Ohio. Associated Radiocasting Corp.
<b>LR4</b> 990 12000 Buenos Aires, Arg.	<b>WALR</b> 1210 100 Zanesville, Ohio. WALR Broadcasting Corp.
<b>LR5</b> 830 20000 Buenos Aires, Arg.	<b>WAMC</b> 1420 100 Anniston, Ala. R. C. Hammett, 1200 Noble St.
<b>NAA</b> 690 1000 Arlington, Va. United States Navy.	<b>WAML</b> 1310 100 Laurel, Miss. Southland Radio Corp.
<b>RUS</b> 664 500 San Salvador, E. S. Republic of El Salvador.	<b>WAPI</b> 1140 5000 Birmingham, Ala. WAPI Broadcasting Corp.
<b>TGW</b> 1350 600 Guatemala, Gua. Gobierno de Guatemala.	<b>WARO</b> 1400 500 Brooklyn, N. Y. United States Broadcasting Corp.
<b>TGX</b> 1380 75 Guatemala City	<b>WASH</b> 1270 500 Grand Rapids, Mich. Kunsky-Trendle Broadcasting Corp.
<b>TICR</b> 912 75 San Jose, C. R. Government of Costa Rica.	<b>WAVE</b> 940 1000 Louisville, Ky. WPIW, Inc.
<b>TIEA</b> 833 7.5 San Jose, C. R.	<b>WAWZ</b> 1350 250 Zarephath, N. J. Pillar of Fire.
<b>TIEP</b> 1450 7.5 San Jose, C. R.	<b>WAZL</b> 1420 100 Hazleton, Pa. Hazleton Broadcasting Service, Inc.
<b>TIFB</b> 714 30 San Jose, C. R.	<b>WBAA</b> 1400 500 West Lafayette, Ind. Purdue University.
<b>TIFS</b> 1441 7.5 Cartago, C. R.	<b>WBAK</b> 1430 1000 Harrisburg, Pa. Commonwealth of Pennsylvania.
<b>TIGA</b> 1014 30 Cartago, C. R.	<b>WBAL</b> 1060 10000 Baltimore, Md. Consolidated Gas, Elec. Light & Power Co
<b>TIGP</b> 800 75 San Jose, C. R. Gonzalo Pinto H. Apt. 225.	<b>WBAP</b> 800 50000 Fort Worth, Texas. Carter Publications, Inc.
<b>TIRCA</b> 1100 500 San Jose, C. R. Perry Girton, Apt. 225.	<b>WBAX</b> 1210 100 Wilkes-Barre, Pa John H. Stenger, Jr., 70 S. Main St.
<b>TISO</b> 650 250 San Jose, C. R. P. F. Saborio, Apt. 1354	<b>WBBC</b> 1400 500 Brooklyn, N. Y. Brooklyn Broadcasting Corp.
<b>TITV</b> 999 7.5 San Jose, C. R.	<b>WBBL</b> 1210 100 Richmond, Va. Grace Covenant Presbyterian Church.
<b>TIVL</b> 869 30 San Jose, C. R.	<b>WBBM</b> 770 25000 Chicago, Ill. WBBM Broadcasting Corp., Wrigley Bldg.
<b>TIXA</b> 614 7.5 San Jose, C. R. I	<b>WBBR</b> 1300 1000 Brooklyn, N. Y. Peoples Pulpit Assn.
<b>VAS</b> 685 2000 Glace Bay, N. S. Canadian Marconi Co., Ltd.	<b>WBBX</b> 1200 100 New Orleans, La. Samuel D. Reeks, Marberc Hotel.
<b>VESEK</b> 1195 10 Montmagny, Que. J. A. Marquis, P. O. Box 57	<b>WBBZ</b> 1200 100 Ponca City, Okla. C. L. Carrell.
<b>VOAC</b> 800 40 St. John's, Nfld.	<b>WBCM</b> 1410 500 Bay City, Mich. James E. Davidson, Hotel Wenonah.
<b>VOAS</b> 810 100 St. John's, N. F. Ayre & Sons, Ltd.	<b>WBEN</b> 900 1000 Buffalo, N. Y. WBEN, Inc. (Buffalo Evening News.)
<b>VOGY</b> 950 75 St. John's, N. F. Newfoundland Broadcasting Co.	<b>WBEO</b> 1310 100 Marquette, Mich. Lake Superior Broadcasting Co., Inc.
<b>VOKW</b> 1085 30 St. John's, N. F. Cyril L. Parkins.	<b>WBHS</b> 1200 100 Huntsville, Ala. Radio Station WBHS, Inc.
<b>VONF</b> 1195 400 St. John's, N. F. Dominion Broadcasting Co., Ltd., Box 1355.	<b>WBIG</b> 1440 500 Greensboro, N. C. North Carolina Broadcasting Co., Inc.
<b>VOWR</b> 700 500 St. John's, N. F. Wesley United Church, Box 157.	<b>WBNS</b> 1430 500 Columbus, O. International Bible Students Assn.
<b>WAAB</b> 1410 500 Boston, Mass. Bay State Broadcasting Corp., 1 Winter Pl.	<b>WBNX</b> 1350 250 New York, N. Y. Standard Cahill Co., Inc.
<b>WAAF</b> 920 500 Chicago, Ill. Chicago Daily Drivers Journal.	<b>WBOQ</b> 860 50000 New York, N. Y. Atlantic Broadcasting Corp.
<b>WAAT</b> 940 300 Jersey City, N. J. Bremer Broadcasting Corp., 50 Journal Sq.	<b>WBOV</b> 1310 100 Terre Haute, Ind. Banks of Wabash, Inc., 24½ S. 6th.
<b>WAAW</b> 860 500 Omaha, Neb. Omaha Grain Exchange.	<b>WBRC</b> 930 500 Birmingham, Ala. Birmingham Brilestg. Co., Inc.
<b>WABC</b> 860 50000 New York, N. Y. Atlantic Broadcasting Corp.	<b>WBRE</b> 1310 100 Wilkes-Barre, Pa. Louis G. Baltimore, 16 N. Main.
<b>WABI</b> 1200 100 Bangor, Maine. First Universalist Society.	<b>WBSO</b> 920 500 Babson Park, Mass Broadcasting Service Organization, Inc.
<b>WACO</b> 1420 100 Waco, Texas. Southwest Broadcasting Co.	<b>WBT</b> 1080 50000 Charlotte, N. C. Station WBT, Inc., Wilder Bldg.
<b>WAOC</b> 1320 1000 Akron, Ohio. Allen T. Simmons, P. O. Box 29.	<b>WBTM</b> 1370 100 Danville, Va. Piedmont Broadcasting Corp.

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<b>WBZ</b> 980 50000 Boston, Mass. Westinghouse Elec. & Mfg. Co.	<b>WDBO</b> 580 250 Orlando, Fla. Orlando Broadcasting Co., Inc.
<b>WBZA</b> 990 1000 Springfield, Mass. Westinghouse Elec. & Mfg. Co.	<b>WDEL</b> 1120 250 Wilmington, Del. WDEL, Inc., 10th and King Sts.
<b>WCAC</b> 800 500 Storrs, Conn. Connecticut State College.	<b>WDEV</b> 550 500 Waterbury, Vt. Harry C. Whitehill, Stowe St.
<b>WCAD</b> 1220 500 Canton, N. Y. St. Lawrence University.	<b>WDGY</b> 1180 1000 Minneapolis, Minn. Dr. Geo. W. Young, 909 W. Broadway.
<b>WCAE</b> 1220 1000 Pittsburgh, Pa. WCAE, Inc., Sun-Telegraph.	<b>WDOO</b> 1280 1000 Chattanooga, Tenn. WDOO Broadcasting Corp., Hotel Patten.
<b>WCAL</b> 1250 1000 Northfield, Minn. St. Olaf College.	<b>WDRC</b> 1330 1000 Hartford, Conn. WDRC, Inc., Corning Bldg., 11 Aylum St.
<b>WCAM</b> 1280 500 Camden, N. J. City of Camden, City Hall.	<b>WDSU</b> 1250 1000 New Orleans, La. Joe. H. Uhalt, On Hotel DeSoto.
<b>WCAO</b> 800 500 Baltimore, Md. Monumental Radio Co.	<b>WDZ</b> 1070 100 Tuscola, Ill. James L. Bush.
<b>WCAP</b> 1280 500 Asbury Park, N. J. Radio Industries Broadcast Co.	<b>WEAF</b> 680 50000 New York, N. Y. National Broadcasting Co., Inc.
<b>WCAT</b> 1200 100 Rapid City, S. D. South Dakota State School of Mines.	<b>WEAN</b> 780 500 Providence, R. I. Shepard Broadcasting Service, Inc.
<b>WCAU</b> 1170 50000 Philadelphia, Pa. WCAU Broadcasting Co., 1622 Chestnut.	<b>WEBC</b> 1290 1000 Superior, Wis. Head of the Lakes Broadcasting Co.
<b>WCAX</b> 1200 100 Burlington, Vt. Burlington Daily News, Inc.	<b>WEBQ</b> 1210 100 Harrisburg, Ill. Harrisburg Broadcasting Co.
<b>WCAY</b> 1070 50 Carthage, Ill. Superior Broadcasting Service, Inc.	<b>WEBR</b> 1310 100 Buffalo, N. Y. Howell Broadcasting Co., Inc., 735 Main.
<b>WCBA</b> 1440 250 Allentown, Pa. B. Bryan Musselman, 39-41 10th St. Wilbur Glenn Voliva.	<b>WEDC</b> 1210 100 Chicago, Ill. Emil Denmark, 3860 Ogden Ave.
<b>WCBD</b> 1080 5000 Zion, Ill.	<b>WEED</b> 1420 100 Greenville, N. C. Wm. Avera Wynne.
<b>WCBM</b> 1370 100 Baltimore, Md. Baltimore Broadcasting Corp.	<b>WEEL</b> 580 1000 Boston, Mass. Edison Elec. Illuminating Co.
<b>WCBS</b> 1210 100 Springfield, Ill. WCBS, Inc., 208½ S. 5th.	<b>WEEU</b> 830 1000 Reading, Pa. Berks Broadcasting Co., 533 Penn.
<b>WCCO</b> 810 50000 Minneapolis, Minn. Northwestern Broadcasting, Inc.	<b>WENC</b> 1350 500 Charlottesville, Va. Community Brdcastg. Corp.
<b>WCFL</b> 970 1500 Chicago, Ill. Chicago Federation of Labor.	<b>WEHS</b> 1420 100 Cicero, Ill. WEHS, Inc., 6138 W. 22nd St.
<b>WCKY</b> 1490 5000 Covington, Ky. L. B. Wilson, Inc.	<b>WELL</b> 1420 50 Battle Creek, Mich Enquirer News Co., 7 N. McCamly St.
<b>WCLO</b> 1200 100 Janesville, Wis. WCLO Radio Corp.	<b>WENC</b> 1420 100 Albany, Ga. Americus Broadcast Corp.
<b>WCLS</b> 1310 100 Joliet, Ill. WCLS, Inc., 301 E. Jefferson St.	<b>WENR</b> 870 50000 Chicago, Ill. Great Lakes Broadcasting Co.
<b>WCNW</b> 1500 100 Brooklyn, N. Y. Arthur Faaske, 1525 Pitkin Ave.	<b>WESQ</b> 1040 1000 Elmira, N. Y. Elmira Star Gazette, Inc.
<b>WCOA</b> 1340 500 Pensacola, Fla. Pensacola Broadcasting Co.	<b>WEVD</b> 1300 500 New York, N. Y. Jewish Daily Forward, Hotel Claridge.
<b>WCCO</b> 880 500 Meridian, Miss. Mississippi Broadcasting Co., Inc.	<b>WEW</b> 780 1000 St. Louis, Mo. St. Louis University, 221 N. Grand Blvd.
<b>WCRW</b> 1210 100 Chicago, Ill. Clinton R. White, 2756 Pine Grove Ave.	<b>WEXL</b> 1310 50 Royal Oak, Mich. Royal Oak Broadcasting Co.
<b>WCSC</b> 1360 500 Charleston, S. C. South Carolina Broadcasting Co., Inc.	<b>WFAA</b> 800 50000 Dallas, Texas. Morning News and Journal.
<b>WCSS</b> 940 1000 Portland, Me. Congress Square Hotel Co., 157 High.	<b>WFAB</b> 1300 1000 New York, N. Y. Fifth Avenue Broadcasting Corp.
<b>WDAE</b> 1220 1000 Tampa, Fla. Tampa Publishing Co., Tampa Terrace.	<b>WFAM</b> 1200 100 South Bend, Ind. South Bend Tribune, 200 W. Colfax.
<b>WDAF</b> 810 1000 Kansas City, Mo. Kansas City Star Co.	<b>WFAS</b> 1210 100 White Plains, N. Y. Westchester Broadcasting Corp.
<b>WDAQ</b> 1410 1000 Amarillo, Texas. National Radio & Broadcasting Corp.	<b>WFBC</b> 1200 100 Greenville, S. C. Greenville News-Piedmont Co.
<b>WDAH</b> 1310 100 El Paso, Texas. Tri-State Broadcasting Co., Inc.	<b>WFBE</b> 1200 100 Cincinnati, Ohio. WFBE, Inc., Hotel Sinton.
<b>WDAS</b> 1370 100 Philadelphia, Pa. WDAS Broadcastg. Co., Inc., Broadwood Hotel.	<b>WFBG</b> 1310 100 Altoona, Pa. Gable Broadcasting Co. 12th Av. & 13th St.
<b>WDAY</b> 940 1000 Fargo, N. D. WDAY, Inc., Black Bldg., 118 Broadway.	<b>WFBL</b> 1360 1000 Syracuse, N. Y. Onondaga Radio Broadcasting Corp.
<b>WDBJ</b> 930 250 Roanoke, Va. Times World Corp., 122 W. Church Ave.	<b>WFBM</b> 1230 1000 Indianapolis, Ind. Indianapolis Power & Light Co.
	<b>WFR</b> 1270 500 Baltimore, Md. Baltimore Radio Show, Inc.



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**WDFD 1310 100 Flint, Mich.**  
 Flint Broadcasting Co.  
**WFDV 1600 100 Rome, Ga.**  
 Rome Broadcasting Corp., 10 3rd Ave.  
**WFEA 1340 500 Manchester, N. H.**  
 New Hampshire Broadcasting Co.  
**WFI 580 500 Philadelphia, Pa.**  
 WFI Broadcasting Co., 801 Market.  
**WFLA 820 1000 Clearwater, Fla.**  
 Florida West Coast Broadcasting Co., Inc.  
**WGAL 1310 100 Lancaster, Pa.**  
 WGAL, Inc., 8 W. King St.  
**WGAR 1450 500 Cleveland, Ohio.**  
 WGAR Broadcasting Co., Hotel Statler.  
**WGBB 1210 100 Freeport, N. Y.**  
 H. H. Carman, 64 S. Grove St.  
**WGBF 630 500 Evansville, Ind.**  
 Evansville On the Air, Inc.  
**WGBI 880 250 Scranton, Pa.**  
 Scranton Broadcasters, Inc.  
**WGCM 1210 100 Mississippi City, Miss.**  
 Great Southern Land Co., Gulfport, Miss.  
**WGCP 1250 1000 Newark, N. J.**  
 May Radio Broadcasting Co.  
**WGES 1360 500 Chicago, Ill.**  
 Oak Leaves Broadcasting Station, Inc.  
**WGH 1310 100 Newport News, Va.**  
 Hampton Roads Broadcasting Corp.  
**WGL 1370 100 Fort Wayne, Ind.**  
 F. C. Zieg, 213 W. Main St.  
**WGLC 1370 100 Hudson Falls, N. Y.**  
 O. T. Griffin & G. F. Bissell.  
**WGN 720 50000 Chicago, Ill.**  
 WGN, Inc., Tribune Tower.  
**WGNV 1210 100 Chester, N. Y.**  
 Peter Goelet (Orange County).  
**WGR 550 1000 Buffalo, N. Y.**  
 Buffalo Broadcasting Corp.  
**WGST 890 250 Atlanta, Ga.**  
 Georgia School of Technology.  
**WGY 790 50000 Schenectady, N. Y.**  
 National Broadcasting Co., Inc.  
**WHA 940 1000 Madison, Wis.**  
 University of Wisconsin.  
**WHAD 1120 250 Milwaukee, Wis.**  
 WHAD, Inc.  
**WHAM 1150 50000 Rochester, N. Y.**  
 Stromberg-Carlson Tel. Mfg. Co.  
**WHAS 820 50000 Louisville, Ky.**  
 Courier Journal & Louisville Times.  
**WHAT 1310 100 Philadelphia, Pa.**  
 Curtis-Martin Newspapers, Inc.  
**WHAZ 1300 500 Troy, N. Y.**  
 Rensselaer Polytechnic Institute.  
**WHB 850 500 Kansas City, Mo.**  
 WIIH Broadcasting Co., Scarritt Bldg.  
**WHBC 1200 100 Canton, Ohio.**  
 Edw. P. Graham, 319 Tusce. St., W.  
**WHBD 1370 100 Mount Orab, Ohio.**  
 F. P. Moler.  
**WHBF 1210 100 Rock Island, Ill.**  
 Rock Island Broadcasting Co.  
**WHBL 1410 500 Sheboygan, Wis.**  
 Press Publishing Co.  
**WHBQ 1370 100 Memphis, Tenn.**  
 Broadcasting Sta. WNBQ, Inc., Hotel Claridge.  
**WHBU 1210 100 Anderson, Ind.**  
 Anderson Broadcasting Corp.  
**WHBY 1200 100 Green Bay, Wis.**  
 WHBY, Inc., Bellin Bldg.  
**WHDF 1370 100 Calumet, Mich.**  
 Upper Michigan Broadcasting Co.

**WHDH 830 1000 Boston, Mass.**  
 Matheson Radio Co., 62 Boylston.  
**WHDL 1420 100 Tupper Lake, N. Y.**  
 Tupper Lake Broadcasting Co.  
**WHEB 740 250 Portsmouth, N. H.**  
 Granite State Broadcasting Corp.  
**WHEC 1430 500 Rochester, N. Y.**  
 WHEC, Inc., 40 Franklin St.  
**WHEF 1500 100 Kosciusko, Miss.**  
 Atala Milling & Produce Co.  
**WHET 1370 100 Dothan, Ala.**  
 Troy Broadcasting Co.  
**WHFC 1420 100 Cicero, Ill.**  
 WHFC, Inc., 6138 W. 22nd St.  
**WHIS 1410 250 Bluefield, W. Va.**  
 Daily Telegraph Printing Co., Inc.  
**WHK 1390 1000 Cleveland, Ohio.**  
 Radio Air Service Corp.  
**WHN 1010 1000 New York, N. Y.**  
 Marcus Loew Booking Agency.  
**WHO 1000 50000 Des Moines, Iowa**  
 Central Bldg Co., 914 Walnut St.  
**WHOM 1450 250 Jersey City, N. J.**  
 New Jersey Broadcasting Corp.  
**WHP 1430 500 Harrisburg, Pa.**  
 WHP, Inc., Harrisburg Telegraph.  
**WIBA 1280 500 Madison, Wis.**  
 Badger Broadcasting Co., Inc.  
**WIBG 970 100 Glenside, Pa.**  
 WIBG, Inc., Keswick Bldg.  
**WIBM 1370 100 Jackson, Mich.**  
 WIBM, Inc., Otsego Hotel.  
**WIBU 1210 100 Poyette, Wis.**  
 Wm. C. Forrest, R. F. D. No. 3.  
**WIBW 580 1000 Topeka, Kans.**  
 Topeka Broadcasting Assn., Inc.  
**WIBX 1200 100 Utica, N. Y.**  
 WIBX, Inc., 1st Natl. Bank Bldg.  
**WICC 800 500 Bridgeport, Conn.**  
 Shepard Broadcasting Service, Inc.  
**WIL 1200 100 St. Louis, Mo.**  
 Missouri Broadcasting Corp.  
**WILL 890 250 Urbana, Ill.**  
 University of Illinois.  
**WILM 1420 100 Wilmington, Del.**  
 Delaware Broadcasting Co., Inc.  
**WIND 550 1000 Gary, Ind.**  
 Johnson-Kennedy Broadcasting Corp.  
**WINS 1180 500 New York, N. Y.**  
 American Radio News Corp.  
**WIOD 1300 1000 Miami, Fla.**  
 Isle of Dreams Broadcasting Corp.  
**WIP 610 500 Philadelphia, Pa.**  
 Pennsylvania Broadcasting Co.  
**WIS 1010 590 Columbia, S. C.**  
 Station WIS, Inc., 1811 Main St.  
**WISN 1120 250 Milwaukee, Wis.**  
 American Radio News Corp.  
**WJAC 1310 100 Johnstown, Pa.**  
 WJAC, Inc., Tribune Bldg. Annex.  
**WJAG 1080 1000 Norfolk, Ne<sup>h</sup>.**  
 Norfolk Daily News.  
**WJAR 890 500 Providence, R. I.**  
 Outlet Co., Weybossett St.  
**WJAS 1280 1000 Pittsburgh, Pa.**  
 Pittsburgh Radio Supply House.  
**WJAX 900 1000 Jacksonville, Fla.**  
 City of Jacksonville.  
**WJAY 810 500 Cleveland, Ohio.**  
 Cleveland Radio Broadcasting Corp.  
**WJBC 1200 100 LaSalle, Ill.**  
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 Monmouth Broadcasting Co., Inc.  
**WJBK 1370 50** Detroit, Mich.  
 James F. Hopkins, Inc., Curtiss Bldg.  
**WJBL 1200 100** Decatur, Ill.  
 Commodore Broadcasting, Inc.  
**WJBO 1420 100** Baton Rouge, La.  
 Baton Rouge Broadcasting Co., Inc.  
**WJBW 1200 100** New Orleans, La.  
 C. C. Carlson, 2743 Dumaine St.  
**WJBY 1210 100** Gadsden, Ala.  
 Gadsden Broadcasting Co., 112 N. 8th St  
**WJDX 1270 1000** Jackson, Miss.  
 Lamar Life Insurance Co.  
**WJEJ 1210 100** Hagerstown, Md.  
 Hagerstown Broadcasting Co., Inc.  
**WJEM 990 500** Tupelo, Miss.  
 Britl A. Rogers, Jr.  
**WJJD 1130 20000** Chicago, Ill.  
 WJJD, Inc., 201 N. Wells St.  
**WJMS 1420 100** Ironwood, Mich.  
 WJMS, Inc., St. James Hotel.  
**WJR 750 10000** Detroit, Mich.  
 WJR, Inc., Fisher Bldg.  
**WJSV 1460 10000** Washington, D. C.  
 Old Dominion Broadcasting Co.  
**WJTL 1370 100** Atlanta, Ga.  
 Oglethorpe University.  
**WJW 1210 100** Akron, Ohio.  
 WJW, Inc., 41 S. High St.  
**WJZ 760 50000** New York, N. Y.  
 National Broadcasting Co., Inc.  
**WKAQ 1240 1000** San Juan, P. R.  
 Radio Corp. of Porto Rico, P. O. Box 358  
**WKAR 1040 1000** East Lansing, Mich.  
 Michigan State College.  
**WKBB 1500 100** East Dubque, Ill.  
 Richard W. Hoffman  
**WKBC 1310 100** Birmingham, Ala.  
 R. B. Broyles, Tutwiler Hotel.  
**WKBF 1400 500** Indianapolis, Ind.  
 Indianapolis Broadcasting, Inc.  
**WKBH 1380 1000** LaCrosse, Wis.  
 WKBH, Inc., 409 Main St.  
**WKBI 1420 100** Cicero, Ill.  
 WKBI, Inc., 6138 W. 22nd St.  
**WKBN 570 500** Youngstown, Ohio.  
 WKBN Broadcasting Corp.  
**WKBO 1200 100** Harrisburg, Pa.  
 Keystone Broadcasting Corp.  
**WKBY 1500 100** Richmond, Ind.  
 Wm. O. Knox, Box 286  
**WKBW 1480 5000** Buffalo, N. Y.  
 Buffalo Broadcasting Corp.  
**WKBZ 1500 100** Ludington, Mich.  
 Karl L. Ashbacher & Sons.  
**WKEU 1500 100** LaGrange, Ga.  
 Radio Station WKEU, 906 Hill St.  
**WKFI 1210 100** Greenwood, Miss.  
 J. Pat Scully.  
**WKJC 1200 100** Lancaster, Pa.  
 Lancaster Broadcasting Service, Inc.  
**WKOK 1210 100** Sunbury, Pa.  
 Sunbury Broadcasting Co.  
**WKRC 550 1000** Cincinnati, Ohio.  
 WKRC, Inc., Hotel Almas.  
**WKY 900 1000** Oklahoma City, Okla.  
 Oklahoma Publishing Co.  
**WKZO 590 1000** Kalamazoo, Mich.  
 John E. Fetzler, Burdick Hotel.  
**WLAC 1470 5000** Nashville, Tenn.  
 Life & Casualty Insurance Co.

**WLAP 1420 100** Louisville, Ky.  
 American Broadcasting Corp. of Ky.  
**WLB 1250 1000** Minneapolis, Minn.  
 University of Minnesota.  
**WLBC 1310 100** Muncie, Ind.  
 D. A. Burton, Anthony Bldg.  
**WLBK 1420 100** Kansas City, Kans.  
 WLBK Broadcasting Co., Huron Bldg.  
**WLBL 900 2500** Stevens Point, Wis.  
 Wisconsin Dept. of Agriculture and Markets.  
**WLSW 1250 500** Erie, Pa.  
 Broadcasters of Pennsylvania, Inc.  
**WLBZ 820 500** Bangor, Me.  
 Maine Broadcasting Co., Inc., 100 Main.  
**WLEY 1370 100** Lexington, Mass.  
 Albert S. Moffat  
**WLIT 560 500** Philadelphia, Pa.  
 Lit Bros. Broadcasting System, Inc.  
**WLS 870 50000** Chicago, Ill.  
 Agricultural Broadcasting Co.  
**WLTH 1400 500** Brooklyn, N. Y.  
 Voice of Brooklyn, Inc.  
**WLVA 1370 100** Lynchburg, Va.  
 Lynchburg Broadcasting Corp.  
**WLW 700 50000** Cincinnati, Ohio.  
 Crosley Radio Corp.  
**WLWL 1100 5000** New York, N. Y.  
 Missionary Society of St. Paul.  
**WMAL 630 250** Washington, D. C.  
 National Broadcasting Co., Inc.  
**WMAQ 670 5000** Chicago, Ill.  
 National Broadcasting Co., Inc.  
**WMAS 1420 100** Springfield, Mass.  
 WMAS, Inc., Hotel Stonehaven.  
**WMAZ 1180 500** Macon, Ga.  
 Southeastern Broadcasting Co.  
**WMBC 1420 100** Detroit, Mich.  
 Michigan Broadcasting Co.  
**WMBD 1440 500** Peoria, Ill.  
 Peoria Broadcasting Co.  
**WMBG 1210 100** Richmond, Va.  
 Havens and Martin, Inc.  
**WMBH 1420 100** Joplin, Mo.  
 W. M. Robertson.  
**WMBI 1080 5000** Chicago, Ill.  
 Moody Bible Institute.  
**WMBO 1310 100** Auburn, N. Y.  
 WMBO, Inc., Metcalf Bldg.  
**WMBQ 1500 100** Brooklyn, N. Y.  
 Paul J. Gollhofer, 95 Leonard St.  
**WMBR 1370 100** Jacksonville, Fla.  
 F. J. Reynolds, 907 Florida Ave.  
**WMC 780 500** Memphis, Tenn.  
 WMC, Inc., Hotel Gayoso.  
**WMCA 570 500** New York, N. Y.  
 Knickerbocker Broadcasting Co.  
**WMEX 1500 100** Chelsea, Mass.  
 The Northern Corp.  
**WMMN 890 250** Fairmont, W. Va.  
 A. M. Rowe, Inc., 325 Main St.  
**WMPC 1500 100** Lapeer, Mich.  
 First Methodist Protestant Church.  
**WMT 600 500** Waterloo, Iowa.  
 Waterloo Broadcasting Co.  
**WNAC 1230 1000** Boston, Mass.  
 Shepard Broadcasting Service, Inc.  
**WNAD 1010 500** Norman, Okla.  
 University of Oklahoma.  
**WNAX 570 1000** Yankton, S. D.  
 The House of Gurney, Inc., 2nd and Capital St.  
**WNBF 1500 100** Binghamton, N. Y.  
 Howitt-Wood Radio Co., Inc.

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<b>WNBH 1310</b> 100 New Bedford, Mass. New Bedford Broadcasting Co.	<b>WPRO 1210</b> 100 Providence, R. I. Cherry & Webb Broadcasting Co., 15 Chestnut.
<b>WNBO 1200</b> 100 Silver Haven, Pa. John Brownlee Spriggs. (Washington, Pa.)	<b>WPTF 680</b> 5000 Raleigh, N. C. Durham Life Insurance Co.
<b>WNBR 1430</b> 500 Memphis, Tenn. Memphis Broadcasting Co., Hotel DeVoy.	<b>WQAM 660</b> 1000 Miami, Fla. Miami Broadcasting Co., Inc., 327 N. E. 1st Ave.
<b>WNBW 1200</b> 10 Carbondale, Pa. WNBW, Inc., 50 Main St., N.	<b>WQAN 880</b> 250 Scranton, Pa. Scranton Times, 149 Penn Ave.
<b>WNBX 1260</b> 250 Springfield, Vt. WNBX Broadcasting Corp., 39 Main St.	<b>WQBC 1360</b> 500 Vicksburg, Miss. Delta Broadcasting Co., Hotel Vicksburg.
<b>WNBZ 1290</b> 50 Saranac Lake, N. Y. Smith & Mace, 70 Broadway.	<b>WQDM 1370</b> 100 St. Albans, Vt. A. J. St. Antoine and E. J. Regan.
<b>WNEL 1290</b> 500 San Juan, P. R.	<b>WQDX 1210</b> 100 Thomasville, Ga. Stevens Luke, 135 E. Jackson St.
<b>WNEW 1250</b> 1000 Newark, N. J. Wodaam Corp., 1060 Broad	<b>WRAC 1370</b> 100 Williamsport, Pa. WRAC, Inc., 244 W. 4th St.
<b>WNOX 560</b> 1000 Knoxville, Tenn. WNOX, Inc.	<b>WRAM 1370</b> 100 Wilmington, N. C. Wilmington Radio Assn., Princess St.
<b>WNRA 1420</b> 100 Muscle Shoals, Ala. Kathryn Jones, P. O. Box 745, Sheffield, Ala.	<b>WRAP 1310</b> 100 Reading, Pa. Reading Broadcasting Co., 533 Penn St.
<b>WNYC 810</b> 500 New York, N. Y. Dept. of Plant and Structures.	<b>WRAX 1020</b> 250 Philadelphia, Pa. WRAX Broadcasting Co., 217 S. Broad St.
<b>WOAI 1190</b> 50000 San Antonio, Texas. Southland Industries, Inc., 1038 Navarro.	<b>WRBL 1200</b> 100 Columbus, Ga. WRBL Radio Station, Inc.
<b>WOBU 580</b> 750 Charleston, W. Va. WOBU, Inc., Ruffner Hotel.	<b>WRBX 1410</b> 250 Roanoke, Va. Richmond Development Corp.
<b>WOC 1370</b> 100 Davenport, Iowa Palmer School of Chiropractic	<b>WRC 950</b> 500 Washington, D. O. National Broadcasting Co., Inc.
<b>WOCL 1210</b> 50 Jamestown, N. Y. A. E. Newton, 840 N. Main St.	<b>WRDO 1370</b> 100 Augusta, Me. WRDO, Inc., Augusta House.
<b>WODX 1410</b> 500 Mobile, Ala. Mobile Broadcasting Corp., Battle House.	<b>WRDW 1500</b> 100 Augusta, Ga. Virgil V. Evans Co., 309 8th St.
<b>WOI 640</b> 5000 Ames, Iowa. Iowa State College.	<b>WREC 500</b> 500 Memphis, Tenn. WREC, Inc., Hotel Peabody.
<b>WOKO 1430</b> 500 Albany, N. Y. WOKO, Inc., Hotel Ten Eyck.	<b>WREN 1220</b> 1000 Lawrence, Kans. Jenny Wren Co., 8th and Vermont St.
<b>WOL 1310</b> 100 Washington, D. C. American Broadcasting Co., Annapolis Hotel.	<b>WRHM 1250</b> 1000 Minneapolis, Minn. Minnesota Broadcasting Corp., 115 E. Grant
<b>WOMT 1210</b> 100 Manitowoc, Wis. Francis M. Kadow, Box 326.	<b>WRJN 1370</b> 100 Racine, Wis. Racine Broadcasting Corp., Hotel Racine.
<b>WOOD 1270</b> 500 Grand Rapids, Mich. Kunsy-Trendle Broadcasting Corp.	<b>WROK 1410</b> 500 Rockford, Ill. Rockford Broadcasters, Inc.
<b>WOPI 1500</b> 100 Bristol, Tenn. Radiophone Broadcasting Station WOPI, Inc.	<b>WROL 1310</b> 100 Knoxville, Tenn. Stuart Broadcasting Corp., 524 S. Gay.
<b>WOQ 1300</b> 1000 Kansas City, Mo. Unity School of Christianity.	<b>WRR 1280</b> 500 Dallas, Texas. City of Dallas, Hilton Hotel.
<b>WOR 710</b> 5000 Newark, N. J. Bamberger Broadcasting Service, Inc.	<b>WRUF 830</b> 5000 Gainesville, Fla. State University.
<b>WORC 1280</b> 500 Worcester, Mass. Alfred F. Kielndienst, 60 Franklin St.	<b>WRVA 1110</b> 5000 Richmond, Va. Larus & Bro. Co., Inc., 22nd and Gary St.
<b>WORK 1000</b> 1000 York, Pa. York Broadcasting Co., 15 S. Beaver St.	<b>WSAI 1330</b> 1000 Cincinnati, Ohio. Croesley Radio Corp., 1329 Arlington.
<b>WOS 630</b> 500 Jefferson City, Mo. State Highway Control, Capitol Bldg.	<b>WSAJ 1310</b> 100 Grove City, Pa. Grove City College.
<b>WOSU 670</b> 750 Columbus, Ohio. Ohio State University.	<b>WSAN 1440</b> 250 Allentown, Pa. WSAN, Inc., 39 10th St.
<b>WOV 1130</b> 1000 New York, N. Y. International Broadcasting Corp.	<b>WSAR 1450</b> 250 Fall River, Mass. Doughty & Welch Electric Co., Inc.
<b>WOW 590</b> 1000 Omaha, Neb. Woodmen of the World, 4th and Farnam.	<b>WSAZ 1190</b> 1000 Huntington, W. Va. WSAZ, Inc., 929½ 4th Ave.
<b>WOWO 1160</b> 10000 Fort Wayne, Ind. Main Auto Supply Co., 213 W. Main.	<b>WSB 740</b> 50000 Atlanta, Ga. Atlanta Journal, 7 N. Forsyth St.
<b>WPAD 1420</b> 100 Paducah, Ky. Paducah Broadcasting Co., Inc.	<b>WSBC 1210</b> 100 Chicago, Ill. Gene T. Dyer, 1258 S. Michigan Ave.
<b>WPEN 1500</b> 100 Philadelphia, Pa. William Penn Broadcasting Co.	<b>WSBT 1230</b> 500 South Bend, Ind. South Bend Tribune.
<b>WPFB 1370</b> 100 Hattiesburg, Miss. Otis P. Eure, Box 530.	<b>WSEN 1210</b> 100 Columbus, Ohio. Columbus Broadcasting Corp., 144 S. High.
<b>WPG 1100</b> 5000 Atlantic City, N. J. Columbia Broadcasting System.	<b>WSFA 1410</b> 500 Montgomery, Ala. Montgomery Brdg. Co., Inc., Jeff. Dav. H'l.
<b>WPHR 1200</b> 100 Petersburg, Va. WLBG, Inc., Medical Arts Bldg.	<b>WSIX 1210</b> 100 Springfield, Tenn. 638 Tire & Vulcanizing Co.

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<b>WSJS 1310 100</b> Winston-Salem, N. C. Winston-Salem Journal Co., 416 N. Marshall.	<b>WXYZ 1240 1000</b> Detroit, Mich. Kunsky-Trendle Broadcasting Corp.
<b>WSM 850 50000</b> Nashville, Tenn. National Life & Accident Insurance Co.	<b>XEA 1000 250</b> Guadalupe, Jal. Alberto Pinos Souza. Juan Manuel 383
<b>WSMB 1320 500</b> New Orleans, La. WSMB, Inc., Malson Blanche Bldg.	<b>XEAB 1450 7.5</b> Nuevo Laredo, Tams. Homberto Garcia.
<b>WSMK 1380 200</b> Dayton, Ohio. S. M. Krohn, Jr., 4th and Main St.	<b>XEAC 1295 100</b> San Luis Potosi, S.L.P. Francisco de P. Cabrera.
<b>WSOC 1219 100</b> Charlotte, N. C. WSOC, Inc., Box 730.	<b>XEAE 980 800</b> Tijuana, B. C. Adolfo Labatida, Jr., Ave. D 542.
<b>WSPA 1420 100</b> Spartanburg, S. C. Virgil V. Evans, Ravenel and Avant St.	<b>XEAF 990 750</b> Nogales, Son. Manuel Mascareñas M., Hotel Central.
<b>WSPD 1240 1000</b> Toledo, Ohio. Toledo Broadcasting Co., 505 Jefferson	<b>XEAI 1090 100</b> Mexico City, D. F. Carlos Gonzales Caballero, Insurgentes 360.
<b>WSUI 880 500</b> Iowa City, Iowa. State University of Iowa.	<b>XEAO 580 100</b> Mexicali, B. C. Luis L. Castro, C. Altamirano 156.
<b>WSUN 820 1000</b> St. Petersburg, Fla. Florida Westcoast Broadcasting Co., Inc.	<b>XEAW 985 10000</b> Reynosa, Tams. Internacional Broadcasting Co., S. A.
<b>WSVS 1370 60</b> Buffalo, N. Y. Seneca Vocational High School.	<b>XEB 1030 10000</b> Mexico City, D. F. El Buen Tono, S. A., Buen Tono No. 6
<b>WSYB 1500 100</b> Rutland, Vt. Phillip Welas Music Co., 80 West St.	<b>XEBC 820 7600</b> Agua Caliente, B.C. Agua Caliente Spa
<b>WSYR 570 250</b> Syracuse, N. Y. Central New York Broadcasting Corp.	<b>XEC 1000 50</b> Toluca, D. F. Jesus R. Benavides, Independencia 76.
<b>WTAD 1440 500</b> Quincy, Ill. Illinois Broadcasting Corp., State and 6th.	<b>XED 1155 500</b> Guadalajara, Jal. Radiofonografica de Guadalajara, S. A.
<b>WTAG 680 750</b> Worcester, Mass. Worcester Telegram Publishing Co.	<b>XEF 735 150000</b> Villa Acuna, Coah. Compania Radiodifusora de Acuna, S. A.
<b>WTAM 1070 50000</b> Cleveland, Ohio. National Broadcasting Co., Inc.	<b>XEFA 1250 500</b> Mexico City, D. F. Eduardo Limon Segui, Mediterraneo 236
<b>WTAQ 1330 1000</b> Eau Claire, Wis. Gillette Rubber Co., Hotel Eau Claire.	<b>XEFB 1315 100</b> Monterrey, N. L. Jesus Quintanilla, 5 de Mayo Oriente 112.
<b>WTAR 780 500</b> Norfolk, Va. WTAR Radio Corp., Walnwright Bldg.	<b>XEFC 1050 100</b> Merida, Yuc. J. Molina Font, Calle 59, 517.
<b>WTAW 1120 500</b> College Station, Texas. Agricultural and Mechanical College.	<b>XEFE 985 100</b> Laredo, Tams. Rafael T. Carranza.
<b>WTAX 1210 100</b> Springfield, Ill. WTAX, Inc., 416 E. Capitol Ave.	<b>XEFG 1085 500</b> Mexico City, D. F. Ricardo Gonzales Montero, Tepic 48
<b>WTBO 1420 100</b> Cumberland, Md. Associated Broadcasting Corp., Box 794.	<b>XEFI 1260 250</b> Chihuahua, Chih. Fellofano Lopez Isles, Ap. 157.
<b>WTEL 1310 100</b> Philadelphia, Pa. Foulkrod Radio Engineering Co., Inc.	<b>XEFJ 1000 100</b> Monterrey, N. L. R. Junco de la Vega, C. Morelos Oriente 759.
<b>WTFI 1450 500</b> Athens, Ga. Liberty Broadcasting Co., Costa Bldg.	<b>XEFO 940 5000</b> Mexico City, D. F. Partido Nacional Revolucionario.
<b>WTIC 1060 50000</b> Hartford, Conn. Travelers Broadcasting Service Corp.	<b>XEFS 1000 40</b> Queretaro, Qre. Salvador Sanchez, Calle Montes 23.
<b>WTJS 1310 100</b> Jackson, Tenn. Sun Publishing Co., Sun Bldg.	<b>XEFV 1400 100</b> Jaurez, Chih. J. Onofre Meza, Ave. Laredo Norte 521.
<b>WTMJ 620 1000</b> Milwaukee, Wis. The Journal Co., 333 W. State St.	<b>XEFW 1280 70</b> Tampico, Tams. J. Expedito Martinez, C. Madero Poniente 19.
<b>WTNJ 1280 500</b> Trenton, N. J. Trenton Broadcasting Co., Stacy Trent Hotel	<b>XEFZ 1370 100</b> Mexico City, D. F. Manuel Zetina
<b>WTOC 1250 500</b> Savannah, Ga. Savannah Broadcasting Co., Inc., DeSoto Hotel.	<b>XEH 1132 250</b> Monterrey, N. L. Tarnava y Cia, P. Mier 215.
<b>WTRC 1310 50</b> Elkhart, Ind. Truth Radio Corp., Hotel Elkhart.	<b>XEI 1310 250</b> Morelia, Mich. Carlos Gutierrez M., F. I. Madero 545
<b>WVFW 1400 500</b> Brooklyn, N. Y. Paramount Bdstg. Co., 1 Nevins St.	<b>XEJ 1015 500</b> Juares, Chih. Juan G. Buttner, Ave. Lerdo 309.
<b>WWAE 1200 100</b> Hammond, Ind. Hammond Calumet Broadcasting Corp.	<b>XEK 990 100</b> Mexico City, D. F. Arturo Martinez. Jalapa No. 51
<b>WWJ 920 1000</b> Detroit, Mich. Evening News Assn., 616 Lafayette Blvd.	<b>XEL 1000 40</b> Saltillo, Coah. Antonio Garza Castro, Aldama 59
<b>WWL 850 10000</b> New Orleans, La. Loyola University, Roosevelt Hotel.	<b>XEN 711 1000</b> Mexico City, D. F. Cerveceria Modelo S. A., Motolinia 22.
<b>WWNC 570 1000</b> Asheville, N. C. Citizen Broadcasting Co., Inc., Flatiron Bldg.	<b>XENT 1115 18500</b> Nuevo Laredo, Tams. Cia Industrial Universi S. A., Apt. 47.
<b>WWRL 1500 100</b> Woodside, N. Y. Long Island Broadcasting Corp.	<b>XEO 940 5000</b> Mexico City, D. F. Partido Nacional Revolucionario.
<b>WWSW 1500 100</b> Pittsburgh, Pa. Walker & Downing Radio Corp.	<b>XEOK 760 2500</b> Tijuana, B. C. Carlos de la Sierra
<b>WWVA 1160 5000</b> Wheeling, W. Va. West Virginia Broadcasting Corp.	<b>XEP 780 500</b> Mexico City, D. F. Cia Difusora de Mexico S. A., Durango 74.

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<b>XEPN 585 75000</b> Piedras Negras, Coah. Piedras Negras Broadcasting Co.	<b>XEYZ 760 10000</b> Mexico City, D. F. Angel M. Diaz, Ave. Juarez 48.
<b>XER 735 150000</b> Villa Acuna, Coah. Compania Radiodifusora de Acuna, S. A.	<b>XEZ 830 500</b> Merida, Yuc. Bartolome Garcia Correa, Calle 58 No. 487.
<b>XES 1020 250</b> Tampica, Tama. Fernando Sada, Hotel Inglaterra.	<b>XFB 1290 1000</b> Jalapa, Ver. Gobierno del Estado de Veracruz.
<b>XET 890 500</b> Monterrey, N. L. Cadena Radiodifusora Mexicana, S. A.	<b>XFC 805 350</b> Aguascalientes, Ags. Gobierno del Estado de Aguascalientes.
<b>XETB 1380 125</b> Torreon, Coah. Jose A. Berumen, R. Corona 317.	<b>XFG 638.3 2000</b> Mexico City, D. F. Secretaria de Guerra y Marina.
<b>XETH 860 100</b> Puebla, Pue. Ramon Huerta G., Calle 17, Oriente 6.	<b>XFO 940 5000</b> Mexico City, D. F. National Revolucionario Party.
<b>XETU 890 100</b> Pachuca, Hdgo. Benito Castillo	<b>XFX 940 500</b> Mexico City, D. F. Secretaria de Educacion Publica.
<b>XETW 830 500</b> Mexico City, D. F. Rafael M. Pena, Gante 4. 3er piso	<b>YV1BC 950 6000</b> Caracas, Venez Cla Ama Alamacen Americana. Apt. 290
<b>XETZ 1210 500</b> Mexico City, D. F. Jose Alvarez del Villar, 92 Londres 190.	<b>YV2BC 882 100</b> Caracas, Venez.
<b>XEU 1010 100</b> Veracruz, Ver. Fernando Pazos Sosa, Vicario 12.	<b>YV3BC 1200 1000</b> Caracas, Venez. Degwitz & Sibless.
<b>XEW 910 5000</b> Mexico City, D. F. Cadena Radiodifusora Mexicana S. A.	<b>10-AK 1200 15</b> Stratford, Ont. M. I. Higgins, 151 Ontario St.
<b>XEWV 1095 250</b> Veracruz, Ver. Ehaston Silva, Ave. Independencia 57	<b>10-BP 1200 15</b> Wingham, Ont. W. T. Crulckshank.
<b>XEX 630 50</b> Monterrey, N. L. Luis F. Petit Jean, Aldama 932 Sur.	<b>10-BQ 1200 15</b> Brantford, Ont. Tom and Harold Brown.
<b>XEY 548.9 10</b> Merida, Yuc. Partido Socialista del Surest.	<b>10-BU 1200 15</b> Canora, Sask. Canora Radio Assn.

## SHORT WAVE RELAY BROADCASTING STATIONS OF NORTH AMERICA

Arranged Alphabetically by the call letters of the Broadcasting Stations which they relay. The frequencies preceded by an asterisk are not in operation at the present time.

<b>CFBO, St. John, N. B.</b> <b>VE9BJ, St. John, N. B.</b> 6,090 kcs., 49.23 meters	<b>CKFC, Vancouver, B. C.</b> <b>VE9CA, Vancouver, B. C.</b> 6,070 kcs., 49.39 meters	<b>WCFL, Chicago, Ill.</b> <b>W9XAA, Chicago, Ill.</b> *17,780 kcs., 16.86 meters *11,840 kcs., 25.32 meters 6,080 kcs., 49.31 meters
<b>CFCF, Montreal, P. Q.</b> <b>VE9DR, Montreal, P. Q.</b> *15,130 kcs., 19.82 meters *11,780 kcs., 25.45 meters * 9,555 kcs., 31.38 meters 6,005 kcs., 49.93 meters	<b>CKIC, Wolfville, N. S.</b> <b>VE9CX, Wolfville, N. S.</b> * 6.015 kcs., 49.85 meters	<b>WEEI, Boston, Mass.</b> <b>WIXAL, Boston, Mass.</b> 15,242 kcs., 19.67 meters 11,780 kcs., 25.45 meters
<b>CFCN, Calgary, Alta.</b> <b>VE9CA, Calgary, Alta.</b> *11,860 kcs., 25.28 meters * 6,030 kcs., 49.72 meters	<b>CRCT, Toronto, Ont.</b> <b>VE9GW, Bowmanville, Ont.</b> *24,380 kcs., 12.30 meters *11,810 kcs., 25.39 meters 6,095 kcs., 49.19 meters	<b>WENR, Chicago, Ill.</b> <b>W9XF, Downer's Grove, Ill.</b> 6,100 kcs., 49.15 meters
<b>CFCY, Charlottetown, P. E. I.</b> <b>VE9EH, Charlottetown, P. E. I.</b> * 6,080 kcs., 49.31 meters	<b>KDKA, Pittsburgh, Pa.</b> <b>W8XK, Saxonburg, Pa.</b> 21,540 kcs., 13.92 meters *17,780 kcs., 16.86 meters 15,210 kcs., 19.71 meters 11,870 kcs., 25.25 meters * 9,570 kcs., 31.33 meters 6,140 kcs., 48.83 meters	<b>WGY, Schenectady, N. Y.</b> <b>W2XAD, Schenectady, N. Y.</b> 15,340 kcs., 19.55 meters
<b>CHNS, Halifax, N. S.</b> <b>VE9HX, Halifax, N. S.</b> *11,835 kcs., 25.33 meters 6,110 kcs., 49.07 meters	<b>WABC, New York, N. Y.</b> <b>W2XE, Wayne, N. J.</b> 15,280 kcs., 19.62 meters 11,840 kcs., 25.32 meters 6,120 kcs., 48.99 meters	<b>WGY, Schenectady, N. Y.</b> <b>W2XAF, Schenectady, N. Y.</b> 9,530 kcs., 31.46 meters
<b>CJRC, Fleming, Sask.</b> <b>VE9CL, Middlechurch, Man.</b> * 6,150 kcs., 48.73 meters	<b>WBZ, Boston, Mass.</b> <b>WBZA, Springfield, Mass.</b> <b>WIXAZ, Millis, Mass.</b> 9,570 kcs., 31.33 meters	<b>WIOD, Miami, Fla.</b> <b>W4XB, Miami Beach, Fla.</b> * 6,036 kcs., 49.67 meters
<b>CJRC, Fleming, Sask.</b> <b>VE9JR, Middlechurch, Man.</b> 11,720 kcs., 25.58 meters	<b>WCAU, Philadelphia, Pa.</b> <b>W3XAU, Byberry, Pa.</b> 9,580 kcs., 31.26 meters 6,060 kcs., 49.48 meters	<b>WJZ, New York, N. Y.</b> <b>W3XAL, Boundbrook, N. J.</b> 17,772 kcs., 16.87 meters 6,100 kcs., 49.15 meters
<b>CKCL, Toronto, Ont.</b> <b>VE9AO, Toronto, Ont.</b>		<b>WJZ, New York, N. Y.</b> <b>W3XL, Boundbrook, N. J.</b> 6,425 kcs., 46.66 meters
		<b>WLW, Cincinnati, Ohio.</b> <b>WBXAL, Mason, Ohio.</b> 6,060 kcs., 49.48 meters

# AROUND *the* CLOCK on *the* SHORT WAVES

MIDNIGHT TO NOON (EST)

GMT	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00
AST	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00
EST	12:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00
CST	11:00	12:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00
MST	10:00	11:00	12:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00
PST	9:00	10:00	11:00	12:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00
	W3XAU W8XK W9XF	VK2ME W9XF	GSD GSF VK2ME	GSD GSF RV15 VQ7LO	GSD GSF PK1WK RV15 VQ7LO	HVJ J1AA RV15 VK2ME VK3ME PK1WK VQ7LO	J1AA RV15 VK2ME ZGE	EAR58 GSE GSG PHI Rabat RV15 VE9DR VE9GW VK2ME W1XAZ W8XK ZGE	DJB DJD DJD GSE GSG PHI Pont. Rabat VE9DR VE9GW VK2ME W1XAZ W8XK YV2AM ZGE	CP5 DJB DJD GSB GSE PHI Pont. VE9DR VE9GW VE9JR VK2ME W1XAZ W3XAL W8XK YV2AM	CP5 DJB DJD GSB GSE Pont. VE9DR VE9GW W1XAZ W1XAZ W8XK W3XAL	GSA GSB I2RO Pont. VE9DR VE9GW W1XAL W1XAZ W2XE W8XK

NOON TO MIDNIGHT (EST)

GMT	17:00	18:00	19:00	20:00	21:00	22:00	23:00	24:00	1:00	2:00	3:00	4:00
AST	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00
EST	12:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00
CST	11:00	12:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00
MST	10:00	11:00	12:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00
PST	9:00	10:00	11:00	12:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00
	GSA GSB I2RO Pont. VE9DR VE9GW VE9JR W1XAL W1XAZ W2XE W3XAL W3XAU W8XK	GSB GSD I2RO Pont. RNE VE9DR VE9GW VE9JR W1XAZ W3XAL W3XAU W8XK W9XF	GSA GSB I2RO OXY Rabat VE9DR VE9GW VE9JR W1XAZ W3XAL W3XAU W8XK W9XF	GSA GSB HAT I2RO OXY Pont. Rabat RV59 VE9DR VE9GW VE9JR W1XAZ W2XE W3XAL W3XAU W8XK	CT1AA GSA GSB I2RO OXY Pont. Rabat RV59 VE9DR VE9GW VE9HX W1XAL W1XAZ W2XE W3XAL W3XAU W8XK W9XF YV3BC	CT1AA EAQ GSA GSB HBL HBP HIZ I2RO OXY Pont. RV59 VE9DR VE9GW VE9HX W1XAL W1XAZ W2XE W3XAL W3XAU W8XK W9XF YV3BC	COC CP5 CT1AA EAQ GSA GSC HC2RL HBL HBP HC2RL HJ1ABB OXY PSK Pont. VE9DR VE9GW VE9HX W1XAL W1XAZ W2XE W3XAL W3XAU W8XK W9XF XETE YV1BC YV3BC	COC CP5 EAQ GSA GSC HC2RL HJ1ABB HJ2ABA HJ4ABE OCM PSK Pont. VE9DR VE9GW VE9HX VE9JR W1XAL W2XAF W2XE W3XAL W3XAU W8XK W9XF XETE YV1BC YV3BC	CP5 DJC G6RX HCJB HIX HJ1ABB 2ABA 4ABB 4ABE Pont. VE9DR VE9GW VE9JR W1XAL W2XAF W2XE W3XAL W3XAU W8XK XETE YV1BC YV3BC	CP5 DJC G6RX HCJB HC2RL HIX HJ1ABB HJ2ABA HJ3ABD HJ4ABE HKN PRADO VE9DR VE9GW VE9JR W1XAL W2XAF W2XE W3XAL W3XAU W8XK XETE YV1BC YV3BC	CP5 DJC HC2RL HJ Pont. 3ABD PRADO VE9DR VE9GW VE9HX VE9JR W1XAL W1XAZ W2XAF W2XE W3XAL W3XAU W8XK XETE	CP5 HJ 4ABB Pont. VE9DR W1XAL W3XAL W3XAU W8XK XETE

# One Hundred Best S. W. Stations by Calls

Stations marked with an asterisk (\*) will not verify. Frequencies are given in megacycles. Times are given in Eastern Standard.

- \*British Ships, 13.220, 8.831, 4.174  
 \*CEC, Chile, 19.678, 15.855  
 CGA, Canada, 13.296, 9.340  
 CNR, Morocco, 12.820  
 COC, Cuba, 5.996  
 CP5, Bolivia, 15.300. 9-11 a.m.  
 CP5, Bolivia, 6.081. 6:30 to 7:30 or 8 p.m., daily, exc. Sun.; 9-11:30 p.m. daily  
 CT1AA, Portugal, 9.592. Tues. and Fri., 4:30-7 p.m.  
 CT3AQ, Madeira, Tues., Thurs., 5-6:30 p.m.; Sun. 10:30 a.m.-noon.  
 DAF, Germany, 12.394  
 DFB, Germany, 17.512  
 DIQ, Germany, 10.285  
 DJA, Germany, 9.552  
 DJB, Germany, 15.190. 8-11 a.m.  
 DJC, Germany, 6.017. 8-11 p.m.  
 DJD, Germany, 11.753. 8-11 a.m.  
 DJL, Germany, 15.110  
 EAQ, Spain, 9.862. 5:30-8 p.m.  
 EHY, Spain, 10.164  
 FTK, France, 15.863  
 FTM, France, 19.282  
 FZS, Indo-China, 11.983  
 \*German Ships, 13.135, 10.163, 8.328, 4.174  
 GAS, England, 18.304  
 GBB, England, 13.500  
 GBS, England, 12.148  
 GBW, England, 14.450  
 GSA, England, 6.050. 6-8 p.m.; 11 a.m.-1 p.m.; 2:45-5:45 p.m.  
 GSB, England, 9.510. 9 a.m.-1 p.m.; 1:15-5:45 p.m.  
 GSC, England, 9.585. 6-8 p.m.  
 GSD, England, 11.750. 2:30-4:30 a.m.; 1:15-2:45 p.m.  
 GSE, England, 11.865. 7-8:45 a.m.; 9-11 a.m.  
 GSF, England, 15.140. 2:30-4:30 a.m.; 9-11 a.m.  
 GSG, England 17.770. 7 to 8:45 a.m.  
 G8RX, England, 4.972. Testing nights 4:30-10 p.m.  
 HAT, Hungary, 7.220. Tests Sunday, 4 p.m.  
 HBL, Switzerland, 9.580. Sat., 5:30 to 6:15 p.m.  
 HBP, Switzerland, 7.872. Sat., 5:30 to 6:15 p.m.  
 HC2RL, Ecuador, 6.659. Tues., 9:14 to 11:14 p.m.; Sun., 5:45 to 7:45 p.m.  
 HC3J, Ecuador, 3.998. 8:14 to 10:14 daily, exc. Mon.  
 HCK, Ecuador, 5.694. 8 to 11 p.m.  
 HIX, Santo Domingo, 5.948. Tues. and Fri., 8 to 10 p.m.; Sun., 7:40 a.m.  
 HIZ, Santo Domingo, 6.379. 5-6 p.m.  
 HI-1-A, Santo Domingo, 6.272. 8-8:30 a.m.; 12:30-1:30 p.m.; 8-9 p.m.  
 \*HJB, Colombia, 14.930  
 \*HJY, Colombia, 18.444  
 HJ1ABB, Colombia, 6.447. 5 to 10 p.m.  
 HJ2ABA, Colombia, 5.879. 7:30 to 10 p.m.  
 HJ3ABD, Colombia, 7.402. 9-11:15 p.m., daily  
 HJ4ABB, Colombia, 7.139. Sat., 11 p.m. to Mid.; Sun. 3-5 p.m.; Wed., 8-10 p.m.  
 HJ4ABE, Colombia, 5.900. 7-11 p.m.  
 HJ5ABB, Colombia, 6.378  
 HJ5ABF, Colombia, 8.271  
 HKN, Colombia, 7.138. 8-10 p.m., daily  
 \*HPF, Panama, 14.545.  
 HSP, Siam, 17.719  
 HVJ, Vatican City, 15.120. 5 to 5:15 a.m.  
 IAC, Italy, 12.785  
 I2RO, Italy, 11.800. 11:30 a.m. to 12:30 p.m.; 1:15 to 6 p.m.  
 J1AA, Japan, 9.862. 5 to 8 a.m.  
 KAY, Philippines, 14.980  
 KAZ, Philippines, 9.990  
 \*KKP, Hawaii, 16.024  
 LSN, Argentina, 9.895  
 LSX, Argentina, 10.345  
 LSY, Argentina, 18.116  
 \*OCI, Peru, 18.670  
 OXY, Denmark, 9.520. 2 to 6:30 p.m.  
 PHI, Holland, 11.725. 7:30 to 10 a.m., except Tues. and Wed.  
 PK1WK, Java, 6.116. 4:15-6 a.m.  
 PLE, Java, 18.820  
 PLV, Java, 9.410  
 Pontoise, France, 15.454  
 Pontoise, France, 15.234. 8-11 a.m.  
 11.898. 11:15 a.m. to 2:15 p.m.; 8 to 10 p.m.  
 11.711. 3 to 9 p.m.; 10 p.m. to mid.  
 \*PPU, Brazil, 19.270  
 PRADO, Ecuador, 6.618. Thursday, 9-11 p.m.  
 \*PSF, Brazil, 14.682  
 Rabat, Morocco, 12.820. Sun, 7:30 to 9 a.m.  
 8.218. Sun. 2:30 to 5 p.m.  
 Radio-Tarararive, Madagascar, 6.000. 2:30-4 a.m., Sun. 3-3:45 a.m., daily exc. Sun. and Mon.  
 RNE, USSR., 11.923. Testing Irregularly  
 RV15, Siberia, 4.273. 3-9 a.m., daily  
 RV59, USSR., 5.996. 3-6 p.m., daily  
 SRL, Poland, 9.488. 1-3 p.m., Tues.; 8-9 a.m., Wed.  
 TGA, Guatemala, 14.545  
 TIN-TIU, Costa Rica, 14.545  
 T14NRH, Costa Rica, 9.670.  
 UOR2, Austria, 6.072. 8:30-9 a.m.; 10 a.m.-1 p.m. and 2-4 p.m. on Tuesdays.  
 UOR3, Austria, 11.800  
 VE9AO, Toronto, Canada.  
 VE9BJ, Canada, 6.090. Irreg.  
 VE9CA, Canada, 6.030.  
 VE9CS, Canada, 6.074. 8-10 p.m.  
 VE9DR, Canada, 6.005. 7:30 a.m. to Midnight; Sun. noon to 11:15 p.m.  
 VE9GW, Canada, 6.092. 3 p.m.-midnight  
 VE9HX, Canada, 6.110. 5-11 p.m., daily  
 VE9JR, Canada, 11.720. Irreg., approx. 9:30 a.m.-10:30 p.m.  
 VK2ME, Australia, 10.520.  
 9.585. Sun., 1 to 3 a.m.; 5 to 11 a.m.  
 VK3ME, Australia, 9.503. Wed., 5-6:30 a.m.; Sat., 5-7 a.m.  
 VWZ, India, 17.533  
 \*WNC, U. S. A., 15.055  
 W1XAL, U. S. A., 15.242. Sunday, 10 a.m.-1 p.m.  
 11.780. Sat., 5:30-11 p.m.; Sun., 6:30-8:30 p.m.  
 W1XAZ, USA, 9.570  
 W2XAD, USA, 15.320. Sun., Mon., Wed., Fri., 4-5 p.m.  
 W2XAF, USA, 9.530. 7:45 to 11 p.m.  
 W2XE, U. S. A., 15.258. 11 a.m. to 1 p.m.  
 11.823. 3 to 5 p.m.  
 6.116. 6 to 11 a.m.  
 W3XAL U. S. A., 17.772. 9 a.m.-3 p.m., except Sat., 6:096 3 p.m. to midnight, Saturday  
 W3XAU, USA, 9.585. Noon to 6 p.m.  
 6.057. 8 p.m. to 1 a.m.  
 W3XL U. S. A., 6.421. Irregular  
 W8XK, U. S. A., 21.451. 7 a.m. to 2 p.m.  
 15.204. 10 a.m. to 4:15 p.m.  
 11.870 4:30-10 p.m.  
 6.140. 4:30 p.m. to 12:30 a.m.  
 W9XAA, U. S. A., 6.076. 3 to 6 p.m.  
 W9XF, U. S. A., 6.425  
 W9XF, U. S. A., 6.100. Silent Sat.; Sun, 1-2:30 p.m.; 4:30-7 p.m.; 9 p.m. to 2 a.m.; other days, 4:30-8 p.m.; 9:30 p.m. to 2 a.m.  
 XAM, Mexico, 11.187  
 XDS, Mexico, 11.760  
 XETE, Mexico, 9.600. 2:30-5 p.m.; 6:30 p.m. to midnight  
 \*YNA, Nicaragua, 14.480. Phones Hialeah.  
 \*YVQ, Venezuela, 13.337. Phones Hialeah  
 \*YVR, Venezuela, 18.296 and 9.168  
 YV1BC, Venezuela, 6.112. 5:15 to 10 p.m.  
 YV2AM, Venezuela, 7.138. Sun., 8-10 a.m.  
 YV3BC, Venezuela, 9.510. 9:30 to 10 p.m.  
 6.150. 10:30 a.m. to 1 p.m. and 4:30-9:30 p.m.; Sun., 8:30 a.m. to noon and 3-6:30 p.m.  
 \*ZFA, Bermuda, 5.045  
 \*ZFB, Bermuda, 10.060  
 ZFS, Bahamas, 4.513.  
 ZGE, Malaya, 5.996. Tues., Fri., 6:30-8:30 a.m. and Sun., 7-9 a.m.

# The World Short Wave Stations

(Continued from page 49)

Megs.	Meters	Megs.	Meters	Megs.	Meters
9.503	31.55	10.335	29.01	12.780	23.46
VK3ME, Melbourne, Australia		ZPD, Hamilton, Bermuda		GBC, Rugby, England	
9.510	31.53	10.345	28.98	12.785	23.45
GSB, Daventry, England		LSX, Buenos Aires, Argentina		IAC, Coltano, Italy	
YV3BC, Caracas, Venez.		10.410	28.80	12.820	23.38
9.520	31.49	PDK, Kootwijk, Holland		CNR, Rabat, Morocco	
OXY, Skamlebaek, Denmark		UIG(?), Medan, Sumatra		13.074	22.94
9.530	31.46	10.435	28.73	JIAA, Kemikawa-Cho, Japan	
W2XAF, Schenectady, N. Y.		EHZ, El Tablero, Canary Isl.		13.135	23.00
9.552	31.38	10.520	28.50	German Ships	
DJA, Zessen, Germany		VK2ME, Sydney, Australia		13.220	22.68
9.570	31.33	10.613	28.25	British Ships	
W1XAZ, Millis, Mass.		EDN, Madrid, Spain		13.296	22.55
W8XK, Pittsburgh, Pa.		EDX, Madrid, Spain		CGA, Drummondville, P. Q.	
9.580	31.30	10.664	28.12	13.337	22.48
HBL, Geneva, Switzerland		CEC, La Granja, Chile		YVQ, Maracay, Venezuela	
9.585	31.28	10.761	27.86	13.500	22.09
GSC, Daventry, England		GBP, Rugby, England		GBB, Rugby, England	
VK2ME, Sydney, Australia		10.962	27.35	13.671	21.93
9.590	31.26	OCI, Valverde, Peru		HAS, Budapest, Hungary	
W3XAU, Philadelphia, Pa.		11.111	26.98	13.740	21.82
9.592	31.25	XFD, Mexico City, D. F.		CGA, Drummondville, P. Q.	
CT1AA, Lisbon, Portugal		11.174	26.83	13.816	21.70
9.600	31.23	CT3AQ, Funchal, Madeira		SUZ, Abu-Zabal, Egypt	
LQA, Buenos Aires, Argentina		11.187	26.80	13.984	21.44
XETE, Mexico City, D. F.		XAM, Merida, Yucatan		GBA, Rugby, England	
9.609	31.20	11.360	26.39	14.450	20.75
DGU, Nauen, Germany		11.644	25.75	GBW, Rugby, England	
9.670	31.00	PPQ, Rio de Janeiro, Brazil		14.480	20.70
TI4NRH, Heredia, Costa Rica		11.680	25.67	LSN, Buenos Aires, Argentina	
9.702	30.90	YVQ, Maracay, Venezuela		14.480	20.70
GCA, Rugby, England		11.711	25.60	YNA, Managua, Nicaragua	
LQA, Buenos Aires, Argentina		Pontoise, France		LSA, Buenos Aires, Argentina	
9.750	30.75	11.720	25.58	14.545	20.69
VK2ME, Sydney, Australia		VE9JR, Winnipeg, Man.		HPF, Panama City, Panama	
9.772	30.68	11.725	25.57	TGA, Guatemala City, Guat.	
EAM, Madrid, Spain		PHI, Huizen, Holland		TIN, Cartago, Costa Rica	
9.798	30.60	11.750	25.51	TIU, Cartago, Costa Rica	
GCW, Rugby, England		GSD, Daventry, England		14.550	20.60
9.823	30.52	11.753	25.51	HBJ, Geneva, Switzerland	
IRM, Rome, Italy		DJD, Zessen, Germany		14.630	20.50
9.830	30.50	11.760	25.50	XDA, Mexico City, D. F.	
LSI, Buenos Aires, Argentina		XDM, Mexico City, D. F.		14.682	20.42
9.840	30.47	XDS, Torreon, Coab.		PSF, Rio de Janeiro, Brazil	
FTI, Ste. Assise, France		11.780	25.45	14.930	20.08
9.862	30.40	W1XAL, Boston, Mass.		HJB, Bogota, Colombia	
EAQ, Madrid, Spain		11.800	25.40	14.969	20.03
JIAA, Kemikawa-Cho, Japan		I2RO, Rome, Italy		EDQ, Madrid, Spain	
9.890	30.32	OER3, Vienna, Austria		15.104	19.85
LSA, Buenos Aires, Argentina		11.810	25.39	RAU, Tashkent, USSR.	
9.895	30.30	VE9GW, Toronto, Ont.		15.110	19.84
LSN, Buenos Aires, Argentina		11.840	25.32	DJL, Zessen, Germany	
9.928	30.20	W3XE, Wayne, N. J.		15.120	19.83
HJY, Bogota, Colombia		11.865	25.27	HVJ, Vatican City	
9.942	30.15	GSE, Daventry, England		15.140	19.81
GCU, Rugby, England		11.870	25.25	GSP, Daventry, England	
9.993	30.00	W8XK, Pittsburgh, Pa.		15.190	19.73
LSL, Buenos Aires, Argentina		11.898	25.20	DJB, Zessen, Germany	
10.014	29.84	Pontoise, France		15.210	19.71
SUV, Abu Zabal, Egypt.		11.923	25.16	W8XK, Pittsburgh, Pa.	
10.060	29.80	RNE, Moscow, USSR.		15.234	19.68
ZFB, Hamilton, Bermuda		11.935	25.12	Pontoise, France	
10.135	29.58	FTA, Ste. Assise, France		15.242	19.67
OPM, Leopoldville, Belgian Congo		11.983	25.02	W1XAL, Boston, Mass.	
10.163	29.50	FZS, Saigon, Indo-China		15.280	19.62
German Ships		12.051	24.88	W2XE, Wayne, N. J.	
10.164	29.79	PDV, Kootwijk, Holland		15.300	19.70
EHY, Madrid, Spain		12.148	24.68	CP5, La Paz, Bolivia	
10.212	29.35	GBS, Rugby, England		15.340	19.55
PSH, Rio de Janeiro, Brazil		12.223	24.53	W2XAD, Schenectady, N. Y.	
10.250	29.25	CT1CT, Lisbon, Portugal		15.350	19.53
PMN, Bandoeng, Java		12.241	24.41	CT1AA, Lisbon, Portugal	
10.285	29.15	GBU, Rugby, England		15.454	19.40
DIQ, Nauen, Germany		12.290	24.40	Pontoise, France	
10.296	29.12	PLM, Bandoeng, Java		15.760	19.02
LSL, Buenos Aires, Argentina		12.394	24.19	JIAA, Kemikawa-Cho, Japan	
10.324	29.04	DAF, Norden, Germany		15.821	18.95
ORK, Ruysselede, Belgium					



Megs. Meters	Megs. Meters	Megs. Meters
OCJ, Valverde, Peru	18.116 16.55	PPU, Rio de Janeiro, Brazil
15.855 18.91	LSY, Buenos Aires, Argentina	19.282 15.55
CEC, La Granja, Chile	18.170 16.50	FTM, Ste. Assise, France
15.863 18.90	PMC, Bandoeng, Java	19.418 15.44
FTK, Ste. Assise, France	18.193 16.48	EDQ, Madrid, Spain
15.950 18.80	GAW, Rugby, England	19.468 15.40
PLG, Bandoeng, Java	18.237 16.44	PMA, Malabar, Java
16.150 18.56	FTE, Ste. Assise, France	19.506 15.37
GBX, Rugby, England	18.296 16.39	IRW, Rome, Italy
16.162 18.55	YVR, Maracay, Venez.	19.519 15.36
PSA, Rio de Janeiro, Brazil	18.304 16.38	EDN, Madrid, Spain
16.200 18.51	GAS, Rugby, England	EDX, Madrid, Spain
FZR, Saigon, Indo-China	18.342 16.35	19.596 15.30
17.080 17.55	FZS, Saigon, Indo-China	LSF, Buenos Aires, Argentina
GBC, Rugby, England	18.400 16.29	19.678 15.24
17.122 17.51	PCK, Kootwijk, Holland	CEC, La Granja, Chile
HAT, Budapest, Hungary	18.444 16.25	19.684 15.23
17.260 17.37	HJY, Bogota, Colombia	EAQ, Aranjuez, Spain
DAF, Norden, Germany	18.450 16.25	19.895 15.07
17.287 17.34	HBH, Geneva, Switzerland	LSG, Buenos Aires, Argentina
Italian Ships	18.600 16.12	20.028 14.97
17.512 17.12	PDM, Kootwijk, Holland	DHO, Nauen, Germany
DFB, Nauen, Germany	18.611 16.11	OPL, Leopoldville, Belgian Congo
17.533 17.10	GAU, Rugby, England	20.368 14.72
VWZ, Poona, India	18.620 16.10	GAA, Rugby, England
17.580 17.05	GBJ, Rugby, England	20.606 14.55
British Ships	PLT, Malabar, Java	PMB, Bandoeng, Java
17.719 16.92	18.670 16.06	20.820 14.40
HSP, Bangkok, Siam	OCI, Valverde, Peru	LSY, Buenos Aires, Argentina
17.760 16.88	18.820 15.93	20.849 14.38
DJE, Zeesen, Germany	PLE, Bandoeng, Java	EDM, Madrid, Spain
17.770 16.87	18.856 15.90	EHY, Madrid, Spain
IAC, Coltano, Italy	ZSS, Capetown, S. Africa	21.020 14.27
17.775 16.87	18.958 15.82	LSN, Buenos Aires, Argentina
PHI, Huizen, Holland	LSR, Buenos Aires, Argentina	21.069 14.23
17.780 16.86	18.963 15.81	PSA, Rio de Janeiro, Brazil
W3XAL, Boundbrook, N. J.	GAG, Rugby, England	21.128 14.19
W8XXK, Pittsburgh, Pa.	19.121 15.68	LSM, Monte Grande, Argentina
17.790 16.85	LSM, Buenos Aires, Argentina	21.470 13.96
GSG, Daventry, England	19.182 15.63	GSH, Daventry, England
17.830 16.82	ORG, Ruyssedele, Belgium	21.540 13.92
PCV, Kootwijk, Holland	19.240 15.58	W8XXK, Pittsburgh, Pa.
17.850 16.80	DFA, Nauen, Germany	22.291 13.45
PLF, Bandoeng, Java	19.270 15.57	GBU, Rugby, England

## BRICKBATS *and* BOUQUETS

"I wish to call your attention to a DX program (KFBB, Great Falls, Mont., 1280 kcs. Jan. 16) which I am quite sure was not broadcast. I lost two valuable hours of sleep. You should make some effort to find out if these stations really go on the air when specified."

Geo. J. Schuler, 461 Orange St., Newark, N. J.

"As a radio editor of a Pacific Coast newspaper recently wrote, 'Next to RADEX, the Newark News Radio Club is today the greatest benefit known to the DXing fraternity.' To quote a popular advertising slogan, 'Such popularity must be deserved.'"

Alfred W. Oppel, Executive Secretary, NNRC, Newark, N. J.

"By far the best radio magazine I have ever read. The Beginner's Story of Radio alone is worth the price."

R. H. Helton, P. O. Box 23, Belmont, N. C.

"The most interesting and the best radio magazine that is published in the United States."

Editor, "El Camagueyano," Camaguey, Cuba.

"As the first of each month approaches,

the prospect of incoming bills is somewhat softened by the fact that it's also time for a new RADEX."

R. S. Rothschild, 36 Morris Dorm, University of Penna., Philadelphia.

"I wish to congratulate you on the publication of a radio magazine which so thoroughly covers the field of radio. I find every word of it interesting."

Frank R. Freeman, P. O. Box 128, Parco, Wyo.

"Baby! From now on I'm not missing an issue even if I have a pry a buck for it."

Frank Block, Nemaconlin, Penna.

"RADEX has meant so much to me that I am now subscribing for a friend."

Rev. Canon Fidler, M. A., Rector, St. Clement's Church, Toronto, North, Ontario.

"I have been a constant reader of RADEX at my home in Brooklyn. I am now visiting in Europe and have asked friends to mail me my copy so as not to miss a single issue. I find RADEX a magazine one can read from 'kiver to kiver.' This cannot be said of the average radio periodical."

F. Maybarduk, 217 Rue de Campine, Liege, Belgium.

29.803 10.06  
 IAF, Fiumicino, Italy  
 30.593 9.80  
 IAG, Golfo Aranci, Sardinia

British Ships:  
 GBZW, Berengaria  
 GDJL, Homeric  
 GFJY, Calendonia  
 GFVV, Majestic  
 GKFY, Minnetonka  
 GLRZ, Aquitania  
 GLSQ, Olympic  
 GMBJ, Empress of Britain

GMJQ, Belgenland  
 VPSX, Monarch of Bermuda  
 VPTG, Queen of Bermuda  
 WIEX, Manhattan

French Ships:  
 FNSM, Ile de France  
 FTNQ, Paris

German Ships:  
 DDAC, Europa  
 DDAS, Bremen  
 DDBR, Berlin  
 DDCG, Resolute  
 DDCP, Cap Polonia

DDDT, Deutschland  
 DDDX, Hamburg  
 DDEA, Cap Ancona  
 DDED, New York  
 DDEF, Reliance  
 DDFT, Oceana  
 DHDY, Albert Ballin  
 DHRL, ?  
 DOBX, Columbus  
 Italian Ships:  
 IBEJ, Conte Rosso  
 IBGL, Conte Verde  
 IBLI, Conte di Savoia  
 ICEJ, Rex

## Tuning a Converter

(Continued from page 79)

One can readily see, therefore, that code harmonics frequently land right on top of the wave of stations we are trying to hear. I find this true of the 25-meter band particularly. Often I can't hear London or France without turning the b. c. dial quite a distance away from 1000 kc. Naturally, the harmonics move in the opposite direction from the desired station and the result is perfectly clear reception. Often I tune the Fada above 1500 kcs. and at night this eliminates interference from the b. c. band. This has enabled me to bring

in stations PHI and GSG, both on 16.88 meters, in spite of the fact that my converter only tunes down to 20 meters. So my advice is to experiment until you find the best setting for the b. c. receiver. (What Mrs. Ledbetter does is to alter the intermediate frequencies so that the beat frequencies between these stations and her receiver fall within the range of her converter. Ed.)

\*605 Mattingly Street, Vicksburg, Miss.

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Street and Number.....

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No extra charge outside the U. S. A.

# Revised List of the Frequency Checks

(Continued from page 48)

- 3:50-4:10—WOCL, 1210, Jamestown, N. Y.  
WROK, 1410, Rockford, Ill.  
KBTM, 1200, Paragoull, Ark.  
4:00-4:20—WBOW, 1310, Terre Haute, Ind.  
4:10-4:30—KGFT, 1370, Roswell, N. M.  
WOSU, 570, Columbus, Ohio.  
4:20-4:40—WBEO, 1310, Marquette, Mich.  
4:30-4:50—WCAL, 1250, Northfield, Minn.  
WKBN, 570, Youngstown, Ohio.  
4:40-5:00—WGAZ, 1070, Carthage, Ill.  
KFJB, 1200, Marshalltown, Iowa.  
4:50-5:10—WACO, 1420, Waco, Texas.  
WKBF, 1400, Indianapolis, Ind.  
5:00-5:20—WDZ, 1070, Tuscola, Ill.  
KGDE, 1200, Fergus Falls, Minn.  
5:10-5:30—WLBL, 900, Stevens Point, Wis.  
WLB, 1250, Minneapolis, Minn.  
5:20-5:40—WTL, 1200, St. Louis, Mo.  
WBAA, 1400, W. Lafayette, Ind.  
5:30-5:50—KCHF, 1320, Pueblo, Colo.  
WTAD, 1440, Quincy, Ill.  
5:40-6:00—WXYZ, 1240, Detroit, Mich.  
6:00-6:20—WOOD-WASH, 1270, Grand Rapids, Mich.

## FIRST THURSDAY MORNING OF THE MONTH

- 2:00-2:20—WSOC, 1210, Charlotte, N. C.  
2:10-2:30—WSPA, 1420, Spartanburg, S. C.  
2:20-2:40—WFBC, 1200, Greenville, S. C.  
2:30-2:50—WKBC, 1310, Birmingham, Ala.  
2:40-3:00—WJBC, 1420, Baton Rouge, La.  
2:50-3:10—WCGM, 1210, Mississippi City, Miss.  
3:00-3:20—WHDW, 1500, Augusta, Ga.  
WHBY, 1200, Green Bay, Wis.  
WDAB, 1310, El Paso, Texas.  
3:10-3:30—WKAQ, 1420, San Juan, P. R.  
WIMS, 1420, Ironwood, Mich.  
KLUP, 1370, Galveston, Texas.  
3:20-3:40—WCSC, 1360, Charleston, S. C.  
WEDC, 1210, Chicago, Ill.  
KTSM, 1310, El Paso, Texas.  
3:30-3:50—WBIG, 1440, Greensboro, N. C.  
KGKI, 1370, San Angelo, Texas.  
3:40-4:00—WCOA, 1340, Pensacola, Fla.  
WSBC, 1210, Chicago, Ill.  
KPPM, 1310, Greenville, Texas.  
3:50-4:10—WQBC, 1360, Vicksburg, Miss.  
KFIZ, 1420, Fond du Lac, Wis.  
KMAC, 1370, San Antonio, Texas.  
4:00-4:20—WBDO, 580, Orlando, Fla.  
WBHQ, 1210, Harrisburg, Ill.  
KFYO, 1310, Lubbock, Texas.  
4:10-4:30—WNBR, 1430, Memphis, Tenn.  
WMPC, 1500, Lapeer, Mich.  
KONC, 1370, San Antonio, Texas.  
4:20-4:40—WQAM, 560, Miami, Fla.  
WBHP, 1210, Howland, Ill.  
KFGQ, 1310, Boone, Iowa.  
4:30-4:50—WDAE, 1220, Tampa, Fla.  
WKBB, 1500, Ludington, Mich.  
KFJM, 1370, Grand Forks, N. D.  
4:40-5:00—WJEM, 990, Tupelo, Miss.  
WCBM, 1210, Springfield, Ill.  
WTAS, 1310, Ottumwa, Iowa.  
4:50-5:10—WCOC, 880, Meridian, Miss.  
WKBV, 1500, Coonerville, Ind.  
5:00-5:20—WODX, 1410, Mobile, Ala.  
WTAX, 1210, Springfield, Ill.  
KGBN, 1310, Springfield, Mo.  
5:10-5:30—WTOC, 1260, Savannah, Ga.  
WHBD, 1370, Mt. Orab, Ohio.  
KCMC, 1420, Texarkana, Ark.

- 5:20-5:40—WHBU, 1210, Anderson, Ind.  
5:30-5:50—WIBM, 1370, Jackson, Mich.  
KGFF, 1420, Shawnee, Okla.  
5:40-6:00—WOMT, 1210, Manitowoc, Wis.  
KNOW, 1500, Austin, Texas.

## FIRST FRIDAY MORNING OF THE MONTH

- 3:00-3:20—WJW, 1210, Akron, Ohio.  
KRMD, 1310, Shreveport, La.  
3:10-3:30—WPAD, 1420, Paducah, Ky.  
3:20-3:40—WSEN, 1210, Columbus, Ohio.  
KPNR, 1310, Oklahoma City, Okla.  
3:30-3:50—WELL, 1420, Battle Creek, Mich.  
KGEK, 1200, Yuma, Colo.  
3:40-4:00—WALR, 1210, Zanesville, Ohio.  
KFPL, 1310, Dublin, Texas.  
3:50-4:10—WMBC, 1420, Detroit, Mich.  
WCAT, 1200, Rapid City, S. D.  
4:00-4:20—WDFD, 1310, Flint, Mich.  
KGCU, 1240, Mandan, N. D.  
4:10-4:30—WFBE, 1200, Cincinnati, Ohio.  
4:20-4:40—KLPM, 1240, Minot, N. D.  
WGAR, 1450, Cleveland, Ohio.  
4:30-4:50—WCLO, 1200, Janesville, Wis.  
KFGP, 1270, Oklahoma City, Okla.  
4:40-5:00—WCLS, 1310, Joliet, Ill.  
KABC, 1420, San Antonio, Texas.  
4:50-5:10—WJBL, 1200, Decatur, Ill.  
KFJZ, 1370, Fort Worth, Texas.  
5:00-5:20—WJHK, 1370, Detroit, Mich.  
KWCR, 1420, Cedar Rapids, Iowa.  
5:10-5:30—WIBU, 1210, Poyntne, Wis.  
KGFI, 1500, Corpus Christi, Texas.  
5:20-5:40—WHDF, 1370, Calumet, Mich.  
WLBK, 1420, Kansas City, Kans.  
5:30-5:50—WCRW, 1210, Chicago, Ill.  
KGBK, 1500, Tyler, Texas.  
5:40-6:00—WMBH, 1420, Joplin, Mo.  
WTAQ, 1330, Eau Claire, Wis.

## FIRST SATURDAY MORNING OF THE MONTH

- 2:10-2:30—WJBI, 1210, Red Bank, N. J.  
2:20-2:40—WRRL, 1500, Westside, N. Y.  
2:30-2:50—WGNV, 1210, Chester, N. Y.  
2:40-3:00—WMBQ, 1500, Brooklyn, N. Y.  
2:50-3:10—WGBB, 1210, Freeport, N. Y.  
3:00-3:20—WOKO, 1420, Albany, N. Y.  
WJBC, 1200, LaSalle, Ill.  
KTRH, 1120, Houston, Texas.  
3:10-3:30—WGL, 1370, Fort Wayne, Ind.  
KFPW, 1210, Fort Smith, Ark.  
3:20-3:40—WWAE, 1200, Hammond, Ind.  
WTAW, 1120, College Station, Texas.  
3:30-3:50—WLBC, 1310, Muncie, Ind.  
KASA, 1210, Elk City, Okla.  
3:40-4:00—WPAM, 1200, South Bend, Ind.  
KWLC, 1270, Decorah, Iowa.  
3:50-4:10—KWKC, 1370, Kansas City, Mo.  
4:00-4:20—WJAY, 610, Cleveland, Ohio.  
KGCA, 1270, Decorah, Iowa.  
4:10-4:30—WAWZ, 1350, Xarephath, N. J.  
KPVs, 1210, Cape Girardeau, Mo.  
WBNS, 1430, Columbus, Ohio.  
4:20-4:40—KGHL, 950, Billings, Mont.  
4:30-4:50—KDLR, 1210, Devils Lake, N. D.  
4:50-5:10—KFJX, 1200, Grand Junction, Colo.  
5:00-5:20—KFDM, 560, Beaumont, Texas.  
5:10-5:30—KGCN, 1210, Watertown, S. D.  
5:20-5:40—WEW, 760, St. Louis, Mo.  
5:40-6:00—WSUI, 880, Iowa City, Iowa.  
5:50-6:10—KGGM, 1230, Albuquerque, N. M.

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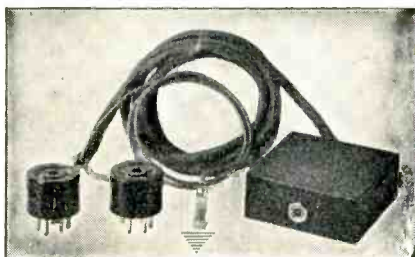
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