OFFICIAL

Short Wave Listener

HUGO GERNSBACK
EDITOR

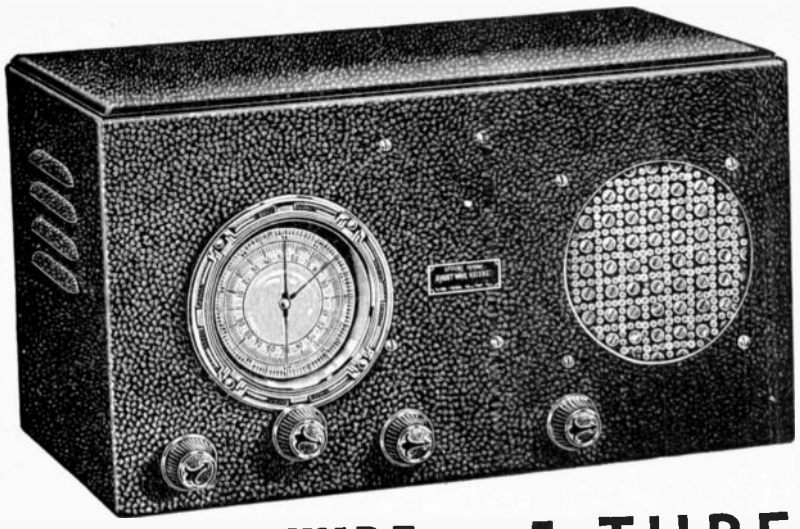
MAGAZINE

30 July
25 Cents
Canada 37¢

NEW!
4,600
SHORT-WAVE
STATIONS
LISTED
IN THIS
ISSUE

"Out of Tune"

LARGEST AND BEST SHORT-WAVE STATION LIST IN PRINT • PHOTOS OF S-W ARTISTS
WHERE TO FIND S-W STATIONS ON YOUR DIAL • WORLD SHORT-WAVE STATION MAP



at last!

CONTINUOUS BANDSPREAD

on all bands

THE OFFICIAL

DOERLE BANDSPREAD

5-TUBE DE-LUXE A. C. SHORT-WAVE RECEIVER

NATION-WIDE *TESTIMONIALS* PRAISE THIS SET

Gentlemen:

I received your "Official Doerle A. C. 5" today, after being adjusted by your engineers. I have had the receiver turned on less than 10 minutes and at the present time I am listening to the American Hour coming from IRA, Rome, Italy. It is a wonderful relief to listen in without hearing a lot of noise. I would like to at this time thank you ever so much for making this adjustment. You cannot tell how much I appreciate this favor. You can certainly count on me as one of your boosters and I shall spread your name and products to all of my friends.
GEORGE LESLIE ALLEN, Morris Plains, N.J.

Dear Sir:

Just a letter of recommendation concerning the Doerle A. C. 5. What a set, oh boy, for bringing in the DX night after night. I receive about 10 stations a week that are new programs, besides 50 I already received. Besides I logged 700 hams. Stations that aren't even listen in call books give me a thrill. I only use a 20 ft. antenna wrapped around a chimney.
FRANCIS KMEC, Allentown, Pa.

Gentlemen:

This will acknowledge receipt of my Doerle short-wave receiver. This 1935 model is the smoothest and best operating set I have ever operated, both on amateur and foreign reception. I have heard practically all of the South American stations, Russia, Spain, and of course, France, Germany, Japan, and lots of others. This little receiver is just as you say it is—the best for the money—and I have seen sets selling for lots more which do not come within a mile of this Doerle.

If anybody wants to know if you people will treat them white, just let me know and I will tell absolutely yes.
S. L. SMITH, Colorado, Texas.

Gentlemen:

I am very well satisfied with the set and here are some of DX stations which I have received on it:

On 20 meter coil: EAQ Madrid, Spain; PRF5—Rio Grande, Brazil, S. A.; LSK—Monte Grande, Argentina, S. A.; DIQ—Germany (Koenig Wusterhausen; GSB—England (Daventry); COH—Havana, Cuba.

On 49 Meters: DJD—Berlin, Germany; H2-CRL—Guayaquil, South America; 2RD—Rome, Italy; DKC and DKF—Germany; XEBT—Mexico City, Mexico

Also many other South American stations and Central American stations Amateurs in more than 36 different states and including Canadian amateurs:

AUGUSTE THEBERGE, River Edge, N.J.

Original letters plus others may be seen at our office.

Complete Price

$27.54 WITH TUBES

Nothing Else to Buy

- » Doublet Antenna Input or » Standard Antenna Input
- » 8-Low Loss Bakelite Plug-in Coils
- » 15-200 Meters » Fully Shielded
- » Bandspread Dial » Dynamic Speaker
- » Headset Jack » Beautiful Cabinet

BEFORE you buy any other Short-Wave Receiver, be sure to take advantage of our **FREE five day trial offer** explained below. Satisfy yourself, in your own home and at your leisure that this IS one of the greatest values in radio, and that it DOES have features which are found in more expensive receivers.

A powerful 5-tube "rig" complete with its self-contained hum-free power pack and dynamic speaker; all mounted on a single chassis and contained in a large handsomely finished black crackle cabinet with patterned screen speaker grill.

Two tuned stages—regenerative detector, 3AF stages with powerful 41 pentode output and perfectly matched dynamic speaker; all these features contribute to the great power and fine performance of this Doerle short wave receiver.

CONTINUOUS BANDSPREAD ON ALL BANDS. A special double-pointer, double-scale, airplane dial having a tuning ratio of 125 to 1 is employed.

Many fine features that you would expect to find in more expensive receivers are incorporated in this "ACE TOPNOTCHER" of the entire Doerle line.

Either a short-wave doublet or standard antenna may be used. A new antenna-adjusting scheme permits perfect alignment of both tuned circuits without appreciably affecting the setting of the tuning dial. Provisions are made to use headphones if desired, with a switch to cut out the dynamic speaker.

LOOK AT THIS DX-QSL LIST!

During its initial test, in New York City, this receiver pulled in on its loud speaker, at good room volume, the following enviable log: **WIXAL, WIAZ, Boston; W3XAL, Boundbrook, N. J.; W8XAL, Cincinnati; W9XAA and W9XF, Chicago; GSC, GSD, GSE, GSF, Daventry, England; DJA, DJB, DJC, DJD, Zeesen, Germany; HBL, HBP, Geneva; VE9GW Ontario; V9DN Quebec; GE9DR Montreal; VE9HX Halifax; XETE Mexico City; YUIBC,YV3BC Caracas; CP5 Bolivia; LSN Buenos Aires; COC Havana; EAQ Madrid; WQO and WEF, resting with the Byrd Expedition** and a whole flock of amateurs in practically every radio district of the United States. After that, we could no longer keep our eyes open so we "signed off" to bed.

The testimonials printed on this page testify that, in actual use, our customers are attaining even greater success. Uses a simple regenerative circuit—so simple as to be entirely reliable. Tubes: 1—6D6, 1—6F7 (actually two tubes in one), 1—37, 1—41 power output tube and 1—80 full-wave rectifier. Two gang tuning condenser; single dial control; FULL-VISION ILLUMINATED BAND SPREAD AIRPLANE DIAL. Ship. wt., 35 lbs. **No. 5000. "DOERLE AC-5" Short-Wave Receiver.** Complete with Tubes, Speaker and 8 coils 15 to 200 meters. Completely wired and tested. (NOT SOLD IN KIT FORM) YOUR PRICE ... **$27.54**

List Price $46.75 **Set of 2 Broadcast coils $1.75 additional**

7 PAGES of Instructions and Diagrams Included with each SET

USE THIS COUPON for ~ FREE 5-DAY TRIAL

RADIO TRADING CO., 103A HUDSON ST., NEW YORK

RL-7-35

Gentlemen:

I enclose ... dollars ... cents, for your new Doerle 5 Tube De-Luxe Short-Wave receiver on a five day free trial basis. I am to prove to my own satisfaction that it will give me world-wide reception and that your guarantee means exactly what it says. If, at the end of five days after receipt of radio, I am not perfectly satisfied, I will write you accordingly, whereupon, you will send shipping instructions. Upon receipt of the radio, you will refund me the full purchase price. I agree to pay express charges one way, and you the other.

C.O.D. SHIPMENT. I enclose ... dollars ... cents deposit balance of ... dollars ... cents C.O.D.

PRINT Name ...

Address ...

Town ... State ...

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IMPORTANT BUYING GUIDE FOR RADIO DEALERS, SERVICE MEN, EXPERIMENTERS AND SHORT-WAVE FANS

32 Pages. Two Colors. Profusely Illustrated.

Up to-the-minute catalog containing low prices which save you money. Contains radio sets, parts, public address equipment, short wave receivers, etc., etc.

Name the item—it's in the catalog

Send postcard or letter. Book sent by return mail. See page 143 for more details.

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OFFICIAL
SHORT-WAVE LISTENER
MAGAZINE
Combined with
OFFICIAL SHORT-WAVE LOG AND CALL MAGAZINE

JUNE-JULY, 1935

VOLUME I, No. 6

YOUR HELP WANTED

● *In our last issue, I asked our readers to send in their letters for our new department, "The Listener Speaks." These letters have brought a marvelous response, and we are starting to print them in this issue.*

One of the many things that most of our readers were interested in was a complete World Short Wave List of stations, similar to the one we ran in this magazine when it was published under the name of OFFICIAL SHORT WAVE LOG AND CALL MAGAZINE.

We are resuming the publication of this list in the present issue, due to the insistent demand from thousands of readers. It should be noted that this is the only magazine published now which prints such a list. The present list contains over 4600 short wave telephone broadcast stations and is as accurate as possible. It should be noted that changes are constantly made by the many governments all over the world and they are sometimes slow in transmitting this information to us. We, therefore, ask our readers if they will not be kind enough to voluntarily call our attention to any mistakes or omissions which occur in the list.

Remember, this magazine is published every sixty days, and in between printing changes always occur, so if you hear the calls of a new station not listed, or if you know of any changes that have been made in the calls which we do list, we hope you will be kind enough in the interest of YOUR magazine to send this information to us as soon as you possibly can.

HUGO GERNSBACK, Editor.

Popular Book Corporation
Editorial and General Offices
99-101 Hudson St., New York, N. Y.

Contents...

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SHORT WAVE BEAUTIES FROM HOLLAND

Netty Blase

Marietta Serle

● ON our next trip to Europe we shall make certain to stop at the famous Philip's short-wave station in Holland, operating under the call PHI. This station has established a very enviable reputation, both for the high quality of its programs and its distance-getting ability.

This famous station first went on the air March 12, 1927, and one of the principal objects of this station was and is to establish a direct contact between the mother country and its colonies on the other side of the world. The power of the transmitter is 60 K.W., which is quite unusual for a short-wave station. The aerial system is of the beam type and radiates principally in two directions, east and west. The principal studios are in Hilversum with a special studio in Amsterdam, a large music studio in the Hague, with a special music studio at Huizen.

All of the latest news from the mother country is broadcast over the Holland transmitting station to the colonies in the far east, along with entertaining programs.

Transmissions are broadcast daily, except on Tuesdays and Wednesdays, between 12:30 and 15:30 G.M.T. The program con-

(*Continued on page* 141)

●

Below—Gertrud Wertheim, whose instrumental numbers have been greatly enjoyed by short-wave listeners in far parts of the world.

●

Above—among the entertainers heard over the famous short-wave broadcasting station, PHI, is Friedl Dotza.

●

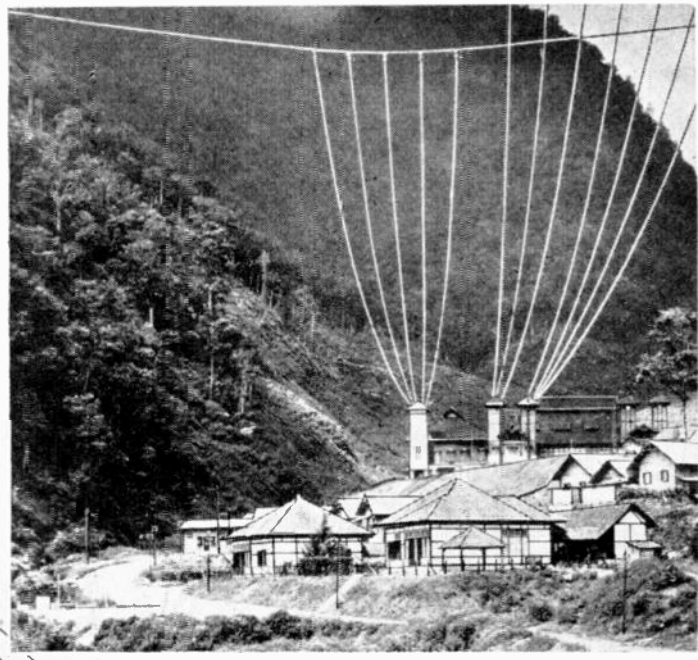
●

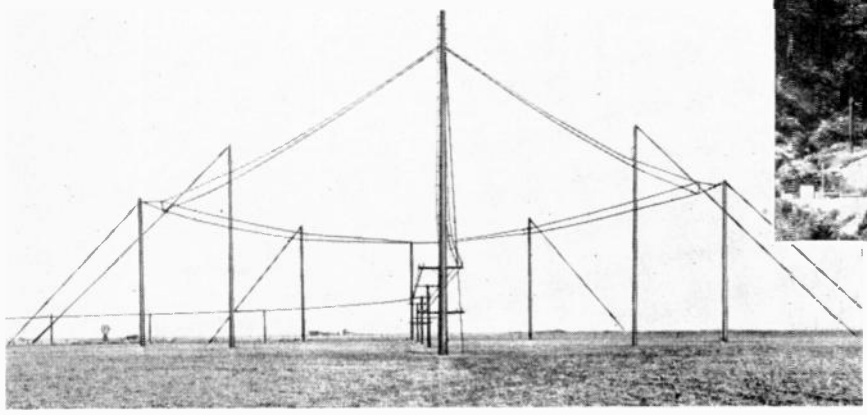
Olga Velecka Augustova, who has a large following among short-wave "Fans" both in Europe and on this side of the Atlantic.

●

Talking Around the World on Short-Waves

A remarkable demonstration was recently conducted in which two people in the same building heard each other speak, after their voices had passed around the world in opposite directions on short waves.





Bandoeng, Java, the transmitting station from which the voice waves coming from New York by way of London and Amsterdam, are flung across 9,000 miles of ocean to San Francisco. Left—Dixon, Calif.,—the 9,000 miles of ocean to Java is spanned by means of the antenna shown, simply a pair of wires strung on 70 ft. poles.

● THOSE taking part in the remarkable 2-way round-the-world conversation were in adjoining offices in the Long Distance Building, headquarters of the Long Lines Department of the American Telephone & Telegraph Company, at 32 Sixth Avenue, New York City. From these offices they conversed with each other over a circuit formed of radio and wires which circled the globe.

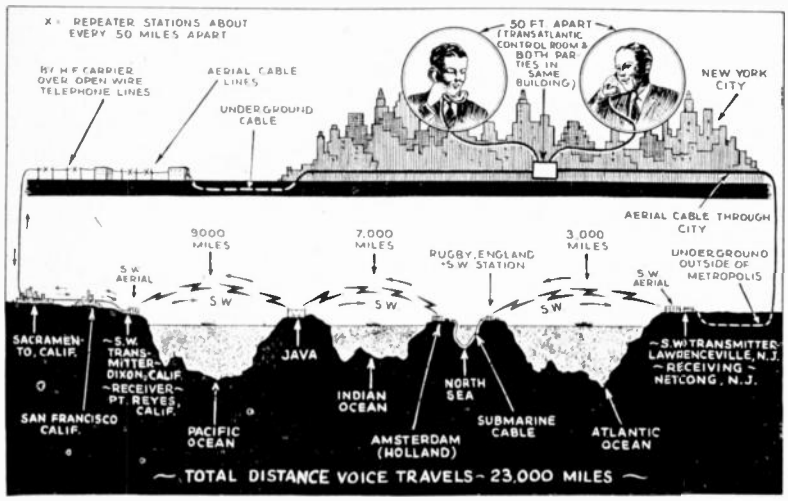
In their course around the world the voices of the two speakers employ every type of circuit which the art of the telephone engineer has evolved—underground and aerial cable, open wire "carrier," radio and submarine cable.

With and Without Wires

From the Long Distance Building the voice of the first speaker passed into an underground cable and thence to an aerial cable that crosses the continent to Omaha. Here it is transferred to a "carrier" circuit, in which the voice impulses are raised to a high frequency and carried along a channel superposed on a wire line. This circuit carried it to Sacramento, Calif.

At Sacramento the voice entered another cable that carried it through the Transpacific Switchboard at San Francisco, to the short-wave transmitting station at Dixon, Calif. From here it was hurled 9,000 miles across the Pacific to the overseas telephone terminal at Bandoeng in Java, where it was transferred to another short-wave radio circuit than spanned a distance of 7,000 miles to Amsterdam in the Netherlands.

From Amsterdam the voice passed over land wires and submarine cable under the North Sea to the Trunk Exchange in London, and thence to the radio station at Rugby, where it was projected across the Atlantic over a third short-wave channel, picked up at Netcong, N. J., and brought to the Long Distance Building over a cable. The voice of the second speaker followed the reverse direction.

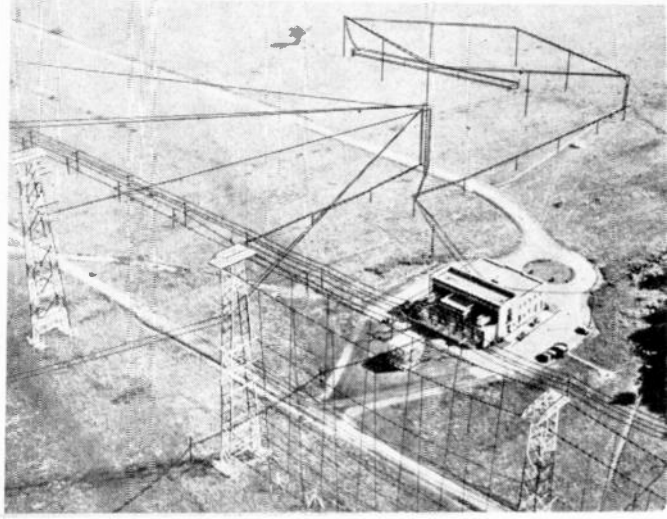


Specially drawn artist's diagram showing the remarkable path taken by the two-way conversation around the world.

Some Astonishing Figures

The circuit linking the two telephones—actually within fifty feet of each other—is over 23,000 miles in length! The voice impulses cover this distance in a quarter of a second; the average speed being half the velocity of light.

Speeding onward, the voice ran into twilight and then into the first glow of sunset. Somewhere over India it witnessed the unusual sight of the sun *rising* instead of *setting in the west!*



Lawrenceville, N. J.—A perfect "curtain" of wires forming the aerial suspended from 250 foot towers, where the voice "took off" on short waves across the Atlantic to London.

WHEN MOSCOW Turns On the S-W

Nina Alexandryscaya, a soloist of the Radio Committee.

● MANY American short-wave listeners have heard the short-wave broadcast programs radiated by the powerful stations of U.S.S.R.—among them RNE and RV15. The accompanying photos which were kindly sent to the editor of this publication by the *All Union Radio Committee of the U.S.S.R.* will undoubtedly prove very interesting to our readers.

Short-wave activities proceed at a rapid rate in the Soviet Union. Not only are the short-wave broadcasting stations encouraged, but also the short wave amateur is given every consideration and help. All that is necessary to obtain a license in the U.S.S.R. for a short-wave transmitting and receiving station is to prove to the Commission that one is technically capable of operating the station. In an article received from the Radio Committee of the Soviet Union, the statement is made that short waves and particularly short-wave Amateurs, have helped tremendously in making successful the journeys undertaken by various expeditions, including the world-famous voyage of the powerful icebreaker *Krassin*, sent by the Soviet Government to the rescue of the Nobile Arctic Expedition.

Far up in the Arctic Circle nearly 60 short-wave stations are being operated by Soviet technicians all year round. Short waves in this way play a very important part in directing shipping in that region.

Above—George Abramov and Soja Muratova, soloists of the Radio Committee, U. S. S. R.
Left—Broadcust of an instrumental number by the "Worker's Circle."

Many interesting short-wave programs have been heard in various parts of the world as broadcast by the U.S.S.R.

List of Short-Wave Stations

	Kc.	Meters
Khabarovsk RV-15	4,273.5	70.2
Moscow VZSPS RV-59	6,000	50
	12,000	25
Moscow ZDKA RV-72	6,610.8	45.38

SHORT WAVE CAMERA SHOTS

People and stations of public interest in the short-wave field have been caught by the camera's eye and we are glad to present these new shots herewith.

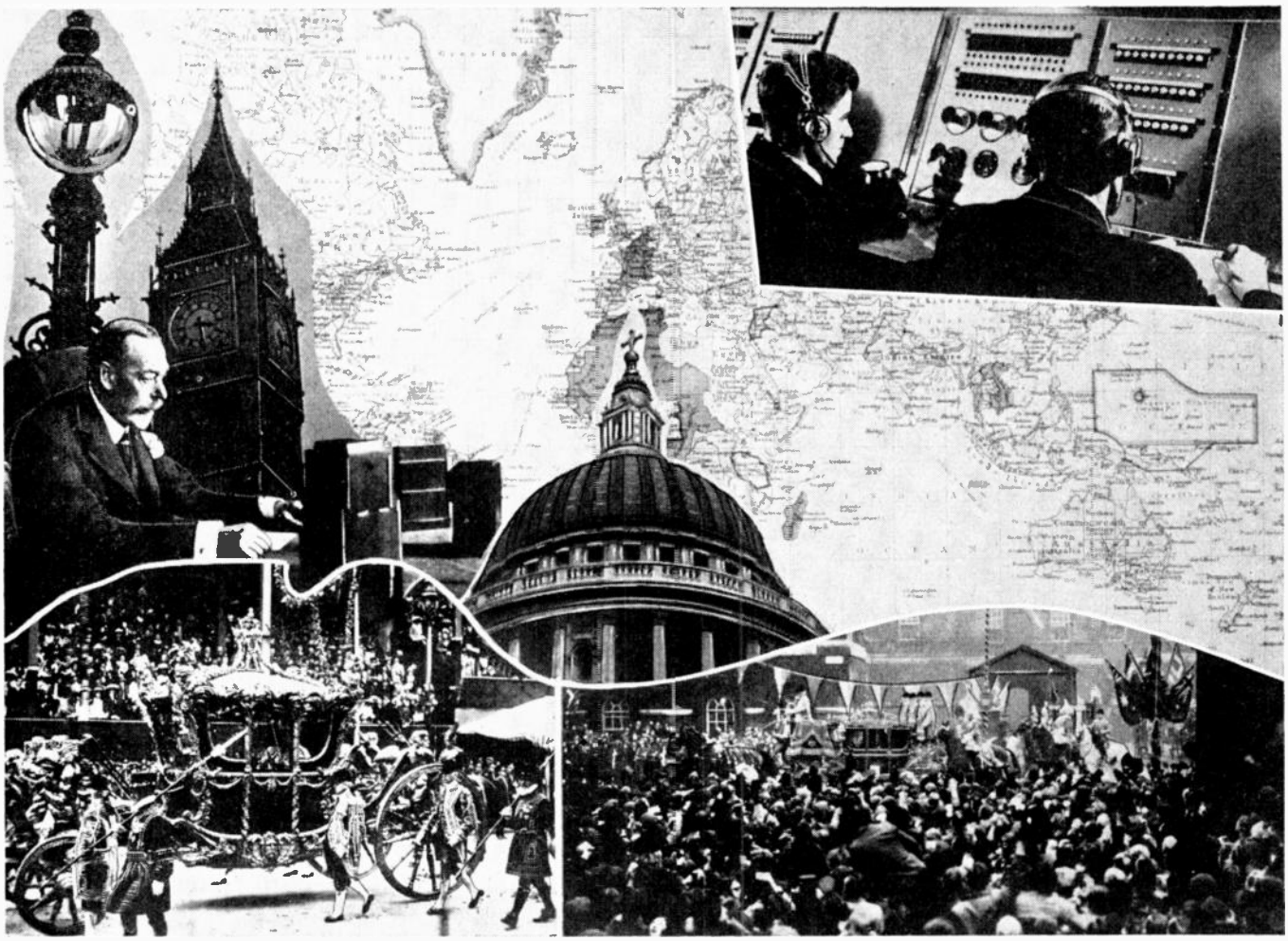
The British radio public likes to hear the results of sports events broadcast by radio. Photo at left shows George Allison giving a running commentary on the F. A. Cup final from the famous Wembley Stadium in England. These British sports reports are also broadcast on shortwaves.

Above—Henry Hall, director of the well-known B. B. C. "ance orchestra" which has entertained thousands of Americans via short-waves. Some people are still very suspicious about a-wave sets and probably have the idea that while England may be tuned in, that it would sound like a third-rate American station. It would probably come as quite a surprise to many new short-wave "Fans", when they tune in England and hear Henry Hall's orchestra playing with the same volume of sound as an American station's dance orchestra.

The Kookaburra bird or laughing jackass, the world-famous bird known to every real short-wave "Fan" who listens to the Australian stations. This particular specimen of the Kookaburra bird family apparently got up early and caught the proverbial worm. The Kookaburra grows to a good size and the average height is about nine inches.

The baseball season is now in full sway and the photo will be of interest to baseball and short-wave "Fans", as it shows the well-known C.B.S. announcer, Ted Husing, at a baseball broadcast. The short-wave apparatus is set up as shown, and relays the announcer's remarks to a pick-up station which carries the voice on to Columbia headquarters.

Left—Two photos show respectively the announcer and the broadcasting apparatus at station CT2AJ at St. Miguel, Azores. The announcer is Senor Doedato Soares, who speaks with equal facility in Portuguese, English, or French. On the transmitter, the top panel is the modulated power-amplifier; second panel crystal temperature control and buffer amplifier; the third panel is first speech amplifier, and final power modulator. Bottom panel contains relays and control apparatus. Frequency 4,000 K. C.



Above—some of the highlights of the Silver Jubilee which were broadcast to the entire world by the British Broadcasting Company.

KING'S JUBILEE

Carried Round the World by Short - Wave

● WITH the passing of King Edward, May 6, 1910, just twenty-five years ago, George V became ruler of England, although it wasn't until June 22, 1911 that he was actually crowned in Westminster Abbey. This past May 6 was the twenty-fifth anniversary of his reign over England and its vast world-wide empire. The King's Silver Jubilee was cause for much rejoicing and celebration among his subjects in many climes.

This great fete was broadcast to the entire world via *short waves*. Among the countries hearing his Majesty's speech were, Australia, South Africa, New Zealand, Celon, India, Kenya, The Argentine, Austria, Brazil, Czechoslovakia, Denmark, Egypt, Finland, France, Holland, Hungary, Poland, Portugal, Roumania, Sweden, Switzerland, and the grand old United States.

Many of these countries had representatives at the Jubilee in order that they might broadcast in their native tongue to the populace at home the activities and many scenes of rejoicing. American short-wave listeners had the unique experience of hearing representatives of far-flung British dominions speak in their native tongue by s-w to London, then re-broadcast to America by s-w again.

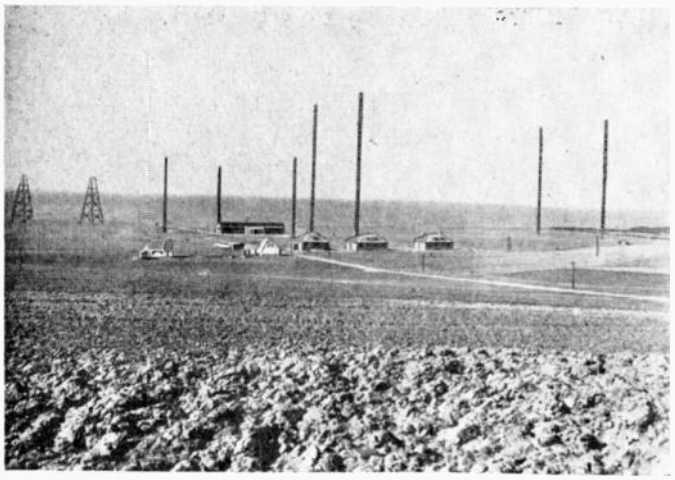
All this was accomplished through the courtesy of the British Broadcasting Company, who threw open their entire facilities to serve their beloved King.

The world-wide broadcast was one of the most successful of its kind that the B.B.C. has ever attempted. Here in the United States their programs could be heard as clearly and distinctly as those coming from any local broadcast station. Reports from other parts of the world have indicated that the program and broadcasts were received equally as well and the B.B.C. should be congratulated on their fine work.

In the above photograph we find to the left his Majesty, the King, talking over the microphone to his world-wide Empire; the top left is Big Ben, well-known to all the American short-wave "Fans"; bottom, is the scene taken at the Coronation of King George; center, dome of St. Paul's

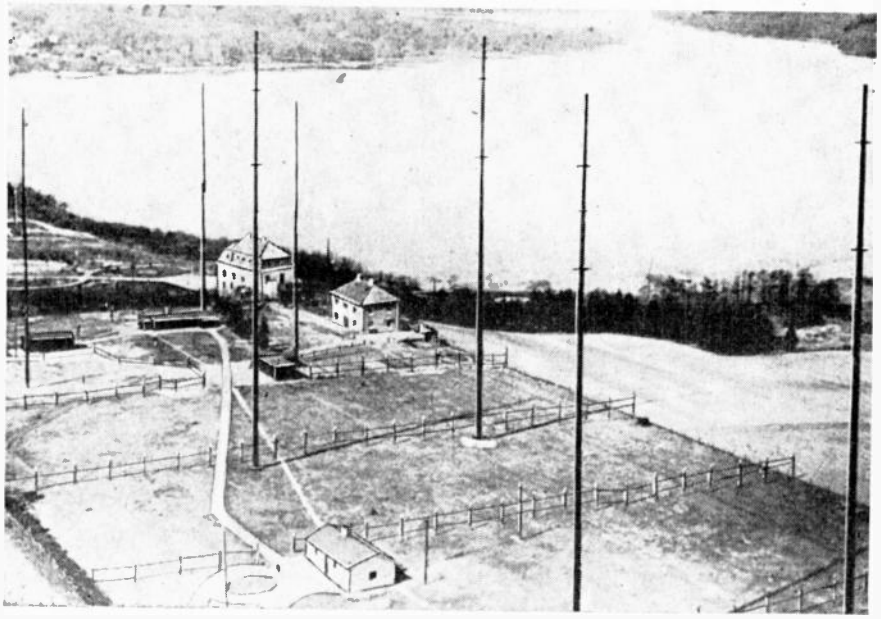
(*Continued on page* 141)

Danish S-W Transmitter



View of the transmitting masts of the Danish short-wave station OXY, located at Skamleboaek. This station is heard regularly with good volume by American listeners.

Interior of the Danish short-wave station OXY whose programs are quite familiar to American short-wave listeners. This station is heard on the 49.5 meter band.



The short-wave receiving station of the Danish short-wave system is shown in the picture at the right, the high poles supporting a novel form of especially designed antenna. The power of the transmitter is 500 watts and the station may be heard at different times on wavelengths of 19.6, 31.6, or 49.5 meters.

Few short-wave transmitters anywhere in the world have been in operation as long as OXY in Denmark. The original transmitter was set in operation on November 13, 1928, seven years ago. The OXY short-wave transmitter broadcasts daily programs of two other Danish stations, located at Copenhagen and Kalundborg.

THE short-wave station OXY is situated at Skamleboaek on the western coast of the island of Zealand. At present it is broadcasting on a wavelength of 49.5 meters (6060 kc.). the power is 0.5 kilowatt. From time to time it may, however, be working on 31.6 and 19.6 meters.

The transmitter—which was inaugurated on the 13th of November, 1928—comprises five stages, and is crystal controlled. In order to overcome the difficulties attendant upon the production and subsequent maintenance of a crystal control at the very high frequency corresponding to 31.6 meters, a much lower frequency is employed in the initial or control stage and is doubled in succeeding stages, at the same time as the power is progressively increased. The modulation is applied via two tubes operated in parallel, the power in the aerial being 0.5 kilowatt under working conditions.

The power supply is obtained from two direct-current generators: one giving 0.6 kw. at 1,200 volts for the anodes of the amplifying tubes, and the other delivering 3 kw. at 6,000 volts to the anodes of the main transmitting and modulating tubes. Each generator is driven by an alternating-current motor. The valve in the crystal control circuit operates with an anode potential of 180 volts. Filament heating current for the last-mentioned valve, and for the first amplifying tubes, is obtained from an accumulator; alternating current is used for the other valves.

The OXY shortwave transmitter does not send its own program, but it broadcasts the daily program of the two other Danish stations Copenhagen and Kalundborg from 6:00 p.m. to about 11:30 p.m. GMT, that is to the close down of the Danish programs. Furthermore the Sunday afternoon service at 4:00 p.m. (1:00 p.m. GMT during the summer) is broadcast by the shortwave transmitter.

The elaborate antenna system which is shown in the photographs is undoubtedly the cause of this station being heard over tremendous distances. Nearly all of the prominent short-wave broadcasting stations are using directive antennas in order to insure the success of their signals reaching the country or countries for which they are being broadcast.

New 2 Way Police System

Works on 7 Meters

The extremely short wavelength of 7 meters is now being adopted by numerous police systems, owing to greater freedom from static and other interference. The newest 7 meter apparatus has been developed so as to permit the police to talk from a moving car to police headquarters.

Top photo shows 7 meter equipped police car with a telescopic antenna at A. Left—photo shows loudspeaker L, also transmitter cabinet on brackets, which is ordinarily placed in trunk at rear. Small inset shows "hand-mike" on hook. Right-hand photo shows closeup of transmitter and inset shows power unit, which is placed under engine hood.

● POLICE chiefs and other public officials in the East recently participated in a special demonstration of two-way radio service, latest development in police communications.

A Newark, N. J., police car, regularly equipped to receive broadcasts from headquarters, was further equipped with an ultra-high frequency transmitter newly perfected by Bell Telephone Laboratories for the Western Electric Company.

The transmitter weighs only 20 pounds and is 11 by 7 by 6½ inches in size. It has a power of 5 watts which, together with the high efficiency antenna systems used, was sufficient to be clearly heard over the receiver at headquarters.

Visiting officials, taken for a cruise around the streets in this car, listened to warnings broadcast by the police dispatcher and then, by speaking into a telephone instrument, replied, thus having two-way communication.

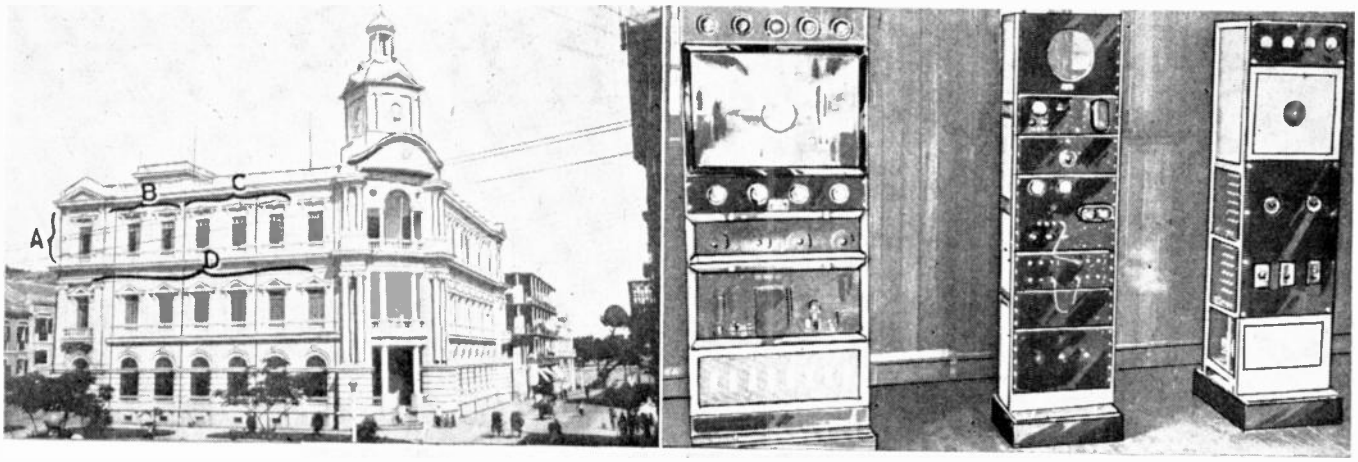
Newark's ultra-high frequency police channel of 30,100 kilocycles was used. Transmission from the car was controlled from headquarters and in no way interfered with regular police service.

An advantage foreseen for the two-way system is that the policeman on motor patrol can make instant reports to headquarters at any time without leaving the wheel. In cases of pursuit, for example, he can report his position without delaying the chase. With the whole motor patrol able to report over the return channel, headquarters can visualize an entire situation and direct it so that all cars can cooperate effectively.

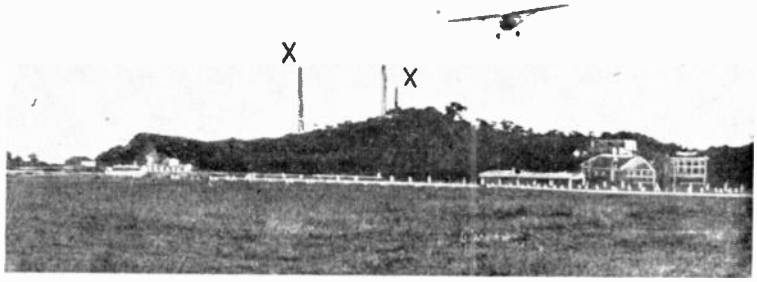
A specially designed crystal holds the transmitter to within .025 per cent of its assigned frequency. The crystal requires temperature control only at temperatures below freezing, at which point a heater automatically goes into operation. Power is furnished to the transmitter by a 6 volt battery charged by the car's generator.

A vertical radiator consisting of a flexible steel rod, serves the dual purpose of transmitting and receiving antenna. This antenna is fixed to the side of the car and projects somewhat above its top.

The patrolman in the car speaks over a telephone which is nearly identical with the familiar hand telephone. The voice itself operates relays which put the transmitter on the air. These are so timed that they do not switch off during mere intervals between words but do so after a brief pause which indicates the speaker is finished. The receiver then automatically goes into operation to pick up the answer from headquarters. The transmitter uses four tubes, each containing five elements.



The photo above shows the Post Office building in the center of Macao, Portugese Colony on a peninsular on Macao Island, at the entrance of Canton River, China. The letters indicate the following divisions of the radio set-up at Macao; A, amplifier; B, broadcasting studio; C, radio station; D, automatic telephone switchboard.



In the photo above—CQN'S transmitter is shown at the left, the amplifier in the center and the rectifier panel at the right.

At the left—the antenna masts of the station at Macao are indicated at XX. The Portugese aviator, Humberto da Cruz, is shown arriving by plane from Lisbon.

The S-W Station in Macao

● THE three photos reproduced herewith show a little-known broadcast station operating at Macao, a Portugese colony off the coast of China. The wavelength used by the short-wave broadcasting station is 49.8 meters and it is on the air, according to a letter received from the Post Master General of Macao, twice a week—Mondays and Fridays, from 8 to 10 G.M.T. The power of the station is 500 watts when the modulation in the aerial system is 100 per cent. The aerial used is of the Zepp type. Announcements from this short-wave broadcasting station are made in both Portugese and English. The antenna towers and transmitter apparatus buildings are situated on the top of the hill D. Maria outside of the city.

The studio of the broadcasting station is installed on the top floor of the Post Office building in the suite of rooms marked "B" in the accompanying photo. This Post Office building in which the studio is housed is located in the center of Macao.

New Stations in Latin America

By H. S. Bradley

"World's Champion S-W Listener"

● THE numerous Spanish-speaking stations of South and Central America are, without doubt, the source of the average fan's most difficult identification problems! Few of these stations ever give English announcements; many of them shift wavelength at will, and new ones are appearing almost daily, to add to the listeners' confusion.

It is the writer's purpose, then, to briefly give essential data on some of the newer and less-well-known of this group of stations that are to be heard broadcasting on short-wave channels, in order that fans may log some of them, before the deluge of summer static settles upon the waves above 30 metres, where the majority of such stations are to be found to operate.

Looking south of the Rio Grande, we should first note the new Mexican stations which operates daily on 5980 kc. or 50.16m. The call used on this, and a broadcast-band wave simultaneously, is XECW. Verifications, sent out on post-card views of the lofty mountain peaks about the city of Mexico, give the station schedule as 10:30-11:30 P.M., daily, and the power as ten watts. Signal strength is very good, when the low power is considered, but reception is generally marred by telegraphic interference from KNA. Reports should be sent to this station at Bajio 120, in Mexico City.

YNLF, "La Voz de Nicaragua" (The Voice of Nicaragua) has been reported on varying wavelengths, from 41 to 45 metres, but, at present, is to be found on 50.2 metres, several nights each week, between 7 and 8 P.M., with scheduled broadcasts, and, at later hours, engaged in two-way conversation with neighboring stations. Verification cards bear a view of the transmitter with a map of Nicaragua as a background; together with interesting information concerning the country, as well as the station. YNLF was the first station installed in Nicaragua, and its power is given as 1,000 watts.

Nicaragua presents also, what, until recently, has been a mystery station, operating daily on about 6400 kc. or 46.8 m, between 7 and 10 P.M. This has at last been identified as YN1GG, "The Voice of the Lakes,"

(*Continued on page* 140)

What About

By H. W. Secor

● PRACTICALLY everyone today is asking the question, "What about Television—and how soon can we expect it?" According to a recent announcement by Mr. David Sarnoff, President of the Radio Corporation of America, they will be ready to set up a television test station in about a year or a year and a half. Apparently, from Mr. Sarnoff's statement, it will be several years before the general public will be able to enjoy the facilities of everyday Television. At present there is another center of television activity in this country, namely the Farnsworth Television Corporation, located in Philadelphia, and the latest information concerning their activities seems to point to a much earlier introduction of up-to-the-minute cathode ray television to the public than that predicted by Mr. Sarnoff and the R.C.A.

One thing seems to be quite certain, and that is that very excellent television images with excellent detail have now been produced for some time in the laboratories of both the R.C.A. and the Farnsworth Corp. In fact, one of the accompanying photos shows the Farnsworth *cathode-ray* receiver *with the image actually shown upon the screen* as it was projected onto it from the cathode ray tube inside the cabinet. Another photo shows the Farnsworth television pick-up used in picking up the actual studio scene, in this case the image of the young lady seated before the powerful floodlights.

Mr. Farnsworth has also perfected another very important television adjunct, known as the *telecine*, a device for picking up and transmitting standard movie film, directly from the film, and which will make the transmission of motion pictures by television possible. In this new device, as the film is "televised" it moves *steadily* along at a constant rate before the pick-up, without any jerky or intermittent motion such as that occurring in the standard motion picture projector.

Practically all of the television transmission and reception which has been produced up to the present time, has been accomplished by means of a scanning disc, a thin metal or other disc containing a spiral of small holes or lenses, which is used to scan the image (a person's face, for instance) line by line. The outer hole of the spiral scans the top of the face, for example; the second hole a section across the forehead above the eyes; the third hole in the spiral the eyes or part of the eyes, etc. At the receiving end of the television system using a scanning disc, a similar disc with a spiral of holes or lenses in it, is rapidly rotated in front of a neon tube and flashes of light from this tube, corresponding in fluctuations with a photo cell fitted behind the transmitting scanning disc, cause an image to be built up at the receiver.

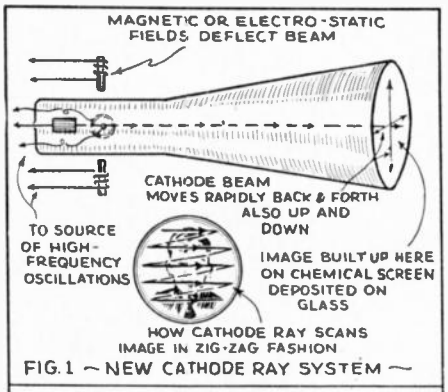


FIG. 1 — NEW CATHODE RAY SYSTEM —

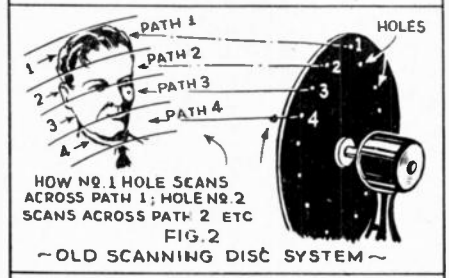


FIG. 2
— OLD SCANNING DISC SYSTEM —

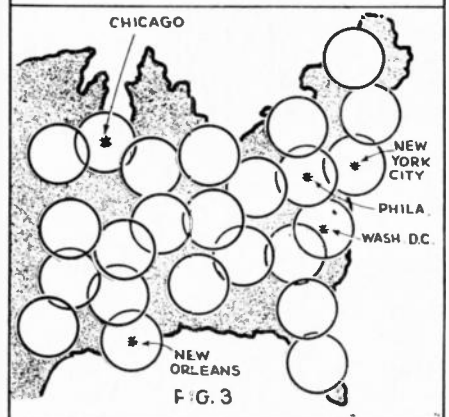


FIG. 3
— HOW 5 TO 7 METER ULTRA-SHORT WAVE TELEVISION STATIONS WILL OVERLAP AND COVER THE WHOLE COUNTRY —

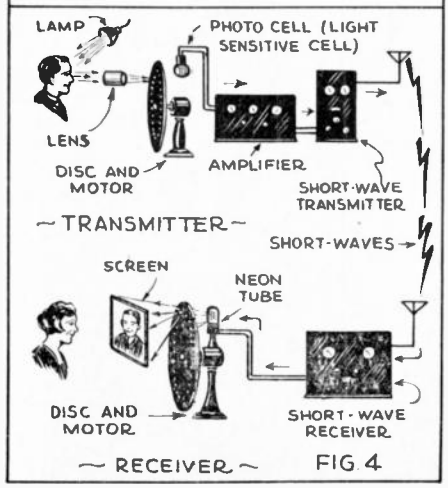


FIG. 4

The diagrams Figs. 1 to 4 at the left show clearly the principles of how the cathode ray tube as well as the revolving scanning disc scan the image. The plan for covering the whole country with a network of ultra short-wave television stations is shown and also the simple set-up for transmitting a television image, Fig. 4.

The *cathode-ray tube* is undoubtedly the logical solution of the television problem, when it comes to producing images built up of several hundred lines, as the greatly increased speed which the tube will have to handle in picking up or reproducing such high-quality television images, can very easily be handled by such a device, which has practically no electrical inertia. (iag.)

In the cathode-ray television system, the image is scanned or built up by the extremely rapid movements of a beam of electrons within the tube, the movements of this practically *inertia-less* ray being controlled by means of electro magnets placed around the exterior of the glass tube or by varying electrical charges on plates within the tube. Many people seem to get the idea that the cathode-ray tube does away with scanning of the image, but such is not the case at all; the only new principle involved being that we are here dealing with an electrical scanning device, in which an electronic beam is made available for our purposes and acts as a pencil of light, as

Television?

How soon shall we have practical Television in this country and what is the probable type of Television receiving apparatus to be used? In the accompanying article a number of interesting angles on the status and practical application of Television in the immediate future are discussed in a clear manner.

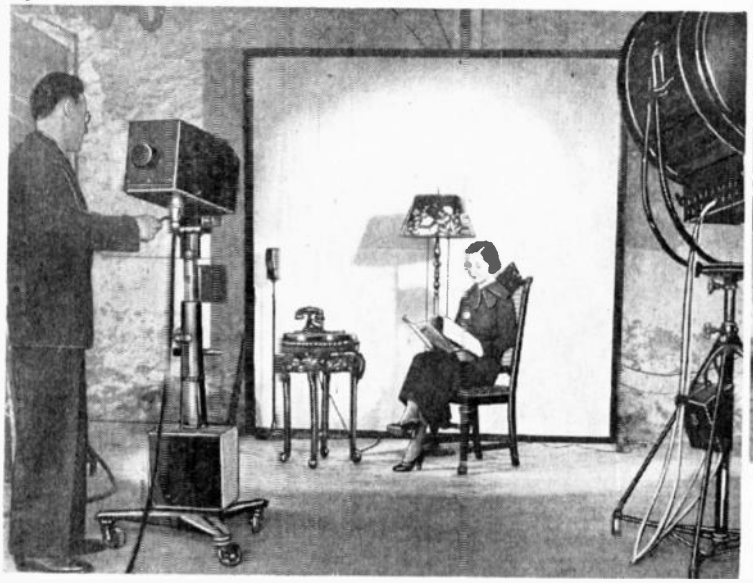


Photo above shows the new Farnsworth Television receiver developed in his Philadelphia laboratories and it is very interesting to note that the girl's face reproduced on the screen is the actual reproduction from the Farnsworth special cathode tube, and not merely picture painted on it by an artist. Photo at left shows Farnsworth Television pick-up at studio.

it were, with which to paint the image on a chemical target or screen placed (deposited) on the expanded end of the cathode tube.

Latest French Television apparatus recently demonstrated. Right—Mlle. Bretty French actress before Television camera. Voice and image are transmitted.

One of the reasons why it would probably take an appreciable time before the new cathode-ray television is made available to the public in all parts of the country, is because of the fact that the very high frequency signals involved, (which will undoubtedly be transmitted on waves about 5 or 6 meters in length), will necessitate the use of transmitters mounted on the top of high buildings or towers in various cities. Furthermore, these ultra-short-wave transmitters will probably have a range not greater than a 50 mile radius, and it is the plan of the R.C.A. at least, so far as known, that after their tests have proven successful and sufficient engineering measurements have been made in the field, that eventually and during the course of the next five years or so, the whole country will be covered with a complete overlapping network of these 5-meter stations, each with a range of 50 miles, or so. Just as if you had placed a lot of coins over the map of the U. S., the coins overlapping a little.

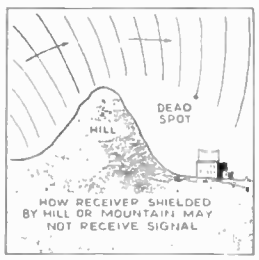
It will be seen that to erect a whole series of these ultra short-wave television transmitting stations across the country, north and south as well as east and west, will take considerable time and money. It is unfortunate that experimental television could not have proceeded along the lines which it started to pursue a few years ago, even though the image produced with the older mechanical scanning system was not so fine in detail, as steady improvements during the past three or four years would certainly have resulted in a much better image today—

(*Continued on page* 142)

How To Get BEST RESULTS From Your S-W Set

By George W. Shuart

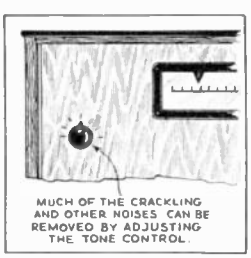
● WE have had a great deal of correspondence from readers who do not seem to be obtaining the results which they should. Their complaint is that they read the lists of stations rolled up by some of the Trophy Winners in *Short Wave Craft* and they are very much disappointed because they do not receive the same stations on their short-wave sets. Of course, there are hundreds of reasons which one could mention that would be responsible for this condition, and we will endeavor to point out a few which we hope will aid some of those who are less fortunate in picking up the very distant and *hard-to-get* stations.



In some locations a hill may interfere and prevent reception of certain programs.

First you must remember though that the *location* has a lot to do with it, and it is quite possible that you may be in a location which is not well suited to short-wave reception, although very few actual "dead spots" have been reported; there are many locations which will permit excellent reception from one direction and very poor reception from stations located in other parts of the world.

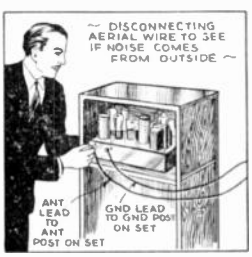
This, we have been told, is frequently due to intervening hills or mountains which act as a shield between the transmitting station and the receiver. This condition can not be overcome and we do not offer any suggestions for it. Another reason why stations are received from only one direction can be due entirely to the directive effect of the antenna employed. This can only be determined by one who is expert in the design of antennas. The prime requiste in short-wave reception is, of course, a good antenna and by all means you should read every available article in which different types of antennas and their construction are discussed.



Many crackling and other noises can be removed by adjusting the tone control.

To get the *most* out of your receiver and run up a large total of stations received, it is absolutely necessary that you listen at the proper time of day or night. During the summer months the greatest distance and best reception will be obtained on the 19, 25, and 31 meter bands during the evening, over a period ranging between one hour before darkness sets in and two to four hours after night-fall. The best all-around bands are the 25 and 31 meter bands if you are interested in hearing a lot of stations. They will come in very strong and there will be very little fading experienced.

The 19 meter band and all those lower in wavelength produce best results during the period just before darkness and in the late afternoon. The 49 meter band during the summer months seems to be best only in the early morning just after daybreak, when the Asian and African (Japan, Australia, etc.) stations may be heard, although the static is very heavy on this band during summer months.

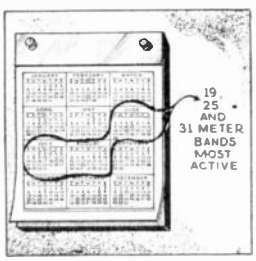


If noise is a problem, disconnect the aerial and note if noise ceases.

Many short-wave listeners also complain that they live in very "noisy" locations. Noise encountered during short-wave reception can originate in any number of sources. Those living in congested areas experience noises caused by automobile ignition and electrical apparatus such as neon signs, flashers, and many other types of machines which are too numerous to mention. The automobile ignition interference is experienced mostly on the wavelengths below 25 meters and seems to reach a peak somewhere around 18 to 20 meters.

A great deal has been written and published about *noise-reducing* antennas and, as we said before, every short-wave enthusiast should gain as much information as possible regarding antennas by carefully studying all available data. Much of the so-called "man-made static" can be eliminated or materially reduced through the use of these excellent antennas.

Before you condemn your location, especially when you are encountering a lot of noise, you should determine first whether or not the noise is really coming from the outside or originating in the radio receiver itself. This can easily be done by disconnecting the antenna. If the noise disappears completely when the antenna is disconnected, you can be most certain that the noise originates on the outside. However, if you still hear noises, it is advisable to call in your local radio service man and have him check over your receiver or, if you are of the more advanced type of short-wave "Fan", there are several places where you can look for the trouble yourself.

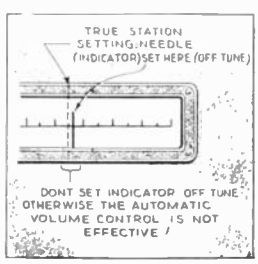


Different frequency bands or wavelengths are more active at certain seasons.

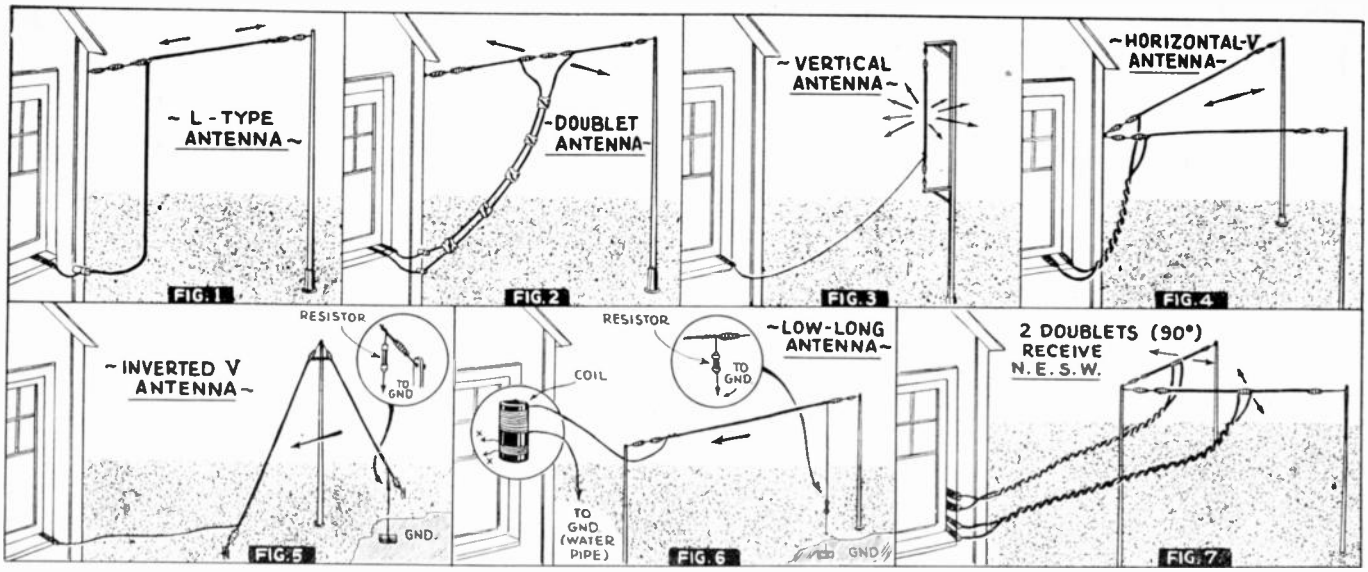
Probably the two most common sources of noise in short-wave receivers are the tubes and the tuning condenser. The bearings of the condensers which, in most cases also serve as an electrical connecting link, become clogged with dust and other forms of dirt which naturally collects in any receiver and should be thoroughly cleaned with a small brush and alcohol.

In the up-to-date short-wave receivers of the all electric type, noise is often caused by a defective tube and the only way this can be determined or eliminated is by changing the tubes one at a time until you have found the one that is causing the trouble. Most up-to-date receivers have tone controls which tend to discriminate against the high-pitched tones when turned in a certain direction. A lot of these crackling and scrap-

(Cont. p. 141)



If the tuning indicator is not set on the exact frequency, the A.V.C. will not be effective.



The above drawing shows just about every type of short-wave antenn a commonly used and the dark arrows clearly indicate the direction or directions from which these antennas receive best.

Directional Effects OF SHORT WAVE ANTENNAS

By GEORGE W. SHUART W2AMN

● IN Fig. 1 we have the regular inverted L type antenna which is directional in a plane parallel with the flat top. While this antenna receives well in both directions, maximum pick-up is said to be obtained from the direction opposite the free end. Where the flat-top section is rather short, the directional effects are not very noticeable; however, if the flat-top is many times the length of the down lead its directional qualities are very evident.

In Fig. 2 we have the very much discussed doublet antenna which receives best in either direction facing the broad side of the antenna flat-top. It is advisable to have this antenna facing in a direction which will afford maximum pick-up, especially on the distant stations. The vertical antenna shown in Fig. 3 is non-directional and receives well in *all directions*. However, it is used mostly on the shorter waves, from 30 meters downward and it is especialy valuable in the ultra high frequency region.

If we wish to construct really *directional* antennas we will find these shown in Figs. 4 and 5. Fig. 4 shows the horizontal "V" which is extremely directional in the directions shown by the arrows. The angle of the V found best for the average short-wave receiving antenna is around 45 degrees. However, this angle would vary considerably with the length of antenna used, but for general purposes the angle of 45 degrees will work fairly satisfactory.

In Fig. 5 we have shown the inverted "V" antenna. This antenna is very popular in Europe and gives very good results on a comparatively wide wave band and receives best from the direction opposite to the grounded end. The resistor shown connected between the far end of the antenna and ground should be somewhere around 400 to 600 ohms. If the resistor is left out, then the antenna will receive equally as well in the opposite direction.

For those who are interested in constructing this inverted "V" antenna the total length of the wire in the "V" should be 123 ft. The height of the mast will be 57 ft. and the distance across the base will be 41 ft. The length of the lead-in is not important.

In Fig. 6 we have the long low antenna sometimes termed the "Beverage" antenna. This consists of several hundred feet of wire run in a single direction fairly close to the ground, three or four feet above the ground is sufficient. The far end of this antenna is also grounded through a resistor similar to the "V" antenna. This is very directional in the direction opposite to the resistor or in the direction of the lead-in.

The antenna in Fig. 7 allows reception in all four directions, north, south, east, and west, or in any other four directions which the experimenter may desire. In all cases the antennas shown, should be located well out in the clear and away from all surrounding objects.

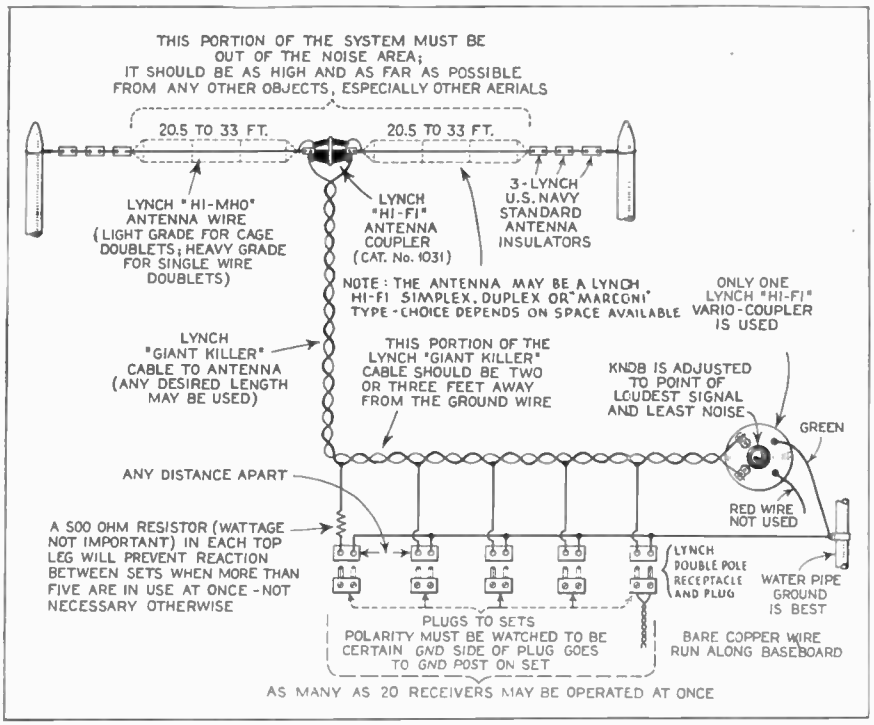
The directional effects of any antenna here shown are not effected by the type of lead-in which may be used. For instance, on the doublet type antennas either the twisted pair or the transposed type of lead-ins may be used, also the type of wire used makes no difference. The total length of the "L" type antenna shown in Fig. 1, should be approximately 75 ft. for best results. The length of lead-ins for the doublet antennas or the "V" antenna is not at all critical; however, if possible, the total length of the flat-top should be around 75 feet or about 37 feet per section.

In Fig. 6 the small coupling coil is connected between the antenna and the receiver. The two leads marked "X" connect to the antenna and ground posts of the short-wave receiver. The two doublet antennas in Fig. 7 are not used simultaneously; when one is used, the other should be disconnected from the antenna and ground binding posts.

Also, the two ends of the doublets which are mounted on a single pole should be kept as far apart as possible in order that one will not have a great deal of effect upon the other. These two ends of the doublets should be 15 or 20 feet apart if possible.

DOUBLET AERIALS

● PROBABLY the most discussed subject among short-wave "Fans" is aerials, or antennas, as they are called in most cases. The most prominent of antennas undoubtedly is the *doublet* in some form, there being several different varieties of doublets. In the accompanying drawing we see the modern doublet which uses a transformer or coupler in the center of the flat-top and a twisted pair or cable for the lead-in.



Operating more than one receiver on a single Lynch antenna system.

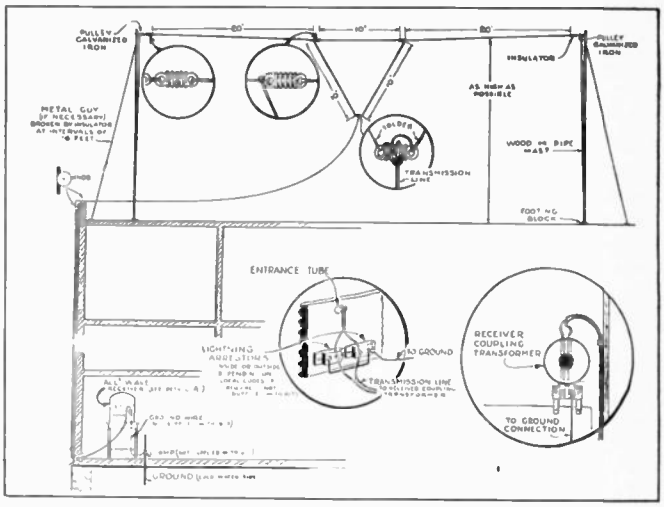
The drawing also shows how several different receivers can be operated simultaneously with the same antenna system. By merely connecting the transformer as shown in the diagram and using small double-pole receptacles and plugs for each receiver, as many as 20 can be used, at the same time. The drawing shows that a 500 ohm resistor should be connected in series with each lead going to the lead-in system where more than 5 receivers are operated; otherwise they are not necessary.

THE V-DOUBLET

● ANOTHER version of the doublet has been presented in the new G. E. "V-Doublet." This is quite a unique system and said to respond to a fairly wide range of frequencies and still maintain all the qualities of the conventional doublet, designed to improve reception and discriminate against back-ground noises.

In this subject, the heart of the entire system is the "V" which connects the lead-in system to the antenna. The space between the two halves of the doublet is 10 feet and each side of the "V" is also 10 feet long.

The 10 feet space between the two top sections of the "V," of course, is effected by the two insulators at the points where the "V" connects to the center of the flat-top. The lead-in system is a special cable designed to work especially with this system.



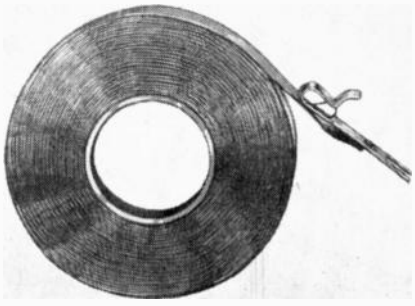
The new "V-Doublet" antenna system.

ONE MINUTE AERIAL

● THE accompanying illustration shows the newest idea in quickly erected aerials—in fact this aerial can be erected in about one minute, without the use of tools of any kind. The aerial consists of a low resistance conductor mounted on adhesive tape, with a combination terminal that sticks wherever you put it. The aerial can be placed around picture moulding or baseboard where it is also easily concealed and the instructions for installing it are included with the aerial. This aerial can be used inside of apartments and other locations where unsightly wires are objectionable; it may be placed under a rug, running the tape around in a concentric spiral.

It is connected to your radio receiver in the same manner as any regular out-door antenna. However, you should be careful not to run it near metal radiators or pipes, and, by all means, do not allow it to come in contact with metal of any kind.

Probably the best place to mount the antenna is around the base-board of the room.



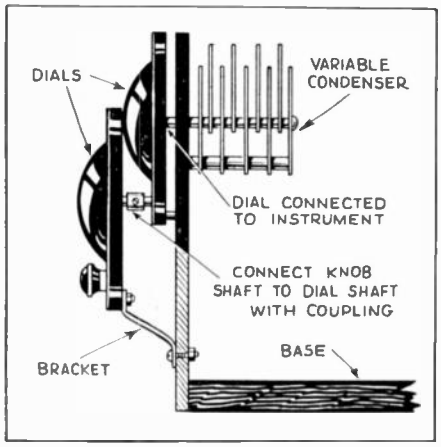
The new "Quik-Up" tape aerial.

$3.00 for Best S-W Hint

Each month we are awarding $3.00 for the best short-wave hint. Those presented on this page will give the reader an idea of the type of material that we are looking for. All hints printed other than the prize winner will be awarded a six months subscription to this magazine.

Band-spread Hints

By mounting two vernier dials such as shown in the drawing, excellent band-spread can be obtained. One of the dials drives the vernier of the other. In other words, if each dial had a ratio of 6 to 1, we would have a total of 36 to 1 giving a considerable amount of band spread.



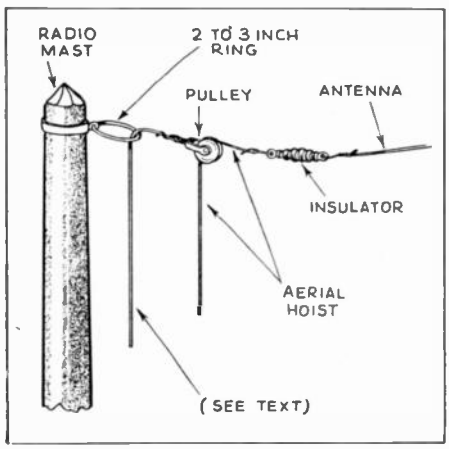
One novel method of obtaining bandspread.

Another convenient way of obtaining *band-spread,* is to connect a small condenser in parallel with the main tuning condenser. If you are using a regenerative detector, the small condenser should have a value of from 20 to 35 mmf.

★ ★

The Antenna Hint

Many short-wave "Fans" use a high pole specially constructed to support the aerial or the family flag pole. When the pulley jams in the usual arrangement, it is just about impossible to repair the trouble unless the mast is lowered. Referring to the drawing we notice that the pulley rope runs through a large ring which is fastened to the top of the pole or mast. Should the pulley jam, the rope going through the ring can be used to lower the pulley and the difficulty overcome. This is a worthwhile suggestion and requires only a little extra effort when the pole is put up.

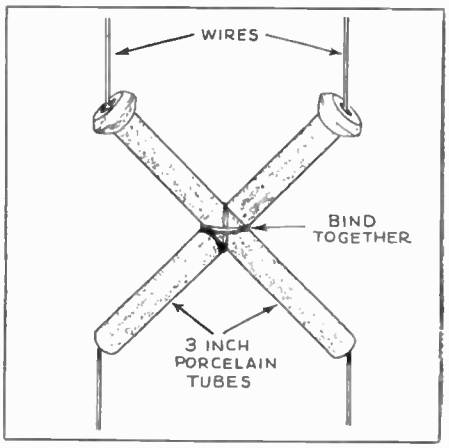


This hint shows the method by which your antenna pulley can be repaired or replaced without lowering the mast.

★ ★

Cheap Transposition Block

A neat and efficient transposition block can be made with two 3--inch porcelain tubes as shown in the drawing, by grinding a flat surface in the center of each tube so that they can be taped together, and if the wires are not pulled too tightly, they will give excellent service.



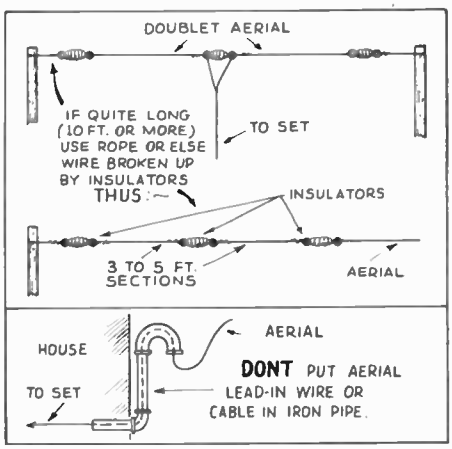
Transposition block made from insulating tubes.

When grinding the tubes flat on one side where they are crossed, do not grind all the way through, because there will be a direct opening between the two tubes and this way allow the feeders to touch, rendering the system useless, because of the noise which would occur when the wires scraped together.

★ ★

Short-Wave Antennas

The short-wave antenna is the heart of any receiving station, and should be given as much consideration as the design of the short-wave receiver. This may seem like a broad statement, but if it is heeded, you will immediately notice that it is quite true. Many people use long tie wires between the insulator which supports the end of the antenna and the mast or other object to which the antenna is hung. In one of the drawings you will notice that more than one insulator is recommended at the end of the antenna; if your supporting wire is 10 ft. or more in length, it should be broken up with several insulators, as shown in the accompanying drawing. If your masts are of metal it is advisable to keep the end of the antenna proper at least 10 to 15 feet from it.



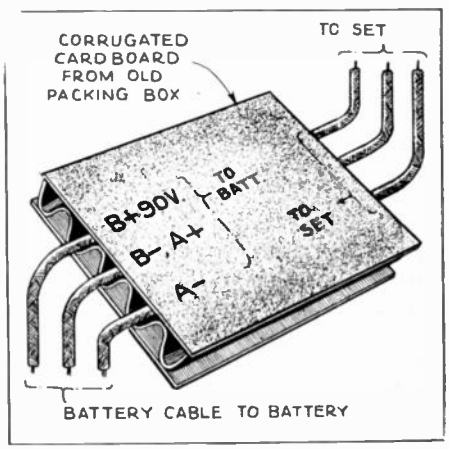
Some worthwhile suggestions for antenna construction.

Do not run the aerial lead-in through a metal pipe or any other type of metal tubing just to provide a convenient place for the lead-in.

★ ★

Handy Cable Marker

Here is something which will pay big dividends because it will insure you against misplacing the cable wires of your battery set and probably damaging the tubes. It is just an ordinary piece of corrugated cardboard from an old packing box and the drawing clearly shows how it should be marked.



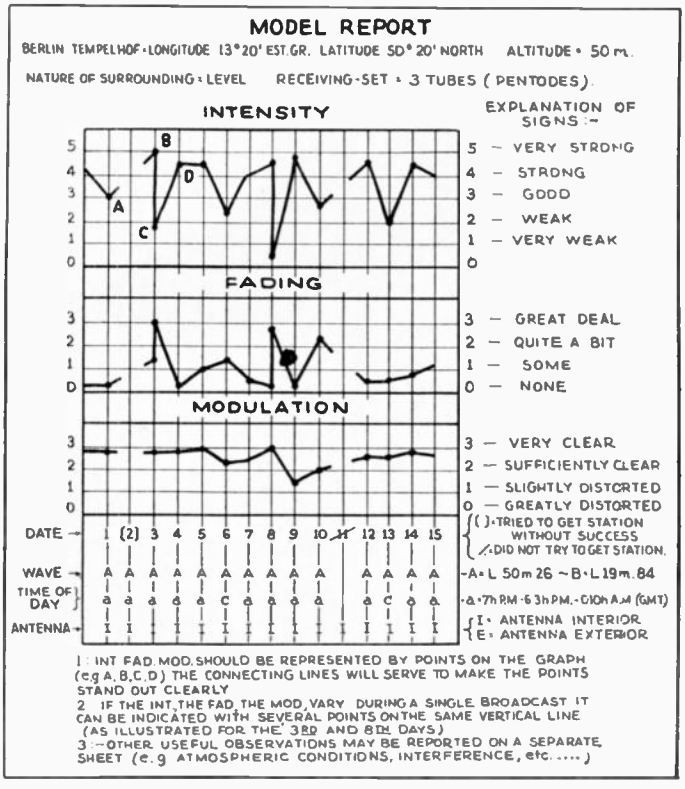
This drawing shows how to make a cable-marker which will prevent you from connecting the batteries to the wrong wires.

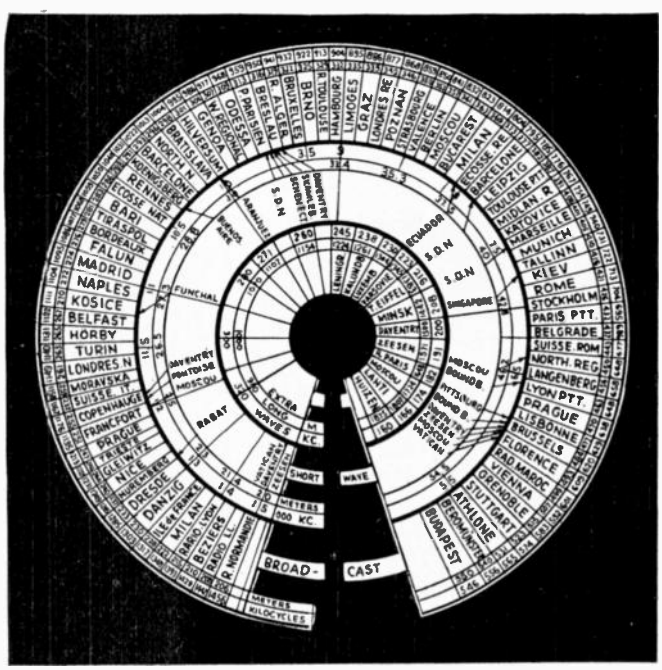
Foreign-Language Alphabets and Numerals

The following table gives the names of the letters of the alphabet and of the simple numerals in the more common languages of broadcasting. An English equivalent of the pronunciation of the letter names and numerals is included to facilitate interpretation of the announcement of the various station call letters.

	English	French	Spanish	German	Portuguese
a	ay	ah	ah	ah	ah
b	bee	bay	bay	bay	bay
c	see	say	say (thay)	tsay	say
d	dee	day	day	day	day
e	ee	ay	ay	ay	ay
f	ef	ef	effay	ef	effay
g	jee	zhay	hay	gay	hay
h	aitch	asch	ah-chay	hah	ah-hay
i	ah-ee	ee	ee	ee	ee
j	jay	zhee	ho-tah	yot	ho-tah
k	kay	kah	kan	kah	kah
l	el	el	ellay	el	ellay
m	em	em	emmay	em	emmay
n	en	en	ennay	en	ennay
o	o	o	o	o	o
p	pee	pay	pay	pay	pay
q	kew	coo	coo	coo	coo
r	are	air	erray	air	erray
s	ess	ess	essay	ess	essay
t	tee	tay	tay	tay	tay
u	you	eu	oo	oo	oo
v	vee	vay	vay	fow	vay
w	double-you	double-vay	dooble-vay	vay	dooble-vay
x	ex	eeks	eckis	icks	eckis
y	wye	egrek	egree-ay-gah	ipsilon	egreego
z	zee	zed	zed	tset	zed
1	wun	unh	uno	ine	oon
2	too	der	doce	tswi	dois
3	three	trwa	trace	dry	trezh
4	fore	katth	kwah-tro	feer	kwah-tro
5	five	sank	sinko	finf	seenko
6	six	seece	sase	sex	sase
7	seven	set	sate	seeben	seti
8	ate	hweet	ocho	okt	oyto
9	nine	nerf	noc-a-vay	noin	novay
10	ten	deece	de-ais	tsane	dezh
11	eleven	onze	on-say	elf	ohnzi
12	twelve	doze	do-say	tsvelf	dohzi
13	thirteen	traze	trasay	try-tsane	trehzi
14	fourteen	katorz	katorsay	feer-tsane	ka-tawr-zy
15	fifteen	kanz	keen-say	finf-tsane	keen-zy
16	sixteen	saze	deesi-sase	sex-tsane	deza-sayz
17	seventeen	deece-set	deesi-sate	seeben-tsane	deza-seti
18	ayteen	deece-hweet	deesi-ocho	okt-tsane	dez-oyto
19	nineteen	deece-nerf	deesi-nooavay	noin-tsane	deza-novay
20	twenty	vant	vain-tay	tsvantsig	veentay
30	thirty	traynt	trayntah	dry-tsig	tree-teh
40	forty	karant	karentah	feer-tsig	qwurrenteh
50	fifty	sankant	seen-kentah	finf-tsig	seen-kwenteh

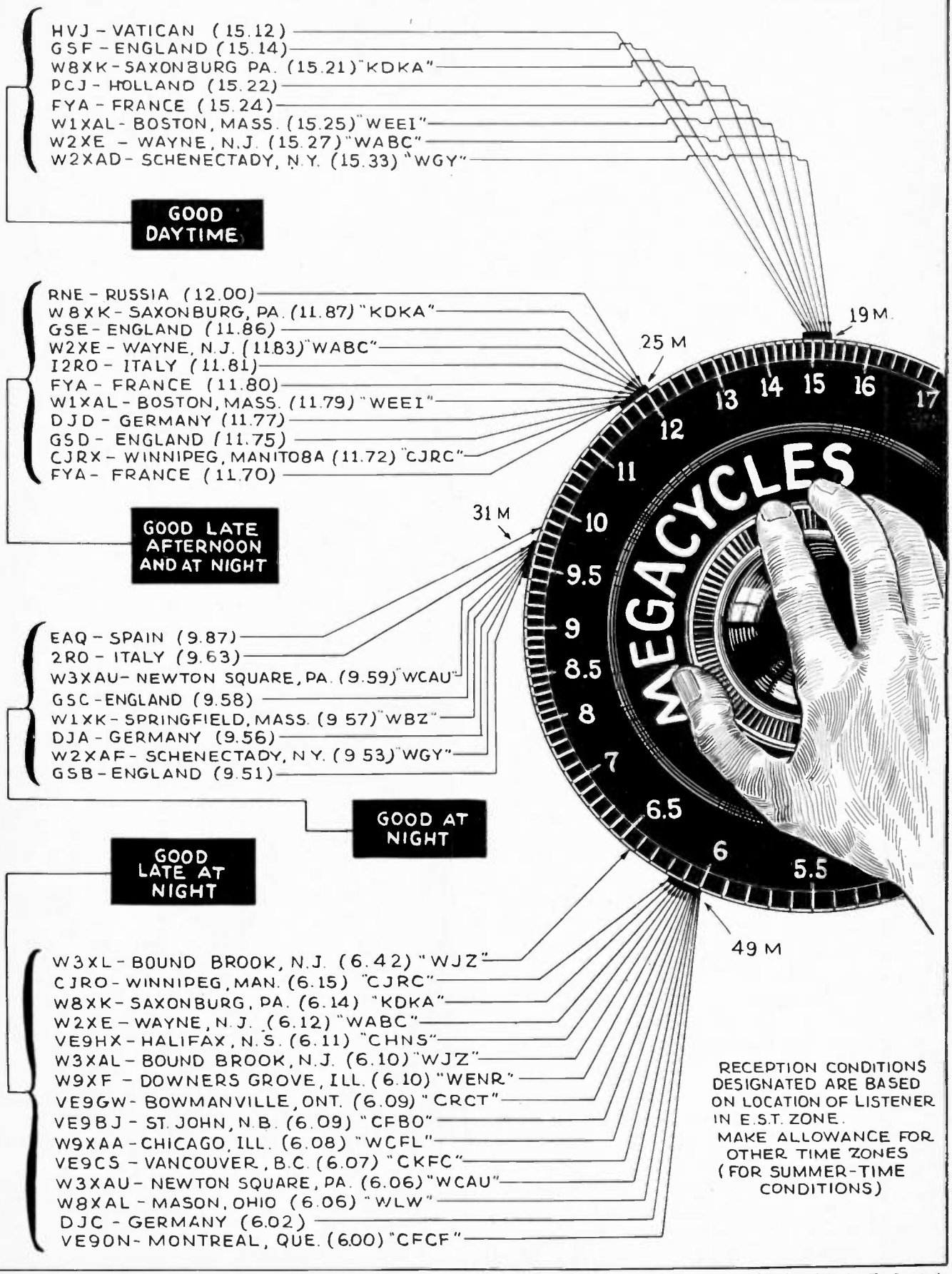
—Courtesy *World Short-Wave Radiophone Transmitters.*





The Illustration directly above shows the appearance of a typical dial on a European all-wave receiver, which has to cover wavelengths all the way from 2,000 meters down to 20 meters, for the reason that much of the broadcasting in Europe occurs on wavelengths above 500 meters. The diagram at left shows model reception report sent out by 2RO, Rome.

LOCATING STATIONS IN A JIFFY



Win This Silver Trophy

First Trophy Award to Juan Cloquell Storer,

Arecibo, Puerto Rico

The handsome Silver Trophy, illustrated here, will be awarded to the person sending in what appears to be to the judges the most interesting photograph of their short-wave listening post. The rules for this contest provide that the Trophy shall be awarded only for the BEST photo of listening post apparatus or set-up, and is not concerned with amateur TRANSMITTING stations. Those owning transmitting stations may enter such photos in the monthly contest sponsored by SHORT WAVE CRAFT magazine. This Trophy is a handsome specimen of the silversmith's art and was designed by a leading New York Trophy Manufacturer. This beautiful silver trophy stands 16 inches high and is symbolic of the art of short-wave listening.

For the Best "Listening Post Photo"

Rules For Short Wave "Listening Post" Trophy Contest

● THE editors of the OFFICIAL SHORT WAVE LISTENER magazine feel sure that our readers will be greatly pleased with this announcement of a brand new "Trophy Cup" Contest, in which the hardsome silver trophy here illustrated, will be awarded to that Short Wave Listener who submits the best "Listening Post" photo.

Here are some of the points on which the "Listening Post" photos will be judged by the editorial staff: The photo must be clear and preferably not smaller than 5 x 7 inches, although 4 x 5 inches will do if the photo is particularly clear.

If possible try to have the photo show the owner or operator of the "Listening Post" appear in the same picture with the receiving apparatus, although a separate photo of yourself will do, of course.

Not only will the photo be judged for the quality of the photograph itself, but also for the ingenuity shown by the owner of the station in a neat and orderly arrangement of the receiving apparatus.

Do not write descriptions on the back of the photo, but simply place your name and address on the back of it or on the photo mounting.

All descriptions of Short-Wave "Listening Posts" should be typewritten or else writtin in ink, well spaced so that the editors can read them quickly. Do not send "pencil-written" descriptions and moreover keep the description of the station and the results you have obtained as brief as possible; usually 300 words is plenty.

Describe your aerial briefly with its dimensions, and particularly tell in what geographic direction it points, north, south, etc. Also mention where it is located such as above any roofs, trees, or other objects, and what form of lead-in you employ.

Here is a brand new contest which will cost you practically nothing to enter and you have a very fine chance of winning this handsome Silver Trophy. The editors will award one of these Silver Trophies for the best "Listening Post" photo submitted by the readers of the OFFICIAL SHORT WAVE LISTENER magazine. Please remember that the photos must be as large as possible and they absolutely must be "clear"!

The announcement of the first Trophy Award for the best Short-Wave "Listening Post" photo appears on the opposite page. Entries for the next contest will be accepted up until July, 20th, 1935.

The editors will not be responsible for any photographs or descriptions of "Listening Posts" which may be lost in the mail or otherwise, and return postage should be included with the photos if they are to be returned.

All members of the OFFICIAL SHORT WAVE LISTENER MAGAZINE'S editorial and business staff are excluded from this contest, as well as any members of their families.

In the event of a "tie" between two or more contestants, the judges will award a similar trophy to each contestant so tying. Please remember that this contest for the best Short-Wave "Listening Post" photo is purely an amateur or experimenter's proposition, and all commercial short-wave receiving stations are excluded.

The best "Listening Post" photo will also be judged not because of the fact that a handsome array of expensive short-wave receiving apparatus has been assembled for the picture, but the "pedigree" or "DX" reception results will also be carefully scrutinized by the judges. The board of judges for this contest will be the Editors of the Official SHORT WAVE LISTENER magazine.

Address all entries to this contest to: LISTENING POST CONTEST, care of OFFICIAL SHORT WAVE LISTENER MAGAZINE, 99-101 Hudson Street, New York.

Second Trophy Award To Juan C. Storer
For Best Listening Post Photo

Crackerjack short-wave listening post owned and operated by Juan C. Storer of Arecibo, Puerto Rico, who wins the Silver Trophy for the best "listening post" photo this month.

Editor, SHORT WAVE LISTENER:

I received the copy of your magazine I ordered, and believe me, it's just swell. Here's a real magazine for the "real" short-wave listener who does not know anything of mathematics or radio technics.

I have become interested in the contest for the best photo of a *Listening Post*, and gladly send photo of my listening post, and hope to win that pretty trophy.

My radio set is a model General Electric M61, mounted on a Majestic console; my antenna is a Lynch doublet 90 feet long, including lead-in for each span about 40 feet high. The globe on top of the radio set was obtained from *Short Wave Craft*. The certificate above the globe is a fourth prize won at station WMT for DX contest; on the left side, between the world map and *Short Wave League* certificate is a barometer (Aneroid). On top of the map is a membership certificate of the Union Radio Americana of Costa Rica and the "Veri" on the top of the clock is from TI4NRH, for being the first listener in Puerto Rico to report. On the side of the rack you have a *Short Wave Craft* Magazine, *Short Wave Listener* Magazine, and Radio Index for the broadcast programs and stations. With this equipment and the radio connected to the phonograph I feel the happiest of men. I have verifications from all over the world, covering the five continents, around a hundred S.W. veris for broadcast program stations ONLY. I do not pay attention to telephone stations; sometimes I enjoy amateur conversations and may be some day I shall become a "ham" with a transmitter license, etc.

Juan Cloquell Storer
José de Diego St. No. 1
P. O. Box 194
Arecibo, Puerto Rico

Honorable Mention -- Thomas J. Taaffe, Jr.

Editor, SHORT WAVE LISTENER:

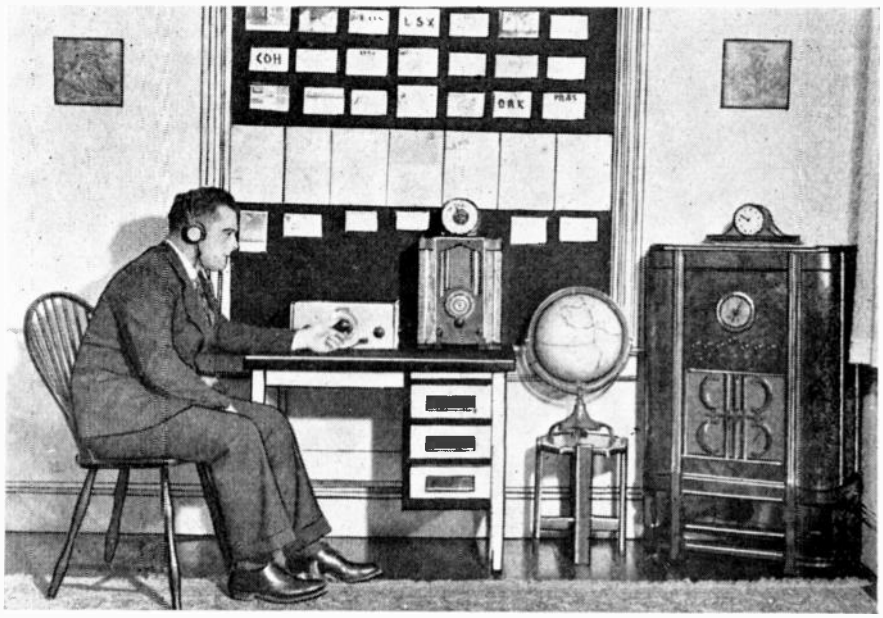
Here is a photo of the Official Short Wave Listening Post, No. 1, of New York State for the *International DX'ers Alliance*.

The aerial which is used most and that has performed the best is the RCA Double-Doublet aerial that you described in your magazine. The aerial is on a mast 55 feet above the ground and runs north-west by south-east.

The set on the right of the photo is an RCA Victor 262—a ten-tube superhet. The set in the center is an all-wave six-tube superhet. That on the left was made from a description in *Short Wave Craft* and is the old reliable "Doerle".

The following stations have been verified: All the "D" stations in Germany, all the G's in England. EAQ, HBP, HBL, CT1AA, X2RO, IRM, FTA, RNE, RKI, PHI, ORK, LSX, VK2ME, VK3ME, PRF5, COH, HIH, JVT, HC2RL, PRADO, YV3RC, YV2RC, HP5B, COC, XEBT, YV5RMO,

(*Continued on page* 141)



Excellent short-wave listening post conducted by Thomas J. Taaffe, Jr.

The Listener Speaks

Thanks for the Suggestions

Editor, SHORT WAVE LISTENER:

It is with a great deal of pleasure that I write you about your new SHORT WAVE LISTENER magazine. I think it is absolutely the "TOPS". The *Listener is* something for which I have been looking for in connection with short-wave radio listening. I sincerely hope the magazine has unbounded. success.

The article concerning verifications was very good, but I would have appreciated more details. May I offer the following suggestions, which I believe will be of assistance.

(1) The cost of postage to foreign countries, you stated, is five cents. This holds true with the exception of Spain, where it is three cents.

(2) The approximate length of time it takes to obtain verification from foreign countries. I have written for verifications from Rome, Paris, Berlin, and I have waited six weeks without obtaining a verification. I enclosed on international reply coupon. At least these stations could have answered with a *yes* or *no*. Perhaps I have not given them sufficient time. I always *print* (by hand) these letters.

(3) Print a list of stations that will verify reception. (For instance, the British Broadcasting Co., do not verify, but they have sent me a very interesting booklet regarding their history of short-wave activities along with a three-month schedule.) I understand that there are a number of South American stations who do not reply. I imagine they will gain quite a little bit of revenue by this policy—in other words they play us for "suckers".

Another feature I liked was the article on Caracas. Here is an article that adds zest to listening. I have also obtained books from the local Public Library, containing descriptions of the different countries whose S-W Stations I have heard on short waves. It makes it that much more interesting. Your articles go one better by giving a story about the stations and the country.

The article, "Tuning Short-Wave Stations" should be of great assistance to new owners of short-wave receivers.

The manufacturers of All-Wave receivers are very short-sighted or they would equip every all-wave receiver sold with a noise-reducing antenna or some mechanical device eliminating noises.

Take my set for instance. All All-Wave 1935 model 6-tube super of popular make. I am at the mercy of my neighbors' electrical devices for hundreds of feet around. My next-door neighbor has a refrigerator that kills short-wave reception — a washing machine and a motor-driven lathe, and then his automobile which all kill my receiving on the short wave. I am at the mercy also of every passing machine. Double doublet — by putting transformers in the aerial it kills station signals also. To use a common expression: "So what?"

In spite of all my troubles with interference, I still get a great kick from Short Waves. I have monkeyed around with radio since 1924 and *short waves* since 1931. I think that your new magazine is going to be of great help to S. W. L's. Again wishing you and the magazine every success.

JAMES WATERS,
4865 East 85th St.,
Cleveland, Ohio.

(*As a matter of fact most modern all-wave receivers are being fitted or adapted to use the new noise-reducing doublet aerials. In some cases you may have to try and convince your neighbor that he should connect an interference preventing filter on his refrigerator motor. Sometimes you local electrical service company can help you—Editor.*)

In this department we will print in each issue letters from short-wave listeners of value to all readers. We are particularly interested in those that have constructive criticisms and information that may be of value and help to other short-wave listeners. Only those letters which are deemed of sufficient importance will be printed here. It makes no difference whether your letter is laudatory or whether it contains a "brickbat," it will be published just the same, as long aa the information is deemed worthy.

Address all communications to THE LISTENER SPEAKS, care of THE SHORT-WAVE LISTENER, 99-101 Hudson Street, New York City.

He's Been On Look-out for "Mag." Like S.W. Listener

Editor, SHORT WAVE LISTENER:

I have just received my second copy of OFFICIAL SHORT WAVE LISTENER MAGAZINE, and after reading it from cover to cover with few exceptions find it to be just the magazine I have been looking for. A magazine that is more for the LISTENER, rather than for the set builder or experimenter.

Of course, while building my set I needed *Short Wave Craft*, but since that has been completed, I have been on the lookout for a magazine like the LISTENER.

There are a few minor changes I would suggest, for instance *Short Wave Craft* still lists about one hundred more stations in the list of "Best Bets" than the LISTENER. This, I believe, should be changed immediately. Also would suggest that this list in the LISTENER should not be printed on both sides of the same page, as it makes a very nice permanent log on the table under glass or on the wall. Perhaps other readers have found the same trouble.

I enjoy very much such features as "The Listener Asks" and the "Listener Speaks" as well as articles on short-wave stations similar to "London Calling" in the latest LISTENER. I am not at all interested in fiction published in the LISTENER, but no doubt many other readers enjoy same.

My receiver is a TRF (Tuned Radio Frequency) job, using 3 tubes with 'phones, and 2 tubes are added with dynamic speaker.

H. C. CHESTNUT,
88 Bailey Avenue,
Plattsburg, N. Y.

Appreciation From YV1RC, Caracas

Hugo Gernsback, Editor,
SHORT WAVE LISTENER,
Dear Mr. Gernsback:

Please accept my most sincere congratulations for your article "*Short Wave by Heart*" published in the February-March issue of "SHORT WAVE LISTENER."

My close contact with foreign radio fans enables me to appreciate the merits of your very unusual story that I find amusing, interesting and helpful.

Cordially yours,
EDGAR J. ANZOLA,
Director.

"Fine Business"!

Editor, SHORT WAVE LISTENER:

I am a regular reader of your OFFICIAL SHORT WAVE LISTENER magazine and am sure well pleased with it. I have taken several different magazines in the years past, but, I find that this magazine has some of the finest information that I have ever found in any of them.

In your department "The Listener Speaks" I have a few articles that I think would improve it still more. Your description of short-wave stations and pictures are sure F.B. (Fine Business). Keep it up! Your grand list of all short-wave stations are sure the best. There are also other articles that are very fine, but too numerous to mention.

I think news and pictures of amateur stations and short-wave listening posts would be very fine and also pictures of latest short-wave receivers and equipment also. I sure do like to see pictures and descriptions of short-wave stations. (Amateur and Commercial). Pictures of short-wave hams and lay outs of radio shacks.

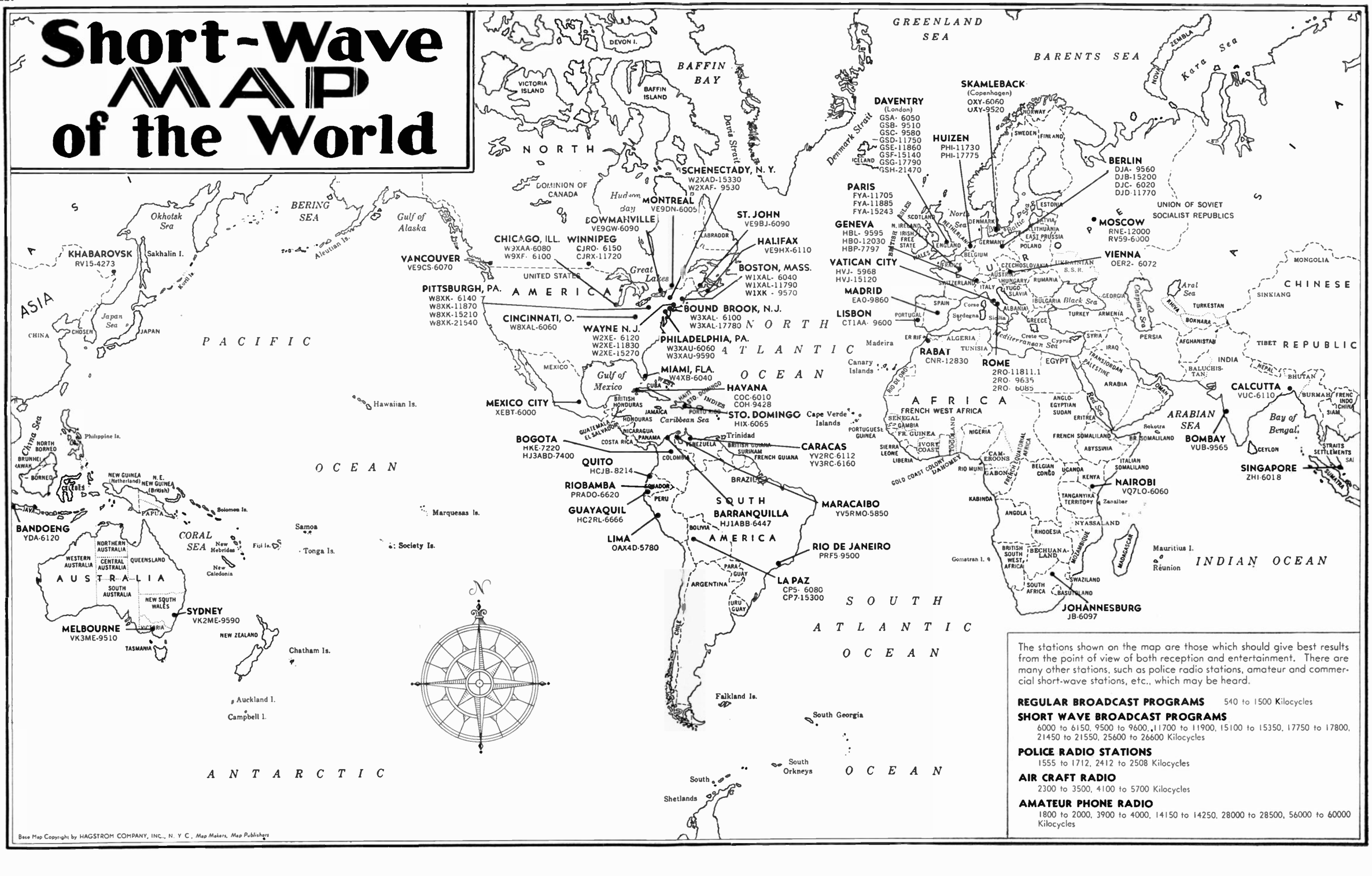
I notice you have a few pictures of amateur stations now, but a few more would be fine.

Code instruction would also be quite interesting, also colored maps of the world.

Well I'll be wishing you good luck and the best of success for you and your magazine.

DAIVID C. PIERCE,
No. 11 Wood St.,
Plymouth, Mass.

Short-Wave MAP of the World



The stations shown on the map are those which should give best results from the point of view of both reception and entertainment. There are many other stations, such as police radio stations, amateur and commercial short-wave stations, etc., which may be heard.

REGULAR BROADCAST PROGRAMS 540 to 1500 Kilocycles

SHORT WAVE BROADCAST PROGRAMS
6000 to 6150, 9500 to 9600, 11700 to 11900, 15100 to 15350, 17750 to 17800, 21450 to 21550, 25600 to 26600 Kilocycles

POLICE RADIO STATIONS
1555 to 1712, 2412 to 2508 Kilocycles

AIR CRAFT RADIO
2300 to 3500, 4100 to 5700 Kilocycles

AMATEUR PHONE RADIO
1800 to 2000, 3900 to 4000, 14150 to 14250, 28000 to 28500, 56000 to 60000 Kilocycles

AIR LINE DISTANCES OVER THE SURFACE OF THE EARTH

Everyone who has studied geography is familiar with the map called "Mercator's Projection," which for more than three centuries has been the basis for all world maps. Since the earth is round and a map is flat, all ordinary maps give a very distorted idea as to the actual geographical relationship existing between distant countries, and as a distance and direction guide for the short wave fan they are altogether useless. If you want to know the real airline distances between important places, use a string and measure them on the face of a globe, or refer to the more convenient chart below. This is easily consulted and saves the radio fan the trouble of figuring the distance according to the somewhat cramped scale on the globe.

Space limitations make it impractical to include many small cities. However, the places shown are scattered in such a manner that approximate distances to nearby places may readily be calculated.

		NORTH AMERICA								SOUTH AMERICA		AFRICA		EUROPE						EUROPE-ASIA		ASIA				OCEANA	
FROM TO		Montreal, Que.	New York, N. Y.	Pittsburgh, Pa.	Chicago, Ill.	Winnipeg, Man.	Denver, Colo.	Los Angeles, Cal.	San Francisco, Cal.	Rio de Janeiro, Brazil	Buenos Aires, Argentina	Cairo, Egypt	Cape Town, U. of S. A.	Madrid, Spain	London, England	Paris, France	Rome, Italy	Vienna, Austria	Stockholm, Sweden	Leningrad, U. S. S. R.	Moscow, U. S. S. R.	Calcutta, India	Bandoeng, Java	Manila, P. I.	Tokyo, Japan	M.." ne, Victoria	Sydney, New So. Wales
Montreal, Que. New York, N. Y.			314	429 313	671 711	1000 1271	1528 1628	2278 2446	2298 2568	5117 4766	5742 5352	5469 5586	7891 7695	3398 3477	3164 3320	3477 3555	4062 4180	3984 4141	3555 3789	3906 4102	4219 4453	7578 7773	9766 10039	8144 8580	6434 7717	10440 10522	10031 10111
WORLD		Pittsburgh, Pa. Chicago, Ill.			411	1128 670	1320 918	2135 1741	2264 1855	4922 5312	5430 5703	5820 6172	7969 8477	3789 4141	3633 3906	3867 4141	4492 4805	4414 4687	3789 4180	4414 4492	4727 4844	7930 8047	10273 10117	8320 8008	6484 6133	10039 9648	9687 9219
		DISTANCES		Winnipeg, Man. Denver, Colo.			800	1486 828	1402 946	3937 5781	6328 5898	6091 6836	8984 9180	4258 4922	3867 4648	4141 4844	4805 5508	4648 5391	3984 4766	4258 5000	4570 5352	7344 7891	9023 9453	7305 5742	4219 5742	9713 8834	8904 8398
 1523		Tampico, Mexico Balboa, Canal Zone		ARE		Los Angeles, Cal. San Francisco, Cal.			345	6250 6475	6133 6328	7578 7500	8922 10078	5742 5703	5508 5273	5769 5664	6475 6314	6094 6055	5352 5273	5706 5504	6156 5928	7930 7695	8828 8633	7345 7041	5504 5182	7930 7891	7500 7461
2266 2148	3711 3398	 703		Victoria, B. C. Saskatoon, Sask.		GIVEN		Rio de Janeiro, Brazil Buenos Aires, Argentina			1250	6172 7344	3750 4219	5039 6250	5703 6875	5703 6836	5742 6953	6055 7266	6680 7852	7109 8281	7148 8281	9414 10234	9727 9453	11250 11326	11446 11655	8279 7285	8435 7441
1953 1914	3203 2539	859 2187	156 1445	 1563		Regina, Sask. Ottawa, Ont.		ABOVE		Cairo, Egypt Cape Town, U. of S. A.			4492	2148 5273	2227 5977	1992 5742	1367 5234	1484 5547	2227 6484	2109 6523	1836 6211	3477 6055	5547 5859	5508 7461	5781 9062	8398 6289	8760 6719
2344 2422	2734 2773	2305 2656	1562 1875	1445 1797	430 586	 117		Quebec, Que. Moncton, N. B.		THIS		Madrid, Spain London, England			742	625 273	859 898	1055 820	1641 977	1953 1328	2031 1484	5273 4922	7578 7305	7031 6562	6484 5781	10781 10547	10859 10508
3711 1992	5117 1094	2695 3750	3477 2969	3516 2969	4766 1914	4922 1953	5312 1953	 3703		Honolulu, Hawaii San Juan, Porto Rico		LINE:		Paris, France Rome, Italy			690	586 352	1016 1289	1367 1184	1445 1367	4805 4414	7187 6719	6602 6250	5898 5977	10360 9945	10602 10091
2070 1953	3594 3437	273 352	898 586	816 570	810 715	2422 2109	2734 2422	2539 2852	3672 3398	 352		Portland, Ore. Spokane, Wash.		DISTANCES		Vienna, Austria Stockholm, Sweden			781	1094 352	1016 664	4219 4141	6562 6562	5976 5789	5625 5021	9609 9570	9766 9570
1406 820	2930 898	820 1641	859 1328	781 1250	1888 1397	1953 1602	2305 1875	3008 3711	3281 3437	664 1523	547 1328	 862		Salt Lake City, Utah Oklahoma City, Okla.		BETWEEN		Leningrad, U. S. S. R. Moscow, U. S. S. R.			344	3711 3516	6172 5937	4570 4570	4531 4570	9141 8945	9180 9023
625 1094	1797 2383	1797 1523	1523 1094	1328 820	2656 1055	1641 1289	1914 1602	3789 3867	2070 2187	1680 1484	1484 1211	977 922	188 293	 460		Ft. Worth, Tex. Kansas City, Kans.		NORTH		Calcutta, India Bandoeng, Java			2422	2070 1758	3125 3633	5469 3086	5547 3203
1250 1562	2422 2656	1523 1406	1016 781	664 547	1094 859	1094 1055	1484 1523	3906 3789	2227 2422	1328 1367	1094 1094	952 988	469 692	640 870	180 413	 235		Des Moines, Iowa Minneapolis, Minn.		AMERICAN		Manila, P. I. Tokyo, Japan			1875	1445 5156	1406 4922
1172 1094	2227 1992	1758 1914	1211 1406	1016 1211	898 937	1289 1172	1445 1445	4023 4258	2031 1758	1680 1797	1406 1562	1158 1390	456 602	568 643	238 472	270 523	464 695	 253		St. Louis, Mo. Nashville, Tenn.		RADIO		Melbourne, Victoria Sydney, New S. Wales			430
1328 1055	2187 1758	1914 2227	1367 1719	1172 1523	664 937	898 1172	1172 1367	4297 4414	1836 1484	1875 2148	1602 1914	1450 1580	755 753	839 750	541 675	509 738	603 905	308 467	239 218	 368		Cincinnati, Ohio Atlanta, Ga.		CENTERS			
1797 1562	2461 2070	2070 2305	1406 1680	1211 1484	156 469	430 625	742 820	4648 4805	1875 1523	2070 2305	1707 2031	1701 1845	1117 1150	1221 1210	862 943	762 895	733 936	662 710	626 567	392 403	695 542	 290		Buffalo, N. Y. Washington, D. C.		BELOW	
1719 1914	2148 2461	2383 2397	1724 1678	1770 1979	386 301	586 273	703 430	4883 5041	1484 1680	2422 2500	2148 2148	1923 2099	1256 1490	1324 1574	1037 1250	972 1159	985 1125	808 1036	683 941	501 737	663 933	278 398	122 392	 268		Philadelphia, Pa. Boston, Mass.	
Tampico, Mexico	Balboa, Canal Zone	Victoria, B. C.	Saskatoon, Sask.	Regina, Sask.	Ottawa, Ont.	Quebec, Que.	Moncton, N. B.	Honolulu, Hawaii	San Juan, Porto Rico	Portland, Ore.	Spokane, Wash.	Salt Lake City, Utah	Oklahoma, Okla.	Ft. Worth, Texas	Kansas City, Kans.	Des Moines, Iowa	Minneapolis, Minn.	St. Louis, Mo.	Nashville, Tenn.	Cincinnati, Ohio	Atlanta, Ga.	Buffalo, N. Y.	Washington, D. C.	Philadelphia, Pa.	Boston, Mass.	FROM TO	
MEXICO, ETC.		CANADA						UNITED STATES						UNITED STATES													

OUR

Paradise for S-W Listeners

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Does this mean that we can not get

READERS

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Yours very truly,
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SPEAK

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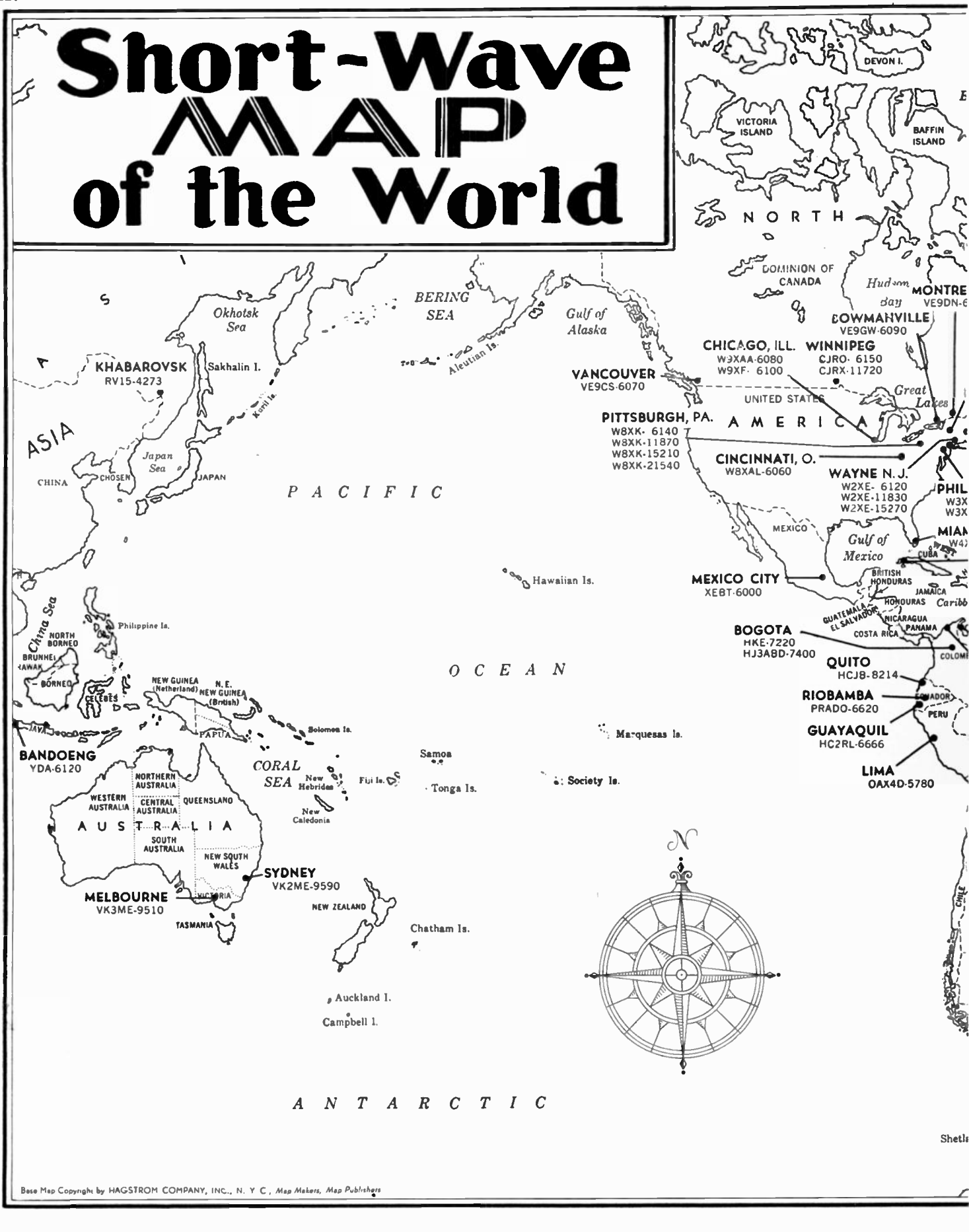
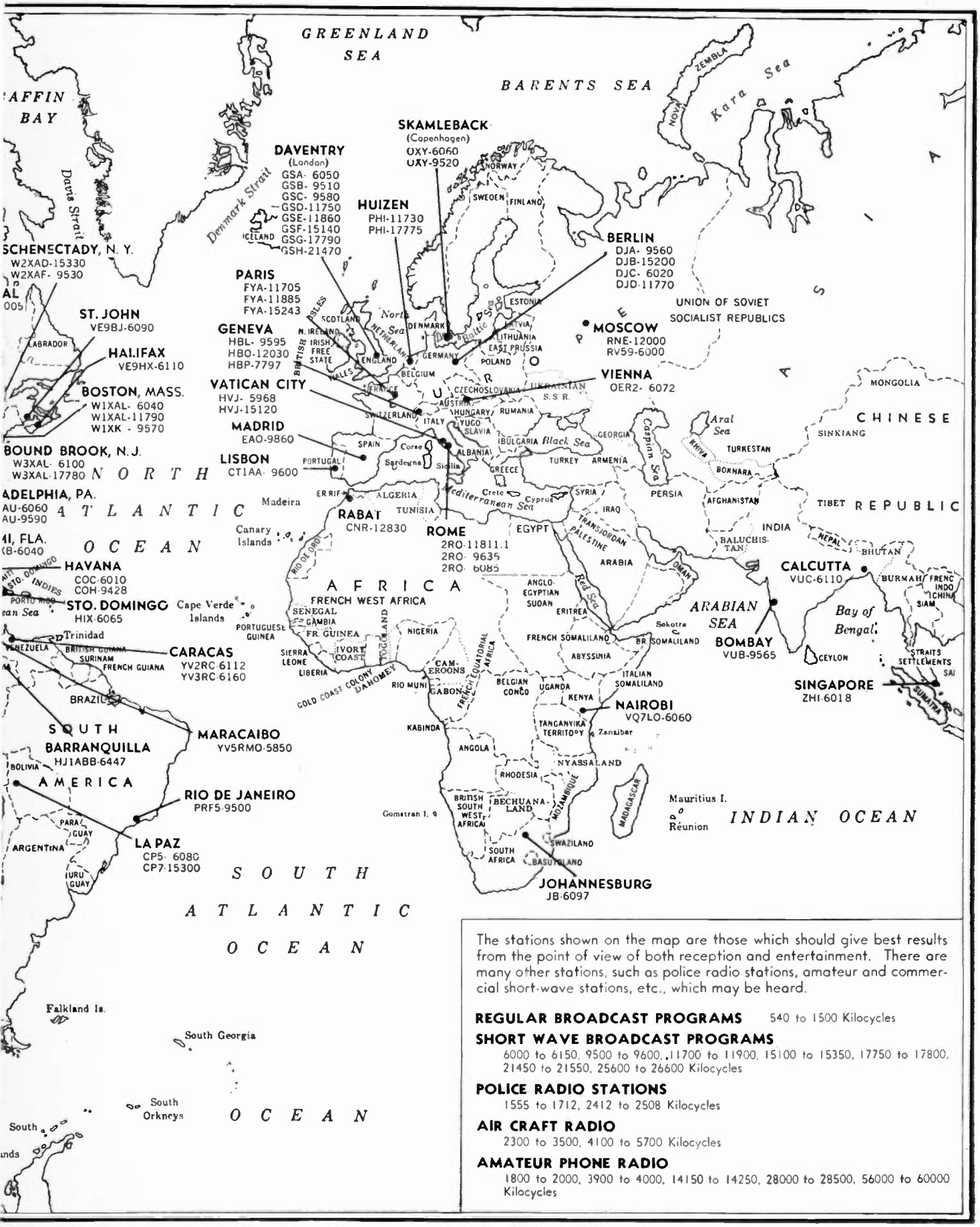
Short-Wave MAP of the World





The stations shown on the map are those which should give best results from the point of view of both reception and entertainment. There are many other stations, such as police radio stations, amateur and commercial short-wave stations, etc., which may be heard.

REGULAR BROADCAST PROGRAMS 540 to 1500 Kilocycles

SHORT WAVE BROADCAST PROGRAMS
6000 to 6150, 9500 to 9600, 11700 to 11900, 15100 to 15350, 17750 to 17800, 21450 to 21550, 25600 to 26600 Kilocycles

POLICE RADIO STATIONS
1555 to 1712, 2412 to 2508 Kilocycles

AIR CRAFT RADIO
2300 to 3500, 4100 to 5700 Kilocycles

AMATEUR PHONE RADIO
1800 to 2000, 3900 to 4000, 14150 to 14250, 28000 to 28500, 56000 to 60000 Kilocycles

AIR LINE DISTANCES OVER THE SURFACE OF THE EARTH

Everyone who has studied geography is familiar with the map called "Mercator's Projection," which for more than three centuries has been the basis for all world maps. Since the earth is round and a map is flat, all ordinary maps give a very distorted idea as to the actual geographical relationship existing between distant countries, and as a distance and direction guide for the short wave fan they are altogether useless. If you want to know the real airline distances between important places, use a string and measure them on the face of a globe, or refer to the more convenient chart below. This is easily consulted and saves the radio fan the trouble of figuring the distance according to the somewhat cramped scale on the globe.

Space limitations make it impractical to include many small cities. However, the places shown are scattered in such a manner that approximate distances to nearby places may readily be calculated.

FROM / TO	NORTH AMERICA								SOUTH AMERICA		AFRICA		EUROPE						EUROPE-ASIA		ASIA				OCEANA	
	Montreal, Que.	New York, N. Y.	Pittsburgh, Pa.	Chicago, Ill.	Winnipeg, Man.	Denver, Colo.	Los Angeles, Cal.	San Francisco, Cal.	Rio de Janeiro, Brazil	Buenos Aires, Argentina	Cairo, Egypt	Cape Town, U. of S. A.	Madrid, Spain	London, England	Paris, France	Rome, Italy	Vienna, Austria	Stockholm, Sweden	Leningrad, U. S. S. R.	Moscow, U. S. S. R.	Calcutta, India	Bandoeng, Java	Manila, P. I.	Tokyo, Japan	Melbourne, Victoria	Sydney, New So. Wales
Montreal, Que.	.....	314	429	671	1000	1528	2278	2298	5117	5742	5469	7891	3398	3164	3477	4062	3984	3555	3906	4219	7578	9766	8144	6434	10440	10031
New York, N. Y.	.....	.....	313	711	1271	1628	2446	2568	4766	5352	5586	7695	3477	3320	3555	4180	4141	3789	4102	4453	7773	10039	8580	7717	10522	10111
Pittsburgh, Pa.			.....	.....	1128	1320	2135	2264	4922	5430	5820	7969	3789	3633	3867	4492	4414	3789	4414	4727	7930	10273	8320	6484	10039	9687
Chicago, Ill.			.....	.....	670	918	1741	1855	5312	5703	6172	8477	4141	3906	4141	4805	4687	4180	4492	4844	8047	10117	8008	6133	9648	9219
Winnipeg, Man.					.....	800	1486	1402	3937	6328	6094	8984	4258	3867	4141	4805	4648	3984	4258	4570	7344	9023	7305	4219	9713	8904
Denver, Colo.					.....	.....	828	946	5781	5898	6836	9180	4922	4648	4844	5508	5391	4766	5000	5352	7891	9453	5742	5742	8834	8398
Los Angeles, Cal.							.....	345	6250	6133	7578	8922	5742	5508	5769	6475	6094	5352	5706	6156	7930	8828	7345	5504	7930	7500
San Francisco, Cal.							.....	.....	6475	6328	7500	10078	5703	5273	5664	6314	6055	5273	5504	5928	7695	8633	7041	5182	7891	7461
Rio de Janeiro, Brazil									.....	1250	6172	3750	5039	5703	5703	5742	6055	6680	7109	7148	9414	9727	11250	11446	8279	8435
Buenos Aires, Argentina									.....	.....	7344	4219	6250	6875	6836	6953	7266	7852	8281	8281	10234	9453	11326	11655	7285	7441
Cairo, Egypt											.....	4492	2148	2227	1992	1367	1484	2227	2109	1836	3477	5547	5508	5781	8398	8760
Cape Town, U. of S. A.											.....	.....	5273	5977	5742	5234	5547	6484	6523	6211	6055	5859	7461	9062	6289	6719
Madrid, Spain													.....	742	625	859	1055	1641	1953	2031	5273	7578	7031	6484	10781	10859
London, England													.....	.....	273	898	820	977	1328	1484	4922	7305	6562	5781	10547	10508
Paris, France															.....	690	586	1016	1367	1445	4805	7187	6602	5898	10360	10602
Rome, Italy															.....	.....	352	1289	1184	1367	4414	6719	6250	5977	9945	10091
Vienna, Austria																	.....	781	1094	1016	4219	6562	5976	5625	9609	9766
Stockholm, Sweden																		.....	352	664	4141	6562	5789	5021	9570	9570
Leningrad, U. S. S. R.																			.....	344	3711	6172	4570	4531	9141	9180
Moscow, U. S. S. R.																			.....	.....	3516	5937	4570	4570	8945	9023
Calcutta, India																					.....	2422	2070	3125	5469	5547
Bandoeng, Java																					.....	.....	1758	3633	3086	3203
Manila, P. I.																							.....	1875	1445	1406
Tokyo, Japan																							.....	.....	5156	4922
Melbourne, Victoria																									.....	430
Sydney, New S. Wales																									.....	.....
Tampico, Mexico																										
Balboa, Canal Zone																										
Victoria, B. C.																										
Saskatoon, Sask.																										
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Portland, Ore.																										
Spokane, Wash.																										
Salt Lake City, Utah																										
Oklahoma, Okla.																										
Ft. Worth, Texas																										
Kansas City, Kans.																										
Des Moines, Iowa																										
Minneapolis, Minn.																										
St. Louis, Mo.																										
Nashville, Tenn.																										
Cincinnati, Ohio																										
Atlanta, Ga.																										
Buffalo, N. Y.																										
Washington, D. C.																										
Philadelphia, Pa.																										
Boston, Mass.																										

DISTANCES ARE GIVEN ABOVE THIS LINE:

Tampico, Mexico 1523
Balboa, Canal Zone ....

Victoria, B. C. 2266 3711
Saskatoon, Sask. 2148 3398

Regina, Sask. 1953 3203
Ottawa, Ont. 1914 2539

Quebec, Que. 2344 2734
Moncton, N. B. 2422 2773

Honolulu, Hawaii 3711 5117
San Juan, Porto Rico 1992 1094

Portland, Ore. 2070 3594
Spokane, Wash. 1953 3437

Salt Lake City, Utah 1406 2930
Oklahoma City, Okla. 820 898

Ft. Worth, Texas 625 1797
Kansas City, Kans. 1094 2383

Des Moines, Iowa 1250 2422
Minneapolis, Minn. 1562 2656

St. Louis, Mo. 1172 2227
Nashville, Tenn. 1094 1992

Cincinnati, Ohio 1328 2187
Atlanta, Ga. 1055 1758

Buffalo, N. Y. 1797 2461
Washington, D. C. 1562 2070

Philadelphia, Pa. 1719 2148
Boston, Mass. 1914 2461

DISTANCES BETWEEN NORTH AMERICAN RADIO CENTERS BELOW

Madrid, Spain / London, England
Paris, France / Rome, Italy
Vienna, Austria / Stockholm, Sweden
Leningrad, U. S. S. R. / Moscow, U. S. S. R.
Calcutta, India / Bandoeng, Java
Manila, P. I. / Tokyo, Japan
Melbourne, Victoria / Sydney, New S. Wales

Tampico, Mexico ..... Madrid, Spain 3398 3164
Balboa, Canal Zone ..... London, England 3477 3320

Victoria, B. C. ..... Paris, France 3789 3633
Saskatoon, Sask. ..... Rome, Italy 4141 3906

Regina, Sask. ..... Vienna, Austria 3867 4492
Ottawa, Ont. ..... Stockholm, Sweden 4141 4805

Quebec, Que. ..... Leningrad, U. S. S. R. 4414 3789
Moncton, N. B. ..... Moscow, U. S. S. R. 4687 4180

Honolulu, Hawaii ..... Calcutta, India 7344 9023
San Juan, Porto Rico ..... Bandoeng, Java 7891 9453

Portland, Ore. ..... Manila, P. I. 7305 4219
Spokane, Wash. ..... Tokyo, Japan 5742 5742

Salt Lake City, Utah ..... Melbourne, Victoria 9713 8904
Oklahoma, Okla. ..... Sydney, New So. Wales 8834 8398

Ft. Worth, Texas ..... Cincinnati, Ohio 1324 1037
Kansas City, Kans. ..... Atlanta, Ga. 1574 1250

Des Moines, Iowa ..... Buffalo, N. Y. 1221 862
Minneapolis, Minn. ..... Washington, D. C. 1210 943

St. Louis, Mo. ..... Philadelphia, Pa. 1221 862
Nashville, Tenn. ..... Boston, Mass. 1210 943

MEXICO, ETC. — CANADA — UNITED STATES — UNITED STATES

Television Stations

2000-2100 kc.

W2XDR—Long Island City, N. Y.
W8XAN—Jackson, Mich.
W9XK—Iowa City, Ia.
W9XAK—Manhattan, Kans.
W9XAO—Chicago, Ill.
W6XAH—Bakersfield, Calif.

2750-2850 kc.

W3XAK—Portable

W9XAP—Chicago, Ill.
W2XBS—Bellmore, N. Y.
W9XAL—Kansas City, Mo.
W9XG—W. Lafayette, Ind.
W2XAB—New York, N. Y.

42000-56000, 60000-86000 kc.

W2XAX—New York, N. Y.
W6XAO—Los Angeles, Calif.
W2XF—New York, N. Y.
W3XE—Philadelphia, Pa.

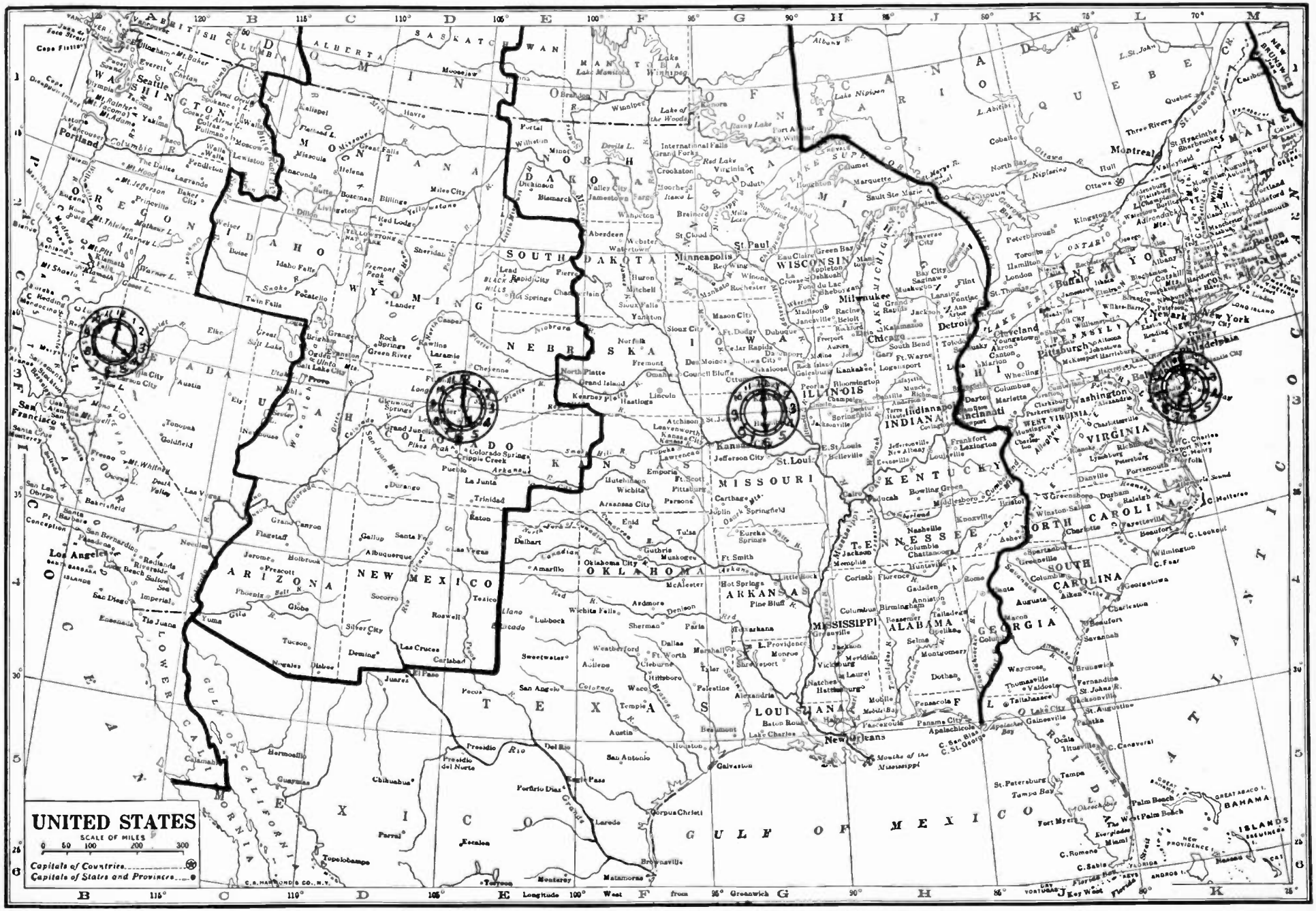
W3XAD—Camden. N. J.
W10XX—Portable & Mobile (Vicinity of Camden)
W2XDR—Long Island City, N Y.
W8XAN—Jackson, Mich.
W9XAT—Portable
W2XD—New York, N. Y.
W2XAG—Portable
W1XG—Boston, Mass.
W9XK—Iowa City. Ia.
W9XD—Milwaukee. Wis.
W2XBT—Portabl:

Police Radio Alarm Stations

CGZ	Vancouver, B.C.	2452 kc.
CJW	St. Johns, N.B.	2416 kc.
CJZ	Verdeen, Que.	2452 kc.
KGHA, KGHB, KGHC, KGHD, KGHE	Portable-Mobile In State of Wash.	2490 kc.
KGHG	Las Vegas, Nev.	2474 kc.
KGHK	Palo Alto, Cal.	1674 kc.
KGHM	Reno, Nev.	2474 kc.
KGHN	Hutchinson, Kans.	2450 kc.
KGHO	Des Moines, Iowa	1682 kc.
KGHP	Lakton, Okla.	2466 kc.
KGHQ	Chinook Pass, W.	2490 kc.
KGHR	(Mobile) in Wash.	2490 kc.
KGHS	Spokane, Wash.	2414 kc.
KGHT	Brownsville, Tex.	2382 kc.
KGHU	Austin, Tex	2482 kc.
KGHV	Corpus Christi, Tex.	2382 kc.
KGHW	Centralia, Wash.	2414 kc.
KGHX	Santa Ana, Cal.	2490 kc.
KGHY	Whittier. Cal.	1712 kc.
KGHZ	Little Rock. Ark.	2406 kc.
KGJX	Pasadena, Cal.	1712 kc
KGLX	Albuquerque, N.M.	2414 kc.
KGOZ	Cedar Rapids, Iowa	2466 kc.
KGPA	Seattle, Wash.	2414 kc.
KGPB	Minneapolis, Minn.	2430 kc.
KGPC	St. Louis, Mo.	1706 kc.
KGPD	San Francisco, Cal.	2474 kc
KGPE	Kansas City, Mo.	2422 kc.
KGPF	Sante Fe, N. Mex.	2414 kc.
KGPG	Vallejo, Cal.	2422 kc.
KGPH	Oklahoma City, Okla.	2450 kc.
KGPI	Omaha, Neb	2466 kc.
KGPJ	Beaumont, Tex.	1712 kc.
KGPK	Sioux City, Iowa	2466 kc.
KGPL	Los Angeles, Cal.	1712 kc.
KGPM	San Jose, Cal.	2466 kc.
KGPN	Davenport, Iowa	2466 kc.
KGPO	Tulsa, Okla.	2450 kc.
KGPP	Portland, Ore.	2442 kc.
KGPQ	Honolulu, T.H.	1712 kc.
KGPR	Minneapolis, Minn.	2430 kc.
KGPS	Bakersfield, Cal.	2414 kc.
KGPW	Salt Lake City, Utah	2406 kc.
KGPX	Denver, Colo.	2442 kc.
KGPY	Baton Rouge, La.	1574 kc.
KGPZ	Wichita, Kans.	2450 kc.
KGZA	Fresno, Calif.	2414 kc.
KGZB	Houston, Tex.	1712 kc.
KGZC	Topeka, Kans.	2422 kc.
KGZD	San Diego, Cal.	2490 kc.
KGZE	San Antonio, Tex.	2482 kc.
KGZF	Chanute, Kans.	2450 kc.
KGZG	Des Moines, Iowa	2466 kc.
KGZH	Klamath Falls, Ore.	2382 kc.
KGZI	Wichita Falls, Tex.	2458 kc.
KGZJ	Phoenix, Ariz.	2430 kc.
KGZL	Shreveport, La.	1712 kc.
KGZM	El Paso, Tex.	2414 kc.
KGZN	Tacoma, Wash.	2414 kc.
KGZO	Santa Barbara, Cal.	2414 kc.
KGZP	Coffeyville, Kans.	2450 kc.
KGZQ	Waco, Tex.	1712 kc.
KGZR	[illegible] Ore.	2442 kc.
KGZS	McAlester, Okla.	2458 kc.
KGZT	Santa Cruz, Cal.	1674 kc.
KGZU	Lincoln, Neb.	2490 kc.
KGZV	Aberdeen, Wash.	2414 kc.
KGZW	Lubbock, Tex.	2458 kc.
KGZX	Albuquerque, N. Mex.	2414 kc.
KNFA	San Bernardino, Cal.	1712 kc.
KGZY	Jefferson City, Mo.	1674 kc.
KIUK	Clovis, N. Mex.	2414 kc.
KNFB	Idaho Falls, Idaho	2414 kc.
KNFC	SS Gov. Stevens, (Wash.)	2490 kc.
KNFD	SS Gov. J. Rogers, (Wash.)	2490 kc.
KNFE	Duluth, Minn.	2382 kc.
KNFF	Leavenworth, Kans.	2422 kc.
KNFG	Olympia, Wash.	2490 kc.
KNFH	Garden City, Kans.	2474 kc.
KNFI	Mt. Vernon, Wash.	2414 kc.
KNFJ	Pomona, Cal.	1712 kc.
KNFK	Bellingham, Wash.	2490 kc.
KNFL	Shuksan, Wash.	2490 kc.
KNFM	Compton, Cal.	2490 kc.
KNFN	Waterloo, Ia.	1682 kc.
KNFO	Storm Lake, Ia.	1682 kc.
KNFP	Everett, Wash.	2414 kc.
KNFQ	Skykomish, Wash.	2490 kc.
KNGE	Cleburne, Tex.	1712 kc.
KNGF	Sacramento, Cal.	2422 kc.
KNGG	Phoenix, Ariz.	1698 kc.
KNGH	Dodge City, Kans.	2474 kc.
KNGJ	El Centro, Cal.	2490 kc.
KNGK	Duncan, Okla.	2450 kc.
KNGL	Galveston, Tex.	1712 kc.
KSNE	Duluth, Minn.	2382 kc.
KSW	Berkeley, Cal.	1658 kc.
KVP	Dallas, Tex.	1712 kc.
VYR	Montreal, Can	1712 kc.
VYW	Winnipeg, Man.	2452 kc.
WCK	Belle Island, Mich.	2414 kc.
WEY	Boston, Mass.	1630 kc.
WKDT	Detroit, Mich.	1630 kc.
WKDU	Cincinnati, Ohio	1706 kc.
WMDZ	Indianapolis, Ind.	2442 kc.
WMJ	Buffalo, N. Y.	2422 kc.
WMO	Highland Park, Mich.	2414 kc.
WMP	Framingham, Mass.	1666 kc.
WNFP	Niagara Falls, N. Y.	2422 kc.
WPDA	Tulare, Cal.	2414 kc.
WPDB	Chicago, Ill.	1712 kc.
WPDC	Chicago, Ill.	1712 kc.
WPDD	Chicago, Ill.	1712 kc.
WPDE	Louisville, Ky.	2442 kc.
WPDF	Flint, Mich.	2466 kc.
WPDG	Youngstown, Ohio	2458 kc.
WPDH	Richmond, Ind.	2442 kc.
WPDI	Columbus, Ohio	2430 kc.
WPDK	Milwaukee, Wis.	2450 kc.
WPDL	Lansing, Mich.	2442 kc.
WPDM	Dayton, Ohio	2430 kc.
WPDN	Auburn, N. Y.	2382 kc.
WPDO	Akron, Ohio	2458 kc.
WPDP	Philadelphia, Pa.	2474 kc.
WPDR	Rochester, N. Y.	2422 kc.
WPDS	St. Paul, Minn.	2430 kc.
WPDT	Kokomo, Ind.	2490 kc.
WPDU	Pittsburgh, Pa.	1712 kc.
WPDV	Charlotte, N. C.	2458 kc.
WPDW	Washington, D. C.	2422 kc.
WPDX	Detroit, Mich.	2414 kc.
WPDY	Atlanta, Ga.	2414 kc.
WPDZ	Fort Wayne, Ind.	2490 kc.
WPEA	Syracuse, N. Y.	2382 kc.
WPEB	Grand Rapids, Mich.	2442 kc.
WPEC	Memphis, Tenn.	2466 kc.
WPED	Arlington, Mass.	1712 kc.
WPEE	New York, N. Y.	2450 kc.
WPEF	New York, N. Y.	2450 kc.
WPEG	New York, N. Y.	2450 kc.
WPEH	Somerville, Mass.	1712 kc.
WPEI	E. Providence, R. I.	1712 kc.
WPEK	New Orleans, La.	2430 kc.
WPEL	W. Bridgewater, Mass.	1666 kc.
WPEM	Woonsocket, R. I.	2466 kc.
WPEP	Kanosha, Wis.	2450 kc.
WPES	Saginaw, Mich.	2442 kc.
WPET	Lexington, Ky.	1706 kc.
WPEV	Portable (in Mass.)	1666 kc.
WPEW	Northampton, Mass.	1666 kc.
WPFA	Newton, Mass.	1712 kc.
WPFC	Muskegon, Mich.	2442 kc.
WPFE	Reading, Pa.	2442 kc.
WPFG	Jacksonville, Fla.	2442 kc.
WPFH	Baltimore, Md.	2414 kc.
WPFI	Columbus, Ga.	2414 kc.
WPFJ	Hammond, Ind.	1712 kc.
WPFK	Hackensack, N. J.	2430 kc.
WPFL	Gary, Ind.	2470 kc.
WPFM	Birmingham, Ala.	2382 kc.
WPFN	Fairhaven, Mass.	1712 kc.
WPFO	Knoxville, Ten.	2474 kc.
WPFP	Clarksburg, W. Va.	2490 kc.
WPFQ	Swathmore, Pa.	2474 kc.
WPFR	Johnson City, Tenn.	2470 kc.
WPFS	Asheville, N. C.	2474 kc.
WPFT	Lakeland, Fla.	2442 kc.
WPFU	Portland, Me.	2422 kc.
WPFV	Pawtucket, R. I.	2466 kc.
WPFW	Bridgeport. Conn.	2466 kc.
WPFX	Palm Beach, Fla.	2442 kc.
WPFY	Yonkers, N. Y.	2442 kc.
WPFZ	Miami, Fla.	2442 kc.
WPGA	Bay City, Mich.	2466 kc.
WPGB	Port Huron, Mich.	2466 kc.
WPGC	S. Schenectady, N. Y.	1658 kc.
WPGD	Rockford, Ill.	2458 kc.
WPGF	Providence, R. I.	1712 kc.
WPGG	Findlay, Ohio	1596 kc.
WPGH	Albany, N. Y.	2414 kc.
WPGI	Portsmouth, Ohio	2430 kc.
WPGJ	Utica, N. Y.	2414 kc.
WPGK	Cranston, R. I.	2466 kc.
WPGL	Binghamton, N. Y.	2442 kc.
WPGN	South Bend, Ind.	2490 kc.
WPGO	Huntington, N. Y.	2490 kc.
WPGP	Muncie, Ind.	2442 kc.
WPGQ	Columbus, Ohio	1596 kc.
WPGS	Mineola, N. Y.	2490 kc.
WPGT	New Castle, Pa.	2482 kc.
WPGU	Cohasset, Mass.	1712 kc.
WPGV	Boston, Mass.	1712 kc.
WPGW	Mobile, Ala.	2382 kc.
WPGX	Worcester. Mass.	2466 kc.
WPGZ	Johnson City. Tenn.	2474 kc.
WPHA	Fitchburg, Mass.	2466 kc.
WPHB	Nashua. N. H.	2422 kc.
WPHC	Massillon, O.	1682 kc.
WPHD	Steubenville, O.	2458 kc.
WPHE	Marion Co., Ind.	1634 kc.
WPHF	Richmond, Va.	2450 kc.
WPHG	Medford, Mass.	1712 kc.
WPHI	Charleston, W. Va.	2490 kc.
WPHJ	Fairmont, W. Va.	2490 kc.
WPHK	Wilmington, O.	1596 kc.
WPHL	Portable in Ohio	1682 kc.
WPHM	Orlando, Fla.	2442 kc.
WPHN	Tampa, Fla.	2466 kc.
WPHO	Zanesville, Ohio	2430 kc.
WPHP	Jackson, Mich.	2466 kc.
WPHQ	Parkersburg, W. Va.	2490 kc.
WPHS	Culver, Ind.	1634 kc.
WPHT	Cambridge, Ohio	1682 kc.
WPHV	Bristol, Va.	2450 kc.
WPHY	Elizabethton, Tenn.	2474 kc.
WPSP	Harrisburg, Pa.	1674 kc.
WRBH	Cleveland, Ohio	2458 kc.
WRDQ	Toledo, Ohio	2474 kc.
WRDR	Grosse Pt. Village, Mich.	2414 kc.
WRDS	E. Lansing, Mich.	1666 kc.

STANDARD TIME ZONES OF THE UNITED STATES

And adjacent parts of Canada and Mexico



Best Short Wave Stations

This list of short-wave relay broadcasting, commercial and experimental stations is the result of several years of work. Names and addresses included wherever possible so that you may know where to write. The blank spaces are for the dial settings of your own set.

*** Stars designate the most active and best heard stations. Times are Eastern Standard**
C—Commercial phone. B—Broadcast service. X—Experimental service.

Station	Dial
21540 kc. W8XK -B- 13.93 meters WESTINGHOUSE ELECTRIC PITTSBURGH, PA. 6 a.m.-2 p.m.; relays KDKA	
21470 kc. GSH -B- 13.97 meters DAVENTRY, ENGLAND B.B.C., BROADCASTING HOUSE, LONDON, ENGLAND	
20700 kc. LSY -C- 14.49 meters MONTE GRANDE ARGENTNIA Test irregularly	
19600 kc. LSF -C- 15.31 meters MONTE GRANDE, ARGENTINA Tests irregularly, daytime	
19355 kc. FTM -C- 15.50 meters S. ASSISE, FRANCE Calls Argentine, mornings	
18620 kc. GAU -C- 16.11 meters RUGBY, ENGLAND Calls N. Y., daytime	
18345 kc. FZS -C- 16.35 meters SAIGON, INDO-CHINA Phones Paris, early morning	
18340 kc. WLA -C- 16.36 meters LAWRENCEVILLE, N. J. Calls England, daytime	
18135 kc. PMC -C- 16.54 meters BANDOENG, JAVA Phones Holland, early a. m.	
18115 kc. LSY3 -C- 16.56 meters MONTE GRANDE, ARGENTINA Tests irregularly	
17810 kc. PCV -C- 16.84 meters KOOTWIJK, HOLLAND Calls Java, 6 9 a. m.	
17790 kc. *GSG -B- 16.86 meters DAVENTRY, ENGLAND B.B.C., BROADCASTING HOUSE, LONDON, ENGLAND	
17780 kc. *W3XAL -B- 16.87 meters NATIONAL BROAD. CO. BOUND BROOK, N. J. Relays WJZ, Daily exc. Sun. 8-9 a.m.; Tues., Thurs., Fri., 2-3 p.m.	
17775 kc. *PHI -B- 16.88 meters HUIZEN, HOLLAND Daily exc. Tues. and Wed. 7:30- 9:30 or 9:45 a.m., Sat. till 10:30, Sun. till 10:15 a.m.	
17760 kc. *DJE -B- 16.89 meters BROADCASTING HOUSE BERLIN, GERMANY Irregular 8-11:30 a.m.	

Station	Dial
17310 kc. W3XL -X- 17.33 meters NATIONAL BROAD. CO. BOUND BROOK, N. J. Tests irregularly	
17120 kc. WOO -C- 17.52 meters A. T. & T. CO., OCEAN GATE, N. J. Calls ships	
17080 kc. GBC -C- 17.56 meters RUGBY, ENGLAND Calls ships	
16233 kc. FZR3 -C- 18.48 meters SAIGON, INDO-CHINA Calls Paris and Pacific Isles	
15810 kc. LSL -C- 18.98 meters HURLINGHAM, ARGENTINA Calls Brazil and Europe, daytime	
15660 kc. JVE -C- 19.16 meters NAZAKI, JAPAN Phones Java 3-5 a.m.	
15620 kc. JVF -C- 19.2 meters NAZAKI, JAPAN Phones U. S., 5 a.m. & 4 p.m.	
15415 kc. KWO -C- 19.46 meters DIXON, CAL. Phones Hawaii 2-7 p.m.	
15370 kc. *HAS3 -B- 19.52 meters BUDAPEST, HUNGARY Broadcasts Sundays, 9-10 a.m.	
15355 kc. KWU -C- 19.53 meters DIXON, CAL. Phones Pacific Isles and Japan	
15330 kc. *W2XAD -B- 19.56 meters GENERAL ELECTRIC CO. SCHENECTADY, N. Y. Relays WGY daily, 2-3 p.m.	
15280 kc. DJQ B- 19.63 meters BROADCASTING HOUSE BERLIN, GERMANY 12:30-2 a.m., 8-11:30 a.m.	
15270 kc. *W2XE -B- 19.65 meters ATLANTIC BROADCASTING CORP. 486 Madison Av., N.Y.C. Relays WABC daily, 10 a.m.-1:45 p.m.	
15260 kc. GSI -B- 19.66 meters DAVENTRY, ENGLAND B.B.C., BROADCASTING HOUSE, LONDON, ENGLAND	
15250 kc. W1XAL -B- 19.67 meters BOSTON, MASS. Irregular, in morning	

Station	Dial
15243 kc. *FYA -B- 19.68 meters "RADIO COLONIAL" PARIS, FRANCE Service de la Radiodiffusion 103 Rue de Grenelle, Paris 6-10 a.m.	
15220 kc. *PCJ -B- 19.71 meters N.V. PHILIPS' RADIO EINDHOVEN, HOLLAND Breadcast relaying PHI Sat. and Sun. Also tests Tues. 3-6 a.m., Wed. 7-11 a.m.	
15210 kc. *W8XK -B- 19.72 meters WESTINGHOUSE ELECTRIC & MFG. CO. PITTSBURGH, PA. 6 a.m.-4:15 p.m. Relays KDKA	
15200 kc. *DJB -B- 19.73 meters BROADCASTING HOUSE BERLIN, GERMANY 12:30-2, 3:45-7:15 a.m., 8-11:30 a.m. and 12 N-4:30 p.m.	
15140 kc. *GSF -B- 19.82 meters DAVENTRY, ENGLAND B.B.C., BROADCASTING HOUSE, LONDON, ENGLAND	
15120 kc. *HVJ -B- 19.83 meters VATICAN CITY ROME, ITALY 10:30 to 10:45 a.m., except Sunday	
15090 kc. RKI -C- 19.88 meters MOSCOW, U.S.S.R. Phones Tashkent near 7 a.m. and relays RNE on Sundays irregularly	
15055 kc. WNC -C- 19.92 meters HIALEAH, FLORIDA Calls Central America, daytime	
14980 kc. KAY -C- 20.03 meters MANILA, P. I. Phones Pacific Isles	
14950 kc. HJB -C- 20.07 meters BOGOTA, COL. Calls WNC, daytime	
14600 kc. JVH -B,C- 20.55 meters NAZAKI, JAPAN Broadcasts "American Hour" daily at 8.30 p.m.	
14590 kc. WMN -C- 20.56 meters LAWRENCEVILLE, N. J. Phones England morning and afternoon	
14535 kc. HBJ -B- 20.64 meters RADIO NATIONS, GENEVA, SWITZERLAND Broadcasts irregularly	

Station	Dial
14500 kc. LSM2 -C- 20.69 meters HURLINGHAM, ARGENTINA Calls U. S., evening	
14485 kc. TIR -C- 20.71 meters CARTAGO, COSTA RICA Phones Cen. Amer. & U.S.A. Daytime	
14485 kc. HPF -C- 20.71 meters PANAMA CITY, PAN. Phones, WNC daytime	
14485 kc. TGF -C- 20.71 meters GUATEMALA CITY, GUAT. Phones WNC daytime	
14485 kc. YNA -C- 20.71 meters MANAGUA, NICARAGUA Phones WNC daytime	
13610 kc. JYK -C- 22.04 meters KEMIKAWA-CHO, CHIBA- KEN, JAPAN Phones California till 11 p. m.	
13585 kc. GBB -C- 22.08 meters RUGBY, ENGLAND Calls Egypt & Canada, afternoons	
13075 kc. VPD -X- 22.94 meters SUVA, FIJI ISLANDS Daily exc. Sun. 12:30-1:30 a.m.	
12840 kc. WOO -C- 23.36 meters OCEAN GATE, N. J. Calls ships	
12825 kc. CNR -B, C- 23.39 meters DIRECTOR GENERAL Telegraph a nd Telephone Stations, Rabat, Morocco Broadcasts, Sunday, 7:30-9 a.m.	
12800 kc. IAC -C- 23.45 meters PISA, ITALY Calls Italian ships, mornings	
12780 kc. GBC -C- 23.47 meters RUGBY, ENGLAND Calls ships	
12396 kc. CT1GO -B- 24.2 meters PAREDE, PORTUGAL Sun. 10-11:30 a.m., Tues., Thur., Fri. 1:00-2:15 p.m.	
12150 kc. GBS -C- 24.69 meters RUGBY, ENGLAND Calls N.Y.C., afternoon	
12000 kc. *RNE -B- 25 meters MOSCOW, U. S. S. R. Sun. 6-9 10-11 a.m., 1-6 p.m. Mon., Wed., Fri. 4-6 p.m., Wed. also 5-6 a.m.	

Station	Dial
11991 kc. FZS2 -C- 25.02 meters SAIGON, INDO-CHINA Phones Paris, morning	
11950 kc. KKQ -X- 25.10 meters BOLINAS, CALIF. Tests, irregularly, evenings	
11940 kc. FTA -C- 25.13 meters STE. ASSISE, FRANCE Phones CNR morning Hurlingham, Arge., nights	
11875 kc. *FYA -B- 25.25 meters "RADIO COLONIAL" PARIS, FRANCE 10:15 a.m.-1:15 p.m., 2-5 p.m.	
11870 kc. *W8XK -B- 25.26 meters WESTINGHOUSE ELECTRIC & MFG. CO. PITTSBURGH, PA. 4:20-10 p.m. Fri. till 12 m. Relays KDKA	
11860 kc. GSE -B- 25.29 meters DAVENTRY, ENGLAND B.B.C., BROADCASTING HOUSE, LONDON, ENGLAND	
11830 kc. *W2XE -B- 25.36 meters ATLANTIC BROADCASTING CORP. 485 MADISON AVE., N. Y. C. 2-4 p.m. Relays WABC	
11811 kc. *2RO -B- 25.4 meters E.I.A.R. Via Montello 5 ROME, ITALY 8:15-9 a.m., 9:15-10:15 a.m., 2:30-5 p.m.	
11790 kc. W1XAL -B- 25.45 meters BOSTON, MASS. Irregularly in the afternoon	
11770 kc. *DJD -B- 25.49 meters BROADCASTING HOUSE, BERLIN, GERMANY 12-4:30, 5:05-10:30 p.m.	
11750 kc. *GSD -B- 25.53 meters BRITISH BROAD. CORP. DAVENTRY, ENGLAND	
11720 kc. *CJRX -B- 25.8 meters WINNIPEG, CANADA Daily, 8 p.m.-12 m.	
11705 kc. *FYA -B- 25.83 meters "RADIO COLONIAL" PARIS, FRANCE 8-9 p.m. 10 p.m.-12 m.	
11700 kc. *HJ4ABA -B- 25.68 meters P. O. BOX 50, MEDELLIN, COLOMBIA Irregularly 5-11 p.m.	
11680 kc. KIO -X- 25.68 meters KAHUKU, HAWAII Tests in the evening	
10740 kc. *JVM -C- 27.93 meters NAZAKI, JAPAN Broadcasts 2-7:45 a.m.	
10675 kc. WNB -C- 28.1 meters LAWRENCEVILLE, N. J. Calls Bermuda, daytime	
10660 kc. *JVN -C- 28.14 meters NAZAKI, JAPAN	
10550 kc. WOK -C- 28.44 meters LAWRENCEVILLE, N. J. Phones Arge., Braz., Peru, nights	
10520 kc. VLK -C- 28.51 meters SYDNEY, AUSTRALIA Calls Rugby, early a.m.	
10430 kc. YBG -C- 28.76 meters MEDAN, SUMATRA 5:30-6:30 a.m., 7:30-8:30 p.m.	
10420 kc. XGW -C- 28.79 meters SHANGHAI, CHINA Calls Manila and England, 6-9 a.m. and California late evening	
10410 kc. PDK -C- 28.80 meters KOOTWIJK, HOLLAND Calls Java 7:30-9:40 a.m.	
10410 kc. KES -X- 28.80 meters BOLINAS, CALIF. Tests evenings	
10350 kc. LSX -C- 28.98 meters MONTE GRANDE, ARGENTINA Tests irregularly 8 p.m.-12 midnight	
10345 kc. CAC -B- 29 meters HAVANA, CUBA Sunday, 8:30-9:30 p.m.	
10330 kc. ORK -B, C- 29.04 meters RUYSSELEDE, BELGIUM Broadcasts 1:30-3 p.m.	
10290 kc. DIQ -X- 29.16 meters KONIGSWUSTERHAUSEN, GERMANY Broadcasts irregularly	
10260 kc. PMN -C- 29.24 meters BANDOENG, JAVA Calls Australia 5 a.m.	
10250 kc. LSK3 -C- 29.27 meters HURLINGHAM, ARGENTINA Calls Europe and U. S., afternoon and evening	
10200 kc. CMHB -X- 29.41 meters P. O. Box 85 SANCTI SPIRITUS, CUBA Testing in early evening	
10055 kc. ZFB -C- 29.84 meters HAMILTON, BERMUDA Phones N. Y. C. daytime	
9950 kc. GCU -C- 30.15 meters RUGBY, ENGLAND Calls N.Y.C. evening	
9890 kc. LSN -C- 30.33 meters HURLINGHAM, ARGENTINA Calls New York evenings	
9860 kc. *EAQ -B- 30.43 meters P. O. Box 951 MADRID, SPAIN Daily 5:15-7:30 p.m.; Saturday also 12 n.-2 p.m.	
9840 kc. JYS -X- 30.49 meters KEMIKAWA-CHO, CHIBA-KEN, JAPAN Irregular, 4-7 a.m.	
9800 kc. LSE -C- 30.61 meters MONTE GRANDE, ARGENTINA Tests irregularly	
9790 kc. GCW -C- 30.64 meters RUGBY, ENLGAND Calls N.Y.C., evening	
9760 kc. VLJ-VLZ2 -C- 30.74 meters AMALGAMATED WIRELESS OF AUSTRALIA SYDNEY, AUSTRALIA Phones Java and N. Zealand early a.m.	
9750 kc. WOF -C- 30.77 meters LAWRENCEVILLE, N. J. Phones England, evening	
7910 kc. GCA -C- 30.89 meters RUGBY, ENGLAND Calls Arge. & Brazil, evenings	
9635 kc. *2RO -B- 31.13 meters E.I.A.R., ROME, ITALY Mon., Wed., Fri. 6-7:30, 7:45-9:15 p.m.	
9600 kc. *CT1AA B- 31.25 meters LISBON, PORTUGAL Tues., Thurs., Sat. 3:30-6 p.m.	
9595 kc. *HBL -B- 31.27 meters LEAGUE OF NATIONS GENEVA, SWITZERLAND Saturdays, 5:30-6:15 p.m.	
9590 kc. *VK2ME -B- 31.28 meters AMALGAMATED WIRELESS LTD., 47 YORK ST. SYDNEY, AUSTRALIA Sunday 12M.-2 a.m., 4:30-8:30 a.m., 11:30 a.m.-1:30 p.m.	
9590 kc. HP5J -B- 31.28 meters J Street PANAMA CITY, PANAMA 7:30-10 p.m.	
9590 kc. W3XAU -B- 31.28 meters NEWTOWN SQUARE, PA. Relays WCAU 11 a.m.-6:50 p.m.	
9580 kc. *GSC B- 31.32 meters BRITISH BROAD. CORP. DAVENTRY, ENGLAND	
9580 kc. *VK3LR -B- 31.32 meters Research Section Postmaster Gen'ls. Dept. 61 Little Collins St., MELBOURNE, AUSTRALIA 3:15-7:30 a.m. except Sun. Also Fri., 10:30 p.m.-2 a.m.	
9570 kc. *W1XK -B- 31.35 meters WESTINGHOUSE ELECTRIC & MFG. CO. SPRINGFIELD, MASS. Relays WBZ, 6 a.m.-12 m.	
9596 kc. VUB -B- 31.36 meters BOMBAY, INDIA 11 a.m.-12:30 p.m., Wed., Sat. Sun. 7:30-8:30 a.m.	
9560 kc. *DJA -B- 31.38 meters BROADCASTING HOUSE, BERLIN 5:05-9:15 p.m.	
9540 kc. *DJN -B- 31.45 meters BROADCASTING HOUSE BERLIN, GERMANY 3:45-7:15 a.m. 5:05-10:30 p.m.	
9540 kc. LKJ1 -B- 31.45 meters JELOY, NORWAY Relays Oslo 5-8 a.m.	
9530 kc. *W2XAF -B- 31.48 meters GENERAL ELECTRIC CO. SCHENECTADY, N. Y. Relays WGY 5:25-11 p.m.	
9510 kc. *GSB -B- 31.55 meters BRITISH BROAD. ORCP. DAVENTRY, ENGLAND	
9510 kc. *VK3ME -B- 31.55 meters 5AMALGAMATED WIRELESS, Ltd. G. P. O. Box 1272L, MELBOURNE, AUSTRALIA Wed., Thurs., Fri., Sat. 5:00-7:00 a.m.	
9500 kc. *PRF5 -B- 31.58 meters RIO DE JANEIRO, BRAZIL Daily except Sun. 5:30-6:15 p.m.	
9428 kc. *COH -B- 31.8 meters 2 B ST., VEDADO, HAVANA, CUBA 10 a.m.-12 n., 4-6:30, 8-10 p.m. also 11 a.m.-12 n. Thurs.	
9415 kc. PLV -C- 31.87 meters BANDOENG, JAVA Phones Holland around 9:45 a.m.	
9125 kc. HAT4 -B- 32.88 meters "RADIOLABOR" GYALI-UT. 22 BUDAPEST, HUNGARY Sunday 8-7 p.m.	
9010 kc. KEJ -C- 33.3 meters BOLINAS, CAL. Relays NBC & CBS Programs in evening irregularly	
8795 kc. HKV -B- 34.09 meters BOGOTA, COLOMBIA Irregular; 8:30 p.m.-12 m.	
8750 kc. ZEK -B- 34.29 meters HONGKONG, CHINA Relays ZBW 6-9 a.m.	
8214 kc. HCJB -B- 38.5 meters QUITO, ECUADOR 7:14-10:15 p.m., except Monday	
8185 kc. PSK -C- 38.85 meters RIO DE JANEIRO, BRAZIL Irregularly	
8036 kc. CNR -B- 37.33 meters RABAT, MOROCCO Sunday, 2:30-5 p.m.	
7880 kc. JYR -B- 38.07 meters KEMIKAWA-CHO, CHIBA-KEN, JAPAN 4-7:40 a.m.	
7860 kc. HC2JSB -B- 38.17 meters GUAYAQUIL, ECUADOR 8:15-11:15 p.m.	
7799 kc. *HBP -B- 38.47 meters LEAGUE OF NATIONS, GENEVA, SWITZERLAND 5:30-6:15 p.m., Saturday	

Station	Dial
7400 kc. HJ3ABD -B- 40.54 meters P. O. Box 509 BOGOTA, OLOMBIA Daily 12-2 p. m.; 7-11p.m. Sunday, 5-9 p.m.	
7380 kc. XECR -B- 40.65 meters FOREIGN OFFICE, MEXICO CITY, MEX. Sun. 6-7 p.m.	
7310 kc. HJ1ABD -B- 41.04 meters CARTAGENA, COLO. Irregularly, evenings	
7100 kc. HKE -B- 42.25 meters BOGOTA, COL., S. A. Tue. and Sat. 8-9 p.m.; Mon. & Thurs. 6:30-7 p.m.	
7030 kc. HRP1 -B- 42.67 meters SAN PEDRO SULA, HONDURAS Reported on this and other waves irregular in evening	
7000 kc. HJ5ABE -B- 42.86 meters CALI, COLUMBIA Irregular in evening	
5860 kc. KEL -X- 43.70 meters BOLINAS, CALIF. Tests irregularly 11 a.m.-12 n.; 6-9 p.m.	
6800 kc. HIH -B- 44.12 meters SAN PEDRO de MACORIS DOMINICAN REP. 12:10-1:40 p.m., 6:40-7:40 p.m., Sun. 3-4 a.m., 12:10-1:40 p.m., 2:20-4:40 p.m.	
6750 kc. JVT -X- 44.44 meters NAZAKI, JAPAN KOKUSAI-DENWA KAISHA, LTD., TOKIO Broadcasts 2-7:45 a.m.	
6660 kc. *TIEP -B- 40.05 meters LA-VOZ DEL TROPICO SAN JOSE, COSTA RICA APARTADO 257, Daily 7-10 p.m.	
6650 kc. *HC2RL -B- 45.06 meters P. O. BOX 759, GUAYAQUIL, ECUADOR, S. A. Sunday, 5:45-7:45 p. m. Tues., 9:15-11:15 p. m.	
6620 kc. *PRADO -B- 45.30 meters RIOBAMBA, ECUADOR Thurs. 9-11:45 p.m.	
6611 kc. RV72 -B- 45.38 meters MOSCOW, U. S. S. R. 1-6 p. m.	
6610 kc. H14D -B- 45.39 meters SANTO DOMINGO, DOMINICAN REPUBLIC Except Sun. 11:55 a.m.-1:40 p.m.; 4:40-7:40 p.m.	
6550 kc. T12PG -B- 45.77 meters APARTADO 225, SAN JOSE, COSTA RICA "Costa Rica Broadcasting" 9-10 p.m.	
6528 kc. HIL -B- 45.95 meters SANTO DOMINGO, D. R. Sat., 8-10 p.m.	
6520 kc. *YV6RV -B- 46.01 meters VALENCIA, VENEZUELA 5-7, 9-11 p.m., Irregular	

Station	Dial
6500 kc. HJ5ABD -B- 46.15 meters MANIZALES, COL. 12-1:30 p.m., 7-10 p.m.	
6447 kc. HJ1ABB -B- 46.53 meters BARRANQUILLA, COL., S. A. P. O. BOX 715. 11:30 a.m.-1 p.m.; 5-10 p.m.	
6425 kc. W3XL -X- 46.70 meters NATIONAL BROADCASTING CO. BOUND BROOK, N. J. Tests irregularly	
6425 kc. VE9AS -X- 46.7 meters FREDERICTON, N. B. CANADA Operates irregularly	
6375 kc. YV4RC -B- 47.06 meters CARACAS, VENEZUELA 4:30-10:30 p.m.	
6316 kc. HIZ -B- 47.5 meters SANTO DOMINGO DOMINICAN REPUBLIC Daily except Sat. and Sun. 4:40-5:40 p.m.; Sat., 9:40-11:40 p.m.; Sun., 11:40 a.m.-1:40 p.m.	
6250 kc. HJ4ABC -B- 48 meters PERIERA, COL. 9:30-11:30 a.m., 7-8 or 9 p.m.	
6230 kc. OAX4B -B- 48 meters Apartado 1242 LIMA, PERU Wed. & Sun. 7-10 p.m.	
6198 kc. CT1GO -B- 48.4 meters Portuguese Radio Club, PAREDE, PORTUGAL Sun. 11:30 a.m.-1 p.m. Daily exc. Tues. 7:20-8:30 p.m.	
6185 kc. HI1A -B- 48.5 meters P. O. BOX 423, SANTIAGO, DOMINICAN REP. 11:40 a.m.-1:40 p.m. 7:40-9:40 p.m.	
6175 kc. HJ2ABA -B- 48.58 meters TUNJA, COLOMBIA 1-2; 7:30-9:30 p.m.	
6170 kc. HJ3ABF -B- 48.62 meters BOGOTA, COLOMBIA 6-11 p.m.	
6160 kc. *YV3RC -B- 48.7 meters CARACAS, VENEZUELA Generally 4:00-10:00 p.m.	
6155 kc. CO9GC -B- 48.74 meters GRAU & CAMENEROS LABS. BOX 137, SANTIAGO, CUBA 9-10 a.m., 11:30 a.m.-1:30 p.m., 3-4:30 p.m. and irregularly 7-11 p.m.	
6150 kc. CSL -B- 48.78 meters LISBON, PORTUGAL 7-8:30 a.m., 2-7 p.m.	
6150 kc. *CJRO -B- 48.78 meters WINNIPEG, MAN., CANADA 8 p.m.-12 m. Sun. 3-10:30 p.m.	
6140 kc. *W8XK -B- 48.86 meters WESTINGHOUSE ELECTRIC & MFG. CO. PITTSBURGH, PA. Relays KDKA 4:30 p.m.-12 m.	

Station	Dial
6130 kc. ZGE -B- 48.92 meters KUALA LUMPUR, FED. MALAY STATES Sun., Tue., and Fri., 6:40-8:40 a.m.	
6128 kc. LKJ1 -B- 48.94 meters JELOY, NORWAY Relays Oslo, 10 a.m.-6 p.m.	
6120 kc. *YDA -B- 49.02 meters N.I.R.O.M. BANDOENG, JAVA 10:40 p.m.-1:40 a.m., 5-9:40 a.m.	
6120 kc. *W2XE -B- 49.02 meters ATLANTIC BROADCASTING CORP. 485 MADISON AVE., N. Y. C. Relays WABC, 5-10 p.m.	
6115 kc. HJ1ABE -B- 49.05 meters CARTAGENA, COL. P. O. BOX 31 Daily 11:15 a.m.-1 p.m.; Sun. 9-11 a.m.; Mon. 10 p.m.-12 m. Wed. 8-11 p.m.	
6112 kc. YV2RC -B- 49.08 meters CARACAS, VENEZUELA Sun. 9:30 a.m.-10:30 p.m., Daily except Sun. 11 a.m.-1:30 p.m., 4-9:30 p.m., Tues., till 10 p.m.	
6110 kc. GSL -B- 49.10 meters British Broadcasting Corp. Daventry, England	
6110 kc. VUC -B- 49.1 meters CALCUTTA, INDIA Daily except Sat., 3-5:30 a.m., 9:30 a.m.-noon; Sat. 11:45 a.m.-3 p.m.	
6110 kc. HJ4ABB -B- 49.1 meters MANIZALES, COL., S. A. P. O. Box 175 Mon. to Fri. 12:15-1 p.m.; Tues. & Fri. 7:30-10 p.m.; Sun. 2:30-5 p.m.	
6105 kc. HJ4ABL -B- 49.14 meters MANIZALES, COL. Daily 6-10 p.m., Sat. 11 p.m.-12 m.	
6100 kc. *W3XAL -B- 49.18 meters NATIONAL BROADCASTING CO. BOUND BROOK, N. J. Relays WJZ Monday, Wednesday, Saturday, 4-5 p.m. Sat. also 11 p.m.-12 m.	
6100 kc. *W9XF -B- 49.18 meters DOWNERS GROVE, ILL. Relays WENR, Chicago Daily except Mon., Wed. & Sat., 2:30 p.m.-1 a.m. Mon., Wed. 2:30-4, 5 p.m.-2 a.m. Sat. 2:30-4, 5 p.m.-11 p.m.	
6097 kc. JB -B- 49.2 meters AFRICAN BROADCASTING CO. JOHANNESBURG, SOUTH AFRICA Sun.-Fri. 11:45 p.m.-12:30 a.m. (next day) Mon.-Sat. 3:30-7 a.m. 9 a.m.-4 p.m. Sun. 8-10:15 a.m.; 12:30-3 p.m.	
6090 kc. *VE9GW -B- 49.26 meters BOWMANVILLE, ONTARIO, CANADA	
6090 kc. VE9BJ -B- 49.26 meters SAINT JOHN, N. B., CAN. 7-8:30 p.m.	

Station	Dial
6080 kc. CP5 -B- 49.34 meters LAPAZ, BOLIVIA 7-10:30 p.m.	
6080 kc. W9XAA -B- 49.34 meters CHICAGO FEDERATION OF LABOR CHICAGO, ILL. Relays WCFL Sunday 11:30 a.m.-9 p.m. and Tues., Thurs., Sat., 4 p.m.-12 m.	
6072 kc. ZHJ -B- 49.41 meters PENANG, MALAYA Mon., Wed., Sat., 6:30-9 a.m. also Sat. 11 p.m.-1 a.m. (Sun.)	
6072 kc. OER2 -B- 49.41 meters VIENNA, AUSTRIA 9 a.m.-5 p.m. daily	
6070 kc. VE9CS -B- 49.42 meters VANCOUVER, B. C., CANADA Sun. 1:45-9 p.m., 10:30 p.m.-1 a.m.; Tues. 6-7:30 p.m., 11:30 p.m.-1:30 a.m. Daily 6-7:30 p.m.	
6060 kc. OXY -B- 49.50 meters SKAMLEBOAEK, DENMARK 1-6:30 p.m.; also 11 a.m.-12 n. Sunday	
6060 kc. *W8XAL -B- 49.50 meters CROSLEY RADIO CORP. CINCINNATI, OHIO 6:30 a.m.-7 p.m.; 10 p.m.-1 a.m. Relays WLW	
6060 kc. VQ7LO -B- 49.50 meters NAIROBI, KENYA, AFRICA Mon.-Fri. 5:45-6:15 a.m., 11:30 a.m.-2:30 p.m. Also 8:30-9:30 a.m. on Tues. and Thurs., Sat. 11:30 a.m.-3:30 p.m. Sun. 11 a.m.-2 p.m.	
6060 kc. W3XAU -B- 49.50 meters NEWTON SQUARE, PA. Relays WCAU, Philadelphia 7 p.m.-10 p.m.	
6045 kc. HJ3ABI -B- 49.63 meters BOGOTA, COLO. Irregular in evening	
6042 kc. HJ1ABG -B- 49.85 meters BARRANQUILLA, COLD. 12 n.-1 p.m., 6-10 p.m. Sun. 1-6 p.m.	
6040 kc. *W1XAL -B- 49.67 meters BOSTON, MASS. Tues., Thurs. 7:30-9 p.m. Sun. 5-7 p.m.	
6030 kc. *HP5B -B- 49.75 meters P. O. BOX 910 PANAMA CITY, PAN. 12 N.-1 p.m., 8-10:30 p.m.	
6030 kc. VE9CA -B- 49.75 meters CALGARY, ALBERTA, CAN. 9 a.m.-3 p.m., 7 p.m.-12 m.	
6020 kc. CQN -B- 49.83 meters MACAO, CHINA Mon. and Fri. 3-5 a.m.	
6020 kc. *DJC -B- 49.83 meters BROADCASTING HOUSE, BERLIN 12 n.-4:30 p.m., 9:30-10:30 p.m.	

(Continued on Page 143)

Grand Short-Wave Station List

● *This Grand List of Short-Wave Stations of the World is a carefully edited one, and especially compiled by the editors. Only those short-wave stations which the average listener is likely to hear have been included in this list. A special "Quick Reference" list appears elsewhere in the magazine, giving the "Star" short-wave broadcasting stations, while another specially edited list contains the "Television" and "Police" station call letters.*

The editors will be glad at all times to receive corrections from our readers, and particularly any additional information on new stations not found in this list. In giving this information, please write such data on a separate sheet if the letter contains references to any other subject, so that these corrections can be handed directly to the editor of this department. A postcard will frequently serve the purpose for sending us such information.

Short Wave Phone Stations By Order of Frequency in Megacycles

Freq. Mc.	CALL	LOCATION
		199 TO 180 METERS
1.510	VAF	Alert Bay, Can.
1.510	CJD	Campbell River, B.C., Can.
1.510	VAC	Cape Lazo, Can.
1.510	CJN	Cardero Channel, B.C., Can.
1.510	CJE	Ceepeecee, B.C., Can.
1.510	CJK	Knight Inlet, B.C., Can.
1.510	VCU	Merry Island, Can.
1.510	CFV	Namu, B.C., Can.
1.510	CKQ	Powell River, B.C., Can.
1.510	YLZ	Riga, Latvia (X)
1.510	CJT	Theodosia Arm, B.C., Can.
1.510	CYG	Thurston Bay, B.C., Can.
1.510	VAI	Vancouver, B.C., Can.
1.510	CJH	Viner Sound, B.C., Can.
1.510	CJR	Wakeman Sound, B.C., Can..
1.520	VIA	Adelaide, Australia
1.520	VKO	Sydney, Australia
1.523	GUF	Alderney, United Kingdom
1.523	GUG	Guernsey, United Kingdom
1.523	GUB	Lochboisdale, United Kingdom
1.523	GUA	Tobermory, United Kingdom
1.530	W9XBY	Kansas City, Missouri, USA (BX)
1.530	W1XBS	Prospect Twp., Conn.,USA (BX)
1.530	SCJ	Karlskrona, Sweden (B)
1.532	CFC	Cub Lake, Sask., Can.
1.532	CGV	Emma Lake, Sask., Can.
1.532	CZJ	Ile-a-la-Crosse, Sask., Can.
1.532	CGQ	Lac la Ronge, Sask., Can.
1.532	CJC	Thunder Mountain, Sask., Can.
1.538	OSW	Antwerp, Belgium
1.538	OYM	Christianso, Denmark
1.538	OXJ	Thorshavn, Denmark
1.538	OZK	Thorshavn, Denmark
1.538	TFO	Malmey, Iceland
1.538	TFS	Stykkisholmur, Iceland
1.540	VBY	Lunenburg, N.S., Can.
1.540	VK3EJ	Melbourne, Australia (Fire)
1.540	CJD	Campbell River, B.C., Can.
1.540	CJD	Thurston Bay, B.C., Can.
1.550	W6XAI	Bakersfield, Calif. (BX)
1.550	W2XR	Long Island City, N.Y., USA (BX)
1.550	YDA4	Soekaboemi, Neth. India (B)
1.550	----	Naval stations, United Kingdom
1.560	CZA	Drummondville, P.Q., Can.
1.560	VBQ	Halifax, N.S., Can.
1.570	YDB6	Malang, Netherland India
1.579	VLA	Cape Bruny, Australia
1.579	VLB	Mautsuyker Isl., Australia
1.579	VLC	Tasman Isl., Australia
1.579	DCA	Adlergrund Lightship, Germany
1.579	DCV	Bremen Lightship, Germany
1.579	DCK	Elbe Lightship No. 2, Germany
1.579	DCG	Elbe Lightship No. 3, Germany
1.579	DCI	Elbe Lightship No. 4, Germany
1.579	DCU	Robbenplate Lighthouse, Germ.
1.579	----	Ship Stations, Germany
1.579	OYQ	Jakobshavn, Greenland
1.580	CJM	Borden, P.E.I., Canada
1.582	YDD3	Batavia, Netherland India (B)
1.585	PCC	Noordhinder Lightship, Neth.
1.585	PID	Vlissingen Canal Watch, Neth.
1.595	OZP	Lyngby, Denmark (B)
1.595	YDB5	Solo, Netherland India (B)
1.596	----	Experimental, USA
1.596	CFC	Cub Lake, Sask., Canada
1.596	CGV	Emma Lake, Sask., Canada
1.596	CZJ	Ile-la-Cross, Sask., Canada
1.596	CGQ	Lac la Ronge, Sask., Canada
1.596	CJC	Thunder Mountain, Sask., Can.
1.596	TFZ	Isafjordur, Iceland
1.596	TFA	Reykjavik, Iceland
1.596	TFX	Siglufjordur, Iceland
1.596	TFV	Vestmannaeyjar, Iceland
1.600	PIE	Hoek van Holland, Netherlands
1.600	PCB	Maas Lightship, Netherlands
1.600	PIC	Scheveningen Lighthouse Dep. Netherlands
1.615	PIB	Brandaris Lighthouse, Neth.
1.615	PCD	Haaks Lightship, Netherlands
1.615	PIA	Kykduin Semaphore, Neth.
1.615	PCE	Terschellingerbank Lightship, Netherlands
1.615	YDB4	Tjepoe, Netherland India (B)
1.620	CZB	Bellevue, P.Q., Canada
1.620	CFC	Cub Lake, Sask., Canada
1.620	CGV	Emma Lake, Sask., Canada
1.620	CZJ	Ile-a-la-Crosse, Sask., Canada
1.620	CFD	Kenora, Ont., Canada
1.620	CGQ	Lac la Ronge, Sask., Canada
1.620	CMF	Manicouagan River, P.Q., Can.
1.620	CZY	Riviere du Chef, P.Q., Canada
1.620	CZZ	St. Felicien, P. Q., Canada
1.620	CFL	Tabouret, P. Q., Canada
1.620	CJC	Thunder Mt., Sask., Canada
1.620	----	Experimental, Canada
1.622	VKA	Bogolara, Australia
1.622	VJE	Burrinjuck, Australia
1.622	VJF	Cootamundra, Australia
1.622	VJH	Gundagai, Australia
1.622	VJO	Koorawatha, Australia
1.622	VKJ	Lithgow, Australia
1.622	VJG	Murrumburrah, Australia
1.622	VKB	Yass, Australia
1.622	----	Portable, Burrinjuck, Australia
1.622	----	Portable, Lithgow, Australia
1.622	OXB	Blaavand, Denmark, 2B
1.622	OUY	Vyl Lightship, Denmark
1.629	ESS	Osmussaar, Estonia
1.630	YDD2	Bandoeng, Netherland India
1.640	YDA3	Buitenzorg, Netherl. India, B
1.648	TFA	Reykjavik, Iceland
1.648	TFX	Siglufjordur, Iceland
1.648	TFV	Vestmannaeyjar, Iceland
1.660	YDB3	Djokjakarta Netherl. Ind., (B)
		180 TO 160 METERS
1.690	- --	Burnham, United Kingdom
1.712	CZG	Prince Rupert, B. C., Canada
1.712	CZF	Vancouver, B. C., Canada
1.712	CZE	Victoria, B. C., Canada
1.714	ESG	Tallinn-Ulemiste, Etonia
1.715	----	Amateurs, Argentina
1.715	----	Amateurs, Canada
1.715	----	Amateurs, Ecuador
1.715	----	Amateurs, Estonia
1.715	----	Amateurs, Union of So. Africa
1.716	----	
to		Amateurs, USA
2.000		
1.720	DAL	Bremerhaven Lloydhalle, Ger.
1.730	YLY	Liepaja, Latvia, (X)
1.735	RFAU	Bykovo (Moskow Obl.) Russia
1.754	OYE	Ronne, Denmark
1.760	GMH	Main Head, Irish Free State
1.760	GCK	Valentia Irish Free State
1.760	----	Burnham, United Kingdom
1.760	----	Cullercoats, United Kingdom
1.760	----	Fishguard, United Kingdom
1.760	----	Humber, United Kingdom
1.760	----	Lands End, United Kingdom
1.760	----	Niton, United Kingdom
1.760	----	North Foreland, United King.
1.760	----	Portpatrick, United Kingdom
1.760	----	Seaforth, United Kingdom
1.760	----	Wick, United Kingdom
1.764	EAI	Teneriffe, Canary Islands
1.764	DCS	Tonning, Germany
1.765	TFF	Flatey a Skjalfanda, Iceland
1.775	RHBD	Leningrad, Russia
1.775	ESR	Ruhnu, Estonia
1.775	----	Ship Stations, Germany
1.818	OUY	Vyl Lightship, Denmark
1.818	PDN	Scheveningen, Netherlands
1.818	RHBD	Leningrad, Russia
1.819	OXC	Ringsted, Denmark
1.840	YDJ4	Cheribon, Netherl., Indie, (B)
1.860	YDK6	Semarang, Netherl. India, (B)
		160 TO 120 METERS
1.875	EAU	San Lorenzo, Canary Islands
1.875	DCA	Adlergrund Lightship, Germany
1.875	DCV	Bremen Lightship, Germany
1.875	DCK	Elbe Lightship No. 2, Germany
1.875	DCG	Elbe Lightship No. 3, Germany
1.875	DCI	Elbe Lightship No. 4, Germany
1.875	DAC	Elbe-Weser, Germany
1.875	DCU	Robbinplate Lighthouse, Ger.
1.875	DAS	Rugen, Germany
1.875	----	Naval Stations, Germany
1.875	TFH	Husavik, Iceland
1.875	RFAW	Moscow, Russia
1.875	RLXS	Saratov, Russia
1.880	YDO9	Soerabaja, Netherl. India, (B)
1.898	ESP	Parnu, Estonia
1.900	YDG6	Batavia, Netherl. India, (B)
1.900	RW69	Odessa, Russia, (T)
1.910	----	Ship Stations, Germany
1.920	YDH9	Buitenzorg, Netherl. India, (B)
1.940	OHN	Hango, Finland
1.940	YDN3	Kediri, Netherland India, (B)
1.960	----	Ship Stations, Germany
2.000	OXK	Tveraa, Denmark
2.000	TFG	Grimsey, Iceland
2.020	RIAD	Nijni-Chkaft, Russia
2.020	----	Portable, Australia
2.050	VJI	Cloncurry, Australia
2.090	DAS	Rugen, Germany
2.098	----	Kronborg Light, Denmark
2.110	----	Ship-to-Shore radiophone, USA
2.110	YDI2	Soekaboemi, Netherl. India, (B)
2.126	----	Ship-to-Shore, USA
2.140	DAC	Elbe-Weser, Germany
2.140	VHO	Melbourne, Australia
2.174	----	Ship-to-Shore, USA
2.198	----	Ship-to-Shore, USA
2.206	VYV	Port Menier, P. Q., Canada
2.212	VYZ	High Falls, P. Q., Canada
2.230	RT7	Azov-on-le-Don, Russia
2.252	KIUG	Portable, USA
2.252	KIUF	Portable, USA
2.252	KIUE	Portable, USA
2.252	KIUD	Portable, USA
2.252	KIUC	Portable, USA
2.252	KIUB	Portable, USA
2.255	DAC	Elbe-Weser, Germany
2.284	CKO	Crane Island, P. Q., Canada
2.284	CFI	Flaggs Cove, N. B., Canada
2.284	CFT	Leamington, Ont., Canada
2.284	CKP	Montmagny, P. Q., Canada
2.284	CFX	Pelee Island, Ont., Canada
2.284	CKB	Pictou, N. S., Canada
2.284	CKU	Pictou Island, P. Q., Canada
2.284	CFZ	Welchpool, N. B., Canada
2.290	CFW	Bones Bay, B. C., Canada
2.290	CJE	Ceepeecee, B. C., Canada
2.290	VFJ	Homalko, B. C., Canada
2.290	CZL	Humpback Bay, B. C., Canada
2.290	CJY	Jackson Bay, B. C., Canada
2.290	CFV	Namu, B. C., Canada
2.290	CJL	Selwyn Inlet, B. C., Canada
2.290	CJR	Wakeman Sound, B. C., Canada
2.300	RHHA	Armavir, Russia
2.300	RKPU	Loubny, Russia
2.343	RFCQ	Moscow, Russia
2.350	VBQ	Halifax, N. S., Canada
2.355	----	Burnham, United Kingdom
2.355	----	Cullercoats, United Kingdom
2.355	----	Fishguard, United Kingdom
2.355	----	Humber, United Kingdom
2.355	----	Lands End, United Kingdom
2.355	----	Malin Head, United Kingdom
2.355	----	Niton Radio, United Kingdom
2.355	----	North Foreland, United King.

B=Broadcasting; X=Experimental.

Freq. Mc.	CALL	LOCATION
2.355	----	Portpatrick, United Kingdom
2.355	----	Seaforth, United Kingdom
2.355	----	Valentia, United Kingdom
2.355	----	Wick, United Kingdom
2.357	EDP	Palma de Mallorca, Spain
2.357	EDR4	Palma de Mallorca, Spain
2.366	----	Naval Stations, United King.
2.385	YDA2	Batavia, Netherl. India, (B)
2.398	----	Experimental, USA
2.400	EST	Tallinn-Sadam, Estonia
2.400	DAF	Norddeich, Germany
2.400	OYR	Egedesminde, Greenland
2.415	YDE4	Soerabaja, Netherl. India, (B)
2.416	CZG	Prince Rupert, B. C., Canada
2.416	CJW	St. John, N. B., Canada
2.416	CZF	Vancouver, B. C., Canada
2.416	CZE	Victoria, B. C., Canada
2.416	VYW	Winnipeg, Man., Canada
2.450	YDB2	Semarang, Netherl. India, (B)
2.452	CQZ	Vancouver, B. C., Canada
2.452	CJZ	Verdun, P. Q., Canada
		120 TO 100 METERS
2.500	DAS	Rugen, Germany
2.500	TFQ	Djopivogur, Iceland
2.517	EDO	Madrid, Spain
2.517	EDR2	Madrid, Spain
2.517	EDS	Madrid, Spain
2.550	RHJS	Oust-Labinskaia, Russia
2.604	WZAS	Gasconade, Mo., USA
2.604	WXA	Juneau, Alaska
2.604	WXH	Ketchekan, Alaska
2.604	WYBF	Napoleon, Mo., USA
2.604	WXY	Nome, Alaska
2.604	----	Transports, USA
2.610	RELB	Boukhta Bertys, Russia
2.610	RELD	Boukhta Bertys, Russia
2.610	RELO	Boukhta Bertys, Russia
2.610	RELZ	Spasskyi Zavod, Russia
2.640	----	Airways, USA
2.644	----	Airways, USA
2.670	NOX	Biloxi, Miss., USA
2.670	NOB	Buffalo, N. Y., USA
2.670	NOV	Cape May, N. J., USA
2.670	NMD	Cleveland, Ohio, USA
2.670	NOL	Ft. Lauderdale, Fla., USA
2.670	NOY	Galveston, Texas, USA
2.670	NMW	Grays Harbor, Wash., USA
2.670	NMV	Jacksonville, Fla., USA
2.670	NOM	Miami, Fla., USA
2.670	NMG	Mobile, Ala., USA
2.670	NOU	New London, Conn., USA
2.670	NMC	Point Bonita, Calif., USA
2.670	NOJ	Point Vicente, Calif., USA
2.670	NOW	Port Angeles, Wash., USA
2.670	NOZ	Port Tounsend, Wash., USA
2.670	NMN	Princess Anne, Va., USA
2.670	NMY	Rockaway Point, N. Y., USA
2.670	NOF	St. Petersburg, Fla., USA
2.670	NOS	Salem, Mass., USA
2.670	NMP	Wilmette, Ill., USA
2.670	NMF	Winthrop, Mass., USA
2.672	EDO	Madrid, Spain
2.672	EDR2	Madrid, Spain
2.673	EDS	Madrid, Spain
2.698	NOX	Biloxi, Miss., USA
2.698	NOB	Buffalo, N. Y., USA
2.698	NMD	Cleveland, Ohio, USA
2.698	NOW	Port Angeles, Wash., USA
2.698	NOS	Salem, Mass., USA
2.698	NMP	Wilmette, Ill., USA
2.710	YDK5	Semarang, Netherl. India, (B)
2.730	KZGF	Manila, Philippine Islands
2.730	----	North Foreland, United Kingdom
2.738	WKDX	New York, N. Y., USA
2.740	CFD	Kenora, Ont., Canada
2.740	----	Experimental, Canada
2.750	----	Experimental, tel., USA, (T)
2.750	----	Experimental, tel., Can., (T)
2.750	YDL6	Djokjakarta, Nethrl. India, (B)
2.758	----	Experimental, Can.
2.760	YZGH	Boilo, Philippine Islands
2.770	VK3LR	Lyndhurst, Vic., Australia
2.770	VK3XX	Lyndhurst, Vic., Australia
2.770	YDO6	Soerabaja, Netherl. India, (B)
2.790	YDN2	Madioen, Netherl. India, (B)
2.800	----	Aeronautical, Europe
2.810	YDQ6	Malang, Netherland India (B)
2.810	RHBD	Leningrad, Russia
2.815	----	Aeronautical, Europe
2.820	VK3LR	Lyndhurst, Vic., Australia, (B)
2.820	VK3XX	Lyndhurst, Vic., Australia
2.820	RIAD	Nijni-Chkaft, Russia
2.830	KZGG	Cebu, Philippine Islands
2.830	YDU4	Medan, Netherland Indies (B)
2.830	----	Aeronautical, Europe
2.835	----	Rome, Italy
2.845	OHG	Helsingfors, Finland
2.845	VLT	Bulolo, New Guinea
2.870	YDJ3	Tegal, Netherland India, (B)
2.870	RFCQ	Moscow, Russia
2.875	EDR4	Palma de Mallorca, Spain
2.890	YDJ2	Pekalongou, Netherl. India, (B)
2.910	YDE3	Semarang, Netherl. India, (B)
2.920	REKD	Alma-Ata, Russia
2.930	YDO5	Soerabaja, Netherl. India, (B)
2.950	YDQ5	Malang, Netherland India, (B)
2.980	CZA	Drummondville, P. Q., Canada
		100 TO 85 METERS
2.990	RHBB	Novorjev, Russia
3.000	SQB	Bialystok, Poland
3.000	SQA	Lwow, Poland
3.000	SWZ	Warsaw, Poland
3.040	CGE	Calgary, Alta., Canada
3.040	CKS	Calgary, Alta., Canada
3.040	RKDM	Medvejia Gora, Russia
3.040	RKOO	Odessa, Russia
3.040	RKDO	Parandovo, Russia
3.048	KIOG	Portable, USA
3.048	KIUF	Portable, USA
3.048	KIUE	Portable, USA
3.048	KIUD	Portable, USA
3.048	KIUC	Portable, USA
3.048	KIUB	Portable, USA
3.050	RUF	Moscow, Russia
3.055	----	
3.050	----	Portable, Wyndham Meatsworks, Australia
3.058	VYY	Masson, P. Q., Canada
3.060	RKNK	Kharkov, Russia
3.060	RUF	Moscow, Russia
3.080	PVV5	Taruaaca, Brazil
3.080	RHIK	Rostov on Don, Russia
3.080	REBB	Vladimir, Russia
3.088	----	Airplanes, USA
3.090	RBX	Moscow, Russia
3.095	W7XA	Portable, USA
3.095	W7XAQ	Portable, USA
3.105	----	Airplanes, USA
3.125	RPF	Moscow, Russia
3.130	YDH6	Bandoeng, Netherl. India, (B)
3.135	RKOP	Kiev, Russia
3.140	RMDU	Ouroulga, Russia
3.150	YDG3	Batavia, Netherl. India, (B)
3.150	REIX	Akmolinsk, Russia
3.150	RLEE	Bouchoulei, Russia
3.150	RMDK	Ksnievskaia, Russia
3.152	CGM	Montreal, P. Q., Canada
3.152	CGY	Yamachichi P. Q., Canada
3.155	W7XAQ	Portable station, USA
3.158	OYN	Upernivik, Greenland
3.160	CGM	Montreal, P. Q., Canada
3.160	CGY	Yamachichi, P. Q., Canada
3.160	RLEZ	Zilovo, Russia
3.170	YDO4	Soerabaja, Netherl. India, (B)
3.170	RLEC	Tehita, Russia
3.180	RMDG	Bolchoi Never, Russia
3.180	RHJD	Chakhty, Russia
3.180	RLED	Chulka, Russia
3.180	RMWA	Tashkent, Russia
3.180	RMDF	Zcia, Russia
3.190	YDK2	Semarang, Netherl. India, (B)
3.190	RMDQ	Amazar, Russia
3.190	RENI	Tchimkent, Russia
3.195	W7XAQ	Portable, USA
3.200	RMDM	Mogotcha, Russia
3.210	YDL5	Djokjakarta, Nethrl. India, (B)
3.230	YDQ4	Malang, Netherland India, (B)
3.235	W7XAQ	Portable, USA
3.240	RMAY	Troitse Zaroubino, Russia
3.240	EDP	Palma de Mallorca, Spain
3.240	EDO	Madrid, Spain
3.240	EDR2	Madrid, Spain
3.250	YDH5	Garoet, Netherland India, (B)
3.256	----	Experimental, Canada
3.265	W7XAQ	Portable, USA
3.270	YDK1	Mageland, Netherl. India, (B)
3.275	RMAS	Tafouin, Russia
3.295	W7XAQ	Portable, USA
3.310	YDH4	Bandoeng, Netherl. India, (B)
3.310	RIAC	Penza, Russia
3.330	LPG	General Pachero, Argentina
3.330	YDV2	Bandjermasin, Neth. India, (B)
3.330	RRRR	Tashkent, Russia
3.332	CFD	Kenora, Ont., Canada
3.333	OGH	Ekenholm, Finland
3.333	OGF	Fagerholm, Finland
3.333	OFL	Haapasaari, Finland
3.333	OHN	Hango, Finland
3.333	OGE	Helsingfors, Finland
3.333	OHG	Helsingfors, Finland
3.333	OHH	Koivisto Finland
3.333	OFM	Kotka, Finland
3.333	OFQ	Lavansaari, Finland
3.333	OFY	Mariehanin, Finland
3.333	OFW	Pirttisaari, Finland
3.333	OFX	Porkkala, Kallbada, Finland
3.333	OFV	Porkkala, Ronnskar, Finland
3.333	OGI	Saggo, Finland
3.333	OFS	Seiskari, Finland
3.333	OFN	Suursaari, Finland
3.333	OFI	Tanimio, Finland
3.333	OFO	Tytarsaari, Finland
3.333	OHT	Uto, Finland
3.333	OGJ	Vaasa, Finland
3.333	OFU	Vatskar, Finland
3.333	OHP	Viipuri, Finland
3.340	CGD	Drummondville, P. Q., Canada
3.340	CGM	Montreal, P. Q., Canada
3.345	W7XA	Portable, USA
3.350	----	Naval Stations, Germany
3.350	YDQ3	Malang, Netherland India, (B)
3.370	YDU2	Medan, Netherland India, (B)
3.370	RIAY	Tchernoretchenskoe, Russia
3.380	RGJV	Iochkar-Ola, Russia
3.380	RENJ	Karsakpai, Russia
3.385	KIIU	Marshall, Alaska
3.385	W7XAP	Portable, USA
3.390	RENG	Atchi-Sai, Russia
3.390	YDQ2	Djumber, Netherland India, (B)
3.410	WWG	Cheboygan Range Light Station, Mich., USA
3.410	WWEC	Delaware Breakwater Light, Del., USA
3.410	WWR	Detroit, L.H. Depot, Mich., USA
3.410	WWN	Detroit River Light Station, Mich., USA
3.410	WST	Dry Tortugas Lgt. Sta., USA
3.410	WWDI	Edgemoor Depot, Del.
3.410	WWDW	Fourteen Foot Bank Light, Del., USA
3.410	WWZ	Key West L.H. Dep. Fla., USA
3.410	WWAJ	Manitou Lgt. Sta., Mich. USA
3.410	WWM	Marquette Lgt. Sta., Wis., USA
3.410	WWAL	Passage Isl. Lgt. Sta., USA
3.410	WRL	Poe Reef Lgt. Sta., Mich., USA
3.410	WWAM	Rock of Ages Lgt., Mich., USA
3.410	WWH	Standard Rock Lgt., Mich., USA
3.410	YDL4	Djokjakarta, Nethrl. India, (B)
3.410	RGAZ	Kotelnitch, Russia
3.410	RJBD	Soerdlovak, Russia
3.420	RFAU	Bykovo, Russia
3.435	OEHI	Vienna, Austria
3.430	YDO2	Soerabaja, Netherl. India, (B)
3.440	RFAX	Moscow, Russia
3.440	RKF	Moscow, Russia
3.445	W7XAQ	Portable, USA
3.450	YDL2	Solo, Netherland India, (B)
3.450	RKNZ	Kharkov, Russia
3.450	RFAG	Moscow, Russia
3.450	RFBL	Moscow, Russia
3.460	CFD	Kenora, Ont., Canada
3.460	CZG	Prince Rupert, B. C., Canada
3.460	CZF	Vancouver, B. C., Canada
3.460	CZE	Victoria, B. C., Canada
3.470	RFAJ	Moscow, Russia
3.480	VLT	Bulolo, New Guinea
3.485	SQB	Bialystok, Poland
3.490	PK1WK	Bandoeng, Java, (B)
3.490	HAP	Budapest, Hungary
3.490	SQZ	Warsaw, Poland
		85 TO 80 METERS
3.495	SQA	Lwow, Poland
3.495	----	Airway Stations Russia
3.495	RLXS	Saratov, Russia
3.500 to 4.000	----	Amateurs, USA
3.505	RHCU	Leningrad, Russia
3.510	RKNX	Debaltsevo, Russia
3.510	RKLA	Kramatorsk, Russia
3.515	RTU	Dolgoproudnaia, Russia
3.520	RFAO	Moscow, Russia
3.520	SQZ	Warsaw, Poland
3.530	TFR	Flatey a Breidafirdi, Iceland
3.530	TFP	Papey, Iceland
3.540	----	Airways Stations, Russia
3.543	CR7AA	Lourenco Marques, Mozambique, (B)
3.550	REIB	Alma-Ata, Russia
3.550	RFAW	Moscow, Russia
3.550	REJB	Sergiopol, Russia
3.550	REJA	Taldy-Kourgon, Russia
3.555	RRT	Vitebsk, Russia
3.560	RPOK	Korosten, Russia
3.565	RRT	Vitebsk, Russia
3.570	RGAP	Gorki, Russia
3.570	RGLG	Mezen, Russia
3.570	RCRI	Nakhitchevan, Russia
3.570	RRT	Vitebsk, Russia
3.580	RLW	Artemovsk, Russia
3.580	RMPB	Madrouchkent, Russia
3.580	RIU	Verkhoiansk, Russia
3.585	RHCC	Khibinigorsk, Russia
3.590	REX	Indigo-Boukhta, Russia
3.590	RUY	Pervomaisk, Russia
3.600	CT2AJ	Ponta Delgada, Azores, (B)
3.600	RPG2	Groumont Siti, Russia
3.600	RKNE	Kharkov, Russia
3.600	RCND	Neval, Russia
3.600	RJCZ	Socrdlovsk, Russia
3.610	RJRV	Kozlov, Russia
3.610	RKLW	Kramatorsk, Russia
3.620	DOA	Doeberitz, Germany
3.620	RCAD	Minsk, Russia
3.620	RGX	Minsk, Russia
3.620	RIAU	Samara, Russia

B=Broadcasting; X=Experimental.

Freq. Mc.	CALL	LOCATION
3.630	RFF	Kharkov, Russia
3.630	RENC	Temir, Russia
3.630	RGFW	Viatka, Russia
3.640	RKOV	Grichino, Russia
3.640	RKME	Kharkov, Russia
3.640	RCTS	Mamadych, Russia
3.640	RIBC	Penza, Russia
3.650	RENT	Gouriev, Russia
3.650	RKPA	Nikolaev, Russia
3.650	RMWA	Tashkent, Russia
3.658	RFAJ	Moscow, Russia
3.660	RKOB	Bobrinskaia, Russia
3.660	----	Konigs Wusterhausen, Ger.
3.670	RKNK	Kharkov, Russia
3.670	RHIY	Tatsinskaia, Russia
3.680	RJAJ	Moscow, Russia
3.685	RAJ	Sovgavan, Russia
3.690	REAS	Chouia, Russia
3.690	RKNC	Kharkov, Russia
3.690	RCRJ	Lenkoran, Russia
3.700	VK3LR	Lyndhurst, Victora, Australia, (B)
3.700	VK3XX	Lyndhurst, Victoria, Australia,
3.700	JPY	Tobata, Japan
3.710	RIBB	Abdoulinskoe, Russia
3.710	RIAZ	Andreevskoe, Russia
3.710	RGAQ	Ijevsk, Russia
3.710	RFCJ	Kachira, Russia
3.710	RKND	Kharkov, Russia
3.720	RCNQ	Novosokolniki, Russia
3.720	RHJS	Orist Labinskaia, Russia
3.720	RIBE	Samara, Russia
3.730	RKNB	Kharkov, Russia
3.730	RCQA	Koutais, Russia
3.740	RKOU	Kharkov, Russia
3.740	RJEJ	Sverdlovsk, Russia

80 TO 70 METERS

3.750	FNKR	Constantine, Algeria, (B)
3.750	VK3LR	Lyndhurst, Victoria, Australia, (B)
3.750	VK3XX	Lyndhurst, Victoria, Australia
3.750	12RO	Rome, Italy, (B)
3.750	RENY	Dozzor, Russia
3.750	REJQ	Ganiouchkino, Russia
3.750	REBO	Iavnovo, Russia
3.750	RFCV	Kalinin, Russia
3.750	CTICT	Lisbon, Portugal, (B)
3.760	RENU	Aktiubinsk, Russia
3.760	----	Konigs Wusterhausen, Germany
3.760	RMWP	Samarkand, Russia
3.760	RKOH	Znamenka, Russia
3.769	ZEZ	Broken Hill, Northern Rhodesia
3.769	ZDH	Sameson, Northern Rhodesia
3.769	ZDA	Livingston, Northern Rhodesia
3.769	ZDI	Monga-Leadui, Northr, Rhodesia
3.769	ZFF	Mpika, Northern Rhodesia
3.770	RRR	Briansk, Russia
3.780	RLW	Artemovsk, Russia
3.780	RLX	Artemovsk, Russia
3.780	RELO	Boukhta Bertys, Russia
3.790	RPNA	Kharkov, Russia
3.800	RKOL	Krementchong, Russia
3.800	RMPH	Stalinabad, Russia
3.810	RKPP	Ouman, Russia
3.820	RMSE	Karabougaz, Russia
3.830	----	Bykovo, Russia
3.830	RHAB	Leningrad, Russia
3.830	RIAL	Syzran, Russia
3.830	RCQY	Tiflis, Russia
3.840	RKOD	Kazatin, Russia
3.850	RKMC	Odessa, Russia
3.850	RGLC	Syktykvar, Russia
3.860	RKLO	Sorokino, Russia
3.860	RKPO	Vorochilovsk, Russia
3.870	RW77	Moscow, Russia
3.880	RIBA	Bouzoulouk, Russia
3.880	RKLQ	Dnepropetrovsk, Russia
3.880	RCBA	Jlobin, Russia
3.880	RENV	Karaton, Russia
3.885	RCRH	Batoum, Russia
3.890	RLY	Kharkov, Russia
3.900	RFAX	Moscow, Russia
3.910	RLEQ	Tchita, Russia
3.910	RLEV	Verkhne Oudinsk, Russia
3.910	RMCC	Roukhlovo, Russia
3.920	RKLA	Kramatorsk, Russia
3.920	RFAO	Moscow, Russia
3.950	RHAX	Leningrad, Russia
3.998	HCJB	Quito, Ecuador, (B)
4.000	ZGE	Kuala Lumpur, Federated Malay States, (B)
4.000	REJM	Karaganda, Russia
4.002	CT2AJ	Ponta Delgada, Sao Miguel, Azores, (B)
4.010	RFAU	Bykovo, Russia
4.030	RFAW	Moscow, Russia
4.050	DAS	Rugen, Germany
4.054	CNW	Tangier, Morocco
4.060	RGKX	Archangel, Russia
4.080	RFAO	Moscow, Russia
4.097	WND	Hialeah, Fla., USA
4.100	LCL	Jeloy, Norway, (X)

Freq. Mc.	CALL	LOCATION
4.110	HCJB	Quito, Ecuador, (B)
4.110	RELO	Boukhta, Bertys, Russia
4.110	RENA	Bourondal, Russia
4.110	RKNX	Debaltsevo, Russia
4.110	RISQ	Novosibirsk, Russia
4.130	RTU	Dolgoproudnaia, Russia
4.130	DAF	Norddeich, Germany
4.135	W7XAQ	Portable, USA
4.140	RELW	Karalinsk Russia
4.140	RELX	Djarkent, Russia
4.140	RJCU	Magnetigorsk, Russia
4.150	SQZ	Warsaw, Poland
4.150	REIB	Alma Ata, Russia
4.150	RLEN	Nijne Oudinsk, Russia
4.150	RMCC	Roukhlovo, Russia
4.150	REJB	Sergiopol, Russia
4.150	REJA	Tandy-Kourgan, Russia
4.150	RLEQ	Tchita, Russia
4.150	RLEV	Verkneoudinsk, Russia
4.160	SQB	Bialystok, Poland
4.165	LOB	Puerto Aguirre, Argentine
4.165	SQZ	Warsaw, Poland
4.170	SQA	Lwow, Poland
4.174	----	British ships
4.177	----	Ship telephone
4.190	RJXC	Makhatch-Kala, Russia
4.190	RMAT	Vladivostok, Russia
4.272	WOY	Lawrenceville, N. J., USA
4.272	WOO	Ocean Gate, N. J., USA
4.273	RVI5	Khabarovsk, Russia, B)
4.280	RFAK	Koutchino, Russia

70 TO 60 METERS

4.283	----	Ship telephone
4.286	RKMF	Jitomir, Russia
4.286	RKPL	Jitomir, Russia
4.286	RCNF	Smolensk, Russia
4.295	WTDW	St. Croix, Virgin Islands
4.295	WTDX	St. John, Virgin Islands
4.295	WTDV	St. Thomas, Virgin Islands
4.300	----	Aeronautical, Europe
4.300	RKPE	Luman, Russia
4.300	RKDM	Medvejia Gora, Russia
4.300	RKDO	Parandovo, Russia
4.300	RHIK	Rostov on Don, Russia
4.305	RGFK	Kanavino, Russia
4.305	RKOG	Vapniarka, Russia
4.310	RMDP	Erofei Pavlovitch, Russia
4.310	RMDT	Staibo, Russia
4.310	RLEC	Tchita, Russia
4.315	RGFK	Kanavino, Russia
4.315	RKOG	Vapniarka, Russia
4.320	G6RX	Hillmorton, United King., (X)
4.320	GDB	Rugby, United Kingdom, (B)
4.330	RKLP	Rovenki, Russia
4.355	IAC	Coltano, Italy, (X)
4.350	RKOP	Kiev, Russia
4.350	PROF	Proskurov, Russia
4.350	RIMK	Tojki, Russia
4.360	RMDV	Ekimtchan, Russia
4.360	RMDU	Ouroulga, Russia
4.375	RUF	Moscow, Russia
4.380	RMDW	Dambonki, Russia
4.380	RUF	Moscow, Russia
4.385		
4.390	RENG	Atchi Sai, Russia
4.400	RMDX	Komsomolsk, Russia
4.400	DAF	Norddeich, Germany
4.410	RFAY	Moscow, Russia
4.410	REIK	Petropavlovsk, Russia
4.412	ZGC	Kuala Lumpur, Federated Malay States
4.412	CNR	Rabat, Morocco
4.412	RFAJ	Moscow, Russia
4.420	RKLS	Tchistiakovo, Russia
4.430	RLED	Chilka, Russia
4.430	DOA	Doeberitz, Germany
4.430	RMDH	Ouroucha, Russia
4.430	RMDI	Svobodnyi, Russia
4.430	RMDJ	Tynda, Russia
4.430	RLEZ	Zilovo, Russia
4.430	GBC	Rugby, United Kingdom
4.440	RBX	Moscow, Russia
4.440	RMXC	Tchimion, Russia
4.445	WUM	Tucson, Ariz., USA
4.450	RRY	Moscow, Russia
4.450	RKOS	Routchenkovo, Russia
4.455	RRY	Moscow, Russia
4.460	RKOT	Dnepropetrovsk, Russia
4.460	RKOW	Kharkov, Russia
4.460	RKOI	Kiev, Russia
4.460	RKOE	Odessa, Russia
4.460	RKOJ	Stalino, Russia
4.460	RHIZ	Taganrog, Russia
4.460	RKOC	Vinnitsa, Russia
4.465	CGA4	Drummondville, P. Q., Canada
4.470	YID	Baghdad, Iraq, (B)
4.470	YDB	Soerabaya, Netherl, India, (B)
4.470	RBT	Samarov, Russia
4.475	RRKNK	Kharkov, Russia
4.477	RMGI	Khabarovsk, Russia
4.480	RKMB	Gorlovka, Russia
4.490	RMXA	Kim, Russia

Freq. Mc.	CALL	LOCATION
4.490	RLBY	Kirensk, Russia
4.490	RKOR	Krasnyi Loutch, Russia
4.490	RENC	Temir, Russia
4.500	RELB	Boukhta Bertys, Russia
4.500	RELO	Boukhta Bertys, Russia
4.500	----	Naval Stations, Germany
4.505	CZP	Claydon Bay, B. C., Canada
4.505	CGO	Ocean Falls, B. C., Canada
4.505	CZO	Prince George, B. C., Canada
4.510	VPN	Nassau, Bahamas
4.510	RKOA	Berditchev, Russia
4.512	ZFS	Nassau, Bahamas
4.520	RCNO	Briansk, Russia
4.535	WDG	Rocky Point, N. Y., USA
4.540	WIR	Rocky Point, N. Y., USA
4.540	RMXB	Kokand, Russia
4.545	RFAJ	Moscow, Russia
4.545	WDW	New Brunswick, N. J., USA
4.550	KIKC	Bolinas, Calif., USA
4.550	WAD	Rocky Point, N. Y., USA
4.555	WDN	Rocky Point, N. Y., USA
4.570	RIBJ	Kachirinsk, Russia
4.570	RKOQ	Kadrevka, Russia
4.600	HC2ET	Apartado 249, Guayaquil, Ecuador, (B)
4.600	RKON	Gorlovka, Russia
4.615	RLXI	Stalingrad, Russia
4.615	RJRS	Voronei, Russia
4.625	ZGF	Kuantan, Federtd, Malay States
4.670	RIBK	Rouzaevka, Russia
4.687	RFCO	Moscow, Russia
4.700	RCRB	Erivan, Russia
4.710	RIAL	Syzran, Russia
4.710	RENI	Tchmekent, Russia
4.710	RKLM	Zaporojie, Russia
4.715	EDP	Palma de Mallorca, Spain
4.720	RFAJ	Moscow, Russia
4.730	RKMD	Chepetovka, Russia
4.740	RCNP	Smolensk, Russia
4.740	RIBF	Syzran, Russia
4.750	RLGL	Kabansk, Russia
4.753	WOY	Lawrenceville, N. J., USA
4.753	WOO	Ocean Gate, N. J., USA
4.761	RMFN	Grodekovo, Russia
4.775	CFD	Kenora, Ont., Canada
4.785	CZA	Drummondville, P. Q., Canada
4.790	RKMI	Krivoi Rog, Russia
4.795	VE9BY	London, Ont., Canada, (B)
4.800	RKMH	Khristinovka, Russia
4.800	RCNQ	Novosokolniki, Russia
4.810	CGP	Prince Rupert, B. C., Canada
4.810	YDE2	Solo, Netherland India, (B)
4.810	RKMG	Vinnitsa, Russia
4.820	PRO	Olinda, Brazil
4.820	REJK	Karsakpai, Russia
4.820	GDW	Rugby, United Kingdom
4.838	RJRV	Kozlov, Russia
4.839	RNZ	Petropavlovsk, Russia
4.840	GDW	Rugby, United Kingdom
4.850	RELO	Boukhta Bertys, Russia
4.850	RKMF	Jitomir, Russia
4.860	CGT	Campbell River, B. C., Canada
4.860	RKMM	Konstantinovka, Russia
4.860	RKF	Moscow, Russia
4.860	RJCZ	Sevrdlosk, Russia
4.875	RKF	Moscow, Russia
4.880	RKME	Kharkov, Russia
4.895	CEC	La Granja, Chile
4.900	RKMN	Sorokino, Russia
4.910	RENJ	Korsakpai, Russia
4.920	LCL	Jeloy, Norway, (X)
4.930	RFAJ	Moscow, Russia
4.930	RIBE	Samara, Russia
4.930	RKMK	Zouevka, Russia
4.940	REIL	Koounrad, Russia
4.950	RKMJ	Zaporojie, Russia
4.960	RHIE	Elizavetopolskaia, Russia
4.960	RCND	Nevel, Russia
4.970	RLY	Kharkov, Russia
4.975	GBC	Rugby, United Kingdom
4.980	RMWP	Samarkand, Russia
4.988	----	Airplanes, USA

60 TO 50 METERS

5.000	FY3	Lyon, T.S.F., France
5.000	FHH3	Pointe-Noire, French Equatorial Africa
5.000	RCRI	Nakhitchevan, Arakse, Russia
5.000	RLXI	Stalingrad, Russia
5.000	RCNA	Viazma, Russia
5.000	RJRS	Voronej, Russia
5.015	KUF	Manila, Philippine Is.
5.023	ICQ	Naples, Italy
5.025	ZFA	Hamilton, Bermuda
5.030	REJJ	Konstanai, Russia
5.040	RIR	Tiflis, Russia
5.050	VRT	Hamilton, Bermuda
5.050	RMLD	Mominak, Russia
5.058	TFI	Reykjavik, Iceland
5.060	EDO	Madrid, Spain
5.060	EDR2	Madrid, Spain
5.060	EDS	Madrid, Spain
5.070	RMLC	Tourtkoul, Russia

B=Broadcasting; X=Experimental.

Freq. Mc.	CALL	LOCATION
5.077	WCN	Lawrenceville, N. J., USA
5.085	RIO	Pakou, Russia
5.085	RMBK	Oust Bolcheretsk, Russia
5.090	REJV	Semipalatinsk, Russia
5.100	RCTQ	Kazan, Russia
5.105	KEC	Bolinas, Calif., USA
5.120	REIQ	Pribalkhachstroi, Russia
5.130	ZGD	Kuantan, Federatd. Malay States
5.140	EDR3	El Tablero, Canary Is.
5.140	PMY	Bandoeng, Netherl. India, (B)
5.140	PJEJ	Sverdlosk, Russia
5.145	OKIMPT	Prague, Czechoslovakia, (X)
5.200	RKLW	Kramatorsk, Russia
5.210	REIP	Vozrojdenie Ostrov, Russia
5.215	RCTP	Tchistopol, Russia
5.220	ZFC	Hamilton, Bermuda
5.220	RELO	Boukhta Bertys, Russia
5.222	ZEZ	Broken Hill, Northern Rhodesia
5.222	ZDH	Fort Jameson, Northn. Rhodesia
5.222	ZDA	Livingstone, Northern Rhodesia
5.222	ZDI	Mongu-Lealui, Northn. Rhodesia
5.222	ZFF	Mpika, Northern Rhodesia
5.250	RIBC	Penza, Russia
5.255	DJB	Zeesen, Germany, (B)
5.260	WQN	Rocky Point, N. Y., USA
5.263	RMFN	Grodkovo, Russia
5.265	CEC	La Granja, Chile
5.280	PWO	Nictheroy, Armacao, Brazil
5.280	RGAP	Gorkyi, Russia
5.290	RUY	Pervomaisk, Russia
5.300	ZFO	Cat Cay, Bahamas
5.310	RIAC	Penza, Russia
5.345	EDR4	Palma de Mallorca, Spain
5.350	RELT	Bouli-Tiube, Russia
5.350	RKOK	Korosten, Russia
5.357	ZGF	Kuantan, Federatd Malay States
5.357	RMPB	Madronchkent, Russia
5.357	RMPH	Stalinabad, Russia
5.370	RLW	Artemovsk, Russia
5.370	RLX	Artemovsk, Russia
5.375	RSB	Stalinsk, Russia
5.380	LPG2	General Pacheco, Argentina
5.390	RKOU	Kharkov, Russia
5.400	HAT	Szekesfehervar, Hungary
5.400	RFAG	Moscow, Russia
5.405	CGT	Campbell River, B. C., Canada
5.410	----	Coast Stations, Japan
5.410	RKLO	Sorokino, Russia
5.415	IAF	Fiumicino, Italy
5.420	CGE	Calgary, Alta., Canada
5.420	JPY	Tobata, Japan
5.440	RSN	Sverdlovsk, Russia
5.450	ZGC	Kuala Lumpur, Federated Malay States
5.450	RKLQ	Dnepropetrovsk, Russia
5.454	RHJD	Chakhty, Russia
5.455	VQR	Nairobi, Kenya
5.455	RLXI	Stalingrad, Russia
5.460	VIX	Wyndham Meatworks, Australia
5.460	RKPL	Jitomir, Russia
5.460	RCNF	Smolensk, Russia
5.460	ZFU	Arua, Uganda
5.470	RKOV	Grichino, Russia
5.490	RPOB	Bobrinskaia, Russia
5.490	ROI	Sverdlovsk, Russia
5.495	ZGD	Kuantan, Fed. Malay States
5.505	RKNK	Kharkov, Russia
5.510	----	Airplanes, USA
5.515	SPV	Warsaw, Poland
5.520	PRP	Olinda, Brazil
5.520	RMAT	Vladivostok, Russia
5.530	RINA	Novosibirsk, Russia
5.540	CFD	Kenora, Ont., Canada
5.542	RUU	Detskoe Selo, Russia
5.547	RUU	Detskoe Selo, Russia
5.552	RUU	Detskoe Selo, Russia
5.555	RUU	Detskoe Selo, Russia
5.555	LPD	General Pacheco, Argentina
5.555	LPG3	General Pacheco, Argentina
5.555	I2RO	Rome, Italy, (B)
5.556	OXM	Scoresbysund, Greenland
5.556	OYI	Scoresbysund, Greenland
5.560	RKOH	Znamenka, Russia
5.570	----	Airplanes, USA
5.570	OQP	Astrida, Belgian Congo
5.580	RKOL	Krementchoug, Russia
5.600	----	Aeronautical, Europe
5.603	----	Airplanes, USA
5.610	FFK	St. Nazaire, France
5.610	I2RO	Rome, Italy
5.610	RELO	Boukhta Bertys, Russia
5.615	OQY	Niangara, Belgian Congo
5.620	RKOD	Kazatin, Russia
5.630	RGFW	Viatka, Russia
5.635	DAS	Rugen, Germany
5.640	RGFK	Kunavino, Russia
5.640	RKOG	Vapniarka, Russia
5.650	OQM	Lusambo, Belgian Congo
5.653	WNEY	Baltimore, Md., USA
5.660	----	Airplanes, USA
5.660	CFD	Kenora, Ont., Canada
5.660	XQAJ	Shanghai, China
5.660	OZZ	Thule, Greenland
5.660	HJ5ABC	Cali, Colombia, (B)
5.660	I2RO	Rome, Italy
5.660	VQR	Nairobi, Kenya
5.660	RKLP	Rovenki, Russia
5.670	RKON	Gorlovka, Russia
5.680	RKOF	Proskourov, Russia
5.692	FIQA	Tananarive, Madagascar
5.700	OSG	Luluabourg, Belgian Congo
5.700	RKLR	Lisitchansk, Russia
5.705	ZC2PC	Haifa, Palestine
5.705	ZC3PC	Mafrak, Transj., Palestine
5.705	ZC4PC	Pump Station H4, Transj., Pal.
5.710	HCJB	Quito, Ecuador, (B)
5.710	JDZ	Dairen, Manchuria
5.714	ZGA	Kuala Lumpur, Fed. Malay States
5.715	GIR	Dollis Hill, United Kingdom
5.725	OXL	Skamlebak, Denmark
5.725	I2RO	Rome, Italy, (B)
5.730	JVV	Tokyo, Japan
5.740	RKLS	Tchistiakovo, Russia
5.750	RGAQ	Ijevsk, Russia
5.750	EDR2	Madrid, Spain
5.750	EDS	Madrid, Spain
5.760	RLX	Artemovsk, Russia
5.760	OQQ	Libenge, Belgian Congo
5.766	CFU	Rossland, B. C., Canada
5.766	XAM	Merida, Yucatan, Mexico
5.769	RELB	Boukhta Bertys, Russia
5.769	RELD	Boukhta Bertys, Russia
5.769	RMSX	Merv, Russia
5.769	RELZ	Spasskyi Zavod, Russia
5.780	OAX4D	P.O. Box 853, Lima, Peru, (B)
5.780	RKOS	Rostchenkovo, Russia
5.780	HI1J	San Pedro de Macoris, Dom. Rep. (B)
5.790	RV50	Moscow, Russia, (B)
5.790	JVU	Tokyo, Japan
5.800	VK3XX	Lyndhurst, Vic., Australia
5.800	VK3LR	Lyndhurst, Vic., Australia, (B)
5.800	RKMK	Zouevka, Russia
5.805	OSE	Kanda Kanda, Belgian Congo
5.805	CSN	Rossland, B. C., Canada
5.810	RKOR	Krasnyi-Loutch, Russia
5.810	CGI	Isle Maligne, P. Q., Canada
5.810	RFAN	Moscow, Russia
5.810	CGR	Quebec, P. Q., Canada
5.813	FZN6	Noumea, New Caledonia
5.820	CEC	La Granja, Chile
5.820	RKML	Krinditchovka, Russia
5.825	TIGPH	San Jose, Costa Rica, (B)
5.830	JMP	Shinkyo, Japan
5.830	RPG	Borentsburg, Russia
5.830	CWD	Cerrito, Uruguay
5.840	REKD	Alma Ata, Russia
5.840	RKMM	Konstantinovka, Russia
5.840	RHIF	Grozni, Russia
5.840	RHII	Novo Krsitanovskoe, Russia
5.840	RHIH	Sterkertitchka, Russia
5.842	FZP4	Papeete, Tahiti
5.845	KRO	Kahuku, Hawaai
5.850	VK3LR	Lyndhurst, Vic., Australia, (B)
5.850	RKOQ	Kadievka, Russia
5.850	RFAL	Moscow, Koutchino, Russia
5.850	YV5RMO	Maracaibo, Venezuela
5.853	WOB	Lawrenceville, N. J.
5.855	OQZ	Kamina, Belgan Congo
5.855	EDR3	El Tablero, Teneriffe, Canary Island
5.857	XDA	Chapultepec, Mexico
5.860	XDA	Chapultepec, Mexico
5.860	RPMN	Sorokini, Russia
5.870	RKMB	Gorlovka, Russia
5.870	RRRR	Tashkent, Russia
5.880	REKD	Alma-Ata, Russia
5.880	RKNY	Kharkov, Russia
5.880	RKMO	Verkhne, Oudinsk, Russia
5.890	JIC	Taihoku, Tauvan, Japan
5.890	RIKW	Osmk, Russia
5.890	RRRZ	Sverdlovsk, Russia
5.892		
5.895		
5.900	OQX	Kabinda, Belgian Congo
5.900	CMBI	Habana, Cuba, (B)
5.900	RMWA	Tashkent, Russia
5.915	VRR	Stony Hill, Jamaica
5.930	HJ4ABE	Medellin, Colombia
5.940	----	Airplanes, USA
5.950	HJ1ABJ	Santa Marta, Colo., (B)
5.950	OSI	Gule, Belgian Congo
5.950	TGX	Guatemala City, Guat., (B)
5.952	FZF6	Fort de France Martinique
5.953	HIX	Santo Domingo, Dom. Rep., (B)
5.955	RRRZ	Sverdlovsk, Russia
5.969	HVJ	Vatican City, (B)
5.970	HJ3ABH	Bogota, Colo., AparTado 565, (B)
5.975	HJ2ABC	Cucuta, Colombia, (B)
5.980	HIX	Santo Domingo, Dominican Rep. (B)
5.980	XECW	Calle del Bajio 120, Mexico City, Mex., (B)
5.990	FZK6	Dakar, Senegal
5.990	XEBT	Mexico City, Mex., P. O. Box 79-44, (B)

50 TO 45 METERS

Freq. Mc.	CALL	LOCATION
5.995	WXE	Anchorage, Alaska
5.995	WXH	Ketchikan, Alaska
5.995	RPT	Tashkent, Russia
6.000	OSF	Panu, Belgian Congo
6.000	XGOX	Nanking, China
6.000	VSZAB	Kuala Lumpur, Fed Malay States
6.000	FIQA	Tananarive, Madagascar
6.000	ZL3ZC	Christchurch, N. Z.
6.000	----	St. Denis, Reunion
6.000	----	Buchorest, Rumania
6.000	RPDM	Medvejia Gora, Russia
6.000	RW50	Moscow, Russia
6.000	RV59	Moscow, Russia
6.000	RKDO	Parandovo, Russia
6.000	RKDN	Segja, Russia
6.000	EAJ25	Barcelona, Spain
6.005	VE9CU	Calgary, Alta., Canada
6.005	VE9DN	Drummondville, P. Q., Canada
6.005	VE9DR	Drummondville, P. Q., Canada
6.005	HJ3ABH	Bogota, Colombia
6.005	CMCI	Habana, Cuba
6.005	HRB	Tegucigalpa, Honduras
6.006	HJ1ABF	Santa Marta, Colombia
6.010	COC	Habana, Cuba, (B)
6.010	----	Cairo, Egypt, (B)
6.010	XEBT	Mexico City, Mexico, (B)
6.012	ZHI	Singapore, Straits Settlements, (B)
6.020	CQN	Macao, China
6.020	DJC	Zeesen, Germany, (B)
6.020	PGD	Kootwijk, Netherlands, (B)
6.023	XEW	Mexico City, Mexico, (B)
6.025	PGD	Kootwijk, Netherlands, (B)
6.030	VE9CA	Calgary, Alta., Canada, (B)
6.030	OQT	Buta, Belgian Congo, (B)
6.030	PGD	Kootwijk, Netherlands, (B)
6.030	HP5B	Panama, Panama
6.030	YV6RV	Valencia, Venezuela
6.035	HJ4ABI	Medellin, Colombia, (X)
6.035	YNA	Managua, Nicaragua, (B)
6.040	W1XAL	Boston, Mass., USA, (B)
6.040	W4XB	Miami Beach, Fla., USA, (B)
6.040	CMCI	Habana, Cuba, (B)
6.040	RILD	Omsk, Russia
6.040	RLEC	Tchita, Russia
6.042	HJ1ABG	Barranquilla, Colombia, (B)
6.045	HJ3ABI	Bogota, Colo., (B)
6.045	EAQ	Aranjuez, Spain, (B)
6.050	VE9CF	Halifax, N. S., Canada, (B)
6.050	RIMK	Topki, Russia
6.050	GSA	Daventry, United Kingdom, (B)
6.060	W8XAL	Mason, Ohio, USA, (B)
6.060	W3XAU	Newton Sq., Pa., USA, (B)
6.060	OSC	Boende, Belgian Congo
6.060	CMCI	Habana, Cuba, (B)
6.060	OXY	Skamlebak, Denmark, (B)
6.060	HIX	Santo Domingo, Dom. Rep., (B)
6.065	I2RO	Rome, Italy, (B)
6.060	VQ7LO	Nairobi, Kenya, (B)
6.060	ZL2ZX	Wellington, New Zealand, (B)
6.060	RLEE	Bouchoulei, Russia
6.065	SAJ	Motala, Sweden, (B)
6.069	TIJ	Johannesburg, Union of S. A., (B)
6.070	VE9CS	Vancouver, B. C., Canada, (B)
6.070	OXY	Skamlebak, Denmark, (B)
6.070	RGFN	Charia, Russia
6.070	EAQ	Aranjuez, Spain, (B)
6.072	ZHJ	Penang, Malaya, (B)
6.072	OER2	Vienna, Austria, (B)
6.074	HJ1ABF	Barranquilla, Colombia, (X)
6.079	DJM	Zeesen, Germany, (B
6.080	W9XAA	Chicago, Ill., USA
6.080	CP5	LaPaz, Bolivia, (B)
6.080	TIRA	Cartago, Costa Rica, (B)
6.080	VE9EH	Charlottetown, P.E.I., (B)
6.080	RFCK	Moscow, Russia
6.085	I2RO	Rome, Italy, (B)
6.090	VE9BJ	St. John, N.B., Canada, (B)
6.090	HJ4ABC	Pereira, Colombia, (B)
6.090	OXY	Skamlebak, Denmark, (B)
6.095	VE9GW	Bowmanville, Ont., Canada, (B)
6.097	JB	Johannesburg, Un. of S. A., (B)
6.098	HJ1ABD	Cartagena, Colombia, (B)
6.100	W3XAL	Bound Brook, N. J., USA, (B)
6.100	W9XF	Downers Grove, Ill., USA, (B)
6.100	VE9CF	Halifax, N. S., Canada, (B)
6.100	RMDQ	Amazar, Russia
6.100	RMDK	Ksenievskaia, Russia
6.100	RFCI	Riazan, Russia
6.110	HJ4ABL	Manizales, Col., (B)
6.110	VE9CG	Calgary, Alta., Canada
6.110	GSL	Daventry, England, B. B. C., Broadcast. Hse., Lon., E., (B)
6.110	VE9HX	Halifax, N. S., Canada, (B)
6.110	HJ4ABB	Medellin, Colombia, (X)

B=Broadcasting; X=Experimental.

Freq. Mc.	CALL and LOCATION
6.110	VUC Calcutta, India, (B)
6.110	EAQ Aranjuez, Spain, (B)
6.112	YV1RC Caracas, Venezuela
6.112	YV2RC Caracas, Venezuela
6.115	---- Warsaw, Poland, (B)
6.116	HJ1ABE Cartagena, Colombia, (B)
6.116	F3LCD Saigon, French Indo-China, (B)
6.120	NAA Washington, D. C., USA, (B)
6.120	W2XE Wayne, N. J., USA, (B)
6.120	OQU Basankusu, Belgian Congo, (B)
6.120	VE9HK Halifax, N. S., Canada, (B)
6.120	YDA Bandoeng, Netherl. India, (B)
6.120	RKOM Dnepropetrovsk, Russia
6.128	HJ1ABH Cienaga, Colombia, (X)
6.128	YV11RMO Maracaibo, Venezuela
6.128	LKJ1 Jeloy, Norway, (B)
6.130	VE9BA Montreal, P. Q., Canada, (B)
6.130	XETE Mexico City, Mexico, (B)
6.130	LCL Jeloy, Norway, (X)
6.135	HJ1ABC Quibdo, Colombia, (X)
6.135	ZGE Kuala umpur, Fed. Malay Sts., (B)
6.135	YID Baghdad, Iraq, (B)
6.135	RKK Moscow, Russia
6.140	W8XK Saxonburg, Pa., USA, (B)
6.140	VK3LR Lyndhurst, Vic., Australia, (B)
6.140	KZRM Manila, P. I., (B)
6.145	--- Pontoise, France
6.150	CJRO Winnipeg, Manitoba, Can., (B)
6.150	HJ5ABC Cali, Colombia, (B)
6.150	HJ2ABA Tunja, Colombia, (B)
6.150	RKOO Odessa, Russia
6.150	CSL Lisbon, Portugal, (B)
6.150	YV3RC Caracas, Venezuela
6.155	CO9GC Grau & Camencros Labs., Box 137, Santiago, Cuba, (B)
6.160	I2RO Rome, Italy
6.170	CFD Kenora, Ont., Canada
6.170	CFG Pickle Lake, Ont., Canada
6.170	CFJ Red Lake, Ont., Canada
6.170	CFB Sioux Lookout, Ont., Canada
6.175	OND Banana, Belgian Congo
6.175	FTX St. Assise, France
6.180	HJ3ABF Bogota, Colombia, (B)
6.180	TGW Guatemala City, Guatemala, (B)
6.180	RKOP Kiev, Russia
6.180	REIK Petropavlovsk, Russia
6.185	HI1A P.O. Box 423, Santiago, Dominican Rep., (B)
6.190	RIPV Barnaoul, Russia
6.190	RRRR Tashkent, Russia
6.198	CT1GO Portuguese Radio Club, Parede, Portugal, (B)
6.200	RMDP Erofei Pavlovitch, Russia
6.200	RMDM Mogotcha, Russia
6.200	RMWW Tashkent, Russia
6.210	HJN Bogota, Colombia, (B)
6.230	OAX4B Apartado 1242, Lima, Peru, (B)
6.235	OCN Lima, Peru, (B)
6.240	RMAS Tafouin, Russia
6.240	RMAY Troitse Zarouhino, Russia
6.245	OQE Costermansville Belgian Congo
6.250	---- Airways, Germany
6.250	OCI Lima, Peru
6.250	REIX Akmolinsk, Russia
6.250	RGAZ Kotelnich, Russia
6.250	RFAQ Moscow, Russia
6.250	REIA Ouialy, Russia
6.250	REIM Ouzounkair, Russia
6.250	HJ4ABC Periera, Col., (B)
6.260	PBB Den Helder, Netherlands
6.280	HI1A Santo Domingo, Dom. Rep., (B)
6.285	CZA Drummondville, P. Q., Canada
6.300	RCE Leningrad, Russia
6.300	RMBA Prcobrajenia, Russia
6.320	CFD Kenora, Ont., Canada
6.320	HIZ Santo Domingo, Dominican Rep., (B)
6.320	OQA Kigoma, Tanganyika
6.330	---- Tokyo, Japan
6.335	VE9AP Drummondville, P. Q., Canada, (B)
6.345	OSD Kigali, Belgian Congo, (B)
6.375	YV4RC Caracas, Venezuela
6.375	OQR Usumbura, Belgian Congo
6.380	HC1DR Quito, Ecuador, (B)
6.383	RNZ Petropavlovsk, Russia
6.405	OQJ Inongo, Belgian Congo
6.420	RGX Minsk, Russia
6.425	VE9AS Fredericton, N. B., Canada, (X)
6.425	W3XL Bound Brook, N. J., USA, (B)
6.425	CZE Victoria, B. C., Canada
6.425	CZF Vancouver, B. C., Canada
6.425	CZG Prince Rupert, B. C., Canada
6.425	VE9BY London, Ont., Canada, (B)
6.430	OQF Port Franqui, Belgian Congo
6.440	RTA Novosibirsk, Russia
6.450	OTO Leopoldville, Belgian Congo
6.450	HJ1ABB Barranquilla, Colombia, (B)
6.460	RHCC Khibinogorsk, Russia
6.465	OQO Basoko, Belgian Congo
6.470	RCAD Minsk, Russia
6.480	EDR4 Palma de Mallorca
6.495	OTH Elizabethville, Belgian Congo
6.500	HJ5ABD Manizales, Col., (B)
6.520	RELT Bourli-Tiube, Russia
6.520	YV6RV Valencia, Venezuela, (B)
6.528	HIL Santo Domingo, D.R., (B)
6.535	OSB Kikwit, Belgian Congo
6.550	TI2PG San Jose, Costa Rica, (B)
6.550	RKLM Zaporojie, Russia
6.570	OQV Albertville, Belgian Congo
6.580	HJ1ABB Barranquilla, Colombia, (B)
6.590	VQR Nairobi, Kenya
6.593	ZDG Mpika, Northern Rhodesia
6.593	ZEB Bulawayo, Southern Rhodesia
6.593	ZEA Salisbury, Southern Rhodesia
6.593	ZTG Germiston, Union of S. A.
6.600	RJTL Dmitriev-Igovsky, Russia
6.600	RKLX Odessa, Russia
6.605	OQW Banningville, Belian Congo
6.610	HI4D Santo Domingo, Dominican Rep., (B)
6.610	REN Moscow, Russia, (B)
6.610	RV72 Moscow, Russia, (B)
6.610	CWE Cerrito, Montevideo, Urugauy
6.620	PRADO Riobamba, Ecuador, (B)
6.630	---- Moscow, Russia, (B)
6.635	OTC Coquilhatville, Belgian Congo
6.650	IAC Coltano, Italy, (X)
6.650	---- Naval Stations, Japan
6.650	XFD Mexico City, Mexico, (B)
6.650	HC2RL P.O. Box 759, Guayaquil, Ecuador, S.A., (B)
6.660	F8KR Constantine, Algeria, (B)
6.660	TGW Guatemala City, Guatemala, (B)
6.660	TIEP La-Voz Del Tropico, San Jose, Costa Rica, (B)

45 TO 40 METERS

6.664	YNCRG Granada, Nicaragua, (B)
6.665	LPG4 General Pacheco, Argentina
6.667	F8KR Constantine, Algeria, (B)
6.672	YVQ Maracay, Venezuela
6.674	IRT Rome, Italy
6.675	HBQ Prangins, Switzerland
6.676	HC2RL Guayaquil, Ecuador, (B)
6.677	FZ14 Brazzaville, Fr. Equa., Africa
6.680	DGP Nauen, Germany, (X)
6.685	OZS Skamlebak, Denmark
6.685	ZGA Kuala Lumpur, Fed. Malay States
6.685	YNLF Managua, Nicaragua, (B)
6.690	CFA Drummondville, P. Q., Canada
6.690	VQR Nairobi, Kenya
6.690	ZDB Broken Hill, Northern Rhodesia
6.690	ZDG Mpika, Northern Rhodesia
6.690	ZEB Bulawayo, Southern Rhodesia
6.690	ZEA Salisbury, Southern Rhodesia
6.690	ZTG Germiston, Union of So. Africa
6.690	ZTF Maitland Cape, Un. of S. Africa
6.695	OQI Lisala, Belgian Congo
6.700	RIBF Syzran, Russia
6.703	TIK Cartago, Costa Rica
6.707	YNCRG Granada, Nicaragua, (B)
6.718	WDB Rocky Point, N. Y., USA
6.718	KBK Manila, P. I.
6.733	WDA Rocky Point, N. Y. USA
6.738	TIGP San Jose, Costa Rica, (B)
6.745	OQB Bumba, Belgian Congo
6.750	JVT Tokyo, Japan
6.750	RMSE Karabongaz, Russia
6.755	WOA Lawrenceville, N. J., USA
6.755	KZGF Manila, Philippine Islands
6.760	CFA2 Drummondville, P. Q., Canada
6.760	RENJ Karsakpai, Russia
6.770	KZGF Manila, Philippine Islands
6.775	OQK Aketi, Belgian Congo
6.780	RENT Gouriev, Russia
6.780	EAH Madrid, Spain
6.785	OQD Kindu, Belgian Congo
6.790	SQB Bialystok, Poland
6.790	RIBO Kvarkeno, Russia
6.792	HAP3 Budapest, Hungary
6.792	SQZ Warsaw, Poland
6.795	---- Rugby, United Kingdom
6.800	EDR3 Tablero, Canary Islands
6.800	SQA Lwow, Poland
6.800	HIH San Pedro de Macoris, Dominican Rep., (B)
6.810	OSK Kitega, Belgian Congo
6.810	RENG Atch-Sai, Russia
6.818	RELZ Spasskyi Zavod, Russia
6.840	OQG Kongolo, Belgian Congo
6.840	CFA Drummondville, P. Q., Canada
6.840	HAS Szekesvchervar, Hungary,
6.840	HAT2 Szekesvehervar, Hungary
6.840	RKNP Kharkov, Russia
6.850	LPG5 General Pacheo, Argentina
6.850	VPE Labasa, Fiji Islands, (X)
6.850	VQL Savu-Savu, Fiji Islands, (X)
6.850	VRO Suva, Fiji Islands, (X)
6.850	VPF Taveuni, Fiji Islands, (X)
6.850	RKF Moscow, Russia
6.860	KEL Bolinas, Calif., (X)
6.860	OTL Leopoldville, Belgian Congo
6.870	EAK San Lorenzo, Canary Islands
6.870	RFK Moscow, Russia
6.880	OQN Irumu, Belgian Congo
6.880	CFA4 Drummondville, P. Q., Canada
6.880	RKF Moscow, Russia
6.880	RINY Oirat-Toura, Russia
6.890	RLGL Kahansk, Russia
6.895	EDK San Lorenzo, Canary Islands
6.895	EDT San Lorenzo, Canary Islands
6.900	RKF Moscow, Russia
6.905	GDS Rugby, United Kingdom
6.910	ZEZ Broken Hill, Northern Rhodesia
6.910	ZDH Fort Jameson, Northrn Rhodesia
6.910	ZDA Livingstone, Northern Rhodesia
6.910	ZDI Mongu-Lealui, Northn. Rhodesia
6.910	ZFF Mpika, Northern Rhodesia
6.910	RJBD Sverdlovsk, Russia
6.915	ZCI Cape D'Aguilar, Hong Kong
6.920	RFAX Moscow, Russia
6.930	RENU Aktubinsk, Russia
6.930	RGKX Archangel, Russia
6.930	RLEV Verkhne-Oudinsk, Russia
6.940	RFAU Bykovo, Russia
6.950	RLXS Saratov, Russia
6.958	WEO New Brunswick, N. J., USA
6.960	OTS Stanleyville, Belgian Congo
6.965	KZGG Cebu, Philippine Islands
6.966	EDO Madrid, Spain
6.970	EDR2 Madrid, Spain
6.976	EA4AQ Madrid, Spain, (B)
6.977	---- Aeronautical, Europe
6.977	RNZ Petropavlovsk, Russia
6.980	I2RO Rome, Italy
6.980	VQR Nairobi, Kenya
6.980	KZGH Iloilo, Philippine Islands
6.980	RKNZ Kharkov, Russia
6.980	RFAO Moscow, Russia
6.980	EAR110 Madrid, Spain, (B)
6.990	JVS Tokyo, Japan
6.990	LCL Jeloy, Norway
7.000	HJ5ABE Cali, Columbia, (B)
7.000 to 7.300	Amateurs, USA
7.010	RHCU Leningrad, Russia
7.020	RFBL Moscow, Russia
7.020	EAR125 Madrid, Spain, (B)
7.030	HRP1 San Pedro Sula, Honduras, (B)
7.050	---- Experimental Sta., Japan (X)
7.050	RGFO Arzamas, Russia
7.050	RFBO Mojaisk, Russia
7.060	RENB Boukhta Bertys, Russia
7.060	RENA Bouroundal, Russia
7.070	RHAX Leningrad, Russia
7.080	LU5CZ Buenos Aires, Argentina, (B)
7.080	RTU Dolgoproudnaia, Russia
7.100	HKE Bogota, Colombia, (B)
7.100	---- Experimental and Amateurs, Japan, (X)
7.160	OA4B Lima, Peru, (B)
7.170	RELD Boukhta Bertys, Russia
7.170	RELO Boukhta Bertys, Russia
7.177	CR6AA Lobito, Angola, (B)
7.211	EA8AB Teneriffe, Canary Islands, (B)
7.220	---- Experimental, Japan, (X)
7.225	RPK Moscow, Russia
7.230	DOA Doberitz, Germany
7.250	---- Rome, Italy
7.260	RFF Kharkov, Russia
7.260	VS1AB Singapore, S. S., (B)
7.275	RTZ Irkutsk Russia
7.300	---- Rome, Italy
7.310	RFRY Moscow, Russia
7.310	RMWP Samarkand, Russia
7.310	HJ1ABD Cartagena, Colo., (B)
7.320	HJ5ABD Cali, Colombia, (B)
7.320	ZTJ Johannesburg, Un. of S. Africa
7.330	RKMI Krivoi Rog, Russia (B)
7.333	DFH Nauen, Germany
7.340	RGLC Syktyvkar, Russia
7.345	GDL Rugby, United Kingdom
7.360	ZEZ Broken Hill, Northern Rhodesia
7.360	ZDH Ft. Jameson, Northern Rhodesia
7.360	ZDA Livingstone, Northern Rhodesia
7.360	ZFF Mpika, Northern Rhodesia
7.360	ZDI Mongu-Lealui, Northr. Rhodesia
7.370	RFBX Moscow, Russia
7.370	RKLX Odessa, Russia
7.380	XECR Foreign Office, Mexico City, Mex., (B)
7.390	JVR Tokyo, Japan
7.390	ZLT Wellington, N. Z.
7.390	RKNE Kharkov, Russia
7.400	WEM Rocky Point, N. Y., USA
7.400	HJ3ABD Bogota, Colombia, (B)
7.400	RRRH Khabarovsk, Russia
7.407	WEN New Brunswick, N. J., USA
7.408	RFAJ Moscow, Russia
7.410	XGV Shanghai, China
7.410	VQR Nairobi, Kenya
7.415	WEG Rocky Point, N. Y., USA
7.430	RKMJ Zaporojie, Russia
7.440	RKMH Khristinovka, Russia

B=Broadcasting; X=Experimental.

Freq. Mc.	CALL	LOCATION
7.444	HBQ	Prangins, Switzerland, (B)
7.450	RUK	Stalinabad, Russia
7.460	CZG	Prince Rupert, B. C., Canada
7.460	CZF	Vancouver, B. C., Canada
7.460	CZE	Victoria, B. C., Canada
7.460	RKMF	Jitomir, Russia
7.470	JVQ	Tokyo, Japan
7.470	RKME	Kharkov, Russia
		40 TO 35 METERS
7.500	LPG6	General Pacheco, Argentina
7.500	ZGB	Kuala Lumpur, Fed. Malay States
7.500	JVP	Tokyo, Japan
7.500	RKI	Moscow, Russia
7.510	JVP	Nazaki, Japan
7.510	REJK	Karsapkai, Russia
7.510	RKND	Kharkov, Russia
7.518	IRV	Rome, Italy
7.520	KKH	Kahuku, Hawaii
7.520	RKI	Moscow, Russia
7.545	RKI	Moscow, Russia
7.565	KWY	Dixon, Calif., USA
7.580	RKNC	Kharkov, Russia
7.610	KWX	Dixon, Calif., USA
7.610	----	Konigs Wusterhausen, Germany
7.620	RKPO	Vorochilovsk, Russia
7.626	RIM	Irkutsk, Russia
7.626	RIM	Tashkent, Russia
7.632	OEJ	Vienna, Austria
7.650	REAJ	Moscow, Russia
7.660	FTL	Ste. Assise, France
7.660	----	Taihoku, Japan
7.685	TIO	Cartago, Costa Rica
7.688	TYC3	Paris, France
7.700	ONE	Banana, Belgian Congo
7.700	TYC2	Paris, France
7.700	RKNB	Kharkov, Russia
7.715	KEE	Bolinas, Calif., (X)
7.725	----	Radom, Poland
7.730	WEV	New Brunswick, N. J., USA
7.730	PDL	Kootwijk, Netherlands
7.735		
7.740	CEC	La Granja, Chile
7.755	OQA1	Kigoma, Tanganyika
7.760	PCK	Kootwijk, Netherlands
7.760	PDM	Kootwijk, Netherlands
7.765	PDM	Kootwijk, Netherlands
7.770	FTF	Ste. Assise, France
7.770	PDM	Kootwijk, Netherlands
7.780	PSZ	Sepetiba, Brazil
7.785	TIR	Cartago, Costa Rica
7.790	HBP	Prangins, Switzerland, (B)
7.795	LPZ	Buenos Aires, Argentina, (P)
7.800	RKNA	Kharkov, Russia
7.805	KZGF	Manila, Philippine Islands
7.810	VRR	Stony Hill, Jamaica
7.813	DFT	Nauen, Germany
7.815	LPZ	Buenos Aires, Argentina, (P)
7.820	OCO	Lima, Peru
7.830	PGA	Kootwijk, Netherlands
7.830	PZGQ	Cebu, Philippine Islands
7.835	PDV	Kootwijk, Netherlands
7.835	LCN	Jeloy, Norway, (B)
7.840	PGA	Kootwijk, Netherlands
7.851	SUX	Abou Zabal, Egypt
7.853		
7.855	PZGH	Iloilo, Philippine Islands
7.860	HC2JSB	Guayaquil, Ecuador, (B)
7.860	SUX	Abou Zabal, Egypt
7.867		
7.869		
7.870	RXC	Panama City, Panama
7.877	SUX	Abou Zabal, Egypt
7.880	JYR	Chiba, Japan, (X)
7.890	VPD	Suva, Fiji Islands
7.895	RMGI	Khabarovsk, Russia
7.901	LSL	Hurlingham, Argentina, (X)
7.905	OSKI	Kitega, Belgian Congo
7.910	REJV	Semipalatinsk, Russia
7.920	RCKJ	Lenkoran, Russia
7.920	GCP	Rugby, United Kingdom
7.930	DOA	Doberitz, Germany
7.935	PSL	Marapicu, Brazil
7.935	KZGF	Manila, Philippine Islands
7.945	VK2ME	Sydney, Australia
7.960	VLZ	Sydney, Australia
7.965	OQP1	Astrida, Belgian Congo
7.968	HSP	Bangkok, Siam
7.980	VLJ	Sydney, Australia
7.980	VLZ4	Sydney, Australia
7.980	HSJ	Bangkok, Siam
7.990	OQM1	Lusambo, Belgian Congo
7.995	HC2JSB	Guayaquil, Ecudaor, (B)
8.020	HSJ	Bangkok, Siam
8.035	OQB1	Bumba, Belgian Congo
8.035	CNR	Rabat, Morocco, (B)
8.050	RCNV	Smolensk, Russia
8.055	OQW1	Banningville, Belgian Congo
8.065	LPZ	Buenos Aires, Argentina, (P)
8.068	----	Konigs Wusterhausen, Germany
8.075	WEZ	Rocky Point, N. Y., USA
8.075	TYB2	Paris, T.S.F., France

Freq. Mc.	CALL	LOCATION
8.085	OQS	Stanleyville, Belgian Congo
8.095	VLK3	Sydney, Australia, (B)
8.100	EATH	Vienna, Austria
8.100	J1AA	Tokyo, Japan
8.103	HCJB	Quito, Ecudaor, (B)
8.110	RELB	Boukhta Bertys, Russia
8.110	RELO	Boukhta Bertys, Russia
8.120	KAZ	Manila Philippine Islands
8.120	KTP	Manila Philippine Islands
8.130	OSF1	Panu, Belgian Congo
8.135	VIG	Baghdad, Iraq.
8.140	FRS9	Saigon, Indo China
8.155	PGB	Kootwijk, Netherlands
8.160	OSE1	Kanda-Kanda, Belgian Congo
8.170	RV5O	Moscow, Russia, (B)
8.185	PSK	Rio de Janeiro, Brazil, (B)
8.186	PRA3	Rio de Janeiro, Brazil, (B)
8.195	OQL	Leopoldville, Belgian Congo
8.200	LPG7	General Pacheco, Argentina
8.205	EDR2	Madrid, Spain
8.205	EDS	Madrid, Spain
8.214	HCJB	Quito, Ecuador, (B)
8.215	HJ5ABF	Popayan, Colombia, (X)
8.220	----	Aeronautical, Europe
8.220	ZSV	Walvis Bay, Un. of So. Africa
8.225	RRD	Moscow, Russia
8.230	EAP	S. Lorenzo, Canary Islands
8.235	OOC	Coquilhatville, Belgian Congo
8.250	RKNK	Kharkov, Russia
8.270	OQDI	Kindu, Belgian Congo
8.290	RIKW	Omsk, Russia
8.305	OQEI	Costermansville, Belgian Congo
8.328	----	Ship telephone
8.333	YQI	Constanta, Rumania
8.333	LPD	General Pacheco, Argentina
8.333	LOB	Puerto Aguirre, Argentina
8.333	OXM	Scoresbysund, Greenland
8.333	RMAT	Vladivostok, U.S.S.R.
8.340	OQF1	Port-Francqui, Belgian Congo
8.345	FFK	St. Nazaire, France
8.380	IAC	Coltano, Italy, (X)
8.380	RJXC	Makhatch Kala, Russia
8.396	HSP	Bangkok, Siam
8.400	----	Aeronautical, Europe
8.420	EAK	San Lorenzo, Canary Islands
8.430	EAK	San Lorenzo, Canary Islands
8.440	SPU	Warsaw, Poland
8.445	OSB1	Kikwit, Belgian Congo
8.450	PRAG	Porto Alere, Brazil, (B)
8.455	CWF	Cerrito, Montevideo, Uruguay
8.460	FFK	St. Nazaire, France
8.470	DAF	Norddereh, Germany
8.485	OQI1	Lisala, Belgian Congo
8.510	RILD	Omsk, Russia
8.515	CZA	Drummondville, P. Q., Canada
8.515	IAC	Coltano, Italy, (X)
8.525	OQJ1	Inongo, Belgian Congo
8.540	EAK	San Lorenzo, Canary Islands
8.540	DAS	Rugen, Germany
8.540	RLEC	Tchita, Russia
8.550	HSG	Bangkok, Siam
8.555	OQK1	Aketi, Belgian Congo
8.560	WOY	Lawrenceville, N. J., USA
8.560	WOO	Ocean Gate, N. J., USA
8.565	HAT3	Szekesfehervar, Hungary
8.566	----	Ship Telephone
8.570	RV15	Khabarovsk, U.S.S.R. (B)
8.570	RRRQ	Novosibirsk, Russia
		35 TO 30 METERS
8.580	RKOM	Dnepropetrovsk, Russia
8.585	OQX1	Kabinda, Belgian Congo
8.595	OXU	Skamlebak, Denmark
8.600	----	Aeronautical, Europe
8.600	RIPV	Barnaoul, Russia
8.610	TYD2	Paris, T.S.F., France
8.630	VJI	Clonqurry, Australia
8.630	PBB	Den Helder, Netherlands
8.635	OXC1	Poenda, Belgian Congo
8.650	VE9BY	London, Ontario, Canada, (X)
8.650	HAS	Szekesfehervar, Hunagry, (B)
8.680	GBC	Rugby, United Kingdom
8.691	VWZ	Kirkee, India
8.693		
8.700	VWZ	Kirkee, India
8.700	RKLX	Odessa, Russia
8.707	VWZ	Kirkee, India
8.709		
8.710	CEC	La Granja, Chile
8.715	OSD1	Kigali, Belgian Congo
8.730	GCI	Rugby, United Kingdom
8.750	ZEK	Hongkong, China, (B)
8.760	GCQ	Rugby, United Kingdom
8.765	----	Naval Stations, Germany
8.770	RSZ	Irkutsk, Russia
8.775	PNI	Makassar, Netherland Indies
8.790	OQG1	Libenge, Belgian Congo
8.790	TIN	Cartago, Costa Rica
8.790	TIR	Cartago, Costa Rica
8.793	CNP	Casablanca, Morocco
8.795	HKV	Bogota, Colombia, (X)
8.830	----	Portable-Interior Commission, Australia

Freq. Mc.	CALL	LOCATION
8.830	----	Ship Telephone
8.850	OQO1	Basoko, Belgian Congo
8.870	NPO	Cavite, P. I., (Time)
8.875	CWK	Cerrito, Montevideo, Uruguay
8.880	----	Naval Stations, Japan
8.890	WYL	Barksdale Field, La., USA
8.890	WUK	Chapman Field, Fla., USA
8.890	WYS	Clark Field, Philippine Isl.
8.890	WYY	Dryden, Tex., USA
8.890	WZO	Ft. Bliss, Tex., USA
8.890	WZG	Ft. Bragg, N. C., USA
8.890	WZB	Ft. Clark, Tex., USA
8.890	WVR	Ft. McPherson, Ga., USA
8.890	WZI	Ft. Ringgold, Tex., USA
8.890	WVB	Ft. Sam Houston, Tex., USA
8.890	WYN	Hatbox Field, Okla., USA
8.890	WYO	Hensley Field, Tex., USA
8.890	WXA	Juneau, Alaska
8.890	WYG	Kelly Field, Tex., USA
8.890	WYR	Kingley Field, Philippine Is.
8.890	WYZ	Lordsburg, New Mexico, USA
8.890	WUG	Marfa, Texas, USA
8.890	WYT	Nichols Field, Philippine Is.
8.890	WUM	Tucson, Ariz., USA
8.900	ZLS	Wellington, New Zealand
8.900	ZLT	Wellington, New Zealand
8.902	RKN	Moscow, Russia
8.920	GCX	Rugby, United Kingdom
8.925	OQH	Elisabethville, Belgian Congo
8.935	CNR	Rabat, Morocco, (B)
8.940	KZGG	Cebu, Philippine Islands
8.950	TGX	Guatemala City, Guatemala, (B)
8.955	ZGB	Kuala Lumpur, Fed. Malay St.
8.960	----	Algiers-Eucalyptus, Algeria
8.965	OQC	Coquilhatville, Belgian Congo
8.975	VWY	Kirkee, India
9.005	OQN1	Irumu, Belgian Congo
9.010	KEJ	Bolinas, Calif., USA
9.020	GCS	Rugby, United Kingdom
9.037	TYA2	Paris, T.S.F., France
9.050	OQR1	Usumbura, Belgian Congo
9.060	TFK	Reykjavik, Iceland
9.091	XDA	Chapultepec, Mexico
9.091	XFD	Mexico City, Mexico, (B)
9.104	LST	Olivos, Argentina
9.110	KUW	Manila, Philippine Islands
9.110	EAH	Madrid, Spain
9.120	CP5	La Paz, Bolivia, (B)
9.125	OSI1	Gule, Belgian Congo
9.125	HAT4	Szekesfehervar, Hungary
9.150	YVR	Maracay, Venezueala
9.170	WNA	Lawrenceville, N. J., USA
9.170	KZGF	Manila, Philippine Islands
9.180	ZSR	Klipheuvel, Un. of So. Africa
9.195	OQZ1	Kamina, Belgian, Congo
9.200	GBS	Rugby, United Kingdom
9.230	FLJ	Paris, France
9.235	PDP	Kootwijk, Netherlands
9.240	PDP	Kootwijk, Netherlands
9.250	GBK	Bodmin, United Kingdom
9.275	GCS	Ongar, United Kingdom
9.280	GCB	Rugby, United Kingdom
9.300	CNR	Rabat, Morocco, (B)
9.310	GBC	Rugby, United Kingdom
9.315	OQT1	Buta, Belgian Congo
9.330	VLJ4	Sydney, Australia
9.332	CJA2	Drummondville, P. Q., Canada
9.350	CEC	La Granja, Chile
9.355	OQU1	Basankusu, Belgian Congo
9.370	VQR	Nairobi, Kenya
9.370	CT3AQ	Funchal, Madeira, (B)
9.370	PGC	Kootwijk, Netherlands
9.375	CE32	Los Andes, Chile
9.375	XDA	Chapultepec, Mexico
9.375	PGC	Kootwijk, Netherlands
9.375	RFCQ	Moscow, Russia
9.380	----	Aeronautical, Japan
9.400	XDC	Mexico City, Mexico, (X)
9.415	PLV	Bandoeng, Java
9.428	COH	Habana, Cuba, (B)
9.435	LPZ	Buenos Aires, Argentina, (P)
9.445	OQV1	Albertville, Belgian Congo
9.450	WES	Rocky Point, N. Y., USA
9.470	WET	Rocky Point, N. Y., USA
9.470	RRRN	Irkutsk, Russia
9.480	KET	Bolinas, Calif., USA
9.480	LPR5	General Pacheco, Argentina
9.480	EAH	Madrid-Vallecas, Spain
9.490	KEI	Bolinas, Calif., USA
9.490	KZGH	Iloilo, Philippine Islands
9.493	SRI	Posen, Poland, (B)
9.495	OXY	Skamlebak, Denmark, (B)
9.500	PRBA	Rio de Janeiro, Brazil, (B)
9.500	PRF5	Rio de Janeiro, Brazil, (B)
9.500	XGOX	Nanking, China, (B)
9.500	RFAJ	Moscow, Russia
9.500	HSP2	Bangkok, Siam, (B)
9.500	YV3RC	Caracas, Venezuela, (B)
9.510	VK3ME	Melbourne, Australia, (B)
9.510	GSB	Daventry, United Kingdom, (B)
9.510	YV3RC	Caracas, Venezuela
9.520	OXY	Skamlebak, Denmark, (B)
9.525	OSG1	Leopoldbourg, Belgian Congo

B=Broadcasting; X=Experimental.

Freq. Mc.	CALL	LOCATION
9.530	W2XAF	Schenectady, N. Y., USA, (B)
9.530	YNA	Managua, Nicaragua
9.540	DJN	Zeesen, Germany, (B)
9.540	----	Batavia, Netherland India, (B)
9.540	LCL	Jeloy, Norway
9.540	LKJ1	Jeloy, Norway, (X)
9.545	EAQ	Aranjuez, Spain, (B)
9.550	NAA	Washington, D. C., USA (B)
9.560	DJA	Zeesen, Germany, (B)
9.560	----	Japan, (B)
9.565	VUB	Bombay, India, (B)
9.570	W1XK	Westinghouse Elec. & Mfg. Co., (B)
9.570	W1XAZ	Millis, Mass., USA, (B)
9.570	W8XK	Saxonburg, Pa., USA
9.570	SUV	Abou Zaabal, Egypt, (B)
9.570	KZRM	Manila, Philippine Islands, (B)
9.570	SRI	Posen, Poland, (B)
9.575	VUC	Calcutta, India, (B)
9.579	XGBD	Shanghai, China, (B)
9.580	VK3LR	Lindhurst, Vic., Australia, (B)
9.580	VE9DR	Drummondville, P.Q., Can., (B)
9.580	HBL	Prangins, Switzerland, (B)
9.580	GSC	Daventry, United Kingdom, (B)
9.585	----	Pontoise, France, (B)
9.590	W3XAU	Newton Square, Pa., USA, (B)
9.590	VK2ME	Sydney, Australia, (B)
9.590	HP5J	J St., Panama City, Panama, (B)
9.590	TIRA	Cartago, Costa Rica, (B)
9.590	PCJ	Eindhoven, Netherlands, (B)
9.595	HBL	Prangins, Switzerland, (B)
9.600	I2RO	Rome, Italy, (B)
9.600	XETE	Mexico City, Mexico, (B)
9.600	LGN	Bergen, Norway
9.600	CT1AA	Lisbon, Portugal, (B)
9.616	VQ7LO	Nairobi, Kenya, (B)
9.620	FZR2	Saigon, French Indo-China
9.620	DGU	Nauen, Germany, (X)
9.624	CT1AA	Lisbon, Portugal
9.635	I2RO	Rome, Italy, (B)
9.640	HSP2	Bangkok, Siam
9.655	OQY1	Niangara, Belgian Congo
9.660	PSJ	Marapicu, Brazil
9.680	T14NRH	Heredia, Costa Rica
9.700	LQA	Buenos Aires, Argentina
9.710	GCA	Rugby, United Kingdom
9.750	WOF	Lawrenceville, N. J., USA
9.750	RKF	Moscow, Russia
9.760	VK2ME	Sydney, Australia, (B)
9.760	VIJ	Sydney, Australia
9.760	VLZ2	Sydney, Australia
9.772	EAM	Madrid, Spain, (B)
9.780	I2RO	Rome, Italy
9.790	GBW	Rugby, United Kingdom
9.800	LSE	Monte Grande, Argentina
9.800	GCW	Rugby, United Kingdom
9.820	EAK	San Lorenzo, Canary Islands
9.824	LSI	Buenos Aires, Argentina
9.830	IRF	Rome, Italy
9.830	IRM	Rome, Italy, (B)
9.830	IRU	Rome, Italy
9.840	FTI	St. Assise, France
9.840	FYC2	Paris, France
9.840	JYS	Chiba, Japan, (B)
9.860	EAQ	Aranjuez, Spain, (B)
9.863	FZT5	Tananarive Madagascar
9.870	WON	Lawrenceville, N. J., USA
9.875	LPZ	Buenos Aires, Argentina, (P)
9.890	LSA	Buenos Aires, Argentina
9.890	LSN	Hurlinghan, Argentina
9.895	FZV2	Tananarive, Madaascar
9.900	LSN	Buenos Aires, Argentina, (B)
9.905	CGA5	Drummondville, P. Q., Canada
9.925	JDY	Dairen, Manchuria
9.928	RRLY	Moscow, Russia
9.950	GCU	Rugby, United Kingdom
9.964	LSL	Buenos Aires, Argentina
9.966	IRS	Rome, Italy
9.990	LSN	Buenos Aires, Argentina, (B)
9.990	KAZ	Manila, Philippine Islands

30 TO 25 METERS

10.000	FHH4	Pointe-Noire, French Equatorial Africa
10.000	EAQ	Aranjuez, Spain
10.000	----	Belgrade, Yugoslavia, (B)
10.055	ZFB	Hamilton, Bermuda
10.055	SUV	Abou Zaabal, Egypt, (B)
10.065	JMP2	Shinkyo, Japan
10.070	EDM	Madrid, Spain
10.070	EDR2	Madrid, Spain
10.070	EDS	Madrid, Spain
10.070	EHY	Madrid, Spain
10.090	EDR3	Tablero, Teneriffe, Canary Is.
10.100	EHY	Madrid, Spain
10.105	REX	Indigo Boukhta, Russia
10.120	PSI	Marapicu, Brazil
10.140	OPM	Leopoldville, Belgian Congo
10.163	----	Ship telephone
10.169	HSJ	Bangkok, Siam
10.200	CO9WR	P.O. Box 85, Sancti Spiritus, Cuba, (X)
10.220	PSH	Marapicu, Brazil
10.230	CEC	Santiago, Chile
10.250	LSK3	Hurlinghan, Argentina
10.260	PMN	Bandoeng, Netherland Indies
10.260	RRRO	Irkoutsk, Russia
10.290	DIQ	Nauen, Germany
10.290	HPC	Panama City, Panama
10.300	LSL2	Hurlinghan, Argentina
10.330	ORK	Ruysselede, Belgium, (B)
10.335	ZFD	Hamilton, Bermuda
10.345	CAC	Havana, Cuba, (B)
10.350	LSX	Monte Grande, Argentina, (B)
10.370	EDR3	El Tablero, Canary Islands
10.370	EHZ	El Tablero, Canary Islands
10.375	JVO	Tokyo, Japan
10.380	WCG	Rocky Point, N. Y., USA
10.390	KER	Bolinas, Calif., USA
10.390	GBX	Rugby, United Kingdom
10.400	KEZ	Bolinas, Calif., USA
10.410	KES	Bolinas, Calif., USA
10.410	PDK	Kootwijk, Netherlands
10.410	LSY	Monte Grande, Argentina
10.415	PDK	Kootwijk, Netherlands
10.420	XGW	Shanghai, China
10.420	PDK	Kootwijk, Netherlands
10.430	YBG	Medan, Sumatra
10.440	DGH	Nauen, Germany
10.515	FZT2	Tananarive, Madagascar
10.520	CJA4	Drummondville, P. Q., Canada
10.525	VLK	Sydney, Australia, (B)
10.526	FZT2	Tananarive, Madagascar
10.530	GBX	Rugby, United Kingdom
10.535	JIB	Taihoku, Taiwan, Japan
10.550	WOK	Lawrenceville, N. J., USA
10.578	FYB	Paris, France, (B)
10.610	WEA	Rocky Point, N. Y., USA
10.620	WEF	RockyPoint, N. Y., USA
10.620	EDN	Madrid, Spain
10.620	EDS	Madrid, Spain
10.620	EDR2	Madrid, Spain
10.620	EHX	Madrid, Spain
10.630	WED	Rocky Point, N. Y., USA
10.640	WQW	Rocky Point, N. Y., USA
10.640	OZT	Skamlebak, Denmark
10.660	JVN	Tokyo, Japan
10.670	CEC	La Granja, Chile
10.675	WNB	Lawrenceville, N. J., USA
10.714	RNZ	Petropavlovsk, Russia
10.740	JVM	Tokyo, Japan
10.760	PSG	Marapicu, Brazil
10.770	GBP	Rugby, United Kingdom
10.840	KWV	Dixon, Calif., USA
10.850	DFL	Nauen, Germany
10.860	RQT	Irkutsk Russia
10.870	GIQ	Dollis Hill, United Kingdom
10.910	KTR	Manila, Philippine Islands
10.940	FTH	St. Assise, France
10.950	VLK4	Sydney, Australia
10.975	OCI	Lima, Peru
10.975	GCL	Rugby, United Kingdom
10.990	ZLT	Wellington, N. Z.
11.000	ZLT	Wellington, N. Z.
11.110	RUU	Detskoe Selo, Russia
11.110	LPD	General Pacheco, Argentina
11.110	----	Aeronautical, Japan
11.111	XFD	Mexico City, Mexico, (B)
11.140	XGB	Shanghai, China
11.140	----	Naval Stations, Germany
11.180	CT3AQ	Funchal, Madeira, (B)
11.187	XAM	Merida, Yuc., Mexico
11.200	----	Aeronautical, Europe
11.210	SPT	Warsaw, Poland
11.260	----	Aeronautical, Europe
11.340	DAN	Norden, Germany
11.370	CWG	Cerrito, Montevideo, Uruguay
11.425	OQK2	Aketi, Belgian Congo
11.435	DHC	Nauen, Germany
11.465	OQV2	Albertville, Belgian Congo
11.470	IBDK	S. S. Elettra (G. Marconi's Yacht) (X)
11.490	EAH	Madrid, Spain
11.490	GBK	Bodmin, United Kingdom
11.500	VQR	Nairobi, Kenya
11.500	RPT	Tashkent, Russia
11.505	OSH	Elisabethville, Belgian Congo
11.530	LSN	Buenos Aires, Arentina, (B)
11.530	CGA	Drummondville, P. Q.
11.538	----	Rome, Italy
11.540	XGR	Shanghai, China
11.565	OQP2	Astrida, Belgian Congo
11.570	GNS	Ongar, United Kingdom
11.620	EAH	Madrid, Spain
11.660	PPQ	Sepetiba, Brazil, (X)
11.660	----	Aeronautical, Europe
11.660	JVL	Tokyo, Japan
11.660	RPG	Barentsbourg, Russia
11.670	----	Rome, Italy
11.675	OQM2	Lusambo, Belgian Congo
11.680	LPG8	General Pacheco, Argentina
11.680	KIO	Kahuku, Hawaii
11.695	YV2RC	Caracas, Venezuela
11.700	HJ4ABA	P.O. Box 50, Medellin, Colombia, (B)
11.700	OQW2	Banningville, Belgian Congo
11.710	FYA	Pontoise, France, (B)
11.720	CJRX	Winnipeg, Man., Canada, (B)
11.720	FYA	Pontoise, France, (B)
11.730	PHI	Huizen, Netherlands, (B)
11.730	NAA	Washington, D. C., USA, (B)
11.740	RKF	Moscow, Russia
11.740	RRRR	Tashkent, Russia, (B)
11.750	GSD	Daventry, United King., (B)
11.770	DJD	Zeesen, Germany, (B)
11.760	XDA	Chapultepec, Mexico, (B)
11.770	CJRX	Middlechurch, Canada, (B)
11.780	VE9DN	Drummondville, P.Q., Can., (B)
11.780	VE9DR	Drummondville, P.Q., Can., (B)
11.780	----	Cairo, Egypt
11.780	F3ICD	Saigon, French Indo-China, (B)
11.790	W1XAL	Boston, Mass., USA, (B)
11.790	TITR	San Jose, Costa Rica, (B)
11.795	DJO	Zeesen, Germany, (B)
11.800	----	Japan, (B)
11.801	OER3	Vienna, Austria, (B)
11.801	XGBC	Shanghai, China, (B)
11.810	VE9GW	Bowmanville, Ont., Can., (B)
11.810	I2RO	Rome, Italy, (B)
11.810	EAQ	Aranjuez, Spain, (B)
11.830	W9XAA	Chicago, Ill., USA
11.830	W2XE	Wayne, N. J., USA, (B)
11.835	VE9HX	Halifax, N. S., Canada, (B)
11.840	KZRM	Manila, Philippine Islands
11.845	----	Pontoise, France, (B)
11.855	DJP	Zeesen, Germany
11.860	VE9CA	Calgary, Alta., Canada, (B)
11.860	GSE	Daventry, United Kingdom, (B)
11.870	W8XK	Saxonburg, Pa., USA, (B)
11.870	VUC	Calcutta, India, (B)
11.875	FYA	"Radio Colonial," Paris, France, (B)
11.880	VK3LR	Lyndhurst, Vic., Australia
11.880	----	Pontoise, France, (B)
11.880	RSN	Everdlovsk, Russia
11.885	----	Pontoise, France
11.890	YNA	Managua, Nicaragua, (B)
11.895	OSL	Leopoldville, Belgian Congo
11.900	XGOX	Nanking, China, (B)
11.910	RRRZ	Sverdlovsk, Russia
11.920	RV15	Khabarovsk, Russia
11.920	RRRQ	Novosibirsk, Russia
11.924	RNE	Moscow, Russia, (B)
11.940	FTA	St. Assise, France
11.950	FTA	St. Assise, France
11.950	KKQ	Bolinas, Calif., (X)
11.960	OQU2	Basankusu, Belgian Congo
11.970	HSJ	Bangkok, Siam
11.980	FZS	Saigon, French Indo-China
11.985	OQO2	Basoko, Belgian Congo
11.991	FZS2	Saigon, French Indo-China

25 TO 20 METERS

12.000	FZG	Saigon, French Indo-China
12.000	VQR	Nairobi, Kenya
12.000	RNE	Moscow, Russia, (B)
12.015	OSC2	Boende, Belgian Congo
12.028	CT1CT	Lisbon, Portugal, (B)
12.030	HBO	Prangins, Switzerland, (B)
12.035	DJK	Nauen, Germany
12.050	VRR	Stony Hill, Jamaica
12.050	PDV	Kootwijk, Netherlands
12.055		
12.060	PDV	Kootwijk, Netherlands
12.082	CT1CT	Lisbon, Portugal, (B)
12.085	OQB2	Bumba, Belgian Congo
12.100	CJA6	Drummondville, P. Q., Canada
12.100	TIR6	Cartago, Costa Rica
12.120	----	Algiers, Algeria
12.145	OQN2	Urumu, Belgian Congo
	FQO-	
12.150	FQE	St. Assise, France
12.150	GBS	Rugby, United Kingdom
12.180	OQT2	Buta, Belgian Congo
12.185	FRSS	Saigon, French Indo-China
12.185	----	Radom, Poland
12.215	TYA	Paris, T.S.F., France
12.229	CT1CT	Lisbon, Portugal, (B)
12.240	OQE2	Costermansville, Belgian Congo
12.244	LPD	General Pacheco, Argentina
12.250	FTN	Ste. Assise, France
12.250	TYB	Paris, France
12.250	RFBY	Moscow, Russia
12.250	GBS	Rugby, United Kingdom
12.260	FTN	Ste. Assise, France
12.270	RKK	Moscow, Russia
12.275	FZT3	Tananarive, Madagascar
12.280	KUV	Manila, Philippine Islands
12.290	GBU	Rugby, United Kingdom
12.295	ZLT	Wellington, New Zealand
12.295	ZLU	Wellington, New Zealand
12.300	ONC	Coquilhatville, Belian Congo
12.300	ZLW	Wellington, New Zealand
12.325	DAF	Norddeich, Germany
12.360	OSF2	Panu, Belgian Congo
12.394	DAF	Norddeich, Germany
12.396	CT1GO	Parede, Portugal, (B)
12.425	OSI2	Gole, Belgian, Congo

B=Broadcasting; X=Experimental.

Freq. Mc.	CALL and LOCATION
12.450	RLGL Kabansk, Russia
12.470	OQJ2 Inongo, Belgian Congo
12.485	CNP Casablanca, Morocco
12.500	PBB Den Helder, Netherlands
12.500	SPN Warsaw, Poland
12.500	YQI Constanta, Rumania
12.500	RKF Moscow, Russia
12.500	ZSV Walvis Bay, Un. of So. Africa
12.550	---- Aeronautical, Europe
12.565	OQX2 Kabinda, Belgian Congo
12.570	FFK St. Nazaire, France
12.640	OQZ2 Kanuna, Belgian Congo
12.660	CZA Drummondville, P. Q., Canada
12.705	FFK St. Nazaire, France
12.740	OSE2 Kanda-Kanda, Belgian Congo
12.745	DAF Norddeich, Germany
12.750	---- Aeronautical, Europe
12.780	GBC Rugby, United Kingdom
12.795	IAC Coltano, Italy, (X)
12.800	OSD2 Kigali, Belgian Congo
12.825	CNR Rabat, Morocco, (B)
12.840	WOY Lawrenceville, N. J., USA
12.840	WOO Ocean Gate, N. J., USA
12.860	OQD2 Kindu, Belgian Congo
12.865	IAC Coltano, Italy, (X)
12.910	OSK2 Kitega, Belgian Congo
12.910	OXR Skamlebak, Denmark
12.980	OQG2 Kongolo, Belgian Congo
13.000	TYC Paris T.S.F., France
13.025	OQQ2 Libenge, Belgian Congo
13.040	---- Ship Telephone
13.074	JYK Tokyo, Japan
13.075	VPD Suva, Fiji Islands, (X)
13.085	OQI2 Lisala, Belgian Congo
13.100	---- Naval Stations, Germany
13.105	IRJ Rome, Italy
13.140	CWH Cerrito, Montevideo, Uruguay
13.150	OSG2 Luluabuorg, Belgian Congo
13.180	DGG Nauen, Germany
13.200	---- Ship Telephone
13.205	ONF Banana, Belgian Congo
13.215	---- Ship Telephone
13.220	---- Ship Telephone
13.240	KBJ Manila, Philippine Islands
13.245	OSV Stanleyville, Belgian Congo
13.260	IRR Rome, Italy
13.285	CJA7 Drummondville, P. Q., Canada
13.300	---- Aeronautical, Europe
13.300	---- Naval Stations, Japan
13.315	OQY2 Niangara, Belgian Congo
13.335	WYS Clark Field, Philippine Isl.
13.335	WYY Oryden, Texas, USA
13.335	WYM Ft. Leavenworth, Kans., USA
13.335	WYN Hatbox Field, Okla., USA
13.335	WYO Hensley Field, Texas, USA
13.335	WYG Kelly Field, Texas, USA
13.335	WYR Kindley Field, Philippine Isl.
13.335	WUG Marfa, Texas, USA
13.335	WYT Nichols Field, Philippine Isl.
13.335	WUM Tucson, Ariz., USA
13.340	VLJ2 Sydney, Australia
13.340	VLZ3 Sydney, Australia
13.340	CGA Drummondville, P. Q., Canada
13.345	YVQ Maracay, Venezuela
13.360	OQF2 Port-Francqui, Belgian Congo
13.390	WMA Lawrenceville, N. J., USA
13.405	GBJ Bodmin, United Kingdom
13.410	YID Baghdad, Iraq. (B)
13.415	OQR2 Usumbura, Belgian Congo
13.415	GCJ Rugby, United Kingdom
13.460	LPR6 General Pacheco, Argentina
13.510	OSB2 Kikwit, Belgian Congo
13.540	GMS Ongar, United Kingdom
13.560	JVI Tokyo, Japan
13.585	GBB Rugby, United Kingdom
13.591	GRC Rugby, United Kingdom
13.605	OQA2 Kigoma, Belgian Congo
13.610	JYK Tokyo, Japan, (XB)
13.635	SPW Warsaw, Poland
13.685	HAT Szekesfehervar, Hungary
13.740	CGA Drummondville, P. Q., Canada
13.790	EAK San Lorenzo, Canary Islands
13.800	VLK5 Sydney, Australia
13.811	SUZ Abou Zaabal, Egypt
13.813	
13.820	
13.827	SUZ Abou Zaabal, Egypt
13.829	
13.880	RELO Boukhta Bertys, Russia
13.885	WQT RockyPoint, N. Y., USA
13.890	LPG9 General Pacheco Argentina
13.950	---- Aeronautical, Europe
13.950	YO1 Bucharest Rumania, (B)
13.965	TFL Reykjavik, Iceland
13.980	LCO Jeloy, Norway, (B)
13.990	GBA Rugby, England
14.000	RFBD Mojaisk, Russia
14.005 to 14.395	Amateurs, USA
14.100	HJ5ABE Cali, Colombia, (X)
14.151	HSJ Bangkok, Siam
14.250	RPK Moscow, Russia
14.285	LPR2 General Pacheco, Argentina
14.286	RMNK Kharkov, Russia
14.286	RKV Moscow, Russia
14.410	DIP Zeesen, Germany
14.420	VPD Suva, Fiji
14.435	LSJ2 Hurlingham, Argentina
14.440	GBW Rugby, United Kingdom
14.450	RPK Moscow, Russia
14.470	WMF Lawrenceville, N. J., USA
14.479	HSJ Bangkok, Siam
14.480	LSN Buenos Aires, Argentina, (B)
14.480	GBW Rugby, United Kingdom
14.485	TGF Guatemala City, Guat.
14.485	HPF Panama, Panama
14.485	YNA Managua, Nicaragua
14.485	TIR Cartago, Costa Rica
14.500	LSM2 Hurlingham, Argentina
14.500	RRRF Moscow, Russia
14.510	RRRF Moscow, Russia
14.515	Panama City, Panama
14.525	XDA Chapultepec, Mexico
14.530	LSA Buenos Aires, Argentina
14.530	LSN Buenos Aires, Argentina, (B)
14.535	HBJ Prangins, Switzerland
14.540	---- Tokyo, Japan
14.545	RTZ Irkutsk, Russia
14.550	RTZ Irkutsk, Russia
14.550	HBJ Prangins, Switzerland
14.560	RTZ Irkutsk, Russia
14.570	RTZ Irkutsk, Russia
14.590	WMN Lawrenceville, N. J., USA
14.600	JVH Tokyo, Japan
14.605	DGZ Nauen, Germany
14.620	XDA Chapultepec, Mexico
14.620	EDM Madrid, Spain
14.620	EDN Madrid, Spain
14.620	EDR2 Madrid, Spain
14.620	EDS Madrid, Spain
14.620	EHY Madrid, Spain
14.635	RELB Boukhta Bertys, Russia
14.635	RELO Boukhta Bertys, Russia
14.653	GBL Rugby, United Kingdom
14.665	DFD Nauen, Germany
14.690	PSS Rio de Janeiro, Brazil
14.705	OZW Skamlebak, Denmark
14.710	VLZ5 Sydney, Australia
14.750	FZV Tananarive, Madagascar
14.770	WEB Rocky Point, N. Y., USA
14.800	WQV Rocky Point, N. Y., USA
14.815	WQL New Brunswick, N. J., USA
14.820	EAK San Lorenzo, Canary Islands
14.830	WKU Rocky Point, N. Y., USA
14.830	RRRW Moscow, Russia
14.840	RRRW Moscow, Russia
14.910	JVG Tokyo, Japan
14.920	KQH Kahuku, Hawaii
14.935	PSE Marapicu, Brazil
14.940	EAK San Lorenzo, Canary Islands
14.950	HJB Bogota, Col.
14.965	EAK San Lorenzo, Canary Islands
14.980	KAY Manila, Philippine Islands
14.985	EFR2 Madrid, Spain
14.985	EDS Madrid, Spain
	20 TO 17 METERS
15.000	CM6XJ Central Tainucu, Cuba
15.040	WQG Rocky Point, N. Y., USA
15.040	RKI Moscow, Russia
15.055	WNC Hialeah, Fla., USA
15.065	EAK San Lorenzo, Canary Islands
15.070	PSD Marapicu, Brazil
15.075	TI4NRH Heredia, Costa Rica, (B)
15.090	RKI Moscow, Russia
15.104	RAU Tashkent, Russia, (B)
15.110	DJL Zeesen, Germany, (B)
15.120	J1AA Tokyo, Japan, (B)
15.120	HVJ Vatican City, (B)
15.123	HVJ Vatican City, (B)
15.130	NAA Washington, D. C., USA, (B)
15.130	VE9DN Drummondville, P.Q., Can., (B)
15.140	GSF Daventry, United Kingdom, (B)
15.190	VE9BA Montreal, P. Q., Canada, (X)
15.200	DJB Zeesen, Germany, (B)
15.210	W8XK Saxonburg, Pa., USA
15.220	PCJ Eindhoven Netherlands (B)
15.230	VK3LR Lyndhurst, Vic., Aus., (B)
15.243	FYA Pontoise, France (B)
15.250	W1XAL Boston, Mass., USA, (B)
15.252	RIM Rachkent, Russia
15.260	GSI Daventry, United Kingdom, (B)
15.265	EAQ Aranjuez, Spain, (B)
15.270	W2XE Wayne, N. J., USA, (B)
15.275	---- Warsaw, Poland, (B)
15.280	DJQ Zeesen, Germany, (B)
15.295	CP5 La Paz, Bolivia, (B)
15.295	FYA Pontoise, France, (B)
15.300	OXY Skamlebak, Denmark, (B)
15.320	---- Taihoku, Japan
15.330	W2XAD Schenectady N. Y., USA, (B)
15,340	DJR Zeesen, Germany, (B)
15.350	CT1AA Lisbon, Portugal, (BX)
15.355	KWU Dixon, Calif., USA
15.370	TIR Cartago, Costa Rica
15.370	HAS3 Szekesfehervar, Hungary, (B)
15.410	PRADO Riobamba, Ecuador, (B)
15.415	KWO Dixon, Calif., USA
15.430	KWE Bolinas, Calif., USA
15.445	WQZ San Juan, Puerto Rico
15.460	KRR Bolinas, Calif., USA
15.475	KKL Bolinas, Calif., USA
15.490	KEM Bolinas, Calif., USA
15.510	JDX Dairen, Manchuria
15.530	HSG Bangkok, Siam
15.560	PYR Sepetiba, Brazil
15.620	JVF Tokyo, Japan
15.625	OCJ Lima, Peru
15.660	JVE Tokyo, Japan
15.670	LCQ Jeloy, Norway
15.680	JZA Shinkyo, Japan
15.740	TFM Reykjavik, Iceland
15.740	JIA Taihoku, Taiwan, Japan
15.760	JYT Tokyo (Kemikawa) Jap., (BX)
15.810	LSL Hurlingham, Argentina
15.860	FTK St. Assise, France
15.860	JVD Tokyo, Japan
15.865	CEC La Granja, Chile
15.880	FTK St. Assise, France
15.930	FYC Paris, France
15.935	
15.970	RRRI Khabarovsk, Russia
15.985	WAZ New Brunswick, N. J., USA
16.000	WKQ Rocky Point N. Y., USA
16.000	RFAJ Moscow, Russia
16.015	WQR New Brunswick, N. J., USA
16.030	KKP Kahuku, Hawaii
16.050	JVC Tokyo, Japan
16.070	RRRI Khabarovsk, Russia
16.090	EDR2 Madrid, Spain
16.090	EDS Madrid, Spain
16.120	IRY Rome, Italy
16.140	---- Rugby, United Kingdom
16.150	GBX Rugby, United Kingdom
16.162	PSA Maripicu, Brazil
16.200	FZR Saigon, French Indo-China
16.214	FZR3 Saigon, French Indo-China
16.233	FZR3 Saigon, French Indo-China
16.240	KTO Manilla, Philippine Islands
16.270	WLK Lawrenceville, N. J., USA
16.270	WOG Ocean Gate, N. J., USA
16.300	EDR3 El Tablero, Canary Islands
16.305	PCL Kootwijk, Nehterlands
16.330	VLJ3 Sydney, Australia
16.330	VLK Sydney, Australia, (B)
16.330	VLZ Sydney, Australia
16.430	---- Naval Stations, Germany
16.440	---- Aeronautical, Europe
16.665	LPD General Pacheco, Argentina
16.665	DAN Norden, Germany
16.666	LOB Puerto Aguirre, Argentina
16.800	---- Aeronautical, Europe
16.854	ZSV Walvis Bay, Un. of So. Africa
16.870	FFK St. Nazaire, France
17.080	GBC Rugby, United Kingdom
17.120	WOY Lawrenceville, N. J., USA
17.120	WOO Ocean Gate, N. J., USA
17.130	HAS5 Szekesfehervar, Hungary, (B)
17.143	---- Shanghai, China
17.150	OPC Coquilhatville, Belgian Congo
17.190	OXV Skamlebak, Denmark
17.200	---- Aeronautical, Europe
17.200	CWI Cerrito, Montevideo, Uruguay
17.260	DAF Norddeitch, Germany
17.260	PBB Den Helder, Netherlands
17.300	VE9BY London, Ont., Canada, (B)
17.310	W3XL Bound Brook, N. J., USA, (B)
17.310	CZA Drummondville, P. Q., Canada
17.341	DIM Nauen, Germany
17.400	J1AA Tokyo, Japan, (B)
17.430	CWM Cerrito, Montevideo, Uruguay
17.470	TYD Paris, T.S.F., France
17.480	VWY Kirkee, India
17.510	VWY2 Kirkee, India
17.512	DFB Nauen, Germany
17.520	DEB Nauen, Germany
17.600	---- Ship Telephone
17.600	GBC Rugby, United Kingdom
17.620	---- Ship Telephone
17.630	VLJ5 Sydney, Australia
17.630	RRRU Khabarovsk, Russia
17.640	RRRU Khabarovsk, Russia
17.640	---- Ship Telephone
	17 TO 15 METERS
17.650	XGM Shanghai, China
17.650	RRRU Khabarovsk, Russia
17.660	RRRV Khabarovsk, Russia
17.670	RRRV Khabarovsk, Russia
17.680	RRRV Khabarovsk, Russia
17.690	LQB2 Monte Grande, Argentina
17.699	IAC Coltano, Italy (X)
17.700	---- Naval Stations, Japan
17.710	CJA9 Drummondville, P. Q., Canada
17.710	RRRV Khabarovsk, Russia
17.719	HSP Bangkok, Siam

B=Broadcasting; X=Experimental.

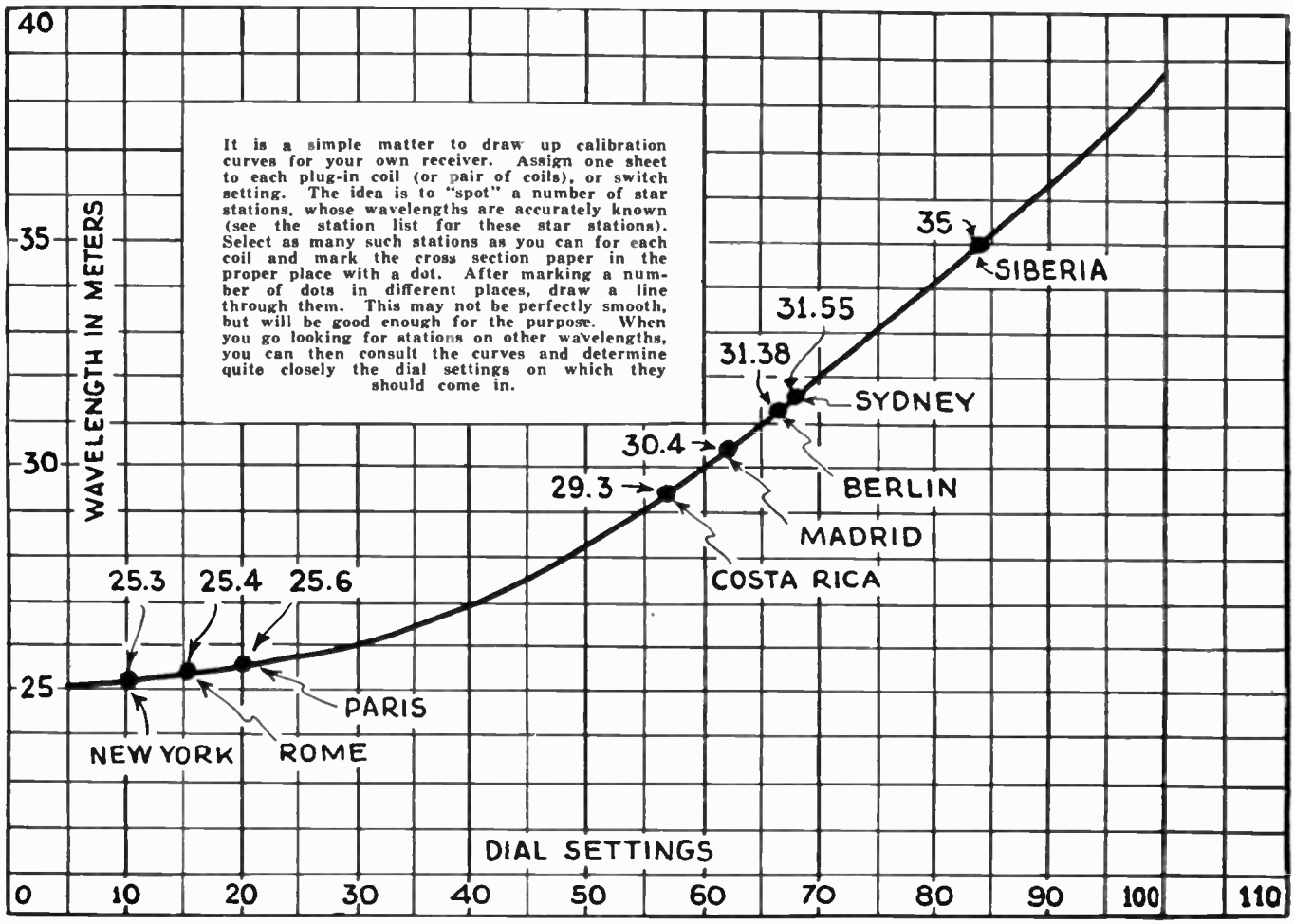
Freq. Mc.	CALL and LOCATION
17.720	RRRV Khabarovsk, Russia
17.725	CNP Casablanca, Morocco
17.730	RRRV Khabarovsk, Russia
17.735	
17.740	HSP Bangkok, Siam
17.750	IAC Coltano, Italy, (X)
17.760	DJE Zeesen, Germany, (B)
17.765	FYA Pontoise, France, (B)
17.775	PHI Huizen, Netherland, (B)
17.780	W3XAL Bound Br., N. J., USA, (B)
17.780	W9XAA Chicago, Ill., USA, (B)
17.780	W9XF Downer's Grove, Ill., USA, (B)
17.780	W8XK Saxonburg, Pa., (B)
17.780	---- Warsaw, Poland, (B)
17.790	RRRV Khabarovsk, Russia
17.790	GSG Daventry, United Kingdom (B)
17.794	XGBB Shanghai, China
17.795	PCV Kootwijk, Netherlands
17.800	XGOX Nanking, China, (B)
17.800	PCV Kootwijk, Netherlands
17.800	RRRV Khabarovsk, Russia
17.800	HSC Bangkok, Siam
17.805	PCV Kootwijk, Netherlands
17.810	PCV Kootwijk, Netherlands
17.810	RRRV Khabarovsk, Russia
17.820	RRRV Khabarovsk, Russia
17.830	PCV Kootwijk, Netherlands
17.830	RRRV Khabarovsk, Russia
17.850	LSN Buenos Aires, Argentina, (B)
17.850	RRRV Khabarovsk, Russia
17.860	WQC Rocky Point, N. Y., USA
17.860	RRRV Khabarovsk, Russia
17.870	RRRV Khabarovsk, Russia
17.880	WQI New Brunswick N. J., USA
17.890	TFN Reykjavik, Iceland
17.890	FZT Tananarive, Madagascar
17.900	WLL Rocky Point, N. Y., USA
17.900	FZT Tananarive, Madagascar
17.910	CWO Cerrito, Montevideo, Uruguay
17.910	RRRV Khabarovsk, Russia
17.920	WQF Rocky Point, N. Y., USA
17.920	RRRV Khabarovsk, Russia
17.930	RRH Tashkent, Russia
17.940	WQB Rocky Point, N. Y., USA
17.980	KQZ Bolinas, Calif., USA
18.030	RRI Novosibirsk, Russia
18.040	GAB Rugby, United Kingdom
18.050	RRRX Khabarovsk, Russia
18.060	KUN Bolinas, Calif., USA
18.060	RRRX Khabarovsk, Russia
18.070	RRRX Khabarovsk, Russia
18.080	---- Camaguey, Cuba
18.080	RRRX Khabarovsk, Russia
18.100	RRRX Khabarovsk, Russia
18.110	RRRX Khabarovsk, Russia
18.115	LSY3/ Monte Grande, Argentina
18.120	RRRX Khabarovsk, Russia
18.135	PMC Bandoeng, Java
18.150	---- Camaguey, Cuba
18.150	RRRX Khabarovsk, Russia
18.160	RRRX Khabarovsk, Russia
18.170	CGA Drummondville, P. Q., Canada
18.170	RRRX Khabarovsk, Russia
18.190	JVB Tokyo, Japan
18.200	GAW Rugby, United Kingdom
18.220	KUS Manila, Philippine Islands
18.230	EAH Madrid, Spain
18.240	FRE St. Assise, France
18.240	JVB Tokyo, Japan
18.250	FTO St. Assise, France
18.295	YVR Maracay, Venezuela
18.310	FZS Saigon, Indo-China
18.310	GBS Rugby, United Kingdom
18.340	WLA Lawrenceville, N. J., USA
18.340	ZLW Wellington, N. Z.
18.345	FZS3 Saigon, French Indo-China
18.390	---- Warsaw, Poland
18.400	PCK Kootwijk, Netherlands
18.405	
18.410	PCK Kootwijk, Netherlands
18.411	VWZ Kirkee, India
18.413	
18.420	VWZ Kirkee, India
18.427	
18.429	
18.480	HBH Prangins, Switzerland
18.535	PCM Kootwijk, Netherlands
18.535	---- Warsaw, Poland
18.540	PCM Kootwijk, Netherlands
18.545	PCM Kootwijk, Netherlands
18.595	GLS Ongar, United Kingdom
18.600	PDM Kootwijk, Netherlands
18.610	RRK Tiflis, Russia
18.620	GBJ Bodmin, United Kingdom
18.620	GAU Rugby, United Kingdom
18.630	IRZ Rome, Italy
18.640	PSC Marapicu, Brazil
18.680	OCI Lima, Peru
18.680	GAX Rugby, United Kingdom
18.700	DFQ Nauen, Germany
18.770	TYD3 Paris, T.S.F., France
18.830	PLE Bandoeng, Java, (C)
18.860	WKM Rocky Point, N. Y., USA
18.890	ZSS Klipheuvel, Un. of Sc. Africa
18.910	JVA Tokyo, Japan
18.950	HBF Prangins, Switzerland
18.960	LSR Buenos Aires, Argentina
18.960	EAH Madrid, Spain
18.970	GAQ Rugby, United Kingdom
18.980	WFX Rocky Point, N. Y. USA
19.000	HSJ Bangkok, Siam
19.010	PSB Marapicu, Brazil
19.030	EDM Madrid, Spain
19.030	EDR2 Madrid, Spain
19.030	EDS Madrid, Spain
19.030	EHY Madrid, Spain
19.160	GAP Rugby, United Kingdom
19.200	ORG Ruysselede, Belgium
19.220	WKF Lawrenceville, N. J. USA
19.240	DFA Nauen, Germany
19.250	FZV3 Tananarive, Madagascar
19.260	PPU Sepetiba, Brazil
19.300	VLK2 Sydney, Australia
19.355	FTM St. Assise, France
19.380	WOP Ocean Gate, N. J., USA
19.400	LQD Monte Grande, Argentina
19.400	FRE St. Assise France
19.430	ORH Elisabethville, Belgian Congo
19.435	EDR2 Madrid, Spain
19.435	EDS Madrid, Spain
19.460	DFM Nauen, Germany
19.500	LSQ Buenos Aires, Argentina, (B)
19.520	IRW Rome, Italy
19.530	EDR2 Madrid, Spain
19.530	EDS Madrid, Spain
19.600	LSF Monte Grande, Argentina
19.650	LSN5 Hurlinghan, Argentina
19.656	IRL Rome, Italy
19.680	CEC La Granja, Chile
19.700	DFJ Nauen, Germany
19.720	EAQ Aranjuez, Spain, (B)
19.800	---- Tokyo, Japan
19.820	WKN Lawrenceville, N. J., USA
19.840	FTD St. Assise, France
19.900	LSG Monte Grande, Argentina
19.920	HSJ Bangkok, Siam
19.947	DIH Nauen, Germany
19.980	KAX Manila, Philippine Islands

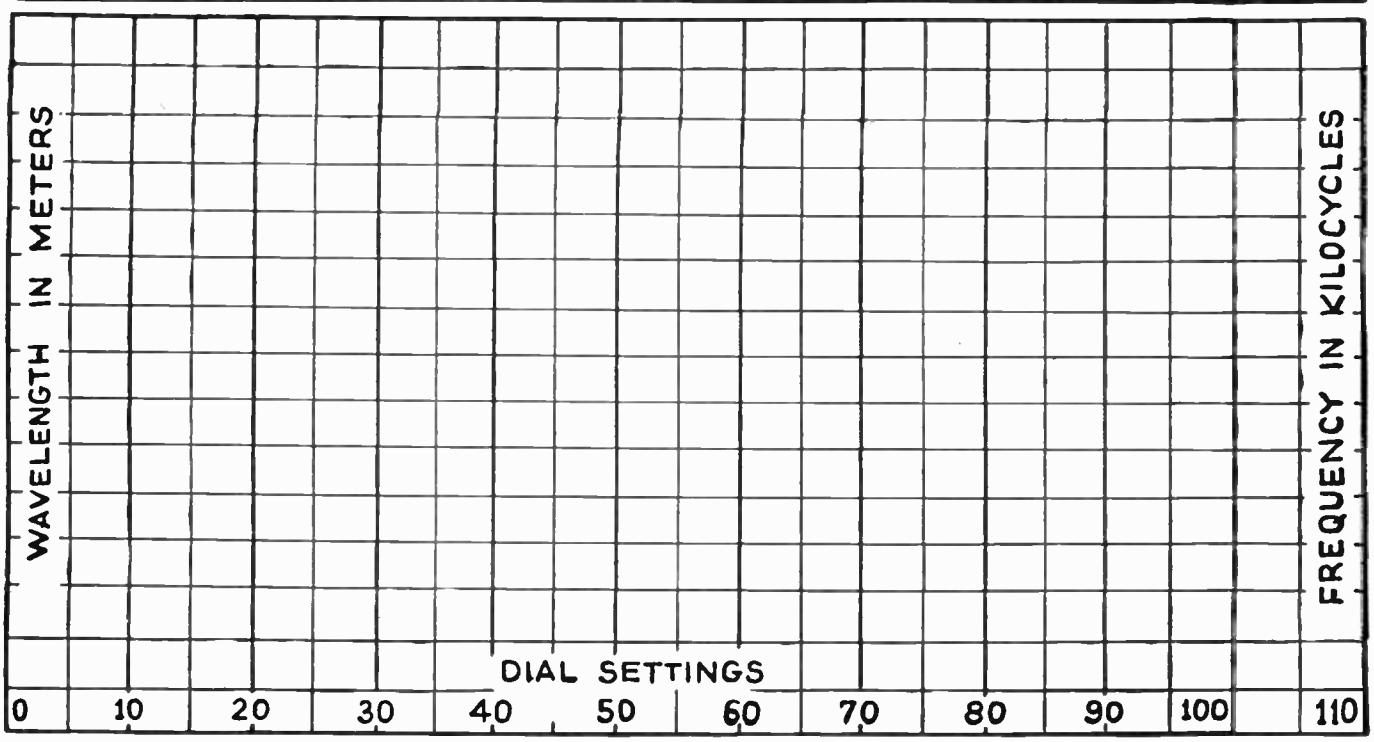
15 TO 6 METERS

20.020	DHO Nauen, Germany
20.040	OPL Leopoldville, Belgian Congo
20.140	DGW Nauen, Germany
20.140	DWG Nauen, Germany
20.165	---- Warsaw, Poland
20.180	WQX Rocky Point, N. Y., USA
20.260	WQG Rocky Point, N. Y., USA
20.310	RFAJ Moscow, Russia
20.360	EAH Madrid, Spain
20.380	GAA Rugby, United Kingdom
20.400	VLK7 Sydney, Australia
20.430	IRK Rome, Italy
20.500	DGQ Nauen, Germany
20.570	EDR2 Madrid, Spain
20.570	EDS Madrid, Spain
20.570	EHX Madrid, Spain
20.585	ORS Stanleyville, Belgian Congo
20.595	ORL Leopoldville, Belgian Congo
20.610	EAH Madrid, Spain
20.620	CEC La Granja, Chile
20.640	FSR' Paris France
20.670	EHX Madrid, Spain
20.680	LSN Buenos Aires, Argentina, (B)
20.680	LSX Monte Grande, Argentina, (B)
20.730	LSY Monte Grande, Argentina
20.740	DGP Nauen, Germany
20.780	KMM Bolinas, Calif., USA
20.820	KSS Bolinas, Calif., USA
20.825	PFF Kootwijk, Netherlands
20.830	PFF Kootwijk, Netherlands
20.835	
20.860	EDM Madrid, Spain
20.860	EDR2 Madrid, Spain
20.860	EDS Madrid, Spain
20.860	EHY Madrid, Spain
20.960	EAH Madrid, Spain
21.000	OKI Podebrady, Czechoslovakia
21.020	LSN Buenos Aires, Argentina, (B)
21.060	KWN Dixon, Calif., USA
21.060	WKA Lawrenceville, N. J., USA
21.080	PSA Marapicu, Brazil
21.110	CEC La Granja, Chile
21.130	LSM Buenos Aires, Argentina (B)
21.140	KBI Manila, Philippine Islands
21.150	HAS4 Szekesfehervar, Hungary (B)
21.160	LSL Buenos Aires, Argentina
21.180	DGN Nauen, Germany
21.220	WQA Rocky Point, N. Y., USA
21.240	WQJ Rocky Point, N. Y., USA
21.260	WBU Rocky Point, N. Y., USA
21.340	DGM Nauen, Germany
21.420	WKK Lawrenceville, N. J. USA
21.460	W1XAL Boston, Mass., USA, (B)
21.470	GSH Daventry, United Kingdom, (B)
21.480	---- Warsaw, Poland, (B)
21.490	FYA Pontoise, France, (B)
21.500	NAA Washington, D. C., USA
21.530	GSJ Daventry, United Kingdom, (B)
21.540	W8XK Pittsburgh, Pa., USA
21.540	VK3LR Lyndhurst, Vic., Aus., (B)
21.550	XGBA Shanghai, China, (B)
21.600	CGG Drummondville, P. Q., Canada
22.300	GBU Rugby, United Kingdom
22.460	EDS Madrid, Spain
22.520	DGE Nauen, Germany
22.600	DGF Nauen, Germany
22.760	EDR2 Madrid Spain
22.820	CEC La Granja, Chile
23.240	HSJ Bangkok, Siam
26.100	GSK Daventry, United Kingdom
28.000 to 30.000	Amateurs, USA
29.817	IAF Fiumicino, Italy
30.604	IAG Golfo Aranci, Italy
36.144	TYZ Calenzana, France
36.300	KGXM Waikiki, Hawaii
36.800	---- Amateur and Experimental, Japan, (X)
37.400	KGXC Manawahua, Hawaii
39.473	TY4 La Turbie, France
39.600	KGXA Manawahua, Hawaii
40.700	KGXJ Ulupalakua, Hawaii
41.040	LQL Monte Grande, Argentina
41.400	LQK Monte Grande, Argentina
46.200	KGXO Kalepa, Hawaii
47.300	KGXB Manawahua, Hawaii
48.400	KGXH Ulupalakua, Hawaii
49.500	KGXK Waikiki, Hawaii
56.000 to 60.000	Amateurs, USA
400.000 to 401.000	Amateurs, USA

B=Broadcasting; X=Experimental.

Calibration Curve Sheets



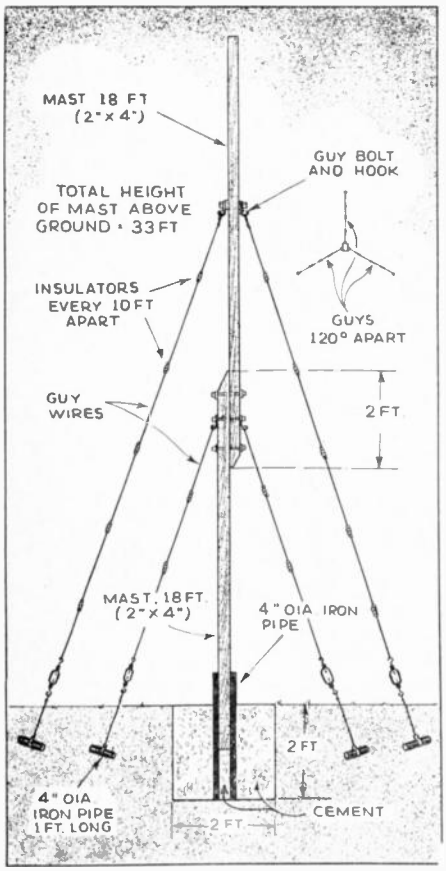


THE LISTENER

ANTENNA MAST CONSTRUCTION

Charles Curtis, St. Paul, Minn.

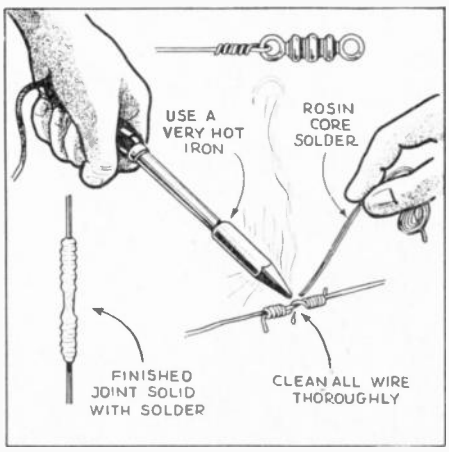
(Q) I have built several masts to support my short-wave antenna and have not been very successful. Each



A simple mast which can be constructed by the layman.

one has blown down during wind storms and none of them have been very secure. I would appreciate it very much if you would print a diagram showing how a sturdy mast may be constructed; one that will not cost a lot of money, and one that can be put up and taken down easily.

(A) The construction of an antenna mast has always been a difficult problem for the layman because there are so many different types to choose from. We believe that the simplest form of mast is one constructed of 2" x 4" wood poles. If you will refer to the drawing you will note that the mast is constructed of two 18 foot 2" x 4" planks and they are bolted together in the center with a two foot overlap. One of the greatest problems has been the anchorage at the base of a mast. However, one simple method of arranging this is to dig a hole in the earth about 2 ft. in diameter and 2 ft. deep. This should be filled with concrete, and before it has hardened, a 4 inch inside diameter iron pipe should be located directly in the center of this block of cement. Do not allow the entire pipe to become full of cement because the mast is held in place by fitting down into the pipe a distance of about 1 ft. Two sets of guy wires are used; the first set is fastened to the center of the mast, and there are three, forming a triangle at the base. Only two are shown in the diagram; the one is located directly behind the mast. The three long guys are fastened approximately half way up the upper 10 ft. section. Make sure to break up the guy wires at least every 10 ft. and preferably closer with "egg" type strain insulators. The anchors for the guys consist of 1 ft. lengths of 4 inch diameter pipe buried in the ground as deep as possible. If the ground is allowed to settle and water is poured on the ground, they will hold very firmly; otherwise it may be necessary to fasten them into cement blocks. Another good method would be to bury a regular cement block such as used in building construction. This mast will have a total height of approximately 33 ft. above ground; 20 or 22 ft. lengths of timber can be used to construct a higher mast although in the open country 33 ft. is sufficiently high to allow good general reception.



Proper method of making antenna connections.

POOR ANTENNA CONNECTIONS IMPAIR RECEPTION

Arthur Stanley, Davenport, Iowa

(Q) I have considerable trouble in picking up short-wave stations and keeping them tuned in. I hear constant crackling noise in my receiver and I have to re-tune constantly otherwise I would not have any success with my short-wave receiver. Could this trouble be in my antenna? All the connections are made by first cleaning the wires and twisting them tightly and then thoroughly taping them. Would appreciate any help you can give me.

(A) In the first place we would say right off that you should not depend upon an ordinary twisted joint covered with tape where radio reception is concerned. All joints should be thoroughly soldered. In the drawing we have shown how to make splices. Even splices in antennas should be avoided wherever possible by making the antenna and lead-in all one piece. After the wires have been twisted as shown in the drawing, they should be soldered with a very hot soldering iron or blow torch and, always use rosin core solder. Acid core solder is not advisable where small wires are joined because of corrosion which may take place. The joints should be heated to the extent that the solder will flow freely over the entire connection and when finished you will have a neat appearing joint, similar to the one shown in the drawing. Make sure your iron is clean, and if not, file it smooth, eliminating all pits and then tin it with a rosin core solder. Also, if you are using a mast with guy wires for supporting it, make sure that there are no loose connections in the guy wires; these will cause just as much noise and trouble as poor connections in the antenna itself. Keep the lead-in away from all metal objects so that there will be no danger of it coming in contact with metal. This will also cause a crackling noise in the receiver.

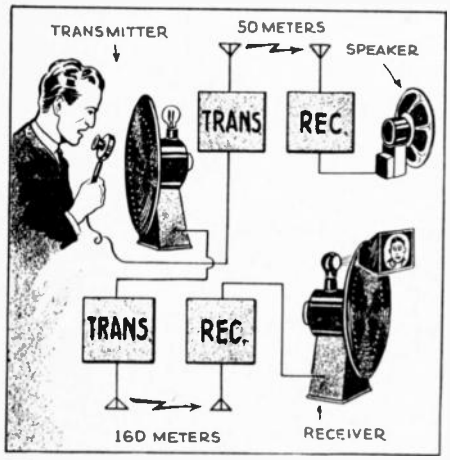
VOICE AND PICTURE TRANSMISSION

James Thompkins, Springfield, Mass.

(Q) Several years ago, when Television was more or less popular, I heard stations broadcasting Television and also heard them announce that the sound could be picked up on another frequency and I have been won-

ASKS

Only questions of general "Listener" interest will be answered here. No queries can be answered by mail. No diagrams of a technical or involved nature will be given here—only those which the Editors feel will be of value to the average nontechnical "Short-Wave Listener."



Simultaneous transmission of sound and image.

dering ever since just how this was accomplished. If it is not too much trouble, I would like to have you print the answer in your next issue of the LISTENER.

(A) The most practical method so far developed and one which was in use several years ago when Television was more popular than it is today, was the use of two separate transmitters and receivers. If you will refer to the drawing you will clearly understand just how this was accomplished. Two transmitters were used; over one of which the Television picture was sent, and over the other the sound was transmitted. In order to pick up both it was necessary to use two separate receivers. The early experiments were conducted on two different wavelengths, one was around 160 meters and the other was approximately 50 meters. This meant that one receiver had to be tuned to the 50 meter signal and the other was tuned to the 160 meter channel for reception of the picture. In the laboratories today, radio engineers are experimenting with apparatus which will send the picture and sound simultaneously with the use of a single transmitter.

ADDING A SPEAKER TO THE FAMILY RADIO

A. Jennings, Brooklyn, N. Y.

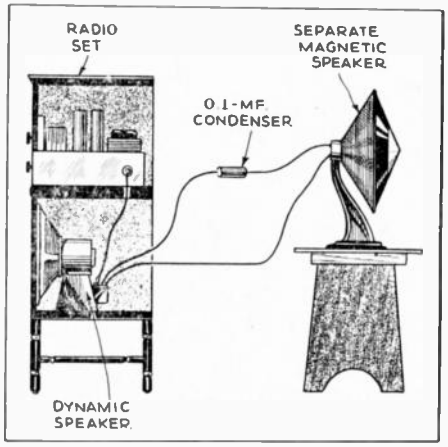
(Q) I am confronted with the problem of connecting an extra speaker to our radio and not being much of a radio technician I am turning to you for a simple solution to my problem. I have an old style magnetic speaker which I would like to use. Will you please be kind enough to print a diagram in the SHORT WAVE LISTENER.

(A) No definite diagram can be printed which shows just how to connect the speaker to your receiver, although, if you will follow these few simple suggestions you will be able to obtain the results you desire. Connect a .1 mf. condenser in series with one lead of your magnetic speaker, such as shown in the diagram. On your dynamic speaker you will find a transformer with three or four and possibly five terminals. Turn on your radio and tune in a station; then connect the wires from your magnetic speaker to any two of the terminals of this transformer. You may be fortunate enough to locate the proper ones the first time. However, if no music is heard in the magnetic speaker, remove one of the connections and try it on each of the remaining terminals. Somewhere in the combination you will find two terminals of the group which will give full speaker volume when the magnetic speaker is connected across them. Some experimenting will be necessary, but no damage can be done because the condenser protects the speaker. This condenser should have a rating of at least 600 volts.

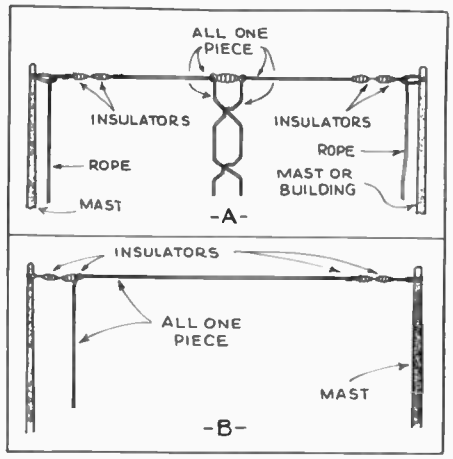
ONE-PIECE ANTENNAS ARE BEST

Harry Ricker, Pawtucket, R. I.

(Q) Some of my friends have told me that I should make my antenna from a single piece of wire with no connections or splices and others have told me that splices do not matter or affect reception in any way. Will you please be kind enough to put me straight on these?



Two speakers working from one radio.



How splices in antennas can be eliminated.

(A) This question has been asked a number of times by short-wave "Fans" and there is really only one answer. Wherever, possible, connections should be avoided; however, a good soldered joint such as shown in one of the drawings on this page will not make any difference in the operation of the antenna. The reason they should be avoided, however, is because there is always a chance of a poor connection if one is not thoroughly familiar with the art of soldering. In the drawings we have shown both the doublet and an inverted "L" antennas and you will notice that it is possible to make the doublet with two pieces of wire, having one of the lead-ins and one of the flat-top sections all one piece, just by running it through the insulator and twisting it one or two times around. The L antenna is constructed in the same manner. We advise our readers to follow these assemblies wherever possible, unless they are experts at soldering.

AUTO IGNITION INTERFERENCE

Dominick Polino, Hoboken, N. J.

(Q) I live in a very congested area where there is a tremendous amount of automobile traffic and I would like to know if there is any way in which I can reduce the noise or interference caused by the autos.

(A) About the only suggestion we can make is that you use some sort of noise-reducing antenna system and mount the antenna proper as far away from the street as possible.

owned by R. Gutierrez U., y Cia., in Managua. The 100 watt transmitter is said to have been transferred from the city of Granada, where it had formerly operated under the call-letters YNCRG. YN1GG may be found between HJ1ABB and YV4RC most any evening.

Listeners are likely familiar with the transmissions from the two San Jose, Costa Rica stations, TIEP, and TIXGP3. TIEP has long since sent out data in its verifications but until recently TIXGP3 has ignored reports of reception. Perhaps other fans may not have been so fortunate as to secure, as yet, one of the QSL-cards now sent out by Gonzales Pinto H., the owner. "The Queen of the Air," as the station is known, lists its frequency as "5777 kc," but it is to be found each night on 5820 kc, usually from 8-11 P.M.

The Republic of Panama has only recently entered the S.W. Broadcasting field but now two stations are making up for any time lost. HP5B, "Radioifusora Miramar" has already become famous through its transmissions on 6030 kc. The second Panamanian station, HP5J operates on 31.28 m. between 7:30 and 11 P. M. and is known as "The Voice of Panama"; clear English announcements, like those given on HP5B aid in identification but HP5J does not provide as good reception as does its sister station on the 49 m band; this situation may be reversed however, during the coming months. Those hearing HP5J should address them at Box 867, Panama City.

Proceeding to the continent of South America we shall attempt to clarify the existing broadcast situation there. Of the Colombian stations HJ1ABB, 2ABA, 3ABD, 3ABF, 4ABB, 4ABE and 5ABD are quite familiar to most listeners. Verifications from all except 3ABF of Bogota are to be found in the collections of most every SW fan; there is considerable news on other Colombian stations.

HJIABD, "Ondas de La Heroica" (Waves of Cartagena — the Heroic One), operates on an announced frequency of 7281 kc., having recently changed to this wave from the 49 m band in order to escape merciless interference from near-by stations which were using much greater power than 1ABD (the latter's transmitter gives a carrier power of about 100 watts). This station may be heard most any evening until the sign-off at 9.30 P.M., at which time the "Stars and Stripes Forever" is played; reports should go to Box 252 in Cartagena.

New Stations in Latin America

(*Continued from page* 107)

Situated in the same city is HJ1ABE, "The Voice of the Fuentes Laboratories," (Box 31). This station formerly operated on 7050 kc. (the writer has verification of reception of their test transmission on 16 metres, also), and was heard quite frequently in the USA. A new transmitter, a 150 watt Collins has been installed, and the frequency changed to 6115 kc. Though HJ1ABE may be heard daily its signals may best be enjoyed from 10.30-11.30 P.M., on Mondays, at which time a special DX program dedicated to various SW clubs of the world is sent out.

A station which has already been heard over a period of several months is HJ1ABG, "Emisora Atlantico" of Barranquilla, operating on an announced frequency of 6042.5 kc. Reception is best from 9-10.10 P.M., at which latter time the station signs off, giving clear announcements in English.

HJ1ABH, "The Voice of Cienaga" has been received between 8 and 10 P.M. (its schedule is on Tuesday and Friday) on about 47.8 m, and HJ1ABJ, "The Voice of Santa Marta," has been frequently logged from 7-9 P.M., broadcasting, and later, calling HJ1ABH, YV4RC etc., on 50.3 meters. Sergio Aparicio Jr. and Julio A. Sanchez T., are the owners of these respective stations and both appreciate reports enough to answer them with attractive verification cards.

In the second Colombian district we find that HJ2ABC, "The Voice of Cucuta" located in the city of Cucuta has recently returned to the air, after a long silence. This signal is to be heard from 6.30-9 P.M., and, at times, later, on a frequency of 5870 to 5880 kc., although this latter item is announced as "5975." Quality is greatly improved over that of this station's former transmitter and thus identification is more easily made. Reports go to the station director, Sr. J. A. Sanchez C.

The only station in the third district that may be termed "new" is HJ3ABH, "The Voice of the Victor" which operates on long and short waves simultaneously. Until recently this station operated on 5970 kc., with 150 watts power; about the first of the year the station director announced plans for a power increase and these plans seemed to have been completed for HJ3ABH is now heard with a very strong signal, on about 6015 kc.

The fourth Colombian district offers us more news; first, HJ4ABA, announcing as "Echoes of the Mountain," has been heard between 4 and 8 P.M., on about 11,700 and 14,100 kc. Quality and signal strength of this new station are very good. Although no definite address is given over the air ,reports addressed to Radiodifusora HJ4ABA, "Ecos de la Montana," Medellin, Colombia, should reach their proper destination promptly.

A second one should be noted from the fourth HJ district, namely HJ4ABC, "The Voice of Pereira," located in Pereira, Caldas. Programs are transmitted nightly from 7-8 P.M., and generally later on about 48 metres. Signals are quite good, considering the power, which is but 50 watts.

In addition a new but powerful station has been opened in the city of Manizales. It is to be found on about 6100 kc. from 5:30-7:30 P.M. daily and from 10.30-11.30 with a special DX program on Saturdays. Call and title are HJ4ABL, and "Ecos de Occidente" (Echoes of the West), and address Box 50 in Manizales.

About the only news from the 5th Colombian district concerns HJ5ABC, "La Voz de Colombia," which formerly operated on approximately 53.6 metres (though the wavelength was always stated as "58" metres, the engineer who ground the crystal stated that he had no means of actually checking the correct frequency of the transmitter, so thus, the error in calculating the wavelength!). Power has been increased from 30 to 150 watts, and the new station has been heard testing on 7005 kc.

In Ecuador there are several stations which though not entirely new, fall into the "mystery" class. HC2AT owned by the American Trading Co., Box 872, Guayaquil, operates with the very low power of only 15 watts but is heard with a fine signal between 8 and 10 P.M. almost daily.

HC2ET, "El Telegrafo," Casilla 249, Guayaquil operates on 4600 kc., or 65.2 m., each Wednesday and Saturday from 9-11:30 P.M. An interval signal of some 11 or 12 chimes aids in identification.

HCK was long supposed to operate on 53 metres or thereabouts, but, for many months has been shifting around from 50.5 to 52 metres. For some time this station has remained very close to 5730 kc., and may be heard from 8-10 P.M. daily with the possible exception of Sunday.

Some weeks ago the fans of the USA were aroused by the appearance of a new Quito station using the call HC1JW and HCETC. The real call has proven to be the latter, whereas the former call is that of the station engineer.

Short Wave Beauties from Holland

(*Continued from page* 100)

sists of classic and light music, lectures, news bulletins, cabaret, sports, etc. etc., whilst variety must be its chief essence. The letters written by the listeners-in prove that the programs are meeting expectations.

For the broadcasting of its concerts, the Phohi engages an excellent orchestra. Moreoever, every fortnight on the Thursday, the famous "Residentie" orchestra, with the colaboration of well-known artists, plays before the Phohi-microphone.

Practically every Sunday, with the collaboration of well-known artists, a one-hour transmission is arranged by the Roman Catholic Broadcasting Association.

The announcer takes a very big part in the sports program and the daily routine. Thanks to the pleasant manner in which he carries out his difficult task, the announcer, Edw. Startz, has gained a popularity which many a film star or sports record-holder might envy. His particular forte is the free and easy way in which he addresses his audience in seven different languages.

King's Jubilee

(*Continued from page* 104)

Cathedral in London, and bottom right, the jubilant throng witnessing the passing of the Royal Carriage; finally, in the upper right hand corner, we see one of the control panels through which, to the various countries, was routed the happenings of that memorable day.

Just imagine that in the days of King George's father, it would have required hundreds of speeches to address the great number of people who heard this Silver Jubilee broadcast. As the Prince of Wales mentioned in one of his recent broadcasts, *short wave* radio has probably done more than anything else to bring closer together the various possessions which go to make up the far-flung British Empire.

The weeks of preparation for this broadcast by the B.B.C. have surely been compensated for by the tremendous success of the broadcast. Several members of our staff heard the various programs broadcast direct from London by *short waves* and remarked that the strength and clarity of the transmissions were quite unusual and thoroughly enjoyable.

Thomas J. Taaffe, Jr.

(*Continued from page* 117)

LU8AB, VE9GW, CJRX, FG7 and several stations here.

Other stations heard but not verified as yet: OAX4D, TIGP3, HJ2ABC, HJ4ABE, HJ4ABL, YDA, CO9GC, H11A, YN10P, HIL, VP1FR, HJ3ABD, VUB, TI4NRH, HAS3.

I have been interested in radio for a good many years and I am a member of the *Short Wave League* the *Short Wave Club of New York*, the *International DX'ers Alliance* and the *Society of Wireless Pioneers*.

Thomas J. Taaffe, Jr.
29 Valley Ave.
Elmsford, New York.

How to Get Best Results From Your S-W Set

(*Continued from page* 110)

ing noises picked up from the outside can be reduced by turning the *tone control* to the point where the high-pitched notes are reduced in volume.

Too much cannot be said about the amount of care which should be exercised in operating any radio receiver. If you have a set with automatic volume control, make absolutely certain that you have tuned the station in properly. If the dial is set *off to one side* of the station, the automatic volume control action of the receiver is not effective and although the station can still be heard quite loud, the general background noises are amplified to nearly the full capacity of the receiver.

Swing the dial back and forth until you are absolutely certain that you are in the center of the station and at that point where the outside noises are at a minimum. Extreme care should be exercised when tuning across the short-wave bands in search of distant stations, especially with receivers employing automatic volume control, because when the set is not tuned to a station the amplification of the receiver is maximum and all of the background noises come in at full volume. It is very easy then to pass over a station and not even know that it exists. When tuning across the band, tune *very, very slowly* and if you should come to a point where the background noise takes a sudden drop in volume level, you can be most certain that this is a station and although there may be no speech or music coming through at that particular moment, you should remain at this point for a short length of time.

What About Television?

(*Continued from page 109*)

if our engineers had kept at it. At the present time there are a few television stations broadcasting daily programs (27 are licensed) which are being picked up by experimenters equipped with mechanical scanners and short-wave television receivers, the images at present usually being built up with 50 or 60 line scanning.

The cathode-ray image transmission of Philco, Farnsworth, and R.C.A., will use probably no less than 250 lines and 400 lines have been rumored, which of course will give us an image comparing in clarity to those produced by our home movie projectors—a very satisfactory image indeed.

A recent report which the writer obtained mentions that television broadcasting in Germany has already started on a *daily program* basis, with cathode-ray scanners in use by the public. The programs include movie film transmission, as well as studio-spot-light pick-ups.

Television transmission in Germany is being carried on over a 7 meter short-wave band; at present the principal station is located in Berlin and the images can be picked up over the entire area of that city. The German television activities are centered in the organization known as *Fernseh* and one of its television transmitters has been in regular operation for two years. The Fernseh is said to be the only firm which has delivered commercial television transmitters on the continent of Europe. The German government has helped the television industry by the appropriation of considerable sums of money. An interchange of certain patents between the American and German television experts has now been arranged.

Tomorrow television will prove an indispensable everyday necessity, which will be found in every home and office, and we can rest assured that one of the principal commercial applications of perfected television will be the sale of merchandise of every description, from automobiles to ladies' gowns and hats, pictures of which will be spread before us on our television screens, right in our home. Don't forget that television in colors has already been demonstrated in England by the Baird experts and also by our own Bell Telephone Laboratory experts, headed by Dr. Herbert E. Ives. Another development of the televisor of tomorrow will be the reproduction of images in relief or perspective; stereoscopic or binocular television has also been demonstrated in England.

When public television comes a little closer to realization, there may be a feeling on the part of prospective purchasers of regular radio receiving sets, that they had best hesitate before investing in a new set, with the idea that television will be combined in the new model receivers offered them. This undoubtedly will not be the case at all, as it now appears that the 5 to 7 meter waves will be used for transmitting the television images. Without a doubt, a secial television receiver cabinet will be the apparatus you will buy, for some years at least, which will contain a special 5 to 7 meter receiver set and amplifier, together with the cathode-ray tube and the necessary oscillator control circuits used for propelling the cathode ray back and forth across the screen as it scans or builds up the image. In other words, there will be no similarity at all between the ultra short-wave television receiver and its associated scanning apparatus, and the present type of broadcast receiver. Thus, you will require both a broadcast receiver with which to hear your regular broadcast programs on, the same as you do now, plus the *television* receiver cabinet for the 5-meter waves.

Many people have asked the question of whether two different wavelengths or frequencies will still be required to transmit the image and the accompanying voice signal. While this 2-wave system has been followed in the past (with the exception of the doubly modulated single wave used by the C.B.S. television system just before it ceased operation, about one and one-half years ago) with the recent advent of the new *frequency-modulated* ultra short-wave transmitting and receiving system, devised by Major Edwin Armstrong, it will be easily possible to transmit the voice and image on a *single* wavelength.

Best S-W Stations

(*Continued from page 127*)

Station		
6010 kc. *COC -B- 49.92 meters P. O. BOX 98 HAVANA, CUBA Daily 9:30-11 a.m., 4 7 p.m. Sat. also at 11:30 p.m.	5970 kc. HJ3ABH -B- 50.25 meters BOGOTA, COLO. APARTADO 565 7-11 p.m.	5890 kc. HJ2ABC -B- 50.97 meters CUCUTA, COL.
6000 kc. RV59 -B- 50 meters MOSCOW, U. S. S. R. Daily 3-6 p.m.	5968kc. HVJ -B- 50.27 meters VATICAN CITY (ROME) 2-2:15 p.m., daily. Sun. 5-5:30 a. m.	5850 kc. *YV5RMO -B- 51.28 meters MARACAIBO, VENEZUELA 5:15-9 p.m.
5990 kc. *XEBT -B- 50.08 meters MEXICO CITY, MEX. P. O. Box 79-44 7 p.m.-1 a.m.	5950 kc. HJ1ABJ -B- 50.42 meters SANTA MARTA, COLO. 11 a.m.-1 p.m., 7-9 p.m.	5825 kc. TIGPH -B- 51.5 meters SAN JOSE, COSTA RICA 6:15-11 p.m.
5980 kc. XECW -B- 50.17 meters CALLE del BAJIO 120 MEXICO CITY, MEX. 4-4:30 p.m., 10:30 p.m., 12 m.	5950 kc. HJ4ABE -B- 50.42 meters MEDELLIN, COLO. Mon. 7-11 p.m., Tues., Thurs., Sat. 6:30-8 p.m., Wed. and Fri. 7:30-11 p.m.	4600 kc. HC2ET -B- 65.22 meters Apartado 249 GUAYAQUIL, ECUADOR Reported Wed., Sat. 9-11:30 p.m.
5980 kc. HIX -B- 50.17 meters SANTO DOMINGO, DOMINICAN REP. Tues. and Fri. at 8:10 p.m. Sun. at 7:40 a.m., irreg. Tues. and Thurs.	5940 kc. TGX B- 50.5 meters SR. M. NOVALES, GUATEMALA CITY, GUAT. Daily except Sun., 8-10 a.m., 1-2:30 p.m., 8 p.m.-12 m.	4273 kc. RV15 -B- 70.20 meters KHABAROVSK, SIBERIA, U. S. S. R. Daily, 3-9 a.m.

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