

**OFFICIAL LOG-NATIONAL ASSOCIATION OF ARMCHAIR ADVENTURERS**

**TELLS WHEN, WHERE AND HOW TO ENJOY ARMCHAIR ADVENTURE VIA SHORTWAVE RADIO LISTENING. PROVIDES LOG FOR LISTING EACH EXCITING LISTENING ADVENTURE.**

Price: \$1.

**National** Distributed by: National Co., Inc., Malden 48, Mass.





**S**ince early in World War II, 9 out of 10 U. S. Navy Ships have been equipped with radio equipment designed and built by the National Company.

Despite storms and salt spray — despite the jarring shocks of gunfire — despite static and earth-girdling distances — these sensitive, yet rugged “ears” of the fleet picked up vital messages, 24 hours a day, months on end.

Similarly, other National radio equipment dependably services other branches of the armed forces, the Bureau of Standards, the Civil Aeronautics Administration, communication companies, industry and radio amateurs throughout the world.

One of the oldest communications companies in America, National built the first superheterodyne radio receiver for the U. S. Navy. Today, National Co. is the first to adapt the secrets of the atom to communications with the development and manufacture of the ATOMICHRON® . . . the first commercially available Atomic Frequency Standard. This outstanding contribution to science is the key to the communications systems of the future.

Out of this hard core of specialized technical experience — unmatched by any other Receiver manufacturer — National has produced an enviable reputation.

**National**  


Since 1914

# All About Shortwave Listening

By JACK GOULD *Radio-TV Critic, New York Times*



**D**O YOU want an exciting and fascinating adventure in your own home? That is what short wave radio offers. With the flick of a switch and the twist of a dial you can roam the world. Night and day hundreds of programs are carried across oceans and continents and brought into your own living room.

On short wave radio there is something for almost everybody; it depends on what you want to hear. There's entertainment — symphony orchestras from the capitals of the world. There's knowledge and information — news and commentary that provide an absorbingly varied insight into international affairs.

There's a hobby — the game of trying to hear every country in the world or eavesdropping on the amateur radio operators who chatter back and forth over thousands of miles. There's the fun of being a parlor detective or the "supervisor" of a control tower — listening to police alarms or overhearing airplane pilots report their positions over the Atlantic and Pacific.

Short wave radio, in a word, opens new vistas for the inquiring listener. Merely to hear familiar local radio stations is to miss out on a major treat of the broadcasting art. For little expense and trouble there is the whole world to choose from.

Getting started in short wave radio depends on the state of one's pocketbook and the extent of one's interest; there are receivers for every purse and taste.

The Superheterodyne (short-wave) receiver affords vastly increased volume, greater ease of tuning and more ability to pick up distant stations. The simplest superhets come in the \$50 to \$60 bracket. For the prospective short wave listener who wants maximum service with the least fuss for reasonable cost these sets make a good starting point.

For every additional dollar spent, however, further advantages may be enjoyed. More extensive circuitry can aid in keeping short wave stations separated one from another, amplifying those tantalizing small voices coming from parts unknown, and minimizing spurious signals which often have a habit of turning up rather inconveniently.

The addition of a second stage of intermediate frequency amplification may bring the cost of a receiver up to \$80 or so. Moving up to the category of \$100 to \$200 makes it possible to obtain receivers with a stage of radio frequency amplification, which aids sensitivity and selectivity very substantially.

For \$200 or more there is a wide choice of superb



Radio Japan broadcasts schedules in English, in addition to programs of traditional Kabuki music, above.

receivers, though some are designed solely to cover the bands of interest to amateur radio operators rather than the channels assigned for general international broadcasting. A super-duper short wave set that not only does just about everything electronically but practically cleans up the house and puts out the cat can be ordered for \$1,500.

In weighing the cost of short wave sets it is well to remember that in a popular sense they represent two receivers in one. Virtually all SW sets cover regular broadcast stations with their familiar output of rock 'n' roll, soap operas, disk jockeys and commercials; short wave radio is something added.

One of the major differences between regular radio and short wave is that stations on the international airwaves are badly crowded together. This means that some form of bandspreading is virtually indispensable. The bandspread tuning dial, as the name suggests, spaces the stations out so that an Englishman in London can discuss the joys of gardening without interruption by the young lady in Moscow who reads the Soviet manifestos.

Once a set has been bought, there is the matter of an aerial. In many locations fifteen feet of wire draped around the room will bring the voices and melodies of many lands into the house. An antenna out in the open, particularly if a listener lives in an apartment house with steel girders, generally proves most satisfactory. In addition, a set of earphones will be helpful to hear weak stations.

Even though the art and technique of short wave radio goes back many years, it is still an awing and exciting experience to turn on a short wave receiver for the first time, tinker with the dial and suddenly hear the chimes of "Big Ben" striking the hour in the tower of the House of Parliament in London. It makes the world seem uncannily tiny.

But to obtain maximum pleasure from a short wave receiver — and to understand the language commonly used over the air — familiarity with a few words and phrases can be helpful.

It may be asked, "What is a short wave?" A radio wave can be likened to an ocean wave. At the beach you have seen a wave go up and down, up and down. Each time it completes an up-and-down motion it is said to have gone through one cycle. If ten waves come along in a second's time we can say they have a frequency of 10 cycles. If there were a hundred waves, their frequency would be 100.

At the beach you have seen waves come in very slowly; the distance between one wave and the next is long. But if hundreds of waves hit the beach you will see that they arrive one after another very quickly; the distance between waves is short. The distance between the top of one wave and the top of next is the length of the wave. In other words, the higher the frequency of the waves, the shorter their length.

What a broadcasting station does is push radio waves out into space. And each series of radio waves can be identified either by its frequency or by its length; one determines the other.

In radio a cycle is not too handy a word. Radio waves move so quickly that the words "kilocycle" (a

thousand cycles) and "megacycle" (a million cycles) are used. The length of waves could be measured in inches or feet but since most of the world follows the metric system the wave lengths of short wave stations are expressed in meters (1 meter equals 39.37 inches).

The regular radio set that picks up local broadcast stations covers the range from 540 to 1,600 kilocycles, or 555 to 187 meters. Short wave sets run from 1.6 megacycles to at least 30 megacycles, or 187 to 10 meters. Many short waves go even higher in frequency, adding to the number of stations that can be picked up.

But the intriguing aspect of the short waves — and the heart of their usefulness — is their delightfully crazy behavior. Depending on whether it's day or night, winter or summer, this year or next, short waves travel different distances. On short wave radio it may take only 40 watts of power to send the human voice from Chicago to Wellington, New Zealand. On regular radio a power of 50,000 watts would not make the jump.

The miracle of short wave radio comes about through unseen "electronic mirrors" that rise and fall in the sky and reflect short wave signals back to earth over vast distances. These characteristics of these "mirrors" have fascinated scientists for generations and were one of the prime reasons for establishing the International Geophysical Year. The satellites that have gone whirling around the earth have afforded fresh knowledge about short waves. If a new short wave listener is sometimes puzzled by the vagaries and uncertainties of short wave signals, he is in the best of company.

But the enigma of the short waves only adds to the interest and fun of exploring them. Unlike other forms of radio, they are used for many different purposes, not only program broadcasting.

Leave behind the upper limit of regular radio around 1,600 kilocycles and a listener is immediately introduced to a veritable babble. Yachts and tugs, police alarms, weather bulletins of the Coast Guard, aviation stations galore and vessels plying the Ohio and Mississippi Rivers can be heard.

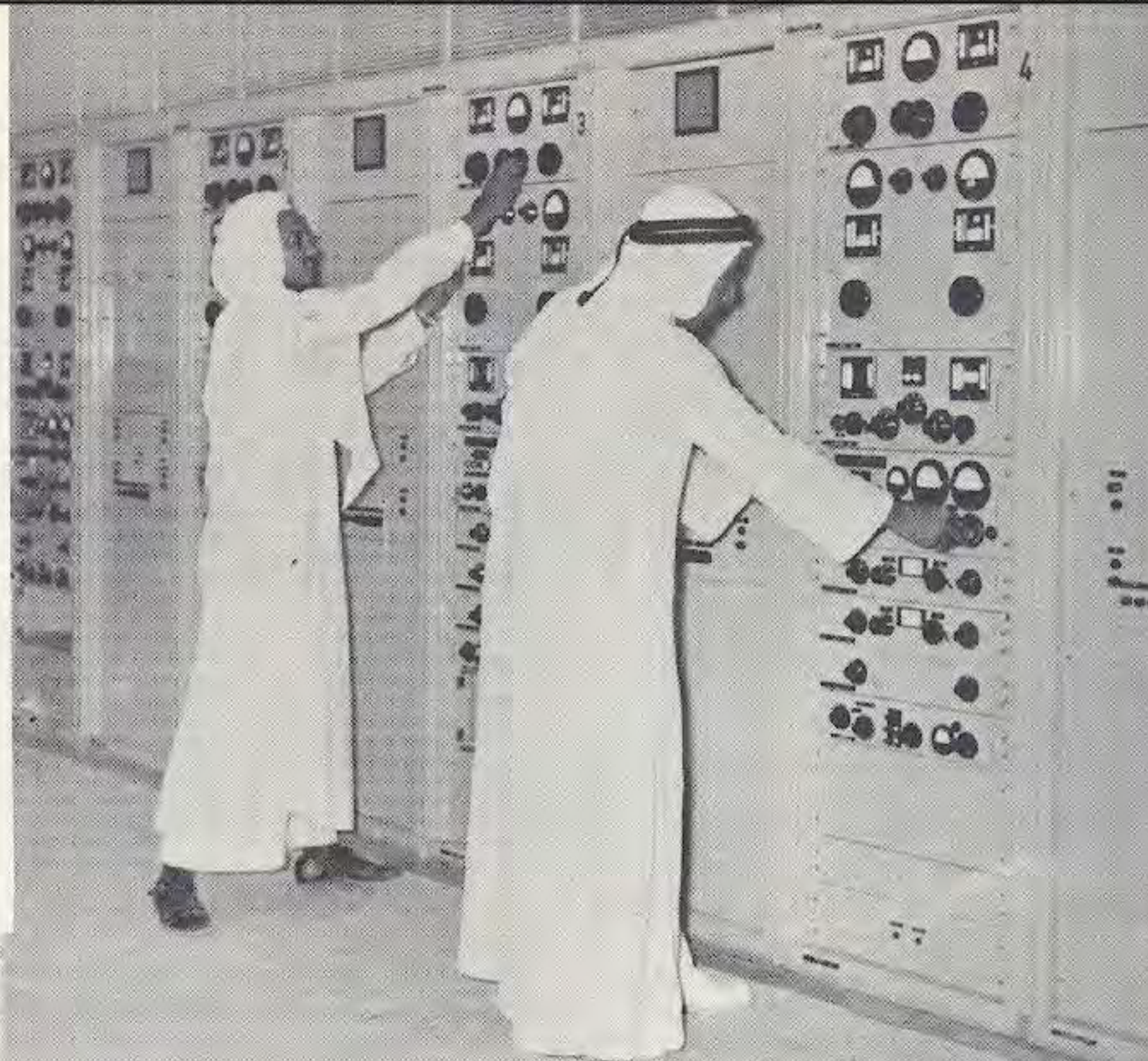
Want to know the correct time to the split second? Tune in the National Bureau of Standards (Station WWV) on either 2.5, 5, 10, 15, 20 or 25 megacycles. Or the Dominion Observatory in Canada (3.33, 7.33 and 14.67 megacycles).

The international stations come in clusters — on the 6, 7, 9, 11, 15, 17, 19, 21 and 25 megacycles bands. The trick is to try one band first, then the other until the best reception is found. Upwards of sixty languages are employed on the airwaves but almost every country now has some service in English.

The larger countries of the world have transmitters working on several bands simultaneously so do not be surprised to hear the same program in many different spots on the dial. The hobbyist may wish to hear just enough to identify a station definitely and then go on to the next country; the first hundred countries are the hardest!

But short wave radio can be much more than a game. Weary of commercials and desiring radio of some substance? Try the British Broadcasting Corporation, which has news, talks, games, plays and concerts and discussions of an extremely high order. The whole pace

Technicians in United Arab Republic tune transmitters which broadcast Arab views on troubled Mid-Eastern developments to many other nations.



Listeners who acknowledge hearing a broadcast by mail, often receive in return colorful and exotic QSL cards which confirm the shortwave contact.

SWEDISH  
FVL STATION

SM 7

-2443

QRA. Arne Andersson

1958

UNIVERSAL AND INTERNATIONAL EXHIBITION

BRUSSELS

ON 4-DR

QRG: 4.737 MHz RES  
Modulation: FB  
QTH: Franklin Square, N.Y.  
TNX/PSE QSL Direct or via  
U.S.A. P.O. Box 634, BRUSSELS  
Input: 25 10475  
73  
Optr. G. G. G.

AFRICAN

ZS6D

WILLIAM  
THE SHACK  
BRAMLEY, J

To Radio  
UR... M  
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73

I 1 BDV

Avv. G. Sabbatini  
Via Metastasio, 10  
TORINO

HB 9 J

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DELAMERE AVENUE, P.O. Box 699  
SPECIALIST IN BIG GAME & PHOTOGRAPHY  
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QSL MCA Bd.  
Q4 R.H. QSB  
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Stephen S. Barnes  
BOX 1119  
Anchorage, Alaska

7 D E T A T

BERMUDA ISLANDS

IVOR GRANT  
VIDAVILLE SOMERSET

W L V P S

OQ5EB

CT1FI

WOODMERE INN

of BBC radio is leisurely and enormously civilized; it can be quite a change from television.

Let there occur a world crisis and short wave listening is a primer in the trials and tribulations of modern society. Take the same news item and listen to how it is handled by the Voice of America, Radio Moscow, London, West Germany, Radio Bucharest, Radio Cairo, Radio Stockholm, the Voice of Zion in Jerusalem and the French Broadcasting System over Radio Brazzaville. Contrasts in emphasis and concern can be illuminating.

The SWL can hear for himself the Soviet jamming of the Voice of America; it resembles a million buzz saws working at once. If your interest lies in the United Nations, often you can hear the full proceedings in the 21 megacycle band, though not in all parts of the country.

Or perhaps one's taste may run to a reflective commentary on rural life in Scandinavia, some European jazz from Holland, the nightly rate of currency exchange as reported by Switzerland, lovely symphonic music from West Germany or an account of the latest happenings in Australia. Trying to learn a foreign language? There's no better place for some extra practice than short wave radio.

On 8.9 megacycles it is possible to hear the trans-Atlantic airplanes reporting into Idlewild Airport in New York, Gander, Newfoundland, and Shannon, Ireland. Interest can be further enhanced by use of a map to pin-point the latitude and longitude of a plane's location.

Morning, noon, and night there are the amateur radio operators. Mostly, their talk is of a technical nature but frequently one can overhear revealing remarks on different ways of life in various parts of the world. In terms of cordial and fruitful international relations the

"hams" could give a lesson to the statesmen of the world.

Not the least of short wave radio's attraction is its attraction for the younger generation — and indeed for adults — who either want a career or a hobby. The dial is a bedlam of code signals and sooner or later one's curiosity is pricked by what is being transmitted. Moreover, there is the endless fascination of perhaps trying a different aerial or adding a piece of supplementary equipment that will improve a set's performance. From there it is but a short step to study of the theory of electronics. Many outstanding engineers and scientists of today can harken back to their early experiences as an "SWL."

**G**ETTING the most out of a short wave radio receiver is like getting the most out of a car; it helps if you know how to run it.

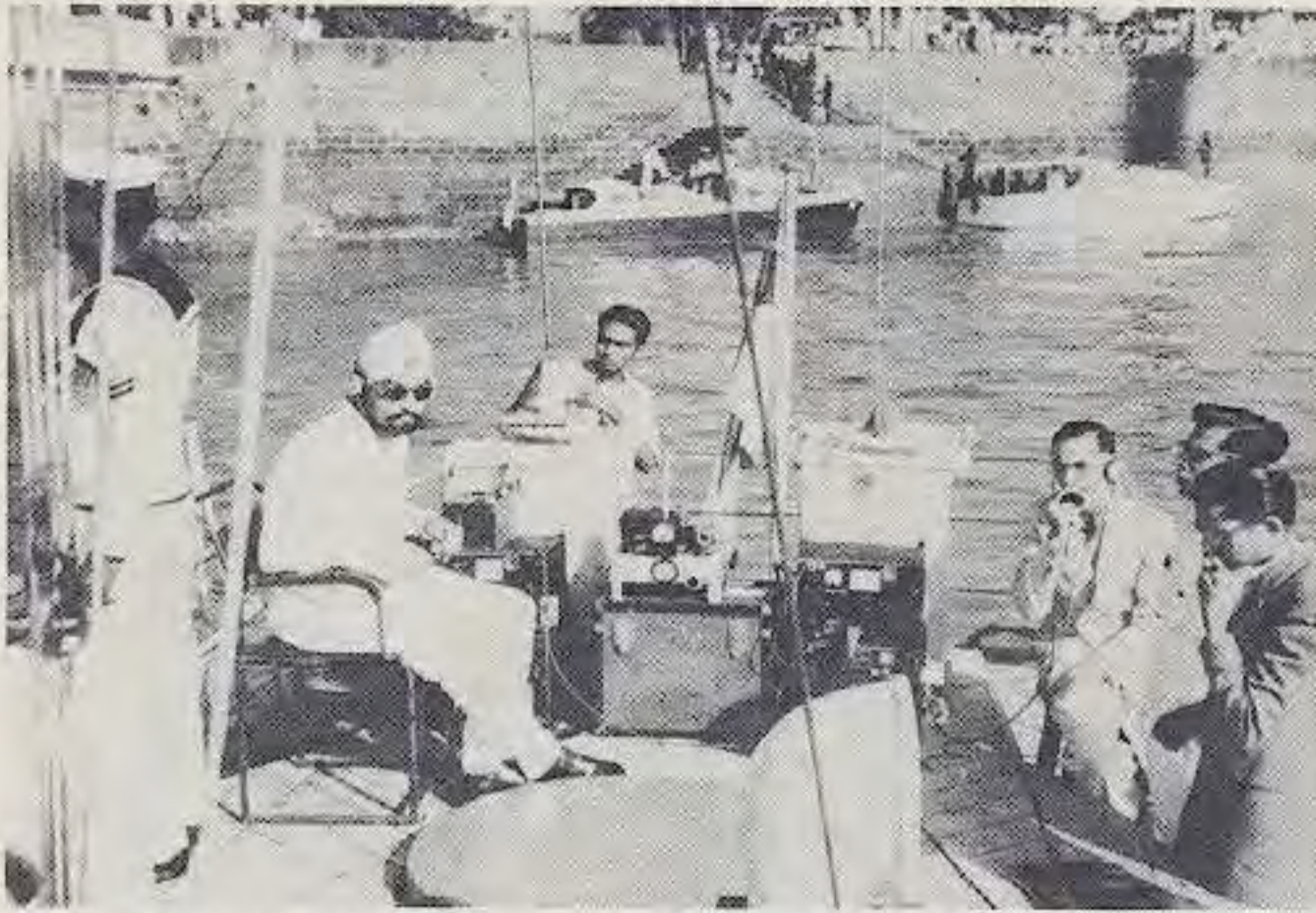
With a regular broadcast set that picks up the familiar standard stations in one's locality it is common practice to whisk the dial across the range of transmitting outlets. Usually, the more powerful stations are spaced sufficiently apart so that it is no trick to find one's favorite program.

If the same method of tuning is followed in short wave radio the set owner is apt to think he has eavesdropped on a convention of peanut vendors. The bedlam of whistles, squeals and howls may make him wish Marconi had taken up knitting rather than electronics.

In short wave radio there is a basic admonition that governs tuning: take it easy. The main tuning dial should be turned with infinite patience and deliberation. The dial marker itself — a mere fraction of an inch in width — may span two or three separate stations. Quite literally a broadcast from London may be removed by only a hair from a transmission from Mos-



Variety in listening adds spice to your home entertainment. A twist of the dial can bring in All India Radio performers half-way around the world.



On-the-scene special events, such as shipboard broadcast from India, can be tuned in at home.



The world also listens to us. Moscow radio club members do not own equipment, but share its use.

cow or Stockholm. Realistically, the main tuning dial should be considered as something of a precision instrument to be moved with great delicacy and care.

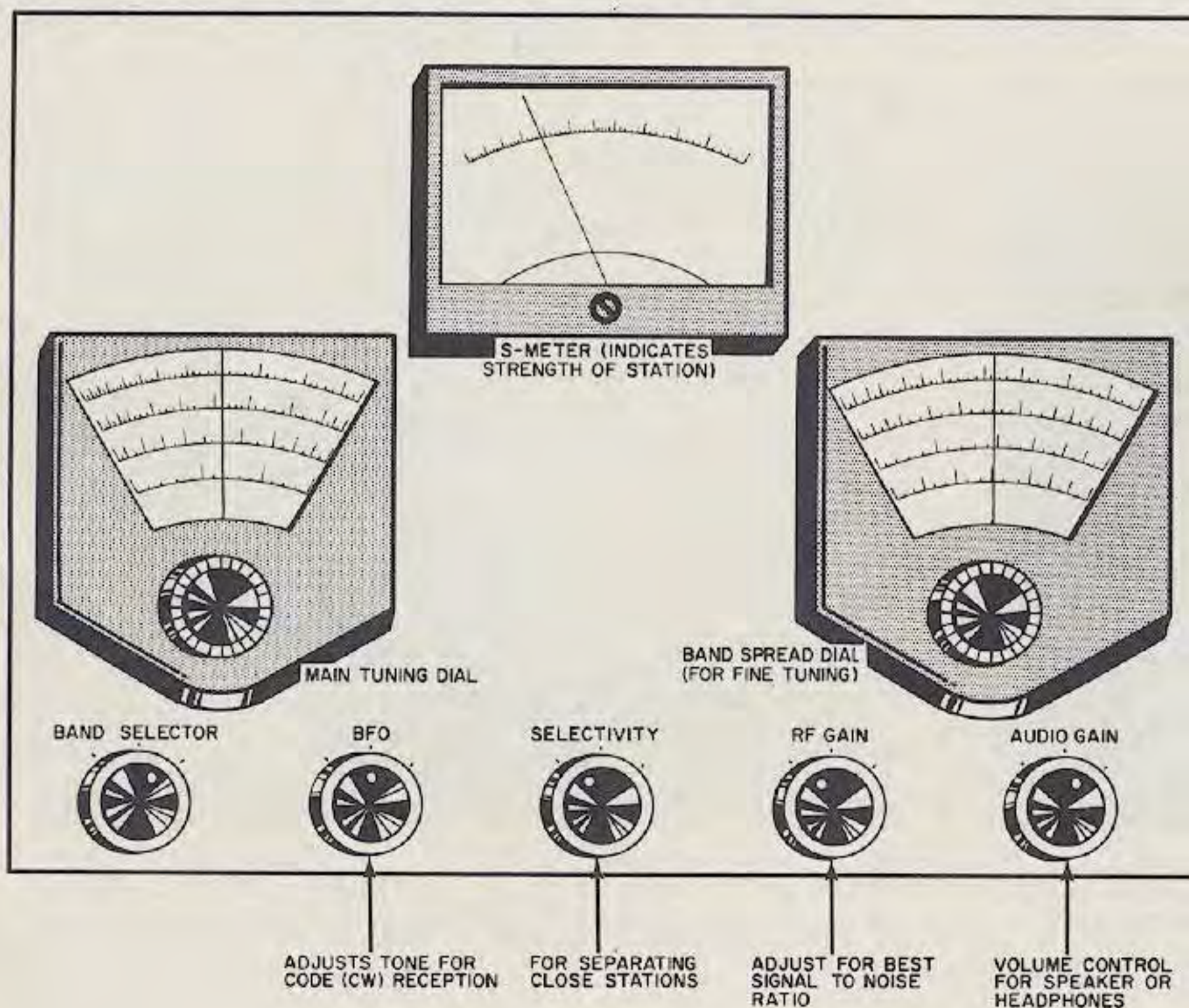
On short wave radios designed primarily for reception of international broadcasts, as opposed to those which treat short wave as something of an added sales "gimmick" for a conventional set, engineers have substantially eased the tuning problem. This is done by a supplementary tuning dial known as the bandspread dial.

The main tuning dial may be set at a given frequency, say 10 megacycles. Then the bandspread dial may be employed to tune in stations immediately below that frequency. Not even the bandspread dial will guarantee complete freedom from overlapping stations — the overcrowding of the short wave spectrum in itself is a matter of international concern and often antagonism

among nations. But the supplementary dial does aid enormously in providing reception pleasures.

There is another fundamental trick to short wave tuning. On a conventional set the channel on which a station broadcasts may be regarded as a letter "V." The station is properly tuned when the tuning dial hits the bottom of the "V." Rock the tuning dial of any set — slowly pass back and forth through a station — and a listener can tell by ear when he has hit the "notch." In short wave a measure of "cheating" may be both desirable and necessary. If interference from a second station is encountered when tuning to the "notch" adjust the tuning dial so that it is just a shade off center. This may cause the voices and music to sound a bit higher than normally but it can be a helpful way to avoid interference.

After a short wave listener has had his first experi-



Additional dials on face of short-wave receiver serve to capture weak signals and help minimize effects of static and interfering stations on the desired signal.

ence in hearing a voice from thousands of miles away he is almost certain to be bitten by the bug for "DX." This is the code abbreviation for the word "distance." Once a short wave listener has his set in operation, he quickly becomes conscious that he is the possessor of an instrument that performs differently under different conditions and circumstances.

In this regard there are several factors worthy of mention: (1) The aerial for a short wave receiver; (2) Knowing when and where to tune; (3) Calculation of the global differences in time; (4) How to prove to skeptical friends that, via radio at least, you know your way around the world.

The choice of an aerial for a short wave receiver usually involves a certain amount of elementary experimentation for the attainment of maximum results. Not even the most gifted scientist can know in advance the precise location in which a set is to be used and its local electronic advantages or disadvantages. The embryo do-it-your-seller, be he eight or eighty, should have no difficulty in fixing up a satisfactory antenna.

With the popular superheterodyne type of receiver it is often necessary to use only fifteen or twenty feet of wire to hear a good many countries. In fact, sometimes a short antenna may have an advantage in that it tends to cut down the volume of some near-by stations that either come in too loudly or tend to "splash" all over the dial.

But a longer straight wire often is helpful. If you can string up thirty to fifty feet of antenna wire from a tree to the side of the house — the wire should be "interrupted" by glass insulators at either end — and lead it to the aerial post on the receiver, distant stations generally will be heard more clearly.

The short wave fan in due course may find different types of aerials fascinating to play around with but at the outset there is a more important matter. In short wave radio different frequencies are heard better at

different hours of the day during different seasons. Similarly, different frequencies are employed to reach different parts of the world. For instance, the British Broadcasting Corporation, which conducts a round-the-clock short wave service to all parts of the world, uses 177 different transmitting aerials on multiple frequencies to furnish the best possible signals everywhere. The Russians employ even more, it is said.

After using a short wave set for a few days a listener soon becomes acquainted with the virtues and defects of different frequencies. As a general rule, if you wish to hear distant stations between dawn and mid-afternoon you should tune to stations operating on such frequencies at 17 megacycles (16 meters) and 15 megacycles (20 meters). From mid-afternoon until after darkness you should move to lower frequencies — 11 megacycles (25 meters) and 9 megacycles (30 meters). In mid-evening you find that 7 megacycles (41 meters) and 6 megacycles (49 meters) come "alive."

But these suggestions should not be regarded as inflexible. Short wave radio has a habit of not following any set rules for too long and you should try different frequency bands at different hours of the day to become familiar with the vagaries of short wave transmission. It may be nighttime where you live, but daylight where a station is; so try the higher frequencies as the spirit moves you.

Enjoyment of short wave radio can be enhanced if a listener keeps his own personal log. This can be divided into two parts. One part may list every new station heard; it's wise to note the time, the day, the month, the approximate frequency on which the station was heard, and some indication of the individual dial settings. The second part — divided into the seven days of a week — can be used for jotting down different programs worthy of rehearing.

An important point to remember in connection with short wave reception, however, is that it does not have

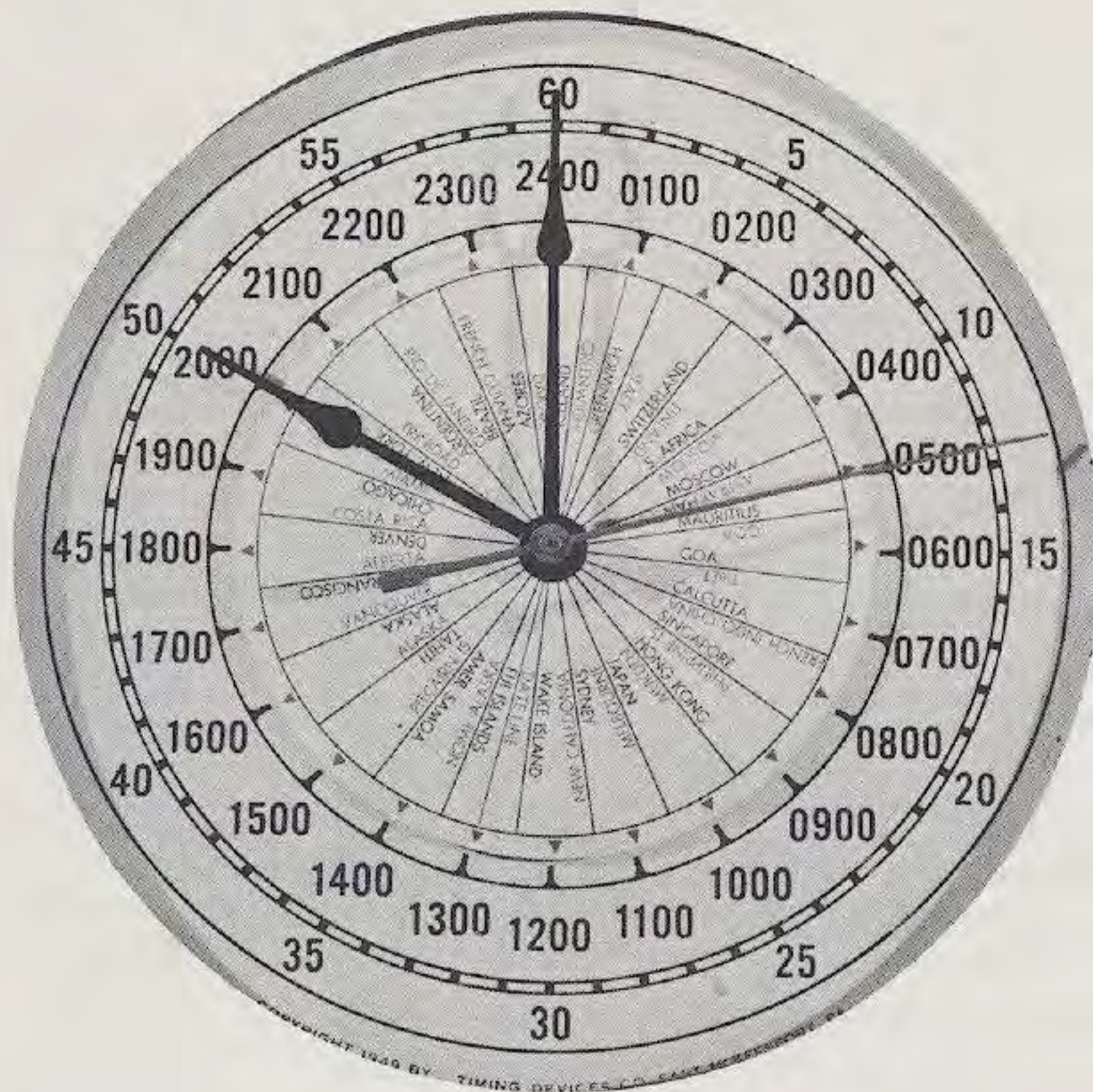


Israeli disk jockey spins platters of his nation's music. His equipment is somewhat newer than . . .



. . . jury rig deep in heart of once isolated Tibet. Short-wave radio brings nations closer together.





The 24-hour clock helps listener keep track of schedules, enables him to log programs accurately. Minute and second hands remain universally the same, but hour differs from zone to zone. International point of reference is Greenwich Mean Time (G.M.T.), the time at Greenwich, England. You should determine the difference between G.M.T. and your local time zone. International time-telling is based on 24-hours rather than 12. Instead of repeating cycle, 12 hours represent only half of clockface. One p.m. would be 1300, and time of 2000 (four hours short of 24) would be 8 p.m. in lay language.

the same reliability as normal radio. There are days when almost all stations are "blacked out" for several hours or even days; this condition is due to atmospheric conditions and affects the most costly receivers as well as the least expensive. Don't assume your set is broken just because only a few stations are heard or distant outlets have poor volume. Conditions can change for better or worse rather quickly; sometimes it is only necessary to switch to another frequency.

If the taste of a short wave listener does not lean to international broadcast stations, there are always the radio amateurs, better known as "hams." These hobbyists seemingly seldom go to bed and can be heard chatting on one band or another practically around the clock. Others communicate through the international Morse code. Among the bands assigned to "hams" in the United States are 3.5 to 4 megacycles (80 meters); 7 to 7.3 (40 meters); 14-14.35 (20 meters); 21-21.45 (15 meters); and 28-29.7 (10 meters).

Some short wave listeners enjoy collecting cards verifying reception of foreign stations. To obtain cards it is up to the "SWL" to be as helpful as he can to the station. First, he should list exactly what he heard, the name of a speaker, the title of a song during a reasonable portion of the program. He should indicate the exact time — in Greenwich Mean Time (G.M.T.), incidentally — when he was listening. He should list the model of his receiver, the number of tubes it contains, the type of aerial, etc. Most important, he should report whether the station was heard loudly or softly in comparison to other broadcasts, whether it was steady or erratic in strength, whether there was much interference, and any other information of assistance to an engineer.

In the case of some short wave stations verification cards are mailed out at the broadcaster's expense. But in other instances the listener must include an international reply coupon, obtainable from the post office. Return postage and a self-addressed envelope always should be included if a listener seeks a verification card from a radio amateur; the hams live on a budget, too. Some countries are very indifferent to reception reports and may not send out cards even after repeated pleas. But enough countries follow the practice so that a short wave listener may decorate his den with many souvenirs of hearing the faraway reaches of the globe.



Ham radio Red Cross volunteers often pitch in where needed to provide mobile communications at disaster scenes. They can be heard on your home receiver.

Listed on this and the following pages are the major locations in the world from which short wave broadcasts emanate. This list is not complete, no list ever can be. There are constant changes with regard to time of broadcasts and frequency. You may never hear some of the stations listed here, on the other hand, you may pick up some stations not listed, this is part of the excitement of short wave listening.

The times given are in GMT (Greenwich Mean Time). Subtract 5 hours if you are in the Eastern Zone, 6 hours if in the Central Zone, 7 hours if in the Mountain Zone and 8 hours if in the Pacific Zone. The frequencies are in megacycles.

COUNTRY	CITY	STATION	FREQUENCY	TIME (GMT)
Aden.....		Aden Broadcasting Service.....	7.17	1430-1500
Afghanistan.....	Kabul.....		18.64	1500-1630
Albania.....	Triana.....	Radio Triana.....	6.9	{ 2200-2230 0430-0530
Algeria.....	Algiers.....	Radio Algerie.....	11.835	2000-2145
Andorra.....	Roc de Les Anelletes.....	Radio Andorra.....	5.978	2030-2230
Angola.....	Luanda.....	Radio Angola.....	9.765, 11.862	2300-2345 (Sat.)
	Benguela.....	Radio Clube de Benguela, CR6RF.....	9.502	1300-1700
Antigua.....	St. Johns.....	Radio Antigua.....	3.255	1000-1100
Argentina.....	Buenos Aires.....	LRA.....	9.69	{ 2100-2400 0400-0500
		Radio Belgrano, VLA11, LRY1.....	9.76	0945-0415
Australia.....	Melbourne.....	Radio Australia.....	11.77 11.81	1215-1345 1330 (Sun.)
Austria.....	Vienna.....	Oesterreicher Rundfunk.....	7.245	0930-1030
	Innsbruck.....	OEI20.....	6.0	2020
Azores.....	Ponta Delgada.....	CSA93.....	4.865	2230
Bahrain Island.....	Manama.....	Bahrain Broadcasting Station.....	0.61	1200-1430
Bechuanaland.....	Mafeking.....	2NB.....	8.23	0900-1000 1500-1700
Belgian Congo.....	Leopoldville.....	Radio Congo Belge, OTM2.....	9.38	0500-0608
Belgium.....	Brussels.....	World's Fair Radio.....	15.335	{ 1030-1100 2400-0100 (Mon.) 2315-0100 (Sat.)
			9.655	1400-0800
Bermuda.....	Hamilton.....	Bermuda Broadcasting Corp.....	1.235	1400-0800
Bolivia.....	Sucre.....	Radio Libertad, CP25.....	9.2	0104-0202
Brazil.....		Radio Cultura de Bahia.....	15.225	0225
	Fortaleza.....	Radio Drago Mar.....	4.775	0100
	Recife.....	R. Clube de Pernambuco, PRA8.....	6.015	0215
	Rio de Janeiro.....	Agencia Nacional, PSH.....	10.22	2215-2300
British Guiana.....	Georgetown.....	ZFY, Radio Demerara.....	5.981 6.035 9.44	0955-1017 0915 2315-0245
British Honduras.....	Belize.....	BHBS.....	3.3	2400-0700
British Somaliland.....	Hargesia.....	Radio Somali, YQ6MI.....	7.126	0630-0700
Bulgaria.....	Sofia.....	Sofia Calling.....	9.7	{ 0100-0130 0400-0430
Burma.....	Rangoon.....		9.543 7.117	1500-1530 1500-1515
Cambodia.....	Phnompenh.....	Radio Phnompenh.....	7.19	1200-1400
Cameroon.....	Douala.....	Radio Douala.....	9.27	2030-2230
Canada.....	Montreal.....	CKCX.....	15.190	0055-0145
		CHOL.....	11.720	
		CKNK.....	11.945	0255-0335
		CKLP.....	9.585	
Canary Islands.....	Las Palmas.....	Radio Atlantico, REM34.....	7.0	{ 1300-1530 1900-2400
			9.49	{ 1300-1530 2200-2400
Canton Island.....		Radio Station Kibs.....	1.5	1100-2200 (Tues.-Sun.)
Cape Verde Islands.....	S. Vincente.....	Radio Clube Mindelo, CR4AB.....	4.755	2030-2200
Ceylon.....	Colombo.....	Radio Ceylon.....	4.87	1600-1610
Chile.....	Santiago.....	Radio Nuevo Mundo, CE1174.....	11.755	2330
China.....	Peking.....	Radio Peking.....	17.745, 17.72, 15.35, 15.118 }	0300-0330
Colombia.....	Bogota.....	Radiodifusora Nacional de Colombia, HJCA.....	4.955	2400-0500
Cook Island.....	Raratonga.....	Radio Raratonga.....	4.965	0400-0530
Costa Rica.....	San Jose.....	The Lighthouse of the Caribbean, TIFC.....	6.037, 9.647	0400-0500
		Radio Casino, TIQ.....	5.952	0509-0600
Cuba.....	Camaguey.....	Voz del Camagueyana, COJK.....	9.62	1800-0930
	Havana.....	Radio Siboney, COCY.....	11.74	1800-1300
Cyprus.....	Limassol.....	ZJM4.....	1.484	1730-1900
	Nicosia.....	Forces Broadcasting Service.....	1.086	0830-1900
Czechoslovakia.....	Prague.....	Radio Prague.....	9.585, 6.170, 6.105, 6.055 }	0030-0100 0300-0400
		Radio Prague.....	7.255, 9.55, 11.835 }	0200-0430
Dahomey.....	Cotonou.....	Radio Cotonou.....	4.9	2030
Denmark.....	Copenhagen.....	The Voice of Denmark, OZF.....	9.520	{ 0200-0230 0330-0400

COUNTRY	CITY	STATION	FREQUENCY	TIME (GMT)
Dominican Republic	San Cristobal	Voz de Fundacion, HIIR	6.175	2400-0105
East Germany	Berlin	Radio DDR	9.730	2230-2300
Ecuador	Quito	Voice of the Andes, HCJB	15.115, 11.915, } 9.745	0200-0300
	Santa Anada Catacachi	Radio Catacachi	5.760	2400-0305
El Salvador	San Salvador	YSUA	6.188	0445
Ethiopia	Addis Ababa	Radio Addis Ababa	9.620, 15.080	1000-1100
Faeroe Islands	Torshavn	Faeroe Radio	1.367	1830-1945
Falkland Islands	Stanley		3.958	2315-2400
Fiji	Suva	Fiji Broadcasting Commission, VRH4	3.98	0630-2230
Finland	Helsinki	Finland Calling	17.800, 15.190	1200-1400
Formosa — See "Taiwan"				
France	Paris		9.492, 9.680, } 11.845, 15.365 } 17.85, 21.74 } 7.24	2255-0200 1730-1750 1400-1500
French Equatorial Africa	Brazzaville	Radio Brazzaville	11.970, 9.625	{0115-0200 0245-0300
			11.970	0515-0530
			11.745, 5.97	2245-2255
French Guinea	Conakry	Radio Conakry	4.91	1830-1945
French Senegal	St. Louis	Radio Mauritanie	6.045	2120
	Dakar	Radio Dakar	11.895, } 7.171, 5.96 } 4.893, 1.304	{2230-2240 {(Tues, Thurs., Sat.) 0315-0325
French Sudan	Bamako	Radio Soudan	4.835	1900-2100
French Togo	Lome		5.038	1600-1630
Germany	Cologne	The Voice of Germany	5.98, 11.795, } 9.640	0230-0500
	Berlin	RIAS	6.005	0415-0430
	Hamburg	Nordwestdeutscher Rundfunk	6.075	0600-0700
	Munich	Bayerische Rundfunk	6.16	0600-0615
Ghana	Accra	Ghana Broadcasting System	4.915	2115-2215
Gilbert Islands	Tarawa	Radio Tarawa	6.05	1930-2100 (Fri.)
Goa	Cidade de Goa	Emissora de Goa	6.025	0930-1000
Great Britain	London	North American Service	17.7	{1500-1715 1800-2100
	London	General Overseas Service	17.7, 15.31, } 9.008 } 15.31, 11.93 } 11.93, 9.825 } 25.65	2100-2215 2215-2315 2315-0300 0945-1400
Greece	Athens	SVD2	17.775, } 15.345, 7.3 }	1730
Greenland	Angmagssalik	Radio OZL	7.570	1400-1450
Guam	Agana	KUJ39	9.49	
	Agana	Radio Guam	0.61	1000-0400
Guatemala	Guatemala City	TGNA	9.668, 5.952	0300-0445
Haiti	Cape Haitien	The Evangelistic Voice	15.39, 9.638	1300-1430
			15.4, 9.656, } 6.105 }	0100-0330
	Port-au-Prince	Radio Commerce, 4VC	9.482, 9.545	2200-2230 (Sun.)
	Port-au-Prince	Radio Haiti, 4VHW	6.192	0230-0400 (Thurs.)
	Cape Haitien		9.625	1000-1100 (Sat.)
	Cayes	La Voix de Sud, 4VBS	5.75	
Hawaii	Honolulu	Voice of America	6.075, 9.65, } 11.775 }	1900-0200
Honduras	San Pedro	Radio Supaya, HRQ	6.125	0200
	Sula			
	Tegucegalpa	HRN	5.875	
Hong Kong		Radio Hong Kong	3.94	1315-1345
Hungary	Budapest	Radio Budapest	11.910, 9.833	{0030-0100 0400-0430
Iceland	Reykjavik	TFJ	12.175	1200-1315 2000-2100
India	Bombay		11.95	1200
	Delhi	All India Radio	17.72, 15.16 } 17.83, 15.16, } 11.71 } 15.25, 11.71, } 17.725, 15.17 }	0030 0230 1945-2045
Indonesia	Djakarta	Voice of Indonesia, YDF6	9.71	{1115 1430
			4.91	1430-1530
Iran	Teheran	Radio Teheran	15.1 } 9.68 } 17.7 } 1.25	2015 2000-2030 1830-2030 0100
Iraq	Baghdad	Radio Baghdad	7.18	2040-2110
Ireland	Dublin	Radio Eireann	1.25	1600-2230
Israel	Jerusalem	The Voice of Zion	9.008	2130-2220

COUNTRY	CITY	STATION	FREQUENCY	TIME (GMT)
Italy	Rome	Italian Broadcasting & TV System	9.575, 6.01	{0015-0035 0225-0245
	Rome	Radio Roma	9.57	0305-0325
Italian Somaliland	Mogadiscio	Radio Mogadiscio	4.978	1300-1500
Ivory Coast	Abidjan	Radio Abidjan	4.94	2130-2230
Jamaica	Kingston	Voice of Jamaica	17.493	2145-2200
Japan	Tokyo	JOA22	17.825	2300-2330
		JOB9	15.235	{2300-2330 0030-0050
		JOA4	11.705	{0030-0050 0330-0400
		JOB24	21.62	0750-0820
Johnston Island		Armed Forces Radio Service	1.25	0600-0800
Jordan	Ramallah	Hashemite Radio	6.06	1130-1200
Kashmir	Srinagar	Radio Kashmir	3.277	1430-1730
Kenya	Nairobi	African Broadcasting Service	4.934	1500-1530
Kuwait			5.0	1400-1700
Laos		Radio Lao	7.145	1330-1430
Lebanon	Beirut		8.007	2110-2200
Leeward Islands	Antigua	Radio Antigua	3.255	1400-1500
Liberia	Monrovia	ELWA	9.65, 21.535	0100-0230
Libya	Tripoli	Radio Tripoli	1.052, 6.14	1700-2015
Luxembourg	Luxembourg	Radio Luxembourg	6.09	2300-0400
Macau		Emissora Vila Verde	1.005	1500-0800
Madagascar	Tananarive	Radio Tananariva	7.155, 3.386	{1930-2100 0600-0900
Madeira	Funchal	Radio Clube de Madeira	1.484	2100-0300
Malaya	Singapore	BBC Far Eastern Station	21.655	1600-1650
	Singapore	ZHP3	7.2	1130-1143
Marianas Islands—See "Guam"				
Marshall Islands	Eniwetok	WXLE	1.385	0600-0300
	Kwajalein	WXLG	1.14	0600-0300
Mauritius	Forest Side	V3USE	15.06, 15.09	0330-0415
Mexico	Mexico City	XEQ	6.078	0300
	Chihuahua	Radio Universidad, XELUU	15.3	1800-2100
	Merida	XEQM	6.105	0300-0400
Midway Island		KMTH	0.9	0500-2200
Monaco	Monte Carlo	3AM3	6.035	0530-0830
		3AM4	7.14	2205-2235
Morocco	Rabat	Radio Sebaa-Aioun	5.968	0725-0830
Mozambique	Laurenco Marques	Radio Clube of Mozambique	15.08	1930-2015
Nepal	Kathmandu	Radio Nepal	7.1	1130-1250 (Wed.)
Netherlands	Hilversum	Radio Netherlands	15.365, 11.95	2115-2145
			9.59, 11.95	0230-0310
		The Happy Station	11.95, 9.159	0230-0400 (Sun.)
		6.025	0230-0300	
Netherlands Antilles	Oranjestad, Aruba	Radio Kelkboom	1.435	2030-2230
Netherlands New Guinea	Biak	Radio Omroep Nieuw Guinea	7.19	0900-1230
New Caledonia	Noumea	Radio Noumea	6.035	0800-0900
New Guinea	Port Moresby	VLT6	6.135	0900
New Zealand	Wellington	Radio New Zealand, ZL2	9.54	{0930-1030 0630-1045
		Radio New Zealand, ZL7	6.08	{0930-1030 0630-1045
		Radio New Zealand	11.78	0815-0845 (Sun.)
Nicaragua	Bluefields	Radio Atlantico	7.753	0300-0400
	Granada	Radio Oriental, YNBX	7.675	
Nigeria	Kaduna	Nigerian Broadcasting Corp.	3.326	0700
North Borneo	Jesselton	Radio Sabah	7.18	0300-0400
North Korea	Pyongyang	Radio Pyongyang	6.25	0500-0600
North Vietnam	Hanoi	The Voice of Vietnam	9.935	1330-1400
Northern Rhodesia	Lusaka	Central Africa Broadcasting Station	3.914	1600-1700 (Thurs.)
Norway	Oslo	Radio Norway	15.175, 11.735, } 9.54	0200-0220
Pakistan	Karachi	Radio Pakistan, APK	17.75, 15.335	0100
Panama	Panama City	Circuito RPC, HOH7	9.685	0400-0504
	David	Voz del Barú, HOU31	6.045	0230-0300
Paraguay	Asuncion	Radio Paraguay, ZPA10	6.025	1415-0700
Peru	Lima	Radio Panamericana, OBX4M	5.98	0515-0600
	Chiclayo	Radio Delcar, OAX1A	6.7	2400-0500
Philippines	Manila	The Call of the Orient	11.855, 9.730	1400-1600
			17.805, 15.30, }	0800-0915
			11.855, 9.730 }	
Poland	Warsaw	Radio Warsaw	17, 15.12	1100-1130
			17.8, 15.12	1215-1315
			9.525, 6.025	{0030-0130 0230-0300

COUNTRY	CITY	STATION	FREQUENCY	TIME (GMT)
Portugal	Lisbon	Radio Lisbon	21.495, 17.88 9.636 15.08	1315-1415 0340-0400 2100-0200
Portuguese Guinea	Bissau	Emissora da Guine	3.975	2230-2400
Puerto Rico	Guyama	Guyama Broadcasting Co.	1.59	
Reunion	St. Denis		7.17	0415
Rumania	Bucharest	Bucharest Calling	11.937, 9.57	0300-0330
Ryukyu Islands	Okinawa	VOA	6.145, 11.83	0430-0500
Samoa	Apia	ZAP	1.42	0445-0730
Sao Tome		Radio Sao Tome	17.667	1230
Sarawak	Kuching		9.565 7.160, 4.95	0400-0530 0800-1430
Saudi Arabia	Djeddah		11.85	1100-1120
Seychelles	Make	Seychelles Broadcasting Service, ZCQ3	4.99	1115-1215
Sierra Leone		Freetown Calling	3.316	0645-0800
Solomon Islands	Honiara	VQO2	5.96	0100-0200
Somaliland	Hargeisa	Radio Somali	7.126	1830-2115
Southern Rhodesia	Salisbury	Federal Broadcasting Service	9.505	1100-1110
South Korea	Seoul	Korean Broadcast Service, HLKA	11.925	{0800-0630 1430-1500}
South Vietnam	Saigon	Radio Saigon	7.29	1330-1400
Spain	Madrid	The Voice of Spain	9.36, 6.13	{0315-0400; 0415-0500 0515-0600; 0815-1100}
	Madrid	Radio Nacional Emissora, RNE	9.59 2.51	0325 0340
	Valencia	Radio Alerta	6.95	2000-2100
Spanish Guinea	Santa Isabel	Emissora de Radiofusion Santa Isabel	7.16	2100-2300
St. Vincent		Radio St. Vincent	3.305	
Sudan	Khartoum	Sudan Broadcasting Service	6.2, 4.972	2100-2130
Surinam	Paramaribo	PZC	15.407, 4.752 15.406	0100-0130 0100-0105 (Mon.)
Sweden	Stockholm	Radio Sweden	17.84, 11.88 9.62 15.155	1315-1345 0100-0130 {0500-0530 1600-1615}
Switzerland	Berne	Switzerland Calling, HER5 & HER4	11.865, 9.535	{0130-0315 0415-0500}
		Switzerland Calling, HER3	6.165	0130-0315
Tahiti	Papeete	The Voice of France in the Pacific	6.135	0730-0745
Taiwan (Formosa)	Taipei	The Voice of Free China	15.225, 11.815	{0500-0530 0630-0700}
		BED67	15.345	1200-1300
Tanganyika	Dar-Es-Salaam	Tanganyika Broadcasting Corp.	1.25, 7.167	0015-0140
Tangier		Report from the U.S.A., VOA	16 meter bands 19 meter bands 31 meter bands	2100-2130
		The Voice of Tangier, WTAN	9.418	2030-2300
		Radio Eurafrika	7.126	1630-2300
Thailand	Bangkok	HSK9		1000-1400
Trinidad	Port of Spain	Radio Trinidad	6.085	1400-0200
Tunisia	Tunis	Radio Tunis	1.421	1030-1230
Turkey	Ankara	Radio Ankara	9.515	{2315-2400 2115-2145}
			15.16	2100-2145
Uganda	Kampala	Uganda Broadcasting Service	5.026	2130-2215
Union of South Africa	Johannesburg	South African Broadcasting Corp.	11.78 25.8	1550-1615 1100-1800
United Arab Republic	Cairo	UABS	11.919	2030-2200
	Damascus		15.165	1930-2030
United Nations	New York, U.S.A.		11.87, 17.83	0300-0400
Uruguay	Montevideo	Radio Sarandí, CXA71	9.515	0030-0230 (Tues. & Fri.)
U.S.A.	Boston	WRUL		
U.S.S.R.	Moscow	Radio Moscow	11.937, 11.89, 11.845, 11.825, 11.805, 11.74, 11.7, 9.7, 9.665	2300-0600
	Uzbec	Radio Tashkent	17.865, 15.14 11.69	2300-0600 1230-1300
Vatican City		Vatican Radio	9.646, 11.685, 15.12	{1500-1515 2015-2030}
Venezuela	Caracas	Radio Mil Cinqenta	5.055	0300
	Barquisimeto	YVX5	9.505	
Windward Islands	Grenada		5.01	2230
Yemen	Sanaah	Radio Sanaah	5.985	{0100-0200 1400-1500}
Yugoslavia	Belgrade		6.1	2215
			15.23	2230-1300
Zanzibar		Voice of Zanzibar	4.795	1000-1200

# DX LOG

Check Lists for States, Call Areas, & Continents

## STATE CHECK LIST

State	Station	Date	Band	A1 A3	QSL	
					Sent	Rec'd
Alabama						
Arizona						
Arkansas						
California						
Colorado						
Connecticut						
Delaware						
Florida						
Georgia						
Idaho						
Illinois						
Indiana						
Iowa						
Kansas						
Kentucky						
Louisiana						
Maine						
Maryland						
Massachusetts						
Michigan						
Minnesota						
Mississippi						
Missouri						
Montana						
Nebraska						
Nevada						
New Hampshire						
New Jersey						
New Mexico						
New York						
N. Carolina						
N. Dakota						
Ohio						
Oklahoma						
Oregon						
Pennsylvania						
Rhode Island						
S. Carolina						
S. Dakota						
Tennessee						
Texas						
Utah						
Vermont						
Virginia						
Washington						
West Virginia						
Wisconsin						
Wyoming						

## CALL AREA CHECK LIST

Call Area	Station	Date	Band	A1 A3	QSL	
					Sent	Rec'd
W1						
W2						
W3						
W4						
W5						
W6						
W7						
W8						
W9						
Wφ						

## CONTINENT CHECK LIST

Continent	Station	Date	Band	A1 A3	QSL	
					Sent	Rec'd
Africa						
Asia						
Europe						
N. America						
S. America						
Oceania						

A1 - Code  
A3 - Phone



# ENJOY THE THRILL OF WORLD-WIDE LISTENING

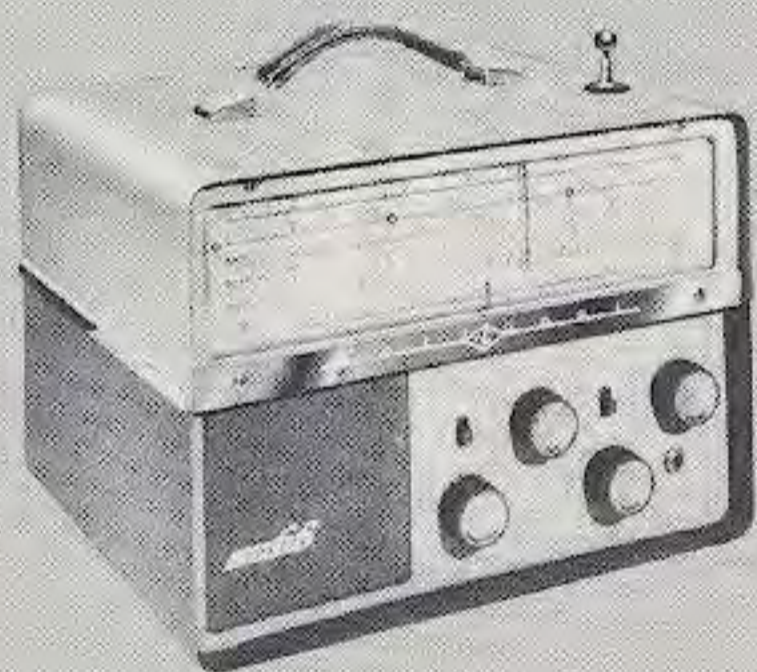
*with these National Shortwave Receivers*



## NEW NATIONAL NC-60 SPECIAL

Covers .54 to 31 mcs. in 4 bands with full electrical bandspread on all frequencies. Features exceptional sensitivity with separate general coverage and bandspread tuning capacitors for each band. Has built-in speaker, front-panel phone output jack. Standard broadcast, civil defense, WWV, marine, aircraft, amateur and world-wide shortwave frequencies clearly marked on dial.

Suggested price only **\$59.95\***



## NATIONAL NC-66 3-WAY PORTABLE

Operates on self-contained dry cell battery pack, or 115 volt AC/DC. Covers 150 kc to 23 mcs in 5 bands with full electrical bandspread on all bands. Covers marine and aircraft beacons (150-400 kc), standard broadcast, marine, aircraft, civil defense, WWV, amateur and world-wide shortwave bands. Has built-in speaker; front panel phone-jack; two antennas . . . ferrite and whip. Has provision for plug-in of radio direction finder (RDF-66) for marine navigation.

Suggested price only **\$129.95\*** (less battery) RDF-66 accessory \$39.95\*



## NATIONAL NC-188 DELUXE SHORTWAVE RECEIVER

Covers .54 to 40 mcs in 4 bands. Has calibrated bandspread for amateur bands . . . separate tuning capacitors, knobs and dial scales for general coverage and bandspread. Has 9 tubes including rectifier with gang-tuned RF amplifier stage for increased sensitivity and image rejection: two IF amplifier stages and two audio stages with tone control; separate antenna trimmer on front panel; separate, temperature compensated, High Frequency oscillator tube for increased stability; separate RF and AF gain controls; series type automatic noise limiter. Receives AM, CW and Single Sideband. Has BFO for CW and SSB; "S" meter.

Suggested price only **\$159.95\*** Matching speaker \$17.50

\*slightly higher west of rockies and outside U.S.A.

**NATIONAL SHORTWAVE RECEIVERS ARE SOLD BY RADIO PARTS SUPPLIERS, EVERYWHERE.**

You'll find these suppliers listed under "RADIO EQUIPMENT AND PARTS" in the yellow pages of your phone book. Most offer liberal budget terms and accept trade-ins on most receivers. All National receivers are sold with a 90 day warranty and factory-authorized service is available throughout the U.S.A.

**National Company Inc.**  
**MALDEN 48, MASS.**





NATIONAL COMPANY INC., MALDEN 48, MASS.

